OVERVIEW

HMI System
Connect up to 16x RI-D480 Meters
3-Phase or Single-Phase operation
(RI-D480 supplied separately)

easywire®

Modbus RTU over RS485

UK CA CE RoHS Compliant

INSTALLATION GUIDE

Step 1	A. Installation of RI-D480 Energy Meters • Max 16x RI-D480 = 64x 3Ø or 192x 1Ø • Operates as combination of 3Ø and 1Ø B. Assign Modbus ID's (001 > 016, 8N1)	>>> RI-D480 Instruction Manual
Step 2	Mechanical Installation	>>> page 3
Step 3	Electrical Wiring	>>> page 4
Step 4	RI-FMDU96 Basic Functions and Set Up	>>> page 5 - 8
Step 5	Operation	>>> page 9 - 10

SAFETY PRECAUTIONS

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.

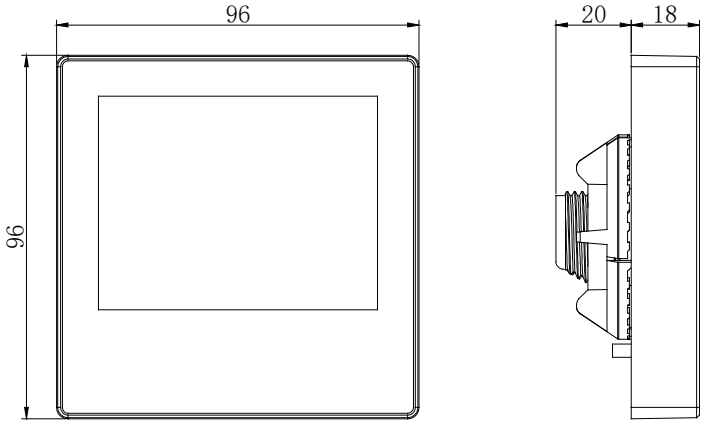
- If the equipment is not used in a manner specified by the manufacturer it may impair the protection provided by the equipment
- Do not use the equipment if there is any mechanical damage
- Do not exceed the stated maximum ratings of the device
- No repairs, maintenance or adjustments are possible
- Read complete instruction prior to installation and operation of 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

WIRING GUIDELINES

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

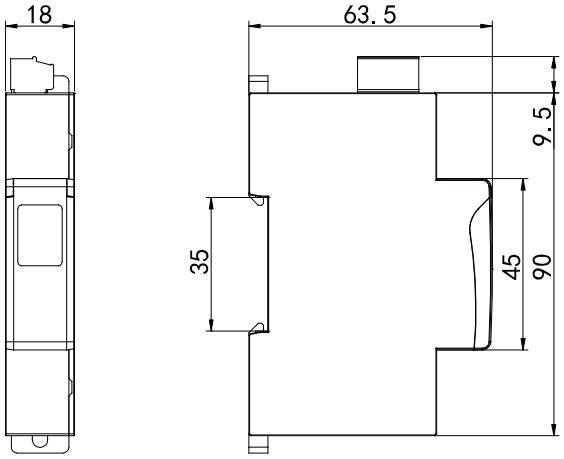
- To prevent the risk of electrocution, always isolate and lock-off the power supply to the equipment prior to undertaking any work
- Always confirm absence of electricity prior to starting work using appropriate voltage detection equipment
- Wiring shall be done strictly according to the terminal layout
- 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

RI-FMDU96 - Display Module



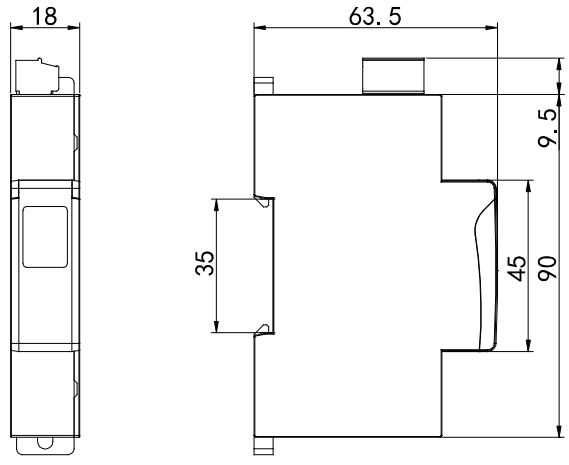
Input Voltage	24V DC (via RJ12)
Power Consumption	≤2W
Environmental Protection	IP67 (Front only)
Button Type	Capacitive touch
Display	3.5” TFT, 320x240, 16.7K colours
Operating Temperature	-20…+70°C
Storage Temperature	-30…+80°C
Humidity	≤95% RH, non-condensing
Weight	191g

RI-DCM-C - Communication Module



Input Voltage	24V DC ±20%
Power Consumption	≤0.5W
Isolation Voltage	2.5kV AC
Environmental Protection	IP20
Com 1	RJ12 to connect RI-D480 (RS485)
Com 2	RS485 to connect BMS / Host PC
Com 3	RJ12 to connect Display Module
Operating Temperature	-20…+70°C
Storage Temperature	-30…+80°C
Humidity	≤ 95% RH, non-condensing
Weight	58g

