Blonder Tongue Laboratories, Inc.

PRODUCT CATALOG

Airports

Casinos

Fitness Centers

Retail

Churches

Digital Signage

Nursing Homes

Stadiums

Office

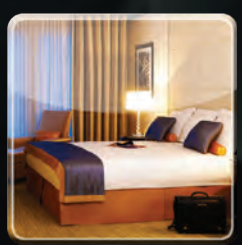
Studios

Schools

Government

Cable Headends

Hospitals



Hotels

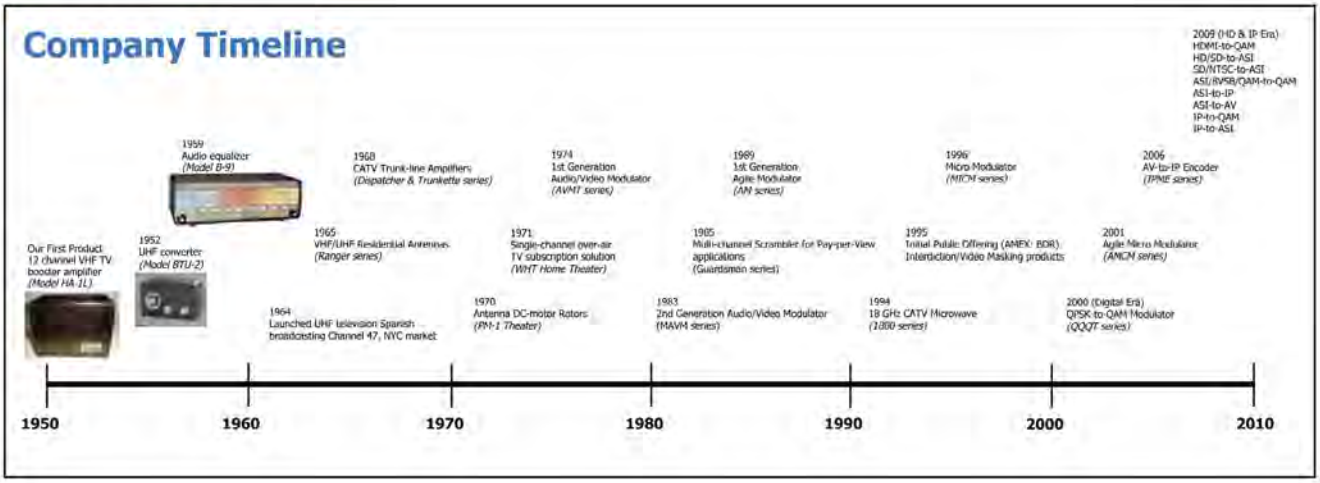
Universities


BLONDER
TONGUE
LABORATORIES, INC.

Company History

Engineer Ike Blonder and physicist Ben Tongue founded the company in 1950 in Yonkers, New York, USA. From the Cable Television Pioneers that founded the company to the experienced research and development team that creates new products today, the company's success stems from working with its customers to provide quality products and support.

The company has been publicly traded since 1995 (AMEX: BDR) and is now headquartered in Old Bridge, New Jersey, USA. Our mission is to provide innovative products to help our customers succeed in their CATV businesses.



Where our products are installed?

Government Facilities:
The White House
Camp David (Vacation House of the President of the US)
United States Air Force Bases (worldwide)
United States Army Bases (worldwide)
United States Marine Corps Bases (worldwide)
US State Department (Washington, DC)

Hospitality & Commercial Facilities:
Hilton Hotels (Worldwide)
Marriott Hotels (Worldwide)
MGM Grand Hotel & Casino (Las Vegas)
The Palazzo Luxury Resort Hotel Casino (Las Vegas)
Trump Commercial and Residential Towers (New York)
Venetian Hotel Resorts (Hong Kong)
Morgan Stanley Investment Banking (New York)
Goldman Sachs Investment Banking (Tokyo)
Peppermill Resort and Casino (Las Vegas)

Sport and Entertainment Stadiums:
Coors Field - Major League Baseball Stadium of Colorado Rockies (Denver, Colorado)
Scottrade Center -National Hockey League arena of St. Louis Blues (St. Louis, Missouri)
Oriole Park - Major League Baseball Stadium of Baltimore Orioles (Baltimore, Maryland)
Headquarter of the Baltimore Ravens of the National Football League (Baltimore, Maryland)
Tampa Bay Times Forum - Republican National Convention 2012 (Tampa, Florida)
Carnegie Hall - Concert venue (New York, New York)
Monmouth Park Racetrack - Thoroughbred horse racing (Oceanport, New Jersey)
CenturyLink Field - National Football League Stadium of Seattle Seahawks (Seattle, Washington)

Airports:
Denver International Airport
Dulles International Airport (Washington, DC)
Baltimore/Washington International Airport

Broadcasting/Movie Studios:
Walt Disney Pictures
CNN Headquarters
Life Time Network
Time Warner
Comcast Cable Systems
CBS TV Studios
NBC TV Studios
FOX News Studios

Educational Facilities:
Eastern University (Boston)
Drew University (New Jersey)
Palm Beach County School System (Florida)

Specialty Facilities/Markets:
Schlumberger - Oil tankers and Drilling platforms
Platinum Yachts FZCO - Luxury Yachts (United Arab Emirates)
Aramco Oil - Residential Camps (Saudi Arabia)
Francesco Baglietto & Figlio – Marine supplier (Italy)

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We have strived to present the most up-to-date and accurate information about each product, however, product availability and specifications are subject to change without notice. We encourage you to visit our website at www.blondertongue.com for the latest product releases and updated technical information.

Blonder Tongue Policies

Sales Terms

Orders: 2%10Net 30. Minimum order value requirement is $250 per order. New accounts are opened with a minimum order requirement of $3,000. For the fastest delivery and most competitive pricing, call us at 800-523-6049 for a Blonder Tongue stocking distributor located near you.

Product shipped FOB, Old Bridge, NJ unless otherwise specified. Drop ship charge of 5% of total order value.

All prices and policies are subject to change without notice. Order acknowledgments are emailed when one or more of the ordered items are out of stock or when orders are marked "for future delivery". Complete Terms and Conditions can be obtained by writing Blonder Tongue Laboratories, Inc., Legal Department, One Jake Brown Road, Old Bridge, NJ 08857-1000 or www.blondertongue.com.

Service Orders: Net 10 days.

Billing

Invoices are dated effective upon the shipping date from the factory or authorized warehouse. A 1.5% late charge will be applied to all invoices over 30 days past due.

Freight Policy

Shipments are subject to freight and handling charges, which may vary with method of shipment & weight. Freight and handling will be waived if the customer provides their own carriers account information. In this case, all shipments to Customer are FOB Destination.

Product Shipments

All shipments from Blonder Tongue are FOB, Old Bridge, NJ unless otherwise specified. BT will add insurance to all shipments unless instructed by the customer not to insure shipments.

Cancellation of Orders

A charge may be made for work and costs already incurred by the factory in acting upon the original order. A cancellation cannot be accepted after the order has shipped however the products may be accepted for credit return in accordance with the Blonder Tongue Credit Return Policy. Freight charges will not be credited.

Claims for Shortage

A customer giving the common carrier a signed receipt in full can only make a claim to Blonder Tongue for hidden shortages. Damaged carton or missing carton claims must be filed with the carrier. Hidden shortage claims must be filed with BT in writing within 5 days.

Credit Return Policy

A Return Material Authorization (RMA) number must be obtained before any product is returned to the factory. Product received at the factory without an RMA number will be refused. Unauthorized returns will be sent back via freight collect. To obtain an RMA number, refer to the Blonder Tongue Return Material Authorization Policy. RMA documentation should accompany the return shipment and the RMA number must clearly be marked on the outside of the cartons.

If the return is authorized, it must be sent prepaid freight. A 12% restocking charge will be made, and an accompanying dollar (new purchase) for dollar (credit return) order for similar products must be sent. The following conditions apply:

a) Products were purchased within one year from credit return date.
b) Products are unused, undamaged and will not require factory repacking.
c) Products are current production items.
d) Antennas (off-air, satellite, and microwave) cannot be returned.

Blonder Tongue Policies

Special Charges

Any product requiring repacking is subject to an additional 10% charge against the credit return. Custom products are subject to charges for crystals and retuning, in addition to restocking charges, as determined by Blonder Tongue. There will be a charge-back for sales discounts, if any, including freight FOB destination on a pro-rated basis. Customers may incur charges if item returned for credit as defective is deemed by BT Service and Quality Control Technicians not to be defective. Charges vary based on product.

Future Dated Orders (Must be Marked)

Blonder Tongue will accept orders for future delivery, as specified, for up to 6 months for the purpose of scheduling of all items on the order. Price protection is not guaranteed.

Special Credit Return Policy

Blonder Tongue will accept channel or dB specified product for credit return with no restocking charge provided the following conditions are met:

a) A Return Material Authorization (RMA) number must be obtained before any product is returned.

b) Product is in original factory packing and is “as new”. Packaging is not marked or damaged. If any returned product must be repacked, a repacking charge will be made.

c) Product is standard cataloged product, made to a standard channel or dB and not sold on a special quotation.

d) Request for return is accompanied by a dollar for dollar order for new Blonder Tongue product of similar type.

e) Credits taken by customers prior to Blonder Tongue approval will not be permitted.

Special Product Quotations

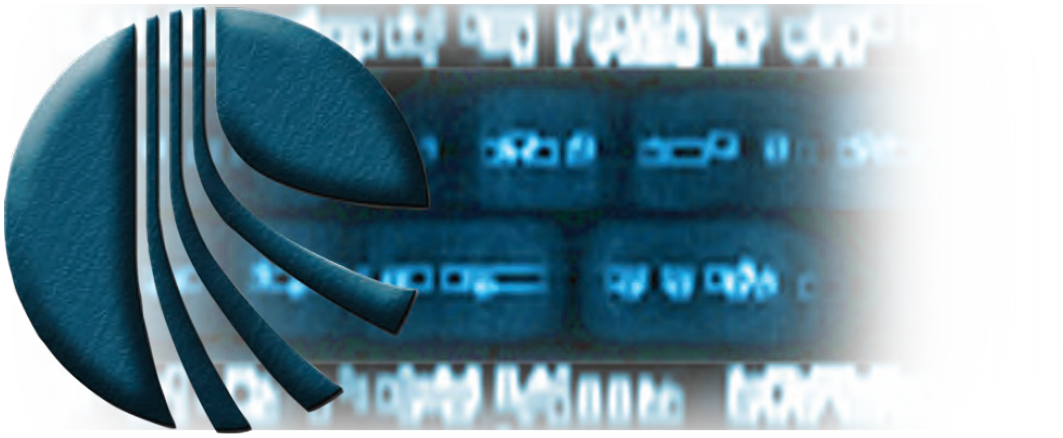
Prices represent standard products. There may be a surcharge for modified or custom designed products. Classification of standard and special products can be changed. Blonder Tongue invites price quotation and availability requests for custom designed products and modifications of standard products. Contact Blonder Tongue’s Sales Department for details.

Price Quotations For Non-Domestic Markets

For those non-domestic products not listed, contact your Sales Representative.

FFP Program

Franchise for Profit (FFP) is a program that provides discounts on purchases of Blonder Tongue products based upon minimum purchasing requirements of eligible products in the FFP year (January 1 to December 31). The discount is irrespective of the product quantity purchased at a single time. Contact your Blonder Tongue Sales Representative for details about FFP purchasing qualifications.



ENCODER

COLLECTION

BLONDER TONGUE LABORATORIES, INC.

HDE-CHV-QAM

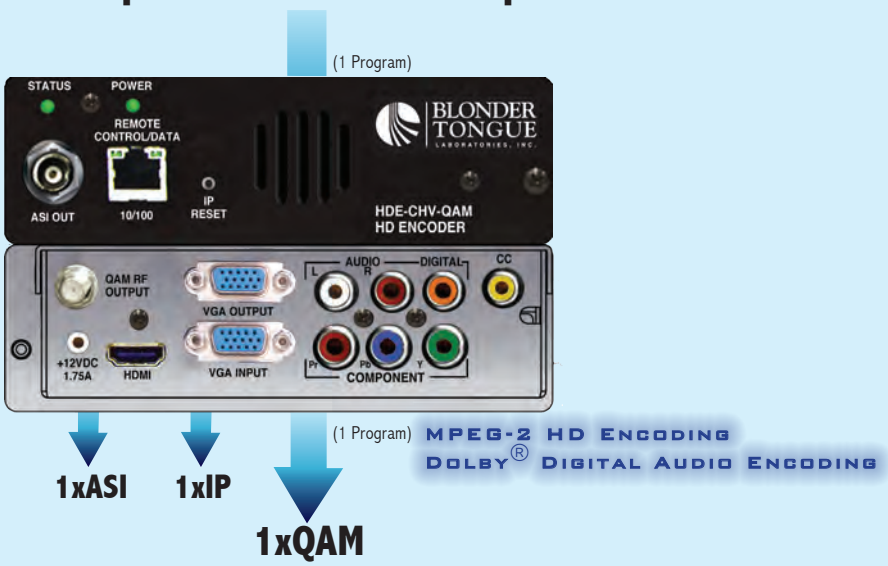
MPEG-2 HD ENCODER

1xCOMPONENT/HDMI/VGA/COMPOSITE ▶ 1xQAM

HDE-CHV-QAM (MPEG-2 HD Encoder – 1xComponent/HDMI/VGA/Composite – 1xQAM) accepts one (1) high-definition (HD) program from any of the following inputs: 1xComponent, 1xHDMI (unencrypted), 1xVGA, and 1xComposite. MPEG-2 encoded outputs are available in the following formats simultaneously: 1xQAM, 1xASI, and 1xIP (10/100Base-T Ethernet). The QAM RF output is frequency agile over the entire CATV frequency range of 54-1002 MHz (channels 2-158) with an output level of +40 dBmV.

The encoder supports Dolby® Digital audio encoding, and Closed Captioning (EIA-608). Comprehensive remote monitoring and control is accomplished using any standard Web browser via a front-panel 10/100Base-T Ethernet connection. A rear-panel VGA output port is available for loop-through applications.

1xComponent/HDMI/VGA/Composite



Features

- Accepts one (1) program from any of the following inputs: 1xComponent, 1xHDMI (unencrypted), 1xVGA, and 1xComposite
- Simultaneously delivers the following outputs: 1xQAM, 1xASI, and 1xIP
- Provides +40 dBmV QAM RF output level
- Provides comprehensive GUI-based monitoring and control via standard Web browsers
- Compact design permits installation of up to 3 Encoder modules in 1RU
- Supports Real-time Dolby® Digital audio encoding
- Supports user-defined PSIP configuration
- Supports Closed Captioning EIA-608

Ordering Information

Model	Stock #	Description
HDE-CHV-QAM	6384	MPEG-2 HD Encoder; 1xComponent/HDMI/VGA/Composite inputs; 1xQAM+1xASI+1xIP outputs
HDE-3MCH	6389	1RU Rack mount chassis; holds 3 HDE-CHV-QAM modules

Specifications

Input

Component	
Connectors:	3x RCA for Video (Y, Pb, Pr) 2x RCA for Analog Audio (L, R) 1x RCA for Digital Audio (PCM)
Video Resolution:	480i, 720p, & 1080i
Video Aspect Ratio:	4:3 & 16:9
HDMI	
Connector:	1x HDMI
Video Resolution:	480i, 720p, & 1080i
HDCP Encryption:	Not supported
Audio:	Embedded PCM & pass-through Dolby® Digital only
VGA	
Connectors:	2x Female VGA (Input + Loop-through Output)
Video Resolution:	640x480 @ 60 fps 800x600 @ 60 fps 1024x768 @ 60 fps
Audio:	2x RCA for Analog Audio (L, R) 1x RCA for Digital Audio (PCM)
Composite	
Connectors:	1x RCA for Video (Y)
Video Resolution:	480i
Audio:	2x RCA for Analog Audio (L, R) 1x RCA for Digital Audio (PCM)

Encoding Profile	
Video	
Output Format:	MPEG-2 HD MP@ML; ISO 13818-2
Chroma:	4:2:0
Resolution:	720x480; 1280x720; 1920x1080
Frame rate:	29.97 fps (480i); 29.97 fps (1080i); 59.97 fps (720p)
Aspect Ratio:	4:3 & 16:9
GOP Structure:	I & P frames (user-selectable)
Transport Rate:	Variable (user-selectable)
Video Bit Rate:	Variable (user-selectable)
Video Pre-filter:	Variable (user-selectable)
Intra DC Precision:	Variable; 8-11 bit (user-selectable)
Color Space:	YCbCr and RGB
Audio	
Output Format:	Dolby® Digital AC-3
Sampling rate:	48 kHz
Bit rate:	Variable; 96 - 448 Kbps (user-selectable)
Closed Captioning	
Component:	EIA- 608; 1x RCA (CC)
HDMI:	EIA- 608; 1x RCA (CC)
Composite:	EIA- 608

Output

QAM	
Connector:	1x "F" Female (Rear-panel)
Modulation:	QAM 16, 32, 64, 128, and 256
Standards:	ITU-T J.83; Annex A and B
DVB Symbol Rate:	Variable; up to 7 MSymbol/sec (MBaud)
Frequency Range:	54 to 1002 MHz
Tuning:	CATV Channel Selectable (Ch. 2 to 158)
Channels' Bandwidth:	6 MHz
RF Level:	+40 dBmV ±1 dB
RF Level Adjustment:	+32 to +42 dBmV, 1 dB increment
Frequency Tolerance:	± 0.5 kHz @ 77 °F (25 °C)
Frequency Stability:	± 5 kHz over 32 to 122 °F (0 to 50 °C)
Amplitude Flatness:	± 0.25 dB (over 6 MHz channel)
Phase Noise:	-98 dBc (@ 10 kHz)
Spurious:	-60 dBc
Broadband Noise:	-70 dBc (@ +35 dBmV output level, 5.5 MHz bandwidth)
Impedance:	75 Ω
Spectral Inversion:	Auto Recognition
Carrier Suppression:	45 dB
Return Loss:	14 dB typical
Signal-to-Noise Ratio (SNR):	40 dB typical
MER:	40 dB typical
I/Q Phase Error:	Less than 1 degree
I/Q Amplitude Imbalance:	Less than 1%
ASI	
Connectors:	1x BNC (Front-panel)
Format:	DVB-ASI
Standard:	ETSI EN 50083-9
IP	
Connector:	1x RJ45 (Front-panel)
Standard:	10/100Base-T Ethernet
UDP/RTP:	Supported (user-selectable)

General

Dimensions (W x D x H):	5.65 x 12.5 x 1.75 inches (144 x 317.5 x 44.5 mm)
Power:	External Power Supply (Input 115-230VAC / Output 12VDC @ 3 Amp)
Power Dissipation:	18 W
Weight (one module):	1.5 lbs (0.7 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

Alarms/Monitoring/Control

Local Monitoring:	1x Status LED 1x Power LED
Local Control:	1x IP Reset button
Remote Monitoring/Control:	GUI-based menu via standard Web browsers (1x RJ45 front-panel connector; 10/100Base-T, also used for IP output)

Related Products

Model	Description
HDE-CSV-QAM	MPEG-2 HD Encoder; 1xComponent/HD-SDI/HDMI/VGA/Composite inputs; 1xQAM+1xASI+1xIP outputs
HDE-2H/2S-QAM	MPEG-2 HD Encoder; 2xHDMI + 2xHD-SDI +4xComponent inputs; 4xQAM + 4xGigE + 4xASI outputs; EAS compatible; 1RU
HDE-4S-QAM	MPEG-2 HD Encoder; 4xHD-SDI + 4xComponent inputs; 4xQAM + 4xGigE + 4xASI outputs; EAS compatible; 1RU
HD264-2S-IP	H.264 HD Encoder; 2xHD-SDI + 2xHDMI + 2xComponent inputs; 2xIP + 4xASI outputs; 1RU
HDE-ASI	HD/SD Encoder; 1xHD-SDI + 4xSD-SDI + 4xAV inputs; 1xASI output; 2RU

BLONDER TONGUE LABORATORIES, INC.

HDE-CSV-QAM

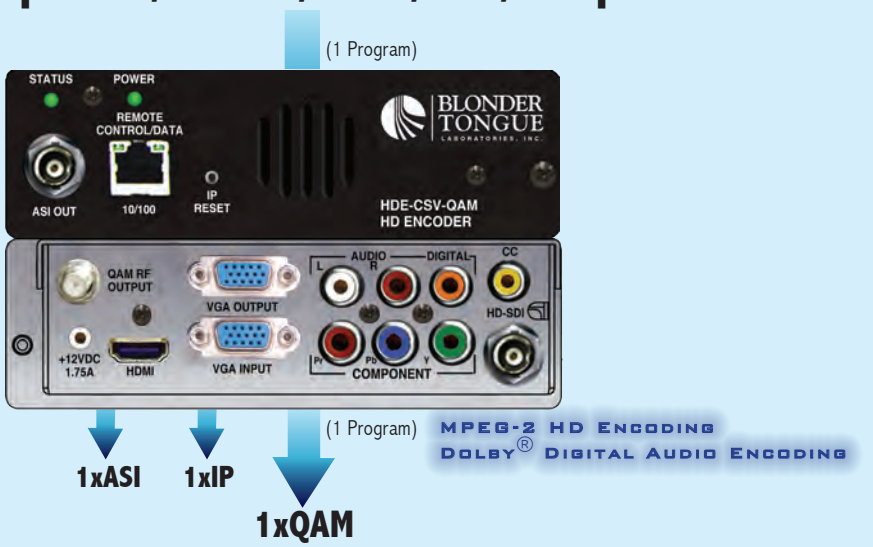
MPEG-2 HD ENCODER

1xCOMPONENT/HD-SDI/HDMI/VGA/COMPOSITE ▶ 1xQAM

HDE-CSV-QAM accepts one (1) high-definition (HD) program from any of the following inputs: 1xComponent, 1xHD-SDI, 1xHDMI (unencrypted), 1xVGA, and 1xComposite. MPEG-2 encoded outputs are available in the following formats simultaneously: 1xQAM, 1xASI, and 1xIP (10/100Base-T Ethernet). The QAM RF output is frequency agile over the entire CATV frequency range of 54-1002 MHz (channels 2-158) with an output level of +40 dBmV.

The encoder supports Dolby® Digital audio encoding, and Closed Captioning (EIA-608 and EIA-708). Comprehensive remote monitoring and control is accomplished using any standard Web browser via a front-panel 10/100Base-T Ethernet connection. A rear-panel VGA output port is available for loop-through applications.

1xComponent/HD-SDI/HDMI/VGA/Composite



Features

- Accepts one (1) program from any of the following inputs: 1xComponent, 1xHD-SDI, 1xHDMI (unencrypted), 1xVGA, and 1xComposite
- Simultaneously delivers the following outputs: 1xQAM, 1xASI, and 1xIP
- Provides +40 dBmV QAM RF output level
- Provides comprehensive GUI-based monitoring and control via standard Web browsers
- Compact design permits installation of up to 3 Encoder modules in 1RU
- Supports Real-time Dolby® Digital audio encoding
- Supports user-defined PSIP configuration
- Supports Closed Captioning EIA-608 and EIA-708

Ordering Information

Model	Stock #	Description
HDE-CSV-QAM	6382	MPEG-2 HD Encoder; 1xComponent/HD-SDI/HDMI/VGA/Composite inputs; 1xQAM+1xASI+1xIP outputs
HDE-3MCH	6389	1RU Rack mount chassis; holds 3 HDE-CSV-QAM modules

SPECIFICATIONS

INPUT

Component	
Connectors:	3x RCA for Video (Y, Pb, Pr) 2x RCA for Analog Audio (L, R) 1x RCA for Digital Audio (PCM)
Video Resolution:	480i, 720p, & 1080i
Video Aspect Ratio:	4:3 & 16:9
HD-SDI	
Connector:	1x BNC
Standard:	SMPTE 292M
Video Resolution:	480i, 720p, & 1080i
Audio:	Embedded PCM and pass-through Dolby® Digital only
HDMI	
Connector:	1x HDMI
Video Resolution:	480i, 720p, & 1080i
HDCP Encryption:	Not supported
Audio:	Embedded PCM & pass-through Dolby® Digital only
VGA	
Connectors:	2x Female VGA (Input + Loop-through Output)
Video Resolution:	640x480 @ 60 fps 800x600 @ 60 fps 1024x768 @ 60 fps
Audio:	2x RCA for Analog Audio (L, R) 1x RCA for Digital Audio (PCM)
Composite	
Connectors:	1x RCA for Video (Y)
Video Resolution:	480i
Audio:	2x RCA for Analog Audio (L, R) 1x RCA for Digital Audio (PCM)

Encoding Profile	
Video	
Output Format:	MPEG-2 HD MP@ML; ISO 13818-2
Chroma:	4:2:0
Resolution:	720x480; 1280x720; 1920x1080
Frame rate:	29.97 fps (480i); 29.97 fps (1080i); 59.97 fps (720p)
Aspect Ratio:	4:3 & 16:9
GOP Structure:	I & P frames (user-selectable)
Transport Rate:	Variable (user-selectable)
Video Bit Rate:	Variable (user-selectable)
Video Pre-filter:	Variable (user-selectable)
Intra DC Precision:	Variable; 8-11 bit (user-selectable)
Color Space:	YCbCr and RGB
Audio	
Output Format:	Dolby® Digital AC-3
Sampling rate:	48 kHz
Bit rate:	Variable; 96 - 448 Kbps (user-selectable)
Closed Captioning	
Component:	EIA- 608; 1x RCA (CC)
HD-SDI:	EIA-708; Embedded in HD-SDI input
HDMI:	EIA- 608; 1x RCA (CC)
Composite:	EIA- 608

OUTPUT

QAM	
Connector:	1x "F" Female (Rear-panel)
Modulation:	QAM 16, 32, 64, 128, and 256
Standards:	ITU-T J.83; Annex A and B
DVB Symbol Rate:	Variable; up to 7 MSymbol/sec (MBaud)
Frequency Range:	54 to 1002 MHz
Tuning:	CATV Channel Selectable (Ch. 2 to 158)
Channels' Bandwidth:	6 MHz
RF Level:	+40 dBmV ±1 dB
RF Level Adjustment:	+32 to +42 dBmV, 1 dB increment
Frequency Tolerance:	± 0.5 kHz @ 77 °F (25 °C)
Frequency Stability:	± 5 kHz over 32 to 122 °F (0 to 50 °C)
Amplitude Flatness:	± 0.25 dB (over 6 MHz channel)
Phase Noise:	-98 dBc (@ 10 kHz)
Spurious:	-60 dBc
Broadband Noise:	-70 dBc (@ +35 dBmV output level, 5.5 MHz bandwidth)
Impedance:	75 Ω
Spectral Inversion:	Auto Recognition
Carrier Suppression:	45 dB
Return Loss:	14 dB typical
Signal-to-Noise Ratio (SNR):	40 dB typical
MER:	40 dB typical
I/Q Phase Error:	Less than 1 degree
I/Q Amplitude Imbalance:	Less than 1%
ASI	
Connectors:	1x BNC (Front-panel)
Format:	DVB-ASI
Standard:	ETSI EN 50083-9
IP	
Connector:	1x RJ45 (Front-panel)
Standard:	10/100Base-T Ethernet
UDP/RTP:	Supported (user-selectable)

GENERAL

Dimensions (W x D x H):	5.65 x 12.5 x 1.75 inches (144 x 317.5 x 44.5 mm)
Power:	External Power Supply (Input 115-230VAC / Output 12VDC @ 3 Amp)
Power Dissipation:	20 W
Weight (one module):	1.5 lbs (0.7 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

ALARMS/MONITORING/CONTROL

Local Monitoring:	1x Status LED 1x Power LED
Local Control:	1x IP Reset button
Remote Monitoring/Control:	GUI-based menu via standard Web browsers (1x RJ45 front-panel connector; 10/100Base-T, also used for IP output)

RELATED PRODUCTS

Model	Description
HDE-CHV-QAM	MPEG-2 HD Encoder; 1xComponent/HDMI/VGA/Composite inputs; 1xQAM+1xASI+1xIP outputs
HDE-2H/2S-QAM	MPEG-2 HD Encoder; 2xHDMI + 2xHD-SDI +4xComponent inputs; 4xQAM + 4xGigE + 4xASI outputs; EAS compatible; 1RU
HDE-4S-QAM	MPEG-2 HD Encoder; 4xHD-SDI + 4xComponent inputs; 4xQAM + 4xGigE + 4xASI outputs; EAS compatible; 1RU
HD264-2S-IP	H.264 HD Encoder; 2xHD-SDI + 2xHDMI + 2xComponent inputs; 2xIP + 4xASI outputs; 1RU
HDE-ASI	HD/SD Encoder; 1xHD-SDI + 4xSD-SDI + 4xAV inputs; 1xASI output; 2RU

BLONDER TONGUE LABORATORIES, INC.

HDE-2H/2S-QAM

MPEG-2 HD ENCODER

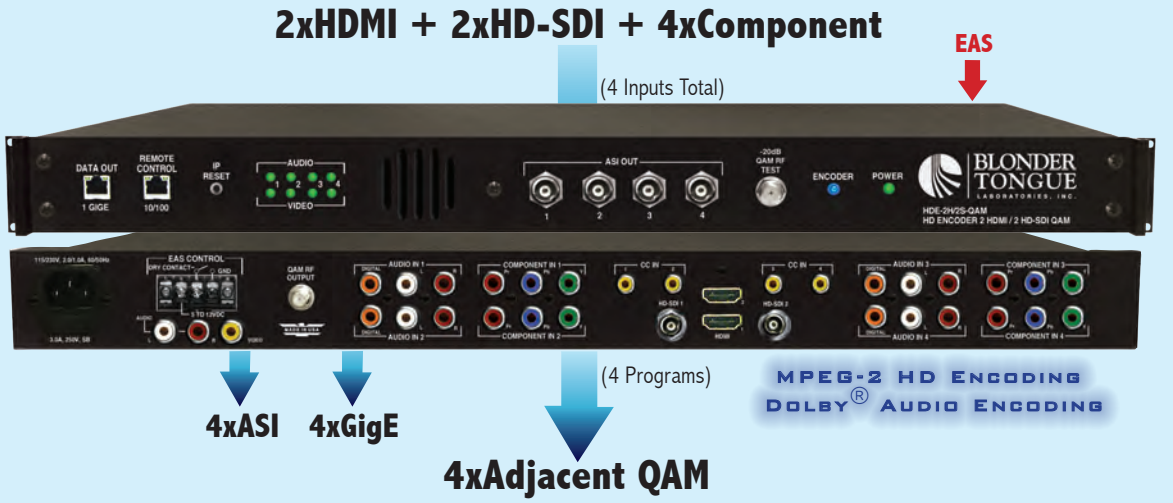
2xHDMI/2xHD-SDI/4xCOMPONENT ▶ 4xQAM

HDE-2H/2S-QAM (MPEG-2 HD Encoder – 2xHDMI/2xHD-SDI/4xComponent – 4xQAM) accepts up to four (4) high-definition (HD) programs from any of the following inputs: 2xHDMI (unencrypted), 2xHD-SDI, and 4xComponent. MPEG-2 encoded outputs are available in the following formats simultaneously: 4xQAM, 4xGigE (1000Base-T Ethernet), and 4xASI.

To improve transport efficiency, the encoder allows operator to (i) assign one (1) to four (4) programs to each QAM output channel, and (ii) to individually turn on/off each of the four (4) adjacent QAM output channels.

The encoder supports Dolby® Digital audio encoding, and Closed Captioning (EIA-608 and EIA-708). It is also equipped with an Emergency Alert System (EAS) interface. A front-panel RF test point allows for monitoring/testing of the QAM output without service interruption.

Comprehensive remote monitoring and control is accomplished using any standard Web browser via a front-panel 10/100Base-T Ethernet connection.



FEATURES

- Accepts up to four (4) programs from any of the following inputs: 2xHDMI (unencrypted), 2xHD-SDI, and 4xComponent
- Simultaneously delivers the following outputs: 4xQAM, 4xGigE, and 4xASI
- Multiplexes up to four (4) input programs in any of the following output combinations:
  - (i) 1:1 (1 program per QAM channel)
  - (ii) 2:1 (2 programs per QAM channel, not exceeding 38.8Mbps)
  - (iii) 3:1 (3 programs per QAM channel, not exceeding 38.8 Mbps)
  - (iv) 4:1 (4 programs per QAM channel, not exceeding 38.8 Mbps)
- Each of the four (4) QAM channels can (i) contain 1 or 2 programs, and (ii) be turned on/off individually
- Provides +52 dBmV QAM output level for four (4) combined channels (+60 dBmV for 1 QAM)
- Provides comprehensive GUI-based monitoring and control via standard Web browsers
- Supports Closed Captioning EIA-608 and EIA-708
- Equipped with EAS interface (Analog Video + L/R Audio)
- Supports Real-time Dolby® Digital audio encoding
- Supports user-defined PSIP configuration

ORDERING INFORMATION

Model	Stock #	Description
HDE-2H/2S-QAM	6379	MPEG-2 HD Encoder; 2xHDMI + 2xHD-SDI + 4xComponent inputs; 4xQAM + 4xGigE + 4xASI outputs; EAS compatible

Specifications

Input

HDMI	
Connectors:	2x HDMI
Video Resolution:	480i, 720p, & 1080i
HDCP Encryption:	Not supported
Audio:	Embedded PCM and pass-through Dolby® Digital only
HD-SDI	
Connectors:	2x BNC
Standard:	SMPTE 292M
Video Resolution:	480i, 720p, & 1080i
Audio:	Embedded PCM and pass-through Dolby® Digital only
Component	
Connectors:	4 sets each 3x RCA for Video (Y, Pb, Pr) 4 sets each 2x RCA for Analog Audio (L, R) 4 sets each 1x RCA for Digital Audio (PCM)
Video Resolution:	480i, 720p, & 1080i
Video Aspect Ratio:	4:3 & 16:9
EAS (Emergency Alert System)	
Connectors:	3x RCA (Video, Audio L & R)
Trigger Mechanism:	5-12 VDC & Dry Contact Closure (Terminal Strip)

Encoding Profile	
Video	
Output Format:	MPEG-2 HD MP@ML; ISO 13818-2
Chroma:	4:2:0
Resolution:	720x480i; 1280x720p; 1920x1080i
Frame rate:	29.97 fps (480i); 29.97 fps (1080i); 59.97 fps (720p)
Aspect Ratio:	4:3 & 16:9
GOP Structure:	I & P frames (user-selectable)
Transport Rate:	Variable (user-selectable)
Video Bit Rate:	Variable (user-selectable)
Video Pre-filter:	Variable (user-selectable)
Intra DC Precision:	Variable; 8-11 bit (user-selectable)
Color Space:	YCbCr and RGB
Audio	
Output Format:	Dolby® Digital
Sampling rate:	48 kHz
Bit rate:	Variable; 96 - 448 Kbps (user-selectable)
Closed Captioning	
HDMI:	EIA- 608; 4x RCA (CC IN)
HD-SDI:	EIA- 708; Embedded in HD-SDI input
Component:	EIA- 608

General

Dimensions (W x D x H):	19.0 x 18.125 x 1.75 inches (483 x 460 x 44 mm)
Power:	115-230VAC, 60/50Hz (Fuse: 3.0A, 250VDC, Slo Blo)
Power Dissipation:	60 W
Weight:	8 lbs (3.6 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

Output

QAM	
Connector:	1x "F" Female (rear panel; up to 4x RF QAM ch. combined)
Modulation:	QAM 16, 32, 64, 128, and 256
Standards:	ITU-T J.83; Annex A and B
DVB Symbol Rate:	Variable; up to 7 MSymbol/sec (MBaud)
Frequency Range:	54 to 1002 MHz
Tuning:	CATV Channel Selectable (Ch. 2 to 158)
Channels' Bandwidth:	24 MHz (4x Adjacent 6MHz)
RF Level:	+42 to +52 dBmV, 1 dB increment (4 ch. combined) +46 to +56 dBmV, 1 dB increment (2 ch. combined)
RF Level Accuracy:	± 1 dB
Frequency Tolerance:	± 0.5 kHz @ 77 °F (25 °C)
Frequency Stability:	± 5 kHz over 32 to 122 °F (0 to 50 °C)
Amplitude Flatness:	± 0.25 dB (over 6 MHz channel)
Phase Noise:	-98 dBc (@ 10 kHz)
Spurious:	-57 dBc
Broadband Noise:	-70 dBc (@ +52 dBmV output level, 5.5 MHz bandwidth)
Impedance:	75 Ω
Spectral Inversion:	Auto Recognition
Carrier Suppression:	45 dB
Return Loss:	14 dB typical
Signal-to-Noise Ratio (SNR):	40 dB typical
MER:	40 dB typical
I/Q Phase Error:	Less than 1 degree
I/Q Amplitude Imbalance:	Less than 1%

ASI

Connectors: 4x BNC (Front-panel)

Output Assignment: 4 output programs can be assigned as follows:

No. of SPTS	No. of MPTS	Connectors used (user-defined)
4	N/A	1,2,3,4
3	N/A	1,2,3
2	1 (2 progs.)	1,2,3
0	2 (2 progs.)	1,2
0	1 (4 progs.)	1

Format: DVB-ASI

Standard: ETSI EN 50083-9

GigE	
Connector:	1x RJ45 (Front-panel)
Standard:	1000Base-T Ethernet
UDP/RTP:	Supported (user-selectable)
Address Assignment:	4x IPv4 addresses & port numbers (user-selectable)

Alarms/Monitoring/Control

Local Monitoring:	8x Input Status LEDs (Video 1-4; Audio 1-4) 1x "F" Female RF Test Port 1x Encoder LED 1x Power LED
Local Control:	1x IP Reset button
Remote Monitoring/Control:	GUI-based menu via standard Web browsers (1x RJ45 front-panel connector; 10/100Base-T)

Related Products

Model	Description
HDE-4S-QAM	MPEG-2 HD Encoder; 4xHD-SDI + 4xComponent inputs; 4xQAM + 4xGigE + 4xASI outputs; EAS compatible; 1RU
HD264-2S-IP	H.264 HD Encoder; 2xHD-SDI + 2xHDMI + 2xComponent inputs; 2xIP + 4xASI outputs; 1RU
HDE-CHV-QAM	MPEG-2 HD Encoder; 1xComponent/HDMI/VGA/Composite inputs; 1xQAM+1xASI+1xIP outputs
HDE-CSV-QAM	MPEG-2 HD Encoder; 1xComponent/HD-SDI/HDMI/VGA/Composite inputs; 1xQAM+1xASI+1xIP outputs
HDE-ASI	HD/SD Encoder; 1xHD-SDI + 4xSD-SDI + 4xAV inputs; 1xASI output; 2RU

BLONDER TONGUE LABORATORIES, INC.

HDE-4S-QAM

MPEG-2 HD ENCODER

4xHD-SDI/4xCOMPONENT ▶ 4xQAM

HDE-4S-QAM (MPEG-2 HD Encoder – 4xHD-SDI/4xComponent – 4xQAM) accepts up to four (4) high-definition (HD) programs from any of the following inputs: 4xHD-SDI, and 4xComponent. MPEG-2 encoded outputs are available in the following formats simultaneously: 4xQAM, 4xGigE (1000Base-T Ethernet), and 4xASI.

To improve transport efficiency, the encoder allows operator to (i) assign one (1) to four (4) programs to each QAM output channel, and (ii) to individually turn on/off each of the four (4) adjacent QAM output channels.

The encoder supports Dolby® Digital and Closed Captioning (EIA-608 and EIA-708). It is also equipped with an Emergency Alert System (EAS) interface. A front-panel RF test point allows for monitoring/testing of the QAM output without service interruption.

Comprehensive remote monitoring and control is accomplished using any standard Web browser via a front-panel 10/100BaseT Ethernet connection.

Features

- Accepts up to four (4) programs from any of the following inputs: 4xHD-SDI, and 4xComponent
- Simultaneously delivers the following outputs: 4xQAM, 4xGigE, and 4xASI
- Multiplexes up to four (4) input programs in any of the following output combinations:
  - (i) 1:1 (1 program per QAM channel)
  - (ii) 2:1 (2 programs per QAM channel, not exceeding 38.8Mbps)
  - (iii) 3:1 (3 programs per QAM channel, not exceeding 38.8 Mbps)
  - (iv) 4:1 (4 programs per QAM channel, not exceeding 38.8 Mbps)
- Each of the four (4) QAM channels can (i) contain 1 or 2 programs, and (ii) be turned on/off individually
- Provides +52 dBmV QAM output level for four (4) combined channels (+60 dBmV for 1 QAM)
- Provides comprehensive GUI-based monitoring and control via standard Web browsers
- Supports Closed Captioning EIA-608 and EIA-708
- Equipped with EAS interface (Analog Video + L/R Audio)
- Supports Real-time Dolby® Digital audio encoding
- Supports user-defined PSIP configuration

Ordering Information

Model	Stock #	Description
HDE-4S-QAM	6374	MPEG-2 HD Encoder; 4xHD-SDI + 4xComponent inputs; 4xQAM + 4xGigE + 4xASI outputs; EAS compatible

Specifications

Input

HD-SDI	
Connectors:	4x BNC
Standard:	SMPTE 292M
Video Resolution:	480i, 720p, & 1080i
Audio:	Embedded PCM and pass-through Dolby® Digital only
Component	
Connectors:	4 sets each 3x RCA for Video (Y, Pb, Pr) 4 sets each 2x RCA for Analog Audio (L, R) 4 sets each 1x RCA for Digital Audio (PCM)
Video Resolution:	480i, 720p, & 1080i
Video Aspect Ratio:	4:3 & 16:9
EAS (Emergency Alert System)	
Connectors:	3x RCA (Video, Audio L & R)
Trigger Mechanism:	5-12 VDC & Dry Contact Closure (Terminal Strip)

Encoding Profile	
Video	
Output Format:	MPEG-2 HD MP@ML; ISO 13818-2
Chroma:	4:2:0
Resolution:	720x480i; 1280x720p; 1920x1080i
Frame rate:	29.97 fps (480i); 29.97 fps (1080i); 59.97 fps (720p)
Aspect Ratio:	4:3 & 16:9
GOP Structure:	I & P frames (user-selectable)
Transport Rate:	Variable (user-selectable)
Video Rate:	Variable (user-selectable)
Video Pre-filter:	Variable (user-selectable)
Intra DC Precision:	Variable; 8- to 11-bit (user-selectable)
Color Space:	YCbCr and RGB
Audio	
Output Format:	Dolby® Digital
Sampling rate:	48 kHz
Bit rate:	Variable; 96-448 Kbps (user-selectable)
Closed Captioning	
HD-SDI:	EIA-708; Embedded in HD-SDI input
Component:	EIA-608

Output

QAM	
Connector:	1x "F" Female (rear panel; up to 4x RF QAM ch. combined)
Modulation:	QAM 16, 32, 64, 128, and 256
Standards:	ITU-T J.83; Annex A and B
DVB Symbol Rate:	Variable; up to 7 MSymbol/sec (MBaud)
Frequency Range:	54 to 1002 MHz
Tuning:	CATV Channel Selectable (Ch. 2 to 158)
Channels' Bandwidth:	24 MHz (4x Adjacent 6MHz)
RF Level:	+42 to +52 dBmV, 1 dB increment (4 ch. combined) +46 to +56 dBmV, 1 dB increment (2 ch. combined)
RF Level Accuracy:	± 1 dB
Frequency Tolerance:	± 0.5 kHz @ 77 °F (25 °C)
Frequency Stability:	± 5 kHz over 32 to 122 °F (0 to 50 °C)
Amplitude Flatness:	± 0.25 dB (over 6 MHz channel)
Phase Noise:	-98 dBc (@ 10 kHz)
Spurious:	-57 dBc
Broadband Noise:	-70 dBc (@ +52 dBmV output level, 5.5 MHz bandwidth)
Impedance:	75 Ω
Spectral Inversion:	Auto Recognition
Carrier Suppression:	45 dB
Return Loss:	14 dB typical
Signal-to-Noise Ratio (SNR):	40 dB typical
MER:	40 dB typical
I/Q Phase Error:	Less than 1 degree
I/Q Amplitude Imbalance:	Less than 1%
ASI	
Connectors:	4x BNC (Front-panel)
Output Assignment:	4 output programs can be assigned as follows:

No. of SPTS	No. of MPTS	Connectors used (user-defined)
4	N/A	1,2,3,4
3	N/A	1,2,3
2	1 (2 progs.)	1,2,3
0	2 (2 progs.)	1,2
0	1 (4 progs.)	1

Format:	DVB-ASI
Standard:	ETSI EN 50083-9
GigE	
Connector:	1x RJ45 (Front-panel)
Standard:	1000Base-T Ethernet
UDP/RTP:	Supported (user-selectable)
Address Assignment:	4x IPv4 addresses & port numbers (user-selectable)

General

Dimensions (W x D x H):	19.0 x 18.125 x 1.75 inches (483 x 460 x 44 mm)
Power:	115-230VAC, 60/50Hz (Fuse:3.0A, 250VDC, Slo Blo)
Power Dissipation:	60 W
Weight:	8 lbs (3.6 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

Alarms/Monitoring/Control

Local Monitoring:	8x Input Status LEDs (Video 1-4; Audio 1-4) 1x Encoder LED 1x Power LED 1x "F" Female RF Test Port
Local Control:	1x IP Reset button
Remote Monitoring/Control:	GUI-based menu via Web browser (1x RJ45 front-panel connector; 10/100Base-T)

Related Products

Model	Description
HDE-2H/2S-QAM	MPEG-2 HD Encoder; 2xHDMI + 2xHD-SDI +2xComponent inputs; 4xQAM + 4xGigE + 4xASI outputs; EAS compatible; 1RU
HD264-2S-IP	H.264 HD Encoder; 2xHD-SDI + 2xHDMI + 2xComponent inputs; 2xIP + 4xASI outputs; 1RU
HDE-ASI	sHD/SD Encoder; 1xHD-SDI +4xSD-SDI + 4x AV inputs; 1xASI output; 2RU

BLONDER TONGUE LABORATORIES, INC.

HD264-2S-IP

H.264 HD Encoder

2xHD-SDI/2xHDMI/2xComponent ▶ 2xIP

HD264-2S-IP (H.264 HD Encoder – 2xHD-SDI/2xHDMI/2xComponent – 2xIP) accepts up to two (2) programs from any of the following inputs: 2xHD-SDI, 2xHDMI (unencrypted), and 2xComponent. Each input program, if applicable is first digitized, then H.264 or MPEG-2 encoded into a high-definition Single Program Transport Stream (SPTS), and finally IP-encapsulated and delivered in 10/100Base-T Ethernet format as an output. Each SPTS is also available via two (2) identical ancillary outputs in ASI format.

The encoder supports Dolby® Digital audio encoding, and Closed Captioning (EIA-608 and EIA-708). It is also equipped with an auto-sensing relay that allows switching to an optional redundant power supply in the unlikely event of primary power supply failure.

Comprehensive remote monitoring and control is accomplished using any standard Web browser via a front-panel 10/100Base-T Ethernet connection.

2xHD-SDI + 2xHDMI + 2xComponent

Features

- Accepts up to two (2) programs from any of the following inputs: 2xHD-SDI, 2xHDMI (unencrypted), and 2xComponent
- Digitizes & H.264 or MPEG-2 encodes up to two (2) input programs into two (2) 10/100Base-T Ethernet outputs
- Supports four (4) ancillary outputs in ASI format (2 identical ASI outputs for each input program)
- Provides comprehensive GUI-based monitoring and control via standard Web browsers
- Supports Closed Captioning EIA-608 and EIA-708
- Supports Real-time Dolby® Digital audio encoding
- Provides optional redundant power supply
- Supports user-defined PSIP configuration

Ordering Information

Model	Stock #	Description
HD264-2S-IP	6396	H.264 HD Encoder; 2xHD-SDI + 2xHDMI + 2xComponent inputs; 2xIP + 4xASI outputs
HD264-SPS	6397	2x Standby Power Supply (supports 2x 6396 units)

6397

Specifications

Input

HD-SDI	
Connectors:	2x BNC
Standard:	SMPTE 292M
Video Resolution:	480i, 720p, & 1080i
Audio:	Embedded PCM and pass-through Dolby® Digital only
HDMI	
Connectors:	2x HDMI
Video Resolution:	480i, 720p & 1080i
HDCP Encryption:	Not supported
Audio:	Embedded PCM and pass-through Dolby® Digital only
Component	
Connectors:	2 sets each 3x RCA for Video (Y, Pb, Pr) 2 sets each 2x RCA for Analog Audio (L, R)
Video Resolution:	480i, 720p, & 1080i
Video Aspect Ratio:	4:3 & 16:9

Output

IP	
Connectors:	2x RJ45 (Front-panel)
Standard:	IEEE 802.3 10/100Base-T Ethernet
UDP/RTP:	Supported (user-selectable)
Address Assignment:	2x IPv4 addresses & port numbers (user-selectable)
ASI	
Connectors:	2x BNC (Front-panel) 2x BNC (Rear-panel; duplicate of front panel ASI output)
Format:	DVB-ASI
Standard:	ETSI EN 50083-9

H.264 Video Encoding Profile	
Output Format:	H.264; ISO/IEC 14496
Chroma:	4:2:0
Resolution:	1280x720p; 1920x1080i
Frame Rate:	29.97 fps (1080i)
Aspect Ratio:	16:9
GOP Structure:	Dynamic
Transport Rate:	Variable (user-selectable)
Video Bit Rate:	Variable (user-selectable)
Color Space:	YCbCr
MPEG-2 Video Encoding Profile	
Output Format:	MPEG-2 HD MP@ML; ISO 13818-2
Chroma:	4:2:0
Resolution:	720x480i; 1280x720p; 1920x1080i
Frame rate:	29.97 fps (480i); 29.97 fps (1080i); 59.94 fps (720p)
Aspect Ratio:	4:3 & 16:9
GOP Structure:	Dynamic
Transport Rate:	Variable (user-selectable)
Video Bit Rate:	Variable (user-selectable)
Color Space:	YCbCr and RGB
Audio Encoding Profile	
Output Format:	Dolby® Digital, MPEG-1 Layer 2, AAC
Sampling rate:	48 kHz
Bit rate:	Variable; 48-384 Kbps (user-selectable)
Closed Captioning	
HD-SDI:	EIA-708; Embedded in HD-SDI input
HDMI:	Not supported
Component:	EIA-608

Alarms/Monitoring/Control

Local Monitoring:	2x Encoder LEDs 1x Power LED
Local Control:	1x IP Reset button
Remote Monitoring/Control:	GUI-based menu via standard Web Browsers (1x RJ45 front panel connector; 10/100Base-T)

General

Dimensions (W x D x H):	19.0 x 15.9 x 1.75 inches (483 x 404 x 44 mm)
Power:	115-230 VAC, 60/50 Hz
Power Dissipation:	Less than 40 W
Weight:	8 lbs (3.6 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

Related Products

Model	Description
HDE-4S-QAM	MPEG-2 HD Encoder; 4xHD-SDI + 4xComponent inputs; 4xQAM + 4xGigE + 4xASI outputs; EAS compatible; 1RU
HDE-2H/2S-QAM	MPEG-2 HD Encoder; 2xHDMI + 2xHD-SDI + 4xComponent inputs; 4xQAM + 4xGigE + 4xASI outputs; EAS compatible; 1RU

BLONDER TONGUE LABORATORIES, INC.

HDE-ASI

HD ENCODER-ASI

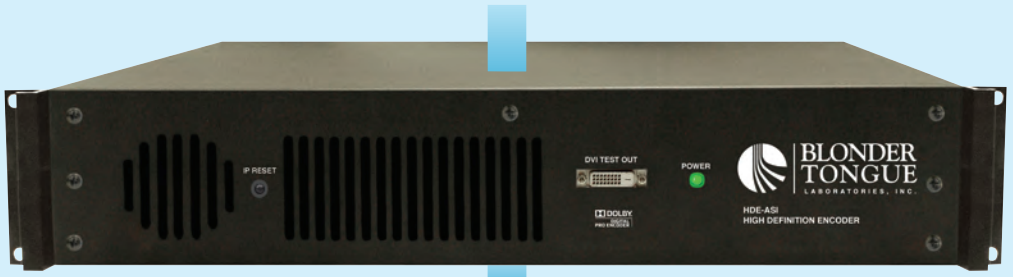
1x HD/4x SD ► 1x ASI

HDE-ASI (HD Encoder-ASI) accepts & auto-detects input streams in HD-SDI, SD-SDI, and analog NTSC formats, and delivers one HD/SD MPEG-2 encoded output in ASI format. Additionally, a multi-channel output in DVI format is available for preview and testing purposes. The standard audio program of the digital inputs is encoded in Dolby AC-3 format. Optional Dolby 5.1 is available. Remote monitoring and control is accomplished using any standard Web browser.

Remote Monitoring & Control via Internet

DOLBY DIGITAL PRO ENCODER

Mode 1: 1xHD(1080i)
Mode 2: 1xHD(720p) + 2xSD(480i)/NTSC
Mode 3: 4xSD(480i)/NTSC



HD/SD MPEG-2 Encoding
Dolby AC-3 Audio Encoding

ASI

Features

- Three available input modes: 1xHD(1080i), 1xHD(720p)+2xSD/NTSC, and 4xSD/NTSC
- GUI-based monitoring and control menu via Web browser
- Multi-channel preview via front-panel DVI interface
- Standard real-time Dolby AC-3 audio encoding
- Optional real-time Dolby 5.1 audio encoding
- Supports EIA-608 Closed Captioning
- Supports PSIP configuration

Ordering Information

Model	Stock #	Description
HDE-ASI	6320	HD/SD/NTSC-to-ASI Encoder
HDE-ASI D51	6320 D51	HD/SD/NTSC-to-ASI Encoder with Dolby 5.1 Audio
RMAA	5220	4-input unbalanced-to-balanced Audio Amplifier

SPECIFICATIONS

INPUT

Connector:	
HD-SDI:	1 x BNC
SD-SDI:	4 x BNC
NTSC Video:	4 x BNC
NTSC Audio:	4 x 8-pin terminal header
Formats:	
HD-SDI:	SMPTE 292, 1.485 Gbps
SD-SDI:	SMPTE 259M, 270 Mbps
NTSC:	Analog Video
Video & Audio	
HD-SDI:	720p & 1080i – Embedded PCM Audio
SD-SDI:	480i – Embedded PCM Stereo Audio
NTSC:	525 lines per frame – Analog Stereo Balanced Audio

OUTPUT

Connectors:	
ASI:	1 x BNC (rear-panel)
DVI:	1 x DVI Female (front-panel)
ASI	
Standard:	DVB-ASI; 50083-9
Data Bit Rate:	270 Mbps
DVI	
Standard:	WUXGA
Resolution:	1920x1200 pixels (16:10 Screen)
Encoding Profile	
Video:	MPEG-2 HD; ISO 13818-2; 1080i MPEG-2 SD; ISO 13818-2; 480i
Audio:	Dolby AC-3 (Standard) Dolby 5.1 (Optional)

GENERAL

Dimensions (W x D x H):	19.0 x 16.0 x 3.5 inches (483 x 407 x 89 mm)
Power:	Operator Selectable @ 115 VAC/60 Hz or 230 VAC/50 Hz (Fuse: 3.0 amp, 250 VDC, Slo Blo)
Power Dissipation:	99 W (max)
Weight:	15 lbs (6.8 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensation
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensation

ALARMS/MONITORING/CONTROL

Alarms:	Encoder over-temperature (via front-panel LED)
Local Monitoring:	Encoder fault condition (via front-panel LED) Multi-channel preview (via front-panel DVI interface)
Local Control:	Not Available
Remote Monitoring/Control:	GUI-based menu via Web browser

RELATED PRODUCTS

Model	Description
AQM	1x1 ASI-to-QAM Modulator; Six modulators in 2RU
DQMx	4x1 ASI or 8VSB/QAM-to-QAM Modulator; 1RU

DIGITAL COLLECTION

AQM
AGILE QAM MODULATOR
1x ASI ▶ 1x QAM

AQM (Agile QAM Modulator) accepts one MPEG-2/4 digital transport stream encapsulated in an ASI (Asynchronous Serial Interface) format, and delivers one output in QAM format in the 5.75-864 MHz range.

Features

- Input standard supported is ASI with data stream not to exceed 270 Mbps
- Output standards supported are ITU-T J.83 Annex A and Annex B (QAM 16, 32, 64, 128, 256, 512, and 1024)
- Compact design allows for deployment of six modules in 2RU rack space

Ordering Information

Model	Stock #	Description
AQM	6271B	Agile QAM Modulator
MIRC-12V	7715	Rack Chassis (holds up to 6 AQM modules)
MIPS-12D	7722D	100 - 240 VAC/60 Hz power supply (one per chassis)

Specifications

Input

Connector:	BNC Female
Standard: **Transport Rate:**	DVB-ASI; EN 50083-9 270 Mbps
Impedance:	75 Ω

General

Dimensions (W x D x H) **AQM Module:** **Power Supply:** **Rack Chassis:**	 2.3 x 7.5 x 3.5 inches (58 x 191 x 89 mm) 4.16 x 7.5 x 3.5 inches (106 x 191 x 89 mm) 19.0 x 12.0 x 3.5 inches (483 x 305 x 89 mm)
Power **MIPS-12D:**	 100 - 240 VAC 50/60 Hz
Power Dissipation:	5 W (per AQM module)
Weight **AQM Module:** **Fully Loaded Chassis:**	 2.3 lbs (1.04 kg) 24.2 lbs (10.9 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensation
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensation

Output

Connector:	"F" Female
QAM Modulation Modes:	16, 32, 64, 128, 256, 512, and 1024
DVB Symbol Rate:	Variable; 1 to 10 MSymbols/sec (MBaud)
Frequency Range:	5.75 to 864 MHz
QAM Tuning **NTSC:**	 Per channel's number from 2 to 135 & T7 to T14
RF Level:	+40 dBmV (100 dBµV)
RF Level LCD Screen Error:	± 2 dB
RF Level Adjustment Range:	30 to 40 dBmV
Frequency Tolerance:	± 0.5 kHz @ 77 °F (25 °C)
Frequency Stability:	± 5 kHz over 32 to 122 °F (0 to 50 °C)
Amplitude Flatness:	± 0.25 dB (over 6 MHz channel)
Phase Noise:	-98 dBc (@ 10 kHz)
Spurious:	-60 dBc
Broadband Noise:	-75 dBc (@ +40 dBmV output level, 4 MHz bandwidth)
Impedance:	75 Ω
Return Loss:	12 dB
Spectral Inversion:	Auto Recognition
Carrier Suppression:	55 dB
SNR:	Greater than 40 dB
MER:	Greater than 40 dB
I/Q Phase Error:	Less than 1 degree
I/Q Amplitude Imbalance:	Less than 1%

Alarms/Monitoring/Control

Local Monitoring: **Local Control:**	Front-panel,16-character, 2-line LCD screen Front-panel Navigational Key-pad
Remote Monitoring/Control:	Not available

Related Products

Model	Description
AQD	8VSB/QAM-to-Baseband Demodulator; Eight demodulators in 3RU
AQT	8VSB/QAM-to-QAM Transcoder; Eight transcoders in 3RU
DQMx	4x1 ASI and 8VSB/QAM-to-QAM Multiplexer; 1RU
MDDM-860	ATSC/QAM Demodulator
MDDA-860	ATSC/QAM-to-ASI Transcoder
MUX-2D-QAM	Multiplexer, 2x 8VSB/QAM Inputs, Agile 54-860 MHz QAM output, EAS capable
MUX-2A-QAM	Multiplexer, 2x ASI Inputs, Agile 54-860 MHz QAM output, EAS capable

BLONDER TONGUE LABORATORIES, INC.

AQD

ATSC/QAM DEMODULATOR
1x 8VSB/QAM ► 1x AV/2x ASI

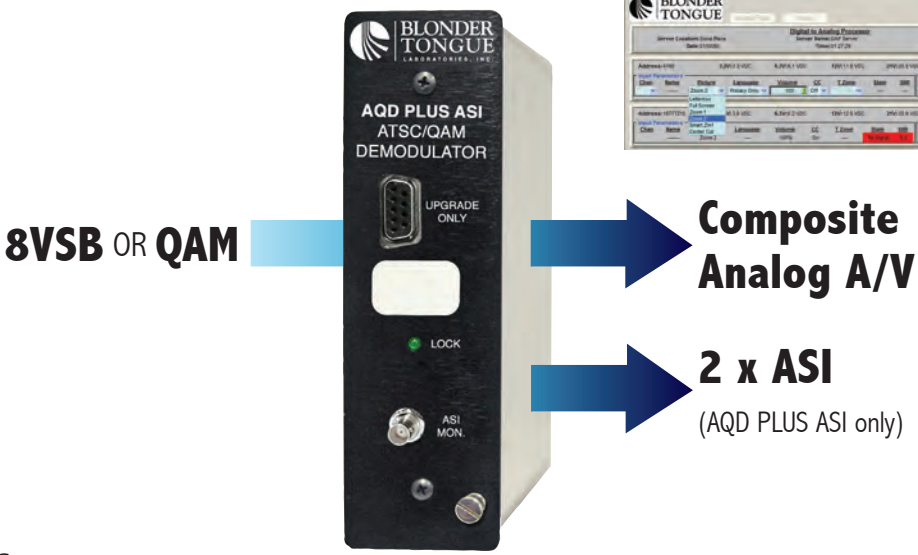
AQD (ATSC/QAM Demodulator) accepts one input in 8VSB (digital off-air) or QAM (digital cable) format, and delivers one output in NTSC composite analog Audio/Video format, and two identical outputs in ASI format.

AQD allows delivering of a digital off-air program to viewers with an analog TV set. It also allows an operator to cherry-pick channels from a "clear" QAM cable lineup.

AQD PLUS is the same as AQD, but includes the **AFD** broadcast package. AFD (Active Format Description) is a standard set of codes embedded in the video stream and used by digital television broadcasters to optimally display a 16:9 video format on an analog television set designed for 4:3 video format.

