SMART POLE-MOUNTING METERS
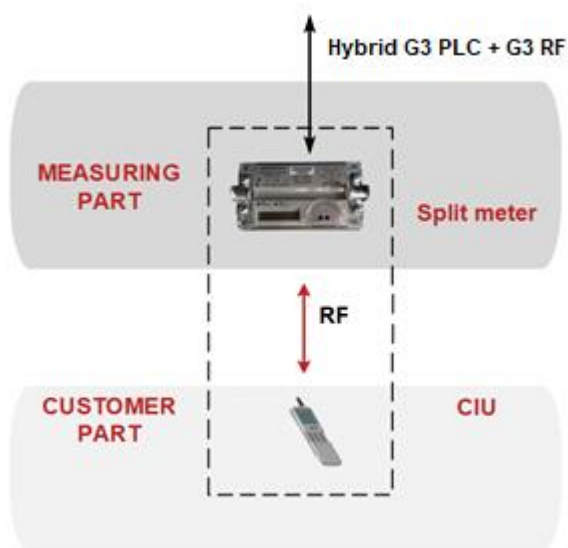
ADD
GRUP

2000 imp/kWh   2000 imp/kvarh

80 001 13 11052506

Made in Moldova

PRODUCTION EN ISO 9001   ADDAX

1 2 3 4
G N

B   - 40 °C + 70 °C
0.25 - 5 (80) A
120 V   60 Hz

CE M13 1781

Datasheet

AD11S.1-1-2

SINGLE-PHASE
POLE-MOUNTING ELECTRICITY METER
DESIGNED FOR USE IN AMI/AMR SYSTEM

OVERALL VIEW

ADDAX SPLIT SOLUTION

Icon	Description
KWh KVArh	Active energy *(export/import)* Reactive energy *(4 quadrants)*
V A	Measured quantities
T1-T6	Multirate registration
🕐	Built-in clock
📅	Event Log
📶	Load profile
I1≠I2	Detection of phase-neutral currents difference
IP65	Protection level
🔋	Reserve power supply
🕱	Standard data model, open protocols, DLMS/COSEM support
◉	Optical port
⎓	Disconnecting relay
🔓	Fraud detection
🔗	PLC+RF hybrid solution
📡	RF interface for communication downwards with CIU
888	Data transmission to the Customer Interface Unit (CIU)

DLMS/COSEM SUPPORT
- Standard data model
- Standard communication protocols
- Interoperability

BUILT-IN CLOCK
- Real Time Clock (RTC), accuracy 0,5 s.
- IEC 62052-21 standard compliant
- Local synchronization
- Sleep mode, battery
- Daylight saving time support

MEASURED QUANTITIES
- Active energy, class C, export and import
- Reactive energy, class 2,4 quadrants
- Apparent energy
- Power, Max Demand
  - integration period: 15', 30', 60', 1 day
  - average interval: day, month
- Phase voltage/current, instantaneous value, RMS, neutral current, difference between phase and neutral currents

METERING DATA
- Actual meter readings
- Periodic meter readings: daily, monthly
- Interval meter readings: 5', 10', 15', 20', 30', 60'
- Timestamp

DATA STORAGE
- Non-volatile memory
- Capacity depends on data type and number of parameters and can be expanded for one type of data on the expense of another
- Up to 3 interval profiles and 1 billing profile. For example:
  - *daily profile for 10 parameters is stored for about 258 days;*
  - *monthly profile for 10 parameters - 213 months*

MULTI-RATE METERING
- Up to 6 tariff registers
- Up to 12 changeovers per day
- Tariff indicator is transmitted to paired CIU and to an external system
- Active and passive tariff plans, configurable activation time of the passive tariff plan

LOAD CONTROL
- Built-in relay (80 A)
- Not less than 100 000 switchings on/off
- Continuous relay state control
- Relay status displaying
- Events registering

ELECTRICAL ENERGY QUALITY CONTROL
- Quality indexes:
  - average voltage
  - voltage sags and swells
  - outages
  - network frequency
  - angles between phases

METER SELF-CONTROL
- Built-in test for continuous self-control
- Quick response on severe error
- Events registering

EVENTS HANDLING
- Continuous control for fraud and tamper events
- Standard set of events processing including: registration in the special log, states displaying,
- load switching off on special cases
- Timestamps
- up to 10 different logs depending on the event type, each of which about 200 events in average

BUILT-IN DISPLAY
- Built-in display to present metering data and service information
- LCD, 8 digits, configurable decimal place
- Special symbols, data identification according to IEC 62056-61 (OBIS)
- Service/client lists of parameters
- Display self-testing
- Low credit alert.