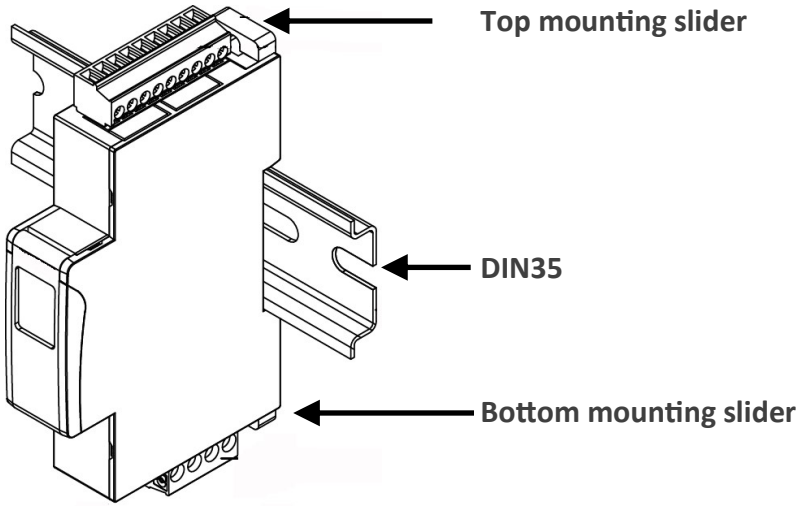
RI-DPSU1-24 - Power Supply Unit

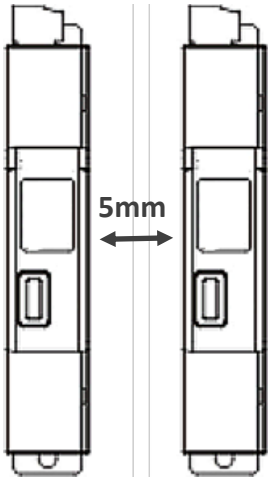


Input Voltage	3x80...270V AC
Output Voltage / Power	24V DC ±1% / 20W
Efficiency	≥ 75%
Environmental protection	IP20
Operating Temperature	-20…+70°C
Storage Temperature	-30…+80°C
Humidity	≤ 95% RH, non-condensing
Weight	68g

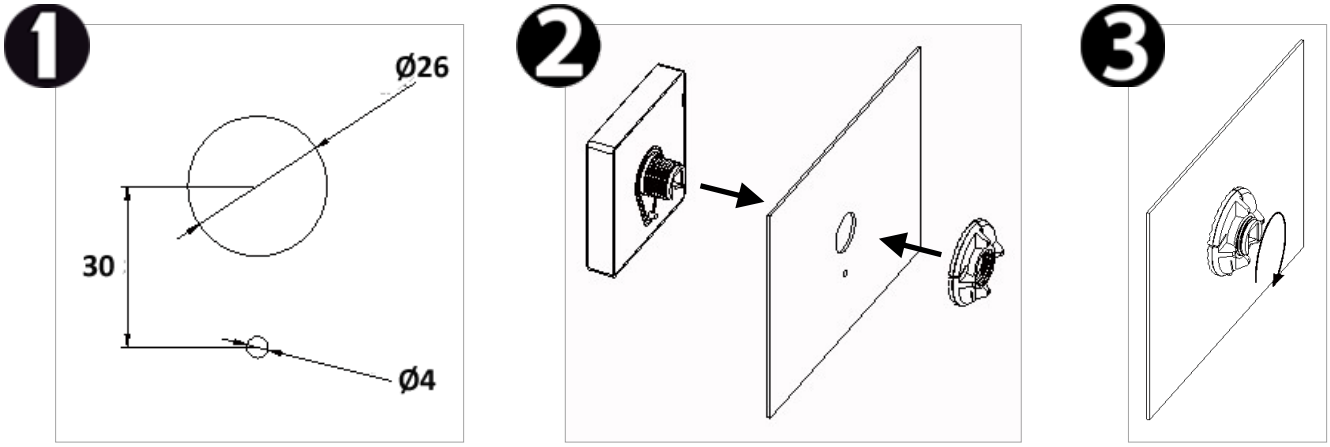
All dimensions in mm

Step 1. Install RI-DCM-C / RI-DPSU1-24 Modules

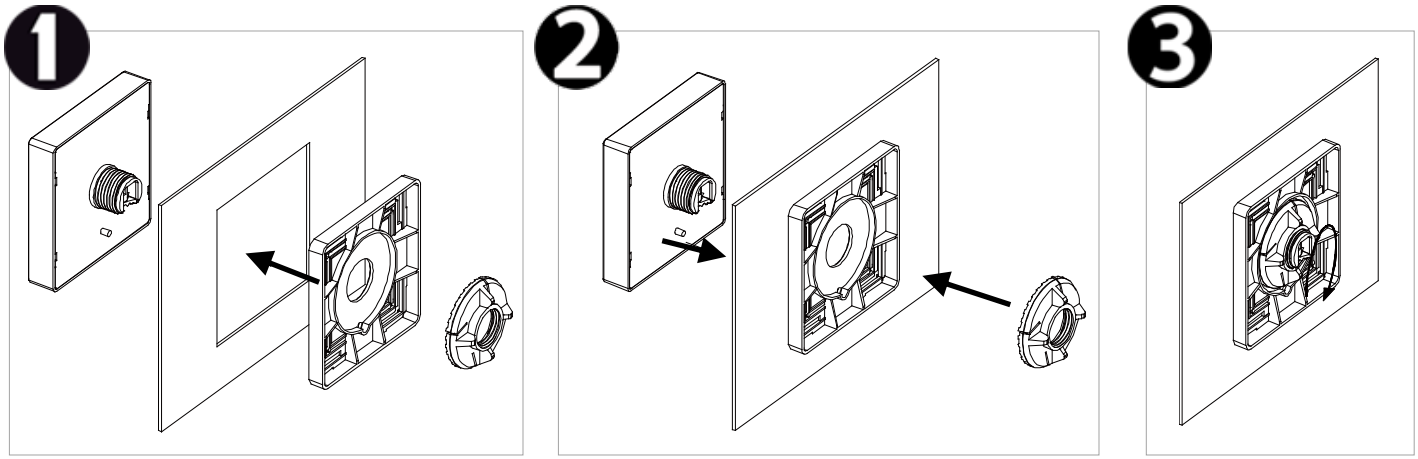




Step 2. Install RI-FMDU96 (Method A)