AFD READY

Remote Monitoring & Control via AQD-RCS



Features

- Input standards supported are digital off-air (8VSB) and digital cable (QAM 64 and 256)
- NTSC Composite Analog Audio/Video output is in 480i format and supports Closed Captioning (EIA-608)
- Optional AQD-RCS module allows remote monitoring and configuration of up to 80 AQD modules
- Optional AQD-SPS unit provides standby utility power to the primary power supply (AQD Power & Control module)

Ordering Information

Model	Stock #	Description
AQD	6245	ATSC/QAM Demodulator
AQD PLUS	6244	AQD with AFD Broadcast Package
AQD PLUS ASI	6244-10	AQD PLUS with 2x ASI outputs
AQD-PCM	6246	AQD Power & Control Module
QTRC	6233	QAM Transcoder Rack Chassis
Options		
AQD-RCS	2730	AQD Remote Configuration Server Module
AQD/AQT-SPS	6253	AQD/AQT Standby Power Supply

Specifications

Input

Connector:	"F" Female
Standards	
8VSB:	ATSC Digital Television Standard A/53E
QAM:	ITU-T J.83 (64 and 256 QAM)
8VSB Mode	
Tuning Range:	UHF (NTSC Ch. 14-78), VHF (NTSC Ch. 2-13)
Symbol Rate:	10.762 Msymbols/sec
Bandwidth:	6 MHz
QAM Mode	
Tuning Range:	CATV (NTSC Ch. 2-135)
Symbol Rate:	5.3606 Msymbols/sec (QAM 256)
Bandwidth:	5.057 Msymbols/sec (QAM 64) – Auto Detect 6 MHz
8VSB Power Level:	-20 to +20 dBmV
QAM Power Level:	-20 to +20 dBmV
Impedance:	75 Ω

Output

Connector	
Video:	"F" Female
Audio:	RCA; Left & Right
NTSC Composite Video	
Level:	1 Volt Peak-to-Peak
Flatness:	1.0 dB p/v (30 Hz to 4.2 MHz)
Video to Noise Ratio:	70 dB
Differential Gain:	± 1.0%
Differential Phase:	± 1.0 degree
Format:	480i
Aspect Ratio:	Center Cut, Letterbox, Full, Zoom 1, Zoom 2
Closed Captioning:	EIA-608
L/R Analog Audio	
Level:	1.0 to 1.2 Volt Peak-to-Peak (at -20 dBFs input)
Frequency Response:	2.0 dB p/v (30 Hz to 20 KHz)
Modes:	Stereo, Mono, SAP
ASI Output (AQD PLUS ASI ONLY)	
Standard:	DVB-ASI; 50083-9
No. of Streams:	Two identical streams
Data Bit Rate:	270 Mbps
Transport Stream Rate:	160 Mbps (Max)
Output Impedance:	75 Ω

General

Dimensions (W x D x H)	
AQD/AQD-RCS Module:	1.5 x 11.31 x 5.25 inches (38 x 287 x 133 mm)
AQD-PCM Module:	4.5 x 10.625 x 5.25 inches (114 x 270 x 133 mm)
QTRC Chassis:	19 x 12.0 x 5.25 inches (483 x 305 x 133 mm)
Power:	110 VAC/60 Hz (Fuse:1 A, 250 VDC, SloBlo)
Power Dissipation:	10 W (per AQD module)
Weight	
AQD/AQD-RCS Module:	1.5 lbs (0.68 kg)
Fully Loaded Chassis:	24 lbs (10.9 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensation
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensation

Alarms/Monitoring/Control

Indicators	
AQD Module:	Lock (Green LED)
AQD-RCS Module:	Link/Transmit/Receive (3 x Green LEDs)
Local Monitoring: **Local Control:**	Front-panel 16-character, 2-line LCD screen Front-panel Navigational Key-pad
Remote Monitoring/Control:	GUI-based menu via Web browser (Available if the optional AQD-RCS module is installed)

Related Products

Model	Description
AQM	ASI-to-QAM Modulator; Six modulators in 2RU
AQT	8VSB/QAM-to-QAM Transcoder; Eight transcoders in 3RU
DQMx	4x1 ASI and 8VSB/QAM-to-QAM Multiplexer; 1RU

BLONDER TONGUE
LABORATORIES, INC.

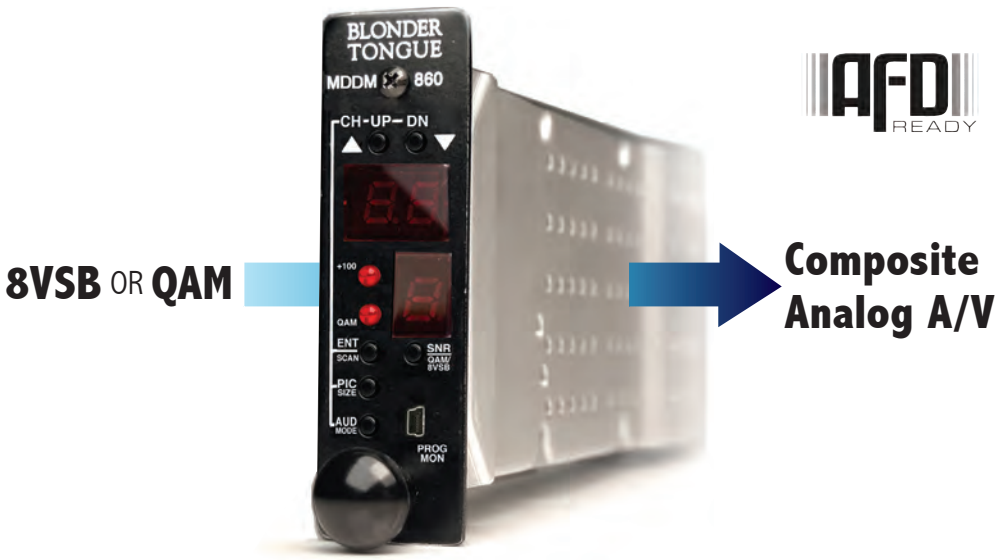
MDDM-860

Micro ATSC/QAM Demodulator
1x 8VSB/QAM ► 1x AV

The MDDM-860 is a digital demodulator and decoder that receives one input in ATSC 8VSB (digital off-air) or "clear" QAM (digital cable) format and delivers one NTSC composite analog video and stereo audio output.

The unit allows delivering of a digital off-air program to viewers with an analog TV set. It also allows operators to cherry-pick channels from a clear QAM cable lineup.

Headends processing analog broadcasts using Blonder Tongue's MIDM demodulators and MICM modulators can be upgraded seamlessly to process digital broadcasts by simply replacing the MIDM with a MDDM.



Features

- Compact design allows for deployment of 6 channels (6 MDDM modules + 6 MICM modulators) in 2RU
- NTSC Composite Analog Video output is in 480i format and supports Closed Captioning (EIA-608)
- Input standards supported are digital off-air (8VSB) and digital cable (ITU-B QAM 64 and 256)
- Scans all 8VSB or QAM channels and stores in memory for quick channel selection
- Demodulates HDTV/SDTV digital signals to NTSC video and analog L/R audio
- On-site firmware updates/status monitoring available through front-panel
- Die-cast Chassis Offers Superior Protection against Ingress or Egress
- Adjustable picture sizes for 16:9 to 4:3 image conversion
- Supports Mono, Stereo, and SAP audio modes

Ordering Information

Model	Stock #	Description
MDDM-860	6273	ATSC/QAM Demodulator
MIRC-12V	7715	Rack Chassis (holds up to 6 MDDM + 6 MICM modulators)
MIPS-12D	7722D	100-240 VAC 50/60 Hz power supply (one per chassis)
MICM	7797D	Micro channel modulator

Specifications

Input

Connector:	"F" Female
Standards	
8VSB:	ATSC Digital Television Standard A/53E
QAM:	ITU-T J.83 (64 and 256 QAM)
8VSB Mode	
Tuning Range:	UHF (NTSC Ch. 14-78), VHF (NTSC Ch. 2-13)
Symbol Rate:	10.762 Msymbols/sec
Bandwidth:	6 MHz
QAM Mode	
Tuning Range:	CATV (NTSC Ch. 2-135)
Symbol Rate:	5.3606 Msymbols/sec (QAM 256); 5.057 Msymbols/sec (QAM 64) – Auto Detect
Bandwidth:	6 MHz
Single Channel Power Level:	-32 to +45 dBmV
8VSB Power Level:	-20 to +30 dBmV
QAM Power Level:	-20 to +20 dBmV
Return Loss:	12 dB
Impedance:	75 Ω

Output

Connector	
Video:	"F" Female
Audio:	RCA; Left & Right
NTSC Composite Video	
Level:	1 Volt Peak-to-Peak
Flatness:	1.0 dB p/v (30 Hz to 4.2 MHz)
Video to Noise Ratio:	70 dB
Differential Gain:	± 0.75%
Differential Phase:	± 0.50 degree
Format:	480i
Aspect Ratio:	AFD, Center Cut, Letterbox, Full, Zoom 1, Zoom 2
Closed Captioning:	EIA-608
L/R Analog Audio	
Level:	1.0 to 1.2 Volt Peak-to-Peak (at -20 dBFs input) 10.0 to 10.5 Volt Peak-to-Peak (at 0 dBFs input)
Frequency Response:	2.0 dB p/v (30 Hz to 20 kHz)
Audio Signal-to-Noise Ratio:	67 dB (at -20 dBFs input)
Modes:	Stereo, Mono, SAP

General

Dimensions (W x D x H)	1.15 x 7.5 x 3.5 inches (29 x 191 x 89 mm)
Power:	
MIPS-12D:	100 - 240 VAC 50/60 Hz
Power Dissipation:	7 W (per MDDM module)
Weight:	0.8 lbs (0.36 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensation
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensation

Alarms/Monitoring/Control

Front-Panel Indicators:	Major program channel (2-digit LED display) Minor program channel (1-digit LED display) Channel scan (2- & 1-digit LED displays) +100 Channel (Red LED) SNR (2- & 1-digit LED displays) QAM LED (Red LED) No Lock (flashing QAM LED) Picture size (2- & 1-digit LED displays) Audio mode (2- & 1-digit LED displays) Firmware revision (2-digit LED display) Software revision (2- & 1-digit LED displays) Unit reset (2- & 1-digit LED displays)
Front-Panel Monitoring/Control:	CH UP/DN push-buttons (increment major or minor channel up/down) ENT push-button (enters or confirms selection) SCAN push & hold-button (initiates channel Scan) PIC SIZE push-button (adjusts picture size/aspect ratio) AUD MODE push-button (adjusts audio mode and closed captioning) SNR push-button (measures input signal-to-noise ratio) QAM/8VSB push&hold-button (toggles between QAM & 8VSB) ENT & SNR simultaneously (stops scan at anytime) PIC SIZE & AUD MODE simultaneously (unit reset) PROG MON (custom mini USB-to-RS232 interface for control & monitoring)

Related Products

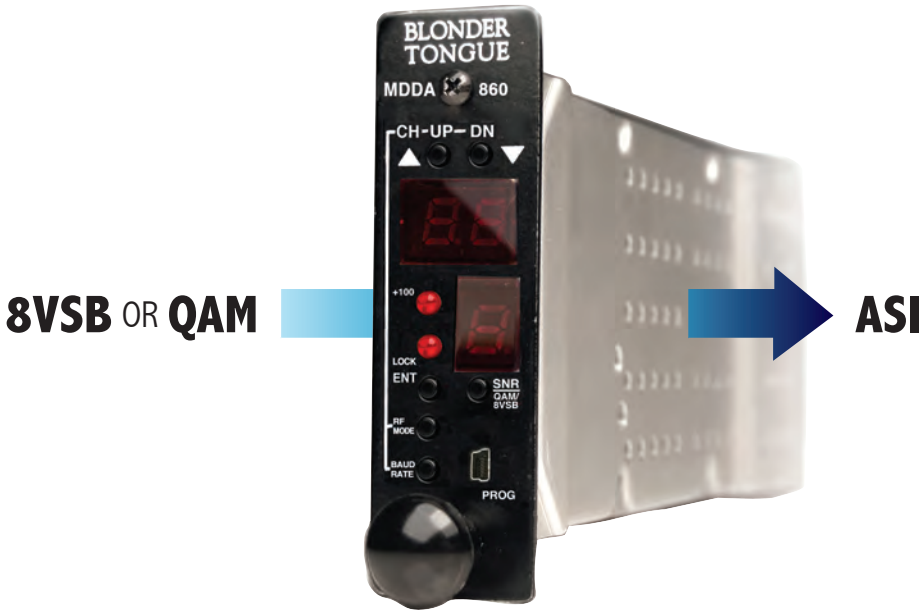
Model	Description
DAP PLUS	8VSB/QAM-to-Composite Analog Processor
AQD	8VSB/QAM-to-Composite Analog Demodulator
AQT	8VSB/QAM-to-QAM Transcoder
AQP	8VSB/QAM-to-QAM Processor with subband input
AQM	1x1 ASI-to-QAM Modulator
DQMx	4x1 ASI and 8VSB/QAM-to-QAM Multiplexer
DHDP	Digital High Definition Processor
AMCM	Analog RF Amplifier
MDDA-860	ATSC/QAM-to-ASI Transcoder

MDDA-860

Micro ATSC/QAM Transcoder

1x 8VSB/QAM ►1x ASI

The MDDA-860 is a digital demodulator and transcoder that receives one input in ATSC 8VSB (digital off-air) or "clear" QAM (digital cable) format and delivers one output in ASI format.



Features

- Input standards supported are digital off-air (8VSB) and digital cable (ITU-B QAM 64 and 256)
- Die-cast Chassis Offers Superior Protection against Ingress or Egress
- Demodulates & transcodes HDTV/SDTV digital signals to ASI
- Compact design allows for deployment of 12 units in 2RU
- On-site firmware updates available through front-panel

Ordering Information

Model	Stock #	Description
MDDA-860	6277	ATSC/QAM-to-ASI Transcoder
MIRC-12V	7715	Rack Chassis (holds up to 12 modules)
MIPS-12D	7722D	100-240 VAC 50/60 Hz power supply (one per chassis)

Specifications

Input

Connector:	"F" Female
Standards	
8VSB:	ATSC Digital Television Standard A/53E
QAM:	ITU-T J.83 (64 and 256 QAM)
8VSB Mode	
Tuning Range:	UHF (NTSC Ch. 14-78), VHF (NTSC Ch. 2-13)
Symbol Rate:	10.762 Msymbols/sec
Bandwidth:	6 MHz
QAM Mode	
Tuning Range:	CATV (NTSC Ch. 2-135)
Symbol Rate:	5.3606 Msymbols/sec (QAM 256); 5.057 Msymbols/sec (QAM 64) – Auto Detect
Bandwidth:	6 MHz
Single Channel Power Level:	-32 to +45 dBmV
8VSB Power Level:	-20 to +30 dBmV
QAM Power Level:	-20 to +20 dBmV
Return Loss:	12dB
Impedance:	75 Ω

Output

Connectors:	
ASI:	1 x F (equipped with F-to-BNC adapter)
ASI	
Standard:	DVB-ASI; 50083-9
Data Bit Rate:	270 Mbps

General

Dimensions (W x D x H)	
MDDA-860 Modules:	1.15 x 7.5 x 3.5 inches (29 x 191 x 89 mm)
MIPS-12D Power Supply:	4.2 x 7.5 x 3.5 inches (106 x 191 x 89 mm)
MIRC-12V Chassis:	19 x 12.0 x 5.25 inches (483 x 305 x 133 mm)
Power:	
MIPS-12CD Power Supply:	100 - 240 VAC 50/60 Hz
MIRC-4D Power Supply:	100 - 240 VAC 50/60 Hz
Power Dissipation:	7 W (per MDDA module)
Weight:	0.8 lbs (0.36 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

Alarms/Monitoring/Control

Front-Panel Indicators:	RF channel (2-digit LED display) Frequency/channel plan (1-digit LED display) +100 Channel (Red LED) SNR (2- & 1-digit LED displays) Lock LED (solid LED) No Lock (flashing LED) RF Mode (2- & 1-digit LED displays) Baud Rate (2- & 1-digit LED displays) Firmware revision (2-digit LED display) Software revision (2- & 1-digit LED displays) Unit reset (2- & 1-digit LED displays)
Front-Panel Control:	CH UP/DN push-buttons (increment major or minor channel up/down) ENT push-button (enters or confirms selection) RF Mode push-button (adjusts RF frequency plans) Baud Rate push-button (adjusts baud rates) SNR push-button (measures input signal-to-noise ratio) QAM/8VSB push&hold-button (toggles between QAM & 8VSB) RF Mode & Baud Rate simultaneously (unit reset) PROG (custom mini USB-to-RS232 interface for control)

Related Products

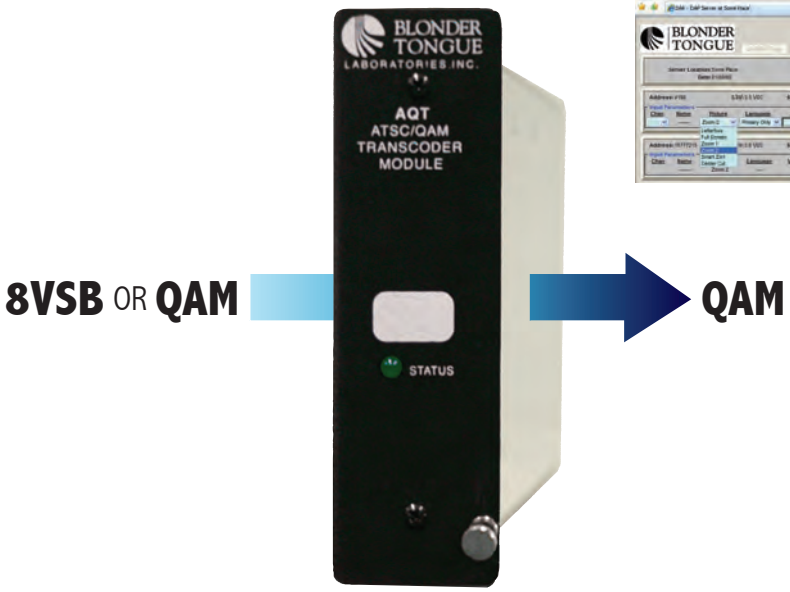
Model	Description
AQD	8VSB/QAM-to-Composite Analog Demodulator
AQP	8VSB/QAM-to-QAM Processor with subband input
AQT	8VSB/QAM-to-QAM Transcoder
DAP PLUS	8VSB/QAM-to-Composite Analog Processor
DHDP	Digital High Def. Processor
DQMx	4x1 ASI and 8VSB/QAM-to-QAM Multiplexer
MDDM-860	ATSC/QAM Demodulator

AQT
ATSC/QAM TRANSCODER
1x 8VSB/QAM ▶ 1x QAM

AQT (ATSC/QAM Transcoder) accepts one input in 8VSB (digital off-air) or QAM (digital cable) format, and delivers one output in QAM format in the 54-864 MHz range.

AQT can be utilized in a remote headend to "regenerate" a clean QAM channel from a degraded one. It also allows TV sets to receive digital off-air programming on CATV channel assignments by transmodulating the 8VSB broadcast to QAM.

Remote Monitoring & Control via AQT-RCS



Features

- Input standards supported are digital off-air (8VSB & 16VSB) and digital cable (QAM 16, 32, 64, 128, and 256)
- Agile QAM output at +40 dBmV and in the frequency range of 54-864 MHz range
- Optional AQT-RCS module allows remote monitoring and configuration of up to 80 AQT modules
- Optional AQT-SPS unit provides standby utility power to the primary power supply (AQT Power & Control module)

Ordering Information

Model	Stock #	Description
AQT	6275	ATSC-to-QAM Transcoder
AQT-PCM	6276	AQT Power & Control Module
QTRC	6233	QAM Transcoder Rack Chassis
Optional Equipment		
AQT-RCS	2736	AQT Remote Configuration Server Module
AQD/AQT-SPS	6253	AQD/AQT Standby Power Supply
HDA Series	6240 xx	Integrated Combiner & Distribution Amplifier


2736


6275 (1 of 8) 6276 6233


6254


6235


6240

Specifications

Input

Connector:	"F" Female
Standards **8VSB/16VSB:** **QAM:**	 ATSC Digital Television A/53E ITU-T J.83 - Annex A & B (16, 32, 64, 128, and 256 QAM)
8VSB/16VSB Modes **Tuning Range:** **Data Rate:** **Bandwidth:** **8VSB Power Level:** **16VSB Power Level:**	 VHF (NTSC Ch. 2-13), UHF (NTSC Ch. 14-69) 19.392 Mbps 6 MHz -28 to 20 dBmV -25 to 20 dBmV
QAM Mode **Tuning Range:** **Data Rate:** **Bandwidth:** **Power Level:**	 CATV (NTSC Ch. 2-135) 38.8 Mbps (QAM 256); 26.97 Mbps (QAM 64) – Auto Detect 6 MHz -20 to +20 dBmV
Impedance:	75 Ω

Output

Connector:	"F" Female
QAM Modulation Modes:	16, 32, 64, 128, & 256
DVB Symbol Rate:	Variable; 1 to 7 MSymbols/sec (Mbaud)
Frequency Range:	54 to 864 MHz
QAM Tuning **NTSC:** **PAL:**	 Per channel's number from 2 to 135 Per channel's center-frequency (12.5 kHz increments)
RF Level:	+40 dBmV (100 dBµV)
RF Level LCD Screen Error:	± 2 dB
RF Level Adjustment Range:	30 to 40 dBmV
Frequency Tolerance:	± 0.5 kHz @ 77 °F (25 °C)
Frequency Stability:	± 5 kHz over 32 to 122 °F (0 to 50 °C)
Amplitude Flatness:	± 0.25 dB (over 6 MHz channel)
Phase Noise:	-98 dBc (@ 10 kHz)
Spurious:	-60 dBc
Broadband Noise:	-75 dBc (@ +40 dBmV output level, 4 MHz bandwidth)
Impedance:	75 Ω
Return Loss:	12 dB
Spectral Inversion:	Auto Recognition
Carrier Suppression:	55 dB
SNR:	Greater than 40 dB
MER:	Greater than 40 dB
I/Q Phase Error:	Less than 1 degree
I/Q Amplitude Imbalance:	Less than 1%

General

Dimensions (WxDxH) **AQT/AQT-RCS Module:** **AQT-PCM Module:** **QTRC Chassis:**	 1.5 x 10.625 x 5.25 inches (38 x 270 x 133 mm) 4.5 x 10.625 x 5.25 inches (114 x 270 x 133 mm) 19 x 12.0 x 5.25 inches (483 x 305 x 133 mm)
Power:	100 to 265 VAC/50 to 60 Hz (Fuse:1 A, 250 VDC, SloBlo)
Power Dissipation:	10 W (per AQT module)
Weight **AQT/AQT-RCS Module:** **Fully Loaded Chassis:**	 1.7 lbs (0.77 kg) 28 lbs (12.7 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensation
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensation

Alarms/Monitoring/Control

Indicators **AQT Module:** **AQT-RCS Module:**	 Status (Green LED) Link/Transmit/Receive (3 x Green LEDs)
Local Monitoring: **Local Control:**	Front-panel 16-character, 2-line LCD screen Front-panel Navigational Key-pad
Remote Monitoring/Control:	GUI-based menu via Web browser (Available if the optional AQT-RCS module is installed)

Related Products

Model	Description
AQM	ASI-to-QAM Modulator; Six modulators in 2RU
AQD	8VSB/QAM-to-Baseband Demodulator; Eight demodulators in 3RU
DQMx	4x1 ASI and 8VSB/QAM-to-QAM Multiplexer; 1RU

QTM

QAM TRANSCODER MODULE

1x QPSK/8PSK ▶ 1x QAM

QTM (QAM Transcoder Module) accepts one input in QPSK or 8PSK format, and delivers one output in QAM format in the 54-864 MHz range.

The four available models are:

1. QTM-II - accepts one input in QPSK format, and delivers one output in QAM 64 mode.
2. QTM-HD - accepts one input in QPSK or 8PSK format, and delivers one output in QAM 256 mode.
3. QTM-HD PLUS - the same as QTM-HD, but capable of QAM 512/1024 modes.
4. QTM-HD NPU - the same as QTM-HD, but with a "Null Packet" feature that allows adding/removing null packets to/from the input stream.

Features

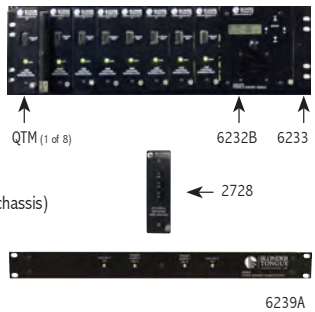
- Supports the 8PSK modulation typically used for High-Definition TV programming
- Supports ITU-T J.83 Annex A and Annex B standards (QAM 16, 32, 64, 128, 256, 512, and 1024)
- Compact design allows for deployment of 8 transcoders, and power & control module, in 3RU rack space
- Optional Headend Web Server allows for remote monitoring and control of each transcoder
- Optional Standby Power Supply allows for uninterrupted service in the unlikely event of a primary power supply failure

Ordering Information

Model	Stock #	Description
QTM-II	6231B	QAM Transcoder Module; QPSK input, QAM 64 output
QTM-HD	6241A	QAM Transcoder Module; QPSK/8PSK input, QAM 256 output
QTM-HD PLUS	6242A	QAM Transcoder Module; QPSK/8PSK input, QAM 512/1024 output
QTM-HD NPU	6278A	QAM Transcoder Module; QPSK/8PSK input, QAM 256 output; Null Packet add/remove capability
QTRC	6233	Rack Chassis; 3RU (holds up to 8 QTM modules)
QTPCM PLUS	6232B	QT Power and Control Module (one per chassis)

Optional Equipment

QT-HWS-II	2728	QTM Headend Web Server for remote monitoring and control
QT-HWS-A	2727A	QTM Headend Web Server, 1RU
QTSPS	6239A	QT Stand-by Power Supply with integrated fan tray (supports 2 fully-loaded rack chassis)
QTHF	6235	QT 1RU rack-mounted tray
QTRFC	6234 1	8-port QAM combiner (mounts on the top of the Rack Chassis 6233)
QTRFS	6234 2	8-port L-band Splitter (mounts underneath the Rack Chassis 6233)



Specifications

Input

Connector:	"F" Female
Standards **QTM-II:** **QTM-HD:** **QTM-HD PLUS:** **QTM-HDP NPU:**	 QPSK QPSK and 8PSK QPSK and 8PSK QPSK and 8PSK
Symbol rate:	Variable; 2 to 45 MSymbols/sec (Mbaud)
Frequency Range:	950 to 2150 MHz
Frequency Granularity:	1 MHz
Bandwidth:	Variable, up to 36 MHz
Capture Range:	± 5 MHz
Code Rate:	Viterbi – Auto Detect
Forward Error Correction (FEC):	DVB / DigiCiper® II
Input Level:	-65 to -20 dBm
Impedance:	75 Ω
Return Loss:	8 dB

Output

Connector:	"F" Female
QAM Modulation Modes **QTM-II:** **QTM-HD:** **QTM-HD PLUS:** **QTM-HDP NPU:**	 16, 32, 64 16, 32, 64, 128, 256 16, 32, 64, 128, 256, 512, 1024 16, 32, 64, 128, 256
DVB Symbol Rate:	Variable; up to 12.5 Msym/sec (MBaud)
Frequency Range:	54 to 864 MHz
QAM Tuning **NTSC:** **PAL:**	 Per channel's number from 2 to 135 Per channel's center-frequency (12.5 kHz increments)
RF Level:	+40 dBmV (120 dBµV)
RF Level LCD Screen Error:	± 2 sB
RF Level Adj. Range:	30 to 40 dB
Frequency Tolerance:	± 0.5 kHz @ 77 °F (25 °C)
Frequency Stability:	± 5 kHz over 32 to 122 °F (0 to 50 °C)
Amplitude Flatness:	± 0.25 dB (over 6 MHz channel)
Phase Noise:	-98 dBc (@ 10 kHz)
Spurious:	-60 dBc
Broadband Noise:	-75 dBc (@ +40 dBmV output level, 4 MHz bandwidth)
Impedance:	75 Ω
Return Loss:	12 dB
Spectral Inversion:	Auto Recognition
Carrier Suppression:	55 dB
SNR:	Greater than 40 dB
MER:	Greater than 40 dB
I/Q Phase Error:	Less than 1 degree
I/Q Amplitude Imbalance:	Less than 1%

General

Dimensions (W x D x H) **QT Module:** **QTPCM Module:** **QTRC Rack Chassis:**	 1.5 x 10.6 x 5.25 inches (38 x 270 x 134 mm) 4.5 x 10.6 x 5.25 inches (114 x 270 x 134 mm) 19 x 12.0 x 5.25 inches (483 x 305 x 134 mm)
Power:	105 to 240 VAC; 50/60 Hz
Power Dissipation: **QT Module:** **Fully-loaded Rack Chassis:**	 10 W 87 W (8 QT Modules + 1 QTPCM)
Weight **AQM Module:** **Fully-loaded Rack Chassis:**	 1.7 lbs (0.77 kg) 28 lbs (12.7 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensation
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensation

Alarms/Monitoring/Control

Indicators **QT Module:** **QTPCM Module:**	 Status (Green LED) LCD Screen
Local Monitoring: **Local Control:**	Front-panel 6-character, 2-line LCD screen Front-panel Navigational Key-pad
Remote Monitoring/Control:	GUI-based menu via Web browser (Available if the optional QT-HWS-II module is installed)

Related Products

Model	Description
AQM	ASI-to-QAM Modulator. Six modulators in 2RU
DQMx	4x1 ASI/8VSB/QAM-to-QAM Multiplexer, 1RU
HDA-8-860-20	Rack-mount Distribution Amplifier (20 dB gain) and 8x1 Combiner
HDA-16-860-16	Rack-mount Distribution Amplifier (16 dB gain) and 16x1 Combiner

BLONDER TONGUE
LABORATORIES, INC.

DQMx

DIGITAL QAM MULITPLEXER
4x 8VSB/QAM/ASI ▶ 1x QAM

DQMx (Digital QAM Multiplexer) accepts and auto detects up to four inputs in ASI, 8VSB, and QAM formats, and delivers one output in QAM format in the 54-864 MHz range. Two types of input modules are available (ASI and 8VSB/QAM), and any combination of input modules is allowed – for example, DQMx can be equipped with 2 ASI and 2 8VSB/QAM input modules.

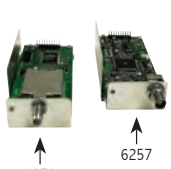
Each ASI input module can process up to twelve program streams, not to exceed 270 Mbps. Each 8VSB/QAM input module can process up to twelve program streams, not to exceed 19.4 Mbps for 8VSB or 38.8 Mbps for QAM 256. The QAM-modulated output can contain up to twelve program streams, not to exceed 38.8 Mpbs when operating in QAM 256 mode.

Features

- Supports MPEG-2 Transport Stream Tables: PAT, PMT, MGT, RRT, STT, & VCT
- Re-maps duplicate PIDs, Program Numbers, and Minor Channel Numbers
- User-defined major/minor or 4-digit CATV virtual channels
- Maintains MPEG-2 mapping after a power outage
- Supports PID filtering & PSIP re-assignment
- Provides QAM 256 Output at 38.8 Mbps
- PCR correction and null packet insertion
- User-defined QAM Output Parameters
- User-defined channel names
- CVCT table creation
- User-defined TSID

Ordering Information

Model	Stock #	Description
DQMx-XY	6259A XY	Digital QAM Multiplexer; Shipped with (X) ASI and (Y) 8VSB/QAM input modules For example: DQMx-31 (Stock No. 6259A 31) is factory-equipped and shipped with (3) ASI and (1) 8VSB/QAM input modules.
DQMx	6259A	Digital QAM Multiplexer; Mainframe only (requires input modules)
DQMx-RF	6256	8VSB/QAM input module
DQMx-ASI	6257	ASI input module



Specifications

Input

Connectors	
ASI module:	BNC Female
8VSB/QAM module:	"F" Female
Standards	
ASI:	DVB-ASI; EN 50083-9
8VSB:	ATSC Digital Television A/53E
QAM :	ITU-T J.83 - Annex A & B (64 and 256 QAM)
ASI Mode	
Transport Rate:	270 Mbps (desired transport rate of 10.76 MSymbols/sec)
8VSB Mode	
Tuning Range:	VHF (NTSC Ch. 2-13), UHF (NTSC Ch. 14-69)
Data Rate:	19.392 Mbps
Bandwidth:	6 MHz
Power Level:	-20 to +20 dBmV
QAM Mode	
Tuning Range:	CATV (NTSC Ch. 2-135)
Data Rate:	38.8 Mbps (QAM 256); 26.97 Mbps (QAM 64) – Auto Detect
Bandwidth:	6 MHz
Power Level:	-15 to 20 dBmV (@ QAM 256) -20 to 20 dBmV (@ QAM 64)
Impedance:	75 Ω

Output

Connector:	"F" Female
QAM Modulation Modes:	16, 32, 64, 128, 256, 512, and 1024
DVB Symbol Rate:	Variable; 1 to 7 MSymbols/sec (MBaud)
Frequency Range:	54 to 864 MHz
QAM Tuning	
NTSC:	Per channel's number from 2 to 135
PAL:	Per channel's center-frequency (12.5 kHz increments)
RF Level:	+60 dBmV (120 dBµV)
RF Level LCD Screen Error:	± 2 dB
RF Level Adjustment Range:	50 to 60 dBmV
Frequency Tolerance:	± 0.5 kHz @ 77 °F (25 °C)
Frequency Stability:	± 5 kHz over 32 to 122 °F (0 to 50 °C)
Amplitude Flatness:	± 0.25 dB (over 6 MHz channel)
Phase Noise:	-98 dBc (@ 10 kHz)
Spurious:	-60 dBc
Broadband Noise:	-75 dBc (@ +60 dBmV output level, 4 MHz bandwidth)
Impedance:	75 Ω
Return Loss:	12 dB
Spectral Inversion:	Auto Recognition
Carrier Suppression:	55 dB
SNR:	Greater than 40 dB
MER:	Greater than 40 dB
I/Q Phase Error:	Less than 1 degree
I/Q Amplitude Imbalance:	Less than 1%

General

Dimensions (W x D x H):	19.0 x 14.3 x 1.75 inches (483 x 363 x 44 mm)
Power:	105 to 240 VAC/50 to 60 Hz
Power Dissipation:	36 W (fully loaded with 4 input modules)
Weight:	5.1 lbs (2.31 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensation
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensation

Alarms/Monitoring/Control

Local Monitoring: **Local Control:**	Front-panel 16-character, 2-line LCD screen Front-panel Navigational Key-pad
Remote Monitoring/Control:	Not available

Related Products

Model	Description
AQM	ASI-to-QAM Modulator; Six modulators in 2RU
AQD	8VSB/QAM-to-Baseband Demodulator; Eight demodulators in 3RU
AQT	8VSB/QAM-to-QAM Transcoder; Eight transcoders in 3RU
MUX-2D-QAM	Multiplexer, 2x 8VSB/QAM Inputs, Agile 54-860 MHz QAM output, EAS capable
MUX-2A-QAM	Multiplexer, 2x ASI Inputs, Agile 54-860 MHz QAM output, EAS capable

BLONDER TONGUE LABORATORIES, INC.

MUX-2D-QAM

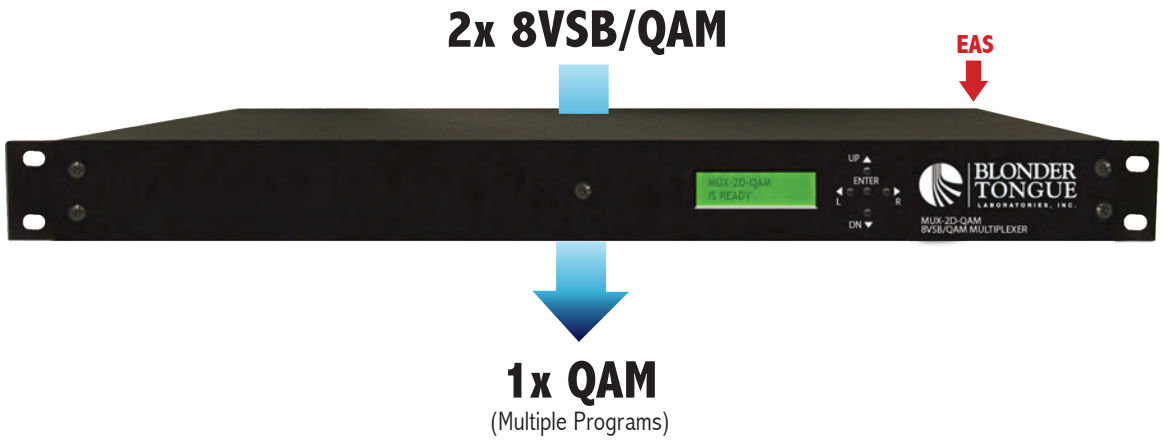
8VSB/QAM MULTIPLEXER

2x 8VSB/QAM ▶ QAM

MUX-2D-QAM is designed to allow CATV operators to multiplex two digital channels received in either 8VSB or QAM format to a single QAM output channel for delivery over a standard coaxial distribution network.

The MUX-2D-QAM accepts up to two (2) 8VSB or clear QAM channels and aggregates them onto one QAM RF output in the 54-864 MHz range. The MUX-2D-QAM provides the capability to filter program streams and to assign major/minor or a single 4-digit channel number to each.

The MUX-2D-QAM also provides Emergency Alert System (EAS) program switching through ASI input and terminal block contacts. The EAS input source, which must be in ASI format, can be shared among multiple MUX-2D-QAM units by looping it from one to another unit without the need for external splitting and amplification.



Features

- Supports MPEG-2 Transport Stream Tables: PAT, PMT, MGT, RRT, STT, & VCT
- Re-maps duplicate PIDs, Program Numbers, and Minor Channel Numbers
- Allows sharing of the EAS input source among multiple units
- User-defined major/minor or 4-digit CATV virtual channels
- Maintains MPEG-2 mapping after a power outage
- EAS input replaces up to 12 program streams
- Supports PID filtering & PSIP re-assignment
- Provides QAM 256 Output at 38.8 Mbps
- PCR correction and null packet insertion
- Accepts ASI input as EAS input source
- User-defined QAM Output Parameters
- User-defined channel names
- CVCT table creation
- User-defined TSID

Rear Panel

Ordering Information

Model	Stock #	Description
MUX-2D-QAM	6504	Multiplexer, 2x 8VSB/QAM Inputs, Agile 54-860 MHz QAM output, EAS capable

Specifications

Input

Connectors	
8VSB/QAM:	2x "F" Female
Emergency Alert System (EAS):	1x BNC Female
8VSB Mode	
Standard:	ATSC Digital Television A/53E
Tuning Range:	UHF (Ch. 14-69), VHF (Ch. 2-13)
Data Rate:	19.392 Mbps
Bandwidth:	6 MHz
Power Level:	-20 to +20 dBmV
Impedance:	75 Ω
QAM Mode	
Standard:	ITU-T J.83 - Annex A & B (64 and 256 QAM)
Tuning Range:	CATV Ch. 2-135 (STD, HRC, IRC)
Data Rate:	38.8 Mbps (QAM 256); 26.97 Mbps (QAM 64) – Auto Detect
Bandwidth:	6 MHz
Power Level:	-15 to 20 dBmV (@ QAM 256) -20 to 20 dBmV (@ QAM 64)
Impedance:	75 Ω
Emergency Alert System	
Standard:	DVB-ASI; EN 50083-9 (SPTS)
Transport Rate:	Single program at 3 Mbps (based upon 12 programs using 256 QAM output). Higher data rates can be used with a lower number of output programs as to not exceed the maximum allowable bit rate on the QAM output channel. **NOTE:** *The EAS program (when triggered) is multiplied by the number of output programs. A 3 Mbps EAS video file on 12 programs therefore equals 36 Mbps. This bit rate is acceptable when using 256 QAM that has a maximum of 38.8 Mbps.*
Level Range:	720 to 950 mVpp (800 mVpp nominal)
Impedance:	75 Ω

Output

Connector:	1x "F" Female
QAM Modulation Modes:	16, 32, 64, 128, 256, 512, and 1024
DVB Symbol Rate:	Variable; 1 to 7 MSymbols/sec (MBaud)
Frequency Range:	54 to 864 MHz
QAM Tuning	CATV Ch. 2-135 (STD, HRC, IRC)
RF Level:	+45 dBmV
RF Level LCD Screen Error:	± 2 dB
RF Level Adjustment Range:	35 to 45 dBmV
Frequency Stability:	± 10 kHz over 32 to 122 °F (0 to 50 °C)
Frequency Tolerance:	± 0.5 kHz @ 77 °F (25 °C)
Amplitude Flatness:	± 0.25 dB (over 6 MHz channel)
Phase Noise:	-98 dBc (@ 10 kHz)
Spurious:	-60 dBc
Broadband Noise:	-75 dBc (@ +60 dBmV output level, 4 MHz bandwidth)
Impedance:	75 Ω
Return Loss:	12 dB
Spectral Inversion:	Auto Recognition
Carrier Suppression:	55 dB
SNR:	Greater than 40 dB
MER:	Greater than 40 dB
I/Q Phase Error:	Less than 1 degree
I/Q Amplitude Imbalance:	Less than 1%
EAS Looped Output	
Connector:	1x BNC Female
Standard:	ASI
Trigger Mechanism:	5-12 VDC & Dry Contact Closure

General

Dimensions (W x D x H):	19.0 x 14.3 x 1.75 inches (483 x 363 x 44 mm)
Power:	105 to 240 VAC/50 to 60 Hz
Power Dissipation:	36 W
Weight:	5.1 lbs (2.31 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

Alarms/Monitoring/Control

Local Monitoring: **Local Control:**	Front-panel 16-character, 2-line LCD screen Front-panel Navigational Key-pad
Remote Monitoring/Control:	Not available

Related Products

Model	Description
DQMx	4:1 Multiplexer; 4x8VSB/QAM/ASI-to-QAM multiplexer, 1RU
MUX-2A-QAM	Multiplexer, 2x ASI Inputs, Agile 54-860 MHz QAM Output, EAS capable

MUX-2A-QAM

ASI MULTIPLEXER

2x ASI ▶ QAM

The MUX-2A-QAM is designed to allow CATV operators to multiplex two input sources in ASI format to a single QAM output channel for delivery over a standard coaxial distribution network.

The MUX-2A-QAM accepts up to two (2) ASI inputs and aggregates them onto one QAM RF output in the 54-864 MHz range. The MUX-2A-QAM provides the capability to filter program streams and to assign major/minor or a single 4-digit channel number to each.

The MUX-2A-QAM also provides Emergency Alert System (EAS) program switching through a third ASI input and terminal block contacts. The EAS input source can be shared among multiple MUX-2A-QAM units by looping it from one to another unit without the need for external splitting and amplification.

Features

- Supports MPEG-2 Transport Stream Tables: PAT, PMT, MGT, RRT, STT, & VCT
- Re-maps duplicate PIDs, Program Numbers, and Minor Channel Numbers
- Allows sharing of the EAS input source among multiple units
- User-defined major/minor or 4-digit CATV virtual channels
- User-defined channel names
- EAS input replaces up to 12 program streams
- Supports PID filtering & PSIP re-assignment
- Provides QAM 256 Output at 38.8 Mbps
- Accepts ASI input as EAS input source
- User-defined QAM Output Parameters
- Maintains MPEG-2 mapping

Ordering Information

Model	Stock #	Description
MUX-2A-QAM	6505	Multiplexer, 2x ASI Inputs, Agile 54-860 MHz QAM output, EAS capable

SPECIFICATIONS

INPUT

Connectors	
ASI:	2x BNC Female
Emergency Alert System (EAS):	1x BNC Female
ASI	
Standard:	DVB-ASI; EN 50083-9 (MPTS/SPTS)
Transport Range:	270 Mbps
Level Range:	720 to 950 mVpp (800 mVpp nominal)
Impedance:	75 Ω
Emergency Alert System	
Standard:	DVB-ASI; EN 50083-9 (SPTS)
Transport Rate:	Single program at 3 Mbps (based upon 12 programs using 256 QAM output). Higher data rates can be used with a lower number of output programs as to not exceed the maximum allowable bit rate on the QAM output channel. **NOTE:** *The EAS program (when triggered) is multiplied by the number of output programs. A 3 Mbps EAS video file on 12 programs therefore equals 36 Mbps. This bit rate is acceptable when using 256 QAM that has a maximum of 38.8 Mbps.*
Level Range:	720 to 950 mVpp (800 mVpp nominal)
Impedance:	75 Ω

OUTPUT

Connector:	1x "F" Female
QAM Modulation Modes:	16, 32, 64, 128, 256, 512, and 1024
DVB Symbol Rate:	Variable; 1 to 7 MSymbols/sec (MBaud)
Frequency Range:	54 to 864 MHz
QAM Tuning	CATV Ch. 2-135 (STD, HRC, IRC)
RF Level:	+45 dBmV
RF Level LCD Screen Error:	± 2 dB
RF Level Adjustment Range:	35 to 45 dBmV
Frequency Stability:	± 10 kHz over 32 to 122 °F (0 to 50 °C)
Frequency Tolerance:	± 0.5 kHz @ 77 °F (25 °C)
Amplitude Flatness:	± 0.25 dB (over 6 MHz channel)
Phase Noise:	-98 dBc (@ 10 kHz)
Spurious:	-60 dBc
Broadband Noise:	-75 dBc (@ +60 dBmV output level, 4 MHz bandwidth)
Impedance:	75 Ω
Return Loss:	12 dB
Spectral Inversion:	Auto Recognition
Carrier Suppression:	55 dB
SNR:	Greater than 40 dB
MER:	Greater than 40 dB
I/Q Phase Error:	Less than 1 degree
I/Q Amplitude Imbalance:	Less than 1%
EAS Looped Output	
Connector:	1x BNC Female
Standard:	ASI
Trigger Mechanism:	5-12 VDC & Dry Contact Closure

GENERAL

Dimensions (W x D x H):	19.0 x 14.3 x 1.75 inches (483 x 363 x 44 mm)
Power:	105 to 240 VAC/50 to 60 Hz
Power Dissipation:	36 W
Weight:	5.1 lbs (2.31 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

ALARMS/MONITORING/CONTROL

Local Monitoring: **Local Control:**	Front-panel 16-character, 2-line LCD screen Front-panel Navigational Key-pad
Remote Monitoring/Control:	Not available

RELATED PRODUCTS

Model	**Description**
DQMx	4:1 Multiplexer; 4x8VSB/QAM/ASI-to-QAM multiplexer, 1RU
MUX-2D-QAM	Multiplexer, 2x 8VSB/QAM Inputs, Agile 54-860 MHz QAM output, EAS capable

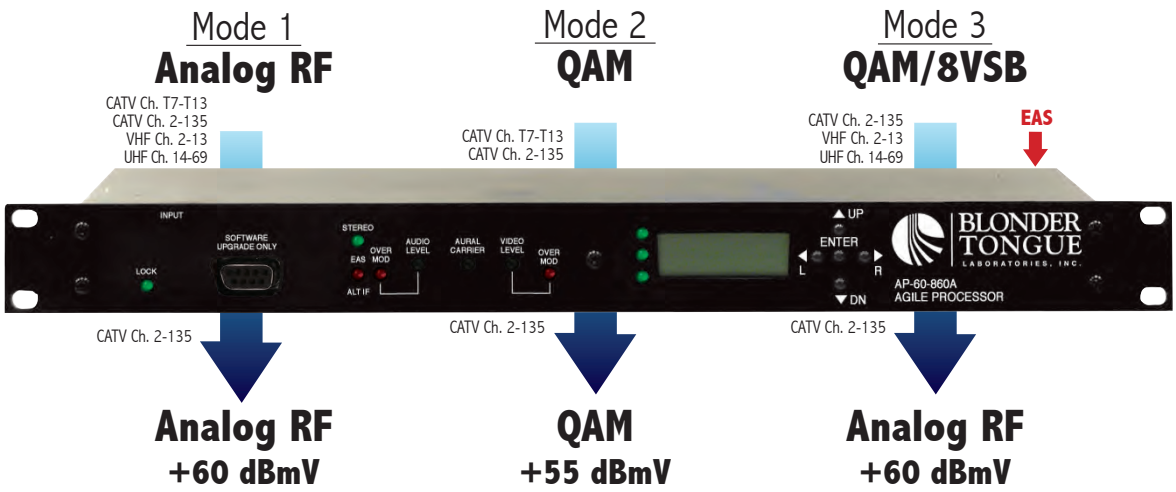
AP-60-860A
AGILE PROCESSOR

AP-60-860A (Agile Digital/Analog Processor) operates in one of the three following modes:

Mode 1: Analog Heterodyne Processor (Analog RF **IN** > Analog RF **OUT**)

Mode 2: Digital Heterodyne Processor (QAM **IN** > QAM **OUT**)

Mode 3: Digital-to-Analog Processor (8VSB or QAM **IN** > Analog RF **OUT**)



Features

- As an agile analog heterodyne processor: accepts one Analog RF input (CATV sub-band channels T7-T13, CATV standard channels 2-135, VHF channels 2-13, and UHF channels 14-69) and delivers one Analog RF output (CATV standard channels 2-135)
- As an agile digital heterodyne processor: accepts one Digital Cable QAM input (CATV sub-band channels T7-T13, and CATV standard channels 2-135) and delivers one Digital Cable QAM output (CATV standard channels 2-135)
- As an agile digital-to-analog processor: accepts one Digital Off-air 8VSB or Digital Cable QAM input (CATV standard channels 2-135, VHF channels 2-13, and UHF channels 14-69) and delivers one Analog RF output (CATV standard channels 2-135)
- Equipped with EAS interface which can also be used as an IF (Intermediate Frequency) input
- Supports Closed Captioning (EIA-608)

Ordering Information

Model	Stock #	Description
AP-60-860A	59819	Agile, Processor, +60 dBmV, 54-860 MHz output

Related Products

Model	Description
DAP PLUS	Digital-to-Analog Processor; 1 RU
AP Series	Agile Heterodyne Processor; 1 RU

SPECIFICATIONS

INPUT

Connector:	"F" Female
Analog Mode (1)	
Standard:	NTSC
Tuning:	CATV 2-135, Broadcast 2-69, Sub T7-T13
Bandwidth:	6 MHz
Power Level:	-20 to +30 dBmV
QAM Mode (2)	
Standard:	ITU-T J.83 - Annex B (64 and 256 QAM)
Tuning Range:	CATV Ch. 2-135 T7-T13
Data Rate:	38.8 Mbps (QAM 256); 26.97 Mbps (QAM 64)
Bandwidth:	6 MHz
Power Level:	-20 to +30 dBmV
QAM/8VSB Mode (3)	
Standard:	8VSB ATSC Digital Television A/53E QAM ITU-T J.83 - Annex B (64 and 256 QAM)
Tuning Range:	8VSB VHF (NTSC Ch. 2-13), UHF (NTSC Ch. 14-69) QAM CATV Ch. 2-135 T7-T13
Data Rate:	8VSB 19.392 Mbps QAM 38.8 Mbps (QAM 256); 26.97 Mbps (QAM 64)
Bandwidth:	6 MHz
Power Level:	-20 to +30 dBmV

IF (INTERMEDIATE FREQUENCY)

Connector:	"F" Female Input / "F" Female Output
Impedance:	75 Ω Input / 75 Ω Output
Return Loss:	16 dB Input / 15 dB Output
EAS/ALT IF	
Input Level:	+38 dBmV @ 45.75 MHz
Switch Isolation:	Greater than 60 dB
Standby Carrier	+35 dBmV (RF Input <-25 dBmV)

Modes 1 & 3

Aural Frequency:	41.25 MHz
Visual Frequency:	45.75 MHz
Composite Loop Output	
Aural Carrier Level:	+20 dBmV
Visual Carrier Level:	+35 dBmV

Mode 2

Center Frequency:	44 MHz
Output Level:	+30 dBmV

GENERAL

Dimensions (W x D x H):	19.0 x 18.625 x 1.75 inches (483 x 473 x 44 mm)
Power:	110 VAC/60 Hz (Fuse: 1 amp, 250 VDC, SloBlo)
Power Dissipation:	36 W
Weight:	7 lbs (3.2 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensation
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensation

OUTPUT

Modes 1 & 2

Connector	
RF Output:	"F" Female
RF Output	Analog RF or QAM
Frequency Range:	54 to 864 MHz
Channels:	UHF, VHF, CATV (Standard, HRC, & IRC)
Power Level:	Mode 1 (Analog) +60 dBmV
	Mode 2 (QAM) +55 dBmV
Power Level Range:	Mode 1 (Analog) +50 to +62 dBmV (in 0.2 dB increments)
	Mode 2 (QAM) +45 to +57 dBmV (in 0.2 dB increments)
Broadband Noise:	Mode 1 (Analog)-77 dBc (@ +60 dBmV output level, 4 MHz bandwidth)
	Mode 2 (QAM)-75 dBc (@ +55 dBmV output level, 6 MHz bandwidth)
Spurious:	-63 dBc
Impedance:	75 Ω
Return Loss:	15 dB
Aural/VisualCarrier	
Ratio (Mode 1):	-15 dB ±2
Frequency Tolerance	±20 kHz; 32 to 122 °F (0 to 50 °C)
Adjacent Channel Rejection:	65 dB

Mode 3

Connector	
RF Output:	"F" Female
RF Output	Analog RF
Frequency Range:	54 to 864 MHz
Channels:	UHF, VHF, CATV (Standard, HRC, & IRC)
Power Level:	+60 dBmV
Power Level Range:	+50 to +62 dBmV (in 0.2 dB increments)
Broadband Noise:	-77 dBc (@ +60 dBmV output level, 4 MHz bandwidth)
Spurious:	-63 dBc
Impedance:	75 Ω
Return Loss:	15 dB
Aural/Visual Carrier Ratio:	-15 dB ±5
Visual	
Frequency Tolerance	
Standard Channels:	±20 kHz; 32 to 122 °F (0 to 50 °C)
FCC Aeronautical Channels:	±5 kHz; 32 to 122 °F (0 to 50 °C)
Video	
Frequency Response:	1.5 dB Peak-to-Valley (fv-0.5 to fv+4.2 MHz)
Video-to-RMS Hum Ratio:	65 dB
Signal-to-Noise Ratio:	58 dB (Weighted)
Differential Gain:	2.0% @ 87.5%
Differential Phase:	1.0 degree
Over-mod. Indicator:	87.5% ±2.5
Chrom./Luminance Delay:	Per FCC Requirements
Audio	
Frequency Response:	±1.0 dB
Frequency Range:	50 Hz to 15 kHz
Signal-to-Noise Ratio:	59 dB
Total Harmonic Distortion:	1.0% @ 55 kHz Deviation
Over-mod. Indicator:	55 kHz ±2
4.5 MHz Audio	
Carrier Tolerance:	±150 Hz 32 to 122 °F (0 to 50 °C)

ALARMS/MONITORING/CONTROL

Indicators:	Lock (Green LED) Stereo Audio (Green LED) EAS or Alternate IF activated (Red LED) Audio Over-modulation (Red LED) Video Over-Modulation (Red LED)
Local Monitoring: **Local Control:**	Front-panel, 16-character, 2-line LCD screen Front-panel Navigational Key-pad Audio & Video Modulation Adjustment Aural Carrier Adjustment

AQP
ATSC/QAM PROCESSOR
1x 8VSB/QAM ▶ 1x QAM

AQP (ATSC/QAM Processor) accepts one input in 8VSB (digital off-air) or QAM (digital cable) format, including the sub-band QAM input channels T7 to T13, and delivers one output in QAM format in the 54-864 MHz range.

AQP can be utilized in a remote headend to "regenerate" a clean QAM channel from a degraded one. It also allows TV sets to receive digital off-air programming on CATV channel assignments by transmodulating the 8VSB broadcast to QAM.

It can also be utilized in remote digital origination applications, where the QAM channel needs to be delivered to the headend via the sub-band frequencies.

8VSB
OR
QAM (sub-band)

QAM
Agile 54-864 MHz
+55 dBmV (115 dBµV)

Features

- Supports sub-band QAM input channels T7 to T13 for remote digital origination applications
- Input standards supported are digital off-air (8VSB & 16VSB) and digital cable (QAM 16/32/64/128/206)
- Agile QAM output at +55 dBmV and in the frequency range of 54-864 MHz range

Ordering Information

Model	Stock #	Description
AQP	6268	8VSB/QAM-to-QAM Processor with sub-band input

Specifications

Input

Connector:	"F" Female
Standards **8VSB/16VSB:** **QAM:**	 ATSC Digital Television A/53E ITU-T J.83 - Annex A & B (16, 32, 64, 128, and 256 QAM)
8VSB/16VSB Modes **Tuning Range:** **Data Rate:** **Bandwidth:** **8VSB Power Level:** **16VSB Power Level:**	 VHF (NTSC Ch. 2-13), UHF (NTSC Ch. 14-69) 19.392 Mbps 6 MHz -28 to 20 dBmV -25 to 20 dBmV
QAM Mode **Tuning Range:** **Data Rate:** **Bandwidth:** **Power Level:**	 CATV (NTSC Ch. T7-T13; 2-135) 38.8 Mbps (QAM 256); 26.97 Mbps (QAM 64) – Auto Detect 6 MHz -20 to +20 dBmV
Impedance:	75 Ω

Output

Connector:	"F" Female
QAM Modulation Modes:	16, 32, 64, 128, & 256
DVB Symbol Rate:	Variable; 1 to 7 MSymbols/sec (Mbaud)
Frequency Range:	54 to 864 MHz
QAM Tuning **NTSC:** **PAL:**	 Per channel's number from 2 to 135 Per channel's center-frequency (12.5 kHz increments)
RF Level:	+55 dBmV (115 dBµV)
RF Level LCD Screen Error:	± 2 dB
RF Level Adjustment Range:	45 to 55 dBmV
Frequency Tolerance:	± 0.5 kHz @ 77 °F (25 °C)
Frequency Stability:	± 5 kHz over 32 to 122 °F (0 to 50 °C)
Amplitude Flatness:	± 0.25 dB (over 6 MHz channel)
Phase Noise:	-98 dBc (@ 10 kHz)
Spurious:	-60 dBc
Broadband Noise:	-75 dBc (@ +55 dBmV output level, 4 MHz bandwidth)
Impedance:	75 Ω
Return Loss:	12 dB
Spectral Inversion:	Auto Recognition
Carrier Suppression:	55 dB
SNR:	Greater than 40 dB
MER:	Greater than 40 dB
I/Q Phase Error:	Less than 1 degree
I/Q Amplitude Imbalance:	Less than 1%

General

Dimensions (WxDxH):	19 x 18.125 x 1.75 inches (483 x 460 x 44m)
Power:	105 to 135 VAC; 60 Hz (Fuse:1 A, 250 VDC, SloBlo)
Power Dissipation:	23 W
Weight:	7 lbs (3.2 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensation
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensation

Alarms/Monitoring/Control

Indicators **8VSB/QAM:**	 Lock Status (Green LED)
Local Monitoring: **Local Control:**	Front-panel 16-character, 2-line LCD screen Front-panel Navigational Key-pad Sub-band input on/off switch
Remote Monitoring/Control:	Not Available

Related Products

Model	Description
DQMx	4x1 ASI/8VSB/QAM-to-QAM Multiplexer; 1RU
AQT	8VSB/QAM-to-QAM Transcoder; Eight modules in 3RU
AQM	ASI-to-QAM Modulator with sub-band input; Six modulators in 2RU
DHDP	8VSB-to-IF-to-8VSB Processor; 12 modules in 2RU

BLONDER TONGUE LABORATORIES, INC.

DAP SERIES

DIGITAL/ANALOG PROCESSOR

1x 8VSB/QAM ► 1x ANALOG RF/2x ASI

DAP PLUS (Digital/Analog Processor) accepts one input in 8VSB (digital off-air) or QAM (digital cable) format, and delivers one output in modulated analog RF format and includes the **AFD** broadcast package. AFD (Active Format Description) is a standard set of codes embedded in the video stream and used by digital television broadcasters to optimally display a 16:9 video format on an analog television set designed for 4:3 video format.

DAP PLUS can be equipped with an optional RNC module (Remote Network Card) for remote monitoring and control operations. One RNC module can monitor and control up to sixty-four DAP PLUS units installed in a headend. Additionally, DAP PLUS can be equipped with an optional ASI module (Asynchronous Serial Interface) that delivers two identical ASI stream outputs, allowing a seamless migration to an all-digital platform.

