

RI-D480



Quad Load Three Phase **easywire**[®] Multifunction DIN Rail Energy Meter

- Four module DIN rail mounted
- Energy pulse LED
- 4 x separate 3 Phase or 12 x Single Phase inputs (330mV) from **easywire**[®] CTs (-/5A or -/1A CTs with converter)
- Single phase or three phase network compatible
- Independently programmable CT ratios (Load 1, 2, 3, 4)
- Programmable voltage transformer ratio
- True RMS measurement
- High definition white backlit LCD display
- Simple programming & operation / auto or manual page scrolling
- Modbus communication
- Voltage OUT connector for daisy chaining up to 32 meters from one supply

Product Description

The RI-D480 series are part of the **easywire**[®] family of meters. The **easywire**[®] system has been designed to save up to 90% installation time compared to a standard meter and current transformer installation.

This series of meters contain four metering circuits in one case, and accepts inputs from four separate **easywire**[®] three phase current transformers or 12 x single phase current transformers with TAS-SCTEWA adapters while still utilizing the same voltage reference.

These DIN rail mounted multifunction energy meters are suitable for monitoring energy consumption and many other electrical parameters in industrial and commercial applications. This series is particularly suited for use in multi-circuit metering boards in single or three phase applications.

A high efficiency white backlit LCD display provides clear indication of measured values in all light conditions. Push-buttons on the front of the meter allow the user access to the display page required.

A particular feature of this meter is that up to 32 x RI-D480 devices can be linked together on one Modbus system.

Each meter is provided with an input and output RJ12 Modbus ports, making 'daisychain' connection between devices simple.

This means that up to 128 x three phase or 384 x single phase current transformers can be connected.

The meter is available in one version:-

- With RS485 Modbus communication (RJ12 - In and Out).

The unit is housed in a compact four module width housing suitable for DIN rail mounting.

Displayed Parameters

Voltage - L-L, L-N and average

**Current - Per phase and average
(LOAD 1, LOAD 2, LOAD 3 and LOAD 4 or 12 x Single Phase)**

Power Factor - per phase and average

Frequency

Power - Active, Reactive and Apparent (per phase and total)

Power Max. demand - Active and apparent power.

Energy - Active, reactive and apparent (per load and total)

Display

Display Type	LCD, high definition with white back-light	
Digit height	6.35mm (displayed parameter)	
Page scrolling	Manual by front key / or auto scroll mode	
Displayed parameters and accuracies	Voltage	0.5% of full scale
	Current	0.5% of full scale
	Frequency	0.1% of full scale (L-N >20V)
	Power factor	1% of unity
	Active power	1%
	Reactive power	1%
	Apparent power	1%
	Active Energy	Class 1 (IEC/EN62053-21)
	Reactive Energy	Class 2 (IEC/EN62053-23)
Energy maximum display	9999999	
Resolution	0.01K, 0.1K, 1K, 0.01M, 0.1M (depending on CT ratio & VT ratio)	

Programming

Parameters that can be changed using programming menu	Number of Channels : 4 or 12 Network Selection : 3PH4W or Single Phase (L1, L2 or L3) CT Primary current - Load 1, Load 2, Load 3, Load 4, CT (each load independently settable) VT primary voltage VT secondary voltage Communication address Communication speed (Baud) Communication Parity Communication number of stop bits Back-light time-out period Demand period (for integration) Pulse duration Pulse output (kWh) Reset to Factory Default Reset Energy and Maximum Demand Reset Active Energy Reset Reactive Energy Reset Apparent Energy Reset Maximum Current Reset Maximum Active Power Reset Minimum Active Power Reset Maximum Reactive Power Reset Minimum Reactive Power Reset Maximum Apparent Power
Programming access	Password protected (user selectable)
Memory retention	Non volatile memory

Input

Connection (1ph, 3ph etc., configurable)	Single phase (selectable L1, L2 or L3 CT voltage reference), Three phase four wire Single phase 12 x CTs on same phase
Input voltage range	3 x 100...240V ±15% (L - N)
Voltage Rated Burden	<8VA (L1 - supply), <0.2VA (L2 and L3)
Nominal current input	4 x easywire [®] input - 330mV
Max current (Imax)	easywire [®] input - 396mV (Nominal x 1.2)
Current Rated Burden	N/A (easywire [®] input)
Starting current	0.2% of nominal
Short time overcurrent	30 x Imax to IEC/EN62053-21 + 23
Impulse voltage withstand	6kV 1.2/50µS 0.5J
AC voltage withstand	4kV 50Hz for 1 min
CT primary current	5A...10000A
VT primary voltage	100...500KV
Frequency	45...65Hz

