ENERGY EFFICIENCY SOLUTIONS SINCE 1973

Energy Efficiency

Price List 2019

ISO 9001:2008 CERTIFICATION Intertek
ISO 14001:2004 CERTIFICATION Intertek
OHSAS 18001:2007 CERTIFICATION Intertek
IECQ HSPM QC 080000 CERTIFICATION Intertek
SISTEMA DE GESTIÓN ENERGÉTICA ISO 50001 DNV

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Leaders by experience

CIRCUTORhas over 45 years' experience and 6 production centres in Spain and the Czech Republic, working on the design and manufacture of units for improving energy efficiency: electrical energy and power quality measurement and control units, industrial electrical protection, reactive energy compensation and harmonic filtering, smart electric vehicle charging and, during the past few years: Renewable Energies. Providing solutions with over 3,000 products in over 100 countries worldwide.

E Renewable Energies

M Measurement and Control

P Protection and Control

Q Quality & Metering

R Power Factor correction and harmonic filtering

V Smart Charging of Electric Vehicles

Two of the 6 CIRCUTOR production centres.

Innovation
All the knowledge acquired during this time is reflected in our products, which are reliable, robust, easy to use and most importantly: innovative .

Own technology
CIRCUTOR R&D&I

Test laboratories
The company has its own laboratories for electromagnetic compatibility tests (EMC/EMI) and calibrations, and an official metrological verification laboratory, which can guarantee the quality of its products and ensure that they meet the highest quality standards.

New products
CIRCUTOR is committed to innovation as a way to follow the latest technological advances and incorporate these advances in its products.

CVM-A1500

Power analyzers for panel

Description

CVM-A1500 is a panel mounted power quality analyzer with EMS (Energy Management Software) integrated. Its internal Web Server (html5) allows any user to have full installation control by using any web browser.

Designed to be installed in the most relevant or critical part of electric installations since it registers and monitors a wide range of variables (almost one year of data with RMS, maximum and minimum values). The device also registers power quality events such as swells, dips, interruptions (every half cycle) and transients (according to IEC 61000-4-30 Class A). Any event will be immediately captured with the voltage and current waveform.

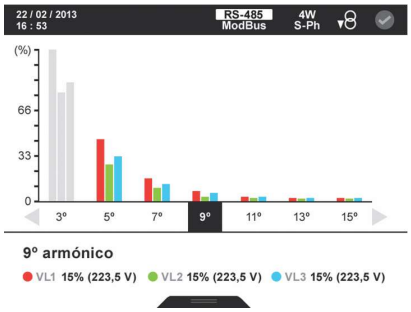
This model adds the measurement of power quality variables (defined in the standard EN 50160) such as flicker, unbalance (Kd) and asymmetry (Ka) coefficients or voltage and current harmonics decomposition up to 63th. In addition it is possible to monitor in real time the instantaneous waveforms of voltage and current through its oscilloscope function.As an added value, CVM-A1500 displays the number of events and transients on each affected phase with the level reached, duration and its associated waveform. In addition, those events are directly displayed in CBEMA, ITIC y SEMI-F47 graphs.

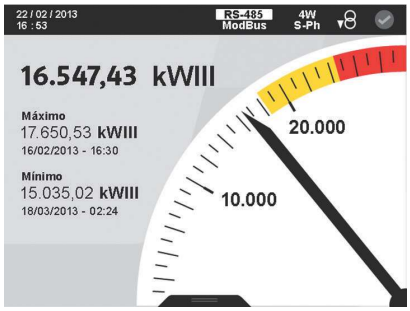
The smart design of the CVM-A1500 allows users to customize their own screens in order to access to the information faster and easy. Remark that the device allows the connection though PowerStudio software to save and store, in a redundant way, all the information in a server or PC avoiding memory limits.

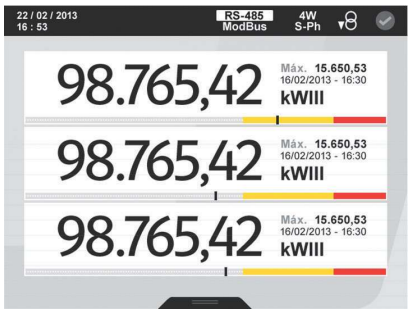
- Dimensions:144 x 144 mm
- Energy Management Software (EMS) included with historical data register
- Register of power quality events, waveforms and instantaneous parameters.
- Expandable up to 3 modules (inputs/outputs and communications)
- VGA color display with high definition
- IP 65 with airtight seal
- 5 voltage channels + 4 ITF current channels
- Active energy class 0,2S (IEC 62053-22)
- Universal switching power supply AC/DC or DC
- Ethernet communications (Web Server) + RS-485 (ModBus RTU or BACnet protocol)
- 5 user customizable screens
- 3 tariffs (selectable by digital input or by communications)
- Cost calculation(any currency) and emissions of kgCO2
- 2 relay outputs for alarms + 2 transistor outputs for alarms or pulses + 2 digital inputs to select tariff, to control logical states or pulse centralizer from any external meter.

CVM-B100
CVM-B150

Power analyzers for panel







Description

The CVM-B100 and CVM-B150 units are panel mounted three-phase power analyzers (dimensions: 96x96 and 144x144 mm, respectively). Both offer 4-quadrant measurement (consumption and generation). Suitable for Medium or Low voltage installations, in both 3 or 4-wire three-phase circuits, two-phase circuits with or without neutral, single-phase circuits or ARON connections.

- V, A, M/KW, M/Kva, M/kvarL, M/kvarC, PF, φ, Hz, M/KWh, M/Kvarh, M/Kvah, M/KvarLh, M/KvarCh
- Vph-N, Vph-ph, Hours, Cost, kgCO2
- Harmonic V& I (up to the 51st order), THD V, THDA
- Selection of tariffs with digital inputs. Perfect to calculate costs in three different work shifts.
- Maximum Demand (M/kW, M/kVA, A)
- Format: 96x96 (CVM B100) and 144x144 (CVM B150)
- High-resolution VGA colour screen
- IP 65* front panel protection
- 5 Voltage inputs (3 phases + neutral + earth) 1000 Vf-f
- 4 Current inputs, ITF
- Neutral current measurement
- Class 0.2 voltage and current accuracy
- Class 0.5S energy accuracy
- Expandable unit, up to 4 modules, combining digital and analogue outputs, Modbus/TCP, MBus, LonWorks, Profibus, XML/Web
- Modular (optional addition of expansion modules)
- Touch-sensitive movement buttons
- Universal power supply source
- RS485 communications port (Modbus/RTU and BACnet protocols)
- Customization of parameters to be displayed
- Operating hour indicator for preventive maintenance.
- Innovative SCV interface (Slide, Choose & View) for versatile data display, enabling the customization of the parameters displayed on the screen
- Electrical parameters: instantaneous, maximum, minimum(with date and time) and demand
- Incremental electrical parameters (energy), times, costs, emissions
- 3 Tariffs (can be selected via the digital input or RS485 communications)
- Capable of showing costs and kgCO2 emission sources on the screen, depending on the energy consumed or generated
- 2 Relay outputs for alarms with delay, times, ON and OFF, etc.
- 2 Transistor outputs for alarms or impulse generation, with all the possible configuration parameters

2 Digital inputs, with control over the selection of the unit's tariffs or configurable for monitoring purposes, with RS-485 Modbus communications, monitoring of logical states of other electro-mechanical units. (RCCBs, thermal-magnetic circuit breakers, etc.)

CVM-A, ,Power quality analyzers with recording of quality events and transients Calibration Certificate (IEC 61000-4-30 Ed.2) Class A

Power supply 85…265 Vac / 120…300 Vdc, 600 Vp-n / 1000 Vp-p measurement

Type	Code	Size(mm)	Energy accuracy	Input current	Transistor output	Output relay	Digital inputs	Commu-nications	Protocol	PKR
CVM-A1500A-ITF-485-ICT2	[2] M563110000A00	144x144	0,2S (.../5A)	.../5 A, .../1 A, 250 mA	2	2	2	RS-485, Ethernet	Modbus/BACnet, webserver (HTTP), XML, HTML5	872,000

4-quadrant measuring unit with PowerStudio embedded. Built-in Datalogger module. Optional Modbus/TCP. See expansion modules and accessories (Sealing gaskets) for CVM-A / CVM-B. Energy accuracy for module... /5 A

CVM-A, Power quality analyzerswith recording of quality events and transients in accordance with (IEC 61000-4-30 Ed.2) Class A

Power supply 85…265 Vac / 120…300 Vdc, 600 Vp-n / 1000 Vp-p measurement

Type	Code	Size(mm)	Energy accuracy	Input current	Transistor output	Output relay	Digital inputs	Commu-nications	Protocol	PKR
CVM-A1500-ITF-485-ICT2	[*] M56311.	144x144	0,2S (.../5A)	.../5 A, .../1 A, 250 mA	2	2	2	RS-485, Ethernet	Modbus/BACnet, webserver (HTTP), XML, HTML5	630,000

4-quadrant measuring unit with PowerStudio embedded. Built-in Datalogger module. Optional Modbus/TCP. See expansion modules and accessories (Sealing gaskets) for CVM-A / CVM-B. Energy accuracy for module... /5 A

CVM-B, Power analyzer, colour display, panel mounted

Power supply 85…265 Vac / 120…300 Vdc, 600 Vp-n / 1000 Vp-p measurement

Type	Code	Size(mm)	Energy accuracy	Input current	Transistor output	Output relay	Digital inputs	Commu-nications	Protocol	PKR
CVM-B150-ITF-485-ICT2	[*] M56111.	144x144	0,5 S (.../5A)	.../5 A, .../1 A, 250 mA	2	2	2	RS-485	Modbus / BACnet	288,000
CVM-B100-ITF-485-ICT2	[*] M56011.	96x96	0,5 S (.../5A)	.../5 A, .../1 A, 250 mA	2	2	2	RS-485	Modbus / BACnet	235,000

4-quadrant measuring unit. See expansion modules and accessories (Sealing gaskets) for CVM-A / CVM-B

M-CVM-AB, Expansion modules for CVM-A and CVM-B

Type	Code	Transistor output	Output relay	Digital inputs	Analogue Inputs	Analog output	Commu-nications	Protocol	Memory	PKR
M-CVM-AB-8I-8OTR	[*] M56E01.	8	-	8	-	-	-	-	-	80,000
M-CVM-AB-8I-8OR	[*] M56E02.	-	8	8	-	-	-	-	-	85,000
M-CVM-AB-4AI-8AO	[*] M56E03.	-	-	-	4 (0/4 ... 20mA)	8 (0/4 ... 20mA)	-	-	-	103,900
M-CVM-AB-Modbus-TCP (bridge)	[*] M56E05.	-	-	-	-	-	Ethernet	Modbus/TCP (pasarela a RS485)	-	104,000
M-CVM-AB-Modbus-TCP (switch)	[*] M56E0A.	-	-	-	-	-	Ethernet	Modbus/TCP (pasarela a TCP)	-	105,000
M-CVM-B-DATALOGGER	[*] M56E06.	-	-	-	-	-	Ethernet	Webserver, Java, XML	200 MB	142,800
M-CVM-AB-MBUS	[*] M56E07.	-	-	-	-	-	M-BUS	MBUS	-	70,000
M-CVM-AB-LonWorks	[*] M56E08.	-	-	-	-	-	LonWorks	LonTalk, ISO/ IEC 14908, ANSI/ EIA 7091	-	85,000
M-CVM-AB-Profibus	[*] M56E09.	-	-	-	-	-	DB-9	ProfiBus	-	230,000

Module M-CVM-AB-8I-8OTR: Optocoupled transistor output

CVM-C10

Power analyzer for panel

Description

CVM-C10 Power Analyzer has more than 500 parameters which is for 96x96 mm panels with a compact energy log and four-quadrant measurement for both consumption and generation which can measure the following parameters;

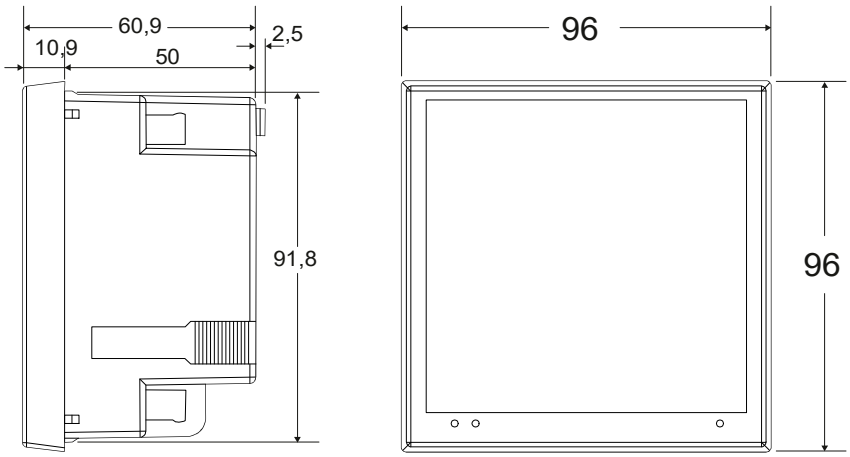
- V, A, M/KW, M/Kva, M/kvarL, M/kvarC, PF, φ, Hz, M/KWh, M/Kvarh, M/Kvah, M/KvarLh, M/KvarCh
- Vph-N, Vph-ph, Hours, Cost, kgCO2
- Harmonic V & I (up to the 31st order), THD V, THDA
- Maximum Demand (M/kW, M/kVA, A)
- Tariff selection for 3 different Resources
- Selection of tariffs with digital inputs. Perfect to calculate costs in three different work shifts.
- 2 digital inputs, used to select the tariff or detect the logic state of external signals.
- 2 relay outputs, configurable for alarms.
- 2 transistor outputs, configurable for impulses or alarms.
- Allows for tariff selection through communications.
- Precision class 0.5 in voltage and current; 1 in power and energy.
- Single-phase, two-phase, with and without neutral, balanced three-phase, with ARON measurements or unbalanced. Ranges up to 66kv.
- With two serial protocols: MODBUS RTU© and BACnet.

CVM-C10, Power analyzer, panel mounted 96 x96

96x96 panel - 85...265 Vac / 95...300 Vdc power supply, 300 Vp-n / 520 Vp-p measurement

Type	Code	Measuring Channels	Input current	Transistor output	Output relay	Digital inputs	Commu-nications	Protocol	Harmonics	PKR
CVM-C10-ITF-485-ICT2	[*] M55911.	3	.../5 A , .../1 A	2	2	2	RS-485	ModBus/BACnet	31	80,000

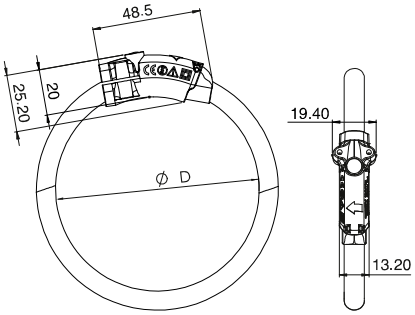
Dimensions



CVM-C10-Flex

Panel-mounted power analyser with flexible Rogowski sensors

Dimensions



Description

Compact and versatile power analyser, with 4-quadrant measurement (Consumption and Generation), suitable for High, Medium and Low-Voltage installations, since it can process high voltage:current transformation ratios of up to 2000 A. Measures current with flexible Rogowski sensors.

Capable of adapting to any type of electrical network topology, from single-phase lines, two-phase lines with or without neutral to three-phase lines with or without Neutral. The CVM-C10-Flex calculates the sensitivity of the measurement range scale automatically, according to the nominal value of the detected current, up to a full-scale of 2000 A. (Twice the full-scale value of measured current, 1000 A).

The flexible sensors feature a magnetic lock, which allows the sensors to be sealed. They are robust and can withstand frequent assembly and disassembly procedures, thanks to these magnetic lock.

Quick installation on distribution panels or switchboards of the unit, thanks to its flexible current sensors. Self-adjustment of the scale sensitivity. Does not require the current primary to be programmed. (1000 A by default, factory setting). Remote correction of errors associated with the incorrect connection of the unit to the electrical installation via remote communication systems (PowerStudio).

Display features and interface:
- Backlit keypad (capacitive)
- Analogue display for instantaneous parameters (power, maximum power reached and cos φ or PF)
- Backlit display
- Cost by tariff
- Operating time indicator for preventive maintenance.

The unit has the following functions:
- Recording of the energy consumption from three different sources: network, generator set or photovoltaic energy generation system.
- Selection of tariffs with digital inputs. Perfect for calculating costs in three different work shifts.

Applications

- Management Systems that require roaming measuring points.
- Distribution panels or switchboards that cannot stop the installation of a measuring unit.

CVM-C10, Power analyzer, panel mounted 96 x96

96x96 panel - 85...265 Vac / 95...300 Vdc power supply, 300 Vp-n / 520 Vp-p measurement

Type	Code	Measuring Channels	Input current	Transistor output	Output relay	Digital inputs	Commu-nications	Protocol	Harmonics	PKR
CVM-C10-FLEX-IN-485-I2	[*] M55963.	4	Rogowski	-	-	2	RS-485	ModBus/BACnet	31	80,000

4-quadrant measuring unit. Units with 4 measuring channels, 3 phase current inputs + neutral current input (configurable, 3 or 4 current channels)

FLEX-MAG, Flexible sensors for FLEX power analyzers

Type	Code	Measurement Range (A)	A Max.	Usefull diam.(mm)	Length	
FLEX-MAG70	[*] M818110041500	1000 A / 100 mV	2000	70	2 m	67,000
FLEX-MAG120	[*] M818120041500	1000 A / 100 mV	2000	120	2 m	67,000
FLEX-MAG70-5M	[*] M818110041900	1000 A / 100 mV	2000	70	5 m	68,000
FLEX-MAG120-5M	[*] M818120041900	1000 A / 100 mV	2000	120	5 m	68,000

CVM-C5

Multifunctional multimeter for panel

Description

The CVM-C5 has more than 200 electrical parameters and it is a panel mounted (96 x 96 mm) multi-meter that records energy values. Compact with 4-quadrant measurement for Consumption and Generation which can measure the following parameters;

- V, A, KW, Kva, kvarL, kvarC, PF, φ, Hz, KWh, Kvarh, Kvah, KvarLh, KvarCh
- Vph-N, Vph-ph, Hours, Cost, kgCO2
- THD V, THDA
- Maximum Demand (kW, kVA, A)
- Tariff selection for 2 different Resources
- Selection of tariffs with a digital input. Perfect to calculate costs in two

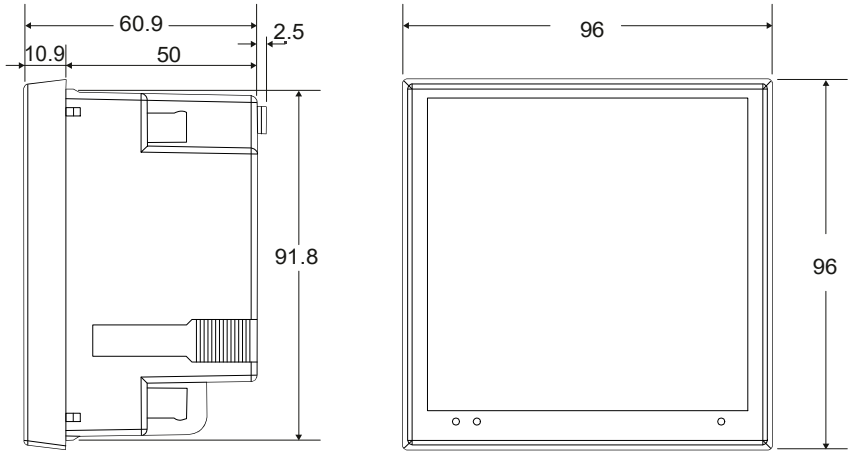
CVM–C5, Power analyzer, panel mounted 96x96

96x96 panel - 85...265 Vac / 95...300 Vdc power supply, 300 Vp-n / 520 Vp-p measurement

Type	Code	Measuring Channels	Input current	Transistor output	Digital inputs	Communications	Protocol	PKR
CVM-C5-ITF-485-C	[*] M55884.	3	.../5 A , .../1 A	1	0	RS-485	Modbus/RTU	65,000
CVM-C5-MC-485-C	[*] M55894.	3	.../250 mA	1	0	RS-485	Modbus/RTU	65,000
CVM-C5-mV-485-C	[*] M558940000V00	3	.../333 mV	1	0	RS-485	Modbus/RTU	65,000
CVM-C5-ITF-485-I	[*] M55885.	3	.../5 A , .../1 A	0	1	RS-485	Modbus/RTU	65,000
CVM-C5-MC-485-I	[*] M55895.	3	.../250 mA	0	1	RS-485	Modbus/RTU	65,000
CVM-C5-mV-485-I	[*] M558950000V00	3	.../333 mV	0	1	RS-485	Modbus/RTU	65,000

4-quadrant measuring unit. Can be used to program the voltage transformer ratio

Dimensions



CVM-CH8

Multifunctional multimeter for panel

Description

The CVM-CH8 has more than 150 electrical parameters and it is a panel mounted (96 x 96 mm) multi-meter that records energy values. Compact with 4-quadrant measurement for balanced and unbalanced loads which can measure the following parameters;

- Vph-N, Vph-ph, A, KW, Kva, kvarL, kvarC, PF, φ, Hz, KWh, Kvah, KvarLh, KvarCh
- THD V, THDA
- Universal Power AC and DC optional
- Default page selection
- Instantaneous, maximum and minimum parameter display
- Applied to the voltage from 1 to 100,000 V for primary and 1 to 999 V for secondary.
- Alarm control with full programming of the variable controlled maximum and minimum values and delay
- Control of instantaneous, maximum and minimum values of electrical parameters metered.
- RS-485 Modbus/RTU Communications.

CVM-CH8, POWER ANALYZER, Panel mounted 96X96

Power supply 85...265Vac/95...300Vdc, measurement 300 Vph-n/520ph-ph

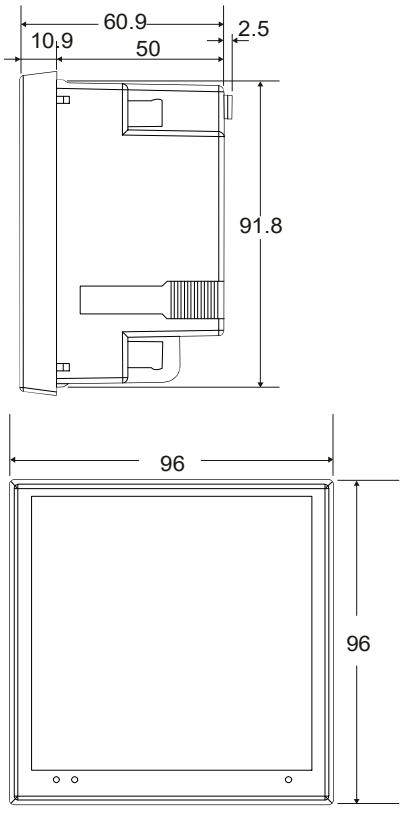
Current input	Outputs	Communication	Type	Code	Price Rs.
.../5 A	1	RS-485 MODBUS / RTU	CVM-CH8-ITF-485-C	M56811	50,000

Technical features

Power supply circuit	Power supply	85...265 V ac / 95...300 V dc
	AC Power supply frequency	50...60 Hz
	Maximum consumption (equipment with communications)	2,2 W
Metering circuit	Nominal voltage	300 Vac (Ph-n) / 520 Vac (Ph-Ph)
	Frequency	45...65 Hz
	Nominal current	I_n .../ 5 A
	Current consumption of the circuit	0,75 V·A
	Overload (permanent)	1,1 I_n
Class/Accuracy	Voltage	0,5 % ± 1 digits
	Current	0,5 % ± 1 digits
	Power rating	1 % ± 2 dígitos
	Active energy	Class 1 - EN 62053-21 (*)
	Reactive energy	Class 2 - EN 62053-23 (*)
Ambient conditions	Operating temperature	-10 ... +50 ºC
	Relative humidity	5 ... 95%
Output transistor	Optoinsulated (collector open) NPN	
	Maximum switching voltage	24 Vdc
	Maximum switching current	50 mA
	Maximum impulse frequency	5 impulse / s
	Duration of the impulse	100 ms
Build features	Type of box	VO self-extinguishing plastic
	Degree of protection	Fitted unit (frontal): IP 51
	Dimensions	96 x 96 x 63 mm
Safety	Designed for CAT III 300/520 Vac installations, in accordance with EN 61010. Double-insulated electric shock protection, class II	
Standards	IEC 664, VDE 0110, UL 94, IEC 801, IEC 348, IEC 571-1, EN 61000-6-3, EN 61000-6-1, EN 61010-1	

(*) in device measurement range

Dimensions



MB Series Powerful Power Meters

MB03V (Volt Meter)

Digital meter for voltage measurement

- Digital meter for current measurement (V_{L1}, V_{L2}, V_{L3})
- Valid for installations with star (wye), delta (d) and single phase systems
- True root mean square (TRMS) measurement
- Auto scalable visualization
- Setup protection by password
- Accuracy class 1

Type	Code	Price Rs.
MB03V	MB0101	7,000

MB03A (Amp Meter)

Digital meter for current measurement

- Digital meter for current measurement (A_{L1}, A_{L2}, A_{L3})
- Valid for installations with star (wye), delta (d) and single phase systems
- True root mean square (TRMS) measurement
- Auto scalable visualization
- Setup protection by password
- Accuracy class 1

Type	Code	Price Rs.
MB03A	MB0102	7,000

MBVAF (Voltage, Current, Frequency Meter)

Multifunction meter

- Voltage, Current and Frequency measurement
- Valid for installations with star (wye), delta (d) and single phase systems
- True root mean square (TRMS) measurement
- Measurement upto 13 electrical parameters simultaneously
- Auto scalable visualization
- Accuracy class 1

Type	Code	Price Rs.
MBVAF	MB0103	11,000

MB0DE (Voltage, Current, KiloWatt, KiloWattHour, PowerFactor)

Powerful Power Meter

MB0DEP
Power Meter
+ RS-485

- Voltage, Current, Frequency, Active Power, PF and Energy measurement
- Measurement upto 13 electrical parameters simultaneously
- Valid for installations with star (wye), delta (d) and single phase systems
- Dual source input, to measure second energy value (grid + genset)
- Setup protection by password
- Auto scalable visualization
- Accuracy class 1

Type	Code	Price Rs.
MB0DE	MB0106	24,000
MB0DEP	MB0107	30,000

CVM-E3-MINI Three-phase power analyzer for DIN rail

Description

Three-phase power analyzer (balanced and unbalanced) for mounting on DIN rail, very compact, with measurements in 4 quadrants.

Other features:

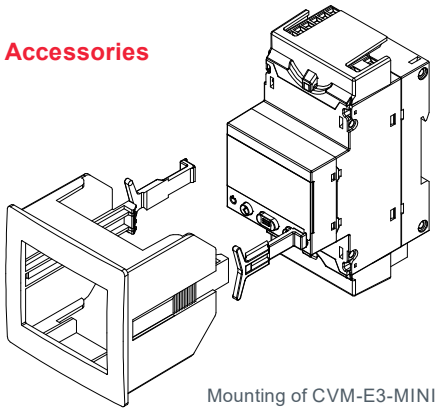
- Current measurement .../5 or .../1 A or .../250 mA *
- With ITF technology: ITF galvanic insulation protection
- DIN rail with only 3 modules
- High-contrast backlit display
- 72 x 72 mm panel mounting with front adapter
- RS-485 communication (Modbus/RTU up to 57.6 kbps) (Bacnet up to 38.4 kbps)
- One transistor output (programmable)
- One digital input for selecting tariff or logic states
- Sealable terminal cover
- Harmonic display (V, A) up to 31º

CVM-E3-MINI with front adapter (72 x 72)

Applications

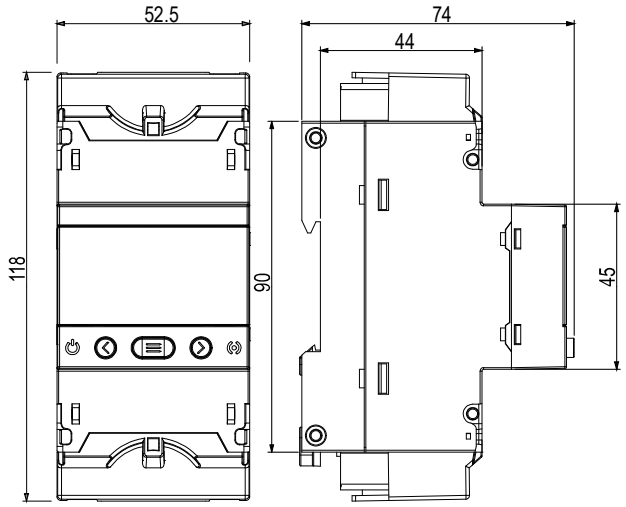
- Control application in low- and medium-voltage distribution panels and switchboards where it is necessary to place an analyzer on the DIN rail due to problems of space.
- Alarm control. Maximum value, minimum value and programmable delay.
- Control of active or reactive energy by impulse output.
- Capture of maximum and minimum instantaneous data of electrical parameters measured.