Remote Monitoring & Control via RNC Module

8VSB OR **QAM**

DAP PLUS
with AFD

-OR-

DAP PLUS ASI
SAME AS DAP PLUS
with 2x ASI

Features

- Agile Broadcast (UHF, VHF) and CATV (Standard, HRC, and IRC) channel assignments in the 54-864 MHz range
- Supports EAS (Emergency Alert System) input which can also be used as an IF (Intermediate Frequency) input
- Automated scanning captures all available off-air or cable programs present on the input signal
- Supports both the Primary and the SAP (Secondary Audio Program) audio programs
- Output power level range of +50 to +62 dBmV adjustable in 0.2 dB increments
- Supports Closed Captioning (EIA-608)

Ordering Information

Model	Stock #	Description
DAP PLUS	6295	Digital-to-Analog Processor with AFD
DAP PLUS ASI	6295-10	DAP PLUS equipped with ASI module
DAP PLUS RNC	6295-12	DAP PLUS equipped with Remote Network Card (RNC) Module
DAP PLUS A/R	6295-22	DAP PLUS equipped with both the ASI and the RNC Modules

Specifications

Input

Connector:	"F" Female
Standards	
8VSB:	ATSC Digital Television A/53E
QAM:	ITU-T J.83 - Annex B (64 and 256 QAM)
8VSB Mode	
Tuning Range:	VHF (NTSC Ch. 2-13), UHF (NTSC Ch. 14-69)
Data Rate:	19.392 Mbps
Bandwidth:	6 MHz
Power Level:	-20 to +20 dBmV
QAM Mode	
Tuning Range:	CATV (NTSC Ch. 2-135)
Data Rate:	38.8 Mbps (QAM 256); 26.97 Mbps (QAM 64) – Auto Detect
Bandwidth:	6 MHz
Power Level:	-20 to +20 dBmV

IF (Intermediate Frequency)

Connector:	"F" Female Input / "F" Female Output
Aural Frequency:	41.25 MHz
Visual Frequency:	45.75 MHz
Composite Loop Output	
Aural Carrier Level:	+20 dBmV
Visual Carrier Level:	+35 dBmV
Impedance:	75 Ω Input / 75 Ω Output
Return Loss:	16 dB Input / 15 dB Output
EAS/ALT IF	
Input Level:	+38 dBmV @ 45.75 MHz
Switch Isolation:	Greater than 60 dB

General

Dimensions (W x D x H):	19.0 x 18.625 x 1.75 inches (483 x 473 x 44 mm)
Power:	110 VAC/60 Hz (Fuse: 1 amp, 250 VDC, SloBlo)
Power Dissipation:	36 W
Weight:	7 lbs (3.2 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensation
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensation

Output

Connectors	
Standard RF Output:	"F" Female
Optional ASI Output:	2 x BNC Female
Standard RF Output	
Frequency Range:	54 to 864 MHz
NTSC Channels:	UHF, VHF, CATV (Standard, HRC, & IRC)
Power Level:	+60 dBmV (120 dBµV)
Power Level Range:	+50 to +62 dBmV (in 0.2 dB increments)
Broadband Noise:	-77 dBc (@ +60 dBmV output level, 4 MHz bandwidth)
Spurious:	-63 dBc
Impedance:	75 Ω
Return Loss:	15 dB
Aural/Visual Carrier Ratio:	-15 dB ±5
4.5 MHz Aural Inter-carrier Freq. Tolerance:	±150 Hz; 32 to 122 °F (0 to 50 °C)
Channel Selectivity	
Adjacent Aural & Below:	-40 dB
Adjacent Picture & Above:	-40 dB ±5
Visual Carrier Frequency Tolerance	
Standard Channels:	±20 kHz; 32 to 122 °F (0 to 50 °C)
FCC Aeronautical Channels:	±5 kHz; 32 to 122 °F (0 to 50 °C)
Video Carrier	
Frequency Response:	1.5 dB Peak-to-Valley (fv-0.5 to fv+4.2 MHz)
Video-to-RMS Hum Ratio:	65 dB Peak-to-Peak
Signal-to-Noise Ratio:	58 dB (Weighted)
Differential Gain:	2.0% @ 87.5%
Differential Phase:	1.0 degree
Over-mod. Indicator:	87.5% ±2.5
Chrom./Luminance Delay:	Per FCC Requirements
Audio Carrier	
Frequency Response:	±1.0 dB (referenced to 75 µ sec pre-emphasis)
Frequency Range:	20 Hz to 20 kHz
Signal-to-Noise Ratio:	60 dB @ 25 kHz Deviation
Total Harmonic Distortion:	0.6 %
Over-mod. Indicator:	50 kHz ±2
Optional ASI Output (DAP PLUS ONLY)	
Standard:	DVB-ASI; 50083-9
No. of Streams:	Two identical streams
Data Bit Rate:	270 Mbps
Transport Stream Rate:	160 Mbps (Max)
Output Impedance:	75 Ω

Alarms/Monitoring/Control

Indicators:	8VSB/QAM Lock (Green LED) Stereo Audio (Green LED) EAS or Alternate IF activated (Red LED) Audio Over-modulation (Red LED) Video Over-Modulation (Red LED)
Local Monitoring: **Local Control:**	Front-panel, 16-character, 2-line LCD screen Front-panel Navigational Key-pad Audio & Video Modulation Adjustment Aural Carrier Adjustment
Remote Monitoring/Control:	GUI-based menu via Web browser (Available if the optional RNC module is installed)

Related Products

Model	Description
AQM	ASI-to-QAM Modulator; Six modulators in 2RU
AQD	8VSB/QAM-to-Baseband Demodulator; Eight demodulators in 3RU
DQMx	4x1 ASI and 8VSB/QAM-to-QAM Multiplexer; 1RU

DHDP Series

DIGITAL HD PROCESSOR

1x 8VSB ▶ 1x IF ▶ 1x 8VSB

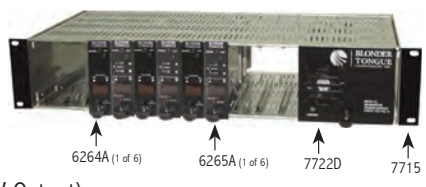
DHDP (Digital High-Definition Processor) is a two-module system consisting of one down-converter module and one up-converter module. The down-converter accepts one 8VSB (digital off-air) input in the 54-864 MHz range and delivers one output in IF (Intermediate Frequency) format. The up-converter accepts one IF input and delivers one output in 8VSB format.

Features

- Agile Broadcast (UHF, VHF) and CATV (Standard, HRC, and IRC) channel assignments in the 54-864 MHz range
- Compatible with Digital TV and High-Definition TV applications
- Compact design allows for deployment of six Combo modules in 2RU rack space

Ordering Information

Model	Stock #	Description
DHDC-DV	6264A	Digital TV & High-Definition TV Down-converter module
DHDC-UV	6265A	Digital TV & High-Definition TV Up-converter module
DHDP-V	6266B	Combo modules (6264A + 6265A)
MIRC-12V	7715	Rack Chassis (holds up to 6 combo modules)
MIPS-12D	7722D	100 - 240 VAC/60 Hz power supply (one per chassis)
DHDP-50	6260A	Digital TV & High-Definition Integrated Unit (+50 dBmV Output)



Specifications

Down-converter

Connectors	
8VSB Input:	"F" Female
IF Output:	"F" Female
Input	
Format:	8VSB (ATSC Digital Television A/53E)
Frequency Range:	54-864 MHz (VHF Ch. 2-13; UHF Ch. 14-69)
Operating Level Range:	-20 to +25 dBmV
Installation Input Range:	-15 to +20 dBmV (any undesired Ch. < +25 dBmv)
Max undesired to desired Ch. ratio:	< +25 dBc
Max adjacent to desired Ch. ratio:	< +15 dBc
Output	
Format:	IF (Intermediate Frequency)
Frequency:	44 MHz center
Output Level (AGC):	+30 dBmV (-20 to +25 dBmV input)
Phase Noise:	-90 dBc/Hz (@ 10 kHz offset)

Up-converter

Connectors	
IF Input:	"F" Female
RF Output:	"F" Female
Input	
Format:	8VSB
Frequency:	44 MHz center (IF - Intermediate Frequency)
Input Level:	+30 dBmV
Output	
Format:	CATV (Standard, IRC, HRC) and Broadcast (VHF, UHF)
Frequency:	54-864 MHz
Frequency Tolerance:	±5 kHz
Output Level:	+45 dBmV
Level Adjust Range:	+33 to +47 dBmV
Channel Flatness:	1 dB
Spurious Output:	-60 dB (50 to 1000 MHz)
C/N Ratio (In Channel-Digital):	-60 dB (5.5 MHz bandwidth; +45 dBmV Output)
Broadband Noise:	-71 dBc (5.5 MHz BW, +45 dBmV Output)
Phase Noise:	-95 dBc (@ 10 kHz offset)
Impedance:	75 Ω
Return Loss:	12 dB

General

Dimensions (W x D x H)	
Each Module:	1.15 x 7.5 x 3.5 inches (29 x 191 x 89 mm)
Power Supply:	4.2 x 7.5 x 3.5 inches (106 x 191 x 89 mm)
Rack Chassis:	19.0 x 12.0 x 3.5 inches (483 x 305 x 89 mm)
Power	
MIPS-12D:	100 - 240 VAC 50/60 Hz
Power Dissipation	
Down-converter:	3.2 W
Up-converter:	5.30 W
Weight	
Each Module:	0.8 lbs (0.36 kg)
Fully Loaded Chassis:	20 lbs (9 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensation
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensation

Monitoring/Indicators

Down-converter	
Ch. Number:	Front-panel; 2-Digit LED Display
Ch. Selection/Activation:	Front-panel; Up/Down Push Buttons
Up-converter	
Ch. Number & RF Level:	Front-panel; 2-Digit LED Display
+100 Ch. Indicator:	Front-panel; LED, Red
Ch. Selection/Activation:	Front-panel; Up/Down Push-Buttons
RF Level:	Front-panel; Up/Down Push-Buttons

Related Products

Model	Description
AQT	QPSK/8PSK-to-QAM Transcoder, 8 modules in 3RU

BLONDER TONGUE LABORATORIES, INC.

AQC Series
AGILE QAM CONVERTER

AQC (Agile QAM Converter) is designed for data-over-cable and digital Video-on-Demand (VoD) applications. The unit features an advanced menu system based on a flash upgradable microcontroller which facilitates programming information to be easily entered with front-panel navigational key-pad.

QAM IF
44 MHz

QAM
Agile 54-860 MHz

Refer to product instruction manual for additional specification measurements and notes.

Features

- Agile output frequency range of 54-864 MHz compatible with Standard, HRC, IRC channel assignments.
- Compact design allows for deployment of 6 modules in 2RU
- QAM output is tunable in 12.5 kHz increments.

Ordering Information

Model	Stock #	Description
AQC	6274	Agile QAM Converter
MIRC-12V	7715	Rack Chassis (holds up to 6 modules)
MIPS-12D	7722D	100-240 VAC 50/60 Hz power supply (one per chassis)

SPECIFICATIONS

INPUT

Connector:	"F" Female
QAM Modulation Modes:	QAM 16, 32, 64, 128, 256, 512, & 1024
Frequency Range:	44 MHz (Channel Center)
Input Level:	+35 dBmV (95 dBµV)

OUTPUT

Connector:	"F" Female
QAM Modulation Modes:	16, 32, 64, 128, 256, 512, and 1024
DVB Symbol Rate:	Variable; up to 10 Msym/sec (MBaud)
Frequency Range:	54 to 864 MHz
QAM Tuning **NTSC Channel Mode:** **Frequency Mode:**	 NTSC channels 2 to 135 12.5 kHz increments
RF Level:	+40 dBmV (120 dBµV)
LCD Screen Accuracy:	± 2 dB
RF Level Adjustment Range:	30 to 40 dB
Frequency Tolerance:	± 0.5 kHz @ 77 °F (25 °C)
Frequency Stability:	± 5 kHz over 32 to 122 °F (0 to 50 °C)
Amplitude Flatness:	± 0.25 dB (over 6 MHz channel)
Phase Noise:	-98 dBc (@ 10 kHz)
Spurious:	-60 dBc
Broadband Noise:	-75 dBc (@ +40 dBmV output level, 4 MHz bandwidth)
Impedance:	75 Ω
Return Loss:	12 dB
Spectral Inversion:	Auto Recognition
Carrier Suppression:	55 dB
SNR:	Greater than 40 dB
MER:	Greater than 40 dB
I/Q Phase Error:	Less than 1 degree
I/Q Amplitude Imbalance:	Less than 1%

GENERAL

Dimensions (W x D x H) **AQC Module:** **Power Supply:** **Rack Chassis:**	 2.3 x 7.5 x 3.5 inches (58 x 191 x 89 mm) 4.2 x 7.5 x 3.5 inches (106 x 191 x 89 mm) 19 x 12.0 x 5.25 inches (483 x 305 x 133 mm)
Power **MIPS-12D**	 100 - 240 VAC 50/60 Hz
Power Dissipation:	5 W (max. per AQC module)
Weight **AQC Module:** **Fully Loaded Chassis:**	 2.3 lbs (1.04 kg) 24.2 lbs (10.9 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensation
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensation

ALARMS/MONITORING/CONTROL

Local Monitoring: **Local Control:**	Front-panel 16-character, 2-line LCD screen Front-panel Navigational Key-pad
Remote Monitoring/Control:	Not Available

RELATED PRODUCTS

Model	Description
DHDP Series	Digital TV & High-Definition TV UP/Down Convertor, 6 modules in 2RU
AQT	QPSK/8PSK-to-QAM Transcoder, 8 modules in 3RU
ASI-4	1:4 Active ASI Splitter

BLONDER TONGUE LABORATORIES, INC.

ASI-4

1:4 ASI SPLITTER
1x ASI ▶ 4x ASI

The ASI-4 is a 1:4 active ASI splitter. It is designed to complement digital headend products that can utilize an ASI input for EAS (Emergency Alert System) applications, or any application requiring splitting of an ASI signal. The ASI-4 can be deployed in a daisy-chain configuration to provide additional outputs as required. Modular design allows installation of up to six units in 2RU.

Ordering Information

Model	Stock #	Description
ASI-4	6507	1:4 Active ASI Splitter

Accessories

Model	Stock #	Description
MIRC-12V	7715	Rack Chassis (holds up to 6 ASI-4 modules)
MIPS-12D	7722D	100-240 VAC 50/60 Hz power supply (one per chassis)

Specifications

Input

Connector:	1x BNC (rear panel)
Standard:	DVB-ASI; EN 50083-9
Transport Rate:	270 Mbps
Level Range:	720 to 950 mVpp (800 mVpp nominal)
Impedance:	75 Ω

Output

Connector:	4x BNC (rear panel)
Standard:	DVB-ASI; EN 50083-9
Transport Rate:	270 Mbps
Level:	800 mVpp
Impedance:	75 Ω

General

Dimensions (W x D x H)	
ASI-4 Module:	2.3 x 7.5 x 3.5 inches (58 x 191 x 89 mm)
MIPS-12D Power Supply:	4.2 x 7.5 x 3.5 inches (106 x 191 x 89 mm)
MIRC-12V Rack Chassis:	19.0 x 12.0 x 3.5 inches (483 x 305 x 89 mm)
Power	
ASI-4 Module:	5 VDC @ 540 mA
MIPS-12D:	100 - 240 VAC 50/60 Hz
Power Dissipation	
ASI-4 Module:	2.75 W
Weight	
ASI-4 Module:	1.0 lb (0.5 kg)
Fully Loaded Chassis:	16.4 lbs (7.5 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

Alarms/Monitoring/Control

Input Status Indicator:	Front Panel, Green LED

Related Products

Model	Description
MUX-2D-QAM	2:1 8VSB/QAM Multiplexer; 1RU

BLONDER TONGUE LABORATORIES, INC.

HDA Series
HEADEND DISTRIBUTION AMPLIFIER

The HDA Series of 19" rack mount headend distribution amplifiers are completely self-contained broadband devices, specifically designed for the distribution of digital and analog CATV signals in the frequency range from 47 to 860 MHz. It integrates the abilities of a passive combiner and a distribution amplifier into a single high performance unit. The state-of-the-art hybrid power doubling amplifier modules enable the unit to operate at high output levels while maintaining low distortion characteristics. Four combiner configurations of 16, 12, 8 and 4 ports are available. A -30 dB low-level back matched test port is externally accessible enabling easy in-service testing and adjustment. The chassis design affords excellent heat dissipation allowing operation at high ambient temperatures without sacrificing reliability. Custom with built-in standby power supply with automatic switching capabilities.

Refer to product instruction manual for additional specification measurements and notes.

Features

- Fully integrated digital and analog combiner and distribution amplifier
- Front panel accessible gain and slope controls
- Combiner attenuator for adjustment control of digital signals
- State-of-the-art hybrid IC circuitry for high output with low distortion
- Can be used as a combiner and amplifier, or amplifier and splitter

Ordering Information

Model	Stock #	Description
HDA-12-860-18	6240 12	Headend Distribution Amplifier 860 MHz 12 Port Equalized Combiner w/ 18 dB Total Gain
HDA-16-860-16	6240 16	Headend Distribution Amplifier 860 MHz 16 Port Equalized Combiner w/ 16 dB Total Gain
HDA-8-860-20	6240 8	Headend Distribution Amplifier 860 MHz 8 Port Equalized Combiner w/ 20 dB Total Gain
HDA-4-860-24	6240 4	Headend Distribution Amplifier 860 MHz 4 Port Equalized Combiner w/ 24 dB Total Gain

Specifications

Input

Connectors:	"F" Female
Impedance:	75 Ω
Return Loss:	14 dB
Frequency Range:	47-860 MHz
Isolation:	30 dB (adj. input ports 1-4 or 5-8 or 9-12 or 13-16) 45 dB (alternate input ports 1-4 & 5-8 & 9-12 & 13-16)

Output (common to all models)

Connector:	"F" Female
Impedance:	75 Ω
Frequency:	47-860 MHz
Flatness:	+/- 1.0 dB
Gain Control:	15 dB
Slope Control:	10 dB
Output Return Loss	14 dB
Noise Figure:	7 dB
Channel Loading	78
Composite Triple Beat (CTB):	-68 dB
Cross Modulation (XMOD):	-68 dB
Composite 2nd Order (CSO):	-65 dB
Hum Modulation:	-65 dB
Model Dependent Specs	
Gain:	6240-16 = 17 dB; 6240-12 = 19 dB; 6240-8 = 22 dB; 6240-4 = 25 dB
Output Level:	6240-16: 40/46 dBmV 6240-12,-8, -4: 38/44 dBmV

General

Dimensions (W x D x H):	19" W x 1.75" H x 10.75" D (483 mm x 45 mm x 274 mm)
Power:	105-130 VAC 60 Hz
Power Dissipation:	23.5 W
Weight:	8 lbs (3.69 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensation
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensation

Alarms/Monitoring/Control

Monitoring / Indicators:	
Main Power Supply:	LED
Stand-by Power Supply:	LED
In/Out Test Point:	-30 dB
Controls	
Amplifier Gain:	Potentiometer
Amplifier Slope:	Potentiometer
Combiner Attenuator:	Potentiometer

Related Products

Model	Description
AQT	8VSB/QAM-to-QAM Transcoder; Eight modules in 3RU
AQM	ASI-to-QAM Modulator with sub-band input; Six modulators in 2RU

RMAA

RACK-MOUNTED AUDIO AMPLIFIER

The Blonder Tongue Rack-mounted Audio Amplifier model RMAA (Stock No. 5220) consists of four (4) unbalanced-to-balanced stereo audio amplifiers housed in a 1RU chassis. It's suitable for use with our encoders model HDE-ASI (Stock No. 6320).

The HDE-ASI encoders is designed for professional commercial/studio applications. To obtain optimum audio performance, the audio input level for these encoders is recommended to be from 1.2 to 1.5 Volts RMS (3.5 to 5.5 dBµ). The audio level standard commonly used for these applications is +4 dBµ equaling 1.23 Volts RMS across 600 Ohms (balanced).

Consumer-grade audio/video sources such as DBS satellite receivers, set-top boxes, and DVD players, however, may not meet the +4 dBµ audio level standard described above – these sources typically provide a 1 Volt peak-to-peak output level (0.35 Volts RMS) through unbalanced RCA connectors. Using any of these audio/video sources will require an additional external unbalanced-to-balanced audio amplifier, for example the RMAA, in order to increase the audio level before input to the encoders.

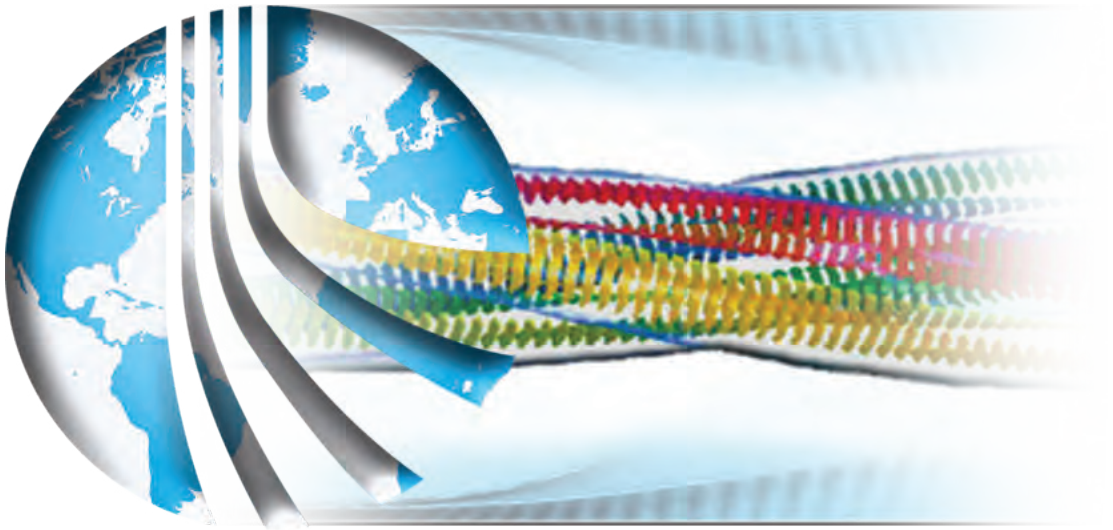
Refer to product instruction manual for additional specification measurements and notes.

Features

- 4 X 4 Unbalanced to Balanced Audio Amplifiers in 1RU
- Maintains proper audio levels and impedances between outputs from consumer style sources and professional equipment inputs

Ordering Information

Model	Stock #	Description
RMAA	5220	Rack-Mounted Audio Amplifier



EDGE/IP SOLUTIONS

BLONDER TONGUE LABORATORIES, INC.

EQAM-400B

EDGEQAM WITH PRO:IDIOM™

2x GbE (DTCP-IP) ▶ 16x QAM (PRO:IDIOM™)

The EQAM-400B, the third generation of the series, accepts HD content through its GbE input interfaces, and delivers up to sixteen (16) outputs in QAM format, protected with Pro:Idiom™ encryption, in the 54-996 MHz range. The EQAM-400B can be configured with up to four output modules, each capable of delivering four (4) adjacent QAM outputs. Each QAM channel can contain up to four HD programs encoded in MPEG-4 or MPEG-2 for a total of 64 HD programs delivered over 16 QAM RF channels.

The EQAM-400B is designed to accept two GbE inputs from several sources; to transcode program streams into QAM; and to add Pro:Idiom™ encryption to each program stream. This allows the operator to aggregate up to 64 HDTV program services over 16 QAM RF channels suitable for delivery over a standard coaxial distribution network in commercial facilities such as hotels, hospitals, assisted living residences, and universities.

64x HD Programs

(DTCP-IP)

16x QAM

w/Pro:Idiom™

CONTENT SECURITY

Features

- Optional software upgrades allow each QAM RF channel to contain 2, 3, or 4 HD programs for a total of 64 HD programs
- Configurable with up to 4 modules, each with four adjacent QAM channels, for a total of 16 QAM channels
- Comprehensive GUI-based menu for remote monitoring and control via Web browser
- Provides a front-panel RF test point (at 20 dB below primary QAM output)
- User-selectable QAM 16, 32, 64, 128, and 256 modulation modes
- Provides comprehensive management of receivers
- Provides SNMP v2 for product and network management
- Provides Null Packet deletion and addition
- Accepts variable and constant bitrate streams

Ordering Information

Model	Stock #	Description
EQAM-400B-1-8	6520B-1-8	EdgeQAM-400B equipped with 1 Quad-QAM output module & 2:1 software (8 HD programs)
EQAM-400B-1-12	6520B-1-12	EdgeQAM-400B equipped with 1 Quad-QAM output module & 3:1 software (12 HD programs)
EQAM-400B-1-16	6520B-1-16	EdgeQAM-400B equipped with 1 Quad-QAM output module & 4:1 software (16 HD programs)
EQAM-400B-2-16	6520B-2-16	EdgeQAM-400B equipped with 2 Quad-QAM output module & 2:1 software (16 HD programs)
EQAM-400B-2-24	6520B-2-24	EdgeQAM-400B equipped with 2 Quad-QAM output module & 3:1 software (24 HD programs)
EQAM-400B-2-32	6520B-2-32	EdgeQAM-400B equipped with 2 Quad-QAM output module & 4:1 software (32 HD programs)
EQAM-400B-3-24	6520B-3-24	EdgeQAM-400B equipped with 3 Quad-QAM output module & 2:1 software (24 HD programs)
EQAM-400B-3-36	6520B-3-36	EdgeQAM-400B equipped with 3 Quad-QAM output module & 3:1 software (36 HD programs)
EQAM-400B-3-48	6520B-3-48	EdgeQAM-400B equipped with 3 Quad-QAM output module & 4:1 software (48 HD programs)
EQAM-400B-4-32	6520B-4-32	EdgeQAM-400B equipped with 4 Quad-QAM output module & 2:1 software (32 HD programs)
EQAM-400B-4-48	6520B-4-48	EdgeQAM-400B equipped with 4 Quad-QAM output module & 3:1 software (48 HD programs)
EQAM-400B-4-64	6520B-4-64	EdgeQAM-400B equipped with 4 Quad-QAM output module & 4:1 software (64 HD programs)

Available to Pro:Idiom™ licensees only

Specifications

Input

Connectors	
Video Stream:	2 x RJ-45; 1000BaseT Ethernet (GbE)
Local Control:	2 x RJ-45;10/100BaseT Ethernet
Remote Control:	1 x RJ-45;10/100BaseT Ethernet
Stream Portfolio	
SPTS & MPTS:	Null Packet Deletion & Addition Muxing of input streams
Bitrate:	Variable and Constant

Output

No. of Output Modules:	4
Connector:	1 x "F" Female (for combined outputs)
Output (4 Modules)	
Modulation:	QAM 16, 32, 64, 128, and 256
Standards:	ITU-T J.83; Annex A and B
DVB Symbol Rate:	Variable; up to 7 MSymbol/sec (MBaud)
Frequency Range:	54 to 996 MHz
Tuning:	CATV Channel Selectable (CH. 2 to 157)
RF Bandwidth:	96 MHz (16x Adjacent 6 MHz)
RF Level:	+40 dBmV ±1 dB (95 dBµV ±1 dB)
RF Level Adjustment Range:	+35 to +42 dBmV, 1 dB increment
Frequency Tolerance:	± 0.5 kHz @ 77 °F (25 °C)
Frequency Stability:	± 5 kHz over 32 to 122 °F (0 to 50 °C)
Amplitude Flatness:	± 0.25 dB (over 6 MHz channel)
Phase Noise:	-98 dBc (@ 10 kHz)
Spurious:	-60 dBc
Broadband Noise:	-70 dBc (@ +35 dBmV output level, 5.5 MHz bandwidth)
Impedance:	75 Ω
Spectral Inversion:	Auto Recognition
Carrier Suppression:	45 dB
Return Loss:	14 dB typical
Signal-to-Noise Ratio (SNR):	40 dB typical
MER:	39 dB typical
I/Q Phase Error:	Less than 1 degree
I/Q Amplitude Imbalance:	Less than 1%

General

Dimensions (W x D x H):	19.0 x 18.125 x 1.75 inches (483 x 460 x 44 mm)
Power:	117 VAC/60 Hz (Fuse: 3.0 amp, 250 VDC, Slo Blo)
Power Dissipation:	60 W
Weight:	12 lbs (5.9 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Certifications:	UL/CSA 60950 CENELEC EN 55022 & 55024

Alarms/Monitoring/Control

Indicators:	1 x LED (Green): Power 4 x LED (Green): Output Module Present 1 x LCD (Green): Status
Local Monitoring/Control:	Front-panel IP Reset Switch See Remote Monitoring/Control
Remote Monitoring/Control Interface:	GUI-based menu via Web browser Field-upgradable firmware via FTP command
SNMP v2:	Error Log to Remote Server Ambient Temperature Settopbox Status QAM Lock

Related Products

Model	Description
AQM	ASI-to-QAM Modulator; Six modulators in 2RU
DQMx	4:1 ASI or 8VSB/QAM-to-QAM Multiplexer; 1RU
HDE-2H/2S-QAM	MPEG-2 HD Encoder; 2xHDMI + 2xHD-SDI +4xComponent inputs; 4xQAM + 4xGigE + 4xASI outputs; EAS compatible; 1RU
HDE-4S-QAM	MPEG-2 HD Encoder; 4xHD-SDI + 4xComponent inputs; 4xQAM + 4xGigE + 4xASI outputs; EAS compatible; 1RU
HD264-2S-IP	H.264 HD Encoder; 2xHD-SDI + 2xHDMI + 2xComponent inputs; 2xIP + 4xASI outputs; 1RU
HDE-CHV-QAM	MPEG-2 HD Encoder; 1xComponent/HDMI/VGA/Composite inputs; 1xQAM+1xASI+1xIP outputs
HDE-CSV-QAM	MPEG-2 HD Encoder; 1xComponent/HD-SDI/HDMI/VGA/Composite inputs; 1xQAM+1xASI+1xIP outputs

BLONDER TONGUE LABORATORIES, INC.

EQAM-420A

EdgeQAM

1xGbE ▶ 8xQAM (Clear or Pro:Idiom™)

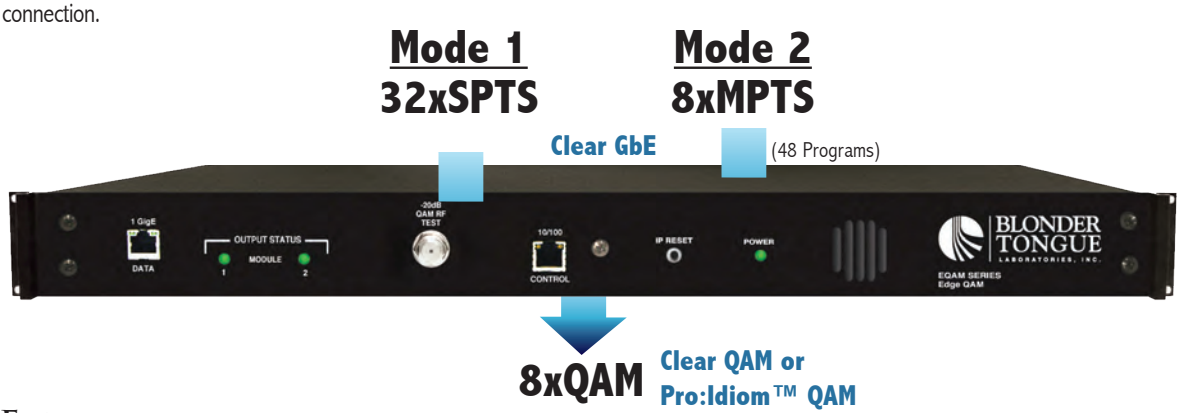
EQAM-420A (EdgeQAM – 420A) is designed to allow CATV operators to aggregate multiple SDTV/HDTV programs received in IP format and to deliver them over a standard coaxial distribution network.

The EQAM-420A is capable of accepting unencrypted (clear) 1000Base-T Ethernet (GbE) streams in one of the following two modes:
Mode 1: Up to thirty-two (32) MPEG-2/H.264 Single Program Transport Streams (SPTS)
Mode 2: Up to eight (8) MPEG-2/H.264 Multi Program Transport Streams (MPTS), each MPTS with maximum six (6) programs and not to exceed 38.8 Mbps.

The input streams are aggregated in up to eight (8) QAM RF channels in the 54-996 MHz range. The EQAM-420A can be configured with one (1) or two (2) QAM output modules, each capable of delivering four (4) adjoining QAM channels. Each QAM channel can contain up to four (4) programs.

The EQAM-420A allows the operator to maintain the QAM RF output unencrypted, or to encrypt it with Pro:Idiom™ against content piracy. To utilize the Pro:Idiom™ encryption feature, the input streams must meet the Pro:Idiom™ requirements. When Pro:Idiom™ encryption is activated, all QAM RF outputs will be encrypted regardless of the number of output modules present or the number of QAM RF channels assigned on each module.

Comprehensive remote monitoring and control is accomplished using any standard Web browser via a front-panel 10/100BaseT Ethernet connection.



Features

- Mode 1: Accepts up to thirty-two (32) MPEG-2/H.264 Single Program Transport Streams (SPTS)
- Mode 2: Accepts up to eight (8) MPEG-2/H.264 Multi Program Transport Streams (MPTS), each MPTS with maximum 6 programs and not to exceed 38.8 Mbps
- Configurable with one or two modules, each with four (4) adjacent QAM channels, for a total of eight (8) QAM channels
- Comprehensive GUI-based menu for remote monitoring and control via standard Web browsers
- User-selectable QAM 16, 32, 64, 128, and 256 modulation modes
- Provides a front-panel RF test point (at 20dB below primary QAM output)
- Provides SNMPv2 for product and network management
- Accepts variable and constant bitrate streams
- Provides Null packet insertion and deletion

Ordering Information

Model	Stock #	Description
EQAM-420A-1-16	6522A-1-16	EdgeQAM-420A equipped with 1 Quad-QAM output module (accepts 16 unencrypted HD programs)
	6522A-1-16P*	Same as above but with Pro:Idiom™ encrypted output
EQAM-420A-2-32	6522A-2-32	EdgeQAM-420A equipped with 2 Quad-QAM output modules (accepts 32 unencrypted HD programs)
	6522A-2-32P*	Same as above but with Pro:Idiom™ encrypted output
EQAM-420A-PIL	6522-PIL*	Software option to add Pro:Idiom™ encryption

* Available to Pro:Idiom™ licensees only

Specifications

Input

IP	
Connector:	1x RJ-45
Standard:	1000Base-T Ethernet
UDP/RTP:	Supported (user-selectable)
Stream Portfolio	
SPTS & MPTS:	Null Packet Deletion & Addition Muxing of input streams
Bitrate:	Variable and Constant

Output

QAM	
No. of Output Modules:	1 or 2 Quad-QAM
Connector:	1x "F" Female (rear-panel; for combined outputs)
Modulation:	QAM 16, 32, 64, 128, and 256
Standards:	ITU-T J.83; Annex A and B
DVB Symbol Rate:	Variable; up to 7 MSymbol/sec (MBaud)
Frequency Range:	54 to 996 MHz
Tuning:	CATV Channel Selectable (CH. 2 to 157)
Channels' Bandwidth:	24 MHz (4x Adjacent 6MHz)
No. of Programs:	Variable (not to exceed 38.8 Mbps)
RF Level:	+35 dBmV, ± 1 dB increment
RF Level Adjustment Range:	+30 to +37 dBmV, 1 dB increment
Frequency Tolerance:	± 0.5 kHz @ 77 °F (25 °C)
Frequency Stability:	± 5 kHz over 32 to 122 °F (0 to 50 °C)
Amplitude Flatness:	± 0.25 dB (over 6 MHz channel)
Phase Noise:	-98 dBc (@ 10 kHz)
Spurious:	-60 dBc
Broadband Noise:	-70 dBc (@ +35 dBmV output level, 5.5 MHz bandwidth)
Impedance:	75 Ω
Spectral Inversion:	Auto Recognition
Carrier Suppression:	45 dB
Return Loss:	14 dB typical
Signal-to-Noise Ratio (SNR):	40 dB typical
MER:	39 dB typical
I/Q Phase Error:	Less than 1 degree
I/Q Amplitude Imbalance:	Less than 1%

Requirements for Pro:Idiom™ Output

SPTS	
No. of programs:	1 program (not to exceed 38.8 Mbps)
Null Packets:	Required (as per Pro:Idiom™ requirements)
Stream ID:	User- assigned (as per Pro:Idiom™ requirements)
Audio:	Dolby AC-3 compliant
MPTS	
No. of programs:	Max. 6 programs per MPTS (not to exceed 38.8 Mbps)
Null Packets:	Required (as per Pro:Idiom™ requirements)
Stream ID:	User- assigned (as per Pro:Idiom™ requirements)
Audio:	Dolby AC-3 compliant

General

Dimensions (W x D x H):	19.0 x 18.125 x 1.75 inches (483 x 460 x 44 mm)
Power:	115-230VAC, 60/50Hz
Power Dissipation:	38 W
Weight:	18 lbs (5.9 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

Alarms/Monitoring/Control

Local Monitoring:	2x Output Status Module LEDs 1x "F" Female RF Test Port 1x Power LED
Local Control:	1x IP Reset button
Remote Monitoring/Control Interface:	GUI-based menu via standard Web Browsers (1x RJ45 front-panel connector;10/100Base-T)
SNMP v2:	Error Log to Remote Server Ambient Temperature QAM Lock

Related Products

Model	Description
EQAM-400B	EdgeQAM for DishNetwork's ViP222 applications
EQAM-430A	EdgeQAM for DirecTV's COM23-600 applications
HDE-2H/2S-QAM	MPEG-2 HD Encoder; 2xHDMI + 2xHD-SDI +2xComponent inputs; 4xQAM + 4xGigE + 4xASI outputs; EAS compatible; 1RU
HDE-4S-QAM	MPEG-2 HD Encoder; 4xHD-SDI + 4xComponent inputs; 4xQAM + 4xGigE + 4xASI outputs; EAS compatible; 1RU
HD264-2S-IP	H.264 HD Encoder; 2xHD-SDI + 2xHDMI + 2xComponent inputs; 2xIP + 4xASI outputs; 1RU

BLONDER TONGUE LABORATORIES, INC.

EQAM-430A

EdgeQAM with Pro:Idiom™

16x DIRECTV® COM23-600 ➤ 8x QAM (Pro-Idiom™)

EQAM-430A (EdgeQAM with Pro:Idiom™) is designed to allow operators, integrators, and resellers of **DIRECTV®** services to aggregate multiple HDTV programs for delivery over a standard coaxial distribution network in commercial facilities such as hotels, hospitals, assisted living residences, and universities. Comprehensive GUI-based remote monitoring and control capabilities, including SNMP-based management, allow service providers to remotely manage, operate, and trouble-shoot **DIRECTV®'s** COM23-600 receivers deployed in various locations from a centralized NOC (Network Operation Center).

EQAM-430A accepts HD content from up to sixteen (16) COM23-600 satellite receivers and delivers up to eight (8) outputs in QAM format, protected with Pro:Idiom™ encryption. The EQAM-430A can be configured with one or two output modules, each capable of delivering four (4) adjacent QAM RF channels. Each QAM channel can contain up to two HD programs encoded in MPEG-4 or MPEG-2 for a total of 16 HD programs delivered over eight (8) QAM RF channels.

16x COM23-600

(GbE)

8x QAM

w/ Pro:Idiom™

CONTENT SECURITY

Features

- Configurable with 1 or 2 output modules, each with four adjacent QAM channels, for a total of 8 QAM channels
- Comprehensive GUI-based menu for remote monitoring and control via Web browser
- Provides a front-panel RF test point (at 20 dB below primary QAM output)
- User-selectable QAM 16, 32, 64, 128, and 256 modulation modes
- Provides comprehensive management of receivers
- Provides SNMP v2 for product and network management
- Provides Null Packet deletion and addition
- Accepts variable and constant bitrate streams

Ordering Information

Model	Stock #	Description
EQAM-430A-1-8	6523A-1-8	EdgeQAM-430A equipped with 1 Quad-QAM output module & 2:1 software (8 HD programs)
EQAM-430A-2-16	6523A-2-16	EdgeQAM-430A equipped with 2 Quad-QAM output modules & 2:1 software (16 HD programs)
Available to Pro:Idiom™ licensees only		
HEMS-1-SS	2761	Serial Switch Rack Mounted; Facilitates command/control management between EdgeQAM-430A and up to 20 COM23-600 units
HEMS-1-USBK	2755	DB9-to-USB cables (QTY=20); Required for connecting 2761 to COM23-600's


2761

Specifications

Input (From up to 16x DIRECTV® COM 23-600)

Connectors	
Video Stream:	1 x RJ-45; 1000BaseT Ethernet (GbE)
Control:	1 x RJ-45;10/100BaseT Ethernet
Stream Portfolio	
SPTS & MPTS:	Null Packet Deletion & Addition PMuxing of input streams
Bitrate:	Variable and Constant

Output

No. of Output Modules:	2
Connector:	1 x "F" Female (for combined outputs)
Output Module Portfolio	
Modulation:	QAM 16, 32, 64, 128, and 256
Standards:	ITU-T J.83; Annex A and B
DVB Symbol Rate:	Variable; up to 7 MSymbol/sec (MBaud)
Frequency Range:	54 to 996 MHz
Tuning:	CATV Channel Selectable (CH. 2 to 157)
Channels' Bandwidth:	24 MHz (4x Adjacent 6 MHz)
RF Level:	+35 dBmV ±1 dB (95 dBµV ±1 dB)
RF Level Adjustment Range:	+30 to +37 dBmV, 1 dB increment
Frequency Tolerance:	± 0.5 kHz @ 77 °F (25 °C)
Frequency Stability:	± 5 kHz over 32 to 122 °F (0 to 50 °C)
Amplitude Flatness:	± 0.25 dB (over 6 MHz channel)
Phase Noise:	-98 dBc (@ 10 kHz)
Spurious:	-60 dBc
Broadband Noise:	-70 dBc (@ +35 dBmV output level, 5.5 MHz bandwidth)
Impedance:	75 Ω
Spectral Inversion:	Auto Recognition
Carrier Suppression:	45 dB
Return Loss:	14 dB typical
Signal-to-Noise Ratio (SNR):	40 dB typical
MER:	39 dB typical
I/Q Phase Error:	Less than 1 degree
I/Q Amplitude Imbalance:	Less than 1%

General

Dimensions (W x D x H):	19.0 x 18.125 x 1.75 inches (483 x 460 x 44 mm)
Power:	115-230 VAC; 60/50 Hz (Fuse: 3.0 amp, 250 VDC, Slo Blo)
Power Dissipation:	38 W
Weight:	12 lbs (5.9 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Certifications:	UL/CSA 60950 CENELEC EN 55022 & 55024

Alarms/Monitoring/Control

Indicators:	1 x LED (Green): Power 2 x LED (Green): Output Module Present
Local Monitoring/Control:	Front-panel IP Reset Switch See Remote Monitoring/Control
Remote Monitoring/Control Interface:	GUI-based menu via Web browser Field-upgradable firmware via FTP command
SNMP v2:	Error Log to Remote Server Ambient Temperature Settopbox Status QAM Lock

Related Products

Model	Description
AQM	ASI-to-QAM Modulator; Six modulators in 2RU
DQMx	4:1 ASI or 8VSB/QAM-to-QAM Multiplexer; 1RU

MUX-12A-IP

ASI-to-IP Multiplexer

12xASI ▶ 4xIP

MUX-12A-IP (12:4 ASI-to-IP Multiplexer; 12xASI > 4xIP) is designed for cherry-picking applications, allowing operators to create custom-made channel lineups by grooming standard-definition (SD) and high-definition (HD) programs on an as-needed basis.

The multiplexer accepts up to twelve (12) unencrypted MPEG-2/H.264 inputs in ASI format and multiplexes them into up to four (4) MPEG-2/H.264 Multi-Program Transport Streams (MPTS) which are then encapsulated and assigned to up to four (4) IPv4 addresses in 1000Base-T Ethernet (GigE) format suitable for distribution over Cat-5 networks. Any two (2) of the four (4) MPTS output streams are also available in ASI format.

Each ASI input stream can contain up to 20 unencrypted programs, for a total of 240 input programs. The GigE output can contain up to 20 programs groomed in up to four (4) MPTS output streams from any of the available 240 input programs, each MPTS output stream not to exceed 214 Mbps, and the sum of programs in all MPTS output streams not to exceed 20.

The multiplexer is **EAS-compliant (Emergency Alert System)** – operator can assign ASI port #12 as an EAS input which, when activated, will override the content of all other ASI inputs. Comprehensive remote monitoring and control is accomplished via a GUI-based interface using any standard web browser.

Features

- Accepts up to 12 unencrypted MPEG-2/H.264 Single or Multi-Program Transport Streams (SPTS or MPTS) in ASI format, each up to 270 Mbps
- Provides 1, 2, 3, or 4 MPTS output streams when operating in Single, Dual, Triple, or Quad IP Outputs Modes respectively
- Provides comprehensive GUI-based monitoring and control via standard Web Browsers
- Performs PCR (Program Clock Reference) correction, null packet insertion, and deletion
- Supports EAS (Emergency Alert System) input on ASI Input port 12
- Supports Uni- and Multi-cast thru RTP/UDP protocols
- Supports ARP, IGMPv2, and ICMP protocols
- Supports user-defined PSIP configuration

Ordering Information

Model	Stock #	Description
MUX-12A-IP	6517	12:4 ASI-to-IP Multiplexer; 12xASI inputs; 4xIP(GigE) + 2xASI outputs; EAS compliant

SPECIFICATIONS

INPUT

ASI	
Connectors:	12x BNC
Format:	DVB-ASI
Standard:	ETSI EN 50083-9

MULTIPLEXING PROFILE

Video	
No. of progs per ASI input:	20 max (unencrypted)
No. of progs in GigE output:	20 max
No. of MPTS:	4 max
No. of PID per prog:	10 per SPTS including PAT, PMT, PSIP
PID (Packet Identifier) Management:	Editing/re-mapping allowed (user-defined)
PAT (Program Association Table):	Supported
PMT (Program Map Table):	Supported
VCT (Virtual Channel Table):	Supported
MGT (Management Table):	Supported
Audio	
Output Format:	Dolby® Digital AC3, MPEG-1 Layer 2, AAC
Audio Services per prog:	3 max

OUTPUT

GigE	
Connectors:	1x RJ45 (Rear-panel)
Standard:	1000Base-T Ethernet
UDP/RTP:	Supported (user-selectable)
Data Throughput:	214 Mbps
Address Assignment:	4x IPv4 addresses & port numbers (user-selectable)
ASI	
Connectors:	1x BNC (Front-panel) 1x BNC (Rear-panel)
Output Assignment:	Any 1 of 4 MPTS output streams per connector
Format:	DVB-ASI
Standard:	ETSI EN 50083-9

GENERAL

Dimensions (W x D x H):	19.0 x 16.875 x 1.625 inches (483 x 429 x 41 mm)
Power:	115 to 230 VAC/ 50 to 60 Hz (Fuse: 2.0 amp, 250 VDC, Slo Blo)
Power Dissipation:	17 W
Weight:	7 lbs (3.2 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

ALARMS/MONITORING/CONTROL

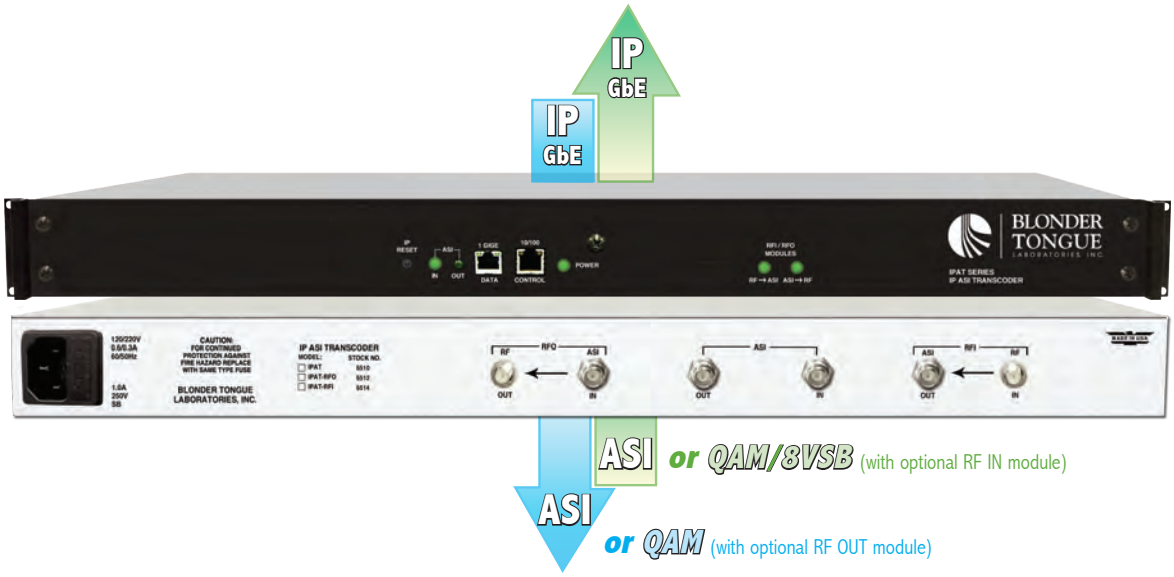
Local Monitoring:	12x ASI Input LEDs 1x Power LED 1x Status LED
Local Control:	1x IP Reset button
Remote Monitoring/Control:	GUI-based menu via standard Web Browsers (1x RJ45 rear-panel connector; 10/100Base-T)
SNMP v2:	Temperature ASI Status Error Log

RELATED PRODUCTS

Model	Description
MUX-2D-QAM	8VSB/QAM Multiplexer; 2x8VSB/QAM inputs; 1xQAM output; EAS compatible; 1RU
MUX-2A-QAM	ASI/QAM Multiplexer; 2xASI inputs; 1xQAM output; EAS compatible; 1RU
IPAT	IP-ASI Transcoder; 1xIP + 1xASI input; 1xASI + 1xIP output; 1RU
DQMx	Digital QAM Multiplexer; 4x8VSB/QAM/ASI inputs; 1xQAM output; 1RU
AQM	Agile QAM Modulator; 1xASI input; 1xQAM output; 6 modulators in 2RU

IPAT
IP - ASI Transcoder
1x GbE ◄► 1x ASI

IPAT (IP ASI Transcoder) is a bi-direction IP ⟺ ASI transcoder that accepts MPEG2/4-encoded input streams in 1000Base-T Ethernet (GbE) and ASI formats simultaneously. GbE input is transcoded to ASI output while ASI input is transcoded to GbE output.



Two factory-installed optional modules (the **RF IN** and the **RF OUT**) allow input/output in QAM & 8VSB formats rendering the product suitable for a wider range of applications.

An integrated web server provides comprehensive GUI-based local and remote control/monitoring thru any standard Web browser via a front-panel 10/100BaseT interface.

Features

ASI Input/Output interface
- Supports Single or Multi Protocol Transport Services (SPTS or MPTS)
- Performs PCR (Program Clock Reference) correction
- Allows Null Packet insertion & deletion

GbE Input/Output interface
- Provides robust protection against IP network jitter and delay
- Performs PCR (Program Clock Reference) replacement
- Supports Uni- and Multi-cast thru RTP/UDP protocols
- Supports IPv4, ARP, IGMPv2, and ICMP protocols
- Supports variable and constant bitrates

Optional RF modules
- RF IN/OUT modules support both 8VSB and Annex A/B QAM modes
- RF IN module accepts 8VSB free-to-air & NTSC CATV standard channels 2-135
- RF OUT module provides NTSC CATV standard/sub-band channels 2-135/T7-T14
- RF OUT module provides output level of +40 dBmV

Ordering Information

Model	Stock #	Description
IPAT	6510	GbE-to-ASI and ASI-to-GbE transcoder
IPAT-RFO	6512	IPAT equipped with RF OUT module
IPAT-RFI	6514	IPAT equipped with RF IN module

Specifications

IPAT (Stock # 6510)

IP Input/Output Interface	
Connector:	1 x RJ45
Format:	Gigabit Ethernet (GbE)
Standard:	IEEE 802.3 10/100/1000Base-T Ethernet
Protocols:	IPv4, RTP/UDP, ARP, IGMPv2, ICMP
ASI Input/Output Interface	
Connector:	1 x BNC
Format:	DVB-ASI, 270 Mbps
Standard:	ETSI EN 50083-9

General

Dimensions (W x D x H):	19.0 x 18.125 x 1.75 inches (483 x 460 x 44 mm)
Power:	117 to 230 VAC/ 50 to 60 Hz (Fuse: 2.0 amp, 250 VDC, Slo Blo)
Power Dissipation:	Less than 40 W
Weight:	6 lbs (2.7 kg)
Operating Temperature:	32 to 122°F (0 to 50 °C)
Storage Temperature:	-13 to 158°F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35°C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35°C max, non-condensing

Alarms/Monitoring/Control

Indicators:	Power (1x Green LED) IP/ASI Input/Output Status (2x Green LEDs) RF IN/RF OUT Module Status (2x Green LEDs)
Monitoring/Control:	GUI-based menu via Web browser Front-panel RJ-45 interface (10/100 Base-TX Ethernet)

RF IN Module (optional)

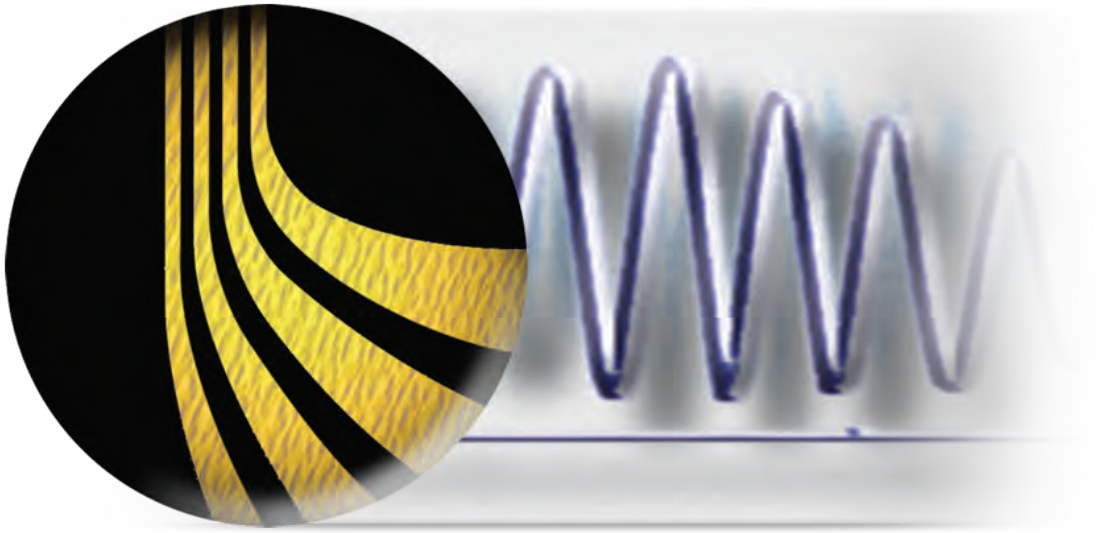
Connector In/Out:	"F" Female / BNC
INPUT	
8VSB:	ATSC Digital Television Standard A/53E
QAM:	ITU-T J.83 (64 and 256 QAM)
8VSB Mode	
Tuning Range:	UHF (NTSC Ch. 14-78), VHF (NTSC Ch. 2-13)
Symbol Rate:	10.762 Msymbols/sec
Bandwidth:	6 MHz
QAM Mode	
Tuning Range:	CATV (NTSC Ch. 2-135)
Symbol Rate:	5.3606 Msymbols/sec (QAM 256); 5.057 Msymbols/sec (QAM 64) – Auto Detect
Bandwidth:	6 MHz
Single Channel Power Level:	-32 to +45 dBmV
8VSB Power Level:	-20 to +30 dBmV
QAM Power Level:	-20 to +20 dBmV
Return Loss:	12 dB
Impedance:	75 Ω
OUTPUT	
Format:	DVB-ASI, 270 Mbps
Standard:	ETSI EN 50083-9

RF OUT Module (optional)

Connector In/Out:	BNC / "F" Female
INPUT	
Format:	DVB-ASI, 270 Mbps
Standard:	ETSI EN 50083-9
OUTPUT	
QAM Modulation Modes:	16, 32, 64, 128, 256, 512, and 1024
DVB Symbol Rate:	Variable; 1 to 10 MSymbols/sec (MBaud)
Frequency Range:	5.75 to 864 MHz
QAM Tuning:	Per NTSC ch. from 2 to 135 & T7 to T14 Per PAL ch. center-frequency (12.5 kHz increments)
RF Level:	+40 dBmV (100 dBµV)
RF Level LCD Screen Error:	± 2 dB
RF Level Adjustment Range:	30 to 40 dBmV
Frequency Tolerance:	± 0.5 kHz @ 77 °F (25 °C)
Frequency Stability:	± 5 kHz over 32 to 122 °F (0 to 50 °C)
Amplitude Flatness:	± 0.25 dB (over 6 MHz channel)
Phase Noise:	-98 dBc (@ 10 kHz)
Spurious:	-60 dBc
Broadband Noise:	-75 dBc (@ +40 dBmV output level, 4 MHz bandwidth)
Impedance:	75 Ω
Return Loss:	12 dB
Spectral Inversion:	Auto Recognition
Carrier Suppression:	55 dB
SNR:	Greater than 40 dB
MER:	Greater than 40 dB
I/Q Phase Error:	Less than 1 degree
I/Q Amplitude Imbalance:	Less than 1%

Related Products

Model	Description
DQMx	4x1 ASI or 8VSB/QAM-to-QAM Modulator; 1RU
AQM	1x1 ASI-to-QAM Modulator; Six modulators in 2RU



CATV

PRODUCTS

VHF/UHF Antennas

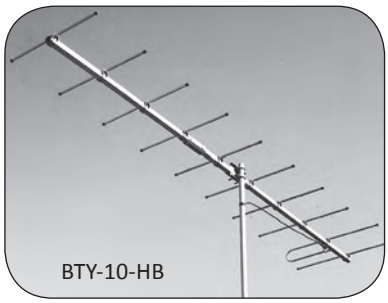
BTY Series

The BTY Series of professional quality antennas include single channel and broadband models designed for a variety of UHF and VHF applications. The BTY Series features high gain, narrow beamwidth, and low side lobes.

All models can be shipped via UPS to reduce freight and handling costs. Square boom construction and end-sealed aluminum elements provide added strength, excellent wind resistance and exceptional weathering properties. On VHF models, the heavy duty mounting bracket is positioned at the antenna's center of gravity for balanced mounting to the mast. An optional cantilever mounting bracket (Stock No. 5760) is required for VHF antenna end mount installations. This optional mount permits attaching the VHF antenna to either a horizontal or vertical tower member. All UHF models are designed for end mounting due to their smaller physical size. The BTY Series Antennas can accommodate a maximum mast size of 2.5" O.D. (outside diameter). All models are 75 Ω impedance with an "F" connector.

❍ VHF Features & Benefits

- High Gain, Low Sidelobes
- Foam-Filled Elements Dampen Vibration
- Cantilever Mounts Available

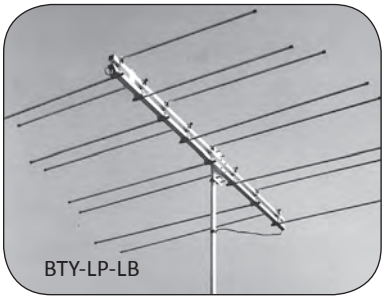


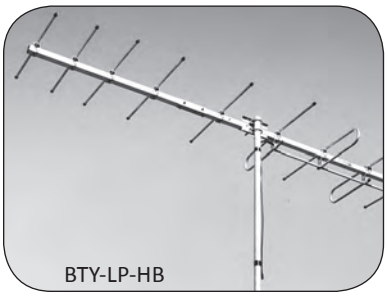
BTY-10-HB

❍ Specifications

Model: BTY-10-HB **VHF Single Channel:**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
Bandwidth (MHz):	8	8	8	8	8	8	8
Gain (dBi):	13.2	13.2	13.2	13.2	13.2	13.2	13.2
3 dB Beamwidth Horizontal (Degrees):	51	51	51	51	51	51	51
Front to Back Ratio (dB):	17	17	17	17	17	17	17
Return Loss (dB):	17	17	17	17	17	17	17
Impedance:	75 Ω						
Connector:	"F" Female						
Number of Elements:	10	10	10	10	10	10	10
Boom Length (Inches):	131	126	122	118	115	110	106
Max Element Width (Inches):	33	32	32	31	31	29	28
Boom Material:	6063-T6 Alum. Tube 1.25" square, 0.062" wall						
Element Material:	6063-T52 Alum. Tube 0.5" round, 0.049" wall						
Max Cross Sectional Area (sq. ft.):	1.48	1.43	1.4	1.35	1.33	1.28	1.25
Wind Resistance @ 100 MPH (No Ice, in lbs.):	52.56	50.83	49.44	48	47	45	43.88
Antenna Weight (lbs.):	9.61	9.49	9.37	8.86	8.99	8.74	8.61
Maximum Shipping Weight (lbs.):	13.25						

Specifications and Ordering Information are located on the following pages.


BTY-LP-LB


BTY-LP-HB


BTY-LP-BB

❍ Broadband Features & Benefits

- High Gain, Low Sidelobes
- Foam-Filled Elements Dampen Vibration
- Cantilever Mounts Available
- BTY-LP-BB joins with BTY-UHF-BB for complete VHF/UHF Antenna (requires U/V mounting kit # 4882)

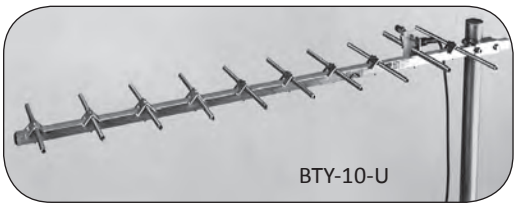
❍ Specifications

Model:	**BTY-LP-LB**	**BTY-LP-HB**	**BTY-LP-BB**
Band	**LB**	**HB**	**BB**
VHF Channel:	**2 to 6**	**7 to 13**	**2 to 13**
Bandwidth (MHz):	55-88	174-216	54-88; 174-216
Gain (dBi):	9	12.2	8.2
3 dB Beamwidth Horizontal (Degrees):	57	50.5	70
Front to Back Ratio (dB):	22	20	18
Return Loss (dB):	14	12	12
Impedance:	75 Ω		
Connector:	"F" Female		
Number of Elements:	8	10	12
Boom Length (Inches):	86	104	96.4
Max Element Width (Inches):	109.13	35.5	114.13
Boom Material:	6063-T6 Alum. Tube 1.25" square, 0.062" wall		
Element Material:	6063-T52 Alum. Tube 0.5" round, 0.049" wall		
Max Cross Sectional Area (sq. ft.):	1.9	1.3	2
Wind Resistance @ 100 MPH (No Ice, in lbs.):	76.2	52	80
Shipping Weight (lbs.):	15.25	13.25	17.75

Specifications and Ordering Information are located on the following page.

VHF/UHF Antennas

BTY Series



❍ UHF Features & Benefits

- High Gain, Low Sidelobes
- BTY-UHF-BB Joins with BTY-LP-BB for a Combined U/V Antenna
- HDTV Compatible
- Rear Mount Simplifies Tower Mounting

❍ Specifications

UHF Model:	BTY-10-U						BTY-UHF-BB
Band	A	B	C	D	E	F	UHF
Channels:	(14-19)	(20-26)	(27-34)	(35-44)	(45-56)	(57-69)	14 to 69
Bandwidth (MHz):	470-506	506-548	548-596	596-656	656-728	728-806	470-860
Gain (dBi):	12.2	14.2	13.2	12.2	12.2	12.2	10.2
3 dB Beamwidth (Horizontal Degrees):	46	46	46	46	46	46	62
Front to Back Ratio (dB):	21	16	19	20	18	14	18
Return Loss (dB):	18	16	18	16	15	14	12
Impedance:	75 Ω						
Connector:	"F" Female						
Number of Elements:	10	10	10	10	10	10	11
Boom Length (Inches):	48.58	48	44.06	42.94	39	37.88	24
Max Element Width (Inches):	12.88	12.44	11	10.5	10	9.13	13
Boom Material:	6063-T6 Alum. Tube 0.75" Square, 0.062" Wall						
Element Material:	6063-T52 Alum. Tube 0.375" Round, 0.049" Wall (Dipole .5" Round,0.049 Wall)						
Max Cross Sectional Area (sq. ft.):	0.468	0.468	0.468	0.468	0.468	0.468	0.341
Wind Resistance @ 100 MPH (No Ice, in lbs.):	16.52	16.52	16.52	16.52	16.52	16.52	13.6
Shipping Weight (lbs.):	4.25	4.25	4.25	4.25	4.25	4.25	5.38

❍ Ordering Information

Model	Stock No.	Description
BTY-10-HB	4867-xx	Antenna Single Channel High-Band VHF, 10 Elements, 174-216 MHz
BTY-LP-HB	4871	Antenna Broadband High-Band VHF, 10 Elements, 174-216 MHz
BTY-LP-LB	4872	Antenna Broadband Low-Band VHF, 8 Elements, 55-88 MHz
BTY-10-U	4873-xx	Antenna Single Channel UHF, 10 Elements, 470-806 MHz
BTY-LP-BB	4874	Antenna Broadband VHF, 12 Elements, 54-88/174-216 MHz
BTY-UHF-BB	4875	Antenna Broadband UHF Antenna, 11 Elements, 470-890 MHz
BTY-UVMK	4882	BTY Series U/V Mounting Kit

Single Channel VHF and UHF Preamplifiers

CMA-b & SCMA-Ub Series

❍ Features & Benefits

- Low Noise Figure
- Excellent Gain and Response Flatness
- Superior Adjacent Channel Overload Rejection
- Output Test Port for Uninterrupted Service Testing
- Ideal For All BTY Series Single Channel Antennas

The CMA-b and SMCA-Ub Single Channel Preamplifier Series are professional quality, very low noise, single channel VHF/FM and UHF preamplifiers. The CMA-b is optimized for a single VHF channel or FM Band (88-108 MHz), while the SCMA-Ub is optimized for a single UHF channel. These preamplifiers can accept a wide range of input signal levels and offer excellent gain, making these units ideal for difficult signal areas. The SCMA-Ub has an internal trap that can be factory tuned to a customer specified UHF frequency to prevent overload or intermodulation interference from strong, local channels.

