Short-Form catalogue
2026

COMPLETE RANGE OF SOLUTIONS FOR ELECTRICAL ENERGY EFFICIENCY

The Future is Efficiency
circutor.com

Circutor

Circutor

Technology development to offer products and comprehensive solutions to the market of electric power efficiency and electric mobility.

We create and develop new ways of managing electric power, tracing possible paths to a more efficient world.

We respond to energy needs, reducing their environmental impact. Committed to our own future.

We offer comprehensive solutions that allow for the optimisation of energy consumption.

Tailor-made and customised service. We treat your concerns as ours.

From 1973

2017.
Technology for energy efficiency.
–
1992.
Energy control technology.
–
1984.
Technology for energy saving.
–
1982.
Rational use of electric power

CIRCUTOR headquarters in Viladecavalls, Barcelona.

Present in all sectors

Photovoltaic facilities

Energy distribution

Telecommunications, Data centres and critical facilities

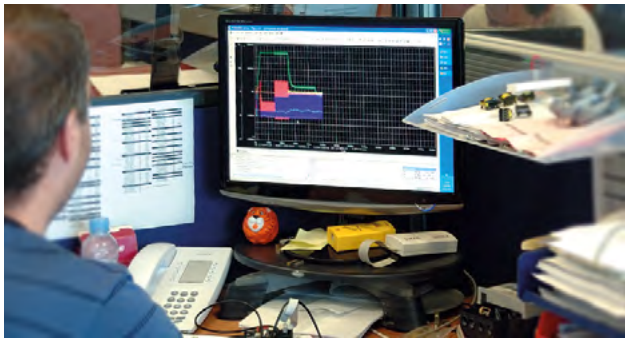
Industrial sector

Tertiary sector, buildings and infrastructures

Electric mobility

Innovation and development

We are committed to innovation, incorporating cutting-edge technology to continue proposing more efficient solutions in the electric sector.

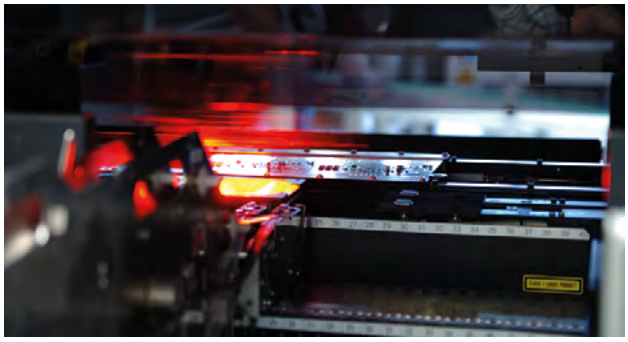


Production centres

We manufacture our own products in 6 centres located in Viladecavalls, Barcelona, , Santa Perpètua, and Mexico.

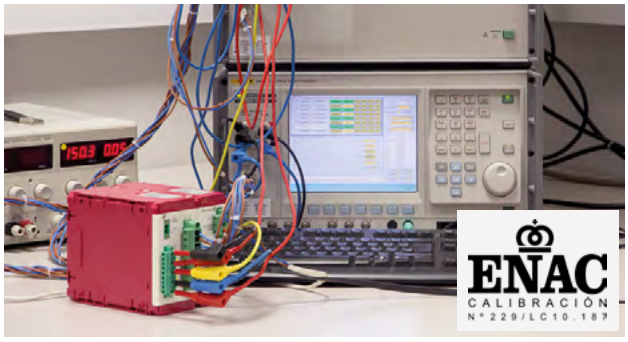
CIRCUTOR technology

Boasting an in-house R&D team made up of more than 100 engineers who work designing new products to meet market demand..



Testing laboratory

CIRCUTOR boasts in-house laboratories for compatibility testing (EMC/EMI), calibration and official metrological verification laboratory, which guarantee the highest quality.



Product index

PRODUCT RANGE

If you are interested in Electric Mobility and/or Renewable Energies, consult the specific catalogue or contact us at info@circutor.com.

What do you need to solve?

Analysis of electrical parameters and monitoring of consumption

Maintaining continuity in homes

Compensate for inductiv reactive energy

Analyze the installation to detect and quantify the harmonics present

I want to install my own billing counter and/or monitor my CT

Measurement and Control

Fixed power analyzers

Measuring transformers and shunts

Portable power analyzers

Digital instruments

Analogue instruments

Fixed power analyzers

Panel power analysers

Selection table






		CVM-A1600	CVM-B150	CVM-B100	CVM-B50	CVM-C11	CVM-C4
Mounting	Panel (display size)	201x145 (8")	144x144	96x96	96x96	96x96	96x96
Power supply	CA / CC	●	●	●	●	●	●
Voltage measurement	Direct	600 V_{ph-n} 1000 V_{ph-ph}	600 V_{ph-n} 1000 V_{ph-ph}	600 V_{ph-n} 1000 V_{ph-ph}	300 V_{ph-n} 520 V_{ph-ph}	300 V_{ph-n} 520 V_{ph-ph}	300 V_{ph-n} 520 V_{ph-ph}
Current measurement	.../5A;.../1A	●	●	●	● (ST)	● (ST)	●
	.../250mA	●	●	●	● (ST)	● (ST)	—
	Flexible sensor (Rogowski)	—	—	—	● (ST)	● (ST)	—
Electric parameters	Power quality (events and transients)	● (Class A)	—	—	—	—	—
	THDU%/THDI%	●	●	●	●	●	●
	Hamonics	63	50	50	31	31	—
	Neutral current	●	●	●	●	●	—
Communications	RS-485	●	●	●	—	● (ST)	●
	Ethernet (TCP/IP)	● (2 ports)	● (OP)	● (OP)	●	● (ST)	—
	Wi-Fi (TCP/IP)	●	—	—	●	—	—
Protocols	Modbus RTU	●	●	●	—	● (ST)	●
	Modbus TCP	●	● (OP)	● (OP)	●	● (ST)	—
	BACnet	—	●	●	—	● (ST)	—
	Webserver (HTTPS)	●	● (OP)	● (OP)	●	—	—
Automation	Inputs/Outputs	●	●	●	●	●	●
Expansion modules	Expandable modules	—	●	●	—	—	—
	Integrated memory	5 year	1 year (OP)	1 year (OP)	40 days	—	—
Additional features	Automatic reporting (EN 50160)	●	—	—	—	—	—
	Indicates direction of harmonics	●	—	—	—	—	—

ST- According to Type / OP - Optional

Click on the product code for more information.

Panel mounted power analyzers

CVM-A1600, Power quality analyzers, colour display, panel mounted

NEW

- Measured in class A according to IEC 61000-4-30 Edition 3
- Event capture (1/2 cycle) and transient (0.04ms@50Hz/0.03ms@60Hz)
- Automatic sending of power quality reports (EN 50160 or grid Code)
- THDU%, THDI%, harmonics/interharmonics (Up to 63°) and indicates harmonic direction
- Integrated datalogger (5 years of data) and web server
- Touchscreen with phasor and ITIC curve monitoring
- 2 Ethernet, Wi-Fi, GPS ports

Notable for:
Measurement in Class A edition 3 (IEC 61000-4-30)

Power supply 100...300 Vac / 100...300 Vdc, 600 VPh-N / 1000 VPh-Ph measurement

Type	Code	Input current	Transistor output	Relay output	Digital inputs	Communications	Certification
CVM-A1610-ITF	[C] M57110.	.../5 A | .../1 A | 250 mA	-	-	-	Ethernet |RS-485 |Wi-Fi	Accord. IEC 61000-4-30
CVM-A1611-ITF	[C] M57111.	.../5 A | .../1 A | 250 mA	6	2	6	Ethernet |RS-485 |Wi-Fi	Accord. IEC 61000-4-30
CVM-A1612-ITF	[C] M57112.	.../5 A | .../1 A | 250 mA	12	4	12	Ethernet |RS-485 |Wi-Fi	Accord. IEC 61000-4-30

Resolves via webserver wiring errors.
Energy accuracy without connected sensors.

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

- 4 voltage channels + 4 current channels (neutral measurement included)
- THDU%, THDI% and harmonics (Up to 50°)
- Built-in inputs/outputs
- RS-485 communications (Modbus and BACnet)
- User-configurable color display
- Expandable up to 4 expansion modules

Notable for:
Expandable and customizable

Power supply 100...240 Vac / 120...300 Vdc, 600 VPh-N / 1000 VPh-Ph measurement

Type	Code	Size (mm)	Energy accuracy	Input current	Transistor output	Relay output	Digital inputs	Communi-cations	Protocol
CVM-B100-ITF-485-ICT2	[*] M56011.	96 x 96	0,5 S (.../5A)	.../5 A | .../1 A | .../250 mA	2	2	2	RS-485	Modbus/RTU | BACnet
CVM-B150-ITF-485-ICT2	[*] M56111.	144 x 144	0,5 S (.../5A)	.../5 A | .../1 A | .../250 mA	2	2	2	RS-485	Modbus/RTU | BACnet

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

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

Type	Code	Transistor output	Relay output	Digital inputs	Analog output	Analogue Input	Commu-nications	Protocol	Memory
M-CVM-AB-8I-8OTR	[*] M56E01.	8	-	8	-	-	-	-	-
M-CVM-AB-8I-8OR	[*] M56E02.	-	8	8	-	-	-	-	-
M-CVM-AB-4AI-8AO	[*] M56E03.	-	-	-	8 (0/4 ... 20 mA)	4 (0/4 ... 20 mA)	-	-	-
M-CVM-AB-Modbus-TCP (bridge)	[*] M56E05.	-	-	-	-	-	Ethernet	Modbus/ TCP (gateway to RS485)	-
M-CVM-AB-Modbus-TCP (switch)	[*] M56E0A.	-	-	-	-	-	Ethernet	Modbus/TCP (gateway to TCP)	-
M-CVM-B-DATALOGGER	[*] M56E06.	-	-	-	-	-	Ethernet	Webserver | HTML5 | XML	Yes
M-CVM-AB-MBUS	[4] M56E07.	-	-	-	-	-	M-BUS	M-BUS	-

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

Adapters

Type	Code	Description
IP65-AB-96	[1] M5ZZ5U.	IP 65 airtight seal for CVM-AB (96x96)
IP65-AB-144	[1] M5ZZ5V.	IP 65 airtight seal for CVM-AB (144x144)

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

CVM-B50, Panel mounted power analyzer with memory

- THDU%, THDI% and harmonics (Up to 31º)
- Automatic Autowiring System (correction of wiring errors)
- 40 days of downloadable built-in memory in *CSV (mobile or PC)
- Configuration and commissioning from app or webserver
- Inputs and outputs are available
- Wi-Fi and Ethernet communications
- Current measurement .../5A, .../1A, .../250 mA or flexible clamps (depending on model)

Notable for:
Downloadable memory and App/webserver

Power supply 100...240 Vac / 120...300 Vdc, 600 VPh-N / 1000 VPh-Ph measurement

Type	Code	Size (mm)	Measuring Channels	Input current	Transistor output	Relay output	Digital inputs	Communications	Protocol	Harmonics
CVM-B50-ITF	[C] M56910.	96 x 96	4	.../5 A | .../1 A	2	2	4	Ethernet | Wi-Fi	Modbus/TCP	31
CVM-B50-MC	[C] M56920.	96 x 96	4	.../250 mA	2	2	4	Ethernet | Wi-Fi	Modbus/TCP	31
CVM-B50-FLEX	[C] M56930.	96 x 96	4	Rogowski	2	2	4	Ethernet | Wi-Fi	Modbus/TCP	31

Automatically resolves wiring errors via autowiring system

CVM-C11, Power analyzer, panel mounted 96 x96

- 3 voltage channels + 4 current channels (neutral measurement included)
- THDU%, THDI% and harmonics (Up to 31º)
- User-configurable display
- Built-in inputs/outputs
- RS-485 (Modbus RTU), Ethernet (Modbus TCP) and BACnet
- Current measurement .../5A, .../1A, .../250 mA or flexible clamps (depending on model)

Notable for:
Analysis and quality of consumption

Power supply 100...270 Vac / 100...270 Vdc , 300 VPh-N / 520 VPh-Ph measurement

Type	Code	Measuring Channels	Input current	Nr Sensors	Transistor output	Relay output	Digital inputs	Communications	Protocol	Harmonics
CVM-C11-ITF-IN-ETH-ICT2	[*] M58531.	4	.../5 A | .../1 A	-	2	2	2	Ethernet	Modbus/TCP | BACnet	31
CVM-C11-ITF-IN-485-ICT2	[*] M58541.	4	.../5 A | .../1 A	-	2	2	2	RS-485	Modbus/RTU | BACnet	31
CVM-C11-MC-IN-485-ICT2	[*] M58581.	4	.../250 mA	-	2	2	2	RS-485	Modbus/RTU | BACnet	31
CVM-C11-FLEX-IN-485-ICT2	[*] M58561.	4	Rogowski	-	2	2	2	RS-485	Modbus/RTU | BACnet	31
Kits										
CVM-C11-FLEX+3 MFC-FLEX-80	[2] M58562.	4	Rogowski	3 x MFC-FLEX-80	2	2	2	RS-485	Modbus/RTU | BACnet	31
CVM-C11-FLEX+3 MFC-FLEX-125	[2] M58563.	4	Rogowski	3 x MFC-FLEX-125	2	2	2	RS-485	Modbus/RTU | BACnet	31
CVM-C11-FLEX+4 MFC-FLEX-80	[2] M58564.	4	Rogowski	4 x MFC-FLEX-80	2	2	2	RS-485	Modbus/RTU | BACnet	31
CVM-C11-FLEX+4 MFC-FLEX-125	[2] M58565.	4	Rogowski	4 x MFC-FLEX-125	2	2	2	RS-485	Modbus/RTU | BACnet	31

CVM–C4, Power analyzer, panel mounted 96x96

- 3 voltage channels + 3 current channels
- Basic low voltage analyzer with THDU%, THDI% measurement
- Built-in inputs/outputs
- RS-485 communications (Modbus RTU)

Notable for:
Essential measures and control

Power supply 80...270 Vac / 80...270 Vdc , 300 VPh-N / 520 VPh-Ph measurement

Type	Code	Measuring Channels	Input current	Transistor output	Relay output	Digital inputs	Communications	Protocol
CVM-C4-ITF-485-ICT2	[*] M52706.	3	.../5 A | .../1 A	2	2	2	RS-485	Modbus/RTU

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

TABLE OF ADDITIONAL FEATURES

CVM-B

M	5	X	X	X	X	0	0	X	X	X	X	X	
Code								Internal code					Delivery time
Power supply voltage								Standard (100...270 V_{ac} / 120...300 V_{dc}				0	-
								20...120 V_{dc}				F	1
Others								Metric fork terminals 3 - CAT III 300 V			B	T	-

CVM-C4

M	5	X	X	X	X	0	0	X	
Code								Internal code	Delivery time
Power supply voltage								Estándard (80...270 V_{ac} / $_{dc}$)	0 -
								18 ...36 V_{dc}	3 1

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

Click on the product code for more information.

DIN rail power analyzers

Selection table



		Line-CVM-D32	CVM-E3-MINI	CVM-D50	CVM-D400	CEM-D200	CEM-C12c
Montaje	DIN rail modules	3	3	3	6	4	3
Power supply	AC	●	●	●	Self-powered	Self-powered	Self-powered
	DC	●	● (ST)	●	—	—	—
Voltage measurement	Direct	300 V_{ph-n} 520 V_{ph-ph}	300 V_{ph-n} 520 V_{ph-ph}	300 V_{ph-n} 520 V_{ph-ph}	300 V_{ph-n} 520 V_{ph-ph}	127/220.... 230/400 V	230 V_{ph-n}
	Indirect	Configurable	Configurable	Configurable	Configurable	—	—
Current measurement	.../5A;.../1A	●	● (ST)	● (ST)	—	—	—
	.../250mA	●	● (ST)	● (ST)	● (ST)	—	—
	Flexible sensor (Rogowski)	—	● (ST)	● (ST)	—	—	—
	.../333mV	—	—	—	● (ST)	—	—
	Direct	—	—	—	—	100 A	100 A
Electrical parameters	Voltage event meter	●	—	●	—	—	—
	Harmonic distotion (THDU%/THDI%)	●	●	●	●	—	—
	Harmonics	40	31	31	15	—	—
Communications	RS-485	●	● (ST)	—	●	● (ST)	●
	Ethernet (TCP/IP)	—	● (ST)	●	●	—	—
	Wi-Fi	—	● (ST)	●	●	—	—
Protocols	Modbus RTU	●	● (ST)	—	●	● (ST)	●
	Modbus TCP	—	● (ST)	●	●	—	—
	BACnet	—	● (ST)	—	—	—	—
	M-Bus	—	—	—	—	● (ST)	—
Integrated inputs/Outputs	Digital inputs	—	● (ST)	—	—	● (ST)	—
	Digital output	●	● (ST)	—	●	● (ST)	—
Expansion modules	Inputs/Outputs	●	—	—	—	—	—
Memory	Integrated memory	—	—	40 days	15 days	—	—

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

Line-CVM-D, Power analyzer, Line series

- 3 voltage channels + 3 current channels
- THDU%, THDI% and harmonics (Up to 31°)
- Quality event counter
- Built-in outputs and expandable with Line input/output modules
- RS-485 (Modbus RTU) and Bus-Line
- Current measurement .../5A, .../1A and .../250 mA

Notable for:
Expandable and events counter

Power supply 80...264 Vac / 100...300 Vdc

Type	Code	Measuring Channels	Input current	Transistor output	Communications	Protocol	Harmonics
Line-CVM-D32	[*] M58100.	3	.../5 A | .../1 A | .../250 mA	2	RS-485 | Bus-Line	Modbus/RTU	40

Power supply 80...264 Vac / 100...300 Vdc

Line-M Expansion modules, Line series

Type	Code	Transistor output	Relay output	Digital inputs	Analog output	Analogue Input	Communications	Protocol
Input/Output Modules								
Line-M-4IO-T	[*] D73001.	4	-	4	-	-	Bus-Line	Modbus/RTU
Line-M-4IO-R	[*] D73002.	-	4	4	-	-	Bus-Line	Modbus/RTU
Line-M-8I6O	[*] D73008.	-	6	8	-	-	Bus-Line	Modbus/RTU
Line-M-4IO-A	[*] D73003.	-	-	-	4 (0/4 ... 20 mA) |4 (0/2 ... 10 Vdc)	4 (0/4 ... 20 mA)	Bus-Line	Modbus/RTU
Line-M-4IO-RV	[*] D73004.	-	4	4 (230 V)	-	-	Bus-Line	Modbus/RTU
Line-M-20I	[*] D73006.	-	-	20	-	-	Bus-Line	Modbus/RTU

Transistor I/O expansion modules, Line system

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

- 3 voltage channels + 3 current channels
- THDU%, THDI% and harmonics (Up to 31°)
- Variable display configurable per user
- Built-in inputs/outputs (depending on model)
- RS-485 (Modbus RTU/BACnet) or Wi-Fi/Ethernet (Modbus TCP)
- Current measurement .../5A, .../1A, .../250 mA or flexible clamps (depending on model)