Accessories



Mounting of CVM-E3-MINI adapter 72x72 mm

Dimensions



CVM-E3-MINI, Power analyzer, three-phase DIN rail

Type	Code	Insulated input	Input current	Transistor output	Digital inputs	Communications	Protocol	Harmonics	PKR
CVM-E3-MINI-ITF-485-IC	[*] M56414.	*	.../5 A , .../1 A	1	1	RS-485	Modbus-RTU/BACnet	31	88,000
CVM-E3-MINI-MC-485-IC	[*] M56424.	*	.../250 mA	1	1	RS-485	Modbus-RTU/BACnet	31	88,000
CVM-E3-MINI-FLEX-485-IC	[*] M56454	*	Rogowski	1	1	RS-485	Modbus-RTU/BACnet	31	88,000

Type	Code	Description	
ADAPT.PANEL CVM-E3-MINI	[*] M5ZZF100000E3	Panel adapter CVM-E3-MINI (72 x 72)	3,000

FLEX-MAG, Flexible sensors for FLEX power analyzers

Type	Code	Measurement Range (A)	A Max.	Usefull diam.(mm)	Length
FLEX-MAG70	[*] M818110041500	1000 A / 100 mV	2000	70	2 m
FLEX-MAG120	[*] M818120041500	1000 A / 100 mV	2000	120	2 m
FLEX-MAG70-5M	[*] M818110041900	1000 A / 100 mV	2000	70	5 m
FLEX-MAG120-5M	[*] M818120041900	1000 A / 100 mV	2000	120	5 m

CVM-NET4+

Multi-channel power analyzer for DIN rail - no display

Description

CVM-NET4+ is a multi-channel power analyzer designed to measure balanced or unbalanced three-phase networks and to measure single-phase networks. Its versatile configuration options enable you to take measurements in single-phase systems, three-phase systems or a combination of both. It has a single three-phase voltage input combined with 12 single-phase channels to measure the current from the MC efficient current transformers .

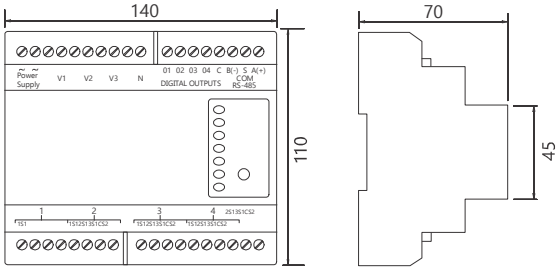
Its main features include:

- Assembly on DIN rail
- Compact size (6 DIN rail modules)
- Measurement of up to 12 single-phase channels or combined single-phase and three-phase current channels.
- Current measurement using efficient MC series transformers (.../250 mA)
- RS-485 Communications (Modbus/RTU)
- 4 programmable digital outputs for alarms or impulses
- Compatible with PowerStudio /PowerStudio SCADA/ PowerStudio SCADA Deluxe software.

Applications

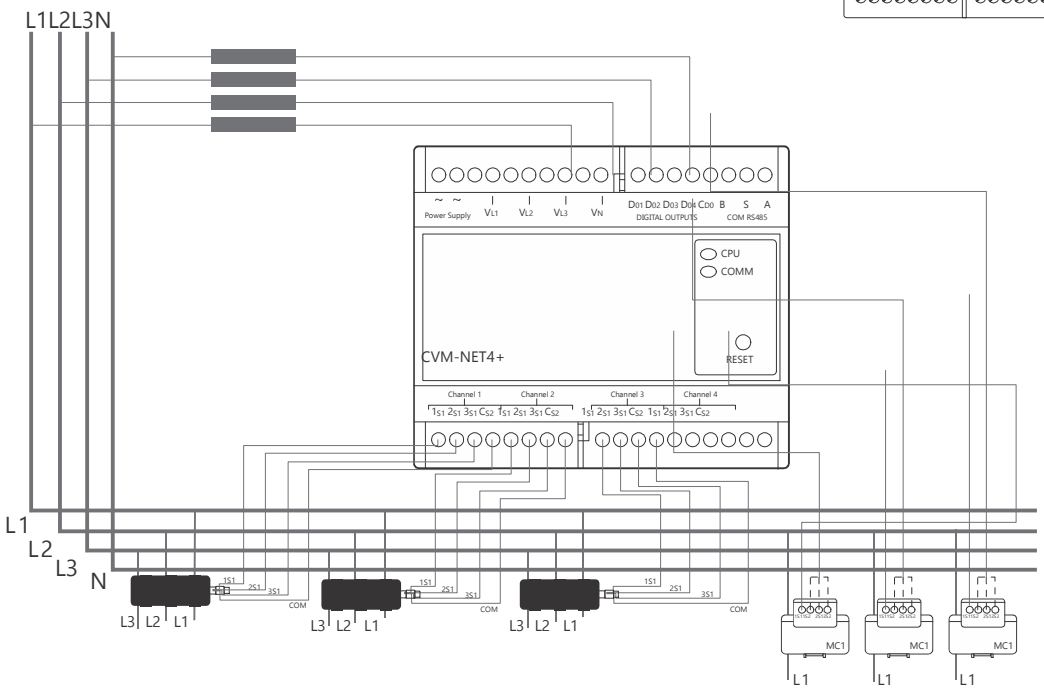
- Measurement of electrical parameters in multi-channel installations, such as data processing centres and switchboards of single-phase loads.
- Simultaneous measurement at 4 different points in three-phase installations
- Its compact size is perfect for assembly on electric panels

Dimensions



Connections

Combined three-phase and single-phase channel connections



CVM-NET4+, Power analyzer, 4 analyzers in a single unit, DIN rail

Unit without display, DIN rail (6 modules) - 85...265 Vac / 95...300 Vdc Power supply

Type	Code	Input current	Transistor output	Communications	Protocol	Harmonics	PKR
CVM-NET4+-ITF-MC-RS485-C4	[*] M55782.	.../250 mA	4	RS-485	Modbus/RTU	15º	322,000

Requires the installation efficient transformers of the MC series. Not included in the price Configurable, 4 three-phase channels to 12 single-phase channels

CVM-1D

Single-phase power analyzer, DIN rail

Description

Power analyzer for single-phase circuits, up to 32 A. Features an LCD display with a rotating screen system, showing a total of 24 instantaneous, maximum and minimum electrical variables. It has been designed in an enclosure with only 1 DIN module (18 mm). The compact size of the analyzer allows it to be installed on any electric panel. The unit has the Modbus/RTU (RS-485) protocol and is compatible with the PowerStudio management software.

Other features include:

— Sealable
— Six-digit LCD display
— RS-485 Modbus/RTU communication
— Programmable alarm or impulse output
— Measurement in four quadrants
— Model with MID certification

Applications

— Control application in switchboards and low- and medium-voltage connection points, where an analyzer must be installed on a DIN rail due to space restrictions.
— Alarm control; the variable to be controlled, the maximum and minimum values, and the delay are fully programmable.
— Control of active or reactive energy using the impulse output.
— Capture of instantaneous, maximum and minimum data of the electrical parameters measured.

Technical features

Power circuit	Single-phase power supply	230 Vac ± 20%
	Power supply frequency	50 / 60 Hz
	Power supply use	1.5 VA
Measurement circuit	Rated voltage (P-N)	184...276 Vac
	Frequency	50 / 60 Hz
	Nominal current	5 A
	Minimum current	20 mA
	Maximum current	32 A
Accuracy class	Voltage	0.5% ± 1 digits
	Current	0.5% ± 1 digits
	Power	1% ± 1 digits
	Active energy (optional)	Class B (EN 50470) MID
	Reactive energy	Class 2 (IEC 62053-23) MID
Output transistors	Type: Isolated transistor	Open NPN collector
	Maximum operating voltage	35 Vdc
	Maximum operating current	50 mA
	Maximum frequency	5 impulses / s
	Impulse duration	100 ms (configurable)
	Insulation	3.7 kV RMS / 1 min
Environmental conditions	Operating temperature	-10 °C...+50 °C
	Relative humidity (without condensation)	5%...95%
	Altitude	2,000 m
Communications	Type	RS-485
	Protocol	Modbus / RTU
Build features	Type of box	V0 self-extinguishing plastic
	Protection degree	IP 31
	Dimensions	17.5 x 90 x 71.6 mm (1 module)
Safety	EN 61010 Double-insulated electric shock protection, class II	
Standards	IEC 664, VDE 0110, UL94-V0, EC 801, IEC 348, IEC 571-1, Class B EN 50470-3 Active Energy, Class 2 EN 62053-23 Reactive Energy, EN 50470-1, EN 61010, EN 61000-4-3, EN 61000-4-4, EN 61000-6-4, EN 55022	

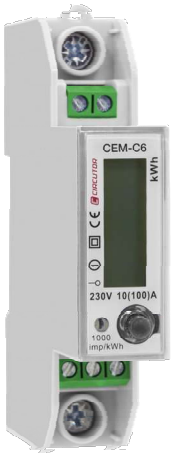
CVM 1D, Power analyzer, single-phase DIN rail - Power Supply 88...276

Type	Code	Nominal Current	Class Power	Digital Outputs	Protocol	Communication	Price Rs.
CVM 1D-C	[*] M55510	250 mA...32 A	1	1	-	-	22,000
CVM 1D-RS485-C	[*] M55511	250 mA...32 A	1	1	Modbus/RTU	RS-485	30,000

Single-phase, 4-Quadrants measurement equipment

CEM-C6

Single-phase electrical energy meter, for assembly on DIN Rail



Description

CEM-C6 is a single-phase electrical energy meter that can measure up to 100 A, is capable of measuring energy in two directions and has Class 1 accuracy. In addition, the meter features a built-in RS-485 / Modbus RTU communication system.

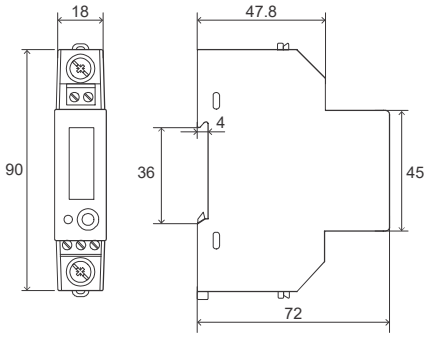
Other features:

- Complies with the IEC 62052-11 and IEC 62053-21 standards (general and specific requirements of measuring units)
- Compact dimensions (1 DIN rail module, 18 mm)
- Backlit LCD display (6 digits) with a scrolling screen system used to display the electrical parameters (V, A, kW, kvar, kVA, kWh and cos φ).

Applications

- Measurement of the consumption of electricity in buildings, machinery or the tertiary sector.
- Control of consumption with a multi-tariff function, to measure the consumption of each period
- Energy consumption is reported to a remote system.

Dimensions



Technical features

Power circuit	Rated voltage	230 V_{ac}
	Frequency	50...60 Hz
	Consumption	0.4 Wh / ≤ 8 VA
Voltage measurement circuit	Connection	Single-phase
	Reference voltage	230 V_{ac}
	Frequency	50 / 60 Hz
	Self-consumption	0.4 Wh / ≤ 8 VA
Current measurement circuit	Nominal current I_n	10 A
	Maximum current	100 A
	Self-consumption	< 0.1 % of I_n
Accuracy	Class 1 (IEC 62053-21)	
LED constant	1000 imp/kWh	
Environmental features	Operating temperature	-25...+65ºC
	Relative humidity	95% without condensation
	Maximum altitude	2000 m
Build features	Enclosure material	ABS + Self-extinguishing polycarbonate
	Protection degree	IP 51 Installed
	Dimensions	18 x 90 x 72 mm
	Weight	100 g
Standard	IEC 62052-11, IEC 62053-21	

CEM-6, Single-phase energy meter with basic analyser parameters

Type	Code	Measurement Range (V)	Input current	System	Power supply	Certification	Communications	Phases order	Módules	PKR
CEM-C6	[*] Q26112.	1 x 230	10 (100) A	Single-phase	230 Vac	IEC	RS-485	Direct	1	48,800
CEM-C6-MID	[*] Q26115.	1 x 230	10 (100) A	Single-phase	230 Vac	MID	RS-485	Direct	1	53,000
CEM-C6-110	[1] Q261120010000	1 x 110	10 (100) A	Single-phase	110 Vac	IEC	RS-485	Direct	1	48,000

Parameters measured: V, A, kW, kWh, kvar, kvarh, PF - Frequency: 50/60 Hz

CEM-C21

Three-phase electrical energy meter with direct measurement, assembly on DIN rail

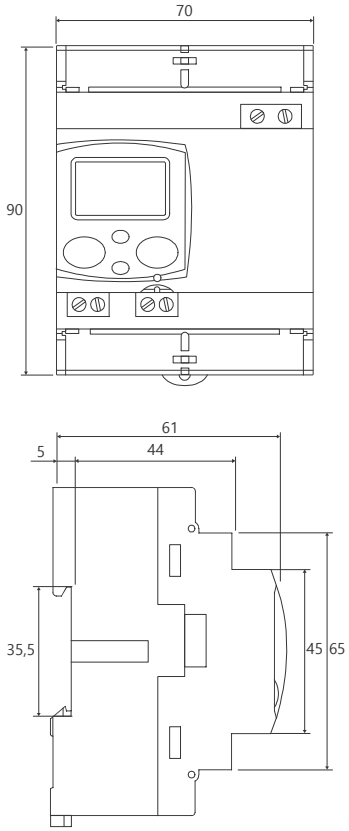
Description

Three-phase electrical energy meter for direct measurements of up to 65 A. Built-in LCD display (7 digits) with rotating screen system. Features built-in RS-485 communications. Also features 2 buttons (1 sealable button) for viewing all the measured information.

Other features include:

- Class 1 active energy, Class 2 reactive energy
- Complies with the IEC 62052-11 standards (international standards)
- Compact size (4 modules, 72 mm)
- Resettable partial meter
- 1 programmable impulse output, in accordance with DIN 43864
- Indicates bad connections on the screen
- Energy storage, even in the case of bad connections

Dimensions



Applications

- Redundant meter for verifying the energy allocated by the energy provider.
- Energy consumption report sent to a remote system (PLC/BMS).
- Cost control for achieving a high consumption/unit ratio in industrial processes.
- Display of electrical parameters (V, A, kW, kW·h, PF, etc.), per phase and three-phase.

Technical features

Power circuit	Rated voltage	230 Vac / 127 Vac, depending on the model
	Tolerance	± 20%
	Frequency	50...60 Hz
	Consumption	< 2 W / 10 VA
Voltage measurement circuit	Connection	Three-phase
	Reference voltage	3 x 127/220...3 x 230/400 Vac
	Frequency	50 / 60 Hz
	Self-consumption	< 2 W / 10 VA
Current measurement circuit	Nominal current I_n	5 A
	Maximum current	65 A
	Self-consumption	< 0.1% of I_n
Accuracy	Active Energy	Class 1 (IEC 62053-21)
	Reactive Energy	Class 2.0 (IEC 62053-23)
Communications	Hardware	RS-485
	Protocol	Modbus
	Baud rate	9600, 19200, 38400 bps
Impulse output	Type	Optocoupled
	Electrical features	max. 24 Vdc 50 mA
Environmental features	Operating temperature	-25 °C...+70 °C
	Relative humidity	5%...95% without condensation
Mechanical features	Protection degree	IP 51 installation / IP 40 terminals
	Dimensions	70 x 90 x 64 mm
	Weight	340 g
	Material	ABS + V0 self-extinguishing polycarbonate
Standards	EN 50470-1, EN 50470-3, IEC 62052-11, IEC 62053-21, IEC 62053-23	

CEM-C31

Three-phase electrical energy meter with indirect measurement, assembly on DIN rail

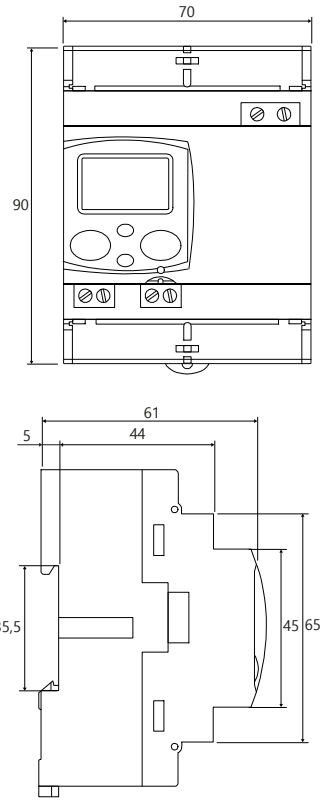
Description

Three-phase electrical energy meter with indirect measurement, 5(10)A. Built-in LCD display (7 digits) with rotating screen system. Features built-in RS-485 communications. Also features 2 buttons (1 sealable button) for viewing all the measured information.

Other features include:

- Class 1 active energy, Class 2 reactive energy
- Complies with the IEC 62052-11 standards (international standards)
- Compact size (4 modules, 72 mm)
- Resettable partial meter
- 1 programmable impulse output, in accordance with DIN 43864
- Indicates bad connections on the screen
- Energy storage, even in the case of bad connections

Dimensions



Applications

- Redundant meter for verifying the energy allocated by the energy provider.
- Energy consumption report sent to a remote system (PLC/BMS).
- Cost control for achieving a high consumption/unit ratio in industrial processes.
- Display of electrical parameters (V, A, kW, kW·h, PF, etc.), per phase and three-phase.

Technical features

Power circuit	Rated voltage	230 Vac / 127 Vac, depending on the model
	Tolerance	± 20%
	Frequency	50...60 Hz
	Consumption	< 2 W / 10 VA
Voltage measurement circuit	Connection	Three-phase
	Reference voltage	3 x 57/100...3 x 230/400 Vac
	Frequency	50 / 60 Hz
	Self-consumption	< 2 W / 10 VA
Current measurement circuit	Nominal current I_n	5 A
	Maximum current	10 A
	Self-consumption	< 0.1% of I_n
Accuracy	Active Energy	Class 1 (IEC 62053-21)
	Reactive Energy	Class 2.0 (IEC 62053-23)
Communications	Hardware	RS-485
	Protocol	Modbus
	Baud rate	9600, 19200, 38400 bps
Impulse output	Type	Optocoupled
	Electrical features	max. 24 Vdc 50 mA
Environmental features	Operating temperature	-25 °C...+70 °C
	Relative humidity	5%...95% without condensation
Mechanical features	Protection degree	IP 51 installation / IP 40 terminals
	Dimensions	70 x 90 x 64 mm
	Weight	230 g
	Material	ABS + V0 self-extinguishing polycarbonate
Standards	EN 50470-1, EN 50470-3, IEC 62052-11, IEC 62053-21, IEC 62053-23	

CEM-C, Three-phase energy meter

Type	Code	Measurement Range (V)	Input current	Tariff	Transistor output	Digital inputs	Certification	Communications	Módules	PKR
CEM-C21	[*] Q22332.	3 x 127/220...3 x 230/400	5 (65) A	1	1	-	IEC	RS-485	4	99,000
CEM-C31	[*] Q23442.	3 x 57/100...3 x 230/400	.../ 5 (6) A	1	1	-	IEC	RS-485	4	99,000
CEM-C21-DS	[*] Q22333.	3 x 127/220...3 x 230/400	5 (65) A	2	-	1	IEC	RS-485	4	99,000
CEM-C31-DS	[*] Q23443.	3 x 57/100...3 x 230/400	.../ 5 (6) A	2	-	1	IEC	RS-485	4	99,000

Parameters measured: V, A, kW, kWh, kvar, kvarh, PF - Frequency: 50/60 Hz

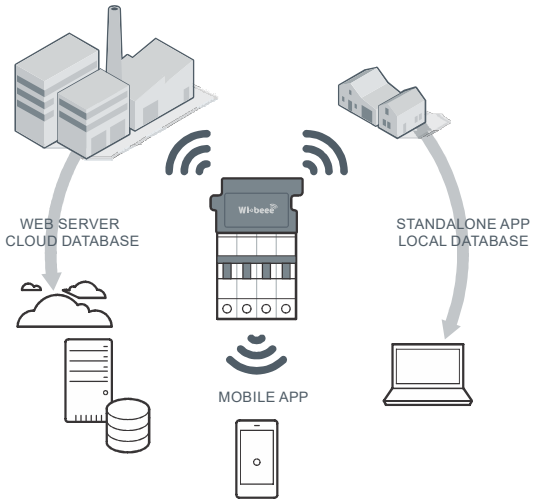
Wibeee

Consumption analyzer

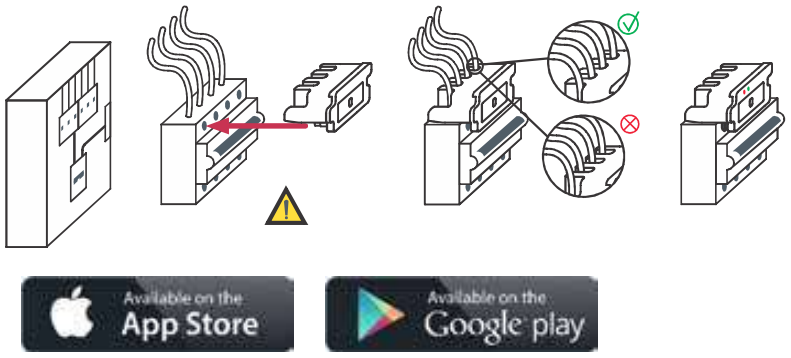
Description

Wi-beee is a unit that monitors and gathers electrical data with the purpose of achieving the responsible and efficient control of energy consumption. It is easily installed and fixed with a "clip", based on the DINZERO patented system. This system can be used for easy installation of the unit on the top and bottom of an MCB (Miniature Circuit Breaker). After installation, it will start converting the measured parameters into information that will be sent via a Wi-Fi wireless

Wi-beee can be installed on any single or three-phase supply point of the installation (consumption < 63 A), helping you detect any conflicting point in which energy is not being efficiently used. Its ease of use and installation makes it an excellent choice for controlling the consumption in the residential, tertiary or small and medium-scale industry sectors.



Installation method



Wibeee, Consumption analyzers

Type	Code	A Max.	System	Measure	Communications	Protocol	PKR
Wibeee-M-L	[*] M57010.	70	Single-phase	N-L	Wifi	HTTP / ModbusTCP / XML	60,000
Wibeee-M-R	[*] M57011.	70	Single-phase	L-N	Wifi	HTTP / ModbusTCP / XML	60,000
Wibeee-T-L	[*] M57020.	70	Three-phase	N-LIII	Wifi	HTTP / ModbusTCP / XML	120,000
Wibeee-T-R	[*] M57021.	70	Three-phase	LIII-N	Wifi	HTTP / ModbusTCP / XML	120,000
Wibeee-3P	[*] M57022.	70	Three-phase	LIII	Wifi	HTTP / ModbusTCP / XML	120,000

Wibeee Max, Consumption analyzers

Type	Code	Clamp	A Max.	System	Measure	Communications	Protocol	PKR
Wibeee Max	[*] M57023.	FLEX Wibeee25	350 / 700	Three-phase	Config.	Wifi	HTTP / ModbusTCP / XML	338,000
Wibeee Max Plus	[*] M57024.	FLEX Wibeee54	100 / 1000 / 5000	Three-phase	Config.	Wifi	HTTP / ModbusTCP / XML	360,000

Current sensor included

Accessories for WibeeeMAX

Type	Code	Description	Input current	PKR
FLEX Wibeee14	[*] M570B1.	Flexible clamp for only Wibeee Max (14 cm length)	350-700 A	23,000
FLEX Wibeee25	[*] M570B2.	Flexible clamp only for Wibeee Max (25 cm length)	350-700 A	30,000
FLEX Wibeee54	[*] M570B3.	Flexible clamp only for Wibeee Max Plus (54 cm length)	100-1000-5000 A	30,000
B-Wibeee	[*] M570A2.	Wibeee Max carrying case	-	27,300
DIN-Wibeee	[*] M570A3.	Wibeee Max DIN accessory	-	5,200

EDS

Efficiency Data Server

Description

EDS is an energy manager equipped with PowerStudio Embedded and a built-in web and XML server, which enables the user to query any electrical variable by connecting the metering equipment to its RS-485 bus without having to install any software. Thanks to the RS-485 expansion bus, the user can view any variable from the units connected to the bus and can even display information in real time, in table or graphic format (data logger). There are 8 voltage-free digital inputs and 6 programmable relay digital outputs. Its most salient features include:

- Parameterisation and management of automatic events
- Alarm recording system and system event management
- E-mail alarms.
- RS-485 port for connecting up to 5 CIRCUTO R devices.
- Ethernet connection
- Centralisation of alarms through detection of logical states or centralization of consumption by impulses.

Applications

Domestic application:

— EDS can be used to control the partial consumption of each load in a domestic installation.
— Control of domestic consumption.
— Compare your consumption with that of the energy marketer.
— Rationalisation of home consumption.

SME/Industrial application:

— EDS facilitates the control of partial consumptions of the different single-phase and three-phase loads during productive and non-productive periods.
— Control the consumption of your installation 24/365 and locate residual consumption during non-production periods.
— Check the power level contracted in the installation.
— Supervise the level of harmonics and the reactive load of your installation.
— Alarms for consumption or incidents in your electrical network.
— No need for a computer
— Possibility of connection when specified: the system acts automatically.
— Provides information about your bill before you receive it.

Multi-point application:

— Multi-point application: in the case of load distribution (or remote installations) EDS can control the individual consumption of each of the installations and centralise them into a single one.
— Efficient, easy and simple control of the consumption of your remote sites.
— Energy reports per consumption zone or site
— Remote alarms for excess consumption or incidents in the electrical network.
— Possibility of comparing consumption for each site.

EDS-3G

3G Efficiency Data Server

Description

The EDS-3G is a device that offers the same features as its predecessor, the EDS. The EDS-3G features PowerStudio Embedded management software, with a web server and Ethernet connection, in addition to a brand-new feature that lets you connect via a built-in 3G router. This new connectivity lets you establish wireless communication with points that have no possibility of having an ADSL connection, in order to access the information stored by the EDS-3G or to incorporate it into a superior energy management system, such as PowerStudio Scada . Its most salient features include:

- Parameterisation and management of automatic events
- Alarm recording system and system event management
- E-mail alarms.
- RS-485 port for connecting up to 5 CIRCUTO R devices.
- Ethernet connection
- 3G connection
- Centralisation of alarms through detection of logical states or centralization of consumption by impulses.

Applications

Remote application without Internet access:
— With EDS-3G you can control the partial consumption of each of the loads in an installation that is located in a place with difficult access and where it is difficult to provide ADSL connections. Its built-in 3G router enables connection to this equipment.
— Efficient, easy and simple control of the consumption of your remote sites where connection is difficult
— Know the value of leakage currents and the status of earth leakage relays
— Energy reports per consumption zone or site
— Remote alarms for excess consumption or incidents in the electrical network
— No need for a computer

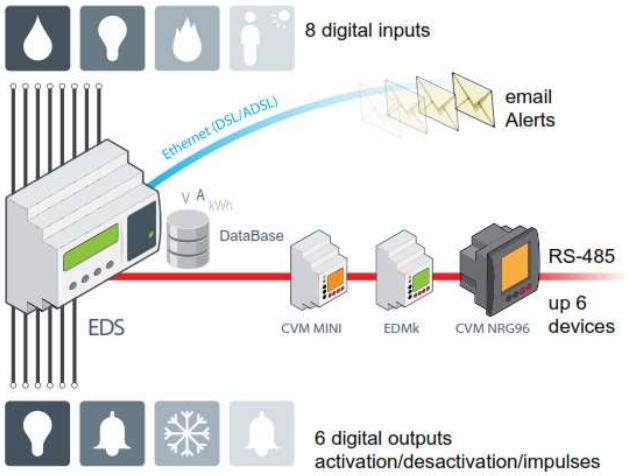
Multi-point application without ADSL connection:
— In a distribution of loads (or remote installations) without an Internet connection or where a VPN (Virtual Private Network) is not available, the EDS-3G lets you control the individual consumption of each of the installations and centralize them in one, using the 3G connection.
— Efficient, easy and simple control of the consumption of your remote sites
— Energy reports per consumption zone or site
— Remote alarms for excess consumption or incidents in the electrical network.
— Possibility of comparing consumption for each site.
— No need for a computer
— Possibility of connection when specified: the system acts automatically.
— Supervise the level of harmonics and the reactive load of your installation.

