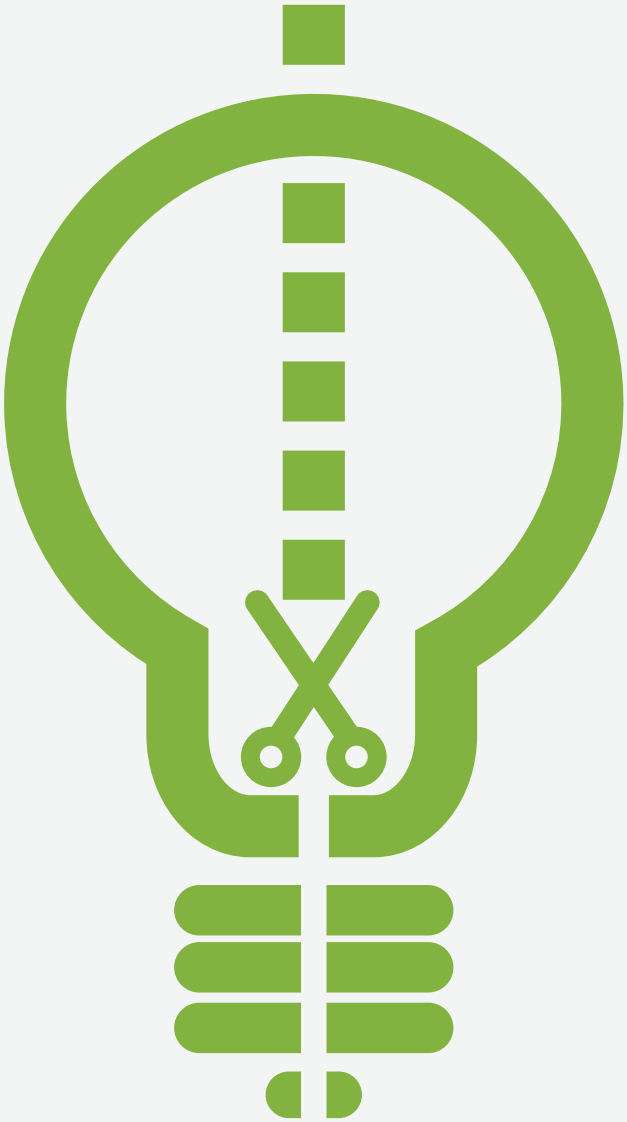
M

for measure

The control network

Systems for energy consumption monitoring in residential, commercial and industrial installations



04.2013

ecs

M for measure

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M for measure

Herholdt Controls

A streamlined and dynamic company, totally focused on development of measuring instruments, where quality, people and innovation are the keys of its success

A company where new solutions and business models work together to keep up with the demands of the market.
This is Herholdt Controls.
Our roots lie in thirty years of experience in the field of modular DIN products, which today are at the heart of Herholdt Controls business. This wealth of tradition reflects in a business model where constant qualification and continuous investments in R & D are fundamental directions of development.
Today more than ever, most of the our staff are skilled hardware, software and firmware engineers and designers.
Our lean and efficient multi-disciplined team brings a wide array of talent to develop unique customer-oriented solutions.
In short, the core of our quality ethic and innovation strategy is driven by the certainty that achievement is not based on the success of individuals but the result of teamwork.
Our high performance team is supported by advanced resources, quality standards and precise rules. First of all, the MID certification, an international recognition which allows us to guarantee the unconditional quality of our products well beyond 10 years. But for us this is not enough.

The path we have chosen to serve our customers is tough and ambitious but results that we have taken have encouraged us to reach more and more important goals, such as becoming ourselves a certified laboratory.
Herholdt Controls can now proudly say to be recognized as one of the best SMT (Supervised Manufacturer's Testing) centers in the market. These steps demonstrate our commitment to our people, our customers and the industry and with this commitment we will continue to bring on DIN rail more and more advanced functions, not only measure but also communication and analysis. Continuous innovation and a focus quality will help us to stay on course and shape our offer to the needs of the market, meeting the challenges of the future.

M for measure

The Company

Herholdt Controls - Leader in measurement and communication instruments

Products and services

Herholdt Controls portfolio of products and services is constantly improved with a close watch on quality, performance, international standard and customer satisfaction. Among the main features of the Herholdt Controls portfolio stand modularity and communications. The Herholdt Controls products for measurement and control leverage a concept of scalability that always provides the best solution for each need. Through the wide range of communication options, Herholdt Controls Analyzers and Meters can exchange data easily and effectively with any remote energy management system (EnMS), paving the way to a new range of opportunities and applications. This is in line with the most severe international best practices as the EN ISO 50001, which helps organizations in all sectors to use energy more efficiently.

ISO 9001 -2008

The Herholdt Controls products quality comes from very accurate design, manufacturing and test procedures.
The attention to details offers an extreme flexibility and the possibility to deliver unique customer-oriented solutions.
Herholdt Controls quality management system accomplishes most rigorous standards and it is certified by Quality System ISO 9001:2008.

Herholdt Controls is a leading manufacturer of modular measurement systems for electrical parameters. Since beginning, the main focus of the company has been the Energy Management Control market, considered as a crucial application field with high expectations for growth in the years to come due to the increasing sensibility of administrations, professionals and users to the themes of energy saving and efficiency.

Products qualification and parameterization

Production and test equipment of Herholdt Controls have no equal on the market. Each unit is submitted to the most severe tests. Cutting-edge climatic chambers and ultra-high precision tools for counters parameterization allow Herholdt Controls to offer certified products compliant to several regulations and standards.

This new range of products in the field of Energy Management Control, will be developed and enhanced with a particular focus on quality and service, starting from project up to after sales.

MID self-assessment

ECS, the trademark of Herholdt Controls, is certified to Directive 2004/22/EC on Measuring Instruments (MID). This Directive covers ten categories of measuring instruments and is designed to harmonize the requirements for new measuring instruments placed on the market or put into use in Europe by eliminating the regulatory differences at national level which currently hinder trade.

This Measuring Instruments Directive has an innovative approach because allows manufacturers to choose between various assessment procedures for their products, making them easier to market their controlled measuring instruments. All ECS Energy Meters are available either in non-MID or in MID versions.

M for measure

Products overview

MID certified systems for energy measurement and analysis

Energy Meters | Power Meters | Network Analyzers

From the acquisition measurement to the transmission to remote systems for accounting and management, the ECS range of products provide all the features needed to ensure complete control of the energy in households and industrial installations.
The ECS products portfolio is split across a series of modular and flexible solutions that make it possible to scale the system according to specific requirements.

Energy Meters

Full Line

Active and reactive Energy Meters for single and three phase alternating current, with external CT's and direct connection up to 125 A. The instruments are equipped with 2 S0 impulse outputs for active and reactive energy, measured according to two different tariffs. A local LCD displays imported and exported energy values and many other parameters. The Full Line versions are designed to be combined with universal communication modules through an infrared lateral port.

Compact Line

Active Energy Meters for three phase alternating current, with external CT's and direct connection up to 80 A. The instruments are equipped with 2 S0 impulse outputs for active and reactive energy, measured according to two different tariffs. A local LCD displays imported and exported energy values. The Compact Line apparatus can be directly equipped with built-in Modbus or M-Bus communication.

Power Meters

Digital Power Meters with green backlight LCD display ideal to measure, read, store and control the active, reactive and apparent power values in three phase systems. The instruments are equipped with 2 S0 impulse outputs for active and reactive energy, measured according to two different tariffs. Products can be directly equipped with built-in Modbus or M-Bus interfaces or, alternatively, with an infrared lateral port designed to connect other separate communication and data logging modules.

Network Analyzers

Network Analyzers allow to display up to 38 different active, reactive and apparent values in a three phase network.
A special feature provides for the analysis of the different loads on the phases. These products allow direct connection up to 80 A and through external CT's and are provided with 2 S0 pulse outputs for active and reactive energy, according to two different tariffs. The instruments are directly equipped with a built-in Modbus or M-Bus interfaces or, alternatively, with an infrared lateral port designed to connect other separate communication units.

Products overview

Full Line

1P+N
32 A; 40 A
1 T / 1 S0

p. 16

1P+N
80 A
2 T / 2 S0

p. 16

1P+N
80 A; 125 A
2 T
Built-in
Modbus/M-Bus

p. 16

3P+N
.../5 A; 80 A
2 T / 2 S0

p. 16

3P+N
125 A
2 T / 2 S0

p. 16

Compact Line

3P+N
.../1 A; .../5 A; 80 A
2 T / 2 S0

p. 22

3P+N
.../1 A; .../5 A
2 T
Built-in
Modbus/M-Bus

p. 24

3P+N
80 A
2 T
Built-in
Modbus/M-Bus

p. 24

3P+N
32 A (Split Core)
2 T
Built-in
Modbus/M-Bus

p. 26

Power Meter Line

3P+N
.../5 A; 63 A; 80 A
2 T / 2 S0

p. 28

3P+N
.../5 A; 63 A
2 T
Built-in
Modbus/M-Bus

p. 30

eVision

3P+N
.../1 A; .../5 A
2 T / 2 S0
Built-in
LAN Server
p. 32

Network Analyzer

3P+N
.../5 A; 80 A
2 T / 2 S0
Built-in
Modbus/M-Bus
p. 34

Accessories

Split core
current transformer
Primary Window
18 Ø mm
p. 48

Split core
current transformer
Primary Window
28 Ø mm
p. 48

Split core
current transformer
Primary Window
42 Ø mm
p. 48

Wall
DIN rail
housing
6 modules
p. 50

DIN Rail
frame
1 to 8 mod.
p. 51

DIN Rail
frame
2-3-4 mod.
96x96 mm
p. 51

M for measure

Communication overview

Communications and remote control

Among the advanced features guaranteed by ECS's portfolio of products, communications play a key role.
Communication between Meters or Analyzers 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 count can be correlated to the time and recorded 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 and Analyzers with additional communication functions. The units are installed directly next to the Meter or Analyzer and communicate via the infrared interface equipped on the side. Supported protocols are Modbus RTU, KNX, LAN-TCP/IP and M-Bus. Also available a version with SD-Card slot for local data logging .

Home Supervisor

This product collects the measurement data gathered from the Energy Meter placed next to it and from other devices connected through M-Bus or impulse outputs.
The data collected are used to calculate and monitor consumption and costs related to electricity, water and gas for houses, buildings and other users. Data are available through LAN, WAN or Internet via a web browser.

LAN Server

The LAN Server modules are used to group data from different measurement devices (connected through Modbus or M-Bus) and make them accessible by LAN, WAN or Internet via HTTP interface using a web browser. LAN-Server can also communicate with connected devices and store data locally for historical purposes.

Add-on communication

M-Bus

p. 38

Modbus

p. 38

KNX

p. 38

LAN-TCP/IP

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SD-Card

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Home Supervisor

M-Bus

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LAN Server

M-Bus

p. 44

Modbus TCP/IP

p. 44

M for measure

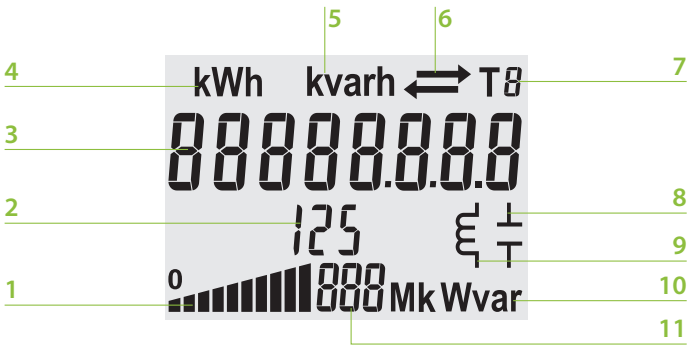
Full Line

Single and three phase

digital Energy Meters for active and reactive power, ideal for energy management and efficiency analysis in the four quadrant with 2 Tariffs for small and medium installations

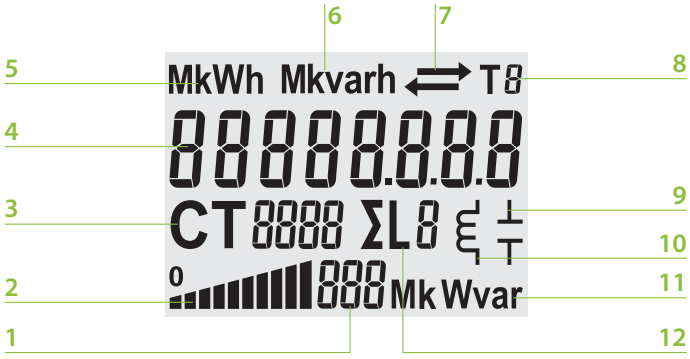
ECS's Full Line family of Energy Meters are used in residential, utility and industrial applications to measure, register, display and transmit many instantaneous parameters associated with active and reactive energy and power.
These compact DIN rail mounting counters comply with standard EN 50470-1-3 and are designed for direct connection to alternating currents up to 125 A or through Current Transformers in single and three phase systems. The calibrated versions are in accordance with the new Measuring Devices Directive 2004/22/EC (MID).
The Meters store the measured values in non-volatile registers. In calibrated versions readings cannot be reset for MID certified instruments. Depending on the model, the Meters are able to transmit to a remote Power Management System the value of active and reactive energy (kWh and kVArh) through 2 S0 pulse outputs according to two different rates settled by the external energy counter via dedicated inputs.
Both, single and three phase Energy Meters, can utilize an integrated optical interface (IrDA) accessible on the side of the meter itself. The IR port is used to connect directly to a separate module that collects the measured values and transmit them over a standard serial bus.
Interface modules can communicate with the remote power management system over LAN-TCP/IP, Modbus RTU, M-Bus and KNX protocols. An interface module equipped with a SD-Card Datalogger is also available.