Notable for:
Analysis and quality of consumption

Type	Code	Input current	Transistor output	Digital inputs	Communications	Protocol	Harmonics
Power supply 207...253 Vac							
CVM-E3-MINI-ITF-485-IC	[*] M56414.	.../5 A | .../1 A	1	1	RS-485	Modbus/RTU | BACnet	31
CVM-E3-MINI-MC-485-IC	[*] M56424.	.../250 mA	1	1	RS-485	Modbus/RTU | BACnet	31
CVM-E3-MINI-FLEX-485-IC	[*] M56454.	Rogowski	1	1	RS-485	Modbus/RTU | BACnet	31
Power supply 90...264 Vac/Vdc							
CVM-E3-MINI-ITF-WiEth	[*] M56470.	.../5 A | .../1 A	-	-	Ethernet | Wi-Fi	Modbus/TCP	31
CVM-E3-MINI-MC-WiEth	[*] M56480.	.../250 mA	-	-	Ethernet | Wi-Fi	Modbus/TCP	31
CVM-E3-MINI-FLEX-WiEth	[*] M56490.	Rogowski	-	-	Ethernet | Wi-Fi	Modbus/TCP	31

Adapters

Type	Code	Description
Adap-Panel-D3M	[*] M5ZZF100000E3	Panel adapter CVM-E3-MINI, RGU, CBS (72 x 72)

TABLE OF ADDITIONAL FEATURES

CVM-E3-MINI-xx-485

M	5	X	X	X	X	0	0	X
Code						Internal code		Delivery time
Power supply voltage	Standard 207...253 Vac						0	-
	90...264 Vac/Vdc						D	1

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

CVM-D50, Din rail three-phase power analyser with memory

NEW

- 3 voltage channels + 3 current channels
- THDU%, THDI% and harmonics (Up to 31°)
- Automatic Autowiring System (correction of wiring errors)
- 40 days of downloadable built-in memory in *CSV (mobile or PC)
- Configuration and commissioning from app or webserver
- Wi-Fi and Ethernet communications
- Current measurement .../5A, .../1A, .../250 mA or flexible clamps (depending on model)

Notable for:
Downloadable memory and App/webserver

Power supply 90...264 Vac / 90...264 Vdc, 300 VPh-N / 520 VPh-Ph measurement

Type	Code	Input current	Communications	Protocol	Harmonics	Memory
CVM-D50-ITF	[*] M56570.	.../5 A | .../1 A	Ethernet | Wi-Fi	Modbus/TCP	31	1
CVM-D50-MC	[*] M56580.	.../250 mA	Ethernet | Wi-Fi	Modbus/TCP	31	1
CVM-D50-FLEX	[*] M56590.	Rogowski	Ethernet | Wi-Fi	Modbus/TCP	31	1

It has a free configuration App (MyConfig) and WebServer for configuration, visualization and data download

CVM-D400, Multi-channel network analyser with memory, DIN rail

NEW

- 4 three-phase or 12 single-phase channels or any combination of these.
- Configuration and commissioning from app or webserver
- Automatic grouping and display according to type of consumption
- Automatic Autowiring System (correction of wiring errors)
- 15 days of downloadable built-in memory in *CSV (mobile or PC)
- THDU%, THDI% and harmonics (Up to 15°)
- RS-485 communications, Wi-Fi, Ethernet and digital outputs

Notable for:
Multi-circuit (Branch Circuitit Monitoring)

Self-powered, 300 Vph-n / 520 Vph-ph measurement

Type	Code	Nª Input channels	Input current	Nr Sensors	Transistor output	Communications	Protocol	Harmonics	Memory
CVM-D420-MC	[*] M551A2.	1...2(III) | 1...6(II)	.../250 mA	-	2	Wi-Fi | Ethernet | RS-485	Modbus/TCP |Modbus/RTU	15	1
CVM-D421-SCV	[*] M55132.	1...2(III) | 1...6(II)	.../333 mV	-	2	Wi-Fi | Ethernet | RS-485	Modbus/TCP |Modbus/RTU	15	1
CVM-D440-MC	[*] M551A4.	1...4(III) | 1...12(II)	.../250 mA	-	4	Wi-Fi | Ethernet | RS-485	Modbus/TCP |Modbus/RTU	15	1
CVM-D441-SCV	[*] M55134.	1...4(III) | 1...12(II)	.../333 mV	-	4	Wi-Fi | Ethernet | RS-485	Modbus/TCP |Modbus/RTU	15	1
Kits									
kit CVM-D421+2xSCV1	[3] M55136.	1...2(III) | 1...6(II)	.../333 mV	6	2	Wi-Fi | Ethernet | RS-486	Modbus/TCP |Modbus/RTU	15	1
kit CVM-D441+4xSCV1	[3] M55138.	1...4(III) | 1...12(II)	.../333 mV	12	4	Wi-Fi | Ethernet | RS-487	Modbus/TCP |Modbus/RTU	15	1

-MC models require MC1/MC3 type transformers and -SCV models require SCV1 type transformers, whose current terminals are included with the transformers, not with the equipment.

SCV1 Kit 3 Split core current transformers

Type	Code	A Max.	Class 0,5 Power (VA)	Usefull diam.(mm)	cable Lenght(m)
3xSCV1-100A/333mV	[*] M73811.	100	0.5	16	1.5

SCV1 is a set of 3 transformers with 333 mV output

CEM-C12c, Single-phase direct energy meter with basic analyser parameters

- Direct measurement up to 100A with network analyzer function
- Self-powered and sealable
- Class B/1 in active energy
- Class 2 in reactive energy
- RS-485 (Modbus RTU)
- MID or IEC certification

Notable for:
Reduced space

Type	Code	Quadrants	Measu-rement Range (V)	Measu-rement Range (A)	Freq. (Hz)	Tariff	Certification	Módules	Commu-nications	Protocol
CEM-C12c	[*] Q27211.	4	1 x 230	5 (100) A	50/60	1	IEC	1	RS-485	Modbus/RTU
CEM-C12c	[C] Q272110020000	4	1 x 127	5 (100) A	60 Hz.	1	IEC	1	RS-485	Modbus/RTU
CEM-C12c-MID	[*] Q27212.	4	1 x 230	0.25 ... 5 (100) A	50/60	1	MID	1	RS-485	Modbus/RTU

Parameters: V, A, kW, kVA, kWh, cos phi

CEM-D200, Three-phase direct meter up to 100A

NEW

- Direct measurement up to 100A with network analyzer function
- Self-powered and sealable
- Class B/1 in active energy and Class 2 in reactive energy
- Pulse output (depending on version)
- Inputs for fare change, pulse counting or status management (depending on version)
- RS-485 (Modbus RTU) or MBUS
- MID or IEC certification

Type	Code	Measurement Range (V)	Measurement Range (A)	Transistor output	Digital inputs	Certification	Módules	Communi-cations	Protocol
Direct three-phase									
CEM-D210	[*] Q22601.	3x127(230)...3x230(400)V	(5) 100A	1	-	IEC	4	-	-
CEM-D210 -MID	[*] Q22602.	3x127(230)...3x230(400)V	(5) 100A	1	-	MID	4	-	-
CEM-D211	[*] Q22611.	3x127(230)...3x230(400)V	(5) 100A	-	2	IEC	4	RS-485	Modbus/RTU
CEM-D211 -MID	[*] Q22612.	3x127(230)...3x230(400)V	(5) 100A	-	2	MID	4	RS-485	Modbus/RTU
CEM-D212	[*] Q22621.	3x127(230)...3x230(400)V	(5) 100A	-	2	IEC	4	-	MBUS
CEM-D212 -MID	[*] Q22622.	3x127(230)...3x230(400)V	(5) 100A	-	2	MID	4	-	MBUS

CVM-D41 DC, DC power analyzer

- Analyzer for DC networks up to 1500 Vdc
- Current measurement by Shunt
- Built-in inputs and outputs (digital + analogue)
- RS-485 communications (Modbus RTU)

Notable for:
DC Network Analysis

Type	Code	System	Parameters	Measu-rement Range U	Measu-rement Range I	Output relay	Digital inputs	Analog output	Commu-nications	Protocol
Multimeter										
CVM-D41 DC mA	[*] M56638.	DC (Shunt)	V/A/kW/kWh	1500 Vdc	50 ... 600 mV	2	2	1 (20 mA)	RS-485	Modbus/RTU
CVM-D41 DC mA	[*] M566380040000	DC (Shunt)	V/A/kW/kWh	1500 Vdc	50 ... 600 mV	2	2	1 (20 mA)	RS-485	Modbus/RTU

Power quality analyzers

NEW

		QNA-1600	CVM-A1600
Assembly	Frontal	Rack 19"	Screen 8" (201x145)
Power supply	Type	180...300 Vca	100...300 Vca/cc
Voltage measurement	Direct/Indirect	500 V_{ph-n} 866 V_{ph-ph}	600 V_{ph-n} 1000 V_{ph-ph}
Current measurement	.../5A;.../1A	●	●
	.../250mA	—	●
Quality parameter	Power quality (events and transients)	● (Class A)	● (Class A)
	EN 50160 / CdR	●	●
	Rapid Voltage changes (RVC)	●	●
	Network signal transmission	●	●
	Voltage transtoriums	●	●
	Current Transtoriums	●	●
	Waveform (events)	●	●
Communications	RS-485	●	●
	Ethernet (TCP/IP)	● (2 ports)	● (2 ports)
	Wi-Fi	●	●
	4G	●	●
	GPS	●	●
Protocols	ModBus/RTU	●	●
	Ethernet (TCP/IP)	●	●
	Wi-Fi (TCP/IP)	●	●
	Web server (https)	●	●
	IEC 61850	●	●
	FTP + SFTP	●	●
Inputs/Outputss	Digital Inputs	-	● (ST up to 12)
	Digital outputs	-	● (ST up to 12)
	Relay outputs	-	● (ST up to 4)
Interfaz	Screen	OLED	Colour touch screen
Additional features	Integrated memory	5 years	5 years
	Sending automatic reports (EN 50160 / CdR)	●	●
	Indicates the direction of the harmonics	●	●
	PQDIF Data Format	●	●
Standarts	International	IEC 61000-4-30 (Edition 3)	IEC 61000-4-30 (Edition 3)

ST- According to Type / OP - Optional

QNA 600, Advanced power quality analyzer (according Standard EN-50160 and IEC 61000-4-30)

NEW

- Class A certified according to IEC 61000-4-30 Edition 3
- Event capture (1/2 cycle) and transient (0.04ms@50Hz/0.03ms@60Hz)
- Automatic submission of quality reports (EN 50160 or Grid Code)
- 5 voltage channels + 5 current channels (neutral measurement included)
- THDU%, THDI%, harmonics/interharmonics (Up to 63°) and indicates harmonic direction
- Integrated Datalogger (5 years of data) with integrated Web Server
- 2 Ethernet, Wi-Fi, 4G and GPS ports

Notable for:
Class A Certificate Edition 3 (IEC 61000-4-30)

Power supply 180...300 Vac, measurement Vph-N / 866 Vph-ph

Type	Code	Energy accuracy	Class	Input current	Communications	Protocol	Harmonics	Certification
QNA 600	[*] Q22010.	0,5s	A	.../ 5 A	Ethernet | Wi-Fi | 4G	HTTPS - NTP - SFTP - IEC61850	64	IEC 61000-4-30 (Class A)

Accessories for QNA 600

Type	Code	Description
Pack-4bat	[C] Q22003.	Replacement pack 4 QNA 600 batteries
Rack- 4U-19" 60x45x28cm	[*] Q22001.	19" 4U Wall Rack Accessory for QNA 600
DobleRack	[C] Q2200A.	Accessory Double Rack Mount QNA 600

CVM-A1600, Power quality analyzers, colour display, panel mounted

NEW

- Measured in class A according to IEC 61000-4-30 Edition 3
- Event capture (1/2 cycle) and transient (0.04ms@50Hz/0.03ms@60Hz)
- Automatic sending of power quality reports (EN 50160 or grid Code)
- THDU%, THDI%, harmonics/interharmonics (Up to 63°) and indicates harmonic direction
- Integrated datalogger (5 years of data) and web server
- Touchscreen with phasor and ITIC curve monitoring
- 2 Ethernet, Wi-Fi, GPS ports

Notable for:
Measurement in Class A edition 3 (IEC 61000-4-30)

Power supply 100...300 Vac / 100...300 Vdc, 600 VPh-N / 1000 VPh-Ph measurement

Type	Code	Input current	Transistor output	Relay output	Digital inputs	Communications	Certification
CVM-A1610-ITF	[C] M57110.	.../5 A | .../1 A | 250 mA	-	-	-	Ethernet |RS-485 |Wi-Fi	Accord. IEC 61000-4-30
CVM-A1611-ITF	[C] M57111.	.../5 A | .../1 A | 250 mA	6	2	6	Ethernet |RS-485 |Wi-Fi	Accord. IEC 61000-4-30
CVM-A1612-ITF	[C] M57112.	.../5 A | .../1 A | 250 mA	12	4	12	Ethernet |RS-485 |Wi-Fi	Accord. IEC 61000-4-30

Resolves via webserver wiring errors.
Energy accuracy without connected sensors.

Digital Link Scout, Cloud-Scout software

Scout
Digital Link

- Automatic network quality reports: EN 50160, IEC 61000-4-30, Grid Code and energy audits.
- Power quality monitoring: harmonics, ITIC curve and waveforms.
- Alerts and notifications: Receive mobile alerts of critical events.
- Remote access to computers: configure, update and query metrics via platform or API.
- Multi-site monitoring and open API: centralize data and connect with your systems.

Scout Electrical monitoring and auditing software

Type	Code	Description
Quality Analyst_Scout	[*] W10320.	Module for the analysis and monitoring of power quality
Quality Analyst SIM VPN EU - Single	[*] W10321.	Quality Analyst module with SIM configured for secure connection via VPN, European coverage
Quality Analyst SIM VPN WW - Single	[*] W10322.	Quality Analyst module with SIM configured for secure connection via VPN, worldwide coverage

The prices of the modules are for an annual subscription per connected device. Devices compatible with the modules: **QNA 600, CVM-A1600, CVM-B50, CVM-D50, CVM-D4XX, R-SABT, computer C Wi-Fi, Computer SMART III + SmartLink-VAR**. Additionally, via Line-EDS-cloud, any Circutor device with RS-485 or Ethernet and Modbus protocol.

Accessories

MFC-FLEX, Rogowski flexible sensors for FLEX devices

Type	Code	Measurement Range (A)	A Max.	Usefull diam.(mm)	Sensor lenght	cable Lenght(m)
MFC-FLEX-80	[*] M82111.	1000 A / 100 mV @ 50 Hz. (RMS values)| 1000 A / 120 mV @ 60 Hz. (RMS values)	100000	80	250 mm	3
MFC-FLEX-125	[*] M82114.	1000 A / 100 mV @ 50 Hz. (RMS values)| 1000 A / 120 mV @ 60 Hz. (RMS values)	100000	125	400 mm	3

Compatible only with FLEX type devices. Only one sensor is supplied per code

MC3, Three-phase current transformers

Type	Code	A Max.	Class 0,5 Power (VA)	System	Usefull diam.(mm)
MC3 - 63 A	[*] M73121.	63	0.1	Three-phase	7,1
MC3 - 125 A	[*] M73122.	125	0.1	Three-phase	14,6
MC3 - 250 A	[*] M73123.	250	0.1	Three-phase	26

MC1, Triple scale single-phase efficient transformers

Type	Code	Measurement Range (A)	A Max.	Class 0,5 Power (VA)	System	Usefull diam.(mm)
MC1-15-75	[*] M73112.	75	75	0.25	Single-phase	15
MC1-20-50/100/150 A	[*] M73118.	50/100/150	150	0.25	Single-phase	20
MC1-35-50/100/150 A	[*] M73116.	50/100/150	150	0.25	Single-phase	35
MC1-20-150/200/250 A	[*] M73113.	150/200/250	250	0.25	Single-phase	20
MC1-30-250/400/500 A	[*] M73114.	250/400/500	500	0.25	Single-phase	30
MC1-55-500/1000/1500 A	[*] M73115.	500/1000/1500	1500	0.25	Single-phase	55
MC1-80 1000/1500/2000 A	[*] M73117.	1000/1500/2000	2000	0.25	Single-phase	80

SC3, Split three-phase current transformers

Type	Code	A Max.	Class 0,5 Power (VA)	System	Usefull diam.(mm)
SC3-125	[*] M73602.	125	0.1	Three-phase	15

Converters and gateways

Type	Code	Description
RS		
RS2RS	[*] D80310.	RS-232/RS-485 converter and amplifier (RTS control) for PC.
USB		
USB-RS 485	[*] D80320.	USB to RS-485 Converter
M-Bus		
CMBUS-8	[*] D80208.	CMBUS-8, M-Bus to Modbus RTU converter, up to 8 M-Bus slaves.
LoRa		
Bridge LR PSAC	[*] D80110.	LoRa to RS-485 Converter (Modbus/RTU) . AC power supply (110...264 Vac)
Bridge LR PSDC	[*] D80111.	LoRa to RS-485 Converter (Modbus/RTU) . DC power supply (9 ... 36 Vdc)
Ethernet		
TCPRS1+	[*] D80010.	TCPRS1+, Modbus RTU (RS-485) to Modbus TCP/IP (Ethernet/Wi-Fi) conversion gateway. Integrated web server and mobile app (MyConfig) for configuration, with AC power supply.
TCPRS1+PSDC	[*] D80011.	TCPRS1+PSDC, Modbus RTU (RS-485) to Modbus TCP/IP (Ethernet/Wi-Fi) conversion gateway. Integrated web server and mobile app (MyConfig) for configuration, with DC power supply.

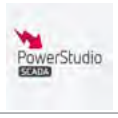
Software

PowerStudio Universe, Energy management software

- Scalable On-premise software
- Real-time monitoring and control
- Display of SCADA screens and dashboards
- Process automation, alarms and notifications
- Generation and sending of customized reports
- Interoperability: OPC-UA, SQL, XML and Modbus.
- End-to-end encrypted data

Notable for:
On-premise energy management and automation

Type	Code	Description
SCADA software		
PowerStudio SCADA Basic	[*] W20100.	SCADA software for monitoring, control and analysis of installations, with CIRCUTOR devices and third-party Modbus equipment. Up to 25 devices
PowerStudio SCADA Pro	[*] W20110.	SCADA software for monitoring, control and analysis of installations, with CIRCUTOR devices and third-party Modbus equipment. Up to 50 devices
PowerStudio SCADA Ultimate	[*] W20120.	SCADA software for monitoring, control and analysis of installations, with CIRCUTOR devices and third-party Modbus equipment. Up to 500 devices.
PowerStudio SCADA Enterprise	[*] W20130.	SCADA software for monitoring, control and analysis of installations, with CIRCUTOR devices and third-party Modbus equipment. More than 500 devices.
OPC UA Server	[*] W20200.	Allows to configure an OPC UA server in PowerStudio for any SCADA with OPC UA client to integrate the desired parameters.