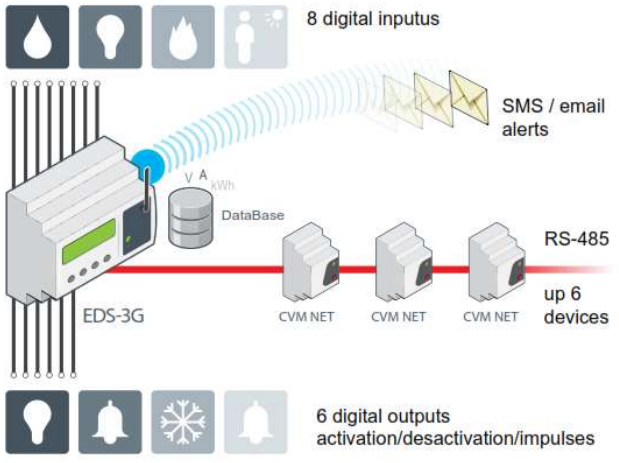
EDS, Energy manager with powerStudio and built-in web server
(Efficiency Data Server) - Remote energy manager with PowerStudio Embedded technology

Type	Code	Output relay	Digital inputs	Communications	Protocol	PKR
EDS	[*] M61010.	6	8	Ethernet	Modbus Circutor	268,500
EDS -Deluxe	[*] M61020.	6	8	Ethernet	Modbus / XML	318,990
With 3G communications						
EDS-3G	[*] M61012.	6	8	Ethernet /3G	Modbus Circutor	410,800
EDS-3G_Deluxe	[C] M61022.	6	8	Ethernet /3G	Modbus / XML	457,000

Energy device with embedded PowerStudio technology: Built-in web and XML server, RS-485 Modbus expansion bus, Ethernet 10/100 Base/TX connection, 6 modules mounted on a DIN rail

Type	Code	Description	PKR
Accessories antennas			
GXS2	[*] M610A1.	Antenna 4 GHz, 2,14 dBi + cable 5 m	39,516
GC2	[*] M610A2.	Antenna 4 GHz, 2,2 dBi antibanda	70,300





TCP1RS+

RS-485 to Ethernet Modbus converter

Description

TCP1RS+ is a gateway used to convert from the Ethernet physical environment to Rs485. The parameters of the unit can be fully customised using the software provided, configuring any parameter relating to the Ethernet or serial communication ports. In structured environments, the unit can work in different addressing modes: static IP or through DHCP assignment if the application requires it. In the Ethernet physical environment, the unit can be configured in encapsulated TCP, UDP and even Modbus/TCP in multi-master mode.

Other features include:
— Multi-range power supply (196...253 Vac)
— Attached to DIN rail (2 modules)

TCP1RS+ Communication convertor RS485 to Ethernet

TCP1RS+	[*] M62121	RS-485 / Ethernet modbus/TCP Converter	Rs. 76,134

Communication accessories

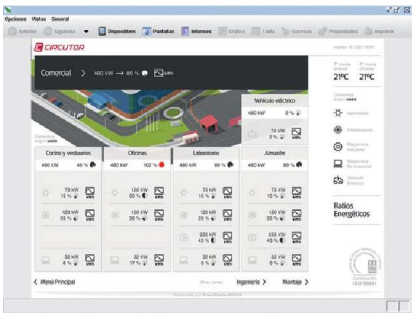
RS2RS/ TCP1RS+/ TCP2RS+, Communication converters

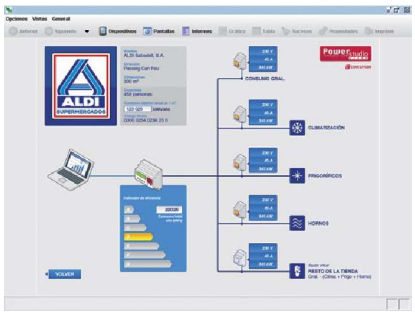


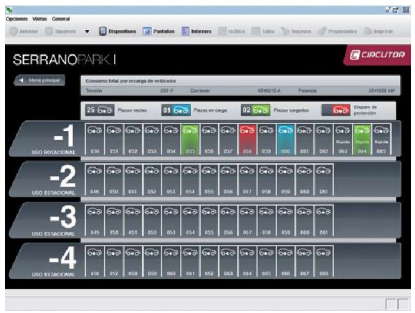
Type	Code		Price Rs.
RS2RS	[*] M62141	RS-232/485 Intelligent converter and amplifier (RTS control) for PC	75,000
USB-RS485 conv.	[*] M54040	USB to RS-485 Converter	51,515
USB-RS232 conv.	[*] M54050	USB to RS-232 Converter	50,380
TCP1RS+	[*] M62121	RS-485 / Ethernet modbus/TCP Converter	76,134
TCP2RS+	[*] M54033	RS-232/485 Converter / Ethernet Modbus/TCP. Built-in web server and web set-up	176,070
CMBUS-8	[*] M540A0	M-Bus to Modbus Converter, up to 8 Mbus slaves	139,982
CMBUS-24	[*] M540B0	M-Bus to Modbus Converter, up to 24 Mbus slaves	322,107

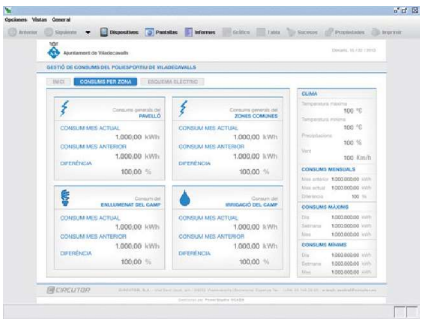
PowerStudio SCADA

Energy management, control and supervision software









Description

Due to the diversity and number of devices making up an installation, which may also be interconnected, it is important to be able to see and update different parameters of different devices on a single screen at the same time. PowerStudio SCADA is designed to allow any user to create their own customized screens and reports to according to their needs.

PowerStudio SCADA is software that processes data obtained from devices to create reports, with the purpose of adopting the adequate corrective or preventive measures during the installation. All in all, this *software* enables the integration of CIRCUTOR's equipment for its management, such as the CVM power analyzers, multifunction energy meters CIRWATT, protection devices, signal processing equipment, automatic load control by relays.

PowerStudio SCADA has an XML server which adapts perfectly to modern internet technology. Also offers the possibility of adding an OPC server or an SQL Data Export by way of the corresponding modules

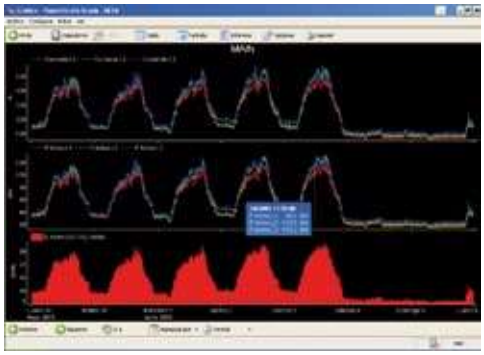
PowerStudio is a simple, powerful and user-friendly software application, enabling the following:

- Complete energy studies
- Production ratios (energy consumption per unit produced)
- Power quality management
- Arrangement of the information obtained in graphic and table format
- It enables complete energy monitoring of power analyzers, meters, earth leakage relays and total control of various magnitudes in the industrial process field.

PowerStudio, in conjunction with CIRCUTOR equipment and systems, adapts to your particular needs by providing tools for the supervision and control of your installations.

Applications

- Passing parameters to equipment remotely
- Real-time display of parameters
- Historical record and comparison of usage
- Display of historical records with tables and graphics
- Printing graphics and tables
- Multi-position *Software* (Web server) through static screens
- Built-in XML server
- Great versatility and very simple use
- Internet access with *password* and option to create access profiles
- OPC server options and **SQL Data Export** with the corresponding module



Energy Management Software

PowerVision, Energy management software

Type	Code	Description	PKR
Data management software			
PowerVisionPlus	[*] M90413.	Software for reading, downloading and processing files for devices equipped with memories (depending on type). Elaboration of graphs and tables from information. Automatic downloading for QNA Power Quality Analyzers. Other related units: AR5, AR5-L, QNA, CLP, CVM-BD M, CIR-E3 and AR6 series	80,000

PowerStudio, Energy management software

Type	Code	Description	PKR
Software SCADA			
PowerStudio	[*] M90211.	Energy supervision software for buildings and industrial installations, with the possibility of viewing reports, layouts and single-line diagrams. Other functions include: • Remote parameterisation of the units • Real-time display of parameters • Recording and printout of logs in table or graphic format • Multi-station Web Server and integrated XML Server • Creation of access users and profiles for the application with user name and password • Great versatility and very simple use • Compatible with OPC software for PS/PSS • Custom event configuration (Alarms, Calculations, Sending Emails) • Construction of customised screens • Possibility of performing control actions on the units • Report generator and energy bill simulator module, Possibility to emulate tariffs or time periods • Parameterisation of custom calculations to obtain EnPIs • Comparison of historical data stored in the system • Management of multi-point remote systems in combination with EDS and EDS-3G data servers • Compatible with the 32 and 64-bit Windows 7 and 8 platforms	200,000
PowerStudio-Scada	[*] M90231.	Energy monitoring software for industrial buildings and installations. It allows each installation to be controlled, providing the power line status in real time and first-hand, as well as the general consumption of the installation both at low and medium voltage. Its main features are: • Configuring CIRCUTOR units connected to the communications network • Displaying the parameters from the measuring units installed on site in real time • Creating databases • Recording and searching the historical data stored on a computer in graphical or table format • Built-in XML server • Exporting to text files and spreadsheets • Access to information through a conventional Internet browser	800,000
PowerStudio-Deluxe	[C] M90241.	In addition to the performance features offered by the standard module, Power Studio Scada, Deluxe can: • Generic Modbus driver used to connect to other devices available in the market • RS485 with Modbus/RTU protocol (driver composition). • Transparent Ethernet connections with the UDP, TCP and Modbus/TCP protocols • Variables to be integrated must have a hexadecimal format. • Acquisition of data with the OPC/DA protocol (real-time data). • Connection and display of video surveillance cameras with an IP connection (no recording functions). • Connection of PSSDs in cascade. • Generic driver used to download meters with the IEC 870 protocol (standard ASDUS) • Global integration of remote PowerStudio applications in a single server • Compatible with 64-bit Windows platforms • Compatible with OPC software for PS/PSS	2,999,000
OPC Server PS/PSS	[1] M91111.	OPC Sever for PowerStudio is an integration platform that can easily integrate the parameters received from PowerStudio (or any of its versions) in any SCADA platform available in the market with a simple approach. The format of requests that can be integrated will be DA real time data. It includes the Tunnelling function, establishing OPC connections over IP through a corporate network. In addition, it can establish decentralised or remote connections (routing). Therefore, any SCADA platform available in the market with an OPC/DA client function can immediately integrate all parameters received from the CIRCUTOR platform	250,000
SQL DATA EXPORT	[1] M91301.	SQL Data Export for PS/PSS is a software tool for the integration of data from PS/PSS to a new or existing SQL database. Main advantages of SQL Data Export: • Exporting historic data stored in SQL databases • Optional selection of devices or databases to be exported • Programming the download frequency • Multiple architectures	250,000

License 4.0 version 4.0

Databox, Energy management software

Type	Code	Description	PKR
DataBox	[] DataBox	Software with licence in the cloud (Databox cloud platform) for complete management of all parameters required for the optimum performance of Energy Audits. The Databox system combines data recording, display and operation from any location using any PC, smartphone or tablet.	Consult

License 4.0 version 4.0

SBOX, Gateway for DataBox platform

Type	Code	Description	PKR
SBOX 3G VPN	[*] M61920.	Gateway with 3G communications via VPN network (1) and SIM card fully configured to send data from the units connected to the RS-485 port or Ethernet to the Databox cloud platform in order to carry out energy audits and improvements related to electrical energy efficiency	213,000
SBOX 3G NET	[*] M61930.	Gateway with 3G communications (SIM card must be provided by the user) to send data from the units connected to the RS-485 port or Ethernet to the Databox cloud platform in order to carry out energy audits and improvements related to Electrical Energy Efficiency	213,000

Databox, Cloud platform

Type	Description	PKR
DataBox	Software with licence in the cloud (Databox cloud platform) for complete management of all parameters required for the optimum performance of Energy Audits. The Databox system combines data recording, display and operation from any location using any PC, smartphone or tablet.	Consult

* Price of the system depending on the units connected and variables sent to the server in the cloud.

NEW

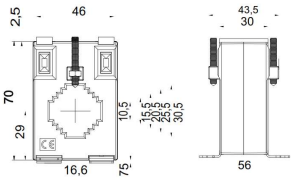
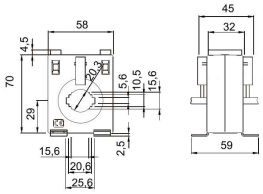
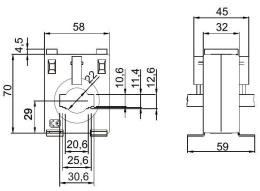
SBOX, gateway for DataBox platform

Type	Code	Description	
SBOX 3g vPN	[*] M61920	Gateway with 3G communications via VPN network (1) and SIM card fully configured to send data from the units connected to the RS-485 port or Ethernet to the Databox cloud platform in order to carry out energy audits and improvements related to electrical energy efficiency	149,101
SBOX 3g NET	[*] M61930	Gateway with 3G communications (SIM card must be provided by the user) to send data from the units connected to the RS-485 port or Ethernet to the Databox cloud platform in order to carry out energy audits and improvements related to electrical energy efficiency	149,101

Current Transformers

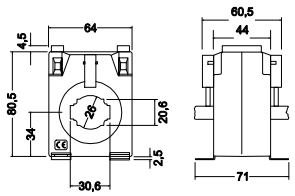
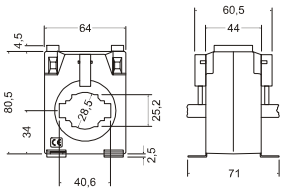
								TM 45	TRM		SH
AC Measurement	For measuring instruments	•	•	•	•	•	•	•		•	•
	For billing meters	–	–	–	–	–	–	–	•	–	–
	Wound primary	–	–	T	–	–	–	•	T	–	–
	Passing bar	•	•	T	•	–	•	–	T	•	–
	Split-core	–	–	–	•	•	–	–	–	–	–
	Minimum range (A)	40	50	5	50	100	50	1	100	75	
	Maximum range (A)	4000	4000	5000	6000	300	2000	50	2000	5000	
	High accuracy	–	•	–	–	–	–	–	–	–	–
	Three-phase	–	–	–	–	–	T	–	T	–	–
DC measurement	Minimum range (A)	–	–	–	–	–	–	–	–	–	1
	Maximum range (A)	–	–	–	–	–	–	–	–	–	20000
Other Parameters	Secondary output	.../5	.../5	.../5	.../5	.../1	...250A	.../5	.../5	.../5	.../60 mV
	in resin										
	Sealable				•	–	–	–	•	–	–
	UL Certificate	–	T	T	–	–	–	–	–	–	–
	Individual certificate										
		33	35	38	36	37	36	37	39	40	42

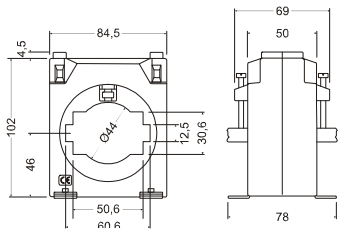
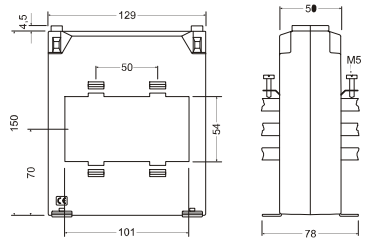
TC, Current transformers narrow section

Type	TC 4	TC 5	TC 5.2
				
Flat strip	30X10 20X10 25X5	20X10 25X5 15X5	20X12 25X10 30X10

V-A / A	Class 0.5	Class 1	Class 3	Code	Price Rs.	Class 0.5	Class 1	Class 3	Code	Price Rs.	Class 0.5	Class 1	Class 3	Code	Price Rs.
40/5						-	-	1.5	[*] M70311	6,500					
50/5	-	-	1	[*] M703D5	5,900	-	-	3	[*] M70312	6,500					
60/5	-	-	1.25	[*] M703D6	6,200	-	1.25	3.5	[*] M70313	6,700					
75/5	-	-	1.25	[*] M703D7	6,200	-	2	3.5	[*] M70314	6,700					
100/5	-	2.0	3	[*] M703D8	6,200	1.5	2.5	3.75	[*] M70315	6,700	-	1	1.5	[c] M70321	6,900
125/5	-	2.5	3.75	[*] M703D9	6,200	1.75	3.5	5	[*] M70316	6,700	-	1.5	2	[*] M70322	6,900
150/5	1.5	2.5	4	[*]M703DA	6,200	2.5	3.5	5	[*] M70317	6,700	1	2	2.5	[*] M70323	6,900
200/5	2.5	5	6	[*] M703DB	6,400	3.75	5	5	[*] M70318	6,800	2.5	3	3.5	[*] M70324	7,100
250/5						5	7.5	7.5	[*] M70319	6,900	3.5	3.75	5	[*] M70325	7,100
300/5											3.5	3.75	5	[*] M70326	7,500
400/5											3.5	5	7.5	[*] M70327	7,600
500/5											5	7.5	10	[*] M70328	7,800
600/5											5	7.5	10	[*] M70329	8,071

Current Transformers

Type	TC 6,2					TC 6					TC 8.3				
															
Flat strip	20 x 20	25 x 12	30 x 10			30 x 15	20 x 10	40 x 10			20 x 25	30 x 20	40 x 10		
v·A / A	Class 0.5	1	3	Code	Price Rs.	Class 0.5	1	3	Code	Price Rs.	Class 0.5	1	3	Code	Price Rs.
100/5	1.75	3.75	7.5	[*] M70341	9,340										
125/5	3.75	7.5	10	[*] M70342	9,413										
150/5	5	7.5	10	[*] M70343	9,472	1	3.5	5	[*] M70331	7,290					
200/5	7.5	10	10	[*] M70344	9,542	3.5	5	7.5	[*] M70332	7,290	10	15	25	[3] M703b2	24,297
250/5	7.5	10	15	[*] M70345	9,867	5	7.5	10	[*] M70333	7,290	10	15	20	[3] M703b1	23,896
300/5	10	10	15	[*] M70346	10,304	5	7.5	10	[*] M70334	8,005	15	20	25	[3] M703b3	24,297
400/5	10	10	15	[*] M70347	10,602	5	7.5	10	[*] M70335	8,234	15	20	25	[3] M703b4	23,896
500/5	15	15	20	[*] M70348	10,718	7.5	10	15	[*] M70336	8,823	15	20	25	[3] M703b5	24,595
600/5	15	20	25	[*] M70349	10,804	7.5	10	15	[*] M70337	8,823	15	20	25	[3] M703b6	25,281
750/5						10	15	20	[*] M70338	9,088	20	25	30	[3] M703b7	25,986
800/5						10	15	20	[*] M70339	9,472	25	30	35	[3] M703b8	26,692
1 000/5											25	30	35	[3] M703b9	27,377

Type	TC 8					TC 10					TC 12				
															
Flat strip	50 x 30	60 x 12				50 x 50	60 x 30	80 x 30			3 x 100 x 10				
v·A / A	Class 0,5	1	3	Code	Price Rs.	Class 0.5	1	3	Code	Price Rs.	Class 0.5	1	3	Code	Price Rs.
200/5	1	2.5	5	**[*] M7036C**	12,967	1	2.5	5	**[*] M7037f**	13,685					
300/5	2.5	5	7.5	**[*] M7036b**	13,202	2,5	5	7.5	**[*] M7037d**	13,480					
400/5	5	7.5	10	**[*] M70361**	12,678	2,5	5	7.5	**[3] M7037g**	13,480					
500/5	7.5	10	15	**[*] M70362**	12,678	5	7.5	10	**[*] M7037b**	16,030					
600/5	10	15	20	**[*] M70363**	12,963	7.5	10	15	**[*] M7037C**	14,705					
750/5	15	20	25	**[*] M70364**	12,963	7.5	10	15	**[3] M7037H**	14,705					
800/5	15	20	30	**[*] M70365**	12,963	7.5	10	15	**[*] M70372**	14,825	10	15	20	**[*] M7038b**	21,435
1 000/5	15	20	30	**[*] M70366**	13,444	10	15	20	**[*] M70373**	15,328	10	15	20	**[*] M70381**	23,188
1 200/5	15	20	30	**[*] M70367**	13,814	10	15	20	**[*] M70374**	15,868	10	15	20	**[*] M70382**	21,989
1 250/5	15	20	30	**[*] M7036A**	15,149	10	15	20	**[*] M7037E**	16,275	10	15	20	**[3] M7038d**	22,426
1 500/5	15	20	30	**[*] M70368**	15,272	15	20	25	**[*] M70375**	16,613	15	20	30	**[*] M70383**	22,426
1 600/5	15	20	30	**[*] M70369**	15,974	15	20	25	**[*] M70376**	19,385	15	20	30	**[*] M70384**	24,761
2 000/5						15	20	25	**[*] M70377**	20,727	15	20	30	**[*] M70385**	25,549
2 500/5						15	20	30	**[*] M70378**	22,485	20	30	40	**[*] M70386**	29,126
3 000/5						15	20	30	**[*] M70379**	24,847	30	40	60	**[*] M70387**	32,643
3 200/5											30	40	60	**[3] M7038C**	37,449
4 000/5											35	40	60	**[*] M70388**	36,403

Delivery time: [*] immediate
[x] working weeks
[c] consult

Split Core Current Transformers

Type	TP 23	TP 58	TP 88
Flat strip	20 X 30 mm	50 X 80 mm	80 X 80mm
c b a / a b c	110 89 58	145 114 50	145 144 50

V-A / A	Class 0.5	Class 1	Class 3	Code	Price Rs.	Class 0.5	Class 1	Class 3	Code	Price Rs.	Class 0.5	Class 1	Class 3	Code	Price Rs.
50/5	-	-	1.5	[*] M7011A	24,877										
75/5	-	-	1.5	[*] M70117	24,877										
100/5	-	-	1.5	[*] M70111	24,877	-	-	2	[*] M7012D	28,126					
125/5	-	-	1.5	[*] M70118	24,877										
150/5	-	-	2	[*] M70112	24,877	-	-	3	[*] M7012A	28,126					
200/5	-	1.5	2.5	[*] M70113	24,877	-	-	3	[*] M7012B	28,126					
250/5	-	2	4	[*] M70114	24,877	-	2	4	[*] M70121	28,126	1	2	4	[*] M70131	30,967
300/5	1.5	4	6	[*] M70115	24,877	1.5	3	6	[*] M70122	28,126	1.5	3	6	[*] M70132	30,967
400/5	2.5	6	10	[*] M70116	24,877	1.5	3	10	[*] M70123	28,126	1.5	3	10	[*] M70133	30,967
500/5						2.5	5	15	[*] M70124	28,126	2.5	5	15	[*] M70134	30,967
600/5						2.5	5	17.5	[*] M70125	28,126	2.5	5	17.5	[*] M70135	30,967
700/5						2.5	-	-	[*] M7012C	28,126					
750/5						3	6	18	[*] M70126	28,126	3	6	18	[*] M70136	30,967
800/5						3	7	18	[*] M70127	28,126	3	7	18	[*] M70137	30,967
1000/5						5	10	20	[*] M70128	28,126	5	10	20	[*] M70138	30,967

Type	TP 812	TP 816
Flat strip	80 X 120 mm	80 X 160 mm
c b a / a b c	185 144 50	245 184 70

V-A / A	Class 0.5	Class 1	Class 3	Code	Price Rs.	Class 0.5	Class 1	Class 3	Code	Price Rs.
500/5	-	4	12	[*] M70141	45,126	3	-	-	[*] M7015F	95,923
600/5	-	5	14	[*] M70142	45,126	3	-	-	[*] M7015H	111,351
750/5	2.5	6	17	[*] M70143	45,126	5	-	-	[*] M70158	97,046
800/5	3	7	18	[*] M70144	45,126					
1000/5	5	9	20	[*] M70145	45,126	10	15	20	[*] M70151	97,354
1200/5	6	11	24	[*] M70146	45,126					
1250/5	7	15	28	[*] M70147	45,126	8	-	-	[*] M7015A	99,301
1500/5	8	17	30	[*] M70148	45,126	15	20	25	[*] M70152	99,301
1600/5	8	-	-	[*] M70149	45,126	8	-	-	[*] M7015B	100,881
2000/5						15	20	25	[*] M70153	91,694
2500/5	10	17	25	[*] M7014A	51,896	15	20	25	[*] M70154	96,990
3000/5						20	25	30	[*] M70155	105,319
3200/5						20	-	-	[*] M7015C	106,164
4000/5						20	25	30	[*] M70156	113,629
5000/5						20	25	30	[*] M70157	120,671
6000/5						20	-	-	[*] M7015E	120,671

TCH, Current transformers narrow section and high accuracy

Type	TCH6.2					TCH6					TCH8				
	  width x height x depth (mm) 74 x 87.15 x 71.12					 width x height x depth (mm) 64 x 87.5 x 71.2					 width x height x depth (mm) 84.1 x 114 x 83				
Flat strip(mm)	30 x 10					40 x 10					60 x 12				
A/V-A	Class					Class					Class				
	0.2	0.2S	0.5S	Code	PKR	0.2	0.2S	0.5S	Code	PKR	0.2	0.2S	0.5S	Code	PKR
50/5	0,5	-	-	[*] M7044B.	80,598										
60/5	0,5	-	-	[*] M7044C.	82,367										
100/5	1,5	1	2,5	[*] M70441.	35,220										
125/5	1,5	1	2,5	[*] M70442.	34,886										
150/5	3,5	2,5	3,5	[*] M70443.	35,389	1,25	1	1,5	[*] M70431.	26,291					
200/5	5	3,5	5	[*] M70444.	35,459	1,5	1,25	2	[*] M70432.	27,179					
250/5	5	5	5	[*] M70445.	35,531	1,75	1,5	2,25	[*] M70433.	26,897					
300/5	5	5	5	[*] M70446.	35,551	2	1,75	2,5	[*] M70434.	27,185					
400/5	7,5	7,5	7,5	[*] M70447.	35,628	5	1	5	[*] M70435.	11,337					
500/5						7,5	5	7,5	[*] M70436.	11,254					
600/5						7,5	5	7,5	[*] M70437.	11,337	10	5	10	[*] M70463.	17,732
750/5						10	7,5	10	[*] M70438.	11,383	10	7,5	10	[*] M70464.	16,063
800/5						10	7,5	10	[*] M70439.	11,460	10	7,5	10	[*] M70465.	15,878
1000/5											15	10	15	[*] M70466.	16,514
1200/5											15	10	15	[*] M70467.	17,034
1250/5											15	10	15	[*] M7046A.	17,468
1500/5											15	10	15	[*] M70468.	17,719
1600/5											15	10	15	[*] M70469.	18,481

Type	TCH10					TCH12				
	  width x height x depth (mm) 108 x 137 x 78					 width x height x depth (mm) 129 x 155 x 78				
Flat strip(mm)	50 x 50 60 x 30 80 x 30					3 x 100 x 10				
A/V-A	Class					Class				
	0.2	0.2S	0.5S	Code	PKR	0.2	0.2S	0.5S	Code	PKR
800/5	10	7,5	10	[*] M70472.	17,256					
1000/5	10	7,5	10	[*] M70473.	18,186					
1200/5	10	10	10	[*] M70474.	18,799	15	10	15	[*] M70482.	25,291
1250/5	10	10	10	[*] M7047C.	19,955	15	10	15	[*] M7048C.	25,377
1500/5	10	10	15	[*] M70475.	19,763	15	10	15	[*] M70483.	25,665
1600/5	10	10	15	[*] M70476.	19,789	15	10	15	[*] M70484.	27,728
2000/5	10	10	15	[*] M70477.	19,948	15	10	15	[*] M70485.	28,633
2500/5	10	10	15	[*] M70478.	22,035	20	15	20	[*] M70486.	32,388
3000/5	10	10	15	[*] M70479.	23,201	25	20	25	[*] M70487.	35,962
3200/5						25	20	25	[*] M7048B.	41,122
4000/5						30	25	30	[*] M70488.	40,152

TRM, Measuring transformers encapsulated in resin

Type	TRM30				TRM40				TRM60			
	Size (mm) width x height x depth 110x147x50				Size (mm) width x height x depth 135x168x38				Size (mm) width x height x depth 135x178x36			
Flat strip(mm)	30 mm				40 mm				60 mm			
A/V-A	Class	VA	Code	PKR	Class	VA	Code	PKR	Class	VA	Code	PKR
75/5	1	2	[4] P50101.	30,335								
100/5	1	5	[4] P50102.	30,335								
150/5	1	5	[4] P50103.	30,335	0.5	5	[4] P50111.	39,006				
200/5	0.5	10	[4] P50104.	30,335	0.5	7,5	[4] P50112.	39,006				
250/5	0.5	15	[4] P50105.	32,322	0.5	10	[4] P50113.	39,006	0.5	5	[4] P50121.	51,741
300/5	0.5	20	[4] P50106.	32,322	0.5	15	[4] P50114.	39,006	0.5	7,5	[4] P50122.	51,741
400/5	0.5	25	[4] P50107.	32,322	0.5	20	[4] P50115.	39,006	0.5	10	[4] P50123.	51,741
500/5					0.5	25	[4] P50116.	39,006	0.5	15	[4] P50124.	51,741
600/5					0.5	30	[4] P50117.	39,006	0.5	20	[4] P50125.	51,741
800/5					0.5	35	[4] P50118.	39,006	0.5	25	[4] P50126.	51,741
1000/5									0.5	30	[4] P50127.	51,741
1200/5									0.5	35	[4] P50128.	51,741

Type	TRM80				TRM100			
	Size (mm) width x height x depth 135x178x36				Size (mm) width x height x depth 175x228x38			
Flat strip(mm)	80 mm				100 mm			
A/V-A	Class	VA	Code	PKR	Class	VA	Code	PKR
500/5	0.5	5	[4] P50131.	61,210				
600/5	0.5	7,5	[4] P50132.	61,210				
750/5	0.5	10	[4] P50133.	61,210	0.5	15	[4] P50141.	62,018
1000/5	0.5	15	[4] P50134.	62,018	0.5	20	[4] P50142.	62,846
1500/5	0.5	20	[4] P50135.	62,018	0.5	20	[4] P50144.	65,280
2000/5	0.5	25	[4] P50136.	63,651	0.5	20	[4] P50145.	66,108
2500/5	0.5	30	[4] P50137.	65,280	0.5	20	[4] P50146.	66,916
3000/5					0.5	25	[4] P50147.	70,172

Type	TRM140				TRM180			
	Size (mm) width x height x depth 223x269x40				Size (mm) width x height x depth 223x306x40			
Flat strip(mm)	140 mm				180 mm			
A/V-A	Class	VA	Code	PKR	Class	VA	Code	PKR
1000/5	0.5	15	[4] P50151.	69,367				
1250/5	0.5	20	[4] P50152.	69,367	0.5	15	[4] P50161.	75,074
1500/5	0.5	25	[4] P50153.	71,818	0.5	20	[4] P50162.	77,525
2000/5	0.5	30	[4] P50154.	75,899	0.5	20	[4] P50163.	79,161
2500/5	0.5	35	[4] P50155.	79,972	0.5	20	[4] P50164.	83,241
3000/5	0.5	35	[4] P50156.	85,530	0.5	20	[4] P50165.	89,431
4000/5	0.5	35	[4] P50157.	94,661	0.5	20	[4] P50166.	83,370
5000/5					0.5	20	[4] P50167.	104,458

MYeBOX

Portable power analyzer

Description

MYeBOXhas more than 500 parameters and it is a range of portable analyzers that can be configured from an app that analyses the accessible electrical parameters remotely. MYeBOX measures and records the electrical parameters in single, two or three-phase installations (with and without neutral).

