

## RI-D35-100 Series



### Single Phase Multifunction Energy Meter (MID Certified)

- 100A direct connected
- High definition LCD display with white backlight
- Import and export energy measurement
- RS485 Modbus or Mbus models available
- Two pulse outputs
- Two module width DIN rail mounted
- MID B+D Certified (SGS Cert. No. : 0120/SGS0361)
- LED pulse indication
- Simple programming and operation
- Auto or manual page scrolling

#### Product Description

The RI-D35-100 series is a range of single phase multifunction DIN rail MID approved energy meters. Suitable for monitoring energy consumption in residential, solar PV, industrial and utility applications.

All models are MID approved (B and D) and may be used for billing purposes.

A high efficiency white backlit LCD display provides a clear indication of measured values in all light conditions.

The meter is available in two versions:-

- Single tariff with two pulse outputs and RS485 Modbus communication.
- Single tariff with two pulse outputs and Mbus communication.

The unit is housed in a compact two module width case suitable for 35mm DIN rail mounting.

#### Displayed Parameters

Phase to Neutral Voltage (V)
Phase Current (A)
Frequency (Hz)
Power Factor (PF)
Power Max. Demand (MD kW)
Active Power (kW)
Reactive Power (kVAr)
Apparent Power (kVA)
Import Active Energy (kWh)
Export Active Energy (kWh)
Total Active Energy (kWh)
Import Reactive Energy (kVArh)
Export Reactive Energy (kVArh)
Total Reactive Energy (kVArh)



## Display

Display Type	LCD, high definition with white back-light	
Digit height	4mm (displayed value)	
Page scrolling	Manual by front key / or auto scroll mode	
Displayed parameters and accuracies	Voltage	0.5% of Max. range
	Current	0.5% of nominal
	Frequency	0.2% of nominal frequency
	Power factor	1% of unity (0.01)
	Active power	1% of range maximum
	Reactive power	1% of range maximum
	Apparent power	1% of range maximum
	Active Energy	Class B (IEC/EN50470-1/3) / Class 1 (IEC/EN62053-21)
	Reactive Energy	1% of range maximum
Energy maximum display	99999.99	
Resolution	10wh	

## Programming

Programmable parameters	Primary address - Mbus version only Secondary address - Mbus version only Pulse output (kWh or kVarh) Pulse output resolution Pulse duration Demand period (for integration) Auto page scroll time Back-light time-out period Reset Max. demand Change password Communication address - Modbus version Communication speed (Baud) - Modbus and Mbus versions Communication Parity - Modbus (Fixed) and Mbus (Even) versions
Programming access	Password protected (user selectable)
Memory retention	Non volatile memory (EEPROM)

## Input

Connection	Single phase only
Certified voltage range	MID certified for 1 x 230V/400V $\pm 10\%$
Operating voltage range	176...276V
Voltage circuit power consumption (Max.)	<8VA
Current rating (I <sub>min</sub> -I <sub>ref</sub> )	0.5...10A
Max current (I <sub>max</sub> )	100A
Current circuit power consumption (Max.)	0.5VA
Starting current	40mA
Short time overcurrent	30 I <sub>max</sub> / 10mS (IEC/EN 62053-21 and -23)
Impulse voltage withstand	6kV 1.2 $\mu$ S
AC voltage withstand	4kV for 1 minute
CT ratio range	N/A direct connection
VT ratio range	N/A direct connection
Frequency	50Hz
Current distortion factor	According to IEC/EN50470

## Auxiliary Supply

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

## Outputs

<b>Energy pulses</b>	
Number of pulse outputs	2
Pulse output function	1 x 1000imp/kWh. 1 x User configurable pulse rate and energy type (kWh or kVArh)
Pulse output type	Semiconductor (does not support volt-free operation)
Pulse output Max. current	27mA (Class A to IEC/EN62053-31)
Pulse output voltage range	5...27VDC
Pulse duration	Selectable 60, 100, 200mS
Selectable pulse resolution	0.001, 0.01, 0.1, 1
<b>Communication - Modbus Version</b>	
Communication protocol	Modbus
Address	1...255
Number of bits	8bits
Parity	None, odd, even
Baud rate	1200, 2400, 4800, 9600
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	1200M
<b>Communication - Mbus Version</b>	
Communication protocol	Mbus
Communication standard	IEC/EN13757
Primary address	1...250
Secondary address	0...99999999
Parity	Even
Baud rate	300, 600, 1200, 2400, 9600