THRESHOLDS MANAGEMENT
- Possibility to configure parameters thresholds
- Possibility to disconnect consumer from the network, when a threshold is crossed
- Events registering

FRAUD & THEFT PROTECTION
- Mounting in out-of-reach place;
- Continuous monitoring, including sleep mode time
- Fraud types under control:
  - Detection of inadmissible phase-neutral currents difference;
  - Reverse current detection;
  - Protective seals.
- Events registering

SOFTWARE UPGRADE
- Remote (via communication channel) or local (via optical port)
- Events registering

SECURITY
- AES-GCM-128 security suite encryption
- Data access according to granted rights
- Firmware protection
- Events registering

DATA TRANSMISSION
- Data transmission on demand or by schedule
- Request types:
  - Data concentrator request
  - (via communication channel)
  - Hand Held Unit request
  - (via optical port)
- Data transmission to customer (CIU) over RF on schedule

TEST OUTPUTS
- Outputs: 2 optical outputs (LEDs), optical port
- Parameters under control: active energy, reactive energy

METER PARAMETERIZATION
- Locally via optical port and using dedicated smart cards via NFC
- Differentiation of access rights

HYBRID COMMUNICATIONS
- Two channels are supported:
  - Power Line Communication (PLC)
    - Built-in PLC modem
    - G3-PLC, ITU-T G.9903 standard compliant
    - PLC features:
      - CENELEC A Band
      - EMC standards compliance
      - Auto-discovery
      - Repeating
  - RF Communication
    - Built-in RF modem with internal antenna.
    - Modulation: 2-FSK
    - G3-PLC compliant MAC layer
    - Upper layers: 6LoWPAN, IPv6, UDP, DLMS
    - Carrier frequency – 915 MHz
- The route is built with hop-to-hop selecting between the "best" channel
- The channel selection is automatically done during network setup and dynamically adjusted based on the media status

RF COMMUNICATION
- Data transmission distance: up to 200 m in the open space.
- HAN communication downwards with CIU

DATA TRANSMISSION
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OPTICAL PORT
- IEC 62056-21 standard compliant
- Data transmission rate 115200 bps
- Possibility of local data exchange and meter parameterization

PREPAYMENT FUNCTIONALITY
- Pre-payment and post-payment mode support
- STS prepayment standard (IEC62055-41/51).
- Energy measuring and displaying in kWh and cash *(optionally)*
- Functionality to disconnect consumers' load when their credit amount is exhausted
- Consumer low credit notification

BACKUP POWER SUPPLY
- Battery for meter backup supply in sleep mode
- Battery lifetime - not less than 20 years

Accuracy class:	
- **Active energy**	B
- **Reactive energy**	2
Reference current, Iref	5 A
Maximum current, Imax	80 A
Minimum current	0.05 Iref
Starting current:	
- **Active energy**	0.004 Iref
- **Reactive energy**	0.005 Iref
Reference voltage, Un	120 V
Voltage range	0.8 Un ... 1.2 Un
Extended volage range	0.6 Un ... 1.4 Un
Reference frequency	60 Hz
Meter constant:	
- **Active energy**	2000 imp/kWh
- **Reactive energy**	2000 imp/kvarh
Temperature range	-40°C ... +70°C
Clock accuracy (at 25°C) (IEC 62052-21)	≤0.5 s /24 h
Data transmission rate (on physical layer, with coding)	
- **G3 RF**	38,4 kbps
- **OFDM G3-PLC**	20-46 kbps
Inherent consumption of current circuit, not more (IEC 62053-61)	1 VA
Inherent consumption of voltage circuit, active/total, not more (IEC 62053-61)	2 W / 10 VA
Insulation strength (IEC 61010-1-90)	4 kV, 50 Hz, 1 min
Shock voltage (IEC 60060-1)	12 kV, 1.2/50 μs
Electrostatic discharge (IEC 61000-4-2)	15 kV
High frequency radiant field (IEC 61000-4-3)	10 V/m
High frequency interferences (IEC 61000-4-4)	4 kV
Surge immunity test (IEC 61000-4-5)	6 kV
IP rating	IP65
Mean total lifetime, not less	20 years
MTBF	144 000 hours
Dimensions, mm	140 x 132 x 75 mm

CONNECTION DIAGRAM
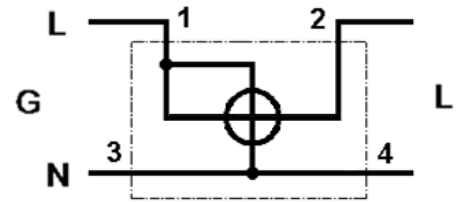
INSTALLATION
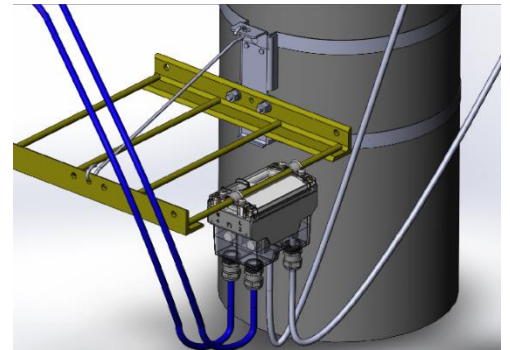
SUPPORT OF OUTDOOR INSTALLATION

Possibility of installation in an unreachable place, e. g. on an electricity pylon

CONTACT US