βST

Behineh Sazan Toos Co.

Contact Us

www.BST.co.ir

info@bst.co.ir

NO 370, SANAT BLV, TOOS INDUSTRIAL ESTATE,
MASHHAD, RAZAVI KHORASAN PROVINCE, IRAN

+98 51 35412240

Contents

IRANTECH 300-DC METER

“IRANTECH300 CT” three phase meter designed for measuring the import and export active energy, import and export reactive energy, maximum demand and instantaneous parameters. It supports load management, multi-tariff, monthly billing, daily billing, load profile, event detection, neutral measurement (optional) and etc. A modular-designed communication module can be GPRS module, or PLC module, or RF module (optional) which supports plug and play without power off the meter

info@bst.co.ir
www.BST.co.ir

IRANTECH 300-DC METER

Main features

-LCD display

-Insulation class II

-IP54

-Save events

-Load Profile

-IHD port(In Home Display)

-MBUS port ,For connection to water and gas meters

-Interchangeable remote module

-RS485 port

-Internal 120A relay for support of various local and remote control methods

-Active and passive tariff tables

-Updating the meter software locally or remotely

-External removable battery for support in unplugged time

-Real Time Clock Ability to detect leap years,DST(Daylight Saving Time)

-It has an encryption section, the decoding of exchange data

-In accordance with the latest FAHAM interoperability documents (FID2)

-Size: 24*17*9 Cm

-Weight: 1.624 Kg

Technical Specifications

Description	VALUE
Insulation strength	
AC voltage test	
Insulation strength	4kV at 50Hz 1 min
Impulse voltage strength	
Impulse voltage 1.2/SOμs mains connections	8kV
Protection class II	
Display	
Display type	LCD (liquid crystal display)
Number of digits value field	Up to 8
Digit size	4.48×8.4
Inputs and Outputs	
Optical test outputs active energy & reactive energy	
Type	Red LED(SMD)
Pulse width	30ms
Active energy constant	1000 imp/kWh
Reactive energy constant	1000 imp/kvarh
Communication Interface	
Optical interface	
Communication standards	IEC62056·21 E mode - HDLC
Boud rate for IEC62056·21 E mode boud rate for HDLC	300~115200 bps(configurable) 9600bps(default)
IHD interface	
Communication standards	DLMS HDLC
Baud rate	4800-9600-19200 bps(configurable) 9600(default)
MBUS interface	
Communication standards	EN 13757-2
Baud rate	2400 bps
Plug.in interface	
For different communication medium Include GPRS/PLC/RF/ZigBee	
RS-485 interface	
Communication standards	DLMS HDLC
Baud rate	4800-9600-19200 bps(configurable)

info@bst.co.ir
www.BST.co.ir

Contact Us
+98 051 35412240

Technical Specifications

Description	VALUE
Voltage	
Nominal voltage Un	3x230/400V
Extended operating voltage range	0.7Un~1.2Un
Start operating voltage	145
Limiting voltage	520
Frequency	
Nominal frequency fn	50Hz
Tolerance	45Hz to 55Hz
Current	
Basic current {Ib)	10A
Maximum current (Imax)	100A
Starting current (1st)	40mA
Measurement Accuracy	
Active energy	Class 1
Reactive energy	Class 2
Power Consumption	
Power consumption in Voltage circuit	
Active power without module	<2W
Apparent power without module	<10VA
Power consumption in current circuit	
Apparent power without module	<0.5VA
Environmental Influences	
Temperature range	
Operation meter	-40'C to +80'C
Storage	-40'C to +85'C
Electromagnetic Compatibility	
Electrostatic discharges	
Contact discharge	8kV
Electromagnetic RF fields	
27 MHz to 500 MHz	Typical 10V/m
100 kHz to 1 GHz	Typical 30V/m
Fast transient burst test	Normally 4kV

Contact Us
+98 051 35412240
info@bst.co.ir
www.BST.co.ir

IRANTECH 300-CT METER

Smart 3-Phase Secondary Connection

IRANTECH 300-CT is a 3-phase indirect meter designed to measure active/reactive energy, maximum demand and real-time parameters and etc.

Some of the key capabilities of the IRANTECH 300-CT meter include:

- **Monthly/daily billing**
- **Multi-tariffs**
- **load profile**
- **Detecting and recording events**
- **Neutral measurement (optional)**
- **Supply control**
- **Ability to add different modules such as GPRS, PLC, and RF modules which supports plug and play without power off the meter.**

IRANTECH 300-CT METER

Main features

-LCD display

-Insulation class II

-IP54

-Save events

-Load Profile

-IHD port (In Home Display)

-MBUS port For connection to water and gas meters

-Interchangeable remote module

-RS485 port

-Internal relay

-Active and passive tariff tables

-Updating the meter firmware locally or remotely

-External removable battery for support in unplugged time

-Real Time Clock Ability to detect leap years DST(Daylight Saving Time)

-It has an encryption section, the decoding of exchange data

-In accordance with the latest FAHAM interoperability documents (FID2)

-Size: 24*17*9 Cm

-Weight: 1.374 Kg

Technical Specifications

Description	VALUE
Insulation strength	
AC voltage test	
Insulation strength	4kV at 50Hz 1 min
Impulse voltage strength	
Impulse voltage 1.2/SOµs mains connections	8kV
Protection class II	
Display	
Display type	LCD (liquid crystal display)
Number of digits value field	Up to 8
Digit size	4.48×8.4
Inputs and Outputs	
Optical test outputs active energy & reactive energy	
Type	Red LED(SMD)
Pulse width	30ms
Active energy constant	10000 imp/kWh
Reactive energy constant	10000 imp/kvarh
Communication Interface	
Optical interface	
Communication standards	IEC62056·21 E mode - HDLC
Boud rate for IEC62056·21 E mode boud rate for HDLC	"300~115200 bps(configurable)
IHD interface	9600bps(default)
Communication standards	
Baud rate	9600bps"
MBUS interface	
Communication standards	DLMS HDLC
Baud rate	"4800-9600-19200 bps(configurable)
Plug.in interface	9600(default)"
For different communication medium	
Include GPRS/PLC/RF/ZigBee	EN 13757-2
RS-485 interface	2400 bps
Communication standards	
Baud rate	

info@bst.co.ir
www.BST.co.ir

Contact Us
+98 51 35412240

Technical Specifications

Description	VALUE
Voltage	
Nominal voltage Un	3x230/400V
Extended operating voltage range	0.7Un~1.2Un
Start operating voltage	145
Limiting voltage	520
Frequency	
Nominal frequency fn	50Hz
Tolerance	45Hz to 55Hz
Current	
Basic current (Ib)	1A
Maximum current (Imax)	10A
Starting current (Ist)	5mA
Measurement Accuracy	
Active energy	Class 0.5
Reactive energy	Class 2
Power Consumption	
Power consumption in Voltage circuit	
Active power without module	<2W
Apparent power without module	<10VA
Power consumption in current circuit	
Apparent power without module	<0.5VA
Environmental Influences	
Temperature range	
Operation meter	-40'C to +80'C
Storage	-40'C to +85'C
Electromagnetic Compatibility	
Electrostatic discharges	
Contact discharge	8kV
Electromagnetic RF fields	
27 MHz to 500 MHz	Typical 10V/m
100 kHz to 1 GHz	Typical 30V/m
Fast transient burst test	Normally 4kV

Contact Us
+98 51 35412240
info@bst.co.ir
www.BST.co.ir

Behineh Sazan Toos Co.

“IRANTECH110 Din-Rail” METER

IRANTECH 110 Din-Rail is a next-generation smart single-phase rail mounted meter. Designed and manufactured based on TAANIR requirement and client's needs.

IRANTECH 110 Din-Rail has RS485 electrical port and relies on communication modules, provide meter reading ability by remote.