The most advanced model, MYeBOX 1500, can measure the leakage current simultaneously, it can measure the network quality parameters in compliance with the EN 50160 standard and also record the transients.

- V, A, M/KW, M/Kva, M/kvarL, M/kvarC, PF, φ, Hz, M/KWh, M/Kvarh, M/Kvah, M/KvarLh, M/KvarCh
- Vph-N, Vph-ph, Hours, Cost, kgCO2
- Harmonic V& I (up to the 51st order), THD V, THDA
- Crest factor, K-factor, Inst. Flicker (WA), PST flicker (%)
- Maximum Demand (M/kW, M/kVA, A)
- 4 current measurement inputs (I1, I2, I3, In), 4 voltage measurement inputs (U1, U2, U3, Un)
- Measurement of the main electrical parameters
- Energy consumed and generated
- Measurement of network quality parameters
- True RMS measurement (TRMS)
- Measurement of consumption and generation (4Q)
- Voltage quality event log, according to EN 61000-4-30, Transients log
- Recording of the wave shape associated with the quality events and transients
- Measurement according to EN 61000-4-30
- Power supply is independent of the measurement
- Recording of the wave shape for each recording period
- LCD Screen, Capacitive keypad, Micro-USB port to download data
- Automatic detection of clamps
- Identification of phases with colours
- Compatible with clamps with EEPROM
- Recording of system events (EVA)
- NTP synchronisation
- Sending of alarms via e-mail
- 3G communications, Wi-Fi communications (access point/terminal)
- 1 voltage measurement input Uref, 1 leakage current measurement input
- 2 transistor inputs to centralise impulses / tariff / state, 2 transistor outputs for alarms
- Prepare complete studies of an electrical installation.
- Perform audits and analyses remotely.
- Analyse consumption, load curves, disturbances in the installation's voltage, display wave shapes, harmonics study or flicker measurement, among other options.

MYeBOX-A, Portable power analyzer with recording of quality events and transients Calibration Certificate (IEC 61000-4-30 Ed.2) Class A

Type	Code	Clamp	Measuring Channels	Transistor output	Digital inputs	Communications	PKR
kit MYeBOX-1500A	[2] M840330000A00	-	5	2	2	WiFI + 3G	147,000
Portable analyzer kits with current sensors							
MYeBOX-1500A-3 FLEX-R45	[2] M8405B0000A00	3 FLEX-R45	5	2	2	WiFI + 3G	173,600
MYeBOX-1500A- 4 FLEX-R45	[2] M8405C0000A00	4 FLEX-R45	5	2	2	WiFI + 3G	182,600
MYeBOX-1500A-3 FLEX-R80	[2] M8405D0000A00	3 FLEX-R80	5	2	2	WiFI + 3G	192,400
MYeBOX-1500A-4 FLEX-R80	[2] M8405E0000A00	4 FLEX-R80	5	2	2	WiFI + 3G	195,500
MYeBOX-1500A- 3 CPG-100	[2] M840530000A00	3 CPG-100	5	2	2	WiFI + 3G	195,500
MYeBOX-1500A- 3 CPRG-500	[2] M840550000A00	3 CPRG-500	5	2	2	WiFI + 3G	194,500

Analyser with built-in SD memory and Cloud Includes voltage cables, alligator clips, USB cable, fastening strap, magnetic support, battery, power supply and carrying bag. Please contact us for other clamp or clamp length combinations

MYeBOX, Portable power analyzer with recording of quality events and transients in accordance with (IEC 61000-4-30 Ed.2) Class A

Type	Code	Clamp	Measuring Channels	Transistor output	Digital inputs	Communications	PKR
kit MYeBOX-150	[*] M84023.	-	4	-	-	WiFI	883,900
kit MYeBOX-1500	[*] M84033.	-	5	2	2	WiFI + 3G	1,088,651
Portable analyzer kits with current sensors							
MYeBOX150+3 FLEX-R45	[*] M8404B.	3 FLEX-R45	4	-	-	WiFI	1,082,144
MYeBOX1500+3 FLEX-R45	[*] M8405B.	3 FLEX-R45	5	2	2	WiFI + 3G	1,286,861
MYeBOX-150-4 FLEX-R45	[*] M8404C.	4 FLEX-R45	4	-	-	WiFI	1,148,214
MYeBOX-1500-4 FLEX-R45	[*] M8405C.	4 FLEX-R45	5	2	2	WiFI + 3G	1,352,931
MYeBOX-150-3 FLEX-R80	[*] M8404D.	3 FLEX-R80	4	-	-	WiFI	1,136,700
MYeBOX 1500+3 FLEX-R80	[*] M8405D.	3 FLEX-R80	5	2	2	WiFI + 3G	1,341,418
MYeBOX-150-4 FLEX-R80	[*] M8404E.	4 FLEX-R80	4	-	-	WiFI	1,220,791
MYeBOX-1500-4 FLEX-R80	[*] M8405E.	4 FLEX-R80	5	2	2	WiFI + 3G	1,423,315
MYeBOX150 + 3 CPG-100	[*] M84043.	3 CPG-100	4	-	-	WiFI	1,243,000
MYeBOX1500 + 3 CPG-100	[*] M84053.	3 CPG-100	5	2	2	WiFI + 3G	1,448,000
MYeBOX150 + 3 CPRG-500	[*] M84045.	3 CPRG-500	4	-	-	WiFI	1,227,000
MYeBOX1500 + 3 CPRG-500	[*] M84055.	3 CPRG-500	5	2	2	WiFI + 3G	1,432,000

Analyser with built-in SD memory and Cloud Includes voltage cables, alligator clips, USB cable, fastening strap, magnetic support, battery, power supply and carrying bag. Please contact us for other clamp or clamp length combinations

FLEX-R, Flexible sensors for MYeBOX analysers

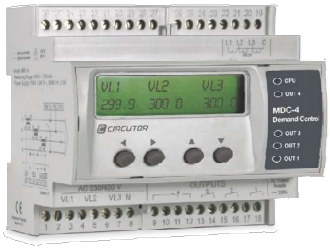
Type	I min	Measurement Range (A)	ø (mm)t	Sensor lenght	Nr Sensors	Code	PKR	Nr Sensors	Code	PKR	Nr Sensors	Code	PKR
KIT 1 -FLEX-R45	1 / 10 / 50	10 ... 100 A / 100 ... 1000 A/ 1000... 10000 A	140	45 cm	1	[*] M81611.	73,876	3	[*] M81631.	220,000	4	[*] M81641.	293,000
KIT 1-FLEX-R80			250	80 cm	1	[*] M81612.	93,300	3	[*] M81632.	280,000	4	[*] M81642.	370,000
KIT 1-FLEX-R120			380	120 cm	1	[*] M81613.	128,866	3	[*] M81633.	386,500	4	[*] M81643.	515,463

FLEX-RMG, Flexible sensors for MYeBOX analysers

Type	I min	Measurement Range (A)	ø (mm)t	Sensor lenght	Nr Sensors	Code	PKR	Nr Sensors	Code	PKR	Nr Sensors	Code	PKR
kit 1 FLEX RMG70	1 / 10 / 50	10 ... 100 / 100 ... 1000 / 1000 ... 10000	70	22 cm	1	[*] M81911.	68,800	3	[*] M81931.	206,000	4	[*] M81941.	275,500
kit 1 FLEX RMG120			120	38 cm	1	[*] M81912.	87,200	3	[*] M81932.	261,000	4	[*] M81942.	349,000

MDC-4

Maximum Demand Predictive Control



Description

The MDC-4 is a unit with a simple configuration designed for controlling an installation's maximum demand. The unit is equipped with a power analyzer that measures electrical parameters at the connection point.

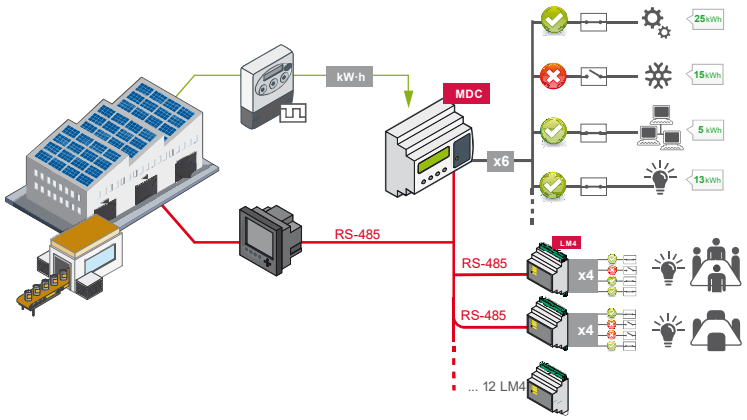
The MDC-4 is equipped with current measurement inputs and also voltage measurement inputs. It has a 2-line screen with 20 characters each, to show the electric variables measured and calculated by the unit, as well as detailed information for controlling the unit's relay outputs and the operating time of each load. This information makes possible for the user to be sure that the unit is operating as desired and adjust the programming if necessary. A series of LED indicators have been installed so the user can check the status outputs and the unit's CPU.

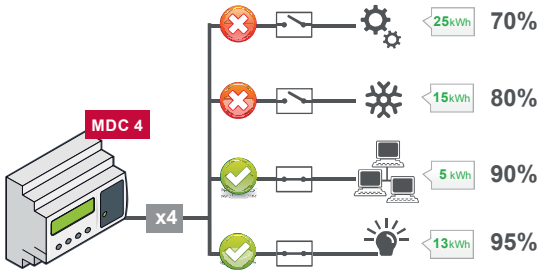
Its main features are:

- Demand management that can control up to 4 local loads.
- Contracted power programming (setpoint).
- Activation by level (% of setpoint)
- Calculus on scrolling window
- Built-in power analyzer
- 100…240 V a.c. power supply
- Compatible with MC transformers (.../250mA)
- Load operating times

MDC-4, Maximum demand control devices

Type	Description	Code	PKR
MDC-4	Maximum demand control unit, by level. Includes a built-in three-phase power analyzer and 4 relay outputs of up to 6 A for controlling non-priority loads	[*] M61430	270,000





MDC-20

Maximum Demand Predictive Control

Description

The MDC-20 is a unit designed to predictive control the maximum demand of an installation. It means that the unit connects and disconnects the installation's electrical loads (non-priority loads) to ensure that the maximum power contracted is not exceeded. Management of the loads is done in accordance with the power rating of the loads, the maximum configured power, and the current energy measured. This system optimizes the consumption of energy in the installation because it allows the maximum number of loads to be used simultaneously but does not exceed the contracted power, which would result in high penalties. The unit is equipped with relay outputs that enable the management of up to 6* electric loads without expanding.

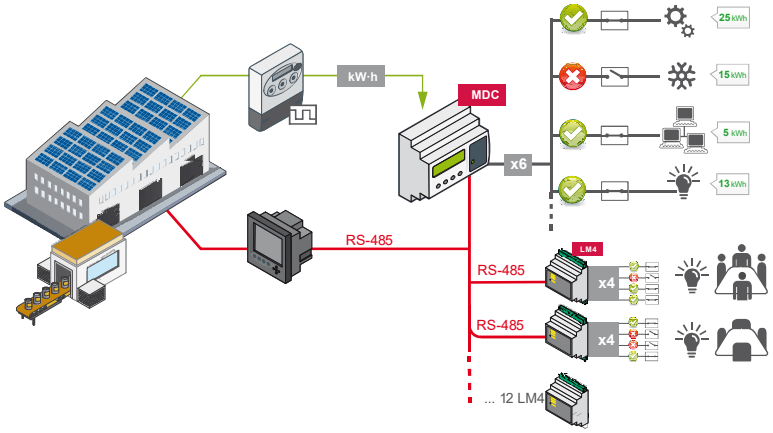
*(It is possible to use the output for some alarms conditions. In this case, the number of free relays to control local loads is 4).

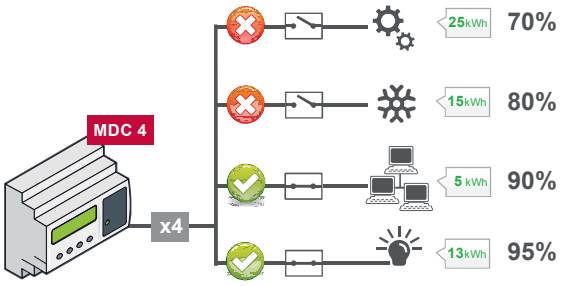
Its main features are:

- Demand management by disconnecting up to 6 non-priority local loads.
- Expandable until 54 loads with 12 LM4I/4O units through the RS-485 port.
- Instantaneous energy value reading through Modbus/RTU communications or the impulse input.
- Synchronising impulse input.
- Ethernet connection to centralize it in other applications or communicating with remote peripherals on the ethernet network.
- Feedback load status control through the logic status of the inputs Centralising consumptions by impulses.
- Disabling load management according to schedule.
- Simulation tool for verifying system behaviour.

MDC-20 Maximum demand control devices

	Type		Code	PKR
	MDC-20, 6 local Loads, expandable, predictive control			
	**MDC-20**	8 digital inputs for logical states or counting impulse signals (electric energy meters, water meters, gas meters, etc.). Load status feedback (inputs/outputs). Expandable via auxiliary LM range units. Historical records of over one year with a log of up to 4,500 electrical variables, averaged every 15 minutes, maximum and minimum values over the period (Period can be modified. Ring buffer). RS-485 BUS for connecting up to 12 LM4 i/o	**[*] M61410**	320,000





LM4A-210 M

4 Analogue (4...20 mA), 2 digital input & 2 digital output

Description

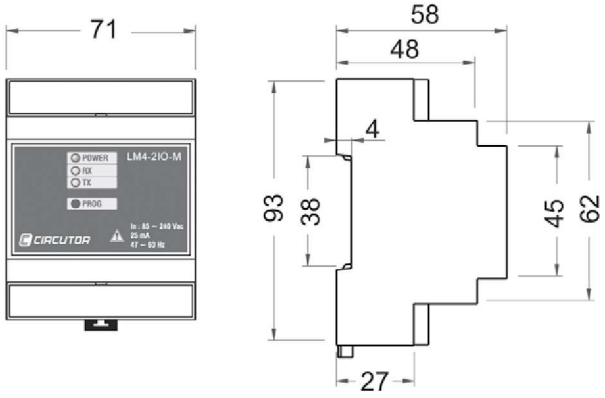
The LM4A-2IO-M is an analogue and digital signals centralizer. In only 4 DIN modules, the unit has 2 relay outputs and centralizes 4 analogue inputs from 0 ... 20 mA or 4 …. 20 mA, 2 voltagefree digital input (dry contacts). The unit includes an RS-485 communications bus with a Modbus/ RTU protocol, which allows real time control by communications. The unit is compatible with Power-Studio and Power-Studio SCADA control software

- Process Measurement with analogue outputs from Temperatures, Pressure and Flow sensors.
- Tele-management of the 2 digital outputs
  - Open relay function
  - Closed relay function
  - Impulse function
- Supervision of the 2 digital inputs(Dry contacts)
  - Voltage-free inputs
  - Detection of the logic state of the inputs
  - Centralization of digital impulses received by external meters (≤10 Hz)
- Monitoring of the 4 analogue inputsfrom 0 ... 20 mA or 4 .... 20 mA
- Reading any Impulse-emitting device (up to 4 units). These parameters are useful to generate receipts or define a price/unit cost
- Alarm central: the unit's outputs can act on contacts, sound and/or luminous devices to carry out a protection or warning operation with an internal relay.
- Complies with the IEC60664, VDE0110, UL94, EN61010-1, EN55011, EN61000-4-3,EN61000-4-11,EN61000-6-4, EN61000-4-2, EN61000-6-2, EN61000-6-2,N61000-6-1, EN61000-6-3, EN61000-4-5 standards.
- Compact size (93 x 71 x 58 mm (4 DIN Rail modules))
- Double-insulated electric shock protection class II

LM, impulse and contact centralisers

Type	Code	digital inputs (*)	Analogue inputs 4...20 mA	digital outputs	Commun-ication	Protocols	DIN rail Modules	Price Rs
LM-4A 2IO-M	[*] M31565	2	4	2	RS-485	Modbus/RTU	4	100,000

(*) Digital inputs (logic 0 / 1) or energy impulses



LM4I/4O-M

4 digital inputs & 4 digital outputs measuring module

Description

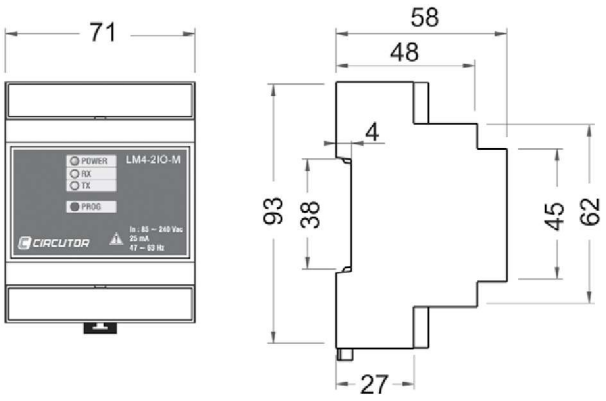
The LM 4I/4O-M is a digital signals centralizer. The unit includes an RS-485 communications bus with a Modbus/ RTU protocol, which allows real time control by communications. The unit is compatible with Power-Studio and Power-Studio SCADA control software. It has 4-input impulse centralizing equipment. Inputs are opt isolated to read impulses and it has a 32-bit memory to store the values metered.

- The electronic meters provide pulse output proportional to the energy measured. It is a centralized energy meter with four inputs (optocoupled) for reading these pulses. Their values are then stored on the memory.
- The LM4I-4O-M boasts a total of four digital inputs associated to 4 memory registers. Each register has 32 bits (4 bytes), thus boasting up to a maximum of FFFF FFFF hexadecimal, this mean a total of 4,294,967,295 pulses. When this figure is reached, the internal memory register reset on the next pulse and metering starts again.
- The minimum duration of the pulse or the change of status must be 50 ms and the minimum time between the successive pulse on the same input must be 50 ms. This represents a maximum sample frequency of 10 Hz.
- It has an RS-485 communications port that can be used with an RS-232 or Ethernet converter to read and write the unit's records remotely, using the PowerStudio management software. The RS-485 bus can be used to connect up to 32 units that use this type of communications
- Reading any Impulse-emitting device (up to 4 units). These parameters are useful to generate receipts or define a price/unit cost
- Alarm central: the unit's outputs can act on contacts, sound and/or luminous devices to carry out a protection or warning operation with an internal relay.

LM, impulse and contact centralisers

Type	Code	digital inputs (*)	Analogue inputs 4...20 mA	digital outputs	Commun-ication	Protocols	DIN rail Modules	Price Rs
LM-4A 2IO-M	[*] M31563	4	-	4	RS-485	Modbus/RTU	4	119,000

(*) Digital inputs (logic 0 / 1) or energy impulses



LM25-M

25 digital inputs measuring module

Description

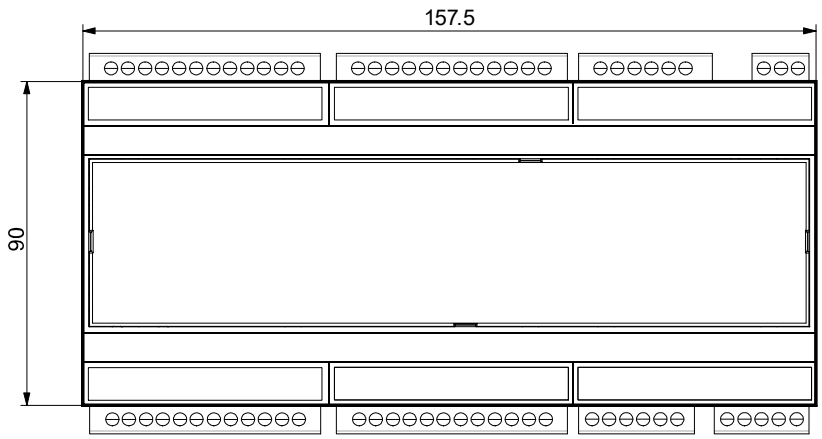
LM25-M is a concentrator with 25 digitalinputs, designed to concentrate the status of up to 25 logic signals, or the number of impulses received at each of the inputs. The unit includes an RS-485 communications bus with a Modbus/ RTU protocol, which allows real time control by communications. The unit is compatible with Power-Studio and Power-Studio SCADA control software

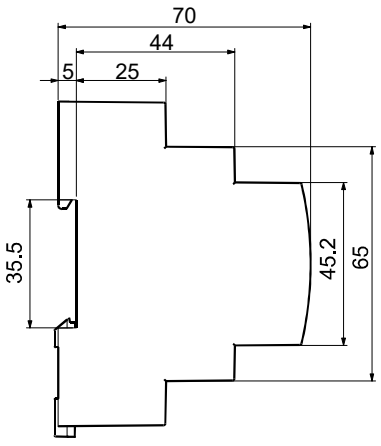
- The unit has the capacity to measure the activation/ deactivation time of each of its inputs, depending on the prior programming of the unit's configuration. Therefore, it is a concentrator of timers, depending on the status of each of its inputs (0/1).
- The unit allows the total time to be measured or the time of the most recent ON / OFF operation detected by the digital input.
- This configuration may be applied individually to each of the twenty-five digital inputs according to the installation requirements.
- The activation of these timers may be configured with the input open or closed, and each of the unit's inputs may be configured individually.
- Reading any impulse-emitting device (up to 25 units). These parameters are useful to generate receipts or to define a price/unit cost.
- Integration of other types of consumption, such as: gas, water, etc. up to 25 meters as a central status detector for electrical operations or alarms.
- The unit's outputs can be programmed to generate impulses or for remote control actions with the PowerStudio software.

LM, impulse and contact centralisers

Type	Code	digital inputs (*)	Analogue inputs 4...20 mA	digital outputs	Commun-ication	Protocols	DIN rail Modules	Price Rs
LM25-M	[*] M31567	25	-	-	RS-485	Modbus/RTU	8	177,500

(*) Digital inputs (logic 0 / 1) or energy impulses





LM50-TCP+

50 digital inputs measuring module

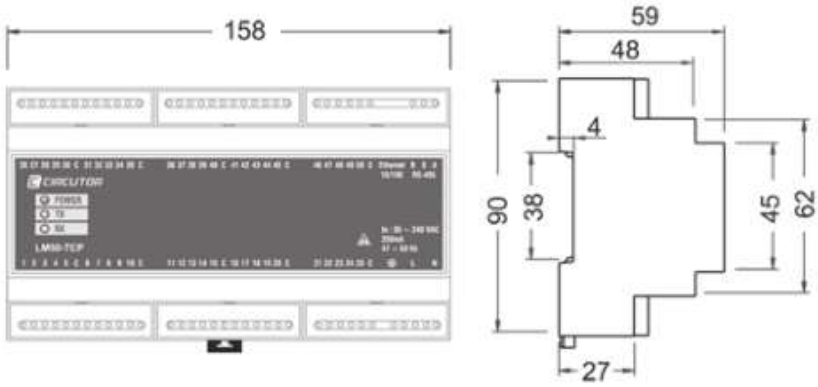
Description

LM50-TCP+is a concentrator with 50 digital inputs, designed to concentrate the status of up to 50logic signals, or the number of impulses received at each of the inputs. Impulse centralizing unit, with up to 50 devices. The unit includes an RS-485 communications bus with a Modbus/ RTU protocol and also built in TCP converter, which allows real time control by communications. The unit is compatible with Power-Studio and Power-Studio SCADA control software.

- It has two communications ports: RS-485 Port: It can be used to connect up to 31 CIRCUTOR units that can be monitored with the PowerStudio software. This port acts as a gateway from Ethernet to RS-485.
- Ethernet 10Base / 100Base TX Port that can be used by the PowerStudio energy management software to carry out the read and write operations of the 50 inputs of the LM, and all other units in the RS-485 network.
- Reading any Impulse-emitting device (up to 50 units). These parameters are useful to generate receipts or define a price/unit cost.
- Integration of other types of consumption, such as: gas, water, etc. or simply used to control the energy consumption of 50 meters.
- As an alarm control station: acting on the status of the unit's outputs, being able to define an alarm for a change in status.
- The unit's outputs can be programmed to generate impulses or for remote control actions with the PowerStudio software.

LM, impulse and contact centralisers

Type	Code	Digital Inputs (*)	Analogue inputs 4...20 mA	Digital Outputs	Commun-ication	Protocols	DIN rail Modules	Price Rs
LM50-TCP+	[*] M31566	50	-	-	RS-485	TCP, UDP Modbus/TCP	8	308,900



TH-DG-RS485 Temperature and reletive humidity probe

TH-DG-ex

TH-DG-in

Description

TH-DG-RS485 is a single-unit temperature and relative humidity probe, with RS-485 communication and Modbus/RTU communications protocol. The unit is compatible with Power-Studio and Power-Studio SCADA control software.

- TH-DG-RS485 is designed for wall mounting using screws withoutloss of IP 65 insulation.
- The device records maximum and minimum values for each value measured by the transducer.
- The device uses RS-485 communication and Modbus/RTU protocol. If more than one analyzer is connected to an RS-485 serial communication bus.
- Its temperature's measurement range is -20 ...+60 ºC with a basic error of ±0.5% of the range& ± 3% for the rest of the range.
- Its humidity's measurement range is 0% ... 100%with a basic error of ±0.5% of the range& ± 3% for the rest of the range

✓ **TH-DG-in**, for indoor installations.
✓ **TH-DG-ex**, for outdoor installations.

