

VITALink®

Circuit Integrity Cables

Solutions for 300V & 600V Applications



Dual Rated CI/CIC • Ethernet • Armored



Marmon Electrical

A Berkshire Hathaway Company

RSCC®
World Class Engineered Cable



COMTRAN
Innovative Systems. Engineered Solutions.

ABOUT VITALink®

VITALink® BRAND

Comtran and RSCC Wire & Cable, both part of Marmon Electrical, have been trusted resources in the fire and life safety market, providing high performance solutions for circuit integrity applications. Since launching in 2000, VITALink® has become the most comprehensive line of circuit integrity cables in the industry. Cables rated for 300 volts and higher are available.

HISTORY

In 2012, Underwriter's Laboratories (UL) pulled their 2196 listing due to concerns about interactions between zinc and the approved cables. Once the new UL 2196 standard was released, VITALink® cables were retested to meet the stringent new requirements and reintroduced to the market in 2014. Since then, VITALink® has quickly grown to be the most versatile 2 hour fire resistive solution, with a product portfolio that encompasses both 300 volt & 600 volt solutions, including dual rated CI/CIC cables, Ethernet cables, and CCW and MC armored cables.

UL TESTING & LISTED SYSTEMS

UL 2196/ULC-S139 requires 5 out of 5 system tests to pass for a full 2 hours of burn time at temperatures up to 1850°F, followed by a pressurized hose stream without loss of signal. Cable installed in a 90° curved conduit must pass the same testing.

During testing, VITALink® cables are secured to a wall either in conduit or free air, depending on the listing. The cables are terminated and the wall is connected to a furnace for up to 2 hours, while circuits are monitored closely for leakage current. After 2 hours, the wall is removed and exposed to a pressurized hose stream before the circuits are energized again. All the circuits must work for a passing test.

When approved to UL 2196, both the cable and the hardware components become part of a listed system. Installations that do not use the specified components along with the cable will not comply with the UL 2196 listing. Authorities having jurisdiction should be consulted for code or specification compliance. See page 17 for detailed technical information.

Our UL-Listed Systems:

- FHIT System 40A (US) & FHIT7 System 40A (Canada)
- FHIT System 40B (US) & FHIT7 System 40B (Canada)
- FHIT System 120 (US) & FHIT7 System 120 (Canada)

COMMON USES

- Manufacturing, Commercial, & Industrial locations
- High-rise Buildings
- Universities & Stadiums
- Hotels & Airports
- Health Care Facilities
- Tunnels & Subways

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300 VOLT SOLUTIONS

PRODUCTS

VITALink® 300V products include dual rated CI/CIC multiconductor cables, Ethernet cables, and CCW armored cables.

UL FHIT Systems:

- VITALink® CI/CIC and VITALink® Ethernet: FHIT 40A (US) & FHIT7 40A (Canada)
- VITALink® Armored: FHIT 40B (US) & FHIT7 40B (Canada)

Please visit page 17 to find more technical details.

FEATURES & BENEFITS

- Withstands temperatures up to 1850°F & ensures 2 hour circuit protection
- Meets survivability requirements of NFPA 72 Level 2 and 3
- Listed for use in the United States (free air and conduit) & Canada (in conduit only)
- Sunlight resistant & suitable for use in wet locations
- Solutions for both plenum and riser installations
- No special tools or training required
- No termination kits, brass fittings, or stainless steel straps needed
- Installation requirements are outlined in manufacturer's instruction guide
- All required hardware components are commercially available off-the-shelf

APPLICATIONS

VITALink® CI/CIC Cable

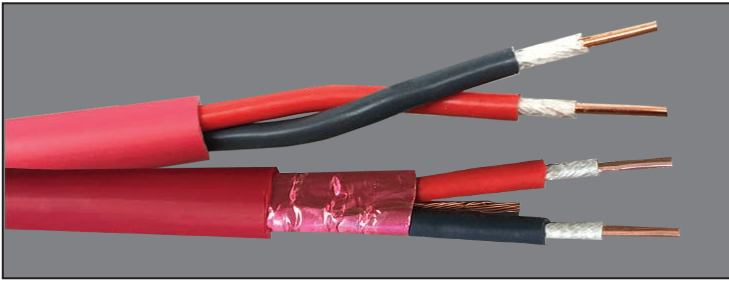
- Emergency Voice Alarm Communications (EVAC)
- Smoke & Fire Alarm Systems
- Fireman's Telephone Systems
- Area of Refuge Communication Systems
- Visible Notification Appliances
- Fuel Leak Detection Systems
- Fire Pump Controls
- Command Center Critical Systems
- Pressurized Stairway System Control Circuits

VITALink® Ethernet Cable

- Emergency VoIP Communications, e.g. Speakers & Telephones
- IP Area of Refuge Communication Devices
- Addressable Class N Fire Alarm Devices
- Critical Data Communication Circuits

VITALink® Armored Cable

- Low voltage critical circuits located in enclosed spaces or harsh environments, such as:
 - Transit Tunnels & Platforms
 - Underground & Below Grade Structures, e.g. Parking Garages
 - Petrochemical, Nuclear, & Waste Treatment Facilities
 - Commercial Retrofits with Non-UL 2196 Approved Conduit



