


easywire
**DIN RAIL
MOUNT**
Modbus RTU
RI-D480-G-C
M-Bus
RI-D480-G-MB
**UK
CA**
CE

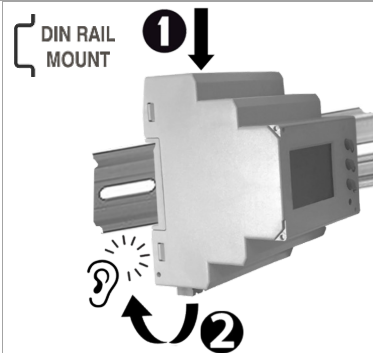
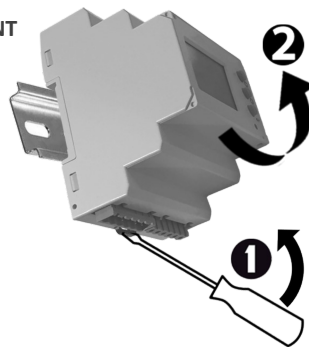
4x 3Ø
CT1: 3Ø
CT2: 3Ø
CT3: 3Ø
CT4: 3Ø
4x 1Ø (all measure same phase L1, L2 or L3)

CT1: 1Ø
CT2: 1Ø
CT3: 1Ø
CT4: 1Ø
Network Selection:
L1 = 1P2W P1 | L2 = 1P2W P2 | L3 = 1P2W P3
12x 1Ø (supplied from Single Phase)

CT1: 3x 1Ø
CT2: 3x 1Ø
CT3: 3x 1Ø
CT4: 3x 1Ø

Specifications		Accuracy					
Wiring Input	3Ø 4 wire 1Ø 2 wire - P1, P2, P3	Voltage V L-N and V L-L			±0.5% of full scale		
Rated Input Voltage	3x 60...300V AC (L-N), 104...520V AC (L-L)	Current			±0.5% of full scale		
Frequency	45...65Hz	Frequency for L-N > 20V, L-L > 35V			±0.1% of full scale		
CT Primary	1...10,000A configurable	Active, Reactive and Apparent Power			1% of full scale		
CT Secondary	0.01...1(1.2)A (Meter Input: 330mV)	Power Factor			±0.01 of Unity		
VT Primary	100...10kV configurable	Active Energy			Class 1 (IEC/EN 62053-21)		
VT Secondary	100...500V AC (L-L) configurable	Reactive Energy			Class 2 (IEC/EN 62053-23)		
Auxiliary / Voltage Rated Burden	Supplied from V1 only / < 8VA						
Display Update Rate	1 sec all parameters	Wh Resolution and Default Pulse Weight					
Operating / Storage Temperature	-10...55°C / -20...75°C	CT Ratio x VT Ratio	<15	<150	<1500	<15000	>15000
Humidity	0...85% non-condensing	Wh	0.01k	0.1k	1k	10k	100k
Protection Degree (IEC/EN60529)	IP54 (front of Housing), IP20 (terminals)	INT	0.001k	0.01k	0.1k	1k	10k
Communication	Modbus RTU over RS485 MBus (EN13757)	Example If CT Primary = 200A (CT ratio = 200/1 = 200) & VT = 350/350V (VT Ratio = 1)					

MECHANICAL INSTALLATION


DISMOUNT


DIN rail mounted, this device must be installed within a suitable IP rated enclosure. Indoor use only.

