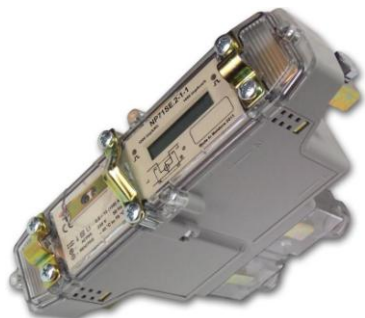# EXTRA SERIES SPLIT METERS
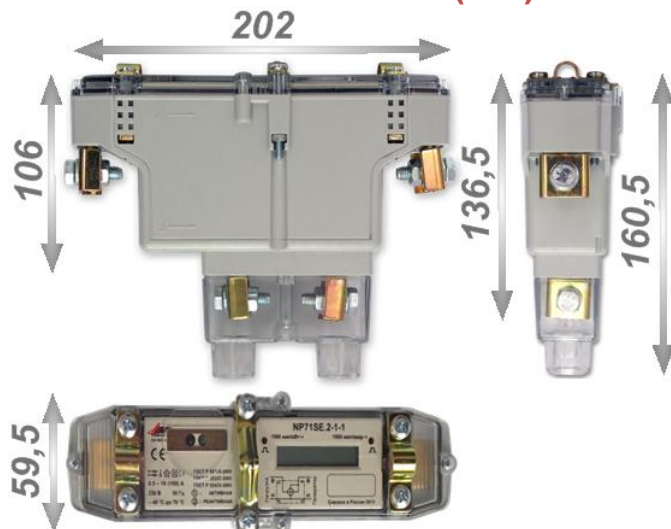## BASED ON UP-TO DATE ADDAX TECHNOLOGY FOR RESIDENTIAL METERING
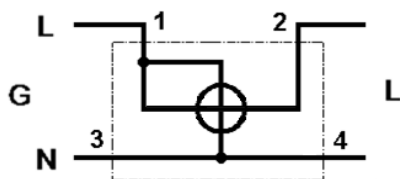
ADDAX

NP71SE.1-X-X

SINGLE-PHASE ELECTRICITY SPLIT METER DESIGNED FOR MEASUREMENT OF ACTIVE AND REACTIVE ELECTRIC ENERGIES IN SINGLE-PHASE AC CIRCUIT
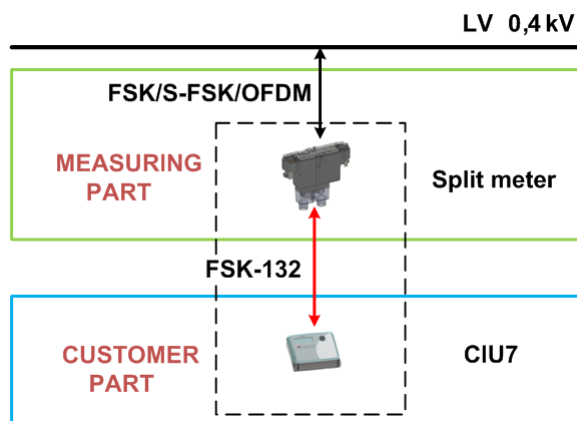
OVERALL DIMENSIONS (mm)

WIRING DIAGRAM

ADDAX SPLIT SOLUTION

Icon	Feature
⬌	Interoperability: DLMS/COSEM support
KWh / Kvarh	Measurement of active and reactive electric energies and other parameters
T1-T6	Multirate registration
🕐	Built-in real time clock supports external synchronization
📋	Event Log
▦	Registration of load profiles
I1≠I2	Differential current detection
U	Detection of extraneous voltage
IP54	Protection level
🔋	Backup power supply: Li-battery
💾	Non-volatile memory
◉	Optical port
⇄	FSK/S-FSK/OFDM PLC modulation
PLC	Two built-in PL modems
8888	Data transmission to the Customer Interface Unit (CIU7)
•••	Three tamper-proof seals

- **The meter can be installed in an unreachable place, e. g., on an electricity pylon**
- **Protection against energy theft or tampering**
- **Transmission of information on consumption to CIU7**
- **High EMC compatibility**

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	FUNCTIONS	

Measured and recorded quantities
- Active energy, accuracy class 1.0, export and import
- Reactive energy, accuracy class 2.0, 4 quadrants
- Real time meter readings, interval and billing meter readings (15', 30', 60', daily, monthly)

Registration of load profiles
- 4 custom interval profiles (15', 30', hour, day, month)

Data collection
- On schedule: data are captured according to 4 custom interval profiles
- On request: the actual meter readings are captured at an external command
- On event: when a certain event occurs, a number of custom parameters are captured