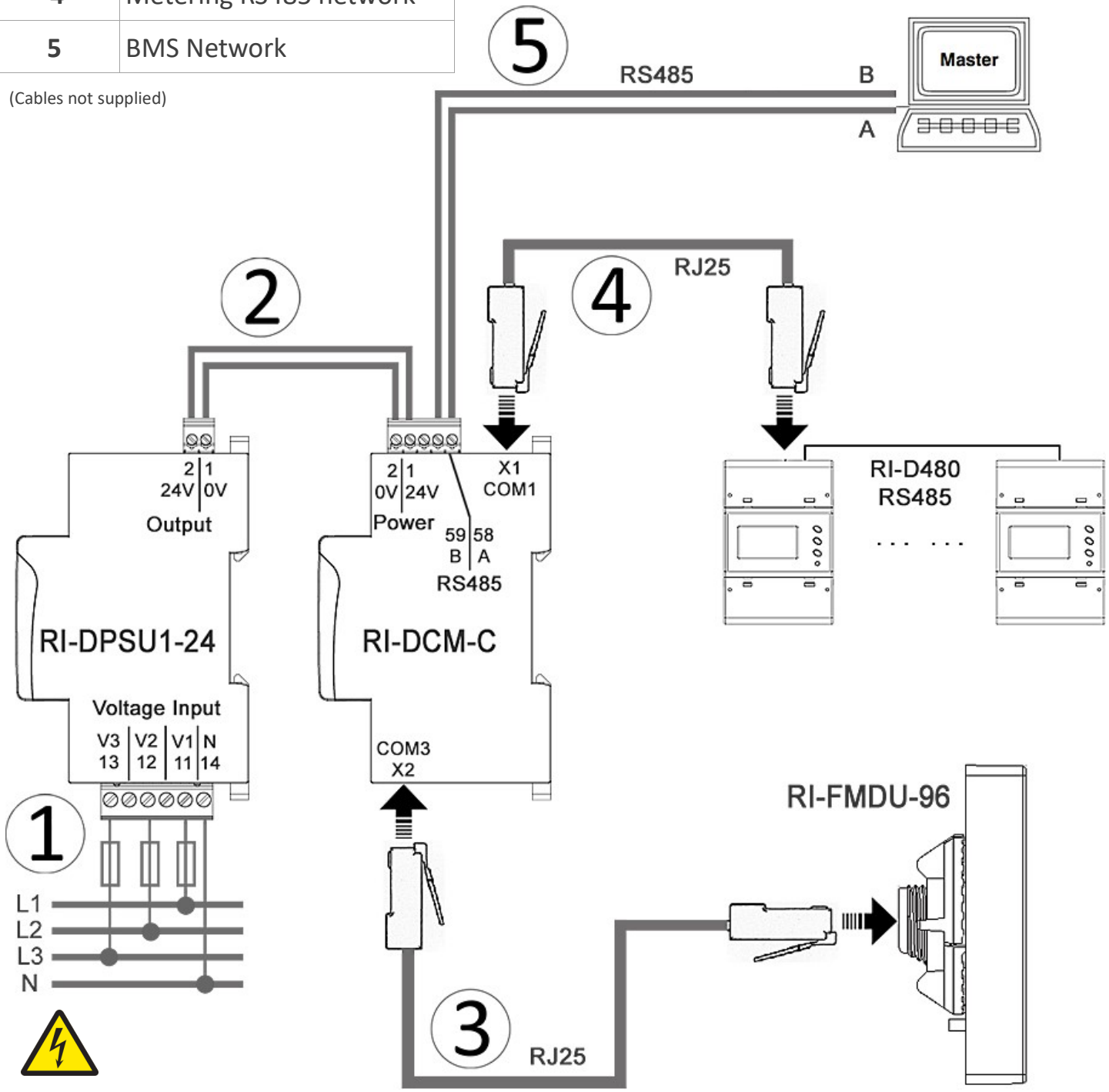
Step 2. Install RI-FMDU96 (Method B)

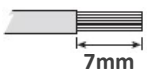
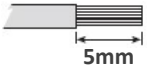


