



AASAT^{G2}

Dial-up Data
SUPPLEMENT

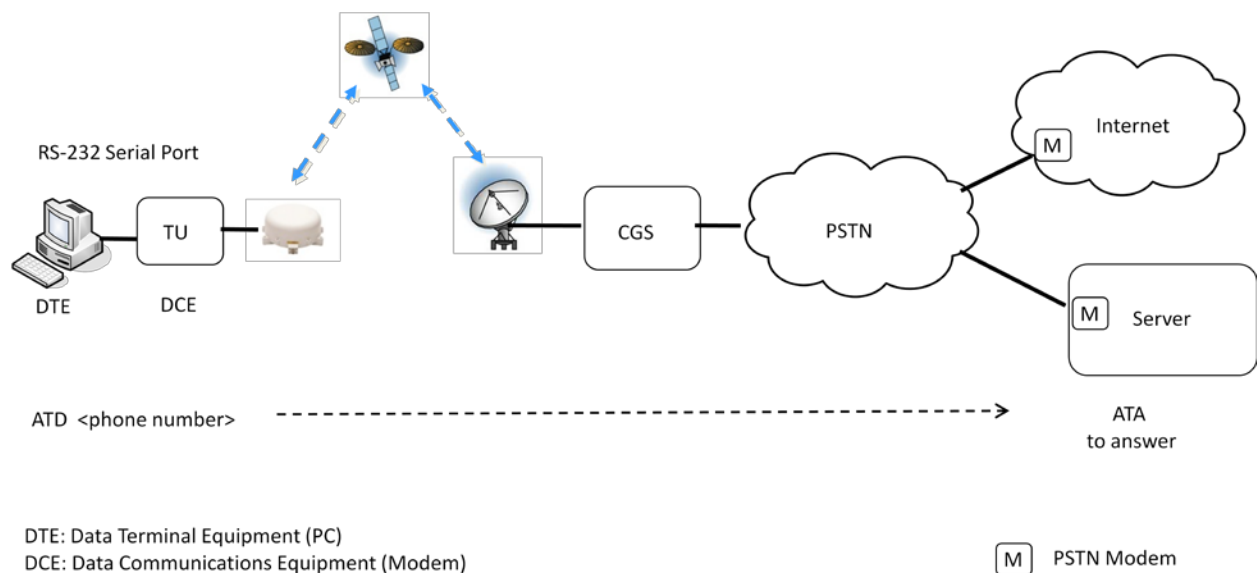
MSAT-G2 Dial-Up Data Supplement

The MSAT-G2 radio's latest radio software version enables the transfer of low speed data. Powered by Skyterra's Circuit Data Service, the MSAT-G2 Radio can now establish a 4.8 kbps dial-up data circuit, facilitating the transfer and receipt of secure data transactions.

Data communication is enabled through the use of a PC or other data terminal equipment (DTE) connected to the MSAT-G2 Satellite Radio. Standard AT modem commands are used to make data connections via the radio's RS-232 serial data port. Common applications include email, file transfer, and remote monitoring.

Prior to accessing dial-up data, subscribers must first request activation of the service on the SkyTerra network. Once the service is activated, a data number is assigned to the MSAT-G2 Radio.

Operation of dial-up data via the MSAT-G2 Radio is described throughout this supplement.



MSAT-G2 HANDSET MENU:

The following menu items are used to enable dial-up data.

SERIAL PORT MODE SELECTION

The MSAT-G2 radio's serial port can be configured for three different modes of operation. Only one mode can be active at a time. The **UP/DOWN ARROW** keys will scroll through these options and the **SELECT** key is used to choose the mode.

Select the **DATA IO** option to enable data connectivity.

MENU -> ADMIN -> SERIAL PORT

- CROSSBAND: OFF
- DATA IO: **ON**
- GPS OUTPUT: OFF

SETTING AND VIEWING DATA PHONE NUMBER

The data phone number can be set and viewed using the following menu items.

To **Set/Edit Number**: MENU -> SYSTEM -> NUMBERS -> DATA and press **EDIT**
(Note: The SYSTEM MENU is protected with a system password.)

To **View Number**: MENU -> ADMIN -> DATA ADMIN -> DATA # and press **SELECT**.

LOCAL DTE DATA RATE

The local DTE data rate can be set from the **DTE PORT SPEED** menu. The **SELECT** key is used to scroll through the choices and the chosen data rate takes effect when the screen is exited with either the **BACK** or **END** key.

MENU -> ADMIN -> DATA ADMIN -> DTE PORT SPEED

- **4800**
- 9600
- 19200

The default DTE port speed is **4800** bps and is the recommended setting unless the user's application requires a different speed.

SERIAL PORT (RS-232)

The serial port is a female DB-9F connector and is required for the transfer of data, GPS NMEA output or Crossbanding.

When configured for data transfer (**DATA IO**) the serial port:

- Supports hardware RTS/CTS flow control
- Set for 8 data bits, 1 stop bit and no parity.

The pin-out configuration when in Data mode is shown below.

Pin	Circuit Switched Data
1	DCD (Data Carrier Detect)
2	RD (Receive Data)
3	TD (Transmit Data)
4	DTR (Data Terminal Ready)
5	GND (Signal Ground)
6	DSR (Data Set Ready)
7	RTS(Request To Send)
8	CTS (Clear To Send)
9	RI (Ring Indicator)

MAKING AND RECEIVING DATA CALLS

To enable the transfer of data, data calls are initiated from Data Terminal Equipment (DTE) devices such as a PC connected to the serial port. The DTE device sends standard AT modem commands to configure and initiate the data transfer call.