Installation category: III (300V L-N)

Protection Class: II

Pollution degree: II

Altitude: up to 2000 m

All terminal covers must be fitted after wiring



PRODUCT SAFETY

Safety related notification, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure the safety of personnel as well as the instrument. If the equipment is not used in a manner specified by the manufacturer it may impair the protection provided by the equipment

- Do not use the equipment if there are mechanical damage
- Do not exceed the stated maximum ratings of the device
- No repairs, maintenance or adjustments are possible
- Read the complete instruction manual prior to installation or operating the unit
- The equipment in its installed state must not come into close proximity to any heating sources, oils, steam, caustic vapours or other unwanted process by-products
- Do not use in hazardous or classified location where explosion or other dangers can be triggered by the device



Risk of electric shock!
Only to be installed by a competent person

- To prevent the risk of electrocution, always isolate and lock-off the power supply to the equipment prior to undertaking any work
- Always confirm absence of electricity prior to starting work using appropriate voltage detection equipment
- Wiring shall be done strictly according to the terminal layout
- Confirm that all connections are correct before energizing the equipment
- Routing of cables shall be way from any internal EMI source
- Copper cable should be used
- All wiring to be in accordance with applicable local standards

WIRING

4 Channel

4x 3P4W or
4x 1P2W P1, P2 or P3

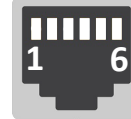
4x 1Ø

Phase of CT
aperture must
match the phase
being monitored

- 1 RJ45 cable
- 2 Fuse class CC UL / fast acting
- 3 Phase: 600V / Single Phase: 250V

No. Meters	≤ 5	≤ 10	≤ 20	≤ 32
Fuse Rating	0.5A	1A	1.5A	2A

- 3 Supply 31 additional meters (32 total)
- 4 Easywire 3-Phase Current Transformers (x4)
CT phase rotation is **RH/LH dependant**
refer to Configuration Settings
For **Single-Phase Easywire CT** - Set Phase
Network to 1P2W-P1, Voltage Reference V1
must be same phase as CT. Connect V2/V3 to N.
- 5 Comm network: **RJ12** (see Modbus / MBus)



Pin	Modbus	MBus
1	+	1
6	-	2

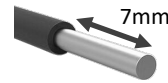
12 Channel 12x 1P2W



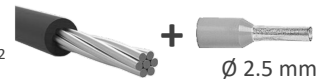
Voltage and
current must be
from same
phase

No. of Channel	4 Channel Mode 4x 3Ø or 4x 1Ø			12 Channel Mode 12x 1Ø		
CT Aperture	L1	L2	L3	L1	L2	L3
CT1 =		CH1		CH1	CH2	CH3
CT2 =		CH2		CH4	CH5	CH6
CT3 =		CH3		CH7	CH8	CH9
CT4 =		CH4		CH10	CH11	CH12

Single Core
0.5 > 4mm²
Ø 2.5mm Max

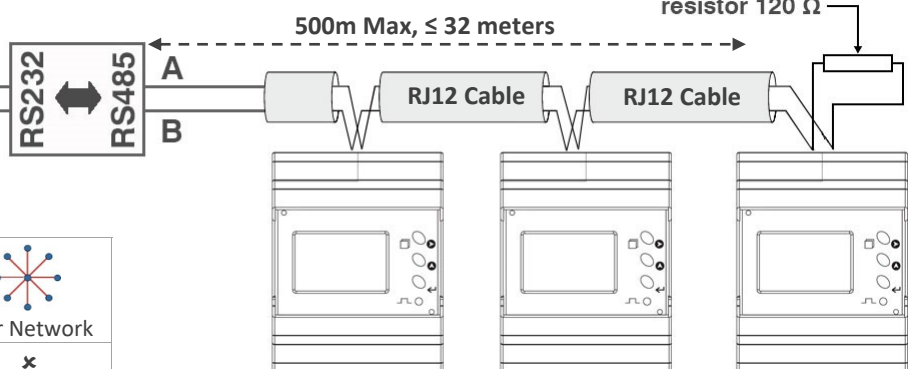
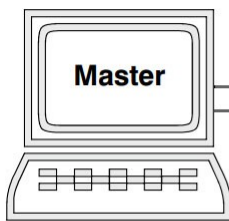


Stranded
0.5 > 2.5mm²



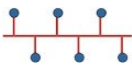
Modbus / MBus

Typical Modbus
configuration shown
For MBus interface
follow Wiring
Topology below