Upgrade-PowerStudio, PowerStudio SCADA License Upgrade

Type	Code	Description
Licence update		
PSSBasic-to-PSSPro	[C] W20111.	Upgrading from PowerStudio SCADA Basic to PowerStudio SCADA Pro
PSSBasic-to-PSSUltimate	[C] W20121.	Upgrading from PowerStudio SCADA Basic to PowerStudio SCADA Ultimate
PSSBasic-to-PSSEnterprise	[C] W20131.	Upgrading from PowerStudio SCADA Basic to PowerStudio SCADA Enterprise
PSSPro-to-PSSUltimate	[C] W20122.	Upgrading from PowerStudio SCADA Pro to PowerStudio SCADA Ultimate
PSSPro-to-PSSEnterprise	[C] W20132.	Upgrading from PowerStudio SCADA Pro to PowerStudio SCADA Enterprise
PSSUltimate-to-PSSEnterprise	[C] W20133.	Upgrading from PowerStudio SCADA Ultimate to PowerStudio SCADA Enterprise

Scout, Cloud-Scout software

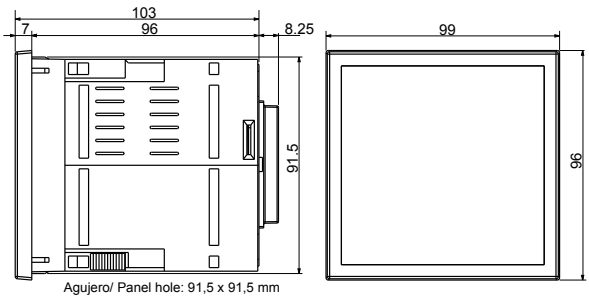
- Cloud-Scout Cloud-based electrical monitoring and auditing software:
- Manage multiple installations from a single platform.
- Focus on the most critical issues with alerts based on advanced analytics.
- Collaborate in real time with your team with chats and access to data analysis.
- Access and manage alerts from anywhere with our app available on Android and iOS.
- Detailed reports of your installations.

Type	Code	Description
Digital Link	[*] W10310.	Module for digitising your equipment
Digital Link SIM VPN EU - Single	[*] W10311.	Digital Link module with SIM configured for secure connection via VPN, European coverage
Digital Link SIM VPN WW - Single	[*] W10312.	Digital Link module with SIM configured for secure connection via VPN, worldwide coverage
Digital Link SIM VPN EU - Multi 5	[*] W10313.	Digital Link module with SIM configured for secure connection via VPN, up to 5 devices, European coverage.
Digital Link SIM VPN EU - Multi 25	[*] W10314.	Digital Link module with SIM configured for secure connection via VPN, up to 25 devices, European coverage.
Digital Link SIM VPN WW - Multi 5	[*] W10315.	Digital Link module with SIM configured for secure connection via VPN, up to 5 devices, worldwide coverage.
Digital Link SIM VPN WW - Multi 25	[*] W10316.	Digital Link module with SIM configured for secure connection via VPN, up to 25 devices, worldwide coverage.
Quality Analyst_Scout	[*] W10320.	Module for the analysis and monitoring of power quality
Quality Analyst SIM VPN EU - Single	[*] W10321.	Quality Analyst module with SIM configured for secure connection via VPN, European coverage
Quality Analyst SIM VPN WW - Single	[*] W10322.	Quality Analyst module with SIM configured for secure connection via VPN, worldwide coverage
VAR_Scout	[*] W10340.	Module for battery performance and power factor monitoring
VAR SIM VPN EU - Single	[*] W10341.	VAR module with SIM configured for secure connection via VPN, European coverage
VAR SIM VPN WW - Single	[*] W10342.	VAR module with SIM configured for secure connection via VPN, worldwide coverage

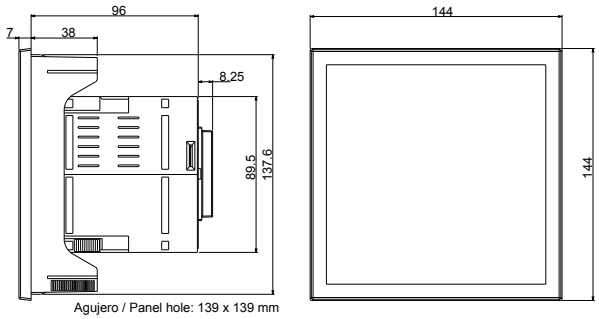
The prices of the modules are for an annual subscription per connected device. Devices compatible with the modules: **QNA-600-D, QNA-D500 series, CVM-D50, CVM-D4XX, R-SABT, computer C Wi-Fi, Computer SMART III + SmartLink-VAR**. Additionally, via **Line-EDS-cloud**, any Circutor device with RS-485 or Ethernet and Modbus protocol.

Dimensions

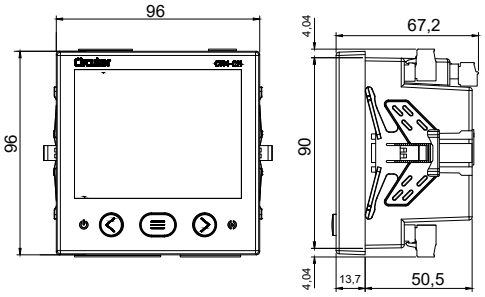
CVM B100



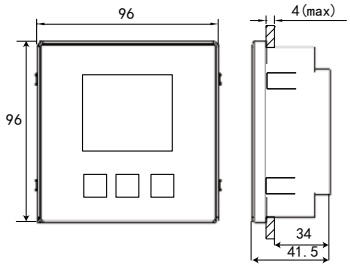
CVM B150



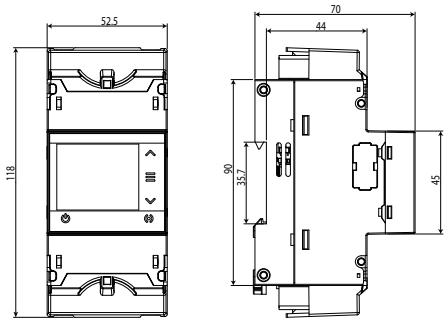
CVM C11 / CVM-B50



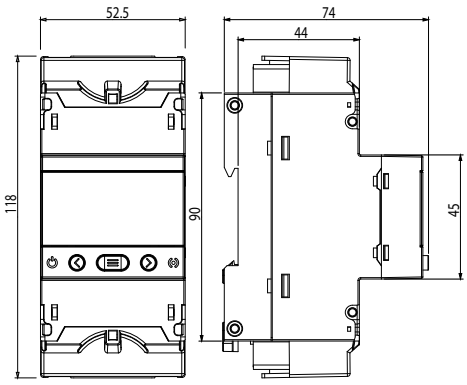
CVM C4



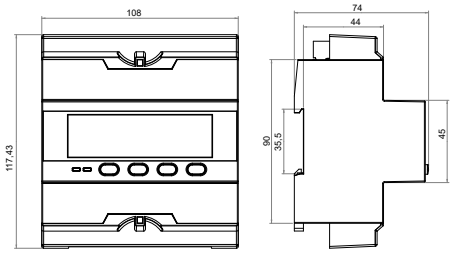
Line-CVM-D32



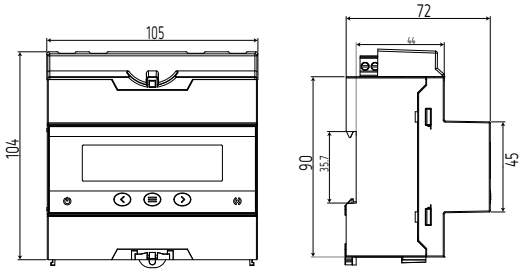
CVM-E3-MINI/ CVM-D50



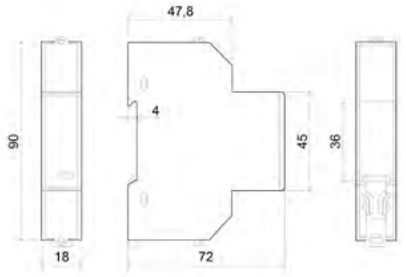
CVM D41



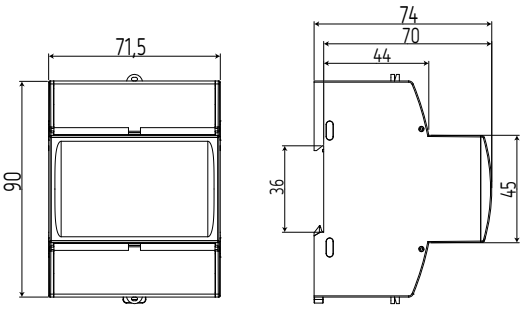
CVM D400



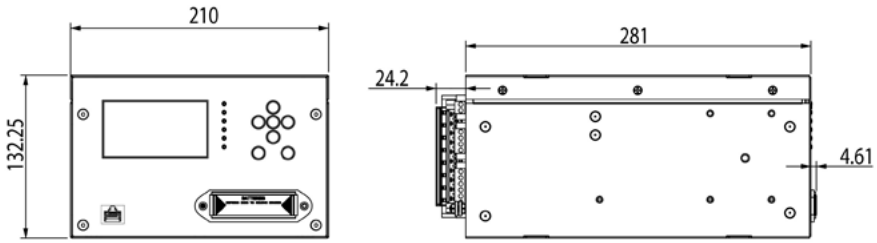
CEM-C12c



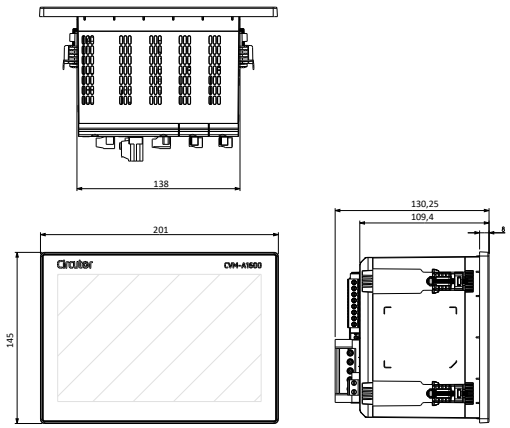
CEM-D200 / CEM-D300



QNA600



CVM A1600



Measuring transformers and shunts

Table: Current transformers and shunts selection

		TD	TDH	TA	TP NEW	TQR	STQ	MC	TM 45	TRMC	TRM	SH
AC Measurement	For billing meters	–	–	–	–	–	–	–	–	●	–	–
	For measuring instruments	●	●	●	●	●	●	●	●	–	●	●
	Wound primary	–	–	T	–	–	–	–	●	T	–	–
	Passing bar	●	●	T	●	●	–	●	–	T	●	–
	Split-core	–	–	–	●	●	●	–	–	–	–	–
	Minimum range (A)	40 A	60 A	5 A	75 A	400 A	50 A	50 A	1 A	50 A	75 A	–
	Maximum range (A)	4000 A	4000 A	5000 A	5000 A	2000 A	300 A	2000 A	50 A	3000 A	5000 A	–
	High accuracy	–	●	–	–	–	–	–	–	–	–	–
	Three-phase	–	–	–	–	–	–	T	–	T	–	–
DC measurement	Minimum range (A)	–	–	–	–	–	–	–	–	–	–	1 A
	Maximum range (A)	–	–	–	–	–	–	–	–	–	–	18000 A
Other parameters	Secondary output	.../5 A (*2)	.../5 A (*1)	.../5 A (*1)	.../5 A (*1)	.../5 A (*2)	../5 A (*2)	250 mA	.../5 A (*1)	.../5 A (*1)	.../5 A (*1)	.../60 mV (*3)
	in resin	OP	OP	–	–	–	–	–	–	●	●	–
	Sealable	●	●	–	●	–	–	–	–	–	–	–
	UL Certificate	–	–	T	–	–	–	–	–	–	–	–
	Individual certificate	OP	OP	OP	OP	OP	–	–	–	OP	OP	–

T - Depending on the type
OP - Optional
(*1) .../1 On request
(*2) .../1 A, .../250 mA on request
(*3) Possibility of other outputs (secundary values)

TD/TDH rail fixing

Type	Code	Description
DIN-FIX 50x50	[*] M75102.	DIN-FIX 50x50;Description: DIN rail fixing 50 x 50 mm (TD4, TD5, TD5.2, TD6, TD6.2)
DIN-FIX 50x84	[*] M75103.	DIN-FIX 50x84;Description: DIN rail fixing 50 x 84 mm (TD8 / TDH8 / TD10 / TDH10)
TD4-COVER	[*] M75111.	TD4 / TDH4-COVER;Description: Terminal cover/label for TD4 / TDH4 + secondary cap
TD5/TD5.2-COVER	[*] M75121.	TD5-COVER;Description: Terminal cover/label for TD5 / TDH5 / TD5.2 / TDH5.2 + secondary cap
TD6/TD6.2-COVER	[*] M75141.	TD6-COVER;Description: Terminal cover/label for TD6 / TDH6 / TD6.2 / TDH6.2 + secondary cap
TD8-COVER	[*] M75161.	TD8-COVER;Description: Terminal cover/label for TD8 / TDH8 + secondary cap
TD10-COVER	[*] M75171.	TD10-COVER;Description: Terminal cover/label for TD10 / TDH10 + secondary cap
TD12-COVER	[*] M75181.	TD12-COVER;Description: Terminal cover/label for TD12 / TDH12 + secondary cap

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

TD, Current transformers narrow section

Type	TD4				TD5				TD5.2			
	  width x height x depth (mm) 50 x 80 x 48				 width x height x depth (mm) 58 x 84 x 53				 width x height x depth (mm) 58 x 84 x 53			
ø (mm)	20								22			
Flat strip(mm)					15 x 15 | 20 x 10 | 25 x 5				25 x 10 | 30 x 10 | 20 x 12			
A	Class / VA				Class / VA				Class / VA			
	0.5	1	3	Code	0.5	1	3	Code	0.5	1	3	Code
40/5	-	-	1,25	[*] M75011.								
50/5	-	1	1,5	[*] M75012.	-	0,5	1,5	[*] M75022.				
60/5	-	1,25	2,5	[*] M75013.	-	1	2,5	[*] M75023.				
75/5	-	1,5	3,75	[*] M75014.	-	1,5	3,5	[*] M75024.				
100/5	1,5	2,5	5	[*] M75015.	1,5	2,5	3,75	[*] M75025.	-	-	1	[*] M750A5.
125/5	2,5	3,75	5	[*] M75016.	1,5	2,5	3,75	[*] M75026.	-	1	1,5	[*] M750A6.
150/5	3,75	5	5	[*] M75017.	1,5	2,5	3,75	[*] M75027.	1	1,5	2,5	[*] M750A7.
200/5	5	7,5	7,5	[*] M75018.	2,5	3,75	5	[*] M75028.	1,5	2,5	3,5	[*] M750A8.
250/5					2,5	3,75	5	[*] M75029.	2,5	3,5	5	[*] M750A9.
300/5									2,5	3,5	5	[*] M750AA.
400/5									2,5	3,5	5	[*] M750AB.
500/5									5	7,5	10	[*] M750AC.
600/5									5	7,5	10	[*] M750AD.

For other configurations see table of additional features

Type	TD6.2				TD6				TD8			
	  width x height x depth (mm) 66 x 91 x 53				 width x height x depth (mm) 66 x 91 x 53				 width x height x depth (mm) 85 x 109 x 59			
ø (mm)	25				28				43			
Flat strip(mm)	25 x 12 |30 x 10 |20 x 20				20 x 25 |30 x 15 |40 x 10				50 x 30 | 60 x 12| 13 x 45			
A	Class / VA				Class / VA				Class / VA			
	0.5	1	3	Code	0.5	1	3	Code	0.5	1	3	Code
100/5	1	2,5	3,5	[*] M75055.								
125/5	1,5	3,5	5	[*] M75056.								
150/5	2,5	3,5	5	[*] M75057.	1	2,5	3,5	[*] M75047.				
200/5	3,5	5	5	[*] M75058.	1,5	3,5	5	[*] M75048.				
250/5	3,5	5	5	[*] M75059.	2,5	5	5	[*] M75049.				
300/5	5	7,5	7,5	[*] M7505A.	2,5	5	5	[*] M7504A.	2,5	3,5	3,5	[*] M7506A.
400/5	5	7,5	7,5	[*] M7505B.	2,5	5	5	[*] M7504B.	2,5	3,5	5	[*] M7506B.
500/5	5	7,5	10	[*] M7505C.	5	7,5	7,5	[*] M7504C.	2,5	5	5	[*] M7506C.
600/5	5	7,5	10	[*] M7505D.	5	7,5	7,5	[*] M7504D.	2,5	5	5	[*] M7506D.
750/5					5	7,5	10	[*] M7504E.	2,5	5	5	[*] M7506E.
800/5					5	7,5	10	[*] M7504F.	5	7,5	7,5	[*] M7506F.
1000/5									5	7,5	10	[*] M7506G.
1200/5									5	7,5	10	[*] M7506H.
1250/5									7,5	10	10	[*] M7506J.
1500/5									7,5	10	15	[*] M7506K.
1600/5									7,5	10	15	[*] M7506L.

For other configurations see table of additional features

TD, Current transformers narrow section

Type	TD10				TD12			
	 width x height x depth (mm) 108 x 131 x 69				 width x height x depth (mm) 134 x 151 x 69			
ø (mm)	63				50			
Flat strip(mm)	50 x 50 | 60 x 30 | 80 x 30				100 x 50			
A	Class / VA			Code	Class / VA			Code
	0.5	1	3		0.5	1	3	
600/5	2,5	5	7,5	[*] M7507D.				
750/5	2,5	5	7,5	[*] M7507E.				
800/5	2,5	5	7,5	[*] M7507F.	2,5	5	7,5	[*] M7508F.
1000/5	2,5	5	7,5	[*] M7507G.	2,5	5	7,5	[*] M7508G.
1200/5	2,5	5	7,5	[*] M7507H.	5	10	15	[*] M7508H.
1250/5	2,5	5	7,5	[*] M7507J.	5	10	15	[*] M7508J.
1500/5	5	10	15	[*] M7507K.	7,5	15	20	[*] M7508K.
1600/5	5	10	15	[*] M7507L.	7,5	15	20	[*] M7508L.
2000/5	5	10	15	[*] M7507M.	7,5	15	20	[*] M7508M.
2500/5	5	10	15	[*] M7507N.	10	20	25	[*] M7508N.
3000/5	5	10	15	[*] M7507P.	10	20	25	[*] M7508P.
4000/5					15	20	25	[*] M7508Q.

For other configurations see table of additional features

TDH, High precision current transformer

Type	TDH4				TDH5				TDH5.2			
	 width x height x depth (mm) 50 x 80 x 48				 width x height x depth (mm) 58 x 84 x 53				 width x height x depth (mm) 58 x 84 x 53			
ø (mm)	20								22			
Flat strip(mm)					15 x 15 | 20 x 10 | 25 x 5				25 x 10 | 30 x 10 | 20 x 12			
A	Class / VA			Code	Class / VA			Code	Class / VA			Code
	0.2	0.2S	0.5S		0.2	0.2S	0.5S		0.2	0.2S	0.5S	
60/5	0,5	-	0,5	[3] M77013.	0,5	-	0,5	[3] M77023.				
75/5	0,75	0,5	0,75	[3] M77014.	1	0,5	1	[3] M77024.				
100/5	1	0,5	1	[3] M77015.	1,5	0,75	1,5	[3] M77025.	0,5	-	0,5	[3] M770A5.
125/5	1,5	1	1,5	[3] M77016.	1,5	0,75	1,5	[3] M77026.	0,75	0,5	0,75	[3] M770A6.
150/5	2,5	2	2,5	[3] M77017.	1,5	1	1,5	[3] M77027.	1	0,5	1	[3] M770A7.
200/5	3,5	3	3,5	[3] M77018.	2,5	2	2,5	[3] M77028.	1,5	1	1,5	[3] M770A8.
250/5					2,5	2	2,5	[3] M77029.	2	1,5	2	[3] M770A9.
300/5									1,5	1	1,5	[3] M770AA.
400/5									2,5	2	2,5	[3] M770AB.
500/5									5	2	5	[3] M770AC.
600/5									5	2	5	[3] M770AD.

