



# RFInnovations

Leaders in Wireless Data

an **STI Engineering** product



## UHF Half Duplex Data Radio Modem

Crescendo is a series of digital data radio modems designed for use in large scale wide area point-to-point and point-to-multipoint industrial systems.

The radio provides a high-speed reliable link over narrow band channels for telemetry and SCADA radio applications requiring information or control of one or multiple remote stations.

## Features

- Switching Bandwidth 380MHz – 520MHz
- 5 Watt transmit power (software selectable)
- 19,200 bps (or 9600 bps) air data rate
- Multi-mode LED front panel display for diagnostics, including RSSI meter
- Forward Error Correction (FEC) for high link integrity in RF-noisy environments
- Windows-based GUI support for configuration and remote diagnostics
- Protocol addressing and routing support, DNP-3, Modbus and IEC 870 compatibility
- Store-and-forward repeaters for large-scale networks and coverage expansion

## Applications

The Crescendo series is suited for applications in Utilities, Mining, Agriculture and Transport industries where reliable long distance data transfer is critical.

The data radio can be used in small or large scale telemetry systems, with almost any PLC, RTU, HMI or DCS vendor for monitoring and control of critical assets.

Telemetry applications include distribution system monitoring, pump station and tank control, irrigation, fan and pressure control, and environmental monitoring.

The radios are also used in complex GPS systems for fleet tracking and management, and high precision correctional systems for machine control and automation.

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# Specifications

<b>Switching Bandwidth</b>	The user can select any 6.25kHz raster frequencies with the easy-to use inbuilt menu or Windows configuration software.
<b>Data Reliability</b>	User selectable Automatic Repeat Request (ARQ) offers a high level of data reliability. The immediate re-transmission of data ensures that the user will not encounter end-to-end errors or data losses, even in hostile environments.
<b>Diagnostics at a Glance</b>	The front panel LEDs display diagnostic information indication such as Receive Signal Strength (RSSI), transmit power, radio temperature and RS232 port status.
<b>Data Mode Options</b>	With data and packet-driven modes available, the Crescendo supports point-to-point, connection based and broadcast modes of communication.
<b>Easy Network Management</b>	The user is able to view diagnostics and change the settings of remote radios within a network from a single point.
<b>Data Integrity</b>	Over the air data is encapsulated with Forward Error Correction, data interleaving and Cyclic Redundancy Checksums (CRC) for high level data protection.
<b>Easy Network Configuration</b>	The Cruise Control software allows the user to configure, save and upload radio configuration settings. This allows for more efficient configuration of multiple radio modems.

## PHYSICAL

**Dimensions:** 188mm x 102mm x 47mm  
**Weight:** 700g  
**Construction:** Powder coated aluminium

## MODEM

**Serial Data:** RS-232 Asynchronous with handshaking  
**Interface Speed:** 300bps to 115200bps software selectable  
**Error Rate:**  
 -108 dBm for less than  $1 \times 10^{-6}$  BER (9600bps)  
 -106 dBm for less than  $1 \times 10^{-6}$  BER (19200bps)

## GENERAL

**Operating Voltage:** 9V to 16V DC (negative ground)  
**Operating Current:**  
 - Transmit @12V 1.7A nominal @ 5W  
 - Receive @12V 100mA nominal  
**Operating Temp:** -10 to +60°C  
 -20 to +70 °C version available  
**Operating Humidity:** Up to 95% non-condensing relative humidity

## CONNECTORS

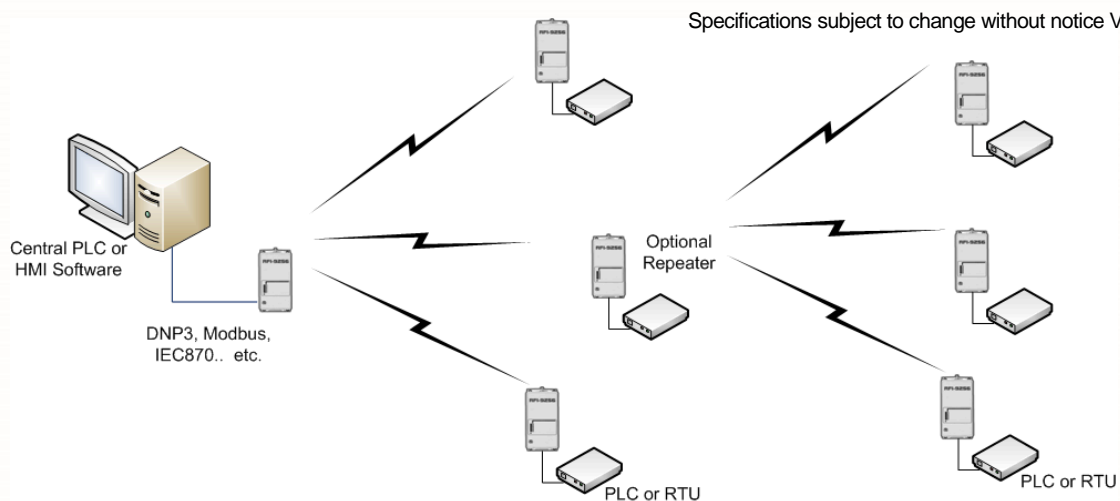
**Antenna:** BNC Female (50 Ohm), Dual BNC for Split Tx/Rx port option  
**Serial:** 2 x DB9 RS-232 Female  
**Power:** Phoenix PH1776508 (2 positions)  
 Mating connector supplied

## RADIO

**Frequency Range:** 380 MHz to 520 MHz software programmable  
**Air Data Rate:** 19.2 kbps (25 kHz channel), 9.6 kbps (12.5 kHz channel)  
**Duty Cycle:** 100%  
**Channel Bandwidth:** 12.5kHz or 25kHz (model specific)  
**Compliance:** Designed to ACA, ETSI (planned) and FCC  
**Modulation:** Nyquist-shaped 4-level FSK  
**Tx key up Time:** less than 1mS  
**Data Turn-around Time:** <10mS  
**Transmit Power:** 1.0mW (0dBm) to 5W (+37dBm)  
**Mode of Operation:** Single-port half duplex, Split-port half duplex

## OPTIONS

**RFI-450 HWH:** Crescendo UHF, Half Duplex, Wide Band, 19200bps  
**RFI-450 HNM:** Crescendo UHF, Half Duplex, Narrow Band, 9600bps  
**RFI-450 SWH:** Crescendo UHF, Split Antenna Port, Half Duplex, Wide Band, 19200bps  
**RFI-450 SNM:** Crescendo UHF, Split Antenna Port, Half Duplex, Wide Narrow Band, 9600bps  
**RFI-450 HWM:** Allegro UHF, Half Duplex, Wide Band, 9600bps



Specifications subject to change without notice V170831