Wiring Topology

A | B



Daisy Chain



Star Network

Modbus

+ | -

✓

✗

MBus

1 | 2

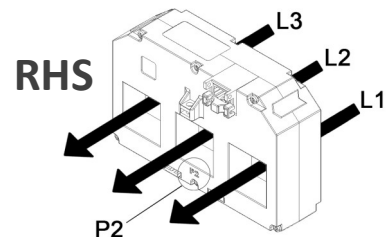
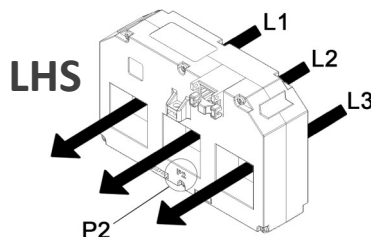
✓

✓



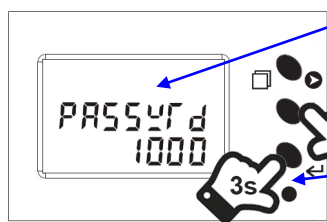
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Current Phase
Connection illustration
- Refer to Configuration
Settings 9 to 12



CONFIGURATION

Step A: Enter Configuration Menu



2 Password = 1000
(Refer to Step B)

1 Hold 3 Secs to
Enter Config
(same to Exit)

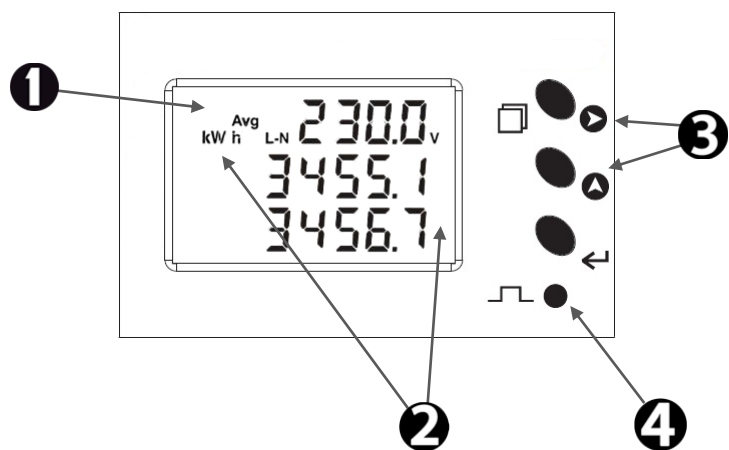
Step B: Configure each setting, as required, referring to Settings Table below, using the buttons as follow:

1		Press once to make digit or option flash, press again to move flashing cursor
2		Press to change digit or option, press to move cursor position as required
3		Press to save and move to next setting option, Exit menu once all settings are configured (see Step A)

D480-G-C	D480-G-MB	Setting	Default 	Adjustment Range 	Network & CT Must configure	VT Adjust if Using VT	Comms Modbus / MBus	System Settings Optional
1	1	Change Password	1000	NO / YES (0000 - 9998)				✓
2	2	Channel Selection	4 CH	4 CH (4x 3P4W / 1P2W) 12 CH (12x 1P2W)	✓			
3	3	Phase Network Selection	3P4W	3P4W, 1P2W-P1/P2/P3	✓			
4	4	CT Secondary	1	Non-adjustable	✓			
5	5	CT Primary 1 (see CT Label)	1	1 > 10000A	✓			
6	6	CT Primary 2 (see CT Label)	1	1 > 10000A	✓			
7	7	CT Primary 3 (see CT Label)	1	1 > 10000A	✓			
8	8	CT Primary 4 (see CT Label)	1	1 > 10000A	✓			
9	9	Current Connection 1 - see	RHS	RHS / LHS	✓			
10	10	Current Connection 2 - see	RHS	RHS / LHS	✓			
11	11	Current Connection 3 - see	RHS	RHS / LHS	✓			
12	12	Current Connection 4 - see	RHS	RHS / LHS	✓			
13	13	PT Secondary	350	100 > 500V		✓		
14	14	PT Primary	350	100 > 600V		✓		
15	15	Slave ID <i>Modbus:</i> <i>MBus (Primary ID):</i>	1 1	1 > 255 1 > 250			✓	
16	16	Baud rate <i>Modbus:</i> <i>MBus:</i>	9600 2400	300 > 38400 bps 1200 > 9600			✓	
17	17	Parity <i>Modbus:</i> <i>MBus:</i>	None Even	None / Odd / Even Even			✓	
18	18	Stop Bit <i>Modbus:</i> <i>MBus:</i>	1 1	1 / 2 1			✓	
19	19	Back Light Off (0000 = Never)	0000	0 > 7200 Sec				✓
20	20	Demand Interval Method	Sliding	Siding / Fixed				
21	21	Demand Interval Duration	15	1 > 30				
22	22	Demand Interval Length	1	1 > 30 min				
X	23	MBus Secondary ID	Serial #	0000 0000 > 9999 9999			✓	
23	24	Factory Default	No	No / Yes	Does not reset energy & demand values			✓
24	25	Reset Energy & Demand	No	No / Yes (Password +1)	Once entered, reset each value individually			✓