For other configurations see table of additional features

TABLE OF ADDITIONAL FEATURES

TD, TDH

M	7	X	X	X	X	0	0	X
Code						Internal code	↑	

			Delivery time	+ €
Secundary	Standard (.../ 5 A)	0	-	-
	.../ 1 A	1	1	Consult
	.../250 mA	A	1	Consult

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

TDH, High precision current transformer

Type	TDH6.2				TDH6				TDH8			
	 width x height x depth (mm) 66 x 91 x 53				 width x height x depth (mm) 66 x 91 x 53				 width x height x depth (mm) 85 x 109 x 59			
ø (mm)	25				28				43			
Flat strip(mm)	25 x 12 |30 x 10 |20 x 20				20 x 25 |30 x 15 |40 x 10				50 x 30 | 60 x 12| 13 x 45			
A	Class / VA				Class / VA				Class / VA			
	0.2	0.2S	0.5S	Code	0.2	0.2S	0.5S	Code	0.2	0.2S	0.5S	Code
100/5	1	0,5	1	[3] M77055.								
125/5	2	1	2	[3] M77056.								
150/5	3	1,5	3	[3] M77057.	1	0,5	1	[3] M77047.				
200/5	3,5	2,5	3,5	[3] M77058.	2	1	2	[3] M77048.				
250/5	3,5	2,5	3,5	[3] M77059.	2,5	1,5	2,5	[3] M77049.				
300/5	7,5	5	7,5	[3] M7705A.	3,5	2,5	3,5	[3] M7704A.	2	1	2	[3] M7706A.
400/5	7,5	5	7,5	[3] M7705B.	3,5	2,5	3,5	[*] M7704B.	2	1	2	[3] M7706B.
500/5	7,5	5	7,5	[3] M7705C.	5	3,5	5	[*] M7704C.	3,5	2	3,5	[3] M7706C.
600/5	7,5	5	7,5	[3] M7705D.	5	3,5	5	[*] M7704D.	3,5	2	3,5	[3] M7706D.
750/5					5	3,5	5	[3] M7704E.	3,5	2	3,5	[3] M7706E.
800/5					5	3,5	5	[3] M7704F.	3,5	2	3,5	[3] M7706F.
1000/5									5	3,5	5	[3] M7706G.
1200/5									5	3,5	5	[3] M7706H.
1250/5									7,5	5	7,5	[3] M7706J.
1500/5									7,5	5	7,5	[3] M7706K.
1600/5									7,5	5	7,5	[3] M7706L.

For other configurations see table of additional features

Type	TDH10				TDH12			
	 width x height x depth (mm) 108 x 131 x 69				 width x height x depth (mm) 134 x 151 x 69			
ø (mm)	63				50			
Flat strip(mm)	50 x 50 | 60 x 30 | 80 x 30				100 x 50			
A	Class / VA				Class / VA			
	0.2	0.2S	0.5S	Code	0.2	0.2S	0.5S	Code
600/5	3,75	2,5	3,75	[3] M7707D.				
750/5	3,75	2,5	3,75	[3] M7707E.				
800/5	3,75	2,5	3,75	[3] M7707F.	2,5	-	2,5	[3] M7708F.
1000/5	3,75	2,5	3,75	[3] M7707G.	2,5	1,25	2,5	[3] M7708G.
1200/5	3,75	2,5	3,75	[3] M7707H.	5	3,5	5	[3] M7708H.
1250/5	3,75	2,5	3,75	[3] M7707J.	5	3,5	5	[3] M7708J.
1500/5	7,5	5	7,5	[3] M7707K.	7,5	5	7,5	[3] M7708K.
1600/5	7,5	5	7,5	[3] M7707L.	7,5	5	7,5	[3] M7708L.
2000/5	7,5	5	7,5	[3] M7707M.	10	7,5	10	[3] M7708M.
2500/5	7,5	5	7,5	[3] M7707N.	10	7,5	10	[3] M7708N.
3000/5	7,5	5	7,5	[3] M7707P.	15	10	15	[3] M7708P.
4000/5					20	15	20	[3] M7708Q.

For other configurations see table of additional features

NEW

TP, Current transformers, split core

Type	TP6				TP8			
	  width x height x depth (mm) 100 x 51 x 101.8				 width x height x depth (mm) 138 x 51 x 154.8			
ø (mm)	30				60			
Flat strip(mm)	30x30				60X80			
A	Class / VA			Code	Class / VA			Code
	0.5	1	3		0.5	1	3	
75/5	-	-	1	[*] M78011.				
100/5	-	-	1	[*] M78012.	-	-	1	[*] M78021.
150/5	-	-	1	[*] M78013.	-	-	1,5	[*] M78022.
200/5	-	-	2	[*] M78014.	-	-	1,5	[*] M78023.
250/5	-	1	2	[*] M78015.	-	1	2	[*] M78024.
300/5	0,5	1	2	[*] M78016.	-	1	2,5	[*] M78025.
400/5	1	2,5	4	[*] M78017.	1	1,5	3	[*] M78026.
500/5					2	5	7,5	[*] M78027.
600/5					2	5	8	[*] M78028.
700/5					2	5	8	[*] M78029.
750/5					2,5	5	10	[*] M7802A.
800/5					3	6	10	[*] M7802B.
1000/5					5	8	15	[*] M7802C.

For greater currents, use: transformer + transducer

Type	TP10				TP12			
	  width x height x depth (mm) 158 x 51 x 193.8				 width x height x depth (mm) 190 x 66 x 244.8			
ø (mm)	80							
Flat strip(mm)	80x120				80x160			
A	Class / VA			Code	Class / VA			Code
	0.5	1	3		0.5	1	3	
500/5	-	4	12	[*] M78031.				
600/5	-	5	14	[*] M78032.				
750/5	3	6	17	[*] M78033.				
800/5	3	7	18	[*] M78034.				
1000/5	5	9	20	[*] M78035.	10	15	20	[*] M78041.
1200/5	6	11	24	[*] M78036.				
1250/5	7	15	28	[*] M78037.				
1500/5	8	17	30	[*] M78038.	15	20	25	[*] M78042.
1600/5	8	17	30	[*] M78039.	15	20	25	[*] M78043.
2000/5	8	17	30	[*] M7803A.	15	20	25	[*] M78044.
2500/5	8	17	30	[*] M7803B.	15	20	25	[*] M78045.
3000/5					20	25	30	[*] M78046.
4000/5					20	25	30	[*] M78047.
5000/5					20	25	30	[*] M78048.

For greater currents, use: transformer + transducer

TABLE OF ADDITIONAL FEATURES

TP											
M	7	X	X	X	X	0	0	X			
Code						Internal code			Delivery time	+ €	
Secundary				Standard (.../ 5 A)				0	-	-	
				.../ 1 A				1	1		

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

TQR, Current transformers split core

Type	TQR-8				TQR-10			
	 width x height x depth (mm) 216 x 173 x 43.1				 width x height x depth (mm) 240 x 198.71 x 43.41			
ø (mm)	80				105			
Flat strip(mm)								
A	Class / VA			Code	Class / VA			Code
	0.5	1	3		0.5	1	3	
400/5	-	1,5	3	[*] M76037.				
500/5	1	1,5	3	[*] M76039.				
600/5	1,5	2	4	[*] M7603B.	1,5	2	4	[4] M7604B.
700/5	2	4	8	[*] M7603D.	2	4	8	[4] M7604D.
750/5	2,5	5	10	[4] M7603E.	2,5	5	10	[4] M7604E.
800/5	3	7	15	[*] M7603F.	3	7	15	[4] M7604F.
1000/5	5	8	16	[*] M7603J.	5	8	16	[*] M7604J.
1250/5	6	10	20	[*] M7603L.	6	10	20	[*] M7604L.
1500/5	6	10	20	[*] M7603M.	6	10	20	[*] M7604M.
2000/5	8	15	25	[*] M7603N.	8	15	25	[*] M7604N.

For other configurations see table of additional features

TABLE OF ADDITIONAL FEATURES

TQR

M	7	X	X	X	X	0	0	X	X	X

Code		Internal code		Delivery time	+ €
Secundary	Standard (.../ 5 A)	0		-	-
	.../ 1 A	1		1	+20%
	.../250 mA	A		1	+30%
	.../100 mA	7		Consult	+40%
IP65 protection (cable meters) Only TQR-8			0		
	IP 65 (1 m)		1		+30%+2€
	IP 65 (2 m)		2		+30%+4€
	IP 65 (3 m)		3		+30%+6€
	IP 65 (4 m)		4		+30%+8€
	IP 65 (5 m)		5		+30%+10€
	IP 65 (6 m)		6		+30%+12€
	IP 65 (7m)		7		+30%+14€
	IP 65 (8 m)		8		+30%+16€
	IP 65 (9 m)		9		+30%+18€
	IP 65 (10 m)		A		+30%+20€

(*) A certificate is attached for every transformer

SCV1, Kit 3 Split core current transformers

Type	Code	A Max.	Class 0,5 Power (VA)	Usefull diam.(mm)	cable Lenght(m)
3xSCV1-100A/333mV	[*] M73811.	100	0.5	16	1.5

SCV1 is a set of 3 transformers with 333 mV output

SC3, Split three-phase current transformers

Type	Code	A Max.	Class 0,5 Power (VA)	System	Usefull diam.(mm)
SC3-125	[*] M73602.	125	0.1	Three-phase	15

The MC/SC3 transformers with a 250 mA output are only compatible with network analysers type MC

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

MC3, Three-phase current transformers

Type	Code	A Max.	Class 0,5 Power (VA)	System	Usefull diam.(mm)
MC3 - 63 A	[*] M73121.	63	0.1	Three-phase	7,1
MC3 - 125 A	[*] M73122.	125	0.1	Three-phase	14,6
MC3 - 250 A	[*] M73123.	250	0.1	Three-phase	26

The MC/SC3 transformers with a 250 mA output are only compatible with network analysers type MC

MC1, Triple scale single-phase efficient transformers

Type	Code	Measurement Range (A)	A Max.	Class 0,5 Power (VA)	System	Usefull diam.(mm)
MC1-15-75	[*] M73112.	75	75	0.25	Single-phase	15
MC1-20-50/100/150 A	[*] M73118.	50/100/150	150	0.25	Single-phase	20
MC1-35-50/100/150 A	[*] M73116.	50/100/150	150	0.25	Single-phase	35
MC1-20-150/200/250 A	[*] M73113.	150/200/250	250	0.25	Single-phase	20
MC1-30-250/400/500 A	[*] M73114.	250/400/500	500	0.25	Single-phase	30
MC1-55-500/1000/1500 A	[*] M73115.	500/1000/1500	1500	0.25	Single-phase	55
MC1-80 1000/1500/2000 A	[*] M73117.	1000/1500/2000	2000	0.25	Single-phase	80

The MC/SC3 transformers with a 250 mA output are only compatible with network analysers type MC

STQ, Current transformers, split core

Type	STQ-24								
	Size (mm) width xheight xdepth 53x70x43.2								
Secundary	5 A			1 A			250 mA		
A	Class	VA	Code	Class	VA	Code	Class	VA	Code
50							3	0,1	[*] M7371200A0000
100	3	1	[*] M73715.	3	1	[*] M737150010000	3	0,1	[*] M7371500A0000
150	3	1	[*] M73717.	3	1	[C] M737170010000	3	0,1	[*] M7371700A0000
200	3	1	[*] M73718.	3	1	[*] M737180010000	3	0,1	[*] M7371800A0000
250	1	1	[*] M73719.	1	1	[*] M737190010000	1	0,1	[*] M7371900A0000
300	1	1	[*] M7371A.	1	1	[C] M7371A0010000	1	0,1	[C] M7371A00A0000

TM45, Current transformers, winding primary, DIN rail

Type				
	 width x height x depth (mm) 52.5 x 85 x 70			
Flat strip(mm)				
A	Class / VA			
	0.5	1	3	Code
1/5	2,5	5	7	[3] M70609.
5/5	2,5	5	7	[*] M70601.
10/5	2,5	5	7	[*] M70602.
15/5	2,5	5	7	[*] M70603.
20/5	2,5	5	7	[*] M70604.
25/5	2,5	5	7	[*] M70605.
30/5	2,5	5	7	[*] M70606.
40/5	2,5	5	7	[*] M70607.
50/5	2,5	5	7	[*] M70608.

For other configurations see table of additional features

TABLE OF ADDITIONAL FEATURES

TM45												
M	7	X	X	X	X	0	0	X				
Code								Internal code	↑	Delivery time	+ €
Secundary								Standard (.../ 5 A)	0	-	-
								.../ 1 A	1	1	Consult
								.../250 mA	A	1	Consult

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

TA210, Current transformers, winding primary

Type				
	 width x height x depth (mm) 75 x 104.5 x 134			
Flat strip(mm)				
A	Class / VA			
	0.5	1	3	Code
5/5	15	20	30	[*] M70541.
10/5	15	20	30	[*] M70542.
15/5	15	20	30	[*] M70543.
20/5	15	20	30	[*] M70544.
25/5	15	20	30	[*] M70545.
30/5	15	20	30	[*] M70546.
40/5	15	20	30	[*] M70547.
50/5	15	20	30	[*] M70548.
60/5	15	20	30	[3] M70549.
75/5	15	20	30	[3] M7054A.
80/5	15	20	30	[3] M7054K.
100/5	15	20	30	[*] M7054B.
125/5	15	20	30	[3] M7054C.
150/5	15	20	30	[3] M7054D.
200/5	10	20	30	[*] M7054E.
250/5	15	20	30	[3] M7054F.
300/5	15	20	30	[3] M7054G.
400/5	15	20	30	[3] M7054H.

Sealable terminal cover and anchoring base included

TA											
M	7	X	X	X	X		0	0	X		
Code							Internal code		Delivery time	+ €	
Secundary				Standard (.../ 5 A)				0	-	-	
				.../ 1 A				1	1	Consult	
				.../250 mA				A	1	Consult	

TA, Current transformers

Type	TA400				TA500				TA600			
	 width x height x depth (mm) 95 x 165 x 59				 width x height x depth (mm) 115 x 185 x 63				 width x height x depth (mm) 124 x 192 x 62			
Flat strip(mm)	100 x 20				100 x 30				125 x 60			
A	Class / VA				Class / VA				Class / VA			
	0.5	1	3	Code	0.5	1	3	Code	0.5	1	3	Code
300/5	5	10	15	[3] M7059A.								
400/5	5	10	15	[3] M70591.								
500/5	15	20	30	[3] M70592.								
600/5	15	20	30	[3] M70593.								
750/5	15	20	30	[3] M70594.								
800/5	15	20	30	[*] M70595.					15	15	-	[3] M705BB.
1000/5	15	20	30	[*] M70596.	15	20	30	[3] M705A2.	15	20	30	[3] M705B1.
1200/5	15	20	30	[*] M70597.	15	20	30	[3] M705A3.	15	20	30	[3] M705B2.
1500/5	15	30	40	[*] M70598.	15	30	40	[3] M705A4.	15	20	30	[3] M705B3.
2000/5	20	40	50	[*] M70599.	20	40	50	[*] M705A6.	15	20	30	[*] M705B5.
2500/5	20	40	50	[3] M7059B.	20	40	50	[*] M705A7.	20	30	40	[*] M705B6.
3000/5					20	45	60	[3] M705A8.	30	40	60	[*] M705B7.
3200/5									30	40	60	[3] M705BA.
4000/5					35	50	70	[3] M705A9.	35	50	70	[*] M705B8.
5000/5									40	60	80	[*] M705B9.

For other configurations see table of additional features

kit3-TRMC210, Kit of 3 current transformers for energy meters, primary winding

Type	kit3-TRMC210			kit3-TRMC210-05			kit3-TRMC210.2		
	Size (mm) width xheight xdepth 145x110x86								
A	Class	VA	Code	Class	VA	Code	Class	VA	Code
100/5	0.5S	10	[4] Q309010000001	0.5	10	[4] Q309610000001	0.5S	2,5	[4] Q309810000001
150/5	0.5S	10	[4] Q309020000001	0.5	10	[4] Q309620000001	0.5S	2,5	[4] Q309820000001
200/5	0.5S	10	[4] Q309030000001	0.5	10	[4] Q309630000001	0.5S	2,5	[4] Q309830000001
300/5	0.5S	10	[4] Q309040000001	0.5	10	[4] Q309640000001	0.5S	2,5	[4] Q309840000001
400/5	0.5S	10	[4] Q309050000001	0.5	10	[4] Q309650000001	0.5S	2,5	[4] Q309850000001
500/5	0.5S	10	[4] Q309060000001	0.5	10	[4] Q309660000001	0.5S	2,5	[4] Q309860000001
600/5	0.5S	10	[4] Q309070000001	0.5	10	[4] Q309670000001	0.5S	2,5	[4] Q309870000001

Check availability.../1 A

kit3-TRMC400, Sets of 3 current transformers for energy meters

Type	kit3-TRMC400			kit3-TRMC400-05			kit3-TRMC400.2		
	Size (mm) width xheight xdepth 99x160x68								
Flat strip(mm)	100x20 mm								
A	Class	VA	Code	Class	VA	Code	Class	VA	Code
750/5	0.5S	10	[4] Q309110000001	0.5	10	[4] Q309710000001	0.5S	2,5	[4] Q309A10000001
1000/5	0.5S	10	[4] Q309120000001	0.5	10	[4] Q309720000001	0.5S	2,5	[4] Q309A20000001
1500/5	0.5S	10	[4] Q309130000001	0.5	10	[4] Q309730000001	0.5S	2,5	[4] Q309A30000001
2000/5	0.5S	10	[4] Q309140000001	0.5	10	[4] Q309740000001	0.5S	2,5	[4] Q309A40000001
3000/5							0.5S	2,5	[4] Q309A60000001

Check availability.../1 A

TRMCx3, Current transformers for energy meters

Type	Code	Measurement Range (A)	Class 0,5S Power (VA)	Usefull diam.(mm)	Cable (m)
Outdoor					
TRMC-X3 100/5 Ext	[C] Q301T1010E000	100/5	2.5	38	7
TRMC-X3 200/5 Ext	[C] Q301T2010E000	200/5	2.5	38	7
TRMC-X3 300/5-Ext	[C] Q301T3010E000	300/5	2.5	38	7
TRMC-X3 400/5 Ext	[C] Q301T4010E000	400/5	2.5	38	7

TABLE OF ADDITIONAL FEATURES

TRM										
P	5	X	X	X	X	0	0	X		
Code						Internal code			Delivery time	+ €
Secundary			Standard (.../ 5 A)					0	-	-
			... / 1A					1	3	+20 %

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

TRM, Measuring transformers encapsulated in resin

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

Type	TRM80			TRM100		
	Size (mm) width xheight xdepth 135x178x36			Size (mm) width xheight xdepth 175x228x38		
Flat strip(mm)	80 mm			100 mm		
Secundary	5 A					
A	Class	VA	Code	Class	VA	Code
500	0.5	5	[4] P50131.			
600	0.5	7,5	[4] P50132.			
750	0.5	10	[4] P50133.	0.5	15	[4] P50141.
1000	0.5	15	[4] P50134.	0.5	20	[4] P50142.
1500	0.5	20	[4] P50135.	0.5	20	[4] P50144.
2000	0.5	25	[4] P50136.	0.5	20	[4] P50145.
2500	0.5	30	[4] P50137.	0.5	20	[4] P50146.
3000				0.5	25	[4] P50147.