The green backlighted front panel and the values displayed on single phase Energy Meters



1. Consumption bar display (percentage of *Pmax*)
2. Full scale current indication
3. Energy value
4. kWh display
5. kVArh display
6. Power import (absorbed→) / power export (supplied←)
7. Running or selected Tariff
8. Displays capacitative reactive power
9. Displays inductive reactive power
10. Power unit
11. Running active or reactive power display

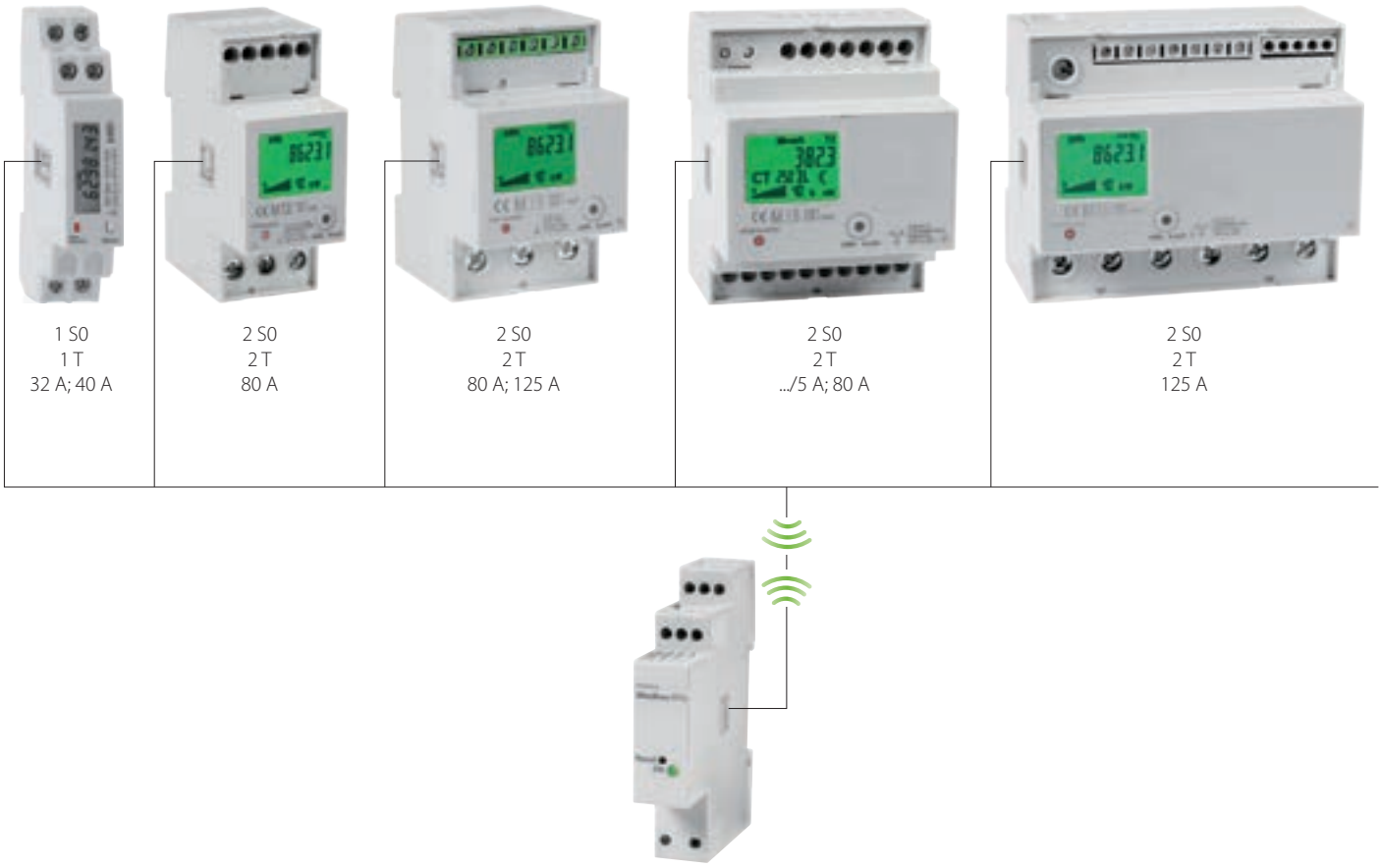
The green backlighted front panel and the values displayed on three phase Energy Meters



1. Running active or reactive power display
2. Istantaneous power bar display (percentage of *Pmax*)
3. CT primary current
4. Energy value
5. (M) - kWh display
6. (M) - kVArh display
7. Power import (absorbed→) / power export (supplied←)
8. Running Tariff
9. Displays capacitative and reactive power
10. Displays inductive and reactive power
11. Power unit
12. Energy and power line (L1-2-3) or ΣL

SINGLE PHASE

THREE PHASE



1 S0
1 T
32 A; 40 A

2 S0
2 T
80 A

2 S0
2 T
80 A; 125 A

2 S0
2 T
.../5 A; 80 A

2 S0
2 T
125 A

M-Bus communication modules
- Power supply through bus cable
- Baud rates: 300 to 9600 kbit/s
- Status indication by LED on the module
- Can be parameterized using M-Bus Master software

Modbus communication modules
- Power supply: 230 V AC
- Baud rates: 4.8 / 9.6 / 19.2 and 38.4 kbit/s are supported
- Status indication by LED on the module
- Can be parameterized using RS 485 Master software

KNX communication modules
- Power supply through the KNX bus cable
- Status indication by LED on the module
- Baud rates: 9600 bps
- Configuration via ETS3

LAN interface with Modbus/TCP protocol
- Power supply: 230 V AC
- Baud rates: on IR side 9600 baud, to networks 10/100 Mbps
- Status indication by different LED on the module
- The product offers a web-based configuration interface

SD-Card Datalogger
- Power supply: 12-24 DC/AC
- Its purpose is to store data comming from eg. the e-meter into a removable SD-Card till 8 GB
- Status indication by different LED on the module
- If the hole set of data is selected it is possible to store approximately 1.250.000 records for each GB

Single phase Energy Meters

ECS Energy Meters for single phase alternating current in home and building applications have 1 or 2 S0 output interface generating pulses for remote processing of active and reactive energy according to low or high Tariffs. They are equipped with a long time storage of energy register. The products can be set up to transmit measured values of imported and exported energy on LAN-TCP/IP, Modbus RTU, M-Bus, KNX and SD-Card Datalogger interfaces.
Reliable and cost friendly data transmission offers the opportunity to analyze the energy consumption remotely with a PC, Smartphone or Tablet in a very simple way, improving efficiency and reducing running costs.

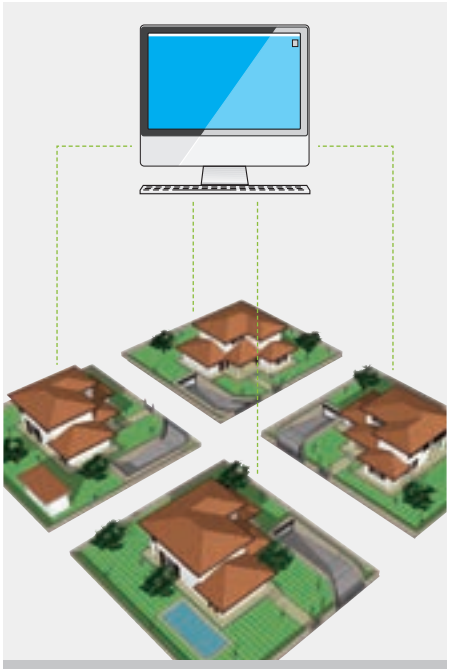
Main features

- Single phase Energy Meters
- Direct connection up to 125 A
- Side-IrDA interface for connection to communication modules
- LAN-TCP/IP for direct connection to PC
- SD-Card Datalogger optional module
- Optional Modbus RTU or M-Bus built-in communications
- Energy register zero setting (for no MID certified instruments)
- Energy register for import and export
- Active energy registers for import and export
- Measured parameters displayed or through Bus: voltage, current, power factor, frequency, import and export active, reactive and apparent power
- Green backlighted LCD (except 32 A and 40 A)
- 7 or 8 digits for energy values indication
- Instantaneous active and reactive power readings
- Accuracy class 1 for active energy according to EN 50470-3 (B)
- Accuracy class 2 for reactive energy according to EN 62053-23
- All instruments also available with MID certification (EN 50470-1-3)
- Sealable terminal covers
- 1, 2 or 3 DIN modules wide

Software

Single family unit

House / Office



Village

Three phase Energy Meters

ECS digital Energy Meters for three phase systems are used in residential, utility and industrial buildings like offices, hospitals, universities etc. to analyze active and reactive energy consumption and instantaneous power.
Monitored energy consumption can be displayed on the front LCD and transmitted via 2 S0 pulse outputs. Products can be also set up to communicate with LAN-TCP/IP, Modbus RTU, M-Bus or KNX through additional modules. This allows the management of power quality and consumptions with a remote management system.

Main features

- Three phase Energy Meters
- CT or direct connection up to 125 A
- Side-IrDA interface for connection to communication modules
- SD-Card Datalogger optional module
- LAN-TCP/IP for direct connection to PC
- Energy register zero setting (for no MID certified instruments)
- Energy register for import and export
- Active energy registers for import and export
- Measured parameters displayed: active and reactive imported/exported power on L1, L2, L3 & ΣL for Tariff 1 and 2
- Green backlighted LCD
- 8 digits display for energy values indication
- Instantaneous active and reactive power readings
- Accuracy class 1 for active energy according to EN 50470-3 (B)
- Accuracy class 2 for reactive energy according to EN 62053-23
- All instruments also available with MID certification (EN 50470-1-3)
- Sealable terminal covers
- 4 or 6 DIN modules wide

Software

Offices energy consuption control

Single phase Energy Meters

Characteristics		Full Line		Full Line	Full Line	built-in		Full Line	built-in	
Communication link		**S0**	**S0**	**S0**	**S0**	**Modbus**	**M-Bus**	**S0**	**Modbus**	**M-Bus**
Direct connection		**32 A**	**40 A**	**80 A**	**80 A**	**80 A**	**80 A**	**125 A**	**125 A**	**125 A**
Code (not MID certified)		**ECSEM86**	**ECSEM115**	**282101**	**ECSEM118**	**ECSEM120**	**ECSEM122**	**282341**	**ECSEM106**	**ECSEM124**
Code MID certified		**ECSEM88MID**	**ECSEM116MID**	**282551**	**ECSEM119MID**	**ECSEM121MID**	**ECSEM123MID**	**282351**	**ECSEM107MID**	**ECSEM117MID**
Housing DIN modules (wide)		1	1	2	3	3	3	3	3	3
Operative voltage range	V AC	184...276	184...276	110-276	110-276	110-276	110-276	110-276	110-276	110-276
Certified voltage	V AC	1 x 230	1 x 230	1 x 230	1 x 230	1 x 230	1 x 230	1 x 230	1 x 230	1 x 230
Operative frequency range	Hz	49...51	49...51	48...62	48...62	48...62	48...62	49...51	48...62	48...62
Certified frequency	Hz	50	50	50	50	50	50	50	50	50
Starting current (I_{st})	mA	20	20	20	20	20	20	20	20	20
Reference current (I_{ref})	A	5	5	5	5	5	5	5	5	5
Main supply	V AC	SELF	SELF	SELF	SELF	SELF	SELF	SELF	SELF	SELF
System connectivity	(n° wires)	2	2	2	2	2	2	2	2	2
Display	(n° digit)	LCD (7)	LCD (7)	LCD (8)	LCD (8)	LCD (8)	LCD (8)	LCD (8)	LCD (8)	LCD (8)
Display green backlighted		-	-	YES	YES	YES	YES	YES	YES	YES
Main terminal	(wire mm²)	25	25	35	50	35	35	50	50	50
Operating temperature	°C	-25 to +55 °C	-25 to +55 °C	-25 to +55 °C	-10 to +55 °C	-25 to +55 °C	-25 to +55 °C	-10 to +55 °C	-25 to +55 °C	-25 to +55 °C
Pulse output S0	(n°)	1	1	2	2	-	-	2	-	-
Measuring accurancy:	EN 50470-1-3 active energy class 1	B (1%)	B (1%)	B (1%)	B (1%)	B (1%)	B (1%)	B (1%)	B (1%)	B (1%)
	EN 62053-23 reactive energy class 2	-	-	2%	2%	2%	2%	2%	2%	2%