Here are some of the key capabilities of the IRANTECH 110 Din-Rail meter:

- **Supports DLMS/COSEM protocol;**
- **The ability to record multiple events;**
- **Internal relay;**
- **The ability to be installed in group out of door, easy to management and difficult to be tampered ;**
- **Use closed structure design to prevent external tamper.**

“IRANTECH110 Din-Rail” METER

Main features

- According to IEC62053-21/23 ,IEC62052-11 ,DLMS/COSEM
- Ability to measuring and recording active and reactive energy, active and reactive power, current, voltage and Cosφ
- Ability to measuring and recording back and forward energy Separately
- Ability to measuring and recording energy independent of current direction and in absolute value (Anti fraud)
- Ability to measuring and recording maximum demand
- Ability to measuring and recording reverse function
- Ability to measuring pahase and null currents separatly and view bypass
- IP52
- It has an internal back-up battery withr normal operating conditions of 20 years and 2 years without power
- Record the number of power off times
- Hourly Load profiles : in 8 channels with adjustable sampling intervals
- Daily Load profiles : in 7 channels with adjustable sampling intervals
- User friendly software with different access levels
- Guaranteed for 5 years and after-sales service for 10 years
- Type test of international and domestic institutions such as Tavanir (Power Research Institute), KEMA, CTI, National Standard of Iran ...
- In accordance with Tavanir requirements - Version 4/3
- Size 138.8*35*83 Cm
- Weight 0.303 Kg

Technical Specifications of IRANTECH110 Din-Rail

Description	VALUE
Voltage	
Nominal voltage Un	230V
Extended operating voltage range	0.7Un~1.15Un
Start operating voltage	140
Limiting voltage	460
Frequency	
Nominal frequency fn	50Hz
Tolerance	45Hz to 55Hz
Current	
Basic current (Ib)	5A
Maximum current (Imax)	80A
Starting current (Ist)	<40mA
Measurement Accuracy	
Active energy	Class 1
Reactive energy	Class 2
Power Consumption	
Power consumption in Voltage circuit	0.3W
Power consumption in current circuit	<0.1VA
Inputs and Outputs	
Optical test outputs active energy & reactive energy	
Type	Red LED
Pulse width	30ms
Active energy constant	1000 imp/kWh
Reactive energy constant	1000 imp/kvarh
Temperature range	
Operation meter	-40'C to +75'C
Storage	-40'C to +85'C

info@bst.co.ir
www.BST.co.ir

Contact US
+98 51 35412240

IRANTECH 12 DF

Single Phase Smart Meter

The Irantech12 DF single-phase smart meter designed and manufactured to meet the requirements of the TAVANIR 4th edition. This meter is equipped with two optical communication port and RS485 port and supports DLMS protocol.

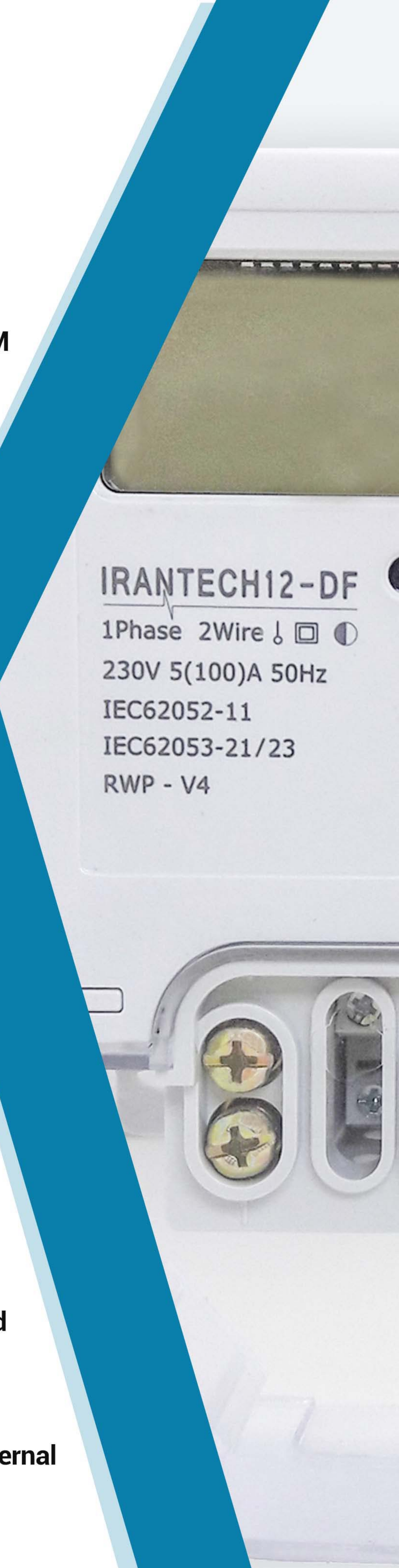
Irantech12 DL enables HHU devices to read data through the optical port with IEC62056-21 protocol, Readout mode to provide accurate invoices.

It complies with FAHAM 2 data model. This meter can read data via FAHAM 2 modem and FAHAM MDMs. In addition to providing hourly, daily and monthly readings of load profiles, Irantech12 DF also allows for remote changes to settings such as TOU setting, time and LCD parameters, and enables the remote reading events.

IRANTECH 12 DF

Main features

- According to IEC62053-21/23 و IEC62052-11 و DLMS/COSEM
- BS standard wiring
- Ability to measuring and recording active and reactive energy, active and reactive power, current, voltage and Cosφ
- Ability to measuring and recording back and forward energy Separately
- Ability to measuring and recording energy independent of current direction and in absolute value (Anti fraud)
- Ability to measuring and recording maximum demand
- Ability to measuring and recording reverse function
- Ability to measuring pahase and null currents separatly and view bypass
- Insulation class II
- IP54
- Tolerantable Moisture: 95%
- Ability to read without power (RWP)
- Record and display the opening of the terminal cap under operating and without power conditions
- Optical poer and RS485 electrical port
- Includes 2 internal and external batteries
- Interchangeable backup battery without need to access to internal circuit
- Battery life under normal operating conditions of 20 years and 2 years without power
- Body made of anti-fire and anti-UV polycarbonate
- Seamlessly body with breaking ability when accessing the internal components of the meter



IRANTECH 12 DF

Main features

- With rail terminals (elevator)
- Record the energy consumption for 16 courses
- Record the number of power off times
- Record the number of programing with the name of operator ID
- hourly Load profiles : in 8 channels with adjustable sampling intervals
- daily Load profiles : in 7 channels with adjustable sampling intervals
- Ability to protect against unauthorized access by defining a password for the meter and software
- Real time clock , ability to detect leap years, DST(Daylight Saving Time)
- User friendly software with different access levels
- 4 tariffs with the ability to define 12 time intervals per day and specify specific days and holidays
- Unaffected by magnetic field up to 400mT / With magnetic field detection sensor
- Guaranteed for 5 years and after-sales service for 20 years
- Type test of international and domestic institutions such as Tavanir (Power Research Institute), KEMA, CTI, National Standard of Iran ...
- In accordance with Tavanir requirements - Version 4
- Size 15.6*12.5*5.1 Cm
- Weight 0.408 Kg

Technical Specifications

Description	VALUE
Voltage	
Nominal voltage Un	3*230/400V
Extended operating voltage range	0.80Un~1.2Un
Start operating voltage	82
Limiting voltage	500
Frequency	
Nominal frequency fn	50Hz
Tolerance	45Hz to 55Hz
Current	
Basic current (Ib)	5A
Maximum current (Imax)	120A
Starting current (Ist)	<20mA
Measurement Accuracy	
Active energy	Class 1
Reactive energy	Class 2
Power Consumption	
Power consumption in Voltage circuit	≤ 2W
Power consumption in current circuit	≤ 2VA
Inputs and Outputs	
Optical test outputs active energy & reactive energy	
Type	Red LED
Pulse width	30ms
Active energy constant	2000 imp/kWh
Reactive energy constant	2000 imp/kvarh
Temperature range	
Operation meter	-40'C to +75'C
Storage	-40'C to +85'C
Electromagnetic Compatibility	
Electrostatic discharges	
Contact discharge	8kV
Electromagnetic RF fields	
27 MHz to 500 MHz	Typical 10V/m
100 kHz to 1 GHz	Typical 30V/m
Fast transient burst test	Normally 4kV

info@bst.co.ir
www.BST.co.ir

Contact Us
+98 51 35412240

βST
Behineh Sazan Toos Co.

IRANTECH 12 DL

Single Phase Digital Meter

Irantech12 DL is a single-phase digital meter designed and produced to meet the requirements of TAVANIR 3.1 edition. This meter is equipped with two optical and RS485 communication ports and supports DLMS protocol.

Additionally, Irantech12 DL enables HHU devices to read data through the optical port with IEC62056-21 protocol, Readout mode to provide accurate invoices.

The meter can also read data in the form of AMR by using a GPRS modem.

