



Main Catalog

Electricity meters for modular enclosures and DIN rail

Power and productivity
for a better world™



Introduction

DIN rail mounted electricity meters

Modular DIN Rail Products offer a wide range of functions to be integrated in electrical installations with significant benefits for the user. DIN rail mounted electricity meters are designed for high level performance and are safe and fast to install.

The DIN rail mounted electricity meters are available in several models: the brand new EQ meters C11, ODINsingle and the brand new EQ meters A41 and A42 for single phase metering, ODIN and the brand new EQ meters A43 and A44 for three phase metering.

The meters are designed for use in sub-metering and are available in various configurations to suite many applications.

ABB Low Voltage Products

The Low Voltage Products division manufactures low voltage circuit breakers, switches, control products, wiring accessories, enclosures and cable systems to protect people, installations and electronic equipment from electrical overload. The division further makes KNX systems that integrate and automate a building's electrical installations, ventilation systems, and security and data communication networks. All these products help customers to save energy, improve productivity and increase safety.

Global business

The Low Voltage Products division is a global business producing mainly low-voltage electrical equipment that is sold to wholesalers, original equipment manufacturers as well as system integrators, and has moderate service requirements. ABB's broad program of standardized products and components are the 'building blocks' of system solutions, incorporating functionalities that will allow seamless integration in real-time automation and information systems. At the product level, all the low voltage products can operate together perfectly.

To create a system solution, every product is equipped with the tools necessary to install, operate and maintain it efficiently throughout the product life cycle.

The range of low voltage products is supported by technical documentation. This together with compact design makes it easier than ever to incorporate our products in your system. Our customers can find all product related documentation such as brochures, catalogues, selection program, certificates, drawings and other information directly at www.abb.com/lowvoltage.

Features and functionality		C-series	A-series
Platinum	Reactive energy Advanced clock functions (Load profiles) Harmonics (THD) Configurable I/O		• • •
Gold	Basic clock functions		•
Silver	Class 0.5 on CTVT connected meters Tariffs Fixed I/O Resettable register		• • •
Bronze	Import/export of energy		•
Steel	Active energy Class 1 Pulse output/alarm	• • •	• • •

Pulse frequency

at different loads

Direct connected meters (Imp/KWh)	Transformer-connected meters (Imp/kWh primary registering)	Max power
-	0.01	3500 MW
-	0.1	350 MW
-	1	35 MW
10	10	3.5 MW
100	100	350 kW
500	500	70 kW
640	640	54 kW
1000	1000	35 kW
5000	-	7 kW

Cable length for connection

This table is valid for copper cable

Transformer Secondary side	Cable area mm ²	Double cable (meters)					VA
		0.5	1	2.5	5	10	
5A	1.5	0.3	0.6	1.5	2.9	5.8	VA
5A	2.5	0.2	0.4	0.9	1.8	3.6	VA
5A	4	0	0	0.6	1.1	2.3	VA
5A	6	0	0	0.1	0.3	0.6	VA
1A	1	0.02	0.04	0.09	0.18	0.35	VA
1A	1.5	0.01	0.03	0.06	0.12	0.23	VA
1A	2.5	0.01	0.01	0.04	0.07	0.14	VA

Note: Cable length is depending on max. transformer VA.
Max. cable area is depending of max entry of the transformer.

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Introduction of sub-metering



Sub-metering is the implementation of a solution that allows a landlord, property management firm, condominium association, homeowners association, or other multi-tenant property organization to bill tenants for individual measured energy usage.

Sub-metering puts residents in multi-unit residential and commercial buildings in control of their own cost by using a dedicated meter to measure the energy used in each individual unit.

Sub-metering is also used in the industry to allocate cost to specific departments, processes and product lines.

Sub-metering lets residents pay only for what they use, rather than paying an unfair share based on a predetermined formula as is the case in bulk-metered buildings.

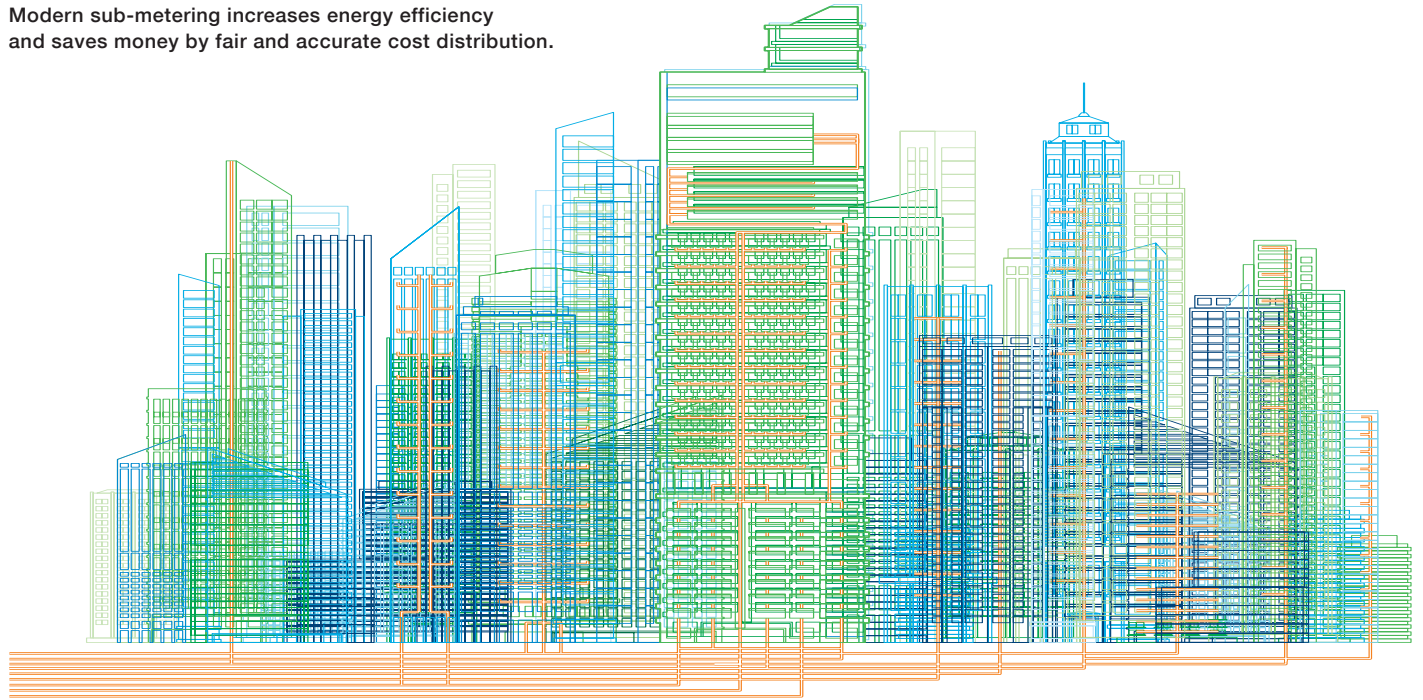
By providing accurate and detailed information about energy consumption, sub-metering is an enabler for consumers to understand, monitor and conserve electricity which may lead to reduced consumption of between 20 and 35%.

Data about usage trends is important in planning for anticipated energy usage and avoiding bottlenecks. New tenants move in with different needs, facility undergoes expansion, requiring further capacity creating potential bottleneck. Usage patterns plotted by sub-metering data can help you anticipate changing needs and plan for them.

In an environment of increasing electricity costs, sub-metering reduces the financial risk of such increases for building managers while ensuring that residents only pay for what they use and do not subsidize “high use” consumers in their building.

Applications in commercial buildings

Modern sub-metering increases energy efficiency and saves money by fair and accurate cost distribution.



Requirements for a deliberate strategy to manage and control energy consumption are having an increasing impact on commercial buildings such as shopping centers, offices, hotels and airports.

Electricity meters in commercial buildings are usually acquired by the property owner and read automatically via a facility or building management system. Just like for private property, modern sub-metering solutions can increase energy efficiency in commercial buildings and make considerable savings.

MID-approval facilitates problem-free cost distribution

Meters that are MID approved have the advantage of a certified and verified metering accuracy. This is important if discussions on the fairness of the cost distribution arise.

ABB electricity meters can easily help distribute consumption costs between different tenants, e.g. stores and boutiques in shopping malls, businesses in office blocks, or different airlines and functions (baggage handling, for example) at airports.

The fact that many commercial properties are not designed from the beginning for sub-metering presents no problem. ABB electricity meters fit neatly wherever they are needed.

Mandatory energy declarations require consumption to be separated

According to EU directive 2010/31/EU, commercial properties must have an energy declaration that describes the building's energy performance. Its aim is to reduce the climate effect and increase the efficient use of energy, i.e. benefits for both society and the building owner.

Energy declarations require that the electrical consumption for lighting, elevators, heating and ventilation, etc., be accounted for separately. Data collected from individually-located meters (sub-metering) are extremely valuable in this respect. As well as being a legal requirement, it highlights ways to increase efficiency by locating unnecessary.

Max demand also cuts energy consumption

Measuring the highest average power during a set time interval results in the max demand value. Measuring max demand helps dimension a building's electrical installations to its use.

Industrial applications

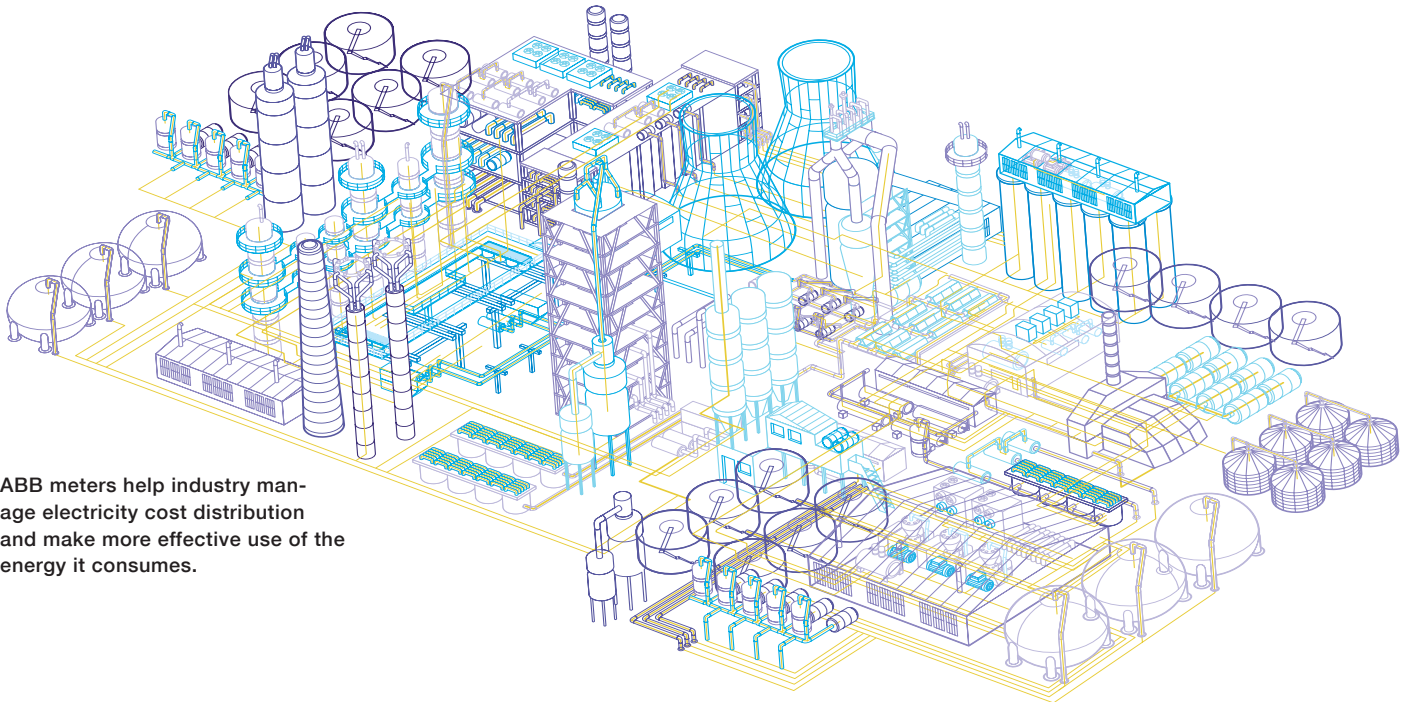


ABB meters help industry manage electricity cost distribution and make more effective use of the energy it consumes.

ABB electricity meters find many uses in industry, usually in one of three areas; cost distribution, effective use of energy, improved control. One common feature is that they generally interact with a plant's Energy Management System, which reads the meter and then forwards the result for further handling.