Auxiliary Supply

Voltage range	Self supplied from measuring input
Operating frequency	See input section
Power consumption	See input section

Outputs

Communication - Modbus	
Communication type	RS485
Communication protocol	Modbus
Address	1...255
Number of bits	8bits
Parity	None, odd, even
Baud rate	300, 600, 1200, 2400, 4800, 9600, 19200
Required response time to request	≤100ms
Number of meters connected on the bus	32 (up to 255 with RS485 repeater)
Max distance from Master device	500M

Insulation

Installation category	III
Pollution degree	2
Insulation voltage rating	300V (L-N)

Environmental Conditions

Reference temperature	23°C ±2°C
Specified temperature operating range	-10°C...+55°C
Storage temperature	-20°C...+75°C
Relative humidity	0...85%, non condensing

Mechanical

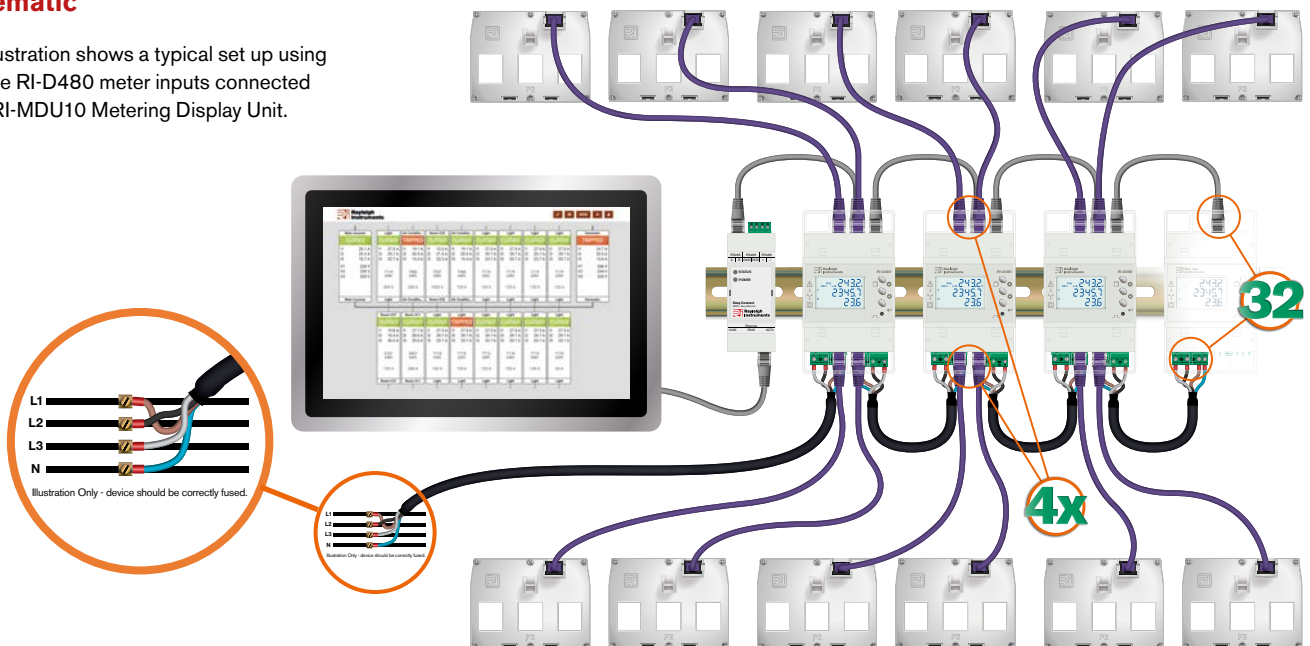
Housing	
Housing	4 module DIN 43880
Mounting	Snap-on 35mm rail
Tamper sealing	Meter housing (by means of a tamper evident seal)
Housing material	Self-extinguishing polycarbonate (UL94 V-0)
Protection degree (IEC/EN60529)	IP20 (terminals), IP51 (front of housing)
Weight	<240g
Termination	
Current input terminal type	N/A - RJ45 connection
Max. wire size	N/A
Voltage input terminal type	Screw clamp type
Max. wire size	2.5mm ²
Output terminal type	2 x RJ12 connection (In & Out)
Max. wire size	N/A

Conformity

Electromagnetic compatibility	IEC/EN61326-1, IEC/EN55011 Class A, IEC/EN61000-4-2, -3, -4, -5, -6, -8, -11
Accuracy and functionality	IEC/EN62053-21, IEC/EN62053-23
Safety	IEC/EN61010