By using Irantech12 DL meter, electricity distribution companies can access data on voltage, current, energy and power that are stored on FAHAM MDM 24/7.

info@bst.co.ir
www.BST.co.ir

IRANTECH 12 DL

Main features

- Seamlessly body with breaking ability when accessing the internal components of the meter
- With rail terminals (elevator)
- Record the energy consumption for 16 courses
- Record the number of power off times
- Record the number of programing with the name of operator ID
- Load profiles : in 4 channels and each channel has 3 parameters with adjustable sampling intervals
- Ability to protect against unauthorized access by defining a password for the meter and software
- Real time clock , ability to detect leap years , DST(Daylight Saving Time)
- User friendly software with different access levels
- 4 tariffs with the ability to define 12 time intervals per day and specify specific days and holidays
- Unaffected by magnetic field up to 400mT / With magnetic field detection sensor
- Guaranteed for 5 years and after-sales service for 20 years
- Type test of international and domestic institutions such as Tavanir (Power Research Institute), KEMA, CTI, National Standard of Iran ...
- In accordance with Tavanir requirements - Version 4
- Size 15.6*12.5*5.1 Cm
- Weight 0.408 Kg

IRANTECH 12 DL

Main features

- According to IEC62053-21/23 و IEC62052-11 و DLMS/COSEM
- BS standard wiring
- Ability to measuring and recording active and reactive energy, active and reactive power, current, voltage and Cosφ
- Ability to measuring and recording back and forward energy Separately
- Ability to measuring and recording energy independent of current direction and in absolute value (Anti fraud)
- Ability to measuring and recording maximum demand
- Ability to measuring and recording reverse function
- Ability to measuring pahase and null currents separatly and view bypass
- Insulation class II
- IP54
- Tolerantable Moisture: 98%
- Ability to read without power (RWP)
- Record and display the opening of the terminal cap under operating and without power conditions
- Optical poer and RS485 electrical port
- Includes 2 internal and external batteries
- Interchangeable backup battery without need to access to internal circuit
- Battery life under normal operating conditions of 20 years and 2 years without power
- Body made of anti-fire and anti-UV polycarbonate

Technical Specifications

Description	
Voltage	
Nominal voltage Un	230V
Extended operating voltage range	0.85Un~1.15Un
Start operating voltage	140
Limiting voltage	460
Frequency	
Nominal frequency fn	50Hz
Tolerance	45Hz to 55Hz
Current	
Basic current (Ib)	5A
Maximum current (Imax)	100A
Starting current (Ist)	<20mA
Measurement Accuracy	
Active energy	Class 1
Reactive energy	Class 2
Power Consumption	
Power consumption in Voltage circuit	0.3W
Power consumption in current circuit	<0.1VA
Inputs and Outputs	
Optical test outputs active energy & reactive energy	
Type	Red LED
Pulse width	30ms
Active energy constant	1000 imp/kWh
Reactive energy constant	1000 imp/kvarh
Temperature range	
Operation meter	-40'C to +75'C
Storage	-40'C to +85'C
Electromagnetic Compatibility	
Electrostatic discharges	
Contact discharge	8kV
Electromagnetic RF fields	
27 MHz to 500 MHz	Typical 10V/m
100 kHz to 1 GHz	Typical 30V/m
Fast transient burst test	Normally 4kV

info@bst.co.ir
www.BST.co.ir

Contact Us
+98 51 35412240

SMART GAS METER

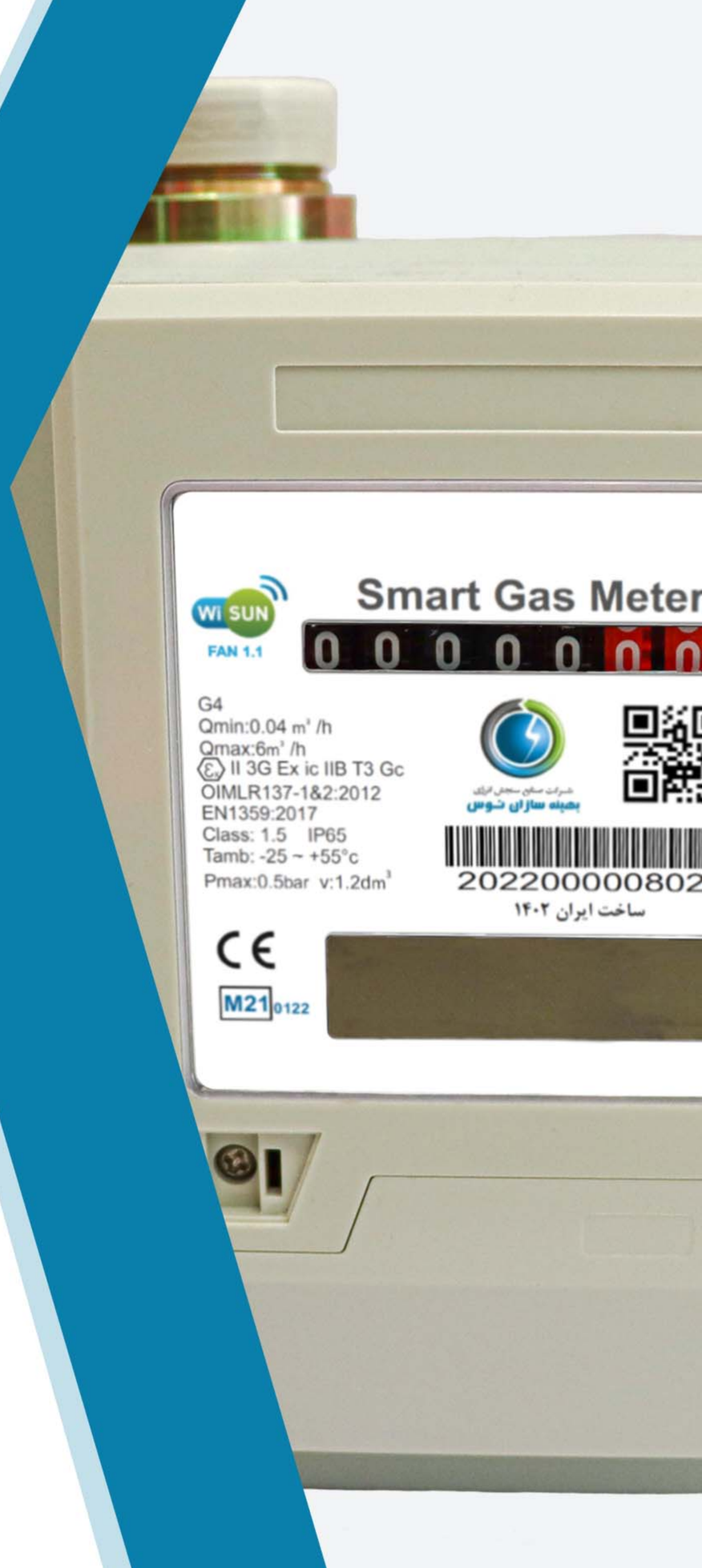
A smart gas meter is a specialized flow meter, used to measure the volume of fuel gases such as natural gas that provide accurate and secure monitoring of gas consumption. The smart gas meter transmits the measurement collection data, meter running status and other related information to the data center at regular intervals. After data analysis and analysis, interactions such as billing, settlement and issuing meter instructions are completed. Activities to realize smart metering, meter monitoring, abnormal alarms, remote/near-field recharge and payment, business consulting and other functions.

Communication solutions using "Wi-SUN", "NB-IoT", “LoRa” and “GPRS” provide complete coverage for the entire service area. Additionally, an optical port is installed to allow for physical access to meter, enabling changes in settings and data copying using a handheld unit (HHU).

SMART GAS METER

Main features

- LCD monitor
- IP65
- Detection and recording of events
- Displaying the hourly, daily and monthly load profiles
- Remote and local firmware upgrade
- The exact clock along with applying the leap year
- Lithium battery
- Powerful encryption/decryption capabilities according to AES128-GCM algorithm
- The communication protocol in accordance with the DLMS/COSEM standard
- Equipped with a shut-off valve
- Equipped with an NFC module for locally commanding the shut-off valve to open
- Remote communication and control with the help of GPRS or LoRa
- Local communication via optical port
- Dimensions: 176*210*220



Technical Specifications

Description	VALUE
Nominal flowrate Qn	4m³/h
Maximum flowrate Qmax	6 m³/h
Minimum flowrate Qmin	0.04 m³/h
Maximum operating pressure	0.5 bar
Maximum permissible errors	0.1 Qmax ≤ Q ≤ Qmax ± 1.5% Qmin ≤ Q < 0.1 Qmax ± 3%
Max pressure loss	2mbar
Display range max	99999.999
Accuracy class	1.5
Cyclic volume	1.2dm³
Center distance	130mm
Screw size	NPT 1 1/4"
Working temperature	-25˚C to +55˚C
Power source	Lithium battery(replaceable), 10 years (report one time daily)
Protection level	IP65
Communication Type	GPRS&NFC&Optical interface
Work voltage range	3.3V-3.6V
The minimum unit of electronic measurement	0.01m³
Deviation of internal clock	<0.5S/day
Touch panel type	C-Spring touch button
LCD type	Segmented LCD
Meter casing material	Steel
Casing colour	Cream
Explosion protection	II 3G Ex ic IIB T3 Gc According to IEC/ EN 60079_0,11

info@bst.co.ir
www.BST.co.ir

Contact Us
+98 51 35412240

βST
Behineh Sazan Toos Co.

