Energy meters

ENERGY ▪ FAST ▪ MEASURE

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the future for you
TODAY !

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TÜV SÜD Management Service

CERTIFICATE

The Certification Body
of TÜV SÜD Management Service GmbH

certifies that

MBS AG
Eisbachstraße 51
74429 Sulzbach-Laufen
Germany

has established and applies
an Energy Management System for

Development, production and distribution of measuring
energy meters, low voltage current transforme
split core current transformers, all current sens
bus bar isolators / supports, switchgear cabinet h
and control equipment, "State approved test organiz
measurement and calibration of current transformers and e

An audit was performed, Order No. **70003062**.

Proof has been furnished that the requirements
according to

ISO 50001:2018

are fulfilled.

The certificate is valid from **2020-03-08** until **2023-0**

Certificate Registration No.: **12 340 20346 TMS**

Product Compliance Management
Munich, 2020-02-21

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ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

TÜV SÜD Management Service

CERTIFICATE

The Certification Body
of TÜV SÜD Management Service GmbH

certifies that

MBS AG
Eisbachstr. 51 • 74429 Sulzbach-Laufen
Germany

including the
sites and scope of application
see enclosure

has established and applies
a Quality Management System.

An audit was performed, Order No. **70003062**.

Proof has been furnished that the requirements
according to

ISO 9001:2015

are fulfilled.

The certificate is valid from **2019-04-05** until **2022-04-04**.

Certificate Registration No.: **12 100 20346 TMS**.

Product Compliance Management
Munich, 2019-04-08

Page 1 of 2

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MID Energy Meters

- Capture Energy
- Visualize Energy
- Charge Energy

If you want to save energy, you have to make energy visible. That means: measure, change, transfer and analyze. The prerequisite for this are energy meters that precisely record all energy consumption.

The measurement is designed for 1- and 3-phase systems. Two tariffs and 4 quadrants are available.

You can choose from M-Bus, Modbus, KNX, LAN-TCP / IP, eVision and Wireless M-Bus interfaces.
An S0 pulse, an M-Bus or Modbus interface is integrated in the 4 DU narrow housings.

In addition, the individual interfaces M-Bus, Modbus RTU, LAN-TCP / IP, KNX, eVision or Wireless M-Bus as communication modules with a width of 1TE via an infrared interface to the Energy meters can be connected.

The two meter series offer you the possibility to precisely record your energy consumption, to recognized quickly the sources of error and thus increase your energy efficiency.

Energy Meters

Direct measurement - Single-Phase M1PRO

AC meter 1TE page 8

	S0	M-Bus	Modbus
40 A			

AC meter 2TE page 9

	S0	M-Bus	Modbus
80 A			

AC meter 3TE page 9

	S0	M-Bus	Modbus
125 A			

Three-phase energy meters

Current transformer meters page 10

... 1/5 A

S0

M-Bus

Modbus

Direct measurement meters page 11

80 A

S0

M-Bus

Modbus

Communication modules page 12

M-Bus

Modbus

KNX

LAN-TCP/IP

eVision

Wireless M-Bus

Single-phase meter M1PRO

Technical specification	Single-phase meter M1PRO		
Communication link	S0	M-Bus	Modbus
Current	40 A	40 A	40 A
Certification	MID	MID	MID
Housing DIN modules (wide)	1 DU	1 DU	1 DU
Operating voltage range VAC	184...276	184...276	92...276
Certified voltage VAC	1x230	1x230	1x230
Operating frequency range Hz	49...51	45...51	49...51
Certified frequency Hz	50	50	50
Starting current (Ist) mA	15	15	15
Reference current (Iref) A	5	5	5
Display	LCD(7)	LCD(7)	LCD(7)
Display green backlighted	-	-	-
Main terminal max mm^2	16	16	16
Operating temperature °C	-25 bis +55	-25 bis +55	-25 bis +55
Pulse output S0	-	-	1
Measuring accuracy V-A-P (reading) PF (4 quadrants) Hz Active energy (EN 50470-1-3) class B Reactive energy (EN 62053-23) class 2	 ± 1% ± 0,05% ± 0,04 B (1%) -	 ± 1% ± 0,05% ± 0,04 B (1%) -	 ± 1% ± 0,05% ± 0,04 B (1%) -
Voltage L	▲ ♦	▲ ●	▲ ●
Current L	▲ ♦	▲ ●	▲ ●
Power Factor L	▲ ♦	▲ ●	▲ ●
Frequency L	▲ ♦	▲ ●	▲ ●
Active Power L	▲ ♦	▲ ●	▲ ●
Reactive Power L	-	●	-
Apparent Power L	-	●	-
Communication ♦ IR-Side: M-Bus, Modbus RTU, KNX,LAN/TCP, eVision	✓	-	-
Article number	888-104*	888-103*	888-102*

*Minimum order value 25 pieces

▲Measured parameters displayed ●Measured parameters through built-in Bus ♦Measured parameters through IR side modules