Schematic

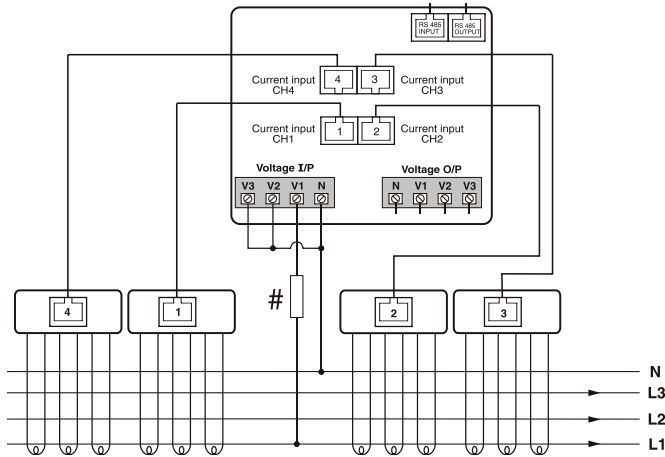
The illustration shows a typical set up using multiple RI-D480 meter inputs connected to an RI-MDU10 Metering Display Unit.



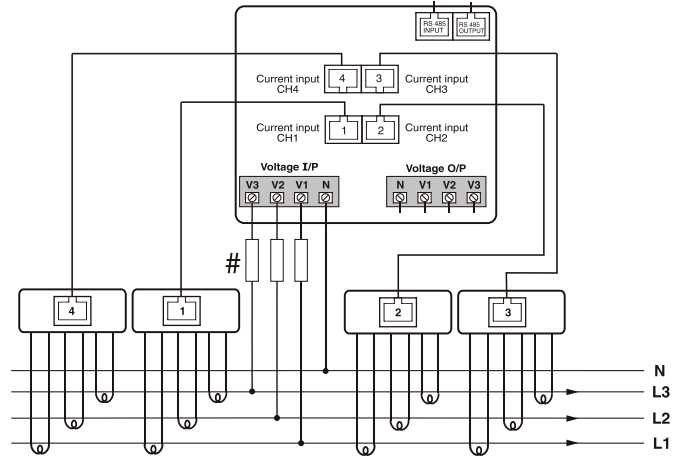
Wiring Diagrams

Note: # All fuse types : 0.5A class CC UL type
0.5A fast acting 600V

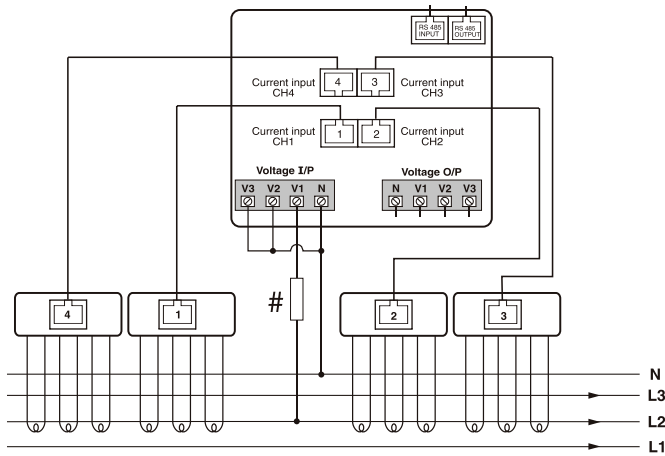
Up to 12 Single Phase L1**



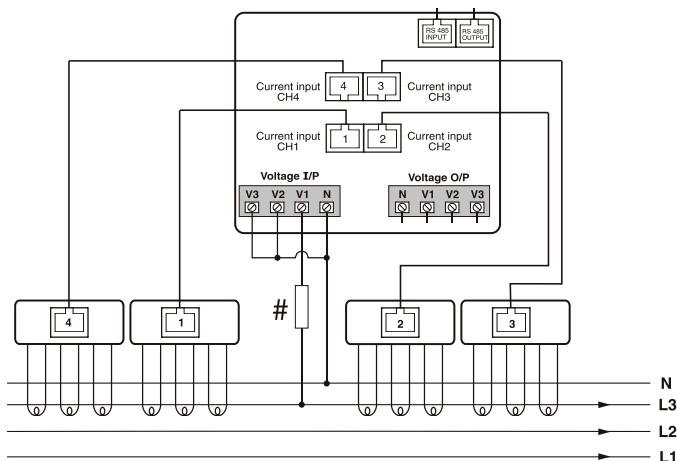
3 Phase 4 Wire - 4 x 3 Phase CTs



Up to 12 Single Phase L2**



Up to 12 Single Phase L3**



**** Note :** Irrespective of which phase is being monitored, the voltage connection must be connected to V1 on the meter.

Model Selection Table

Communications	Model
Quad Load Input with RS485 Modbus Output	RI-D480-G-C