The CMA-b/SCMA-Ub Single Channel Preamplifier Series are housed in a die-cast case. Input, output, and test ports are 75 Ohm, type "F" female connectors. The preamplifiers mount on a 1.5 inch O.D. (max) antenna mast with the supplied mounting hardware. Blonder Tongue PS Series -21 VDC power supplies (available separately) are used to power the preamplifiers through the downleads.

❍ Specifications

Electrical	**CMA-b**	**SCMA-Ub**
Noise Figure (dB):	3.5 (2-6), 2.0 (FM), 2.5 max (7-13)	2.5 (14-69)
Trap Depth (dB):	NA	10
Gain (dB):	29 (2-6), 24 (FM), 26 (7-13)	25 (14-34), 24 (35-69)
Bandwidth (MHz):	6, 20 (FM)	6
Bandpass Flatness (dB):	±0.25 (2-13), 1.0 (FM)	±0.75
Selectivity (dB):	12	12
Minimum Recommended Input Level (dBmV):-	10	10.5
Input Capability (dBmV):	+35	+35
Impedance - All Ports:	75 Ω	75 Ω
General		
Power Requirements:	-21 VDC @ 40 mA	--21 VDC @ 29 mA
Recommended BT Power Supply:	PS-1526	PS-1526
Temperature Range (°C):	-40 to +60	-40 to +60
Mechanical		
Max. Mast Diameter O.D. (in.):	1.5	1.5
Dimensions		
W x H x D in.:	5.00 x 3.88 x 2.31	5.00 x 3.88 x 3.00
W x H x D mm:	127 x 99 x 59	127 x 99 x 76
Weight		
lbs:	1.31	1.31
kg:	0.60	0.60
Connectors (Common to All)		
Input:	"F" Female	"F" Female
Output:	"F" Female	"F" Female
Test:	"F" Female	"F" Female

❍ Ordering Information

Model	Stock No.	Description
SCMA-Ub	4426	Preamplifier Single Channel UHF, 470-806 MHz (specify channel)
CMA-B	4706	Preamplifier Single Channel VHF/FM, 54-216 MHz (specify channel)
PS-1526	1526	Power Supply Single Output, -21 VDC @ 40 mA
PS-1536	1536	Power Supply Dual Output, -21 VDC @ 100 mA

Broadband VHF and UHF Preamplifiers

CMA Series

❍ Features & Benefits

- Low Noise Figure
- Output Test Port for Uninterrupted Service Testing
- High Gain and Input Capability
- Ideal For All BTY Series Broadband Antennas

The CMA Broadband Preamplifier Series includes professional quality, low noise, broadband VHF & UHF preamplifiers. CMA's are available in two different models for amplification of broadband VHF and broadband UHF. The CMA Series are housed in a die-cast case. Input, output, and test ports are 75 Ohm, type "F" female connectors. The CMA's mount on a 1.5 inch O.D. (max) antenna mast with the supplied mounting hardware. Blonder Tongue PS Series -21 VDC power supplies (available separately) are used to power the preamplifiers through the downleads.

❍ Specifications

Electrical	**CMA-BB**	**CMA-Uc**
Frequency Range (MHz):	54-216 (2-13)	470-806 (14-69)
Noise Figure (dB):	5.0	3.0
Gain (dB):	26	20
Bandpass Flatness (dB):	±0.7	±1.5
Min. Recommended Input Level (dBmV):	-7	-9
Input Capability (dBmV):	+25	+26
Impedance - All Ports (Ω):	75	75
Input Return Loss (dB):	11	-
Output Return Loss (dB):	8	-
General		
Power Requirements:	-21 VDC @ 50 mA	-21 VDC @ 29 mA
Recommended BT Power Supply:	PS-1536	PS-1526
Temperature Range (°C):	-40 to +60	-40 to +60
Mechanical		
Maximum Mast Diameter O.D. (in.):	1.5	1.5
Dimensions		
W x H x D in:	5.13 x 5.25 x 3.50	5.00 x 3.88 x 3.00
W x H x D mm:	130 x 133 x 89	127 x 99 x 76
Weight		
lbs.:	1.50	1.31
mm:	0.68	0.60
Connectors (Common to both)		
Input:		"F" Female
Output:		"F" Female
Test:		"F" Female

❍ Ordering Information

Model	Stock No.	Description
CMA-BB	4448 BB	Preamplifier Broadband VHF, 54-216 MHz
CMA-UC	1264	Preamplifier Broadband UHF, 470-806 MHz
PS-1526	1526	Power Supply Single Output, -21 VDC @ 40 mA
PS-1536	1536	Power Supply Dual Output, -21 VDC @ 100 mA

Preamplifier Power Supplies
PS Series

PS-1526

PS-1536

❍ Features & Benefits

- Regulated and Surge Protected
- Auxiliary AC Receptacle

The PS-1526 and PS-1536 are professional quality, DC power supplies designed to power SCMA and CMA Series antenna preamplifiers. Both units provide -21 VDC and allow for a combined VHF and UHF feed to be diplexed with the power feed. The PS-1536 has a dual output for powering two loads, with a maximum current rating of 100 mA. The PS-1526 has a single output for powering one load, with a maximum current rating of 40 mA.

The PS-1526 and PS-1536 are housed in an aluminum case with an auxiliary AC receptacle. Both units offer regulated and surge-protected power. The PS-1536 has a panel mounted fuse, provides an additional level of short circuit protection on the regulator and a clamped output voltage to protect connected loads.

❍ Specifications

PS-1536

RF

Thru-Line Insertion Loss
VHF (10-300 MHz): 0.2 dB
UHF (470-806 MHz): 0.2 dB

Thru-Line Return Loss
VHF (10-300 MHz): 20 dB
UHF (470-890 MHz): 20 dB

Isolation Between Outputs:
10-700 MHz: 50 dB
700-806 MHz: 35 dB

Impedance: 75 Ω

Electrical

Output Voltage: -21 VDC

Current @ 105 VAC Input: 100 mA

General

Power Requirements:
117 VAC, ±10 %,
60 Hz, 0.11 A

Temperature Range: 0 to +50 °C

Mechanical

Dimensions (W x H x D):
8.25 x 3.50 x 2.25 in.
210 x 89 x 57 mm

Weight: 2.00 lbs., 0.91 kg

Connectors

Input: "F" Female

Output: "F" Female

PS-1526

RF

Thru-Line Insertion Loss
VHF (10-300 MHz): 0.3 dB
UHF (470-806 MHz): 0.5 dB

Thru-Line Return Loss
VHF (10-300 MHz): 26 dB
UHF (470-890 MHz): 22 dB

Impedance: 75 Ω

Electrical

Output Voltage: -21 VDC

Current @ 105 VAC Input: 40 mA

General

Power Requirements:
117 VAC, ±10 %,
60 Hz, 0.07 A

Temperature Range: 0 to +50 °C

Mechanical

Dimensions (W x H x D):
4.75 x 3.25 x 2.75 in.
121 x 83 x 70 mm

Weight: 1.25 lbs., 0.57 kg

Connectors

Input: "F" Female

Output: "F" Female

❍ Ordering Information

Model	Stock No.	Description
PS-1526	1526	Power Supply Single Output, -21 VDC @ 40 mA
PS-1536	1536	Power Supply Dual Output, -21 VDC @ 100 mA

Consumer Broadband Preamplifiers

Galaxy III

GALAXY III Series

❍ Features & Benefits

- UHF/VHF and UHF Models
- Low Noise Figure
- Split Band Amplification for Maximum Dynamic Range and Overload Protection
- Dual Output Port Models with Built-in Splitter For Two Set Hookups
- Single or Dual Input Models for Combined or Separate UHF and VHF Antenna Installations
- Lightning and Surge Protected
- High Impact Plastic Enclosure

The GALAXY III Series are quality broadband antenna preamplifiers designed for residential consumer applications. The preamplifier's case is designed to mount on the antenna mast in close proximity to the receiving antenna for best performance. A compact indoor transformer and power adder are included with all models. The GALAXY III Series features lightning and surge protection and a high impact polypropylene case for long service life. Many UHF and UHF/VHF models are available, including units with 300 or 75 Ohm, single or dual outputs. Each preamplifier is individually packaged in a display box and includes complete mast mounting hardware.

❍ Specifications

	Input Impedance Ω	Output Impedance Ω	Frequency Band	Amplifier Gain (dB)	Noise Figure (dB)
UHF					
ABLE U2 III	1-300	1-300	UHF (14-69)	19	3.3
ABLE U2 III 75	1-300	1-75	UHF (14-69)	20	3.5
ABLE U2 III 75-75	1-75	1-75	UHF (14-69)	20	3.5
UHF/VHF					
SUBURBAN III	1-300	1-75	LB (2-6) HB (7-13) UHF (14-69)	15 15 19	5.0 5.0 4.0
VOYAGER III	1-300	1-300	LB (2-6) HB (7-13) UHF (14-69)	14 16 18	5.0 5.0 3.3
VAULTER III	1-300 VHF 1-300 UHF	1-75	LB (2-6) HB (7-13) UHF (14-69)	15 15 20	5.0 5.0 3.5
VAULTER III DUAL	1-300 VHF 1-300 UHF	2-75	LB (2-6) HB (7-13) UHF (14-69)	14 16 18	5.0 5.0 3.3

❍ Ordering Information

Model	Stock No.	Description
ABLE U2 III	5118	Consumer Broadband UHF Preamplifier 1-300 Ω Output
ABLE U2 III 75	5119	Consumer Broadband UHF Preamplifier 1-75 Ω Output
ABLE U2 III 75-75	5219	Consumer Broadband UHF Preamplifier 1-75 Ω Output
SUBURBAN III	5123	Consumer Broadband VHF/UHF Preamplifier 1-75 Ω Output
VAULTER III	5124	Consumer Broadband VHF/UHF Preamplifier 1-75 Ω Output
VAULTER III DUAL	5125	Consumer Broadband VHF/UHF Preamplifier 2-75 Ω Outputs
VOYAGER III	5122	Consumer Broadband VHF/UHF Preamplifier 1-300 Ω Output

Triple Channel Frequency Agile Audio/Video Modulators

FAxM Series

❍ Features & Benefits

- Rack Mountable - 1 EIA (1.75") Rack Space
- Supports All Broadcast and CATV Channels, Including HRC and IRC Assignments from 54 to 860 MHz
- Front Panel Accessible Level Controls for Easy Set-Up and Adjustments
- Fully Compatible With BTSC Encoded Stereo Audio

The FA3M is a professional quality, multiple channel agile audio/video modulator. This unit provides audio and video modulated RF carriers on any channel in the 54 to 860 MHz frequency range, using only one rack space. Any standard audio/video source can be used, such as satellite receivers, television cameras, video tape recorders, or television demodulators. Agile channel selection permits on site channel changes and reduces the need for large inventories of channelized products.

NOTES

(a) continuously adjustable
(b) 4 MHz bandwidth, +50 dBmV output, 3 channels combined
(c) meets FCC CATV group delay pre-distortion requirements for color transmission
(d) 87.5% depth of modulation
(e) for 25 kHz peak deviation
(f) available via internal jumper setting
(g) referenced to standard 75 µs pre-emphasis
(h) 30 Hz to 15 kHz, 25 kHz deviation
(i) 0 °C to +50 °C
(k) continuously adjustable, optimum performance at +40 to +50 dBmV
(l) AC current with 3 modules installed

❍ Specifications

RF

Frequency Range: 54-860 MHz
Channels: CATV, VHF, UHF (STD, HRC, IRC)
FCC Offset (pre-programmed): 0, +12.5, or 25 kHz
Output Level - Combined Min: +50 dBmV
Output Level Adjust: 15 dB (k)
Aural/Visual Carrier Ratio: -10 to -17 dB (a)
Visual Carrier Frequency Tolerance
Standard Channels: ±5 kHz
FCC Aeronautical Channels: ±3 max kHz
4.5 MHz Aural Inter Carrier Frequency: ±1 kHz (i)
Channel Selectivity:
Adjacent Aural and Below: -40 dB
Adjacent Picture and Above: -50 dB
Spurious Outputs: -60 dBc
C/N Ratio In Channel: 63 dB (b)
Broadband Noise: -70 dBc (b)
Output Impedance: 75 Ω
Output Return Loss: 12 dB

Video

Input Level: 1.0 V p-p (d)
Frequency Response fv-0.5 MHz to fv+4.2 MHz: ±1.0 dB
P-P Video to RMS Hum Ratio: 65 dB
Video Signal-to-Noise Ratio, NTC-7 Weighted: 62 dB
Differential Gain: 2.0 % (d)
Differential Phase: 1.0 ° (d)
C/L Delay Inequality: see note(c)
Over Modulation Indicator: 87.5, ±2.5 %
Input Impedance: 75 Ω
Input Return Loss: 24 dB, min

Audio

Input Level: 140 mV RMS (e)
Frequency Range: 20 Hz to 20 kHz
Pre-Emphasis-Mono: 75 µs
Frequency Response: ±1.0 dB (g)
If Pre-Emphasis Defeated: +0.5 dB
Audio Signal-to-Noise: 58 dB (e)
Total Harmonic Distortion: 0.6% (h)
Over Modulation Indicator : 25, ±2 kHz
Input Impedance: Greater than 10 K Ω, unbalanced

General

Power Requirements: 110 VAC to 260 VAC
Frequency: 47 to 63 Hz
Temperature Range: 0° to +50° C
AC Current (l): 0.32 Amp for 115 VAC
Output Voltage: +12 Vdc, + 5 Vdc
Max Current Output / Voltage: 0.7 Amp

Mechanical

Dimensions (W x H x D):
19 x 1.75 x 14.25 in.
228.6 x 44.45 x 361.95 mm
Weight: 7 lbs., 3.17 kg

Connectors

Video Input: "F" Female
Audio Input: RCA Female
RF Output: "F" Female

Controls

Channel Selection: Up/Down Push-Buttons
Video Level: Control
A/V Ratio: Control
Audio Level: Control
RF Output Level: Control
Channel Enter: Push-Button

Indicators

2 Digital LED Channel Display
+100 Indicator: LED, Red
Video Over Modulation: LED, Red
Audio Over Modulation: LED, Red
Stereo Indicator: LED, Green - Not Used

Refer to product instruction manual for additional specification measurements and notes.

❍ Ordering Information

Model	Stock No.	Description
FA3M-50-860	59713B	Frequency Agile Modulator, Triple Channel Unit Agile Output 54-860 MHz, STD CATV, HRC, IRC, +50 dBmV

ACM 806A

AGILE CHANNEL MODULATOR

ACM-806A is a frequency-agile analog audio/video modulator suitable for NTSC channels 2-125 (54-806 MHz).

Features

- Front-panel LED display and Controls for convenient monitoring and operation
- Compact design allows for deployment of 12 channels in 2RU
- Utilizes SAW filters for improved performance
- Die-cast chassis for RFI immunity

Ordering Information

Model	Stock #	Description
ACM-806A	7765A	Frequency-agile Audio/Video Modulator, +45 dBmV, 54-806 MHz
MIRC-12V	7715	Rack Chassis (holds up to 12 modulators)
MIPS-12D	7722D	100-240 VAC; 50/60 Hz power supply (one per chassis)
MIRC-4D	7711	Horizontal Rack Chassis equipped with Power Supply

MIRC-4D

Specifications

Input

Video	
Connector:	"F" Female
Impedance:	75 Ω
Return Loss:	18 dB min
Input Level:	1.0 volt peak-to-peak (87.5% depth of mod.)
Frequency Response:	1.0 dB peak-to-valley (fv to fv+4.2 MHz)
Differential Gain:	2.0% (87.5% depth of modulation)
Differential Phase:	1.0 degree (87.5% depth of modulation)
Chrominance/Luminance Delay:	Per FCC Requirements
Mono Audio (standard)	
Connector:	RCA
Input Impedance:	Greater than 10 kΩ, unbalanced
Input Level: (for 25 kHz deviation)	0.4 volt peak-to-peak (min.)
Frequency Range:	50 Hz to 12 kHz
Total Harmonic Distortion:	<1% @ 25 kHz deviation
Signal-to-Noise Ratio:	60 dB

Output

Connector:	"F" Female
Impedance:	75 Ω
Return Loss:	10 dB
Frequency Range:	54 to 806 MHz (NTSC CATV Ch. 2 -125)
Power Level:	+45 dBmV
Power Level Range:	10 dB continuously adjustable
Carrier-to-Noise: (In Channel)	60 dB
Broadband Noise:	-75 dBc (@ +45 dBmV output level, 4 MHz bandwidth)
Spurious Outputs:	-60 dBc
Aural/Visual Carrier Ratio:	-15 dB factory set (user adjustable -11 to -19 dB)
4.5 MHz Aural Inter-carrier Freq. Tolerance:	±150 Hz; 32 to 122 °F (0 to 50 °C)
Visual Carrier Frequency Tolerance	
Standard Channels:	±10 kHz; 32 to 122 °F (0 to 50 °C)
FCC Aeronautical Channels:	±5 kHz; 32 to 122 °F (0 to 50 °C)

General

Dimensions (W x D x H)	
ACM Modules:	1.0 x 7.78 x 3.5 inches (25 x 198 x 89 mm)
MIPS-12D Power Supply:	4.2 x 7.5 x 3.5 inches (106 x 191 x 89 mm)
MIRC-12V Chassis:	19 x 12.0 x 5.25 inches (483 x 305 x 133 mm)
MIRC-4D Chassis:	19 x 9.0 x 1.75 inches (483 x 229 x 44 mm)
Power	
MIPS-12D Power Supply:	100-240 VAC; 50/60 Hz
MIRC-4D Power Supply:	100-240 VAC; 50/60 Hz
Power Dissipation:	~ 5 W (max. per ACM Module)
Weight	
ACM Module:	0.8 lbs (0.36 kg)
Fully Loaded Chassis:	15.8 lbs (7.2 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

Alarms/Monitoring/Control

Front-Panel Indicator	
Channel No. & Mode:	2-Digit Red LED Display
+100 channel:	Decimal point on 2-Digit Red LED Display
Video Over-modulation:	N/A
Audio Over-modulation:	N/A
Front-Panel Control	
Output Level :	Potentiometer
Video Level:	Potentiometer
Audio Level:	Potentiometer
Top Cover Control	
Aural Carrier Level:	Potentiometer

Related Products

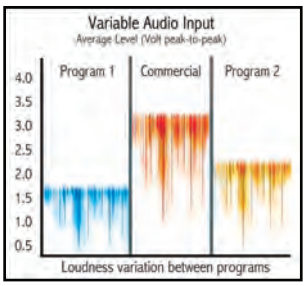
Model	Description
AM-60-860	Frequency-agile Audio/Video modulator, +60 dBmV, 54-860 MHz, 1RU
AMCM-860D	Frequency-agile Audio/Video modulator, +45 dBmV, 54-860 MHz, Twelve modulators in 2RU, CALMTones
MICM-45D	Fixed-channel Audio/Video modulator, +45 dBmV, 54-860 MHz, Twelve modulators in 2RU, CALMTones

AMCM 860

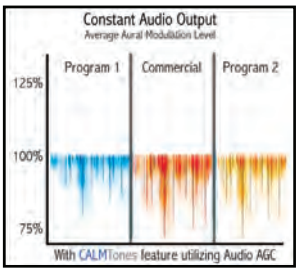
AGILE MICRO CHANNEL MODULATOR

AMCM-860 is a frequency-agile analog audio/video modulator available in NTSC channels 2-135 (54-860 MHz). Models are available in both stereo and mono audio inputs.

This 4th generation of AMCM-860 is equipped with the CALMTones feature, utilizing Audio AGC (Automatic Gain Control) circuitry that eliminates variations in loudness level that may be present among various program sources.



CALMTones



Features

- Audio AGC feature prohibits commercials that accompany broadcast programs from:
  (i) having modulation levels substantially higher than the broadcast program; and
  (ii) having an average maximum loudness substantially higher than that of the broadcast program.
- Audio AGC feature provides consistent audio level among all broadcast programs on different channels and among different programs within the same channel
- Compact design allows for deployment of 12 channels in 2RU
- Utilizes SAW filters for improved performance
- Die-cast chassis for RFI immunity

Ordering Information

Model	Stock #	Description
AMCM-860D	7766D	Modular-Agile Audio/Video Modulator, +45 dBmV
AMCM-860DS	7766DS	Modular-Agile Audio/Video Modulator, Stereo, +45 dBmV
MIRC-12V	7715	Rack Chassis (Holds up to 12 modulators)
MIPS-12D	7722D	100-240 VAC 50/60 Hz Power Supply (1 per chassis)
MIRC-4D	7711	Horizontal Rack Chassis equipped with Power Supply

MIRC-4D

Specifications

Input

Video	
Connector:	"F" Female
Impedance:	75 Ω
Return Loss:	24 dB
Input Level:	1.0 volt peak-to-peak (87.5% depth of modulation)
Frequency Response:	1.0 dB peak-to-valley (fv to fv+4.2 MHz)
Peak-to-Peak Video-to-RMS Hum Ratio:	65 dB
Signal-to-Noise Ratio:	62 dB (Weighted; 4 MHz bandwidth)
Differential Gain:	2.0% (87.5% depth of modulation)
Differential Phase:	1.0 degree (87.5% depth of modulation)
Chrominance/Luminance Delay:	Per FCC Requirements
Mono Audio (standard)	
Connector:	RCA
Input Impedance:	Greater than 10 kΩ, unbalanced
Input Level: (for 25 KHz deviation)	0.5 - 4.0 volt peak-to-peak (constant AGC range)
Frequency Range:	50 Hz to 12 kHz
Frequency Response:	± 1 dB
Total Harmonic Distortion:	1% @ 25 kHz deviation
Signal-to-Noise Ratio:	65 dB
Stereo Audio (optional)	
Connector:	RCA
Input Impedance:	Greater than 10 kΩ, unbalanced
Input Sensitivity: (for 55 kHz peak deviation)	0.5 - 4.0 volt peak-to-peak (AGC range with pilot tone)
Frequency Response:	± 0.75 dB <
Separation:	20 dB @ 50 Hz to 10 kHz

General

Dimensions (W x D x H)	
AMCM Modules:	1.0 x 7.78 x 3.5 inches (25 x 198 x 89 mm)
MIPS-12D Power Supply:	4.2 x 7.5 x 3.5 inches (106 x 191 x 89 mm)
MIRC-12V Chassis:	19 x 12.0 x 5.25 inches (483 x 305 x 133 mm)
MIRC-4D Chassis:	19 x 9.0 x 1.75 inches (483 x 229 x 44 mm)
Power	
MIPS-12D Power Supply:	100-240 VAC; 50/60 Hz
MIRC-4D Power Supply:	100-240 VAC; 50/60 Hz
Power Dissipation:	~ 5 W (max. per AMCM Module)
Weight	
AMCM Module:	0.8 lbs (0.36 kg)
Fully Loaded Chassis:	15.8 lbs (7.2 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

Output

Connector:	"F" Female
Impedance:	75 Ω
Return Loss:	12 dB
Frequency Range:	54 to 860 MHz (NTSC CATV Ch. 2 -135)
Power Level:	+45 dBmV
Power Level Range:	10 dB continuously adjustable
Carrier-to-Noise: (In Channel)	63 dB
Broadband Noise:	-75 dBc (@ +45 dBmV output level, 4 MHz bandwidth)
Spurious Outputs:	-60 dBc
Aural/Visual Carrier Ratio:	-11 to -19 dB continuously adjustable
4.5 MHz Aural Inter-carrier Freq. Tolerance:	±150 Hz; 32 to 122 °F (0 to 50 °C)
Visual Carrier Frequency Tolerance	
Standard Channels:	±10 kHz; 32 to 122 °F (0 to 50 °C)
FCC Aeronautical Channels:	±5 kHz; 32 to 122 °F (0 to 50 °C)

Alarms/Monitoring/Control

Front-Panel Indicator	
Channel No. & Mode:	2-Digit Red LED Display
+100 channel:	Red LED
Video Over-modulation:	Red LED
Audio Over-modulation	Red LED
Stereo:	Green LED
Front-Panel Controls	
Output Level:	Potentiometer
Video Level:	Potentiometer
Audio Level:	Potentiometer
Aural Carrier Level:	Potentiometer

Related Products

Model	Description
AM-60-860	Frequency-agile Audio/Video modulator, +60 dBmV, 54-860 MHz, 1RU
ACM	Frequency-agile Audio/Video modulator, +45 dBmV, 54-806 MHz, Twelve modulators in 2RU
MICM	Fixed-channel Audio/Video modulator, +45 dBmV, 54-860 MHz, Twelve modulators in 2RU

AM Series
AGILE MODULATOR

AM series is a family of frequency-agile analog audio/video modulators. AM-60-860, the flag-ship model, is available in NTSC channels 2-135 (54-860 MHz), and the PAL B, G, and I channels in the same frequency range.

More economical models are available in NTSC for the frequency ranges 54-550 MHz, or 54-806 MHz. EAS (Emergency Alert System) is standard on all models. Stereo Audio, SAP (Secondary Audio Programming), and several other optional features are also available.

Baseband Audio/Video

Modulated
ANALOG RF

Ordering Information

Model	Stock #	Description
AM-60-860	59415A	Frequency-agile Audio/Video Modulator, +60 dBmV, 54-860 MHz (NTSC)
AM-60-806	59419	Frequency-agile Audio/Video Modulator, +60 dBmV, 54-806 MHz (NTSC)
AM-60-550	59416	Frequency-agile Audio/Video Modulator, +60 dBmV, 54-550 MHz (NTSC)
AM-45-550	59404	Frequency-agile Audio/Video Modulator, +45 dBmV, 54-550 MHz (NTSC)

Options

AM-OPT-02	BNC Video Input Connector
AM-OPT-04	Sub-Band Output (Available with AM-60-550 only)
AM-OPT-05	Integrated BTSC Stereo Audio
AM-OPT-06	SAP Audio/ BTSC Stereo (Available with AM-60-860 only)
AM-OPT-07	Video AGC
AM-OPT-09	Balanced Audio Input, 600 Ohm (Standard on AM-60-860)

Related Products

Model	Description
AMCM	Frequency-agile Audio/Video modulator, +45 dBmV, 54-860 MHz (NTSC & PAL), Twelve modulators in 2RU
ACM	Frequency-agile Audio/Video modulator, +45 dBmV, 54-806 MHz (NTSC only), Twelve modulators in 2RU
MICM	Fixed-channel Audio/Video modulator, +45 dBmV, 54-806 MHz (NTSC & PAL), Twelve modulators in 2RU

SPECIFICATIONS

Input

Connector	
Standard:	"F" Female
Option 2:	BNC Female
Impedance:	75 Ω
Return Loss:	18 dB
Video Input Level	
Standard:	0.7 volt Peak-to-Peak (87.5% depth of modulation)
Option 7 (Video AGC):	0.4 to 2.5 volts Peak-to-Peak (87.5% ±2.5% depth of modulation)
Video-to-RMS Hum Ratio:	65 dB Peak-to-Peak
Signal-to-Noise Ratio:	58 dB (Weighted; at 4MHz bandwidth)
Differential Gain:	2.0%
Differential Phase:	1.0 degree
Over-modulation Indicator:	87 to 92%
Chrominance/Luminance Delay:	Per FCC Requirements
Mono Audio (Standard)	
Connector	
AM-60-860 Model:	Terminal Strip
All other Models:	RCA
Option 9 (Balanced Audio Input):	Terminal Strip
Input Impedance	
AM-60-860 Model:	600 Ω, balanced
All other Models:	Greater than 10 kΩ, unbalanced
Option 9 (Balanced Audio Input):	600 Ω, balanced
Input Level	
Standard:	0.5 to 4.0 volt Peak-to-Peak
Frequency Range:	50 Hz to 15 kHz
Frequency Response:	± 0.5 dB
Total Harmonic Distortion:	1% @ 25 kHz deviation
Signal-to-Noise Ratio:	59 dB
Over-modulation Threshold:	25 ± 2 kHz peak deviation
Stereo Audio (Option 5)	
Connector	
AM-60-860 Model:	Terminal Strip
All other Models:	RCA
Input Impedance	
AM-60-860 Model:	600 Ω, balanced
All other Models:	Greater than 10 kΩ, unbalanced
Input Sensitivity	
Standard:	1.0 volt Peak-to-Peak (55 kHz peak deviation with pilot tone)
Frequency Response:	±0.75 dB (50 Hz to 14 kHz)
Separation:	20 dB (50 Hz to 10 kHz)
Harmonic Distortion:	Less than 1% (@ 1kHz)
SAP Audio (Option 6)	Includes Stereo Audio (Option 5)
Connector:	RCA
Input Impedance:	Greater than 10 kΩ, unbalanced
Input Level:	0.5 to 4.0 volt Peak-to-Peak
Frequency Range:	50 Hz to 10 KHz
Frequency Response:	±2 dB
Total Harmonic Distortion:	1%
Signal-to-Noise Ratio:	80 dB
Over-modulation Threshold:	25 ±1 kHz peak deviation

Output

Connector:	"F" Female
Impedance:	75 Ω
Return Loss:	12 dB
Frequency Range	
AM-60-860 Model:	54 to 860 MHz (NTSC CATV Ch. 2 -135)
AM-60-806 Model:	54 to 806 MHz (NTSC CATV Ch. 2 -125)
AM-60-550 & AM-45-550 Models:	54 to 550 MHz (NTSC CATV Ch. 2 -78 & 95-99)
Option 4 (Sub-band):	7 to 550 MHz (NTSC CATV Ch. T7 -78 & 95-99)
NTSC Channel Modes:	UHF, VHF, CATV (Standard, HRC, IRC)
Power Level	
AM-45-550 Model:	+45 dBmV
All other Models:	+60 dBmV
Power Level Range	
AM-45-550 Model:	+35 to +45 dBmV (in 0.2 dB increments)
All other Models:	+50 to +60 dBmV (in 0.2 dB increments)
Video Flatness:	fv-0.5 to fv+4.2 MHz (1.0 dB Peak-to-Valley)
Carrier-to-Noise: (In Channel)	63 dB
Broadband Noise: (4 MHz bandwidth)	-77 dBc (@ +45/60 dBmV output level)
Spurious Outputs:	-63 dBc
Aural/Visual Carrier Ratio:	-15 ±5 dB
4.5 MHz Aural Inter-carrier Freq. Tolerance:	±150 Hz; 32 to 122 °F (0 to 50 °C)
Channel Selectivity	
Adjacent Aural & Below:	-40 dB
Adjacent Picture & Above:	-40 ±5 dB
Visual Carrier Frequency Tolerance	
Standard Channels:	±5.0 kHz; 32 to 122 °F (0 to 50 °C)
FCC Aeronautical Channels:	±2.5 kHz; 32 to 122 °F (0 to 50 °C)
IF (Intermediate Frequency)	
Input/Output Connector:	"F" Female / "F" Female
Aural Frequency:	41.25 MHz
Visual Frequency:	45.75 MHz
Composite IF Output	
Aural Carrier Level:	+20 dBmV
Visual Carrier Level:	+35 dBmV
Input/Output Impedance:	75 Ω
Input/Output Return Loss:	16/15 dB
EAS/Alternative IF	
Connector:	"F" Female
Input Level:	+38 dBmV @ 45.75 MHz
Switch Isolation:	Greater than 60 dB

General

Dimensions (W x D x H):	19.0 x 14.25 x 1.75 in. (483 x 362 x 44 mm)
Power:	117 VAC ±10%; 60Hz (Fuse: 0.40 Amp) Also available in 220 VAC; 50Hz
Power Dissipation:	28 W (max)
Weight:	7 lbs (3.18 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

Alarms/Monitoring/Control

Front-Panel Indicators	
Channel / Mode / RF Output:	3-Digit LED Display
Video Over-modulation:	Red LED
Audio Over-modulation:	Red LED
SAP Audio Over-modulation:	Red LED
EAS/Alternative IF:	Red LED
Stereo:	Green LED
Front-Panel Controls	
Channel / Mode /RF Output:	Navigation Key-pad
Video Level:	Potentiometer
Audio Level:	Potentiometer
Aural Carrier Level:	Potentiometer
SAP Audio Level:	Potentiometer

BLONDER TONGUE LABORATORIES, INC.

MICM-45D SERIES

MICRO CHANNEL MODULATOR

CATV PRODUCTS

MICM series of products are fixed-channel analog audio/video modulators available in the following models:

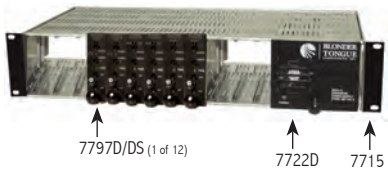
MICM-45D: Is available in NTSC channels 2-79 and 95-99 (54-550 MHz). This 5th generation of the MICM series, equipped with the CALMTones feature, utilizes an Audio AGC (Automatic Gain Control) solution that eliminates variations in loudness level that may be present among various program sources.

MICM-45DS: Is the same as MICM-45D but with stereo audio output.

MICM-45C/S: Is available in channels 80 - 94, 100 - 125 (550-806 MHz). This is the 4th generation of the MICM series.

Features

- Prohibits commercials that accompany broadcast programs from:
  - (i) having modulation levels substantially higher than the broadcast program; and
  - (ii) having an average maximum loudness substantially higher than that of the broadcast program.
- Provides consistent audio level among all broadcast programs on different channels and among different programs within the same channel
- Compact design allows for deployment of 12 channels in 2RU
- Utilizes SAW filters for improved performance
- Die-cast chassis for RFI immunity
- Integrated Stereo encoder



Ordering Information

Model	Stock #	Description
MICM-45D	7797D	Fixed-channel Audio/Video Modulator, Audio AGC, +45 dBmV, 54-550 MHz
MICM-45C	7797C	Fixed -channel Audio/Video Modulator, +45 dBmV, 550-806 MHz
MICM-45DS	7797DS	Fixed-channel Audio/Video Modulator, Audio AGC, Stereo, +45 dBmV, 54-550 MHz
MICM-4S	7797S	Fixed-channel Audio/Video Modulator, Stereo, +45 dBmV, 550-806 MHz
MIRC-12V	7715	Rack Chassis (holds up to 12 modulators)
MIPS-12D	7722D	100-240 VAC; 50/60 Hz power supply (one per chassis)
MIRC-4D	7711	Horizontal Rack Chassis equipped with Power Supply


MIRC-4D

Specifications

Input

Video	
Connector:	"F" Female
Impedance:	75 Ω
Return Loss:	20 dB
Input Level:	1.0 volt Peak-to-Peak (87.5% depth of modulation)
Frequency Response:	1.0 dB Peak-to-Valley (fv to fv+4.2 MHz)
Peak to Peak Video-to-RMS Hum Ratio:	64 dB
Signal-to-Noise Ratio:	65 dB (Weighted; 4 MHz bandwidth)
Differential Gain:	2.0% (87.5% depth of modulation)
Differential Phase:	2.0 degree (87.5% depth of modulation)
Chrominance/Luminance Delay:	Per FCC Requirements
Mono Audio (standard)	
Connector:	RCA
Input Impedance:	Greater than 10 kΩ, unbalanced
Input Level: (for 25 kHz deviation)	0.5 to 4.0 volt peak-to-peak (constant AGC range)
Frequency Range:	50 Hz to 12 kHz
Frequency Response:	± 0.5 dB
Total Harmonic Distortion:	1% @ 25 kHz deviation
Signal-to-Noise Ratio:	70 dB
Stereo Audio (optional)	
Connector:	RCA
Input Impedance:	Greater than 10 kΩ, unbalanced
Input Sensitivity: (for 55 kHz peak deviation)	0.5 to 4.0 volt peak-to-peak (AGC Range with pilot tone)
Frequency Response:	+/- 0.75 dB (50 Hz to 12 kHz)
Separation:	20 dB @ 50 Hz to 10 kHz

Output

Connector:	"F" Female
Impedance:	75 Ω
Return Loss:	15 dB
Frequency Range:	54 to 550 MHz (NTSC CATV Ch. 2 -79 and 95-99)
Power Level:	+45 dBmV
Power Level Range:	10 dB continuously adjustable
Carrier-to-Noise: (In Channel)	63 dB
Broadband Noise:	-90 dBc (@ +45 dBmV output level, 4 MHz band.)
Spurious Outputs:	-66 dBc
Aural/Visual Carrier Ratio:	-11 to -19 dB continuously adjustable
4.5 MHz Aural Inter-carrier Freq. Tolerance:	±250 Hz; 32 to 122 °F (0 to 50 °C)
Visual Carrier Frequency Tolerance	
Standard Channels:	±10 kHz; 32 to 122 °F (0 to 50 °C)
FCC Aeronautical Channels:	±5 kHz; 32 to 122 °F (0 to 50 °C)

General

Dimensions (W x D x H)	
MICM Modules:	1.0 x 7.78 x 3.5 inches (25 x 198 x 89 mm)
MIPS-12D Power Supply:	4.16 x 7.5 x 3.5 inches (106 x 191 x 89 mm)
MIRC-12V Chassis:	19 x 12.0 x 5.25 inches (483 x 305 x 133 mm)
MIRC-4D Chassis:	19 x 9.0 x 1.75 inches (483 x 229 x 44 mm)
Power	
MIPS-12CD Power Supply:	100-240 VAC; 50/60 Hz
MIRC-4D Power Supply:	100-240 VAC; 50/60 Hz
Power Dissipation:	~ 3 W (per MICM Module)
Weight	
MICM Module:	0.65 lbs (0.3 kg)
Fully Loaded Chassis:	18.2 lbs (8.3 kg)
Operating Temperature:	32 to 122 °F (0 to 50 °C)
Storage Temperature:	-13 to 158 °F (-25 to 70 °C)
Operating Humidity:	0 to 95% RH @ 35 °C max, non-condensing
Storage Humidity:	0 to 95% RH @ 35 °C max, non-condensing

Alarms/Monitoring/Control

Front-Panel Indicators	
Power:	Green LED
Stereo:	Red LED (when equipped)
Front-Panel Control	
Output Level :	Potentiometer
Video Level:	Potentiometer
Audio Level:	Potentiometer
Aural Carrier Level:	Potentiometer

Related Products

Model	Description
AM-60-860	Frequency-agile Audio/Video modulator, +60 dBmV, 54-860 MHz, 1RU
AMCM-860D	Frequency-agile Audio/Video modulator, +45 dBmV, 54-860 MHz, Twelve modulators in 2RU, CALMTones
ACM-806A	Frequency-agile Audio/Video modulator, +45 dBmV, 54-806 MHz, Twelve modulators in 2RU

Audio/Video Modulator

BAVM-860SAW

❍ Features & Benefits

- Meets FCC Docket 21006 Aeronautical Frequency Offset Requirements
- Fully Compatible With BTSC Encoded Stereo Audio
- Front Panel Accessible Level Controls for Easy Set-Up and Adjustments
- Low Cost High Performance Channelized Audio/Video Modulator
- AC Convenience Outlet

The Blonder Tongue BAVM-860SAW is an economical commercial quality TV modulator. It provides a +55 dBmV RF output on any specified CATV channel from 2 to 135. The BAVM-860SAW is ideal for placing A/V program sources such as satellite receivers, VCR's, DVD's, cameras or TV demodulators onto standard 6 MHz NTSC TV channels for broadband distribution. The BAVM-860SAW features IF SAW filtering with built-in FCC group delay pre-distortion assuring excellent adjacent channel performance and color operation. The modulator complies with FCC 21006 with +/- 5 kHz visual carrier stability and required frequency offsets on all aeronautical channels. For BTSC stereo applications, a field-defeatable audio pre-emphasis network is provided making the BAVM-860SAW compatible with any out-board stereo generator that provides a composite baseband output. A -30 dB output test point and all user controls are provided on the front panel.

❍ Specifications

RF

Frequency Range: CATV Channels 2 to 135

Output Level: 55 dBmV, Min

Output Level Range:
15 dB, Continuously Adjustable by Front Panel Output Level Control

Audio/Video Carrier Ratio Control:
-7 dB to -20 dB,

Frequency Tolerance:
±10 kHz - Standard Channels
±5 kHz FCC 21006 Offsets

Audio Carrier Frequency Setting:
±1 kHz, Max
4.5 MHz Above Video Carrier

RF to Video Response from Fv -0.5 MHz to Fv +4.2 MHz: 1 dB P/V

Broadband Noise -90 dBC

Spurious Output in 50 – 860 MHz Range @ +55 dBmV Output: -60 dBc

Output Match (Return Loss): 12 dBc

Vestigial Sideband Response:
@Channel Edge -20 dB
@Adjacent Channel -40 dB

Video

Input for 87.5% Modulation:
0.7 V to 2.5 V P-P

Video Input Return Loss: 18 dB

Video Carrier-To-Noise Ratio in 4 MHz Bandwidth:
62 dB

P-P Video to 60 Hz RMS Hum Ratio: 60 dB

Differential Gain at 87.5% Modulation: ≤ 5%

Differential Phase at 87.5% Modulation: ≤ 5°

Group Delay: 170 ± 50 nS

Audio

Input Impedance: 10K Ω, Unbalanced

Input for 25 KHz Peak Deviation: 140 mV RMS

Audio Frequency Response:
±1.0 dB
(50 Hz to 15 kHz ref to std 75 msec Pre-emphasis)

4.5 MHz Intercarrier Stability: ±5.0 kHz

General

Power Requirements:
105-130 VAC, 60 Hz, 10.5 W

Temperature Range: 0 to +50 °C

Mechanical

Dimensions (W x H x D):
19 x 1.75 x 3 in.
482.6 x 44.45 x 76.2 mm

Line Cord:
3 Wire Grounded,
3 Wire Convenience Outlet

Weight: 4 lbs., 1.81 kg

Connectors

Audio In: "F" Female

Video In: "F" Female

RF Out: "F" Female

RF Output Test - 30 dB: "F" Female

Refer to product instruction manual for additional specification measurements and notes.

❍ Ordering Information

Model	Stock No.	Description
BAVM-860SAW	5990A	Channelized Audio/Video Modulator, SAW Filtered 54-550 MHz
BAVM-860SAW	5990	Channelized Audio/Video Modulator, SAW Filtered 550-860 MHz

Analog Agile Demodulator

AD-1 Series

STEREO AVAILABLE

❍ Features & Benefits

- Stereo BTSC Outputs (Option 25)
- Rack Mountable - 1 EIA (1.75") Rack Space
- 250 kHz Tuning Increment - Supports Broadcast, CATV and UHF Assignments Including HRC & IRC
- AGC Circuitry Automatically Compensates for Input Level Variations
- 4.5 MHz Audio Subcarrier and Broadband Multiplex Audio Outputs

The AD-1 is a professional quality, agile audio/video demodulator. The unit provides audio and video outputs from any analog input channel in the 54 to 88 and 108 to 806 MHz frequency range. The AD-1 is ideal for signal monitoring and signal conditioning (audio/video processing and remodulation) applications. Agile channel selection permits on-the-fly channel changes.

The AD-1 takes a single NTSC channel in the 54 to 88 and 108 to 806 MHz frequency range and demodulates the audio and video information. Baseband audio and video as well as 4.5 MHz audio subcarrier and multiplex audio are provided as outputs. The AD-1 features phase locked loop synthesized frequency control with a tuning increment of 250 kHz. Channel selection is accomplished with the use of simple to use front panel accessible dip switches. A Nyquist filter provides stable, accurate demodulation of the vestigial sideband signal. Additionally, this filter minimizes distortion and preserves the timing of the signal. Delayed AGC circuitry automatically compensates for input signal variations. The AD-1 also utilizes a quasi-synchronous video detector that has low differential gain and minimal phase distortion. A quadrature audio detector delivers a very low distortion audio output. The broadband multiplex audio, 4.5 MHz audio subcarrier, or the optional BTSC stereo (L/R) or SAP outputs make the AD-1 ideal for any stereo application.

❍ Specifications

RF
- Input Frequency Range
  - Standard: 54-88 & 108-806 MHz
  - Option 17: Sub-band Input: 7-49 MHz
- Channels: VHF, UHF (Input) CATV (STD,HRC,IRC)
- Tuning Increment: 250 kHz
- Input Level - Max: +20 dBmV
- Noise Figure
  - VHF: 8-11 dB
  - UHF: 10 dB
- Image Rejection - Min
  - VHF: 65 dB
  - UHF: 50 dB
- Input/Output Impedance: 75 Ω

Video
- Frequency Response fv+25 Hz to fv+4.0 MHz: Settable to ±1.0 dB
- Output Level: 1.0 V p-p
- Differential Gain: 3.0 %
- Differential Phase: 1.5 °
- Group Delay Response: ±50 ns
- Output Impedance: 75 Ω
- Output Return Loss: 25 dB

Audio

Mono
- Baseband Frequency Response: 50 Hz to 15 kHz: ± 0.75 dB
- Output Level: 500 mV RMS (Opt 29, 1.4 V RMS)
- Impedance: 600 Ω, Unbalanced (STD) (Opt. 29, 600 Ω, Balanced)
- Audio Signal-to-Noise: 57 dB
- Total Harmonic Distortion: 0.6%
- Multiplexed Frequency Response: 50 Hz to 100 kHz: ±0.2 dB
  - Output Level: 500 mV RMS
  - Impedance: 600 Ω, unbalanced

Stereo (Option 25)
- Baseband Frequency Response 50 Hz to 12 KHz (in-phase L/R inputs): +/- 0.75 dB
  - Output Level Left or Right: 4.0 Vp-p
  - Impedance: 600 Ω, Balanced
  - Separation 50 Hz – 10 kHz: 20 dB
- Audio Signal-to-Noise: 60 dB
- Total Harmonic Distortion: <0.5%
- 4.5 MHz Subcarrier Output Level: +28 dBmV
- Impedance: 75 Ω

General
- Power Requirements
  - Voltage: 117, ±10% VAC
  - Frequency: 60 Hz
  - Power: 16 W
- Fuse: 1/4 A
- Temperature Range: 0 to +50 °C

Mechanical
- Dimensions (W x H x D): 19.0 x 1.75 x 14.5 in. 483 x 44 x 368 mm
- Weight: 5.5 lbs., 2.50 kg

Connectors
- RF Input
  - Standard - VHF/UHF: "F" Female
  - Option 17: Sub-band Input: "F" Female
- Video Output: "F" Female
- Baseband Audio Output:
  - RCA Phono, Female (STD)
  - Terminal Strip (Opt 25 + 29)
- Multiplexed (MPX) Audio Output: RCA Phono, Female (STD Only)
- 4.5 MHz Subcarrier Audio Output: "F" Female
- Serial Data Input & Output
  - Option 20: Serial Input: RJ-12, Female

Controls
- Frequency Selection: DIP Switches
- Video Response: Control
- Sub-band Input Channels Option 17: Slide Switch
- L/R or SAP Audio Output Option 15: Contact Closure

Indicators
- Power On: LED, Green
- Stereo: LED, Red (Opt 25)

Refer to product instruction manual for additional specification measurements and notes.

❍ Ordering Information

Model	Stock No.	Description
AD-1B	5932	Agile Audio/Video Demodulator 54-88/108-806 MHz
AD-1-OPT 17	59257	AD-1 Option: Sub-Band Input, 7-49 MHz
AD-1-OPT 25	59255	AD-1 Option: Stereo Audio Output, 600 Ω Balanced
AD-1-OPT 29	59259	AD-1 Option: Balanced Audio, 600 Ω

Analog Agile Demodulator

MIDM

❍ Features & Benefits

- Die-Cast Chassis Offers Superior Protection Against Ingress or Egress
- Demodulates Any Channel 54-806 MHz
- LED Display Makes Agile Channel Selection Easy
- Compatible with MICM-45 Modulator for Compact Off-Channel Analog Processor Solution

The MIDM is a professional quality agile audio/video demodulator and is intended for both CATV and VHF & UHF analog applications. The unit is in a "single width" Die-Cast housing that allow deployment of up to 12 demodulator units in a MIRC-12 chassis.

The MIDM demodulates standard CATV, IRC and HRC channels and is capable for "Cherry Picking" of CATV channels in preparation for remodulation. The input frequency range is agile, allowing selection of any CATV channel from 54 to 806 MHz. Baseband audio and video are provided as outputs. It is ideal for off-air signal processing (audio/video processing and remodulation) applications. Baseband audio and video are provided as outputs. The MIDM features rock solid, phase lock loop (PLL) synthesized frequency control. Agile frequency selection is accomplished via front panel channel up/down buttons with a LED channel readout for easy on-the-fly channel changes. A channel lockout mode is also provided to prevent accidental channel changes. Non-volatile memory maintains the programmed channel selection in case of power loss. The MIDM is compatible with any modulators requiring a baseband input, and can be used in any combination with the MIPS-12D power supply in a MIRC-12 chassis.

❍ Specifications

RF

Frequency: Range:
54-806 MHz, VHF, UHF, CATV (Std., IRC, HRC)

Input Level Range: -5 to +30 dBm VHF/UHF,
+2 to +12 dBmV (CATV)

Noise Figure: 8 dB

Image Rejection: VHF 60 dB

Input Impedance: 75 Ω

Video

Output Level: 1.0 V p-p

Output Impedance: 75 Ω

Audio

Output Level: 1 Vp-p

Output Impedance: 600 Ω, Unbalanced

General

Power Requirements - External:
12 VDC @ 140 mA
5 VDC @ 150 mA

Temperature Range: 0° to +50° C

Mechanical

Dimensions (W x H x D):
1.0 x 3.5 x 7.50 in.
29 x 89 x 191 mm

Weight: 1.2 lbs., 0.56 kg

Connectors/Impedance

Audio Output: RCA Female

Video Output: 75 Ω, "F" Female

RF Input: 75 Ω, "F" Female

Power: Locking Header, 3 Pin

Controls

Channel Selection: Push Buttons

ANT/CATV: Push Button

Power On/OFF: Push Button

Channel Lock: Push Button

Audio Level: Control

Video Level: Control

Indicators

Channel: 2 Digit, 7 Segment LED

Refer to product instruction manual for additional specification measurements and notes.

❍ Ordering Information

Model	Stock No.	Description
MIDM-806C	7740C	HE-12 Series Agile Audio/Video Demodulator 54-806 MHz UHF/VHF/CATV Input (STD,HRC,IRC)

Agile Processor

AP-60-860A

The AP-60-860A is a versatile agile analog / digital channel processor that can be operated in one of the following three (3) modes;

Mode 1: Analog Heterodyne Processor (Analog RF **IN** > Analog RF **OUT**)

Mode 2: Digital Heterodyne Processor (QAM **IN** > QAM **OUT)**

Mode 3: Digital-to-Analog Processor (8VSB or QAM **IN** > Analog RF **OUT)**

❍ Features & Benefits

- As an agile analog heterodyne processor: accepts one Analog RF input (CATV sub-band channels T7-T13, CATV standard channels 2-135, VHF channels 2-13, and UHF channels 14-69) and delivers one Analog RF output (CATV standard channels 2-135)
- As an agile digital heterodyne processor: accepts one Digital Cable QAM input (CATV sub-band channels T7-T13, and CATV standard channels 2-135) and delivers one Digital Cable QAM output (CATV standard channels 2-135)
- As an agile digital-to-analog processor: accepts one Digital Off-air 8VSB or Digital Cable QAM input (CATV standard channels 2-135, VHF channels 2-13, and UHF channels 14-69) and delivers one Analog RF output (CATV standard channels 2-135)
- Equipped with EAS interface which can also be used as an IF (Intermediate Frequency) input
- Supports Closed Captioning (EIA-608)

Specifications and Ordering Information are located on the following page.

❍ Ordering Information

Model	Stock No.	Description
AP-60-860A	59819	Agile, Processor, +60 dBmV, 54-860 MHz output

❍ Specifications

Input
Connector: “F” Female

Analog Mode (1)
Standard: NTSC
Tuning: CATV 2-135, Broadcast 2-69, Sub T7-T13
Bandwidth: 6 MHz
Power Level: -20 to +30 dBmV

QAM Mode (2)
Standard: ITU-T J.83 - Annex B
Tuning Range: CATV Ch 2 - 135 T7-T13
Data Rate: 38.8 Mbps; 26.97 Mbps
Bandwidth: 6 MHz
Power Level: -20 to + 30 dBmV

QAM/8VSB Mode (3)
Standard: 8VSB ATSC Digital Television
QAM ITU-T J.83- Annex B
Tuning Range: 8VSB VHF, UHF
QAM CATV Ch.2-135
Data Rate: 8VSB 19.392 Mbps
QAM 38.8 Mbps; 26.97 Mbps
Bandwidth: 6 MHz
Power Level: -20 to +30 dBmV

IF
Connector: "F" Female Input / Output
Impedance: 75 Ω Input / 75 Ω Output
Return Loss: 16 dB Input/ 15 dB Output
EAS/ALT IF
Input Level: +38 dBmV @45.75 MHz
Switch Isolation: Greater than 60 dB
Standby Carrier: +35 dBmV

Modes 1 & 3
Aural Frequency: 41.25 MHz
Visual Frequency: 45.75 MHz
Composite Loop
Aural Carrier Level: +20 dBmV
Visual Carrier Level: +35 dBmV

Mode 2
Center Frequency: 44 MHz
Output Level: +30 dBmV

Output
Modes 1 & 2
Connector
RF Output: "F" Female
RF Output: Analog RF or QAM
Frequency Range: 54 to 864 MHz
Channels: UHF, VHF, CATV
Power Level: Mode: +60 dBmV
Mode 2: +55 dBmV
Power Level Range:
Mode 1: +50 to +62 dBmV
Mode 2: +45 to +57 dBmV
Broadband Noise: Mode 1: - 77 dBc
Mode 2: -75 dBc
Spurious: -63 dBc
Impedance: 75 Ω
Return Loss: 15 dB
Aural/Visual Carrier
Ratio (Mode 1): -15 dB ± 2
Frequency Tolerance: ± 20 kHz; 32 to 122 °F
Adjacent Channel Rejection: 65 dB

Mode 3
Connector:
RF Output: "F" Female
RF Output: Analog RF
Frequency Range: 54 to 864 MHz
Channels: UHF, VHF, CATV
Power Level: +60 dBmV
Power Level Range: +50 to + 62 dBmV
Broadband Noise: -77 dBc
Spurious: -63 dBc
Impedance: 75 Ω
Return Loss: 15 dB
Aural/Visual Carrier Ratio: -15 ± 5
Visual
Frequency Tolerance
Standard Channels: ± 20 kHz; 32 to 122 °F
FCC Aeronautical Channels: ±5 kHz; 32 to 122 °F
Video
Frequency Response: 1.5 dB Peak-to-Valley
Video-to-RMS Hum Ratio: 65 dB
Signal-to-Noise Ratio: 58 dB
Differential Gain: 2.0% @ 87.5%
Differential Phase: 1.0 degree
Over-mod. Indicator: 87.5% ± 2.5
Chrom./Luminance Delay: Per FCC Req
Audio
Frequency Response: ± 1.0 dB
Frequency Range: 50 Hz to 15 kHz
Signal-to-Noise Ratio: 59 dB
Total Harmonic Distortion: 1.0% @ 55 kHz
Over-mod. Indicator: 55 kHz ± 2

General
Dimensions: 19.0 x 18.625 x 1.75 inches
Power: 110 VAC/60 Hz
Power Dissipation: 36 W
Weight: 7 lbs
Operating Temperature: 32 to 122 °F
Storage Temperature: -13 to 158 °F
Operating Humidity: 0 to 95% RH @ 35 °C; non-condensation
Storage Humidity: 0 to 95% RH @ 35 °C; non-condensation

Refer to product instruction manual for additional specification measurements and notes.

Headend Passive Combiners

HPC Series

❍ Features & Benefits

- 1 RU Chassis
- -20 dB Front Panel Test Port
- RFI Shield

HPC series consists of 5-1000 MHz passive RF combiners designed for use in a headend to combine the output of up to 32 single-channel devices such as modulators and processors. HPC is available in 8-, 12-, 24-, or 32-port models.

All HPC models feature a compact design, high isolation between ports, low net combining loss, and RFI shielding for minimized egress/ingress interference. A front-panel -20 dB test port (75-Ohm "F" type connector) allows testing of the unit's output without interrupting the service.

❍ Specifications

Performance

	Frequency (Mhz)	HPC-8	HPC-12 & 12S	HPC-24& 24S	HPC-32
Max. Insertion Loss (dB)	5-40	11.2	14.3	17.2	17.2
	40-450	11.2	14.3	17.5	17.5
	450-750	12	15	19	19
	750-1000	12.5	16.5	20	20
Min. Isolation (dB)	5-40	24	30	30	30
	40-450	27	32	32	32
	450-750	27	30	30	30
	750-1000	23	28	28	28
Test Port (dB)	5-40	20+/-0.5	20+/-0.5	20+/-0.5	20+/-0.5
	40-450	20+/-0.5	20+/-0.5	20+/-0.5	20+/-0.5
	450-750	20+/-0.5	20+/-0.5	20+/-0.5	20+/-0.5
	750-1000	20+/-0.5	20+/-0.5	20+/-0.5	20+/-0.5
Input Return loss (dB)	5-40	18	20	20	20
	40-450	22	20	20	20
	450-750	22	20	20	20
	750-1000	18	18	18	18
Output Return loss	5-40	18	20	20	20
	40-450	22	20	20	20
	450-750	22	18	18	18
	750-1000	18	18	18	18
Impedance	5-1000	75 Ohms	75 Ohms	75 Ohms	75 Ohms

General

Dimensions (W x D x H):	
HPC-xx	19.0 x 8.0 x 1.75 inches (483 x 203 x 44 mm)
HPC-xxS	19.0 x 2.9 x 1.75 inches (483 x 74 x 44 mm)
Shipping Weight:	
HPC-xx	2.3 lbs (1.04 kg)
HPC-xxS	1.9 lbs (0.86 kg)
Connectors	
Inputs:	"F" Type Female
Output:	"F" Type Female
Test Port:	"F" Type Female

❍ Ordering Information

Model	Stock No.	Description
HPC-8	5791	8-port Headend Passive Combiner, 8.0-inch deep, 5-1000 MHz
HPC-12	5792	12-port Headend Passive Combiner, 8.0-inch deep, 5-1000 MHz
HPC-12S	5792S	12-port Headend Passive Combiner, 2.9-inch deep, 5-1000 MHz
HPC-24	5790	24-port Headend Passive Combiner, 8.0-inch deep, 5-1000 MHz
HPC-24S	5790S	24-port Headend Passive Combiner, 2.9-inch deep, 5-1000 MHz
HPC-32	5796	32-port Headend Passive Combiner, 8.0-inch deep, 5-1000 MHz

Passive Combiners

OC Series

❍ Features & Benefits

- -20 dB Test Port
- High Isolation, Low Net Combining Loss
- Rack Mountable - 1 EIA (1.75") Rack Space,

The OC Series are professional quality, passive output combiners. These units are designed for use in headends to combine the outputs of multiple modulators and processors. The OC Series employs radiation-proof passive components that provide excellent reliability and performance. Two models are available for combining 8 or 12 inputs. The OC Series features high isolation between ports and a low net combining loss from each of the broadband inputs (5 to 1000 MHz). A 20 dB test port is provided for signal monitoring without disrupting service.

❍ Specifications

RF	**OC-8d**	**OC-12D**
Number of Inputs:	8	12
Frequency Range (MHz):	5-1000	5-1000
Flatness - Relative to Slope (dB):	0.4	±0.20
Slope (dB):	2.75	1.50
Insertion Loss - Individual Port		
40 to 450 MHz:	11.5	18
450 to 1000 MHz (dB):	13	18
Isolation - Adjacent Ports		
40 to 450 MHz (dB):	25	38
450 to 1000 MHz (dB):	25	38
Isolation - Non-Adjacent Ports		
40 to 1000 MHz (dB):	40	65
Test Port Level (dB):	-20	-20
Impedance - All Ports (Ω):	75	75
Input Return Loss		
40 to 450 MHz (dB):	20	20
450 to 1000 MHz (dB):	19	20
Output Return Loss		
40 to 450 MHz (dB):	20	16
450 to 1000 MHz (dB):	19	16
Mechanical		
Dimensions (W x H x D):	19.0 x 1.75 x 15.25 in.	
	483 x 44 x 387 mm	
Weight:	6.5 lbs.	6.95 lbs.
	2.95 kg	3.18 kg
Connectors (Rear Panel)		
RF Input & Outputs:		"F" Female
Connectors (Front Panel)		
Test Port:		"F" Female

Refer to product instruction manual for additional specification measurements and notes.

❍ Ordering Information

Model	Stock No.	Description
OC-8D	5957	Passive Combiner 5-1000 MHz, 8 Ports
OC-12D	5953	Passive Combiner 5-1000 MHz, 12 Ports

❍ Features & Benefits

- Rack Mountable - 1 EIA (1.75") Rack Space
- High Isolation
- -20 dB Test Port

The ZHC-12A is a professional quality, passive output combiner. It is designed for use in headends to combine the outputs of multiple modulators and processors. The ZHC-12 has twelve (12) broadband input ports and one combined output port.

❍ Specifications

	ZHC-12a
RF	
Number of Inputs:	12
Frequency Range (MHz):	40-1000
Input Level - Max (dBmV):	NA
Output Level - Max (dBmV):	NA
Cross Modulation (dBc):	NA
Overall Unit Gain (dB):	NA
Gain Control Range (dB):	NA
Insertion Loss (dB):	40-450 MHz 17 dB 450-1000 MHz 20 dB
Isolation (dB):	30
Flatness (dB):	3
Impedance - All Ports (Ω):	75
General	
Power Requirements	
Voltage (VAC):	NA
Frequency (Hz):	NA
Power (W):	NA
Temperature Range (°C):	NA
Mechanical	
Dimensions (W x H x D):	19.0 x 1.75 x 2.88 in. 483 x 44 x 73 mm
Weight lbs:	2.0 lbs., 0.91 kg
Connectors	
RF Input & Output:	"F" Female
Test Port:	"F" Female
Controls	
Gain:	NA

Refer to product instruction manual for additional specification measurements and notes.