CONSTRUCTION

- Conductors: 18-12 AWG Solid Bare Copper and 16-12 AWG Stranded Bare Copper
- Insulation: Low Smoke, Zero Halogen Thermoset Fire-Roc™
- Tape: Flame Retardant Tape
- Cable Assembly: 2 Conductors
- Drain Wire: Stranded Bare Copper (Shielded constructions only)
- Shield: Copper/Polyester Tape (Shielded constructions only)
- Jacket: Red Non-Halogen Flame Retardant Polyolefin (Sequential footage markers every 2 feet)
- Other jacket colors & non-black jacket striping available upon request

LISTINGS & STANDARDS

- ANSI/UL 2196 2 Hour fire rating for use in FHIT System 40A (See UL Fire Directory R27557)
- ULC-S139/2196 Listed with Hose Stream Test for use in FHIT7 System 40A
- UL Type FPLR-CI-ST1, CMR-CI-LS, and CL3R-CI-ST1
- CSA Listed FAS 105 ST1 FT4
- UL 1424 for Power-Limited Fire Alarm Cables; 300V / 105°C
- UL 13 for Power-Limited Circuit Cables; 300V / 105°C
- UL 444 for Communication Cable; 300V / 105°C
- NFPA 70, 72, 130, and 502
- Fire certified for power-limited system use at 72V phase-to-phase utilization voltage
- Sunlight Resistant
- For use in Wet Locations
- NYC Electrical Advisory Board approval #54502, April 2017
- California State Fire Marshal Approved
- RoHS Compliant

CIRCUIT INTEGRITY (CI) vs. CIRCUIT INTEGRITY IN CONDUIT (CIC)

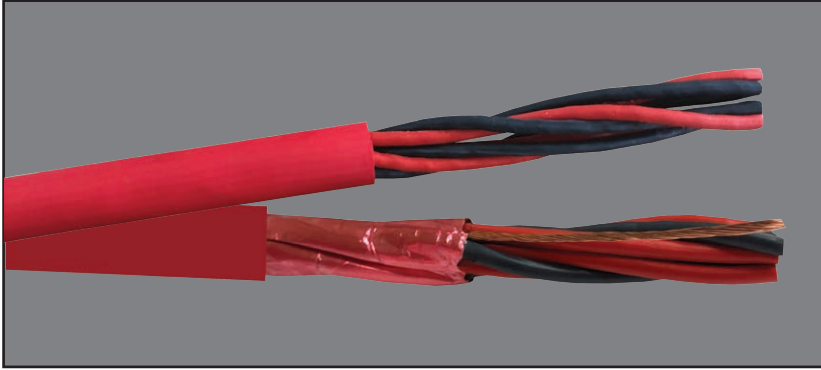
Rated as both Circuit Integrity (CI) and Circuit Integrity in Conduit (CIC), VITALink® CI/CIC cables can be installed either with or without conduit, depending on the application and code requirements. As CI, also referred to as CI Free Air, VITALink® can be used in riser or horizontal (non-plenum) installations without conduit. The cable must be installed per the NEC code and meet all national and local code requirements.

As CIC, VITALink® cable must be installed as the UL listed FHIT System 40A or FHIT7 System 40A and in accordance with the manufacturer's installation instructions. These systems require use of specific hardware including conduit, couplings, pulling lubricant, pull boxes, and supports. In areas such as plenum airspace, VITALink® must be installed in conduit.

*Note: This acronym is not to be confused with the abbreviation for control & instrumentation cable in Canada. VITALink® CIC cables are for circuit integrity applications when installed in conduit.

PRODUCT MATRIX

Part Number	Size (AWG)	Number of Conductors	Solid or Stranded Conductors	Nominal Diameter (in/mm)	Approximate Net Weight (lbs/kft)	Nominal Capacitance (pF/ft.)
Shielded						
36397	18	2	Solid	0.309/7.85	49	21
35785	16	2	Solid	0.330/8.38	60	20
36316	14	2	Solid	0.359/9.12	73	25
Unshielded						
36337	18	2	Solid	0.305/7.75	41	13
35777	16	2	Solid	0.321/8.15	52	19
36341	16	2	Stranded	0.344/8.74	54	19
36338	14	2	Solid	0.352/8.94	61	20
36340	14	2	Stranded	0.368/9.38	65	20
36342	12	2	Solid	0.402/10.21	90	22
36339	12	2	Stranded	0.413/10.49	92	22



CONSTRUCTION

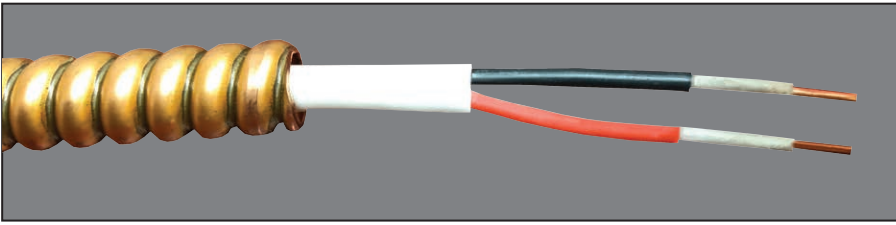
- Conductors: 18 AWG Solid Bare Copper
- Tape: Flame Retardant Tape
- Insulation: Low Smoke, Zero Halogen Thermoset Fire-Roc™
- Cable Assembly: 2-4 Pairs
- Drain Wire: 18 AWG Stranded Bare Copper (Shielded constructions only)
- Shield: Copper Shield (Shielded constructions only)
- Jacket: Red Non-Halogen Flame Retardant Polyolefin (Sequential footage markers every 2 feet)
- Other jacket colors & non-black jacket striping available upon request
- Patent Pending