Technical specifications		Single-phase meter M1PRO					
Communication link		S0	Modbus	M-Bus	S0	Modbus	M-Bus
Connection		80 A	80 A	80 A	125 A	125 A	125 A
Certification		MID	MID	MID	MID	MID	MID
Housing DIN modules (wide)		2 DU	2 DU	2 DU	3 DU	3 DU	3 DU
Operating voltage range VAC		92...276	92...276	92...276	92..276	92..276	92..276
Certified voltage VAC		1x230	1x230	1x230	1x230	1x230	1x230
Operating frequency range Hz		45...65	45...65	45...65	45...65	45...65	45...65
Certified frequency Hz		50	50	50	50	50	50
Starting current (Ist) mA		15	15	15	20	20	20
Reference current (Iref) A		5	5	5	5	5	5
Display		LCD	LCD	LCD	LCD (8)	LCD (8)	LCD (8)
Display green backlighted		✓	✓	✓	✓	✓	✓
Main terminal max mm^2		35	35	35	50	50	50
Operating temperature °C		-10 bis +55	-10 bis +55	-10 bis +55	-25 bis +55	-25 bis +55	-25 bis +55
Pulse output S0		2	-	-	2	-	-
Measuring accuracy V-A-P (reading) PF (4 quadrants) Hz Active energy (EN 50470-1-3) class B Reactive energy (EN 62053-23) class 2		 ±0,5% 0,03% ± 0,2 B(1%) 2%	 ±0,5% 0,03% ± 0,2 B(1%) 2%	 ±0,5% 0,03% ± 0,2 B(1%) 2%	 ±0,5% 0,03% ± 0,2 B(1%) 2%	 ±0,5% 0,03% ± 0,2 B(1%) 2%	 ±0,5% 0,03% ± 0,2 B(1%) 2%
Voltage	L	▲	▲ ●	▲ ●	◆	● ◆	● ◆
Current	L	▲	▲ ●	▲ ●	◆	● ◆	● ◆
Power Factor	L	▲	▲ ●	▲ ●	◆	● ◆	● ◆
Frequenc	L	▲	▲ ●	▲ ●	◆	● ◆	● ◆
Active Power	L	▲	▲ ●	▲ ●	▲ ◆	▲ ● ◆	▲ ● ◆
Blindleistung	L	▲	▲ ●	▲ ●	▲ ◆	▲ ● ◆	▲ ● ◆
Reactive Power	L	-	●	●	◆	● ◆	● ◆
Import Active Energy	Total (T1+T2)	▲	▲ ●	▲ ●	▲ ◆	▲ ● ◆	▲ ● ◆
	Tarif 1, Tarif 2	▲	▲ ●	▲ ●	▲ ◆	▲ ● ◆	▲ ● ◆
Export Active Energy	Total (T1+T2)	▲	▲ ●	▲ ●	▲ ◆	▲ ● ◆	▲ ● ◆
	Tarif 1, Tarif 2	▲	▲ ●	▲ ●	▲ ◆	▲ ● ◆	▲ ● ◆
Import Reactive Energy	Total(T1+T2)	▲	▲ ●	▲ ●	▲ ◆	▲ ● ◆	▲ ● ◆
	Tarif 1, Tarif 2	▲	▲ ●	▲ ●	▲ ◆	▲ ● ◆	▲ ● ◆
Export Reactive Energy	Total(T1+T2)	▲	▲ ●	▲ ●	▲ ◆	▲ ● ◆	▲ ● ◆
	Tarif 1, Tarif 2	▲	▲ ●	▲ ●	▲ ◆	▲ ● ◆	▲ ● ◆
Partial Active Energy	Tarif 1, Tarif 2	▲	▲ ●	▲	-	-	-
Communication ◆ IR-side: M-Bus, Modbus RTU, KNX,LAN/TCP, eVision		✓	✓	✓	✓	✓	✓
Article number		888-105*	888-106*	888-107*	888-108*	888-109*	888-110*

*Minimum order value 25 pieces

▲Measured parameters displayed ●Measured parameters through built-in Bus ◆Measured parameters through IR side modules