The handset will display the following messages during data calls:

- **DATA CALL** - when a data call is initiated by the radio
- **INCOMING DATA** - when an incoming data call is received
- **DATA mm:ss** - to display the elapsed time of the data call

Incoming data calls produce an audible ring on the handset.

During a data call (transfer of data):

- The user may press the **END** key to terminate a data call. Normally data calls are terminated via the attached DTE device with AT commands.
- The **GPS** soft key can be used to turn the GPS position display on and off
- Pressing any other keys will produce an error tone.

GPS POSTION REPORTS

If Skyterra's GPS tracking service is activated on the Network, the radio will transmit its position over the network when a data call is initiated and at one minute intervals during the call.

Note: GPS reports at one minute intervals may be suppressed during times when continuous user data is being transferred.

ERROR MESSAGES

If the network does not respond to the radio during a call attempt, "**CALL FAILED**" will be displayed on the handset and a "**NO CARRIER**" message is sent to the DTE device. Check the signal strength and try the call again.

If a call drops while in progress, for example because the signal is blocked by a bridge or building, an error tone is generated, "**LOST CALL**" is displayed on the handset and a "**NO CARRIER**" message is sent to the DTE device. Move away from the obstruction and try the call again.

AT COMMAND REFERENCE

The following AT Commands are supported by the MSAT-G2 Radio.

Command	Description
AT	Attention: AT is used to verify communications with MSAT-G2 modem and OK is returned.
A/	Re-Execute: A/ Instructs modem to re-execute last command. No carriage return is required. It is commonly used to redial the last number.
ATA	Answer Call: ATA is used to answer an incoming data call.
ATD	Dial: Dial a number and establish a data connection. ATD <dial string> ATDT <dial string> <dial string> Valid string characters are 0-9 # () , - <space>
ATE	Local Command Echo: Determines if data is echoed to the DTE in command mode. ATE or ATE0 local command echo OFF ATE1 local command echo ON Default: ATE1 local command echo ON
ATF	User Data Echo: Determines if data is echoed to the DTE in data mode. ATF or ATF0 user data echo OFF ATF1 user data echo ON Default: ATF0 user data echo OFF
ATH	Hang-Up: ATH will Hang-Up a data call
ATO	Command Mode: ATO command is used to toggle from the Command Mode back to Data Mode . It is used in conjunction with the “+++” escape sequence command.
ATQ	Response Codes: Determines how response codes are handled. ATQ or ATQ0 response codes WILL be displayed

	ATQ1 response codes will NOT be displayed Default: ATQ0 response codes WILL be displayed																
ATS0	Auto-Answer: Determines if an incoming call will be auto answered. ATS0 or ATS0=0 calls will NOT be auto answered ATS0=1 calls WILL be auto answered Default: ATS0=0 calls will NOT be auto answered																
ATV	Results Code Mode: Determines if results codes are numerical or verbal. ATV0 response codes will be numerical codes ATV1 response codes will be verbal codes List of response codes: <table> <tr> <th><u>Numerical</u></th><th><u>Verbal</u></th></tr> <tr> <td>0</td><td>OK</td></tr> <tr> <td>2</td><td>RING</td></tr> <tr> <td>3</td><td>NO CARRIER</td></tr> <tr> <td>4</td><td>ERROR</td></tr> <tr> <td>7</td><td>BUSY</td></tr> <tr> <td>8</td><td>NO ANSWER</td></tr> <tr> <td>11</td><td>CONNECT 4800</td></tr> </table> Default: ATV1 response codes will be verbal codes	<u>Numerical</u>	<u>Verbal</u>	0	OK	2	RING	3	NO CARRIER	4	ERROR	7	BUSY	8	NO ANSWER	11	CONNECT 4800
<u>Numerical</u>	<u>Verbal</u>																
0	OK																
2	RING																
3	NO CARRIER																
4	ERROR																
7	BUSY																
8	NO ANSWER																
11	CONNECT 4800																
ATZ	Recall data configuration: Recalls the data configuration as last stored by the AT&W command or if none then use the default values. AT&W is not supported once the G2 is power cycled. If a power cycle has occurred since using the AT&W command, ATZ will recall the default values.																
AT&C	DCD signal mode: determines the state of the DCD signal line AT&C set the DCD to what it was last set at AT&C0 set the DCD permanently ON AT&C1 set the DCD ON when a data call has successfully CONNECTED Default: AT&C1 set the DCD ON when a data call has successfully CONNECTED																

AT&D	DTR Signal Mode: determines the response to the DTR signal line AT&D or AT&D0 ignore DTR signal line AT&D1 drop data call when DTR goes inactive Default: AT&D1 drop data call when DTR goes inactive
AT&F	Recall Default configuration: reset to default configuration Default Configuration: ATE1 local command echo ON ATF0 user data echo OFF ATS0=0 calls will NOT be auto answered ATQ0 response codes WILL be displayed ATV1 response codes will be verbal codes AT&C1 set the DCD ON when a data call has successfully CONNECTED AT&D1 drop data call when DTR goes inactive
AT&W	Store configuration: AT&W stores the current configuration. Note: The configuration is only stored in volatile memory. If the MSAT-G2 radio is power cycled the radio will be reset to the default settings.
+++	Escape to Command Mode: +++ escape sequence toggles the unit from data mode to command mode.