IRANTECH-W100 smart water meter

IRANTECH-W100 smart water meter is designed for domestic drinking water consumption. Two transducers are placed in the water flow path, which act as sender and receiver of sound waves to each other. The sound wave reaches the receiver faster in the flow path and slower in the opposite flow path, and by calculating both of these times, the flow rate of water passing through the meter can be calculated.

Other features of this meter include the ability to close and open the shut-off valve remotely, save measured data hourly, daily, monthly, and record events. Remote reading and communication with this meter is possible according to the customer's request with one of NB-IoT, LoRa or Wi-SUN technologies. There is also an optical port on the meter for on-site communication, which allows you to apply settings or retrieve data using the HHU (Hand Held Unit).

SMART WATER METER

Main features

- LCD display
- IP 68
- Compliant with the international DLMS standard to ensure interoperability
- Compatibility with various IoT communication technologies, such as LoRa, NB-IoT, and Wi-SUN
- Authentication and encryption using the AES128 algorithm
- Detecting, recording, and pushing events and alarms
- Recording hourly, daily and monthly profiles
- Local and remote firmware upgradability
- Precise timekeeping with leap year detection and daylight saving time adjustment
- Lithium battery for powering the electronic board
- Shut-off valve for remote controlling
- Infrared optical interface available
- Ability to apply and adjust variable tariffs for consumers during different seasons and times of the year
- Capability to support prepaid mode
- 80*107*165
- 920 gr

Technical Specifications

Description	VALUE
Available Size	DN15
Standard	ISO 4064
Measuring Range	R400
minimum flow rate (Q_1)	6.25 L/h
Transitional Flow Rate (Q_2)	10 L/h
Permanent Flow Rate (Q_3)	2.5 m^3/h
Overload Flow Rate (Q_4)	3.125 m^3/h
Precision Class	Class 2
Pressure Loss	63kPa
Maximum Working Pressure	1.6MPa
Storage Environment	-25~+70˚C
Protection Class	IP68
Power Supply	3.6V(19Ah) Lithium batteries, Up to 10 year
Electromagnetic Environment Class	E2
LCD type	Segmented LCD
Communication Interface	NB-IoT, LoRa, Wi-SUN, Optic
Resolution of Volume	0.0001~ 99999.9999 m^3
Meter casing material	Solid brass
Length	165 mm
Width	80 mm
Height	107 mm
Weight	920 g

info@bst.co.ir
www.BST.co.ir

Contact Us
+98 51 35412240

βST
Behineh Sazan Toos Co.

IRANTECH MGF100 MODEM

The IRANTECH MGF100 device is a communications smart modem which forms part of a Remote management system with automatic meter reading. This product reads essential data, such as energy consumption, active and reactive energy, voltage, current, power factor, etc. from one or more meters remotely and communicates the information to management software central server via GPRS. It is compliant with COSEM/DLMS gateway and Network-IP and uses a data model that was modelled from FID2.
Meters communicates with modem via RS485 port, using DLMS, IEC62056-11 and EN13757 protocols.

IRANTECH MGF100 MODEM

Main features

- Supports 2G, 3G, and 4G mobile networks
- Supports data transfer rates ranging from 300 to 192000 b/s on the RS485 port
- Stores up to 4 MB of data on Flash and 4 KB on EEPROM
- Supports DLMS, IEC62056-21, and EN13757 protocols
- Supports up to 127 meters on the RS-485 communication port
- Can read one parameter at a time or all required parameters from meters connected to the modem
- Reads meter specifications and configures settings locally and through optical (infrared) and RS-485 ports
- Supports firmware updates both locally and remotely
- Runs codes on an OS microcontroller in real-time
- replaceable lithium battery for backup power
- Maintains accurate date and time (with an accuracy rate of more than 0.5 second per day)
- adjust winter/summer time remotely
- Allows changes to the IP address via SMS and defines authorized phone numbers for sending SMS
- Provides secure connections through AES-GCM-128 unsynchronized encryption algorithm for encrypting messages and Hash algorithm to authenticate the encrypted message. It also uses MD5 hash algorithm to secure data transfer in various parts of the programs.
- enclosure made of fire and thermal resistant polycarbonate material
- Operates on a 230V nominal voltage, withstanding 460V input voltage and 110V working voltage
- Implements and programs a microcontroller processor in the form of RTOS
- Uses ultra-low power circuit design and technology.

Technical Specifications

Description	VALUE
Electrical & Mechancal Specifiction	
Nominal voltage Un	110-400V
Operating Temperature	-40'C ~ +70'C
Storage Temperature	-25'C ~ +65'C
Dimension	170'120' 50 mm
Humidity	Relative humidity 0%-95%
Technical Specifcation	
GPRS mobile station	
Quad-Band	2G/3G/4G GSM850,EGSM900,0CS1800, PCS1900

info@bstc.ir
www.BSTC.ir

Contact Us
+98 51 35412240

βST

Behineh Sazan Toos Co.

LOAD & CONSUMPTION MANAGEMENT SYSTEM (LMS)

There is no denying the importance of equipment that can be programmed and controlled remotely for managing consumers' load in the electricity distribution network. At Behineh Sazan Toos Co., we've leveraged TAVANIR's strategies and scientific principles to develop a programmable equipment capable of connecting to smart electricity meters. This equipment is now considered a comprehensive system for managing load and consumption.

LMS

Technical features

- Save and send events via smart meter
- 2 separate RS485 ports to connect smart meter and local communications
- Real-time clock support leap year, day light saving
- Internal 10A relay for support of various local and remote control methods
- Comply with DLMS/COSEM protocol

Benefits

- Accurate connect/disconnect according to Iranian calendar and sunset/sunrise
- Time synchronization vis smart meter
- On demand connect/disconnect by remote and schedule table

Technical Specifications

Description	VALUE
Voltage	
Nominal voltage Un	1x230v
Extended operating voltage range	0.7Un~1.2Un
Start operating voltage	TypeA:100v
Limiting voltage	TypeA:300v
Frequency	
Nominal frequency fn	50Hz
Tolerance	45Hz to 55Hz
Features	
Support scheduled on/off	
Support on-demand on/off	
Up to 3 output relay	
Support for cabinet door open/closed alarm	
Support two digital input	
Support one analog input	
Environmental Influences	
Temperature range	-40'C to +80'C
Humidity	up to 85%
Communication Interface	
RS-485 interface	
Communication standards	DLMS HDLC
Baud rate	300-4800-9600-19200 bps(configurable)

info@bst.co.ir
www.BST.co.ir

Contact Us
+98 51 35412240

βST
Behineh Sazan Toos Co.

IRANTECH AP200 WI-SUN GATEWAY

The IRANTECH AP200 is a device which can be used to run IoT networks based on Wi-SUN technology. IRANTECH AP200 can be used to setup a large scale Wi-SUN compliant network of maximum 10000 nodes. It also supports both mesh and star topology. Under ideal circumstances, this outdoor wireless device can cover about 1.5 km radius area using star topology cover about 6km radius area using mesh topology connected an outdoor fiberglass omnidirectional antenna. IRANTECH AP200's strong housing can reach IP67 level of water proof and dust proof, so it can be installed outside anywhere with pole mounting.