Technical specifications	Current transformer meter M3PRO		
Communication link	S0	Modbus	M-Bus
Connection	.../1-5 A	.../1-5 A	.../1-5 A
Certification	MID	MID	MID
Housing DIN modules (wide)	4 DU	4 DU	4 DU
Operating voltage range VAC	92...276/160...480	92...276/160...480	92...276/160...480
Certified voltage VAC	3x230/400	3x230/400	3x230/400
Operating frequency range Hz	45...65/45...65	45...65	45...65
Frequency Hz	50	50	50
Starting current (Ist) mA	3	3	3
Reference current (Iref) A	5	5	5
Display	LCD	LCD	LCD
Display green backlighted	✓	✓	✓
Main terminal max mm^2	6	6	6
Operating temperature °C	-10 bis +55	-10 bis +55	-10 bis +55
Burden. 1A / 5A	≤ 0,02 VA / ≤ 0,5 VA	≤ 0,02 VA / ≤ 0,5 VA	≤ 0,02 VA / ≤ 0,5 VA
Pulse output S0	2	-	-
Measuring accuracy V-A-P PF (4 quadrants) Hz Active energy (EN 50470-1-3) class B Reactive energy (EN 62053-23) class 2	 ± 0,5% ± 0,03% ± 0,2 B (1%) 2%	 ± 0,5% ± 0,03% ± 0,2 B (1%) 2%	 ± 0,5% ± 0,03% ± 0,2 B (1%) 2%
Voltage L1,L2,L3	▲ ♦	▲ ● ♦	▲ ● ♦
L1-2,L2-3,L3-1	▲ ♦	▲ ● ♦	▲ ● ♦
Current L1,L2,L3	▲	▲ ●	▲ ●
N	▲ ♦	▲ ● ♦	▲ ● ♦
Power Factor L1,L2,L3	▲ ♦	▲ ● ♦	▲ ● ♦
ΣL	▲ ♦	▲ ● ♦	▲ ● ♦
Frequency	▲ ♦	▲ ● ♦	▲ ● ♦
Active Power L1,L2,L3	▲ ♦	▲ ● ♦	▲ ● ♦
ΣL	▲ ♦	▲ ● ♦	▲ ● ♦
Reactive Power L1,L2,L3	▲ ♦	▲ ● ♦	▲ ● ♦
ΣL	▲ ♦	▲ ● ♦	▲ ● ♦
Apparent Power L1,L2,L3	▲ ♦	▲ ● ♦	▲ ● ♦
ΣL	▲ ♦	▲ ● ♦	▲ ● ♦
Import Active Energy L1,L2,L3, ΣL	▲ ♦	▲ ● ♦	▲ ● ♦
Tariff 1, Tariff 2	▲ ♦	▲ ● ♦	▲ ● ♦
Export Active Energy L1,L2,L3, ΣL	▲ ♦	▲ ● ♦	▲ ● ♦
Tariff 1, Tariff 2	▲ ♦	▲ ● ♦	▲ ● ♦
Import Reactive Energy L1,L2,L3, ΣL	▲ ♦	▲ ● ♦	▲ ● ♦
Tariff 1, Tariff 2	▲ ♦	▲ ● ♦	▲ ● ♦
Export Reactive Energy L1,L2,L3, ΣL	▲ ♦	▲ ● ♦	▲ ● ♦
Tariff 1, Tariff 2	▲ ♦	▲ ● ♦	▲ ● ♦
Partial Active Energy ΣL	▲	▲ ●	▲
THD% Voltage L1,L2,L3	▲	▲ ●	▲
THD% Current L1,L2,L3	▲	▲ ●	▲
Article number	888-301	888-302	888-303

▲Measured parameters displayed ●Measured parameters through built-in Bus ♦Measured parameters through IR side modules

Technical specification	Direct measuring meter M3PRO			
Communication link	S0	Modbus	M-Bus	S0
Connection	80 A	80 A	80 A	125 A
Certification	MID	MID	MID	MID
Housing DIN modules (wide)	4 DU	4 DU	4 DU	6 DU
Certified voltage VAC	92...276/160...480	92...276/160...480	92...276/160...480	110...276/190...480
Nennspannung VAC	3x230/400	3x230/400	3x230/400	3x230/400
Operating frequency range Hz	45...65/45...65	45...65	45...65	48...62
Frequency Hz	50	50	50	50
Starting current (Ist) mA	15	15	15	20
Reference current (Iref) A	5	5	5	5
Display	LCD	LCD	LCD	LCD (8)
Display green backlighted	✓	✓	✓	✓
Main terminal max mm^2	35	35	35	50
Betriebstemperatur °C	-10 bis +55	-10 bis +55	-10 bis +55	-25 bis +55
Pulse output S0	2	-	-	2
Measuring accuracy V-A-P PF (4 quadrants) Hz Active energy (EN 50470-1-3) class B Reactive energy (EN 62053-23) class 2	 ± 0,5% ± 0,03% ± 0,2 B (1%) 2%	 ± 0,5% ± 0,03% ± 0,2 B (1%) 2%	 ± 0,5% ± 0,03% ± 0,2 B (1%) 2%	 ± 0,5% ± 0,03% ± 0,2 B (1%) 2%
Voltage L1,L2,L3	▲ ♦	▲ ● ♦	▲ ● ♦	♦
L1-2,L2-3,L3-1	▲ ♦	▲ ● ♦	▲ ● ♦	♦
Current L1,L2,L3	▲	▲ ●	▲ ●	♦
N	▲ ♦	▲ ● ♦	▲ ● ♦	
Power Factor L1,L2,L3	▲ ♦	▲ ● ♦	▲ ● ♦	♦
ΣL	▲ ♦	▲ ● ♦	▲ ● ♦	♦
Frequency	▲ ♦	▲ ● ♦	▲ ● ♦	♦
Active Power L1,L2,L3	▲ ♦	▲ ● ♦	▲ ● ♦	♦
ΣL	▲ ♦	▲ ● ♦	▲ ● ♦	▲ ♦
Reactive Power L1,L2,L3	▲ ♦	▲ ● ♦	▲ ● ♦	♦
ΣL	▲ ♦	▲ ● ♦	▲ ● ♦	▲ ♦
Apparent Power L1,L2,L3	▲ ♦	▲ ● ♦	▲ ● ♦	♦
ΣL	▲ ♦	▲ ● ♦	▲ ● ♦	♦
Import Active Energy L1,L2,L3, ΣL	▲ ♦	▲ ● ♦	▲ ● ♦	▲ ♦
Tariff 1, Tarif 2	▲ ♦	▲ ● ♦	▲ ● ♦	▲ ♦
Export Active Energy L1,L2,L3, ΣL	▲ ♦	▲ ● ♦	▲ ● ♦	▲ ♦
Tariff 1, Tarif f2	▲ ♦	▲ ● ♦	▲ ● ♦	▲ ♦
Import Reactive Energy L1,L2,L3, ΣL	▲ ♦	▲ ● ♦	▲ ● ♦	▲ ♦
Tariff 1, Tariff2	▲ ♦	▲ ● ♦	▲ ● ♦	▲ ♦
Export Reactive Energy L1,L2,L3, ΣL	▲ ♦	▲ ● ♦	▲ ● ♦	▲ ♦
Tariff 1, Tariff 2	▲ ♦	▲ ● ♦	▲ ● ♦	▲ ♦
Partial Active Energy ΣL	▲	▲ ●	▲	
THD% Voltage L1,L2,L3	▲	▲ ●	▲	
THD% Current L1,L2,L3	▲	▲ ●	▲	
Article number	888-304	888-305	888-306	888-307*

