

Single-Phase STS Keypad Prepayment Meter

The PPL23GT Lite is a compact single phase, two wire, 80A and STS keypad prepayment meter in a British Standard (BS) housing. The meter is suitable for new installations or retrofitting of existing bottom connected electromechanical or electronic watt-hour meters.

The meter is easy to install and boasts an easy to read, language independent Liquid Crystal Display (LCD) and a wide range of information registers which can be easily accessed by pressing the information button on the keypad and then entering the number of the register.



Features



- Single phase, two wire, keypad prepayment meter
- Proven keypad technology
- Maximum current: 80A
- Compact meter in BS format
- Meter fitted with LCD and a keypad
- Clear language independent icons on the display and membrane of the meter
- Clear latch status indicator
- Scrolling display for 11 digit STS meter serial number
- Displays last 50 vouchers entered. (Displays the 20 digit STS voucher and the date and time of the voucher)
- Mechanically sealed against tampering
- Significant Reverse Energy detection
- Programmable software power limit
- Advanced decommissioning and commissioning feature for easy installation process
- Tamper detection facility
- Meter enclosure manufactured with UV stable, flame-retardant plastic material
- Degree of protection, IP54
- Improved sealing against ingress of insects
- Supports short codes (refer to user guide)
- Conforms to IEC62055-31 (Pending)
- Exceeds IEC62055-31 requirements for voltage impulse withstand

Functionalities



Tamper Detection Functionality

PPL23GT Lite is mechanically sealed against tampering through the use of a factory-sealed screw plug on the rear panel and a utility-sealed wire seal on the front of the meter.

The use of these mechanical seals ensures that there are visible signs of tampering if unauthorised entry to the system is attempted.

In addition, the meter is equipped with a tamper sensor that will automatically disconnect the power to the load in the event of tampering.

The meter includes a Significant Reverse Energy (SRE) detection feature. If the line and load wires are swapped during installation, the meter will continue to operate and decrement credit, however, the meter can be factory-programmed to tamper and disconnect the load should SRE be detected.

Virtual Token Carrier (VTC) port

PPL23GT Lite is fitted with an industry standard VTC port at the rear of the meter. While this port is typically used to program the meter during the manufacturing process, it can also be used to extract vital meter information, such as remaining credit.

Voltage Impulse Withstand

The meter exceeds the IEC62055-31 voltage information, such as remaining credit.

Technical Specifications

Item	Specification
Meter format	Single-phase, 2 wire (Line 1, N, N, Load 1) directly connected keypad prepayment
Meter type variants	Single-phase, 2 wire, 230V, 50Hz Single-phase, 2 wire, 220V, 50Hz Single-phase, 2 wire, 120V, 60Hz
General prepayment	Mode only
Credit entry mechanism	20-digit STS encrypted numbers via the keypad of the meter, or via the VTC port
Encryption algorithms	20-digit STS according to IEC 62055-41
Nominal voltage (Un) - Rated voltage	See meter type variants
Nominal frequency	50Hz and 60Hz variants available
Operating voltage range	80% to 120% of Un
Maximum continuous current (Imax)	80A (factory and field programmable to lower power limits)
Voltage circuit	<1.5W / <10VA @ 230V, 50 Hz
Current circuit	<2.5VA @ Ib=10A
Protective class (according to IEC)	Class II (double insulated)
Measurement direction	Forward and reverse power detection and metering (Credit is decremented in both directions)
Meter constant (LED flash rate)	1000 impulses/kWh
Basic reference current (Ib)	10A
Accurate metering range	0.05Ib to 1.2 Imax
Starting current	≤ 0.005Ib (For class 2)
Power threshold	6.5W (approx 28mA @ 230V and cos (φ) =1)
Accuracy class index	Class 1 and Class 2 meters available
Maximum error (Class 1)	< ±1% over range 0.1Ib to Imax; 0.5 ≤ cos (φ) ≤ 1.0 (lead or lag)
Maximum error	(Class 2) < ±2% over range 0.1Ib to Imax; 0.5 ≤ cos (φ) ≤ 1.0 (lead or lag)
Power threshold (creep)	Out of threshold 9.2W (approx 40mA @230V) Into threshold 6.4W (approx 28mA @230V)
Disconnection device type	Single pole latching contactor 100A
Terminal layout	According to British Standard, BS 5685
Mains terminal type	Double screw (M6) moving cage terminal
Mains terminal material	Mild steel, yellow passivated
Mains terminal cable size	25mm ²
Terminal block material	UV stable polycarbonate/ABS with flame-retardant properties
Resistance to heat and fire	Complies with 960°C glow wire (IEC 60695-2-1)
Resistance to spread of fire	UL94-V0 rated @ 1.5mm. No toxic gases emitted: "Green Material"
Rating	Degree of protection IP54 (IEC 60529)

Technical Specifications

Mounting arrangements	Two mounting screws at the bottom (spacing according to BS 5685) Top mounting bracket available as an option (short or long)
Sealing terminal cover	1 sealing screw
Sealing meter enclosure	Factory sealed with screw. Sealing plugs inserted at the time of manufacture
Weight	Approximately 536 grams width 122mm
External dimensions	Height (with long terminal cover) 168.5mm, Depth 68mm
Insulation and over-voltage	Insulation system classification: Protective Class II
Insulation level	4kV for 1 minute
Over-voltage withstand	440VAC for 48 hours 600VDC for 1 minute
Voltage impulse withstand	Differential in excess of 6kV,
Specification compliance	SABS 1524-1, IEC 62052-11
General EMC	Radio Interference: Complies with CISPR22
Immunity to fast transient bursts	5kV
Electrostatic discharge	15kV air discharge
Immunity to HF fields	80MHz to 2GHz @10V/m with load 80MHz to 2GHz @30V/m no load
Specification compliance	IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC61000-4-6, CISPR 22
Area of application	Indoor meter
Operating temperature range	-10°C to +55°C
Storage temperature range	-25°C to +70°C
Relative humidity	Max 95%; Annual mean 75%
Main machine interface type	Language independent
Components	Pictograph / numeric LCD display, keypad, LED rate of consumption indicator, audio feedback for key-press
Liquid Crystal Display (LCD)	12-key international standard layout including "Information" and "Backspace" keys
LCD size (w x h)	5.5 x 14 (mm)
Icon information	Happy face, sad face, switch open, switch closed, information icon, watts, kWh, alert icon, 4 segment credit wage
Keypad	Audio feedback on key-press
Buzzer	Indicator visual red, 1000 pulses per kWh
Rate of consumption	Additional meter parameters accessible via the information key
Diagnostic information	Indicator visual red, 1000 pulses per kWh
Virtual token carrier (VTC) port	Rear programming port according to IEC 62055-52
IEC/STS Compliance	IEC 62055-31 (pending), IEC 62055-41/51
BS Compliance	Conforms to BS 5685:1979

