

# 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 through a single master connection. These advanced sensors are ideal for entire plant or zone monitoring. Also, the communication algorithm can be ordered with ASCII based control or modified to 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

Available up to and including 600 VAC

<b>1</b>	-	0-1 AAC
<b>5</b>	-	0-5 AAC
<b>15</b>	-	0-15 AAC
<b>25</b>	-	0-25 AAC

Above 30 AAC must use 5 amp CT

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



3500 Scarlet Oak Blvd. St. Louis MO USA 63122 V: 636-343-8518 F: 636-343-5119

Web: <http://www.crmagnetics.com>

13

E-mail: [sales@crmagnetics.com](mailto:sales@crmagnetics.com)



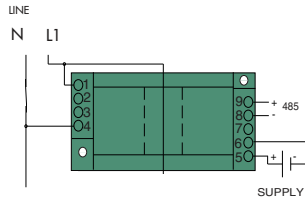
**B**  
Data Stream

# RS485 Digital Transducer

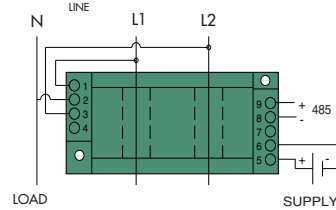
## SPECIFICATIONS

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: .....45Hz ~ 65Hz	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,	

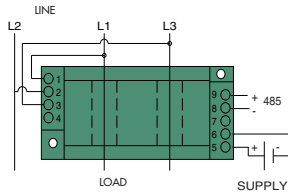
Data Stream



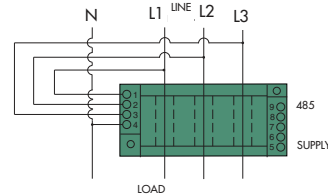
CRD5110 Single Element, 2-Wire



CRD5150 Dual Element, 3-Wire

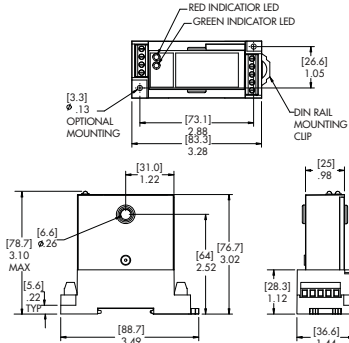


CRD5150 Dual Element, 3-Wire



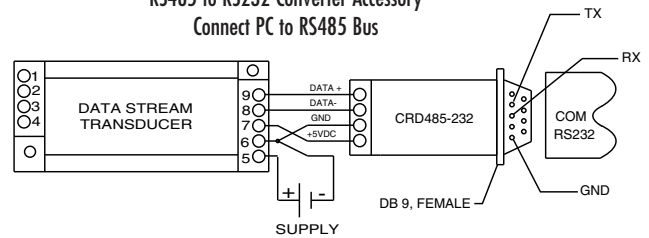
CRD5170 3 Element, 4-Wire

## Connection Diagram



## OUTLINE DRAWING

## CRD485-232 RS485 to RS232 Converter Accessory Connect PC to RS485 Bus



## 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).