# VHF Full 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 148 MHz – 174 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

- Rugged design for high vibration environments

## 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

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| **Switching Bandwidth** | The user can select any 12.5kHz raster frequencies within a 2MHz switching range. |
| **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. |
| **Data Integrity** | Over the air data is encapsulated with Forward Error Correction, data interleaving and Cyclic Redundancy Checksums (CRC) for high level data protection. |

**PHYSICAL**
**Dimensions:** 258mm x 158mm x 37mm (including vibration mount)
**Weight:** 1600g
**Construction:** Powder coated machined aluminium chasis and cover

**MODEM**
**Serial Data:** RS-232 Asynchronous with handshaking
**Interface Speed:** 110bps to 115200bps software selectable
**Error Rate:**
-108 dBm for less than $1\times10^{-6}$ BER (9600bps)
-106 dBm for less than $1\times10^{-6}$ BER (19200bps)

**GENERAL**
**Operating Voltage:** 10V to 14V DC (negative ground)
**Operating Current:**
- Transmit @12.5V     1.3A nominal @ 5W
- Receive @12.5V     90mA nominal
**Operating Temp:**     -10 to + 60°C
**Operating Humidity:** Up to 90% non-condensing

**CONNECTORS**
**Antenna:** BNC Female (50 Ohm), Separate BNC for Tx and Rx port
**Serial:** 2 x DB9 RS-232 Female
**Power:** Phoenix PSC 1.5/3-M (mating connector supplied)

**RADIO**
**Frequency Range:** 148 MHz to 174 MHz , 2MHz software programmable bandwidth.
**Air Data Rate:** 19.2 kbps
**Duty Cycle:** 100%
**Channel Bandwidth:** 25kHz
**Compliance:** Designed to ACA
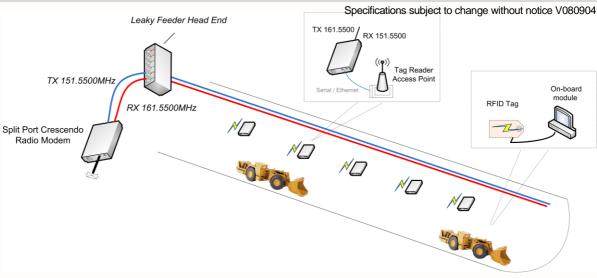**Modulation:** Nyquist-shaped 4-level FSK
**Tx key up Time:** less than 1mS
**Data Turn-around Time:** <10mS
**Transmit Power:** 100mW (+20dBm) to 5W (+37dBm)
**Mode of Operation:** Full Duplex

**OPTIONS**
**RFI-150 DWH:** Crescendo VHF, Full Duplex, Wide Band, 19200bps

Specifications subject to change without notice V080904