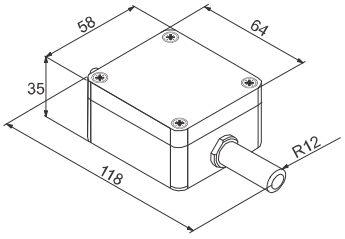
TH-DG, Photovoltaic monitoring

Type	Code	Description	PKR
TH-DG-RS485	[*] M61310.	Temperature and humidity probe with RS-485 communications (Modbus/RTU).. Needs a 9...24 V ac/cc power supply. PowerStudio supported	

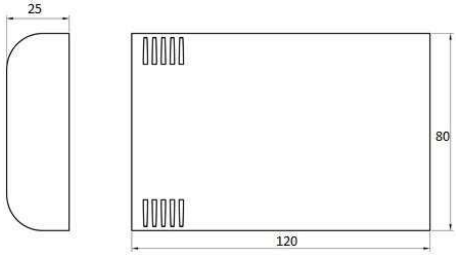
ReadWatt, Impulse collection with communication

Type	Code	Description	PKR
ReadWatt	[*] M62311.	Impulse collector with RS232/RS485 Modbus communications. Built in transistor output. PowerStudio supported	
PS 100..240Vcc	[*] M62331.	ReadWatt power supply	

Dimensions



TH-DG-ex



TH-DG-in

Transducers

Impulse Centralizing Unit (Analogue and Digital)

Transducer that converts analogue signals to any instantaneous parameter that the unit can measure or calculate, with built-in expansion modules with analogue outputs.

Voltage (V ac)	CVE / CV-A
Voltage (V ac)	CV-D
Current (A ac)	CCE / CC-A / TP-420 TC-020 / TCB /
Current (A dc)	CC-D
Active power (kW)	CW
Reactive power (kvar)	CY
Power factor	CPF
cos φ	CCOS
Resistance	CR2
Temperature	CT-PT100
Galvanic insulator	CUP
Frequency (Hz)	CFE / CF
Three-phase digital multi converter with 8 channels: Voltage, current,active power and reactive power, by phase and three-phase values	CVB-BD-420-8-H

CVE/CCE/CFE, Narrow section transducers, 230V, 45...65Hz

Type	Code	Input Range	Network Voltage	Standard Output	Price Rs
AC Voltage transducer					
CVE-A	[*] M25011	Selecting: 110/300/400/500/690V		4...20mA	
CVE-A-AP (1)	[3] M25021	Selecting: 115/240/400V		0...20mA	
AC Current Transducer					
CCE-A	[*] M25111	Selecting: 1/5/10A		4...20mA	
CCE-A-AP(1)	[*] M25121	Selecting: 1/5/10A		0...20mA	
Frequency transducers					
CFE	[3] M25511	Selecting: 0-100/45-55/55-65/45-65/47-53 /380-240/360-440/340-460 Hz	50...600V	4...20mA	
CFE-AP(1)	[3] M25521			0...20mA	

Specified AS PER THE CODE TABLE: 1. Code/ 2. Input range / 3. Output range / 4. Auxiliary power supply / 5. Specify grid voltage in CFE-AP. See the code table at the end of the section
(1) External auxiliary supply not required. 4...20 mA output Not possible

CV/CC/CW/CY/CF/CPF/CUP/CR2, Transducers

INPUTS	
Current AC	1 or 5, .../ 1 A or .../ 5 A
Current DC	500 µA ... 10 A
Voltage AC	0 ... 690 V
Voltage DC	10 mV ... 500 V

OUTPUTS	
Output1	0...5 V, 0...10 V, 0...10 mA, 0...20 mA (by default)
Output 2	0,2...2 V, 2...10 V, 4...20 mA (by default)
Output 3	-10...0...10 V, -5...0...5 V, -20 mA...0...20 mA (by default)

CVE / CV-A	CPF
CV-D	CCOS
CCE / CC-A / TP-420 / TC-020 / TCB / TCM	CR2
CC-D	CT-PT100
CW	CUP
CY	CFE / CF

CVE/CCE/CFE, Narrow section transducers

Narrow-profile transducers, 230 Vac, 45 … 65Hz.

Type	Code	System	Measure	Output type	Analog output	PKR
AC Voltage transducer						
CVE-A	[*] M25011.	-	Selecting 110 / 300 / 400 / 500 / 690 Vac	2	4...20mA	80,303
CVE-A-AP	[3] M25021.	-	Selecting 115 / 240 / 400 Vac	1	0...20mA	76,355
AC Current transducer						
CCE-A	[*] M25111.	-	Selecting 1 / 5 / 10 Aac	2	4...20mA	82,570
CCE-A-AP	[*] M25121.	-	Selecting 1 / 5 / 10 Aac	1, 3	0...20mA	76,367
Frequency transducers						
CFE	[3] M25511.	Network voltage: 50 ... 600 Vac	Selecting 0-100 / 45-55 / 55-65 / 45-65 / 47-53/ 380-240 / 360-440 / 340-460 Hz	2	4...20mA	90,435
CFE-AP	[3] M25521.	Selecting Network voltage: 115 / 240 / 400 Vac	Selecting 0-100 / 45-55 / 55-65 / 45-65 / 47-53/ 380-240 / 360-440 / 340-460 Hz	1	0...20mA	92,976

Specify ACCORDING TO THE CODE TABLE: 1. Code/ 2. Input range / 3. Output range / 4. Auxiliary power supply / 5. Specify the network voltage for CFE-AP. See the code table at the end of the section xxx-AP types external auxiliary supply not required. 4...20 mA output not possible.

INPUTS	
Current AC	1 or 5, .../ 1 A or .../ 5 A
Current DC	500 ✪A ... 10 A
Voltage AC	0 ... 690 V
Voltage DC	10 mV ... 500 V

OUTPUTS	
Output 1	0...5 V, 0...10 V, 0...10 mA, 0...20 mA (by default)
Output 2	0,2...2 V, 2...10 V, 4...20 mA (by default)
Output 3	-10...0...10 V, -5...0...5 V, -20 mA...0...20 mA (by default)

CV, Voltage transducer

Type	Code	Measure	Output type	Analog output	PKR
AC Voltage. Accuracy: ± 0,2 % reading, 40...90 Hz					
CV-A-AP Out1	[1] M25041.	0 ... 400 Vac	1	0...20mA	86,672
CV-A Out1	[1] M25031.	0 ... 690 Vac	1	0...20mA	101,247
CV-A Out2	[1] M25032.	0 ... 690 Vac	2	4...20mA	111,076
CV-A-RMS Out1	[1] M25051.	0 ... 690 Vac	1	0...20mA	149,356
CV-A-RMS Out2	[1] M25052.	0 ... 690 Vac	2	4...20mA	160,000
DC Voltage. Auxiliary supply 230 V, 40...90 Hz, Accuracy: ± 0,5 % reading					
CV-D Out1,3	[1] M25061.	10 mV ... 500 Vdc	1, 3	0...20mA	144,994
CV-D Out2	[1] M25062.	10 mV ... 500 Vdc	2	4...20mA	150,807

-AP type: Accuracy: ± 0,5 % reading, 40...90 Hz. External auxiliary supply not required. Specify: Zero value, full scale and output type. See table at the end of This section

CC, Current transducer

Type	Code	Measure	Output type	Analog output	PKR
AC Current. Accuracy: ± 0,2 % reading, 40...90 Hz					
CC-A Out1	[1] M25131.	.../ 1 Aac or .../ 5 Aac	1	0...20mA	112,052
CC-A Out2	[*] M25132.	.../ 1 Aac or .../ 5 Aac	2	4...20mA	122,141
CC-A-AP	[*] M25141.	.../ 1 Aac or .../ 5 Aac	1	0...20mA	86,678
CC-A-RMS Out1	[1] M25151.	.../ 1 Aac or .../ 5 Aac	1	0...20mA	160,013
CC-A-RMS Out2	[*] M25152.	.../ 1 Aac or .../ 5 Aac	2	4...20mA	164,813
C.C.Current. Auxiliary supply 230 V, 40...90 Hz, Accuracy: ± 0,5 % reading.					
CC-D Out1	[1] M25161.	500 µA ... 10 Adc	1, 3	0...20mA	145,000
CC-D Out2	[1] M25162.	500 µA ... 10 Adc	2	4...20mA	150,820

-AP type: Accuracy: ± 0,5 % reading, 40...90 Hz. External auxiliary supply not required. Specify: Zero value, full scale and output type. See table at the end of This section

CW / CY, Power transducer Active power transducer

Type	Code	System	Output type	Analog output	PKR
Active power. Auxiliary supply 230 V, 40...90 Hz, Accuracy: ± 0,5 % reading					
CW-M Out1,3	[1] M25211.	Single-phase	1, 3	0...20mA	187,388
CW-M Out2	[1] M25212.	Single-phase	2	4...20mA	141,516
CW-TE Out1,3	[1] M25221.	Balanced three-phase	1, 3	0...20mA	187,388
CW-TE Out2	[1] M25222.	Balanced three-phase	2	4...20mA	209,456
CW-TA Out1,3	[1] M25231.	Unbalanaced three-phase ARON (3 wires)	1, 3	0...20mA	254,865
CW-TA Out2	[1] M25232.	Unbalanaced three-phase ARON (3 wires)	2	4...20mA	268,432
CW-TAN Out1,3	[1] M25241.	Unbalanaced three-phase (4 wires)	1, 3	0...20mA	260,568
CW-TAN Out2	[1] M25242.	Unbalanaced three-phase (4 wires)	2	4...20mA	275,723
Reactive power. Auxiliary supply 230 V, 40...90 Hz, Accuracy: ± 0,5 % reading					
CY-M Out1,3	[1] M25251.	Single-phase	1, 3	0...20mA	196,254
CY-M Out2	[1] M25252.	Single-phase	2	4...20mA	205,453
CY-TE Sal.1,3	[1] M25261.	Balanced three-phase	1, 3	0...20mA	196,254
CY-TE Sal.2	[1] M25262.	Balanced three-phase	2	4...20mA	205,607
CY-TA Out1,3	[1] M25271.	Unbalanaced three-phase ARON (3 wires)	1, 3	0...20mA	266,733
CY-TA Out2	[1] M25272.	Unbalanaced three-phase ARON (3 wires)	2	4...20mA	275,086
CY-TAN Sal1,3	[1] M25281.	Unbalanaced three-phase (4 wires)	1, 3	0...20mA	266,733
CY-TAN Out2	[1] M25282.	Unbalanaced three-phase (4 wires)	2	4...20mA	275,086

Indicate: Zero value, fullscale, type of output, Un (between phases), In and fn. See table at the end of the section

CPF / CCOS, Power Factor & Cosϕ transducer

Type	Code	System	Output type	Analog output	PKR
Cos ϕ. Auxiliary supply 230 V, 40...90 Hz, Accuracy: ± 0,5 % reading					
CCOS-M Out1,3	[1] M25341.	Single-phase	1, 3	0...20mA	265,689
CCOS-M Out 2	[1] M25342.	Single-phase	2	4...20mA	272,692
CCOS-TE Out1,3	[1] M25351.	Balanced three-phase (3 wires)	1, 3	0...20mA	265,689
CCOS-TE Out2	[1] M25352.	Balanced three-phase (3 wires)	2	4...20mA	272,692
CCOS-TEN Sal1,3	[1] M25361.	Balanced three-phase (4 wires)	1, 3	0...20mA	265,689
CCOS-TEN Out2	[1] M25362.	Balanced three-phase (4 wires)	2	4...20mA	272,692
Power factor. Auxiliary supply 230 V, 40...90 Hz, Accuracy: ± 0,5 % reading					
CPF-M Out1,3	[1] M25311.	Single-phase	1, 3	0...20mA	265,658
CPF-M Out2	[1] M25312.	Single-phase	2	4...20mA	275,661
CPF-TE Out1,3	[1] M25321.	Balanced three-phase (3 wires)	1, 3	0...20mA	265,658
CPF-TE Out2	[1] M25322.	Balanced three-phase (3 wires)	2	4...20mA	275,661
CPF-TEN Out1,3	[1] M25331.	Balanced three-phase (4 wires)	1, 3	0...20mA	265,658
CPF-TEN Out2	[1] M25332.	Balanced three-phase (4 wires)	2	4...20mA	275,661

Indicate: Zero value, fullscale, type of output, Un (between phases), In and fn. See table at the end of the section

CF, Frequency transducers

Type	Code	Measure	Output type	Analog output	PKR
Auxiliary supply 230 V, 40...90 Hz, Accuracy: ± 0,2 % reading					
CF Out1	[3] M25531.	10 ... 660 Vac 0 ... 10 kHz.	1	0...20mA	104,842
CF Out2	[1] M25532.	10 ... 660 Vac 0 ... 10 kHz.	2	4...20mA	134,769

Specify: zero value, full scale, output type, Un (between phases), In and fn, see table at the end of This section

Temp, Ohm, aislam, proceso, Transducers

Type	Code	Measure	Output type	Analog output	PKR
Galvanic insulator transducer					
CC-G	[*] M25610.	500 µA ... 10 Adc	1	0...20mA	118,366
Leakage current					
CC-WG Out2	[3] M25631.	0 ... 3 Aac	2	4...20mA	159,994
Resistance					
CR2 Out 1	[1] M25641.	1 ... 200 kΩ	1, 3	0...20mA	206,262
CR2 Out 2	[1] M25642.	1 ... 200 kΩ	2	4...20mA	220,021
Process universal					
CUP Out 2	[1] M25612.	Configurable	1,2,3	0...20mA/4...20mA	138,569
CT-PT100 Out1,3	[1] M25651.	According probe PT-100	1, 3	0...20mA	206,268
CT-PT100 Out2	[*] M25652.	According probe PT-100	2	4...20mA	220,021

Indicate: Zero value, fullscale and type of output. See table at the end of the section

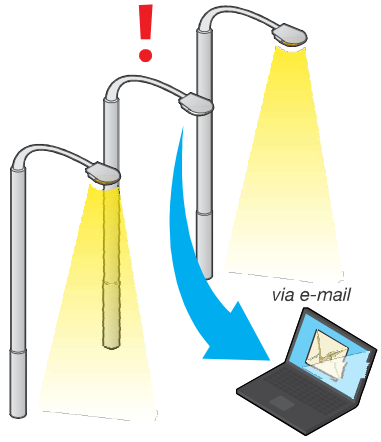
SH, Shunts for direct current measurement

Type	SHP			SHB			SH		
									
Accuracy	1			0.5					
Relation	Type	Code	PKR	Type	Code	PKR	Type	Code	PKR
1A/60mV				SHB 1A/60mV	[3] M71221.	10,983			
1.5A/60mV				SHB 1.5A/60mV	[3] M71222.	10,983			
2.5A/60mV				SHB 2.5A/60mV	[3] M71223.	10,983			
4A/60mV				SHB 4A/60mV	[3] M71224.	10,983			
5A/60mV				SHB 5A/60mV	[3] M71225.	10,983			
6A/60mV				SHB 6A/60mV	[3] M71226.	10,983			
10A/60mV				SHB 10A/60mV	[*] M71227.	10,983			
15A/60mV				SHB 15A/60mV	[*] M71228.	10,983			
25A/60mV				SHB 25A/60mV	[*] M71229.	10,983			
30A/60mV	SHP 30A/60mV	[3] M71211.	8,310	SHB 30A/60mV	[*] M7122A.	12,933	SH 30A/60mV	[*] M71231.	8,644
40A/60mV	SHP 40A/60mV	[3] M71212.	8,310	SHB 40A/60mV	[*] M7122B.	12,933	SH 40A/60mV	[2] M71232.	8,644
50A/60mV	SHP 50A/60mV	[3] M71213.	8,310	SHB 50A/60mV	[*] M7122C.	12,933	SH 50A/60mV	[*] M71233.	8,644
60A/60mV	SHP 60A/60mV	[3] M71214.	8,310	SHB 60A/60mV	[*] M7122D.	12,933	SH 60A/60mV	[*] M71234.	8,644
75A/60mV	SHP 75A/60mV	[3] M71215.	8,310						
80A/60mV				SHB 80A/60mV	[*] M7122E.	13,318	SH 80A/60mV	[*] M71235.	8,644
100A/60mV	SHP 100A/60mV	[3] M71216.	8,310	SHB 100A/60mV	[*] M7122F.	12,933	SH 100A/60mV	[*] M71236.	8,644
150A/60mV	SHP 150A/60mV	[3] M71217.	8,797				SH 150A/60mV	[*] M71237.	9,145
200A/60mV	SHP 200A/60mV	[3] M71218.	8,797	SHB 200A/60mV	[2] M7122N.	20,243	SH 200A/60mV	[*] M71238.	15,656
250A/60mV							SH 250A/60mV	[*] M71239.	16,769
300A/60mV							SH 300A/60mV	[*] M7123A.	18,693
400A/60mV							SH 400A/60mV	[*] M7123B.	20,968
500A/60mV							SH 500A/60mV	[*] M7123C.	22,452
600A/60mV							SH 600A/60mV	[*] M7123D.	24,906
750A/60mV							SH 750A/60mV	[2] M7123E.	29,182
800A/60mV							SH 800A/60mV	[2] M7123F.	30,765
1000A/60mV							SH 1000A/60mV	[*] M7123G.	32,147
1200A/60mV							SH 1200A/60mV	[3] M7123H.	36,151
1500A/60mV							SH 1500A/60mV	[*] M7123J.	46,286
2000A/60mV							SH 2000A/60mV	[3] M7123K.	55,279
2500A/60mV							SH 2500A/60mV	[3] M7123L.	66,896
3000A/60mV							SH 3000A/60mV	[3] M7123M.	110,940
4000A/60mV							SH 4000A/60mV	[3] M7123N.	110,946
5000A/60mV							SH 5000A/60mV	[3] M7123P.	120,972
6000A/60mV							SH 6000A/60mV	[3] M7123Q.	141,185
7500A/60mV							SH 7500A/60mV	[3] M7123R.	226,626
8000A/60mV							SH 8000A/60mV	[C] M7123S.	507,784
10000A/60mV							SH 10000A/60mV	[C] M7123T.	738,335
12500A/60mV							SH 12500A/60mV	[C] M7123U.	800,515
15000A/60mV							SH 15000A/60mV	[C] M7123V.	816,446
18000A/60mV							SH 18000A/60mV	[C] M7123Z.	1,747,461
20000A/60mV							SH 20000A/60mV	[C] M7123O.	1,764,508

Insulating base socket for type SHB (up to 100 A) All shunts are supplied with 1.5 m long cables with a 1.5 m2 cross-section

CIRLAMP

Management system for street lights



Preventive maintenance and energy efficiency

With the **CirLAMP** system it is possible to detect lighting anomalies, for example, burnt out light bulbs, a blinking light, open capacitor, or control the life time of each light, to ensure correct maintenance of installations. When the **CirLAMP system** detects an incident, it sends an email with detailed information. Considering that monitoring maintenance actions are by nature repetitive and cover very extended areas (municipal boundaries), when implementing a system that eliminates the need of personnel having to make supervising rounds and provides reliable, complete and constant information on the condition of the diverse elements comprising street light installations, it is essential that once said information has been suitably treated and double checked, the maintenance tasks are carried out together with such energy saving actions as appropriate:

1. Energy savings, programmed partial or total turn on turn off, as needed.
2. Reduced replacement and maintenance costs.
3. Night watch service costs for fault detection are eliminated.

Features:

- Turn on and turn off periods for each lighting point
- Electrical parameters
- Burnt out light detection and alert
- Point-to-point independent management
- Bidirectional communication
- Plug & Play
- Open capacitor detection and alert
- Flickering light detection and alert
- Independent lighting regulation
- 8i8o Module with astronomical clock
- XML (SOAP), Web Server

CIRLAMP, Public lighting control system

CIRLAMPmanager, master device to manage the light control devices (CIRLAMPnodo)

	Type	Code	Description	Price Rs.
	**CIRLAMP manager**	[*] M63001	CIRLAMP has a configuration Web site, where the user can fully configure the configuration parameters of each light point. In addition, the device has an XML server, so that it can be integrated in any global control and maintenance platform	170,000
	CIRLAMP 8I/8O	[c] M63002	Input/Output module	80,000
	**CIRLAMP Nodos, light control devices**			
	CIRLAMP nodo dN	[c] M63021	For managing the lights with 2-level electronic ballasts / drivers (lamp power of up to 600 W)	23,262
	CIRLAMP nodo 1...10	[c] M63011	For managing the lights with electronic ballasts / drivers with 1...10V regulation (lamp power of up to 600 W)	23,262
	CIRLAMP nodo dALI	[c] M63030	For managing the lights with electronic ballasts/drivers with DALI protocol (lamp power of up to 600 W)	23,262

B-band PLC Communications in compliance with CENELEC regulations, with a DCSK system; Detection of operating errors in the luminaire for maintenance purposes: Blown lamp, Flashing lamp, Open capacitor, Number of operating hours of the lamp.

Cirlamp node location. Nodes geolocalization Software. (Free download)

GET IT ON Google Play

Download on the App Store

CIRWATT B

Single-phase energy meters

CIRWATT B 102 are single phase residential meters with class B (class 1) in active energy and class 2 in reactive energy. It has 4 tariffs and a flexible configuration. An advanced design offers high features and versatility to fulfill requirements in domestic applications. These meters have memory to record load profile for 400 days, 12 billing closures and moreover tamper registers and power quality information. As an option it has a back light display to help in reading energy consumption or any other information showed if there is no enough light.

Using an RS-485 communication port it is possible to connect up to 32 meters in the same bus and download data remotely using a GSM/GPRS modem. These meters have many options to detect tampering or any unauthorized access to the meter such as: magnetic field detection, reverse current detection, terminal cover removed, neutral current measurement.

Using CIRWATT B 101-102 pulse output, user can add a CIRCUTOR impulse concentrator LM, which allows to centralize energy consumption and send all data remotely to an energy management software Power Studio.

Type	Code	Class (Active / Reactive)	Measurement Range v	Measurement Range A	Frequency (Hz)	Tariff	Certificate	Quadrants	Impulse outputs	Relay output	Change tariff input	Communications	Price Rs.
212-ES7A-21B20	[1] QBM83	B (1) / 2	230V	5(65) A	50	3	IEC	Abs.	1	-	-	RS-485	28,603
212-ES7A-23B20	[1] QBM85	B (1) / 2	230V	5(65) A	50	3	IEC	Abs.	-	1	-	RS-485	28,603
212-ES7A-2EB20	[1] QBM87	B (1) / 2	230V	5(65)A	50	2	IEC	Abs.	-	-	1	RS-485	28,603

CIRWATT BIII

Three-phase energy meters

CIRCUTOR's CIRWATT B 410D is a standard three phase direct connection meter, as a result of all the technological developments which is experiencing the current market. These changes have created new needs and requirements both in terms of more flexible rates, new communications systems and a price optimization.

CIRWATT B 410D is suitable for LV applications (with currents from 100 to 120 A), adapted to new market challenges, having different communication systems and expansion modules. Providing to the market a robust and competitive meter fully complying with the new European Directive MID (EN 50470) and all the relevant IEC's.

CIRWATT BIII, Three-phase energy meters (Measuring, load profiling, multi configurable billling calendar) AMR Meters

Type	Code	Class (Active/ Reactive)	Quadrants	frecuency (Hz)	Measuring range v	Measuring range A	Communication COM1	Communication COM2	Price Rs.
CIRWATT B410D, direct connection, energy generation									
410-QD1A-90B10	**[1] QB4B0**	B (1) / 2	4	50	3x230/400 V	10 (100)A	RS-232	RS-485	101,562
410-QD1A-A0B10	**[1] QB4C0**	B (1) / 2	4	50	3x230/400 V	10 (100)A	RS-232	Ethernet	154,512
410-QD1B-90B10	**[1] QB4H0**	B (1) / 2	4	60	3x230/400 V	10 (100)A	RS-232	RS-485	101,562
410-QD1B-A0B10	**[1] QB4I0**	B (1) / 2	4	60	3x230/400 V	10 (100)A	RS-232	Ethernet	101,562

FOR OTHERS CONFIGURATIONS (inputs, outputs and other communications), CONSULT

CIRWATT B 200

Single-phase active energy meter, Class B* and reactive, Class 2 reactive, Class 2

Description

CIRWATT B is a multi-function digital single-phase meter, Class B in active energy and Class 2 in reactive energy. The meter complies with European legislation related to energy meters (**MID**) **EN 50470-1** and **EN 50470-3,** which approves the installation of these meters in any country of the European Union.

It includes PLC (Power Line Carrier) Communications through power cable and an optical communications port. Both use **IEC-61870-5-102** protocol. In addition, it can display information in case of power loss just pressing the button, it can store up to 6 channels of energy registers with 3 months of hourly load profile and it can limit maximum power consumed by end-user, through an internal disconnection relay which can be remotely managed using PLC communications.

Application

The main application of the **CIRWATT B** meter is the metering of active and reactive energy for billing purposes, whenever a meter with high performance features is required at an optimised cost. **PLC** communications can be used for the remote download of all data recorded by the meter through a **PLC-800** concentrator.

The circuit breaker integrated in the meter can be used to manage the supply remotely, opening/closing the circuit breaker and programming the hired power above a value that will activate the circuit breaker, opening it and reclosing it to guarantee the safety for the final user.