The IRANTECH AP200 supports flexible ways for communication with central server, including 3G/4G wireless cellular network, fiber cable or Ethernet

Technical Specifications

Description	VALUE
Physical Specifications	
Dimensions (Height x Width x Depth)	290mm x 274mm x 126 mm
Pole Mount	Yes
Wall Mount	Yes
Storage Temperature	-40 to 85
Operating Temperature	-40 to 70
Typical Power Consumption or Dissipation	48 Watts
Protection grade	IP67
Wireless Communication Modules	
IEEE 802.15.4g Wi-SUN compliant	Yes
4G LTE for Global	Yes
IEEE 802.11b/g/n Wi-Fi	Yes
GPS for location	Yes
Antenna Gain	5dBi
Wi-SUN RF Parameters	
ISM frequency band	915.4-919
Spread spectrum	FHSS (Frequency Hopping Spread Spectrum)
Transmit Power	25 mW e.r.p.
Sensitivity	-110 dBm@50kbps
	-97 dBm@300kbps
Channel Width	200 KHz
Duty Cycle	< 10%

info@bst.co.ir
www.BST.co.ir

Contact Us
+98 51 35412240

Technical Specifications

Description	VALUE
Power Options	
Power Supply	AC power supply: 85~336VAC
Battery Backup Options	Integrated modular battery unit for backup
Power Button	Yes
Support Protocols	
IEC 60870-5-101/104, IEC 61850, IEC61968, DLMS	Yes
DHCPv6, DNS, VPN tunnel	Yes
IPv4, IPv6, UDP, TCP, CoAP	Yes
IETF 6LoWPAN, IETF RPL	Yes
IEEE 1901.1	Yes
IEEE 802.15.4g/e, IEEE 802.11b/g/n, RS232	Yes
System capacity	
Network capacity (nodes access with repeaters)	10000 units
Uninterrupted working time	8 hours with battery
Product lifecycle time	15 years
Computing capacity	ARM Cortex A7 dual core 1.2GHz/ 512K L2 cache with ECC protection/ DDR3L/4 1.6GHz with 1GBytes

Contact Us
+98 51 35412240
info@bst.co.ir
www.BST.co.ir

βST
Behineh Sazan Toos Co.

GT1-5KD1 INVERTER

Due to the limited resources of fossil fuels and the increasing use of renewable energies, the installation of solar plants has become more widespread. These plants can contribute significantly to reducing the use of fossil fuels and greenhouse gas emissions.

Solar inverters are a crucial component of these plants, as they convert electricity generated by photovoltaic panels and synchronize it with the national electricity grid, injecting it into the network.

Behineh Sazan Toos Co. has developed a range of solar inverters under the LIVOLTEK brand name. LIVOLTECH has addressed issues present in previous generations of electrical energy converters by utilizing optimized and innovative designs of electric circuits and manufacturing processes. The LIVOLTEK features a range of power levels, from 5 to 25.

LIVOLTEK solar inverters meet international standards such as VDE0126, IEC62109, and IEC61727, as well as the requirements set by the Renewable Energy and Energy Efficiency Organization (SATBA). These inverters have undergone rigorous field tests and have received a certificate of standard authenticity from the EPIL reference laboratory, ensuring that they meet the highest standards of quality and reliability. These inverters have received approval from distribution companies located in Mashhad, Razavi Khorasan, Qom, and other provinces, making them a reliable choice for a variety of solar power projects.

info@bstc.ir
www.BSTC.ir

Technical Specifications

Description	VALUE
Input (PV)	
Max. DC Input Power	7500Wp
Max. DC Input Voltage	550V
Min PV Input Voltage	70V
Start-up DC Input Voltage	90V
Nominal DC Input Voltage	360V
MPPT Operating Range	70-545V
Max. DC Input Current	14A+14A
Max. Short Circuit Current	20A+20A
No. of MPPTs/Strings per MPPT	2/1
Output (Grid)	
Nominal Output Power	5000W
Max. Apparent Power	5500VA
Rated AC Grid Output Current	21.7A
Max. AC Output Current	23.9A
Rated AC Grid Voltage	220V/230V/240V, L+N+PE
AC Grid Voltage Range	160V-300V (Adjustable)
Rated Grid Frequency	50Hz/60Hz
Grid Frequency Range	45Hz-55Hz/55Hz-65Hz (Adjustable)
Power Factor	> 0.99 Rated Power (Adjustable 0.8 Leading - 0.8 Lagging)
Output THDi (@Nominal Output)	<3%
Efficiency	
Max. Efficiency	98.4%
Euro Efficiency	97.5%
MPPT Efficiency	>99%
Protection	
Surge Arrester	Type III / Type II (Optional)
PV Current Detection	Support
Over Current Protection	Support
AC Short Circuit Protection	Support
Over Voltage Protection	Support
Anti-islanding Protection	Support
Ground Fault Monitoring	Support
Residual Current Monitoring Unit	Support
DC Reverse Polarity Protection	Support
Anti-arc Protection	Optional
General Data	
Dimension (W*H*D)	350*315*176mm
Weight	12.5kg
Protection Degree	IP65
Cooling	Natural Cooling
Operating Temperature Range	–30°C ~ +60°C (Derating at 45°C)
Typical Noise Emission	＜25dB
Night Self Consumption	＜1W
Display	LED+APP/LCD (Optional)
Communication	RS485(LCD/Meter), Wi-Fi+Bluetooth, DRM
Topology	Transformerless
Certifications and Standards	
Grid Regulation	IEC61727, IEC62116,EN50549, ABNT NBR 16149, ABNT NBR 16150
Safety/EMC Standard	IEC/EN 62109-1/-2, IEC/EN 61000-6-1/-2/-3/-4

+98 51 35412240
info@bstc.ir
www.BSTC.ir

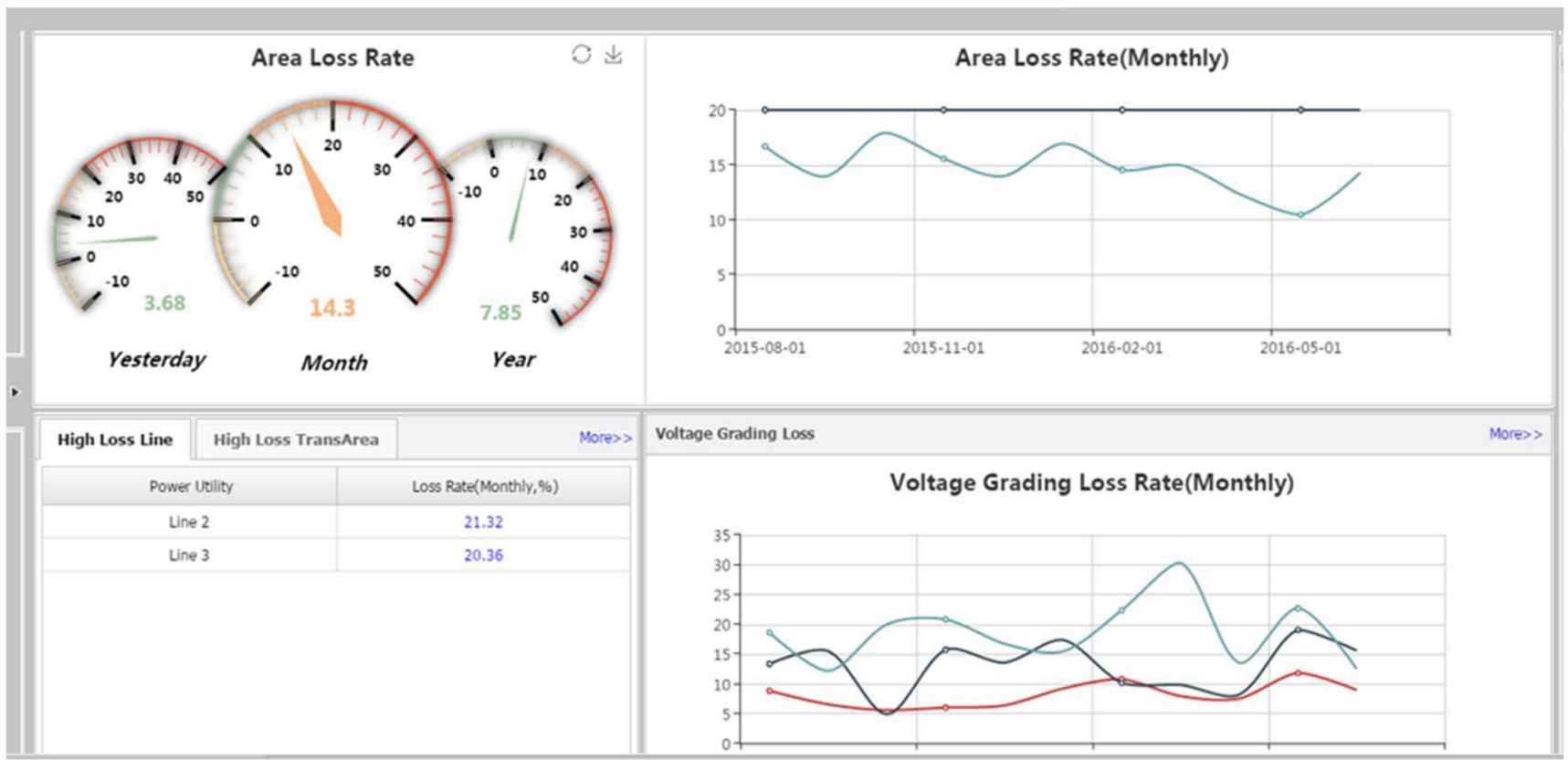
βST
Behineh Sazan Toos Co.