## Insulation

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

## Environmental Conditions

Reference temperature	23°C ±1°C
Specified temperature operating range	-10°C...+55°C
Storage temperature	-20°C...+70°C
Relative humidity	0...85%, non condensing
Mechanical environment	M1
Electromagnetic environment	E2

## Mechanical

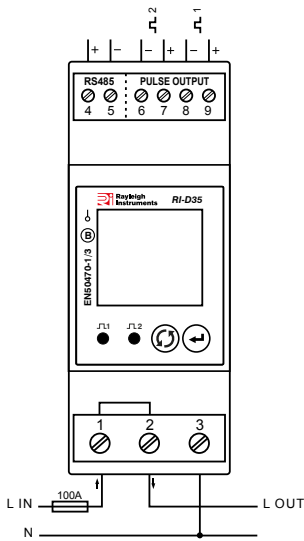
<b>Housing</b>	
Housing Type	2 module DIN 43880
Mounting	Snap-on 35mm rail
Tamper sealing	Terminal cover and meter housing (meter housing by means of a tamper sticker)
Housing material	Self-extinguishing polycarbonate (UL94 V-0)
Protection degree (IEC/EN60529)	IP20 (terminals), IP51 (front of housing)
Weight	170g
<b>Termination</b>	
Current input terminal type	Screw type - rising clamp
Max. wire size	35mm <sup>2</sup>
Voltage input terminal type	Combined with current circuit
Max. wire size	N/A
Output terminal type	Screw type - rising clamp
Max. wire size	2.5mm <sup>2</sup>

## Conformity

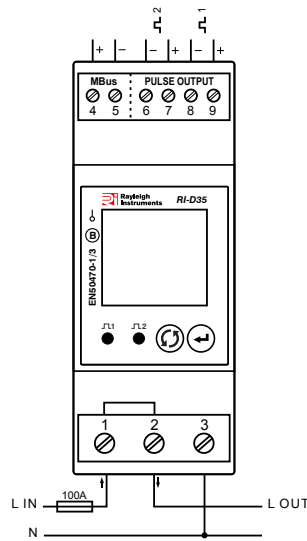
Electromagnetic compatibility	Emission and immunity tests according to IEC/EN50470 Immunity test according to IEC/EN50470
Accuracy and functionality	IEC/EN50470-1:2006 - Electricity metering equipment (a.c.). Part 1: General requirements, tests and test conditions Metering equipment (class indexes A, B and C) IEC/EN50470-3:2006 - Electricity metering equipment (a.c.) Part 3: Particular requirements Static meters for active energy (class indexes A, B and C) EC Directive 2014/32/EC

**Wiring Diagrams**

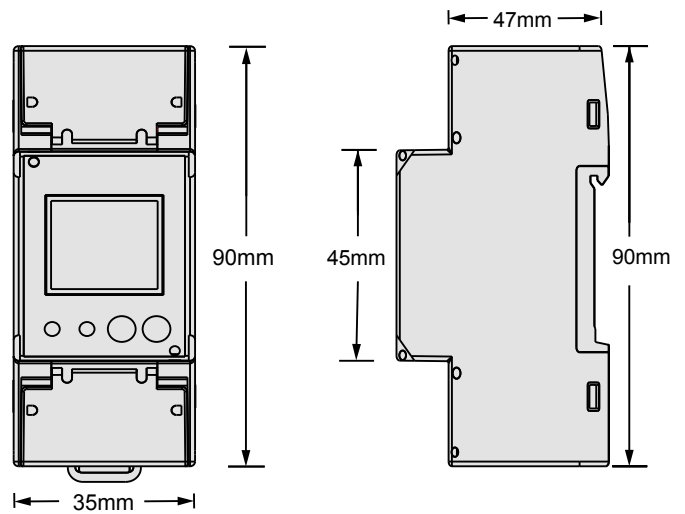
**RI-D35-100-C (Modbus)**



**RI-D35-100-MB (Mbus)**



**Dimensions**



**Model Selection Table**

Tariffs and Communications	Model
Single-tariff with Modbus and dual Pulse	RI-D35-100-C
Single-tariff with M-bus and dual Pulse	RI-D35-100-MB