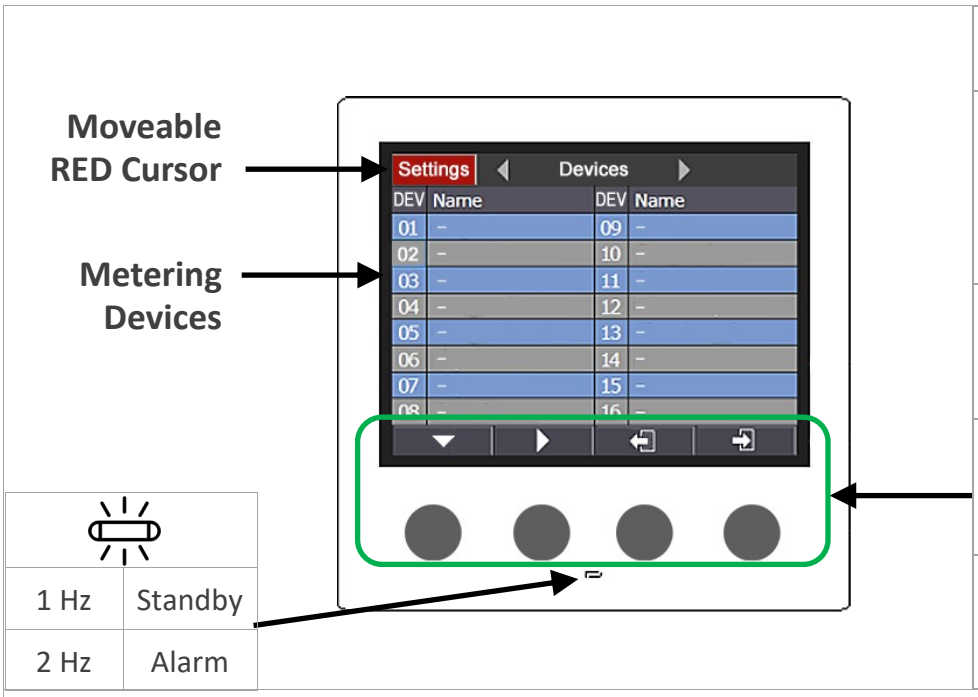
ELECTRICAL WIRING

1	3-Phase Voltage Input
2	24V DC Power
3	RI-FMDU96 Connection
4	Metering RS485 network
5	BMS Network

(Cables not supplied)



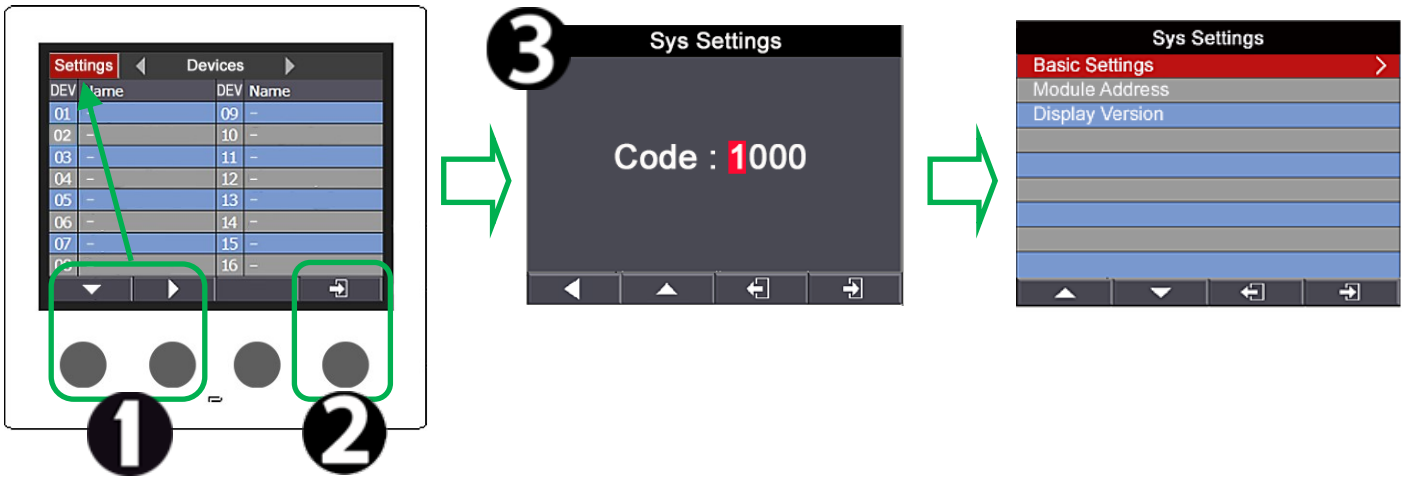
	Single Core	Stranded		
1	Dia 0.5 > 2.5 mm  7mm	Dia 0.5 > 2.5 mm +  2.5mm	0.6 x 3.5mm	0.5 Nm
2 / 5	Dia 0.1 > 1.5 mm  5mm	Dia 0.1 > 1.5 mm +  1.5mm	0.4 x 2.5mm	0.3 Nm



1 Hz	Standby
2 Hz	Alarm

Dynamic Touch Buttons	
	• Move Red Cursor • Increase • Decrease
	• Enter 'Meter Device Settings'
	• Back / No • Hold 3 Sec >>
	• Enter / Yes • Change Setting