Voltage	L1		● ▲	▲	▲	■ ▲	■ ▲	▲	■ ▲	■ ▲
Current	L1		● ▲	▲	▲	■ ▲	■ ▲	▲	■ ▲	■ ▲
Power factor	L1		● ▲	▲	▲	■ ▲	■ ▲	▲	■ ▲	■ ▲
Frequency			● ▲	▲	▲	■ ▲	■ ▲	▲	■ ▲	■ ▲
Active power	L1	● ▲	● ▲	● ▲	● ▲	● ■ ▲	● ■ ▲	● ▲	● ■ ▲	● ■ ▲
Reactive power	L1	-	-	● ▲	● ▲	● ■ ▲	● ■ ▲	● ▲	● ■ ▲	● ■ ▲
Apparent power		-	-	▲	▲	■ ▲	■ ▲	▲	■ ▲	■ ▲
Import active energy	L1 (Tariff 1)	● ▲	● ▲	● ▲	● ▲	● ■ ▲	● ■ ▲	● ▲	● ■ ▲	● ■ ▲
	L1 (Tariff 2)	-	-	● ▲	● ▲	● ■ ▲	● ■ ▲	● ▲	● ■ ▲	● ■ ▲
Export active energy	L1 (Tariff 1)	● ▲	● ▲	● ▲	● ▲	● ■ ▲	● ■ ▲	● ▲	● ■ ▲	● ■ ▲
	L1 (Tariff 2)	-	-	● ▲	● ▲	● ■ ▲	● ■ ▲	● ▲	● ■ ▲	● ■ ▲
Import reactive energy	L1 (Tariff 1)	-	-	● ▲	● ▲	● ■ ▲	● ■ ▲	● ▲	● ■ ▲	● ■ ▲
	L1 (Tariff 2)	-	-	● ▲	● ▲	● ■ ▲	● ■ ▲	● ▲	● ■ ▲	● ■ ▲
Export reactive energy	L1 (Tariff 1)	-	-	● ▲	● ▲	● ■ ▲	● ■ ▲	● ▲	● ■ ▲	● ■ ▲
	L1 (Tariff 2)	-	-	● ▲	● ▲	● ■ ▲	● ■ ▲	● ▲	● ■ ▲	● ■ ▲

Communication (▲)									
IR - side: M-Bus, Modbus RTU, KNX, LAN-TCP/IP, SD-Card	YES	YES	YES	YES	YES	YES	YES	YES	YES

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

For more information about technical data, overall dimensions and wiring diagrams link to: www.hhcontrols.com

Three phase Energy Meters with 2 S0 and 2 Tariffs

Characteristics		Full Line		
Communication link		**S0**	**S0**	**S0**
Connection		**.../5 A**	**80 A**	**125 A**
Code (not MID certified)		**282201**	**282331**	**282191**
Code MID certified		**282141**	**282301**	**282651**
Housing DIN modules (wide)		4	4	6
Operative voltage range	V AC	184...276/318...480	184...276/318...480	184...276/318...480
Certified voltage	V AC	3 x 230/400	3 x 230/400	3 x 230/400
Operative frequency range	Hz	49...51	49...51	49...51
Certified frequency	Hz	50	50	50
Starting current (I_{st})	mA	3	15	20
Reference current (I_{ref})	A	5	5	5
Main supply	V AC	SELF	SELF	SELF
System connectivity	(n° wires)	4	2 - 4	2 - 4
Display	(n° digit)	LCD (8)	LCD (8)	LCD (8)
Display green backlighted		YES	YES	YES
Main terminal	(wire mm²)	4	35	50
Operating temperature	°C	-25 to +55 °C	-25 to +55 °C	-25 to +55 °C
Pulse output S0	(n°)	2	2	2
Measuring accurancy:	EN 50470-1-3 active energy class 1	B (1%)	B (1%)	B (1%)
	EN 62053-23 reactive energy class 2	2%	2%	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	● ▲	● ▲	● ▲
	ΣL	● ▲	● ▲	● ▲
Reactive power	L1, L2, L3, ΣL	● ▲	● ▲	● ▲
	ΣL	● ▲	● ▲	● ▲
Apparent power	L1, L2, L3	- ▲	- ▲	- ▲
	ΣL	- ▲	- ▲	- ▲
Import active energy	L1, L2, L3, ΣL	● ▲	● ▲	● ▲
	Tariff 1 and 2	● ▲	● ▲	● ▲
Export active energy	L1, L2, L3, ΣL	● ▲	● ▲	● ▲
	Tariff 1 and 2	● ▲	● ▲	● ▲
Import reactive energy	L1, L2, L3, ΣL	● ▲	● ▲	● ▲
	Tariff 1 and 2	● ▲	● ▲	● ▲
Export reactive energy	L1, L2, L3, ΣL	● ▲	● ▲	● ▲
	Tariff 1 and 2	● ▲	● ▲	● ▲

Communication (▲)			
IR - side: M-Bus, Modbus RTU, KNX, LAN-TCP/IP, SD-Card	YES	YES	YES

● = Measured parameters displayed ▲ = Measured parameters through IR side modules

For more information about technical data, overall dimensions and wiring diagrams link to: www.hhcontrols.com

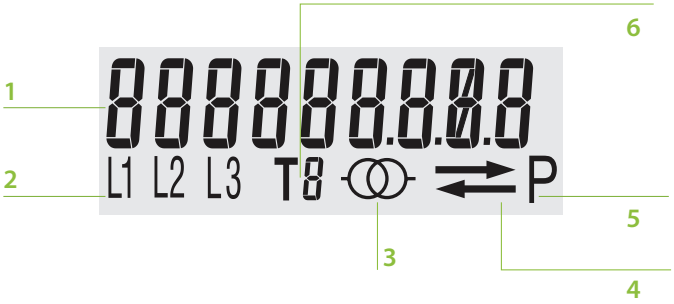
M for measure

Compact Line

Three phase digital Energy Meters for active and reactive power for energy management and efficiency analysis in residential, utility and industrial applications

ECS's Compact Line family of Energy Meters are used to measure, register, display and transmit up to 43 parameters associated with active and reactive three phase energy and power. These compact DIN rail mounting counters, used in residential, utility and industrial applications, comply with standard EN 50470-1-3 and are designed for connection through external Current Transformers or directly to currents up to 80 A. The calibrated versions are in accordance with the new Measuring Devices Directive 2004/22/EC (MID).
Active energy values measured on each of the three phases are locally displayed on the front 9 digits LCD.
Data are stored in non-volatile registers. In MID calibrated versions readings cannot be reset.
Depending on the model, Meters are able to transmit to a remote Power Management System the values of imported and exported energy (kWh) or active and reactive energy (kWh and kVAhr) through 2 S0 impulse outputs, according to two different rates (Tariffs) settled by an external energy counter via dedicated inputs.
The Compact Line Meters are also offered in versions with built-in communication features based on Mbus or Modbus protocols. These versions are also available with MID certification (EN 50470-1-3).

The values displayed on three phase Compact Line Energy Meters



1. Energy display
2. Phase Error - Line in use (L1-L2-L3)
3. CT primary current
4. Power import →
   Power export ←
5. kWh display "Partial"
6. Running Tariff

Three phase Energy Meters with 2 S0 and 2 Tariffs

Characteristics		Compact Line		
Communication link		**S0**	**S0**	**S0**
Connection		**.../1 A**	**.../5 A**	**80 A**
Code (not MID certified)		**ECSEM128**	**ECSEM62**	**ECSEM70**
Code MID certified		**ECSEM129MID**	**ECSEM66MID**	**ECSEM74MID**
Housing DIN modules (wide)		4	4	6
Operative voltage range	V AC	110...276/190...480	110...276/190...480	184...276/318...480
Certified voltage	V AC	3 x 230/400	3 x 230/400	3 x 230/400
Operative frequency range	Hz	48...62	48...62	49...51
Certified frequency	Hz	50	50	50
Starting current (I_{st})	mA	1	3	15
Reference current (I_{ref})	A	1	5	5
Main supply	V AC	SELF	SELF	SELF
System connectivity	(n° wires)	4	4	4
Display	(n° digit)	LCD (9)	LCD (9)	LCD (9)
Display green backlighted		-	-	-
Main terminal	(wire mm²)	4	4	35
Operating temperature	°C	-25 to +55 °C	-25 to +55 °C	-25 to +55 °C
Pulse output S0	(n°)	2	2	2
Measuring accurancy:	EN 50470-1-3 active energy class 1	B (1%)	B (1%)	B (1%)
	EN 62053-23 reactive energy class 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 and 2	●	●	●
Export active energy	L1, L2, L3, ΣL	●	●	●
	Tariff 1 and 2	●	●	●
Import reactive energy	L1, L2, L3, ΣL	-	-	-
	Tariff 1 and 2	-	-	-
Export reactive energy	L1, L2, L3, ΣL	-	-	-
	Tariff 1 and 2	-	-	-
Partial active energy	ΣL (Tariff 1 and 2)	-	-	-

● = Measured parameters displayed

For more information about technical data, overall dimensions and wiring diagrams link to: www.hhcontrols.com

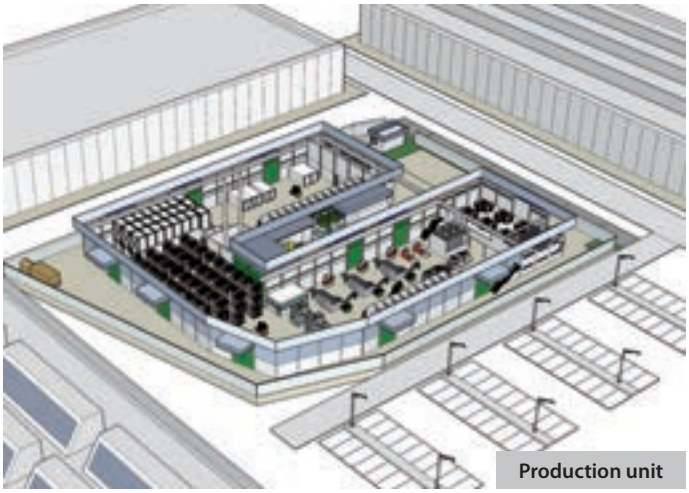
Three phase Energy Meters with built-in communication

ECS Compact Line Energy Meters for three phase alternating current mainly focus on residential, utility and industrial applications. Meters can utilize 2 S0 output interface generating pulses for remote processing of imported and exported active energy or active and reactive energy, according to two different Tariffs.
The Compact Line Meters are also offered with built-in M-bus or Modbus communication protocols.
Reliable and cost friendly data transmission offers the opportunity to analyze the energy consumption remotely with a PC, Smartphone or Tablet in a very simple way, improving efficiency and reducing running costs.

