add new tech to your business!
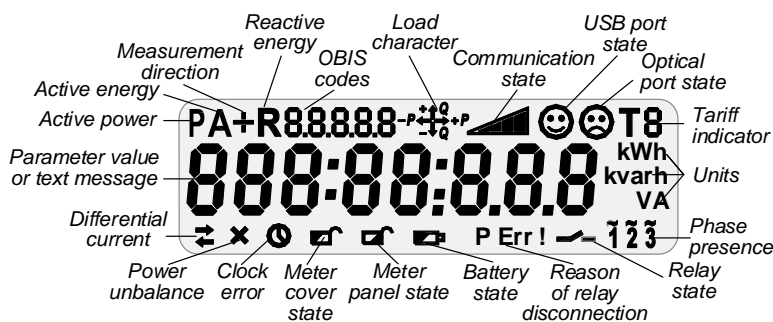
ADDAX

AD13B.1-3-1
MULTI-FUNCTION & MULTI-TARIFF THREE-PHASE ELECTRONIC METERS DESIGNED FOR USE IN AMI/AMR SYSTEM

OVERALL VIEW

DISPLAY INDICATIONS

Measurement direction
Reactive energy
Load character
USB port state
Communication state
Optical port state
OBIS codes
Active energy
Active power
Parameter value or text message
Differential current
Tariff indicator
Units
Phase presence
Relay state
Power unbalance
Clock error
Meter cover state
Meter panel state
Battery state
Reason of relay disconnection

PA+R88888
888:88:8.8.8
kWh
kvarh
VA
P Err!
123

KWh KVArh VAh	Active energy *(export/import)* Reactive energy *(4 quadrants)* Apparent energy
V A	Measured quantities
T1-T6	Multirate registration
THD	Calculation of total harmonic distortion factor
(clock)	Built-in clock
(calendar)	Event Log
(bars)	Load profile
I1≠I2	Differential current detection
IP54	Protection level
(battery)	Reserve power supply
(symbol)	Standard data model, open protocols
(optical)	Optical port
(relay)	Disconnecting relay
(lock)	Sensor of meter cover opening
(X)	Sensor of meter panel opening
(magnet)	Magnetic field sensor
PLC	PLC universal platform
(arrows)	Extension communication interface

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
- External synchronization
- Sleep mode, battery
- Daylight saving time support

MEASURED QUANTITIES
- Active energy, class B, export/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:
  - 15 minutes interval profile: 6 parameters for about 63 days
  - hourly interval profile: 6 parameters for about 13 days
  - monthly billing profile: 6 parameters for about 110 months

MULTI-RATE METERING
- Up to 6 tariff registers
- Up to 24 changeovers per day
- Tariff indicator is displayed on LCD and transmitted to an external system
- Active and passive tariff plans, configurable activation time of the passive tariff plan

CALENDAR
- Up to 12 seasons per year
- Up to 7 daily profiles per week
- Up to 30 special days per year
- Support of movable holidays

TEST OUTPUTS
- Outputs: LEDs, optical port
- Parameters under control: active energy, reactive energy

EVENTS & ALARMS HANDLING
- Continuous control of current state of meter functional nodes and alarms/events, timestamps
- Standard set of events processing including: registration in the special logs and registers, event report sending, states displaying, load switching off on special cases
- Different types of event logs

BUILT-IN DISPLAY
- LCD, 8 digits, configurable decimal place (up to 3 digits)
- Special symbols, data identification according to IEC 62056-61 (OBIS)
- Metering data and specified messages displaying
- Service/client lists of parameters
- Manual/automatic scrolling modes
- Display self-testing
- Configurable backlight mode
- Sleep mode

LOAD CONTROL
- Built-in relay (100 A)
- Control modes:
  - remote (by command)
  - local (by condition)
  - manual (by push button)
- 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
  - THD for voltage/current harmonics
- Remote or local configuring of parameters thresholds
- Events registering

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

FRAUD & THEFT PROTECTION
- Continuous monitoring, including sleep mode time
- Fraud types under control:
  - meter cover and panel opening
  - inadmissible differential current
  - strong external magnetic field
- Hall sensor for magnetic field detection
- Shunts in phase and neutral circuits for tamper detection
- Events registering
- Possibility of sealing meter cover, panel and terminal block

SOFTWARE UPGRADE
- Remote or local software upgrade

METER PARAMETERIZATION
- Remote (via communication channel) or local (via optical port)
- Access rights assignment from HES
- Events registering

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

INFORMATION SECURITY
- Communication encryption (AES-GCM-128 security suite)
- Data access according to access rights
- Firmware protection
- Events registering

DATA TRANSMISSION
- Data transmission on demand or by schedule
- Request types:
  - Concentrator request (via communication channel)
  - Hand Held Unit request (via optical port)

