

	DIN RAIL MOUNT 1Ø2W DIRECT CONNECTION	<div style="background-color: #ffff00; padding: 5px; border: 1px solid black; display: inline-block;"> MID Installation must comply with MID certified requirements </div> All terminal covers must be fitted and secured with sealing hasp.
	Modbus RTU RI-D35-100-C	
	M-Bus RI-D35-100-MB	

Specifications		Accuracy	
Wiring Input	1Ø 2 wire	Voltage V _{L-N}	±0.5% of full scale
Rated Input Voltage	230V AC ±20%	Current	±0.5% of full scale
Frequency Range	50 or 60Hz (MID approved @ 50Hz)	Frequency for L-N > 20V, L-L > 35V	±0.1% of full scale
Rated Input Current	I _b = 10A, I _{min} = 0.5A, I _{max} = 100A	Active, Reactive and Apparent Power	1% of full scale
Power Consumption	< 8VA	Power Factor	±0.01 of Unity
Display Update Rate	1 sec all parameters	Active Energy	EN50470-3: Cl.B
Operating / Storage Temperature	-10...55°C / -20...75°C	Reactive Energy	EN62053-23: Cl.2
Humidity	0...85% non-condensing	Apparent Energy	Class 1
Protection Degree (IEC/EN60529)	IP54 (front of Housing), IP20 (terminals)		
Pulse Output voltage range / Max Current	Volt-free - require external 5...24V DC 100mA max		
Pulse Resolution	1 : 1000 pulses/kWh (Fixed) 2 : 1/10/100/1000 pulses/kWh or pulses/kVAh (configurable)		
Pulse Duration	0.05...2 sec (configurable)		

Modbus (RI-D35-100-C Only)	
Interface Standard & Protocol	RS485 / Modbus RTU
Communication Address	1...255
Transmission Mode	Half Duplex
Data Type	FLOAT & INTEGER
Transmission distance	500m max
Transmission Speed	9600 / 19200 bps
Parity	None / Odd / Even
Stop Bits	1 / 2

MBus (RI-D35-100-MB Only)	
Interface Standard & Protocol	EN13757 / MBus
Communication Address	1...250
Transmission Mode	Half Duplex
Transmission distance	350m max
Transmission Speed	1200 / 2400 / 4800 / 9600 bps
Parity	Even
Stop Bits	1
Typical Current Consumption	2mA (< 1.5 MBus Unit Loads)

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

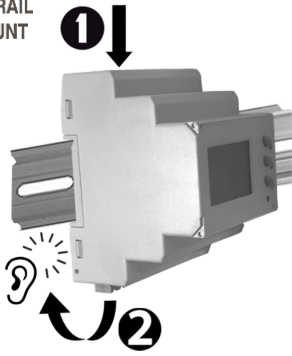
INSTALLATION PRECAUTIONS

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

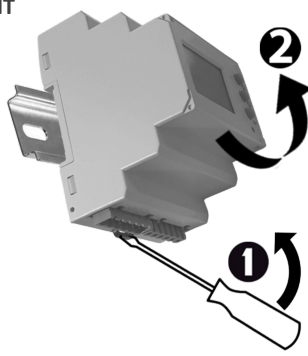
- To prevent the risk of electrocution, always isolate and lock-off the power supply to the equipment prior to undertaking any work
- Always confirm absence of electricity prior to starting work using appropriate voltage detection equipment
- Wiring shall be done strictly according to the terminal layout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

MECHANICAL INSTALLATION

DIN RAIL MOUNT



DISMOUNT



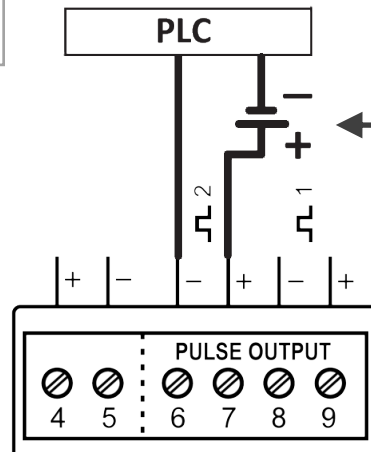
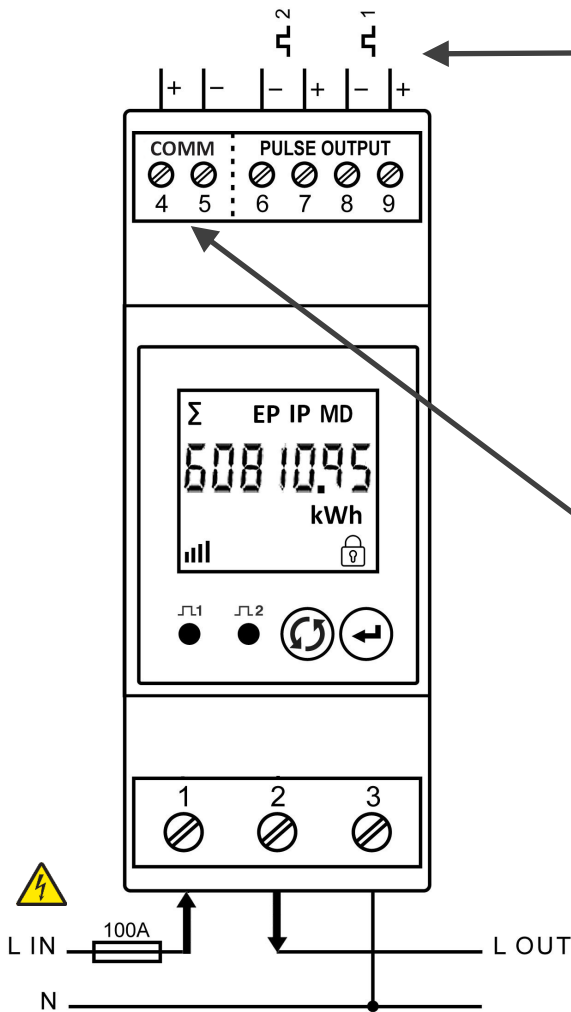
DIN rail mounted, this device must be installed within a suitable IP rated enclosure. Indoor use only.