Main features

- Three phase Energy Meters
- External CT or direct connection up to 80 A
- Optional versions with built-in Modbus RTU or M-Bus communications
- 9 digits digital counters LCD
- Energy register zero setting (no-MID certified instruments)
- Active energy registers for import and export
- Measured parameters transmitted: voltage, current, power factor, frequency, imported and exported active, reactive and apparent power, via Modbus or M-Bus
- Accuracy class 1 for active energy according to EN 50470-3 (B)
- All instruments also available with MID certification (EN 50470-1-3)
- Sealable terminal covers
- 4 DIN modules wide
- Detection of connection errors (phase transposition and phase missing)
- Most attractive operating range current (I_{st} ... I_{max}) for connection by CT .../1 A = 0.001 ... 1.2 A

Shopping mall



Production unit



Characteristics		built-in		built-in		built-in	
Communication link		Modbus	M-Bus	Modbus	M-Bus	Modbus	M-Bus
Direct connection		**.../1 A**	**.../1 A**	**.../5 A**	**.../5 A**	**80 A**	**80 A**
Code (not MID certified)		**ECSEM154**	**ECSEM156**	**ECSEM64**	**ECSEM63**	**ECSEM72**	**ECSEM71**
Code MID certified		**ECSEM155MID**	**ECSEM157MID**	**ECSEM68MID**	**ECSEM67MID**	**ECSEM76MID**	**ECSEM75MID**
Housing DIN modules (wide)		4	4	4	4	4	4
Operative voltage range	V AC	110...276/190...480	110...276/190...480	110...276/190...480	110...276/190...480	184...276/318...480	184...276/318...480
Certified voltage	V AC	3 x 230/400	3 x 230/400	3 x 230/400	3 x 230/400	3 x 230/400	3 x 230/400
Operative frequency range	Hz	48...62	48...62	48...62	48...62	49...51	49...51
Certified frequency	Hz	50	50	50	50	50	50
Starting current (I_{st})	mA	1	1	3	3	15	15
Reference current (I_{ref})	A	1	1	5	5	5	5
Main supply	V AC	SELF	SELF	SELF	SELF	SELF	SELF
System connectivity	(n° wires)	4	4	4	4	4	4
Display	(n° digit)	LCD (9)	LCD (9)	LCD (9)	LCD (9)	LCD (9)	LCD (9)
Display green backlighted		-	-	-	-	-	-
Main terminal	(wire mm²)	4	4	4	4	35	35
Operating temperature	°C	-25 to +55 °C	-25 to +55 °C	-25 to +55 °C	-25 to +55 °C	-25 to +55 °C	-25 to +55 °C
Pulse output S0	(n°)	-	-	-	-	-	-
Measuring accurancy:	EN 50470-1-3 active energy class 1	B (1%)	B (1%)	B (1%)	B (1%)	B (1%)	B (1%)
	EN 62053-23 reactive energy class 2	2%	2%	2%	2%	2%	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 and 2	● ■	● ■	● ■	● ■	● ■	● ■
Export active energy	L1, L2, L3, ΣL	● ■	● ■	● ■	● ■	● ■	● ■
	Tariff 1 and 2	● ■	● ■	● ■	● ■	● ■	● ■
Import reactive energy	L1, L2, L3, ΣL	■	■	■	■	■	■
	Tariff 1 and 2	■	■	■	■	■	■
Export reactive energy	L1, L2, L3, ΣL	■	■	■	■	■	■
	Tariff 1 and 2	■	■	■	■	■	■
Partial active energy	ΣL (Tariff 1 and 2)	●	●	●	●	●	●

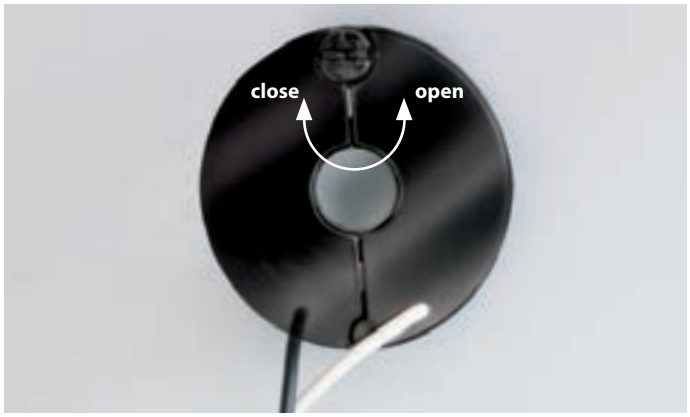
● = Measured parameters displayed ■ = Measured parameters through built-in Bus

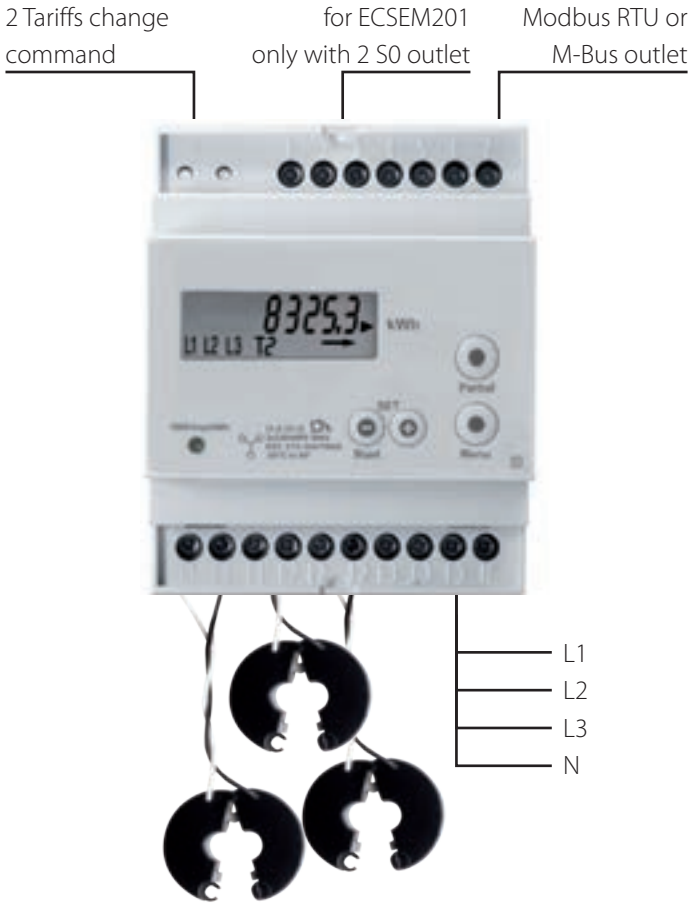
Three phase Energy Meters, 32 A, with built-in communication complete with high accuracy split core Current Transformers Class 0,5S (according to IEC/EN 60044-1)

The new three phase Energy Meters 32 A with Current Transformers (CT) represent an innovative split core solution optimized for Energy Meters within the Compact Line range of products used for retrofitting installations.
When used in conjunction with the Compact Line Energy Meters, the new split core Current Transformers offer a single digit error rate solution that establishes new industry performance benchmarks. The high level of accuracy of the Current Transformer is obtained thanks to the Class 0,5S performance, the compliance with IEC/EN 60044-1 and the innovative design concept.
The comb-like structure of magnetic sheets in the coupling point reduces loss while containing heat. The accuracy is further improved through the joint calibration of the CT and the Compact Line Energy Meter, carried out directly at laboratory level.
The result is a unique set of matched products which guarantee an active energy accuracy compliant to EN 50470/1-3 (Class A), a reactive energy accuracy compliant to EN 62053-23 (Class 2) and an accuracy of less than 1% for voltage, current, power, power factor and frequency.
The combination offers an ideal foundation to build up three phases or triple single phase (all 3 voltages referred to the same neutral) energy metering solutions up to 32 A for new and retrofit applications, where the primary conductors cannot be broken or opened, including electrical installations in operation.

Main features

- Three phase (3P+N) 32 A Meter or triple single phase (3 x 1P+N) 32 A Meter
- Accuracy class 1 for active energy according to EN 50470-3, Class A
- Accuracy class 2 for reactive energy according to EN 62053-23
- 1% accuracy for voltage, current, power, power factor, frequency (from 1% to 120% of I_n)
- Max primary cable diameter: 8,5 mm
- Dimension CT: ø 34 mm, wide: 15 mm
- Max secondary leads length: 1 meter





Three phase Energy Meter complete with split core Current Transformers

Product description	Din Module	Communication Link	HC Product Type	Code
Compact 3x32 A	4	S0	ECS3-32 SC	ECSEM201
Compact 3x32 A	4	Modbus	ECS3-32 SC Modbus	ECSEM202
Compact 3x32 A	4	M-Bus	ECS3-32 SC M-Bus	ECSEM203

For more information about technical data, overall dimensions and wiring diagrams see Compact Line Energy Meter .../5 A

M for measure

Power Meter Line

Three phase digital Power Meters with 2 operating Tariffs and 2 S0 outputs proportional to active/reactive or imported/exported power

The ECS digital Power Meters with a green backlight LCD display have the capability to show locally in the same screen shot the values of voltage, current or power running for the three phases. These indicators show if the system connections are distributed correctly or help to detect the origin of a fault condition.
These digital Power Meters are provided with 2 S0 pulse outputs that report on imported and exported active energy, or active and reactive energy, according to 2 different Tariffs settled by an external energy counter.
Depending on the version, digital Power Meters are equipped with a Side-IrDA interface for an external communication module or a Modbus RTU/M-Bus built-in serial bus.
Baud-rate, primary and secondary address and other parameterization values can be set by means of display and keyboard interface.
The communication features allow the transmission of most of the measured values to a remote Energy Management System and analysis of the energy consumption to reduce the running costs to a minimum.

M-Bus Modbus SD-Card KNX LAN Modbus/TCP ecs

Software

Three phase Power Meters with 2 S0 and 2 Tariffs

Characteristics		Power Meter			
Communication link		**S0**	**S0**	**S0**	**S0**
Connection		**.../5 A**	**80 A**	**.../5 A**	**63 A**
Code		**ECSPM30**	**ECSPM37**	**ECSPM53**	**ECSPM54 ***
Housing DIN modules (wide)		4	4	4	4
Operative voltage range	V AC	3 x 184...276/318...480	3 x 184...276/318...480	3 x 110...276/190...480	3 x 110...276/190...480
Operative frequency range	Hz	49...51	49...51	48...62	48...62
Starting current (I_{st})	mA	3	15	3	15
Reference current (I_{ref})	A	5	5	5	5
Main supply	V AC	SELF	SELF	SELF	SELF
System connectivity	(n° wires)	4	2 - 4	4	2 - 4
Display	(n° digit)	LCD	LCD	LCD	LCD
Display green backlighted		YES	YES	YES	YES
Main terminal	(wire mm²)	4	35	4	35
Operating temperature	°C	-10 to +55 °C	-10 to +55 °C	-10 to +55 °C	-10 to +55 °C
Pulse output S0	(n°)	2	2	2	2
Measuring accurancy:	EN 50470-1-3 active energy class 1	B (1%)	B (1%)	B (1%)	B (1%)
	EN 62053-23 reactive energy class 2	2%	2%	2%	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	● ▲	● ▲	● ▲	● ▲
Export active energy	L1, L2, L3	● ▲	● ▲	● ▲	● ▲
	ΣL	● ▲	● ▲	● ▲	● ▲
Import reactive energy	L1, L2, L3	▲	▲	● ▲	● ▲
	ΣL	▲	▲	● ▲	● ▲
Export reactive energy	L1, L2, L3	▲	▲	● ▲	● ▲
	ΣL	▲	▲	● ▲	● ▲
Partial active energy	ΣL	-	-	●	●
THD% voltage	L1, L2, L3	-	-	● ▲	● ▲
THD% current	L1, L2, L3	-	-	● ▲	● ▲

Communication (▲)				
IR - side: M-Bus, Modbus RTU, KNX, LAN-TCP/IP, SD-Card	YES	YES	YES	YES

● = Measured parameters displayed ▲ = Measured parameters through IR side modules *available 09/2013

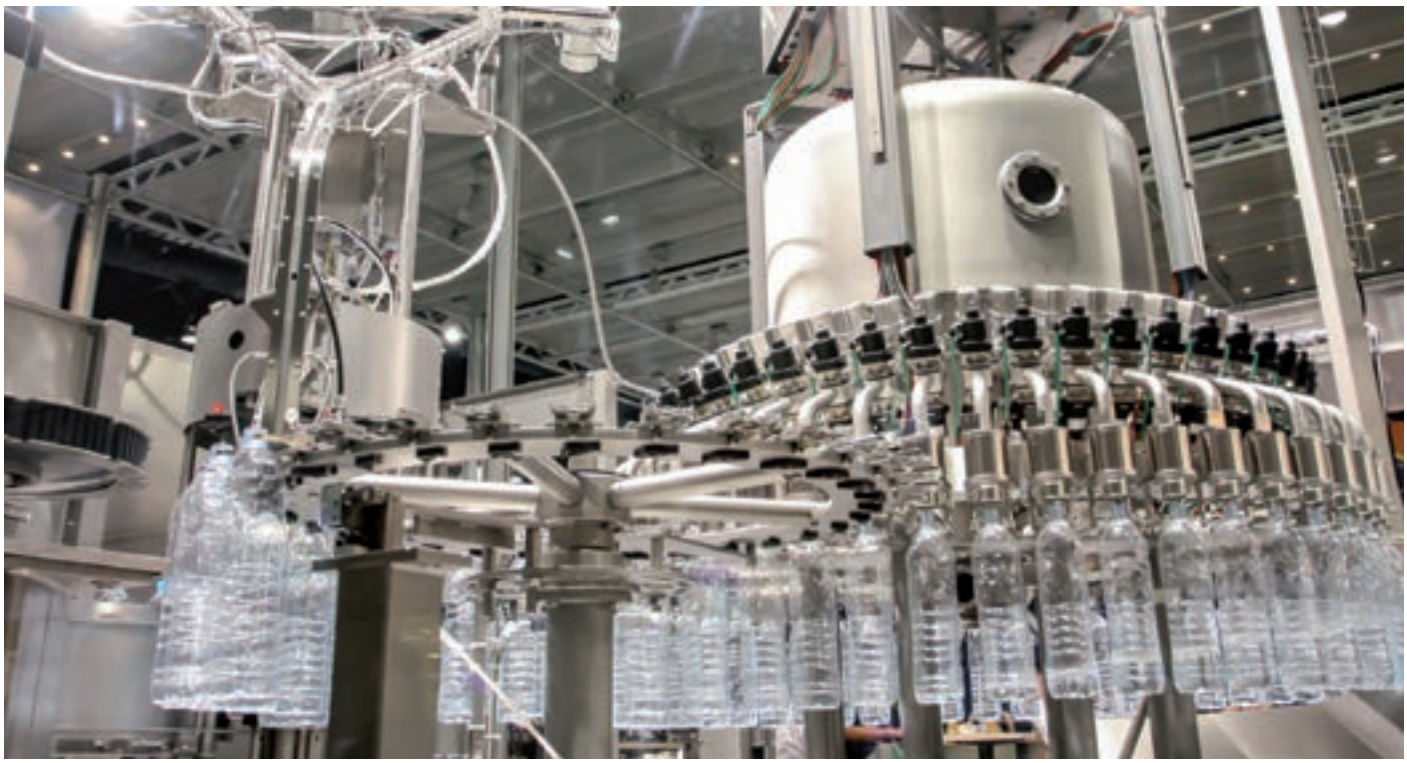
For more information about technical data, overall dimensions and wiring diagrams link to: www.hhcontrols.com

Three phase Power Meters with built-in communication

The ECS digital Power Meters are ideal instruments for installation in three phase distribution panels in residential, generic and industrial applications. Users can easily read and control the 3 line of all the main values for active, reactive and apparent, imported or exported, energy, power, voltage, current, frequency, partial and total harmonic distortion. The products can be connected to the line directly or indirectly using external Current Transformers and can be set up to communicate with a remote management system through external modules (LAN-TCP/IP, Modbus RTU, M-Bus, KNX and SD-Card Datalogger) and through a built-in Modbus RTU or M-Bus.

