



Standalone Working in the Field

Even if it is disconnected from the central server, **sMOD-X** works alone in the field, continues to read data regularly and performs scheduled tasks.



Uninterrupted Operation in Power Outages

In the event of a power outage, **sMOD-X** instantly generates a "power failure" alarm and sends it to the central server. Thanks to its built-in battery, it continues to work in the event of a power outage, continuing to send recorded data to the central server.



SCADA (IEC60870-5-104) Protocol Integration

sMOD-X can be integrated with SCADA management systems thanks to the support of IEC-104 protocol over GSM Communication.



Ability to operate as an Astronomical Timer (AZS)

sMOD-X can control lighting without the need for an external AZS hardware with the astronomical timer application installed in its software and built-in relay control. In addition, the built-in AZS parameters can be controlled remotely.



MODBUS-RTU Communication Protocol Support

With its MODBUS-RTU protocol, **sMOD-X** can remotely read and manage field devices such as Energy Analyzer, Astronomical Timer, etc.



Smart Restart (Hard Reset)

In the event of any problem with its software, hardware or mobile data network, **sMOD-X** automatically detects and restarts itself in the event of a problem with its software, hardware or mobile data network. It can also be programmed to reboot itself at a set period.



Easy integration with different head-end management systems

sMOD-X can be easily integrated into different head-end systems with its JSON-based read data and MQTT communication protocol.



Modular Hardware Design

sMOD-X, which is a completely domestic R&D project, has a modular hardware design and can work with different connection interfaces, different communication infrastructures or different supply voltages.

Power Supply Unit

Modular Power Supply Module with advanced protection methods

Modular design

High stability with SMPS technology

High-current and high-voltage protections

Input line filter protection prevents interference from mains noise

High impulse resistance protection



Versions

54-285 VAC
Single Phase (L-N) Power Stage
54-450 VAC
Single Phase (L-N) Power Supply
100-460 VAC
Three Phase (R-S-T-N)
Power Solid
12-60 VDC
DC Power Supply Unit
Universal 48-285V (AC/DC)

Communication Module (GSM Module Unit)

Communication module designed in a modular structure to provide rapid adaptation to field requirements and innovative communication technologies

Modular design

Physical SIM card and optional E-SIM (embedded SIM) support

Instant GSM Signal Level monitoring

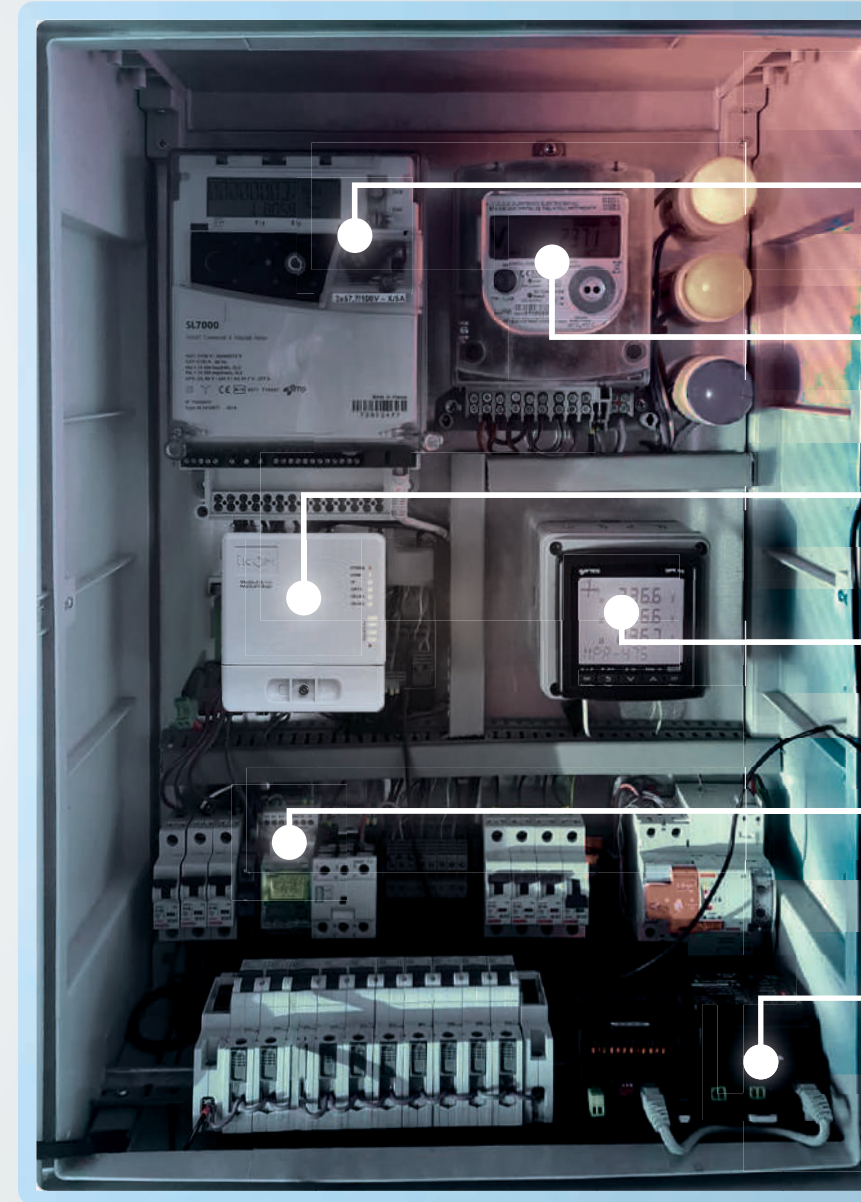
Ability to receive instant reports and update settings remotely via SMS