❍ Ordering Information

Model	Stock No.	Description
ZHC-12a	5959A	Passive Combiner 40-1000 MHz, 12 Ports

Broadband CATV Distribution Amplifier

ACA 35-1000

The ACA-35-1000 provides continuous coverage of all frequencies from 40 MHz to 1000 MHz. This indoor amplifier covers the full VHF and UHF bands as well as all CATV channels. Utilizing push-pull amplifier stages and surface mounted devices, this state-of-the-art product is the ideal amplifier if distribution in the system includes UHF signals. Packaged in a compact 9" x 5-3/8" x 2" chassis, the amplifier has 35 dB gain and superior distortion performance. A gain control is provided for adjusting the output level to meet the distribution system requirements.

❍ Features & Benefits

- Surface Mount Technology
- Temperature Stability Range of 0° to +50°C
- Front Panel Gain Control for Easy Adjustment
- Low 40 MHz Band Edge
- Chassis Designed for Superior Heat Dissipation to Insure Component Reliability
- Line Transient Protection
- Compact Size for Minimum Mounting Space
- Input/Output Test Point (-20 dB)

❍ Specifications

Electrical

Bandwidth: 40 to 1000 MHz

Flatness (40 to 1000 MHz): ±1 dB

Maximum Output Level @ 72 Channel Loading with 3 dB positive slope 54-550 MHz: 40 dBmV

CTB: -57 dB

CSO: -59 dB

Gain: 35 dB

Gain Control Range: 16 dB min.

Noise Figure at Full Gain (50 to 1000 MHz): 11 dB max.

Return Loss (75 Ω):

Input: 12 dB

Output: 12 dB

Output Test Point:: -20 dB

General

Power Requirements: 117 VAC, 60 Hz, 25W

Temperature Range: 0 to +50° C

Mechanical

Dimensions: 9 x 5-3/8 x 2 in (228 x 135 x 52 mm)

Shipping Weight: 3.0 lbs. (1.7 Kg)

Indicators

Power On: Red LED, On Case End

Connectors

In/Out: "F" Type, On Case End

Input/Output Test Point (-20 dB): "F" Type, On Case End

Notes
(a) Measured at full gain with 0 dB slope.
(b) At rated output capability and channel loading.

❍ Ordering Information

Model	Stock No.	Description
ACA-35-1000	5470	Apartment Complex Amplifier 35 dB, 40-1000 MHz, Push-Pull Discrete

Wideband Amplifier

DA-33

❍ Features & Benefits

- AM, Shortwave, Sub-Channel Amplification (0.5 MHz to 300 MHz)
- Externally Accessible Test Points Permit In-Service Testing
- Aluminum Chassis Designed for Superior Heat Dissipation to Insure Component Reliability
- Exceeds FCC Specs for both Conducted & Radiated Interference @ Full Output Level
- External Fuse for Ease of Replacement
- LED Pilot Light
- Line Transient Protection
- Hybrid IC Circuitry for High Output with Low Distortion
- Exceptional Temperature Stability Range of -20° C to +60° C
- Designed for Critical Applications Requiring High Gain.
- Front Panel Gain Control for Easy Adjustment

The DA-33 features a wide frequency bandwidth of 0.5 MHz to 300 MHz, 36 dB gain and 18 dB of continuously variable gain control range. The DA-33 is ideal as a headend sub-channel return amplifier or on shipboard distribution systems requiring AM, shortwave and communications bands amplification.

❍ Specifications

RF

Frequency Range: 0.5-300 MHz
Channel Loading: 35 Channels
Flatness: +/- 1 dB
Full Gain: 36 dB
Noise Figure: 5.5 dB
Output Level: +47 dBmV
Composite Triple Beat: -71 dB
Cross Modulation: -55 dB
Hum Modulation: -60 dB
Return Loss
Input: 16 dB
Output: 12 dB

General

Power Requirements: 105 to 130 VAC, 60 Hz
Operating Temperature: -40 to +65 degrees C

Mechanical

Dimensions (L x W x H): 11.5” x 7.125” x 3.25”
Weight: 5.75 lbs.

Connectors:

RF In/Out: F Female
In/Output -30 dB Test Points: F Female

❍ Ordering Information

Model	Stock No.	Description
DA-33	4675A	Wideband Amplifier 36 dB, 0.5-300 MHz

Rack-Mount Distribution Amplifiers

RMDA Series

❍ Features & Benefits

- Rack Mount - 1 EIA (1.75") Spacing, Rugged Aluminum Chassis
- Available in Frequency Ranges up to 1000 MHz
- Push-Pull and Power Doubling Models for High Output and Low Distortion
- Built-in Variable Gain and Slope Controls

The RMDA Series are professional quality, broadband, rack-mounted hybrid distribution amplifiers. The RMDA's are ideal as a headend launch amplifier or distribution amplifier for MATV, SMATV or CATV applications requiring rack mounting. A variety of models are available with operational gains of 15, 30, 43 or 50 dB and frequency ranges from 47, 550, 750, 860 or 1000 MHz. Refer to the RMDA specifications for available gain and bandwidth combinations.

The RMDA Series amplifiers have built-in variable gain and slope controls. The 5500S-XX models use a single push-pull hybrid module providing excellent performance and economy for headend applications. The 5500-XX employ dual push-pull hybrid modules and the 5500P-XX have a push-pull hybrid followed by a power doubling hybrid. The dual hybrid models will have better CNR performance, compared to single hybrid models in applications with low input levels coupled with reduced gain settings. Test ports for both the input and output are provided for monitoring signal levels without interrupting service. The RMDA Series products are housed in a single height, 1.75" high, rack mountable, aluminum chassis that provides exceptional heat dissipation.

❍ Specifications

General

Power Requirements
Voltage: 100-240 VAC
Frequency: 50/60 Hz

Current: 0.4 Amps

Temperature Range: -20 to +60 °C

Mechanical

Dimensions (W x H x D):	19 x 1.75 x 5.13 in. 483 x 44 x 130 mm
Weight:	8.00 lb., 3.64 kg

Indicators

Power On: LED, red

Connectors

RF Input: "F", Female - Rear Panel

RF Output: "F", Female - Rear Panel

Input Test Port: "F", Female - Front Panel

Output Test Port : "F", Female - Front Panel

Controls

Gain: Var. Control

Slope: Var. Control

❍ Ordering Information

Model	Stock No.	Description
RMDA 550-30	5500 53	Rack Mounted Distribution Amplifier 30 dB, 47-550 MHz
RMDA 550-30P	5500P53	Rack Mounted Distribution Amplifier 30 dB, 47-550 MHz, Power Doubling
RMDA 550-30S	5500S53	Rack Mounted Distribution Amplifier 30 dB, 47-550 MHz, Single Hybrid
RMDA 550-50	5500 55	Rack Mounted Distribution Amplifier 50 dB, 47-550 MHz
RMDA 750-30	5500 73	Rack Mounted Distribution Amplifier 30 dB, 47-750 MHz
RMDA 750-30P	5500P73	Rack Mounted Distribution Amplifier 30 dB, 47-750 MHz, Power Doubling
RMDA 750-S15	5500S71	Rack Mounted Distribution Amplifier 15 dB, 47-750 MHz, Single Hybrid
RMDA 860-15S	5500S81	Rack Mounted Distribution Amplifier 15 dB, 47-860 MHz, Single Hybrid
RMDA 860-30	5500 83	Rack Mounted Distribution Amplifier 30 dB, 47-860 MHz
RMDA 860-30P	5500P83	Rack Mounted Distribution Amplifier 30 dB, 47-860 MHz, Power Doubling
RMDA 860-43P	5500P84	Rack Mounted Distribution Amplifier 43 dB, 47-860 MHz, Power Doubling
RMDA 1000-30	5500 13	Rack Mounted Distribution Amplifier 30 dB, 47-1000 MHz

❍ Specifications

RF	RMDA 550-30S	RMDA 550-30	RMDA 550-30P	RMDA 550-50
Frequency Range (MHz):	47-550	47-550	47-550	47-550
Channel Loading:	77	77	77	77
Flatness (dB):	±0.75	±0.75	±0.75	±0.75
Hybrid Technology:	Push-Pull	Push-Pull	Power Doubling	Push-Pull
Gain (dB):	33	33	33	50
Noise Figure (dB):	8.0	7.0	7.0	7.0
Output Level (dBmV):	+38/+44	+38/+44	+38/+44	+38/+44
Test Port Level (dB)				
Input:	-20, ±2	-20, ±2	-20, ±2	--20, ±2
Output:	-20, ±2	-20, ±2	-20, ±2	-20, ±2
Gain Control Range (dB):	15	15	15	15
Slope Control Range (dB):	10	10	10	10
Composite Triple Beat - CTB (dB):	-65	-66	-72	-65
Composite Second Order - CSO (dB):	-65	-66	-68	-63
Cross Modulation - XMOD (dB):	-64	-64	-71	-63
Hum Modulation (dB):	-70	-70	-70	-70
Number of Hybrids:	1	2	2	2
Impedance - All Ports (Ω):	75	75	75	75
Return Loss (dB)				
Input:	14	14	14	14
Output:	14	14	14	14

RF	RMDA 750-30 (750-15S)	RMDA 750-30P	RMDA 860-30 (860-15S)	RMDA 860-30P	RMDA 860-43P	RMDA 1000-30
Frequency Range (MHz):	47-750	47-750	47-860	47-860	47-860	47-1000
Channel Loading:	110	110	129	129	129	152
Flatness (dB):	±1.00	±1.00	±1.00	±1.00	±1.00	±1.00
Hybrid Technology:	Push-Pull	Power Doubling	Push-Pull	Power Doubling	Power Doubling	Push Pull
Gain (dB):	31 **750-15S** (16)	31	31 **860-15S** (15)	30	43	30
Noise Figure (dB):	7.5	7.0	8.0	8.5	7.0	8.0
Output Level (dBmV) :	+36/+44	+36/+44	+34/+42	+36/+44	+36/+44	+30/+38
Test Port Level (dB)						
Input:	-20, ±2	-20, ±2	-20, ±2	-20, ±2	-20, ±2	-20, ±2
Output:	-20, ±2	-20, ±2	-20, ±2	-20, ±2	-20, ±2	-20, ±2
Gain Control Range (dB):	15	15	15	15	15	15
Slope Control Range (dB):	10	10	10	10	10	10
Composite Triple Beat - CTB (dB):	-61	-66	-60	-62	-62	-67
Cross Modulation - XMOD (dB):	-64	-70	-57	-67	-67	-67
Composite Second Order - CSO (dB):	-59	-64	-64	-67	-67	-67
Hum Modulation (dB):	-70	-70	-70	-70	-70	-70
Number of Hybrids:	2 **750-15S** (1)	2	2 **860-15S** (1)	2 2	2	2
Impedance - All Ports (Ω):	75	75	75	75	75	75
Return Loss (dB)						
Input:	14	14	14	14	14	14
Output:	14	14	14	14	14	14

High Gain Broadband CATV Distribution Amplifier

ZCM-48-550

❍ Features & Benefits

- 550 MHz High Gain Distribution Amplifier
- Configurable With or Without Preamp Section by External Coax Jumper
- Built-In Variable Gain and Slope Controls
- External UL Listed Power Transformer

The ZCM-48-550 is an affordable high gain indoor broadband distribution amplifier. The ideal application for this amplifier is for use in a distribution system where the input source is a “cable drop” or the output of a MATV/SMATV headend. The ZCM-48-550 provides frequency coverage of 54 to 550 MHz and has a flat 50 dB of operational gain. The amplifier also has built-in variable gain and slope controls. This amplifier uses a single push-pull hybrid module and discrete driver stages, capable of delivering high output levels with low distortion, even in systems with 77 channels of programming. A separate preamp (18 dB gain) and post amp (32 dB gain) are included with an external RF loop used to provide overall output capability.

The ZCM-48 Series products are housed in compact, aluminum chassis that provides excellent heat dissipation. The ZCM-48 Series products are provided with an external UL® listed power transformer for use with 117 VAC power.

❍ Specifications

RF

Frequency Range: 54-550 MHz

Channel Loading: 77

Flatness: ±1.00 dB

Overall Gain: 50 dB

Noise Figure (a): 5.5 dB

Output Level: +36/+44 dBmV

Gain Control Range: 10 dB

Slope Control Range: 10 dB

Composite Triple Beat - CTB(b): -66 dB

Cross Modulation - XMOD (b): -64 dB

Composite Second Order - CSO (b): -66 dB

Hum Modulation: -65 dB

Number Of Hybrids: 1

Hybrid Technology: Push-Pull

Impedance - All Ports: 75 Ω

Return Loss
- Input: 14 dB
- Output: 16 dB

General

Power Requirements
- Voltage: 117, ±10% VAC
- Frequency: 60 Hz
- Power: 19 W

Temperature Range: -10 to +50 °C

Mechanical

Dimensions (L x W x D):
- 7.50 x 5.63 x 2.00 in.
- 191 x 143 x 51 mm

Weight:
- 3.1 lbs
- 1.36 kg

Controls (Top Panel)

Gain: Control

Slope: Control

Connectors (Top Panel)

RF Input: "F" Female

RF Output: "F" Female

Notes
(a) Measured at full gain with 0dB slope.
(b) At rated output capability and channel loading.

❍ Ordering Information

Model	Stock No.	Description
ZCM-48-550	5534	Broadband CATV Distribution Amplifier 50 dB, 54-550 MHz

Broadband CATV Distribution Amplifiers

ACA 30 Series

ACA-30-xxR

ACA-30-550

❍ Features & Benefits

- Models Available in 550, 750 and 860 MHz Bandwidths
- Built-in Variable Gain and Slope Controls
- Push-Pull Hybrid Module Design
- Aluminum Chassis Provides Excellent Heat Dissipation
- 5-30 MHz Passive Return Models

The ACA Series are indoor broadband distribution amplifiers designed to be used in RF distribution systems such as those for apartment complexes, hospitals, schools, prisons, and hotels. Two way models are available in 550, 750 and 860 MHz bandwidths with a passive return path of 5-30 MHz. A one way model is also available in a 550 MHz bandwidth only.

ACA's are housed in a compact, aluminum chassis that provides excellent heat dissipation. An external power transformer is provided for use with 117 VAC power. The unit can also be powered directly with 24 VAC.

❍ Specifications

RF	ACA 30-550	ACA 30-55R	ACA 30-75R	ACA 30-86R
Frequency Range (MHz):		5-30	5-30	5-30
	47-550	47-550	47-750	47-860
Channel Loading:	77	77	110	129
Flatness (dB):	±1.00	±1.00	±1.00	±1.00
Gain (Reverse) (dB):	32, (--)	31, (-.75)	31, (-.75)	31, (-.75)
Noise Figure (dB) (a):	7.0	8.5	9.0	9.0
Output Level (dBmV):	+36/+44	+36/+44	+34/+44	+34/+44
Gain Control Range (dB):	20	15	15	15
Slope Control Range (dB):	10	10	10	10
Composite Triple Beat - CTB (dB) (b):	-64	-64	-63	-56
Cross Modulation - XMOD (dB) (b):	-64	-64	-62	-58
Composite Second Order - CTB (dB) (b):	-64	-58	-64	-58
Hum Modulation (dB):	-65	-65	-65	-65
Return Loss				
Input (dB):	14	12	12	12
Output (dB):	14	12	12	12
General				
Power Requirements				
Voltage (VAC) (c):	117, ±10%	117, ±10%	117, ±10%	117, ±10%
	24	24	24	24
Frequency (Hz):	60	60	60	60
Power (W):			19	19
Temperature Range (°C):	-20 to +60	-20 to +60	-20 to +60	-20 to +60
Mechanical				
Dimensions (H x W x D):				
in.	8.00 x 5.50 x 2.50	7.50 x 5.63 x 2.00	7.50 x 5.63 x 2.00	7.50 x 5.63 x 2.00
mm	203 x 146 x 64	191 x 143 x 51	191 x 143 x 51	191 x 143 x 51
Weight:				
lbs.	4.1	3.1	3.1	3.1
kg	1.86	1.36	1.36	1.36

Notes
(a) Measured at full gain with 0 dB slope.
(b) At rated output capability and channel loading.
(c) The ACA-30 Series can be powered via 117VAC using the included transformer or via 24 VAC without the transformer

❍ Ordering Information

Model	Stock No.	Description
ACA-30-550	5450	Apartment Complex Amplifier 30 dB, 47-550 MHz
ACA-30-55R	5750	Apartment Complex Amplifier 30 dB, 47-550 MHz, Passive Return, Single Hybrid
ACA-30-86R	5780	Apartment Complex Amplifier 30 dB, 47-860 MHz, Passive Return, Dual Hybrid
ACA-30-75R	5770	Apartment Complex Amplifier 30 dB, 47-750 MHz, Passive Return, Dual Hybrid

Broadband Distribution Amplifiers

BIDA 5400 Series

The BIDA 5400 Series are professional quality, broadband, two-way capable, indoor hybrid distribution amplifiers. These amplifiers are ideal for multi-channel RF distribution systems for which the input source is a “cable drop” or the output of a MATV/SMATV/CATV headend.

The BIDA-5400 Series is available in either 550 or 750 MHz bandwidths with push-pull hybrid technology. For 2-way operation, optional field installable diplexers and return amplifiers are used to provide either an active or passive 5-30 MHz return. Passive return configurations require only the diplexers, whereas active return requires installation of both the diplexers and the amplifier.

❍ Features & Benefits

- 5-30 MHz Return Capability With Optional Plug-ins
- Dual Push Pull Hybrid Modules
- Interstage Variable Gain and Slope Controls
- Optional Plug-in Fixed Equalizer and Attenuator Capability For Input Signal Conditioning
- Input and Output Test Ports
- Large Heat Sinks for Exceptional Heat Dissipation

❍ Specifications

General

Power Requirements

Frequency: 60 Hz
Voltage: 117, ±10% VAC
Power: 21 W
Fuse: 3/8 A

Temperature Range (°C):
-20 to +60

Indicators

Power On: LED, Red

Controls

Gain: Control; Slope: Control

Mechanical

Dimensions (W x H x D):
7.13 x 11.50 x 2.68 in.
181 x 292 x 68 mm

Weight:
5.75 lb., 2.61 kg

Connectors

RF Input: "F", Female

RF Output: "F", Female

Input Test Port: "F", Female
Output Test Port: "F", Female

❍ Specifications

RF	BIDA-RF		BIDA-RA	BIDA 550-30	BIDA 550-50	BIDA 750-30
	Low	High				
Frequency Range (MHz):	5-30	47-800	5-30	47-550	47-550	47-750
Channel Loading	-	-	3	77	77	110
Flatness (dB):	±0.25	±0.25	±0.50	±0.75	±0.75	±1
Hybrid Technology (dB):				Push-Pull	Push-Pull	Push-Pull
Gain (dB):	-0.50	-0.50	24	33	50	31
Noise Figure (dB) (a):	-	-	6.0	7.0	7.0	9.0
Output Level - Max (dBmV):	-	-	+42	36/44	36/44	36/44
Test Port Level (dB):	-	-	-	-30, ±2	-30, ±2	-30, ±2
Gain Control Range (dB):	-	-	≥12	15	15	15
Slope Control Range (dB):	-	-	≥12	10	10	10
Composite Triple Beat - CTB (dB) (b):	-	-	-60	-64	-64	-60
Cross Modulation -XMOD (dB) (b):	-	-	-60	-64	-64	-61
Composite Second Order - CSO (dB) (b):	-	-	-72	-64	-64	-61
Hum Modulation (dB):	-	-	-65	-70	-70	-70
Impedance -All Ports (Ω):	-	-	-	75	75	75
Return Loss						
Input (dB):	21	16	16	14	14	13
Output (dB):	21	16	16	14	14	13

Notes (a) Measured at full gain with 0 dB slope
(b) At rated output capability and channel loading

❍ Ordering Information

Model	Stock No.	Description
BIDA 550-30	5400 53	Broadband Indoor Distribution Amplifier 30 dB, 47-550 MHz
BIDA 550-50	5400 55	Broadband Indoor Distribution Amplifier 50 dB, 47-550 MHz
BIDA 750-30	5400 73	Broadband Indoor Distribution Amplifier 30 dB, 47-750 MHz
Accessories		
BIDA-RF	54071	BIDA Series Plug-In Return Filter, 5-30 MHz NOTE: For 5400 Series Amplifiers Only
BIDA-RA	5402	BIDA Series Amplifier, 5-30 MHz NOTE: For 5400 Series Amplifiers Only
BIDA-CE-5	5475	BIDA Series Plug-In Cable Equalizer 550 MHz, Values: 3 ,6, 9 ,12, 15, 18 dB
BIDA-CE-7	5477	BIDA Series Plug-In Cable Equalizer 750 MHz, Values: 3, 6, 9 ,12, 15, 18 dB
BIDA-FA	5411A	BIDA Series Plug-In Fixed Attenuator 1000 MHz, Values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 dB

Two-way Broadband Distribution Amplifiers

BIDA 5800 & 5900 Series

❍ Features & Benefits

- Interstage Variable Gain and Slope Controls
- Optional Plug-in Fixed Equalizer and Attenuator Capability For Input Signal Conditioning
- Integrated Return Path Configurable for either Passive or Active Operation
- Push-Pull and Powering Doubling Hybrid Models Available
- Input and Output Test Ports
- Large Heat Sinks for Exceptional Heat Dissipation

The BIDA 5800 and 5900 Series are professional quality, two-way broadband indoor distribution amplifiers. These amplifiers are ideal for multi-channel RF distribution systems the input source is a "cable drop" or the output of a MATV/SMATV/CATV headend.

The BIDA 5800 Series features models having RF bandwidths of 550,750,860 and 1000 MHz. The BIDA 5900 Series is available in 860 MHz bandwidth. Push-pull and power-doubling hybrid amplifier technologies are available on both series. The BIDA 5800 and 5900 series are factory equipped for 2-way operation. The 5800 series has a 36/49 MHz split and the 5900 series has a 42/54 MHz split. Both series leave the factory set for passive return path operation. Active return path operation can easily be accomplished by reconfiguring a few internal jumpers.

The BIDA 5800/5900 Series utilizes an external power transformer providing 26 VAC to the amplifier. This enables the amplifiers to be remotely powered via low voltage AC wiring should a 120 VAC electrical outlet not be in close proximity to the desired amplifier location.

❍ Common Specifications

Gain Control Range: 10 dB

Slope Control Range: 8 dB

Hum Modulation: 70 dB

Impedance - All Ports : 75 Ω

Return Loss
Input: 16 dB
Output: 16 dB

Size (W x H x D):
7.25 x 3.25 x 10.25 in.
18.42 x 8.26 x 26.04 cm

Weight: 6 lbs.
2.7 kg

Power Requirements:
105-130 VAC
60 Hz
0.38 Amps (Max)

Notes
(a) Measured at full gain with 0 dB slope
(b) At rated output capability and channel loading

❍ Specifications

RF	Integrated Active Return Path 5800 / 5900	BIDA 55A-30	BIDA 55A-30P	BIDA 55A-43	BIDA 55A-43P	BIDA 55A-50
Frequency Range (MHz):	5-36 / 5-42	49 - 550	49 - 550	49 - 550	49 - 550	49-550
Channel Loading:	3	77	77	77	77	77
Flatness (dB):	±0.5 ref. to + 1 dB tilt	±0.5	±0.5	±0.5	±0.5	±0.5
Hybrid Technology (dB):	-	Push-Pull	Power Doubling	Push-Pull	Power Doubling	Push-Pull
Gain (dB):	20 (Passive -1.5)	30	30	43	43	50
Noise Figure (dB) (a):	6	7.0	7.0	7.0	7.0	7.0
Output Level (dBmV):+	+42	+36/44	+36/44	+36/44	+36/44	+36/44
Test Port Level: Input/Output (dB):	-	-30, ±2	-30, ±2	-30, ±2	-30, ±2	-30, ±2
Composite Triple Beat - CTB (dB) (b):	-60	-64	-71	-63	-68	-63
Cross Modulation - XMOD (dB) (b):	-60	-67	-74	-66	-69	-66
Composite Second Order - CSO (dB) (b):	-60	-61	-65	-60	-58	-60

Ordering Information is located on the following page.

❍ Specifications - Continued

RF	BIDA 75A-30	BIDA 75A-30P	BIDA 75A-43	BIDA 75A-43P	BIDA 86A/B-30 5800/5900	BIDA 86A/B-30P 5800/5900	BIDA 86A/B-43 5800/5900	BIDA 86A/B-43P 5800/5900	BIDA 100A-30
Frequency Range (MHz):									
5800 Series 5900 Series	49-750	49-750	49-750	49-750	49-860 54-860	49-860 54-860	49-860 54-860	49-860 54-860	49-1000
Channel Loading:	110	110	110	110	129	129	129	129	150
Flatness (dB):	±0.7	±0.7	±0.7	±0.7	±0.75	±0.75	±0.7	±0.7	±0.75
Hybrid Technology (dB):	Push-Pull	Power Doubling	Push-Pull	Power Doubling	Push-Pull	Power Doubling	Push-Pull	Power Doubling	Push-Pull
Gain (dB):	30	30	43	43	30	30	43	43	30
Noise Figure (dB) (a):	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Output Level (dBmV):	36/44	36/44	36/44	36/44	36/44	36/44	36/44	36/44	32/40
Test Port Level: Input/Output (dB):	-30, ±2	-30, ±2	-30, ±2	-30, ±2	-30, ±2	-30, ±2	-30, ±2	-30, ±2	-30, ±2
Composite Triple Beat - CTB (dB) (b):	-60	-64	-56	-64	-54	-62	-56	-60	-59
Cross Modulation - XMOD (dB) (b):	-62	-68	-60	-68	-54	-62	-60	-65	-60
Composite Second Order - CSO (dB) (b):	-56	-61	-59	-61	-57	-61	-59	-59	-59

Notes
(a) Measured at full gain with 0 dB slope
(b) At rated output capability and channel loading

❍ Ordering Information

Model	Stock No.	Description
BIDA 550-30	5400 53	Broadband Indoor Distribution Amplifier 30 dB, 47-550 MHz
BIDA 550-50	5400 55	Broadband Indoor Distribution Amplifier 50 dB, 47-550 MHz
BIDA 750-30	5400 73	Broadband Indoor Distribution Amplifier 30 dB, 47-750 MHz
BIDA 55A-30	5800 53	Broadband Indoor Distribution Amplifier 30 dB, 49-550 MHz, Integrated Active Return (5-36 MHz)
BIDA 55A-30P	5800P53	Broadband Indoor Distribution Amplifier 30 dB, 49-550 MHz, Integrated Active Return (5-36 MHz)
BIDA 55A-43	5800 54	Broadband Indoor Distribution Amplifier 43 dB, 49-550 MHz, Integrated Active Return (5-36 MHz)
BIDA 55A-43P	5800P54	Broadband Indoor Distribution Amplifier 43 dB, 49-550 MHz, Integrated Active Return (5-36 MHz)
BIDA 55A-50	5800 55	Broadband Indoor Distribution Amplifier 50 dB, 49-550 MHz, Integrated Active Return (5-36 MHz)
BIDA 75A-30	5800 73	Broadband Indoor Distribution Amplifier 30 dB, 49-750 MHz, Integrated Active Return (5-36 MHz)
BIDA 75A-30P	5800P73	Broadband Indoor Distribution Amplifier 30 dB, 49-750 MHz, Integrated Active Return (5-36 MHz)
BIDA 75A-43	5800 74	Broadband Indoor Distribution Amplifier 44 dB, 49-750 MHz, Integrated Active Return (5-36 MHz)
BIDA 75A-43P	5800P74	Broadband Indoor Distribution Amplifier 43 dB, 49-750 MHz, Integrated Active Return (5-36 MHz)
BIDA 86A-30	5800 83	Broadband Indoor Distribution Amplifier 30 dB, 49-860 MHz, Integrated Active Return (5-36 MHz)
BIDA 86A-30P	5800P83	Broadband Indoor Distribution Amplifier 30 dB, 49-860 MHz, Integrated Active Return (5-36 MHz)
BIDA 86A-43	5800 84	Broadband Indoor Distribution Amplifier 44 dB, 49-860 MHz, Integrated Active Return (5-36 MHz)
BIDA 86A-43P	5800P84	Broadband Indoor Distribution Amplifier 44 dB, 49-860 MHz, Integrated Active Return (5-36 MHz)
BIDA 86B-30	5900 83	Broadband Indoor Distribution Amplifier 30 dB, 54-860 MHz, Integrated Active Return (5-42 MHz)
BIDA 86B-30P	5900P83	Broadband Indoor Distribution Amplifier 30 dB, 54-860 MHz, Integrated Active Return (5-42 MHz)
BIDA 86B-43	5900 84	Broadband Indoor Distribution Amplifier 44 dB, 54-860 MHz, Integrated Active Return (5-42 MHz)
BIDA 86B-43P	5900P84	Broadband Indoor Distribution Amplifier 44 dB, 54-860 MHz, Integrated Active Return (5-42 MHz)
BIDA 100A-30	5800 13	Broadband Indoor Distribution Amplifier 30 dB, 49-1000 MHz, Integrated Active Return (5-36 MHz)
Accessories		
BIDA-CE-5	5475	BIDA Series Plug-In Cable Equalizer 550 MHz, Values: 3 ,6, 9 ,12, 15, 18 dB
BIDA-CE-7	5477	BIDA Series Plug-In Cable Equalizer 750 MHz, Values: 3, 6, 9 ,12, 15, 18 dB
BIDA-CE-8	5478	BIDA Series Plug-In Cable Equalizer 860 MHz, Values: 3, 6, 9, 12, 15, 18 dB
BIDA-CE-10	5479	BIDA Series Plug-In Cable Equalizer 1000 MHz, Values: 3, 6, 9, 12, 15, 18 dB
BIDA-FA	5411A	BIDA Series Plug-In Fixed Attenuator 1000 MHz, Values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 dB

Rack-Mount Two-Way Distribution Amplifiers

RMDA-ARP

❍ Features & Benefits

- 860 MHz Push Pull Hybrid Technology
- 5-40 MHz Return Path, Field Selectable Active/Passive Operation
- Built-in Variable Gain and Slope Controls
- Optional Plug-in Forward Equalizer and Attenuator
- Optional Plug-in Reverse Attenuator

The RMDA-ARP (active return path) are rack mounted 2-way broadband distribution amplifiers. Utilizing push-pull hybrid amplifier technology, they are ideal for MATV, SMATV or CATV applications. The amplifiers have a forward bandwidth of 54 - 860 MHz with a gain of 30 dB. The reverse path of 5-40 MHz is field configurable for active or passive operation.

The RMDA-ARP amplifier has built-in variable gain controls on both the forward and reverse paths. A forward path variable slope control is provided inter-stage as is the variable gain control. Additionally, a fixed forward equalizer and forward and reverse attenuator plug-ins can be installed for further signal conditioning at the input to the amplifier. 30 dB back-matched test ports at the input and output are provided for monitoring both forward and reverse signal levels without interrupting service. The amplifier is housed in a 1RU aluminum chassis that provides exceptional heat dissipation.

❍ Specifications

RF	RMDA-86A-30	Return Path
Frequency Range (MHz):	54-860	5-40
Channel Loading:	129	5
Flatness (dB):	±1	±0.5
Gain (dB):	32	22 (Active) -1.5 dB (Passive)
Noise Figure (dB) (a):	8.5	6
Output Level (dBmV):	34/42	+48
Test Port Level (dB):	-30, ± 2	-30, ± 2
Gain Control Range (dB):	10	18
Slope Control Range (dB):	8	-
Composite Triple Beat - CTB (dB) (b):	-58	-66
Composite Second Order - CSO (dB) (b):	-59	-70
Cross Modulation - XMOD (dB) (b):	-58	-60
Hum Modulation (dB):	-70	-65
Impedance - All Ports (Ω):	75	75
Return Loss (dB)		
Input:	14	15
Output:	14	15
Operating Temperature (°C):	-20 to +60	-20 to +60
Power Supply		
117 VAC, 60 Hz:	26 W	-
26 VAC, 60 Hz:	1.0 A	-
Dimensions (W x H x D):	19 x 1.75 x 5.13 in. 483 x 44 x 130 mm	
Weight:	6 lbs. 2.7 kg	
Number Of Hybrids:	2 Fwd, 1 Rev	
Hybrid Technology:	Push-Pull	

Notes
(a) Measured at full gain with 0 dB slope
(b) At specified channel loading and rated output capability

❍ Ordering Information

Model	Stock No.	Description
RMDA-86A-30	5200 83	860 MHz, 30 dB Push-Pull Amp with Active Return Path

Options

Model	Stock No.	Description
VMI-CEQ8V	9377A-xx	Plug-in Equalizer, 860 MHz, Values 0-20 dB
VMI-AT	9320-xx	Plug-in Attenuator, 1000 MHz, Values 0-18 dB

Automatic Gain Controlled Residential Amplifier

ARA

❍ Features & Benefits

- Automatic Gain Control (AGC) Maintains Consistent Output Level
- Prevents Service Calls Due to Varying Input Levels
- 1000 MHz Bandwidth
- 5-42 MHz Passive Return Supports Digital and Cable Modem Systems
- Aluminum Chassis Provides Excellent Heat Dissipation
- Automatic Gain Control Range 15 dB

The ARA is an indoor, broadband CATV distribution amplifier designed to be used in RF distribution systems supporting high end residential systems. The unit's Automatic Gain Control (AGC) circuitry is designed to adjust the gain of the amplifier in order to maintain a constant output level to the residential system. The consistent output level from the AGC circuit will prevent an installation from being negatively affected by the constant, small changes in signal level that are prevalent in cable television networks. The 5-42 MHz passive return path will allow the unit to be used in all Digital and Cable Modem enabled cable television systems. The amplifier is housed in an aluminum chassis that provides excellent heat dissipation while allowing for ease of installation.

❍ Specifications

RF	ARA
Frequency Range:	5-42 MHz 54-1000 MHz
Channel Loading:	77 Analog & 250 MHz Digital
Flatness:	±1.00 dB
Gain Reverse:	25, (-.75) dB
Noise Figure[a]:	9.0 dB
Output Level:	25 dBmV
Max Input:	15 dBmV
Minimum Input:	0 dBmV
Composite Triple Beat - CTB[b]:	-66 dB
Cross Modulation - XMOD[b]:	-65 dB
Composite Second Order - CSO[b]:	-65 dB
Hum Modulation:	-65 dB
Return Loss	
Input:	12 dB
Output:	12 dB

General

Power Requirements
Voltage (VAC): 117, ±10%
Frequency (Hz): 60
Power (W): 19

Temperature Range (°C): -20 to +60

Mechanical

Dimensions (L x W x D):
7.50 x 5.63 x 2.00 in
191 x 143 x 51 mm

Weight:
3.1 lbs., 1.36 kg

Notes:
(a) Measured at full gain with 0 dB slope.
(b) At rated output capability and channel loading.

❍ Ordering Information

Model	Stock No.	Description
ARA	5720	Automatic Gain Controlled Residential Amplifier 25 dB, 54-1000 MHz, Passive Return

Masterline® MATV Distribution Amplifiers

MUVB Series

MUVB -35

MUVB -45

The Masterline® Series of distribution amplifiers are designed for MATV off-air applications. These amplifiers are used for off-air VHF, FM and UHF applications, providing high output and low noise amplification. The Masterline® Series products are available with a choice of gain levels, bandwidths, and features to fit almost any system, i.e. number of outlets serviced by the system, the array of off-air channels present, and the signal strength of those signals. The Masterline® Series uses split band amplification, combined with low noise input circuitry, to provide a wide dynamic range and exceptional output capability.

❍ Features & Benefits

- VHF and UHF/VHF Models
- High Output Capability
- Switchable FM Traps for Strong Local FM Signals
- AC Convenience Outlet Provided on Most Models
- Lightning and Surge Protected

❍ Specifications

RF	MUVB-35	MUVB -45
Frequency Range (MHz)		
VHF LB (2-6):	54-88	54-88
FM:	88-108	88-108
VHF HB (7-13):	174-216	174-216
UHF (14-69):	470-890	470-890
Gain (dB)		
VHF LB (2-6) & FM:	36	45
VHF HB (7-13):	35	43
UHF (14-69):	37	43
Noise Figure (dB)		
VHF LB (2-6) & FM:	6.0	7.0
VHF HB (7-13):	7.0	7.5
UHF (14-69):	6.2	5.0
Output Level - Max (dBmV) (a)		
VHF LB (2-6):	+49	+54
VHF HB (7-13):	+49	+54
UHF (14-69):	+49	+52
Gain Control Range (dB)		
All Bands:	18	18
Impedance - All Ports (Ω):	75	75
Power Requirements		
Voltage (VAC):	117, ±10%	117, ±10%
Frequency (Hz):	60	60
AC Convenience Outlet:	NA	YES
Temperature Range (°C):	0 to +50	0 to +50
Mechanical		
Dimensions (L x W x D):		
in.	11.88 x 5.22 x 1.75	19 x 5.22 x 2.56
mm	302 x 133 x 44	483 x 133 x 65
Weight:		
lbs.	3.25	7.00
kg	1.48	3.18
Controls (Top Panel)		
Gain		
LB VHF/FM/MB VHF:	Control	Control
HB VHF:	Control	Control
UHF:	Control	Control
FM Trap IN/OUT:	Slide Switch	Slide Switch
Separate/Combined LB/HB VHF:	-	Slide Switch
Separate/Combined U/V:	Slide Switch	Slide Switch

Notes
(a) For TASO Grade 1 picture (*46 dB CNR).

❍ Ordering Information

Model	Stock No.	Description
MUVB-45	1454	Broadband VHF/FM/UHF Amplifier 45 dB, 54-88/88-108/174-216/470-806 MHz
MUVB-35	1451	Broadband VHF/FM/UHF Amplifier 36 dB, 54-88/88-108/174-216/470-806 MHz

Residential Distribution Amplifiers

ZCM Series

ZCM-101

ZCM-201

❍ Features & Benefits

- 50-550 MHz Bandwidth
- 10 and 20 dB Gain Models
- Low Noise Figure
- Manual Tilt Control (ZCM-201)
- Compact Housing

The ZCM -101/201 distribution amplifiers are designed for special purpose applications in the MATV, SMATV, Private and Wireless Cable markets. These low noise amplifiers cover the frequency range of 50 to 550 MHz and provide either 10 or 20 dB of gain depending on model.

❍ Specifications

RF	**ZCM-101**	**ZCM-201**
Frequency Range (MHz):	50-550	50-550
Gain (dB):	10	20
Noise Figure (dB):	3.5	3.5
Impedance - All Ports (Ω):	75	75
General		
Power Requirements		
Voltage (VAC):	117, ±10%	117, ±10%
Frequency (Hz):	60	60
Power (W):	1.2	1.4
Temperature Range (°C):	0 to +50	0 to +50
Mechanical		
Dimensions (L x W x D):		
in.	4.88 x 2.00 x 2.50	4.88 x 2.00 x 2.50
mm	124 x 51x64	124 x 51 x 64
Weight:		
lbs.	0.50	0.50
kg	0.23	0.23
Control		
Tilt:	-	Var. Control
Connectors (Top Panel)		
RF Input:	"F" Female	"F" Female
RF Output:	"F" Female	"F" Female

❍ Ordering Information

Model	Stock No.	Description
ZCM-201	1472	Broadband VHF/CATV Distribution Amplifier 20 dB, 50-550 MHz
ZCM-101	1471	Broadband VHF/CATV Distribution Amplifier 10 dB, 50-550 MHz

VHF/FM/UHF Distribution Amplifiers

ZTA Series

ZTA-15

ZTA-25

ZTA-35

ZTA-45

The ZTA Series are distribution amplifiers, designed for off-air applications in MATV, SMATV, and Wireless Cable systems. These very affordable split band amplifiers provide high output capability with low noise contribution. Four gain models are available for VHF, FM, and UHF signal reception to fit most systems.

❍ Features & Benefits

- VHF/FM/UHF Distribution Amplifiers
- Models Available with Gains of 15, 25, 35 and 45 dB
- Wide Dynamic Range
- High Output Capability
- Low Noise Figure
- Switchable FM Traps (not on ZTA-15) Protect Against Strong Local FM Stations

❍ Specifications

RF	ZTA-15	ZTA-25	ZTA-35	ZTA-45
Frequency Range (MHz):	54-220 470-900	54-216 470-890	54-216 470-890	54-216 470-890
Flatness (dB):	±1.00	±1.0 (LB/FM) ±1.5 (HB) ±4.0 (UHF)	±0.50 (LB/FM) ±0.75 (HB) ±1.50 (UHF)	±0.50 (LB/FM) ±0.75 (HB) ±1.50 (UHF)
Gain (dB):	15 (50-220) 12 (470-800) 10 (800-900)	25 (LB/FM) 22 (HB) 18 (UHF)	36 (LB/FM) 35 (HB) 37 (UHF)	45 (LB/FM) 45 (HB) 43 (UHF)
Noise Figure (dB):	3.0 (VHF) 4.0 (UHF)	5.0 (VHF) 7.0 (UHF)	6.0 (LB/FM) 7.0 (HB) 6.2 (UHF)	7.0 (LB/FM) 7.5 (HB) 5.0 (UHF)
Output Level - Max VHF 7 ch., UHF 4 ch. (dBmV):	+44	+45	+49	+54
Gain Control Range (dB):	-	-	18	18
FM Trap Depth (95-108 MHz) (dB):	-	-25	-18	-20
General				
Power Requirements				
Voltage (VAC):	117, ±10%	117, ±10%	117, ±10%	117, ±10%
Frequency (Hz):	60	60	60	60
Power (W):	4.2	3.0	9.0	15.0
Temperature Range (°C):	0 to 50	0 to 50	0 to 50	0 to 50
Mechanical				
Dimensions (L x W x D):				
in.	3.25 x 1.5 x 4.9	5.9 x 3 x 1.6	11.9 x 5.2 x 1.75	19 x 5.2 x 2.6
mm	83 x 38 x 124	149 x 76 x 41	302 x 133 x 44	483 x 133 x 67
Weight:				
lbs.	0.75	1.5	3.25	7.0
kg	0.34	0.68	1.48	3.18

❍ Ordering Information

Model	Stock No.	Description
ZTA-15	1466	Broadband VHF/FM/UHF Distribution Amplifier 16 dB, 54-220/470-900 MHz
ZTA-25	1463	Broadband VHF/FM/UHF Distribution Amplifier 25 dB, 54-216/470-890 MHz
ZTA-35	1464	Broadband VHF/FM/UHF Distribution Amplifier 36 dB, 54-216/470-890 MHz
ZTA-45	1465	Broadband VHF/FM/UHF Distribution Amplifier 45 dB, 54-216/470-890 MHz

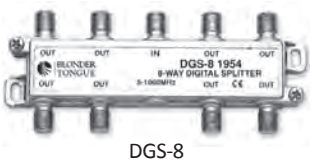
Indoor 5-1000 MHz Splitters

DGS Series

DGS-2

DGS-3

DGS-4



DGS-8

❍ Features & Benefits

- 2, 3, 4 and 8 Way Models with 5-1000 MHz Bandwidth
- -60 dBmV Spurious Signals and 2nd Order Harmonics with a +55 dBmV Return Input Carrier
- Category A3 Standard 6 KV, 100 KHz Ring Wave Surge Withstand Capability on All Ports
- -120 dB RFI, Solder Back Design
- Machine Threaded Flat F Ports
- Compliant with SCTE Splitter Guidelines
- Zinc Alloy Die-Cast Housing

❍ Specifications

(Typical)

	DGS-2 1951	DGS-3 1952	DGS-3B 1959	DGS-4 1953	DGS-8 1954
Loss (dB)					
5 - 15 MHz	3.5	3.5/7.5	6.1	7.7	10.7
15 - 42 MHz	3.5	3.5/7.4	6.1	7.3	11
43 - 65 MHz	3.5	3.5/7.4	5.9	7.2	11.2
66 - 250 MHz	3.5	3.5/7.4	5.9	7.2	11.2
251 - 550 MHz	3.5	3.5/7.4	5.9	7.2	11.2
551 - 750 MHz	3.7	3.5/7.5	6.5	7.5	11.5
751 - 1000 MHz	3.7	3.5/7.5	6.5	7.5	11.5
Isolation (dB)					
5 - 15 MHz	30	30	30	30	22
15 - 42 MHz	40	40	40	40	37
43 - 65 MHz	30	30	30	30	25
66 - 250 MHz	30	30	30	30	25
251 - 550 MHz	30	30	30	30	25
551 - 750 MHz	28	28	28	28	25
751 - 1000 MHz	28	28	28	28	25
Return Loss - Input (dB)					
5 - 15 MHz	25	25	25	25	25
15 - 42 MHz	28	28	28	28	30
43 - 65 MHz	28	28	28	28	25
66 - 250 MHz	28	28	28	28	25
251 - 550 MHz	28	28	28	28	25
551 - 750 MHz	25	28	28	25	25
751 - 1000 MHz	25	28	28	25	25
Return Loss - Output (dB)					
5 - 15 MHz	30	25	25	25	25
15 - 42 MHz	35	35	35	30	30
43 - 65 MHz	25	30	30	28	25
66 - 250 MHz	25	30	30	28	25
251 - 550 MHz	25	30	30	28	25
551 - 1000 MHz	25	25	28	28	25

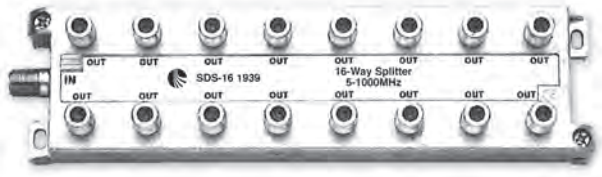
❍ Ordering Information

Model	Stock No.	Description
DGS-2	1951	Splitter, 2 Way Low Intermod. Solder Back, 5-1000 MHz
DGS-3	1952	Splitter, 3 Way Low Intermod. Solder Back, 5-1000 MHz
DGS-3B	1959	Splitter, 3 Way(Bal) Low Intermod. Solder Back, 5-1000 MHz
DGS-4	1953	Splitter, 4 Way Low Intermod. Solder Back, 5-1000 MHz
DGS-8	1954	Splitter, 8 Way Low Intermod. Solder Back, 5-1000 MHz

Indoor 5-1000 MHz Splitters

SDS Series

SDS-12



SDS-16

❍ Features & Benefits

- Zinc Die-cast Housing with Corrosion Protection
- Solder Back
- -120 dB RFI

❍ Specifications

	SDS-12	SDS-16
Loss (dB)		
5 - 40 MHz:	11	14
40 - 400 MHz:	11	14
400 - 500 MHz:	11.5	14.5
500 - 600 MHz:	12	15.5
600 - 1000 MHz:	13	15.5
Isolation (dB)		
5 - 40 MHz:	28	23
40 - 400 MHz:	32	28
400 - 500 MHz:	30	25
500 - 600 MHz:	28	22
600 - 1000 MHz:	25	22
Return Loss Input (dB)		
5 - 40 MHz:	18	18
40 - 400 MHz:	18	18
400 - 500 MHz:	18	18
500 - 600 MHz:	18	18
600 - 1000 MHz:	18	18
Return Loss Output (dB)		
5 - 40 MHz:	18	18
40 - 400 MHz:	20	22
400 - 500 MHz:	20	22
500 - 600 MHz:	20	20
600 - 1000 MHz:	18	18

❍ Ordering Information

Model	Stock No.	Description
SDS-12	1938	Splitter, 12 Way Solder Back, 5-1000 MHz
SDS-16	1939	Splitter, 16 Way Solder Back, 5-1000 MHz

Indoor 5-1000 MHz Splitters

SXRS Series & SCVS Series

SXRS-2

SXRS-3

SXRS-4

SXRS-8

❍ Features & Benefits

- Superior Performance to 1000 MHz
- 2,3,4, 6 (SCVS Only) and 8 Way Models
- Die Cast Housing
- RFI Shielding 120 dB
- Built-in Ground Block

SCVS-2

SCVS-3

SCVS-4

SCVS-6

SCVS-8

❍ Specifications

Electrical	SCVS/SXRS-2	SCVS/SXRS-3	SCVS/SXRS-4	SCVS-6	SCVS/SXRS-8
Number of Outputs:	2	3	4	6	8
Frequency Range (MHz):	5-1000	5-1000	5-1000	5-1000	5-1000
Splitter Loss (dB) (max)					
5-500 MHz:	3.6	6.1	7.0	9.5	10.5
500-860 MHz:	3.8	6.2	7.5	10.0	11.5
860-1000MHz:	4.2	6.8	8.0	11.0	12.0
Input Return Loss (dB) (min):					
5-40 MHz:	16	16	16	16	16
40-500 MHz:	22	20	20	18	20
500-860 MHz:	20	20	18	18	18
860-1000 MHz:	18	16	16	18	16
Isolation Between Outputs (dB) (min):					
5-40 MHz:	22	22	22	25	22
40-500 MHz:	26	25	25	28	25
500-860 MHz:	26	25	25	23	25
860-1000 MHz:	24	21	22	21	21

❍ Ordering Information

Model	Stock No.	Description	Model	Stock No.	Description
SCVS-2	1902	Splitter, 2 Way Solder Back, 5-1000 MHz, L Style	SXRS-2	1922	Splitter, 2 Way Solder Back, 5-1000 MHz, In-Line Style
SCVS-3	1903	Splitter, 3 Way Solder Back, 5-1000 MHz, L Style	SXRS-3	1923	Splitter, 3 Way Solder Back, 5-1000 MHz, In-Line Style
SCVS-4	1904	Splitter, 4 Way Solder Back, 5-1000 MHz, L Style	SXRS-4	1924	Splitter, 4 Way Solder Back, 5-1000 MHz, In-Line Style
SCVS-6	1906	Splitter, 6 Way Solder Back, 5-1000 MHz, L Style	SXRS-8	1928	Splitter, 8 Way Solder Back, 5-1000 MHz, L Style
SCVS-8	1908	Splitter, 8 Way Solder Back, 5-1000 MHz, L Style			

Indoor Splitters

SUV and CRSP Series

SUV-2

SUV-3

SUV-4

SUV-8

❍ SUV Features & Benefits

- Performance to 1000 MHz
- 2, 3, 4 and 8 Way Models
- Die Cast Housing
- 80 dB RFI Shielding
- Built-in Ground Block

CRSP-2

CRSP-4

❍ CRSP Features & Benefits

- 750 MHz Bandwidth
- 2 and 4 Way Models
- Die Cast Housing with Ground Block
- 80 dB RFI Shielding
- 1 Output Port Power Passing (1 A Capacity)

❍ SUV & CRSP Specifications

Electrical	SUV-2	SUV-3	SUV-4	SUV-8	CRSP-2	CRSP-4
Splitter Loss (dB)						
10-470 MHz:	4.0	4.5 (1 Port) 7.0 (2 Ports)	7.5	10.5	-	-
470-900 MHz:	4.5	5.0 (1 Port) 8.5 (2 Ports)	9.0	12.0	-	-
900-1000 MHz:	5.0	5.5 (1 Port) 9.0 (2 Ports)	10.0	13.0	-	-
CRSP Splitter Loss (dB)						
5 - 500 MHz:	-	-	-	-	3.9	7.1
500 - 600 MHz:	-	-	-	-	4.0	7.3
600 - 700 MHz:	-	-	-	-	4.3	7.5
Input Return Loss Min. (dB):	8	12	13	7	17	17
Isolation Between Outputs Min. (dB):	14	18	20	18	27	27.

❍ Ordering Information

Model	Stock No.	Description
SUV-2	4002	Splitter, 2 Way 10-1000 MHz, In-Line Style
SUV-3	4003	Splitter, 3 Way 10-1000 MHz, In-Line Style
SUV-4	4004	Splitter, 4 Way 10-1000 MHz, In-Line Style
SUV-8	4013	Splitter, 8 Way 10-1000 MHz, L Style
CRSP-2	4072	Splitter, 2 Way 5-750 MHz, Power Passing
CRSP-4	4074	Splitter, 4 Way 5-750 MHz, Power Passing

Indoor 5-1000 MHz Taps

DGT Series

DGT

DGT-2

DGT-4

DGT-8

❍ Features & Benefits

- 1, 2, 4 and 8 Port Models with 5-1000 MHz Bandwidth
- -60 dBmV Spurious Signals and 2nd Order Harmonics with a +55 dBmV Return Input Carrier
- Category A3 Standard 6 KV, 100 kHz Ring Wave Surge Withstand Capability on All Ports
- -120 dB RFI, Solder Back Design
- Machine Threaded Flat F Ports
- Compliant with SCTE Splitter Guidelines
- Zinc Alloy Die-Cast Housing

❍ Specifications

DGT (1Port)(dB)	6	8	10	12	14	16	18	20	24	30
Insertion Loss										
5-15 MHz:	1.8 ± 0.3	1.6 ± 0.3	1.3 ± 0.3	1.0 ± 0.3	1.0 ± 0.3	1.0 ± 0.3	1.0 ± 0.3	1.0 ± 0.3	1.0 ± 0.3	1.0 ± 0.3
15-42 MHz:	1.9 ± 0.3	1.5 ± 0.3	1.4 ± 0.3	1.1 ± 0.3	1.0 ± 0.3	0.9 ± 0.3	0.9 ± 0.3	0.9 ± 0.3	0.9 ± 0.3	0.9 ± 0.3
43-550 MHz:	2.3 ± 0.3	1.85 ± 0.3	1.6 ± 0.3	1.2 ± 0.3	1.2 ± 0.3	1.1 ± 0.3	1.1 ± 0.3	1.1 ± 0.3	1.1 ± 0.3	1.1 ± 0.3
551-1000 MHz:	2.7 ± 0.3	2.5 ± 0.5	1.8 ± 0.5	1.2 ± 0.3	1.4 ± 0.3	1.3 ± 0.3	1.3 ± 0.3	1.3 ± 0.3	1.3 ± 0.3	1.3 ± 0.3
Return Loss In/Out (dB min)										
5-15 MHz:	16	18	18	18	18	18	18	18	18	18
15-42 MHz:	18	18	20	20	20	20	20	20	20	20
43-550 MHz:	18	20	20	20	18	18	18	18	18	18
551-1000 MHz:	18	18	18	18	18	18	18	18	18	18
Return Loss Tap (dB min)										
5-15 MHz:	18	18	18	18	18	18	18	18	18	18
15-42 MHz:	20	20	20	20	20	20	20	20	20	20
43-550 MHz:	20	20	20	20	18	20	20	20	20	20
551-1000 MHz:	18	18	18	18	18	18	18	18	18	18
Isolation Tap-Out (dB min)										
5-15 MHz:	23	23	24	28	30	31	35	35	39	40
15-42 MHz:	23	23	25	25	25	30	31	32	36	36
43-550 MHz:	20	20	22	22	22	26	26	28	30	34
551-1000 MHz:	20	20	20	20	20	21	23	25	28	32
Tap Loss (dB)										
5-1000 MHz:	6.5 ± 1.5	8 ± 1.5	10 ± 1.5	12 ± 1.5	14 ± 1.5	16 ± 1.5	18 ± 1.5	20 ± 1.5	24 ± 1.5	30 ± 1.5

❍ Specifications

DGT-2 (2 Port)(dB)	8	10	12	14	16	18	20	24
Insertion Loss								
5-15 MHz:	3.5 ± 0.3	2.0 ± 0.3	1.9 ± 0.3	1.5 ± 0.3	0.8 ± 0.3	0.7 ± 0.3	0.7 ± 0.3	0.7 ± 0.3
15-42 MHz:	3.4 ± 0.3	1.9 ± 0.3	1.5 ± 0.3	1.3 ± 0.3	0.7 ± 0.3	0.6 ± 0.3	0.6 ± 0.3	0.6 ± 0.3
43-550 MHz:	3.6 ± 0.3	2.0 ± 0.3	1.9 ± 0.5	1.4 ± 0.3	1.1 ± 0.3	0.8 ± 0.3	0.8 ± 0.3	0.8 ± 0.3
551-1000 MHz:	4.2 ± 0.3	2.5 ± 0.3	2.2 ± 0.5	1.7 ± 0.3	1.3 ± 0.3	1.0 ± 0.3	1.0 ± 0.3	1.0 ± 0.3
Return Loss In/Out (dB min)								
5-15 MHz:	18	18	18	18	18	18	18	18
15-42 MHz:	18	18	18	18	19	20	20	20
43-550 MHz:	18	20	20	20	20	20	20	20
551-1000 MHz:	18	18	18	18	18	18	18	18
Return Loss Tap (dB min)								
5-15 MHz:	18	18	18	18	18	18	18	18
15-42 MHz:	18	18	18	18	19	20	20	20
43-550 MHz:	18	20	20	20	20	20	20	20
551-1000 MHz:	18	18	18	18	18	18	18	18
Isolation Tap-Out (dB min)								
5-15 MHz:	28	28	30	30	30	30	32	34
15-42 MHz:	28	28	30	30	30	30	32	34
43-550 MHz:	26	26	26	26	28	28	28	33
551-1000 MHz:	22	22	22	22	23	23	25	29
Isolation Tap-Tap (dB min)								
5-15 MHz:	20	20	20	20	20	20	20	20
15-42 MHz:	22	22	22	24	22	22	22	22
43-550 MHz:	22	22	22	22	22	22	22	22
551-1000 MHz:	20	20	20	20	20	20	20	20
Tap Loss (dB)								
5-1000 MHz:	8.0 ± 1.5	10 ± 1.5	12 ± 1.5	14 ± 1.5	16 ± 1.5	18 ± 1.5	20 ± 1.5	24 ± 1.5

DGT-4 (4 Port)(dB)	10	12	14	16	17	18	20	24
Insertion Loss								
5-15 MHz:	3.5 ± 0.3	3.5 ± 0.3	2.0 ± 0.3	1.3 ± 0.3	1.3 ± 0.3	1.0 ± 0.3	0.8 ± 0.3	0.7 ± 0.3
15-42 MHz:	3.7 ± 0.3	3.7 ± 0.3	1.9 ± 0.3	1.2 ± 0.3	1.2 ± 0.3	1.0 ± 0.3	0.6 ± 0.3	0.6 ± 0.3
43-550 MHz:	3.9 ± 0.3	3.9 ± 0.3	2.0 ± 0.5	1.5 ± 0.3	1.5 ± 0.3	1.2 ± 0.3	0.8 ± 0.3	0.8 ± 0.3
551-1000 MHz:	4.2 ± 0.3	4.2 ± 0.3	2.5 ± 0.5	1.9 ± 0.3	1.9 ± 0.3	1.5 ± 0.3	1.0 ± 0.3	1.0 ± 0.3
Return Loss In/Out (dB min)								
5-15 MHz:	16	16	16	16	16	18	18	18
15-42 MHz:	16	16	16	16	16	18	18	18
43-550 MHz:	18	18	16	20	18	18	18	18
551-1000 MHz:	18	18	16	18	18	18	18	18
Return Loss Tap (dB min)								
5-15 MHz:	18	18	18	18	18	18	18	18
15-42 MHz:	18	18	18	18	18	18	18	18
43-550 MHz:	18	18	18	18	18	18	18	18
551-1000 MHz:	18	18	18	18	18	18	18	18
Isolation Tap-Out (dB min)								
5-15 MHz:	24	24	27	30	28	30	30	36
15-42 MHz:	24	24	27	28	28	20	20	35
43-550 MHz:	22	22	24	26	24	28	28	30
551-1000 MHz:	20	20	21	23	21	24	25	29
Isolation Tap-Tap (dB min)								
5-15 MHz:	20	20	20	20	20	20	20	20
15-42 MHz:	20	20	20	20	20	20	20	20
43-550 MHz:	22	22	22	24	24	24	24	24
551-1000 MHz:	20	20	20	20	20	20	20	20
Tap Loss (dB)								
5-1000 MHz:	10.5 ± 1.5	12 ± 1.5	14 ± 1.5	16 ± 1.5	17 ± 1.5	18 ± 1.5	20 ± 1.5	24 ± 1.5

❍ Specifications

DGT-8 (8 Port)

Insertion Loss (dB)	11	14	17	20	23	27
5-15 MHz:	NA	5.1 ± 0.3	3.4 ± 0.3	1.0 ± 0.3	0.5 ± 0.3	0.5 ± 0.3
15-42 MHz:	NA	5.1 ± 0.3	3.4 ± 0.3	1.0 ± 0.3	0.6 ± 0.3	0.6 ± 0.3
43-550 MHz:	NA	5.5 ± 0.3	4.0 ± 0.3	1.5 ± 0.3	1.0 ± 0.3	1.0 ± 0.3
551-1000 MHz:	NA	6.0 ± 0.5	4.2 ± 0.5	2.0 ± 0.5	1.6 ± 0.5	1.2 ± 0.5
Return Loss In/Out (dB min)						
5-15 MHz:	18	18	18	18	18	18
15-42 MHz:	18	18	18	18	18	18
43-550 MHz:	18	18	18	18	18	18
551-1000 MHz:	18	18	18	18	18	18
Return Loss Tap (dB min)						
5-15 MHz:	18	18	18	18	18	18
15-42 MHz:	18	18	18	18	18	18
43-550 MHz:	18	18	18	18	18	18
551-1000 MHz:	18	18	18	18	18	18
Isolation Tap-Out (dB min)						
5-15 MHz:	NA	25	25	25	25	25
15-42 MHz:	NA	25	25	25	25	30
43-550 MHz:	NA	25	25	25	25	25
551-1000 MHz:	NA	25	26	26	26	26
Isolation Tap-Tap (dB min)						
5-15 MHz:	23	23	25	25	25	25
15-42 MHz:	23	23	25	25	25	25
43-550 MHz:	22	22	22	22	22	22
551-1000 MHz:	20	22	22	22	22	22
Tap Loss (dB)						
5-1000 MHz:	11.5 ± 1.5	14 ± 1.5	17 ± 1.5	20 ± 1.5	23 ± 1.5	27 ± 1.5

❍ Ordering Information

Model	Stock No.	Description
DGT	1955	Directional Tap, 1 Output, Low Intermod., 5-1000 MHz, Values: 6, 8, 10, 12, 14, 16, 18, 20, 24, 30
DGT-2	1956	Directional Tap, 2 Output, Low Intermod., 5-1000 MHz, Values: 8, 10, 12, 14, 16, 18, 20, 24
DGT-4	1957	Directional Tap, 4 Output, Low Intermod., 5-1000 MHz, Values: 10, 12, 14, 16, 17, 18, 20, 24
DGT-8	1958	Directional Tap, 8 Output, Low Intermod., 5-1000 MHz, Values: 11, 14, 17, 20, 23, 27

Indoor 5-1000 MHz Taps

SRT-a Series

Blonder Tongue's SRT Series of indoor 1GHz taps are the standard for directional couplers used in broadband systems such as those in educational, correctional, commercial, and MDU's. Models are available with 2, 4, and 8 tap ports and have tap values from 35 dB to 4 dB (model dependant) in 3 dB increments. All models have die-cast housings and provide RFI shielding of 120 dB.