Main features

- LCD with green backlighting
- Detection for connection errors (phase transposition)
- External CT or direct connection up to 63 A
- Self supplied, operating voltage 184-276 V AC
- Side-IrDA interface for connection to communication modules
- Optional versions with built-in Modbus RTU or M-Bus communications
- Accuracy class 1 precision for the current and voltage
- Accuracy class 1 for active energy according to EN 50470-3 (B)
- Accuracy class 2 for reactive energy according to EN 62053-23
- 2 S0 output
- Front LED pulses per kWh for precision control
- Energy register zero setting
- Energy register for import and export
- Sealable terminal covers
- 4 DIN modules wide



Characteristics		built-in		built-in	
Communication link		Modbus	M-Bus	Modbus	M-Bus
Connection		**.../5 A**	**.../5 A**	**63 A**	**63 A**
Code		**ECSPM48**	**ECSPM49**	**ECSPM50 ***	**ECSPM51 ***
Housing DIN modules (wide)		4	4	4	4
Operative voltage range	V AC	3 x 110...276/190...480	3 x 110...276/190...480	3 x 110...276/190...480	3 x 110...276/190...480
Operative frequency range	Hz	48...62	48...62	48...62	48...62
Starting current (I_{st})	mA	3	3	15	15
Reference current (I_{ref})	A	5	5	5	5
Main supply	V AC	SELF	SELF	SELF	SELF
System connectivity	(n° wires)	4	4	2 - 4	2 - 4
Display	(n° digit)	LCD	LCD	LCD	LCD
Display green backlighted		YES	YES	YES	YES
Main terminal	(wire mm²)	4	4	35	35
Operating temperature	°C	-10 to +55 °C	-10 to +55 °C	-10 to +55 °C	-10 to +55 °C
Pulse output S0	(n°)	-	-	-	-
Measuring accurancy:	EN 50470-1-3 active energy class 1	B (1%)	B (1%)	B (1%)	B (1%)
	EN 62053-23 reactive energy class 2	2%	2%	2%	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	● ■ ▲	● ■ ▲	● ■ ▲	● ■ ▲
Export active energy	L1, L2, L3	● ■ ▲	● ■ ▲	● ■ ▲	● ■ ▲
	ΣL	● ■ ▲	● ■ ▲	● ■ ▲	● ■ ▲
Import reactive energy	L1, L2, L3	● ■ ▲	● ■ ▲	● ■ ▲	● ■ ▲
	ΣL	● ■ ▲	● ■ ▲	● ■ ▲	● ■ ▲
Export reactive energy	L1, L2, L3	● ■ ▲	● ■ ▲	● ■ ▲	● ■ ▲
	ΣL	● ■ ▲	● ■ ▲	● ■ ▲	● ■ ▲
Partial active energy	ΣL	●	●	●	●
THD% voltage	L1, L2, L3	● ■ ▲	● ■ ▲	● ■ ▲	● ■ ▲
THD% current	L1, L2, L3	● ■ ▲	● ■ ▲	● ■ ▲	● ■ ▲
Communication (▲)					
IR - side: M-Bus, Modbus RTU, KNX, LAN-TCP/IP, SD-Card		YES	YES	YES	YES

● = Measured parameters displayed ■ = Measured parameters through built-in Bus ▲ = Measured parameters through IR side modules *available 09/2013

For more information about technical data, overall dimensions and wiring diagrams link to: www.hhcontrols.com

M for measure

eVision

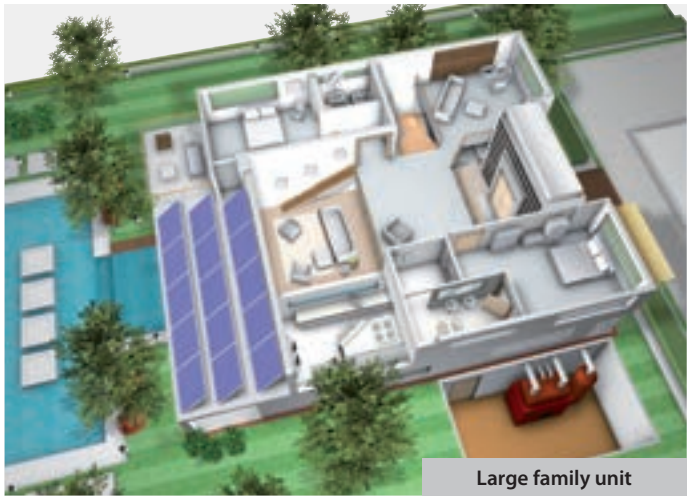
An intelligent **three phase** Energy Meter with a built-in LAN Server direct connectable via WEB Browser with WEB App

The intelligent control of energy consumption

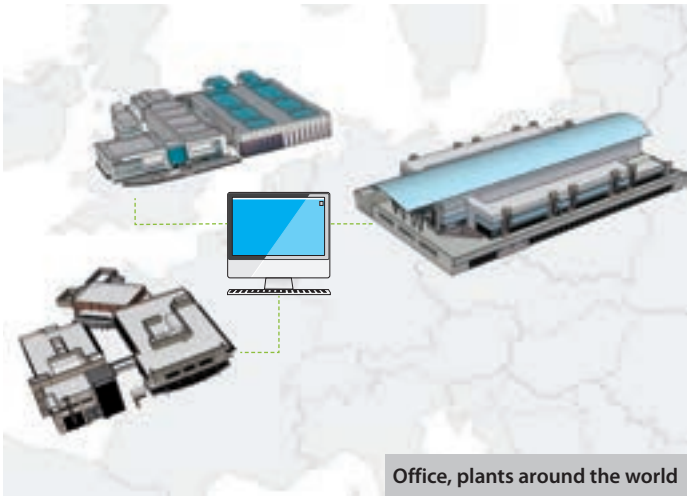
eVision is an innovative Energy Meter that allows the user to know and analyse the flow of energy consumption of the house or office at all times.
Through the collected and visualized information from the embedded web application of eVision, it is possible to optimize the use of the electric energy choosing the most convenient tariff hours in order to avoid excessive charges.
eVision offers a concrete opportunity to reduce electricity bills and minimize CO_2 emissions, contributing to a more sustainable future. This system has a very short return on investment.
eVision constantly controls the energy consumption of household appliances, lights, air conditioner, heaters, swimming pool pumps etc. 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 wherever he likes; through PC, Smartphone or Tablet. The Internet web access allows to analyse different information, including the instant consumption shown in kWh, or monetarily. The data can be shown it in a clear and simple graphic. Unlike the other solutions available in the market, eVision is easy to install and to use. The installation procedures do not need any complicated modifications of existing plant. The LAN connection allows quick and simple installation (Plug & Play).

Home or office consumption information can be reached from any place in the world. Consumptions and costs can be read directly from the display or more conveniently via Internet.

Software



Large family unit



Office, plants around the world

Product Description	DIN Mod.	Code	HC Product Type
Energy Meter 3 phase eVision with a built-in LAN Server			
LCD-kWh/kVArh/cost .../1 A to 2.000/1 A, 2 Tariffs, LAN built-in	6	ECSEM181	eVision3-1 LAN
LCD-kWh/kVArh/cost .../5 A to 10.000/5 A, 2 Tariffs, LAN built-in	6	ECSEM172	eVision3-5 LAN

eVision can also be connected to Add-on, KNX, Modbus RTU, M-Bus and SD-Card Datalogger modules.

For more information about technical data, overall dimensions and wiring diagrams link to: www.hhcontrols.com

A new generation Energy Meter for a better and more efficient energy use ideal also for retrofitting applications.

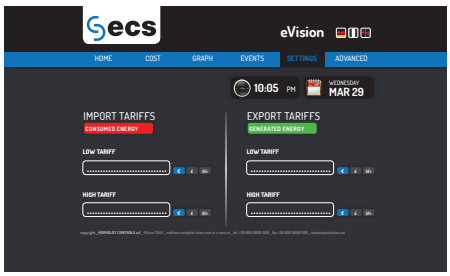
With eVision is possible to have continuous updates of the consumption data of house or office. Using some external split core CT's, the installation of eVision doesn't require complex installation on the existing systems. The data can be checked everywhere using any internet PC browser, Smartphone or Tablet, offering an immediate view of the house consumption. The historical backup allows the development of accurate analysis that can be consulted in a numeric or graphic format, that allows for the development of better energy conservation strategies. By allowing for flexibility of use dependent upon usage requirements or tariff priorities, home appliances, lights, air conditioner, heaters generators, swimming pool pumps and so on can now be managed in a more efficient way reducing the costs and reducing negative impacts to the environment.

HOME
Indication of the actual consumption and hour cost of house or office.

COST
Visualization of the month and day balance showed in local currency. Possibility to have the indication of generated energy if there are solar panels or windmills.

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

EVENTS
Possibility to set events. Once pass them, eVision send immediately an e-mail or a daily, weekly, monthly or yearly report.



SETTINGS
Set the low and high Tariff cost for import and export energies.

M for measure

Network Analyzers

Three phase 38 readouts, imported and exported energies, Side-IrDA interface or built-in communication Modbus or M-Bus, 2 Tariffs and 2 S0 outputs, direct connection up to 80 A or through external CT .../5 A

ECS Network Analyzers offer an extremely compact multifunction solution for switchgear and incoming or outgoing feeders in industrial plants and buildings like offices, hospitals, universities and so on.
The Analyzers can be connected to three phase networks directly (up to 80 A) or via Current Transformers (.../5 A), providing star delta measurements of 38 different electrical parameters for imported or exported power. The devices have a clear and readable LED display that reports all measurements through a user friendly interface controlled directly from the front panel.

A special feature allows the analysis of the different loads on each phase to identify displacements, asymmetrical or unbalanced conditions that can lead to partial overloads.
In this case, the Network Analyzers offer a range of different options to combine and assess measured values.

These digital Network Analyzers are provided with 2 S0 outputs reporting on active and reactive energy, according 2 different tariffs settled by an external energy counter (Wh and VArh).
Depending on the version, digital Power Meters are equipped with a Side-IrDA interface for an external communication module or a Modbus RTU or M-Bus built-in serial bus.

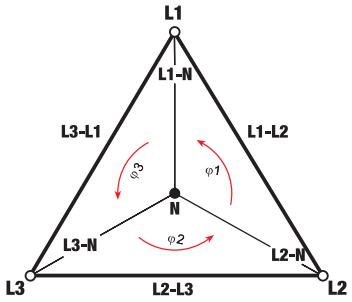
External communications allow for the transmission of measured values to a remote energy management system to improve energy efficiency and reduce the running costs to a minimum.

Software

Additional external communication modules via side IR port

Vertical indications

The ΣL symbol for the three phase system indicates that all physical units shown are always three phase. The meaning of L1, L2, L3, L1-2, L2-3 and L3-1 is shown in the below diagram.



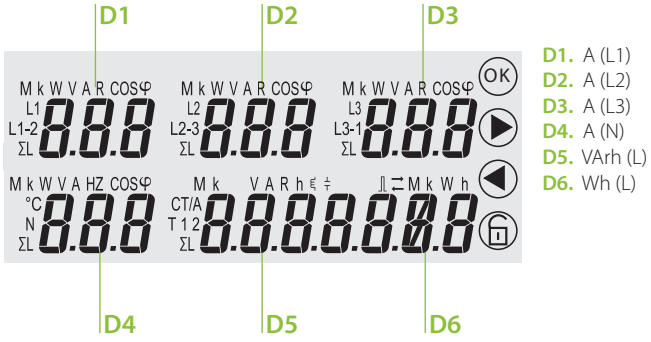
6 modules housing for DIN rail mounting.
Connection through CT .../5 A till 10.000/5 A orDirect connection from 15 mA to 80 A

Matrix selection

Conventional measuring instruments usually provide voltage, current or other similar values for three phases. ECS Network Analyzers, with their matrix selection, are considerably more flexible and universal. The visualization matrix lets users customize the visualization of all of the display indicators; the horizontal selection allows the choice of the electrical parameter (for D1:W / V/ A / VA / VAr / Cosφ); the vertical selection allows to choice of the phase relationship (i.e. L1 / L1-L2 / ∑L).