POWER LINE COMMUNICATION (PLC)
- Built-in OFDM PLC modem
- OFDM (PRIME), ITU-T G.9904 standard compliant
- OFDM (G3-PLC), ITU-T G.9903 standard compliant
- PLC features:
  - CENELEC A Band
  - EMC standards compliance
  - Auto-discovery
  - Repeating

EXTENSION COMMUNICATION INTERFACE
- Built-in extension interface, which allows connection of various 3rd party USB adapters (up to 2) for:
  - HAN communication, e.g.: wireless M-Bus, RS-485 and/or
  - WAN communication, e.g.: 3GPP
- Control of USB power supply

OPTICAL PORT
- Local communication with meter
- IEC 62056-21 standard compliant
- Data transmission rate 115200 bps
- Restricted access owing to sealed meter cover

PUSH BUTTONS
- Client button on meter case for:
  - manual reconnection of customer's load
  - manual meter screens scrolling
  - viewing data on LCD when the power is off
- Service button under sealed meter cover. May be implemented for any service purposes according to customer requirements
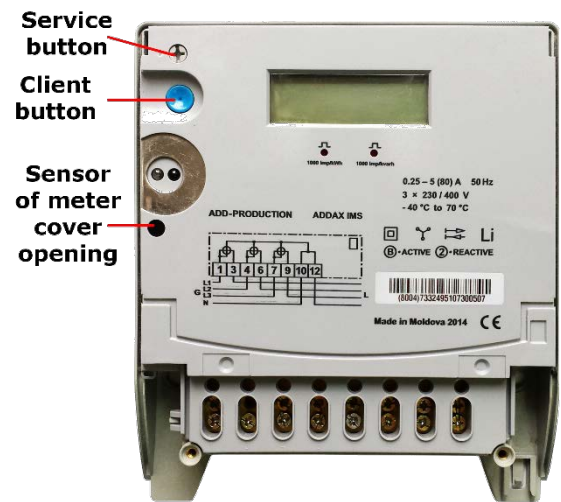
BACKUP POWER SUPPLY
- Battery for meter backup supply in sleep mode
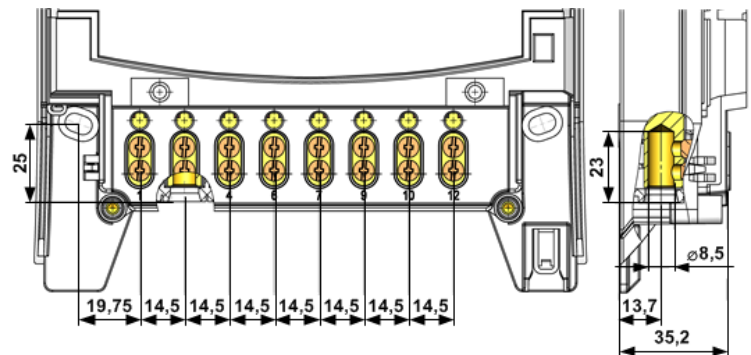- Lifetime - not less than 20 years

TECHNICAL SPECIFICATIONS

Accuracy class:
  - Active energy
  - Reactive energy
	
	B
	2

Reference current, Iref	5 A
Maximum current, Imax	80 A
Minimum current	0.05 Iref

Starting current:
  - Active energy
  - Reactive energy
	
	0.004 Iref
	0.005 Iref

Reference voltage, Un	3×230 V
Voltage range	0.8 Un … 1.2 Un
Reference frequency	50 Hz

Meter constant:
  - Active energy
  - Reactive energy
	
	1000 imp/kWh
	1000 imp/kvarh

Temperature range	-40°C ... +70°C
Clock accuracy (at 25°C) (IEC 62052-21)	≤0.5 s /24 h

Data transmission rate via OFDM PLC (on physical layer, with coding):
  - PRIME
  - G3
	
	21-64 kbps
	5-33 kbps

Inherent consumption of current circuit, not more (IEC 62053-61)	2.5 VA
Inherent consumption of voltage circuit, active/total, per phase, not more (when communication over USB is active) (IEC 62053-61)	3 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	IP54
Mean total lifetime, not less	20 years
Dimensions	241.5x179x63.3 mm

PUSH BUTTONS*

Service button
Client button
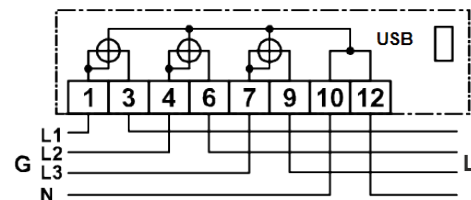Sensor of meter cover opening

TERMINAL BLOCK DIMENSIONS*

*- meter cover is removed

CONNECTION DIAGRAM

DESIGN FEATURES

TERMINAL BLOCK
- DIN 43857 standard compliance
- Universal clamping type for terminals of current circuits: D = 8 mm

MOUNTING
- By 3 fixing points
- Movable hanger

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