❍ Features & Benefits

- 1 GHz Bandwidth
- 2,4 and 8 Port Models
- 120 dB RFI Shielding
- Diecast Housing
- Built-in Ground Block

❍ Specifications

SRT-2a Tap Value (dB)	4	8	11	14	17	20	23	26	29	32
Insertion Loss										
5 MHz:	*	4.2	2.4	1.7	1.2	1.0	0.7	0.7	0.7	0.7
300 MHz:	*	4.2	2.4	1.7	1.2	1.0	0.7	0.7	0.7	0.7
450 MHz:	*	4.2	2.4	1.7	1.2	1.0	0.7	0.7	0.7	0.7
500 MHz:	*	4.9	2.8	1.8	1.5	1.1	1.0	1.0	1.0	1.0
600 MHz	*	5.5	3.0	2.0	1.8	1.3	1.2	1.2	1.2	1.2
1000 MHz	*	6.0	3.6	2.6	2.1	1.6	1.4	1.4	1.4	1.4
Return Loss										
5 - 10 MHz:	18	16	18	18	18	18	18	18	18	18
10 - 50 MHz:	20	18	20	20	20	20	20	20	20	20
50 - 750 MHz:	18	18	20	20	20	20	20	20	20	20
750 - 1000 MHz:	16	16	16	16	16	16	16	16	16	16
Return Loss (Tap)										
5 - 10 MHz:						16				
10 - 50 MHz:						18				
50 - 750 MHz:						20				
750 - 1000 MHz:						18				
Isolation Tap-to-Tap:										
5 - 10 MHz:						22				
10 - 450 MHz:						26				
450 - 750 MHz:						25				
750 - 1000 MHz:						22				
Isolation Out-to-Tap										
5 - 400 MHz:	-	22	25	28	31	35	36	38	40	40
400 - 500 MHz:	-	20	23	25	28	32	35	39	42	45
500 - 600 MHz:	-	17	21	22	25	29	33	36	39	42
600 - 1000 MHz:	-	15	17	18	20	22	25	25	27	28
Tap Tolerance (± dB)										
5 - 10 MHz:	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
10 - 550 MHz:	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5
550 - 1000 MHz:	1.0	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0

* Terminated

❍ Specifications

SRT-4a

Tap Value (dB)	8	11	14	17	20	23	26	29	32	35
Insertion Loss (dB)										
5 MHz:	*	3.5	1.8	1.0	0.7	0.7	0.5	0.5	0.5	0.5
300 MHz:	*	3.5	1.7	1.0	0.7	0.6	0.5	0.5	0.5	0.5
400 MHz:	*	4.0	2.1	1.5	1.1	0.8	0.7	0.7	0.7	0.7
500 MHz	*	4.5	2.3	1.8	1.3	1.2	1.0	0.8	0.8	0.8
600 MHz:	*	5.5	2.5	2.0	1.5	1.3	1.1	1.0	1.0	1.0
1000 MHz	*	6.5	3.0	2.5	1.8	1.5	1.3	1.3	1.3	1.3
Return Loss (In/Out) (dB)										
5 - 10 MHz:	18	18	16	18	18	18	18	18	18	18
10 - 50 MHz:	20	20	18	20	20	20	20	20	20	20
50 - 450 MHz:	18	18	18	20	20	20	20	20	20	20
450 - 750 MHz:	18	18	18	18	18	18	18	18	18	18
750 - 1000 MHz:	16	16	16	16	16	16	16	16	16	16
Return Loss (Tap) (dB)										
5 - 10 MHz:						18				
10 - 750 MHz:						20				
750 - 1000 MHz:						18				
Isolation Tap-to-Tap (dB):										
5 - 10 MHz:						22				
10 - 450 MHz:						26				
450 - 750 MHz:						25				
750 - 1000 MHz:						22				
Isolation Out-to-Tap (dB)										
5 - 400 MHz:	-	24	27	31	33	37	38	40	43	45
400 - 500 MHz:	-	24	25	26	31	34	37	40	42	45
500 - 600 MHz:	-	21	21	23	27	29	31	35	38	40
1000 MHz:	-	20	20	22	24	26	27	27	30	30
Tap Tolerance (± dB)										
5 - 450 MHz:	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
450 - 750 MHz:	1.0	1.0	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0
750 - 1000 MHz:	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

❍ Specifications

SRT-8a

Tap Value (dB)	11	14	17	20	23	26	29	32	35
Insertion Loss (dB)									
5 - 50 MHz:	*	3.5	1.9	1.2	0.8	0.8	0.7	0.7	0.7
50 - 450 MHz:	*	4.0	2.3	1.5	1.0	0.9	0.8	0.8	0.8
450 - 750 MHz:	*	4.2	2.4	1.8	1.2	1.0	1.0	1.0	1.0
750 - 1000 MHz:	*	4.5	2.5	2.0	1.4	1.2	1.0	1.0	1.0
Return Loss (In/Out) (dB)									
5 - 10 MHz:	18	18	16	18	18	18	18	18	18
10 - 50 MHz:	20	20	18	20	20	20	20	20	20
50 - 450 MHz:	20	20	18	20	20	20	20	20	20
450 -750 MHz:	18	18	18	18	18	18	18	18	18
750 - 1000 MHz:	16	16	16	16	16	16	16	16	16
Return Loss (Tap) (dB)									
5 - 10 MHz:						18			
10 - 750 MHz:						18			
750 - 1000 MHz:						18			
Isolation Tap-to-Tap (dB):									
5 - 10 MHz:						22			
10 - 450 MHz:						26			
450 - 750 MHz:						25			
750 - 1000 MHz:						22			
Isolation Out-to-Tap (dB)									
5 - 10 MHz:	-	30	28	36	36	38	38	38	38
10 - 50 MHz:	-	30	28	35	36	35	36	36	36
50 - 450 MHz:	-	26	25	32	33	32	32	32	32
450 - 750 MHz:	-	24	24	30	30	30	30	30	30
750 - 1000 MHz:	-	24	24	26	26	28	28	28	30
Tap Tolerance (± dB)									
5 - 450 MHz:	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
450 - 750 MHz:	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
750 - 1000 MHz:	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

* Terminated

❍ Ordering Information (Specify Tap Value)

Model	Stock No.	Description
SRT-2a	1942	Directional Tap, 2 Output 5-1000 MHz, In-Line Style, Values: 4, 8, 11, 14, 17, 20, 23, 26, 29 ,32 dB
SRT-4a	1944	Directional Tap, 4 Output 5-1000 MHz, In-Line Style, Values: 8, 11, 14, 17, 20, 23, 26, 29, 32, 35 dB
SRT-8a	1948	Directional Tap, 8 Output 5-1000 MHz, In-Line Style, Values: 11, 14, 17, 20, 23, 26, 29, 32, 35 dB

Indoor 5-1000 MHz Taps

SDC-4, SCW, & SRT -x Series

SDC-4

❍ Features & Benefits

- 4 Port 1 GHz Tap
- 120 dB RFI Shielding
- 5 to 1000 MHz Frequency Range

❍ Specifications

SDC-4

Tap Value (dB)	**20**	**24**	**30**
Insertion Loss (dB max.)			
5-300 MHz:	0.8	0.8	0.7
300-600 MHz:	1.0	0.9	0.9
600-1000 MHz:	1.4	1.3	1.2
Return Loss (in/out) (dB min.)			
5-300 MHz:	18	18	18
300-600 MHz:	18	18	18
600-1000 MHz:	15	15	15
Isolation (Tap to Tap) (dB)			
5-30 MHz:	22	22	22
30-600 MHz:	25	25	25
600-1000 MHz:	22	22	22
Isolation (Out to Tap) (dB)			
5-300 MHz:	36	38	43
300-600 MHz:	33	35	39
600-1000 MHz:	26	28	32
Tap Tolerance (+/-) (dB)	1.5	1.5	1.5

SCW

SRT

❍ Features & Benefits

- 1 GHz Bandwidth
- 1 Port Directional Couplers - "L" Style (SCW), "T" Style (SRT)
- 120 dB RFI Shielding
- Die Cast Housing

❍ Specifications

SRT/SCW

Tap Value (dB)	**4**	**6**	**9**	**12**	**16**	**20**	**24**	**27**	**30**
Thru-line Loss (dB)									
5 - 900 MHz:	4.0	3.5	1.8	1.6	1.1	1.1	1.1	1.1	1.1
900 - 1000 MHz:	4.5	4.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5
Input Return Loss (dB)									
5 - 400 MHz:	15	15	15	20	20	20	20	20	20
400 - 900 MHz:	12	13	16	18	18	18	18	18	18
Tap Down Loss (±1.0 dB):	3	6	9	12	16	20	24	27	30
Isolation Out-to-Tap (dB)									
5 - 400 MHz:	20	22	24	30	30	36	36	40	40
400 - 1000 MHz:	18	20	20	24	26	30	30	30	30

❍ Ordering Information (Specify Tap Value)

Model	**Stock No.**	**Description**
SCW	1930	Directional Tap, 1 Output 5-1000 MHz, L Style, Values: 4 ,6, 9, 12, 16, 20, 24, 27, 30 dB
SDC-4	1950	Directional Tap, 4 Output 5-1000 MHz, In-Line Style, Values: 20, 24, 30 dB
SRT	1940	Directional Tap, 1 Output 5-1000 MHz, T Style,Values: 4, 6, 9, 12, 16, 20, 24, 27, 30 dB

Outdoor Taps & Splitters

DMT & TLS Series

DMT-1000-2

DMT-1000-8

DMT-1000-4

TLS Series

❍ Features & Benefits

- 1 GHz Passive
- DMT-2,4 and 8 Port Models have Plated Brass F Connectors
- 120 dB RFI Shielding
- Diecast Housing

❍ Specifications

DMT-1000-2

Tap Value	4	8	11	14	17	20	23	26	29	32	35
Insertion Loss (dB)											
5-10 MHz:	*	3.6	1.8	1.3	1.0	0.8	0.8	0.8	0.8	0.8	0.8
10-450 MHz:	*	3.8	1.8	1.5	1.4	1.0	1.0	1.0	0.8	0.8	0.8
450-550 MHz:	*	4.2	2.2	1.7	1.5	1.2	1.2	1.2	1.2	1.2	1.2
550-750 MHz:	*	4.5	2.8	1.8	1.8	1.4	1.4	1.4	1.4	1.4	1.4
750-1000 MHz:	*	4.8	3.8	2.4	2.2	1.7	1.7	1.5	1.5	1.5	1.5
Out to Tap Isolation (dB)											
5-10 MHz:	-	21	21	22	25	26	29	32	32	32	33
10-450 MHz:	-	26	26	26	31	33	35	36	40	42	46
450-550 MHz:	-	23	25	25	30	33	35	38	40	42	45
550-750 MHz:	-	22	23	25	28	30	32	36	37	40	42
750-1000 MHz:	-	22	23	25	28	30	32	36	37	40	42

DMT-1000-4

Tap Value	8	11	14	17	20	23	26	29	32	35
Insertion Loss (dB)										
5-10 MHz:	*	3.2	1.8	1.3	1.0	0.8	0.8	0.8	0.8	0.8
10-450 MHz:	*	3.5	1.8	1.4	1.2	0.8	0.8	0.8	0.8	0.8
450-550 MHz:	*	4.0	2.3	1.6	1.4	1.2	1.0	1.0	1.0	1.0
550-750 MHz:	*	4.4	3.0	1.8	1.6	1.4	1.2	1.2	1.2	1.2
750-1000 MHz:	*	4.8	3.7	2.2	2.0	1.8	1.5	1.5	1.5	1.5
Out to Tap Isolation (dB)										
5-10 MHz:	-	22	22	25	30	30	30	32	32	33
10-450 MHz:	-	26	27	30	36	36	38	40	42	44
450-550 MHz:	-	24	28	30	35	35	35	40	42	42
550-750 MHz:	-	23	24	27	32	32	34	35	38	40
750-1000 MHz:	-	23	24	27	32	32	34	35	38	40

DMT-1000-8

Tap Value	11	14	17	20	23	26	29	32	35
Insertion Loss (dB)									
5-10 MHz:	*	3.6	1.8	1.4	1.0	1.0	1.0	1.0	1.0
10-450 MHz:	*	4.2	2.2	1.6	1.1	1.1	1.1	1.1	1.1
450-550 MHz:	*	4.5	2.5	2.0	1.5	1.2	1.2	1.2	1.2
550-750 MHz:	*	4.6	3.0	2.2	1.8	1.3	1.3	1.3	1.3
750-1000 MHz:	*	4.9	3.2	2.6	2.2	1.5	1.5	1.5	1.5
Out to Tap Isolation (dB)									
5-10 MHz:	-	23	24	27	28	30	32	34	36
10-450 MHz:	-	24	25	28	30	32	34	35	38
450-550 MHz:	-	27	27	30	34	38	40	42	42
550-750 MHz:	-	25	27	30	33	33	35	38	40
750-1000 MHz:	-	25	27	30	33	33	35	38	40

❍ Common Specifications for DMT

Tap Loss Tolerance (dB)		Impedance - All Ports:	75 Ω
5 - 10 MHz:	±1.5	Return Loss (dB)	
10 - 550 MHz:	±1.0	@5 - 10 MHz:	16
550 - 1000 MHz:	±1.5	@10 - 400 MHz:	26
Tap to Tap Isolation (dB)		@400 - 550 MHz:	18
5 - 10 MHz:	24	@550 - 870 MHz:	16
10 - 550 MHz:	27	@870 - 1000 MHz:	17
550 - 600 MHz:	24	Power Passing (AC/DC)	
600 - 1000 MHz:	23	DMT	6A

* Terminated

❍ Ordering Information (Specify Tap Value)

Model	Stock No.	Description
DMT-1000-2	3852	Outdoor Directional Tap, 2 Output 5-1000 MHz, Values: 4, 8, 11, 14, 17, 20, 23, 26, 29, 32, 35 dB
DMT-1000-4	3854	Outdoor Directional Tap, 4 Output 5-1000 MHz, Values: 8, 11, 14, 17, 20, 23, 26, 29, 32, 35 dB
DMT-1000-8	3858	Outdoor Directional Tap, 8 Output 5-1000 MHz, Values: 11, 14, 17, 20, 23, 26, 29, 32, 35 dB

Blonder Tongue has a complete line of quality outdoor multitaps with frequency coverage to 1000 MHz. The DMT Series are available in two, four and eight port models that are capable of both stand and pedestal mounting. These multitaps are constructed with the circuitry on a removable bottom plate for ease in changing tap values. Separate gaskets are used to provide weatherproofing and RFI integrity. All DMT's feature plated brass "F" connectors on the tap ports, and 5/8 - 24 entry fittings on input and output ports. DMT housings are made with 360 aluminum alloy with a polyurethane coating to ensure maximum corrosion resistance. The TLS Series of trunk line splitters are available in 2 and 3 way versions as well as single port directional coupler models with values of 8, 12 and 16 dB. A power inserter model rounds out the series. All TLS Series housings have 5/8-24 entry fittings on all ports and are made with the same corrosion resistant materials as the DMT Series.

❍ Features & Benefits

- 1 GHz Bandwidth
- DMT-2, 4 and 8 Port Models have Plated Brass F Connectors
- RFI Shielding and Weather-Sealing Gaskets
- 360 Aluminum Alloy Housing and Stainless Steel Hardware For Corrosion Resistance
- TLS Series have 5/8" Entry fittings and are available in 2 and 3 Way Splitters and 8,12 and 16 dB Directional Coupler

❍ Specifications (Specify Tap Value)

	TL-PI-1000	TLS-1000	TLS-1000	TLS-1000	TLS - 1000-2	TLS - 1000-3
		8 dB	12 dB	16 dB		
Tap Loss (dB)						
5 - 300 MHz:	-	±1.0	±1.0	±1.0	-	-
300 - 500 MHz:	-	±1.0	±1.0	±1.0	-	-
500 - 1000 MHz:	-	±1.5	±1.5	±1.5	-	-
Insertion Loss (dB)						
5 - 300 MHz:	1.0	2.4	1.0	1.0	4.2	7.0
300 - 500 MHz:	1.2	3.0	1.2	1.2	4.6	8.5
500 - 1000 MHz:	1.4	3.2	2.2	2.2	5.2	9.0
Isolation Loss (dB)						
5 - 300 MHz:	-	22	25	27	25	20
300 - 500 MHz:	-	25	28	25	25	19
500 - 1000 MHz:	-	22	20	22	20	18
Return Loss (dB)						
5 - 300 MHz:	19	19	19	19	18	18
300 - 500 MHz:	19	19	18	19	18	17
500 - 1000 MHz:	17	17	17	17	17	17
Power Passing (AC/DC)	10 A	10 A	10 A	10 A	10 A	10 A

❍ Ordering Information

Model	Stock No.	Description
TL-PI-1000	3850	Outdoor Power Inserter TLS Series, 5-1000 MHz
TLS-1000	3851	Outdoor Tap, 1 Output TLS Series, 5-1000 MHz, Values: 8, 12, 16 dB
TLS-1000-2	3855	Outdoor Splitter, 2 Way TLS Series, 5-1000 MHz
TLS-1000-3	3856	Outdoor Splitter, 3 Way TLS Series, 5-1000 MHz

Fiber Optic 1310 nm Transmitter

Trailblazer Series - FIBT/MIBT

FIBT

MIBT

❍ Features & Benefits

- 45-860 MHz Bandwidth
- 1310 nm, Single Mode With FC/APC Connector Standard, (SC/APC Optional)
- Available in 5 Optical Output Powers (6,8,10,12 & 14 dBm) To Handle A Variety of Applications
- LED's for Quick Assessment of RF Input, Laser and Cooler Status
- Status/Alarm Jack on Rear Panel for Monitoring 5 Key Parameters

The FIBT-S3A and MIBT-S3A Series of transmitters provides a robust system for transferring broadband CATV signals over single mode optical fibers. Both series have a a frequency bandwidth of 45- 860 MHz that accommodates a variety of different modulation formats such as AM/VSB, 8VSB, QAM, QPSK, etc. FIBT/MIBT-S3A series transmitters use high-power, low noise 1310 nm distributed feedback (DFB) laser diodes. An optical isolator protects the laser from optical reflections in the transmission path. This ensures high CNR, excellent linearity and consistent link performance. The FIBT transmitters are EIA 19" wide rack mountable with a height of 1.75". The MIBT transmitters utilize the MIRC-12V rack chassis and MIPS-12D power supply for mounting. Each MIBT-S3A occupies 2 slots within the MIRC chassis, therefore up to six (6) MIBT-S3A transmitters can be installed in 2 RU's. Both the FIBT and the MIBT's use efficient switching power supplies that accept utility power from 90 to 260 VAC and 50 to 60 Hz.

❍ Specifications

Operating Wavelength: 1310 nm

Required Fiber Bandwidth: 1,000 Min. MHz

Input Return Loss: =/>16 dB @ 75 Ω

Back Reflection: -50 min. dB

Optical Output Power
- +6 dBm
- +8 dBm
- +10 dBm
- +12 dBm
- +14 dBm

Bandwidth: 45 to 860 MHz

RF Input Level (110 Ch. Load): + 18 dBmV/Ch

CNR (-1 dBm Input, 77 Ch. Load + QAM 550-860 MHz @ -6 dB Ref. Analog): ≥52 dB

Composite Triple Beat - CTB: ≥ 63 dB

Composite Second Order - CSO: ≥ -60 dB

Side Mode Suppression Ratio (SMSR): 30 dB

Mechanical

Weight:
- FIBT: 6 lbs., 2.72 kg
- MIBT: 1.21 lbs, 0.54 kg

Physical Dimensions (W x H x D):
- FIBT: 19 x 1.75. x 8.25 in. 482.6 x 44.5 x 209.55 mm
- MIBT: 2.19 x 3.5 x 8.25 in. 55.6 x 88.9 x 209.55 mm

Operating Temperature Range: 0 to +45 ˚C

Power

Power Supply Voltage: 110/220 VAC

Power Supply Frequency: 50/60 Hz

Power Dissipation: 25 W

MIBT: Requires MIPS-12D Power Supply

Connectors

RF Input: "F" Female

Optical Output: FC/APC

**Also available with SC/APC. Use suffix "S" after stock number ie: 7403BS 6*

Indicators

Power: LED, Green

Cooler Status: LED, Bi-colored Green/Red

RF Input Level: LED, Tri-colored Green/Yellow/Red

Laser Status: LED, Bi-colored Green/Red

Notes: Link Gain Specifications Valid When Used with FRDA Receiver Module.

Please refer to the Product Instruction Manual for more specifications.

❍ Ordering Information

Model	Stock No.	Description
FIBT-S3A-816B	7403B 6	Fiber Optic Transmitter, Single-mode, DFB laser 110 Ch., 45-860 MHz, 1310 nm, +6 dBm Output, FC/APC Connector
FIBT-S3A-818B	7403B 8	Fiber Optic Transmitter, Single-mode, DFB laser 110 Ch., 45-860 MHz, 1310 nm, +8 dBm Output, FC/APC Connector
FIBT-S3A-810B	7404B10	Fiber Optic Transmitter, Single-mode, DFB laser 110 Ch., 45-860 MHz, 1310 nm, +10 dBm Output, FC/APC Connector
FIBT-S3A-812B	7404B12	Fiber Optic Transmitter, Single-mode, DFB laser 110 Ch., 45-860 MHz, 1310 nm, +12 dBm Output, FC/APC Connector
FIBT-S3A-814B	7404B14	Fiber Optic Transmitter, Single-mode, DFB laser 110 Ch., 45-860 MHz, 1310 nm, +14 dBm Output, FC/APC Connector
MIBT-S3A-816A	7410A 6	Fiber Optic Transmitter, Single-mode, DFB laser 110 Ch., 45-860 MHz, 1310 nm, +6 dBm Output, FC/APC Connector
MIBT-S3A-818A	7410A 8	Fiber Optic Transmitter, Single-mode, DFB laser 110 Ch., 45-860 MHz, 1310 nm, +8 dBm Output, FC/APC Connector
MIBT-S3A-810A	7410A 10	Fiber Optic Transmitter, Single-mode, DFB laser 110 Ch., 45-860 MHz, 1310 nm, +10 dBm Output, FC/APC Connector
MIBT-S3A-812A	7410A 12	Fiber Optic Transmitter, Single-mode, DFB laser 110 Ch., 45-860 MHz, 1310 nm, +12 dBm Output, FC/APC Connector
MIBT-S3A-814A	7410A 14	Fiber Optic Transmitter, Single-mode, DFB laser 110 Ch., 45-860 MHz, 1310 nm, +14 dBm Output, FC/APC Connector

Fiber Optic 1550 nm Transmitter

Trailblazer Series - FIBT-10-1550

❍ Features & Benefits

- 48-870 MHz Bandwidth
- 1550 nm, Single Mode With SC/APC Connector
- 10 dBm Optical Output Power
- LED's for Quick Assessment of RF Input, Laser and Cooler Status
- Status/Alarm Jack on Rear Panel for Monitoring 5 Key Parameters

The Blonder Tongue FIBT-10-1550 transmitter used in conjunction with other LightHouse Series FTTH products provides a robust system for transporting broadband CATV signals in a PON (passive optical network) system architecture. The transmitter has a frequency bandwidth of 48-870 MHz that accommodates a variety of different modulation formats such as AM/VSB, 8VSB, QAM, QPSK, etc. The FIBT transmitter utilizes a direct modulated high-power, low noise 1550nm distributed feedback (DFB) laser diode. An optical isolator protects the laser from optical reflections in the transmission path. This ensures high Carrier Noise Ratio (CNR), excellent linearity and consistent link performance for fiber distances up to 20 Km. The FIBT-10-1550 transmitter is EIA 19" rack mountable and has a height of 1.75" (1RU).

❍ Specifications

Optical:

Operating Wavelength: 1550 nm

Optical Output Power: +10 dBm

SBS Threshold: 10 dBm

Back Reflection: -50 min. dB

RF:

Bandwidth: 48 to 870 MHz

Input Return Loss: =/>16 dB @ 75 Ω

RF Input Level (110 Ch. Load): + 18 dBmV/Ch

Carrier Noise Ratio (-1 dBm Rx Input, 77 Ch. Load + QAM 550-870 MHz @ -6 dB Ref.Analog): ≥ 50.5 dB

Composite Triple Beat (CTB): ≥ 60 dB

Composite Second Order (CSO): ≥ -53 dB (0-10 km of Fiber)

Electrical:

Power Input: 110/220 VAC, 50/60 Hz

Power Consumption: 25 W

Mechanical:

Dimensions (W x H x D):
19 x 1.75 x 8.25 in.
482.6 x 44.5 x 209.55 mm

Weight: 6 lbs., 2.72 kg

Operating Temperature Range: 0 to +45 °C

Connectors:

RF Input: "F" Female

Optical Output: SC/APC

Indicators:

Power: LED, Green

Cooler Status: LED, Bi-colored Green/Red

RF Input Level: LED, Tri-colored Green/Yellow/Red

Laser Status: LED, Bi-colored Green/Red

Please refer to the Product Instruction Manual for more specifications.

❍ Ordering Information

Model	Stock No.	Description
FIBT-10-1550	7465 A	Fiber Transmitter 1550 nm, +10 dBm , 48-870 MHz

Compact Fiber Optic Node

Trailblazer Series - FOCN

❍ Features & Benefits

- Compact Size
- 1000 MHz Forward Bandwidth, 5-42 MHz Return Bandwidth(on 2-way models)
- Tri-color LED for Optical Input Status
- LED Indicator for Return Laser Status
- 12 VDC Powering Versatility

The FOCN-20x Series is a low-cost, compact 2-way node designed to deliver the full array of CATV services presently available and those planned for the future. These services include video (analog and digital), high speed data and telephony. The FOCN has applications for the direct fiber transmission of CATV RF signals in MDU, industrial, government and educational facilities, or wherever a high performance compact indoor node is required. The unit is constructed with high quality components enabling it to meet or exceed its performance specifications in an uncontrolled indoor environment with wide temperature variations. The FOCN-20x is available in 3 models. All models have at their core a 1310/1550 nm optical receiver with exceptional optical sensitivity and 28 dBmv RF output at an optical input of -1dBm. The differences between the models pertain to return path operation. Models are available in both 1-way or 2-way configurations. The 2-way models are available with either a 1310 nm or 1550 nm DFB laser. All 2-way models have a return RF bandwidth of 5-42 MHz. Other standard features include LEDs for optical input and laser status. Powering is via a 12 VDC supply and can be accomplished in either of two ways. To power locally, a separate power connector marked "+12 VDC power in", is provided. Alternately, the unit can accept 12 VDC from its RF output connector, thus permitting remote powering by diplexing the 12 VDC supply onto the RF output

❍ Specifications

Forward Optical Receivers

RF Output

Frequency Range (+/- 1.0 dB): 54-1000 MHz (NTSC)

Output Level (@ -1 dBm optical input):*
+28 dBmV (@ 550 MHz)

Return Loss: 14 dB min., 16 dB typical

Impedance: 75 Ohm

CNR (@ 0 dBm optical input):* > 53 dB

CSO (@ -1 dBm optical input):* > 63 dBc

CTB (@ -1 dBm optical input):* > 65 dBc

Slope: 0dB

RF Test Point (forward) -20 dB; Type F

Optical

Wavelength: 1280 - 1610 nm

Optical Input Power Range: +2 dBm to -8 dBm

Return Loss: > 50 dB with APC connector

Optical Input Power Test Point:
1 V/mW +/- 0.1 V

Optical Connector: SC/APC, 8° APC

Electrical & Mechanical

Dimensions: 3" H x 6" D x 2.1" H

Weight: 12 oz.

Operating Temperature Range:
-10 to +55˚C (temperature at the mounting plate)

Enclosure IP Rating: IP20

Powering: +12 VDC
(via external Power Supply (included))

DC Ripple: < 50 mV

Power Dissipation (with return TX): < 7 W

Return Optical Transmitters

RF Input

Frequency Range: (+/- 1.0 dB) 5-42 MHz (NTSC)

RF Test Point (return): -20 dB (external); Type F

Return Loss (with Return TX Installed):
> 16 dB within the Return Band

Return Path NPR: 15 dB min. of NPR Range
FP: 37 dB NPR Threshold
DFB: 41 dB NPR Threshold

Optical

Optical Output:
DFB = 4.8dBm (3mW) @1310nm
DFB = 4.0dBm (2.5mW) @1550nm

Return Loss: > 50 dB with APC connector

Optical Connector SC/APC, 8° APC

❍ Ordering Information

Model	Stock No.	Description
FOCN-S4S-201	7420A 1	Fiber Optic Compact Node, 28 dBmv RF Output 1310/1550 nm, 870 MHz, SC/APC Connectors
FOCN-S4S-204	7420A 4	Fiber Optic Compact Node, 28 dBmv RF Output Forward RX 1310/1550 nm, 870 MHz, Return TX 1310 nm,4.8 dBm DFB
FOCN-S4S-205	7420A 5	Fiber Optic Compact Node, 28 dBmv RF Output Forward RX 1310/1550 nm, 870 MHz, Return TX 1550 nm, 4 dBm DFB

Fiber Receiver & Distribution Amplifier

Trailblazer Series - FRDA

The FRDA is a fiber optic receiver module integrated with a broadband distribution amplifier (BIDA). The FRDA is used as a launch amplifier in a coaxial distribution sub-system fed from a single mode broadband fiber network. The FRDA's optical receiver section provides exceptional CNR performance at low optical input levels. This feature is also a cost saving one, since it permits the use of lower power optical transmitters. The FRDA has an 860 MHz RF bandwidth and power doubling hybrid amplifier technology to provide high RF output levels with low distortion. The FRDA operates with the FIBT Series of transmitters as well as those from other leading manufacturers.

❍ Features & Benefits

- LED For Optical Input Status
- Gain and Slope Controls
- Exceptional CNR Performance At Low Optical Input Levels
- 860 MHz Power Doubling Hybrid
- Optical Input Jack Scaled 1V/mW Provides Precise Measurement Capability Using DC Voltmeter

❍ Specifications

Optical Receiver

Bandwidth: 47 to 860 MHz
Bandpass Flatness: 1.0 dB P-V
Operating Wavelength: 1310/1550 nm
Optical Input Range: -6.0 to +3.0 dBm
CNR (-1 dBm Input, 40 Ch. Load): 54 dB
CNR (-1 dBm Input, 79 Ch.+ Data): 53 dB
CNR (-1 dBm Input, 110 Ch. Load): 52 dB
Input Connector: FC/APC

Distribution Amplifier

Impedance - All Ports: 75 Ω
Return Loss Output: 16 dB
RF Gain: 43 dB
Test Port: -30, ±2 dB
Gain Control Range: 10 dB
Slope Control Range: 8 dB
Channel Loading: 110
Flatness: ± 0.75 dB
Output Level (Low/High):
34/42 dBmV
Composite Triple Beat (CTB): -60 dB
Composite Second Order (CSO): -58 dB
Hum Modulation: -70

Power

Power Supply Requirements:
117 VAC, 60 Hz: 28 W

Mechanical

Size (W x H x D):
7.25 x 3.25 x 10.25 in.
18.42 x 8.26 x 26.04 cm
Weight: 5.75 lbs., 2.61 kg
Number Of Hybrids: 2
Hybrid Technology: Power Doubling
Operating Temperature: -20 to +45˚C

Indicators

Optical Input Alarm: LED, Tri-colored
Power: LED, Green

	Optical Input dBm	Optical Input mW		
	-10	0.10		
	-9	0.13	Increase Optical Input Power Orange Optical LED Indication	
	-8	0.16		
	-7	0.20		
	-6	0.25	0 dB	
	-5	0.32	2 dB	
GREEN LED	-4	0.40	4 dB	Recommended Attenuator Plug-in Value (9320-xx)
GREEN LED	-3	0.50	6 dB	
GREEN LED	-2	0.63	8 dB	
GREEN LED	-1	0.79	10 dB	
GREEN LED	0	1.00	12 dB	
GREEN LED	1	1.26	14 dB	
GREEN LED	2	1.58	16 dB	
GREEN LED	3	2.00	18 dB	
	4	2.51	Decrease Optical Input Power Red Optical LED Indication	
	5	3.16		

* For 110-220 VAC add "B" in front of the stock number

Please refer to the Product Instruction Manual for more specifications.

❍ Ordering Information

Model	Stock No.	Description
FRDA-S4A-860-FA	7400P84B	Fiber Optic Receiver/RF Distribution Amplifier, Single-mode 47-860 MHz, 1310/1550 nm, FC/APC Conn., 43 dB Gain, Wall Mount
FRDA-S4A-860-SA	7400P84BS	Fiber Optic Receiver/RF Distribution Amplifier, Single-mode 47-860 MHz, 1310/1550 nm, SC/APC Conn., 43 dB Gain, Wall Mount

Accessories

VMI-AT	9320	VMI Attenuator, Plug-In 1000 MHz

Fiber Receiver & Distribution Amplifier

Trailblazer Series - FRRA

❍ Features & Benefits

- LED For Optical Input Status
- Gain and Slope Controls
- Exceptional CNR Performance At Low Optical Input Levels
- 860 MHz Power Doubling Hybrid
- Optical Input Power Jack Scaled 1V/mW

The FRRA is a fiber optic receiver module integrated with a rack mounted broadband distribution amplifier (RMDA). The FRRA is used as a launch amplifier in a coaxial distribution sub-system fed from a single mode broadband fiber network. The FRRA's optical receiver section provides exceptional CNR performance at low optical input levels. This feature is also a cost saving one, since it permits the use of lower power optical transmitters. The FRRA has a RF bandwidth of 860 MHz, and features power doubling hybrid amplifier technology for high RF output levels and low distortion. The FRRA operates with the FIBT Series of transmitters as well as those from other leading manufacturers.

❍ Specifications

Optical Receiver

Bandwidth: 45 to 860 MHz
Bandpass Flatness: 1 dB P/V
Operating Wavelength: 1310/1550 nm
Optical Input Range: -6 to +3.0 dBm
CNR (-1 dBm Input, 40 Ch. Load): 54 dB
CNR (-1 dBm Input, 79 Ch. Load): 53 dB
CNR (-1 dBm Input, 110 Ch. Load): 52 dB

Connectors

Optical Input: FC/APC or SC/APC
RF Output and Test Ports: "F" Female

Distribution Amplifier

Impedance - All Ports: 75 Ω
Return Loss Input: 16 dB
Return Loss Output: 16 dB
RF Gain: 43 dB
Test Port Level: -30, ±2 dB
Gain Control Range: 10 dB
Slope Control Range: 8 dB
Channel Loading: 110
Flatness: ±0.75 dB
Output Level: 34/42 dBmV
Composite Triple Beat (CTB) -60 dB
Composite Second Order (CSO) -58 dB
Hum Modulation: -70 dB

Mechanical

Size (W x H x D): 19 x 1.75 x 6.25 in. 48.26 x 4.45 x 15.88 cm
Weight: 5.75 lbs., 2.61 kg
Number Of Hybrids: 2
Hybrid Technology: Power Doubling
Operating Temperature: -20 to +60 ˚C

Power

Power Supply Requirements: 117 VAC, 60 Hz: 28 W

Indicators

Optical Input Alarm: LED, Tri-colored
Power: LED, Green

	Optical Input dBm	Optical Input mW		
	-10	0.10		
	-9	0.13	Increase Optical Input Power Orange Optical LED Indication	
	-8	0.16		
	-7	0.20		
	-6	0.25	0 dB	
	-5	0.32	2 dB	
GREEN LED	-4	0.40	4 dB	Recommended Attenuator Plug-in Value (9320-xx)
GREEN LED	-3	0.50	6 dB	
GREEN LED	-2	0.63	8 dB	
GREEN LED	-1	0.79	10 dB	
GREEN LED	0	1.00	12 dB	
GREEN LED	1	1.26	14 dB	
GREEN LED	2	1.58	16 dB	
GREEN LED	3	2.00	18 dB	
	4	2.51	Decrease Optical Input Power Red Optical LED Indication	
	5	3.16		

Please refer to the Product Instruction Manual for more specifications.

❍ Ordering Information

Model	Stock No.	Description
FRRA-S4A-860-43P	7411P84B	Fiber Optic Receiver/RF Distribution Amplifier, Single-mode 47-860 MHz, 1310/1550 nm, FC/APC Conn., 43 dB, Rack Mount, Power Doubling
FRDA-S4S-860-43P	7411P84BS	Fiber Optic Receiver/RF Distribution Amplifier, Single-mode 47-860 MHz, 1310/1550 nm, SC/APC Conn., 43 dB, Rack Mount, Power Doubling

Broadband Outdoor Fiber Optic Node

Trailblazer Series - BOFN

The BOFN-S4S-870-50 is a high performance, four output, two-way optical node capable of greater than +50 dBmV output levels and performance to 870 MHz. The BOFN-S4S-870-50 is configured in a finned weatherproof aluminum housing suitable for outdoor strand or pedestal installation. It is specifically designed to operate over wide temperature ranges, and operates from standard CATV 60 VAC power. Cable and fiber entry and exit ports accept standard 5/8-24 threaded CATV connectors. The optical receiver and optional BORT Series return laser transmitters have SC-APC optical connectors, FC/APC connectors are available on a special order basis. Internal RF connections are made with 75Ω mini-SMB connectors. RF test points are male Type "G" connectors and mate with standard adapters.

The BOFN-S4S-870-50 has four identical bi-directional coaxial ports. Each port has a forward (downstream) passband of 54-870 MHz and a reverse (upstream) passband of 5-42 MHz. All four bi-directional ports are capable of passing power into or out of the BOFN-S4S-870-50. A fifth port designated as a power port can be optionally configured to also serve as an RF port for return-band signals into or out of the housing. Jumper plugs controlling the power configuration for each of the ports can be replaced with automotive-type ATC fuses.

❍ Features & Benefits

- Exceptional Performance at Low Optical Input Levels
- Four High Level RF Outputs
- Flexible 45-90 VAC Powering Options
- Two-way Operation with Optional Return Transmitter

❍ Specifications

Optical:

Optical Input Range: -4 dBm to +3 dBm

RF:

Forward Frequency Range:
54 MHz to 870 MHz

Reverse Frequency Range: 5 MHz to 42 MHz

Forward Frequency Response:
± <0.75 dB to 870 MHz

Reverse Frequency Response:
± <0.75 dB, 5 MHz to 42 MHz

Output Level (Forward):
+50 dBmV @ 550 MHz (Each of Four Outputs) with -4 dBm Optical Input, 16 dB Slope to 870 MHz, and Transmitter OMI @3.2%.

Distortion:
>62 dB CSO/CTB @ Above Output and +3 dBm Optical Input
Carrier Loading (77 channels) to 550 MHz.
Simulated Data Loading @ -6 dB from 550 MHz to 870 MHz

Carrier to Noise:
>51 dB @ -1 dBm Optical or Greater
Carrier loading (77 Channels) to 550 MHz

In/Out Return Loss:
>16 dB – All Ports 1 Through 4 Port 5 (Power Port) - >15 dB to 65 MHz with Optional Return Port Configuration

Mechanical:

Operating Temperature Range: -40° C to +65° C

Gain Variation vs. Temperature:
<±1 dB Typical
<±1.5 dB Max

Power:

AC Power Requirements:
60 VAC @ 50-60 Hz; (45 VAC to 90 VAC)
Will withstand over-voltage to 140 VAC

Hum Modulation:
>60dB @ 15 Amps AC Current from any One Port 7 MHz to 25 MHz>65dB
@ 15 Amps AC current from any One Port 25 MHz to 870 MHz

Dimensions (W x H x D):
11.5 x 8.25 x 9 in., 292 x 910 x 229 mm

Weight: 19 lbs., 8.62 kg

Optional Plug-In Module

The BORT Series are optional return transmitter plug-in modules for the BOFN-S4S-870-50 (#7554) outdoor fiber node. Two models are available depending on the particular application. The BORT-S3S-420 (#7560) employs a Fabry-Perot (FP) laser with 1 mW (0 dBm) of optical output power. It is recommended for data applications only. The BORT-S3S-424 (#7564) has a DFB laser with 3 mW (4.8 dBm) of optical output power. The #7564 is recommended for both data and return video applications. Both BORT Series transmitters have a return RF frequency bandwidth of 5-42 MHz and SC/APC optical connectors. FC/APC connectors will be available on a special order basis.

Please refer to the Product Instruction Manual for more specifications.

❍ Ordering Information

Model	Stock No.	Description
BOFN-S4S-870-50	7554	Broadband Outdoor Fiber Node 4 Output, 54-870 MHz, +50 dBmV per Port, 5-42 MHz Return
Optional Plug-In Modules		
BORT-S3S-420	7560	BOFN-S4S-870-50 Plug-In Return Transmitter 0 dBm FP Laser, SC/APC Connector, 5-42 MHz
BORT-S3S-424	7564	BOFN-S4S-870-50 Plug-In Return Transmitter 4.8 dBm DFB Laser, SC/APC Connector, 5-42 MHz
Accessories		
LPA-EQ8	5833	LPA Series Plug-In Cable Equalizer 870 MHz, Values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18
LPA-PD-XX	5834	LPA Series Plug-In Attenuator 870 MHz, Values: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18

Outdoor Fiber Optic Receiver & Distribution Amplifier

Trailblazer Series - FODA

❍ Features & Benefits

- Exceptional CNR Performance
- Optical Input Test Jack – Scaled DC output (1V/mW)
- 860 MHz Forward Bandwidth
- 2-Way Models available with 42/54 MHz Splits
- Numerous Return Laser Options (DFB,1310 nm,1550 nm)
- 60/90 VAC Powering
  (60 VAC PS included in all models except stock number 7586)
- Built in 20 dB In/Out RF Test Ports
- Cast Aluminum Housing for Outdoor or Indoor Mounting
- Forward Path Interstage Variable Gain and Slope Controls

The FODA Series are outdoor optical nodes designed for HFC applications. They consist of a high quality optical receiver module combined with a power doubling hybrid amplifier stage resulting in excellent CNR and CTB performance over a wide optical input range. Designed with cast-aluminum housings, the FODA is ideal for outdoor as well as indoor back board installations.

The FODA Series is available in one-way (only), two-way (capable) and fully two-way equipped models. Numerous optical return transmitter options are available for different wavelengths and output powers to satisfy a variety of installation requirements.

The FODA housing utilizes a carbonized rubber and wire mesh gasket to provide excellent protection against RFI and moisture ingress. 5/8" entry fittings in the housing allow hard line cable to connect directly to the amplifier. For RG-11 or RG-6 cabling applications, a KS-F adapter is included to provide an output “F” connection. The FODA has flexible powering features. For indoor use the supplied external 60 VAC power supply (not applicable to FODA stock number 7586) is connected to the auxiliary power “F” connector using flexible coax. This permits remote powering, so the unit can be installed without the need for nearby electrical outlet. Powering can also be accomplished using 60/90 VAC CATV network powering (not applicable to stock number 7586) via the output 5/8" entry.

The FODA stock number 7586 has an FC/APC optical input connector mounted on the housing and is therefore not intended to be mounted directly outdoors. 60/90 VAC powering is accomplished through a dedicated 5/8" housing port. A 60/90 VAC power supply is not provided.

FODA stock number 7588 has its optical connector(s) mounted within their housings and are suitable for mounting directly outdoors. These models are shipped with an indoor 60 VAC power supply and can be powered via the dedicated power input "F" connector or network powered from the RF output connector.

Specifications and Ordering Information are located on the following page.

❍ Specifications-LINK

	7586	7588-4XSX
Optical:		
Forward Operating Wavelength:	1310/1550 nm	1310/1550 nm
Input Range:	-4 to +3 dBm	-4 to +3 dBm
RF:		
Forward Bandwidth:	45-860 MHz	54-860 MHz
Bandpass Flatness:	+/- 1 dB	+/- 1 dB
-20 dB In/Output Test Ports	-20 +/- 2 dB	-20 +/- 2dB
Gain Control Range:	10 dB	10 dB
Slope Control Range:	8 dB	8 dB
Output Level:	36/44 dBmV	36/44 dBmV
Output Return Loss:	16 dB	16 dB
Composite Triple Beat (CTB): a, b, c	-62 dB	-62 dB
Composite Second Order (CSO): a, b,c	-61 dB	-61 dB
Carrier Noise Ratio (CNR): a, b	51 dB	51 dB
Hum Modulation:	-70 dB	-70 dB
Return Bandwidth:	N/A	5-42 MHz
Connectors:		
Optical Input:	FC/APC	Available with FC/APC or SC/APC
RF Output:	5/8" Entry Fitting	5/8" Entry Fitting
60/90 VAC Input:	5/8" Entry Fitting	"F" Female or Through RF Out Connector
Mechanical:		
Dimensions (W x H x D):		
Weight:		
General:		
Current Draw:		
@ 40 VAC	625 mA	625 mA
@ 60 VAC	375 mA	375 mA
@ 90 VAC	275 mA	275 mA
Operating Temperature:	-40 to +60 degrees C	-40 to +60 degrees C
Optical Return Transmitter Options	NA One Way Only	1.) No Return Transmitter 2.) Non-Isolated 1.5 mW, 1310 nm, FP 3.) 2 mW, 1310 nm, FP 4.) 3 mW, 1310 nm, DFB 5.) 2.5 mW, 1550 nm, DFB

NOTES:
(a) At 110 channel loading and rated output level
(b) Using FIBT transmitter and -1 dBm optical input
(c) Distortion levels improve as output level is reduced

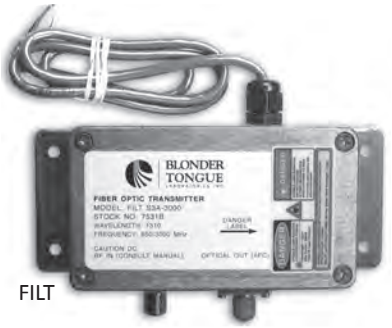
Please refer to the Product Instruction Manual for more specifications.

❍ Ordering Information

Model	Stock No.	Description
FODA-860	7586	Fiber Optic Outdoor Receiver/Amplifier, 45-860 MHz, 1310/1550 nm, FC/APC, One-Way Only
FODA-860-41SS	7588 41SS	Fiber Optic Outdoor Receiver/Amplifier, 5-42/54-860 MHz Return/Fwd Split, Return TX Capable, SC/APC
FODA-860-41SF	7588 41SF	Fiber Optic Outdoor Receiver/Amplifier, 5-42/54-860 MHz Return/Fwd Split, Return TX Capable, FC/APC
FODA-860-44SS	7588 44SS	Fiber Optic Outdoor Receiver/Amplifier, 5-42/54-860 MHz Return/Fwd Split, 3 mW, 1310 nm, DFB, SC/APC
FODA-860-44SF	7588 43SF	Fiber Optic Outdoor Receiver/Amplifier, 5-42/54-860 MHz Return/Fwd Split, 3 mW, 1310 nm, DFB, FC/APC
FODA-860-45SS	7588 45SS	Fiber Optic Outdoor Receiver/Amplifier, 5-42/54-860 MHz Return/Fwd Split, 2.5 mW, 1550 nm, DFB, SC/APC
FODA-860-45SF	7588 45SF	Fiber Optic Outdoor Receiver/Amplifier, 5-42/54-860 MHz Return/Fwd Split, 2.5 mW, 1550 nm, DFB, FC/APC

Single Link L-Band Fiber Transmitter/Receiver

Twin Star - FILT/FILR



FILT

FILR

The FILT-S3A-3000 L-Band fiber optic transmitters and FILR-S4A-3000 receivers provide a cost-effective method of transporting L-Band signals to satellite receivers with the EMI immunity and superior performance inherent in fiber optic links. A typical application would be to transport LNB signals from a remote TVRO site to the headend facility as an alternative to coaxial distribution avoiding its associated high loss and slope. The FILT/FILR, along with Blonder Tongue's L-Band distribution amplifiers, optical couplers and L-Band passive devices can also be used in distributing L-Band signals within MDU's.

❍ Features & Benefits

- Affordable Alternative to Coaxial LNB Cabling
- Compact and Environmentally Protected Housing
- 250-3500 MHz Bandwidth For Enhanced Frequency Stacking Applications
- 18 dB Optical Loss Budget

❍ Specifications

RF

Frequency: 250-3500 MHz
RF Impedance Input: 75 Ω
RF Return Loss: 10 dB
Wavelength: 1310 ± 30 nm
Fiber: Single-Mode
Link RF Gain @ 12 dB Optical Loss: -4 ± 5 dB
Noise Figure (LINK): ≤32 dB
FILT RF Input: +19 dBmV (max)
Optical Output Power: +3 dBm
FILR Optical Input: -15 dBm to +3 dBm

Mechanical

Dimensions (W x H x D):
5.75 x 2.56 x 1.25 in.
146.4 x 65 x 31.8 mm
Weight: 1 lbs., .454 kg

Alarm

Receiver: Received Optical Power Low (Open Collector Output)
Operating Temperature: -40 to +60 ˚C

Connectors

Optical: FC/APC (2.14 mm Key)
RF: "F" Female

Power

	TX	RX
8 VDC:	250 mA	200 mA
12 VDC:	170 mA	150 mA
15 VDC:	135 mA	120 mA
18 VDC:	115 mA	100 mA
24 VDC:	85 mA	70 mA

Please refer to the Product Instruction Manual for more specifications.

❍ Ordering Information

Model	Stock No.	Description
FILT-S3A-3000	7531C	L-Band Fiber Optic Transmitter, Single-mode 250-3500 MHz, 1310 nm, FC/APC Connector
FILR-S4A-3000	7532C	L-Band Fiber Optic Receiver, Single-mode 250-3500 MHz, 1310 nm, FC/APC Connector
Accessories		
ACCS-PS-170	7419	Power Supply, Compact Wall Mount 120 VAC @ 60 Hz to 15 VDC @ 400 mA

Erbium Doped Fiber Amplifiers

Trailblazer Series - BTEA

❍ Features & Benefits

- +16 and +19 dBm, 1, 2, and 4 Output Models
- Specifically for Distribution of 1550 nm Video/Data in FTTH and HFC Systems
- Direct Input From a 1550 nm Transmitter
- Low Optical Input Level Requirements with Excellent Low Noise Performance
- Double-Pump for Reliability
- SNMP Network Management

The BTEA Series are 1550 nm Erbium Doped Fiber Amplifiers (EDFA) engineered to meet the requirements for distribution of CATV video and data signals in FTTH/FTTP and HFC systems. Models are available with 1, 2 or 4 outputs with either 16 dBm or 19 dBm optical output per port.

This rugged, low-profile, high-efficiency EDFA design utilizes powerful and reliable pump amplifiers in a two-stage design with interstage isolators. The unit's wide optical input range accepts a single optical input and provides a total composite/saturated output power of up to 400 mW/26 dBm (19 dBm, 4 output model). As a matter of convenience and safety, this high output is further limited by dividing the unit's power into individual optical output ports via an internal low loss coupler, which ultimately provides 1, 2, or 4 optical output ports of +16 dBm or +19 dBm depending upon model.

❍ Specifications

Optical Parameters

Wavelength: 1540 to 1560 nm

Gain Flatness for CWDM/DWDM: < ± 0.5 dB

Noise Figure 5.0 dB

Isolation > 30 dB

Optical Input Range: -2 dBm to +10 dBm

Per Port Optical Output Power:
40 mW / 16 dBm
(1, 2 or 4 ports, as applicable)

EDFA Interfaces

Optical Connectors: SC/APC standard

LED Indicators (Green/Red) Alarms:
Power, Pump, Status, Input Power, Output Power, Over Temp, Remote

Pump Enable/Disable Key Switch

Mechanical

Dimensions (H x W x D):
1.75 x 19.0 x 10.25 in.
44.5 x 483 x 260 mm

Weight: 11 lb., 5 kg

Environmental

Operating Temperature Range:
0 to +50 ° C, +32 to +122 ° F

Electrical

AC Input Range: 85-240 VAC (@ 47-63 Hz)

Please refer to the Product Instruction Manual for more specifications.

❍ Ordering Information

Model	Stock No.	Description
BTEA-CO-B16-116-SA	7466 1	EDFA; 1550 nm, (1x) +16 dBm Outputs
BTEA-CO-B19-119-SA	7481 1	EDFA; 1550 nm, (1x) +19 dBm Outputs
BTEA-CO-B19-216-SA	7466 2	EDFA; 1550 nm, (2x) +16 dBm Outputs
BTEA-CO-B23-219-SA	7481 2	EDFA; 1550 nm, (2x) +19 dBm Outputs
BTEA-CO-B23-416-SA	7466 4	EDFA; 1550 nm, (4x) +16 dBm Outputs
BTEA-CO-B26-419-SA	7481 4	EDFA; 1550 nm, (4x) +19 dBm Outputs

Fiber Optic Couplers

Fiber Connect Series - FOC

FOC Series

❍ Features & Benefits

- Low Insertion Loss - High Directivity
- 1310 & 1550 nm Dual Window Operation
- 1 x 2, 3, 4, 6, 8, 16 Models
- Rack Mount
- FC/APC & SC/APC Connector Models

The FOC Series of optical couplers are used to split 1310 & 1550 nm light sources, with minimal loss. The couplers are 19 inch rack mountable and have FC/APC or SC/APC connectors for superior reflection performance.

❍ Specifications

FOC-1XXU-XX (74XX)

Optical

Number of Inputs: 1
Wavelength: 1310 & 1550 nm

Number of Outputs:	2	4	8	16
Insertion Loss (dB):	3.3	6.3	9.5	12.6
Uniformity (dB):	> 0.7	>1.4	>2.1	>2.8
Directivity (dB):	> 50	>50	>50	>50

Mechanical

Dimensions (W x H x D):
2, 4, 8 & 16 Output: 19 x 1.75 x 12.25 in., 483 x 44.5 x 11 mm

Weight: 3.8 lbs., 1.7 kg

Connectors

74XX-S FC/APC, 74XX-F FC/APC

FOC-23 (7486U)

Optical

Number of Inputs: 1
Wavelength: 1310 & 1550 nm
Number of Outputs: 6
Insertion Loss (Individual Port) (dB): 9.7
Uniformity (dB): 1.0
Directivity (dB): 50

Mechanical

Dimensions (W x H x D): 19 x 1.75 x 16.72 in., 483 x 44 x 425 mm

Weight: 3.8 lbs., 1.7 kg

Connectors

74XX-S FC/APC, 74XX-F FC/APC

❍ Ordering Information

Model	Stock No.	Description
FOC-23-16-U	7486U	1 x 6 Fiber Optic Coupler, 19" Rack Mount 1310/1550 nm, FC/APC Connectors
FOC-102U-SA	7450S	1 x 2 Fiber Optic Coupler, 19" Rack Mount 1310/1550 nm, SC/APC Connectors
FOC-104U-SA	7454S	1 x 4 Fiber Optic Coupler, 19" Rack Mount 1310/1550 nm, SC/APC Connectors
FOC-108U-SA	7457S	1 x 8 Fiber Optic Coupler, 19" Rack Mount 1310/1550 nm, SC/APC Connectors
FOC-116U-SA	7460S	1 x 16 Fiber Optic Coupler, 19" Rack Mount 1310/1550 nm, SC/APC Connectors
FOC-102U-FA	7450F	1 x 2 Fiber Optic Coupler, 19" Rack Mount 1310/1550 nm, FC/APC Connectors
FOC-104U-FA	7454F	1 x 4 Fiber Optic Coupler, 19" Rack Mount 1310/1550 nm, FC/APC Connectors
FOC-108U-FA	7457F	1 x 8 Fiber Optic Coupler, 19" Rack Mount 1310/1550 nm, FC/APC Connectors
FOC-116U-FA	7460F	1 x 16 Fiber Optic Coupler, 19" Rack Mount 1310/1550 nm, FC/APC Connectors

FIUJ Series - Jumper Assembly

Blonder Tongue provides a wide assortment of optical jumper assemblies to complete installations. Single-mode and multimode jumpers are available with FC/APC, SC/APC or ST connectors in 1, 3, 6,15 and 50 meter lengths.

ACCS Series - DC Wall Mount

The ACCS Series of DC wall-mount power supplies cover the powering requirements for stand alone models in the TrailBlazer, Retrolinx and TwinStar Series. Three models are provided with various voltage and current capacity to match the particular product to be powered.

ACCS-PS-170

❍ **Specifications**

	ACCS-PS-90	ACCS-PS-170
AC Input:	120 VAC, 60 Hz	120 VAC, 60 Hz
DC Output:	9 VDC	15 VDC
Current:	0.5 A	.40 A
No Load Voltage:	≤ 16 VDC	22.5 VDC
Output Stability:	N/A	+ 0.5 V@ Rated Load
Operating Temperature:	0 to +40° C	0 to +40° C
Enclosure:	Plastic	Plastic

❍ **Ordering Information**

Model	Stock No.	Description
ACCS-PS-90	7417	Power Supply, Compact Wall Mount 120 VAC @ 60 Hz to 9 VDC @ 500 mA
ACCS-PS-170	7419	Power Supply, Compact Wall Mount 120 VAC @ 60 Hz to 15 VDC @ 400 mA
FIUJ-S4-1-XX	7493XX	Fiber Optic Jumper Assembly, Single-mode 1310 & 1550 nm, 1 Meter (3 Feet) Length
FIUJ-S4-3-XX	7494XX	Fiber Optic Jumper Assembly, Single-mode 1310 & 1550 nm, 3 Meter (9.5 Feet) Length
FIUJ-S4-6-XX	7495XX	Fiber Optic Jumper Assembly, Single-mode 1310 & 1550 nm, 6 Meter (19.5 Feet) Length
FIUJ-S4-50-XX	7496XX	Fiber Optic Jumper Assembly, Single-mode 1310 & 1550 nm, 50 meter (162.5 Feet) Length
FIUJ-S4-15-XX	7497XX	Fiber Optic Jumper Assembly, Single-mode 1310 & 1550 nm, 15 Meter (48.5 Feet) Length
FIUJ-M8-3-ST	7499 ST	Fiber Optic Jumper Assembly, Multimode 3 Meter (9.5 Feet) Length, ST Connectors Both Ends
FIUJ-M8-6-ST	7500 ST	Fiber Optic Jumper Assembly, Multimode 6 Meter (19.5 Feet) Length, ST Connectors Both Ends

Ordering Notes: XX = Connector Style FA = FC/APC SA = SC/APC ST = ST ™

Trunk Grade Taps

DCL Series

The DCL Series are directional couplers and are available in 1, 2 and 4 port models. All DCL Series have power passing capability on the through line (in/out ports) with tap port(s) DC blocked.

❍ Features & Benefits

- Professional Trunk Grade
- 10-2150 MHz Bandwidth
- Gold Plated F Connector Siezure Pins
- Zinc Die Cast Hybrid Case

❍ Specifications

1 Port

2 Port

4 Port

	Tap Value	Frequency Range	Insertion Loss In-Out	Isolation In-Tap	Isolation Out-Tap	Isolation Port-Port	Return Loss In	Return Loss Out	Return Loss Port
1 Port Directional Couplers									
DCL-108	8	10 - 950	2.5	8	20	-	13	18	12
		950 - 1450	2.7	8.5	18	-	13	18	12
		1450 - 2150	4.5	8.5	16	-	10	18	12
DCL-112	12	10 - 950	1.3	11.5	20	-	14	18	14
		950 - 1450	1.5	12	19	-	14	18	14
		1450 - 2150	2.5	12.5	16	-	10	18	12
DCL-116	16	10 - 950	1.5	15	24	-	14	18	14
		950 - 1450	1.5	15	23	-	14	18	14
		1450 - 2150	2.5	16	20	-	10	13	12
DCL-120	20	10-950	1.5	19	28	-	14	18	12
		950 - 1450	2.0	19	28	-	14	18	12
		1450 - 2150	2.5	20	25	-	10	11	11
DCL-124	24	10-950	1.4	24	28	-	15	18	12
		950 - 1450	1.5	24	28	-	15	18	12
		1450 - 2150	2.3	24	26	-	10	11	11
DCL-128	28	10-950	1.4	28	32	-	15	18	14
		950 - 1450	1.5	28.5	30	-	15	18	14
		1450 - 2150	2.4	28.5	28	-	10	11	12
2 Port Directional Couplers									
DCL-212	12	10 - 950	2.2	12	25	20	16	15	11
		950 - 1450	2.5	12	28	17	16	15	11
		1450 - 2150	4.1	13	20	15	12	15	11
DCL-216	16	10 - 950	1.3	15	26	20	16	16	12
		950 - 1450	1.8	16	28	17	16	16	12
		1450 - 2150	3.7	17	22	15	10	16	12
DCL-220	20	10 - 950	1.5	19	28	20	16	16	14
		950 - 1450	1.5	20	28	17	16	16	14
		1450 - 2150	2.3	21	26	17	10	12	13
DCL-224	24	10 - 950	1.3	23	30	20	16	17	15
		950 - 1450	1.3	23	30	18	16	17	15
		1450 - 2150	2.0	25	30	18	11	14	11
DCL-228	28	10 - 950	1.3	27	30	22	16	17	14
		950 - 1450	1.3	28	30	18	16	17	14
		1450 - 2150	2.0	28.5	30	18	11	15	12
4 Port Directional Couplers									
DCL-412	12	10 - 950	5.0	13	28	30	10	13	12
		950 - 1450	4.6	12	28	19	10	13	12
		1450 - 2150	5.5	14	26	14	10	10	12
DCL-416	16	10 - 950	2.4	16	30	30	12	15	12
		950 - 1450	3.0	16	28	26	12	15	12
		1450 - 2150	5.0	17	26	22	10	10	12
DCL-420	20	10 - 950	1.3	20	30	24	12	15	14
		950 - 1450	1.5	20	28	28	12	15	14
		1450 - 2150	2.1	22	23	30	14	12	12
DCL-424	24	10 - 950	1.3	24	33	26	12	15	16
		950 - 1450	1.5	24	33	25	12	15	16
		1450 - 2150	2.1	25	28	21	12	14	16

❍ Ordering Information

Model	Stock No.	Description
DCL-1XX	6426	Directional Tap, 1 Output 10-2150 MHz, Power Passing Thru Pt, Values: 8, 12, 16, 20, 24, 28 dB
DCL-2XX	6431	Directional Tap, 2 Output 10-2150 MHz, Power Passing Thru Pt, Values: 12, 16, 20, 24, 28 dB
DCL-4XX	6436	Directional Tap, 4 Output 10-2150 MHz, Power Passing Thru Pt, Values: 12, 16, 20, 24 dB

Trunk Grade Splitters
LPD Series

Blonder Tongue's LPD and DCL (found on the following page) Series are precision 2 GHz passives designed for L-Band distribution systems requiring high frequency, high performance components.

The LPD Series consists of 2, 3, 4, 6 and 8 way splitters. Models are available with either a single power passing port or with all ports power passing (diode steered, out to in).