*Minimum order value 25 pieces

▲Measured parameters displayed ●Measured parameters through built-in Bus ♦Measured parameters through IR side modules

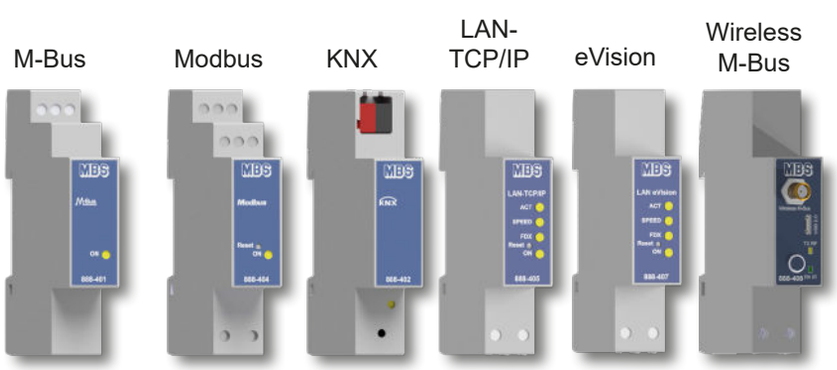
Add-on communication modules and Data concentrator for M1PRO and M3PRO Energy Meters.

Among the advanced features guaranteed by ECS's portfolio of products, communications play a key role. Communication between Meters and local or remote management systems opens up a new range of opportunity for home and building automation applications.For communications ECS uses standard protocols such M-Bus, Modbus RTU, KNX and LAN-TCP/IP, which can be found either directly built into the units or as supplementary modules connected by
infrared ports. The main goal of communications is the opportunity to manage from remote power quality and consumption for each individual users in real time. The energy can be recorded with its date/time to analyze efficiency. The manageability through ECS's software solutions provides unlimited flexibility of use for these solutions.

Communication modules

The universal modules of communication are used to enhance the Meters with additional communication functions. The units are installed directly next to the Meter and communicate via the infrared interface equipped on the side. Supported protocols are Modbus RTU, KNX, LAN-TCP/IP and M-Bus. The communication module receives data through an infra-red interface (IrDA) - placed on its side at 9.600 baud which is coupled with the mirror interface placed on the measuring device.

These standard rail mounting modules occupy single DIN unit (18 mm) and can be powered directly by the bus or by a separate DIN power supply depending on the version.



Communication modules with infrared interface	Technical specification				
Communication link	M-Bus	Modbus	KNX	LAN/TCP	eVision
Connection	Through side IR	Through side IR	Through side IR	Through side IR	Through side IR
According to EN 61000-6-2-3, EN 61000-4-2	✓	✓	✓	✓	✓
According to	EN 1434/ IEC 60950 EN 13757-1-2-3	IEC 60950	EN 60664-1, EN 50090-2-2	EN 60950	EN 60950
Housing DIN modules	1 DU	1 DU	1 DU	1 DU	1 DU
Suitable 1/3-phase energy, Power meters, Network analysis	✓	✓	✓	✓	✓
Power supply					
Voltage range	through bus	230V AC ± 20%	through bus	230V AC ± 20%	230V AC ± 20%
Self supplied	Yes	-	Yes	-	-
Aux. power rating	-	≤1VA	-	≤1,5Watt	≤1,5Watt
Frequency range	-	45...65 Hz	-	45...65 Hz	45...65 Hz
Operation feature					
BUS-hardware-interface	2 screw clamps	3 screw clamps	black/red connector	RJ45	RJ45
BUS-software-protocol	acc. EN 1434	RS-485	KNX	TCP/IP	TCP/IP
BUS-Bandrate	300-9600	≤38.400	9600	≤100Mbit/s	≤100Mbit/s
Adressing	primary + secondary	1...247	through ETS	IP address	IP address
User interface for setup and management	-	-	-	W3C HTML4.01	W3C HTML4.01
Infrared data exchange	Tx/Rx	Tx/Rx	Tx/Rx	Tx/Rx	Tx/Rx
Infrared-software-protocol	proprietary	proprietary	proprietary	proprietary	proprietary
Real-time clock	-	-	-	-	✓
Safety acc. to IEC 60950					
Pollution degree	2	2	2	2	2
Overvoltage category	II	II	II	II	II
Working voltage	24-36	...300V AC	30V DC max.	...300V AC	...300V AC
Test voltage impulse 1,2/50µs peak value kV 50 Hz 1 min kV	 2,5 1,35	 2,5 2,5	 2,5 1,35	 4 4	 4 4
Environmental conditions					
Operating temperature	-10 bis 55ºC	-10 bis 55ºC	-10 bis 55ºC	-25 bis 55ºC	-25 bis 55ºC
Limit temperature of storage	-25 bis 70ºC	-25 to 70ºC	-25 bis 70ºC	-25 bis 70ºC	-25 bis 70ºC
Relative humidity	≤ 80%	≤80%	≤80%	≤80%	≤80%
Vibrations amplitude at 50 Hz	0,25 mm	0,25 mm	0,25 mm	0,25 mm	0,25 mm
Protection class	II	II	II	II	II
Degree of protection	IP 20	IP 20	IP 20	IP 20	IP 20
Article number	888-401	888-403 Little Endian 888-404 Big Endian	888-402	888-405	888-407

