User manual

GEM015SJ
100A single phase two wire kWh meter

Installation:
This unit must be fitted by a qualified electrician in accordance with the current wiring regulations BS7671.

1.1 Performance criteria:

Operating humidity	≤ 85%
Storage humidity	≤ 95%
Operating temperature	-10°C - +50°C
Storage temperature	-30°C - +70°C
International standard	**IEC 62053-21**
Accuracy class	**1**
Protection against penetration of dust and water	IP51
Insulating encased meter of protective class	II

1.2 Specifications:

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Nominal voltage (Un)	**230V AC**
Operational voltage	161 - 300V AC
Insulation capabilities:	
- AC voltage withstand	4KV for 1 minute
- Impulse voltage withstand	6KV – 1.2µS waveform
Basic current (Ib)	5 A
Maximum rated current (Imax)	**50,80,100 A**
Operational current range	0.02A – 50 A,80A,100A
Over current withstand	3000A for 0.01s
Operational frequency range	50Hz ±10%
Internal power consumption	≤2W / 10VA
Test output flash rate (RED LED)	500 impulses per kWh (3.0Wh/imp)
Pulse output rate (pins 20 & 21)	500 pulses per kWh (3.0Wh/imp)
Power supply indicator (Green LED)	Meter is connected to 230V /50Hz
Consumption indicator (RED LED)	Flashing on load
Backlit LCD display	7+1 digits
Data save	20years
Maximum cable capacity	**25mm²**

1.3 Basic errors:

0.05Ib	Cosφ = 1	±1.5%
0.1Ib	Cosφ = 0.5L	±1.5%
	Cosφ = 0.8C	±1.5%
0.1Ib - Imax	Cosφ = 1	±1.0%
0.2Ib - Imax	Cosφ = 0.5L	±1.0%
	Cosφ = 0.8C	±1.0%

1.4 Dimensions

Height	116. mm
Width	17.5 mm
Depth	59. mm
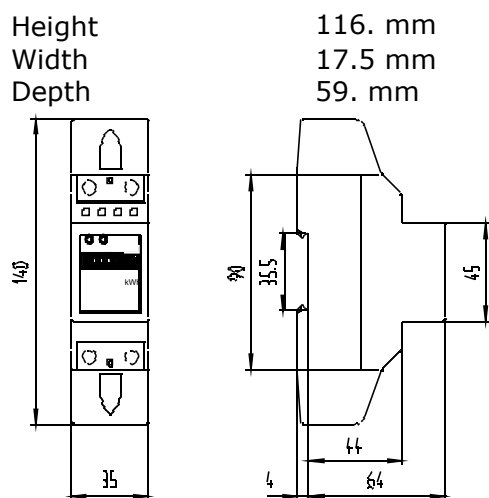
1.5 Wiring diagram
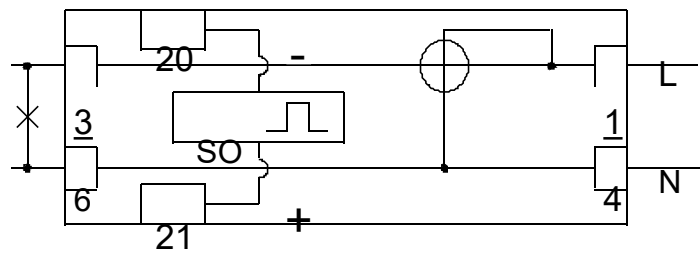
1   **supply L**
4   **supply N**
3   **load L**
6   **load N**
20 and 21   **Pulse output terminals**

After installation, the meter terminals must be sealed to prevent tampering.

Pulse output (for remote reading)

The kwh meter is equipped with a pulse output that generates pulses in proportion to the energy consumed. The pulse output is a polarity dependant, passive transistor output requiring an external voltage source. This external voltage source, voltage (Ui) should is 5-27V DC, and the maximum input current (Imax) is 27mA DC. To connect the impulse output, connect 5-27V DC to terminal 20 (anode), and the signal wire (S) to terminal 21 (cathode). The meter pulses 2000 per kWh (0.5Wh/imp).

Trouble shooting

Problem	Check	Solution
Power supply LED indicator does not illuminate	Is AC power supply connected to the meter ?	Check switch ,circuit breaker or fuse
	Is 1 and 4 connected correctly ?	Check cables into terminals 1 and 4. Live line to terminal 1 and neutral to terminal 4.
		Make sure all screws are tight.
		Check there is 230V 50Hz AC between terminals 1 and 4when power is ON.
Energy consumption (pulse) indicator does not flash	Is the load running ?	Pulse LED will only flash when load is connected and running.
	Is the operating power too low ?	If the energy consumption is too low, the spacing interval of flashing will be longer
No pulse output	Is DC power supply connected to the meter?	Check the external voltage source (Ui) is 5-27V DC.
	Is it connected correctly?	Check connections: 5-27V DC to connection 20 (anode), and signal wire (S) to connection 21 (cathode)