What is the MDM?

Shahab Meter data management (MDM) system is an enterprise-level and high-performance software system which gets raw meters data from AMI meters and runs different types of analysis and processes on data and provides useful reports. Usually, billing, CRM, and similar systems receive their input from MDM. It is core data processing software in the master station of utilities.

Connection of MDM to other software systems can be made via web services (either the web services or RESSTFUL) and the protocol can be chosen out of available dozens. One of the widely accepted and welcomed protocols for this purpose is CIM which is based on the open standard protocol of IEC61968/IEC61970 which is developed to connect software systems of utilities. Furthermore, state-of-the-art standards can be used too.

Shahab MDM integrates both AHE and MDM all in one. AHE or HES manages and controls all bidirectional communications between meters and Shahab. The AHE modules include on-demand reading, historical reading, time synchronization, task management, tariff management, relay control (connect and disconnect the relay), control commands, firmware upgrades, meter LCD display settings, etc. It is also possible to work with AHE or MDM as a stand-alone solution and then gradually accomplish full end-to-end processes through integration with other systems. The system can consequently grow in functionality with the technical, commercial, and procedural requirements of the clients.



Following the Faham national standard, BSTC has developed an advanced measuring infrastructure (AMI) by producing and installing smart and semi-smart meters in different parts of Iran. Over the past decade, we have made "viewable" and "controllable" more than half of the country's electricity network remotely by designing and providing various powerful software products and platforms.

Shahab MDM assists power utilities to provide real-time and scheduled access to all smart meters as network measurement points, detecting the consumption of customers, events that occur continuously in the network, power quality of the network, etc.

Features of Shahab:

Low implementation, operation, and investment cost

Customized and cost-effective roll-out

Compliance with related standards

Multi-language support (Persian, English, Arabic, etc.)

Two-way communication with different kinds of smart meters

Using state-of-the-art technologies in the design of software, hardware, database, and web services

Easy connection to other applications and mobile app systems through web service

Multi-utility support (power, gas, water, wind, etc.)

High Expandability, scalability, flexibility, performance, security, reliability and efficiency, maintainability, and stability.

Multi-telecommunication platform Support (GPRS, PLC, Wi-SUN, IOT, etc.)

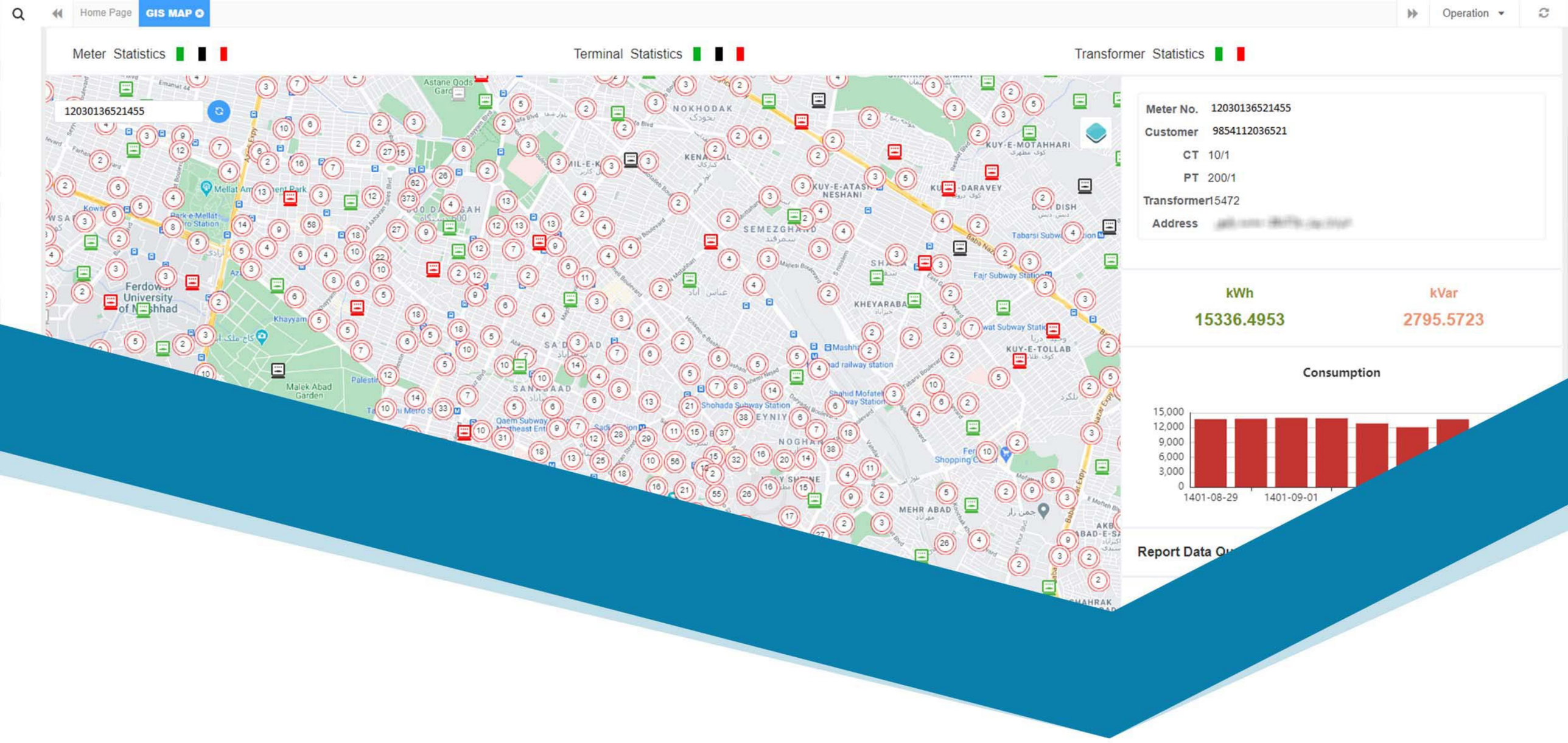
Beneficial for all parts of power utilities, including measuring equipment, inspection, operation, line loss, electricity market, etc.

Contact us

+98 51 35412240

www.BSTC.ir

info@bstc.ir



Functionality of MDM

• VEE (VALIDATION, ESTIMATION, EDITING)	• KEY MANAGEMENT
• AGGREGATION	• SMS MANAGEMENT
• EVENT MANAGEMENT	• VERSIONING
• ASSET MANAGEMENT	• AUDIT TRAIL
• USER MANAGEMENT	• ARCHIVE MANAGEMENT
• WORKFLOW	• CONSUMPTION MANAGEMENT
• REPORTING	• LOAD MANAGEMENT
• HES/AHE	• LOAD RANKING ANALYZING
• GIS	• RULE CONFIGURATION
• TASK MANAGEMENT	• LOAD CONTROL
• COMMAND MANAGEMENT	• REVENUE PROTECTION
• LOG MANAGEMENT	• CUSTOMER INFORMATION SYSTEM
• ORGANIZATION MANAGEMENT	• POWER QUALITY MANAGEMENT SYSTEM
• TARIFF MANAGEMENT	• EXPORT AND IMPORT DATA