Wireless M-Bus

This lateral IR communication module is suitable to be mounted next to any single and three phase Energy Meters, active and reactive, imported and exported energies under 2 Tariffs measured by the Wireless M-Bus and consequently can be recorded on a .csv file.

Overview

• The Module has 3 communication interfaces:
  - an Infrared interface, receiving data from the Meter
  - an USB 2.0 interface, used to configure and monitor the Module
  - a wireless M-Bus interface, compliant with EN 13757-4, used to transmit data using a RF band around 868 MHz

• Both USB and MBus interface are 4 kV isolated from main supply

• On the front of the module are present:
  - a receptacle for a SMA 868 MHz RF antenna
  - a micro USB connector (micro USB A or B)
  - a yellow LED that is lighted when a wireless transmission takes place
  - a green LED indicating the status of the infrared communication with the meter
  - both LED blink during a hard configuration reset
  - a miniature push-button key to reset the module parameters to their default values

RF features

• Selectable mode: S1-m or T1 (one way, TX only)
• Transmission is spontaneous, and there is no RF receptior
• Chip Rate: 32768 cps (S1-m) or 100 kcps (T1)
• Internal RF module: AMB8426-M
• Antenna: Any 868 MHz dipole Antenna

Electrical characteristics

• The device is normally powered by mains supply
• Supply Voltage: 230 VAC, 50 Hz
• Power consumption:
  - normal operation ≤ 0.5 VA,
  - during RF transmission ≤ 0.75 VA
  - alternatively, it can be fully supplied by a USB interface
    (normal operation ≤ 40 mA, during RF transmission ≤ 60 mA)

Technical specifications		
Communication link	Wireless M-Bus	
Connection	Through side IR	
According to EN 300 200, EN 301 489, EN 60950, EN 50371	✓	
Housing DIN modules	1 DU	
RF features	acc. to EN 13757-4: 2013	
Mode	T1	S1-m
Data rate (kcps)	100	32.768
Range	up to 2000m (*)	
Max RF Output Power	12 dBm	
Power supply		
Voltage range	92...276 VAC	
Aux. power rating	≤ 1,5 VA	
Frequency range	45...65 Hz	
Wiring Connection		
Screw head Z+/-	POZIDRIV PZO	
Solid wire min (max) section	0,15 (2,5) mm^2	
Stranded wire min (max) section	0,15 (2,5) mm^2	
Electric Safety		
Pollution degree	2	
Overvoltage category	II	
Working voltage	300 V	
Flammability (acc. to UL 94)	Klasse V0	
Environmental conditions		
Operating temperature	-25ºC bis 55ºC	
Limit temperature of storage	-25ºC bis 75ºC	
Relative Humidity	≤80%	
Degree of Protection	IP 20	
Article number	888-406	

* in free air, depending on antenna choice and environmental conditions.

Suggested Optional Antennas

SMA 868 MHz Dipole Antenna

- Center Frequency: 868 MHz
- Wavelength: Half wave
- Impedance: 50 Ohm
- Connection: SMA
- Tilt: 90 degrees
- Rotation: 360 degrees

868 MHz Magnetic Mounted Antenna

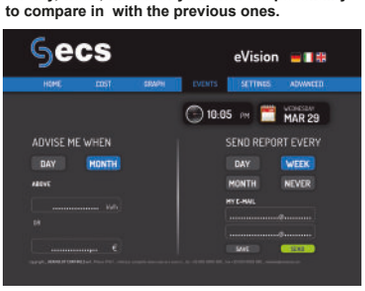
Alternatively, if necessary, an external magnetic mount antenna can be used. This antenna has the same RF characteristics as the dipole antenna, but is suitable to be mounted out of the cabinet, having a 2.5 meter RF cable.

