

RI-F300 Series



easywire® Single and Three Phase Multifunction Energy Meter (MID Certified)

- DIN 96 panel mounted
- 1A Input from **easywire**® CTs
- Single phase or three phase network compatible
- Programmable voltage and current transformer ratio
- True RMS measurement
- MID B+D Certified
- High definition white backlit LCD display
- Simple programming & operation (auto or manual page scroll)
- Pulse output, Pulse and Modbus or Pulse and Mbus versions are available with Auto or manual page scrolling
- Voltage OUT connector for daisy-chaining up to 32 meters from one supply

Product Description

The RI-F300 is 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.

These MID approved multifunction energy meters are suitable for monitoring energy consumption and many other electrical parameters in industrial and commercial applications. These meters may be used in single or three phase applications.

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

The meter is available in three versions:-

- With single pulse output.
- With single pulse output and RS485 Modbus communication.
- With single pulse output and Mbus communication

The unit is housed in a compact DIN 96 case suitable for panel mounting.



Displayed Parameters

- Voltage – L-L, L-N and average
- Current – Phase, total and Max. demand
- Power Factor – per phase and average
- Total Harmonic Distortion – Current and Voltage
- Neutral current (calculated)
- Frequency
- Hours Run – Hours & minutes
- Power – Active, Reactive and Apparent (per phase and total)
- Power Min./Max. demand – Active, reactive and apparent.
- Energy – Active, reactive and apparent (per phase and total)
- Import and export energy – Active, Reactive and Apparent (per phase and total)

Display

Display Type	High definition white backlit LCD
Digit height	11.2mm (displayed parameter) 6.35mm (lowest 8 digits)
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, Class B (IEC/EN62053-21, IEC/EN50470) Reactive Energy Class 2 (IEC/EN62053-23) Total Harmonic Distortion (THD - up to 31st) 3%
Energy maximum display	99999999
Resolution	0.01K, 0.1K, 1K, 0.01M, 0.1M, 1M (depending on CT ratio & VT ratio)

Programming

Parameters that can be changed using programming menu <i>NOTE: Once Programming Mode Is entered The values in red will be locked out after 15 Mins. No further adjustment is possible without return to factory.</i>	CT Primary current 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 output (kWh) Pulse duration 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	Single phase (CT on L1 only), Three phase four wire
Input voltage range	MID approved : 100...240V (L - N), 143...415V (L - L).
Voltage Rated Burden	<6VA (supplied from any Phase), <0.2VA (L2 and L3)
Nominal current input	easywire ® - 1A
Max current (Imax)	easywire ® - 1.2A (Nominal x 1.2)
Current Rated Burden	N/A (easywire ® input)
Starting current	2mA (0.66mV)
Short time over-current	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	1A...6000A
VT primary voltage	100...600V
Frequency	MID approved : 50Hz. (Operating range : 47...65Hz)
Current distortion factor	According to IEC/EN50470

Auxiliary Supply

Voltage range	Self-supplied from measuring input (any Phase)
Operating frequency	See input section
Power consumption	See input section

Outputs

Energy pulses	
Number of pulse outputs	1
Pulse output function	kWh
Pulse output type	Semiconductor (does not support volt-free operation)
Pulse output Max. current	100mA
Pulse output voltage range	5...27Vdc
Pulse duration	50 / 100 / 150 / 200 / 250 / 300ms
Pulse resolution	0.01K, 0.1K, 1K, 0.01M, 0.1M, 1M (depending on CT ratio & VT ratio)
Communication - Modbus Version	
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

Communication - Mbus Version

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 ±2°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
Housing

Housing	DIN96
Mounting	Panel mounted (Max. panel thickness 6mm)
Tamper sealing	Meter housing (by means of a tamper evident seal). Sealable terminal covers.
Housing material	Self-extinguishing polycarbonate (UL94 V-0)
Protection degree (IEC/EN60529)	IP20 (terminals), IP54 (front of housing)
Weight	<240g

Termination

Current input terminal type	RJ45 - easywire ® input
Max. wire size	N/A (easywire ® input)
Voltage input terminal type	Pluggable terminal block - Rising clamp
Max. wire size	2.5mm ²
Voltage output terminal type	Pluggable terminal block - Rising clamp
Max. wire size	2.5mm ²
Communication output (RS485 and Pulse)	Pluggable terminal block - Rising clamp
Max. wire size	1.5mm ²

Conformity

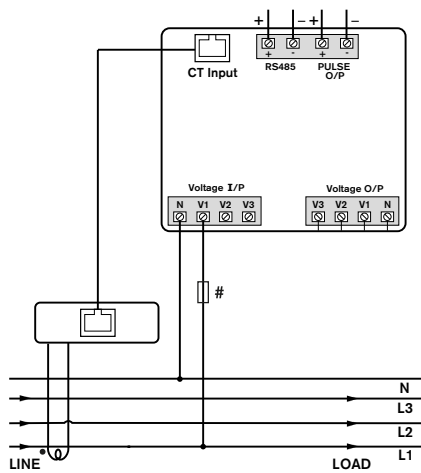
Electromagnetic compatibility	IEC/EN61326-1, IEC/EN55011 Class A, IEC/EN61000-4-2, -3, -4, -5, -6, -8, -11, IEC/EN50470-1/3
Accuracy and functionality	IEC/EN50470-1/3, IEC/EN62053-21, IEC/EN62053-23, DIRECTIVE 2014/32/EU, IEC/EN62053-31
Safety	IEC/EN61010

Wiring Diagrams

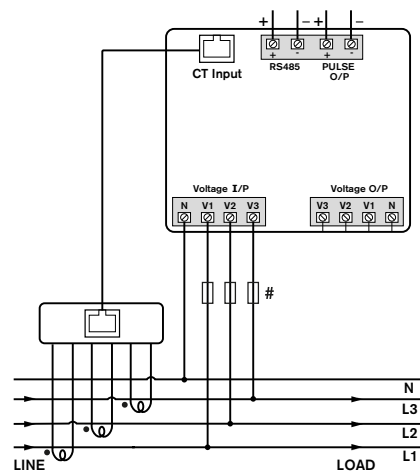
Note: # All fuse types : Class CC UL type fast acting 600V

Max. 3A (Actual rating is dependent on the number of meters connected to the voltage supply and must be determined during system design).

Single Phase L1



3 Phase 4 Wire

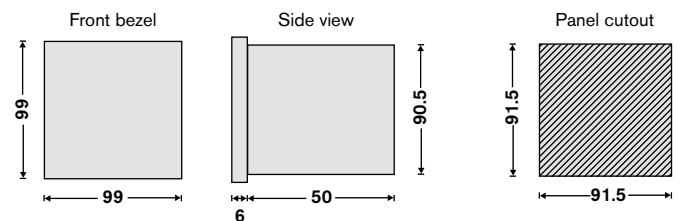


Accessories

The RI-F300 comes supplied with transparent terminal covers with holes for anti-tamper tags and clip-in ratcheted fixing clips for easy and precise fitting of the meter.



Dimensions



Model Selection Table

Communications	Model
Pulse output	RI-F300-G-P
Modbus and pulse output	RI-F300-G-C
Mbus and Pulse output	RI-F300-G-MB