Contact us

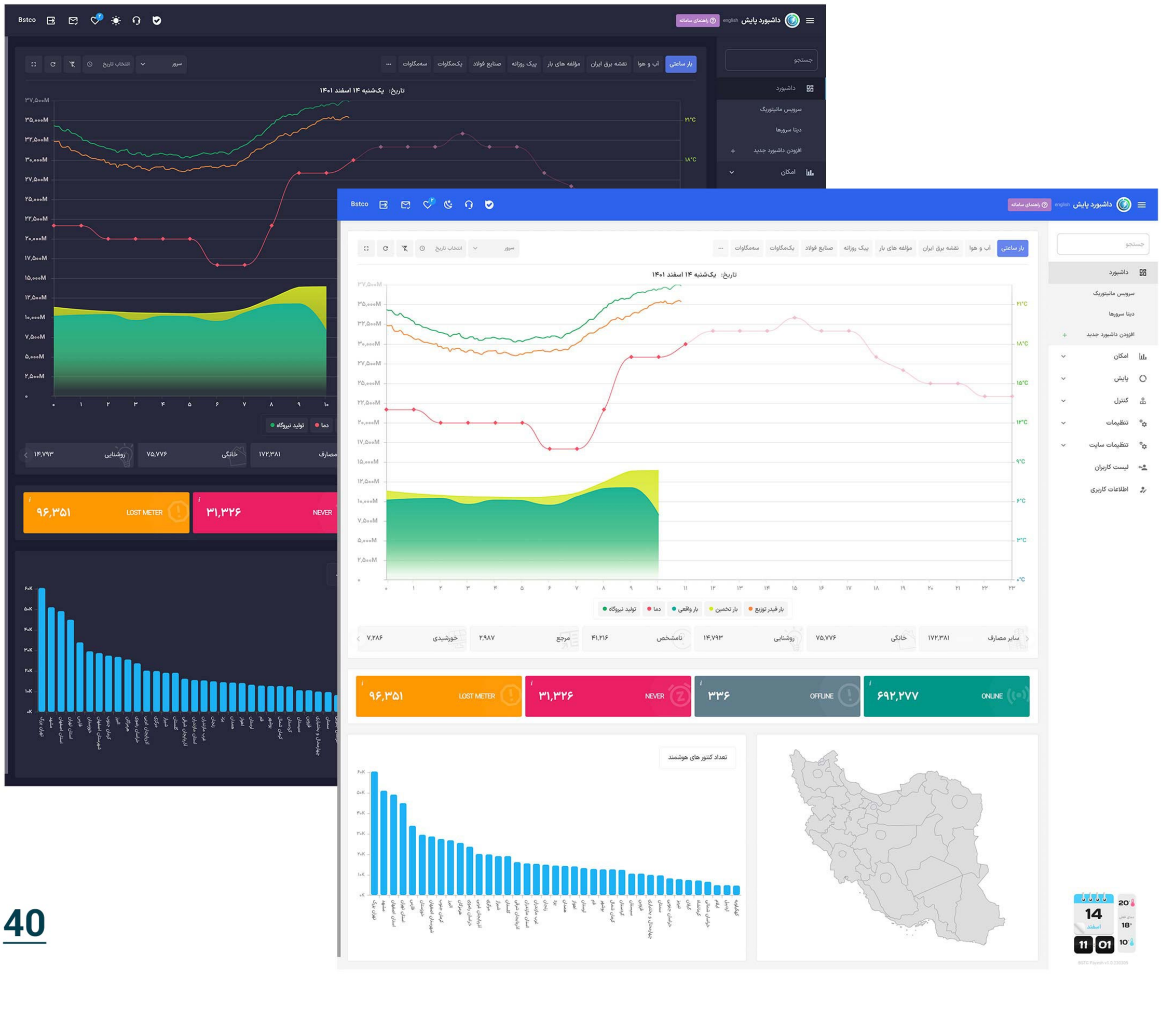
+98 51 35412240
info@bstc.ir
www.BSTC.ir

+98 51 35412240
info@bst.co.ir
www.BST.co.ir

Payesh Platform

Multiple software programs have been developed to decrease the concerns of senior managers in the electricity industry, power utilities, and investors, and to make the country's electricity industry smarter.

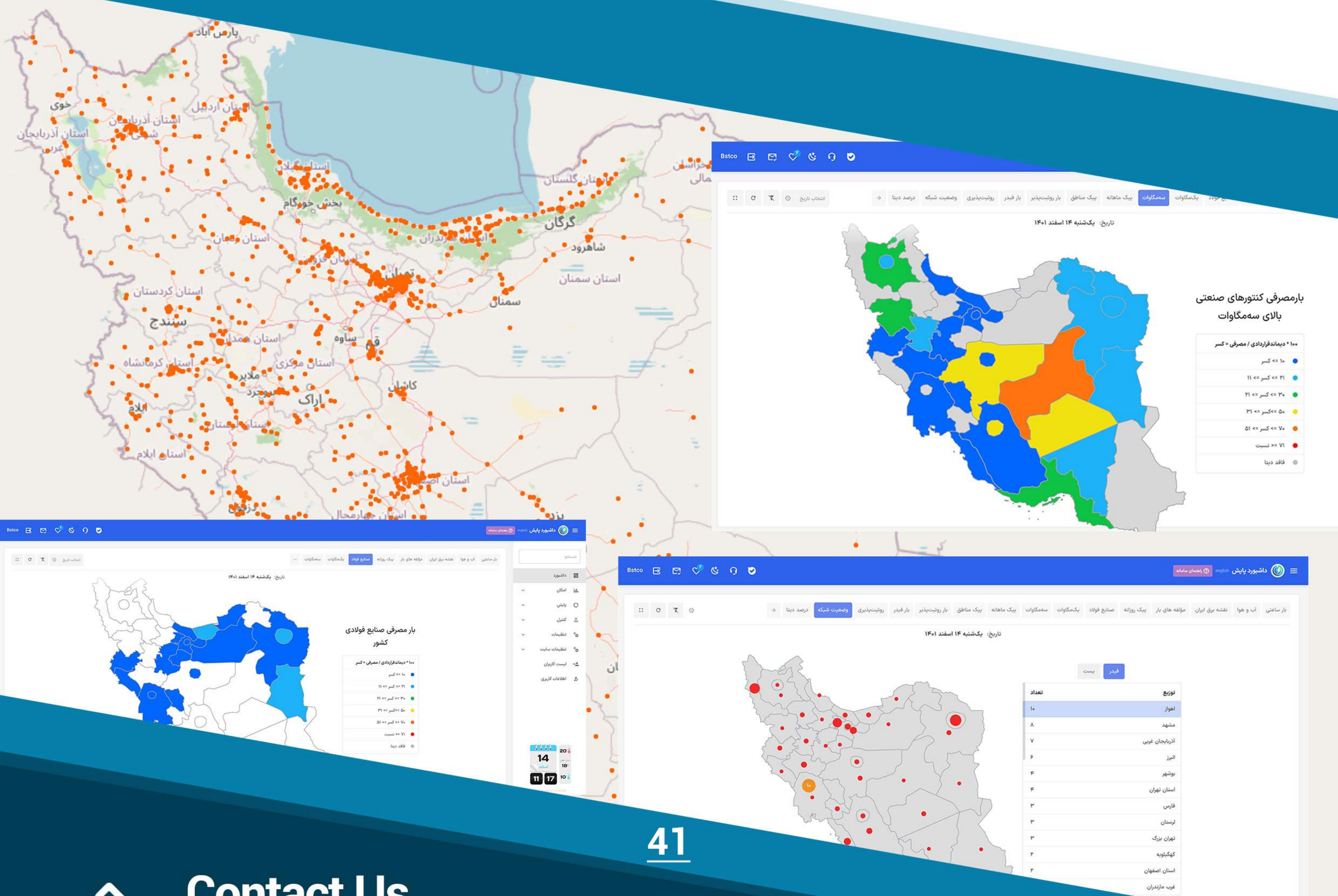
In recent years, there has been an increased need to make the country's electricity grid smarter, leading to a faster deployment of smart meters in various regions of the electricity distribution and sub-transmission grid. Especially during times of imbalanced generation and consumption of energy, software solutions that provide visibility and controllability over the country's consumption load have become a powerful tool for managers and planners. These solutions enable them to manage the supply and demand of energy and distribute electric energy more efficiently during peak loads, with minimal social and economic consequences.



Payesh is one of the largest energy management systems in the country, distinguished by its ability to analyze and process big data from smart systems and integrate them with other relevant information that impacts network and consumer behavior, through data mining with the help of artificial intelligence.

Payesh aggregates data from Shahab MDM and other MDMs (Meter Data Management) to record and process the real-time generation and consumption of electricity in the country. Effective management and control of energy consumption through the use of visibility enables the comparison of each customer's consumption over time and allows for the prediction of consumer behavior based on these comparisons.

Payesh offers a comprehensive view of the power grid, displaying separate production related to the sub-transmission and distribution feeders, solar panels, distribution transformers, and dedicated generators, as well as consumption data for industrial, commercial, household, agricultural, and road lighting tariffs and other customers on an hourly basis. By combining this information with real-time power grid events and geographic information like temperature and humidity, the system provides experts and managers in various departments of power utilities with valuable insight into the future behavior of the network as well as the state of each point on the grid. This information is crucial in anticipating upcoming challenges and making smarter decisions to maintain network stability. By incorporating the average temperature curve of each city into Payesh systems, the impact of temperature on consumption can be observed. Temperature is an important indicator for forecasting consumption load, enabling the prediction of cooling or heating loads in each region.