Features

Power supply	
Nominal voltage	230 V
Tolerance	80 % ... 115 % U_n
Consumption	<2 W; 10 V·A
Frequency	50 Hz
Voltage measurement	
Connection	Asymmetrical
Reference voltage	230 V
Frequency	50 or 60 Hz
Voltage circuit consumption	< 2 W; 10 V·A
Current measurement	
Nominal reference current, I_{ref}	10A
Maximum current Imax	60A
Start-up current Ist	< 0.04 x I_{tr}
Minimum current Imin	< 0.5 x I_{tr}
Current circuit consumption	0.024 V·A at 10 A
Accuracy class	
Accuracy measured in active energy	EN 50470 - Class B*
Accuracy measured in reactive energy	UNE-EN 62053-21 - Class 2
Memory	
Data	Non-volatile memory
Setup and events	Serial flash

Battery	
Type	Lithium
Working Life	>20 years @ 30ºC
Clock	
Type	Gregorian calendar
Source	Temperature compensated oscillator
Accuracy (**EN61038**)	< 0.5 s/day
Environmental influence	
Operating temperature range	-25ºC to +70ºC
Storage temperature range	-40ºC to +85ºC
Temperature coefficient	< 15 ppm/K
Humidity	95 % max.
Insulation	
Insulating voltage	4 kV to 50 Hz during 1 min
Impulse voltage 1.2/50 µs - **IEC 62052-11**	6 kV
Protection degree (**IEC 62052-11**)	II
Display	
Type	LCD
Number of data digits	UP to 6
Size of data digits	9 mm
Display data reading when there is no voltage	Yes

CIRWATT B

Single-phase active energy meter, Class B and reactive, Class 2

Features

Optical communications interface	
Type	Serial, two-directional
Hardware	IEC 62056-21
Protocol	REE, based on IEC 870-5-102
Tampering detector	
Detection	Opening the terminal cover
Type	Micro-switch
Function	Detects intruders when there is no voltage.
Construction features	
Connection	Asymmetrical
External dimensions	DIN 43857
Enclosing features	DIN 43859
IP Degree (IEC 60529)	IP 51
PLC	
Modulation system	DSCK with repeater system
Hardware	CENELEC A or CENELEC B
Protocol	CirPLC and PEP (PLC Encapsulated Protocol)

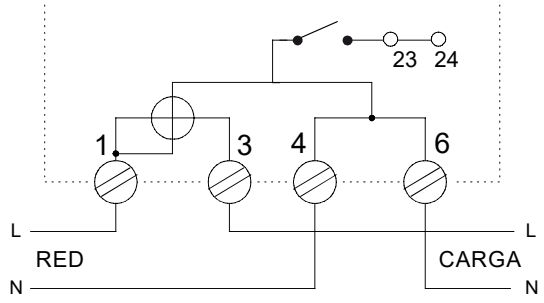
Rate programming	
Number of days	4
Types of days	4
Contracts	1
Number of Tariffs	6
Discrimination	1 hour
Holidays/festivities	15
Special days	None
Load curve	
NUmber of load curves	1
Integration time	Programmable: 1 ... 253
Recording depth	2200
Events	
Number of events	200
Billing closures	
Number of locks	12, per contract
Type	Disabled / Programmable date and hour

CIRWATT B II, Single-phase energy meter

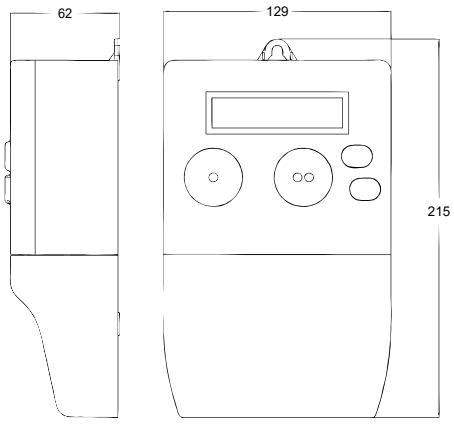
Type	Code	Class (Active/ Reactive)	Qua-drants	Measu-rement Range (V)	Measu-rement Range (A)	Frequency (Hz)	Tariff	Im-pulse output	Output relay	Change tariff input	Certifi-cation	Communications	EUR
CIRWATT B101													
210-ES4A-01B20	[1] QBM03	B (1)	Abs.	230	5 (65)	50	3	1	-	-	IEC	-	56,66
210-ES4A-0EB20	[1] QBM07	B (1)	Abs.	230	5 (65)	50	2	-	-	1	IEC	-	55,42
CIRWATT B102													
212-ES7A-21B20	[1] QBM83	B (1) / 2	Abs.	230	5 (65)	50	3	1	-	-	IEC	RS-485 (IEC)	87,57
212-ES7A-23B20	[1] QBM85	B (1) / 2	Abs.	230	5 (65)	50	3	-	1	-	IEC	RS-485 (IEC)	87,57
212-ES7A-2EB20	[1] QBM87	B (1) / 2	Abs.	230	5 (65)	50	2	-	-	1	IEC	RS-485 (IEC)	87,57

ABS. Storage of generated and consumed energy. (*1) Laser engraved, in English / (*2) Laser engraved, in Spanish Please contact us for other configurations (inputs, outputs and other communications)

Connections



Dimensions



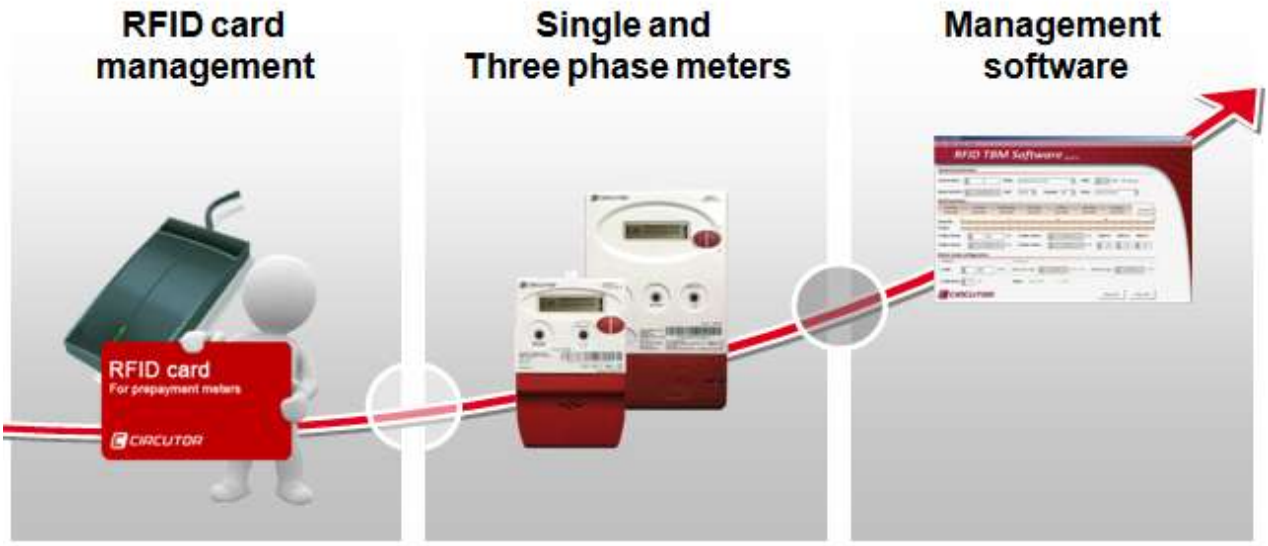
CIRWATT B 410D

CIRWATT P

Single & Three phase prepaid energy meters

The end user must pay an amount of money, to receive from the utility a RFID card with the energy that corresponds to the amount paid.The end user must approach the RFID card to the meter and if previously, this has been loaded with an energy value, this is transferred to the meter and the user recover the energy supply.

In a prepaid system we can highlight the following elements: The device that we have to use to:
1. Read and write RFID card,
2. Single and three-phase meters and



CIRWATT P, Prepayment energy meters

Type 	Code	Class (active/reactive)	Unidirectional	frequency (Hz)	Measurement range v	Measurement range A	prepaid system	Internal disconnection relay	Price Rs.
Single-phase energy meter, CIRWATT P200RC									
212-WS4C-23P23	[c] QP102	1 / 2	•	50/60	110 ... 260	10 (60)	RFID card	Yes	37,300
Three-phase energy meter, CIRWATT P410RC									
410-Qd1A-20P22	[c] QP302	1 / 2	•	50/60	230 / 400	10 (100)	RFID card	Yes	110,525
Accessories									
PEM-SOFT-PLUS	**[c] Q30501**	Management software + PEM-TERM							911,659
PEM-TERM	**[c] Q31100**	PEM-CARD writer / reader							166,874
PEM-CARD	**[c] E20001**	RFIDcard							1,405

Measuring and testing equipments for substations

Assorted analyzers and testers

Type	Code	description	Price Rs.
GETEST, Indirect earth contact simulator			
GETEST	**[c] P6012300A0000**	Indirect earth contact simulator 5...50A, GETEST	
Trolley GETEST	**[*] P6990A**	Transport trolley GETEST	

CR, Relay tester			
CR-50	[c] P6021100A0000	Relay tester 50 A (carrying case version)	
CR-100	[c] P6021200A0000	Relay tester 100 A (carrying case version)	
CR-250	[c] P6021300A0000	Relay tester 250 A	

Accessories CR-250			
Trafo CR-250	[*] P69903	Transformer 2500 A for CR-250	
Cable-CR-250	[*] P69902	Cable: Lenght 1,5 m / 2 500 A	
Trolley CR250	[*] P69901	Transport trolley CR250	

OT2, Dielectric strenght tester			
OT2-60d	[c] P6031200A0000	Dielectric strength tester for insulation oil 60kV	Consult

MH, Microohmmeter			
MH-10	[c] P6071100A0000	Microohmmeter (Thomson Bridge)	Consult
MH-10/100u	[c] P6071400A0000	Microohmmeter 10/10 A	Consult

Other models, please ask

MD, Megaohmmeters			
Md-5060e	[c] P6052100A0000	Digital megaohmmeter 5kV (with memory and communication)	Consult
Md-10kve	[c] P6052200A0000	Digital megaohmmeter 10kV	Consult

TL, Earth resistance meter			
TL-6e	[c] P6062200A0000	Earth resistance meter 4 ways	

CIRCUTOR calibration certificate included

PI-23, High voltage clamps

Digital megaohmmeter 5kV (with memory and communication)

High voltage clamps, PI series, 36 kv, 50 Hz

Type	Code	Range of measurements (external power supply)	I_{max}	Ø max.	Price Rs.
PI-23-50 Hz	[*] M80132	PI-23 + case - 50 Hz	400 A	25	Consult
PI-23-60 Hz	[*] M801320010000	PI-23 + case - 60 Hz	400 A	25	Consult
Pole 6 m	[*] M89941	6 m pole (3 x 2 m sections)			Consult

RG1M

Electronic earth leakage relay with external transformer of the WG / WGC series

Description

Electronic earth leakage protection relay of the WG series connected to the external toroidal transformers of the WG / WGS / WGC series.

— These are highly reliable electronic relays with the option of having fixed or adjustable sensitivity and delay
— True root mean square measure, TRMS.
— Assembly on DIN 46277 rail (EN 50022)
— Reduced single-module size.

LED status indication.
— Power LED ON. Device powered on.
— Leakage LED ON. Tripped relay.
— Power LED flashing and leakage LED ON. Detection of a continuity fault in the transformer.

Compatible with WGC earth leakage transformers

Applications

RG1M relays used with WG / WGC transformers offer a full earth leakage protection in single-phase and three-phase lines.

Technical features

Protection	Class	85...264 Vac / 120...374 Vdc
	Measurement	47...63 Hz
	Sensitivity	5...8 VA
	Delay	INS (instantaneous)
	Earth leakage transformer	External, WG / WGC series
	Test and reset	Using buttons T and R
	Remote control	External test option
	Associated circuit breaker	Contactor or circuit breaker using a trigger coil
	LED indicators	Power supply voltage Leakage trip Disconnection of external transformer
	Circuit breaker control	Output of NO / NC changeover contact relay, according to the circuit breaker type
Electrical features	Auxiliary power supply	230 Vac (± 20%) 50 / 60 Hz
	Output contacts	250 Vac, 6 A
	Operating temperature	250 Vac
Mechanical features	Attachment	DIN 46277 rail (EN 50022)
	Dimensions	1 module
	Weight	85 g
	Protection degree	IP 20
Standards	IEC 60947-2, IEC 60755, IEC 62020, IEC 61008	

Maximum operating time (s) for $I_{\Delta n}$

Type	$I_{\Delta n}$	$1 \cdot I_{\Delta n}$	$2 \cdot I_{\Delta}$	$5 \cdot I_{\Delta n}$	500 A
INStantaneous	All values	0.3	0.15	0.04	0.04

Standardised values in accordance with IEC 61008-1

RGU-10
/RGU-10 C

Electronic earth leakage relay with external transformer of the WG series

Compatible with WGC earth leakage transformers

Description
- Electronic earth leakage protection relay of the WG series, connected to the external transformers of the WG / WGC series.
- Super-immunised type-A relay with high-frequency current filtering and high immunity. True root mean square (TRMS) measure.
- Data shown on the display
- Features two independent programmable outputs (main and prealarm)
- External input for remote-control functions (230 Vac)

Applications
The RGU-10 relays associated with WG transformers offer smart earth leakage protection. Their design features guarantee maximum security and electrical service continuity, avoiding unwanted tripping.

Viewing the instantaneous leakage value on the display, together with the prealarm indicators, makes it possible to obtain information on the status of lines to be protected, and to perform adequate preventive maintenance.

In addition, version RGU-10 C features RS-485 communications and, with thePowerStudio software , offers centralised supervision in real time, as well as keeping a log of historical data for future analysis.

WRU-10

Earth leakage relay with built-in transformer and display

Description
Electronic earth leakage protection relay with built-in 28 mm transformer, forming a single unit.
- Super-immunised type-A, with high-frequency current filtering and high immunity. True root mean square (TRMS) measurement.
- Display with LEDs and display:
- earth leakage protection parameters.
- protection trip current.
- protection status messages, etc.
- Unit with three programmable contact output relays, one switched and two single. The main relay is for the protection associated with the contact or trigger relay of the circuit breaker while the two others are for the prealarm.
- It also has a voltage-free input for external tripping and rearming.
- Assembly on DIN 46277 rail (EN 50022)
- Compact size: 3 modules
- Connection by pluggable terminal strips.

Applications
WRU-10 relays enable smart differential protection. Their design features guarantee maximum security and electrical service continuity, avoiding unwanted tripping.

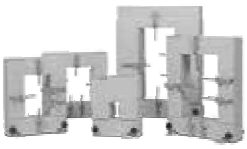
Viewing the instantaneous leakage value on the display, together with the prealarm indicators, makes it possible to obtain information on the status of lines to be protected, and to perform adequate preventive maintenance.

WGC, Earth leakage transformers

Type	Code	Useful diameter (mm)	$I_{\Delta n}$ (A)	Weight(g)	Price Rs.
WgS-20	**[*] P10131**	20 ø	acc. relay	75	11,746
WgS-30	**[*] P10132**	30 ø	acc. relay	95	12,634
WgC-25	**[*] P10151**	25 ø	acc. relay	80	12,344
WgC-35	**[*] P10152**	35 ø	acc. relay	120	13,673
WgC-55	**[*] P10153**	55 ø	acc. relay	160	17,866
WgC-80	**[*] P10154**	80 ø	acc. relay	300	19,420
WgC-110	**[*] P10155**	110 ø	acc. relay	420	38,811
WgC-140	**[*] P10156**	140 ø	acc. relay	760	88,823
WgC-180	**[*] P10157**	180 ø	acc. relay	1480	134,254
WgC-220x105	**[c] P10158**	220 x 105	acc. relay	3740	254,149
WgC-350x150	**[c] P10159**	350 x 150	acc. relay	7800	702,176
WgC-500x200	**[c] P10160**	500 x 200	acc. relay	11300	960,872
PA-TC/Wg	**[*] P19921**	DIN rail mounting accessory for WGC-25, WGC-35 and WGC-55			Consult

UL Certification in all WGC models and in WGS models on demand

TP-WGC, Split-core earth leakage transformers/core balanced



Type	Code	Useful diameter útil (mm)	$I_{\Delta n}$ (A) >0,3 A	Weight (g)	Price Rs.
TP-WgC-58	**[c] P11121**	80 x 50	s / relé (*)	1	115,051
TP-WgC-88	**[c] P11131**	80 x 80	s / relé (*)	1.3	134,822
TP-WgC-812	**[c] P11141**	120 x 80	s / relé (*)	1.6	148,891
TP-WgC-816	**[c] P11151**	160 x 80	s / relé (*)	4.1	249,638

(*) Only for RGU-2, RGU-10/10C, CBS-4/4C

RGU-10 / RGU2 / RGE / RG1M, Earth leakage relays for WGC transformers, Type A ultra-immunised

On Request
On Request

RGU-10 series, Programmable earth leakage relay, 3 modules with display and programmable prealarm output. Auxiliary power supply 230 V_{ac} (*1)

Type	Code	Size	Communications	$I_{\Delta n}$ (A)	delay	Price Rs.
RgU-10	**[*] P11941**	3 modules	-	0,03 … 3 A 0,03 …30 A	0,02...10 s, INS, SEL (*2)	115,051
RgU-10C	**[*] P11944**	3 modules	RS-485	0,03 … 3 A 0,03 …30 A	0,02...10 s, INS, SEL (*2)	134,822
	[*] M5ZZf1	Panel adapter for RGU-10 and CBS-4 (72 x 72 mm)				148,891

Possibility UL on demand

Serie RGU2, programmable earth leakage relay, 2 modules with display and static prealarm output. 230 V_{ac} Auxiliary power

Type	Code	Size	Mounting	$I_{\Delta n}$ (A)	delay	Price Rs.
RgU2	**[*] P11A61**	2 modules	DIN rail	0,03...5	0,1...5 s, INS, SEL (*2)	33,090

RGE series, configurable earth leakage relay, 2 modules with visual prealarm. 230 V_{ac} Auxiliary power supply

Type	Code	Size	Mounting	$I_{\Delta n}$ (A)	delay	Price Rs.
RgE-R1	**[*] P12231**	2 modules	DIN rail	0,03...3	0,02...1 s	30,909
RgE-R	**[*] P12232**	2 modules	DIN rail	0,03...5	0,02...5 s	30,909

RG1M serie, earth leakage relays 1 module. Auxiliary power supply 230 V_{ac}

Type	Code	Size	Mounting	$I_{\Delta n}$ (A)	delay	Price Rs.
Rg1M-0,03	**[*] P12204**	1 modules	DIN rail	0,03	0,02 s	22,126
Rg1M-0,3	**[*] P12214**	1 modules	DIN rail	0,3	0,02 s	22,126

(*1) The delay is cancelled in all relays with 0.03 A sensitivity adjustment, IEC 60947-2, Annex M
(*2) INS, SEL trip curves, according to IEC 61008-1, for trigger coils with a trip time <0.02 s
Requires an earth leakage transformer, WGC type
See the table at the end of the section to encode other parameters, such as the auxiliary power supply voltages

CBS-4, Earth leakage relay centre, type A ultra-immunised

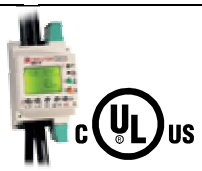
On Request

CBS series, Station with 4 programmable earth leakage relays, 4 modules with display and a configurable prealarm output. 230 Vac Auxiliary power supply

Type	Code	Size	Communications	Nr. Relays	$I_{\Delta n}$ (A)	delay	Price Rs.
CbS-4	**[*] P12711**	3 modules	-	4	0,03...30	0,02...10 s, INS, SEL (*2)	129,580
CbS-4C	**[*] P12712**	3 modules	RS-485	4	0,03...30	0,02...10 s, INS, SEL (*2)	162,518
	[*] M5ZZf1						2,253

Only for CBS-4 230 V_{ac}, possibility of receiving the UL certification. Earth leakage transformer, WGC type

WRU, Earth leakage relay with built-in transformer, type A ultra-immunised



WRU-10 series, with display, DIN rail, auxiliary power supply 230 V^{ac} (*1)

Type	Code	Size	Useful diameter (mm)	$I_{\Delta n}$ (A)	delay	Price Rs.
WRU-10	**[*] P14035**	3 modules	28	0,03 … 3 A 0,03 …30 A	0,02...10 s, INS, SEL (*2)	67,435

(*1) The delay is cancelled in all relays with 0.03 A sensitivity adjustment, IEC 60947-2, Annex M
(*2) INS, SEL trip curves, according to IEC 61008-1, for trigger coils with a trip time <0.02 s
See the table at the end of the section to encode other parameters, such as the auxiliary power supply voltages

WRN-22, Earth leakage relay with built-in transformer, Type A

Type	Code	Useful diameter (mm)	$I_{\Delta n}$ (A)	delay	Price Rs.
WRN-22-0,03	**[*] P14211**	22	0,03	0,02 s	46,424
WRN-22-0,3	**[*] P14212**	22	0,3	0,02 s	46,424
WRN-22-0,01	**[*] P14214**	22	0,01	0,02 s	47,569

WGBU, Transformer with built-in earth leakage relay, Type A

WGBU series. Configurable earth leakage relay with visual prealarm. 230 V_{ac} Auxiliary power supply

Type	Code	Weight(g)	Useful diameter □ (mm)	$I_{\Delta n}$ (A)	delay (s)	Price Rs.
WgbU-35	**[*] P16011**	380	35	0,03...3	0,02...1 s (*)	64,021
WgbU-70	**[*] P16012**	474	70	0,03...3	0,02...1 s (*)	70,186
WgbU-105	**[*] P16013**	744	105	0,03...3	0,02...1 s (*)	87,322
WgbU-140	**[*] P16014**	1 422	140	0,03...3	0,02...1 s (*)	129,134
WgbU-210	**[*] P16015**	2 240	210	0,03...3	0,02...1 s (*)	173,286

WGBU-90 series, Relay mounted at 90º. It allows to reduce the mounting space

WgbU-90-35	**[*] P16021**	380	35	0,03...3	0,02...1 s (*)	67,257
WgbU-90-70	**[*] P16022**	474	70	0,03...3	0,02...1 s (*)	69,518
WgbU-90-105	**[*] P16023**	744	105	0,03...3	0,02...1 s (*)	87,522
WgbU-90-140	**[*] P16024**	1 422	140	0,03...3	0,02...1 s (*)	125,522
WgbU-90-210	**[*] P16025**	2 240	210	0,03...3	0,02...1 s (*)	175,196

The delay is cancelled in all relays with a sensitivity adjustment of 0.03 A, IEC 60947-2 annex M

Computer Max. Power Factor Relay

Description

The state-of-the-art Max series of regulators has been designed to enable easy, effective regulation.

In common with the entire range of computer regulators, it is based on CIRCUTOR'S FCP system (Fast Computerized Program), which provides the regulator with unique features in the market Other features include:

— Views by display: cosø , voltage, current, THDI and it records maximum voltage and current levels
— Includes the “phase selection” function, which allows the user to select the phase on which the current transformer is installed.
— Allows the user to view the behaviour of cos ø , I and THDI in the event of manual connection and disconnection of capacitors.
— Indication of the following alarms by display or relay:lack of compensation, overcompensation, overvoltage, overcurrent, disconnected transformer, current below limit.

Application

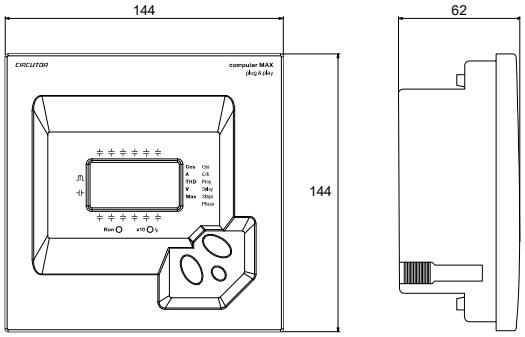
Computer Max is the perfect regulator for the compensation of balanced installation, in which easy of programming, robustness and accuracy are essential requirement. Its straighforward, intuitive programming system makes it very easy to install and maintin by user

computer Max P&P, Power factor regulators

Type	Code	Power supply	Measurement Range (V)	Nr steps	Alarm relay	Size (mm) width x height x depth	PKR
computer Max P&P 6	[*] R10871.	400 Vac	400	6	1	144x144x62	58,000
computer Max P&P 12	[*] R10872.	400 Vac	400	12	1	144x144x62	78,000

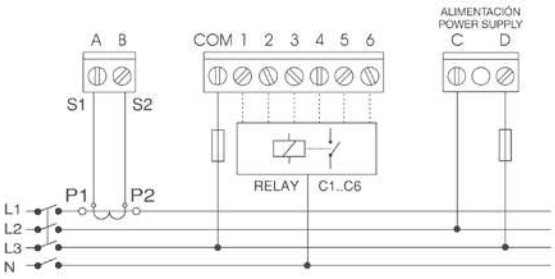
Alarm relay: associated with the last contactor relay.

Dimensions

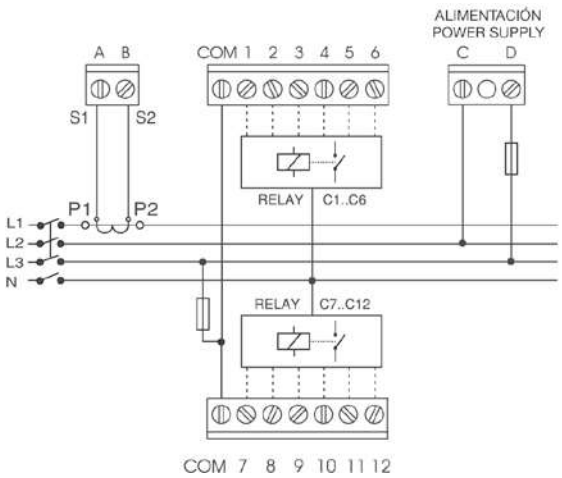


Connections

Computer Max 6



Computer Max 12



Computer Smart III Power Factor Relay

Description

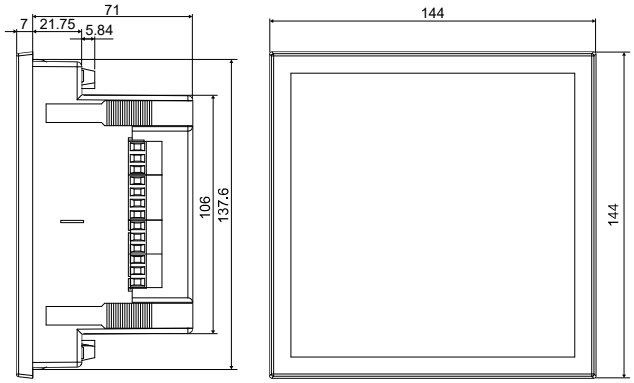
Measurement with three current transformers guarantees an analogue reading of the company meter. The Computer SMART IIIreactive energy regulator is the only regulator on the market that offers the possibility of using 3 measurement transformers in addition to the conventional method of measuring with a single current transformer, as well as providing the functions of an integral power analyzer and controlling residual leakage currents.

Computer SMART IIIis a regulator that ensures excellent preventive maintenance by means of programming its alarms and the options for testing the capacitor status, offering maximum supervision and safety of your compensation unit.

computer SMART III, Three-phase power factor regulators. Regulation, measurement, leakage control and communications

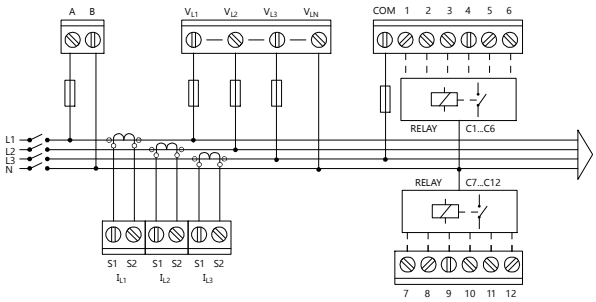
Type	Code	Power supply	Measurement Range (V)	IΔn/Icap.	Nr steps	Alarm relay	Communications	Size (mm) width x height x depth	PKR
computer SMART III 6	[*] R13851.	100...520 Vac	100...520	yes	6	1	RS-485	144x144x71	96,000
computer SMART III 12	[*] R13862.	100...520 Vac	100...520	yes	12	1	RS-485	144x144x71	138,000
computer SMART III 14	[*] R13864.	150...400 Vac	100...520	yes	14	1	RS-485	144x144x71	146,000

Dimensions

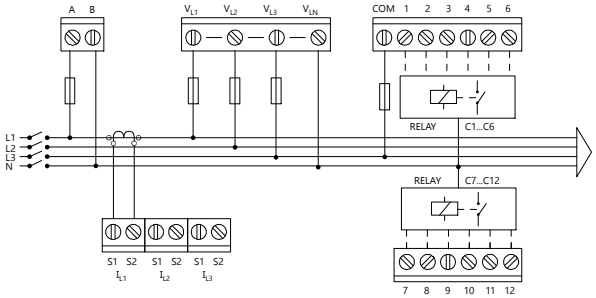


Connections

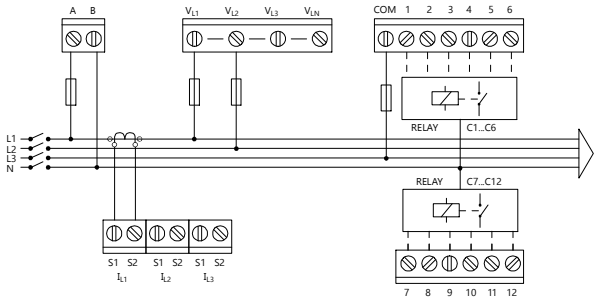
Connection of 3 phases + neutral
3 current transformers



Connection of 3 phases + neutral
1 current transformer



Connection of 2 phases +
1 current transformer



CLZ-FP

Tubular capacitor with connection strip

Description

The CLZ tubular capacitor range is composed of capacitors with a tubular casing, of the dry-type, covering a wide range of power and voltage ratings, at 50 and 60 Hz.
The design, manufacturing and testing processes of CLZ tubular capacitors guarantee top quality and long-lasting capacitors.
New refrigeration technology. CLZ capacitors up to 25 kvar offer new refrigeration technology that uses nitrogen gas, offering a highly efficient, harmless, fireproof refrigeration system.

Application

Its application is based on compensation in installations with static and variable loads (capacitor banks).

CSB

State-of-the-art three-phase prismatic power capacitors

Description

The application of new technologies and the use of printed circuit boards to manufacture prismatic capacitors have allowed CIRCUTORto reinvent the classic CS capacitor, manufactured for more than 35 years.

The spirit of innovation and proprietary technology used during the design of the new CSB capacitor have increased the working life of conventional prismatic capacitors by over 60%. This new series has improved all aspects of the previous models, offering our customers a capacitor that is longer lasting, safer and more cost-efficient.

Application

Its application is based on compensation in installations with static and variable loads (capacitor banks).

