

# Data Stream RS485 Digital Voltage Transducer

## DIN RAIL / PANEL MOUNT



CRD4510

Single Element  
150 to 300 VAC Input Range



CRD4550

Two Element  
150 to 300 VAC Input Range



CRD4570

Three Element  
150 to 300 VAC Input Range

The **CRD4500** Series Data Stream Digital Transducers are designed for applications where AC current waveforms are not purely sinusoidal. 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

True RMS Voltage, Each Phase

### 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>CRD4510</b>	-		Single Element, AC Voltage RS485 Digital Transducer
<b>CRD4550</b>	-		Two Element, AC Voltage RS485 Digital Transducer
<b>CRD4570</b>	-		Three Element, AC RS485 Digital Transducer

└─ **150** - 0-150 VAC  
**300** - 0-300 VAC  
 Available up to and including 600 VAC

**Note: Add an M at the end for MODBUS CRD4510-150-M**

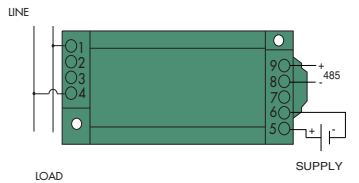
# RS485 Digital Voltage Transducer

## SPECIFICATIONS

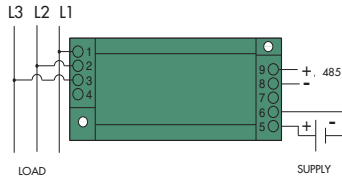
Basic Accuracy: .....0.5%	Torque Specifications: .....3.0 inch lbs (0.4Nm)
Calibration: .....True RMS Sensing	Response Time: .....250 ms. max. 0-90% FS
Thermal Drift: .....500 PPM/°C	Relative Humidity: .....5% to 95%, Non-Condensing
Operating Temperature <sub>1</sub> : .....0°C to +60°C	Output Resolution: .....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

B

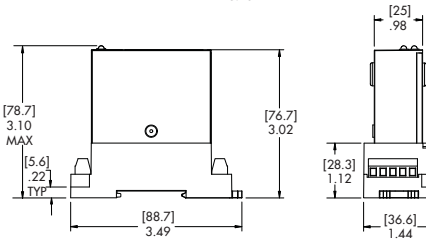
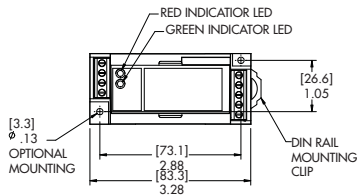


**CRD4510** Single Element, 2-Wire

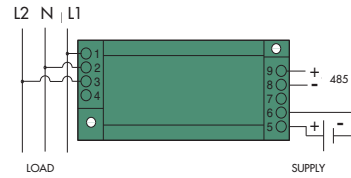


**CRD4550** Dual Element, 3-Wire

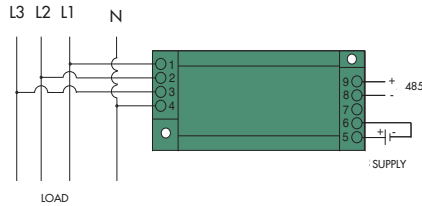
## Connection Diagram



## OUTLINE DRAWING

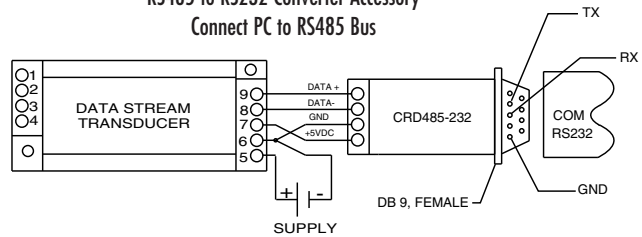


**CRD4550** Dual Element, 3-Wire



**CRD4570** 3 Element, 4-Wire

**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.