LISTINGS & STANDARDS

- ANSI/UL 2196 2 Hour fire rating for use in FHIT System 40A (See UL Fire Directory R27557)
- ULC-S139/2196 Listed with Hose Stream Test for use in FHIT7 System 40A
- UL Type FPLR-ST1 (Shielded constructions only) and CL3R-ST1
- c(UL)us Type CMR-LS
- CSA Listed FAS 105 ST1 FT4 (Shielded constructions only)
- UL 1424 for Power-Limited Fire Alarm Cables; 300V / 105°C (Shielded constructions only)
- UL 13 for Power-Limited Circuit Cables; 300V / 105°C
- UL 444 for Communication Cable; 300V / 105°C
- NFPA 70, 72, 130, and 502
- Meets Cat 3 channel requirements
- Transmits data speeds up to 10 Mbps
- Fire certified for power-limited system use at 72V phase-to-phase utilization voltage (Shielded constructions only)
- Sunlight Resistant
- For use in Wet Locations
- California State Fire Marshal Approved
- RoHS Compliant

PRODUCT MATRIX

Part Number	Size (AWG)	Number of Pairs	Nominal Diameter (in/mm)	Approximate Net Weight (lbs/kft)	Nominal Capacitance (pF/ft.)
Shielded					
36512	18	2	0.465/11.81	95	18
36530	18	3	0.489/12.42	113	18
36513	18	4	0.510/12.95	126	18
Unshielded					
36608	18	2	0.357/9.07	56	17
36610	18	3	0.379/9.63	71	17
36609	18	4	0.417/10.59	93	17



CONSTRUCTION

- Conductors: 14 AWG Solid Bare Copper
- Tape: Flame Retardant Tape
- Insulation: Low Smoke, Zero Halogen Thermoset Fire-Roc™
- Cable Assembly: 1-4 Pairs
- Binder: White Fire-Roc™ Binder
- Armor: Continuously Corrugated Welded Copper
- Jacket (Optional): Red Non-Halogen Flame Retardant Polyolefin (Sequential footage markers every 2 feet)
- Non-black striping on the outside of the armor or jacket available upon request
- Other jacket colors available upon request

LISTINGS & STANDARDS

- ANSI/UL 2196 2 Hour fire rating for use in FHIT System 40B (See UL Fire Directory R27557)
- ULC-S139/2196 Listed with Hose Stream for use in FHIT7 System 40B
- UL Type FPLR-ST1 and CL3R-ST1
- CSA Listed FAS 105 ST1 FT4
- UL 1424 Power-Limited Fire Alarm Circuits; 300V/105°C
- UL 13 Power-Limited Circuit Cables; 300V/105°C
- NFPA 70, 72, 130, and 502
- California State Fire Marshal Approved
- RoHS Compliant

PRODUCT MATRIX

Part Number	Size (AWG)	Number of Pairs	Nominal Core Diameter (in/mm)	Nominal Armor Diameter (in/mm)	Nominal Cable Diameter over Outer Jacket (in/mm)	Approximate Net Weight (lbs/kft)	Nominal Capacitance (pF/ft.)
Non-Jacketed							
36516	14	1	0.334/8.48	0.620/15.75	N/A	264	18
36517	14	2	0.504/12.80	0.840/21.34	N/A	447	18
36518	14	3	0.538/13.67	0.880/22.35	N/A	506	18
36519	14	4	0.605/15.37	0.920/23.37	N/A	589	18
Jacketed							
36520	14	1	0.334/8.48	0.620/15.75	0.684/17.37	306	18
36521	14	2	0.504/12.80	0.840/21.34	0.934/23.72	532	18
36522	14	3	0.538/13.67	0.880/22.35	0.974/24.74	601	18
36523	14	4	0.605/15.37	0.920/23.37	1.024/26.10	682	18

600 VOLT SOLUTIONS

PRODUCTS

VITALink® 600V products include MC armored cables for installations in the United States and RC90 cables for installations in Canada. LSZH jacketed constructions are available for the transit market.

UL FHIT Systems:

- VITALink® MC & VITALink® MC Transit: FHIT 120
- VITALink® RC90 & VITALink® RC90 Transit: FHIT7 120

Please visit page 17 to find more technical details.

FEATURES & BENEFITS

- Withstands temperatures up to 1850°F & ensures 2 hour circuit protection
- Listed for use in the United States & Canada
- Printed number coding allows for easy identification (ICEA Method 4)
- Superior impact & crush resistance
- Long continuous lengths available
- Only conventional tools required to terminate
- Commercially available brass/stainless steel connectors
- Installation requirements are outlined in manufacturer's instruction guide

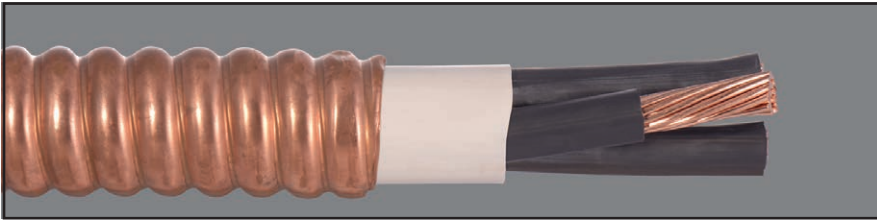
APPLICATIONS

VITALink® MC & RC90 Cable

- Emergency Lighting
- Ventilation Systems
- Fan/Damper Pressurization Systems
- Fire Pump Feeder/Controls
- Smoke Control & Management Equipment
- Pressurized Stairway Systems
- Elevators