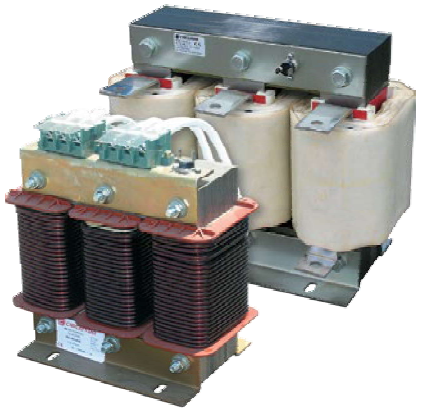
Type	Code	400 V kvar	440 V kvar	Hz	dia.x alt. (mm)	weight (kg)	Cover (opc.)	Terminal	PKR
Faston terminal, Un = 3 x 440 V / 50 Hz									
CLZ-FPT-44/6,25-HD	[*] R2H547.	5	6.25	50	63,5 x 175	0,62	-	F	18,300
CLZ-FPT-44/7,5-HD	[*] R2H848.	6.25	7.5	50	63,5 x 202	0,71	-	F	17,191
Terminal block, Un = 3 x 440 V / 50 Hz									
CLZ-FP-44/10-HD	[*] R2H54B.	8	10	50	85 x 245	0,90	1	A	17,600
CLZ-FP-44/12,5-HD	[*] R2H54D.	10	12.5	50	85 x 245	1,01	1	A	18,553
CLZ-FP-44/15-HD	[*] R2H54E.	12.5	15	50	85 x 245	1,09	1	A	
CLZ-FP-44/18,2-HD	[C] R2H54G.	15	18.2	50	100 x 245	1,38	7	A	
CLZ-FP-44/20-HD	[*] R2H54J.	16	20	50	100 x 245	1,46	7	A	
CLZ-FP-44/25-HD	[*] R2H54L.	20	25	50	100 x 245	1,69	7	B	29,000
CLZ-FP-44/30-HD	[*] R2H54N.	25	30	50	116 x 245	1,99	2	B	35,000
CLZ-FP-44/28-HD	[C] R2H54M.	23	28	50	116 x 245	1,92	2	B	
CLZ-FP-44/40-HD	[C] R2H54R.	32	40	50	136 x 261	5,00	-	B	
CLZ-FP-44/50-HD	[*] R2H54S.	40	50	50	136 x 355	5,18	-	C	59,000
Terminal block, Un = 3 x 460 V / 50 Hz									
CLZ-FP-46/25-HD	[*] R2H55L.	22.9	25	50	116 x 245	2,03	2	B	38,000
CLZ-FP-46/30-HD	[*] R2H55N.	27.4	30	50	136 x 220	2,45	-	B	
CLZ-FP-46/33.3-HD	[C] R2H55P.	30.5	33.3	50	136 x 261	3,20	-	B	

Type	Code	500 V kvar	525 V kvar	Hz	dia.x alt. (mm)	weight (kg)	Cover (opc.)	Terminal	PKR
Terminal block, Un = 3 x 525 V / 50 Hz									
CLZ-FP-52/8-HD	[C] R2H579.	7.25	8	50	85 x 175	0,86	1	A	
CLZ-FP-52/10-HD	[*] R2H57B.	9.1	10	50	85 x 245	0,99	1	A	
CLZ-FP-52/12,5-HD	[*] R2H57D.	11.3	12.5	50	85 x 245	1,13	1	A	25,000
CLZ-FP-52/15-HD	[*] R2H57E.	13.6	15	50	85 x 245	1,20	1	A	25,900
CLZ-FP-52/20-HD	[*] R2H57J.	18.15	20	50	100 x 245	1,62	7	A	26,210
CLZ-FP-52/25-HD	[*] R2H57L.	22.7	25	50	116 x 245	1,63	2	B	27,100
CLZ-FP-52/30-HD	[*] R2H57N.	27.2	30	50	116 x 245	2,18	2	B	27,850
CLZ-FP-52/40-HD	[C] R2H57R.	36.3	40	50	136 x 261	2,80	-	B	70,200
CLZ-FP-52/50-HD	[C] R2H57S.	45.4	50	50	136 x 355	5,24	-	C	

All models are of the inert gas type, except for those with 63.5mm diameter and 136X355 size. The dimensions (dXh) are shown for the tube only. Please consult dimensions drawings at the end of this section for more information about actual dimensions. Terminal: maximum cross section of type A cables: 16mm2, type B:25mm2, type C:35mm2, F:Faston6.3x0.8mm and 12A maximum current.

R / RX

Three-phase reactors for detuned filters



Description

CIRCUTOR has a standard range of rejection reactors p = 7% with a resonance frequency of 189 Hz for 50 Hz networks (or 227 Hz on demand for 60 Hz networks). This is the most frequent tuning value to avoid any resonance of the 5 th harmonic and higher. The capacitor-reactor assembly absorbs the portion of the current of the 5 th order harmonic and acts as a detuned filter for higher frequencies. In some installations, other values of p% are required, for example 5.6% (210 Hz), 6% (204 Hz), 14% (134 Hz) etc.

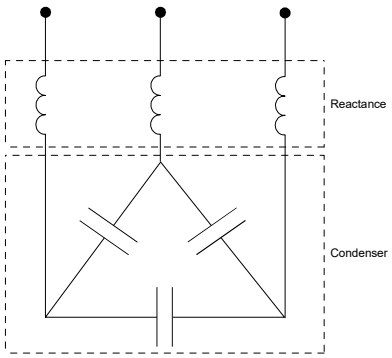
CIRCUTOR can build reactors on demand, which will be adapted to any power rating, p%, voltage and frequency. R-type low-power reactors are built with low-loss plates and are coiled with a copper conductor. The connection is made using suitable terminals. In the case of higher power ratings, RB reactors are used, with a magnetic plate nucleus with multiple air gaps, which offer excellent features and a very low loss ratio. Aluminium band coils are used (or copper band on demand) and the input and output connections run through a busbar.

Both the R and RB reactors are impregnated with varnish in a vacuum to increase insulation, providing greater mechanical resistance and reducing noise levels.

Application

The rejection reactors of the R / RB series have been specifically designed for use in capacitor banks in installations with a high harmonic content. The reactors must be connected in series to each capacitor to ensure adequate protection of the capacitors and to prevent resonance effects in the installation.

Connections



Technical features

Features	Voltage	400 V On demand: up to 1,000 V
	Mains frequency	50 Hz On demand: 60 Hz
	Power	According to the table Other values on demand
	Value of p%	5 kvar...120 kvar
	Type of conductor	R: copper wire RB: aluminium band
	Tolerance L	± 5%
	Linearity (5% L)	1.8 I_n
	Insulation voltage	4 kV
	Maximum room temperature	-10 ºC...+45 °C
	Internal insulation	Class F (155 ºC) On demand: Class H (180 ºC)
Maximum overload	Permanent	1.17 I_n
	Temporary (1 min)	2 I_n
Safety	Protection thermostat	Opening at 90 ºC
	Protection degree	IP 00
	Installation	Interior
Standards	UNE-EN60289, IEC 60076	

RX / RBX, Reactors III for detuned filters

Type	Code	400 V kvar	440 V kvar	Hz	For capacitor	In (A)	L(mH)	Losses	Size (mm) width x height x depth	weight (kg)	PKR
400 Vac, 50 Hz, f resonance = 189 Hz / p= 7%											
RX-5-400	[*] P72110.	5	-	50	CLZ-FP-46/6,25 - CFB-46/6	7.6	7.66	25	155x165x92	4.00	9,800
RX-6,25-400	[*] P72112.	6.25	-	50	CLZ-FP-52/10 - CFB-46/7,75	10	6.12	36	180x190x100	7.10	9,800
RX-10-400	[*] P72115.	10	-	50	CLZ-FP-46/12,5 - CFB-46/12,5	15.5	3.83	50	180x190x100	6.30	9,800
RX-12,5-400	[*] P72117.	12.5	-	50	CLZ-FP-46/15 - CFB-46/15	19	3.06	53	180x192x110	9.00	9,800
RX-15-400	[*] P72120.	15	-	50	CLZ-FP-46/19 - CFB-46/19	23	2.55	57	180x190x110	10.00	103,800
RBX-20-400	[*] P72125.	20	-	50	CLZ-FP-46/25 - CFB-46/25	30	1.92	69	235x165x125	23.00	103,800
RBX-25-400	[*] P72130.	25	-	50	CLZ-FP-46/30 - CFB-46/30	37	1.53	106	235x165x125	12.00	106,000
RBX-30-400	[*] P72135.	30	-	50	2 x CLZ-FP-46/19 - CFB-46/37	45	1.27	102	255x200x125	16.50	130,000
RBX-40-400	[*] P72140.	40	-	50	2 x CLZ-FP-46/25 - CFB-46/50	60	0.95	137	255x200x125	17.00	130,000
RBX-50-400	[*] P72145.	50	-	50	2 x CLZ-FP-46/30 - CFB-46/62	75	0.76	153	255x220x145	22.00	145,000
RBX-60-400	[*] P72150.	60	-	50	3 x CLZ-FP-46/25 - CFB-46/74	90	0.63	168	280x240x145	27.20	
RBX-80-400	[*] P72155.	80	-	50	3 x CLZ-FP-46/33,3 - CFB-46/100	120	0.47	246	305x235x155	37.00	

CHV-T

Three-phase Medium Voltage Capacitors (Indoor and Outdoor use)

Description

CHV medium-voltage capacitors, made up of different basic capacitive elements.
These basic units are connected in series and parallel with the purpose of obtaining the power at the necessary voltage.

All the elements are protected by an internal fuse. This fuse is disconnected if a fault is detected, isolating only the basic unit that has been damaged. Internal fuse protection ensures greater system safety and service continuity.

Application

CHV-T capacitors are used to build static and automatic capacitor banks of up to 12 kV.

The stainless-steel box of the CHV-T makes it a versatile product that can be used in indoor and outdoor applications.

Technical features

Electrical features	Voltage	1...12 kV
	Nominal power	25...750 kvar
	Frequency	50 or 60 Hz
	Dielectric losses	≤ 0.15 W / kvar
	Capacity tolerance	-5%...+10%
	Location	Indoor / Outdoor
	Protection	Internal fuse (depending on the type)
Discharge resistance (in compliance with IEC 60871-1)	Location	Interior
	Discharge time	≤ 10 minutes □
	Residual voltage	≤ 75 V □
Insulators	Material	Porcelain
	Pollution level	16 mm / kV (other leakage lines, on demand)
	Insulation level	7.2 - 12 kV
Overload	In current	1.3 I_n permanent
	In voltage	1.1 U_n 12 h in 24 hours 1.15 U_n 30 min in 24 hours 1.2 U_n 5 min in 24 hours 1.30 U_n 1 min in 24 hours
Environmental conditions	Operating temperature	Category C (in accordance with IEC 60871-1)
	Maximum temperature (□2)	50 °C
	Mean maximum value over 24 hours	40 °C
	Mean maximum value over 1 year	30 °C
Build features	Dielectric	Rough polypropylene film
	Electrode	Laser-cut aluminium sheet
	Saturant oil	SAS-40E or M/DBT (PCB-free)
	Dimensions (mm)	depending on the type
	Weight	depending on the type (see table)
	Box	Painted stainless steel, RAL 7035 Features two flanges for attaching to the frame and avoiding mechanical efforts on the porcelain terminals
	Assembly position	Horizontal or vertical
	Pressure switch	Optional
Standards	IEC 60871-1, IEC 60871-4	

(□) Please ask for other features or configurations (□2) This is assumed to be an isolated case

CHV-T

The prices for medium-voltage capacitors are valid for orders for a minimum of **4** units of each type.

Price supplement for orders with **3** or **fewer** units (by type): **+ 10%**

The prices that appear in the price list correspond to capacitors with indoor/outdoor installation, with internal fuses (according to type) and frequency of 50 Hz.

CHV-T, Three-phase MV power capacitors

(indoor use, with fuses and discharge resistors, internal)

BIL 20/60 kV (50 Hz) - 3,3 kV

Type	Code	kvar	Weight (kg)	Dimensions (mm) L x H x W	PKR
CHv-T 50/3,3 *	**[c] R8K0500003300**	50	18,8	350 x 422 x 160	Consult
CHv-T 75/3,3 *	**[c] R8K0750003300**	75	22,4	350 x 472 x 160	Consult
CHv-T 100/3,3	**[c] R8K1000003300**	100	22,8	350 x 472 x 160	Consult
CHv-T 150/3,3	**[c] R8K1500003300**	150	30,0	350 x 572 x 160	Consult
CHv-T 200/3,3	**[c] R8K2000003300**	200	34,4	350 x 632 x 160	Consult
CHv-T 250/3,3	**[c] R8K2500003300**	250	45,7	350 x 802 x 160	Consult
CHv-T 300/3,3	**[c] R8K3000003300**	300	46,7	350 x 802 x 160	Consult
CHv-T 333/3,3	**[c] R8K3330003300**	333	55,6	350 x 862 x 175	Consult
CHv-T 400/3,3	**[c] R8K4000003300**	400	58,3	350 x 892 x 175	Consult
CHv-T 500/3,3	**[c] R8K5000003300**	500	69,4	350 x 1032 x 175	Consult
CHv-T 600/3,3	**[c] R8K6000003300**	600	81,2	350 x 1182 x 175	Consult
CHv-T 750/3,3	**[c] R8K7500003300**	750	97,3	350 x 1252 x 200	Consult

BIL 20/60 kV (50 Hz) - 6,6 kV

CHv-T 50/6,6 *	**[c] R8K0500006600**	50	19,2	350 x 422 x 160	Consult
CHv-T 75/6,6 *	**[c] R8K0750006600**	75	22,6	350 x 472 x 160	Consult
CHv-T 100/6,6 *	**[c] R8K1000006600**	100	23,0	350 x 472 x 160	Consult
CHv-T 150/6,6 *	**[c] R8K1500006600**	150	30,2	350 x 572 x 160	Consult
CHv-T 200/6,6	**[c] R8K2000006600**	200	38,3	350 x 692 x 160	Consult
CHv-T 250/6,6	**[c] R8K2500006600**	250	45,9	350 x 802 x 160	Consult
CHv-T 300/6,6	**[c] R8K3000006600**	300	46,9	350 x 802 x 160	Consult
CHv-T 333/6,6	**[c] R8K3330006600**	333	55,9	350 x 862 x 175	Consult
CHv-T 400/6,6	**[c] R8K4000006600**	400	58,6	350 x 892 x 175	Consult
CHv-T 500/6,6	**[c] R8K5000006600**	500	69,7	350 x 1032 x 175	Consult
CHv-T 600/6,6	**[c] R8K6000006600**	600	81,2	350 x 1182 x 175	Consult
CHv-T 750/6,6	**[c] R8K7500006600**	750	97,6	350 x 1252 x 200	Consult

BIL 28/75 kV (50 Hz) - 11 kV

CHv-T 50/11 *	**[c] R8L0500011000**	50	19,3	350 x 422 x 160	Consult
CHv-T 75/11 *	**[c] R8L0750011000**	75	22,7	350 x 472 x 160	Consult
CHv-T 100/11 *	**[c] R8L1000011000**	100	23,0	350 x 472 x 160	Consult
CHv-T 150/11 *	**[c] R8L1500011000**	150	30,1	350 x 572 x 160	Consult
CHv-T 200/11 *	**[c] R8L2000011000**	200	34,4	350 x 632 x 160	Consult
CHv-T 250/11	**[c] R8L2500011000**	250	45,7	350 x 802 x 160	Consult
CHv-T 300/11	**[c] R8L3000011000**	300	46,5	350 x 802 x 160	Consult
CHv-T 333/11	**[c] R8L3330011000**	333	53,0	350 x 892 x 175	Consult
CHv-T 400/11	**[c] R8L4000011000**	400	56,1	350 x 862 x 175	Consult
CHv-T 500/11	**[c] R8L5000011000**	500	67,0	350 x 1002 x 175	Consult
CHv-T 600/11	**[c] R8L6000011000**	600	80,7	350 x 1182 x 175	Consult
CHv-T 750/11	**[c] R8L7500011000**	750	92,1	350 x 1192 x 200	Consult

Delivery time: [*] immediate
[x] working weeks
[c] consult

(*) without internal fuses

Capacitor and MV accessories

The prices for medium-voltage capacitors are valid for orders for a minimum of4 units of each type.

Price supplement for orders with 3 or fewer units (by type): +10%

The prices that appear in the price list correspond to capacitors with indoor/outdoor installation, with internal fuses (according to type) and frequency of 50 Hz.

CHV-M, Single-phase MV power capacitors (indoor and outdoor use)

Type	Code	Q (kvar)	Frequency (Hz)	Size (mm) width x height x depth	weight (kg)	PKR
BIL 20/60 kV (50 Hz) - 3,81 kV						
CHV-M 50/3,81	[C] R8A0500003815	50	50	350x487x160	18,20	Consult
CHV-M 75/3,81	[C] R8A0750003815	75	50	350x487x160	18,50	Consult
CHV-M 100/3,81	[C] R8A100000381E	100	50	350x537x160	21,90	Consult
CHV-M 150/3,81	[C] R8A150000381E	150	50	350x637x160	29,10	Consult
CHV-M 167/3,81	[C] R8A167000381E	167	50	350x637x160	29,30	Consult
CHV-M 200/3,81	[C] R8A200000381E	200	50	350x697x160	33,50	Consult
CHV-M 250/3,81	[C] R8A250000381E	250	50	350x867x160	44,80	Consult
CHV-M 300/3,81	[C] R8A300000381E	300	50	350x867x160	45,80	Consult
CHV-M 333/3,81	[C] R8A333000381E	333	50	350x957x160	52,30	Consult
CHV-M 400/3,81	[C] R8A400000381E	400	50	350x927x175	55,30	Consult
CHV-M 500/3,81	[C] R8A500000381E	500	50	350x1097x175	68,30	Consult
CHV-M 600/3,81	[C] R8A600000381E	600	50	350x1247x175	80,20	Consult
BIL 28/75 kV (50 Hz) - 6,35 kV						
CHV-M 50/6,35	[C] R8B0500006355	50	50	350x487x160	17,90	Consult
CHV-M 75/6,35	[C] R8B0750006355	75	50	350x537x160	21,80	Consult
CHV-M 100/6,35	[C] R8B1000006355	100	50	350x537x160	21,80	Consult
CHV-M 150/6,35	[C] R8B150000635E	150	50	350x637x160	28,60	Consult
CHV-M 167/6,35	[C] R8B167000635E	167	50	350x637x160	29,10	Consult
CHV-M 200/6,35	[C] R8B200000635E	200	50	350x697x160	33,20	Consult
CHV-M 250/6,35	[C] R8B250000635E	250	50	350x757x160	37,80	Consult
CHV-M 300/6,35	[C] R8B300000635E	300	50	350x867x160	45,30	Consult
CHV-M 333/6,35	[C] R8B333000635E	333	50	350x857x175	49,40	Consult
CHV-M 400/6,35	[C] R8B400000635E	400	50	350x927x175	54,50	Consult
CHV-M 500/6,35	[C] R8B500000635E	500	50	350x1067x175	65,60	Consult
CHV-M 600/6,35	[C] R8B600000635E	600	50	350x1247x175	79,20	Consult
CHV-M 750/6,35	[C] R8B750000635E	750	50	350x1217x200	90,40	Consult
BIL 38/95 kV (50 Hz) - 9,53 kV						
CHV-M 50/9,53	[C] R8C0500009535	50	50	350x530x160	19,50	Consult
CHV-M 75/9,53	[C] R8C0750009535	75	50	350x530x160	20,20	Consult
CHV-M 100/9,53	[C] R8C1000009535	100	50	350x580x160	23,60	Consult
CHV-M 150/9,53	[C] R8C1500009535	150	50	350x680x160	31,00	Consult
CHV-M 167/9,53	[C] R8C1670009535	167	50	350x740x160	34,90	Consult
CHV-M 200/9,53	[C] R8C200000953E	200	50	350x740x160	35,40	Consult
CHV-M 250/9,53	[C] R8C250000953E	250	50	350x910x160	46,90	Consult
CHV-M 300/9,53	[C] R8C300000953E	300	50	350x910x160	48,00	Consult
CHV-M 333/9,53	[C] R8C333000953E	333	50	350x1000x160	54,70	Consult
CHV-M 400/9,53	[C] R8C400000953E	400	50	350x1000x175	59,70	Consult
CHV-M 500/9,53	[C] R8C500000953E	500	50	350x1140x175	71,00	Consult
CHV-M 600/9,53	[C] R8C600000953E	600	50	350x1290x175	83,10	Consult
CHV-M 750/9,53	[C] R8C750000953E	750	50	350x1257x200	90,40	Consult
BIL 50/125 kV (50 Hz) - 12,7 kV						
CHV-M 50/12,7	[C] R8D05000012705	50	50	350x615x160	19,70	Consult
CHV-M 75/12,7	[C] R8D07500012705	75	50	350x665x160	23,40	Consult
CHV-M 100/12,7	[C] R8D10000012705	100	50	350x715x160	26,80	Consult
CHV-M 150/12,7	[C] R8D15000012705	150	50	350x765x160	31,20	Consult
CHV-M 167/12,7	[C] R8D16700012705	167	50	350x825x160	35,10	Consult
CHV-M 200/12,7	[C] R8D20000012705	200	50	350x885x160	39,20	Consult
CHV-M 250/12,7	[C] R8D25000012705	250	50	350x995x160	47,00	Consult
CHV-M 300/12,7	[C] R8D30000012705	300	50	350x995x160	48,10	Consult
CHV-M 333/12,7	[C] R8D33300012705	333	50	350x1055x175	56,90	Consult
CHV-M 400/12,7	[C] R8D4000001270E	400	50	350x1085x175	59,60	Consult
CHV-M 500/12,7	[C] R8D5000001270E	500	50	350x1225x175	70,90	Consult
CHV-M 600/12,7	[C] R8D6000001270E	600	50	350x1375x175	83,00	Consult
CHV-M 750/12,7	[C] R8D7500001270E	750	50	350x1405x200	98,80	Consult

The prices for medium-voltage capacitors are valid for orders for a minimum of4 units of each type.

Price supplement for orders with 3 or fewer units (by type): +10%

The prices that appear in the price list correspond to capacitors with indoor/outdoor installation, with internal fuses (according to type) and frequency of 50 Hz.

Type	Code	Q (kvar)	Frequency (Hz)	Size (mm) width x height x depth	weight (kg)	EUR
BIL 70/170 kV (50 Hz) - 19,05 kV						
CHV-M 50/19,05	[C] R8E05000019055	50	50	350x644x160	23,30	Consult
CHV-M 75/19,05	[C] R8E07500019055	75	50	350x644x160	23,60	Consult
CHV-M 100/19,05	[C] R8E10000019055	100	50	350x694x160	27,00	Consult
CHV-M 150/19,05	[C] R8E15000019055	150	50	350x804x160	35,00	Consult
CHV-M 167/19,05	[C] R8E16700019055	167	50	350x804x160	35,30	Consult
CHV-M 200/19,05	[C] R8E20000019055	200	50	350x864x160	39,40	Consult
CHV-M 250/19,05	[C] R8E25000019055	250	50	350x964x175	50,80	Consult
CHV-M 300/19,05	[C] R8E30000019055	300	50	350x1034x175	56,50	Consult
CHV-M 333/19,05	[C] R8E33300019055	333	50	350x1034x175	57,10	Consult
CHV-M 400/19,05	[C] R8E40000019055	400	50	350x1134x175	64,40	Consult
CHV-M 500/19,05	[C] R8E5000001905E	500	50	350x1244x175	73,70	Consult
CHV-M 600/19,05	[C] R8E6000001905E	600	50	350x1264x200	84,10	Consult
CHV-M 750/19,05	[C] R8E7500001905E	750	50	350x1454x200	104,20	Consult

CHV-T, Three-phase MV power capacitors

Type	Code	Q (kvar)	Frequency (Hz)	Size (mm) width x height x depth	weight (kg)	
BIL 20/60 kV (50 Hz) - 3,3 kV						
CHV-T 50/3,3	[C] R8K0500003305	50	50	350x422x160	18,80	Consult
CHV-T 75/3,3	[C] R8K0750003305	75	50	350x472x160	22,40	Consult
CHV-T 100/3,3	[C] R8K100000330E	100	50	350x472x160	22,80	Consult
CHV-T 150/3,3	[C] R8K150000330E	150	50	350x572x160	30,00	Consult
CHV-T 200/3,3	[C] R8K200000330E	200	50	350x632x160	34,40	Consult
CHV-T 250/3,3	[C] R8K250000330E	250	50	350x802x160	45,70	Consult
CHV-T 300/3,3	[C] R8K300000330E	300	50	350x802x160	46,70	Consult
CHV-T 333/3,3	[C] R8K333000330E	333	50	350x862x175	55,60	Consult
CHV-T 400/3,3	[C] R8K400000330E	400	50	350x892x175	58,30	Consult
CHV-T 500/3,3	[C] R8K500000330E	500	50	350x1032x175	69,40	Consult
CHV-T 600/3,3	[C] R8K600000330E	600	50	350x1182x175	81,20	Consult
CHV-T 750/3,3	[C] R8K750000330E	750	50	350x1252x200	97,30	Consult
BIL 20/60 kV (50 Hz) - 6,6 kV						
CHV-T 50/6,6	[C] R8K0500006605	50	50	350x422x160	19,20	Consult
CHV-T 75/6,6	[C] R8K0750006605	75	50	350x472x160	22,60	Consult
CHV-T 100/6,6	[C] R8K1000006605	100	50	350x472x160	23,00	Consult
CHV-T 150/6,6	[C] R8K1500006605	150	50	350x572x160	30,20	Consult
CHV-T 200/6,6	[C] R8K200000660E	200	50	350x632x160	38,30	Consult
CHV-T 250/6,6	[C] R8K250000660E	250	50	350x802x160	45,90	Consult
CHV-T 300/6,6	[C] R8K300000660E	300	50	350x802x160	46,90	Consult
CHV-T 333/6,6	[C] R8K333000660E	333	50	350x862x175	55,90	Consult
CHV-T 400/6,6	[C] R8K400000660E	400	50	350x892x175	58,60	Consult
CHV-T 500/6,6	[C] R8K500000660E	500	50	350x1032x175	69,70	Consult
CHV-T 600/6,6	[C] R8K600000660E	600	50	350x1182x175	81,20	Consult
CHV-T 750/6,6	[C] R8K750000660E	750	50	350x1252x200	97,60	Consult
BIL 28/75 kV (50 Hz) - 11 kV						
CHV-T 50/11	[C] R8L05000011005	50	50	350x422x160	19,30	Consult
CHV-T 75/11	[C] R8L07500011005	75	50	350x472x160	22,70	Consult
CHV-T 100/11	[C] R8L10000011005	100	50	350x472x160	23,00	Consult
CHV-T 150/11	[C] R8L15000011005	150	50	350x572x160	30,10	Consult
CHV-T 200/11	[C] R8L2000001100E	200	50	350x632x160	34,40	Consult
CHV-T 250/11	[C] R8L2500001100E	250	50	350x802x160	45,70	Consult
CHV-T 300/11	[C] R8L3000001100E	300	50	350x802x160	46,50	Consult
CHV-T 333/11	[C] R8L3330001100E	333	50	350x862x175	53,00	Consult
CHV-T 400/11	[C] R8L4000001100E	400	50	350x892x175	56,10	Consult
CHV-T 500/11	[C] R8L5000001100E	500	50	350x1032x175	67,00	Consult
CHV-T 600/11	[C] R8L6000001100E	600	50	350x1182x175	80,70	Consult
CHV-T 750/11	[C] R8L7500001100E	750	50	350x1252x200	92,10	Consult

LVC, Three-phase contactor for MV capacitors

400 A - 6.6 kV AC

Type	Code	Max. voltage	Max. Current (A)	auxiliary voltage	Size (mm) width x height x depth	weight (kg)	PKR
VC-6Z44ED 6,6kV 220V	[*] R80921.	6,6 kVca	3 x 400	220 Vac	-x-x-	35,00	Consult
VC-6Z44ED 6,6kV 110V	[*] R809210010000	6,6 kVca	3 x 400	110 Vdc	0	35,00	Consult

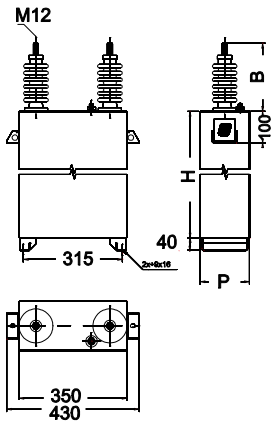
RMV, Choke reactors for MV capacitor banks

Type	Code	In (A)	L(mH)	Size (mm) width x height x depth	weight (kg)	PKR
RMV-260						
RMV-260-50-350	[2] R80628.	50	0.35	370x290x110	12,00	Consult
RMV-260-60-250	[2] R80637.	60	0.25	370x290x110	13,00	Consult
RMV-260-100-100	[*] R80664.	100	0.1	370x290x110	13,00	Consult
RMV-260-125-50	[2] R80672.	125	0.05	370x290x110	14,00	Consult
RMV-260-175-30	[2] R80691.	175	0.03	370x290x110	14,00	Consult
RMV-330						Consult
RMV-330-60-450	[2] R80739.	60	0.45	470x355x110	20,00	Consult
RMV-330-75-350	[2] R80748.	75	0.35	470x355x110	21,00	Consult
RMV-330-90-250	[2] R80757.	90	0.25	470x355x110	26,00	Consult
RMV-330-125-100	[2] R80774.	125	0.1	470x355x110	22,00	Consult
RMV-330-200-50	[2] R807A2.	200	0.05	470x355x110	22,00	Consult
RMV-330-250-30	[2] R807B1.	250	0.03	470x355x110	23,00	Consult

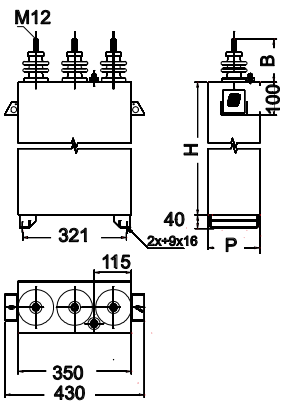
Selection parameters for RMV reactances are:
* Maximum operating current (1,43 In)
* Required inductance in mH
* Isolating voltage kV The isolating voltage is 12 kV (28/75).
Other voltages on request Thermal current is 43 In / 1 s.
Other values on request Other currents and mH please request Price.