1A. Enter RI-FMDU Settings Menu

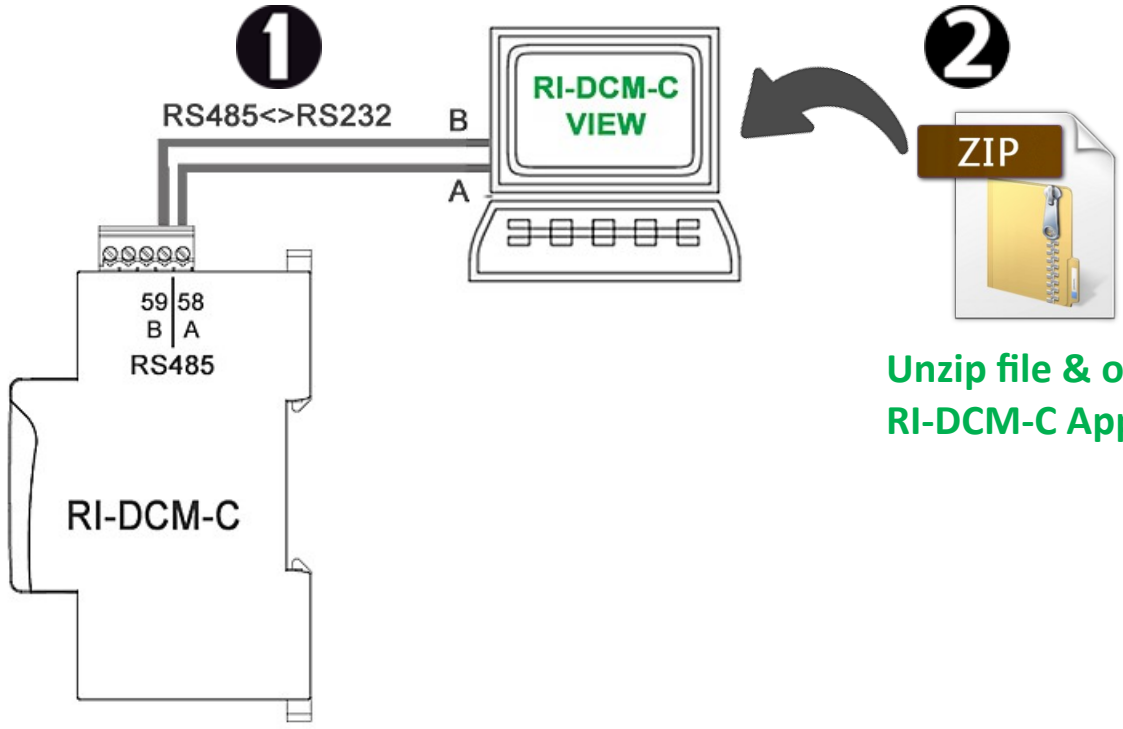


1B. Adjust RI-FMDU Settings

Basic Settings	Back Light	00 (always ON) > 99 mins	4
	Brightness	1 > 5	3
	Language	English	English
	Password	0000 > 9998	1000
	Device Settings	Lock / Unlock	Unlock
Module Address	Module number	01 > 16	16

4 **MUST SET to number of RI-D480 connected**

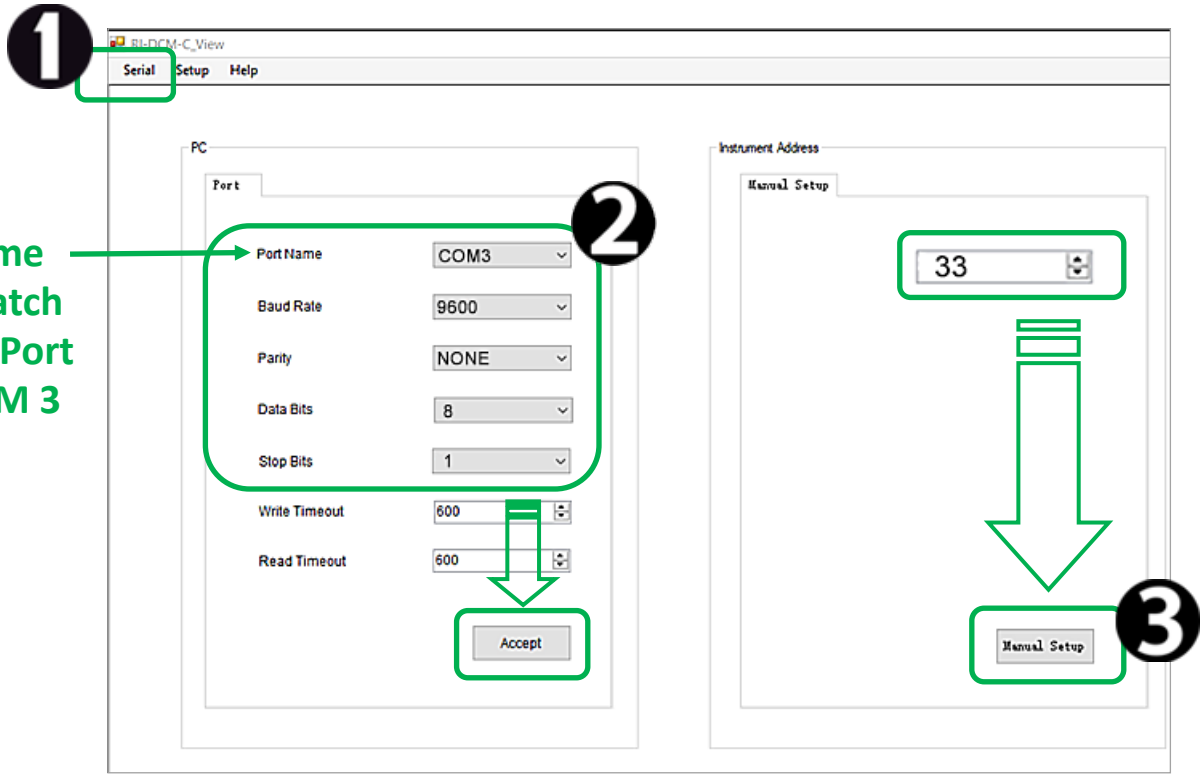
2A. Connect PC & install RI-DCM-C_VIEW application software