An intelligent System with a built-in LAN Server

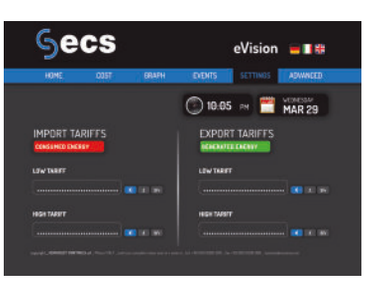
Home: Indication of the actual consumption and hour cost of your house or office.

Cost: Visualization of the month and day balance showed in your currency. Possibility to have the indication of generated Energy if there are solar panels or windmills.

Graph: A clear and friendly indication of your consumption flow expressed in kWh or currency for day, week, month or year with the possibility to compare in with the previous ones.



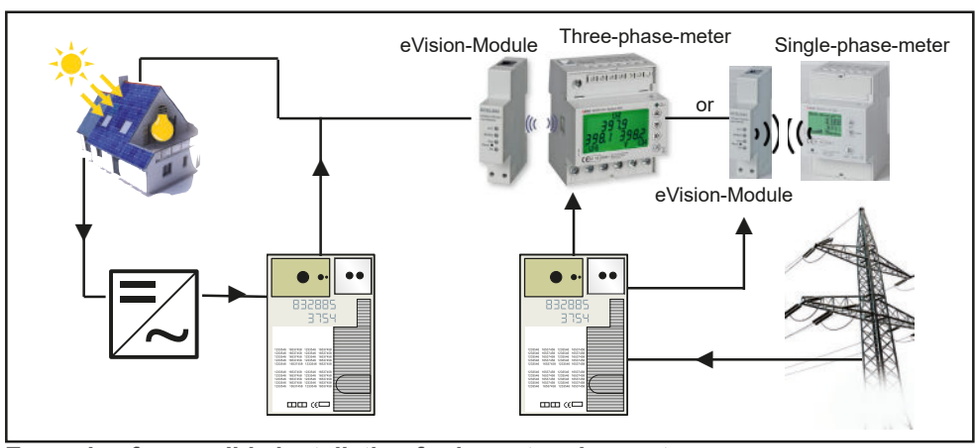
Events: display of consumption and costs per hour. Setting a defined measured value and notification via email.



Setting: Setting the tariff costs for import and export.

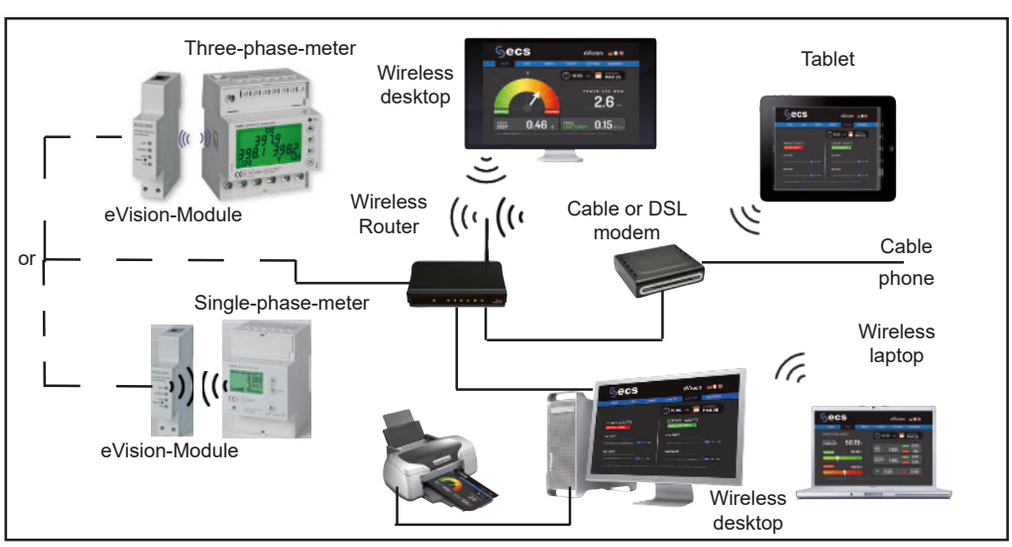
The intelligent control of energy consumption

Through the collected and visualized information from the embedded WEB application of eVison Module, it is possible to optimize the use of the electric energy choosing the most convenient tariff hours in order to avoid excessive charges.
eVision Module constantly controls the energy consumption and allows for the real time visualization of the energy cost of house or office, advising with an e-mail, once the set limits are exceeded.
Because of the LAN connection, the user can consult eVision Module wherever he likes
through PC, Smartphone or Tablet (*). The Internet web access allows to analyze different information, including the instant consumption shown in kWh, or monetarily. The data can be shown in a clear and simple graphic.
(* Designed for Google Chrome browser)



Example of a possible installation for import and export energies in a solar plant or in Wireless.

eVision Module allows to visualize with a simple click your actual, day, week, month and annual Energy consumption. Understand how and how much you are spending has never been so simple. This communication module is perfectly adaptable to a solar plant. It will indicate the quantity of generated and consumed Energy calculating automatically the cost or the earning of your house or office.