External antenna connection with SMA antenna connector



Versions

2G/3G/4G Module:
(800-900-1800-1900-2500 MHz)
2G/4G Module:
(B1/B3/B5/B7/B8/B20)
Nb-IoT Module:
(B1/B2/B3/B4/B5/B8/B12/B13/
B14/B17/B18/B19/B20/B25/B26/
B28/B66/B70/B85)



Ability to read domestic/foreign meters with DLMS/COSEM protocol

Ability to read domestic/foreign meters with IEC 62056-21 protocol

Compliant with the current Cyber Security Regulation

Ability to communicate with Energy Analyzers with MODBUS-RTU protocol

Ability to communicate with Astronomical Timers with MODBUS-RTU protocol (remote adjustment and reading)

Ability to communicate with Extended IO Control Modules with MODBUS-RTU protocol (generate alarms)

Thanks to the RS485 communication interface with improved $\pm 35KV$ impulse resistance, **sMOD-X** can communicate with all the devices shown in the panel above over the same line (single RS485 line).

sMOD-X is E-SIM compatible and supports 2G/3G/4G/NB-IoT communication technologies

sMOD-X is the first modem with the conformity criteria specified in the TEDAŞ Technical Specification. It has the "**Domestic Goods Certificate**" prepared by the Ministry of Industry and Technology of the Republic of Turkey.

İkom Bilişim is one of the stakeholders of the **MASS (National Smart Meter Systems)** Project, which aims to define measurement systems for smart grid transformation in a smart structure.

İkom Bilişim, which has the most experienced engineer staff in the field of OSOS in the sector, is the leading company in the sector with its products designed and developed by its own engineers.



TECHNICAL SPECIFICATIONS

Local Communication and IOs

- 2 x RS485 comm ports
- 35kV impulse resistant
- IEC62056-21, DLMS-COSEM, SCADA IEC6870-5-104 and MODBUS-RTU protocols.
- Ability to communicate with domestic/foreign electricity meters, energy analyzers and astronomical timer
- Automatic Baud Rate Selection
- 4 x 12kV insulated digital inputs
- 2 x 250VAC/10A relay outputs (NO/NC 3-pin)
- 1 x USB 2.0

Power Supply Module

- Modular SMPS supply stage with high voltage and current limitation protection, line filter
- 54-285 VAC Single Phase (L-N)
- 54-450 VAC Single Phase (L-N)
- 100-460 VAC Three Phase (R-S-T-N)
- 12-60 VDC (DC Power)
- DC supply input with 24/110 VDC redundancy (in case of power failure) (optional)
- Universal 48-285V (AC/DC)

Communication Module

- 2G/3G/4G (GPRS/HSPA+/LTE)
- 2G/4G (GPRS/LTE)
- NB-IoT (Narrow Band)
- SIM card and E-SIM (Embedded SIM)
- SMA External antenna connector
- Remote APN and configuration/provisioning update via SMS
- Instantaneous signal level indicator
- Cellular location detection

Processor and Embedded Software

- 400 MHz ARM Cortex A7 processor
- 512 MB FLASH Memory
- 128 MB RAM Memory
- LINUX operating system
- Bidirectional communication (smart modem)
- Communication with MQTT/MQTTS protocol
- Remote software update
- SSL/3DES and AES-128/256 Encryption
- Ability to connect and transfer data with different head-end systems at the same time

Additional Hardware Features

- Ability to perform smart HARD RESET in hardware or software crashes
- Ability to work for 60-120 minutes in case of power failure (Lithium-Polymer internal battery)
- Sending instant power outage alarm
- Ability to work as an Astronomical Timer (with built-in relay contacts)
- RTC and NTP real time clock
- Sending terminal cover alarm
- Automatic reboot

Physical Specifications

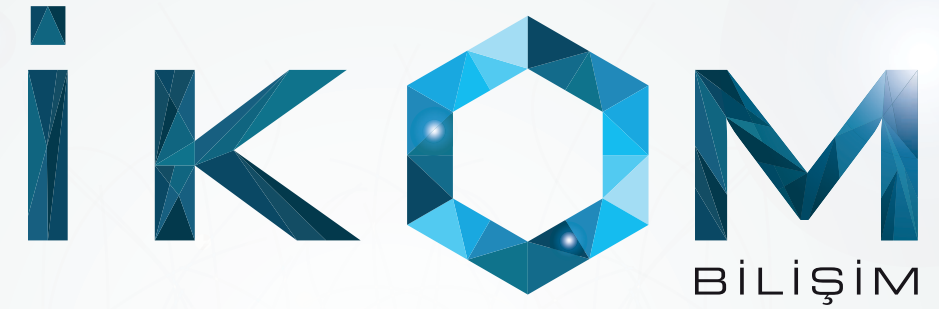
- IP54 protected, UL 94 V0 flammability standard,
- 122 x 133 x 60mm box suitable for hanger and rail type mounting
- 40 / +70 degree operating temperature

Indicators

- Power status LED (1x)
- GSM status LED (1x)
- IP connection LED (1x)
- RS485 notification LED (1x)
- Relay status LEDs (2x)
- GSM Signal level LEDs (5x)

Certificates

- EMC and LVD certificates
- CE certification



sMOD-X

Smart Communication Unit

Bi-directional
data
transfer

Modular
Hardware
design

Internal
Battery

Smart
reset

LVMS Low
Voltage
Monitoring
System

Cyber
Security

