Ruggedized Reader

A powerful read rate unmatched by other RFID systems with the muscle to withstand harsh industrial environments.

The **Matrics Ruggedized Reader** (PN: RDR-RG-001) is an industrial strength UHF RFID Reader designed for use in the following applications:

- Clamp Truck – mounted on Taylor and/or Hyster clamp trucks, and
- Reader Station – mounted overhead, above a paper roll in a portal configuration.

In the Clamp Truck application, the Ruggedized Reader is powered by a 48VDC power supply from Matrics (PN: DCD-IP-001) mounted on the clamp truck, with on-board power filtering and regulation to accommodate gas and electric lift devices and associated noise/voltage variation.

In the Reader Station application, the Ruggedized Reader is powered through the Reader Station from Matrics (PN: RDS-IP-001). Refer to the *Reader Station User's Manual* for more information.

The outer enclosure of the Ruggedized Reader is made of EMI/RFI watertight die-cast aluminum material, coated with a beige-colored, textured polyester powder paint. The enclosure meets standards (NEMA 4X, IP66, DIN 40050) for degree of protection, is CSA certified (Type 4) for use with industrial control equipment, and is designed for operation in the -40ºC up to +80ºC temperature range.

The Ruggedized Reader provides all of the RF and control functions required to power and communicate with Matrics passive RFID tags (PN: SDR-IP-001 and DDS-IP-001.) It sends digital data to the tag (through one antenna at any given time) on a pulse width modulated On Off Keyed (OOK) transmitter signal, demodulates the identification signal received from the tag, and then sends the data to your host computer.

The Matrics Reader network is structured to allow for flexibility in system configurations and in the arrangement of read points to optimize coverage at a low overall cost. Providing 12 physical antenna connections, the Ruggedized Reader allows up to 20 varying antenna combinations (depending on your application) attached directly to a single Reader.

Features:

- **Built Rugged to Meet Most Environmental Challenges**
- **Easily Networked via RS422/485**

Technical Specifications

Characteristic	Description	
Name/Part Number	Ruggedized Reader, PN: RDR-RG-001	
Operating Frequency	UHF band, FCC Part 90 (909.75-921.75 MHz), 911.75 center frequency	
Channels (RF Ports)	12 (10 Transmit and 2 Receive)	
Power Supply	48VDC	
Power Consumption	48V up to 5 amps	
Simultaneous Reading Capability	500 tags per second or more	
Dimensions	11" long x 6.5" wide x 3" deep (including connectors and bridge)	
Temperature	Operational: -10° to +50° C Storage: -20° to +85° C	
Safety	EMI/RF Emissions	
Seal	Water tight, hermetically sealed (with a UL approved compound) against windblown dust and rain	
Vibration	Withstands sinusoidal vibration to the following specifications: o IEC 68-2-6/MIL-STD-810E, Method 514.4 o 10-55 Hz/0.15mm (~.03-.91g) o 55-500 Hz/2.0g (~.32-.004mm)	
Shock	Withstands shock to the following specifications: o IEC 68-2-27/MIL-STD-810E, Method 516.4 o 50g, 11ms, half sine wave	
Host Communications	RS422/485	
Input/Output	12 dual coax antenna SMA connectors, 1 RS485/Power connector, 1 general purpose I/O connector (2 input and 1 output pair)	
RS422/485 Pin Assignments (host communications)	Pin A: Rx+ Data Pin B: Rx- Data Pin C: Tx- Data	Pin D: Tx+ Data Pin E: 48V- Pin F: 48V+
I/O Connector Pin Assignments	Pin A: Input 1+ (opto-isolated) Pin B: Input 1- (opto-isolated) Pin C: Input 0+ (passive switch)	Pin D: Input 0- (passive switch) Pin E: Output 1 emitter Pin F: Output 1 collector

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