Meters used in industrial applications do not need special approval. Common sense, however, says that high-quality meters like ABB's are essential. That they should meet accepted international standards is also obvious. And as industrial plant owners frequently mount electrical equipment on DIN-rails, ABB electricity meters with this capability has a clear advantage.

Fair and flexible cost distribution

Industry faces a never-ending challenge to keep down its operating costs. One of the pre-requisites for achieving this goal is to first identify where costs occur. Only then can factory management draw up guidelines on how these should be allocated and who should pay for them, i.e. according to department, profit center or even individual products.

Meters help maximize energy efficiency

Making the most effective use of costly energy remains a key priority. Measuring the electrical consumption of equipment, especially heavy equipment, is a vital job for ABB electricity meters in this respect. For example, an unexpected increase

in the energy use of an individual item can signal an urgent need for maintenance – and a return to more acceptable and budgeted levels.

Peak-shaving saves unnecessary extra costs

Many industrial contracts for electricity supply specify a maximum power that can be taken from the grid. Exceeding this level can mean costly extra tariffs, especially in energy-intense operations.

Max demand also cuts industrial energy consumption

Measuring the highest average power during a set time interval results in the max demand value. Using ABB meters to measure max demand helps cut consumption by more easily identifying time periods when energy use is very high so that appropriate measures to reduce it can be taken.

Mitigating the effects of harmonic distortion

Harmonic distortion is the change in the waveform of the supply voltage from the ideal sinusoidal form. The phenomenon can adversely affect industrial equipment such as induction motor windings, transformers and capacitors. Reducing harmonic distortion first requires a harmonic analysis, and here ABB meters have an important role to play.

Object metering

Electric bills keep getting bigger and bigger, and increased consumption probably plays a bigger part than higher prices. At home and at work, energy-hungry items like computers, terminals, servers, climate-control equipment and intense lighting all push up costs. One of the simplest ways to save money and energy is to make electricity consumption more visible – via object metering.

Object metering is metering individual commercial freezer, lighting, machines, power-consuming objects such as air-conditioning fans or heating pumps. Its aim is to show electricity use where it occurs, thereby increasing energy awareness and helping change consumer behavior.

Easy installation in standard enclosures together with MCB protection

ABB's compact electricity meters are easy to install in standard enclosures. This is especially important in object metering since objects in domestic, commercial and industrial applications require line protection devices, and these are generally mounted in standard enclosures.

Long list of domestic objects

Heating and ventilation pumps are obvious candidates for object metering in the home, and these can be joined by appliances such as washing machines and dishwashers as well as other electronic equipment. And don't forget out-

doors. Garden terrace heaters and lighting plus the pond pump are all significant 'energy thieves'. The actual consumption of all is easy to measure and see (and therefore save) via compact meters in the home.

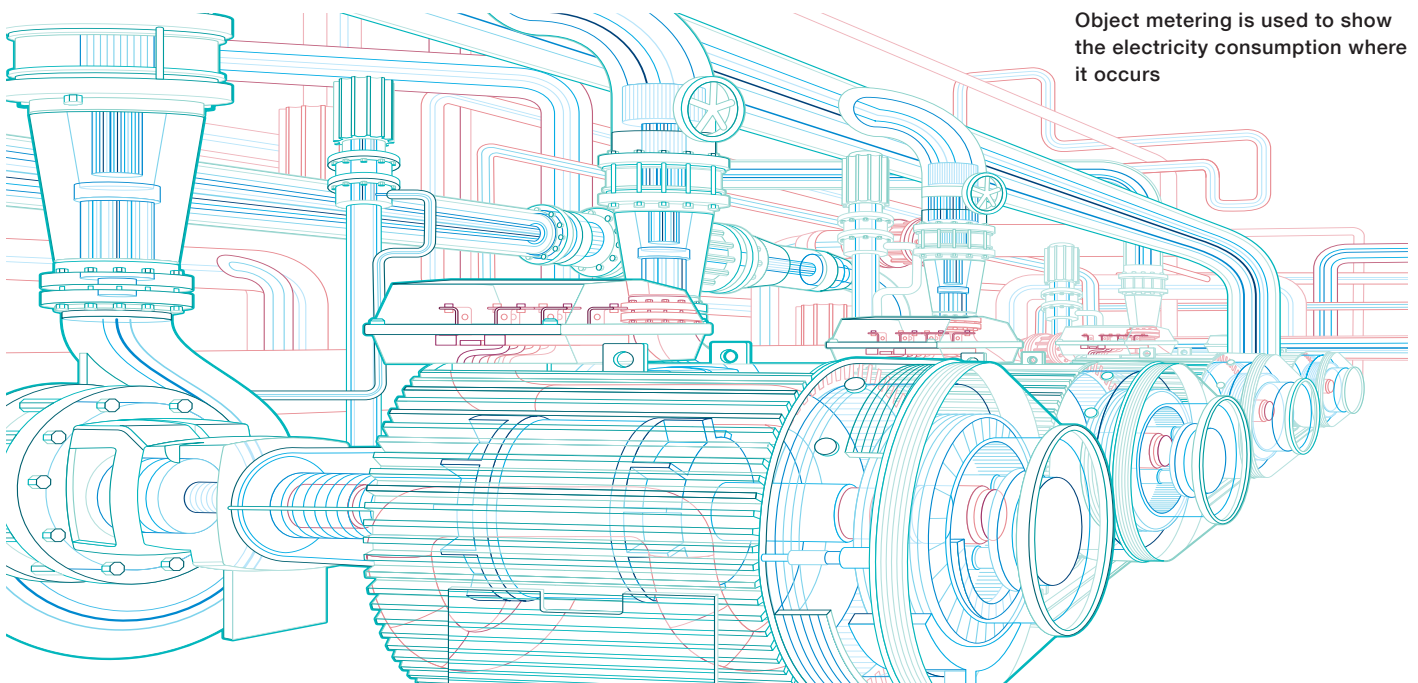
Many opportunities in commercial properties

Commercial properties naturally feature a wealth of objects to measure, including many of the items found in everyday homes. But engineers are now exploring ways to get modern, large-scale buildings to produce energy as well as consume it. Elevator cars, for example, generate energy when they descend or brake and this can be returned to the building's power grid as electricity for lighting or heating.

Industry shares similar needs

In addition to normal units for heating, lighting, ventilation and office administration, industrial premises contain usually processing machinery, conveyers, transport systems, and a great deal of electrical protection devices. Object consumption data measured by meters can be fed to Energy Management Systems for analysis to see how energy costs can be cut.

“To measure is to know”



Object metering is used to show the electricity consumption where it occurs

Joint residential sourcing

Unlike applications where a separate billing meter is installed in every apartment or residence for individual billing, joint residential sourcing involves having one central 'billing' meter. The housing association, condominium or equivalent then acts as a single electricity subscriber and redistributes its costs amongst its members according to their actual consumption. The latter is measured by a simple DIN-meter in each apartment.

The attractions are many. Direct savings are won via reduced network charges, i.e. electricity is supplied to just one subscriber (the association) instead of a subscriber in every apartment. The association then has a much better bargaining position when negotiating prices with energy companies, which should lead to lower prices for all.

Reliable and easy to implement

Joint residential sourcing is easy to implement. Usually no formal approval is required, but this may vary from country to country depending on local rules and legislation. ABB electricity meters help alleviate common concerns as they are approved for billing applications within the EU/EEC, i.e. they are MID-approved (see next page). Members can thus trust their use in joint residential sourcing.

Simple installation in standard enclosures

The DIN meters usually used to distribute costs between apartments are simple to install. Small enough to fit in standard DIN enclosures, they require no special housing or rebuilding work. The data they generate are normally collected by via pulse or serial readings transmitted continuously to a central unit (the latter also allow access to additional data). At the simplest level, the meters can be read manually.

Sub-metering brings on energy awareness

Experience shows that occupiers save up to 30% on electricity bills when they can see their own consumption. This is not surprising. When individual occupiers get a clear picture that relates electricity use to activity, they know exactly where savings can be made.

Cost savings also benefit the environment

Knowing how and where electricity costs arise will also help improve the environment by cutting the need for 'unnecessary' electrical energy production. A specific example is the multitude of devices with 'stand-by' consumption, i.e. connected to the mains supply but not in use. These include transformers for mobile phone chargers, TVs and computers, halogen lamps, etc.



Joint residential sourcing offers clear cost-saving opportunities for housing associations and their members, at the same time as it benefits the environment.

Measuring Instruments Directive (MID) information

Getting to terms with the MID

The Measuring Instruments Directive (MID) is a relatively new term. MID was introduced by the European Commission in 2004 to promote the free trade of measuring instruments and provide common rules for their use. As European Directive 2004/22/EC, MID came fully into force on October 30th, 2006.

Instruments must meet the essential requirements of the directive plus one of ten instrument-specific annexes. For electricity meters, this is MI-003 (active electrical energy meters). Approval to MID is required for meters used in billing applications and preferable in many related areas, e.g. joint residential sourcing.

Creates a single EU instrument market

The aim of the directive is to create a single market in measuring instruments for the benefit of manufacturers and, ultimately, consumers across Europe. National rules that deviate from MID are not allowed. With an MID 'European Type Approval Certificate', an instrument can be sold and used in any EU (or EEA) member state.

Routes to certification

MID stipulates requirements in three areas; climate conditions (e.g. how different temperature zones affect requirements), mechanical environments and electromagnetic environments.

WELMEC, a committee whose principal aim is to establish a harmonized and consistent approach to European legal metrology (metering), draws up design guidelines for electricity meters. These are then standardized by CENELEC, the European Committee for Electrotechnical Standardization, as standards EN 50470-1, -2 and -3.

MID makes it clear that there are several ways to certify products such as electricity meters. ABB has chosen type approval according to Annex B and initial verification according to Annex D.

Type approval and initial verification

According to MID, type approval follows the directive's Annex B; the product must fulfill relevant parts of EN 50470 and be assessed by a Notified Body that then issues a certificate for that product. We use NMI, an independent expert for metrology testing, certifying and calibrating, for this task.

ABB has selected to do initial verification. This means that all ABB meters described here are individually tested to ensure that they are equivalent to the type approval.

Accredited calibration laboratory and audits ensure compliance

To ensure that the calibration and verification of ABB electricity meters meet MID demands, we have our own accredited calibration laboratory that operates under the auspices of SWEDAC, the Swedish Board for Accreditation and Conformity Assessment. Each meter is stamped with the code SE1818, showing that it has been calibrated and approved in this laboratory.

Finally, own manufacture with an accredited laboratory and Annex D approval means that both NMI and SWEDAC perform regular audits to ensure that our processes and tools perform as required.



Electricity meter made by ABB are type approved, verified and issued with a certificate of compliance according to MID requirements.