VITALink® MC Transit & RC90 Transit Cable

- Emergency Lighting
- Ventilation Systems



MC CONSTRUCTION

- Conductors: 14 AWG - 750 kcmil Annealed Copper (Class B)
- Insulation: Low Smoke, Zero Halogen Ceramifiable Silicone
- Cable Assembly: 1-5 Conductors*
- Optional Segmented Ground Wires
- Inner Jacket: Ceramifiable Silicone Rubber
- Armor: Continuously Corrugated Welded (CCW) Copper

VITALink® MC LISTINGS & STANDARDS

For Installation in the United States

- ANSI/UL 2196 2 Hour fire rating for use in FHIT System 120 (See UL Fire Directory R15365)
- UL 1569 for Type MC
- NFPA 70, 72, and 101
- IEEE 1202/FT4 vertical flame test; ST1 limited smoke
- -40°C listed
- Copper sheath exceeds the NEC requirement for equipment grounding conductor Table 250.122

VITALink® RC90 LISTINGS & STANDARDS

For Installation in Canada

- ULC-S139/2196 Listed with Hose Stream Test for use in FHIT7 System 120 (See UL Fire Directory R15365)
- cUL Type RC90 per CSA 22.2 No 123
- CSA 22.1 Article 12-700
- IEEE 1202/FT4 vertical flame test; ST1 limited smoke
- Copper sheath can be used for equipment bonding exceeding CEC Rule 10-618 and 10-804
- NBC OS1, NBC 3.2.7.10, NBC 3.2.6
- -40°C listed
- 90°C for Wet Locations with approval by AHJ

PRODUCT MATRIX - 1, 2, & 3 CONDUCTORS

Part Number	Size (AWG kcmil)	Number of Conductors	Nom. Core Diameter (in/mm)	Nom. Armor Diameter (in/mm)	Approximate Net Weight (lbs/kft)
VM011X0-100	1/0	1	0.66/16.76	1.00/25.40	815
VM012X0-100	2/0	1	0.70/17.78	1.04/26.42	925
VM013X0-100	3/0	1	0.75/19.05	1.08/27.43	1,055
VM014X0-100	4/0	1	0.81/20.57	1.16/29.46	1,235
VM01250-100	250	1	0.89/22.61	1.22/30.99	1,410
VM01350-100	350	1	0.99/25.15	1.35/34.29	1,795
VM01500-100	500	1	1.13/28.70	1.50/38.10	2,350
VM01750-100	750	1	1.34/34.04	1.73/43.94	3,285
VM02014-100	14	2	0.49/12.45	0.82/20.83	395
VM02012-100	12	2	0.53/13.46	0.82/20.83	415
VM02010-100	10	2	0.58/14.73	0.89/22.61	475
VM03014-100	14	3	0.52/13.21	0.82/20.83	425
VM03012-100	12	3	0.56/14.22	0.89/22.61	475
VM03010-100	10	3	0.61/15.49	0.94/23.88	542
VM03008-100	8	3	0.72/18.29	1.04/26.42	675
VM03006-100	6	3	0.80/20.32	1.16/29.46	840
VM03004-100	4	3	0.91/23.11	1.24/31.50	1,140
VM03003-100	3	3	0.97/24.64	1.30/33.02	1,210
VM03002-100	2	3	1.04/26.42	1.41/35.81	1,400
VM03001-100	1	3	1.21/30.73	1.59/40.39	1,715
VM031X0-100	1/0	3	1.29/32.77	1.67/42.42	1,990
VM032X0-100	2/0	3	1.39/35.31	1.80/45.72	2,345
VM033X0-100	3/0	3	1.49/37.85	1.92/48.77	2,755
VM034X0-100	4/0	3	1.62/41.15	2.04/51.82	3,305
VM03250-100	250	3	1.80/45.72	2.26/57.40	3,870
VM03350-100	350	3	2.02/51.31	2.48/62.99	5,015
VM03500-100	500	3	2.30/58.42	2.82/71.63	6,720

PRODUCT MATRIX - 4 & 5 CONDUCTORS

Part Number	Size (AWG kcmil)	Number of Conductors	Nom. Core Diameter (in/mm)	Nom. Armor Diameter (in/mm)	Approximate Net Weight (lbs/kft)
VM04014-100	14	4	0.57/14.48	0.89/22.61	480
VM04012-100	12	4	0.62/15.78	0.94/23.88	575
VM04010-100	10	4	0.67/17.02	1.00/25.40	635
VM04008-100	8	4	0.80/20.32	1.16/29.46	815
VM04006-100	6	4	0.89/22.61	1.22/30.99	990
VM04004-100	4	4	1.00/25.40	1.35/34.29	1,285
VM04003-100	3	4	1.07/27.18	1.41/35.81	1,475
VM04002-100	2	4	1.15/29.21	1.50/38.10	1,710
VM04001-100	1	4	1.34/34.04	1.73/43.94	2,125
VM041X0-100	1/0	4	1.43/36.32	1.82/46.23	2,485
VM042X0-100	2/0	4	1.54/39.12	1.95/49.53	2,935
VM043X0-100	3/0	4	1.68/42.67	2.12/53.85	3,530
VM044X0-100	4/0	4	1.82/46.23	2.26/57.40	4,205
VM04250-100	250	4	2.00/50.80	2.46/62.48	4,925
VM04350-100	350	4	2.25/57.15	2.71/68.83	6,420
VM04500-100	500	4	2.60/66.04	3.13/79.50	8,740
VM05014-100	14	5	0.63/16.00	0.94/23.88	535
VM05012-100	12	5	0.68/17.27	1.00/25.40	615
VM05010-100	10	5	0.74/18.80	1.08/27.43	720
VM05008-100	8	5	0.88/22.35	1.22/30.99	930
VM05006-100	6	5	0.99/25.15	1.30/33.02	1,160
VM05004-100	4	5	1.11/28.19	1.48/37.59	1,525