LAN Server -Modbus/TCP Data Concentrator

This LAN Server gathers measurement data from our Energy Meters, connected via a serial Modbus and shows the electrical values on web browser interface thanks to a Ethernet (RJ45) connection. Moreover, it can issue configuration and operation commands from a supervisor unit and store locally measured data (log) for long time period.

Overview

•The data logger has the following characteristics
- Modbus interface
- TCP/IP interface supporting HTTP, SNTP, SMTP and FTP protocols
- Connect up to 31 devices with Modbus
- Plug-and-play and easy to use
- Advanced web browser user interface
- Large storage capacity (up to 2 Gigabytes) for long length logging
- 4 DIN modules (72 mm)

User interface

The intuitive web based interface supports different languages and allows to:
- Select and configure every device connected via Modbus
- Show real time electrical measured value get from the Energy Meters
- View the log of electrical measured data gathered from the units and stored into the internal large mass memory
- Configure LAN server parameters (i.e. network, log data types, store frequency, etc.)

Protocol of data

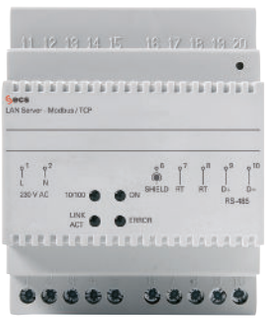
- Data connection between LAN Server and PC is based on TCP/IP and HTTP protocol
- Log file can be download to user PC thanks to an internal FTP server

Date and time

- LAN Server has a built-in Real Time Clock features to keep accurate local time and date and it is capable to get synchronized using NTP network protocol

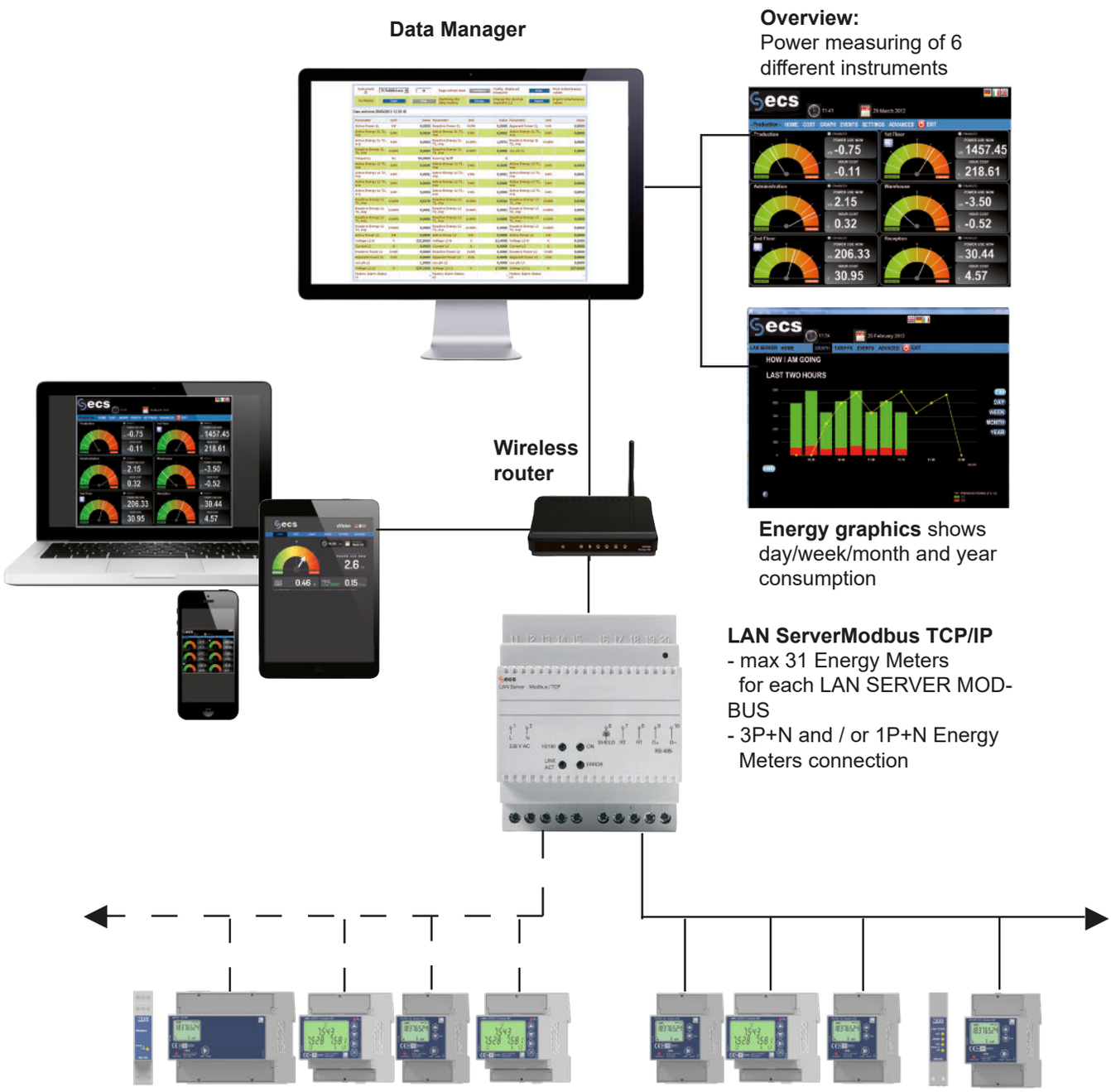
Data storage

- The data retention is guaranteed for at least 10 years thanks to an internal 2 Gbytes micro SD-card. Its large storage capability allows user to collect large amount of a log data.
- For example it can store data coming from 5 energy meters every minute and keep working for 2 years before the memory becomes full