Type	TRM140			TRM180		
	Size (mm) width xheight xdepth 223x269x40			Size (mm) width xheight xdepth 223x306x40		
Flat strip(mm)	140 mm			180 mm		
Secundary	5 A					
A	Class	VA	Code	Class	VA	Code
1000	0.5	15	[4] P50151.			
1250	0.5	20	[4] P50152.	0.5	15	[4] P50161.
1500	0.5	25	[4] P50153.	0.5	20	[4] P50162.
2000	0.5	30	[4] P50154.	0.5	20	[4] P50163.
2500	0.5	35	[4] P50155.	0.5	20	[4] P50164.
3000	0.5	35	[4] P50156.	0.5	20	[4] P50165.
4000	0.5	35	[4] P50157.	0.5	20	[4] P50166.
5000				0.5	20	[4] P50167.

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

SH, Shunts for direct current measurement

Type	SHB		SH	
				
Accuracy	0.5			
Relation	Type	Code	Type	Code
1A/60mV	SHB 1A/60mV	[3] M71221.		
1.5A/60mV	SHB 1.5A/60mV	[3] M71222.		
2.5A/60mV	SHB 2.5A/60mV	[3] M71223.		
4A/60mV	SHB 4A/60mV	[3] M71224.		
5A/60mV	SHB 5A/60mV	[3] M71225.		
6A/60mV	SHB 6A/60mV	[3] M71226.		
10A/60mV	SHB 10A/60mV	[*] M71227.		
15A/60mV	SHB 15A/60mV	[3] M71228.		
25A/60mV	SHB 25A/60mV	[*] M71229.		
30A/60mV	SHB 30A/60mV	[3] M7122A.	SH 30A/60mV	[*] M71231.
40A/60mV	SHB 40A/60mV	[*] M7122B.	SH 40A/60mV	[*] M71232.
50A/60mV	SHB 50A/60mV	[*] M7122C.	SH 50A/60mV	[*] M71233.
60A/60mV	SHB 60A/60mV	[*] M7122D.	SH 60A/60mV	[*] M71234.
80A/60mV	SHB 80A/60mV	[*] M7122E.	SH 80A/60mV	[*] M71235.
100A/60mV	SHB 100A/60mV	[*] M7122F.	SH 100A/60mV	[*] M71236.
150A/60mV			SH 150A/60mV	[*] M71237.
200A/60mV	SHB 200A/60mV	[3] M7122N.	SH 200A/60mV	[*] M71238.
250A/60mV			SH 250A/60mV	[3] M71239.
300A/60mV			SH 300A/60mV	[3] M7123A.
400A/60mV			SH 400A/60mV	[3] M7123B.
500A/60mV			SH 500A/60mV	[*] M7123C.
600A/60mV			SH 600A/60mV	[*] M7123D.
750A/60mV			SH 750A/60mV	[3] M7123E.
800A/60mV			SH 800A/60mV	[3] M7123F.
1000A/60mV			SH 1000A/60mV	[*] M7123G.
1200A/60mV			SH 1200A/60mV	[3] M7123H.
1500A/60mV			SH 1500A/60mV	[3] M7123J.
2000A/60mV			SH 2000A/60mV	[3] M7123K.
2500A/60mV			SH 2500A/60mV	[C] M7123L.
3000A/60mV			SH 3000A/60mV	[3] M7123M.
4000A/60mV			SH 4000A/60mV	[3] M7123N.
5000A/60mV			SH 5000A/60mV	[C] M7123P.
6000A/60mV			SH 6000A/60mV	[C] M7123Q.
7500A/60mV			SH 7500A/60mV	[C] M7123R.
10000A/60mV			SH 10000A/60mV	[C] M7123T.
15000A/60mV			SH 15000A/60mV	[C] M7123V.
18000A/60mV			SH 18000A/60mV	[C] M7123Z.

SHP: Faston connection; **SHB**: Insulating base socket(up to 100 A); **SH**: Without base

For other configurations see additional performance table.
All shunts are supplied with 1.5 m long cables with a 1.5 mm² cross-section

SHB / SH

M	7	X	X	X	X	0	0	X
Code						Internal code		

			Delivery time	+ €
Outputs	Standard .../60 mV	0	-	-
	.../50 mV	1	2	+ 20%
	.../75 mV	7	Consult	Consult
	.../100 mV	2	2	+ 25%
	.../150 mV	3	2	+ 25%
	.../200 mV	4	2	+ 50%
	.../250 mV	8	Consult	Consult
	.../300 mV	5	Consult	Consult
	.../400 mV	9	Consult	Consult
	.../600 mV	6	Consult	Consult

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

VT, Measurement voltage transformers

Type	Code	Class 0,5 Power (VA)	Class 1 Power (VA)	Relation
VT2311 230V/110V	[3] M72311.	10	25	230/110V
VT3823 380V/230V	[3] M72352.	10	25	380/230V
VT4011 400V/110V	[3] M72321.	10	25	400/110V
VT4023 400V/230V	[3] M72322.	10	25	400/230V
VT4411 440V/110V	[3] M72331.	10	25	440/110V
VT4423 440V/230V	[3] M72332.	10	25	440/230V
VT4811 480V/110V	[3] M72341.	10	25	480/110V
VT4823 480V/230V	[3] M72342.	10	25	480/230V
VT7011 700V/110V	[3] M72381.	10	25	700/110V
VT7023 700V/230V	[3] M72382.	10	25	700/230V

For three-phase networks, 3 units are required.
For other voltage ratios, please ask.

TSR, Current adding transformer

Type	Code	Input current	Class 0,5 Power (VA)	Class 1 Power (VA)	Measuring Channels
TSR-2	[*] M70701.	5 A	15	30	2
TSR-3	[*] M70702.	5 A	15	30	3
TSR-4	[*] M70703.	5 A	15	30	4
TSR-5	[*] M70704.	5 A	15	30	5

Current adding transformers must have the same primary ratio.
For three-phase networks, one transformer per phase is required.
It is fed from the same measure.
For other ratios, please ask.

TE, Impedance elevator transformer

Type	Code	Class 1 Power (VA)	Relation
TE-5/0.1	[*] M70911.	15	5 /0,1 A

It is used when the distance between the measuring equipment and the current transformer is very long. Two TE must be used, one next to the current transformer and the other next to the measuring equipment.

For Protection current transformers SEE SECTION Protection and Control/Protection current transformers

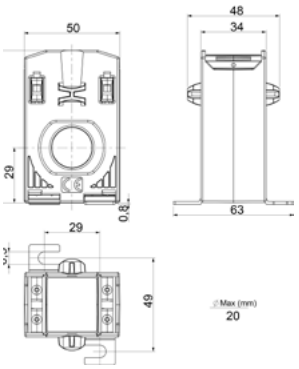
TABLE OF ADDITIONAL FEATURES

TSR

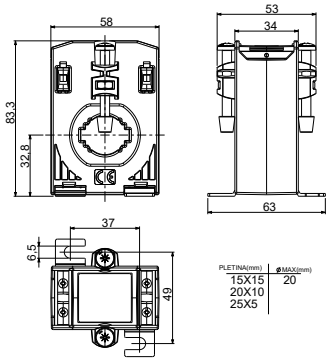
M	7	X	X	X	X	0	0	X			
Code						Internal code		↑	Delivery time	+ €	
Secundary			Standard (.../ 5 A)					0	-	-	
			.../ 1 A					1	1	Consult	
			.../250 mA					A	1	Consult	

Dimensions

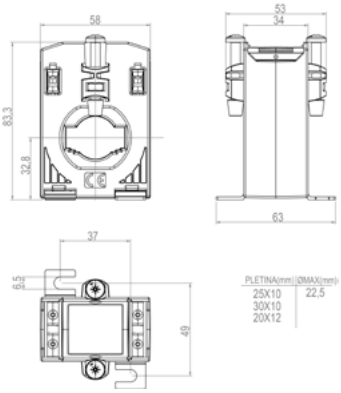
TD4 / TDH4



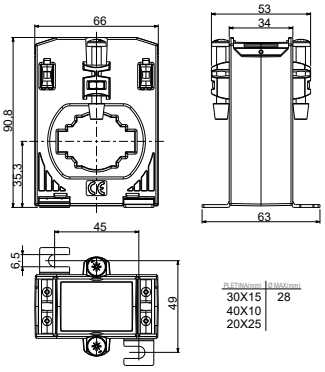
TD5 / TDH5



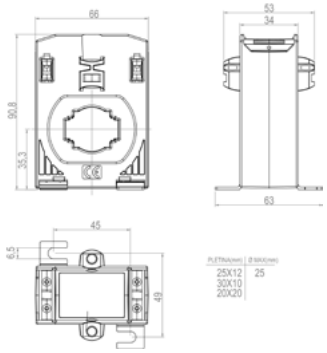
TD5.2 / TDH5.2



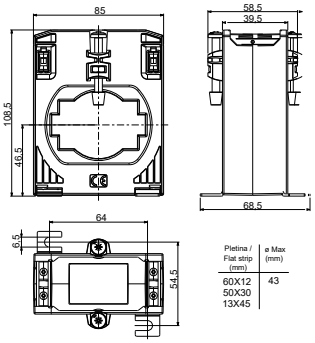
TD6 / TDH6



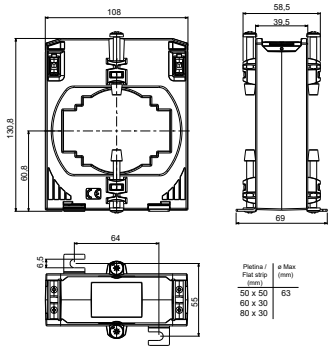
TD6.2 / TDH6.2



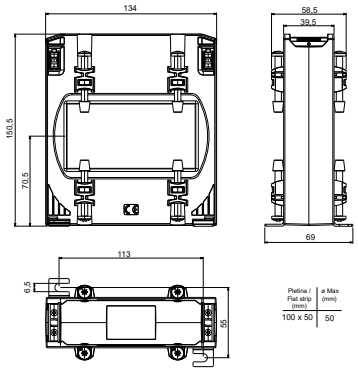
TD8 / TDH8



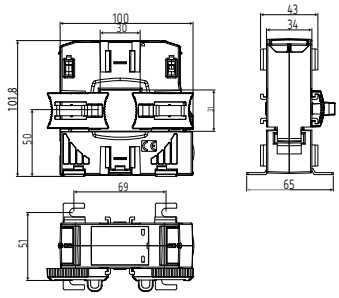
TD10 / TDH10



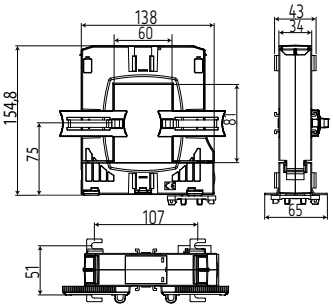
TD12 / TDH12



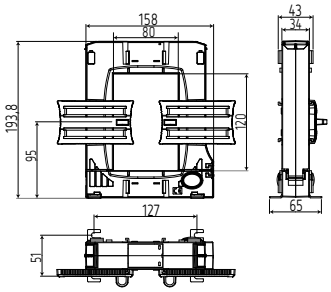
TP6



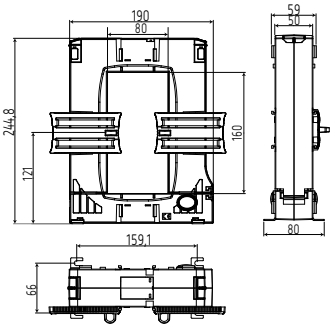
TP8



TP10



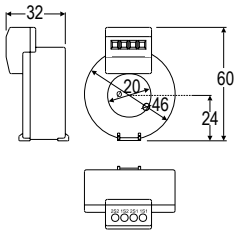
TP12



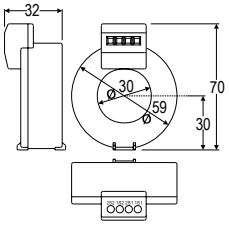
Delivery time: [*] Immediate, [x] working weeks, [c] Consult

MC1

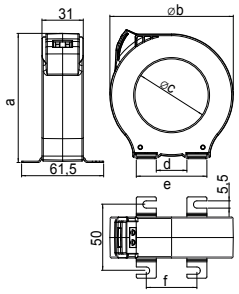
MC1-20



MC1 - 30



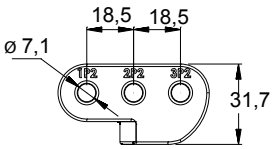
MC1 - 35 / MC1 - 55 / MC1-80



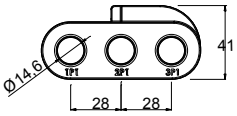
mm	MC1 -35	MC1 -55	MC1 -80
a	75,5	98	130
b	70,5	92	124,5
c	35	55	80
d		23	45
e		53	75
f		38	60

MC3

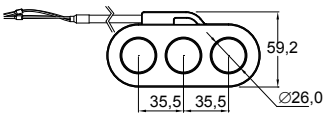
MC3-63



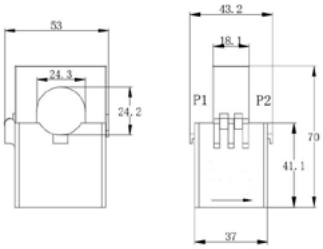
MC3 -125



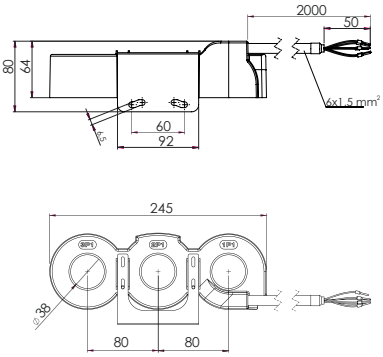
MC3-250



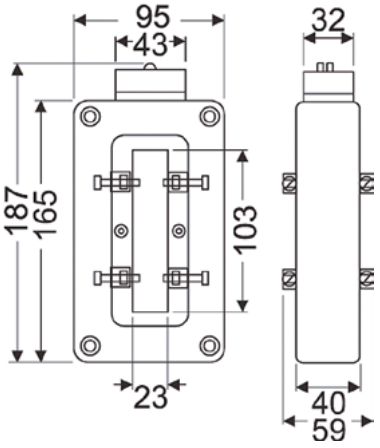
STQ-24



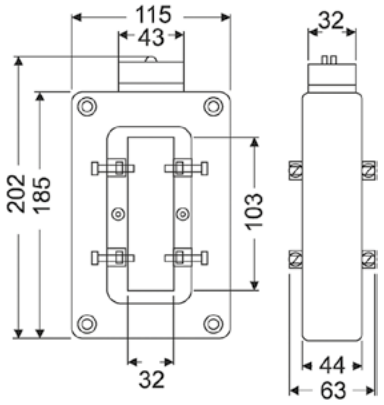
TRMCx3



TA 400



TA 500



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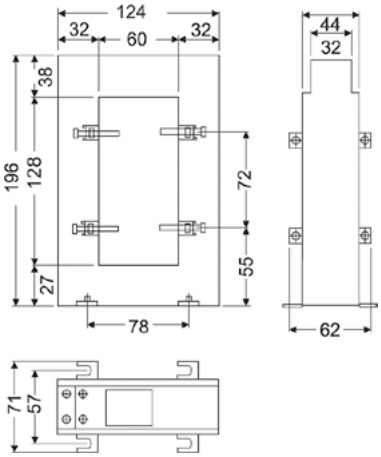
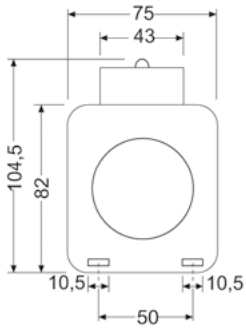
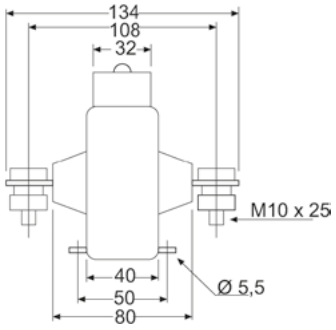
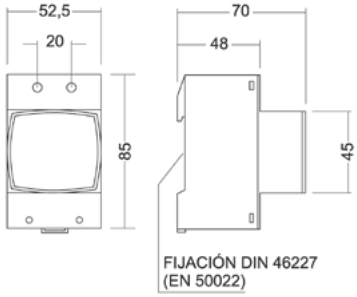


TA 210

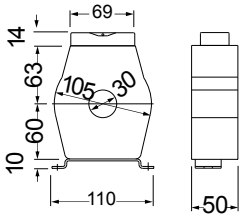




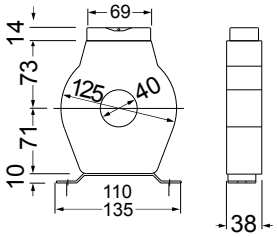
TM 45



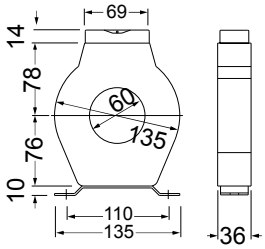
TRM30



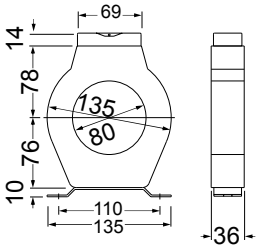
TRM40



TRM60



TRM80



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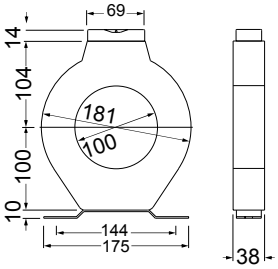
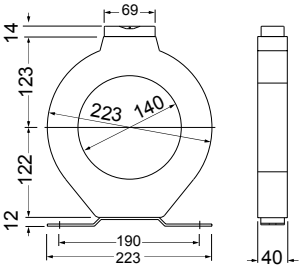
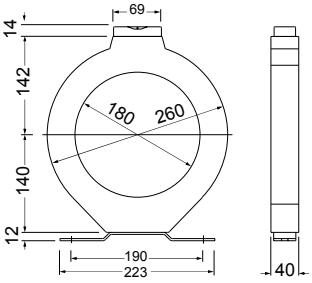


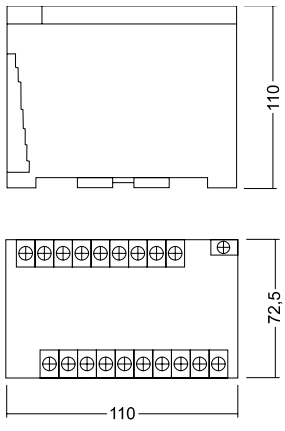
TRM140



TRM180



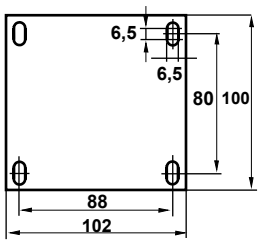
TSR

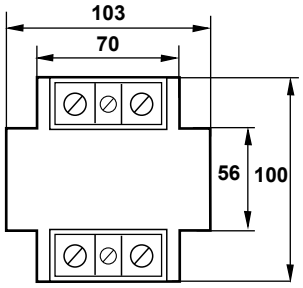


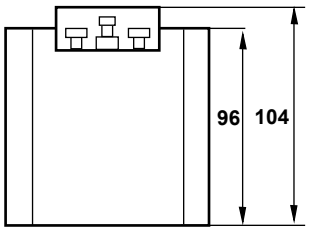
Delivery time: [*] Immediate, [x] working weeks, [c] Consult

VT

Soporte de fijación



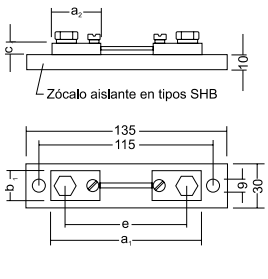




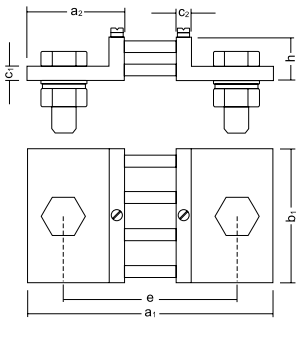
Dimensiones en mm.