VITALink® MC & RC90 TRANSIT

600 Volts



CONSTRUCTION

- Conductors: 14 AWG - 750 kcmil Annealed Copper (Class B)
- Insulation: Low Smoke, Zero Halogen Ceramifiable Silicone
- Cable Assembly: 1-5 Conductors*
- Optional segmented ground wires
- Inner Jacket: Ceramifiable Silicone Rubber
- Armor: Continuously Corrugated Welded (CCW) Copper
- Jacket: Flame Resistant Low Smoke, Zero Halogen (colorable)

VITALink® MC TRANSIT LISTINGS & STANDARDS

For Installation in the U.S.

- ANSI/UL 2196 2 Hour fire rating for use in FHIT System 120 (See UL Fire Directory R15365)
- UL 1569 for Type MC
- NFPA 70, 72, 101, 130, and 502
- IEEE 1202/FT4 vertical flame test; ST1 limited smoke
- New York City Approval
- Copper sheath exceeds the NEC requirement for equipment grounding conductor Table 250.122
- -40°C listed
- 90°C for Wet Locations
- Sunlight Resistant

VITALink® RC90 TRANSIT LISTINGS & STANDARDS

For Installation in Canada

- ULC-S139/2196 Listed with Hose Stream Test for use in FHIT7 System 120 (See UL Fire Directory R15365)
- cUL Type RC90 per CSA 22.2 No 123
- CSA 22.1 Article 12-700
- NFPA 130 and 502
- IEEE 1202/FT4 vertical flame test; ST1 limited smoke
- Copper sheath can be used for equipment bonding exceeding CEC Rule 10-618 and 10-804
- NBC OS1, NBC 3.2.7.10
- -40°C listed
- 90°C for Wet Locations
- Sunlight Resistant

*Up to 12 conductor configurations possible. Other constructions available upon request.
Contact manufacturer for more details.

PRODUCT MATRIX - 1, 2, & 3 CONDUCTORS

Part Number	Size (AWG kcmil)	Number of Conductors	Nominal Core Diameter (in/mm)	Nominal Armor Diameter (in/mm)	Nominal Cable Diameter over Outer Jacket (in/mm)	Approximate Net Weight (lbs/kft)
VM011X0-200	1/0	1	0.66/16.76	1.00/25.40	1.11/28.19	935
VM012X0-200	2/0	1	0.70/17.78	1.04/26.42	1.15/29.21	1,050
VM013X0-200	3/0	1	0.75/19.05	1.08/27.43	1.18/29.97	1,190
VM014X0-200	4/0	1	0.81/20.57	1.16/29.46	1.26/32.00	1,375
VM01250-200	250	1	0.89/22.61	1.22/30.99	1.32/33.53	1,555
VM01350-200	350	1	0.99/25.15	1.35/34.29	1.45/36.83	1,955
VM01500-200	500	1	1.13/28.70	1.50/38.10	1.60/40.64	2,530
VM01750-200	750	1	1.34/34.04	1.73/43.94	1.85/46.99	3,535
VM02014-200	14	2	0.49/12.45	0.82/20.83	0.92/23.37	495
VM02012-200	12	2	0.53/13.46	0.82/20.83	0.92/23.37	520
VM02010-200	10	2	0.58/14.73	0.89/22.61	0.99/25.15	585
VM03014-200	14	3	0.52/13.21	0.82/20.83	0.92/23.37	525
VM03012-200	12	3	0.56/14.22	0.89/22.61	0.99/25.15	585
VM03010-200	10	3	0.61/15.49	0.94/23.88	1.04/26.42	660
VM03008-200	8	3	0.72/18.29	1.04/26.42	1.15/29.21	800
VM03006-200	6	3	0.80/20.32	1.16/29.46	1.26/32.00	980
VM03004-200	4	3	0.91/23.11	1.24/31.50	1.34/34.04	1,210
VM03003-200	3	3	0.97/24.64	1.30/33.02	1.40/35.56	1,365
VM03002-200	2	3	1.04/26.42	1.41/35.81	1.51/38.35	1,570
VM03001-200	1	3	1.21/30.73	1.59/40.39	1.71/43.43	1,945
VM031X0-200	1/0	3	1.29/32.77	1.67/42.42	1.79/45.47	2,230
VM032X0-200	2/0	3	1.39/35.31	1.80/45.72	1.92/48.77	2,600
VM033X0-200	3/0	3	1.49/37.85	1.92/48.77	2.04/51.82	3,030
VM034X0-200	4/0	3	1.62/41.15	2.04/51.82	2.16/54.86	3,595
VM03250-200	250	3	1.80/45.72	2.26/57.40	2.41/61.21	4,275
VM03350-200	350	3	2.02/51.31	2.48/62.99	2.63/66.80	5,460
VM03500-200	500	3	2.30/58.42	2.82/71.63	2.97/75.44	7,225

