RFInnovations
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an **STI** Engineering *product*

UHF Split-port Half Duplex Data Radio

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 380 MHz – 520 MHz
- 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 Underground Mining and Tunnel application where reliable underground 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, pump station and tank control, irrigation, fan and pressure control, personnel tagging, heavy equipment diagnostics 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.

Specifications

Switching Bandwidth	The user can select any 6.25kHz raster frequencies with the easy-to use inbuilt menu or Windows configuration software.
Data Reliability	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 loss even in hostile environments.
Diagnostics at a Glance	The front panel LEDs display diagnostic information indication such as Receive Signal Strength (RSSI), transmit power, radio temperature and RS232 port status.
Data Mode Options	With data and packet-driven modes available, the Crescendo supports point-to-point, connection based and broadcast modes of communication.
Easy Network Management	The user is able to view diagnostics and change the settings of remote radios within a network from a single point.
Data Integrity	Over the air data is encapsulated with Forward Error Correction, data interleaving and Cyclic Redundancy Checksums (CRC) for high level data protection.
Easy Network Configuration	The Cruise Control software allows the user to configure, save and upload radio configuration settings. This allows for numerous radios to be configured more efficiently.

PHYSICAL
Dimensions: 188mm x 102mm x 47mm
Weight: 700g
Contruction: Powder coated aluminium

MODEM
Serial Data: RS-232 Asynchronous with handshaking
Interface Speed: 110bps to 115200bps software selectable
Error Rate:
-108 dBm for less than 1×10^{-6} BER (9600bps)
-106 dBm for less than 1×10^{-6} BER (19200bps)

GENERAL
Operating Voltage: 9V to 16V DC (negative ground)
Operating Current:
- Transmit @12V   1.7A nominal @ 5W
- Receive @12V   1A nominal
Operating Temp: -10 to + 60 C
Operating Humidity: Up to 95% non-condensing relative humidity
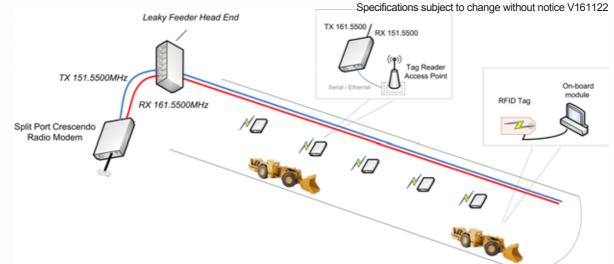
CONNECTORS
Antenna: BNC Female (50 Ohm), Dual BNC for Split Tx/Rx port option
Serial: 2 x DB9 RS-232 Female
Power: Phoenix PH1176508 (mating connector supplied)

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, FCC and ETSI (planned)
Modulation: Nyquist-shaped 4-level FSK
Tx key up Time: less than 1mS
Data Turn-around Time: <10mS
Transmit Power: 100mW (+20dBm) 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 V161122