



Application Note #5478

Using FreeWave Radios with HART Devices

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FreeWave serial radios can be used to create a reliable and effective link between a HART master and one or more HART 5 compliant slave devices.

To use the FreeWave radios with HART devices, a HART protocol to RS-232 converter must be used. MacTek Technologies provides a converter that has been used and tested for this purpose.

Configuration

The following settings are recommended for reliable communication with HART protocol devices.

Master Critical Settings:

Modem Mode	2
Baud Rate	1200
Data Parity	5
ModBus RTU	1
Max Packet Size	6
Min Packet Size	2
RF Data Rate	2
Repeaters	Off (0)
Master Packet Rpt	2

Slave Critical Settings:

Modem Mode	3
Baud Rate	1200
Data Parity	5
ModBus RTU	1
RS232/485	3
Setup Port	2
Turn on/off Delay	1/1
Max Packet Size	6
Min Packet Size	2
RF Data Rate	2
Repeaters	Off (0)
Master Packet Rpt	2

Note: Configuration of the FreeWave Slave radio must be completed through the diagnostics port



Wiring

For proper communication, correct wiring must be used between the MacTek HART protocol converter and the FreeWave radio

FreeWave to MacTek serial cable pinout:

FreeWave Pins	MacTek Pins
1 – B+	4 – DTR (B+)
2 - Menu Interrupt	
3 - DTR	6 - DSR
4 - GND	5 - GND
5 - TXD	3 - TXD
6 - GND	
7 - RXD	2 - RXD
8 - DCD	7 - RTS
9 - RTS	
10 - CTS	

For any further information, please contact FreeWave Technical Support at 303.381.9200, 1.866.923.6168, or via email at moreinfo@freewave.com