Data storage in non-volatile memory
- FLASH of 8 Mbit and FRAM of 16 Kbit
- Capacity depends on data type and number and can be expanded for one type of data on the expense of another. For example:
  - ✓ *15-minute profile:*
    1 parameter of 12920 records for about 134 days; 8 parameters each of 3268 records for about 34 days;
  - ✓ *hourly profile:*
    1 parameter of 1020 records for about 42 days; 8 parameters each of 258 records for about 10 days

Support of full two way communication
- Built-in FSK/S-FSK/OFDM PLC modems*
- PLC upwards*:
  - ✓ FSK, ADDAX proprietary protocol, frequency range - 43/49 kHz
  - ✓ S-FSK, IEC 61334-5-1 standard compliant, CENELEC A Band
  - ✓ OFDM, PRIME standard compliance, CENELEC A Band
- PLC downwards*:
  - ✓ FSK-132, KNX standard compliant, frequency range - 132 kHz
- Optical port, data exchange rate of 9600 bps, compliant with IEC 62065-21 standard

Delivery of metering data and events
- Data transmission to the center/customer (CIU7) over PL on schedule / request / event

Assigning timestamps
- Built-in RTC and calendar allows assigning timestamps to all data and events

Multi-rate registration
- Direct real-time TOU control
- 6 tariffs, up to 12 seasons per year, 7 daily TOU per week, 30 special days per year, 24 daily changes from one tariff to another
- Indication of the current tariff on the meter display and CIU7

Event handling
- Recording events in one of 7 event logs
- Raising and delivering alarms
- Displaying the event flag on meter display and CIU7
- Disconnecting the load if necessary

Demand control
- Calculation of the maximum and average maximum active power values calculated for 15', 30', 60', daily, and monthly intervals

Data presentation
- Built-in display to present metering data and service information

Extraneous voltage control
- Detecting the presence of any extraneous voltage, when the relay is switched off
- No relay reconnection until the extraneous voltage disappears

Protection against theft and tampering
- Detection of differential current
- Detection of the reverse meter connection
- Detection of any extraneous voltage
- Three security seals

Support of parameterization
- Local & remote meter set-up concerning:
  - ✓ Data collection schedule
  - ✓ TOU
  - ✓ 12 limiters
  - ✓ Outages control
  - ✓ Alarm handling
  - ✓ Parameters sent to CIU7
  - ✓ Credit / prepayment mode
  - ✓ Relay operation mode
  - ✓ Averaging period for Max Demand

Support of firmware upgrades
- Adding new functionality
- Performed locally, via the optical port

Load control
- Built-in relay of 80A
- Remote (from center), local (by a function of the meter) and manual (by push button on CIU7) types of the load control
- Displaying the relay status on meter display and CIU7

Electric energy quality control
- Monitoring:
  - ✓ Average voltage & current
  - ✓ Voltage sags & swells
  - ✓ Power outages
  - ✓ Cos φ
  - ✓ Network frequency

Meter self-control
- Identifying malfunctions promptly

Support of prepayment mode
- Standard Transfer Specification (STS)

Support of information security
- Protection against malicious codes by software authentication
- Safe data storage in non-volatile memory
- Restricted access to meter by user ID

Support of backup power supply
- Li-battery, lifetime - 20 years

Support of outdoor installation
- Installation on an electricity pylon, etc.

* optional, depending on meter model

TECHNICAL SPECIFICATIONS

Nominal voltage, U_{nom}	230 V
Voltage range	$0.8U_{nom} ... 1.2U_{nom}$
Nominal frequency, f_{nom}	50 Hz (± 2 %)
Nominal current, I_{nom}	5A
Maximum current, I_{max}	80A
Minimum current	$0.05I_{nom}$
Accuracy class: - Active energy (IEC 62052-11, IEC 62053-21) - Reactive energy (IEC 62053-23)	1 2
Data transmission rate via PLC, up to*	100 bps *(FSK)* 4800 bps *(FSK-132)* 2400 bps *(S-FSK)* 128 kbps *(OFDM)*
Starting current: - Active energy - Reactive energy	$0.004I_{nom}$ $0.005I_{nom}$
Internal clock	quartz of 32 kHz
Clock accuracy (IEC 62052-21)	≤0.5 s /24 h (at 25°C)
Meter constant: - Active energy - Reactive energy	1000 imp/kWh 1000 imp/kArh
Operation temperatures (IEC 60721-3-3)	-40°C ... +70°C
Storage temperatures (IEC 60721-3-1)	-40°C ... +70°C
Inherent consumption: - of current circuit, not more than - of voltage circuit, not more than	0.2 VA 1 W/8 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 (EN 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
Mean lifetime, not less than	30 years
IP rating	IP54
Weight	1.1 kg

ORDERING INFORMATION

Meter type, NP71SE.1-X-X	1-1	2-1
PLC upwards	S-FSK	S-FSK/OFDM