❍ Features & Benefits

- Professional Trunk Grade
- Gold Plated F Connector Siezure Pins
- Zinc Die Cast Hybrid Case

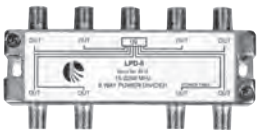
LPD-2

LPD-3P

LPD-4

LPD-6

LPD-8



❍ Specifications

	Description	Frequency Range (MHz)	Return Loss dB In	Return Loss dB Out	Insertion Loss	Out-Out Isolation (dB)
LPD-2	2-2150 (MHz) 1 Port Power Pass	2 - 10 10 - 40 40 - 806 950 - 1450 1450 - 2150	10 12 12 12 12	7 10 12 12 12	4.8 4.3 5.0 6.0 6.0	10 15 20 22 22
LPD-2p	10-2150 (MHz) All Ports Power Pass Diode Steered	10 - 40 40 - 806 950 - 1450 1450 - 2150	12 12 10 8	10 12 10 10	4.3 5.0 6.0 7.0	15 20 22 20
LPD-3p	10-2150 (MHz) All Ports Power Pass Diode Steered	10 - 40 40 - 806 950 - 1450 1450 - 2150	8 10 10 10	10 10 10 10	6.8 7.0 8.5 10.0	20 22 22 22
LPD-4	2-2150 (MHz) 1 Port Power Pass	2 - 10 10 - 40 40 - 806 950 - 1450 1450 - 2150	6 8 8 10 10	4 8 10 10 10	8.8 8.5 9.5 10.0 11.0	16 21 24 22 20
LPD-4p	10-2150 (MHz) All Ports Power Pass Diode Steered	10 - 40 40 - 806 950 - 1450 1450 - 2150	8 8 10 10	8 10 10 10	7.8 8.5 9.5 11.0	21 24 22 20
LPD-6	10-2150 (MHz) 1 Port Power Pass	10 - 40 40 - 806 950 - 1450 1450 - 2150	8 8 10 10	8 10 12 10	12.5 13.5 14.5 15.5	25 22 22 20
LPD-6p	10-2150 (MHz) All Ports Power Pass Diode Steered	10 - 40 40 - 806 950 - 1450 1450 - 2150	8 8 10 10	8 10 8 8	11.5 12.5 13.5 14.5	25 22 22 20
LPD-8	10-2150 (MHz) 1 Port Power Pass	10 - 40 40 - 806 950 - 1450 1450 - 2150	8 8 10 10	8 10 12 10	12.5 12.5 14.5 16.0	25 22 20 18
LPD-8p	10-2150 (MHz) All Ports Power Pass Diode Steered	10 - 40 40 - 806 950 - 1450 1450 - 2150	8 8 10 10	8 10 10 8	12.5 12.5 14.5 16.0	25 22 20 18

❍ Ordering Information

Model	Stock No.	Description
LPD-2	6405	Splitter, 2 Way 2-2150 MHz, 1 Port Power Passing
LPD-2P	6409	Splitter, 2 Way 10-2150 MHz, All Ports Power Passing
LPD-3P	6410	Splitter, 3 Way 10-2150 MHz, All Ports Power Passing
LPD-4	6411	Splitter, 4 Way 2-2150 MHz, 1 Port Power Passing
LPD-4P	6412	Splitter, 4 Way 10-2150 MHz, All Ports Power Passing
LPD-6	6413	Splitter, 6 Way 10-2150 MHz, 1 Port Power Passing
LPD-6P	6422	Splitter, 6 Way 10-2150 MHz, All Ports Power Passing
LPD-8	6415	Splitter, 8 Way 10-2150 MHz, 1 Port Power Passing
LPD-8P	6435	Splitter, 8 Way 10-2150 MHz, All Ports Power Passing

Distribution Amplifier and Line Amplifiers

LDA-50 and LA Series

The LDA-50 is an L-Band indoor distribution amplifier designed for MDU trunk line applications. It features high gain, high output capability and 950-2050 MHz bandwidth making it compatible in stacked or dual LNB systems. The amplifier has a fixed slope of 12 dB over 950-2050 and 15 dB of gain control range for optimizing to distribution system requirements.

❍ Features & Benefits

- High Output Capability +1dBm @ 2050 MHz
- High Gain - 52dB @ 2050 MHz
- 15 dB Gain Control Range
- 12 dB Fixed Slope
- Aluminum Chassis for Superior Heat Dissipation

❍ Specifications

LDA-50	Bandwidth (MHz)	Gain dB	Output Level	Flatness dB	Noise Figure dB	Voltage
High Level	950	25-40 dB	1 dBm 50 dBmV	± 1 Relative to tilt	6	120VAC High Gain, +5 VDC - 380 mA
Positive Slope, Trunk Amplifier Power Supply Included	2050	37-52 dB				

LA Series

The LA Series are power passing line amplifiers for L-Band, commonly referred to as a "bullet amps". These amplifiers are typically used in commercial or residential DBS distribution systems to overcome long drop cable and/or splitter losses. The line amplifiers are receiver powered via the coax connection, and pass power through to the LNB or multiswitch.

❍ Specifications

	Bandwidth (MHz)	Gain (dB)	Output Level @16 Transp.	Flatness (dB)	Noise Figure (dB)	Voltage	LNB Power
LA124-20 	50 - 2150	20 20	30 dBmV @ -57 dBc -19 dBm (30 dBmV)	± 1.5	6.0	12-18 VDC 55 mA	Power Passing
LA922-20 	900 - 2150	20	-19 dBm (30 dBmV)	± 1.5	6.0	12-18 VDC 45 mA	Power Passing
LA922-15 	900 1450 2150	15 16.5 18	-19 dBm (30 dBmV)	± 2.0	6.0	12-18 VDC 55 mA	Power Passing

❍ Ordering Information

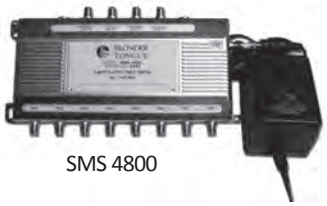
Model	Stock No.	Description
LDA-50	6434	Amplifier, Trunk 950-2050 MHz, Sloped 38/50 dB Gain, External PS
LA 124-20	6421	Amplifier, In-Line 50-2150 MHz, 20 dB Gain, 30 dBmV Output
LA 922-15	6407	Amplifier, In-Line 900-2150 MHz, 15/18 dB Gain, 30 dBmV Output
LA 922-20	6408	Amplifier, In-Line 900-2150 MHz, 20 dB Gain, 30 dBmV Output

Multiswitches and Components

SMS and SMK Series

SMR 1600

SMK 3340



SMS 4800

The Blonder Tongue multiswitch line includes both cascading (SMK) and terminated models (SMS) for use in digital headends and L-Band distribution systems.

The SMR 1600 is a 2 input, 16 output rack mounted multiswitch that is powered from the headend satellite receivers connected to it. DC is presented to both inputs for LNB powering.

The SMS 4800 is a 4 input, 8 output multiswitch for multi-satellite applications utilizing 13/18 VDC and 22 kHz control logic (DirecTV™). The switch supplies all LNB DC powering and is amplified to compensate for inherent splitting losses.

The SMK 3340 is a 3 input, 4 output cascading switch that requires an external 18 VDC power supply (LPI 188PS). A convenient snap-on connector block is provided, eliminating the need for coax jumper cables when units are mounted together.

❍ Features & Benefits

- Rack and Flush Mount models
- 2, 3 and 4 Input Models
- Cascading Models with Snap Connector Blocks

❍ Specifications

	Bandwidth (MHz)	Split/Tap Loss	Insertion Loss	Isolation	Other	Mechanical
SMR 1600 2 In, 16 Out Rack Mounted Self Terminating	950-2150	4 dB	-	20 dB	Switch Level 11-14.5 VDC 16-19 VDC Max. Power Passing to LNB 500 mA	19 x 1.75 x 5 in. 483 x 44 x 127 mm
SMS 4800 4 In, 8 Out Terminated	950-1450	1 dB (Gain)	-	35 dB	LNB Power 200 mA x 4	9.7 x 5.4 x 11 in. 245 x 136 x 28 mm
SMK 3340 3 In, 4 Out Cascading Amplified Thru Current Draw; 30 mA per Receiver	47-806 950-2150	17 dB 13 dB	3 dB 3 dB	25 dB 25 dB	Switch Level 11-14.5 VDC 16-19 VDC Includes snap together assembly	3.4 x 4.1 x 1.7 in. 94 x 112 x 47 mm

❍ Ordering Information

Model	Stock No.	Description
SMR-1600	6467	Multiswitch, Rack Mounted, 2 In - 16 Out 950-2150 MHz, 4 dB Tap Loss
SMS-4800	6476	Multiswitch, Rack Mounted, 4 In - 8 Out 950-1450 MHz, 22 kHz Switching 4 dB Tap Loss
SMK 3340	6414	Multiswitch, Cascading, 3 In - 4 Out 47-806 MHz & 950-2150 MHz, 17/13 dB Tap Loss

Diplexers and Power Supplies

LUV, LTF, LPI, and SW-PS Series

The LUV-2150 is a L-Band diplexer used to combine or separate UHF/VHF/CATV frequencies (10 to 806 MHz) and L-Band satellite signals (950 to 2150 MHz).

The LTF-2150 is a 75 Ohm terminator that is DC blocked and has an operating bandwidth of 10 to 2150 MHz.

❍ Specifications

		MHz	dB
LUV 2150 Diplexer 10-806 MHz 950-2150 MHz	Insertion Loss:	10-550	1.5
		550-806	2.5
		950-2150	3.0
	Return Loss:	10-550	10
		550-806	10
		950-2150	8
	Out of Band Rejection:	10-550	25
		550-806	25
		950-2150	30

The LPI Series power supplies are used to power LNBF's and line/drop amplifiers using LPI-3300 or LPI-2200 power inserters.

LPI 183PS
Power Supply

Power: 18 V, 300 mA

LPI 188PS
Power Supply

Power: 18 V, 800 mA

LPI 2200
DC Power Inserter

Insertion Loss: 1.5 dB
Return Loss: 10 dB

SW-PS-18
Power Supply

18 VDC
1.66A
2.5 mm x 5.5 mm
DC Jack
for use in MFH2™ Systems

SW-PS-24
Power Supply

24 VDC
2.08 A
2.1 mm x 5.5 mm
DC Jack

❍ Ordering Information

Model	Stock No.	Description
Diplexers/Terminator		
LUV-2150	6404	Diplexer 10-806 MHz Low Pass, 950-2150 MHz High Pass
LPI 2200	6424	DC Power Inserter/Power Block 10-2150 MHz, VDC, 1 A Max
LTF-2150	6439	Terminator, "F" 75 Ω, 10-2150 MHz, DC Blocking
Power Supplies		
LPI 183PS	6447	Power Supply 18 VDC, 300 mA
LPI 188PS	6430	Power Supply 18 VDC, 800 mA
SW-PS-18	6450	Switch Mode Power Supply, 18 VDC/1.66A
SW-PS-24	6451	Switch Mode Power Supply, 24 VDC/2.08A

TV Channel Blocker

TVCB - Addressable

❍ Features & Benefits

- Optimum Solution for Blocking Unwanted Channels in Households without Set-Top Boxes
- Controlled by the iCentral Management System- Channel Map Changes are a Snap
- Addressable Control of On/Off and up to 80 Individually Blocked Analog Channels
- Unlike Traps, Provides Individual Channel Control without Adjacent Channel Degradation
- May be Used in a Interdiction Application
- Great for Use in FTTH Networks

The TV Channel Blocker (TVCB) unit can be mounted at the tap output or at the consumer's residence. The unit is fully addressable, therefore service changes and/or disconnects are performed remotely from the billing system and control computer. The hardware cost is approximately the cost of one truck roll. Unlike traps, the TVCB provides individual channel control without adjacent channel degradation.

For a single family home, the TVCB has all that is needed to block up to 80 analog channels simultaneously in bandwidths within 54 to 600 MHz. It may be house or network powered and individually controls the forward and return paths at the tap.

The TVCB has a forward path bandwidth of 54-860 MHZ and 5-40 MHZ return path. It has four signal conditioning accessories that may plug into the unit: Equalizer (VMI-CEQxV), Forward and Return Path Attenuators (VMI-AT).

The TVCB may also be used in an Interdiction application similar to VMI and SMI, or in a rural environment.

❍ Specifications

Subscriber Port

Bandwidth: 54 to 860 MHz

Nominal Gain: 1.5 dB

Flatness: ±1.5 dB

Return Loss: 16 dB

Output Level
- 54 MHz: 10 dBmV
- 600 MHz: 16 dBmV
- 750 MHz: 17 dBmV
- 860 MHz: 18 dBmV

Distortions (@ 77 Channel Loading):
- CTB: -60 dBc
- CSO: -60 dBc
- XMOD: -55 dBc
- Spurious: -60 dBc
- C/N: 59 dB
- AGC: ±3 dB

Return Path

Bandwidth: 5 to 40 MHz

Loss: 4 dB

Flatness: 2 dB p-v

Return Loss: 16 dB

Jamming Oscillators

8 Oscillators: 54 - 600 MHz

Voltage Controlled Oscillator Frequency Range:
- VCO 1: 114-177 (ch. 14-22, 7, 99) MHz
- VCO 2: 179-249 (ch. 8-13, 23-28) MHz
- VCO 3: 252-321 (ch. 29-40) MHz
- VCO 4: 312-381 (ch. 39-50) MHz
- VCO 5: 372-453 (ch. 49-62) MHz
- VCO 6: 444-525 (ch. 61-74) MHz
- VCO 7: 516-597 (ch. 73-86) MHz
- VCO 8: 54-85 (ch. 2-6) MHz

Data Carrier

Frequencies
- 9112: 104.75 MHz
- 9115: 112.7 MHz

Level (relative to video): -10, ±5 dB

Guard Band: ±300 kHz

FM Deviation: ±60 kHz

Overall - Electrical

Hum Modulation: <-60 dBc

RF Leakage:
- Complies with FCC Part 76, Sub part K

Power Requirements Voltage:
- 37-95 VAC

Frequency: 50/60 Hz

Current Consumption
- 90 VAC IN: 150 mA
- 60 VAC IN: 200 mA

Power Passing to Port (optional): 300 mA

Operating Temperature Range: -40° to +60° C

Relative Humidity: 5-100 %

Overall Mechanical

Housing - Dimensions (L x H x W):
- 9.5 x 4 x 10 in., 241.3 x 101.6 x 254 mm

Weight: 6 lbs., 2.72 kg

Mounting: Strand, Wall or Pedestal

RF IN, RF OUT and AC IN Connectors:
- "F" type, female

❍ Ordering Information

Model	Stock No.	Description
TVCB-104	9112	TV Channel Blocker, 8 Oscillators 54-860 MHz Forward,5-40 MHz Return, 104.75 MHz Data Carrier
TVCB-112	9115	TV Channel Blocker, 8 Oscillators 54-860 MHz Forward, 5-40 MHz Return, 112.7 MHz Data Carrier

TV Channel Blocker

TVCB-PC - Parental Control

❍ Features & Benefits

- Non-Addressable, Consumer Controlled and Installed
- Stand Alone Unit, Requires No Management System or Billing Interface
- Subscriber can Easily Change Blocked Analog Channels by Opening Unit and Using Simple Push-Bulton Controls
- Devices can be Physically Secured with an Optional Lock
- "Self Install" Unit Comes Complete with Everything to Install

The TV Channel Blocker (Parental Controlled) (TVCB-PC) unit can be installed by the consumer and mounted at the tap output or wall mounted at the consumer's residence. The unit physically protects the RF Connections and has a key hole for a lock if desired. The unit has push button control to select what channels to block-no management system required. Unlike traps, the TVCB-PC provides individual channel control without adjacent channel degradation.

For a single family home, the TVCB-PC has all that is needed to block up to 40 analog channels simultaneously in bandwidths within channels 2-86 MHz (at medium blocking level) and 80 analog channels at the lowest blocking level for all televisions in the house. It may be house or network powered.

The TVCB-PC has a forward path bandwidth of 54-860 MHZ and 5-40 MHZ return path. It has four signal conditioning accessories that may plug into the unit: Equalizer (VMI-CEQxV), Forward and Return Path Attenuators (VMI-AT).

❍ Specifications

Subscriber Port

Bandwidth: 54 to 860 MHz

Nominal Gain: 1.5 dB

Flatness: ±1.5 dB

Return Loss: 16 dB

Output Level
- 54 MHz: 10 dBmV
- 600 MHz: 16 dBmV
- 750 MHz: 17 dBmV
- 860 MHz: 18 dBmV

Distortions (@ 77 Channel Loading):
- CTB: -60 dBc
- CSO: -60 dBc
- XMOD: -55 dBc
- Spurious: -60 dBc
- C/N: 59 dB
- AGC: ±3 dB

Return Path

Bandwidth: 5 to 40 MHz

Loss: 2 dB

Flatness: 2 dBpv

Return Loss: 16 dB

Jamming Oscillators

8 Oscillators: 54 - 600 MHz

Voltage Controlled Oscillator Frequency Range:
- VCO 1: 114-177 (ch. 14-22, 7, 99) MHz
- VCO 2: 179-249 (ch. 8-13, 23-28) MHz
- VCO 3: 252-321 (ch. 29-40) MHz
- VCO 4: 312-381 (ch. 39-50) MHz
- VCO 5: 372-453 (ch. 49-62) MHz
- VCO 6: 444-525 (ch. 61-74) MHz
- VCO 7: 516-597 (ch. 73-86) MHz
- VCO 8: 54-85 (ch. 2-6) MHz

Overall - Electrical

Hum Modulation: <-60 dBc

RF Leakage:
Complies with FCC Part 76, Sub part K

Power Requirements Voltage: 37-95 VAC

Frequency: 50/60 Hz

Current Consumption
- 90 VAC IN: 150 mA
- 60 VAC IN: 200 mA

Power Passing to Port (optional): 300 mA

Operating Temperature Range: -40° to +60° C

Relative Humidity: 5-100 %

Overall Mechanical

Housing - Dimensions (L x H x W):
9.5 x 4 x 10 in., 241.3 x 101.6 x 254 mm

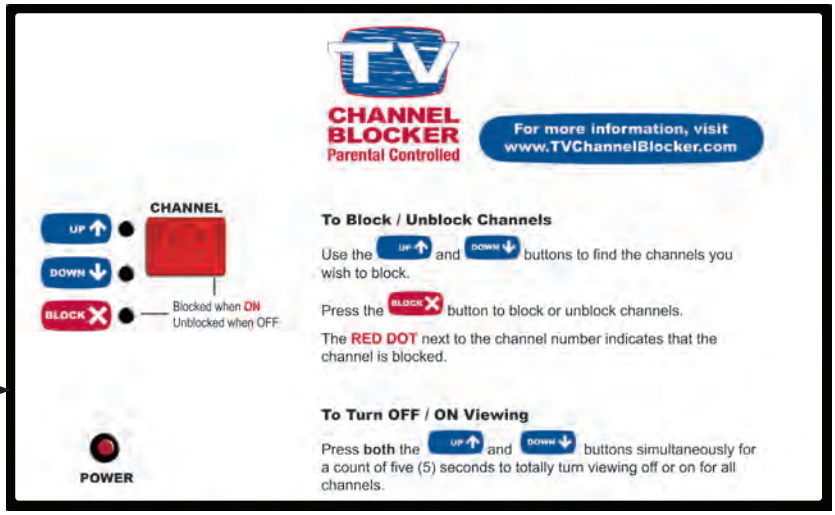
Weight: 6 lbs., 2.72 kg

Mounting: Strand, Wall or Pedestal

RF IN, RF OUT and AC IN Connectors:
"F" type, female

Ordering Information is located on the following page.

Easy To Use Push Button Control



TVCB - PC Self Install

This kit includes everything needed for easy installation by the consumer. Items included are the TVCB-PC unit and installation guide (9110), the TVCB Power Pack (9126), the TVCB wall-mounting bracket (9135A), and the TVCB Accessory Kit (9136). To order the TVCB-PC Self Install kit, be sure to specify stock number 9111 when ordering.

TVCB-PC Self Install 9111

VMI-CEQ8V 860 MHz Equalizers					
EQ Value	Tilt Comp @ 860 MHz	Loss @ 54 MHz	Loss @ 550 MHz	Loss @ 750 MHz	Loss @ 860 MHz
-4	-2.56	-1.12	-2.37	-3.19	-3.68
-3	-1.87	-0.97	-1.96	-2.50	-2.84
-2	-1.23	-0.65	-1.15	-1.54	-1.88
-1	-0.87	-0.03	-0.31	-0.67	-0.90
0	0.00	0.00	0.00	0.00	0.00
1	1.07	-1.52	-1.23	-0.60	-0.46
2	1.89	-2.23	-1.24	-0.16	-0.35
3	2.88	-3.05	-1.38	-0.10	-0.17
4	3.47	-3.81	-2.01	-0.79	-0.35
5	3.86	-4.35	-2.13	-0.94	-0.49
6	4.45	-4.85	-2.32	-0.80	-0.40
7	5.42	-5.67	-2.42	-0.62	-0.25
8	5.99	-6.37	-2.00	-0.79	-0.38
9	7.08	-7.21	-2.68	-0.68	-0.13
10	7.47	-7.89	-2.94	-0.90	-0.43
11	8.21	-8.55	-3.24	-0.96	-0.34
12	9.01	-9.25	-1.60	-0.51	-0.24
13	9.85	-10.27	-4.00	-1.32	-0.42
14	10.76	-10.89	-1.37	-0.36	-0.14
15	11.18	-11.30	-1.40	-0.36	-0.13
16	12.04	-12.29	-1.63	-0.55	-0.25
17	12.69	-12.87	-1.50	-0.48	-0.18
18	13.64	-13.84	-1.86	-0.56	-0.20
19	14.36	-14.52	-1.75	-0.50	-0.16
20	14.94	-15.15	-1.92	-0.58	-0.21

Attenuator Values in dB
0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18

❍ Ordering Information

Model	Stock No.	Description
TVCB-PC	9110	Parental Controlled TV Channel Blocker, Unit Only - 54-860 MHz Forward, 5-40 MHz Return, 8 Oscillators
TVCB-PC Self Install	9111	Parental Controlled TV Channel Blocker, Self Install Kit - INCLUDES: 9110 TVCB-PC, 9136 Acc. Kit, 9135A Bracket, 9126 Power Pack
VMI-CEQ8V	9377A	VMI Equalizer, Plug-In, Vertical Profile 860 MHz
VMI-IEQ8V	9378A	VMI Inverse Equalizer, Plug-In, Vertical Profile 860 MHz
VMI-AT	9320	VMI Attenuator, Plug-In 1000 MHz

Headend Racks

Commercial Series

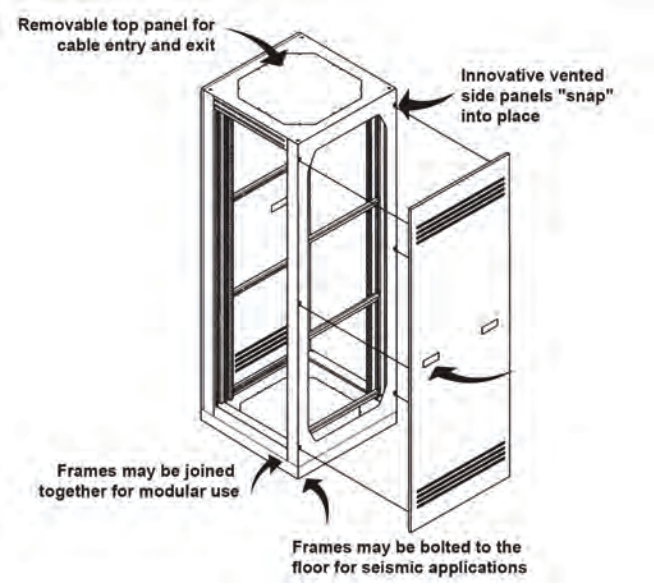
FDX/RMX

The RMX, FDX and RAX Series are professional quality, headend rack cabinets designed for mounting standard 19 inch rack components. These cabinets are rigidly constructed of 16 gauge steel and are welded throughout. Two pairs of 12 gauge, fully adjustable, steel panel mounting angles with standard EIA spaced panel mounting holes included.

The RMX and FDX Series features a louvered rear door that is hung on sturdy slip-jointed hinges and closes with a chrome handle (locking handle with 2 keys available at additional cost). The FDX Series also features a front door with locking handle and 2 keys. The RAX features open frame construction which accepts optional SPX side panels.

All three series of racks come standard in a matte black finish.

Specifications and Ordering Information are located on the following pages.



❍ Specifications

Stock Number	Model Name	Overall Dimensions (H x W x D)	Panel Dimensions (H x W)	Weight
3973	RMX-7719-18	83.13 x 22 x 18 in. 211 x 56 x 46 cm	77 x 19 in. 196 x 49 cm	190 lbs. 86 kg
3986	FDX-7719-24	83.13 x 22 x 24 in. 211 x 56 x 61 cm	77 x 19 in. 196 x 49 cm	270 lbs. 123 kg
3977	RAX-7724	85.01" x 25.75" x 26.75" 215.9 x 65.4 x 67.95 cm	78.8" x 19" 200.2 x 48.3cm	198 lbs. 90 kg

❍ Ordering Information

Model	Stock No.	Description
FDX-7719-24	3986	Rack Cabinet, Front & Rear Doors 77" H x 19" W x 24" D
RAX-7724	3977	Rack Assembly 77" H x 19" W x 24" D
RMX-7719-18	3973	Rack Cabinet, Rear Door 77" H x 19" W x 18" D
SPX-7724	3978	Rack Side Panel 77 in.

Headend Racks

Economy Series

The RR Series are professional quality, headend relay racks designed for mounting standard 19 inch rack components. The RR-6119-3, RR-7019-3 and RR-8419-4 are economical, rugged relays racks with 3" side rails.

RR-61/7-19-3

RR-8419-4

Economy Racks

❍ Specifications

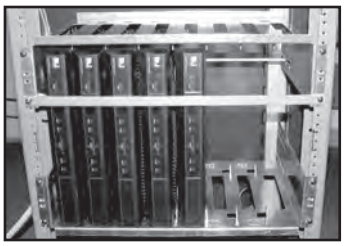
Mechanical	RR-6119-3	RR-7019-3	RR-8419-4
Dimensions (H x W x D) in.:	61 x 22 x 20	70 x 22 x 20	84 x 22 x 18
Dimensions (H x W x D) cm:	156 x 56 x 51	178 x 56 x 51	212 x 56 x 51
Weight lbs.:	37	41	43
kg:	16.82	18.64	19.5

❍ Ordering Information

Model	Stock No.	Description
RR-6119-3	3960 3	Relay Rack 61" H x 22" W x 20" D Rear Rail
RR-7019-3	3970 3	Relay Rack 70" H x 22" W x 20" D Rear Rail
RR-8419-4	3950 4	Relay Rack 84" 4 Post

BPF-19-1V

The BFP Series includes black anodized blank panels used to finish the professional look of a Blonder Tongue headend. These panels have an identical look and finish as standard Blonder Tongue headend products. Three models are available, including: BFP-119 BLK, 1.75"; BFP-319 BLK, 3.50"; and BFP-519, 5.25".



RR-6/8 RX

The RR-6/8 RX is a universal 19 inch satellite receiver rack which holds 6 or 8 satellite receivers (model dependent).

Panels

IRH Panel

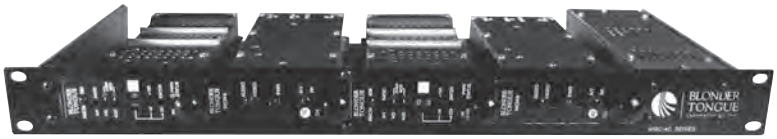
❍ Ordering Information

Model	Stock No.	Description
BFP19-3B	3991B	Blank Front Panel Black, 19” W x 5.25” H (3 Rack Unit High)
BFP19-V	3988	Vented Blank Front Panel Black, 19” W x 1.75” H (1 Rack Unit High)
BFP19-2B	3990B	Blank Front Panel Black, 19” W x 3.50” H (2 Rack Unit High)
BFP19-1B	3989B	Blank Front Panel Black, 19” W x 1.75” H (1 Rack Unit High)
RR-6/8 RX	3932F	Universal 19 inch Satellite Receiver Rack (Holds 6 or 8 Satellite Receivers)
IRH PANEL	3693	Perforated Panel, 19" W x 5.25" H

Modular Headend System

Rack Chassis and Power Supplies

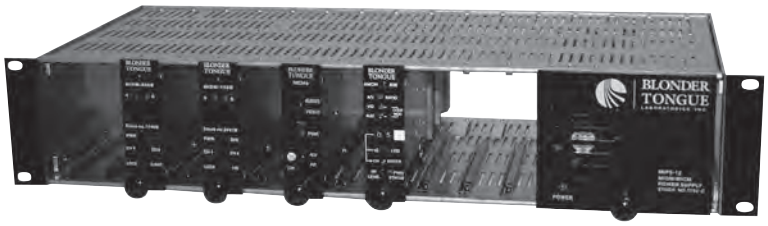
4 Slot Horizontal Chassis



MIRC-4D

MIPS-12D

12 Slot Vertical Chassis



MIRC-12V

❍ Specifications

General

Power Requirements: 100 VAC to 240 VAC, ±10%

Frequency: 50 to 60 Hz

Temperature Range: 0° to +50° C

Output: +5 VDC @ 7 A, +12 VDC @ 4.5 A

Mechanical

Dimensions (W x H x D): 4.2 x 3.5 x 7.50 in.

Weight: 2.6 lbs., 1.2 kg

Connectors

AC Input: IEC

DC Output: 37 pin D

Indicators

Power: LED, Green

Accessories Supplied

AC Power Cable: 6 Ft, IEC, USA

Surveillance Application

The MIRC-4CUBE is extremely well suited for use in surveillance or security type applications. A video camera's baseband video output can be modulated to any cable television channel and combined with existing TV signals to permit any outlet to monitor the camera feeds. This compact chassis can support up to 4 fixed channel or agile modulators and can be mounted in practically any location. The use of Blonder Tongue high performance modulators easily permits placing camera signals on adjacent channels.

❍ Specifications

MIRC-4CUBE

General

Power Requirements: 100 to 240 VAC

Frequency: 50 to 60 Hz

Temperature Range: 0° to +50° C

Output Voltage & Current Capacity:
+12 VDC @ 1.8 A
+ 5 VDC @ 1.8 A

❍ Ordering Information

Model	Stock No.	Description
MIRC-4D	7711	HE-4 Series Rack Chassis & Power Supply 19" Rack Mount
MIRC-12V	7715	HE-12 Series Vented Rack Chassis 19" Rack Mountable 2 RU Chassis for 12 Modular Units
MIPS-12D	7722D	HE-12 Series Power Supply
MIRC-4CUBE-CH	7703	4 Slot Vertical Chassis Supports combinations of up to 4 MICM, AMCM or MIDM units
MIRC-4CUBE-PS	7702	4 Slot Vertical Chassis Power Supply Unit

Stereo Encoder

MISE

❍ Features & Benefits

- Modular Design Minimizes Rack Space
- 24 dB Stereo Separation with Low Distortion
- Build-in Test Tone for Audio Level Calibration with Modulator
- Pilot Lock & Power LED Indicator

The MISE Stereo Encoder provides an economical solution for service providers wanting to deliver programs in stereo. The MISE is intended for use with Blonder Tongue's MIRC-12 rack chassis' with it's associated power supply. The modular design provides an efficient compact means to accommodate 6 encoders coupled with 6 modulators or 12 encoders in 2RU's of precious rack space. The MISE accepts baseband left and right audio inputs from sources such as a satellite receiver, demodulator, VCR or DVD and generates a composite BTSC stereo signal. The composite signal in turn is applied to a compatible modular audio/visual modulator. It is also compatible with any modulator that has a pre-emphasis defeat feature. The MISE features 24 dB stereo separation, a pilot lock indicator and a test tone generator to meet any demanding stereo insertion need.

❍ Specifications

Audio Input

Input Impedance:
20K Ω (unbalanced)
40K Ω (balanced)

Input Level: 250 mVrms to 2.5 Vrms

Video Input

Input Impedance: 10K Ω

Input Level Range: 0.5 Vp-p to 2.0 Vp-p

Composite Output

Output Impedance: 100 Ω

Output Level: 1.1 Vp-p at 100% Modulation

Stereo Performance

Stereo Separation: 24 dB Typical, 20dB Min.

Harmonic Distortion: 0.25%

S/N Ratio: 65 dB

Frequency Response: ±1dB from 50 Hz to 12 KHz

Test Tone

Frequency: 10.396 KHz ± 50 Hz

Amplitude: 0.5 Vp-p ± 10%

General

DC Power Input: +12 VDC @ 200 mA

Operating Temp. Range: 0° to +50° C

Mechanical

Dimensions (W x H x D):
1.15 x 3.5 x 7.5 in.
29 x 89 x 191 mm

Weight: .73 lbs., .33 kg

Refer to product instruction manual for additional specification measurements and notes.

❍ Ordering Information

Model	Stock No.	Description
MISE	7725B	HE-12 & HE-4 Series Micro Stereo Encoder

Modular Sub Band Converter

MSBC

❍ Features & Benefits

- Up-converts Entire Sub-band to Channels 7-13
- 3 dB Conversion Gain
- Die Cast Chassis Provides Unsurpassed RFI Shielding

The MSBC is a modular sub band block up-converter designed for use in Blonder Tongue's HE Series rack chassis'. The unit provides sub-band capability to MIDM-806C demodulators by block converting sub-band channels T7 to T13 to receivable VHF channels 7-13. The MIDM-806C A/V outputs can then be connected to a modulator such as a MICM-45D, AMCM 860 or ACM 806 for a complete modular headend processing solution.

❍ Specifications

RF

Input Frequency Range:
5.75-47.75 MHz (Channels T7-T13)

Output Frequency Range:
174-216 MHz (Channels 7-13)

Recommended Input Level Range:
0 to +20 dBmV

Conversion Gain: 3 dB

Flatness: 1.5 dB P/V

168 MHz LO Frequency Accuracy @ 25° C:
+/- 500 Hz

Intermod Distortion: -60 dBc
(In band Ch. 7-13 @ 0 to + 20 dBmV input)

Input/Output Impedance: 75 Ω

Return Loss
Input: 15 dB
Output: 17 dB

General

Power Requirement:
12 VDC @ 100 mA, 1.2 Watts

Temperature Range: 0 to 50° C

Mechanical

Dimensions: (W x H x D)
1.15 x 3.5 x 7.5 in.
29 x 89 x 191 mm

Weight: .84 lbs., 0.38 kg

Connectors

Sub-Band Input: "F" Female

RF Output: "F" Female

Power: Locking Header 3 Pin

Indicators

Power: LED, Green

Refer to product instruction manual for additional specification measurements and notes.

❍ Ordering Information

Model	Stock No.	Description
MSBC	7727	HE12 & HE4 Series Sub-Band Block Up-Converter

Line Equalizers

LE Series

LE-550

LE-750

LE-860

The LE Series includes professional quality, line equalizers, designed to compensate for cable tilt. These equalizers restore proper balance to large distribution networks by attenuating the low frequencies while passing the high frequencies through with little loss. The LE Series can be used with locally powered amplifiers which may not have adequate slope control or for cascades in lieu of more costly cable powered preamplifiers.

ELECTRICAL	**LE-550**	**LE-750**	**LE-860**
Frequency Range (MHz):	50-550	50-750	50-860
Frequency Response (dB):	±0.5	±0.5	±0.5
EQ Values (dB):	3, 6, 9, 12, 15, 18	3, 6, 9, 12, 15, 18	3, 6, 9, 12, 15, 18
Insertion Loss (dB) (Adds to EQ Value):	±0.5	±0.5	±0.5
Impedance - All Ports (Ω):	75	75	75
Return Loss - Input/Output (dB):	18	18	18
Mechanical			
Dimensions (L x W x D):			
in.:	2.88 x 1.38 x 2	2.88 x 1.38 x 2	2.88 x 1.38 x 2
mm:	73 x 35 x 51	73 x 35 x 51	73 x 35 x 51
Weight oz:	6	6	6
g:	170	170	170

❍ **Ordering Information (Specify Value)**

Model	Stock No.	Description
LE-860	3448	Line Equalizer 860 MHz, Values: 3, 6, 9, 12, 15, 18 dB
LE-750	3447	Line Equalizer 750 MHz, Values: 3, 6, 9, 12, 15, 18 dB
LE-550	3445	Line Equalizer 550 MHz, Values: 3, 6, 9, 12, 15, 18 dB

Bandpass Filters
BPF-Z Series

BPF-Z

The BPF-z is a low cost, professional quality, VHF bandpass filter. This unit is designed to provide an additional level of bandpass selectivity when used in adjacent channel configurations. The BPF-z features high-Q filters and phase cancellation traps that provide excellent adjacent channel rejection. Trap adjustments can be made at the factory for improving the rejection characteristics of the filter. These adjustments are then locked in place to prevent inadvertent changes. The BPF-z is designed to work in conjunction with Blonder Tongue's low cost Single Channel VHF Strip Amplifier (MCA-b).

❍ BPF - Z Features & Benefits

- Rack Mountable - 1 EIA (1.75") Rack Space
- Single Channel VHF Bandpass Filter
- Sharp Skirt Selectivity
- Superior Adjacent Channel Rejection

❍ Specifications

RF

Frequency Range: 54-88 & 120-216 MHz

Channels: VHF

Bandpass Response
- 2-6: ±0.75 dB
- A-I: ±0.80 dB
- 7-13: ±1.20 dB

Selectivity
- Lower Adjacent Audio: -55 dB
- Upper Adjacent Video: -50 dB
- Lower Alternate (-9 MHz): -35 dB
- Upper Alternate (+9 MHz): -45 dB

Insertion Loss
- 2-6: 3.5 dB
- A-I: 5.0 dB
- 7-13: 7.0 dB

Impedance - All Ports: 75 Ω

Mechanical

Dimensions (W x H x D):
- 19.0 x 1.75 x 3.5 in.
- 483 x 44 x 89 mm

Weight: 2.0 lbs., 0.91 kg

Connectors (Rear Panel)

RF Input: "F" Female

RF Output: "F" Female

Controls

Lower Aural Trap Adjust: Control - Front Panel

Upper Visual Trap Adjust: Control - Front Panel

Refer to product instruction manual for additional specification measurements and notes.

❍ Ordering Information

Model	Stock No.	Description
BPF-Z	4419B	Single Channel VHF Bandpass Filter 54-216 MHz

Channel Elimination Filters

CEF Series

❍ Features & Benefits

- Rack Mountable - 1 EIA (1.75") Rack Space
- Suppresses an Entire Analog Channel Allowing Insertion of Desired Signal
- Low Insertion Loss
- CEFs May Be Cascaded for Multiple Channel Deletions

The CEF is a professional quality, 750 MHz channel elimination filter. This filter is designed to remove one 6 MHz wide analog television channel, permitting another channel to be re-inserted onto the now vacated channel. Attenuation of greater than 52 dB can be obtained on both visual and aural carriers with only negligible loss to adjacent channel carriers. This results in clean removal of any channel (50 to 312 MHz, CH 2-38) and provides a means for substituting local origination or a desired channel for an unwanted channel. The CEF-750 has a passband to 750 MHz and is completely bidirectional, allowing the input and output connections to be interchanged.

❍ Specifications

RF

Frequency Range
- Channel Elimination: 54-312 MHz
- Passband: 0-750 MHz

Channels: VHF,CATV

Insertion Loss - Max.:
- Ch. 2 to 6 (50 - 312 MHz): 2.1 dB
- Ch. 2 to 6 (312 - 750 MHz): 3.1 dB
- Ch. 98 to 23 (50 - 312 MHz): 1.9 dB
- Ch. 98 to 23 (312 - 750 MHz): 2.5 dB
- Ch. 24 to 38 (50 - 312 MHz): 1.6 dB
- Ch. 24 to 38 (312 - 750 MHz): 2.1 dB

Channel Suppression: 52 dB

Adjacent Channel Insertion Loss
- 2 to 23: 3.0 dB
- 24 to 38: 4.0 dB

Impedance - All Ports: 75 Ω

Return Loss - Min.
- Input: 10 dB
- Output: 10 dB

Mechanical

Dimensions (W x H x D):
- 19.0 x 1.75 x 10.25 in.
- 483 x 44 x 260 mm

Weight: 6.0 lbs., 2.73 kg

Connectors

RF Input: "F" Female

RF Output: "F" Female

Refer to product instruction manual for additional specification measurements and notes.

❍ Ordering Information

Model	Stock No.	Description
CEF-750	4446	Channel Elimination Filter 54-312 MHz Filtering, 50-750 MHz Passband

Distribution Frame Cable Splitter

DFCS-24/32

❍ Features & Benefits

- High Isolation Between Ports
- Built-in Input Test Port Permits Testing with Uninterrupted Service

The Blonder Tongue DFCS 24/32 are 5-1000 MHz passive rack mounted splitters with 24 or 32 broadband output ports.

The DFCS 24/32 features high isolation between ports and low insertion loss. A -20 dB test port on the front panel permits testing without removing the unit from service.

Two or more units may be used to provide the required number of output ports based upon system requirements.

The DFCS 24/32 are compact, 1 3/4" high units designed for mounting in a standard 19" EIA rack.

❍ Specifications

RF

Frequency Range: 5-1000 MHz

Insertion Loss:

@ 5 - 40 MHz: 17.2 dB
@ 40 - 450 MHz: 17.5 dB
@ 450 - 750 MHz: 19.0 dB
@ 750 - 1000 MHz: 20.0 dB

Isolation:

@ 5 - 40 MHz: 30 dB
@ 40 - 450 MHz: 32 dB
@ 450 - 750 MHz: 30 dB
@ 750 - 1000 MHz: 28 dB

Test Point Loss: 20 dB

Input Return Loss:

@ 5 - 750 MHz: 20 dB
@ 750 - 1000 MHz: 18 dB

Output Return Loss:

@ 5 - 450 MHz: 20 dB
@ 450 - 1000 MHz: 18 dB

Impedance: 75 Ω

Mechanical

Dimensions (L x W x D):
19 x 1.75 x 8 in
483 x 44 x 203 mm

Weight: 7.0 lbs., 3.18 kg

Connectors

Input: "F" Female

Output: "F" Female

Input -20 dB Test Port: "F" Female

❍ Ordering Information

Model	Stock No.	Description
DFCS-24	5798	Passive Splitter, 5-1000 MHz, 24 Ports
DFCS-32	5799	Passive Splitter, 5-1000 MHz, 32 Ports

Multiplexers and Band Separators/Combiners

DSV Series, ZHLSJ, ZUVSJ

❍ Features & Benefits

- Models Available in VHF Low/Highband, VHF/UHF and Sub/CATV
- Low Insertion Loss
- Superior Isolation
- Compact Housings

Blonder Tongue's multiplexers are designed to combine or separate the various bands of frequencies used in RF distribution systems. Several models are available, including: VHF LB & VHF HB split, VHF & UHF split, and sub-band & CATVsplit. The compact passive units exhibit low insertion loss and high isolation.

❍ Specifications

Electrical	DSV		DSV-42	
Band Separation (MHz):	5-30	50-1000	DC-42	54-1000
Insertion Loss (dB):	0.5	1.0	0.5	1.0
Isolation (dB):	55 (a) 45 (f) 45 (j)	55 (b) 45 (g)	55 (c) 45 (h)	55 (d)
Impedance (Ω):	75	75	75	75
Return Loss (dB):	14	14	14	14
General				
Power Passing Capability (A):	0.5	-	0.5	-
Mechanical				
Dimensions (L x W x D):				
in.	7.38 x 1.69 x 1.00		7.38 x 1.69 x 1.00	
mm	187 x 51 x 44		187 x 51 x 44	
Weight:				
lbs.	7.1		7.1	
kgs	201		201	
Connectors				
RF Inputs/Outputs:	"F" Female		"F" Female	

❍ DSV Specifications Notes

(a) 50 to 550 MHz
(b) 5 to 30 MHz
(c) 54 to 860 MHz
(d) DC 42 MHz
(e) at 50 MHz
(f) 45 to 50 MHz
(g) 30 to 35 MHz
(h) 860 to 1000 MHz
(j) 550 to 1000 MHz

ZHLSJ
Band Separator
Low/High Band

Specifications	ZHLSJ
Bandwidth	
Low:	DC to 108 MHz
High:	175 to 216 MHz
Low Band Rejection (54-108 MHz):	22 (Min.) dB
High Band Rejection (174-216 MHz):	20 (Min.) dB
Insertion Loss:	0.8 dB
Impedance:	75 Ω
Power Passive:	Low band only

ZUVSJ
Band Separator/
Combiner UHF/VHF

Specifications	ZUVSJ
Bandwidth	
VHF:	DC to 250 MHz
UHF:	470 to 890 MHz
VHF Band Rejection:	23 (Min.) dB
UHF Band Rejection:	30 (Min.) dB
Insertion Loss:	0.8 dB
Impedance:	75 Ω
Power Passive:	VHF band only

❍ Ordering Information

Model	Stock No.	Description
DSV-42	4376	Band Separator DC-42/54-1000 MHz Split
DSV	4375	Band Separator 5-30/50-1000 MHz Split
ZHLSJ	1977	Band Separator/Combiner Low & FM/ High
ZUVSJ	1978	Band Separator/Combiner UHF/VHF

Professional Agile Modulators

HAVM Series

❍ Features & Benefits

- +28 dBmV Output Level (Combined)
- Agile Channel Via Front Panel Controls and LED Display
- CATV or UHF Channel Map Selection Via Rear Panel Switch
- Non-Volatile Memory Retains Channel Information after Power Interruptions

The HAVM Series includes consumer quality, double side band agile modulators, designed for use in multi-room video distribution systems to provide additional video sources, such as security cameras, DVDs, etc. The HAVM Series has a rear panel switch for selecting either CATV (Hyperband) or UHF (Broadcast) channels, depending on the desired application. These economically priced modulators provide very good picture quality for non-adjacent channel use. Agile channel selection makes setup fast and easy. Non-volatile memory ensures last channel recall even after a power outage. The HAVM Series products are housed in a standard cable converter style case with a rugged plastic front panel. LED display(s) and channel up/down buttons permit easy selection of the desired channel(s).

❍ Specifications

RF

Frequency Range
HAVM-2HA - CATV: 300-550 MHz
HAVM-2HA - UHF: 470-550 MHz
HAVM-2UA - CATV: 550-800 MHz
HAVM-2UA - UHF: 470-806 MHz

Output Level: +28 dBmV

Visual Carrier Frequency Tolerance: ±25 kHz
Aural Carrier Frequency
Offset from Visual Carrier: +4.5 MHz

Spurious Outputs - Minimum: -50 dBc

Channel Memory: Non-Volatile

Output Impedance: 75 Ω

Output Return Loss: 12 dB

Video

Input Level: 1.0 Vp-p
Frequency Response fv-0.5 MHz to fv+4.2 MHz: ±2 dB
P-P Video to RMS Hum Ratio: 60 dB

Video Signal-to-Noise Ratio, Weighted: 55 dB

Input Impedance: 75 Ω

Audio

Input Level: 1.0 (b) Vp-p

Frequency Range: 50 Hz to 15 kHz

Frequency Response: ±2.0 dB

Input Impedance: 600 Ω, unbalanced

Sub-Carrier Audio

Frequency (MHz): 4.5 MHz

Stability (kHz): ±10 kHz

General

Power Requirements
Voltage: 117, ±10% VAC
Frequency: 60 Hz
Power: 6 / 10 W
Temperature Range: 0 to +50 °C

Mechanical

Dimensions (W x H x D):
8.00 x 2.00 x 5.75 in.
203 x 51 x 146 mm

Weight: 2.25 lbs., 1.02 kg

Connectors

Video Input(s): RCA Female
Audio Input(s): RCA Female
RF Output: "F" Female

Controls

Power ON/OFF: Push Button

Channel UP/DOWN: Push Button

Controls

Hyper/UHF Select: Slide Switch - Rear Panel

Indicators

Power On: LED

Channel(s): 2-3 Digit, 7 Segment LED

❍ Ordering Information

Model	Stock No.	Description
HAVM-2HA	5989HA	Professional Agile Modulator +30 dBmV, 300-550 MHz, 2 Channels
HAVM-2UA	5989UA	Professional Agile Modulator +30 dBmV, 470-806 MHz, 2 Channels

AC Power Supplies

NPS Series

NPS

❍ Features & Benefits

- 60 VAC Quasi-Square Wave Output
- 60/90 VAC output on NPS-90-15
- Ferroresonant Design

The NPS Series are 60 volt AC power supplies designed for network powered equipment such as line extender amplifiers, interdiction and addressable taps. The NPS-60-3, 6 and 15 provide a 60 VAC output in three different amperage models. The NPS-90 is a field switchable 60 VAC or 90 VAC output unit. All models are housed in a rugged, steel case and can be pole, pedestal or wall mounted. A pole mounting bracket is included (Note: mounting hardware not included).

❍ Specifications

RF	NPS-60-3	NPS-60-6	NPS-60-15	NPS-90-15
Electrical				
Voltage Range				
Input (VAC):	110, ±15%	110, ±15%	110, ±15%	110, ±15%
(Hz)	60, ±3%	60, ±3%	60, ±3%	60, ±3%
Output (VAC):	60, ±3%	60, ±3%	60, ±3%	60, ±3% or 90, ±3%
Current:	3 A	6 A	15 A	15 A
Operational Efficiency				
At Nominal Load:	92%	92%	92%	92%
Overload Capacity				
Of Rated Maximum:	150%	150%	150%	150%
Recommended Load				
Of Rated Maximum:	80%	80%	80%	80%
Mechanical				
Dimensions (W x H x D):				
in.:		9 1/8 x 15 9/16 x 13 11/16		
mm:		231 x 395 x 347		
Weight lbs.:	30	36	50	65
kg:	13.6	16.4	22.7	29.5
Connectors				
Voltage Output:	5/8-24 entry	5/8-24 entry	5/8-24 entry	5/8-24 entry
Voltage Selection:	-	-	-	Spade Terminals
Environment				
Operating Temperature:		-40° C to +50° C		
Relative Humidity:		0 - 95 % Non-Condensing		

❍ Ordering Information

Model	Stock No.	Description
NPS-90-15	5216	Power Supply, CATV Network 120 VAC/60 Hz Input, 60/90 VAC/60 Hz Output, 15 A
NPS-60-6	5206	Power Supply, CATV Network 120 VAC/60 Hz Input, 60 VAC/60 Hz Output, 6 A
NPS-60-3	5203	Power Supply, CATV Network 120 VAC/60 Hz Input, 60 VAC/60 Hz Output, 3 A
NPS-60-15	5215	Power Supply, CATV Network 120 VAC/60 Hz Input, 60 VAC/60 Hz Output, 15 A

Remote Power Reset

RPR Series

❍ Features & Benefits

- Turn On/Off or Reset Power to Any AC Powered Device
- 8 Individually Controlled AC Outlets
- 117 VAC, 12 A Capable
- Web Browser with Graphical Interface Loaded in the Unit
- Remotely Accessible via the Internet Using a RJ45 Ethernet
- LCD Based Front Panel for Easy Set-up
- Static IP Support
- Two Levels of Security

Blonder Tongue's Remote Power Reset (RPR) Series gives the cable operator the means to remotely power-up or shutdown equipment in the event of malfunction that may require a "cold boot."

Equipment locks up. It's not as much of an issue if you're sitting at your desk and its your computer, but what if it's a satellite receiver in a headend miles away and now hundreds, if not thousands, of customers are affected? That's where the Remote Power Reset becomes critical. Without a service call, truck roll or any significant time lost, the power may be cycled at the remote location via an Ethernet connection.

The RPR requires no software installation and uses a standard internal Explorer web browser interface to access the unit. The unit is UL Listed and comes with a three year warranty.

❍ Specifications

Input

Nominal Voltage: 117 VAC
Input Frequency: 50/60 Hz
Maximum Input Current: 15 A

Output

Nominal Voltage: 117 VAC
Total Current: 12 A
Number of AC Outlets: 8

Mechanical

Dimensions (W x H x D):
9.56 x 17.38 x 1.63 in., 242.8 x 441.5 x 41.4 mm
Weight: 8 lbs., 3.628 kg

General

Operating Temperature: 0 to 50° C
Storage: -25 to 70° C
Relative Humidity: 0 to 95%

Indicators

LED Indicators: 3 Transmit, Link, Receive
Liquid Crystal Display LED
5 Push Button Navigation Controls

Connectors

RJ-45 Port for Network Connection
RS-232, RJ-11 Port for Factory Use

Refer to product instruction manual for additional specification measurements and notes.

❍ Ordering Information

Model	Stock No.	Description
RPR-8	3921	Remote Power Reset, 120 VAC, 15A

Video All-Call Systems

VACD-12 & AB-800

❍ Features & Benefits

- Video All-Call System - Provides Override of All Channels on the System
- Compatible with CATV or Off-Air Systems
- Distributes Signals Throughput Installation Including Locally Originated Signals

Modern school systems often incorporate audio (paging or intercom throughout the school) with traditional video distribution (delivering a number of channels to each classroom). Video distribution allows the school to interface with local cable television and deliver topical programs to each classroom, originate local programming (either live or playback via a VCR) and provide to every room in the school. Additionally, emergency or general announcement information can be quickly delivered with both audio and video information to each television in the school. Blonder Tongue manufactures a complete line of products for implementing a Video All-Call System. These systems provide an integrated solution of allowing one channel to override all other channels on all televisions in a school system. In order to integrate all of these components into a complete all-call system, Blonder Tongue also offers the VACD-12 Distribution Amplifier and the AB-800 Pin Diode Switch. These two products are used to distribute the alternate audio/video program to each modulator and processor in the system. When invoked, the substitute IF program will override the normal IF programs available at each modulator and processor. Every channel in the system will be overridden with the new program.

❍ Specifications

VACD-12

IF

Input Frequency Range: 41 to 47 MHz
Input/Output Level: +28 dBmV
Reserve Gain: 3 dB
Output Frequency Range: 41 to 47 MHz

Electrical

AB-800 Control Voltages: ±15 VDC
Sensing: Contact Closure

General

Power Requirements
Voltage: 117, ±10% VAC
Frequency: 60 Hz
Power: 12 W
Fuse: 1/2 A
Temperature Range: 0 to +50 °C

Mechanical

Dimensions (W x H x D):
19 x 1.75 x 15.25 in.
483 x 44 x 387 mm

Weight: 11 lbs., 5 kg

Connectors

IF In: "F" Female - Rear Panel
IF Outs (12): "F" Female - Rear Panel
Control: Molex, Female, 4 PIN - Rear Panel
Sense: Molex, Female, 2 PIN - Rear Panel

Connectors

IF Test Port: "F" Female - Front Panel

Controls

IF Output Level: Control - Front Panel

Indicators

Power On: LED, Green

Accessories

Control Plug Pigtail: Molex, 4 PIN, male

AB-800

IF

Input Frequency Range: 41 to 47 MHz
Insertion Loss: 0.5 dB
Isolation: >60 dB

Electrical

Control Voltages: ±15 VDC

Mechanical

Dimensions (W x H x D):
4.44 x 1.56 x .94 in.
113 x 40 x 24 mm

Weight: 1.00 lbs., .45 kg

Connectors

IF Input: "F" Female
All-Call Input: "F" Female
IF Output: "F" Female
Control: Locking Header, Female, 4 PIN

Accessories

Control Plug: Locking Plug, Male, 4 PIN

❍ Ordering Information

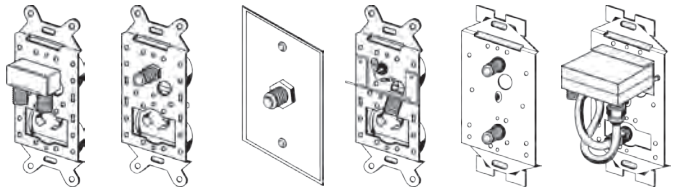
Model	Stock No.	Description
VACD-12	4019	Video All-Call Distribution Amplifier NOTE: Use with AB-800
AB-800	4018	A/B Pin Diode Switch

Wall Taps and Wall Plates

VersaTap Series

1 2 3 4

Front Figures



A B C D E F

Back Figures

❍ Specifications

	V-2WS	V-3889
Front Figure:	2	1
Back Figure:	F	A
Number of Outputs:	1	2
Impedance (Ω):	75	75
Frequency Band:	SUB/VHF/ CATV/UHF	SUB/VHF/ CATV/UHF
Connector(s):	"F"	"F"
RF Isolation (dB) Available:	4	6
Thruloss (dB)		
SUB:	3.5	3.0
VHF:	3.5	3.0
UHF:	4.0	3.5
Special Characteristics		
RFI Shielded Circuitry	X	X
Other	2-Port Terminating	

9	12	16	20	24	27	30
1.2	0.9	0.7	0.6	0.5	0.5	0.5
1.2	0.9	0.7	0.6	0.5	0.5	0.5
1.6	1.5	0.7	0.7	0.6	0.6	0.6

	V -1GF-FT	V-ST	V-2GF-FT	TF-GF-FT	V-3164
Front Figure:	1	1	2	3	4
Back Figure:	B	D	E	C	
Number of Outputs:	1	1	2	1	
Impedance:	75	75	75	75	
Frequency Band:	SUB/VHF CATV/UHF	SUB/VHF/UHF	SUB/VHF CATV/UHF Remote Control	SUB/VHF UHF/CATV/FM	
Connector:	"G/F"	"G"	"G/F"	"G/F"	N/A
Special Characteristics					
RFI Shielded Circuitry	X		X	X	
Other		Self terminating			Single gang frame with blank filler plate ivory plastic

❍ Features & Benefits

- Steel Backplate for Mechanical Strength
- Ivory Plastic Front Plate

Blonder Tongue's VersaTap Series is the most complete and mechanically robust line of MATV and CATV wall taps and plates available. These products are manufactured using steel back plates with ivory plastic front filler plates (except TF-GF-FT). RFI shielded models are available.

❍ Ordering Information

Model	Stock No.	Description
TF-GF-FT	4691	VersaTap Feed-Thru, Type "GF-81C", 75 Ω
V-1GF-FT	3187	VersaTap Feed-Thru, Type "GF-81C", 75 Ω
V-2GF-FT	3190	VersaTap Feed-Thru, 2 Type "GF-81C", 75 Ω
V-2WS	3191	VersaTap 2 Type "F", 75 Ω
V-3164	3164	VersaTap Blank Wall Plate
V-3889	3889	VersaTap 1 Tap Output, 75 Ω, Values: 4, 6, 9, 12, 16 ,20, 24, 27, 30 dB
V-ST	3184	VersaTap Self-Terminating, Type "G", 75 Ω

Agile FM Stereo Modulator

ZFMSM Series

❍ Features & Benefits

- Rack Mountable - 1 EIA (1.75") Rack Space
- High Performance FM Audio Modulator
- Superior Signal to Noise and Audio Separation Performance
- Switchable Mono or Stereo Capability
- Front Panel Level Controls, Rear AC Convenience Outlet
- Rack Mountable - 1 EIA (1.75") Rack Space

The ZFMSM is a low cost, professional quality, agile FM stereo modulator. The unit accepts either monaural or stereo (left & right) inputs and modulates the input to any standard FM channel assignment in the frequency range of 88-108 MHz. Frequency selection is via a front panel up/down switch with a digital display. The ZFMSM modulator retains the frequency setting in the even of power interruption. The modulator can be used in a stand alone configuration or in conjunction with the ZSCA-FM wide band (88-108 MHz) amplifier. An output test port allows for easy setup and testing without disrupting service. All controls and test ports are located on the front panel for ease of operation.

❍ Specifications

RF

Frequency Range: 88-108 MHz

Frequency Step: 100 kHz

Output Level - Typical: +35 dBmV

Output Level Adjust: 10 dB

Frequency Stability: ±10 KHz

Audio Input Level
- Min: 0.2 Vp-p
- Max: 2.0 Vp-p

Audio Frequency Range: 30 Hz to 15 kHz

Audio S/N Ratio: >60 dB

Audio Separation: >30 dB

General

Power Requirements
- Voltage: 120, ±10% VAC
- Frequency: 60 Hz
- Power: 10 W

Temperature Range: 0 to +50 ° C

Mechanical

Dimensions (W x H x D):
- 19.0 x 1.75 x 3.01 in.
- 483 x 44 x 121 mm

Weight: 4 lbs., 1.82 kg

Connectors

Audio Input: L/R "F" Female
RF Output: "F" Female
Test Port: "F" Female

Controls

Frequency Setting: Up/Down Control
Aural Modulation Adj.: Control
RF Output Level: Control

Indicators

Power On: LED, Green

Frequency Display: 4 Digit LED Screen

❍ Ordering Information

Model	Stock No.	Description
ZFMSM	5872	Agile FM Stereo Modulator Agile Low Noise 88-108 MHz Modulator

FAM

The FAM fixed attenuators provide accurate attenuation and excellent match. The FAM series has one type "F" male and one "F" female connector.

RF	FAM
Frequency Range (MHz):	5 to 1000
Attenuation Values (dB):	1, 2, 3, 4, 5, 6, 7, 10, 20
Impedance - All Ports (Ω):	75
Return Loss (dB)	
5 to 50 MHz:	21
50 to 300 MHz:	21
300 to 470 MHz:	21
470 to 890 MHz:	17
890 to 1000 MHz:	16
General	
Dimensions (L x O.D.):	
in.	2.0 x 0.5
mm	51 x 13
Weight:	
oz	0.75
g	21
Connectors:	"F" Female
	"F" Male

❍ **Ordering Information (Specify Value)**

Model	Stock No.	Description
FAM	4006A	Fixed Attenuator Type "F", Male - Female, Values: 1, 2, 3, 4, 5, 6, 7, 10, 20 dB

Coaxial Cable Accessories

Blonder Tongue offers a selected line of connectors and adaptors for common drop and feeder cables as RG-59/U, RG-6/U, RG-11/U and 0.5 inch aluminum cable.

BTF-56 HEX

BTF-59 HEX

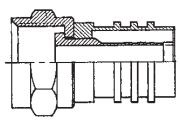
GF-81C

KS-F

BR-500-VSF

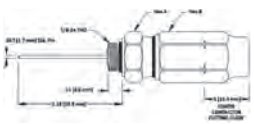
BS-KS-KS-M

BR-500-BAFF-A



ZF-59-290G

BTF-110-Hex



BR-500-CH-A

DMT-TP

BTF-TP

The DMT-TP is a 75 Ω, voltage blocked terminator designed for use with Blonder Tongue's DMT and TLS Series or other products having 5/8-24 entry fittings.