Product overview



	A41	A42	A43	A44
Connection	Direct Single phase + N	CTVT Single phase + N	Direct Three phase, three phase + N	CTVT Three phase, three phase + N
Voltage range	57.7 - 288 VAC (-20% - +15%)	57.7 - 288 VAC (-20% - +15%)	3x57.7 - 288/100-500 V (-20+% - +15%) 3x100-400/173-690 V (-20% - +15%)	3x57.7 - 288/100-500 V (-20+% - +15%) 3x100-400/173-690 V (-20% - +15%)
Power dissipation voltage circuits	0.8 VA (0.8 W) total	0.8 VA (0.8 W) total	0.8 VA (0.8 W) total	0.8 VA (0.8 W) total
Power dissipation current circuits	0.007 VA (0.007 W) at 230 VAC and I_b	0.001 VA (0.001 W) at 230 VAC and I_n	0.007 VA (0.007 W) per phase at 230 VAC and I_b	0.001 VA (0.001 W) per phase at 230 VAC and I_n
Base current I_b	5 A	-	5 A	-
Rated current I_n	-	1 A	-	1 A
Transitional current I_{tr}	0.5 A	0.05 A	0.5 A	0.05 A
Maximum current I_{max}	80 A	6 A	80 A	6 A
Minimum current I_{min}	0.25 A	0.02 A	0.25 A	0.02 A
Starting current I_{st}	< 20 mA	< 1 mA	< 20 mA	< 1 mA
Terminal wire area	1 - 25 mm ²	0.5 - 10 mm ²	1 - 25 mm ²	0.5 - 10 mm ²
Recommended tightening torque	2.5 Nm	2 Nm	2.5 Nm	2 Nm
Frequency	50 or 60 Hz ± 5%	50 or 60 Hz ± 5% or 16.7 Hz (optional)	50 or 60 Hz ± 5%	50 or 60 Hz ± 5%
Accuracy Class	B (Cl. 1), Reactive Cl. 2	B (Cl. 1), C (Cl. 0.5), Reactive Cl. 2	A (Cl. 2), B (Cl. 1), Reactive Cl. 2	B (Cl. 1), C (Cl. 0.5), Reactive Cl. 2
Operating temperature	-40°C - +70°C	-40°C - +70°C	-40°C - +70°C	-40°C - +70°C
Storage temperature	-40°C - +85°C	-40°C - +85°C	-40°C - +85°C	-40°C - +85°C
Dimensions	W 70 x H 97 x D 65 mm	W 70 x H 97 x D 65 mm	W 123 x H 97 x D 65 mm	W 123 x H 97 x D 65 mm
DIN modules	4	4	7	7
Single phase	Yes	Yes	-	-
Three phase 3 wire (TPE)	-	-	Yes	Yes
Three phase 4 wire (TPE+N)	-	-	Yes	Yes
Internal clock	Yes	Yes	Yes	Yes
Active energy	Yes	Yes	Yes	Yes
Reactive energy	Yes	Yes	Yes	Yes
Import/export of energy	Yes	Yes	Yes	Yes
Tariffs	1-4	1-4	1-4	1-4
Pulse output	Yes	Yes	Yes	Yes
Built-in communication	IR, M-Bus, RS-485	IR, M-Bus, RS-485	IR, M-Bus, RS-485	IR, M-Bus, RS-485
Alarms	Yes	Yes	Yes	Yes
Tariff control	I/O, internal clock, communication	I/O, internal clock, communication	I/O, internal clock, communication	I/O, internal clock, communication
Instrumentation values	Yes	Yes	Yes	Yes
I/O	Yes	Yes	Yes	Yes
Previous values	Day, week, month	Day, week, month	Day, week, month	Day, week, month
Max Demand	Yes	Yes	Yes	Yes
Load profiles	Yes	Yes	Yes	Yes
Harmonics	Yes	Yes	Yes	Yes



	OD1065/OD1365	OD4165	OD4110	C11
	Direct Single phase + N	Direct Three phase + N	CT Three phase + N	Direct Single phase + N
	230 V (-20% - +15%)	3x230/400 V (-20% - +15%)	3x230/400 V (-20% - +15%)	230 V (-20% - +15%)
	1.0 VA (1.0 W) total	0.9 VA (0.9 W) per phase	0.9 VA (0.9 W) per phase	< 0.8 VA (0.2 W) total
	0.004 VA (0.0004W) at 230 VAC and I _b	0.004 VA (0.004 W) at 230 VAC and I _b	0.004 VA (0.004 W) at 230 VAC and I _n	0.02 W at 230 VAC and I _b
	5 A	5 A	-	5 A
	-	-	5 A	-
	0.5 A	0.5 A	0.25 A	0.5 A
	65 A	65 A	10 A	40 A
	0.25 A	0.25 A	0.10 A	0.25 A
	20 mA	25 mA	15 mA	< 20 mA
	1 - 16 mm ²	1 - 16 mm ²	1 - 16 mm ²	0.5 - 10 mm ²
	2 Nm	2 Nm	2 Nm	0.8 Nm
	50 or 60 Hz ± 5%	50 or 60 Hz ± 5%	50 or 60 Hz ± 5%	50 or 60 Hz ± 5%
	B (Cl. 1)	A (Cl. 2)	A (Cl. 2)	B (Cl. 1)
	- 25°C - +55°C	- 25°C - +55°C	- 25°C - +55°C	- 25°C - +70°C
	- 25°C - +70°C	- 25°C - +70°C	- 25°C - +70°C	- 25°C - +85°C
	W 35.8 x H 85 x D 63.4 mm	W 105 x H 85 x D 63.4 mm	W 105 x H 85 x D 63.4 mm	W 17.5 x H 111 x D 65 mm
	2	6	6	1
	Yes	-	-	Yes
	-	-	-	-
	-	Yes	Yes	-
	-	-	-	-
	Yes	Yes	Yes	Yes
	-	-	-	-
	-	-	-	-
	1	1	1	1
	Yes	Yes	Yes	Yes
	IR	IR	IR	-
	-	-	-	Yes
	-	-	-	-
	-	-	-	Yes
	-	-	-	-
	-	-	-	-
	-	-	-	-
	-	-	-	-
	-	-	-	-

A-series

Product brief



Key applications

- Applications in Industry
- Applications in commercial buildings
- Object metering
- Billing applications

Meter performance

- Three phase and single phase
- Direct connected up to 80 A
- Transformer connected 1, 2 or 5 A
- Active or active and reactive energy
- Accuracy class C, B or A (Cl. 0.5, 1 or 2)
- Import or import and export measurement of energy
- Wide voltage range (100 – 500 V or 173 – 690 V)
- Pixel-oriented display
- Up to 4 tariffs
- Up to 4 inputs and outputs
- Low power consumption
- Optional clock functionality with tariff control, previous values, max demand, load profiles
- Harmonics measurement up to 16th harmonic and THD evaluation

Communication

- Pulse output
- Built-in M-Bus
- Built-in RS-485 for Modbus RTU
- IR port for Serial Communication Adapters

Installation

- Terminal according to DIN 43857 ("Utility terminal")
- Wide temperature range
- Sealable push buttons for configuration

Approvals

- MID type approval "annex B"
- MID initial verification "annex D"
- IEC type approval

A-series

Description

The EQ meters, A-series is a range of meters for single phase and three phase metering. The A-series meters are mounted on a DIN rail and are suitable for installation in distribution boards and small enclosures such as consumer units. With the main terminals in accordance with DIN 43857 and accessible from the below the meters, the A-series is suitable for many applications.

General features

The A-series meters are ideal for many applications and installations. The meters support a wide voltage range as well as a wide temperature range. The display is pixel-oriented and can display up to four quantities at the same time. Navigating the meter is easily done via the push-buttons below the display. To configure the meter settings, the set button must be accessed and this button is protected against unauthorized use when the “glass lid” on the front of the meter is closed and sealed. The power consumption of the meter is very low, less than 0.8 VA

Communication

Data from the A-series meters can be collected via pulse output or serial communication. The pulse output is a solid state relay that generates pulses proportionally to the measured energy. The meters can also be equipped with built-in serial communication interfaces for M-Bus or Modbus RTU (RS-485). All meters in the A-series come with an infrared port for communication with an external Serial Communication Adapter (SCA). There are SCAs for M-Bus, RS-232, Ethernet, GSM/GPRS, Modbus and KNX.

Instrumentation

The A-series meters support reading of instrument values. A large number of electrical properties can be read. Depending on version of the meter the following data is available:

- Active power
- Apparent power
- Reactive power
- Current
- Voltage
- Frequency
- Power factor
- Harmonics
- Total harmonic distortion

Inputs and outputs

The A-series support up to four I/O's. It can be two inputs and two outputs in a fixed configuration or four I/O points that are



freely configured to input or output. Inputs can be used for counting pulses from e.g. a water meter, or reading status from external devices. Outputs can be used as pulse outputs or controlling external apparatus like a contactor or an alarm (connected via an external relay).

Approvals

The A-series meters are type approved according to IEC and they are both type approved and verified according to MID. MID is the Measuring Instruments Directive 2004/22/EC from the European Commission. MID type approval and verification is mandatory for meters in billing applications within EU and EEA. The type approval is according to standards that covers all relevant technical aspects of the meter. These include climate conditions, electromagnetic compatibility (EMC), electrical requirements, mechanical requirements and accuracy.

Tariffs

The tariffs are controlled via inputs, via communication or via an internal clock.

Optional functionality

A-series meters with a functionality level of Gold or Platinum have an internal clock for advanced functionality. The clock functions are briefly presented below.

A-series Description

Internal clock

The internal clock, sometimes called real time clock or RTC, has a built-in calendar and keeps automatically track of leap year and daylight savings time (DST). The DST function is optional. Backup of the clock during a power failure is provided by a supercapacitor. The time is controlled from a quartz crystal based clock. Time and date is set via push buttons or via communication. The internal clock is approved according to IEC 62052-21 and IEC 62054-21. These standards specify the requirements for time switches in electricity meter related products. The accuracy is better than 5 ppm at room temperature.

Previous values

The previous value feature is available on Gold and Platinum meters and will store all energy registers and input counter values together with a date/time stamp upon change of day, week or month. All total values are stored and in meters equipped with the tariff feature all the tariff registers will also be stored.

Maximum Demand

The maximum demand function is available on Gold and Platinum meters. In the maximum demand function, the mean power in each interval is measured and the maximum mean values are stored together with a date/time stamp. For each set of maximum demand values the end date/time of the period is stored. The quantities that can be stored for each interval are active, reactive and apparent power (imported power only), and the number of pulses registered on inputs. Storage of reactive and apparent power is only possible on meters measuring combined energy and storing of pulses requires that the meter is equipped with the corresponding number of inputs. In tariff meters, the maximum demand can be stored for each tariff.

Event log

Gold and Platinum meters have an event log function. The event log will log overvoltage, undervoltage, phase voltage outage, negative power, total power outage and presence of harmonics.

Load Profile

The load profile function is available on the Platinum meters. The load profile stores the energy consumption at pre-defined intervals. The quantities that can be stored for each interval are active and reactive energy, both imported and exported energy, and the number of pulses registered on inputs. Storage of reactive energy is only possible on meters measuring combined energy and storing of pulses requires that the meter is equipped with the corresponding number of inputs. The load profile function uses the standard time setting irrespective if the daylight savings time function is activated or not.

THD

The THD and harmonics measurement is available on the Platinum meters. The voltage and current harmonics (2-16) together with the fundamental is measured sequentially one at a time. The total harmonic distortion is evaluated and displayed in percent. The separate harmonic frequencies measured are multiples of the fundamental frequency (normally around 50 or 60 Hz) up to the 16th harmonic. THD data as well as individual harmonics are shown on the display. THD data and data for individual harmonics can also be read out via serial communication.



A-series Ordering data



Single phase meter

80A, 4 DIN with IR port

Verified and approved according to MID

IEC approval

Direct connected electricity meter

Functionality	Voltage V	Accuracy Class	I/O	Type	Order code	Pkg qty	Weight (1 pce) kg
Active import measurement							
Steel	57 ... 288 V AC	B (Cl. 1)	Pulse output	A41 111 - 100	2CMA170554R1000	1	0.23
Silver	57 ... 288 V AC	B (Cl. 1)	2 output, 2 input	A41 311 - 100	2CMA170502R1000	1	0.23

Direct connected electricity meter, RS-485

Functionality	Voltage V	Accuracy Class	I/O	Type	Order code	Pkg qty	Weight (1 pce) kg
Active import measurement							
Steel	57 ... 288 V AC	B (Cl. 1)	Pulse output	A41 112 - 100	2CMA170500R1000	1	0.23
Active import and export measurement							
Bronze	57 ... 288 V AC	B (Cl. 1)	Pulse output	A41 212 - 100	2CMA170501R1000	1	0.23
Silver	57 ... 288 V AC	B (Cl. 1)	2 output, 2 input	A41 312 - 100	2CMA170503R1000	1	0.23
Gold	57 ... 288 V AC	B (Cl. 1)	2 output, 2 input	A41 412 - 100	2CMA170505R1000	1	0.23

Direct connected electricity meter, M-Bus

Functionality	Voltage V	Accuracy Class	I/O	Type	Order code	Pkg qty	Weight (1 pce) kg
Active import and export measurement							
Silver	57 ... 288 V AC	B (Cl. 1)	2 output, 2 input	A41 313 - 100	2CMA170504R1000	1	0.23
Gold	57 ... 288 V AC	B (Cl. 1)	2 output, 2 input	A41 413 - 100	2CMA170506R1000	1	0.23
Active and reactive import and export measurement							
Platinum	57 ... 288 V AC	B (Cl. 1) Reactive Cl 2	Configurable	A41 513 - 100	2CMA170508R1000	1	0.23

A-series

Ordering data



Single phase meter

6A, 4 DIN with IR port

Verified and approved according to MID

IEC approval

CTVT connected electricity meter

Functionality	Voltage V	Accuracy Class	I/O	Type	Order code	Pkg qty	Weight (1 pce) kg
Active import measurement							
Steel	57 ... 288 V AC	B (Cl. 1)	Pulse output	A42 111 - 100	2CMA170555R1000	1	0.20