PRODUCT MATRIX - 4 & 5 CONDUCTORS

Part Number	Size (AWG kcmil)	Number of Conductors	Nominal Core Diameter (in/mm)	Nominal Armor Diameter (in/mm)	Nominal Cable Diameter over Outer Jacket (in/mm)	Approximate Net Weight (lbs/kft)
VM04014-200	14	4	0.57/14.48	0.89/22.61	0.99/25.15	590
VM04012-200	12	4	0.62/15.75	0.94/23.88	1.04/26.42	660
VM04010-200	10	4	0.67/17.02	1.00/25.40	1.11/28.19	755
VM04008-200	8	4	0.80/20.32	1.16/29.46	1.26/32.00	955
VM04006-200	6	4	0.89/22.61	1.22/30.99	1.32/33.53	1,340
VM04004-200	4	4	1.00/25.40	1.35/34.29	1.45/36.83	1,450
VM04003-200	3	4	1.07/27.18	1.41/35.82	1.51/38.35	1,645
VM04002-200	2	4	1.15/29.21	1.50/38.10	1.60/40.64	1,890
VM04001-200	1	4	1.34/34.04	1.73/43.94	1.85/46.99	2,375
VM041X0-200	1/0	4	1.43/36.32	1.82/46.23	1.94/49.28	2,745
VM042X0-200	2/0	4	1.54/39.12	1.95/49.53	2.07/52.58	3,215
VM043X0-200	3/0	4	1.68/42.67	2.12/53.85	2.25/57.15	3,830
VM044X0-200	4/0	4	1.82/46.23	2.26/57.40	2.41/61.21	4,610
VM04250-200	250	4	2.00/50.80	2.46/62.48	2.63/66.80	5,365
VM04350-200	350	4	2.25/57.15	2.71/68.83	2.86/72.64	6,905
VM04500-200	500	4	2.60/66.04	3.13/79.50	3.30/83.82	9,370
VM05014-200	14	5	0.63/16.00	0.94/23.88	1.04/26.42	645
VM05012-200	12	5	0.68/17.27	1.00/25.40	1.11/28.19	735
VM05010-200	10	5	0.74/18.80	1.08/27.43	1.18/29.97	850
VM05008-200	8	5	0.88/22.35	1.22/30.99	1.32/33.53	1,075
VM05006-200	6	5	0.99/25.15	1.30/33.02	1.40/35.56	1,315
VM05004-200	4	5	1.11/28.19	1.48/37.59	1.58/40.13	1,705

TECHNICAL INFORMATION

Most VITALink® products must be installed with specific hardware components, as outlined in the following pages. For further details, please refer to the manufacturers' installation guides and splicing guides.

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300 VOLT CERTIFIED HARDWARE

VITALink® DUAL RATED CI/CIC* (UL FHIT/FHIT7 SYSTEM 40A)

- EMT Conduit:
 - ½ inch, ¾ inch, 1 inch, 1 ¼ inch, 1 ½ inch, and 2 inch EMT Conduit
Approved manufacturers: Allied Tube & Conduit Corp. E-Z Pull® Brand, Columbia-MBF E-Z Pull® Brand, or Wheatland/Western Tube Co.
 - Steel Compression Couplings (Trade size to correspond with the raceway size)
Approved manufacturers: ABB/Thomas & Betts Corp. or RACO
 - Set Screw Couplings (Trade size to correspond with the raceway size)
Approved manufacturer: RACO
- IMC Conduit (Not for use in Canada):
 - ¾ inch, 1 inch, 1 ¼ inch, 1 ½ inch, and 2 inch IMC Conduit
Approved Manufacturers: Allied Tube & Conduit Corp. or Wheatland/Western Tube Co.
 - Steel Threaded Couplings (Trade size to correspond with the raceway size)
Approved Manufacturers: Allied Tube & Conduit Corp. or Wheatland/Western Tube Co.
- Pulling Lubricant: American Polywater Type LZ
- Hubbell/Wiegmann NEMA-1 Enclosure/Pull Box with steel EMT compression connectors or set screw connectors (ABB/Thomas & Betts Corp. or RACO) or steel IMC threaded or set screw connectors (RACO)
- Stainless steel wire mesh support grips when exceeding specified maximum vertical length
- Supports per manufacturer's installation instructions
- Splicing per manufacturer's splicing guide. Splice kits are available upon request.

VITALink® ETHERNET** (UL FHIT/FHIT7 SYSTEM 40A)

- EMT Conduit:
 - ¾ inch, 1 inch, 1 ¼ inch, 1 ½ inch, and 2 inch EMT Conduit
Approved Manufacturers: Allied Tube & Conduit Corp. E-Z Pull® Brand, Columbia-MBF E-Z Pull® Brand, or Wheatland/Western Tube Co.
 - Steel Compression Couplings (Trade size to correspond with the raceway size)
Approved Manufacturers: ABB/Thomas & Betts Corp. or RACO
 - Set Screw Couplings (Trade size to correspond with the raceway size)
Approved Manufacturer: RACO
- IMC Conduit: (Not for use in Canada)
 - ¾ inch, 1 inch, 1 ¼ inch, 1 ½ inch, and 2 inch IMC Conduit
Approved Manufacturers: Allied Tube & Conduit Corp. or Wheatland/Western Tube Co.
 - Steel Threaded Couplings (Trade size to correspond with the raceway size)
Approved Manufacturers: Allied Tube & Conduit Corp. or Wheatland/Western Tube Co.
- Pulling Lubricant: American Polywater Type LZ
- Hubbell/Wiegmann NEMA-1 Enclosure/Pull Box with steel EMT compression connectors or set screw connectors (ABB/Thomas & Betts Corp. or RACO) or steel IMC threaded or set screw connectors (RACO)
- Stainless steel wire mesh support grips when exceeding specified maximum vertical length
- Supports per manufacturer's installation instructions

