ACE9000 SSP DIN-R PLC

Split Single Phase Din Rail Power Line Communications Prepayment Electricity Meter

The ACE9000 Split Single Phase DIN Rail PLC (SSP DIN-R PLC) is a compact DIN rail mounted 100A class 1 accuracy prepayment meter utilizing Power Line Carrier (PLC) technology for communication between the Meter Control Unit (MCU) and Customer Interface Unit (CIU).

The meter has a split configuration, which allows for increased revenue protection by mounting the Metering Control Unit (MCU) in a secure pavement kiosk or pole mounted box away from consumer access.

The small size and standard DIN mounting of the MCU means smaller enclosures and higher meter densities per box are possible. The meter consists of two parts, the MCU and the Customer Interface Unit (CIU).

The PLC communication uses existing household wiring and does not require additional wiring to the consumer's house. The CIU can be conveniently located by plugging it into an available mains socket. A retrofit CIU option is also available in a standard base footprint and can be installed in place of the MCU having been moved to the relative security of a pole top box. The standard base CIU is available with battery backup or integral load switch instead of batteries.

The meter can operate as a simple prepayment or post payment meter, but is also ready for integration into a larger revenue assurance system by providing the necessary open standards interfaces and enhanced load profiling and management features.

MCU (METERING AND CONTROL UNIT)

The MCU consists of the metrology circuit, the STS decryption engine, load control and communication interfaces. Visual indication of the load switch, mains power, communication status and consumption rate are provided. An IEC 62055-52 compliant optical port is also standard and a DSP 34-1635 micro-USB port is optional. Either of these ports can be used for data extraction and also provide the data transfer interface to the revenue protection system.

CIU (CUSTOMER INTERFACE UNIT)

Any CIUs can be used with the MCU. The CIU is available as a stand-alone, which can be plugged into an available mains socket, and a standard-base unit (with battery backup or integral load switch) which plugs into the Eskom standard base socket.

The stand-alone CIU is ideal for new installations while the standard base CIU's are most suited to retrofit installations. The Relay CIU (with integral load switch) is ideal for utilities that do not want to make the consumer responsible for battery maintenance.

The CIU is paired to an individual MCU during the installation process, ensuring privacy of data for the user. The CIU includes a large LCD with user friendly language independent icons to display meter information in a user friendly format.

KEY BENEFITS

- Power Line Communication to CIU
- Stand-Alone, Standard-Base and Relay CIU
- Prepaid and post-paid metering modes
- Advanced disconnection features for voltage, temperature and frequency out of specific conditions
- Logging of load profiles, events and alarms - option
- CMS ready

SPECIFICATIONS

Technical Specifications

Standards

IEC 62055-31	Particular Requirements – Static Payment Meters for Active Energy (Cl 1 & 2)
IEC 62055-41	Part 41: Standard transfer specification (STS) – Application layer protocol for one-way token carrier systems
IEC 62055-51	Part 51 - Standard Transfer Specification (STS) - Physical Layer Protocol for one-way numeric and magnetic card token carriers
IEC 62055-52	Part 52 - Standard Transfer Specification - Physical Layer Protocol for a two-way virtual token carrier for direct local connection
SANS 1524-1	South African National Standard – Part 1: Prepayment Meters
DSP 34-1635	ESKOM: Particular Requirements for Prepayment meters
NRS049-2	ADVANCED METERING INFRASTRUCTURE (AMI) Part 2 - Systems for split prepayment metering
EN 50065-1	Signalling on low-voltage electrical installations in the frequency range 3kHz to 148.5kHz - Part 1: General requirements, frequency bands and electromagnetic disturbances.

Metering Control Unit (MCU)

Rated Voltage	230V (-48%, +15%) - (120V (-20% +15%) : Option)
Frequency	50/60Hz +/- 2%
Basic Current (Ib)	5A
Maximum Current (Imax)	100A
Starting Current	20mA
Accuracy	Class 1
Continuous Voltage Supply	Maximum: 265V - Minimum: 120V
Maximum Withstand Voltage (48hr)	440V (48 hours)
RF Immunity (no load)	30V/m
RF Immunity (accuracy)	10V/m
Power Consumption	< 2W & 10VA
Rate Indicator	1000 pulses/kWh
Status Indicators	Contactor Status, Comms Status, Rate Indicator LED's
Installation	35mm DIN-Rail Mounting
Disconnection Device	100A, Single-Pole Bi-Stable Latch
Operating Temperature Range	-25°C to + 55°C
Limiting Temperature Range for Operation	-40°C to + 70°C
Humidity Operating Range	95% RH
IP Rating	IP51
Terminal wiring	Top connection Supply (LN), bottom connection Load(L)
Meter Weight	0.45kg
Dimensions (W x D x H)	46 x 90 x 148mm
Communication (CIU)	PLC - 120m range dependant on the noise environment Wired (optional) - 300m range
Communication (Optical port)	IEC 62055-52 compliant bi-directional optical port
Product Life	15 years

Customer Interface Unit (CIU)

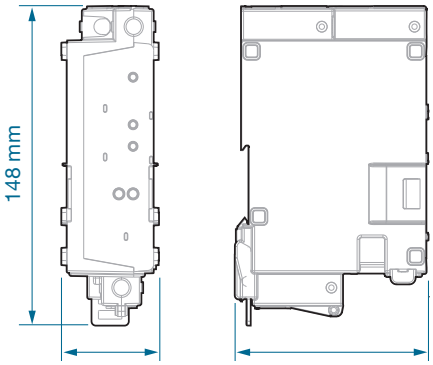
User Interface	12 Digit Keypad with Audio Feedback
User display	8 digit LCD with language independant icons
Consumption Display	LED (not for metrological purposes)
Communication Circuitry	CENELEC A compliant PLC
IP Rating	IP54
Installation Type	Wall mounting (plugs into mains socket) - Common Base plug in mount
Weight	0.3kg (stand-alone) - 0.4kg (standard base) - 0.5kg (relay)

Operating Modes

Prepayment mode	Fully STS Compliant prepayment
Post paid Metering Mode	Credit display, with disconnection management
Utility Test Mode	High speed, high resolution calibration mode

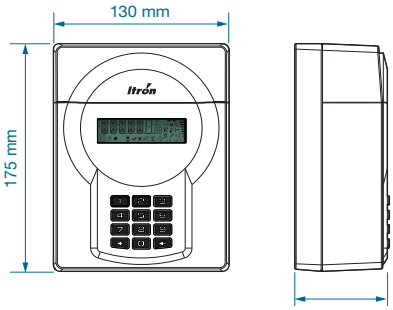
Dimensions

Metering and Control Unit (MCU)

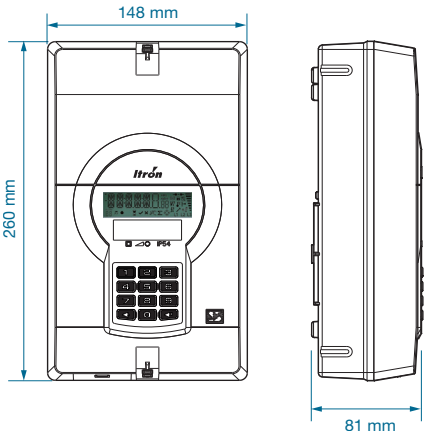


Customer Interface Unit (CIU)

Stand-Alone CIU



Standard-Base and Relay CIU



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