CTVT connected electricity meter, RS-485

Functionality	Voltage V	Accuracy Class	I/O	Type	Order code	Pkg qty	Weight (1 pce) kg
Active import measurement							
Steel	57 ... 288 V AC	B (Cl. 1)	Pulse output	A42 112 - 100	2CMA170510R1000	1	0.20
Active import and export measurement							
Bronze	57 ... 288 V AC	B (Cl. 1)	Pulse output	A42 212 - 100	2CMA170511R1000	1	0.20
Silver	57 ... 288 V AC	B (Cl. 1)	2 output, 2 input	A42 312 - 100	2CMA170512R1000	1	0.20
Gold	57 ... 288 V AC	B (Cl. 1)	2 output, 2 input	A42 412 - 100	2CMA170513R1000	1	0.20
Active and reactive import and export measurement, 16.7 Hz							
Platinum	57 ... 288 V AC	C (Cl. 0.5) Reactive Cl.2	Configurable	A42 552 - 120	2CMA170518R1000	1	0.20

CTVT connected electricity meter, M-Bus

Functionality	Voltage V	Accuracy Class	I/O	Type	Order code	Pkg qty	Weight (1 pce) kg
Active import and export measurement							
Gold	57 ... 288 V AC	B (Cl. 1)	2 output, 2 input	A42 413 - 100	2CMA170514R1000	1	0.20
Active and reactive import and export measurement, 16.7 Hz							
Platinum	57 ... 288 V AC	C (Cl. 0.5) Reactive Cl.2	Configurable	A42 553 - 120	2CMA170519R1000	1	0.20

A-series

Ordering data



Three phase meter

80A, 7 DIN with IR port

Verified and approved according to MID

IEC approval

Direct connected electricity meter

Functionality	Voltage V	Accuracy Class	I/O	Type	Order code	Pkg qty	Weight (1 pce) kg
Active import measurement							
Steel	3 x 57/100 ... 288/500 V AC	B (Cl. 1)	Pulse output	A43 111 - 100	2CMA170520R1000	1	0.44
Steel	3 x 57/100 ... 288/500 V AC	A (Cl. 2)	Pulse output	A43 121 - 100	2CMA170521R1000	1	0.44
Active import and export measurement							
Silver	3 x 57/100 ... 288/500 V AC	B (Cl. 1)	2 output, 2 input	A43 311 - 100	2CMA170524R1000	1	0.44

Direct connected electricity meter, RS-485

Functionality	Voltage V	Accuracy Class	I/O	Type	Order code	Pkg qty	Weight (1 pce) kg
Active import and export measurement							
Bronze	3 x 57/100 ... 288/500 V AC	B (Cl. 1)	Pulse output	A43 212 - 100	2CMA170522R1000	1	0.44
Silver	3 x 57/100 ... 288/500 V AC	B (Cl. 1)	2 output, 2 input	A43 312 - 100	2CMA170525R1000	1	0.44
Gold	3 x 57/100 ... 288/500 V AC	B (Cl. 1)	2 output, 2 input	A43 412 - 100	2CMA170528R1000	1	0.44
Active and reactive import and export measurement							
Platinum	3 x 57/100 ... 288/500 V AC	B (Cl. 1) Reactive Cl.2	Configurable	A43 512 - 100	2CMA170531R1000	1	0.44

Direct connected electricity meter, M-Bus

Functionality	Voltage V	Accuracy Class	I/O	Type	Order code	Pkg qty	Weight (1 pce) kg
Active import and export measurement							
Bronze	3 x 57/100 ... 288/500 V AC	B (Cl. 1)	Pulse output	A43 213 - 100	2CMA170523R1000	1	0.44
Silver	3 x 57/100 ... 288/500 V AC	B (Cl. 1)	2 output, 2 input	A43 313 - 100	2CMA170526R1000	1	0.44
Gold	3 x 57/100 ... 288/500 V AC	B (Cl. 1)	2 output, 2 input	A43 413 - 100	2CMA170529R1000	1	0.44
Active and reactive import and export measurement							
Platinum	3 x 57/100 ... 288/500 V AC	B (Cl. 1) Reactive Cl.2	Configurable	A43 513 - 100	2CMA170532R1000	1	0.44

A-series Ordering data



Three phase meter

6A, 7 DIN with IR port

Verified and approved according to MID

IEC approval

CTVT connected electricity meter.

Functionality	Voltage V	Accuracy Class	I/O	Type	Order code	Pkg qty	Weight (1 pce) kg
Active import measurement							
Steel	3 x 57/100 ... 288/500 V AC	B (Cl. 1)	Pulse output	A44 111 - 100	2CMA170533R1000	1	0.35
Active import and export measurement							
Silver	3 x 57/100 ... 288/500 V AC	B (Cl. 1)	2 output, 2 input	A44 311 - 100	2CMA170536R1000	1	0.35

CTVT connected electricity meter, RS-485

Functionality	Voltage V	Accuracy Class	I/O	Type	Order code	Pkg qty	Weight (1 pce) kg
Active import and export measurement							
Bronze	3 x 57/100 ... 288/500 V AC	B (Cl. 1)	Pulse output	A44 212 - 100	2CMA170534R1000	1	0.35
Silver	3 x 57/100 ... 288/500 V AC	C (Cl. 0.5)	2 output, 2 input	A44 352 - 100	2CMA170537R1000	1	0.35
Gold	3 x 57/100 ... 288/500 V AC	C (Cl. 0.5)	2 output, 2 input	A44 452 - 100	2CMA170540R1000	1	0.35
Active and reactive import and export measurement							
Platinum	3 x 57/100 ... 288/500 V AC	C (Cl. 0.5) Reactive Cl.2	Configurable	A44 552 - 100	2CMA170545R1000	1	0.35
Active and reactive import and export measurement, 690 V AC							
Platinum	3 x 100/173 ... 400/690 V AC	C (Cl. 0.5) Reactive Cl.2	2 output, 2 input	A44 552 - 110	2CMA170549R1000	1	0.35

CTVT connected electricity meter, M-Bus

Functionality	Voltage V	Accuracy Class	I/O	Type	Order code	Pkg qty	Weight (1 pce) kg
Active import and export measurement							
Bronze	3 x 57/100 ... 288/500 V AC	B (Cl. 1)	Pulse output	A44 213 - 100	2CMA170535R1000	1	0.35
Silver	3 x 57/100 ... 288/500 V AC	C (Cl. 0.5)	2 output, 2 input	A44 353 - 100	2CMA170538R1000	1	0.35
Gold	3 x 57/100 ... 288/500 V AC	C (Cl. 0.5)	2 output, 2 input	A44 453 - 100	2CMA170541R1000	1	0.35
Active and reactive import and export measurement							
Platinum	3 x 57/100 ... 288/500 V AC	C (Cl. 0.5) Reactive Cl.2	Configurable	A44 553 - 100	2CMA170546R1000	1	0.35
Active and reactive import and export measurement, 690 V AC							
Platinum	3 x 100/173 ... 400/690 V AC	C (Cl. 0.5) Reactive Cl.2	2 output, 2 input	A44 553 - 110	2CMA170548R1000	1	0.35

A-series

Technical data

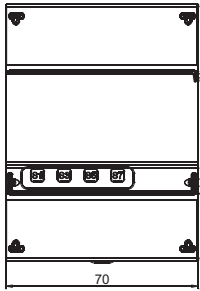
	A41	A42	A43	A44
Voltage/current inputs				
Nominal voltage	230 V AC		3x230/400 V AC	
Voltage range	57.7 - 288 V AC (-20% - +15%) 100 ... 288 V AC (-20% - +15%)		3x57,7/100 ... 288/500 V AC (-20% - +15%) 3x100/173 ... 400/690 V AC (-20% - +15%)	
Power dissipation voltage circuits	0.8 VA (0.8 W) total		0.8 VA (0.8 W) total	
Power dissipation current circuits	0.007 VA (0.007 W) at 230 VAC and I_b	0.001 VA (0.001 W) at 230 VAC and I_n	0.007 VA (0.007 W) per phase at 230 VAC and I_b	0.001 VA (0.001 W) per phase at 230 VAC and I_n
Base current I_b	5 A	-	5 A	-
Rated current I_n	-	1 A	-	1 A
Reference current I_{ref}	5 A	-	5 A	-
Transitional current I_t	0.5 A	0.05 A	0.5 A	0.05 A
Maximum current I_{max}	80 A	6 A	80 A	6 A
Minimum current I_{min}	0.25 A	0.02 A	0.25 A	0.02 A
Starting current I_s	< 20 mA	< 1 mA	< 20 mA	< 1 mA
Terminal wire area	1 - 25 mm ²	0.5 - 10 mm ²	1 - 25 mm ²	0.5 - 10 mm ²
Recommended tightening torque	2.5 Nm	2 Nm	2.5 Nm	2 Nm
General data				
Frequency	50 or 60 Hz ± 5%	50 or 60 Hz ± 5% or 16.7 Hz (optional)	50 or 60 Hz ± 5%	
Accuracy Class	B (Cl.1) or Reactive Cl. 2	B (Cl.1), C (Cl.0.5) or Reactive Cl. 2	A (Cl.2), B (Cl.1) or Reactive Cl. 2	B (Cl.1), C (Cl.0.5) or Reactive Cl. 2
Active energy	1%	0.5%, 1%	1%, 2%	0.5%, 1%
Display of energy	pixel oriented		pixel oriented	
Mechanical				
Material	Polycarbonate in transparent front glass, bottom case, upper case and terminal cover, Glass reinforced polycarbonate in terminal block.		Polycarbonate in transparent front glass, bottom case, upper case and terminal cover, Glass reinforced polycarbonate in terminal block.	
Environmental				
Operating temperature	-40°C - +70°C		-40°C - +70°C	
Storage temperature	-40°C - +85°C		-40°C - +85°C	
Humidity	75% yearly average, 95% on 30 days/year		75% yearly average, 95% on 30 days/year	
Resistance to fire and heat	Terminal 960°C, cover 650°C (IEC 60695-2-1)		Terminal 960°C, cover 650°C (IEC 60695-2-1)	
Resistance to water and dust	IP20 on terminal block without protective enclosure and IP51 in protective enclosure, according to IEC 60529.		IP20 on terminal block without protective enclosure and IP51 in protective enclosure, according to IEC 60529.	
Mechanical environment	Class M1 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC).		Class M1 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC).	
Electromagnetic environment	Class E2 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC).		Class E2 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC).	
Outputs				
Current	2 - 100 mA		2 - 100 mA	
Voltage	24 VDC - 240 VAC. For meters with only 1 output, 5 - 40 VDC.		24 VDC - 240 VAC. For meters with only 1 output, 5 - 40 VDC.	
Pulse output frequency	Prog. (1 - 9999 imp/MWh, 1 - 9999 imp/kWh, 1 - 9999 imp/Wh)		Prog. (1 - 9999 imp/MWh, 1 - 9999 imp/kWh, 1 - 9999 imp/Wh)	
Pulse length	10 - 990 ms		10 - 990 ms	
Terminal wire area	0.5 - 1 mm ²		0.5 - 1 mm ²	
Recommended tightening torque	0.25 Nm		0.25 Nm	
Inputs				
Voltage	0 - 240 V AC/DC		0 - 240 V AC/DC	
OFF	0 - 12 V AC/DC		0 - 12 V AC/DC	
ON	24 - 240 V AC/DC		24 - 240 V AC/DC	
Min. pulse length	30 ms		30 ms	
Terminal wire area	0.5 - 1 mm ²		0.5 - 1 mm ²	
Recommended tightening torque	0.25 Nm		0.25 Nm	
Communication				
Terminal wire area	0.5 - 1 mm ²	-	0.5 - 1 mm ²	-
Recommended tightening torque	0.25 Nm	-	0.25 Nm	0.25 Nm
Transformer ratios				
Configurable voltage ratio (VT)	-	1 - 9999 (Programmable)	-	1 - 9999
Configurable current ratio (CT)	-	1 - 9999 (Programmable)	-	1 - 9999
Max total transformer ratio (VT*CT)	-	999999	-	999999
Pulse indicator (LED)				
Pulse frequency	1000 imp/kWh	5000 imp/kWh	1000 imp/kWh	5000 imp/kWh
Pulse length	40 ms	40 ms	40 ms	40 ms
EMC compatibility				
Impulse voltage test	6 kV 1.2/50 µs (IEC 60060-1)		6 kV 1.2/50 µs (IEC 60060-1)	
Surge voltage test	4 kV 1.2/50 µs (IEC 61000-4-5)		4 kV 1.2/50 µs (IEC 61000-4-5)	
Fast transient burn test	4 kV (IEC 61000-4-4)		4 kV (IEC 61000-4-4)	
Immunity to electromagnetic HF-fields	80 MHz - 2 GHz at 10 V/m (IEC 61000-4-3)		80 MHz - 2 GHz at 10 V/m (IEC 61000-4-3)	
Immunity to conducted disturbance	150 kHz - 80 MHz, (IEC 61000-4-6)		150 kHz - 80 MHz, (IEC 61000-4-6)	
Radio frequency emission	EN 55022, class B (CISPR22)		EN 55022, class B (CISPR22)	
Electrostatic discharge	15 kV (IEC 61000-4-2)		15 kV (IEC 61000-4-2)	
Standards	IEC 62052-11, IEC 62053-21 class 1 & 2, IEC 62053-22 class 0.5s, IEC 62053-23 class 2, IEC 62054-21, GB/T 17215.211-2006, GBT 17215.321-2008 class 1 & 2, GB/T 17215.322-2008 class 0.5s, GB 4208-2008, EN 50470-1, EN 50470-3 category A, B & C		IEC 62052-11, IEC 62053-21 class 1 & 2, IEC 62053-22 class 0.5s, IEC 62053-23 class 2, IEC 62054-21, GB/T 17215.211-2006, GBT 17215.321-2008 class 1 & 2, GB/T 17215.322-2008 class 0.5s, GB 4208-2008, EN 50470-1, EN 50470-3 category A, B & C	
Dimensions				
Width	70 mm		123 mm	
Height	97 mm		97 mm	
Depth	65 mm		65 mm	
DIN modules	4		7	