CR-611

The CR-611 Q2 is a crimping tool for integral sleeve "F" connectors. This tool has openings for RG-59 (both single and dual/quad braid), RG-6, and RG-11 and is compatible with all Blonder Tongue HEX crimp connectors. In addition, the CR-611 Q2 will crimp the RG-11 center conductor. Crimp Size: .100, .324 and .475

❍ **Ordering Information**

Model	Stock No.	Description
BTF-59 HEX	3586	Connector Hex, Type “F”, Male, RG-59
BTF-56 HEX	3587	Connector Hex, Type “F”, Male, RG-6
BTF-110 HEX	4658	Connector Hex, Type “F”, Male, RG-11
GF-81C	3689	Adapter Type “F” Female to Type “G” Female
KS-F	3576	Adapter 5/8” Entry Female to Type “F” Female
BS-KS-KS-M	3589	Adapter Housing to Housing, Double Male, 5/8-24, Short Size
BR-500-CH-A	3582A	Adapter Pin to 5/8” Entry, 0.500” Aluminum Cable
BR-500-BAFF-A	3581A	Adapter Type “F” Female, 0.500” Aluminum Cable
BR-500-VSF-A	3584A	Adapter Feed-Thru, 5/8” Entry, 0.500” Aluminum Cable
DMT-TP	4798	Terminator Power Blocked, DMT Style, 75 Ω
BTF-TP	4670	Terminator Male, Type “F”, 75 Ω
CR-611 Q2	5085	Hex Crimp Tool, RG-11, RG-6, RG-59

Acronym List

Blonder Tongue Acronyms

ACA	Apartment Complex Amplifier
AD	Agile Demodulator
AM	Agile Modulator
AMCM	Agile Micro Modulator
AMT	Addressable Multi-Tap
AP	Agile Processor
AQD	ATSC/QAM Demodulator
AQM	Agile QAM Modulator
AQT	ATSC/ QAM Transcoder
ATX	Addressable Transmitter
BIDA	Broadband Indoor Distribution Amplifier
BODA	Broadband Outdoor Distribution Amplifier
BPF	Bandpass Filter
CAM	Channelized Agile A/V Modulator
CAP	Channelized Agile A/V Processor
CDSR	Commercial Digital Satellite Receiver
DA	Distribution Amplifier
DHDP	Digital /High Definition Processor
DSR	Digital Satellite Receiver
FIBT	Fiber Broadband Transmitter
FIBR	Fiber Broadband Receiver
FOC	Fiber Optic Coupler
FRDA	Fiber Receiver/Distribution Amplifier
IPME	Internet Protocol MPEG Encoder
IRD	Integrated Receiver Decoder
ITX	Intelligent Transmitter
LA	Launch Amplifier
LNBF	Low Noise Block Converter Feed
MICM	Micro-Modulator
MIDM	Micro-Demodulator
MPG	Megaport Gateway
MPO	Megaport Outlet
OC	Output Combiner
OCA	Output Combiner- Active
QTM	QAM Transcoder Module
RMDA	Rack Mounted Distribution Amplifier
SAIP	Saw Filtered Agile Input Processor
SMI	Subscriber Module Interdiction
TVCB	TV Channel Blocker
TSG	Technical Services Group
VMI	VideoMask Interdiction

Industry Standard Acronyms

A	Ampere
AM	Amplitude Modulation
AC	Alternating Current
AGC	Automatic Gain Control
AT	Attenuator
ATSC	Advanced Television System Committee
AWG	American Wire Gauge
BER	Bit Error Rate
CATV	Community Antenna Television
CCTV	Closed-Circuit Television
CNR	Carrier to Noise Ratio
CSO	Composite Second Order
CTB	Composite Triple Beat
dB	Decibel
DBS	Direct Broadcast Satellite
DC	Directional Coupler
DC	Direct Current
DOCSIS	Data Over Cable Service Interface Specification
EAS	Emergency Alert System
EDFA	Erbium Doped Fiber Amplifier
EQ	Equalizer
FDM	Frequency Division Multiplexing
FM	Frequency Modulation (88-108 MHz broadcast radio band)
FSM	Field Strength Meter
FTTH	Fiber to the Home
HD	High Definition
HE	Headend
HFC	Hybrid Fiber Coax
Hz	Hertz
IF	Intermediate Frequency
kHz	Kilohertz
LAN	Local Area Network
LED	Light Emitting Diode
LNB	Low Noise Block Converter
MDU	Multiple Dwelling Unit
MER	Modulation Error Ratio
MHz	Megahertz
mbps	Megabits Per Second
mW	Milliwatt
nm	nanometer
PON	Passive Optical Network
PSI	Pound Per Square Inch
QAM	Quadrature Amplitude Modulation
QOS	Quality of Service
QPSK	Quadrature Phase Shift Key Modulation
RF	Radio Frequency
SNR	Signal to Noise Ratio
TDM	Time Division Multiplexing
TVRO	Television Receive Only
UHF	Ultra High Frequencies TV channels 14-69 (470-806 MHz)
V	Volt
W	Watt
WAN	Wide Area Network
VHF	Very High Frequencies TV Channels 2 thru 13 and FM (54-216 MHz)
VSB/AM	Vestigial Side Band/Amplitude Modulation
XMOD	Cross-Modulation
8PSK	8 Phase-Shift Key
8VSB	8 Level Vestigial Sideband Modulation

Telephone

5E or 5E-SS	Class 5 Electronic Switch System
ATM	Asynchronous Transfer Mode
CBR	Constant Bit Rate
CLEC	Competitive Local Exchange Carrier
CO	Central Office
DLC	Digital Loop Carrier
HDT	Host Digital Terminal
ILEC	Incumbent Local Exchange Carrier
IP	Internet Protocol
IPDT	Internet Protocol Digital Terminals
LAN	Local Area Network
LATA	Local Access and Transport Area
LCS	Line Control Signaling
LDS	Local Digital Switch
Mbps	Mega bits per seconds
MSAP	Multi-Service Applications Platform
MSO	Multi System Operator
MTA	Multimedia Terminal Adapters
NCS	Network-based Call Signaling
NEXT	Near End Cross Talk
NIU	Network Interface Unit
POTS	Plain Old Telephone Service
PSTN	Public Switched Telephone Network
VoATM	Voice over ATM (Asynchronous Transfer Mode)
VoIP	Voice over IP (Internet Protocol)
XC	Cross Connect

Basic Glossary of Terms

For more information, visit the Technical Services section of our web site and the Blonder Tongue "Broadband Reference Guide".

Amplification: The act of increasing the amplitude or strength of a signal.

Amplifier: Device used to increase strength of TV signals.

Amplitude Modulation: A process whereby the amplitude of a single frequency carrier is varied in accordance with the instantaneous values of a modulating wave.

Analog Signal: A signal which is continually variable and not expressed by discrete states of amplitude, frequency, or phase.

Agile (Frequency Agile): The capability to change channels quickly and easily, usually by setting switches, i.e. agile modulator, agile processor.

ATSC (Advanced Television System Committee): A digital television format standard that will replace the US analog NTSC television system by February 17, 2009. The high definition television standards defined by the ATSC produce wide screen 16:9 images up to 1920×1080 pixels in size, more than six times the display resolution of NTSC. In lieu of an HD broadcast, up to six standard-definition "virtual channels" can be broadcast over a 6 MHz TV station.

Attenuator: Device used to reduce signal strength.

Automatic Gain Control (AGC): A feature of some amplifiers and radio receivers which provides a substantially constant output even though the signal input varies over wide limits.

B

Bandwidth: A range of frequencies (a portion of spectrum) defined by upper and lower frequency limits.

Bit-Error Rate: In a digital communications system, the fraction of bits transmitted that are received incorrectly.

Bit Rate (Baud): The speed at which digital information is transmitted, usually expressed in bits per second.

C

Cable Equalizer: Device used to counter the effects of cable slope. Can be a stand alone device or an optional plug-in module for an amplifier.

Carrier-to-Noise Ratio (C/N Ratio or CNR): The difference in amplitude of a carrier, and the noise power that is present in that portion of spectrum occupied by the carrier. See Noise.

Cascade: Term used when referring to amplifiers serially connected.

Cherry Picker: Type of headend system where a desired limited number of channels are selected from a CATV feed, rather than distributing all of the available CATV channels common in schools.

Combiner: Device, which permits combining of several signals into one output with a high degree of isolation between, inputs. Usually used for combining outputs of processors and modulators.

Composite Triple Beat Distortion (CTB): CTB in an important distortion measurement of analog CATV systems. It is mainly caused by second order distortion in distribution systems.

Couplers: In fiber optics, a device which links three or more fibers, providing two or more paths for the transmission signal.

D

Decibel (dB): A logarithmic unit of measure expressing the ratio of two discrete levels, input and output for example, of power, voltage, or current. May be used to denote either loss (-dB) or gain (+dB).

Decibel-Millivolts (dBmV): The dB denotes a ratio between two levels (see Decibel) but the qualifying term mV establishes one of the levels as a reference. Zero dBmV (0 dBmV) is one millivolt (0.001 or 10-1 volts) measured across a 75 Ohm impedance.

Decibel-Milliwatt (dBm): A unit of power. Decibels referenced to a unit of one milliwatt. Zero dbM = 1 mW.

Decibel-Watt (dBW): A unit of power. Decibels referred to a unit of one watt. Zero dBW = 1 Watt.

Demodulator: Device that provides baseband audio and video outputs from a TV channel input.

Digital signal: A signal which is expressed by discrete states. Information may be assigned value or meaning by combinations of the discrete states of the signal using a code of pulses or digits.

Directional coupler: A network or device that divides the input signal in a fixed ratio between the output and tap ports.

Diplexer: A device used to combine or separate two signals. A U/V band separator is one example of a diplexer.

Dish: A parabolic antenna used for satellite reception.

E

Equalizer, cable: A network designed to compensate for the frequency/loss characteristics of a cable, so as to permit the system to pass all frequencies in a uniform manner.

F

FCC: Federal Communications Commission. Regulatory agency that sets communication standards in the US.

Filter: Device used to reject or pass a specified frequency or range of frequencies. Some examples are band-pass filters, notch filters, channel elimination filter, low & high pass filters.

G

Gain: An increase in power produced by an amplifier and expressed in decibels. See Amplifier.

Guardband: A portion of spectrum left vacant and not utilized between two carriers or bands of carriers, to provide a margin of safety against mutual interference.

H

Headend (HE): The equipment where all signals are received, processed and combined prior to distribution.

Hertz (Hz): Frequency of periodic oscillations, expressed in cycles per second.

Heterodyne: The process of mixing two frequencies together to generate frequencies of their sum and difference. This process is used for channel conversion.

Heterodyne Signal Processor: A unit employed in CATV systems to convert a carrier frequency to an intermediate frequency (IF). The intermediate frequency carrier may then be filtered, regulated, or otherwise conditioned, and then heterodyned back to either the original carrier frequency, or to a completely new carrier frequency.

Highband: The radio spectrum between 174 and 216 megahertz (MHz). Standard television channels 7 through 13 fall within this spectrum.

Hyperband: CATV channels AA thru YY (numeric equivalents-37 thru 61) failing in the frequency range of 300 to 450 MHz.

I

Impedance: Circuit characteristic (voltage divided by current). TV distribution has standardized on 75-Ohm and 300-Ohm.

Insertion Loss: The loss introduced into a cable or system by the Insertion of a device or network expressed in decibels. See Loss.

Interference: Noise or other disturbances such as spurious signals that, when introduced to a desired signal, reduce the intelligibility of the information carried on that signal.

Isolation: Electrical separation (or loss) between two locations or pieces of equipment. Degree of isolation usually specified in dB.

K

Ku Band: Range of frequencies used in satellite transmissions. Common uplink frequency for U.S. domestic satellites is 14 to 14.5 GHz with a downlink frequency of 11.7 to 12.2 GHz.

L

Laser: Acronym for "light amplification by stimulated emission of radiation". A device which generates or amplifies electromagnetic oscillations at wavelengths between the far infrared (sub-millimeter) and ultraviolet.

Linear: The characteristic of a device or network whose output signal voltage is directly proportional to its input signal voltage.

Line Extender: An amplifier operating at relatively high transmission levels in the feeder sub-system of a trunk plus feeder designed CATV system.

LNA: Low Noise Amplifier. Provides initial amplification of downlink signal at antenna location.

Basic Glossary of Terms

LNB: Low Noise Block (converter). Integrated LNA and down converter. Available in either C or Ku band inputs. The most prevalent output frequency scheme is 950-1450 MHz, however other schemes that have been used include 900-1400, 1000-1500 and 270-770 MHz.

Local Origination: Channels that are generated on site, such as those that are derived from character generators, laser disks, or VCR's in the headend.

Loss: Reduction in signal strength usually expressed in dB. Synonymous with attenuation.

Low Band: The radio spectrum between 54 and 88 MHz. Standard VHF television channels 2 through 6 fall within this spectrum.

M

Microwave: spectrum at frequencies approximately 1,000 MHz and higher.

Mid-band: The radio spectrum between 88 and 174 MHz, which lies between standard VHF television, channels 6 and 7. CATV channels A through I (nine channels) fall within the mid-band spectrum.

Modulator: A device, which produces a TV channel from baseband audio/video, inputs.

Multimode Fiber: A fiber that supports propagation of more than one mode of a given wavelength.

Multiplexer: A device which combines two or more optical signals onto one communications channel.

N

Noise Figure (NF): A measure of how much noise an active device, such as a TV amplifier, adds to the thermal noise level constant of –59 dBmV

O

Oscillator: A circuit generating an alternating current wave at some specific frequency.

P

Passive: Describing a device which does not contribute energy to the signal it passes.

Phaselock: The control of an oscillator such that its output signal maintains a constant phase angle relative to a second, reference signal.

Photodetector: Any device which detects light, generally producing an electronic signal with intensity proportional to that of the incident light.

Photodiode: A diode designed to produce photo-current by absorbing light. Photodiodes are used for the detection of optical power and for the conversion of optical power to electrical power.

Power: Energy per unit of time.

Pre-Amplifier: Low noise amplifier usually mounted in close proximity to a receiving antenna. Used to compensate for down lead losses.

Q

Quadrature Amplitude Modulation (QAM): Digital modulation format where information is conveyed in the amplitude and phase of a carrier signal.

Quadrature Phase Shift Keying (QPSK): Form of Phase Shift Keying in which two bits are modulated at once, selecting one of four possible carrier phase shifts (0, 90, 180, or 270 degrees). QPSK allows the signal to carry twice as much information as ordinary PSK using the same bandwidth. QPSK is used for satellite transmission of MPEG-2 video, cable modems, video-conferencing, cellular phone systems, and other forms of digital communication over an RF carrier.

R

Receiver: A device that detects and converts a signal after transmission over a communications network from a transmitter.

Remote Local Origination: Closed-circuit program generated some place other than the headend. Example: Sub-channel origination.

Repeater: A signal amplification device, often used along cables to extend transmission distances.

Return loss: A ratio expressed in dB between the reflected signal and the total signal applied to a device.

RFI: Radio Frequency Interference. Undesired RF signals.

S

Signal-to-Noise Ratio (S/N Ratio): The difference in amplitude of a signal (before modulation or after detection of a modulated carrier), and the noise present in the spectrum occupied by the signal, when both are measured at the same point in the system.

Single-Mode Fiber: An optical waveguide through which only one mode will propagate.

Slope: Difference in attenuation between specified low and high frequencies.

Splitter: A network or device that divides its input energy equally between two outputs.

Strip Amplifier: Slang expression for a channelized high-output AGC'd amplifier used in processing VHF or UHF channels in a headend.

Sub-Band: The radio spectrum between 5 and 40 MHz.

Super-Band: The radio spectrum between 216 and approx. 400 MHz.

T

Tap, Subscriber: A device that diverts a predetermined amount of its input energy to one or more tap outputs. The remaining balance of the input energy is presented to a tap output port for propagation farther out into the system.

Tap, optical: A device for extracting a portion of the optical signal from a fiber.

Termination: Resistive device at end of distribution line or unused outputs of equipment to avoid reflections (ghost).

Thru-Line Loss: Insertion loss of a tapoff.

Transmitter-Fiber: In a fiber optic system, the device which converts a modulated electrical signal into an optical signal for transmission through a fiber. A transmitter typically consists of a light source (LED or diode laser) and driving electronics.

Transmitter: A device that launches signals into a communications network, to be collected by a receiver on the other end.

Transcoder: Also Transmodulator. Changing a signal's modulation scheme to a different modulation for bandwidth efficiency or system requirements.

Transponder: A frequency converter (translator) aboard a satellite that changes the uplink signal to the downlink signal and provides amplifications. Typical C-Band domestic satellites have 24 transponders.

Trap: A device used to attenuate specific frequencies of channels.

Two-way: Describing a transmission system, which can transport signals in both directions simultaneously.

T-1 Carrier System: A digital transport signal (1.5 Mbps). A 24-channel, transistorized, time-division, pulse-code modulation, voice carrier used on exchange cable to provide short-haul trunks.

U

Uplink: Transmission from earth to a satellite.

V

Vestigial Side Band (VSB): In amplitude-modulated transmissions, a portion of only one sideband of a modulated carrier. The modulated carrier is passed through a filter having a graduated cut-off characteristic near the carrier frequency.

Video: 1. Pertaining to the signal which carries a television picture. 2. Describing the 4 MHz band of frequencies which constitutes a television signal.

W

Watt: The Unit of Electric Power.

Waveguide: Any device which guides electromagnetic waves along a path defined by the physical construction of the device.

Wavelength Division Multiplexing (WDM): The provision of two or more channels over a common optical waveguide, the channels being differentiated by optical wavelength.

8VSB: The 8-level vestigial sideband modulation method adopted for terrestrial broadcast of the ATSC digital television standard in the United States, Canada, and other countries.

Frequency Allocation Charts

VHF & CATV Channels

Chan.	EIA Chan.	Standard Video	Standard Audio	Incremental Video	Incremental Audio	Harmonic Video	Harmonic Audio
T7	none	7.0000	11.5000	NA	NA	NA	NA
T8	none	13.0000	17.5000	NA	NA	NA	NA
T9	none	19.0000	23.5000	NA	NA	NA	NA
T10	none	25.0000	29.5000	NA	NA	NA	NA
T11	none	31.0000	35.5000	NA	NA	NA	NA
T12	none	37.0000	41.5000	NA	NA	NA	NA
T13	none	43.0000	47.5000	NA	NA	NA	NA
T14	none	49.0000	53.5000	NA	NA	NA	NA
2	02	55.2500	59.7500	55 2625	59.7625	54.0027	58.5027
3	03	61.2500	65.7500	61.2625	65.7625	60.0030	64.5030
4	04	67.2500	71.7500	67.2625	71.7625	66.0033	70.5030
A8	01	NA	N A	73.2625	77.7625	72.0036	76.5036
5	05	77.2500	81.7500	79.2625	83.7625	78.0039	82.5039
6	06	83.2500	87.7500	85.2625	89.7625	84.0042	88.5042
A5	95	91.2500	95.7500	91.2625	95.7625	90.0045	94.5045
A4	96	97.2500	101.7500	97.2625	101.7625	96.0048	100.5048
A3	97	103.2500	107.7500	103.2625	107.7625	102.0051	106.5051
A2	98	109.2750	113.7750	109.2750	113.7750	Cannot lock to comb	
A1	99	115.2750	119.7750	115.2750	119.7750	ref: refer to FCC regs	
A	14	121.2625	125.7625	121.2625	125.7625	120.0060	124.5060
B	15	127.2625	131.7625	127.2625	131.7625	126.0063	130.5063
C	16	133.2625	137.7625	133.2625	137.7625	132.0066	136.5066
D	17	139.2500	143.7500	139.2625	143.7625	138.0069	142.5069
E	18	145.2500	149.7500	145.2625	149.7625	144.0072	148.5072
F	19	151.2500	155.7500	151.2625	155.7625	150.0075	154.5075
G	20	157.2500	161.7500	157.2625	161.7625	156.0078	160.5078
H	21	163.2500	167.7500	163.2625	167.7625	162.0081	166.5081
I	22	169.2500	173.7500	169.2625	173.7625	168.0084	172.5084
7	07	175.2500	179.7500	175.2625	179.7625	174.0087	178.5087
8	08	181.2500	185.7500	181.2625	185.7625	180.0090	184.5090
9	09	187.2500	191.7500	187.2625	191.7625	186.0093	190.5093
10	10	193.2500	197.7500	193.2625	197.7625	192.0096	196.5096
11	11	199.2500	203.7500	199.2625	203.7625	198.0099	202.5099
12	12	205.2500	209.7500	205.2625	209.762	204.0102	208.5102
13	13	211.2500	215.7500	211.2625	215.7625	210.0105	214.5105
J	23	217.2500	221.7500	217.2625	221.7625	216.0108	220.5108
K	24	223.2500	227.7500	223.2625	227.7625	222.0111	226.5111
L	25	229.2625	233.7625	229.2625	233.7625	228.0114	232.5114
M	26	235.2625	239.7625	235.2625	239.7625	234.0117	238.5117
N	27	241.2625	245.7625	241.2625	245.7625	240.0120	244.5120
O	28	247.2625	251.7625	247.2625	251.7625	246.0123	250.5123
P	29	253.2625	257.7625	253.2625	257.7625	252.0126	256.5126
Q	30	259.2625	263.7625	259.2625	263.7625	258.0129	262.5129
R	31	265.2625	269.7625	265.2625	269.7625	264.0132	268.5132
S	32	271.2625	275.7625	271.2625	275.7625	270.0135	274.5135
T	33	277.2625	281.7625	277.2625	281.7625	276.0138	280.5138
U	34	283.2625	287.7625	283.2625	287.7625	282.0141	286.5141
V	35	289.2625	293.7625	289.2625	293.7625	288.0144	292.5144
W	36	295.2625	299.7625	295.2625	299.7625	294.0147	298.5147
AA	37	301.2625	305.7625	301.2625	305.7625	300.0150	304.5150
BB	38	307.2625	311.7625	307.2625	311.7625	306.0153	310.5153
CC	39	313.2625	317.7625	313.2625	317.7625	312.0156	316.5156
DD	40	319.2625	323.7625	319.2625	323.7625	318.0159	322.5159
EE	41	325.2625	329.7625	325.2625	329.7625	324.0162	328.5162
FF	42	331.2750	335.7750	331.2750	335.7750	330.0165	334.5165
GG	43	337.2625	341.7625	337.2625	341.7625	336.0168	340.5168
HH	44	343.2625	347.7625	343.2625	347.7625	342.0168	346.5168
II	45	349.2625	353.7625	349.2625	353.7625	348.0168	352.5168
JJ	46	355.2625	359.7625	355.2625	359.7625	354.0168	358.5168
KK	47	361.2625	365.7625	361.2625	365.7625	360.0168	364.5168
LL	48	367.2625	371.7625	367.2625	371.7625	366.0168	370.5168
MM	49	373.2625	377.7625	373.2625	377.7625	372.0168	376.5168
NN	50	379.2625	383.7625	379.2625	383.7625	378.0168	382.5168
00	51	385.2625	389.7625	385.2625	389.7625	384.0168	388.5168
PP	52	391.2625	395.7625	391.2625	395.7625	390.0168	394.5168
QQ	53	397.2625	401.7625	397.2625	401.7625	396.0168	400.5168
RR	54	403.2500	407.7500	403.2625	407.7625	402.0201	406.5201
SS	55	409.2500	413.7500	409.2625	413.7625	408.0204	412.5204
TT	56	415.2500	419.7500	415.2625	419.7625	414.0207	418.5207
UU	57	421.2500	425.7500	421.2625	425.7625	420.0210	424.5210
VV	58	427.2500	431.7500	427.2625	431.7625	426.0213	430.5213
WW	59	433.2500	437.7500	433.2625	437.7625	432.0216	436.5216
XX	60	439.2500	443.7500	439.2625	443.7625	438.0219	442.5219
YY	61	445.2500	449.7500	445.2625	449.7625	444.0222	448.5222
ZZ	62	451.2500	455.7500	451.2625	455.7625	450.0225	454.5225
AAA	63	457.2500	461.7500	457.2625	461.7625	456.0228	460.5228
BBB	64	463.2500	467.7500	463.2625	467.7625	462.0231	466.5231
CCC	65	469.2500	473.7500	469.2625	473.7625	468.0234	472.5234
DDD	66	475.2500	479.7500	475.2625	479.7625	474.0237	478.5237
EEE	67	481.2500	485.7500	481.2625	485.7625	480.0240	484.5240
FFF	68	487.2500	491.7500	487.2625	491.7625	486.0243	490.5243
GGG	69	493.2500	497.7500	493.2625	497.7625	492.0246	496.5246
HHH	70	499.2500	503.7500	499.2625	503.7625	498.0249	502.5249

Chan.	EIA Chan.	Standard Video	Standard Audio	Incremental Video	Incremental Audio	Harmonic Video	Harmonic Audio
III	71	505.2500	509.7500	505.2625	509.7625	504.0252	508.5252
JJJ	72	511.2500	515.7500	511.2625	515.7625	510.0255	514.5255
KKK	73	517.2500	521.7500	517.2625	521.7625	516.0258	520.5258
LLL	74	523.2500	527.7500	523.2625	527.7625	522.0261	526.5261
MMM	75	529.2500	533.7500	529.2625	533.7625	528.0264	532.5264
NNN	76	535.2500	539.7500	535.2625	539.7625	534.0267	538.5267
000	77	541.2500	545.7500	541.2625	545.7625	540.0270	544.527C
PPP	78	547.2500	551.7500	547.2625	551.7625	546.0273	550.5273
-	79	553.2500	557.7500	553.2625	557.7625	552.0276	556.5276
-	80	559.2500	563.7500	559.2625	563.7625	558.0279	562.5279
-	81	565.2500	569.7500	565.2625	569.7625	564.0282	568.5282
-	82	571.2500	575.7500	571.2625	575.7625	570.0285	574.5285
-	83	577.2500	581.7500	577.2625	581.7625	576.0288	580.5288
-	84	583.2500	587.7500	583.2625	587.7625	582.0291	586.5291
-	85	589.2500	593.7500	589.2625	593.7625	588.0294	592.5294
-	86	595.2500	599.7500	595.2625	599.7625	594.0297	598.5297
-	87	601.2500	605.7500	601.2625	605.7625	600.0300	604.5300
-	88	607.2500	611.7500	607.2625	611.7625	606.0303	610.5303
-	89	613.2500	617.7500	613.2625	617.7625	612.0306	616.5306
-	90	619.2500	623.7500	619.2625	623.7625	618.0309	622.5309
-	91	625.2500	629.7500	625.2625	629.7625	624.0312	628.5312
-	92	631.2500	635.7500	631.2625	635.7625	630.0315	634.5315
-	93	637.2500	641.7500	637.2625	641.7625	636.0318	640.5318
-	94	643.2500	647.7500	643.2625	647.7625	642.0321	646.5321
-	100	649.2500	653.7500	649.2625	653.7625	648.0324	652.5324
-	101	655.2500	659.7500	655.2625	659.7625	654.0327	658.5327
-	102	661.2500	665.7500	661.2625	665.7625	660.0330	664.5330
-	103	667.2500	671.7500	667.2625	671.7625	666.0333	670.5333
-	104	673.2500	677.7500	673.2625	677.7625	672.0336	676.5336
-	105	679.2500	683.7500	679.2625	683.7625	678.0339	682.5339
-	106	685.2500	689.7500	685.2625	689.7625	684.0342	688.5342
-	107	691.2500	695.7500	691.2625	695.7625	690.0345	694.5345
-	108	697.2500	701.7500	697.2625	701.7625	696.0348	700.5348
-	109	703.2500	707.7500	703.2625	707.7625	702.0351	706.5351
-	110	709.2500	713.7500	709.2625	713.7625	708.0354	712.5354
-	111	715.2500	719.7500	715.2625	719.7625	714.0357	718.5357
-	112	721.2500	725.7500	721.2625	725.7625	720.0360	724.5360
-	113	727.2500	731.7500	727.2625	731.7625	726.0363	730.5363
-	114	733.2500	737.7500	733.2625	737.7625	732.0366	736.5366
-	115	739.2500	743.7500	739.2625	743.7625	738.0369	742.5369
-	116	745.2500	749.7500	745.2625	749.7625	744.0372	748.5372
-	117	751.2500	755.7500	751.2625	755.7625	750.0375	754.5375
-	118	757.2500	761.7500	757.2625	761.7625	756.0378	760.5378
-	119	763.2500	767.7500	763.2625	767.7625	762.0381	766.5381
-	120	769.2500	773.7500	769.2625	773.7625	768.0384	772.5384
-	121	775.2500	779.7500	775.2625	779.7625	774.0387	778.5387
-	122	781.2500	785.7500	781.2625	785.7625	780.0390	784.5390
-	123	787.2500	791.7500	787.2625	791.7625	786.0393	790.5393
-	124	793.2500	797.7500	793.2625	797.7625	792.0396	796.5396
-	125	799.2500	803.7500	799.2625	803.7625	798.0399	802.5399
-	126	805.2500	809.7500	805.2625	809.7625	804.0402	808.5402
-	127	811.2500	815.7500	811.2625	815.7625	810.0405	814.5405
-	128	817.2500	821.7500	817.2625	821.7625	816.0408	820.5408
-	129	823.2500	827.7500	823.2625	827.7625	822.0411	826.5411
-	130	829.2500	833.7500	829.2625	833.7625	828.0414	832.5414
-	131	835.2500	839.7500	835.2625	839.7625	834.0417	838.5417
-	132	841.2500	845.7500	841.2625	845.7625	840.0420	844.5420
-	133	847.2500	851.7500	847.2625	851.7625	846.0423	850.5423
-	134	853.2500	857.7500	853.2625	857.7625	852.0426	856.5426
-	135	859.2500	863.7500	859.2625	863.7625	858.0429	862.5429
-	136	865.2500	869.7500	865.2625	869.7625	864.0432	868.5432
-	137	871.2500	875.7500	871.2625	875.7625	870.0435	874.5435
-	138	877.2500	881.7500	877.2625	881.7625	876.0438	880.5438
-	139	883.2500	887.7500	883.2625	887.7625	882.0441	886.5441
-	140	889.2500	893.7500	889.2625	893.7625	888.0444	892.5444
-	141	895.2500	899.7500	895.2625	899.7625	894.0447	898.5447
-	142	901.2500	905.7500	901.2625	905.7625	900.0450	904.5450
-	143	907.2500	911.7500	907.2625	911.7625	906.0453	910.5453
-	144	913.2500	917.7500	913.2625	917.7625	912.0456	916.5456
-	145	919.2500	923.7500	919.2625	923.7625	918.0459	922.5459
-	146	925.2500	929.7500	925.2625	929.7625	924.0462	928.5462
-	147	931.2500	935.7500	931.2625	935.7625	930.0465	934.5465
-	148	937.2500	941.7500	937.2625	941.7625	936.0468	940.5468
-	149	943.2500	947.7500	943.2625	947.7625	942.0471	946.5471
-	150	949.2500	953.7500	949.2625	953.7625	948.0474	952.5474
-	151	955.2500	959.7500	955.2625	959.7625	954.0477	958.5477
-	152	961.2500	965.7500	961.2625	965.7625	960.0480	964.5480
-	153	967.2500	971.7500	967.2625	971.7625	966.0483	970.5483
-	154	973.2500	977.7500	973.2625	977.7625	972.0486	976.5486
-	155	979.2500	983.7500	979.2625	983.7625	978.0489	982.5489
-	156	985.2500	989.7500	985.2625	989.7625	984.0492	988.5492
-	157	991.2500	995.7500	991.2625	995.7625	990.0495	994.5495
-	158	997.2500	1001.7500	997.2625	1001.7625	996.0498	1000.5498

Frequency Charts

CATV QAM Channel Center Frequency - 54 MHz to 860 MHz

EIA Chan.	MHz Center Frequency	EIA Chan.	MHz Center Frequency	EIA Chan.	MHz Center Frequency
2	57	42	333	87	603
3	63	43	339	88	609
4	69	44	345	89	615
5	79	45	351	90	621
6	85	46	357	91	627
95	93	47	363	92	633
96	99	48	369	93	639
97	105	49	375	94	645
98	111	50	381	100	651
99	117	51	387	101	657
14	123	52	393	102	663
15	129	53	399	103	669
16	135	54	405	104	675
17	141	55	411	105	681
18	147	56	417	106	687
19	153	57	423	107	693
20	159	58	429	108	699
21	165	59	435	109	705
22	171	60	441	110	711
7	177	61	447	111	717
8	183	62	453	112	723
9	189	63	459	113	729
10	195	64	465	114	735
11	201	65	471	115	741
12	207	66	477	116	747
13	213	67	483	117	753
23	219	68	489	118	759
24	225	69	495	119	765
25	231	70	501	120	771
26	237	71	507	121	777
27	243	72	513	122	783
28	249	73	519	123	789
29	255	74	525	124	795
30	261	75	531	125	801
31	267	76	537	126	807
32	273	77	543	127	813
33	279	78	549	128	819
34	285	79	555	129	825
35	291	80	561	130	831
36	297	81	567	131	837
37	303	82	573	132	843
38	309	83	579	133	849
39	315	84	585	134	855
40	321	85	591	135	861
41	327	86	597		

Cable Attenuation Charts

Typical Cable Attentuation Chart in dB/100 Feet @ 68 °F (20 °C)

Freq.	Drop Cable				SemiFlex Cable									
(MHz)	RG59	RG6	RG7	RG11	412	500	625	750	875	1000	565	700	840	1160
5	0.77	0.57	0.56	0.36	0.20	0.16	0.13	0.11	0.09	0.08	0.14	0.11	0.09	0.07
55	1.88	1.50	1.22	0.95	0.68	0.55	0.45	0.37	0.32	0.29	0.47	0.37	0.32	0.24
211	3.59	2.87	2.29	1.81	1.35	1.08	0.89	0.73	0.64	0.58	0.93	0.74	0.64	0.48
250	3.89	3.12	2.49	1.98	1.49	1.19	0.98	0.81	0.70	0.64	1.03	0.82	0.70	0.53
270	4.05	3.24	2.59	2.06	1.55	1.24	1.02	0.84	0.73	0.67	1.07	0.85	0.73	0.56
300	4.27	3.43	2.74	2.17	1.64	1.31	1.08	0.89	0.78	0.72	1.13	0.90	0.77	0.59
330	4.50	3.61	2.89	2.29	1.73	1.38	1.14	0.94	0.82	0.76	1.19	0.95	0.82	0.63
350	4.64	3.72	2.98	2.36	1.78	1.43	1.18	0.97	0.84	0.78	1.23	0.98	0.84	0.65
400	4.88	4.00	3.20	2.53	1.91	1.53	1.27	1.05	0.91	0.84	1.32	1.05	0.91	0.70
450	5.30	4.28	3.41	2.69	2.03	1.63	1.35	1.12	0.97	0.90	1.40	1.12	0.97	0.75
500	5.50	4.51	3.61	2.85	2.15	1.73	1.43	1.18	1.03	0.96	1.49	1.19	1.03	0.80
550	5.90	4.76	3.80	3.01	2.26	1.82	1.51	1.25	1.09	1.01	1.56	1.25	1.09	0.84
600	6.18	4.98	3.99	3.16	2.37	1.91	1.58	1.31	1.14	1.06	1.64	1.31	1.14	0.89
750	6.96	5.62	4.50	3.58	2.68	2.16	1.79	1.48	1.29	1.21	1.85	1.49	1.30	1.01
870	7.54	6.09	4.87	3.90	2.90	2.35	1.95	1.61	1.41	1.33	2.01	1.62	1.41	1.11
950	7.90	6.39	5.11	4.10	3.03	2.49	2.04	1.72	1.50	1.35	2.15	1.75	1.51	1.15
1000	8.09	6.54	5.25	4.23	3.13	2.53	2.11	1.74	1.53	1.44	2.17	1.75	1.53	1.20
1200	8.91	7.18	5.77	4.71	3.44	2.83	2.32	1.96	1.72	1.55	2.45	2.00	1.72	1.33
1450	9.82	7.89	6.34	5.29	3.81	3.12	2.61	2.16	1.90	1.81	2.66	2.13	1.90	1.52
1750	10.92	8.74	6.93	5.95	4.23	3.47	2.92	2.41	2.13	2.03	2.96	2.36	2.13	1.71
1850	11.23	8.99	7.13	6.12	4.36	3.60	2.97	2.52	2.22	2.07	3.13	2.57	2.23	1.74
2000	11.67	9.34	7.41	6.36	4.55	3.76	3.12	2.64	2.32	2.11	3.27	2.69	2.33	1.82
2150	12.10	9.69	7.68	6.60	4.74	3.92	3.24	2.75	2.43	2.21	3.41	2.81	2.44	1.91
Loop Resist.	59.9	39.6	26.8	19.5	2.5	1.7	1.1	0.8	0.4	1.3	0.9	0.9	0.6	0.3

Note: Loop resistance shown in Ω/1000 ft.

UHF Broadcast Channels

Channel Designation	Visual Carrier Frequency (MHz)
14	471.25
15	477.25
16	483.25
17	489.25
18	495.25
19	501.25
20	507.25
21	513.25
22	519.25
23	525.25
24	531.25
25	537.25
26	543.25
27	549.25
28	555.25
29	561.25
30	567.25
31	573.25
32	579.25
33	585.25
34	591.25
35	597.25
36	603.25
37	609.25
38	615.25
39	621.25
40	627.25
41	633.25
42	639.25
43	645.25
44	651.25
45	657.25
46	663.25
47	669.25
48	675.25
49	681.25
50	687.25
51	693.25
52	699.25
53	705.25
54	711.25
55	717.25
56	723.25
57	729.25
58	735.25
59	741.25
60	747.25
61	753.25
62	759.25
63	765.25
64	771.25
65	777.25
66	783.25
67	789.25
68	795.25
69	801.25

Filling Out The TV Design Checklist

Following the instructions below will avoid delays. Designs charges are based upon complexity of the design. Multiple design approaches and/or changes to initial layout are subject to additional charges.

1. **COMPANY NAME & CONTACT :**
   Name of company and person requesting design.
2. **ADDRESS:**
   Address of company requesting design.
3. **PHONE AND FAX NO.:**
   Telephone numbers of company requesting design.
4. **PROJECT NAME:**
   Name of project that design is for.
5. **PROJECT LOCATIONS:**
   Please be as specific as possible. Provide city, state and additional information such as major cross roads or nearby landmarks (hospitals or airports). Latitude and longitude coordinates (if known) will accurately pinpoint the location.
6. **BUDGETARY BOM FOR PREPARING QUOTATION?:**
   Yes/No answer. Excludes receiving Final System Design (#7) until the bid is awarded. Turn-around time is faster than number 7. The budgetary BOM is a list of components but does not include specific information such as DB values or channel numbers. Final system design and BOM may differ.
7. **FINAL SYSTEM DESIGN:**
   Yes/No answer. Consists of a final schematic diagram and Bill of Materials of the design system.
8. **WRITTEN SPECIFICATIONS FOR PROJECT:**
   Check or circle if Architects written specifications are included with design request. Please note that Blonder Tongue does not write system specifications.
9. **CHANNELS TO BE ON THE SYSTEM:**
   Please be specific as to which channels are required to be received and distributed.

   A. & B. OFF AIR:
   VHF or UHF channel's to be received via antenna(s) (Specify channel numbers and desired U/V conversions if applicable).

   C. LOCAL ORIGINATION:
   Channel originating from on site VCR's, Laser disk players, character generators or sub-channel modulators (remote origination). Specify either local or remote origination and the desired number of channels for each.

   D. PROGRAMMING VIA SATELLITE:
   Specify desired transponder number(s) and satellite(s) to be received. Desired program services can be used in lieu of transponder numbers (ie: HBO-east, CNN etc.).

   E. CATV FEED/NO. CHANNELS:
   If the project is to distribute a feed from the local franchised cable company, specify its channel capacity {i.e. 77 ch's (550 MHz)} and channelization scheme (standard, HRC, or IRC). It is very important to obtain the channelization scheme employed, as this has an impact on equipment prices when channels are either moved or deleted for re-insertion of local origination.
   If not specified, our design assumes standard channel frequency assignments.
10. **SITE PLANS*:**
    Scaled site plans are required when multiple buildings are involved.

    A. Scale should be in the neighborhood of 50 feet/inch.

    B. Antenna and headend locations must be noted on the drawing.

    C. If there is a preferred cable route, please indicate on the drawing. Natural routing obstructions such as hills and ponds may not be reflected in site plans, please note accordingly.

    D. Circle if cable is aerial or underground.

    E. Indicate manholes and/or pedestal locations on drawing when underground cable is required.

    F. Indicate cable to be used (i.e.: RG-11, .412 AL,.500 AL, etc.). If cable size is left up to us just state "open".
11. **BUILDING PLANS*:**
    Scaled floor plans are required to determine cable distances between devices in the distribution system.

    A. Scale should be either 1/8 or 1/4 inch per foot.

    B. Antenna and headend location must be shown.

    C. Outlet locations must be shown. Highlight outlets prior to mailing in.

    D. Intended cable routing must be shown (looping, horizontal in corridor or home-run). If cable is installed in conduit, conduit size and routing must be shown on drawing.

    E. Indicate type of cable(s) to be used (i.e.: RG-59, RG-6, RG-11 and either standard or plenum rated). If more than one size is used, please make sure you specify what goes where.

* If scaled drawings are not available, riser diagrams/sketches can be substituted provided point-to-point cable distances are indicated.

TV Design Checklist

PLEASE COPY
Maintan original for future use

1. **COMPANY NAME:** _____

   CONTACT NAME: _____

2. **ADDRESS:** _____

3. **PHONE AND FAX:** _____

4. **PROJECT NAME:** _____

5. **PROJECT LOCATIONS:**
   Please provide: City, State, major cross streets and coordinates, if known _____

6. **BUDGETARY B.O.M . FOR PREPARING QUOTATION:**
   Check one. ❑ **YES** ❑ **NO**

7. **FINAL SYSTEM DESIGN:**
   Drawings and B.O.M.? Check one.
   Final design may be subjected to engineering fees
   ❑ **YES** ❑ **NO**

8. **WRITTEN SPECIFICATIONS FOR PROJECT:** Check one.
   Are architects writing specifications included with design request?
   ❑ **YES** ❑ **NO**

9. **CHANNELS TO BE ON THE SYSTEM:**

   (A) Off Air VHF: _____

   (B) Off Air UHF Desired Conversions: _____

   (C) Local Origination: _____

   (D) Programming Via Satellite: _____
   Provide Satellite Transponder & Receiver Type Required

   (E) CATV Feed/No. Channels: _____

10. **SCALED SITE PLANS * (MUST INCLUDE THE FOLLOWING):**
    (A) Scale of 40 or 50 feet/inch.
    (B) Antenna and Headend Locations Indicated.
    (C) Preferred cable routing. Building Entry Points and Road Crossings Indicated.
    (D) Aerial or Underground.
    (E) If Underground, Indicate Manholes or Pedestal Locations
    (F) Cable Type

11. **SCALED BUILDING PLANS* (MUST INCLUDE THE FOLLOWING):**
    (A) Scale of 1/8 or 1/4 inch = One Foot.
    (B) Antenna and Headend Location.
    (C) Outlet Locations..
    (D) Cable Routing or Conduit Runs. (Looping, Horizontal in Corridor or Vertical Risers).
    (E) Cable Type.

* If scaled drawings are not available, riser diagrams/sketches must have point-to-point distances indicated.

MAIL TO: **APPLICATIONS DEPARTMENT**
BLONDER TONGUE LABORATORIES, INC.
One Jake Brown Road, Old Bridge, NJ 08857
Tel. (732) 679-4000 • Fax (732) 679-4353

Filling Out The Factory Prefabricated Headend Checklist

1. **COMPANY NAME:**
   Name and address of company that will be billed for the headend purchase.
2. **CONTACT NAME:**
   Person to receive quotation.

   PHONE AND FAX NO.:
   Telephone numbers of company requesting design. Specify if different than #1.
3. **PROJECT NAME:**
   Name of project this design is for.
4. **PROJECT LOCATION OR COORDINATES:**
   Please be as specific as possible. Provide city, state and additional information such as major cross roads or nearby landmarks (hospitals or airports). Latitude and longitude coordinates (if known) will accurately pinpoint the location. Provide a channel line-up.
5. **OFF/AIR CHANNELS:**
   Please be specific as to which channels are required to be received and distributed.

   A. & B. OFF AIR:
   VHF or UHF channel's to be received via antenna(s) (Specify channel numbers and desired U/V conversions if applicable).

   C. HIGH DEFINITION:
   Please specify if HDTV Signals (8VSB) will be used. Specify UHF Channel number or Frequency and desired conversation.

   D. TYPE OF ANTENNAS:
   Circle single channel or broadband if there is a preference. If antennas are not to be quoted please note. Details on type of antennas that will be used is still required so that these inputs to the headend can be handled accordingly.

   Note: If input is CATV feed specify if frequencies are Standard, HRC or IRC. This is important as it has an impact on equipment prices. If not specified, our quotation assumes standard frequencies.
6. **LOCAL ORIGINATION:**
   Channel originating from on site VCR's, compact disk players, character generators or sub-channel modulators (remote origination). Specify either local or remote origination and the desired number of channels for each.
7. **TVRO RECEPTION:**
   Specify desired transponder number(s) and satellite(s) to be received. Desired program services can be used in lieu of transponder numbers (ie: HBO-east, CNN etc.).
8. **TVRO ANTENNA - TYPE & SIZE:**
   Specify antenna(s) desired by either stock number or diameter, feed and mount required. If a dish is not to be included in the quotation please note so by writing "None" or "By Others".
9. **TVRO RECEIVERS - IRD OR RECEIVER ONLY:**
   Specify number of each type of receiver desired (if applicable). Provide details if space is required in the rack/cabinet for customer installed equipment such as stand alone decoders or other non-Blonder Tongue supplied equipment.
10. **OPEN RACK, FRAME OR CABINET:**
    Specify type of rack/cabinet desired. Door options on cabinets are either rear door only, or both front and rear doors. Standard cabinets have only the rear door lockable. A lockable front door is an option which must be specified if required.
11. **HEADEND OUTPUT FREQUENCY ASSIGNMENTS:**
    Standard is assumed, specify if other.
12. **HEADEND OUTPUT LEVEL REQUIRED AFTER COMBINING:**
    Required output level of headend. This is required to ascertain the proper equipment to quote, especially when replacing an old headend that feeds an existing distribution system.
13. **PLEASE SPECIFY ANY SPECIAL INSTRUCTIONS:**
    This is a catch-all for anything not covered above. Specify models if particular products are desired for quotation (ie: OC12, RMDA). Specify any special racking requirements such as blank space required for customer supplied items or future channel expansion.

Factory Prefabricated Headend Checklist

PLEASE COPY
Maintan original
for future use

1. **COMPANY NAME:** _____

2. **CONTACT NAME:** _____

   PHONE AND FAX: _____

3. **PROJECT NAME:** _____

4. **PROJECT LOCATION:** _____
   Please provide: City, State, major cross streets and coordinates, if known _____

5. **OFF/AIR CHANNELS, SIGNAL LEVELS, AND DISTANCE IN MILES:** _____

   (A) VHF _____

   (B) UHF _____

   (C) TYPE OF ANTENNAS?: ❑ Single Channel ❑ Broadband (check one)

   If input is CATV feed, are frequencies: ❑ Standard ❑ HRC ❑ IRC (check one)

6. **LOCAL ORIGINATION:** _____

   VCR's, Compact Disk Players, Camera, etc. _____

7. **TVRO RECEPTION:** ❑ C-Band ❑ Ku-Band ❑ C/Ku-Band (check one)

8. **TVRO ANTENNA:** _____
   Type & Size

9. **TVRO:** _____
   Provide Satellite Transponder & Receiver Type Required

   If Receiver Only, Allow Room for Decoders?: ❑ YES ❑ NO (check one)

   If YES? How Many? _____

10. **EQUIPMENT MOUNTING:** (check one)
    ❑ Relay Rack ❑ Open Frame(s) ❑ Frame(s) + 2 Sides
    ❑ Cabinet w/Rear Door
    ❑ Cabinet w/Front & Rear Door

11. **HEADEND OUTPUT FREQUENCY ASSIGNMENTS:** ❑ Standard ❑ HRC ❑ IRC (check one)

12. **HEADEND OUTPUT LEVEL REQUIRED AFTER COMBINING:** _____

13. **PLEASE SPECIFY ANY SPECIAL INSTRUCTIONS:** _____

MAIL TO: **APPLICATIONS DEPARTMENT**
BLONDER TONGUE LABORATORIES, INC.
One Jake Brown Road, Old Bridge, NJ 08857
Tel. (732) 679-4000 • Fax (732) 679-4353

Blonder Tongue Return Material Authorization Policy

A Return Material Authorization (RMA) Number Is Required On All Product Returns (Regardless if Product is Being Returned for Repair or Credit)

Product Received at the Blonder Tongue Factory Without an RMA Number will be Returned to Sender

RMA numbers must be used when returning product for credit or repair. Use of RMA numbers will ensure efficient processing. When returning product to Blonder Tongue, please follow the simple steps below (in the order that they appear):

SERVICE REPAIRS ONLY

1. Fill out the Product Return Authorization Form indicating product information. Repair items do not require original invoice information, but it is helpful in determining warranty eligibility.
2. Contact Blonder Tongue Service Department in one of three ways:
   1) e-mail to: **returns@blondertongue.com** (recommended method) Include all of the information from the Product Authorization Form. or,
   2) Fax the Product Authorization Form to: **1-732-679-4022** or,
   3) Call Blonder Tongue Service Department at: **1-800-523-6049; Ext. 4256**
3. After completing Steps 1 & 2, an RMA number will be assigned to you.
4. Securely pack the product and mark the box with your RMA #. If shipping multiple boxes, all boxes should be marked with the RMA #. The RMA # must be placed near your return address in large, bold print (approximately 2" in height). Please see the address label below as an example of the relative size and location of the RMA #.

Sample Address Label with RMA #

John Smith
ABC Company
123 Smith Street
Anytown, USA 00000

RMA#1234

BLONDER TONGUE LABORATORIES, INC.
ONE JAKE BROWN ROAD
OLD BRIDGE, NJ 08857

ATTN: PRODUCT RETURN FOR SERVICE

CREDIT RETURNS ONLY

1. Fill out the Product Return Authorization Form indicating product information. **Product being returned for credit must include original invoice information.**
2. Contact Blonder Tongue Customer Service in one of two ways:
   1) Fax the Product Authorization Form to: **1-800-336-6295** or,
   2) Call Blonder Tongue Customer Service at: **1-800-523-6049**
3. After completing Steps 1 & 2, an RMA number will be assigned and emailed to you.
4. Securely pack the product (in the original box, if available) and clearly mark the outside of all packing boxes with the RMA #.
5. An RMA # is void if product is not returned within 60 days of issue date.

Sample Address Label with RMA #

John Smith
ABC Company
123 Smith Street
Anytown, USA 00000

RMA#1234

BLONDER TONGUE LABORATORIES, INC.
ONE JAKE BROWN ROAD
OLD BRIDGE, NJ 08857

ATTN: PRODUCT RETURN FOR CREDIT

5. Send your returns to:

   Blonder Tongue Laboratories, Inc.
   One Jake Brown Road
   Old Bridge, NJ 08857
   Attn: Product Returns

6. All shipments are to be pre-paid by the sender. **No COD's will be accepted.**

Blonder Tongue Return Material Authorization (RMA) Form

Service Repair Policy

Blonder Tongue product may be returned for repair under the following conditions:

1. Please contact Blonder Tongue Service Dept. to obtain an RMA #.
2. Please supply requested information to verify warranty coverage.

Any shipments received by Blonder Tongue without an RMA# will be refused.

Credit Return Policy

Blonder Tongue products may be returned for credit under the following conditions:

1. Products are unused, undamaged, and in original boxes.
2. Products must be accompanied by a dollar (new purchase) for dollar (credit return) replacement order.
3. Products were purchased **within one year from credit return date** and are current production items.
4. Products are subject to a 12% restocking charge.
5. Products that are custom made are subject to an additional charge for conversion of not less than 20% and not more than 50% of the FFP price.
6. Products that require factory repacking are subject to an additional 10% charge for material and labor.
7. Please contact Blonder Tongue Customer Service to obtain an RMA #.

Any shipments received by Blonder Tongue without an RMA # will be refused.

Note: Products that are judged by Blonder Tongue Laboratories, Inc. upon receipt as being unacceptable for credit shall be returned to sender.

SHIPPING INSTRUCTIONS

1 Make Sure to Obtain an RMA # and Clearly Mark the Outside of All Packing Boxes with the RMA #.

2 Ship Only Items Authorized

3 Enclose Packing Slip & Product Return Authorization Form

4 Ship Prepaid Only to:

ATTN: PRODUCT RETURNS
Blonder Tongue Labs, Inc.
One Jake Brown Road
Old Bridge, NJ 08857

Company: Contact Name:

Address:

City: State: Zip Code:

Phone #: Fax #:

email address (if applicable):

RMA#_____ Date _____
(To be supplied by Blonder Tongue)

Reason For Return (Check One) Return for Credit ❒ Repair ❒

Qty.	BT Stock No.	Description	P.O. # (Required)	P.O. Date

Reason why product is being returned:

Customer Signature: **Date**

For Credit Returns
Fax Customer Service: 800-336-6295

For Repairs
Fax Service: 732-679-4022

☞ IMPORTANT

Original product invoice date(s) cannot exceed 12 months.
RMA VOID if product is not returned within 60 days from issue date.

Limited Warranty

Seller will at its sole option, either repair or replace (with a new or factory reconditioned product, as Seller may determine) any product manufactured or sold (or in the case of software, licensed) by Seller which is defective in materials or workmanship or fails to meet the applicable specifications that are in effect on the date of shipment or such other specifications as may have been expressly agreed upon in writing: (i) for a period of three (3) years from the date of original purchase for all stock hardware products (other than those specifically referenced herein below having a shorter warranty period); (ii) for a period of one (1) year from the date of original purchase, with respect to all MegaPort™, IPTV products, test equipment and fiber optics receivers, transmitters, couplers and integrated receiver/distribution amplifiers; (iii) for a period of one (1) year from the date of original purchase (or such shorter period of time as may be set forth in the license agreement specific to the particular software being licensed from Seller) with respect to all software products licensed from Seller (other than Core Product Software) that is (a) developed for a specific function or application, (b) complimentary to and does not function without the Core Product Software, and (c) listed with a specific model number and stock number in Seller's Price List ("**Non-Core Software**"); (iv) for a period of ninety (90) days from the date of original purchase, with respect to non-serialized products and accessories, such as parts, sub-assemblies, splitters and all other products sold by Seller (other than Core Product Software and Refurbished/Closeout Products) not otherwise referred to in clauses (i) through (iii) above. The warranty period for computer programs in machine-readable form included in a hardware product, which are essential for the functionality thereof as specifically stated in the published product specifications ("**Core Product Software**") will be coincident with the warranty period of the applicable hardware product within which such Core Product Software is installed.

Software patches, bug fixes, updates or workarounds do not extend the original warranty period of any Core Product Software or Non-Core Software.

Notwithstanding anything herein to the contrary,

(i) Seller's sole obligation for software that when properly installed and used does not substantially conform to the published specifications in effect when the software is first shipped by Seller, is to use commercially reasonable efforts to correct any reproducible material non-conformity (as determined by Seller in its sole discretion) by providing the customer with: (a) telephone or e-mail access to report non-conformance so that Seller can verify reproducibility, (b) a software patch or bug fix, if available or a workaround to bypass the issue if available, and (c) where applicable, replacement or damaged or defective external media, such as CD-ROM disk, on which the software was originally delivered;

(ii) Seller does not warrant that the use of any software will be uninterrupted, error-free, free of security vulnerabilities or that the software will meet the customer's particular requirements; and the customer's sole and exclusive remedy for breach of this warranty is, at Seller's option, to receive (a) suitably modified software, or part thereof, or (b) comparable replacement software or part thereof;

(iii) Seller retains all right, title and interest in and to and ownership of all software (including all Core Product Software and Non-Core Software) including any and all enhancements, modifications and updates to the same; and

(iv) in some cases, the warranty on certain proprietary sub-assembly modules manufactured by third-party vendors and contained in Seller's products, third party software installed in certain of Seller's products, and on certain private-label products manufactured by third-parties for resale by Seller, will be of shorter duration or otherwise more limited than the standard Seller limited warranty. In such cases, Seller's warranty with respect to such third-party proprietary sub-assembly modules, third-party software and private-label products will be limited to the duration and other terms of such third-party vendor's warranty, if any. In addition, certain products, that are not manufactured by Seller, but are resold by Seller, may carry the original OEM warranty for such products, if any. The limited warranty set forth above does not apply to any product sold by Seller, which at the time of sale constituted a Refurbished/Closeout Product, the limited warranty for which is provided in the following paragraph.

Seller will at its sole option, either repair or replace (with a new or factory-reconditioned product, as Seller may determine) any product sold by Seller which at the time of sale constituted a refurbished or closeout item ("**Refurbished/Closeout Product**"), which is defective in materials or workmanship or fails to meet the applicable specifications that are in effect on the date of shipment of that product or fails to meet such other specifications as may have been expressly agreed upon in writing between the parties, for a period of ninety (90) days from the date of original purchase. Notwithstanding the foregoing, in some cases the warranty on certain proprietary sub-assembly modules manufactured by third-party vendors and contained in Seller products, third party software installed in certain of Seller's products, and on certain private-label products manufactured by third-parties for resale by Seller will be of shorter duration or otherwise more limited than Seller limited warranty for Refurbished/Closeout Products. In such cases, Seller's warranty for Refurbished/Closeout Products constituting such third party proprietary sub-assembly modules, third party software, and private-label products will be limited to the duration and other terms of such third-party vendor's warranty, if any. In addition, notwithstanding the foregoing, (i) certain Refurbished/Closeout Products that are not manufactured (but are resold) by Seller, may carry the original OEM warranty for such products, if any, which may be longer or shorter than Seller's limited warranty for Refurbished/Closeout Products. All sales of Refurbished/Closeout Products are final.

To obtain service under this warranty, the defective product, together with a copy of the sales receipt, serial number if applicable, or other satisfactory proof of purchase and a brief description of the defect, must be shipped freight prepaid to Seller at the following address: One Jake Brown Road, Old Bridge, New Jersey 08857.

This warranty does not cover failure of performance or damage resulting from (i) use or installation other than in strict accordance with manufacturer's written instructions, (ii) disassembly or repair by someone other than the manufacturer or a manufacturer-authorized repair center, (iii) misuse, misapplication or abuse, (iv) alteration, (v) exposure to unusual physical or electrical stress, abuse or accident or forces or exposure beyond normal use within specified operational or environmental parameters set forth in applicable product specifications, (vi) lack of reasonable care or (vii) wind, ice, snow, rain, lightning, or any other weather conditions or acts of God.

OTHER THAN THE WARRANTIES SET FORTH ABOVE, SELLER MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND, EXPRESS OR IMPLIED, AS TO THE CONDITION, DESCRIPTION, FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR AS TO ANY OTHER MATTER, AND SUCH WARRANTIES SET FORTH ABOVE SUPERSEDE ANY ORAL OR WRITTEN WARRANTIES OR REPRESENTATIONS MADE OR IMPLIED BY SELLER OR BY ANY OF SELLER'S EMPLOYEES OR REPRESENTATIVES, OR IN ANY OF SELLER'S BROCHURES MANUALS, CATALOGS, LITERATURE OR OTHER MATERIALS. IN ALL CASES, BUYER'S SOLE AND EXCLUSIVE REMEDY AND SELLER'S SOLE OBLIGATION FOR ANY BREACH OF THE WARRANTIES CONTAINED HEREIN SHALL BE LIMITED TO THE REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT F.O.B. SHIPPING POINT, AS SELLER IN ITS SOLE DISCRETION SHALL DETERMINE. SELLER SHALL IN NO EVENT AND UNDER NO CIRCUMSTANCES BE LIABLE OR RESPONSIBLE FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL, PUNITIVE, DIRECT OR SPECIAL DAMAGES BASED UPON BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT TORT LIABILITY OR OTHERWISE OR ANY OTHER LEGAL THEORY, ARISING DIRECTLY OR INDIRECTLY FROM THE SALE, USE, INSTALLATION OR FAILURE OF ANY PRODUCT ACQUIRED BY BUYER FROM SELLER.

All claims for shortages, defects, and non-conforming goods must be made by the customer in writing within five (5) days of receipt of merchandise, which writing shall state with particularity all material facts concerning the claim then known to the customer. Upon any such claim, the customer shall hold the goods complained of intact and duly protected, for a period of up to sixty (60) days. Upon the request of Seller, the customer shall ship such allegedly non-conforming or defective goods, freight prepaid to Seller for examination by Seller's inspection department and verification of the defect. Seller, at its option, will either repair, replace or issue a credit for products determined to be defective. Seller's liability and responsibility for defective products is specifically limited to the defective item or to credit towards the original billing. All such replacements by Seller shall be made free of charge f.o.b. the delivery point called for in the original order. Products for which replacement has been made under the provisions of this clause shall become the property of Seller. Under no circumstances are products to be returned to Seller without Seller's prior written authorization. Seller reserves the right to scrap any unauthorized returns on a no-credit basis. Any actions for breach of a contract of sale between Seller and a customer must be commenced by the customer within thirteen (13) months after the cause of action has accrued. A copy of Seller's standard terms and conditions of sale, including the limited warranty, is available from Seller upon request. Copies of the limited warranties covering third-party proprietary sub-assembly modules and private-label products manufactured by third-parties may also be available from Seller on request. **(Rev 0713)**

Contacts

1. Corporate Office and Factory

One Jake Brown Road
Old Bridge, NJ 08857
TEL: 732-679-4000
FAX: 732-679-4353
information@blondertongue.com

2. Sales Department

WESTERN REGION SALES
(States West of the Mississippi River & Western Canada)
Territory Manager
Salim Chehade
TEL: 800-523-6049 ext. 4376
FAX: 732-679-4353
schehade@blondertongue.com

EASTERN REGION SALES
(States East of the Mississippi River & Eastern Canada)
Territory Manager
Tom Lowden
TEL: 800-523-6049 ext. 4375
FAX: 732-679-4353
tlowden@blondertongue.com

CATV SALES & SPECIAL MARKETS
Director
Steve Cimino
TEL: 858-505-1318
CELL: 858-531-2997
scimino@blondertongue.com

Vice President - Sales
Jeff Smith
TEL: 512-238-6973
CELL: 732-491-5657
jsmith@blondertongue.com

3. Customer Service

Clarice Gardner, ext. 4220
Jeannie Kirkpatrick, ext. 4320
custsvc@blondertongue.com

Director
Lynne Russo, ext. 4261
FAX: 732-679-4353
lrusso@blondertongue.com

4. International Sales

btglobalsales@blondertongue.com

5. Technical Solutions Group

Director
Steve Hegge
TEL: 800-523-6049 ext. 4358
FAX: 732-679-4353
shegge@blondertongue.com

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