The EMS static watt-hour meter collects, stores and processes data concerning the consumed active and reactive electric energy during single- and multi-tariff periods for alternating current in 3-phase networks. The meter also provides maximum demand measurements during specified integration periods and load profiles. The EMS meter complies with the requirements of standard IEC 1036-96 for accuracy class 1.0, measuring active energy; and standard IEC 1268-95 for accuracy class 2.0, measuring reactive energy. It is designed for indoor use in the industrial, agricultural and transport sectors, as well as for domestic users. The meter can also be used in automatic systems of electric energy control and accounting; the meter has SO impulse outputs and serial interface allowing the transferring of the data to dispatcher posts.

Concerning resistance to harsh climates and mechanical impacts EMS meter meets the requirements of standard IEC 1036, and should be used in environments free of dust and aggressive vapors and gases.

Note: *The meter can register the following types of energy and power: +A, -A, +R, -R, +P, -P, +Q, -Q, but any modification of the EMS meter cannot collect data more than in three energy registers. If the meter registers active energy flow in two directions, measuring of reactive energy is not possible. If the meter measures reactive energy (in that case it can measure negative and positive reactive energy as well), active energy can be measured only in one direction.*

Technical specifications

Accuracy class:		
	For active energy	1 (IEC EN 61036-96)
	For reactive energy	2 (IEC EN 61268-95)
Nominal voltage:		
	4-wire system	3x127/220; 3x220/380;
	3-wire system	3x230/400 3x100; 3x110; 3x120; 3x220; 3x230
Nominal (Maximal) current:		
	Direct connection	5/60A; 10/60A; 10/100A
	CT connection	5/6,25A; 5/10A
Sensitivity:		
	Direct connection	0,004 I_b
	CT connection	0,002I_r
Power consumption:		
	In voltage circuit	< 0.5 W; < 1.0 VA
	In current circuit: direct connection	< 0.05 VA
	CT connection	< 0.5 VA
Test output constants:		
	Direct connection	500 imp/kWh; 500 imp/kvarh
	CT connection	5000 imp/kWh; 5000 imp/kvarh
Internal clock:		
	Time-keeping accuracy	< 15 s/month., < 0,05s/^{0}C/24h
	Backup supply	Li battery
	Operating reserve with backup supply only	> 5 years
Functions of tariff modulus:		
	Total energy	+kWh, - kWh, +kVArh, -kVArh
	Energy of the last 16 monthly counting periods	+kWh, - kWh, +kVArh, -kVArh
	Maximum demand of the 12 months with date and time stamps	+kW, -kW +kVAr, -kVAr
	MD of the days and nights with date and time stamps	+kW, -kW +kVAr, -kVAr
	Load profiles	+kW, -kW +kVAr, -kVAr
	Integration period	5, 10, 15, 20, 30, 60 min
	Additional error for demand for periods 15, 30 and 60 minutes	±1W (CT connection) ±5W(direct connection)
	Registration of events with the date and time stamps	Up to 42 events
	Quantity of tariffs	1 … 4
	Data storage time after power failure	10 years (T<25 ^{0}C); 2 years (T=60 ^{0}C)
SO impulse outputs (IEC 62053-31):		
	Quantity of S0 outputs	1 … 5
	Available values of the constant [imp/kWh, imp/kvarh]	1 ... 60 000 (CT connection) 1 …19 999 (direct connection)
	Duration of the impulses	30 ms
Interfaces:		Optical interface - IEC EN 61107 Current loop (IEC EN 61107), 20mA
Safety:		
	Pulse voltage test (IEC 60)	8 kV
	Alternative voltage test	2kV
Temperature conditions:		
	Operating temperature	- 20 … +55^{0}C
	Storage temperature	- 20 … +70^{0}C
Weight		< 1,3 kg
Dimensions		328x178x60 mm^3

Modifications of the EMS meter

The EMS meter is available for active and reactive energy and maximum demand measuring, for direct or CT connection. Modifications of the meter differ in reference voltage, basic (rated) current, number of elements and number of auxiliary outputs:

EMS x x x. x x .x

- 1 – S0 outputs
- 2 – S0 outputs, relay output
- 3 – S0 outputs, electric interface
- 4 – S0 outputs, electric interface, relay output

- 0 – without internal clock for tariff switching
- 1 – with internal clock for tariff switching

- 0 – active energy (+A)
- 1 – active energy (+A) and reactive energy (+R, -R)
- 2 – energy (+A, +R, -R), maximum power demand (+A, +R, -R)
- 3 - energy (+A, -A), maximum demand (+A, -A)
- 4 - energy (+A, +R, -R), load profiles and maximum demand (+A, +R, -R)
- 5 - energy (+A, -A), load profiles and maximum demand (+A, -A)

- 1 – connection via transformer, basic (maximum) current 5 (6,25) A
- 2 – connection via transformer, basic (maximum) current 5 (10) A
- 3 – direct connection, basic (maximum) current 10 (60) A
- 4 – direct connection, basic (maximum) current 10 (100) A
- 5 – direct connection, basic (maximum) current 5 (60) A

Reference voltage:

1 – (3x57,7/100)V; (3x63,5/110)V; (3x69,2/120)V; (3x100)V; (3x110)V; (3x120)V
2 –
3 – (3x220/380)V; (3x230/400)V; (3x380)V; (3x400)V
4 – (3x120/208)V; (3x127/220)V; (3x220)V; (3x230)V

- 1- three elements, 4-wire connection
- 2- two elements, 3-wire connection

All versions of the meter have the same case, optical interface and SO impulse outputs (IEC 62053-31). All versions of the EMS meter can measure consumption of the energy and demand irrespective of current flow direction, and indicate reverse connection of the current circuits. Multi-tariff meters have internal clock for tariff switching control that complies with standard IEC1038 requirements.
Requests for auxiliary outputs number and functions must be negotiated when making a supply contract.