Display

The ECS Network Analyzers have a covered and brightly lit LED display. The measured values are displayed on an 11 mm high, green, 7 segments LED: the physical units are indicated with an orange LED. Both colours are easier to read than the previously used red LED. Reactive loads are automatically signaled by a capacitor or coil symbol.



D1. A (L1)
D2. A (L2)
D3. A (L3)
D4. A (N)
D5. VArh (L)
D6. Wh (L)

D1 - D2 - D3
D4 - D5 ▶ **Display for readouts and settings**

• Quantity Icons

- Right button
- Left button
- Confirmation button
- Protection button
- Energy export (supplied ←)
- Energy import (absorbed →)

▼ Phase Icons

- Inductive reactive energy and power symbol
- Capacitive reactive energy and power symbol
- S0 output pulses (automatic)
- T1/T2 Tariff automatic display

Automatic prefixes associated with quantities displayed

- **k** kilo = 10^3
- **M** Mega = 10^6

Letters M (mega) and k (kilo) are automatically assigned accordingly to measure item type, for example kW or MW. Capacitive loads are automatically flagged through a capacitor symbol while inductive loads are indicated by means of a coil symbol.

Function

Voltage measurement

Analyzers measure the line to line voltage (between L1 and L2, between L2 and L3, between L3 and L1) and line to neutral voltage (between L1 and N, between L2 and N, between L3 and N).

Readout data

Of the following 38 options, user can continuously display 5 indicated values.

Number	Measured value	Assignment	Unit	Display
1	Active power	L1	W	D1
2	Active power	L2	W	D2
3	Active power	L3	W	D3
4	Active power	ΣL	W	D1, D2, D3, D4, D6
5	Reactive power	L1	VAr	D1
6	Reactive power	L2	VAr	D2
7	Reactive power	L3	VAr	D3
8	Reactive power	ΣL	VAr	D1, D2, D3, D5
9	Apparent power	L1	VA	D1
10	Apparent power	L2	VA	D2
11	Apparent power	L3	VA	D3
12	Apparent power	ΣL	VA	D1, D2, D3, D4, D5
13	Voltage	L1	V	D1
14	Voltage	L2	V	D2
15	Voltage	L3	V	D3
16	Voltage	ΣL	V	D4
17	Voltage	L1-L2	V	D1
18	Voltage	L2-L3	V	D2
19	Voltage	L3-L1	V	D3
20	Current	L1	A	D1
21	Current	L2	A	D2
22	Current	L3	A	D3
23	Current	N	A	D4
24	Cosφ	L1	-	D1
25	Cosφ	L2	-	D2
26	Cosφ	L3	-	D3
27	Cosφ	N	-	D1, D2, D3, D4
28	Frequency	Hz	Hz	D4
29	Imported active energy Tariff 1 (Import)	ΣL →	Wh	D6, D5 + D6
30	Exported active energy Tariff 1 (Export)	ΣL ←	Wh	D6, D5 + D6
31	Imported active energy Tariff 2 (Import)	ΣL →	Wh	D6, D5 + D6
32	Exported active energy Tariff 2 (Export)	ΣL ←	Wh	D6, D5 + D6
33	Reactive inductive energy Tariff 1	ΣL, ind.	VArh	D5, D5 + D6
34	Reactive inductive energy Tariff 2	ΣL, ind.	VArh	D5, D5 + D6
35	Reactive capacitive energy Tariff 1	ΣL, cap.	VArh	D5, D5 + D6
36	Reactive capacitive energy Tariff 2	ΣL, cap.	VArh	D5, D5 +D6
37	Apparent energy Tariff 1	ΣL	VAh	D5, D5 +D6
38	Apparent energy Tariff 2	ΣL	VAh	D5, D5 +D6

Characteristics		LED					
Communication link		**S0**	**Modbus**	**M-Bus**	**S0**	**Modbus**	**M-Bus**
Connection		**.../5 A**	**.../5 A**	**.../5 A**	**80 A**	**80 A**	**80 A**
Code		**ECSAN08**	**ECSAN04**	**ECSAN09 ***	**ECSAN06**	**ECSAN03**	**ECSAN10 ***
Housing DIN modules (wide)		6	6	6	6	6	6
Measuring voltage range	V AC	50 ... 276 / 87 ... 480	50 ... 276 / 87 ... 480	50 ... 276 / 87 ... 480	50 ... 276 / 87 ... 480	50 ... 276 / 87 ... 480	50 ... 276 / 87 ... 480
Frequency range	Hz	49 ... 51	49 ... 51	49 ... 51	49 ... 51	49 ... 51	49 ... 51
Starting current (I_{st})	mA	3	3	3	15	15	15
Reference current (I_{ref})	A	5	5	5	5	5	5
Main supply	V AC	AUXILIARY 184 ... 276	AUXILIARY 184 ... 276	AUXILIARY 184 ... 276	AUXILIARY 184 ... 276	AUXILIARY 184 ... 276	AUXILIARY 184 ... 276
System connectivity	(n° wires)	2 - 3 - 4	2 - 3 - 4	2 - 3 - 4	2 - 3 - 4	2 - 3 - 4	2 - 3 - 4
Display	(n° digit)	LED	LED	LED	LED	LED	LED
Display green backlighted		YES	YES	YES	YES	YES	YES
Main terminal	(wire mm²)	4	4	4	35	35	35
Operating temperature	°C	-10 to +55 °C	-10 to +55 °C	-10 to +55 °C	-10 to +55 °C	-10 to +55 °C	-10 to +55 °C
Pulse output S0	(n°)	2	-	-	2	-	-
Measuring accurancy:	EN 50470-1-3 active energy class 1	B (1%)	B (1%)	B (1%)	B (1%)	B (1%)	B (1%)
	EN 62053-23 reactive energy class 2	2%	2%	2%	2%	2%	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 and 2	● ▲	● ■ ▲	● ■ ▲	● ▲	● ■ ▲	● ■ ▲
Export active energy	L1, L2, L3, ΣL	● ▲	● ■ ▲	● ■ ▲	● ▲	● ■ ▲	● ■ ▲
	Tariff 1 and 2	● ▲	● ■ ▲	● ■ ▲	● ▲	● ■ ▲	● ■ ▲
Import reactive energy	L1, L2, L3, ΣL	● ▲	● ■ ▲	● ■ ▲	● ▲	● ■ ▲	● ■ ▲
	Tariff 1 and 2	● ▲	● ■ ▲	● ■ ▲	● ▲	● ■ ▲	● ■ ▲
Export reactive energy	L1, L2, L3, ΣL	● ▲	● ■ ▲	● ■ ▲	● ▲	● ■ ▲	● ■ ▲
	Tariff 1 and 2	● ▲	● ■ ▲	● ■ ▲	● ▲	● ■ ▲	● ■ ▲

Communication (▲)							
IR - side: M-Bus, Modbus RTU, KNX, LAN-TCP/IP, SD-Card		YES	YES	YES	YES	YES	YES

● = Measured parameters displayed ■ = Measured parameters through built-in Bus ▲ = Measured parameters through IR side modules *available 09/2013

For more information about technical data, overall dimensions and wiring diagrams link to: www.hhcontrols.com

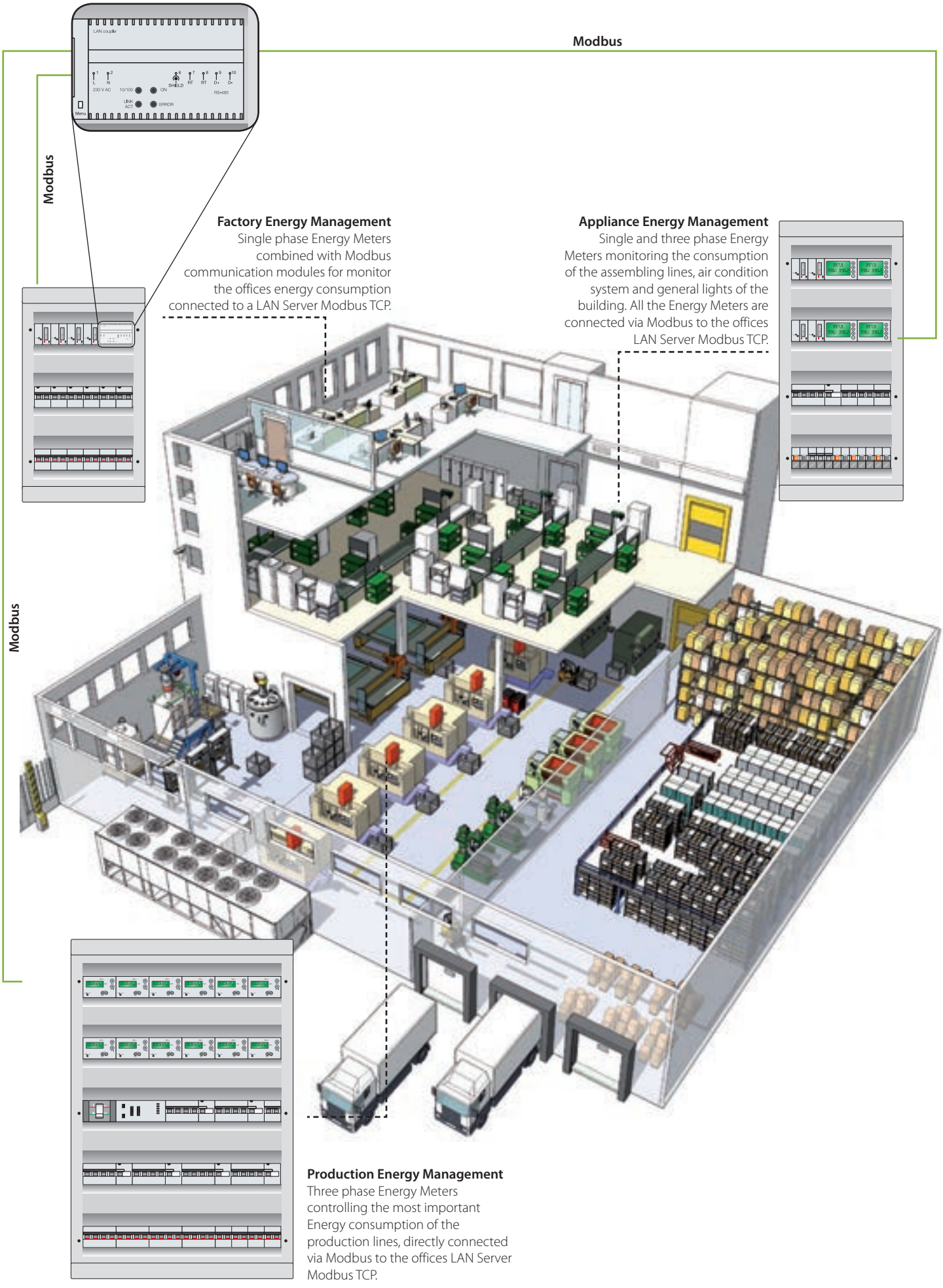
Add-on communication

Communication modules for Energy Meters Full Line, eVision, Power Meters and Network Analyzers.

Overview

The universal communication modules are used to enhance Analyzers with additional communication functions. The protocols supported are Modbus RTU, KNX, LAN-TCP/IP and M-Bus. SD-Card based local data loggers are also available.
Communication modules connect a measuring instrument to a standard 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.
ECS communication modules leverage on standard protocols such M-Bus, Modbus RTU, KNX and LAN-TCP/IP. An additional stand alone SD-Card module provides local datalogging capabilities.

Applications and features



Factory Energy Managment

Applications and features

M-Bus

M-Bus is a standard widely used for remote reading of various types of utility meters and sensors.
The interface receives the measurement data from the Energy Meters by its infrared side port and power supply directly from the bus, so that only the bus wiring (a standard twisted pair telephone cable) must be connected. The interface is suitable for both single phase and three phase Energy Meters and allows the remote reading of all the measure registers. Status bytes are available as well, containing information about the status of the Energy Meters (running tariff nominal, voltage and current range overflow). Commands can be sent via M-Bus for resetting the energy accounts.

- M-Bus according to EN1434
- Suitable for both single phase and three phase Energy Meters
- LED for communication status and reset button
- Power supply from the bus

Modbus

The product transmits the measured values through an RS-485 serial line to a remote collection station using Modbus protocol.
The module is provided with a software tool for Windows, for configuring installation parameters (such as Modbus address and baud rate) and general settings.
The interface acts as a Modbus slave, so that the transmitted measurements can be collected and displayed using one of the Modbus Master software tools available on the market.