The meter is intended to be installed in Mechanical Environment 'M1', with Shock and Vibrations of low significance, as per 2014/32/EC Directive.

The meter is intended to be installed in Electromagnetic Environment 'E2', as per 2014/32/EC Directive.

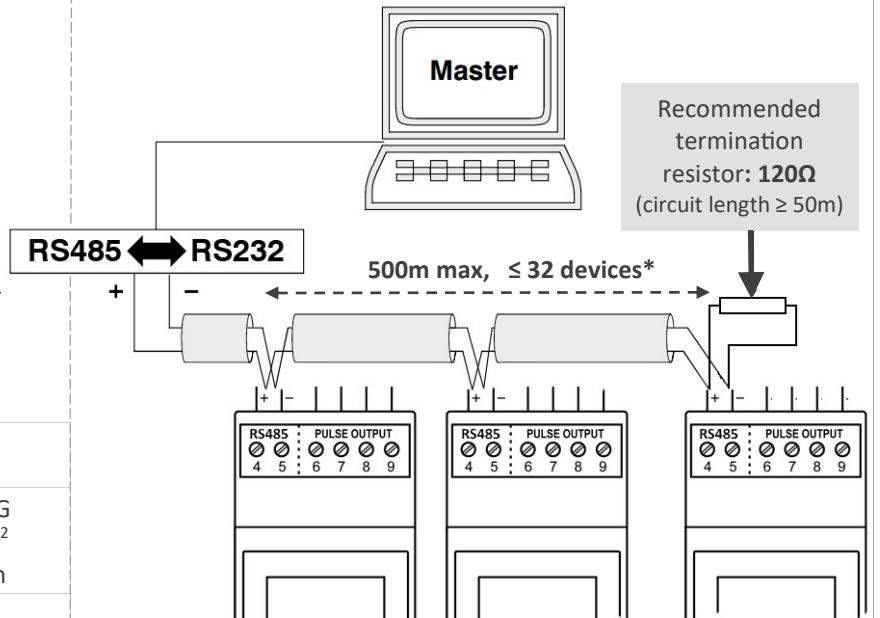
Installation Category III (300V L-N)
Protection Class: II Pollution degree: II

WIRING



Modbus / MBus

Typical Modbus configuration shown
For MBus interface refer to Wiring Topology

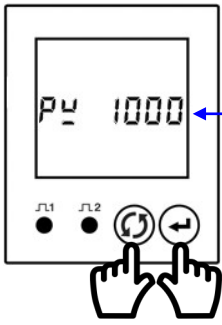


* Booster required above max distance or devices

Terminals	1 / 2 / 3	4 > 9
Max Wire Size	2 AWG 35mm ² Ø 6.5mm	13 AWG 2.5mm ² Ø 2mm
	12mm	7mm
Ferrule for Stranded Cable	Ø 6mm max	Ø 2mm max
	0.9 Nm max	0.4 Nm max

COMM Wiring Topology	Terminals	Daisy Chain	Star Network
Modbus	4 5		
MBus	+ -	✓	✗
	1 2	✓	✓

CONFIGURATION



Step A:
Enter Configuration Menu

2 Password = **1000**
(Refer to Step B for button operations)

1 **HOLD 3 SEC** to Enter Config
(Same to Exit)

Step B: Button operations for Settings adjustment:

1		Initiate flashing cursor
2		Change digit or option, press to move cursor
3		HOLD 3 SEC to save Setting
4		Move to next Setting