Shunts

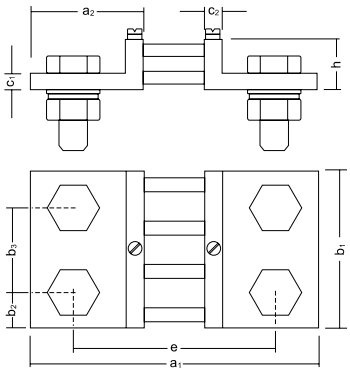
Voltage drop $mV_{(1)}$	Range $A_{(1)}$	Fig.	a1	a2	b1	b2	b3	c1	c2	e	h	N° Current connections	Current connections: Hexagonal screws DIN 933	Current connections: Washer DIN 125	Current connections: DIN 934 nut	Voltage connections
60	1-1 , 5-2, 5-4-6-10-15-25	1	90	28	20	-	-	8	-	78	-	2 x 1	M5 x 12	5,3	-	2 Screws M5 x 8 DIN 84 & 2 Washer 5,3 DIN 433
	30-40-60-100-150		100	33	20	-	-	8	-	80	-	2 x 1	M8 x 16	8,4	-	
	250	2	145	55	30	15	-	10	10	105	30	2 x 1	M12 x 40	13	M12	
	400-600				40	20						2 x 1	M16 x 45	17	M16	
	800		165	65	60	30	-	10	10	115	30	2 x 1	M20 x 50	21	M20	
	1500				90	21	48					2 x 2	M16 x 45	17	M16	
	2500				120	30	60	10	10	115	30	2 x 2	M20 x 50	21	M20	
150	1-1 , 5-2 , 5-4-6-10-15-25	1	90	25	20	-	-	8	-	78	-	2 x 1	M5 x 12	5,3	-	
	40-60-100-150		225	33	25	-	-	8	-	205	-	2 x 1	M8 x 16	8,4	-	
	250	2	270	55	30	15	-	10	10	230	50	2 x 1	M12 x 40	13	M12	
	400-600				40	20						2 x 1	M16 x 45	17	M16	
	800		290	65	70	35	-	10	10	240	60	2 x 1	M20 x 50	21	M20	



SHUNT 1-150



SHUNT 200-1000



SHUNT 1500-2500

Click on the product code for more information.

Portable power analyzers

Table: Portable power analyzers

		MYeBOX-A
		
Connection	Single-phase	•
	Three-phase	•
Parameters	Voltage	•
	Current	•
	Neutral current	•
	Leakage current	•
	Neutral-earth voltage	•
	Power	•
	Energy (active and reactive)	•
	Harmonics	50°
	Flicker	•
Quality parameter measurements	Events (swells, dips and interruptions)	•
	EN50160 parameters	•
	Transients	•
Inputs / outputs	Digital inputs	2
	Digital outputs	2
Other features	Memory	•
	Communications	WiFi 4G µUSB
	Display	LCD
	Display of parameters	Display Smartphone & tablet (APP) Software + cloud
	Display of files	Smartphone & tablet (APP) Software + cloud
Standards	Measuring in accordance with IEC 61000-4-30	Class A certified
	T - Depending on Type	

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

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

› • Class A certified according to IEC 61000-4-30
• Event capture (1/2 cycle) and transient (0.16ms@50Hz/0.14ms@60Hz)
• 5 voltage channels + 5 current channels
• Measurement of neutral current and earth leakage
• THDU%, THDI%, harmonics (Up to 50°) and EN 50160 parameters
• Inputs/Outputs are available
• 4G/Wi-Fi communications
• Configuration and commissioning from App or Cloud.

Notable for:
Class A Certificate (IEC 61000-4-30)

Certificate extended by CIRCUTOR ENAC laboratory

Type	Code	Clamp	Measuring Channels	Transistor output	Digital inputs	Communications
MYeBOX-1500-4G	[2] M844330000A00	-	5	2	2	Wi-Fi | 4G
Portable analyzer kits with current sensors						
MYeBOX-1500-4G + 4 FLEX-R45	[2] M8445C0000A00	4 FLEX-R45	5	2	2	Wi-Fi | 4G
MYeBOX-1500-4G + 4 FLEX-R80	[2] M8445E0000A00	4 FLEX-R80	5	2	2	Wi-Fi | 4G

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

› Accuracy according to Class A (IEC 61000-4-30)
Event capture (1/2 cycle) and transient (0.16ms@50Hz/0.14ms@60Hz)
5 voltage channels + 5 current channels
Measurement of neutral current and earth leakage
THDU%, THDI%, harmonics (Up to 50°) and EN 50160 parameters
Inputs/Outputs are available
4G/Wi-Fi communications
Configuration and commissioning from App or Cloud

Type	Code	Clamp	Measuring Channels	Transistor output	Digital inputs	Communications
MYeBOX-1500-4G	[*] M84433.	-	5	2	2	Wi-Fi | 4G
Portable analyzer kits with current sensors						
MYeBOX-1500-4G + 4 FLEX-R45	[*] M8445C.	4 FLEX-R45	5	2	2	Wi-Fi | 4G
MYeBOX-1500-4G + 4 FLEX-R80	[*] M8445E.	4 FLEX-R80	5	2	2	Wi-Fi | 4G

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

Type	Code	Description
V-Wire x5	[4] M8401D.	set of 5 600 V CAT III cables + ties
MYeBOX-BAT	[*] M84011.	MyEBOX battery
MYeBOX-PSN	[4] M8441F.	MYEBOX power supply
MYeBOX-PSN480	[4] M8441A.	MYEBOX power supply (480 V)
MYeBOX-MARKER	[4] M84014.	Markers
MYeBOX-CARRYING BAG	[4] M84015.	Carrying bag
MYeBOX-BELT	[4] M84016.	MyEBOX strap
MYeBOX-MAG SUPPORT	[4] M84017.	MyEBOX magnetic base

Type	Code	Description
VCC-1	[*] M89909.	Crocodile clamp (1 unit)
MAG-ADAP	[*] M8990H.	Voltage adapter, magnetic tip Ø 6.6 mm

TABLE OF ADDITIONAL FEATURES

MYeBOX

M	8	4	0	X	X	0	0	0	0	X	X	X	Delivery time
Code						Internal code				↑	↑	↑	
class A calibration certificate										A			2
MYeBOX kit with rugged IP clamps for outdoor use											0	2	4

FLEX-R

M	8	1	6	X	X	0	0	0	X	0	X	X	Delivery time
Code						internal code			↑		↑	↑	
REDEL connector (PFG.M0.4GL. AC52GZ+protection (GMA.1B.054.DG)									2				1
Rugged IP for outdoor use											0	1	4

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

FLEX-R, Flexible sensors for MYeBOX analysers

Type	Code	Clamp	Measurement Range (A)	I min	Usefull diam.(mm)	Lenght
Flexible Clamps						
KIT 1 -FLEX-R45	[*] M81611.	1	10 ... 100 A / 100 ... 1000 A / 1000 ... 10000 A	1 | 10 | 500	140	45 cm
KIT 1-FLEX-R80	[*] M81612.	1	10 ... 100 A / 100 ... 1000 A / 1000 ... 10000 A	1 | 10 | 500	250	80 cm
KIT 1-FLEX-R120	[2] M81613.	1	10 ... 100 A / 100 ... 1000 A / 1000 ... 10000 A	1 | 10 | 500	380	120 cm

Includes 3 clamps (kit-3), amplifier and 9 V power supply

FLEX-RMG, Flexible sensors for MYeBOX analysers

Type	Code	Clamp	Measurement Range (A)	I min	Usefull diam.(mm)	Lenght
kit 1 FLEX RMG70	[2] M81911.	1	10 ... 100 A / 100 ... 1000 A / 1000 ... 10000 A	1 | 10 | 500	70	22 cm
kit 1 FLEX RMG120	[2] M81912.	1	10 ... 100 A / 100 ... 1000 A / 1000 ... 10000 A	1 | 10 | 500	120	38 cm

CPG, Clamps

Type	Code	Clamp	Measurement Range (A)	I min	Usefull diam.(mm)	Flat strip(mm)
CPG-5	[*] M810B1.	1	0,05 ... 5 A	0.05	20	20 x 5
CPG-100	[2] M810B2.	1	1 ... 100 A	1	20	20 x 5
CPRG-500	[2] M810B3.	1	1 ... 500 A	1	52	1 - 50 x 5 |4 - 30 x 5
CPRG-1000	[2] M810B4.	1	1 ... 1000 A	1	52	1 - 50 x 5 |4 - 30 x 5
CPG-2000/200	[2] M810B5.	1	1 ... 200 A / 10 ... 2000 A	1 | 10	64	5 - 125 x 5 |3 -100 x 10

CFG, Residual current sensors (leaks)

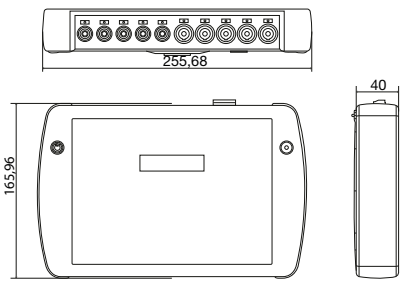
Type	Code	Measurement Range (A)	I min	Usefull diam.(mm)	Flat strip(mm)
CFG-5	[3] M810BD.	0,01 ... 5 A	0.01	52	1 - 50 x 5 |4 - 30 x 5
CFG-10	[*] M810BE.	0,005 ... 10 A	0.005	100	5 - 80 x 5 |3 -80 x 10

FLEX-R

M	8	1	6	X	X	0	0	0	X	0	X	X	
Código						Código interno							Plazo entrega
Conector REDEL (PFG.M0.4GL. AC52GZ+protección (GMA.1B.054.DG)									2				1
IP reforzada para intemperie											0	1	4

Dimensions

MYeBOX



Delivery time: [*] Immediate, [x] working weeks, [c] Consult

Digital instruments

Table: Digital intruments selection

		DCB	DHC-96
Mounting	Panel	72 x 72	96 x 48
AC measurement	Single-phase	●	●
Alimentación		80...270 Vca / Vcc 18...36 Vcc	80...270 Vca / Vcc 18...36 Vcc (OP) 20... 60 Vdc (OP)
AC measurement Parameters	Voltage	DCB-72 Vac-2OR	DHC-96 Vac
	Current	DCB-72 Aac-2OR	DHC-96 Aac
	Frequency (Hz)	–	DHC-96 Vac DHC-96 Aac
DC measurement Parameters	Voltage	DCB-72-HVdc	DHC-96 Vdc DHC-96 HVdc DHC-96 CPM 1500
	ndirect current mV (Shunt)	–	DHC-96 mVdc DHC-96 CPM 1500
	current	–	DHC-96 Adc
	Process signal (±10 V)	–	DHC-96 Vdc
	Process signal (mA)	–	DHC-96 mAdc
Accuracy	0,5%	●	●
Other options	Output relays	2	2
	Analog output	–	1
	Transistor input	–	2
	Communications port	–	RS-485 (Modbus RTU)
	Frontal adapter	●	●
	OP - Optional		

DCB, Digital instrument

80 ... 270 Vac /Vdc power supply voltage

Type	Code	System	Measurement Range U	Measurement Range I	Output relay	Size(mm)
Voltmeters						
DCB-72 Vac-2OR	[*] M22212.	AC	480 V	-	2	72 x 72
DCB-72 HVdc	[C] M22230.	DC	± 1500 Vdc	-	-	72 x 72
Ammeters						
DCB-72 Aac-2OR	[*] M22252.	AC	-	.../5 A| .../1 A	2	72 x 72

TABLE OF ADDITIONAL FEATURES

DCB

Code						Internal Code			
M	2	X	X	X	X	0	0	X	
								↑	Delivery time
Auxiliary supply						Standard (80... 270 V_{ac})		0	
						18 ... 36 V_{dc}		3	-

DHC-96, Digital instruments 96 x 48 with analogue output

80 ... 270 Vac /Vdc power supply voltage

Type	Code	System	Parameters	Measurement Range U	Measurement Range I	Output relay	Digital inputs	Analog output	Communications	Protocol
Voltmeters										
DHC-96 Vac	[*] M22318.	AC	V ~	480 V	-	2	2	1 (20 mA)	RS-485	Modbus/RTU
DHC-96 Vdc	[*] M22388.	DC	V dc	± 10 Vdc | ± 24 Vdc | ± 48 Vdc	-	2	2	1 (20 mA)	RS-485	Modbus/RTU
DHC-96 HVdc	[*] M22338.	DC	V dc	± 1500 Vdc	-	2	2	1 (20 mA)	RS-485	Modbus/RTU
Ammeters										
DHC-96 Aac	[*] M22358.	AC	A ~	-	.../5 A| .../1 A	2	2	1 (20 mA)	RS-485	Modbus/RTU
DHC-96 Adc	[*] M22378.	DC	A dc	-	1 Adc | 5 Adc	2	2	1 (20 mA)	RS-485	Modbus/RTU
DHC-96 mVdc	[*] M22348.	DC	V dc	-	200 mV	2	2	1 (20 mA)	RS-485	Modbus/RTU
Process indicators										
DHC-96 mAdc	[*] M22368.	DC	mA dc	-	-20... +20 mA	2	2	1 (20 mA)	RS-485	Modbus/RTU

Option of 0/2... 10 VDC outputs on demand

DHC-96 CPM, Digital instruments: Programmabled DC measurement Central

100... 270 Vac /Vdc power supply voltage

Type	Code	System	Parameters	Measurement Range U	Measurement Range I	Output relay	Digital inputs	Analog output	Communications	Protocol
Multimeter										
DHC-96 CPM 1500	[*] M223C8.	DC (Shunt)	V/A/kW/ kWh	± 1500 Vdc	600 mV	2	2	1 (20 mA)	RS-485	Modbus/RTU

Option of 0/2... 10 VDC outputs on demand

Front adapter

Type	Code	Description
Adap.Frontal 72x72 -> 96x96	[*] M29914.	Frontal adapter 72x72 > 96x96
Adap.Frontal 48x48 -> 72x72	[4] M29911.	Frontal adapter 48x48 > 72x72
Adap.Frontal 48x48 -> 96x96	[4] M29912.	Frontal adapter 48x48 > 96x96
Adap.Frontal 48x96 -> 96x96	[*] M29913.	Frontal adapter 48x48 > 96x96

DHC-96

M	2	2	X	X	X	0	0	X

Code		Internal Code	Delivery time	+ €
Auxiliary supply	Standard (80... 270 V_{ac} / V_{dc})	0	-	-
	18 ... 36 V_{dc}	3	1	53,37

DHC-96-CPM /DHC-96 Vdc

M	2	2	X	X	X	0	0	X

Code		Internal Code	Delivery time	+ €
Auxiliary supply	Standard (100... 270 V_{ac} / V_{dc})	0	-	-
	20 ... 60 V_{dc}	4	1	77,61

Table: Measurement transducer selection

Voltage (V ac)	**CVE / CV-A**	Current (A ac)	**CCE / CC-A / TP-420 / TC-020 / TCB / TCM**
Voltage (V ac)	**CV-D**	Current (A dc)	**CC-D**
Active power (kW)	**CW**		

CVE/CCE, Narrow section transducers

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

Type	Code	Parameters	Measure	Output type	Analog output
AC Voltage transducer					
CVE-A	[*] M25011.	V ~	300 Vac	2	4...20mA
AC Current transducer					
CCE-A	[*] M25111.	A ~	5 A	2	4...20mA

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. xxx-AP types external auxiliary supply not required. 4...20 mA output not possible.

For other values, see coding table on following pages

CV, Voltage transducer

Type	Code	Parameters	Measure	Output type	Analog output
AC Voltage. Accuracy: ± 0,2 % reading, 40...90 Hz					
CV-A Out2	[1] M25032.	V ~	300 Vac	2	4...20mA
DC Voltage. Auxiliary supply 230 V, 40...90 Hz, Accuracy: ± 0,5 % reading					
CV-D Out1,3	[1] M25061.	Vdc	10 Vdc	1, 3	0...20mA
CV-D Out2	[1] M25062.	Vdc	10 Vdc	2	4...20mA

For other values, see coding table on following pages

CC, Current transducer

Type	Code	Parameters	Measure	Output type	Analog output
AC Current. Accuracy: ± 0,2 % reading, 40...90 Hz					
CC-A Out2	[*] M25132.	A ~	5 Aac	2	4...20mA
DC Current. Auxiliary supply 230 V, 40...90 Hz, Accuracy: ± 0,5 % reading.					
CC-D Out1	[1] M25161.	A dc	20 mA	1, 3	0...20mA
CC-D Out2	[1] M25162.	A dc	20 mA	2	4...20mA

For other values, see coding table on following pages

CW, Active power transducer

Type	Code	System	Parameters	Output type	Analog output
Active power. Auxiliary supply 230 V, 40...90 Hz, Accuracy: ± 0,5 % reading					
CW-TA Out2	[1] M25232.	Unbalanaced three-phase ARON (3 wires)	kW	2	4...20mA

TABLE OF ADDITIONAL FEATURES

Narrow section transducers

M 2 X X X X 0 0 X X X X X

Code		Internal code				Delivery time
Voltage CVE-A	Standard (300 V)	0				-
	110 V	1				2
	400 V	2				2
	500 V	3				2
	690 V	4				2
Current CCE	Standard (5 A)	0				-
	1 A	1				2
	10 A	4				2
Output 2 CVE-A, CCE-A	Standard (4...20 mA)		0			-
	0...20 mA		1			2
	0...10 V		2			2
	2...10 V		3			2
Auxiliary supply	Standard (220...240 V)			0		-
	380...400 Vca 40/60 Hz			3		2
	18...36 Vdc			7		2

For other values consult

Transducers

M 2 X X X X 0 0 X X X

Code		Internal code					Delivery time
AC Voltage CV-A	Standard (300 V)	0					-
	110 V	1					1
	400 V	2					1
	500 V	3					1
	690 V	4					1
AC Current CC-A	Standard (5 A)	0					
	1 A	1					1
	10 A	4					1
DC Voltage CV-D	Standard (10 V)	0					
	60 mV	1					1
	1 V	2					1
	100 V	3					1
	500 V	4					1
DC Current CC-D	Standard (20 mA)	0					
	200 mA	1					1
	1 A	2					1
	10 A	3					1
Power CW	300 V, .../5 A	N					1
	110 V, .../5 A	1					1
	400 V, .../5 A	2					1
	500 V, .../5 A	3					1
	600 V, .../5 A	4					1
	300 V, .../1 A	5					1
	110 V, .../1 A	6					1
	400 V, .../1 A	7					1
	500 V, .../1 A	8					1
	600 V, .../1 A	9					1
Outputs 1, 3	Standard (20 mA)		0				-
	0...1 mA		1				1
	0...10 mA		2				1
	2 V		3				1
	5 V		4				1
	0...10 V		5				1
	-20...0...20 mA		6				1
	-10...0...10 V		7				1
	-5...0...5 V		8				1
Outputs 2	Standard (4...20 mA)		0				
	2...10 V		2				1
Auxiliary supply	Standard (220...240 V)				0		-
	100...120 Vac				1		2
	380...400 Vca 40/60 Hz				3		2
	18...36 Vdc				7		2
	40...170 Vdc				9		2