OPERATION



1 Display Symbols:

- Avg** Average of 3-phase
- tOt** Total of 3-phase
- MD** Max Demand
- L-N** Line to Neutral
- RS485 communication in progress

2 Measurement Units (refer to Functions Table below)

V, kWh, kVAh, kVAh, A, Hz, kW, kVA, kVA

3 Navigation Buttons:

- Change **PARAMETER** (refer to Functions Table below)
- HOLD 10 sec: change page scroll (AUTO<>MANUAL)
- Change **CHANNEL** (refer to Functions Table below)
- HOLD 10 sec: Serial #

4 Integration of Energy Indicator (blinks at rate of INT)

	Change Parameter	Change Channel	
		4 Channel (4x 3Ø or 4x 1Ø)	12 Channel (12x 1Ø)
x1	Avg Voltage (V L-N) Active Energy (kWh)	CH1 > CH2 > CH3 > CH4 > Total	CH1 > CH2 >CH12 > Total
x2	Phase Voltage (V L-N)	CH1 > CH2 > CH3 > CH4	CH1/2/3 > CH4/5/6 > CH7/8/9 > CH10/11/12
x3	Phase Voltage (V L-L)	CH1 > CH2 > CH3 > CH4	X
	Phase Current (A)	CH1 > CH2 > CH3 > CH4	CH1/2/3 > CH4/5/6 > CH7/8/9 > CH10/11/12
	Phase Power Factor Frequency (Hz)	CH1 > CH2 > CH3 > CH4	CH1/2/3 > CH4/5/6 > CH7/8/9 > CH10/11/12
	Avg Voltage (V L-N) Reactive Energy (kVAh)	CH1 > CH2 > CH3 > CH4 > Total	CH1 > CH2 >CH12 > Total
	Avg Voltage (V L-N) Apparent Energy (kVAh)	CH1 > CH2 > CH3 > CH4 > Total	CH1 > CH2 >CH12 > Total
	Phase Active Power (kW)	CH1 > CH2 > CH3 > CH4	CH1/2/3 > CH4/5/6 > CH7/8/9 > CH10/11/12
	Phase Reactive Power (kVAh)	CH1 > CH2 > CH3 > CH4	CH1/2/3 > CH4/5/6 > CH7/8/9 > CH10/11/12
	Phase Apparent Power (kVA)	CH1 > CH2 > CH3 > CH4	CH1/2/3 > CH4/5/6 > CH7/8/9 > CH10/11/12
	MD of Active Power (kW)	CH1 > CH2 > CH3 > CH4	CH1/2/3 > CH4/5/6 > CH7/8/9 > CH10/11/12
	MD of Apparent Power (kVAh)	CH1 > CH2 > CH3 > CH4	CH1/2/3 > CH4/5/6 > CH7/8/9 > CH10/11/12