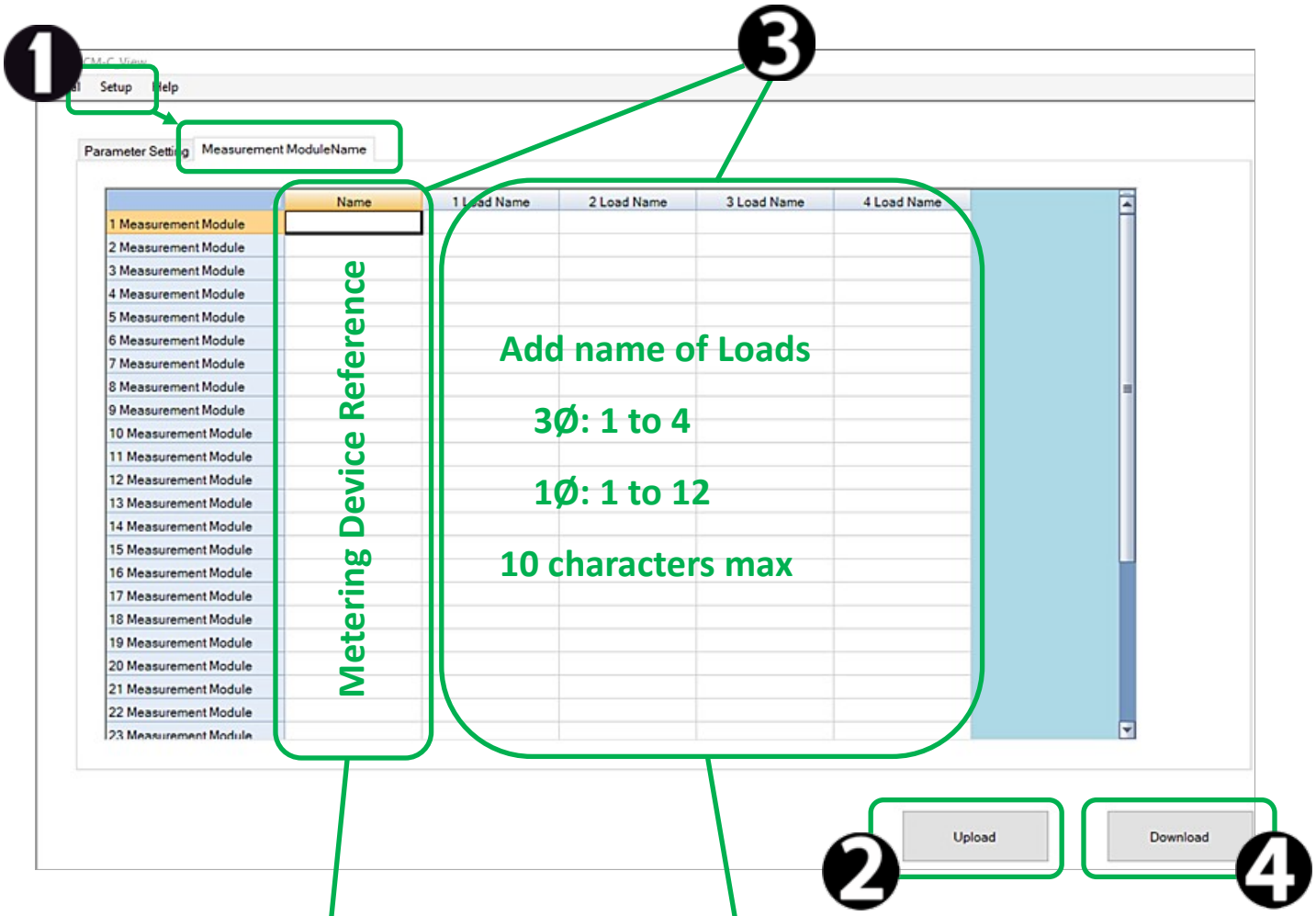
Unzip file & open RI-DCM-C Application

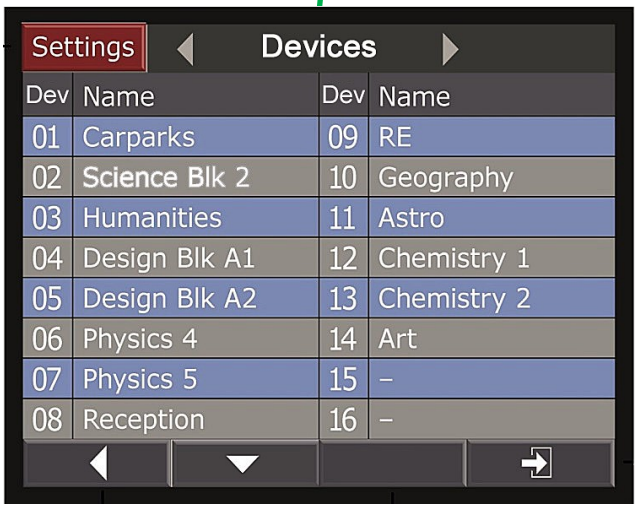
2B. Connect Software to RI-DCM-C

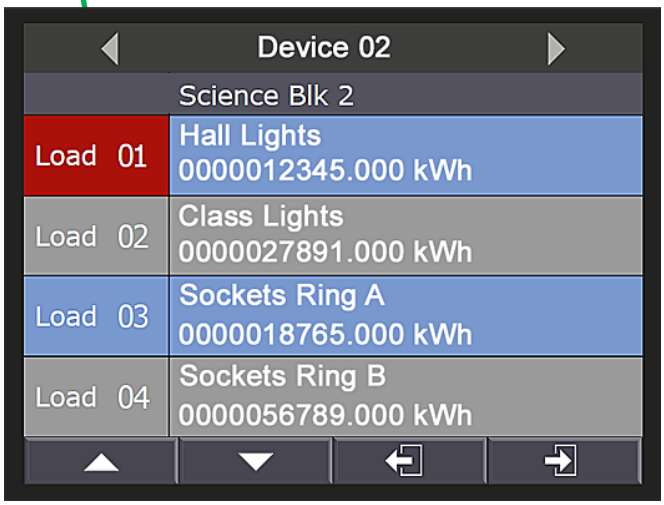
Port Name must match PC Com Port - i.e. COM 3



2C. Assign names to Meter Devices and Loads

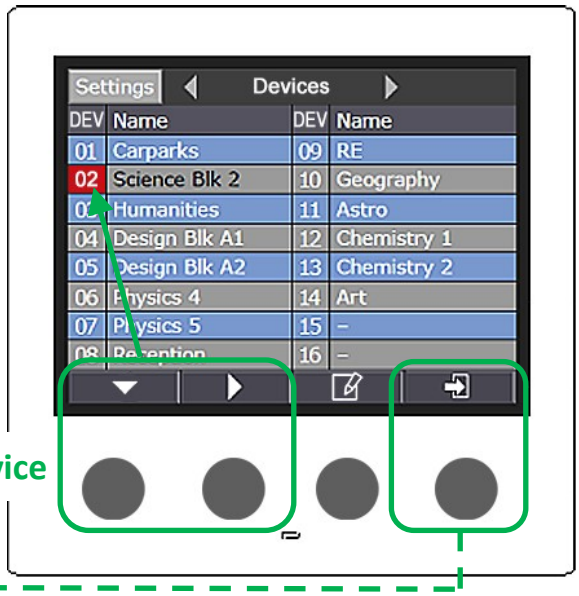






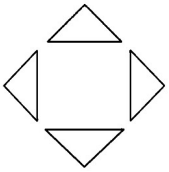