A-series

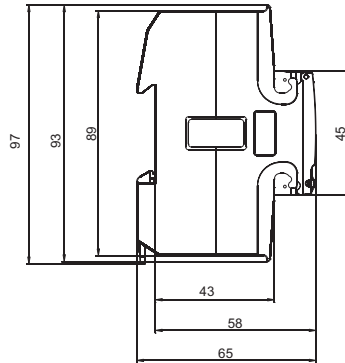
Dimensions, wiring diagrams, A41 and A42

Dimensions

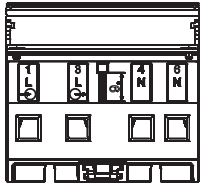
Front view



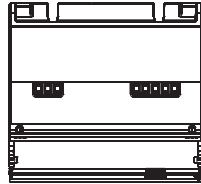
Side view,



Bottom view, terminal area

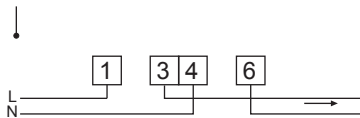


Top view

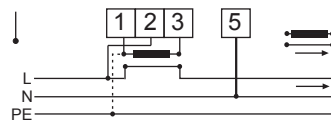


Wiring diagrams

A41

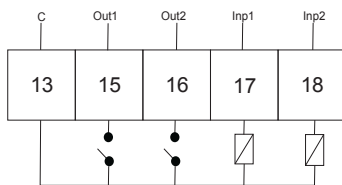


A42

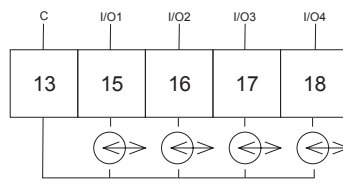


Inputs/Outputs

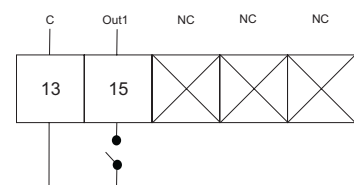
2 outputs, 2 inputs



4 Configurable inputs/outputs

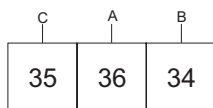


1 output

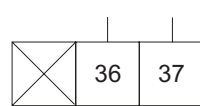


Communication

RS 485



M-Bus

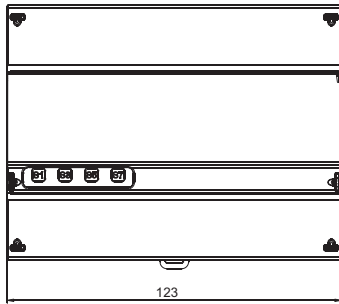


A-series

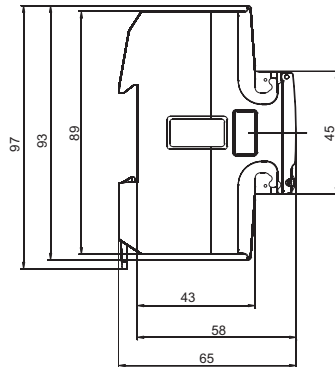
Dimensions, wiring diagrams, A43 and A44

Dimensions

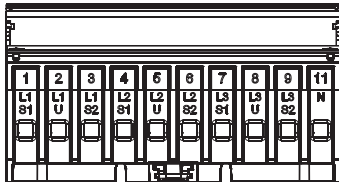
Front view



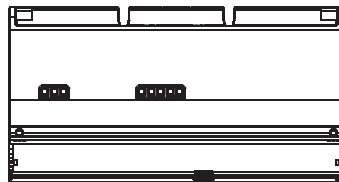
Side view



Bottom view, terminal area



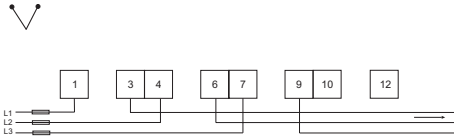
Top view



Wiring diagrams

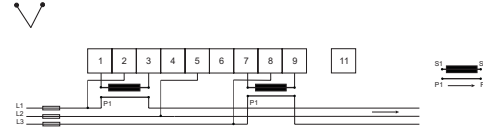
3 wire connection, 2 elements

A43



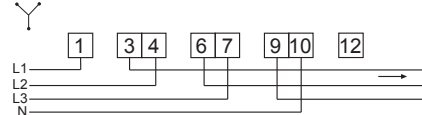
3 wire connection, 2 elements

A44



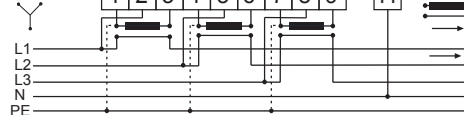
4 wire connection, 3 elements

A43



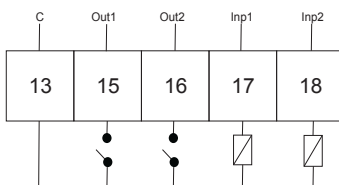
4 wire connection, 3 elements

A44

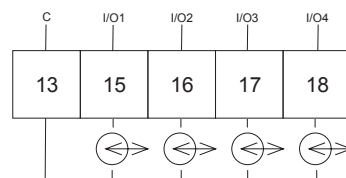


Inputs/Outputs

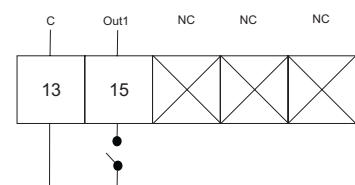
2 outputs, 2 inputs



4 Configurable inputs/outputs

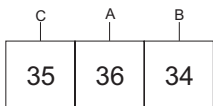


1 outputs

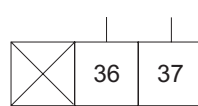


Communication

RS 485



M-Bus



ODIN-series Product brief



Key applications

- Applications in Commercial buildings
- Object metering

Meter performance

- Single phase and three phase
- Direct connected up to 65 A
- Active energy
- Accuracy class A (Cl. 2) or B (Cl. 1)
- Low power consumption
- Transformer connected 5 A

Communication

- Pulse output
- IR port for Serial Communication Adapter

Installation

- Wide temperature range
- Easy configuration of transformer ratio

Approvals

- MID type approval "annex B"
- MID initial verification "annex D"
- IEC type approval

ODIN-series

Description



The ODIN-series is a range of basic meters for installation in single phase or three phase (4-wire) networks. The meters are mounted on a DIN rail and are suitable for installation in distribution boards and small enclosures such as consumer units. The meters are designed to measure active energy. The products are configuration free (except for the setting of transformer ratio on OD 4110) which makes them very easy to deal with in all applications.

General features

The ODIN-series meters are very easy to handle. It is easy to read the large LCD display with 6 mm high digits and symbols for load indication, voltages etc. The meters have a LED on the front that flashes proportionally to the measured energy. The energy consumption of the meter is low, less than 1 VA per phase.

Communication

Data from ODIN-series meters are collected via pulse output or serial communication. The pulse output generates pulses proportionally to the measured energy. The meters come with an infrared port for communication with an external Serial Communication Adapter (SCA). There are SCAs for M-Bus, RS-232, Ethernet, GSM/GPRS and KNX.

Configuration

There is no configuration for the direct connected meters. For the transformer connected meters, the only configuration needed is the setting of the transformer ratio. This is easily done via one push button where the appropriate setting is selected. This configuration button is sealed when the meter is installed in a sealable DIN rail enclosure or when a cover is mounted.

Installation

It is very easy to install the ODIN-series meters. The three phase meters feature an installation diagram on the front of the meter. This makes it very easy to install. All terminals are clearly marked. A load indicator and voltage indication is displayed on the LCD for easy verification of the installation. The ODIN-series is also prepared for busbar installation.

Approval

ODIN-series meters are type approved according to IEC and they are both type approved and verified according to MID. MID is the Measuring Instruments Directive 2004/22/EC from the European Commission. MID type approval and verification is mandatory for meters in billing applications within EU and EEA.

ODIN-series

Ordering data



Single phase meter

65A, 2 DIN with IR port
 Verified and approved according to MID
 IEC approval

Direct connected electricity meter

Voltage V	Accuracy Class	I/O	Type	Order code	Pkg qty	Weight kg/pc
Active import measurement						
230 V	B (Cl. 1)	-	OD1065	2CMA131040R1000	1	0.135

Direct connected electricity meter, Resettable register

Voltage V	Accuracy Class	I/O	Type	Order code	Pkg qty	Weight kg/pc
Active import measurement						
230 V	B (Cl. 1)	Pulse output	OD1365	2CMA131041R1000	1	0.140

ODIN-series

Ordering data



Three phase meter

65A, 6 DIN with IR port
IEC approval

Direct connected electricity meter

Voltage V	Accuracy Class	I/O	Type	Order code	Pkg qty	Weight kg/pc
Active import measurement						
3 x 230/400 V	A (Cl. 2)	Pulse output	OD4165	2CMA131024R1000	1	0.393

Three phase meter

10A, 6 DIN with IR port
IEC approval

CTVT connected electricity meter

Voltage V	Accuracy Class	I/O	Type	Order code	Pkg qty	Weight kg/pc
Active import measurement						
3 x 230/400 V	A (Cl. 2)	Pulse output	OD4110	2CMA131025R1000	1	0.417