- Automatic recognition for both single phase and three phase Energy Meters
- RS-485 serial line
- LED for communication status and reset button
- Available Little or Big Endian

LAN Modbus/TCP

Like all the most recent network devices, the product offers a web-based configuration interface. This module can be placed side by side with an Energy Meter to collect the measurement data from the instrument and to transmit these data to a remote system through a TCP/IP network. Data Exchange between LAN-TCP/IP interface and a PC can use two way, simultaneously available: HTTP protocol to access the internal site and Modbus/TCP protocol to connect the LAN-TCP/IP interface to a supervisory computer.
The measurements in transit from the instrument towards the TCP/IP network can be intercepted and stored inside the communication module itself, until the saturation of the space of memory available.

The data stored in the interface can also be downloaded to the user's PC, via the web for a detailed examination.
A group of Led on the front panel provide information about link activity, Side-IrDA interface status and error conditions.

- Reads energy, power, V, I, cosφ, freq.
- LAN transfer speed Mbit/s 100
- RJ 45 connector
- SW protocol TCP/IP
- Suitable for both single phase and three phase Energy Meters
- Reset button

KNX bus is widely used for home and building control applications. The KNX interface module is used to connect the Energy Meter to KNX bus.
The power supply comes directly from the bus, so that only the bus wiring (a standard twisted pair) must be connected.
The interface is provided with an ETS3 application program, in order to allow for the configuration of the communication. ETS3 is the standard software for KNX system configuration.
All the active and reactive energy, voltage, current, active, reactive, apparent power, power factor, frequency registers available on the measuring instrument can be transmitted over the bus.
Transmission modes available are "on request" and "automatic", based on an adjustable energy account increment (for instance a message every 10 KWh).

Status bytes are available as well, containing information about the status of the Energy Meter and the load (type, running tariff, energy import or export and so on).
Commands can be sent via the bus to the interface for resetting the energy accounts.

- Configuration via ETS3
- Energy registers transmitted as float values (EIS9)
- Suitable for both single phase and three phase Energy Meters
- Power supply from the bus
- Standard KNX interface connection

The SD-Card module allows for storage a configurable set of data coming from the meter on a memory card. The size of the SD-Card (from 1GB to 8 GB) and the interval period between 2 records storage are configurable. When the whole set of data is registered in each record, it is possible to store more than 1.250.000 records per Gigabyte. SD-Card can be removed from the module anytime, and can be used to transfer saved data on a different SD-Card enabled device. A configuration file stored inside the card can be edited to allow the selection of the parameters to be saved, the rate of recording and so on.
Three green LEDs on the front panel notify the communication state, the recording state and the SD-Card capacity.

- SD-Card memory from 1 to 8 GB
- Pre installed configuration file
- Configurable size, dataset and recording rate
- Suitable for both single phase and three phase Energy Meters
- 1 DIN module wide (18 mm)
- Require auxiliary power supply transformer 12-24 V DC

Home Supervisor, an advanced communication expansion module for Energy Meters, Power Meters and Network Analyzers families.

Overview

The product collects the measurement data gathered from an Energy Meter placed along the side and, where appropriate in accordance to the application, from up to 7 other devices connected through an M-Bus serial bus and/or two pulse inputs.
The data collected are used to compute and monitor energy or utilities consumption and cost in applications related to residential, commercial and industrial buildings. The measured data are available on LAN/WAN/Internet through an HTTP interface by using a standard web browser.

Features

- Worldwide communication with measuring devices
- Hardware connection through RJ45
- TCP/IP data protocol
- HTTP for web server
- Modbus/TCP (RTU) to access the measurement device database
- FTP for file transfer
- NTP for time synchronization
- Static or DHCP based addressing
- DDNS to maintain a host name, accessible on the internet, without the need for a static IP
- SMTP to send an e-mail to a configurable destination for a specified threshold exceed or a periodic data report
- Side by side IR connection to the main Energy Meter
- 6 UL M-Bus Master for connection to auxiliary Energy Meters and smart water or gas Meters
- 2 pulse inputs for traditional water or gas Meters
- Plug-and-play technology
- Internet browser user interface, three languages
- Password-protected site access
- Internal memory: 2 Gigabytes available for long period storage
- 4 DIN modules wide (72 mm)

Applications

Home Supervisor collects the measurement data transmitted by an Energy Meter positioned at the side and by one or more remote device connected via a serial bus in M-Bus standard and/or via two pulse inputs. Through the information collected and displayed by the embedded web application, Home Supervisor helps to optimize energy consumption, helping to choose the cheapest tariff and avoiding wastage.

Home Supervisor allows the access and measurement of data from domestic or office utilities from remote by any PC, tablet or mobile device, checking in real time the consumption of electricity, gas or water. The historical backup allows for the development of a precise analysis in a numeric or graphic format. Home Supervisor is a key solution to improve consumption habits. Appliances, lighting, air conditioning, heating, pool pumps, and many other loads can be handled in a more efficient way to choose priorities and rates, reducing costs and helping to preserve the environment.

Internet

Gas meter with M-Bus or S0 output

Water meter with M-Bus or S0 output

Total energy

M-Bus

Energy meter 3P+N

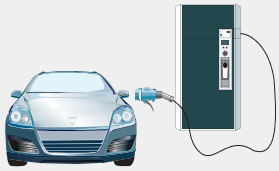
Energy meter 1P+N

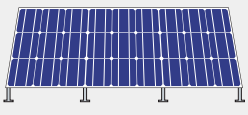
Energy meter 3P+N

Home Supervisor

M-Bus

Energy Meter 3P+N MID or Energy Meter 1P+N (master)MID





A/C System	Charge E-Car	P.V. Energy production	Appliance	Lights

LAN Server

Overview

The LAN Servers are Plug-and-Play data concentrators for Energy Meter, Network Analyzer and Power Meter products. The LAN Server allows an easy and reliable connection of several instruments to a data communication network. It is an innovative product designed to implement fast data communication between a supervisory PC and a set of measurement instruments connected through LAN, WAN or Internet. Instruments may be of different kinds and are automatically recognized through a unique coding.

LAN Server Modbus/TCP

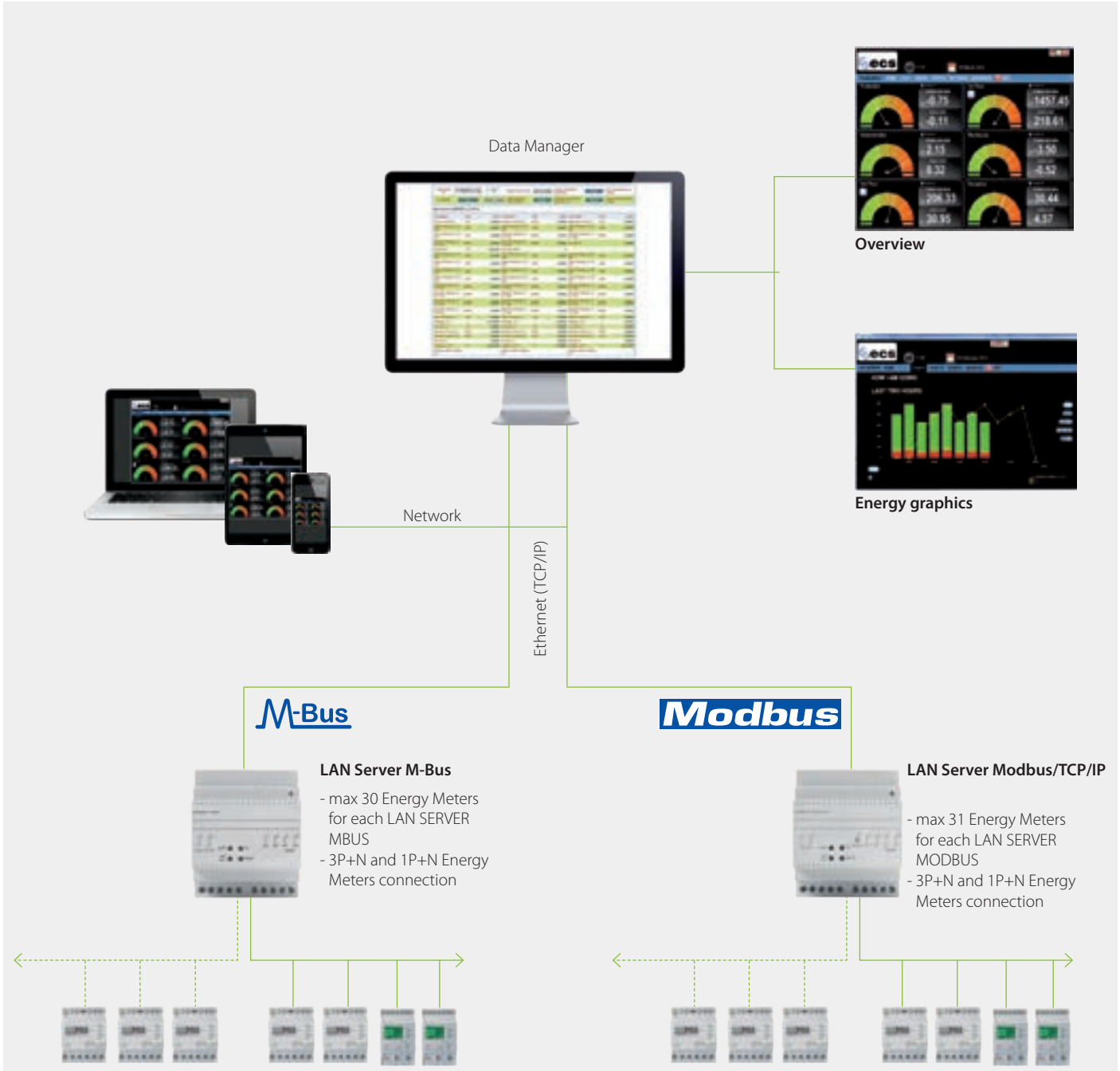
This Plug-and-Play product collects the measurement data from different devices connected via a Modbus serial bus. Data are made available on LAN, WAN or Intranet through an HTTP interface and are accessible using simultaneously a standard browser or a Modbus/TCP Application.
The LAN Server Modbus/TCP requires an auxiliary at 230 V AC power supply.

LAN Server M-Bus

This product collects the measurement data gathered from different devices through an M-Bus serial bus. Data are available on LAN, WAN or Internet through an HTTP interface by using a standard web browser.
The LAN Server M-Bus requires an auxiliary at 230 V AC power supply.

Common features

- Worldwide communication with measuring devices
- Hardware connection through RJ45
- TCP/IP data protocol
- HTTP for web server
- FTP for file transfer
- NTP for time synchronization
- Static or DHCP based addressing
- DDNS to maintain a host name, accessible on the internet, without the need for a static IP
- Plug-and-play technology
- Internet browser user interface, three languages
- Password-protected site access
- Internal memory: 2 Gigabytes available for long period storage
- 4 DIN modules wide (72 mm)



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

Airports

Stores

Shopping malls

Production units





Characteristics					
Communication link	M-Bus	Modbus	KNX		
Code	**261261**	**Little Endian 261241 Big Endian 261161**	**261171**	**261121**	**261231**
According to norm general EN 61000-6-2-3, EN 61000-4-2	YES	YES	YES	YES	YES
According to norm general	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	1	1	1	1
Suitable 1 / 3-phase Energy, Power Meters and Network Analyzers	YES	YES	YES	YES	YES
Power supply					
Voltage range	through bus	230 V AC ±20 %	through bus	12 - 24 V DC	230 V AC ±20 %
Self supplied	YES	-	YES	-	-
Aux. power rating	-	≤ 10 VA	-	≤ 0.5 VA	≤ 1.5 W
Frequency range	-	45 ... 65 Hz	-	45 ... 65 Hz	45 ... 65 Hz
Operation feature					
Memory storage	-	-	-	1 - 8 Gigabyte	~1.5 Megabyte
Bus - HW interface	2 screw clamps	5 screw clamps	black / red connector	2 screw clamps	2 screw clamps + RJ 45
Bus - SW protocol	acc. EN 1434	RS-485	KNX	proprietary	TCP / IP
Bus - Bandrate	300 - 9600	≤ 38.400	9600	-	≤ 100 Mbit/s
Adressing	primary + secondary	1 ... 247	through ETS3	-	by means of it IP address
User inteface for setup and management	-	-	-	-	W3C HTML 4.01
Interface to instruments	optical IR	optical IR	optical IR	optical IR	optical IR
HW interface	2 (Tx, Rx)	2 (Tx, Rx)	2 (Tx, Rx)	2 (Tx, Rx)	2 (Tx, Rx)
SW protocol	proprietary	proprietary	proprietary	proprietary	proprietary
Safety acc. to IEC 60950					
Degree pollution	2	2	2	2	2
Overvoltage category	II	II	II	II	II
Working voltage	24 - 36 V DC	... 300 V AC	30 V DC max.	30 V DC max.	... 300 V AC
Test voltage impulse (1,2/50 µs) peak value kV	2.5	2.5	2.5	2.5	4
50 Hz 1 min kV	1.35	2.5	1.35	1.35	4
Environmental conditions					
Operating temperature	-10 to 55 °C	-10 to 55 °C	-10 to 55 °C	-10 to 55 °C	-10 to 55 °C
Limit temperature of storage	-25 to 70 °C	-25 to 70 °C	-25 to 70 °C	-25 to 70 °C	-25 to 70 °C
Relative humidity (non condensing)	≤ 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