Dimensions

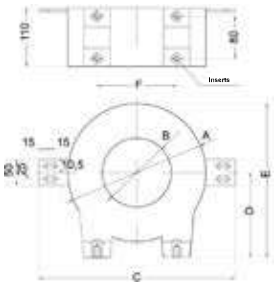
CHV-M



CHV-T



RMV



Tipo	A Ø mm	B Ø mm	C mm	D mm	E mm	F mm	Insertos
RMV-260	260	130	370	160	370	290	M12
RMV-330	330	150	470	190	355	210	M12/M16

SVG, Static reactive power generator

50 / 60 Hz, reactive power compensation

Type	Code	System	Q (kvar)	Phase current	EMI filter	Size (mm) width x height x depth	wei-ght (kg)	PKR
Wall-mounted cabinet								
SVG-3WS-30k-480	[2] R7NSTB.	3 wires, 230...480 V	30	44	0	435x600x257	31,00	Consult
SVG-3WF-30k-480	[2] R7NST3.	3 wires, 230...480 V	30	44	1	435x710x257	32,00	Consult
Floor-mounted cabinet								
SVG-3WF-100k-480	[2] R7NST5.	3 wires, 230...480 V	100	145	1	600x1836x822		Consult
SVG-3WF-200k-480	[2] R7NST7.	3 wires, 230...480 V	200	290	1	600x1836x822		Consult
SVG-3WM-100k-480	[] R7NSTM.	3 wires, 230...480 V	100	145	0	435x-x257	-	Consult

Please contact our technical department for networks with high THD(V) levels

AFQ

Multifunctional parallel active filter

Description

TheAFQmultifunctional parallel active filters offer the most complete solution for solving quality-related problems in industrial, commercial and service installations, caused not only by harmonics but also by current offset, and even by the consumption of reactive power (usually capacitive).

The functions implemented in all the models are listed below:

—Reduction of harmonic currents up to the 50th order (2500 Hz). Possibility of the user selecting the harmonic frequencies to be filtered in order to achieve greater filter efficiency.

—Correcting unbalanced current consumption in each phase of the electrical installation.

—Reactive power compensation. Both inductive and capacitive currents.

If greater filtering capacity is required, up to eight filters can be connected in parallel (the same model of filters should be used).

Application

Ideal solution for installations with large amounts of single-phase and three-phase loads that generate harmonics, such as computers, UPSs, lights, lifting units, air-conditioning systems with phase shifters, etc.

Technical features

Electrical features	Rated voltage	400 Vac ± 15%
	Frequency	50 Hz / 60 Hz ± 10%
	Connection mode	3 phases + neutral (4 wires)
Filter specifications	Current harmonic range	From the 2nd to the 50th order harmonic
	Specific selection of harmonics	From the 2nd to the 25th order harmonic
	Current balancing function	Implemented
	Power factor compensation function	Implemented
	Controller technology	DSP (digital signal processor)
	Transient response time	< 1 ms
	Overcurrent protection	Protection by limiting the current to the rated current of the filter
	Graphic display	LCD touch screen
Screen functions	Control option	ON/OFF filter, alarm reset and description of filter status
	Programming functions	Selection of harmonics to be filtered, enabling the balancing function and/or the power factor compensation function, ratio of current transformers, minimum operating current, control algorithm and number of AFQ units in parallel
	Display of electrical parameters	Values of voltages and currents; active, reactive and apparent power; power factor. Current harmonics and harmonic spectrum tables
Standards	Harmonic limitation	IEC 61000-3-4, IEEE 519-1992
	Electrical design	IEC 60146
	Electrical safety	EN 50178
	Electromagnetic compatibility	EN 55011, IEC EN 50081-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 610004-6, IEC 61000-6-2
Environmental conditions	Operating temperature	0 ºC...+50 ºC
	Humidity	0%...90% (without condensation)
	Maximum altitude	2,000 m
Features of the enclosures	Assembly	Self-supporting metal cabinet
	Protection degree	IP 21
	Installation	Indoor use

Harmonic filters

AFQ, ACTIVE MULTI-FUNCTION filter

50 Hz - Harmonic filtering, phase balancing and reactive energy compensation. 3 wires, phase-phase voltage 400 – 440 – 480 Vac ± 15% (230 V on demand)

Type	Code	Phase current	Peak current	dimensions (mm) L x H x W	Weight kg	Price Rs.
AfQ-3W-25A-480	**[*] R7H772**	25	50	655 x 800 x 454	135	Consult
AfQ-3W-50A-480	**[*] R7H774**	50	100	655 x 1350 x 450	212	Consult
AfQ-3W-100A-480	**[*] R7H775**	100	200	655 x 1470 x 585	272	Consult
AfQ-3W-150A-480	**[*] R7H776**	150	300	1190 x 1900 x 720	505	Consult
AfQ-3W-200A-480	**[*] R7H777**	200	400	1190 x 1900 x 720	511	Consult

For networks with high THD(V) levels contact our technical dept.

AFQevo, ACTIVE MULTI-FUNCTION FILTER

50/60 Hz - Harmonic filtering, phase balancing and reactive energy compensation. 4 wires, phase-phase voltage 400 Vac ± 15% (230 V on demand)

NEW Type	Code	Phase current	Neutral current	Peak current	EMI filter	dimensions (mm) (width x height x depth)	Weight (kg)	Price Rs.
Wall-mounted cabinet								
AfQe-4WS-030M-400	**[c] R7QM0b**	30	90	60	-	435 x 600 x 250	36	Consult
AfQe-4Wf-030M-400	**[c] R7QM03**	30	90	60	☐	435 x 708 x 250	36	Consult
Floor-mounted cabinet								
AfQe-4Wf-100C-400	**[c] R7Qf05**	100	300	200	☐	600 x 1100 x 800	135	Consult
AfQe-4Wf-200C-400	**[c] R7Qf07**	200	600	400	☐	600 x 1700 x 800	225	Consult
AfQe-4Wf-300C-400	**[c] R7Qf09**	300	900	600	☐	600 x 2000 x 800	325	Consult

For networks with high THD(V) levels contact our technical dept.

LRB, Filter reactors for power converters (network side)

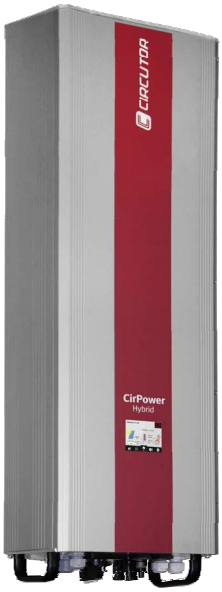
Types for three-phase networks at 380 / 415 V, 50 Hz . Voltage drop = 4%

Type	Code	Motor power kW	Motor power hp	I_n A	L mH	Losses (W)	dimensions (mm) Lenght	Width	Height	Weight kg	Price Rs.
LR 04-003	**[2] P70301**	0,75	1	2,5	14,8	6	120	60	125	1,8	Consult
LR 04-004	**[2] P70302**	1,5	2	4	7,90	8	120	60	125	1,8	Consult
LR 04-006	**[2] P70303**	2,2	3	5,5	5,90	10	120	60	125	2	Consult
LR 04-008	**[2] P70304**	3	4	7,5	4,30	12	120	60	125	2	Consult
LR 04-010	**[2] P70305**	4	5	10	3,20	15	120	70	125	2,3	Consult
LR 04-013	**[2] P70306**	5,5	7	13	2,50	18	120	70	125	2,3	Consult
LR 04-017	**[2] P70307**	7,5	10	17	1,85	25	150	75	150	3,5	Consult
LR 04-022	**[2] P70308**	11	15	22	1,47	30	150	90	152	4,6	Consult
LR 04-033	**[2] P70309**	15	20	32	0,98	45	150	90	152	5	Consult
LR 04-050	**[2] P7030b**	22	30	47	0,67	64	180	110	197	9	Consult
LR 04-066	**[2] P7030d**	30	41	64	0,49	88	180	120	197	11	Consult
LRb 04-080	**[2] P7030E**	37	50	76	0,40	110	180	135	160	13	Consult
LRb 04-115	**[2] P7030g**	55	75	110	0,28	145	237	131	195	21	Consult
LRb 04-185	**[c] P7030J**	90	122	180	0,17	230	242	154	256	32	Consult
LRb 04-200	**[c] P7030K**	110	150	200	0,15	245	245	154	256	36	Consult
LRb 04-300	**[c] P7030M**	160	220	300	0,10	355	280	164	300	48	Consult

LR, LRB

CirPower Hybrid

Multi-management hybrid solar inverter



Description

TheCirPower Hybrid are hybrid solar inverters for self-consumption photovoltaic energy installations. They are able to manage They are able to manage the charging and discharging process in batteries, in order to provide necessary power to the loads combining power from batteries and from PV modules. This hybrid inverter includes a charge controller with a MPPT (Maximum Power Point Tracker), and the inverter-charger function with grid connection capacity (certified).

TheCirPower Hybridhas 2 AC outputs. The first, for connecting secure loads (UPS function) which will maintain their power supply even when the grid fails. The second, for connecting loads in both on-grid or off-grid systems. CirPower Hybrid is specially designed to offer the user easy and intuitive interaction through a 3.5 inch colour touch screen. The solar inverter has a web server with graphics to monitor the installation at any time and an internal database which records the behaviour of all energy flows. Some of its main features are:

— Battery charging from photovoltaic modules or the electrical grid.
— Optimised algorithm for lead batteries or with a lithium ion batteries BMS.
— Datalogger with downloadable data log file (without additional software).
— RS-485 communications for power analyzers.
— 5 working modes easily configurable.
— MPPT Tracker optimisation patent and energy storage.
— Electrical grid disconnection and reclosing patent and energy storage.

Applications

— On-grid photovoltaic energy systems with energy storage in batteries.
— Of-grid systems with energy storage in batteries.
— Micro-grids.
— Self-consumption systems without grid injection or with controlled injection.

Technical features

DC input	Maximum DC power (cos φ = 1)	4250 W
	Maximum voltage V_{dc}	550 V_{dc}
	Minimum voltage	170 V_{dc}
	Stand-by voltage	125 V_{dc}
	MPPT voltage range	170...500 V_{dc}
	MPPT efficiency	99,9%
	Maximum current	20 A
Battery input	Rated voltage	48 V
	Voltage range	36…60 V
	Maximum current (Charge/Discharge)	80/50 A
	Charge controller	CC/CV
	Safety	Reinforced insulation
AC output (grid)	AC power (230 V, 50 Hz, cos φ = 1)	4000 W
	Rated voltage - Frequency	230 V - 50/60 Hz
	AC Voltage Range □	180…270 V
	Frequency Range □	55…65 Hz
	Nominal current (230 V)	17,4 A
	Short-circuit current	25 A
	THD(U) with THD(I) = 3%	< 3,5%
	PF	0,5 (capacitive)…1…0,5 (inductive)
	Stand-by Power	< 2 W
	Night consumption	< 0,5 W
	Maximum efficiency	96,5%
	Topology	Transformer less
AC output (UPS output)	AC power (230 V, 50 Hz, cos φ = 1)	4000 W
	Rated voltage - Frequency	230 V - 50/60 Hz
	AC Voltage Range □	180…270 V
	Frequency Range □	55…65 Hz
	Nominal current (230 V)	17.4 A
	Short-circuit current	25 A
	THD(U) with THD(I) = 3%	< 3,5%

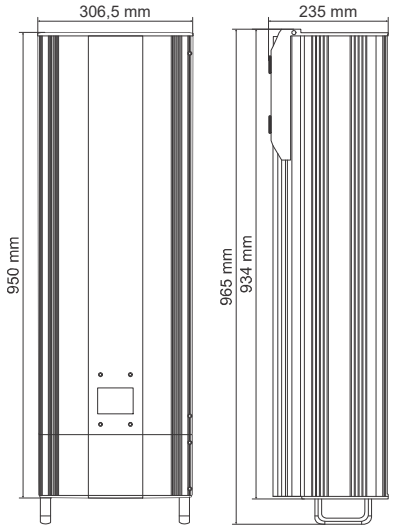
□ Maximum power (AC grid + AC UPS) is 4000 W

CirPower Hybrid Multi-management hybrid solar inverter

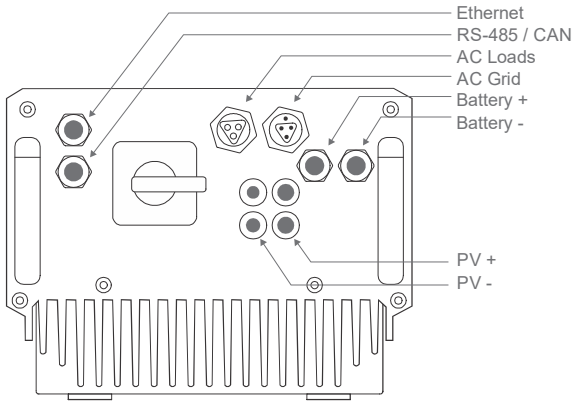
Technical features

User interface	Type	3.5” TFT colour touch screen
	Datalogger	Stores the energy produced for up to 5 years and the daily performance. Graph of daily energy generated
Communications	Ethernet	Web server, Modbus/TCP for Control and monitoring
	RS-485	Modbus protocol
	CAN Bus	Control BMS - CAN Protocol
Environmental features	Environmental category (EN 62109-1)	Exterior
	Working temperature (without power reduction)	-20…50 ºC
	Storage temperature	-35…70 ºC
	Noise	< 30 dBA
	Relative humidity	4…100%
	Maximum altitude	2,000 m
Mechanical features	Dimensions	300 x 950 x 200 mm
	Weight	50 kg
	Protection degree	IP 55
	Cooling	Natural convection
	DC connections	MC4 type connector
	AC connections	Wiedland Gesis 2P+E 25A
Safety	Earth leakage protection	Type B, RCCB, according to EN 62109-2
	Earth fault monitor	Programmable insulation monitor
	Anti-island device	Grid monitor, anti-island system (resonant loads), redundant safety relays
	DC disconnection device	Manual switch included
	Overvoltage category	Category III
	Degree of contamination (Exterior / Interior)	3 / 2
Standards	EN 62109-1, EN 62109-2, IEC 62116, IEC 61000-6-2, IEC 61000-6-3, VDE 0126-1-1, VDE AR-N4105, CEI 0-21, RD 1699:2011, G59/1-2	

Dimensions



Connections



On-grid Self-consumption with energy storage

CirPower-HYB, Hybrid inverters with storage management

Type	Code	System	Nominal power (kW)	Max/min input voltage (V_{dc} max/min)	Maximum input current	Rated AC voltage / frequency	Battery voltage	Maximum battery current (charg./ discharg.)	Price Rs.
CirPower Hyb-4k-48	[c] E15311	1x230V Single-phase	4000	600 V / 150 V	20 A	230 V / 50 Hz	48 V	50 / 80 A	Consult

EFM-HYB CirPower, Kits for self-consumption with storage

Type	Code	daily consumption (Wh/day)	Pv power (Wp)	battery (v / Ah)	battery type	Price Rs.
EfM-Hyb-25-100	**[2] E7K111**	8600	2600	160/48	OPzV (Gelled electrolyte lead-acid)	Consult
EfM-Hyb-35-100	**[2] E7K121**	12000	3640	330/48	OPzV (Gelled electrolyte lead-acid)	Consult
EfM-Hyb-40-130	**[4] E7K132**	13300	4160	330/48	OPzV (Gelled electrolyte lead-acid)	Consult
EfM-Hyb-50-130	**[4] E7K142**	16100	4680	330/48	OPzV (Gelled electrolyte lead-acid)	Consult
EfM-Hyb-LI 25-100	**[4] E7K115**	8600	2600	150/48	Lithium	Consult
EfM-Hyb-LI 35-100	**[4] E7K126**	12000	3640	150/48	Lithium	Consult
EfM-Hyb-LI 40-100	**[4] E7K137**	13300	4160	200/48	Lithium	Consult
EfM-Hyb-LI 50-100	**[4] E7K142**	16100	4680	200/48	Lithium	Consult

- All the kits equipped with the CIRCUTOR single-phase hybrid inverter with 1x230 V, 4 kW nominal power and 48 V battery voltage.
- All the kits include combiner box and string box with protection and monitoring devices
- For other options or special needs, please contact with our sales agent.
- Electric cables for connecting elements are not included
- All EFM-HYB Kits can be supplied without batteries, please contact us for more information.

Off-grid self-consumption systems

EFM-ISLAND, Kits for electrification daily consumption

Type	Code	(Wh/day)	grid type (v)	PV power (Wp)	No. of elements	Battery (V / Ah)	Inverter nominal power (W)	Price Rs.
EfM-ISLANd S-3000	[c] E4K394	3640	1x230	1560	12x2	24 / 575	3000	Consult
EfM-ISLANd S-3500	[c] E4K4C5	4680	1x230	2340	24x2	48 / 360	3500	Consult
EfM-ISLANd S-5000	[c] E4K5D6	6240	1x230	3120	24x2	48 / 575	5000	Consult
EfM-ISLANd S-7000	[c] E4K6E7	9360	1x230	4680	24x2	48 / 850	7000	Consult
EfM-ISLANd S-10000	[c] E4K7f8	12480	1x230	6240	24x2	48 / 1130	10000	Consult
EfM-ISLANd T-10500	[c] E4K8G8	14144	3x230/400	7800	24x2	48 / 1695	10500	Consult
EfM-ISLANd T-21000	[c] E4K9H9	28288	3x230/400	14040	24x2	48 / 2600	21000	Consult

- All Kits include all the components necessary for correct and safe operation of the installation
- Electric cables for connecting elements and the battery status monitoring system are not included

Check to request other configurations.

CDP-0

Dynamic power controller, zero injection

Description

CDP-0 is a dynamic power controller which modifies the MPPT (Maximum Power Point Tracker) of the inverters in order to regulate the PV generation according the energy consumption of the user.

CDP-0 has the goal to regulate the PV production of one or many solar inverters in order to avoid or to adjust the percentage of the energy injected to the grid. CDP-0 has communication drivers for the main brands of solar inverters in the market (*), being an indispensable product for any PV installation. As the CDP-0 can communicate with all these solar inverters, its main advantage is that it can regulate very accurately the PV production of any inverter, unlike other systems which uses relays to fix steps, and obviously only can fix a small group of regulation values.

In single-phase systems, CDP-0 allows to monitor and to register the energy consumption, the PV energy production and also of the grid consumption (or injection). In three-phase systems, CDP-0 allows to monitor and to register the energy consumption and by using an additional power analyzer, to monitor and to register the grid consumption (or injection) and the PV production.

Some of the main features of the CDP-0 are:

- Possibility to manage the main solar inverters in the market and many solar inverters by installation
- Web monitoring (smart-phone, tablet or PC)
- Data logger and file downloading (.csv) through any web browser.
- Web configuration of many parameters
- Display with on-line data of PV production, user consumption and grid consumption.
- Capability to use external power analyzers to add features.
- Double protection against grid injection
- MODBUS/TCP communications to allow SCADA integrations.

CDP-0 is able to manage the next solar inverters:

- FRONIUS: types Galvo, Symo, IG Plus (also Galvo and Symo with Datamanager 2.0)
- DELTA: types SOLIVIA and RPI
- KOSTAL: types PIKO
- INGETEAM: types INGECON SUN LITE
- GROWATT: types GROWATT 1500
- KACO NEW ENERGY: POWADOR 1501, 5001xi, 2500xi, 5000xi, 6400xi, 8000xi, 25.000xi, 33.000xi, 2002, 6002, TL3, TR3, all XP series and Blueplanet, HUAWEI

Application

Self-consumption PV installations without grid injection
— PV installations with a monitoring system
— PV installations with a grid injection control regulation
— Remote monitoring systems and energy balance trending (with or without grid injection)

CDP, Dynamic Power Controller

Type	Code	Description	Price Rs.
CDP-0	[*] E51001	Dynamic power controller, zero injection	

Requires the use of the MC series current transformers (.../250 mA)

CDP-DUO

Dynamic power controller dual configuration

Description

CDP-DUO is the evolution of dynamic power controllers designed to control hybrid installations (powered by two alternative sources of energy). The unit measures the consumption of the user at all times, thanks to its dual configuration, regulating the inverters to adapt the solar energy generation to the type of network and/or generator installed.

The main advantage of CDP-DUO is that it can automatically switch the network configuration, according to the type of network. If it is combined with FRONIUS inverters, the user can also perform power factor correction tasks, thanks to its new built-

Some of the main features of CDP-DUO:

- Identification of the type of network and adaptation of the regulation, according to the type of network.
- Power factor correction of the installation (Only with Fronius inverters)
- Monitoring via web (smartphone, tablet or PC)
- Datalogger and downloading of a .csv file with historical consumption data via web
- Many different regulation options via web
- Screen with consumption, PV production and network/group consumption information
- Optional use of power analyzers to increase the amount of information provided
- Modbus/TCP communications for integration in SCADA.

CDP is able to manage the next solar inverters:

- FRONIUS: types Galvo, Symo, IG Plus (also Galvo and Symo with Datamanager 2.0)
- DELTA: types SOLIVIA and RPI
- KOSTAL: types PIKO
- INGETEAM: types INGECON SUN LITE
- GROWATT: types GROWATT 1500
- KACO NEW ENERGY: POWADOR 1501, 5001xi, 2500xi, 5000xi, 6400xi, 8000xi, 25.000xi, 33.000xi, 2002, 6002, TL3, TR3, all XP series and Blueplanet, HUAWEI

Applications

— Hybrid self-consumption photovoltaic energy installations with injection control systems
— Photovoltaic energy installations with monitoring system
— Remote energy balance monitoring and recording system (with or without injection into the grid)

CDP, Dynamic Power Controller

Type	Code	Description	Price Rs.
CDP-DUO	[*] E51002	Dynamic power controller with dual configuration	

Requires the use of the MC series current transformers (.../250 mA)

CDP-G

Dynamic power controller with demand management

Description

CDP-G is a dynamic power controller which modifies the MPPT (Maximum Power PointTracker) of the inverters in order to regulate the PV generation according the energy consumption of the user and besides, it allows using the excesses of PV production. CDP product range regulates the PV production according to the power consumption in any self-consumption PV system to control the power that you are feeding into the grid.

CDP-G incorporates all the features of the CDP-0 and moreover it has 3 relay outputs to connect loads and to use the excess of PV production. By connecting non-critical loads during sunny hours in the day it allows to have a lower level of grid dependence and a reduction of energy costs.

CDP-G incorporates all the features of the CDP-0 and moreover it has 3 relay outputs to connect loads and to use the excess of PV production. By connecting non-critical loads during sunny hours in the day it allows to have a lower level of grid dependence and a reduction of energy costs.

By programming a value of power consumption and a priority level to each output, CDP-G is able to calculate and to connect automatically each load in the right moment depending on the excess of PV production. Moreover, CDP-G allows to assign a percentage of grid contribution to these loads in order improve the performance of the PV system.

Some of the main features of the CDP-G are:

- Management of 3 loads
- Usage of PV production excess
- Possibility to manage the main solar inverters in the market and many solar inverters* by system
- Web monitoring (smart-phones, tablets or PC)
- Data logger and file downloading (.csv) through any web browser
- Web configuration of many parameters
- Display with on-line data of PV production, user consumption and grid consumption
- MODBUS/TCP communications to allow SCADA integrations.

CDP is able to manage the next solar inverters:

- FRONIUS: types Galvo, Symo, IG Plus (also Galvo and Symo with Datamanager 2.0)
- DELTA: types SOLIVIA and RPI
- KOSTAL: types PIKO
- INGETEAM: types INGECON SUN LITE
- DANFOSS: types TLX, DLX, FLX
- GROWATT: types GROWATT 1500
- KACO NEW ENERGY: POWADOR 1501, 5001xi, 2500xi, 5000xi, 6400xi, 8000xi, 25.000xi, 33.000xi, 2002, 6002, TL3, TR3, all XP series and Blueplanet, HUAWEI

Description

Self-consumption PV systems (with/without) grid injection with usage of PV production excess

— Remote monitoring systems and energy balance trending (with or without grid injection)

— Management of heat pumps (aerothermal or geothermal)

— Water heating with the use of thermoaccumulators (swimming pools, homes)

— Water pumping and irrigation applications

— Production of compressed air.

CDP, Dynamic Power Controller

Type	Code	Description	Price Rs.
CDP-G	[*] E52001	Dynamic power controller with demand management	

Requires the use of the MC series current transformers (.../250 mA)

TR8

Multi-channel DC voltage and current analyzer for photovoltaic strings

Description

It is extremely difficult to certify that a photovoltaic plant is at its peak performance without having control of the primary power generation sources that would certify it. Tr8 has been specifically designed to control strings in photovoltaic plants; it knows the level of current generated in the different groups in real time, and therefore knows the current flowing through the external sensors.

Application

Application of photovoltaic string control, up to 8 strings.

Monitoring devices for photovoltaic systems

TR, String monitoring supervision devices

SERIE TR - Power supply 230 v_{ac} / 24 v_{dc}

Type	Code	Current	Inputs	Communications		Price Rs.
TR8-RS485-25	(*) [*] E80000	25 A	8	RS-485 Modbus/ RTU	8 channels, 25 Adc Connect up to 2 **M/TR-25Ax4** (8 channels) 1000 Vdc voltage measurement 8 Voltage-free digital inputs	**56,140**
TR8-RS485-100/200	[*] E80001	Depending transformer	8	RS-485 Modbus/ RTU	8 channels, 100/200 Adc Connect up to 8 **M/TR-100A** or **M/TR-200A** 1 1000 Vdc voltage input 8 Voltage-free digital inputs	**56,140**
TR16-RS485(*)	[*] E80003	configurable	16	RS-485 Modbus/RTU	16 configurable channels, 25/100/200 A 1000 Vdc voltage measurement Three voltage-free digital inputs 1 Pt100 / Pt1000 probe input 1 Input 0...20 mA	**67,413**
M/TR-25 x2	[*] E80010	Measuring module for 2 current circuits. Maximum current: 25 Adc				**20,246**
M/TR-25 x4	[*] E80011	Measuring module for 4 current circuits. Maximum current 25 Adc				**26,978**
M/TR-100	[*] E80012	Measuring module for 1 current circuit. Maximum current 100 Adc				**18,059**
M/TR-200	[*] E80013	Measuring module for 1 current circuit. Maximum current: 200 Adc				**18,059**

NOTE: Complete unit:

25 A	TR8-RS485-25 (E80000) + (1 or 2) M/TR-25x4 (E80011)
100 A	TR8-RS485-100/200(E80001) + (1 ... 8) M/TR-100 (E80012)
200 A	TR8-RS485-100/200 (E80001) + (1 ... 8) M/TR-200 (E80013)

On demand, with UL Certification

PV-MONITOR, Photovoltaic monitoring datalogger

Type	Code	Description	Price Rs.
Pv-Monitor	[2] E8100 *	Photovoltaic monitoring datalogger	
Pv-Monitor-M	[2] E8110	Photovoltaic monitoring datalogger with meteorological monitoring system	

* 1=Spanish / 2= French / 3=English Examples: E81001=Spanish / E81102= French

RT-N150	[1] EX0056	CIRCUTOR Router	
TR16-RS485	[*] E80002	Multi-channel DC voltage and current analyzer for photovoltaic strings	
M/TR-25 x2	[*] E80010	Measuring module for 2 current circuits with max 25 Adc	
M/TR-25 x4	[*] E80011	Measuring module for 4 current circuits with max 25 Adc	
TH-dg-RS485	[*] M61310	Ambient temperature sensor	
STS	[*] EX0036	Temperature sensor for photovoltaic panels	
SRS	[*] EX0033	Solar radiation sensor	
PS-24	[*] M60415	230 Vac / 24 Vdc power supply	
PSC-120-24	[*] M40180	Power supply for TR16 (120 Vac / 24 Vdc)	consult