VITALink® ARMORED (UL FHIT/FHIT7 SYSTEM 40B)

- Supports: Min 12 AWG by 1 ½ inch wide or 1 5/8 inch wide painted or unpainted slotted steel channels with hemmed flange edges
- Clamps (For jacketed cable): Kindorf® J-800 series interlocking strap with Kindorf® J-851 locking brackets
- Clamps (For unjacketed cable): Two piece single bolt type pipe clamp or one piece saddle type pipe clamps
- Optional Supports (For horizontal installation): Snake Tray® 505 series

*Refers to in conduit installations only

**Manufacturer recommends Calrad Electronics part # 72-RJ45-T. Ask us about our how-to guide for additional termination and connector details.

300 VOLT CONDUIT FILL MATRIXES

VITALink® DUAL RATED CI/CIC

Part Number	1/2" Max. Conduit Fill*	3/4" Max. Conduit Fill	1" Max. Conduit Fill	1 1/4" Max. Conduit Fill	1 1/2" Max. Conduit Fill	2" Max. Conduit Fill
Shielded						
18/2 Solid (36397)	1 Cable	2 Cables	4 Cables	7 Cables	7 Cables	7 Cables
16/2 Solid (35785)	-	-	3 Cables	6 Cables	8 Cables	10 Cables
14/2 Solid (36316)	-	-	3 Cables	5 Cables	6 Cables	10 Cables
Unshielded						
18/2 Solid (36337)	1 Cable	2 Cables	4 Cables	7 Cables	7 Cables	7 Cables
16/2 Solid (35777)	1 Cable	2 Cables	3 Cables	6 Cables	8 Cables	10 Cables
16/2 Stranded (36341)	1 Cable	1 Cable	3 Cables	5 Cables	7 Cables	10 Cables
14/2 Solid (36338)	1 Cable	1 Cable	3 Cables	5 Cables	7 Cables	10 Cables
14/2 Stranded (36340)	1 Cable	1 Cable	2 Cables	4 Cables	6 Cables	10 Cables
12/2 Solid (36342)	1 Cable	1 Cable	2 Cables	4 Cables	6 Cables	10 Cables
12/2 Stranded (36339)	1 Cable	1 Cable	2 Cables	4 Cables	6 Cables	10 Cables

*1/2" conduit is EMT only, not IMC

Both shielded and unshielded VITALink CI/CIC cables may be installed in the same raceway when not exceeding the maximum number of cables associated with any of the cable sizes installed within the common raceway. E.g. 12 AWG & 18 AWG cables installed in the same 2 inch raceway are limited to a maximum of 7 cables.

VITALink® ETHERNET

Part Number	3/4" Max. Conduit Fill	1" Max. Conduit Fill	1 1/4" Max. Conduit Fill	1 1/2" Max. Conduit Fill	2" Max. Conduit Fill
Shielded					
18/2P (36512)	1 Cable	-	-	-	-
18/3P (36530)	1 Cable	-	-	-	-
18/4P (36513)	1 Cable	-	-	-	-
Unshielded					
18/2P (36608)	1 Cable	2 Cables	4 Cables	5 Cables	7 Cables
18/3P (36610)	1 Cable	2 Cables	3 Cables	5 Cables	7 Cables
18/4P (36609)	1 Cable	1 Cable	3 Cables	4 Cables	7 Cables

600 VOLT CERTIFIED HARDWARE

VITALink® MC/RC90 & VITALink® MC/RC90 TRANSIT (UL FHIT/FHIT7 SYSTEM 120)

- Clamps (For jacketed cable): Two-hole steel strap and/or Kindorf® J-800 series interlocking strap
- Clamps (For unjacketed cable): Two-hole steel strap, Kindorf® J-800 series interlocking strap, and/or two piece single bolt pipe clamps or single bolt saddle clamps
- Trapeze-type Supports: Must be secured from the surface of the concrete or masonry floor. Refer to manufacturer's installation guide for details.
- Cable Tray-type Supports: Must be secured to the surface of the concrete or masonry wall or floor. Refer to manufacturer's installation guide for details.
- Taped Splice (Optional): Refer to manufacturer's splicing guide for instructions. Please see American Connector cross-reference charts on pages 21-22.
- Ceramic Block Splice (Optional): Refer to manufacturer's splicing guide for instructions. Please see American Connector cross-reference charts on pages 21-22.

AMERICAN CONNECTOR CROSS-REFERENCE

Connectors manufactured by American Connector must be used when using fire rated taped or block splices with VITALink® MC/RC 90 cables. Contact American Connector for information on non-fire rated connectors.