Characteristics			
Type	**Home Supervisor**	**LAN Server M-Bus**	**LAN Server Modbus/TCP**
Description	**data concentrator with S0 and M-Bus**	**data concentrator with M-Bus**	**data concentrator with Modbus/TCP**
Code	**ECSHS01***	**ECSLS03**	**ECSLS04**
According to norm general EN 61000-6-2-3, EN 61000-4-2	YES	YES	YES
According to norm general	EN 60950	EN 60950	EN 60950
N. of modules	4	4	4
Power supply			
Voltage range	230 V AC ±20 %	230 V AC ±20 %	230 V AC ±20 %
Aux. power rating	≤ 10 VA	≤ 10 VA	≤ 10 VA
Frequency range	45 ... 65 Hz	45 ... 65 Hz	45 ... 65 Hz
Operation feature			
Memory storage	Internal 2 Gigabyte	Internal 2 Gigabyte	Internal 2 Gigabyte
LAN - HW interface	RJ 45	RJ 45	RJ 45
LAN - SW protocol	TCP/IP	TCP/IP	TCP/IP
LAN - Bandrate	10/100 Mbit/s	10/100 Mbit/s	10/100 Mbit/s
Application level protocols	HTTP - FTP - modbus/TCP	HTTP - FTP	HTTP - FTP - modbus/TCP
Interface to instruments	M-Bus	M-Bus	RS485
HW interface	2 screw clamps	2 screw clamps	3 screw clamps
SW protocol	M-Bus/S0	M-Bus	Modbus RTU and ASCII
Directly connected instruments	6	30	31
S0 impulse input	2	-	-
Safety acc. to IEC 60950			
Degree pollution	2	2	2
Overvoltage category	II	II	II
Working voltage	... 300 V AC	... 300 V AC	... 300 V AC
Test voltage impulse (1,2/50 µs) peak value kV	4	4	4
50 Hz 1 min kV	4	4	4
Environmental conditions			
Operating temperature	-10 to 55 °C	-10 to 55 °C	-10 to 55 °C
Limit temperature of storage	-25 to 70 °C	-25 to 70 °C	-25 to 70 °C
Relative humidity (non condensing)	≤ 80%	≤ 80%	≤ 80%
Vibrations amplitude at 50 Hz	±0.25 mm	±0.25 mm	±0.25 mm
Protection class	II	II	II
Degree of protection	IP 20	IP 20	IP 20

*available 09/2013

M for measure

Accessories

Split core Current Transformers

The very compact ECS split core current transformers is especially designed for connection to digital measurement systems. All current transformers are capable of supplying the specified burden at the end of the secondary leads. The accuracy of these current transformers provides highly accurate power measurements. Connect closing of the current transformer is guaranteed by a distinct an audible sound of a "click". Two by-passes are supplied with the current transformer that can be easily mounted around the primary conductor.

Technical specification

Safety and Environmental conditions

- Directive for CE marking: low voltage directive 2006/95/EC EN-IEC 61010-2-032/2012
  This product is designed to be safe under the following conditions
- Location: indoor use
- Altitude: up to 2000m
- Operating temperature: -10 °C to +55 °C
- Relative humidity: 5% to 85% non condensing
- Pollution degree: 2
- Measurement category: 300 V CAT IV
- Degree of protection (IEC 60529): IP 20
- Only suitable for insulated primary conductors

Application conditions

- Standard: IEC 60044-1/2003
- Rated short-time thermal current: (I_{th}) 60 x I_n / 1s
- Continuous thermal current: (I_{cth}) 100%
- Rated isolation level: 0,72/3 kV
- Rated frequency: 50/60 Hz
- Class of insulation: E

Storage conditions

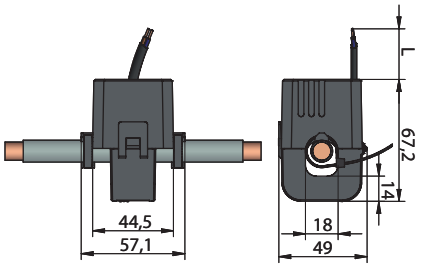
- Temperature: -20 °C 70+70 °C
- Relative humidity: 5% to 85% non condensing, non formation of ice
- Material: PA 6,6, UL94:V2

Ratio I_{prim}/I_{sec}	Accuracy Class *	Burden VA	Primary window Ø mm	Secondary leads length m/2 x 0,5 mm²	Weight grams	Code
100/1 A	1	0,2	18	3	360	ECS1B100/1CL1C
150/1 A	1	0,2	18	3	360	ECS1B150/1CL1C
200/1 A	1	0,2	28	3	310	ECS1B200/1CL1C
300/1 A	1	0,2	28	3	310	ECS1B300/1CL1C
400/1 A	1	0,2	28	3	310	ECS1B400/1CL1C
500/1 A	0,5	0,5	42	3	450	ECS05 500/1CL05C
600/1 A	0,5	0,5	42	3	450	ECS05 600/1CL05C
750/1 A	0,5	0,5	42	3	450	ECS05 750/1CL05C

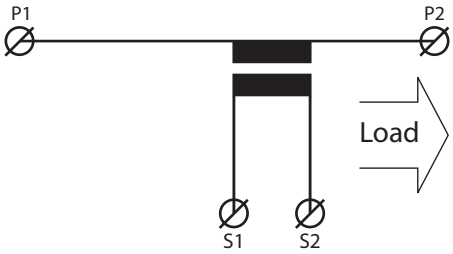
* Accuracy conform IEC 60044-1, valid from 5 to 120% I_n

TQ40-B

Dimensions

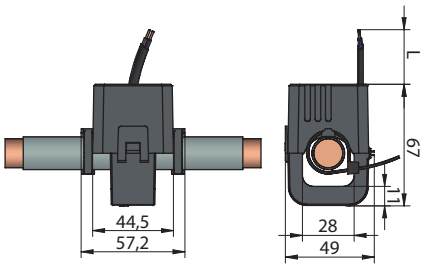


Wiring diagram

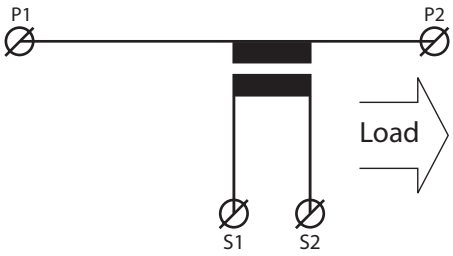


TQ40-C

Dimensions

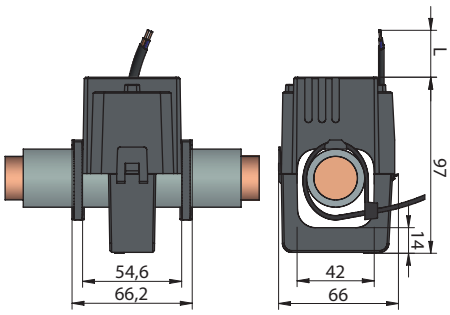


Wiring diagram

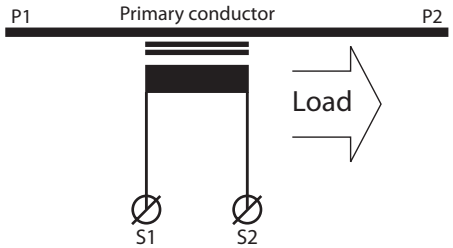


TQ50

Dimensions



Wiring diagram



A single kit for any kind of mounting

The new solutions for Power Meter modules assembly leverage a universal approach that allows to exploit a two-component kit used either for wall mounting or for DIN rail mounting. For wall mounting the baseplate is easily fixed to any surface through normal fastening systems that allows emplacement of the modules (six modules DIN) thus providing a solid and reliable lock. Once modules have been installed and the baseplate has been fixed on the mounting surface, it is possible to complete the assembly completes by securing the cover frame, with two screws with holes for security seals. Mounting on DIN rail leverages the same baseplate , which locks the modules below fixed on the DIN rail through proper snap clips. The installation completes with the front mask, which perfectly adapts to the shape of the DIN rail by simply opening two slots on the sidewalls removing the preset-breaking windows.

Flexible and modular frameworks

The new modular framework solution of ECS can be arranged with a variable number of DIN modules directly on the front door of any cabinet. The frame is scalable as needed, by simply exploiting flexible extensions of one, to 8 modules. Extensions lock to each other to configure the needed capacity.

The resulting framework provides a remarkable stability and high mechanical resistance. Modules array is placed on a DIN rail supplied with the framework kit. The DIN rail provides preset cutoff points clearly marked with numbers and graphical signs.

For DIN rail apparatus from 1 to 8 modules wide

Frame 96x96 mm for DIN rail apparatus wide 2-3-4 modules

Product Description	HC Product Type	Code	Packaging
6 modules housing for wall or DIN rail	6 M housing	289010	2 pieces
DIN rail frame kit 1-8 modules	Rail frame	ECSAC04	3 pieces
96x96 frame for 4 modules	96/4 frame	ECSAC05	3 pieces
96x96 frame for 3 modules	96/3 frame	ECSAC06	3 pieces
96x96 frame for 2 modules	96/2 frame	ECSAC07	3 pieces

M for measure

Frequently Asked Questions

Energy measure, efficency and quality: an answer to most relevant questions

Why is it important to measure and keep an eye on energy parameters?

In addition to benefitting the environment and future generations, parameters measurement is useful to check the quality and amount of energy consumed, thus providing the opportunity to intervene in the case of power issues. This allows not only for the reduction of waste and costs of bill but also for the protection of equipment and resources by allowing for intervention as soon as abnormal conditions occur, before critical equipment becomes damaged.

It is always mandatory to keep the energy consumed controlled?

Efficiency is a means to cope with factors such as energy dependence, resource shortage, and climate change. For this reason the EU has adopted a set of guidelines to reduce energy consumption by 20%, not least the October 2012 Directives. These will soon be implemented to Member States. The Directive requires - for specific users - a process of periodic energy auditing which will take account of other international standards such as EN ISO 50001 (Energy Management Systems), EN 16247-1 (energy audits) or EN ISO 14000 (Environmental Management Systems). Therefore, as well as being advisable and advantageous, the energy audit is also an obligation.

Why Herholdt Controls emphasized so much communication?

Development of web, networks and fieldbus communications offers enormous opportunities. The remote access to measurement data allows timely assessment, and a more effectively uses of qualified staff; it also allows to harness the processing power of information technology. For this reason Herholdt Controls decided to maximize communication between its products and networks, developing integrated or add-on solutions based on web standards as well as on powerful industrial bus interfaces or simple but very effective pulse outputs.

Why Herholdt Controls has invested more than any other company to develop a variety of equipment and more than 20 MID certified products?

Working on the amplitude of its portfolio allows Herholdt Controls to meet the wide range of specifications required by OEM customers. Products marked with the MID certification are simply selected from standard production lots: in fact, all Herholdt Controls products are in line with the most severe international standards.

What are the main differences between Compact and Full product lines?

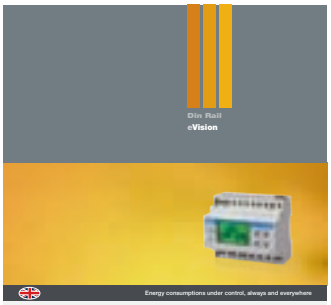
Energy Meters of Compact Line with S0 output limit their action to the control of active power with the result to be cost friendly.
Versions with built-in M-Bus and Modbus RT communications are used on systems equipped with a large number of Energy Meters installed.
The Full Line of Energy Meters are ideal for installations where the type of communication has not been already set, offering optimized applications and a great flexibility in inventory management.

Why Herholdt Controls always limited the distribution of its products to OEM customers?

Herholdt Controls has chosen to concentrate on engineering development, delegating the marketing and sales effort to its OEM partners.
This allowed to have a lean and efficient company, able to take care of every technical detail and to develop customer-oriented solutions at no additional costs.

What are the secrets of Herholdt Controls success?

The important investments over the past and the investments planned for the future with the aim of obtaining a mass production of high quality products are the assumptions for an open collaboration with customers and a consolidated mutual respect. The marketing forces of our partners interact with Herholdt Controls marketing in a transparent collaboration to obtain products increasingly performing and customers satisfaction.



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