ODIN-series

Technical data

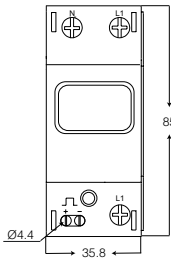
	OD1065/OD1365	OD4165	OD4110
Voltage/current inputs			
Nominal voltage	1 x 220 - 240 V AC		3x230/400 V AC
Voltage range	230 V (-20% - +15%)		3x230/400 V (-20% - +15%)
Power dissipation voltage circuits	1.0 VA (1.0 W) total		0.9 VA (0.9 W) per phase
Power dissipation current circuits	0.004 VA (0.004 W) at 230 V AC and I_{b1}	0.004 VA (0.004 W) at 230 V AC and I_{b1}	0.004 VA (0.004 W) at 230 V AC and I_{b1}
Base current I_{b1}	5 A	5 A	-
Rated current I_{n1}	-	-	5 A
Reference current I_{ref}	5 A	5 A	-
Transitional current I_{tr}	0.5 A	0.5 A	0.25 A
Maximum current I_{max}	65 A	65 A	10 A
Minimum current I_{min}	0.25 A	0.25 A	0.10 A
Starting current I_{st}	20 mA	25 mA	15 mA
Terminal wire area	1 - 16 mm ²		1 - 16 mm ²
Recommended tightening torque	2 Nm		2 Nm
General data			
Frequency	50 or 60 Hz ± 5%		50or 60 Hz ± 5%
Accuracy Class	B (Cl.1)		A (Cl.2)
Accuracy	1%		2%
Display of energy	6 digits LCD		7 digits LCD
Mechanical			
Material	Upper in polycarbonate, lower in glassfibre reinforced polycarbonate		Upper in polycarbonate, lower in glassfibre reinforced polycarbonate
Environmental			
Operating temperature	-25°C - +55°C		-25°C - +55°C
Storage temperature	-25°C - +70°C		-25°C - +70°C
Humidity	75% yearly average, 95% on 30 days/year		75% yearly average, 95% on 30 days/year
Resistance to fire and heat	Terminal 960°C, cover 650°C (IEC 60695-2-10, IEC 60695-2-11)		Terminal 960°C, cover 650°C (IEC 60695-2-10, IEC 60695-2-11)
Resistance to water and dust	IP20 on terminal block without protective enclosure and IP51 in protective enclosure, according to IEC 60529.	IP20 on terminal block without protective enclosure and IP51 in protective enclosure, according to IEC 60529.	
Mechanical environment	Class M1 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC).	Class M1 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC).	
Electromagnetic environment	Class E2 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC).	Class E2 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC).	
Outputs (Only OD 1365)			
Current	100 mA		100 mA
Voltage	5 - 40 V DC (Transistor output)		5 - 40 V DC (Transistor output)
Pulse output frequency	100 (imp/kWh)	100 (imp/kWh)	10 (imp/kWh)
Pulse length	100 ms (± 2.5)		100 ms (± 2.5)
Terminal wire area	Connection area, main terminals, 0.5 - 2.5 mm ²		Connection area, main terminals, 0.5 - 2.5 mm ²
Recommended tightening torque	0.5 Nm		0.5 Nm
Inputs			
Voltage	-		-
OFF	-		-
ON	-		-
Min. pulse length	-		-
Terminal wire area	-		-
Recommended tightening torque	-		-
Communication			
Terminal wire area	-		-
Recommended tightening torque	-		-
Transformer ratios			
Configurable voltage ratio (VT)	-		-
Configurable current ratio (CT)	-		-
Max total transformer ratio (VT*CT)	-		-
Pulse indicator (LED)			
Pulse frequency	1000 imp/kWh	100 imp/kWh	1000 imp/kWh
Pulse length	40 ms		40 ms
EMC compatibility			
Impulse voltage test	6 kV 1.2/50 µs (IEC 60060-1, HD 588.1 S1)		6 kV 1.2/50 µs (IEC 60060-1, HD 588.1 S1)
Surge voltage test	4 kV 1.2/50 µs (IEC 61000-4-5)		4 kV 1.2/50 µs (IEC 61000-4-5)
Fast transient burn test	4 kV (IEC 61000-4-4)		4 kV (IEC 61000-4-4)
Immunity to electromagnetic HF-fields	Radio frequency immunity 80 MHz - 2 GHz at 10 V/m (IEC 61000-4-3)		Radio frequency immunity 80 MHz - 2 GHz at 10 V/m (IEC 61000-4-3)
Immunity to conducted disturbance	150 kHz - 80 MHz (IEC 61000-4-6)		150 kHz - 80 MHz (IEC 61000-4-6)
Radio frequency emission	EN 55022, class B (CISPR22)		EN 55022, class B (CISPR22)
Electrostatic discharge	15 kV (IEC 61000-4-2)		15 kV (IEC 61000-4-2)
Standards	IEC 62053-31		EN 50470-1, EN 50470-3, IEC 62052-11, IEC 62053-21
Dimensions			
Width	35.8 mm		105 mm
Height	85 mm		85 mm
Depth	63.4 mm		63.4 mm
DIN modules	2		6

ODIN-series

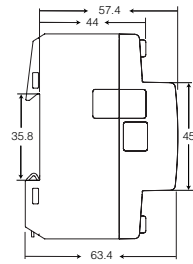
Dimensions, wiring diagrams

Dimensions OD1065/OD1365

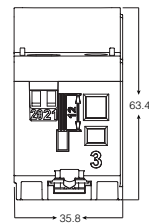
Front view



Side view

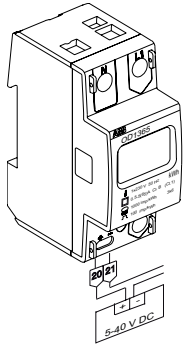


Bottom view, terminal area

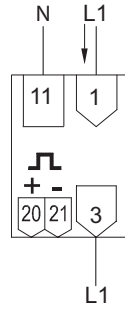


Wiring diagrams OD1065/OD1365

Pulse output

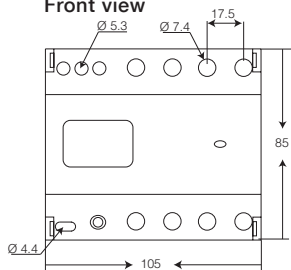


Direct connection

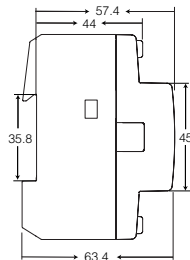


Dimensions OD4165/OD4110

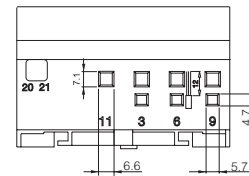
Front view



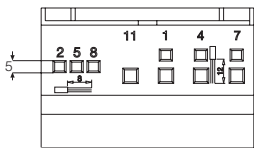
Side view



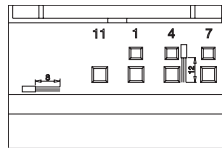
Bottom view, terminal area



Terminal area, transformer connected meter

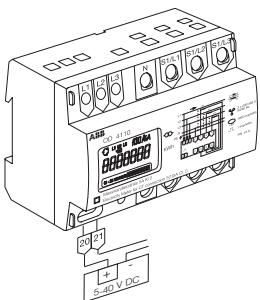


Terminal area, direct connected meter

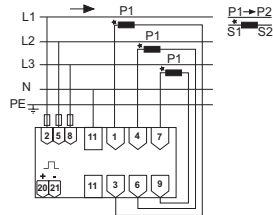


Wiring diagrams OD4165/OD4110

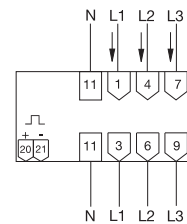
Pulse output



Connection via current transformer



Direct connection



C-series

Product brief



Key applications

- Joint residential sourcing
- Object metering
- Application in Commercial buildings

Meter performance

- Single phase
- Direct connected up to 40 A
- Active energy
- Low power consumption
- Alarm function

Communication

- Pulse output

Installation

- 1 DIN modules width
- Wide temperature range

Approvals

- MID type approval "annex B"
- IEC type approval

C-series

Description



The EQ meters, C11 meter is a truly compact meter for single phase metering. The C11 is mounted on a DIN rail and is suitable for installation in distribution boards and small consumer units. The C11 is suitable for many applications.

General features

The C11 is a very compact meter for single phase applications. The meter has an LCD with large digits on a vertical line and small digits on a horizontal line below. The meter has a wide temperature range which makes it possible to install the meter in many locations. Navigating the meter is easily done via the push-button below the display. The power consumption of the meter is very low, less than 0.8 VA (0.2 W).

Communication

Data from the C11 meters can be collected via pulse output. The pulse output is a solid state relay that generates pulses proportionally to the measured energy.

Instrumentation

The C11 meters support reading of instrument values. A number of electrical properties can be read:

- Power factor
- Active power
- Current
- Voltage

Outputs

The C11 meter has an output that can be used as pulse output or alarm output. The alarm quantity and levels is easily configured on the meter with the push button. The output can be used for controlling external apparatus like a contactor or an alarm indicator (connected via an external relay).

Approvals

The C11 meter is type approved according to IEC and MID. MID is the Measuring Instruments Directive 2004/22/EC from the European Commission. The type approval is according to standards that covers all relevant technical aspects of the meter. These include climate conditions, electromagnetic compatibility (EMC), electrical requirements, mechanical requirements and accuracy.

C-series

Ordering data, dimensions, wiring diagrams



Single phase meter

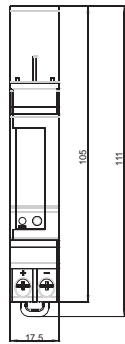
40A, 1 DIN with ProM Terminal
IEC approval

Direct connected electricity meter.

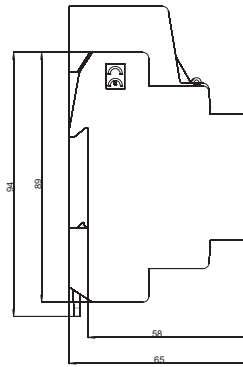
Functionality	Voltage V	Accuracy Class	I/O	Type	Order code	Pkg qty	Weight (1 pce) kg
Active import measurement							
Steel	1 x 230 V AC	B (Cl. 1)	Pulse output	C11 110 - 300	2CMA170550R1000	1	0.07

Dimension

Front view



Side view



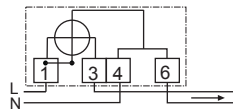
Top view, terminal area



Bottom view, pulse/alarm output



Wiring diagram



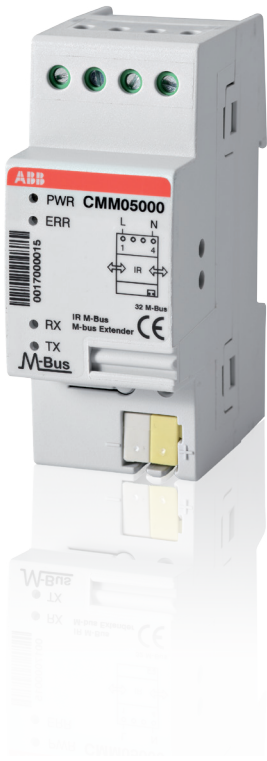
C-series

Technical data

C11	
Voltage/current inputs	
Nominal voltage	1 x 230 V AC
Voltage range	230 V (-20% - +15%)
Power dissipation voltage circuits	< 0.8 VA (0.2 W) total
Power dissipation current circuits	0.02 W at 230 V AC and I _b
Base current I _b	5 A
Rated current I _r	-
Reference current I _{ref}	5 A
Transitional current I _t	0.5 A
Maximum current I _{max}	40 A
Minimum current I _{min}	0.25 A
Starting current I _{st}	< 20 mA
Terminal wire area	0.5 - 10 mm ²
Recommended tightening torque	0.8 Nm
General data	
Frequency	50 or 60 Hz ± 5%
Accuracy Class	B (Cl.1)
Accuracy	1%
Display of energy	6 digits LCD
Mechanical	
Material	Polycarbonate in transparent front glass and terminal cover. Glass reinforced polycarbonate in terminal block
Environmental	
Operating temperature	- 25°C - +70°C
Storage temperature	- 25°C - +85°C
Humidity	75% yearly average, 95% on 30 days/year
Resistance to fire and heat	Terminal 960°C, cover 650°C (IEC 60695-2-1)
Resistance to water and dust	IP20 on terminal block without protective enclosure and IP51 in protective enclosure, according to IEC 60529.
Mechanical environment	Class M1 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC).
Electromagnetic environment	Class E2 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC)
Outputs	
Current	2 - 100 mA
Voltage	5 - 40 V DC
Pulse output frequency	100 (imp/kWh)
Pulse length	200 ms
Terminal wire area	0.5 - 6 mm ²
Recommended tightening torque	0.8 Nm
Inputs	
Voltage	-
OFF	-
ON	-
Min. pulse length	-
Terminal wire area	-
Recommended tightening torque	-
Communication	
Terminal wire area	-
Recommended tightening torque	-
Transformer ratios	
Configurable voltage ratio (VT)	-
Configurable current ratio (CT)	-
Max total transformer ratio (VT*CT)	-
Pulse indicator (LED)	
Pulse frequency	1000 imp/kWh
Pulse length	40 ms
EMC compatibility	
Impulse voltage test	6 kV 1.2/50 μs (IEC 60060-1)
Surge voltage test	4 kV 1.2/50 μs (IEC 61000-4-5)
Fast transient burn test	4 kV (IEC 61000-4-4)
Immunity to electromagnetic HF-fields	80 MHz - 2 GHz at 10 V/m (IEC 61000-4-3)
Immunity to conducted disturbance	150 kHz - 80 MHz, (IEC 61000-4-6)
Radio frequency emission	EN 55022, class B (CISPR22)
Electrostatic discharge	15 kV (IEC 61000-4-2)
Standards	IEC 62052-11, IEC 62053-21 class 1, GB/T 17215.211-2006, GB/T 17215.321-2008 class 1, GB 4208-2008, EN 50470-1, EN 50470-3 category B
Dimensions	
Width	17,5 mm
Height	111 mm
Depth	65 mm
DIN modules	1

Communication products

Description



The Serial Communication Adapter (SCA) enables serial data communication between the electricity meter and an Automatic Meter Reading system (AMR).

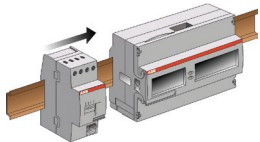
The adapter for ABB DIN rail mounted electricity meters

The electricity meter has an infrared port for remote reading of its measured data and identity, using the M-Bus protocol.

The SCA is an interface between the infrared port and the external communication.