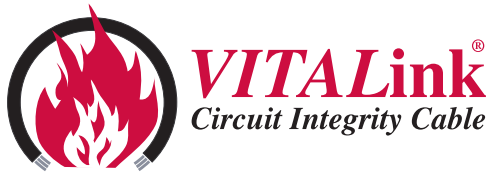
Conductor Size (AWG/kcmil)	RSCC Cable Prefix	Nominal Armor Diameter (in)	Nominal Jacketed Diameter (in)	Cable Connector Part Number "WT-WSE-" Series		Connector Hub Hole Punch Trade Size (in)	Connector Body Diameter (in)
				Non-Jacketed Cable	Jacketed Cable		
1 Conductor							
1/0	VM011X0	1.004	1.107	104-100-S3		1	2
2/0	VM012X0	1.043	1.146	111-100-S3		1	2
3/0	VM031X0	1.075	1.178	111-100-S3		1	2
4/0	VM014X0	1.155	1.258	118-100L-S3		1	2
250	VM01250	1.215	1.318	125-125-S3		1 ¼	2.12
350	VM01350	1.350	1.453	139-125-S3		1 ¼	2.12
400	VM01400	1.410	1.513	148-150-S3		1 ½	2.5
500	VM01500	1.500	1.603	157-150-S3		1 ½	2.5
600	VM01600	1.670	1.793	166-150-S3		1 ½	2.5
750	VM01750	1.729	1.852	175-200-S3		2	3
2 Conductor							
14	VM02014	0.820	0.923	083-075-S3		¾	1.5
12	VM02012	0.820	0.923	083-075-S3		¾	1.5
10	VM02010	0.886	0.989	090-075-S3		¾	1.5
8	VM02008	1.004	1.107	104-100-S3		1	2
6	VM02006	1.075	1.178	111-100-S3		1	2
3 Conductor							
14	VM03014	0.820	0.923	083-075-S3		¾	1.5
12	VM03012	0.886	0.989	090-075-S3		¾	1.5
10	VM03010	0.940	1.043	097-100-S3		1	2
8*	VM03008	1.043	1.146	111-100-S3		1	2
6*	VM03006	1.155	1.258	118-100L-S3		1	2
4*	VM03004	1.235	1.338	125-125-S3		1 ¼	2.12
3*	VM03003	1.299	1.402	132-125-S3		1 ¼	2.12
2*	VM03002	1.410	1.513	148-150-S3		1 ½	2.5
1*	VM03001	1.585	1.708	166-150-S3		1 ½	2.5
1/0*	VM031X0	1.670	1.793	166-150-S3		1 ½	2.5
2/0*	VM032X0	1.795	1.918	184-200-S3		2	3
3/0*	VM033X0	1.915	2.038	193-200-S3		2	3
4/0*	VM034X0	2.038	2.161	213-250NJ-S3	213-250-S3	2 ½	3.75
250*	VM03250	2.258	2.412	235-250-S3		2 ½	3.75
350*	VM03350	2.480	2.634	257-250-S3		2 ½	3.75
400*	VM03400	2.710	2.864	285-300-S3		3	4.5
500*	VM03500	2.820	2.974	285-300-S3		3	4.5
600*	VM03600	3.128	3.302	313-300-S3		3	4.5

AMERICAN CONNECTOR CROSS-REFERENCE

Connectors manufactured by American Connector must be used when using fire rated taped or block splices with VITALink® MC/RC 90 cables. Contact American Connector for information on non-fire rated connectors.

Conductor Size (AWG/kcmil)	RSCC Cable Prefix	Nominal Armor Diameter (in)	Nominal Jacketed Diameter (in)	Cable Connector Part Number "WT-WSE-" Series		Connector Hub Hole Punch Trade Size (in)	Connector Body Diameter (in)
				Non-Jacketed Cable	Jacketed Cable		
4 Conductor							
14	VM04014	0.886	0.989	090-075-S3		¾	1.5
12	VM04012	0.940	1.043	097-100-S3		1	2
10	VM04010	1.004	1.107	104-100-S3		1	2
8*	VM04008	1.155	1.258	118-100L-S3		1	2
6*	VM04006	1.215	1.318	125-125-S3		1 ¼	2.12
4*	VM04004	1.350	1.453	139-125-S3		1 ¼	2.12
3*	VM04003	1.410	1.513	148-150-S3		1 ½	2.5
2*	VM04002	1.500	1.603	157-150-S3		1 ½	2.5
1*	VM04001	1.729	1.852	175-200-S3		2	3
1/0*	VM041X0	1.820	1.943	184-200-S3		2	3
2/0*	VM042X0	1.950	2.073	202-200-S3		2	3
3/0*	VM043X0	2.123	2.246	213-250NJ-S3	213-250-S3	2 ½	3.75
4/0*	VM044X0	2.258	2.412	235-250-S3		2 ½	3.75
250*	VM04250	2.460	2.634	257-250-S3		2 ½	3.75
350*	VM04350	2.710	2.864	285-300-S3		3	4.5
400*	VM04400	3.128	3.302	313-300-S3		3	4.5
500*	VM04500	3.128	3.302	313-300-S3		3	4.5
5 Conductor							
14	VM05014	0.940	1.043	097-100-S3		1	2
12	VM05012	1.004	1.107	104-100-S3		1	2
10	VM05010	1.075	1.178	111-100-S3		1	2
8	VM05008	1.215	1.318	125-125-S3		1 ¼	2.12
6	VM05006	1.299	1.402	132-125-S3		1 ¼	2.12
4	VM05004	1.480	1.583	157-150-S3		1 ½	2.5
3	VM05003	1.585	1.708	166-150-S3		1 ½	2.5
2	VM05002	1.670	1.793	166-150-S3		1 ½	2.5
1	VM05001	1.915	2.038	193-200-S3		2	3
1/0	VM051X0	2.038	2.161	213-250NJ-S3	213-250-S3	2 ½	3.75
2/0	VM052X0	2.258	2.412	235-250-S3		2 ½	3.75
3/0	VM053X0	2.460	2.614	257-250-S3		2 ½	3.75
4/0	VM054X0	2.480	2.634	257-250-S3		2 ½	3.75

*Segmented ground wires available. Contact RSCC for corresponding connector part numbers.



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