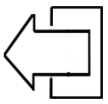
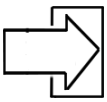
5 Power OFF and ON once

Meter Devices

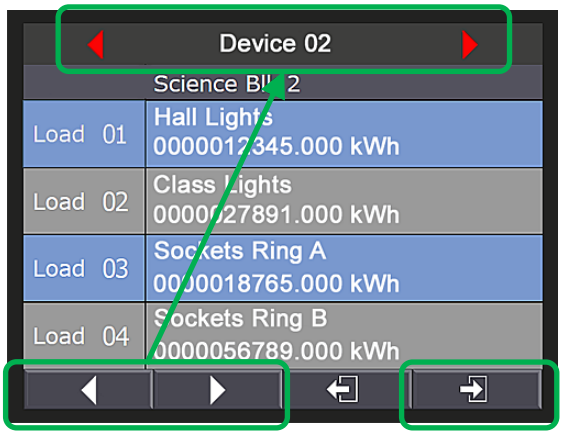


Change Device

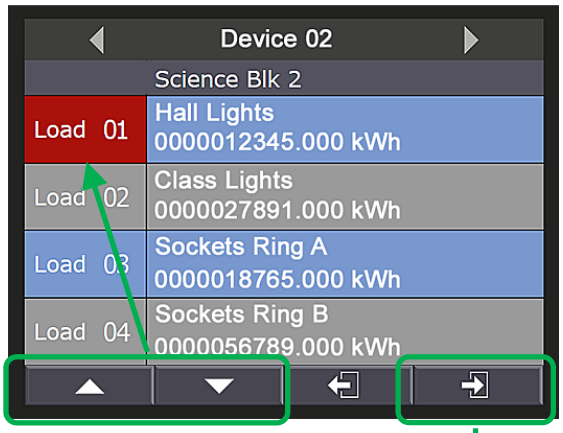
Dynamic Touch Buttons

	• Move Red Cursor • Increase • Decrease
	• Enter 'Meter Device Settings'
	• Back / No • Hold 3 Sec >> 
	• Enter / Yes • Change Setting