- Installation on a DIN rail
- Compact size
- Easy installation

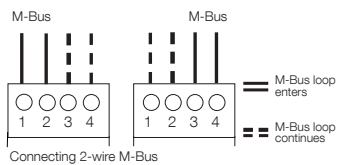
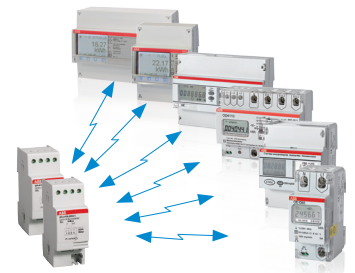
Media	Protocol	Voltage	Connection	Additional function	SCA
Ethernet, IR	M-Bus	100-240 V	RJ-45	Web server	CEM 05100
GSM/GPRS, IR	M-Bus	100-240 V	SMA	Short Message Service (SMS)	CGM 05000
IR, IR, M-Bus TP	M-Bus	100-240 V	Bus connection terminal	M-Bus Master extension for 32 slaves	CMM 05000
RS-232, IR	M-Bus	Powered from RS-232	Screw terminal	N/A	CRM 04000
M-Bus TP, IR	M-Bus	Powered from bus	Screw terminal	N/A	CTM 04000
KNX bus, IR	KNX	Powered from bus	Bus connection terminal	N/A	ZS/S 1.1
RS-485, IR	ModBus RTU/ASCII	100-240 V	Screw terminal	N/A	CSO 05000



Installation

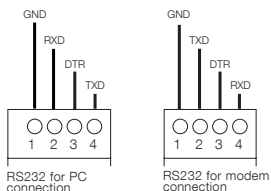
The SCA is installed on the left hand side of the meter. The infrared port on ABB meter must face the infrared port on the right side of the SCA.

It is important that the electricity meter and the adapter are installed side by side and that the infrared ports are aligned.



SCA Two-wire M-Bus

The M-Bus adapter can be ordered for two-wire M-Bus usage. To connect the M-Bus loop, terminals 1-2 or 3-4 can be used. The loop continues on the other two free terminals. The M-Bus two-wire connection is polarity insensitive. The two-wire connection is mainly used when several M-Bus slaves are to be connected into a M-Bus loop. The adapter is powered directly by the M-Bus and does not require an additional power source. The M-Bus adapter consumes 3 mA i.e. two standard M-Bus loads.



SCA RS232

The RS232 M-Bus connection is used when connecting a M-Bus slave directly to a Master (e.g. PC/modem) without an M-Bus interface.

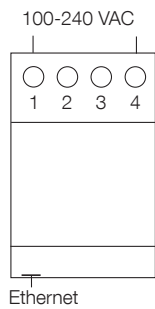
The table below shows how to connect a M-Bus master computer (PC). To connect to a M-Bus repeater (MODEM) switch RXD <-> TXD in table 1.

Terminal no	Function	9-pole connector	25-pole connector
1	GND--	5	7
2	TXD<-	3	2
3	DTR>-	4	20
4	RXD->	2	3

Connecting M-Bus Master (PC) with R232 port to the ABB adapter.

Communication products

Description

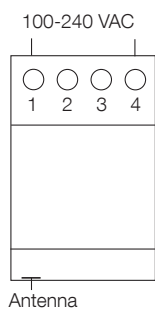


SCA Ethernet M-Bus

The Ethernet adapter is used for communication over Ethernet networks. The data is communicated using M-Bus over UDP or TCP. The adapter also has built in web server. The web server can be accessed through a standard web browser in a PC using the IP address of the adapter. The Ethernet adapter is powered by 100 – 240 VAC (-20%+15%) between terminal 1 and 4. To connect to an Ethernet network a RJ-45 connector is used.

SCA GSM/GPRS M-Bus

The GSM/GPRS communication adapter is a quad band GSM/GPRS device, which enables communication with GSM or GPRS over GSM 850/900 and GSM 1800/1900 networks. The ABB GSM/GPRS communication adapter support remote configuration using Short Message Service (SMS), which provides flexible configuration of the adapter. It is also possible to read essential meter data via SMS commands. The adapter is powered with 100-240 VAC (-15%+10%).



SCA M-Bus extender

The M-Bus extender makes it possible to expand your SCA with up to 32 extra M-Bus units. The M-Bus extender features standard M-Bus over IR communication and is equipped with the unique IR-Pass Through function, making the product series stackable. The M-Bus extender is only for use with M-Bus networks using M-Bus addressing.

SCA/KNX interface module

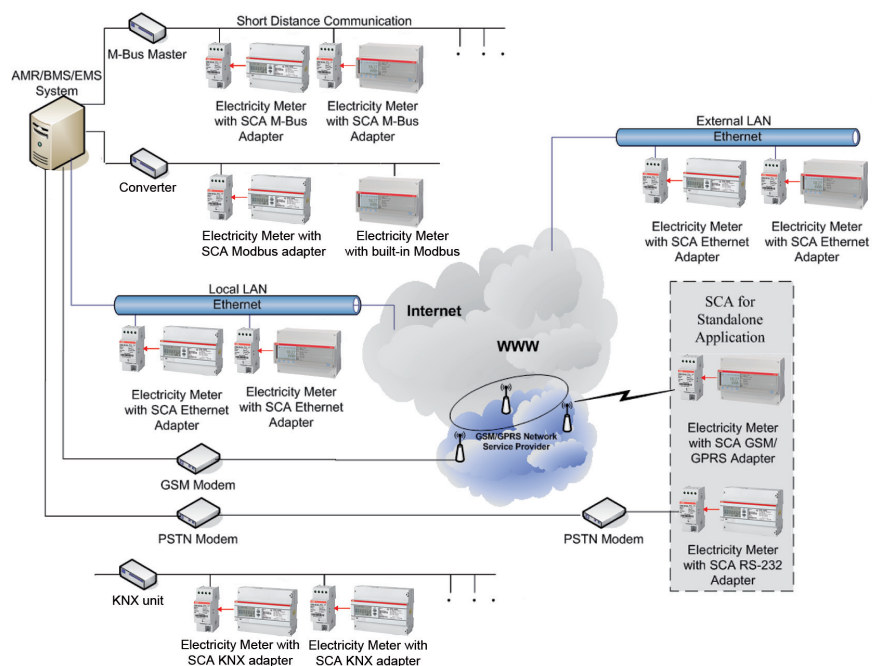
The SCA/KNX interface module is used to connect the meter to an EIB/KNX installation. The KNX module converts the M-Bus telegrams to KNX variables. Some M-Bus data is not available through this adapter.

Modbus interface module

ABB's new CSO 05000 Modbus RTU/ASCII communication adapter offers communication with ABB electricity meters by the Modbus RTU or ASCII protocol over RS485. The adapter converts the M-bus protocol from the electricity meter's optical interface to Modbus entities making it possible to use data from ABB electricity meters in a Modbus RTU/ASCII network. The Modbus adapter supports the following meter data: Serial number, Active/Reactive of imported and exported energies, Instrument values and monthly/daily values

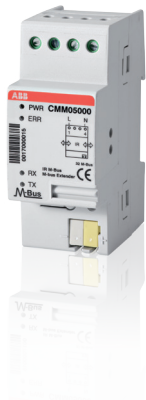
Abbreviations

AMR	Automatic Meter Reading
BMS	Building Management System
EMS	Energy Management System
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communication
LAN	Local Area Network
PSTN	Public Switched Telephone Network
SCA	Serial Communication Adapter



Communication products

Ordering data, dimensions

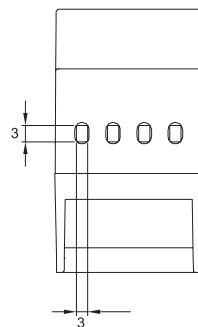


Serial Communication Adapter enables serial data communication between the electricity meter and data management systems.

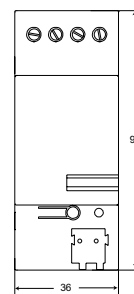
Voltage (V)	Connection	Additional	Type	Order code	Pkg qty	Weight (1 pce) kg
M-Bus over Ethernet, IR port						
100-240 V	RJ-45	Web server	CEM 05100	2CMA137121R1000	1	0.090
M-Bus over GSM/GPRS, IR port						
100-240 V	SMA	Short Message Service (SMS)	CGM 05000	2CMA137104R1000	1	0.105
M-Bus Master for 32 M-Bus units, IR port						
100-240 V	Bus connection terminal	M-Bus Master extension for 32 slaves	CMM 05000	2CMA137120R1000	1	0.070
M-Bus over RS232, IR port						
Powered from bus	Screw terminal	-	CRM 04000	2CMA137091R1000	1	0.072
M-Bus over Twisted pair, IR port						
Powered from bus	Screw terminal	-	CTM 04000	2CMA137090R1000	1	0.073
EIB/KNX, IR port						
Powered from bus	Bus connection terminal	-	ZS/S 1.1	2CDG110083R0011	1	0.067
ModBus, RS-485, IR port						
100-240 V	Screw terminal	-	CSO 05000	2CMA137124R1000	1	0.102

Dimensions

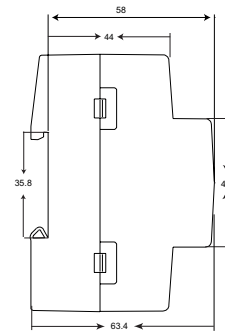
Top view, terminal area



Front view



Side view



Accessories

Ordering data



Accessories for electricity energy meters.

Application	Type of electricity meter	Type	Order code	Pkg qty	Weight 1(pce) kg
DIN-rail					
Wall mounting	DELTAplus	DIN-rail	2CMA132540R1000	1	0.025
Wall mounting	DELTAsingle	DIN-rail	2CMA139501R1000	1	0.025
Cover					
Wall mounting	DELTAplus	Long cover	2CMA132633R1000	1	0.070
Sealing	ODIN	Short cover	2CMA131026R1000	1	0.025
Front mounting kit					
Panel mounting	DELTAplus and ODIN	Front mounting kit	2CMA132635R1000	1	0.200
Enclosure					
Wall mounting	ODIN	Enclosure (6 modules)	2CMA131022R1000	1	0.500

Cross reference

Meter type - Order code

Type	Order code	Page
A41 111 - 100	2CMA170554R1000	15
A41 112 - 100	2CMA170500R1000	15
A41 212 - 100	2CMA170501R1000	15
A41 311 - 100	2CMA170502R1000	15
A41 312 - 100	2CMA170503R1000	15
A41 313 - 100	2CMA170504R1000	15
A41 412 - 100	2CMA170505R1000	15
A41 413 - 100	2CMA170506R1000	15
A41 513 - 100	2CMA170508R1000	15
A42 111 - 100	2CMA170555R1000	16
A42 112 - 100	2CMA170510R1000	16
A42 212 - 100	2CMA170511R1000	16
A42 312 - 100	2CMA170512R1000	16
A42 412 - 100	2CMA170513R1000	16
A42 413 - 100	2CMA170514R1000	16
A42 552 - 120	2CMA170518R1000	16
A42 553 - 120	2CMA170519R1000	16
A43 111 - 100	2CMA170520R1000	17
A43 121 - 100	2CMA170521R1000	17
A43 212 - 100	2CMA170522R1000	17
A43 213 - 100	2CMA170523R1000	17
A43 311 - 100	2CMA170524R1000	17
A43 312 - 100	2CMA170525R1000	17
A43 313 - 100	2CMA170526R1000	17
A43 412 - 100	2CMA170528R1000	17
A43 413 - 100	2CMA170529R1000	17
A43 512 - 100	2CMA170531R1000	17
A43 513 - 100	2CMA170532R1000	17
A44 111 - 100	2CMA170533R1000	18
A44 212 - 100	2CMA170534R1000	18
A44 213 - 100	2CMA170535R1000	18
A44 311 - 100	2CMA170536R1000	18
A44 352 - 100	2CMA170537R1000	18
A44 353 - 100	2CMA170538R1000	18
A44 452 - 100	2CMA170540R1000	18
A44 453 - 100	2CMA170541R1000	18
A44 552 - 100	2CMA170545R1000	18
A44 552 - 110	2CMA170548R1000	18
A44 553 - 100	2CMA170546R1000	18
A44 553 - 110	2CMA170549R1000	18