Contact Us
+98 51 35412240
www.BST.co.ir
info@bst.co.ir

Payesh Features

- **Helping consumption managers to identify misbehaving customers**
- **Determining the level of cooperation and facilitating the reduction of consumption for subscribers who participate in summer peak-shaving plans**
- **Recording the level of cooperation of subscribers separately**
- **Comparing the amount of energy reduction promised by power utilities with the actual amount achieved**
- **Viewing the online and offline status of smart meters**
- **Reporting meter alarms**
- **Load profile report (power consumption, demand, current, voltage, active and reactive energy with different tariffs)**
- **Analyzing electrical parameters of smart meters**
- **Monitoring the data received and sent by web services**
- **Providing quick response to tickets and user guidance**

The system is accessible from different access levels, including:

- **Managers and experts of TAWANIR and the Ministry of Energy**
- **Managers and experts of power utilities**
- **Managers and experts of power utilities' branches**
- **Group subscribers in large organizations such as banks and Telecommunication companies**

End users

Contact Us

+98 51 35412240

info@bst.co.ir

www.BST.co.ir

info@bst.co.ir
www.BST.co.ir

SEMAK

SEMAK is a platform that has been developed to help you as a utility to perform automated meter reading via local ports with higher quality and efficiency. SEMAK is already integrated with more than 30 electricity meter models from different communication protocols such as DLMS , IEC62056-21 and Modbus. Among other things, SEMAK is able to schedule daily tasks of meter readers through a web-based management dashboard, specifying which meters should be visited each day (or week).

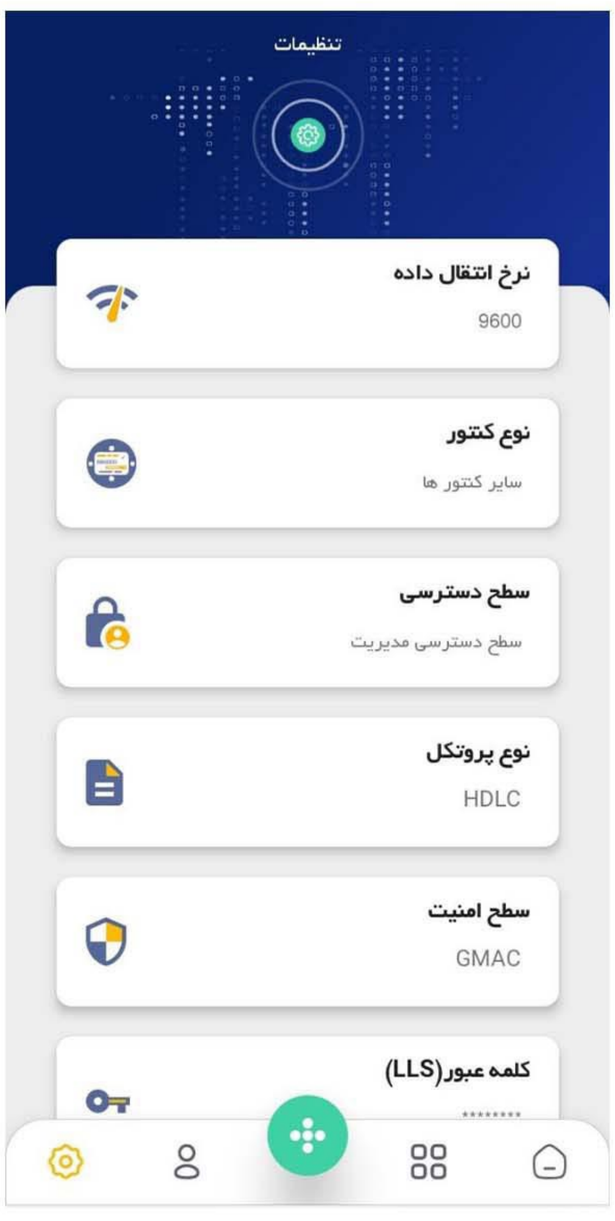
SEMAK can easily connect to the meter either via an optical port using OTG or Bluetooth.

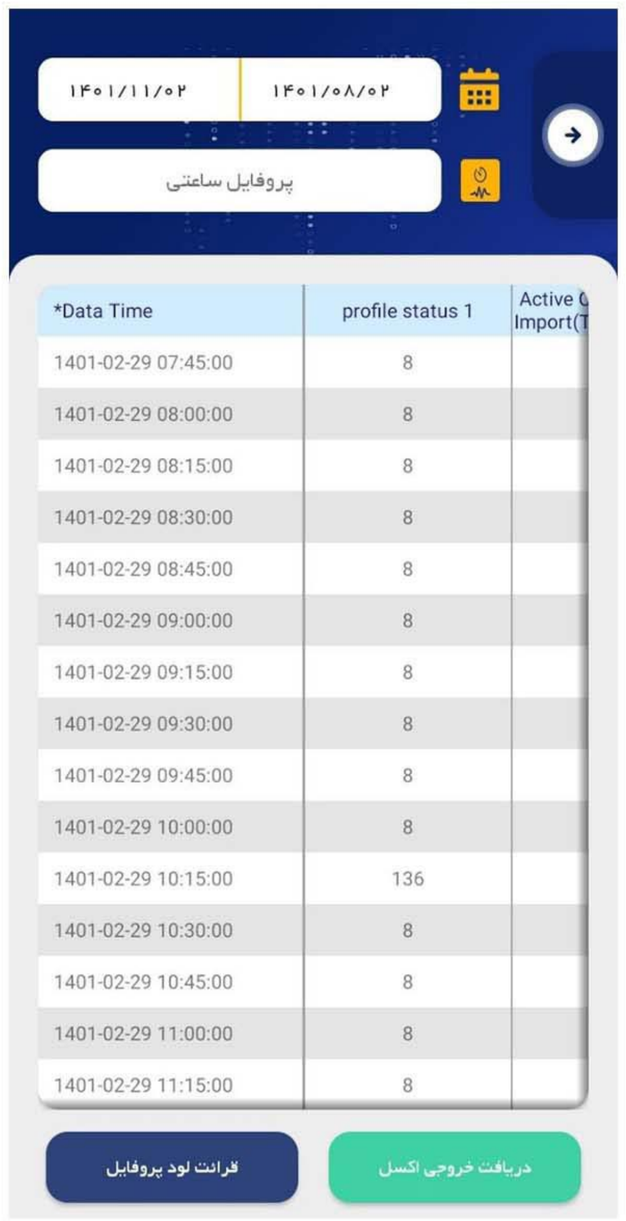
Additionally this platform is not limited to the electricity meters, and is capable of reading any other meters such as Water or Gas as long as said meters support the mentioned protocols.

Some of the key specifications of SEMAK include:

- **USB or Bluetooth optical port for communicating with meters on demand.**
- **Web-based management dashboard for system administrators to control and manage the access level of end-users.**
- **Ability to schedule daily tasks of meter readers through a web-based management dashboard, specifying which meters should be visited each day and the parameters that should be read or set.**
- **Local database on mobile phones and the ability to record and see various reports from meters that were visited.**

- Direct and online transfer of parameters and recorded logs to MDM and communication with other systems for billing purposes through web services.
- Implementing keys management for smart meters to receive meter keys from AHE platform in a secure manner without human intervention.
- Ability to navigate the location of intended meters with the use of peripheral software such as “WAZE”.
- Records geographic coordinates and physical information of the location where the meter is installed when communicating with it. This information is then sent to a central platform.
- Ability to read and store hourly, daily, and monthly profiles of all types of smart meters and export them to Excel.
- Ability to read required parameters (store data, generate reports, and export them to Excel) of all smart and traditional meters that support optical ports using IEC62056-21, DLMS/COSEM, and Modbus protocols for billing purposes.
- Local database that allows users to store data and record operations done on meter.
- Ability to transfer data from the meter profile to the MDM (Meter Data Management) server online.
- Ability to read, set the time and date, and activate or deactivate smart meters that use DST, regardless of their brand or manufacturer. In addition, our product is compatible with traditional meters based on the IEC62056-21 protocol, which was developed by Behineh Sazan Toos Co.
- Ability to update the firmware, calculate tariffs, and configure various settings—including display screen, relay parameters, IP, and other communication settings—for smart meters.
- Includes a test and inspection unit for meters that can scan the barcodes of meters and modems, test the wiring and connections of the RS485 bus for all meters, and automatically transfer sub modems and meters to the MDM platform.
- Includes a test and inspection unit for 3-phase smart meters. This unit performs wiring inspections, facilitates meter installations, and reports any possible issues directly to the meter reader. In addition, it sends information to the MDM platform.
- Ability to report and view the communication status of smart meters, as well as the time when the meter data was last transferred to the MDM server. This feature displays the meter status after resolving any communication problems at the location.





βST

Behineh Sazan Toos Co.

Contact Us

www.BST.co.ir

info@bst.co.ir

NO 370, SANAT BLV, TOOS INDUSTRIAL ESTATE,
MASHHAD, RAZAVI KHORASAN PROVINCE, IRAN

+98 51 35412240