RFInnovations

Leaders in Wireless Data

An STI Engineering product

VHF Ethernet - 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.

The Ethernet version allows for:

- Transparent IP links using TCP/IP Gateway feature
- Fast polling facilitating low latency data streams and effective bandwidth utilisation
- Modbus over IP support

Features

- Frequency Range 148 MHz – 174 MHz
- 5 Watt transmit power (software selectable)
- 19,200 bps (or 9,600 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
- Pseudo full-duplex operation with automatic repeat request (ARQ)
- Two RS-232 serial ports (main and auxiliary)
- Auto-negotiating 10BASE-T and 100BASE-TX Half and Full-duplex Ethernet
- Operating voltage 9 to 30 VDC
- I/O support (model specific)

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.

STI Engineering

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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 frame-driven modes available, the Ethernet Crescendo supports point-to-point, point-to-multipoint, Hayes Dial-up and multiple modes of communication.
Easy Network Management	The user is able to view diagnostics and change the settings of other 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. This reduces the number of errors in each transmission.
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 100mm x 42mm
Weight: 800g
Construction: 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 1x10-6 BER (9600bps)
-106 dBm for less than 1x10-6 BER (19200bps)

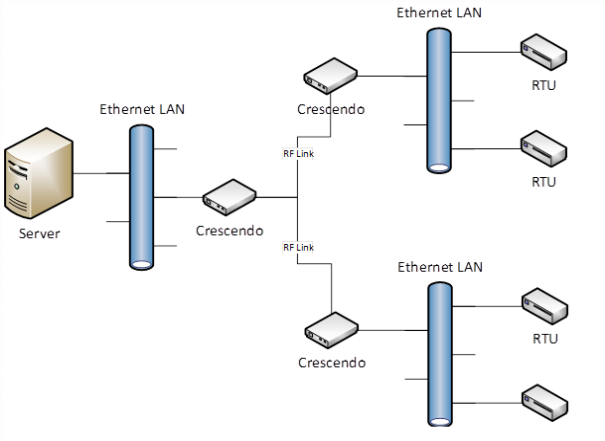
GENERAL
Operating Voltage: 9V to 30V DC (negative ground)
Operating Current:
- Transmit @12V 1.7A nominal @ 5W
- Receive @12V 1A nominal
Operating Temp: -10 to +60°C
(-30 to +70°C version available)
Operating Humidity: Up to 95% non-condensing relative humidity

CONNECTORS
Antenna: BNC Female (50 Ohm), Dual BNC for Split Tx/Rx port option
Ethernet port: RJ45 (Straight through)
Serial: 2 x DB9 RS-232
Female Power: Phoenix PH-1776508 (2 positions) Mating connector supplied

RADIO
Frequency Range: 148 MHz to 174 MHz
Air Data Rate: 19.2 kbps (25 kHz channel), 9.6 kbps (12.5 kHz channel)
Duty Cycle: Up to 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-150 HWHE: Ethernet Enabled Crescendo VHF, Half Duplex, Wide Band, 19200bps
RFI-150 HNME: Ethernet Enabled Crescendo VHF, Half Duplex, Narrow Band, 9600bps
RFI-150 HNLE: Ethernet Enabled Crescendo VHF, Half Duplex, Narrow Band, 4800bps
RFI-150 SWHE: Ethernet Enabled Crescendo VHF, Split Antenna Port, Half Duplex, Wide Band, 19200bps
RFI-150 SNME: Ethernet Enabled Crescendo VHF, Split Antenna Port, Half Duplex, Narrow Band, 9600bps
RFI-150 SNLE: Ethernet Enabled Crescendo VHF, Split Antenna Port, Half Duplex, Narrow Band, 4800bps

V180212



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