Type	Order code	Page
C11 110 - 300	2CMA170550R1000	30
CEM 05100	2CMA137121R1000	34
CGM 05000	2CMA137104R1000	34
CMM 05000	2CMA137120R1000	34
CRM 04000	2CMA137091R1000	34
CSO 05000	2CMA137124R1000	34
CTM 04000	2CMA137090R1000	34
DIN-rail for DELTAplus	2CMA132540R1000	35
DIN-rail for DELTAsingle	2CMA139501R1000	35
Enclosure for ODIN	2CMA131022R1000	35
Front mounting kit for DELTAplus and ODIN	2CMA132635R1000	35
Long cover for DELTAplus	2CMA132633R1000	35
OD1065	2CMA131040R1000	24
OD1365	2CMA131041R1000	24
OD4110	2CMA131025R1000	25
OD4165	2CMA131024R1000	25
Short cover for ODIN	2CMA131026R1000	35
ZS/S 1.1	2CDG110083R0011	34

Cross reference

Order code - Meter type

Order code	Type	Page
2CDG110083R0011	ZS/S 1.1	34
2CMA131022R1000	Enclosure for ODIN	35
2CMA131024R1000	OD4165	25
2CMA131025R1000	OD4110	25
2CMA131026R1000	Short cover for ODIN	35
2CMA131040R1000	OD1065	24
2CMA131041R1000	OD1365	24
2CMA132540R1000	DIN-rail for DELTAplus	35
2CMA132633R1000	Long cover for DELTAplus	35
2CMA132635R1000	Front mounting kit for DELTAplus and ODIN	35
2CMA137090R1000	CTM 04000	34
2CMA137091R1000	CRM 04000	34
2CMA137104R1000	CGM 05000	34
2CMA137120R1000	CMM 05000	34
2CMA137121R1000	CEM 05100	34
2CMA137124R1000	CSO 05000	34
2CMA139501R1000	DIN-rail for DELTAsingle	35
2CMA170500R1000	A41 112 - 100	15
2CMA170501R1000	A41 212 - 100	15
2CMA170502R1000	A41 311 - 100	15
2CMA170503R1000	A41 312 - 100	15
2CMA170504R1000	A41 313 - 100	15
2CMA170505R1000	A41 412 - 100	15
2CMA170506R1000	A41 413 - 100	15
2CMA170508R1000	A41 513 - 100	15
2CMA170510R1000	A42 112 - 100	16
2CMA170511R1000	A42 212 - 100	16
2CMA170512R1000	A42 312 - 100	16
2CMA170513R1000	A42 412 - 100	16
2CMA170514R1000	A42 413 - 100	16
2CMA170518R1000	A42 552 - 120	16
2CMA170519R1000	A42 553 - 120	16
2CMA170520R1000	A43 111 - 100	17
2CMA170521R1000	A43 121 - 100	17
2CMA170522R1000	A43 212 - 100	17
2CMA170523R1000	A43 213 - 100	17
2CMA170524R1000	A43 311 - 100	17
2CMA170525R1000	A43 312 - 100	17
2CMA170526R1000	A43 313 - 100	17
2CMA170528R1000	A43 412 - 100	17

Order code	Type	Page
2CMA170529R1000	A43 413 - 100	17
2CMA170531R1000	A43 512 - 100	17
2CMA170532R1000	A43 513 - 100	17
2CMA170533R1000	A44 111 - 100	18
2CMA170534R1000	A44 212 - 100	18
2CMA170535R1000	A44 213 - 100	18
2CMA170536R1000	A44 311 - 100	18
2CMA170537R1000	A44 352 - 100	18
2CMA170538R1000	A44 353 - 100	18
2CMA170540R1000	A44 452 - 100	18
2CMA170541R1000	A44 453 - 100	18
2CMA170545R1000	A44 552 - 100	18
2CMA170546R1000	A44 553 - 100	18
2CMA170548R1000	A44 553 - 110	18
2CMA170549R1000	A44 552 - 110	18
2CMA170550R1000	C11 110 - 300	30
2CMA170554R1000	A41 111 - 100	15
2CMA170555R1000	A42 111 - 100	16

Conversion table

Old type - New type

Old type	Old order code	New type	New order code
DAB 11000	2CMA180819R1000	A42 111-100	2CMA170555R1000
DAB 11001	2CMA139006R1000	A41 311-100	2CMA170502R1000
DAB 11002	2CMA139464R1000	A41 311-100	2CMA170502R1000
DAB 12000	2CMA180807R1000	A44 111-100	2CMA170533R1000
DAB 12001	2CMA139366R1000	A44 311-100	2CMA170536R1000
DAB 13000	2CMA180806R1000	A44 111-100	2CMA170533R1000
DAB 13000-105	2CMA139102R1000	A44 311-100	2CMA170536R1000
DAB 13001	2CMA180870R1000	A44 311-100	2CMA170536R1000
DAB 13002	2CMA180871R1000	A44 311-100	2CMA170536R1000
DAB 13004	2CMA139460R1000	A44 311-100	2CMA170536R1000

DAB 13050	2CMA139379R1000	A44 311-100	2CMA170536R1000
DAM 11000	2CMA139255R1000	A42 413-100	2CMA170514R1000
DAM 12000	2CMA180846R1000	A44 213-100	2CMA170535R1000
DAM 12070	2CMA139388R1000	A44 353-100	2CMA170538R1000
DAM 13000	2CMA180844R1000	A44 213-100	2CMA170535R1000
DAM 13001	2CMA180855R1000	A44 353-100	2CMA170538R1000
DAM 13002	2CMA180856R1000	A44 353-100	2CMA170538R1000
DAM 13004	2CMA139286R1000	A44 353-100	2CMA170538R1000
DAM 13070	2CMA180845R1000	A44 353-100	2CMA170538R1000
DBB 11000	2CMA180805R1000	A41 111-100	2CMA170554R1000

DBB 11001	2CMA180818R1000	A41 311-100	2CMA170502R1000
DBB 12000	2CMA180803R1000	A43 111-100	2CMA170520R1000
DBB 13000	2CMA180801R1000	A43 111-100	2CMA170520R1000
DBB 13001	2CMA180812R1000	A43 311-100	2CMA170524R1000
DBB 13002	2CMA139494R1000	A43 311-100	2CMA170524R1000
DBB 21000	2CMA180804R1000	A41 111-100	2CMA170554R1000
DBB 21001	2CMA180816R1000	A41 311-100	2CMA170502R1000
DBB 21002	2CMA180817R1000	A41 311-100	2CMA170502R1000
DBB 22000	2CMA180802R1000	A43 121-100	2CMA170521R1000
DBB 22001	2CMA180814R1000	A43 311-100	2CMA170524R1000

DBB 22002	2CMA180815R1000	A43 311-100	2CMA170524R1000
DBB 23000	2CMA180800R1000	A43 121-100	2CMA170521R1000
DBB 23000-105	2CMA139101R1000	A43 311-100	2CMA170524R1000
DBB 23001	2CMA180811R1000	A43 311-100	2CMA170524R1000
DBB 23002	2CMA180813R1000	A43 311-100	2CMA170524R1000
DBB 23004	2CMA139461R1000	A43 311-100	2CMA170524R1000
DBM 11000	2CMA139386R1000	A41 313-100	2CMA170504R1000
DBM 11050	2CMA139565R1000	A41 311-100	2CMA170502R1000
DBM 11070	2CMA139373R1000	A41 311-100	2CMA170502R1000
DBM 12000	2CMA139364R1000	A43 313-100	2CMA170526R1000

Old type	Old order code	New type	New order code
DBM 13000	2CMA139352R1000	A43 313-100	2CMA170526R1000
DBM 21000	2CMA180843R1000	A41 313-100	2CMA170504R1000
DBM 22000	2CMA180842R1000	A43 313-100	2CMA170526R1000
DBM 22001	2CMA180923R1000	A43 313-100	2CMA170526R1000
DBM 22002	2CMA180924R1000	A43 313-100	2CMA170526R1000
DBM 22070	2CMA139561R1000	A43 313-100	2CMA170526R1000
DBM 23000	2CMA180840R1000	A43 313-100	2CMA170526R1000
DBM 23001	2CMA180920R1000	A43 313-100	2CMA170526R1000
DBM 23002	2CMA180921R1000	A43 313-100	2CMA170526R1000
DBM 23003	2CMA139017R1000	A43 313-100	2CMA170526R1000

DBM 23004	2CMA139326R1000	A43 313-100	2CMA170526R1000
DBM 23050	2CMA139256R1000	A43 313-100	2CMA170526R1000
DBM 23070	2CMA180841R1000	A43 313-100	2CMA170526R1000
DCB 11000	2CMA139389R1000	A42 553-100	2CMA170516R1000
DCB 12000	2CMA180809R1000	A44 552-100	2CMA170545R1000
DCB 12001	2CMA139453R1000	A44 552-100	2CMA170545R1000
DCB 13000	2CMA180808R1000	A44 552-100	2CMA170545R1000
DCB 13001	2CMA180872R1000	A44 552-100	2CMA170545R1000
DCB 13002	2CMA180873R1000	A44 552-100	2CMA170545R1000
DCM 12070	2CMA180849R1000	A44 553-100	2CMA170546R1000

DCM 13000	2CMA180852R1000	A44 553-100	2CMA170546R1000
DCM 13001	2CMA139351R1000	A44 553-100	2CMA170546R1000
DCM 13070	2CMA180848R1000	A44 553-100	2CMA170546R1000
DDB 11001	2CMA139454R1000	A41 513-100	2CMA170508R1000
DDB 12000	2CMA139438R1000	A43 512-100	2CMA170531R1000
DDB 12001	2CMA139455R1000	A43 512-100	2CMA170531R1000
DDB 13000	2CMA180810R1000	A43 512-100	2CMA170531R1000
DDB 13002	2CMA139257R1000	A43 512-100	2CMA170531R1000
DDM 12000	2CMA139365R1000	A43 513-100	2CMA170532R1000
DDM 13000	2CMA139447R1000	A43 513-100	2CMA170532R1000

DEB 13005	2CMA139495R1000	A44 552-100	2CMA170545R1000
DEB 13006	2CMA139496R1000	A44 552-100	2CMA170545R1000
DEB 13007	2CMA139497R1000	A44 552-100	2CMA170545R1000
DEM 12007	2CMA139549R1000	A44 553-100	2CMA170546R1000
DEM 13005	2CMA139498R1000	A44 553-100	2CMA170546R1000
DEM 13006	2CMA139499R1000	A44 553-100	2CMA170546R1000
DEM 13007	2CMA139500R1000	A44 553-100	2CMA170546R1000
DFB 13005	2CMA139502R1000	A43 512-100	2CMA170531R1000
DFB 13006	2CMA139503R1000	A43 512-100	2CMA170531R1000
DFB 13007	2CMA139504R1000	A43 512-100	2CMA170531R1000

Old type	Old order code	New type	New order code
DFM 12007	2CMA139508R1000	A43 513-100	2CMA170532R1000
DFM 13005	2CMA139505R1000	A43 513-100	2CMA170532R1000
DFM 13006	2CMA139506R1000	A43 513-100	2CMA170532R1000
DFM 13007	2CMA139507R1000	A43 513-100	2CMA170532R1000
DGB 13005	2CMA139509R1000	A44 552-100	2CMA170545R1000
DGB 13006	2CMA139510R1000	A44 552-100	2CMA170545R1000
DGB 13007	2CMA139511R1000	A44 552-100	2CMA170545R1000
DGM 12007	2CMA139517R1000	A44 553-100	2CMA170546R1000
DGM 13005	2CMA139512R1000	A44 553-100	2CMA170546R1000
DGM 13006	2CMA139513R1000	A44 553-100	2CMA170546R1000
DGM 13007	2CMA139514R1000	A44 553-100	2CMA170546R1000
DHB 13005	2CMA139518R1000	A43 512-100	2CMA170531R1000
DHB 13006	2CMA139519R1000	A43 512-100	2CMA170531R1000
DHB 13007	2CMA139520R1000	A43 512-100	2CMA170531R1000
DHM 12007	2CMA139524R1000	A43 513-100	2CMA170532R1000
DHM 13005	2CMA139521R1000	A43 513-100	2CMA170532R1000
DHM 13006	2CMA139522R1000	A43 513-100	2CMA170532R1000
DHM 13007	2CMA139523R1000	A43 513-100	2CMA170532R1000
FBB 11200	2CMA180892R1000	A41 111-100	2CMA170554R1000
FBB 11205	2CMA180894R1000	A41 412-100	2CMA170505R1000
FBB 11206	2CMA180896R1000	A41 412-100	2CMA170505R1000
FBU 11200	2CMA180891R1000	A41 111-100	2CMA170554R1000
FBU 11205	2CMA180893R1000	A41 412-100	2CMA170505R1000
FBU 11206	2CMA180895R1000	A41 412-100	2CMA170505R1000

DELTAplus with LONworks communication is still available,
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