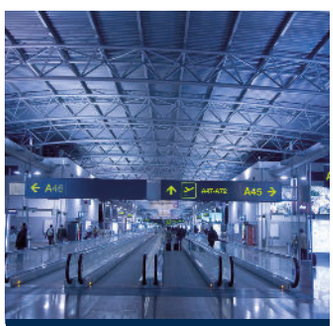


Techniical specifications	
Type	LAN Server Modbus/TCP *
Description	Data concentrator Modbus/TCP
According to IEE 802.3 AS IEC 60950, EN 61000-6-2 EN 61000-4-2, EN 60950	✓
Housing DIN modules	4 DU
Voltage range	230 VAC ± 20%
Aux. power rating	≤ 10 VA
Frequency range	45...65 Hz
Memory storage	2 Gigabyte intern
LAN hardware interface	RJ 45
LAN software protocol	TCP/IP
LAN Bandrate	10/100 Mbits/s
Application level protocols	HTTP-FTP Modbus TCP
Interface of instruments	RS-485
Hardware interface	3 Klemmen
Software protocol	Modbus RTU und ASCII
Directly connected instruments	31
Pollution degree	2
Overvoltage category	II
Working voltage	...300 VAC
Test voltage impulse (1,2/50чs) peak value kV 50 Hz 1 min kV	4 4
Operating temperature	-10 bis 55°C
Limit temperature of storage	-25 bis 70°C
Relative humidity	≤ 80 %
Vibrations amplitude at 50 Hz	± 0,25 mm
Protection class	II
Degree of protection	IP 20
Article number	888-501

* Minimum order quantity 15 pieces



Remote read-out with a PC and central data logging on a LAN Server


Airports


Stores


Shopping malls


Production units

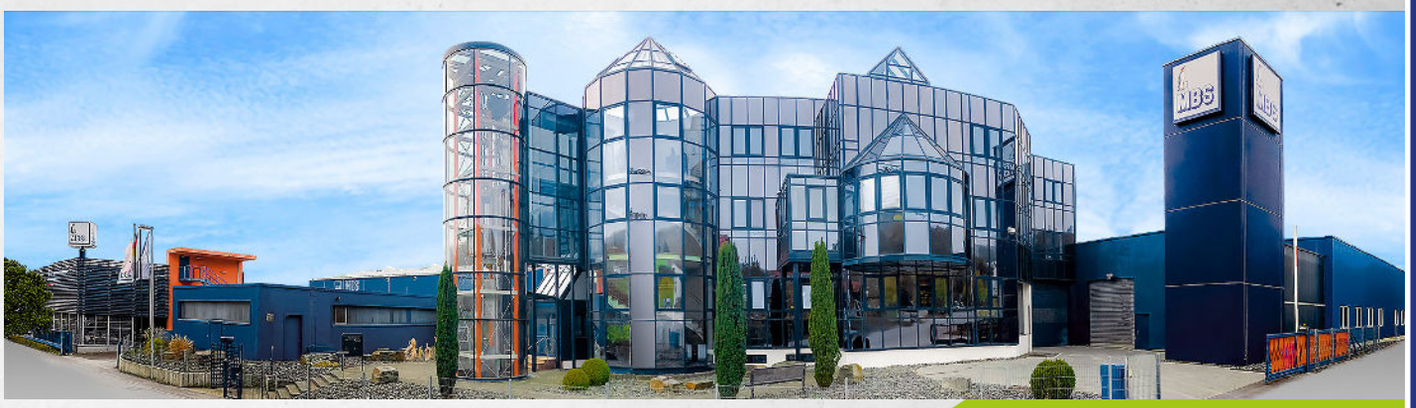
Equipment Front panel mounting frame

Article number	Description
59501	ER Frontm installation kit, 6 DU Hinged window KF self-closing, transparent, IP44 with touch protection and Mounting bracket
59502	KF Hinged window, 2 DU
59503	KF, Hinged window, 4 DU
59507	KF Hinged window, 5 DU
59504	KF Hinged window, 6 DU
59505	KF Hinged window, 8 DU
59506	Lock set for KF, upgradeable

Notes

- Current transformers for industry
- Current transformers for tariffs
- Accessories for current transformers
- Medium-voltage transformers
- Bus bar insulators / -supports
- Shunts

- Voltage transformers
- All current sensors
- Measuring transducers
- Energy meters with or without MID approval
- Accessories for energy meters
- Panel board heaters, filter fans, roof fans and control units



www.mbs-ag.com

MBS AG
Eisbachstraße 51 74429 Sulzbach-Laufen Germany
Phone: +49 7976 9851-0 Telefax: +49 7976 9851-90
info@mbs-ag.com www.mbs-ag.com

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