RI-D35-C	RI-D35-MB	Settings	Default	Adjustment Range	Pulse O/P Adjust if used	Comm Modbus / MBus	System Settings Optional
1	1	Change Password	1000	NO / YES (0000 > 9998)			✓
2	2	Demand interval method	Sliding	Sliding / Fixed			✓
3	3	Demand interval duration	15	1 > 30 min			✓
4	4	Demand interval length	1	1 > 30 min			✓
5	5	Pulse Output 2 Type	VARh	Total Wh / Total VARh / IMP Wh / EXP Wh / IMP VARh / EXP VARh	✓		
6	6	Pulse Weight	1000	1 / 10 / 100 / 1000 (/ Wh or VARh)	✓		
7	7	Pulse Duration	0.1	0.05 > 2.0 sec	✓		
8	8	Slave ID	001	001 > 255 (Modbus) / 250 (Mbus)		✓	
9	9	Baud rate	Modbus: 9600 MBus: 2400	9600 / 19200 bps 1200 / 2400 / 4800 / 9600 bps		✓	
10	10	Parity	Modbus: None MBUs: Even	None / Odd / Even Even		✓	
11	11	Stop Bit	1	1 / 2		✓	
12	12	Back Light Off	0000	0 > 7200 Sec (0000 = never)			✓
X	13	MBus Secondary ID	Serial #	0000 0000 > 9999 9999		✓	
13	14	Factory Default	No	No / Yes (does not reset Energy values)			✓
14	15	Reset Energy & Demand	No	No / Yes (Password +1 i.e. 1001) Only reset of Max Demand permitted			✓

OPERATION

Σ	SUM (IP + EP)		Σ Active Energy kWh	x9	Apparent Power kVA	
EP	Export		x1	IP Active Energy kWh	x10	Voltage V
IP	Import		x2	EP Active Energy kWh	x11	Current A
MD	Max Demand		x3	Σ Reactive Energy kVARh	x12	Power Factor (PF)
COMM CONNECTION			x4	IP Reactive Energy kVARh	x13	Frequency Hz
Integration of Energy Blinks at rate of			x5	EP Reactive Energy kVARh	x14	MD Active Power kW
Display Scroll MANUAL <> AUTO Idle 1min >>			x6	Σ Apparent Energy kVAh	x15	MD Reactive Power kVAR
			x7	Active Power kW	x16	MD Apparent Power kVA
			x8	Reactive Power kVAR	x17	>>

UKCA DECLARATION OF CONFORMITY



RAYLEIGH INSTRUMENTS LIMITED

Raytel House, Cutlers Road, South Woodham Ferrers, Chelmsford, Essex CM3 5WA, UK

Hereby declares under its sole responsibility the products described below:

Product Family	RI-D35 SINGLE PHASE ENERGY METER (DIN RAIL MOUNT)
Models	RI-D35-100-xxx (all variants)

complies with the provisions of the following UK Regulations:

SI 2016/1153 Measuring Instruments Regulations 2016 (as amended)
 SI 2012/3032 Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (as amended)

based on compliance with the following British Standards:

BS EN 50470-1:2006 - Electricity metering equipment (AC), General requirements, tests and test conditions.
 BS EN 50470-3:2006 - Electricity metering equipment (AC), Particular requirements
 BS EN IEC 63000:2018 - Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

UK Type Examination	MIR Annex B
Certificate Number	0120/SGS0361
Issued By	SGS United Kingdom - 0120

Particulars:

- o The product is traceable by its serial number applied on the product's casing
- o UKCA marking is applied to the product's casing and packaging
- o Conformance of installation is realized only when conducted by a competent installer

Issued: 26th October 2021
 Chi Cheung - Technical Manager
 On behalf of Rayleigh Instruments



EU DECLARATION OF CONFORMITY



RAYLEIGH INSTRUMENTS Sp. Z O.O. (European Office)

Ul. Aleje Jerozolimskie 214, Warsaw, Poland, 02-486

Hereby declares under its sole responsibility the products described below:

Product Family	RI-D35 SINGLE PHASE ENERGY METER (DIN RAIL MOUNT)
Models	RI-D35-100-xxx (all variants)

complies with the provisions of the following EU Directives:

2014/32/EU - Measuring Instruments Directive (MID) (as amended)
 2015/863 - RoHS Directive (as amended)

based on compliance with the following harmonised Standards:

EN 50470-1:2006 - Electricity metering equipment (AC), General requirements, tests and test conditions.
 EN 50470-3:2006 - Electricity metering equipment (AC), Particular requirements
 EN IEC 63000:2018 - Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

EU Type Examination	MID Annex B
Certificate Number	0598/SGS0361
Issued By	SGS FIMKO - 0598

Particulars:

- o The product is traceable by its serial number applied on the product's casing
- o CE marking is applied to the product's casing and packaging
- o Conformance of installation is realized only when conducted by a competent installer

Issued: 26th October 2021
 Chi Cheung - Technical Manager
 On behalf of Rayleigh Instruments

