

# Data Stream RS485 Digital Transducer

## DIN RAIL / PANEL MOUNT



**CRD5110**

Single Element - .26" (6.5) Window  
150 to 300 VAC  
1 to 25 AAC Input Range



**CRD5150**

Two Element - .26" (6.5) Window  
150 to 300 VAC  
1 to 25 AAC Input Range



**CRD5170**

Three Element - .26" (6.5) Window  
150 to 300 VAC  
1 to 25 AAC Input Range

The **CRD5100** Series Data Stream Digital Transducers are designed for complete monitoring of electrical power systems. The digital technology is used to measure voltage, current, power frequency and energy in single and three phase designs. The data is streamed over an RS485 IEEE bus which enables multiple transducers to communicate thru a single master connection. These advanced sensors are ideal for entire plant or zone monitoring. Also, the communication algorithm can be pre-ordered with ASCII based control or modified MODBUS based control.

### Sensing

Voltage, True RMS  
Current, True RMS  
Active Power, bi-directional  
Active Energy, bi-directional  
Reactive Power, bi-directional  
Reactive Energy, bi-directional  
Power Factor  
Frequency

### Applications

Sub-Metering  
Motor Loads  
Uninterruptible Power Systems  
Remote Monitoring  
Load Shedding  
Energy Management

### Features

35mm DIN Rail or Panel Mount  
Red LED - Flashes when Power is Connected  
Red & Green LED Flash during Communication  
24 VDC powered  
Use with external current transformers  
Highest precision available  
Connection diagram printed on case

### Regulatory Agencies



## PART NUMBERS

|                |   |  |   |  |   |
|----------------|---|--|---|--|---|
| <b>CRD5110</b> | - |  | - |  | 1 Element, AC Multifunction RS485 Digital Transducer      |
| <b>CRD5150</b> | - |  | - |  | 3 Phase, 3-Wire AC Multifunction RS485 Digital Transducer |
| <b>CRD5170</b> | - |  | - |  | 3 Phase, 4-Wire AC Multifunction RS485 Digital Transducer |

**150** - 0-150 VAC  
**300** - 0-300 VAC  
 Available up to and including 600 VAC  
**1** - 0-1 AAC  
**5** - 0-5 AAC  
**15** - 0-15 AAC  
**25** - 0-25 AAC  
 Above 30 AAC must use 5 amp CT

**Note: Add an M at the end for MODBUS**  
**CRD5110-150-5-M**



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**B**

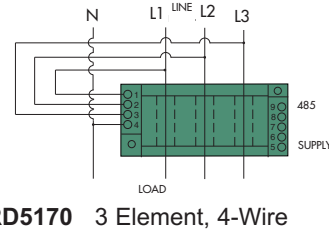
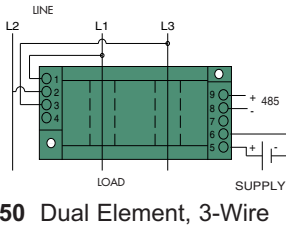
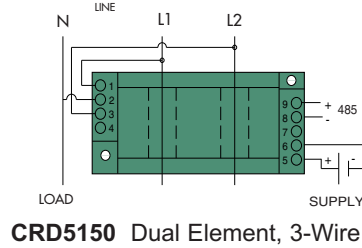
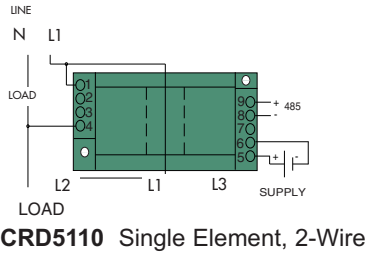
**Data Stream**