For others values, consult

TI, Current transformer with converter 4 ... 20 mA

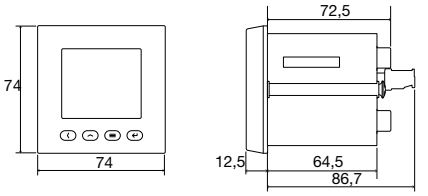
Type	TI-420			TP-420		TCM-420	TCB-420	
	TI-420-35	TI-420-70	TI-420-105	TP-420-23	TP-420-58	TCM-420-25	TCB-420-35	TCB-420-70
								
ø (mm)	35	70	105	-	-	25	35	70
Flat strip(mm)	-	-	-	20 x 30	50 x 80	-	-	-
Size (mm) width xheight xdepth	100x79x33	130x110x33	170x146x33	110x89x58	145x114x50	70x87x70	166x79x33	196x110x33
	10...28 Vdc supply, Output 4...20 mA					Output internal supply 4...20 mA (230 Vac Auxiliary supply)		
A	Code	Code	Code	Code	Code	Code	Code	Code
2.5	[4] M70811.					[4] M71041.		
5	[*] M70812.			[4] M70211.		[4] M71042.	[4] M71012.	
10	[*] M70813.			[4] M70212.		[*] M71043.	[4] M71013.	
20	[*] M70814.			[4] M70213.		[*] M71044.	[4] M71014.	
50	[*] M70815.			[*] M70214.		[*] M71045.	[4] M71015.	
100	[*] M70816.	[4] M70821.		[*] M70215.	[4] M70221.	[*] M71046.	[4] M71016.	[4] M71021.
200				[*] M70216.		[*] M71047.		
250	[*] M70817.	[*] M70822.	[4] M70831.	[4] M70217.	[*] M70222.		[4] M71017.	[4] M71022.
500		[*] M70823.	[4] M70832.	[4] M70218.	[*] M70223.			[4] M71023.
750		[*] M70824.	[4] M70833.		[*] M70224.			[4] M71024.
1000			[4] M70834.					
For greater currents, use: transformer + transducer								
EUR								

TC-420, Current transformers with converter 4 ... 20 mA or 0 ... 20 mA

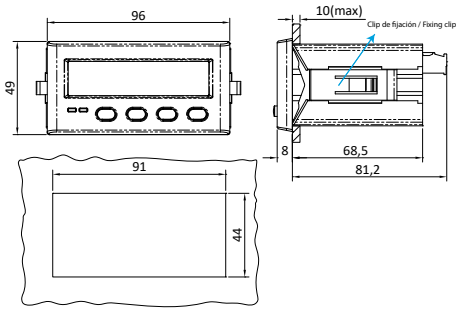
Type	TC5-420	TC6-420	TC8-420	TC6-020	TC8-020
					
ø (mm)	20	28	44	28	44
Flat strip(mm)	25 x 5	40 x 10	60 x 12	40 x 10	60 x 12
Size (mm) width xheight xdepth	58x70x32	64x80.5x44	84.5x102x50	64x80.5x44	84.5x102x50
	Output 4...20 mA, ext. supply 7,5...36 Vdc			Output 0...20 mA	
A	Code	Code	Code	Code	Code
5	[*] M72112.				
10	[*] M72113.				
20	[*] M72114.				
50		[*] M72131.		[3] M72031.	
100		[*] M72132.		[3] M72032.	
200		[*] M72134.		[*] M72034.	
300		[*] M72136.		[3] M72036.	
500			[*] M72151.		[3] M72051.
1000			[*] M72152.		[3] M72052.
For greater currents, use: transformer + transducer					
EUR					

Dimensions

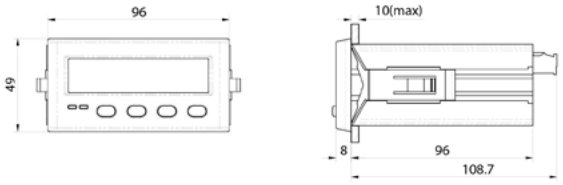
DCB



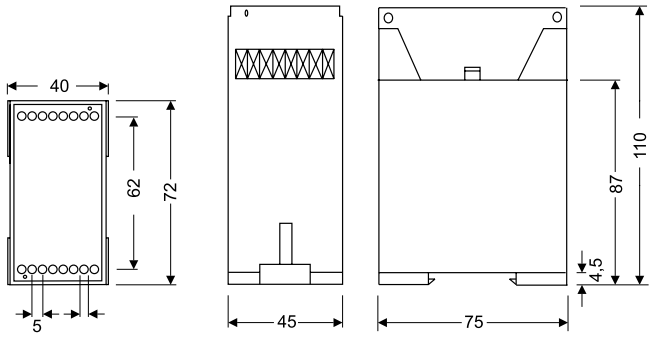
DHC-96



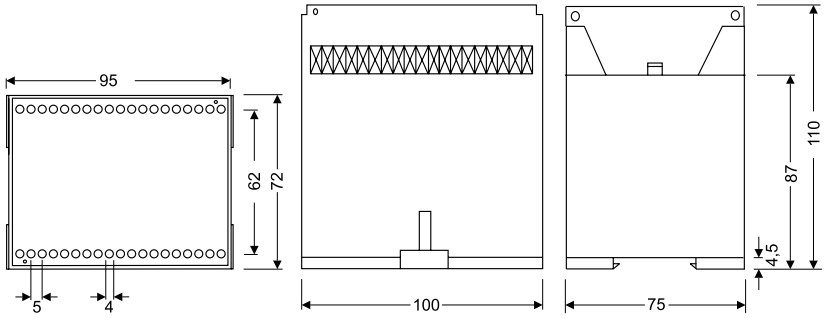
DHC-96 CPM-1500



CV-A / CV-D / CC-A / CC-D



CW



Analogue instruments

Analogue instrument selection table

	Measurement system	Assembly	Specifications	Range	Size mm	Accuracy class	Scale angle	Scale extension	Type
Ampmeters	AC ~	Panel		5...100 A ,.../5A	48 x 48, 72 x 72, 96 x 96, 144 x 144	1,5	90°	P2	EC
			With switch	.../5A	72 x 72, 96 x 96		90°	P1	EC FA
	DC ⎓	Panel	-	5...60 A, .../60 mV	48 x 48, 72 x 72, 96 x 96, 144 x 144			P1	BC
			With relays	.../60 mV	96 x 96				CBC
Voltmeters	AC ~	Panel	-	150 ... 600 V, .../110 V	48 x 48, 72 x 72, 96 x 96, 144 x 144	1,5	90°	P1	EC
				150 ... 600 V	72 x 72, 96 x 96		90°		EC F
	DC ⎓	Panel	-	0...600 V	48 x 48, 72 x 72, 96 x 96, 144 x 144			P1	BC
			With relays	.../60 mV	96 x 96			P1	CBC
Process indicators	D C ⎓	Panel	-	0...10 V, 0/4... 20 mA	48 x 48, 72 x 72, 96 x 96, 144 x 144	1,5	90°	P1	BC
				0...10 V, 4... 20 mA, .../60 mV			240°	P1	ZC
Maximeters		Panel	Bimetallic	.../5 A				P1,2	MC
Sheet	Needle	Panel	-	45...65 según tipo	48 x 48, 72 x 72, 96 x 96, 144 x 144	0,5	90°	-	HC
Wattmeter		Panel	Single-phase	400 V, .../5 A	96 x 96, 144 x 144	1,5	90°	P1	WMC
			Three-phase						WTC

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

EC / EM / EZC / CEC

Moving Iron Ammeter

Ammeters, 90º - P2 - Class 1,5				Ammeters with phase switch, 90º, P1, class 1,5	
					
Type	EC 48	EC 72	EC 96	EC 72 FA	EC 96 FA
a b c 	48 48 86,2	72 72 69,2	96 96 69,2	72 72 69,2	96 96 69,2
A					
5	[*] M10212.	[*] M10222.	[3] M10232.		
10	[*] M10213.	[*] M10223.	[*] M10233.		
15	[*] M10214.	[*] M10224.	[3] M10234.		
20	[*] M10215.	[*] M10225.	[*] M10235.		
25	[*] M10216.	[*] M10226.	[3] M10236.		
30	[*] M10217.	[*] M10227.	[3] M10237.		
40	[*] M10218.	[*] M10228.	[*] M10238.		
50	[*] M10219.	[*] M10229.	[*] M10239.		
60	[*] M1021A.	[*] M1022A.	[*] M1023A.		
75	-	[3] M1022B.	[1] M1023B.		
100	-	[*] M1022C.	[*] M1023C.		
.../5 A (*1)	[*] M10210.	[*] M10220.	[*] M10230.	[*] M10521.	[*] M10531.

(*1) Exchangeable scales.

Exchangeable scales, moving iron ammeters

	SEC 48	SEC 72	SEC 96	SEC 72 FA	SEC 96 FA
	EC 48	EC 72	EC 96	EC 72 FA	EC 96 FA
A					
5/5	[*] M102Z2.	[*] M102Y2.	[3] M102X2.	-	-
10/5	[3] M102Z3.	[*] M102Y3.	[3] M102X3.	-	-
15/5	[*] M102Z4.	[*] M102Y4.	[3] M102X4.	-	-
20/5	[*] M102Z5.	[*] M102Y5.	[*] M102X5.	-	-
25/5	[*] M102Z6.	[*] M102Y6.	[3] M102X6.	-	-
30/5	[*] M102Z7.	[*] M102Y7.	[3] M102X7.	-	-
40/5	[*] M102Z8.	[*] M102Y8.	[*] M102X8.	-	-
50/5	[*] M102Z9.	[*] M102Y9.	[*] M102X9.	[*] M105Y9.	[*] M105X9.
60/5	[*] M102ZA.	[*] M102YA.	[*] M102XA.	[2] M105YA.	[*] M105XA.
75/5	[*] M102ZB.	[*] M102YB.	[*] M102XB.	[*] M105YB.	[*] M105XB.
100/5	[*] M102ZC.	[*] M102YC.	[*] M102XC.	[*] M105YC.	[*] M105XC.
125/5	[3] M102ZD.	[*] M102YD.	[3] M102XD.	[2] M105YD.	[*] M105XD.
150/5	[*] M102ZE.	[*] M102YE.	[*] M102XE.	[*] M105YE.	[2] M105XE.
200/5	[*] M102ZF.	[*] M102YF.	[*] M102XF.	[*] M105YF.	[*] M105XF.
250/5	[*] M102ZG.	[*] M102YG.	[*] M102XG.	[*] M105YG.	[*] M105XG.
300/5	[*] M102ZH.	[*] M102YH.	[*] M102XH.	[*] M105YH.	[*] M105XH.
400/5	[*] M102ZJ.	[*] M102YJ.	[*] M102XJ.	[*] M105YJ.	[*] M105XJ.
500/5	[3] M102ZK.	[*] M102YK.	[*] M102XK.	[*] M105YK.	[*] M105XK.
600/5	[3] M102ZL.	[*] M102YL.	[*] M102XL.	[*] M105YL.	[*] M105XL.
750/5	[3] M102ZM.	[3] M102YM.	[3] M102XM.	[*] M105YM.	[*] M105XM.
800/5	[3] M102ZN.	[*] M102YN.	[*] M102XN.	[*] M105YN.	[*] M105XN.
1 000/5	[3] M102ZP.	[*] M102YP.	[*] M102XP.	[*] M105YP.	[*] M105XP.
1 200/5	[3] M102ZQ.	[3] M102YQ.	[*] M102XQ.	[*] M105YQ.	[*] M105XQ.
1 500/5	[3] M102ZR.	[*] M102YR.	[*] M102XR.	[*] M105YR.	[*] M105XR.
2 000/5	[3] M102ZS.	[*] M102YS.	[3] M102XS.	[*] M105YS.	[*] M105XS.
2 500/5	[3] M102ZT.	[3] M102YT.	[*] M102XT.	[*] M105YT.	[*] M105XT.
3 000/5	[3] M102ZU.	[*] M102YU.	[3] M102XU.	[*] M105YU.	[*] M105XU.
4 000/5	[3] M102ZV.	[3] M102YV.	[3] M102XV.	[*] M105YV.	[*] M105XV.
5 000/5	[3] M102ZW.	[3] M102YW.	[3] M102XW.	[*] M105YW.	[*] M105XW.

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

TABLE OF ADDITIONAL FEATURES

EC Ammeters

Code		Internal code			Delivery time	+ €
M 1 X X X X 0 0		X	X	X		
Adjustment	Standard 2P	0			-	-
	1P	1			3	
	5P	6			3	
Current input	Standard (.../ 5 A)		0		-	
	.../ 1 A		1		1	
Scales(*)	1			1	3	
	5			2	3	
	10			3	3	
	15			4	3	
	20			5	3	
	25			6	3	
	30			7	3	
	40			8	3	
	50			9	3	
	60			A	3	
	75			B	3	
	100			C	3	
	125			D	3	
	150			E	3	
	200			F	3	
	250			G	3	
	300			H	3	
	400			J	3	
	500			K	3	
	600			L	3	
	750			M	3	
	800			N	3	
	1000			P	3	
	1200			Q	3	
	1500			R	3	
	2000			S	3	
	2500			T	3	
	3000			U	3	
	4000			V	3	
	5000			W	3	

SEC scales

Code		Internal code		Delivery time	+ €
M 1 X X X X 0 0		X	X		
Adjustment	Standard 2P	0		-	
	1P	1		3	
	5P	6		3	
Current input	Standard (.../ 5 A)		0	-	
	.../ 1 A		1	3	

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

EC
Moving Iron Voltmeters

Voltmeters, 90°

			
Type	**EC 48**	**EC 72**	**EC 96**
Class	1,5		
Scale	90° , P1		
a b c 	48 48 86,2	72 72 69,2	96 96 69,2
V			
250	[*] M10415.	[*] M10425.	[*] M10435.
300	[*] M10416.	[*] M10426.	[*] M10436.
400	[*] M10417.	[*] M10427.	[3] M10437.
500	[*] M10418.	[*] M10428.	[*] M10438.
600	[3] M10419.	[*] M10429.	[*] M10439.
.../110 V(*1)	[3] M10410.	[*] M10420.	[*] M10430.

(*1) Exchangeable scales, Voltmeters 90°

Voltmeters with phases switch

				
	Three-phase 3 wire		Three-phase 4 wire	
Type	**EC 72 F III**	**EC 96 F III**	**EC 72 F III +N**	**EC 96 F III +N**
Class	1,5			
Scale	90° , P1			
a b c 	72 72 69,2	96 96 69,2	72 72 69,2	96 96 69,2
V				
250	[3] M10625.	[3] M10635.	[3] M10725.	[3] M10735.
300	[3] M10626.	[3] M10636.	[3] M10726.	[3] M10736.
400	[*] M10627.	[3] M10637.	[*] M10727.	[3] M10737.
500	[*] M10628.	[*] M10638.	[*] M10728.	[*] M10738.
600	[*] M10629.	[3] M10639.	[*] M10729.	[3] M10739.
(1).../110 V	-	[c] M10632.	-	-

(1) Specify primary voltage of the measuring transformers

Exchangeable scales, moving iron voltmeters, 1,2P

Type	SEC 48	SEC 72	SEC 96
Equipment	EC 48	EC 72	EC 96
V			
1 000/110	[3] M104Z1.	[3] M104Y1.	[3] M104X1.
3 300/110	[3] M104Z2.	[3] M104Y2.	[3] M104X2.
6 600/110	[3] M104Z3.	[3] M104Y3.	[3] M104X3.
13 200/110	[3] M104Z4.	[3] M104Y4.	[3] M104X4.
15 000/110	[3] M104Z5.	[3] M104Y5.	[3] M104X5.
20 000/110	[3] M104Z6.	[3] M104Y6.	[3] M104X6.
22 000/110	[3] M104Z7.	[3] M104Y7.	[3] M104X7.
25 000/110	[3] M104Z8.	[3] M104Y8.	[3] M104X8.

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

TABLE OF ADDITIONAL FEATURES

EC Voltmeters with external transformer

Code		Internal code			Delivery time
M 1 X X X X 0 0		X	X	X	
Adjustment	Standard 1,2P	0			-
	1P	1			3
Voltage input	Standard (... / 110 V)		0		-
	... / 100 V		1		3
	... / 63,5 V		2		3
	... / 57,8 V		3		3
Scales (For equipments with external transformer and all EC)	1000			1	3
	3300			2	3
	6600			3	3
	13200			4	3
	15000			5	3
	20000			6	3
	22000			7	3
	25000			8	3

EC and EC-F direct Voltmeters

Code		Internal code		Delivery time
M 1 X X X X 0 0		X		
Adjustment	Standard 1P	0		-
	1,2P	2		3

EC scales

Code		Internal code		Delivery time
M 1 X X X X 0 0		X	X	
Adjustment	Standard 1,2P	0		-
	1P	1		3
Voltage inputs	Standard (... / 110 V)		0	-
	... / 100 V		1	3
	... / 63,5 V		2	3
	... / 57,8 V		3	3

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

BC / CBC

Moving coil ammeters

	Ammeters, 90°			ammeters with 2 relays
				
Type	BC 48	BC 72	BC 96	CBC 96
Class	1,5			1,5
Scale	90° , P1			90°, P1
a 	48	72	96	96
b	48	72	96	96
c	86,2	69,2	69,2	110
A				
5	[3] M11412.	[3] M11422.	[3] M11432.	-
10	[3] M11413.	[*] M11423.	[3] M11433.	-
25	[3] M11416.	[*] M11426.	[3] M11436.	-
50	[3] M11419.	[3] M11429.	[3] M11439.	-
60	-	[3] M1142A.	[3] M1143A.	-
../60 mV(*1)	[3] M11410.	[*] M11420.	[*] M11430.	[3] M14830.

(*1) Exchangeable scales. See M.7 for external shunts

Exchangeable Scales

Type	SBC 48	SBC 72	SBC 96	**Type**	SBC 48	SBC 72	SBC 96
Device	BC 48	BC 72	BC 96	**Device**	BC 48	BC 72	BC 96
A / mV				**A / mV**			
50/60	[3] M114Z9.	[3] M114Y9.	[3] M114X9.	300/60	[3] M114ZH.	[3] M114YH.	[3] M114XH.
60/60	[3] M114ZA.	[3] M114YA.	[3] M114XA.	400/60	[3] M114ZJ.	[3] M114YJ.	[3] M114XJ.
75/60	[3] M114ZB.	[3] M114YB.	[3] M114XB.	600/60	[3] M114ZL.	[3] M114YL.	[3] M114XL.
100/60	[3] M114ZC.	[*] M114YC.	[*] M114XC.	1 000/60	[3] M114ZP.	[3] M114YP.	[3] M114XP.
150/60	[3] M114ZE.	[3] M114YE.	[3] M114XE.	1 500/60	[3] M114ZR.	[3] M114YR.	[3] M114XR.
200/60	[3] M114ZF.	[3] M114YF.	[3] M114XF.	2 500/60	[3] M114ZT.	[3] M114YT.	[3] M114XT.
250/60	[3] M114ZG.	[3] M114YG.	[3] M114XG.				