Level 1: Device Loads & kWh

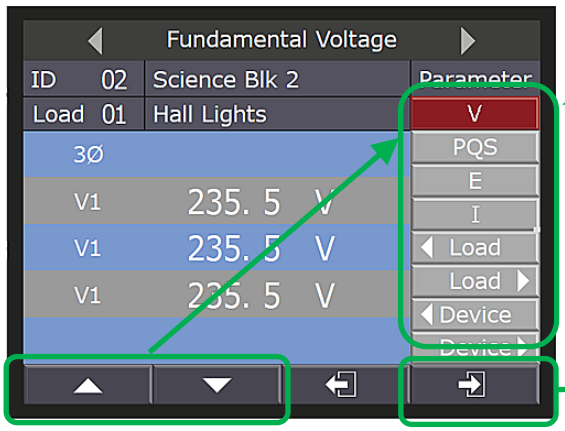


Change Device

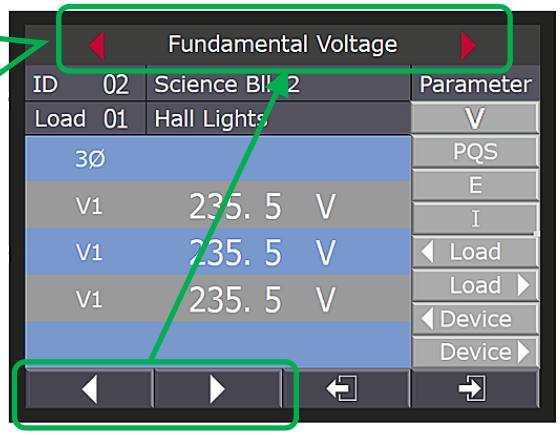


Move Red Cursor to choose Load

Level 2: Load Measurements

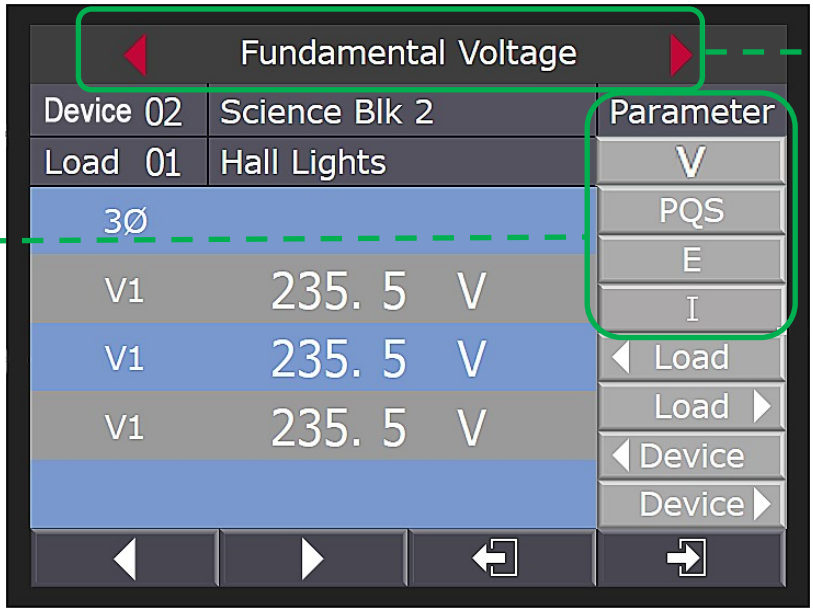


Change Parameter or Load/Device



Change measurement

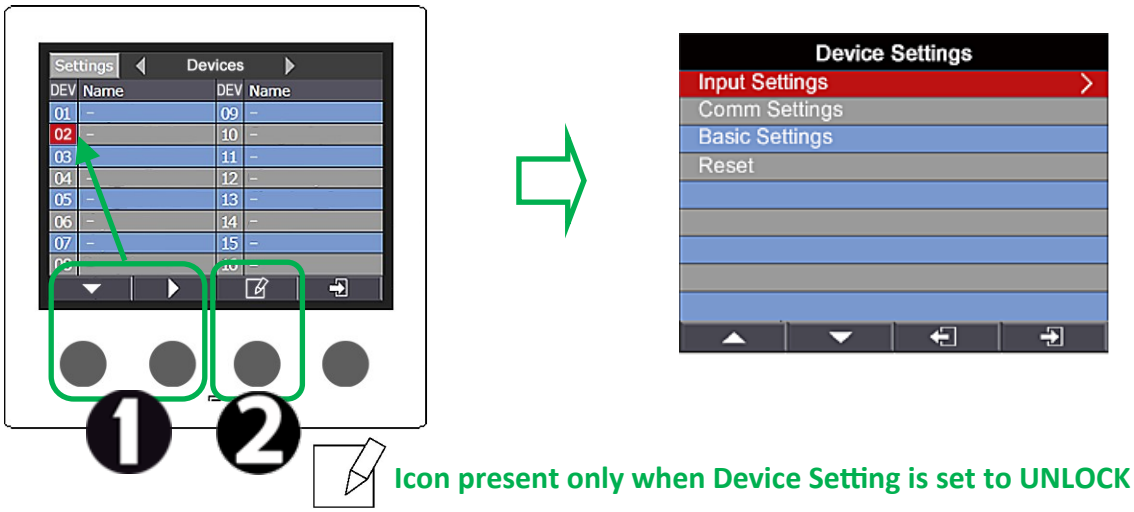
Level 2: Load Measurements



V	V LN + Hz	V LL + Hz		
PQS	kW	kVAr	KVA	PF
E	kWh	kVArh	kVAh	
I	A			

Meter Device Settings Each meter can be adjusted, if required

Basic Settings > Device Settings must be UNLOCK - see page 5 . Set to LOCK to prevent tampering.



Icon present only when Device Setting is set to UNLOCK

Adjustable RI-D480 Settings		▽ △	🏭
Input Settings	No of channel	4 / 12	4
	Wiring	3P4W / 1P2W	3P4W
	CT Secondary	X	1
	CT Primary CH1	00001 > 10000	00001
	CT Primary CH2		
	CT Primary CH3		
	CT Primary CH4		
	PT Secondary	001 > 500	350
	PT Primary	00001 > 10000	350
Comm Settings	Slave ID	Read Only	
	Baud Rate		
	Parity		
	Stop Bit		
Basic Settings	Password	0001 > 9999	1000
	Backlight	0000 > 7200	0000
Reset	Active Energy	CH01 > CH12 > Total	X
	Apparent Energy		X
	Reactive Energy		X

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