



# RFInnovations

Leaders in Wireless Data

an **STI Engineering** product



## Crescendo VF Radio Modem

Crescendo VF is a series of data, frame and audio-driven radio modems for high-speed data applications. The radio provides a high-speed reliable link over wide band or narrow band channels for telemetry and SCADA radio applications requiring information or control of one or multiple remote stations.

The Crescendo VF offers backwards compatibility with older analogue radios such as the RFI-590, whilst providing a modern architecture with proven performance, reliability and diagnostics. It is also compatible over the air with the Crescendo RFI-450.

## Features

- Fully compatible replacement of the RFI-590
- UHF band operation 390 MHz – 500 MHz
- 5 Watt transmit power (software selectable)
- 19,200 bps (or 9600 bps) air data rate
- Baseband audio bandwidth 300 – 3000 Hz
- 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
- Ethernet Interface
- Low power modes

## STI Engineering

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## Applications

The Crescendo series is suited for applications in Utilities, Mining, Agriculture and Transport industries where reliable long distance data transfer, high speed, low latency Ethernet and TCP/IP links are required.

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.

Target usage scenarios for the Crescendo VF include transporting a modem audio signal in broadcast mode and transporting priority protocols.

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

# 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, packet, frame and audio-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:** 160mm x 105mm x 48mm  
**Weight:** 700g  
**Construction:** Powder coated aluminium

## MODEM

**Serial Data:** RS-232 Asynchronous with handshaking  
**Interface Speed:** 1200bps to 115200bps software selectable  
**Error Rate:**  
 -104 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 30V DC (negative ground)  
**Operating Current:**  
 - Transmit @12V 1.7A nominal @ 5W  
 - Receive @12V 150mA nominal  
**Operating Temp:** -20 to +70°C  
**Operating Humidity:** Up to 95% non-condensing relative humidity

## CONNECTORS

**Antenna:** BNC Female (50 Ohm),  
**Ethernet port:** RJ45 (Straight through)  
**Serial:** 2 x DCE DE9 RS-232  
 -Interface Board CREP129A to adapt to RFI-590  
**Power:** Phoenix PH1176508 (mating connector supplied)

## RADIO

**Frequency Range:** 390 MHz to 500 MHz software programmable within 20 MHz band  
**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, AS-4295, FCC, Industry Canada, ETSI (planned)  
**Modulation:** Nyquist-shaped 4-level FSK  
**Tx key up Time:** less than 1mS  
**Data Turn-around Time:** <10mS  
**Transmit Power:** 1mW (0dBm) to 5W (+37dBm)

## AUDIO INTERFACE

**Audio:** 300-3000 MHz  
**Input:** 0.8 Vpp  
**Output:** 0.8 Vpp

## OPTIONS

**RFI-450 VF HWHE:** Ethernet Enabled Crescendo VF UHF, Half Duplex, Wide Band, 19200bps  
**RFI-450 VF HNME:** Ethernet Enabled Crescendo VF UHF, Half Duplex, Narrow Band, 9600bps

Specifications subject to change without notice V171013