# RS485 Digital Transducer

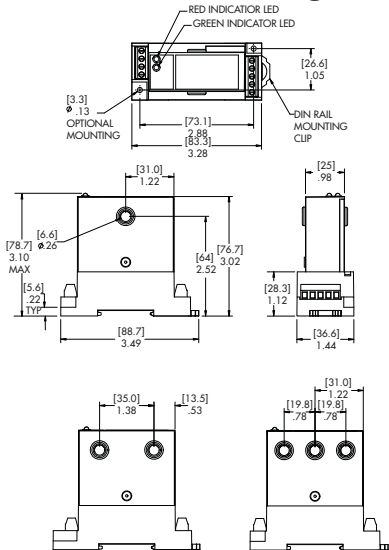
## SPECIFICATIONS

|   |   |
|---|---|
| Basic Accuracy: .....0.5%   | Torque Specifications: .....3.0 inch lbs (0.4Nm)                |
| Calibration: .....True RMS Sensing                                  | Response Time: .....250 ms. max. 0-90% FS                       |
| Thermal Drift: .....500 PPM/°C                                      | Relative Humidity: .....5% to 95%, Non-Condensing               |
| Operating Temperature <sub>1</sub> : .....0°C to +60°C              | Output Resolution: .....16 bit                                  |
| Installation Category: .....CAT II                                  | Transducer fanout on common bus: .....64 max.                   |
| Vibration Tested To: .....IEC 60068-2-6,1995                        | Baud Rate <sub>3</sub> : .....1200, 2400, 4800, 9600,19.2K .bps |
| Pollution Degree: .....2  | A/D Conversion Type: .....4th order Delta Sigma                 |
| Insulation Voltage: .....2500 VDC                                   | Device Address <sub>3</sub> : .....00 to FF                     |
| Altitude: .....2000 meter max                                       | Data Format: .....ASCII   |
| Frequency Range: .....20 Hz - 5 KHz                                 | Supply Current:.....Typical 30mA Max 30mA                       |
| MTBF: .....Greater than 100K hours                                  | Weight:.....0.5 lbs.  |
| Cleaning: .....Water-dampened cloth                                 |   |
| Supply Voltage <sub>2</sub> : .....24 VDC ±10%                      |   |
| 1) RH 5% to 95%, non-condensing 2) 0.4% max. ripple Vpp             | no flow control, 1 stop bit                                     |
| 3) Factory default settings: address 01, baud rate 9600, no parity, |   |

Data Stream

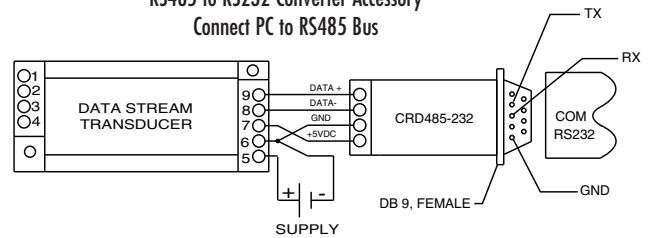


## Connection Diagram



## OUTLINE DRAWING

## CRD485-232 RS485 to RS232 Converter Accessory



## ASCII Simplified Programming Commands

A simplified data structure is used with only 6 commands required for full control of the transducer. Commands are : Read Transducer Name, Read Configuration, Set Configuration, Read Measurements, Read Energy Totalizer and Clear Energy Totalizer. For illustration, the following commands are used to read data from a CRD5170 3 Phase, 4 Wire Transducer with a device address of 00.

**Command Transducer to Read Data:** #00A<cr>  
**Transducers Response:** >+[% FS Voltage<sub>L1-N</sub>]+[% FS Current<sub>L1</sub>]+[% FS Voltage<sub>L2-N</sub>]+[% FS Current<sub>L2</sub>]+[% FS Voltage<sub>L3-N</sub>]+[% FS Current<sub>L3</sub>],[+/- % FS Power][+/- % FS VARS][+/-Power Factor][Frequency]<cr>  
**Command Transducer to Read Energy Totalizer:** #00W<cr>  
**Transducer Responds:** 01[+/-KWHr][+/-KVHr][check sum]<cr>

**Note:** This is for illustration purposes only, See Applications Guides (Section I for complete instructions).