TABLE OF ADDITIONAL FEATURES

BC ammeter

Code		Internal code		Delivery time
M 1 X X X X 0 0		X	X X	
Adjustment	Standard	0		-
	central zero	1		3
Shunt input range	Standard (.../60 mV)		0	-
	.../50 mV		1	3
	.../150 mV		3	3
	.../300 mV		5	3
Scale	50		9	3
	60		A	3
	75		B	3
	100		C	3
	150		E	3
	200		F	3
	250		G	3
	300		H	3
	400		J	3
	500		K	3
	600		L	3
	1000		P	3
	1500		R	3
	2500		T	3

SBC scales

Code		Internal code		Delivery time
M 1 X X X X 0 0		X	X	
Adjustment	Standard	0		-
	central zero	1		3
Shunt input range	Standard (.../60 mV)		0	-
	.../50 mV		1	3
	.../150 mV		3	3
	.../300 mV		5	3

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

BC

Moving coil voltmeters

	Voltmeters, 90º		
			
Type	**BC 48**	**BC 72**	**BC 96**
Class	1,5		
Scale	90° , P1		
a 	48	72	96
b	48	72	96
c	86,2	69,2	69,2
V			
0...10 V (*1)	[3] M11813.	[*] M11823.	[3] M11833.
1	[3] M11711.	[3] M11721.	[3] M11731.
15	[3] M11714.	[3] M11724.	[3] M11734.
30	[3] M11716.	[*] M11726.	[*] M11736.
60	[3] M11718.	[3] M11728.	[3] M11738.
100	[3] M11719.	[3] M11729.	[3] M11739.
150	[3] M1171A.	[*] M1172A.	[*] M1173A.
250	[3] M1171B.	[3] M1172B.	[*] M1173B.
300	-	-	-
400	[3] M1171D.	[3] M1172D.	[3] M1173D.
500	[3] M1171E.	[3] M1172E.	[3] M1173E.
600	[3] M1171F.	[3] M1172F.	[3] M1173F.

(*1) Scale NOT included

TABLE OF ADDITIONAL FEATURES

BC equipment

Code			Internal code						
M	1	X	X	X	X	0	0	X	
								↑	Delivery time
Adjustment			Standard					0	-
			Central zero					1	3

BC / ZC

Process indicators

Process indicators, 90°

				
Type	**BC 48**	**BC 72**	**BC 96**	**BC 144**
Class	1,5			
Scale	90° , P1			
a b c 	48 48 86,2	72 72 69,2	96 96 69,2	144 144 91,8
Scope				
0...10 V	[3] M11813.	[*] M11823.	[3] M11833.	[3] M11843.
0...20 mA	[3] M11812.	[*] M11822.	[3] M11832.	[3] M11842.
4...20 mA	[3] M11811.	[*] M11821.	[*] M11831.	[3] M11841.

Scales NOT included

Exchangeable scales

Type	SIP 48	SIP 72	SIP 96
Equipment	BC 48	BC 72	BC 96
Scope			
0...10 V	[3] M118Z3.	[3] M118Y3.	[3] M118X3.
0...20 mA	[3] M118Z2.	[3] M118Y2.	[3] M118X2.
4...20 mA	[3] M118Z1.	[3] M118Y1.	[3] M118X1.

Process indicators, 240°

Type			
		ZC 72	**ZC 96**
Class	1,5		
Scale	240°, P1		
a b c 		72 72 69,2	96 96 69,2
Scope			
0...10 V		[3] M12523.	[3] M12533.
4...20 mA(*)		[3] M12521.	[3] M12531.
.../60 mV		[3] M12520.	[3] M12530.

(*) Scale included in the price
The 6-digit code already includes the 4...20 mA scale

TABLE OF ADDITIONAL FEATURES

BC and ZC process indicators

Code		Internal code			Delivery time
M 1 X X X X 0 0		X	X	X	
Adjustment	Standard	0			-
	Central zero	1			3
Scale	1		1		3
	5		2		3
	10		3		3
	15		4		3
	20		5		3
	25		6		3
	30		7		3
	40		8		3
	50		9		3
	60		A		3
	75		B		3
	100		C		3
	125		D		3
	150		E		3
	200		F		3
	250		G		3
	300		H		3
	400		J		3
	500		K		3
	600		L		3
	750		M		3
	800		N		3
	1000		P		3
	1200		Q		3
	1500		R		3
	2000		S		3
	2500		T		3
	3000		U		3
	4000		V		3
	5000		W		3
Unit	-			0	3
	mA			1	3
	A			2	3
	kA			3	3
	mV			4	3
	V			8	3
	kV			9	3
	rpm			A	3
	rpm x 1000			B	3
	l (liters)			C	3
	m			G	3
	m^2			H	3
	m^3			J	3
	%			K	3

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

MC /EMC

Maximeter ammeters

		Bimetallic maximeter ammeters + moving iron ammeters
		
Type	MC 96	EMC 96
Class	**3**	Bimetallic: 3 Moving iron:1,5
Scale	90° , P1,2	Double Scale 90º, P1,2, moving iron P2
a b c 	96 96 69,2	96 96 69,2
A		
.../ 5 A	[*] M12231.	[3] M12632.
	Scale not included	
Scale	120% 90° , P1,2	
.../ 5 A	[3] M15531.	
	Scale included.Adjustement 15 minutes	

Exchangeable scales

Type	SMC 96	SEMC 96
Equipment	MC 96	EMC 96
A		
100/5	[3] M122XC.	[3] M126XC.
200/5	[3] M122XF.	[3] M126XF.
300/5	[3] M122XH.	[3] M126XH.
400/5	[3] M122XJ.	[*] M126XJ.
500/5	[3] M122XK.	[*] M126XK.
600/5	[3] M122XL.	[*] M126XL.
750/5	[3] M122XM.	[3] M126XM.
800/5	[*] M122XN.	[*] M126XN.
1 000/5	[3] M122XP.	[*] M126XP.
1 500/5	[*] M122XR.	[3] M126XR.
2 000/5	[3] M122XS.	[3] M126XS.

TABLE OF ADDITIONAL FEATURES

MC and EMC maximeters and SMC and SEMC scales

Code		Internal code		Delivery time
M 1 X X X X 0 0 X			X	X
Current input	Standard (.../ 5 A)	0		-
	.../ 1 A	1		3
Scale	100		C	3
	125		D	3
	150		E	3
	200		F	3
	250		G	3
	300		H	3
	400		J	3
	500		K	3
	600		L	3
	750		M	3
	800		N	3
	1000		P	3
	1200		Q	3
	1500		R	3
	2000		S	3
	2500		T	3
	3000		U	3
	4000		V	3
	5000		W	3

HC

Pointer type frequencymeters

	90° , 230 V		
			
Type	HC 72	HC 96	HC 144
Class	0,5		
Scale	90°		
a b c 	72 72 69,2	96 96 69,2	144 144 91,8
45...55 Hz	[*] M12721.	[3] M12731.	[3] M12741.

TABLE OF ADDITIONAL FEATURES

HC frequencymeters

Code		Internal code		Delivery time
M 1 X X X X 0 0 X			X	X
Frequency	Standard (45...55 Hz)	0		-
	57...63 Hz	1		3
	55...65 Hz	3		3
	45...65 Hz	4		3
	47...53 Hz	5		3
Voltage	Standard (230 V)		0	-
	100 ... 120 V		1	3
	380 ... 400 V		3	3
	440 V		4	3
	(*) 380 ... 440 V		6	

(*) Only HC

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

WMC / WTC
Wattmeters

WATTMETERS, 45 ... 65 Hz

Type				
	Single-phase	**Balanced three-phase**	**Three-phase 3 wire (ARON)**	**Three-phase 4 wire**
	WMC 96	**WTC 96E**	**WTC 96A**	**WTC 96AN**
Class	1,5			
Scale	90° P1			
a b c 	96 96 69,2	96 96 69,2	96 96 82,9	96 96 82,9
$U_{phase-phase}$	400 V	400 V	110 V (*1)	400 V
	[3] M13031.	[3] M13032.	[3] M13034.	[3] M13033.

Exchangeable scales for the WMC 96, WTC 96E and WTC 96AN equipment. Scales NOT included
(*1) Specify primary voltage and current of the measuring transformers, and power at full scale

Wattmeters Exchangeable scales

	Single-phase		**Three-phase**		
Type		**SWM 96**		**SWT 96E (*1)**	**SWT 96AN (*2)**
Equipment		**WMC 96**		**WTC 96E**	**WTC 96AN**
A	**Full scale**	Code	**Full scale**	Code	Code
50/5	20 kW	[3] M130J9.	30 kW	[3] M130K9.	[3] M130L9.
75/5	-	-	50 kW	[3] M130KB.	[3] M130LB.
100/5	40 kW	[3] M130JC.	60 kW	[3] M130KC.	[3] M130LC.
150/5	60 kW	[3] M130JE.	90 kW	[3] M130KE.	[3] M130LE.
200/5	80 kW	[3] M130JF.	120 kW	[3] M130KF.	[3] M130LF.
300/5	120 kW	[3] M130JH.	180 kW	[3] M130KH.	[3] M130LH.
400/5	160 kW	[3] M130JJ.	240 kW	[3] M130KJ.	[3] M130LJ.
500/5	200 kW	[3] M130JK.	300 kW	[3] M130KK.	[3] M130LK.
600/5	240 kW	[3] M130JL.	360 kW	[3] M130KL.	[3] M130LL.
1 000/5	400 kW	[3] M130JP.	600 kW	[3] M130KP.	[3] M130LP.
1 500/5	600 kW	[3] M130JR.	900 kW	[3] M130KR.	[3] M130LR.
2 000/5	800 kW	[3] M130JS.	1,2 MW	[3] M130KS.	[3] M130LS.
3 000/5	1,2 MW	[3] M130JU.	1,8 MW	[3] M130KU.	[3] M130LU.
4 000/5	1,6 MW	[3] M130JV.	2,4 MW	[3] M130KV.	[3] M130LV.
5 000/5	2,0 MW	[3] M130JW.	3 MW	[3] M130KW.	[3] M130LW.

(*1) Balanced three-phase wattmeters type WTC 96E 230 V, 400 V
(*2) Unbalanced three-phase wattmeters type WTC 96AN 400 V

TABLE OF ADDITIONAL FEATURES

Wattmeters scales

Code			Internal code		
M	1	X	X X X X	0 0	X X
					Delivery time
Current input	Standard .../ 5 A		0		-
	.../ 1 A		1		3
Voltages (V)	Standard (400 V)			0	-
	110 (a)			1	3
	230			2	3
	440			5	3

(a) In ARON unbalanced three-phase Wattmeters (3 wires), the standard voltage is 110 V

Wattmeters

M	1	X	X X X X	0 0	X	X	X
Code				Internal code			
Current input	Standard .../ 5 A			0			-
	.../ 1 A			1			3
Voltage	Standard (400 V_{ph-ph})			0			-
	110 V_{ph-ph} (a)			1			3
	230 V_{ph-ph}			2			3
	440 V_{ph-ph}			5			3
Scale ranges Primary current transformer	50				9		3
	75				B		3
	100				C		3
	150				E		3
	200				F		3
	300				H		3
	400				J		3
	500				K		3
	600				L		3
	1000				P		3
	1500				R		3
	2000				S		3
	3000				U		3
	4000				V		3
	5000				W		3

(a) In ARON unbalanced three-phase Wattmeters (3 wires), the standard voltage is 110 V

2EC / 2HC / SynchroMAX, Synchronization and marine applications equipment

2EC, Double voltmeters

Type	2 EC 96	2 EC 144
Class	1,5	
Scale	90°	
a b c	96 96 69,2	144 144 91,8
V		
2 x .../100	[3] M13831.	[3] M13841.
2 x .../110	[3] M13832.	-
2 x 220	[3] M13833.	-
2 x 380	[3] M13834.	[3] M13844.
2 x 440	[3] M13835.	[3] M13845.

Specify voltage transformers

2 EC

Code			Internal code	
M 1	X X X X	0 0	X	
				Delivery time
Nominal scale value (Full scale)	400 (640)		0	-
	440 (700)		1	3
	660 (1050)		2	3
	1000 (1600)		3	3
	1200 (1920)		4	3
	2500 (4000)		5	3
	3000 (4800)		6	3
	3300 (5280)		7	3
	4000 (6400)		8	3
	5000 (8000)		9	3
	5500 (8800)		A	3
	6600 (10560)		B	3
	7200(11520)		C	3
	9000 (14400)		D	3
	10000 (16000)		E	3
	11000 (17600)		F	3
	12500 (20000)		G	3
	15000 (24000)		H	3
	20000 (32000)		J	3
	22000 (35200)		K	3
	24000 (38400)		L	3
	25000 (40000)		M	3

SynchroMAX, Synchronization equipment

Power Supply 400 V

Type		
	SynchroMAX	**SynchroMAX PID**
PID Control	No	Yes
a a b b c c	96 96 82,9	
Frequency	30 ... 70 Hz	
$V_{Measurement}$		
30...150	[3] M14624.	[3] M14634.
110...600	[*] M14625.	[3] M14635.

SynchroMAX

Code			Internal code	
M 1	X X X X	0 0	X	
				Delivery time
Voltage supply	Standard (400 V)		0	-
	110 Vac		1	-
	230 Vac		2	-
	40...170 Vdc		D	3

2HC, Double frequencymeters

Pointer Type, 230 V

Tipo	**2 HC 96**	**2 HC 144**
Class	0,5	
Scale	90°	
a b c	96 96 82,9	144 144 91,8
Hz		
45...55	[3] M12732.	[3] M12742.

2HC frequencymeters

Code			Internal code		
M 1	X X X X	0 0	X	X	
					Delivery time + €
Frequency (Hz)	Standard (45...55 Hz)		0		-
	57...63		1		2
	55...65		3		2
	45...65		4		2
	47...53		5		2
Voltage (V)	Standard (230 V)			0	-
	100 ... 120			1	3
	380 ... 400			3	3
	440			4	3

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

CH

Hour run meters

Type	CH 48	CH 72	CH 96
	5 + 2		
Display a b c	48 48 86,2	72 72 69,2	96 96 69,2
Code	[*] M14911.	[*] M14921.	[3] M14931.

MEG-1000

Insulation resistance meter

230 V (*), 50...60 Hz

Type	MEG-1000
Class	1,5
Scale	90º
Frequency	50...60 Hz
a a b b c c	96 96 132
Ω (double Scales)	0...500 kΩ 0.5...5 MΩ
Code	[*] M15051.

(*) Power Supply 440 Vac +10% €

TABLE OF ADDITIONAL FEATURES

CH

Code			Internal code							
M	1	X	X	X	X	0	0	X	X	
								↑	↑	Delivery time
Frequency			Standard 50 Hz					0		-
			60 Hz					1		2
Voltage			Standard (230 V)						0	-
			24 Vc.a.						6	2
			110 Vc.a.						1	2
			10...80 Vc.c.						8	2
			80...200 Vc.c.						A	2

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

Accessories / Options for analogue instruments

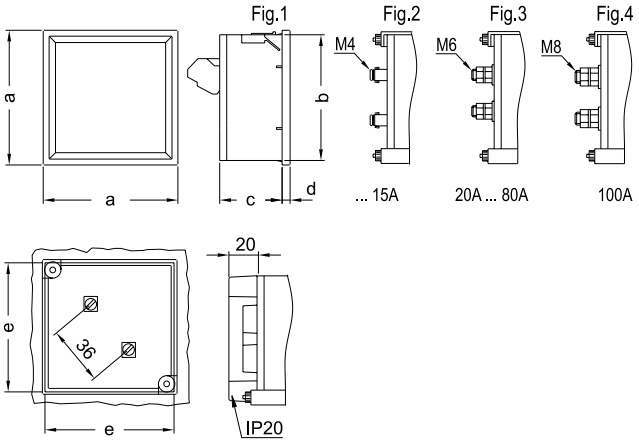
GENERAL options for analogue instruments

Type	Code
IP 54 airtight seal , **48 x 48**	[3] M1ZZ52.
IP 54 airtight seal, **72 x 72**	[3] M1ZZ53.
IP 54 airtight seal, **96 x 96**	[3] M1ZZ54.
IP 54 airtight seal, **144 x 144**	[3] M1ZZ55.
Protection IP 65, 48 x 48	[3] M19941.
Protection IP 65, 72 x 72	[3] M19942.
Protection IP 65, 96 x 96	[3] M19943.
Protection IP 65, 144 x 144	[3] M19944.
Terminal covers (IP 20) 48 x 48	[3] M19921.
Terminal covers (IP 20) 72x 72	[3] M19922.
Terminal covers (IP 20) 96 x 96	[3] M19923.

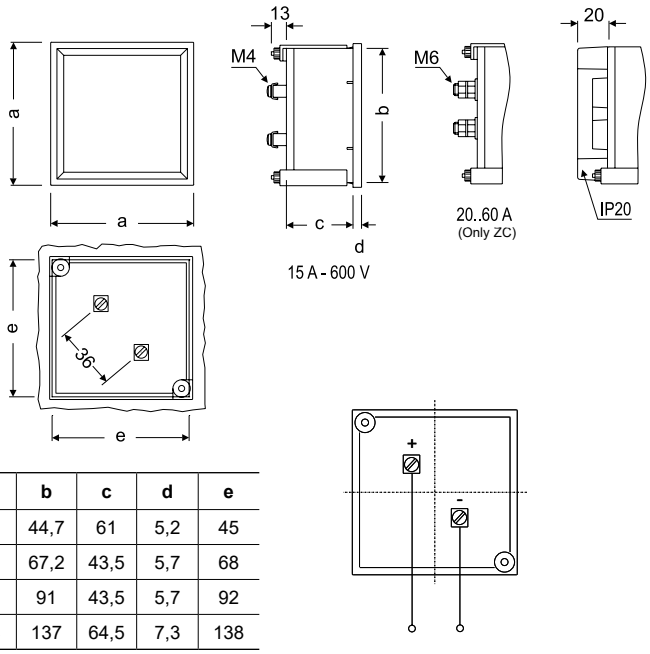
M 1 X X X X 0 0 X X X X X				
				Delivery time
Other options	Tropical proof (assembly panel only)	0	1	3
	Externally regulated pointer	0	2	3
	Anti-reflection glass	0	3	3
	Makrolon glass	0	4	3
	Interior lighting (6-12-48 V dc) panel only	0	5	3
	Tropical proof + Anti-reflection glass	0	6	3
	Tropical proof + Makrolon glass	0	7	3

Dimensions

EC / BC



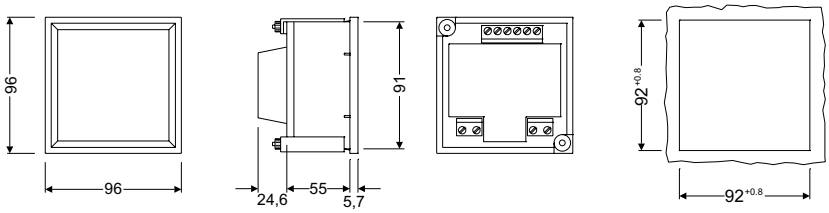
ZC



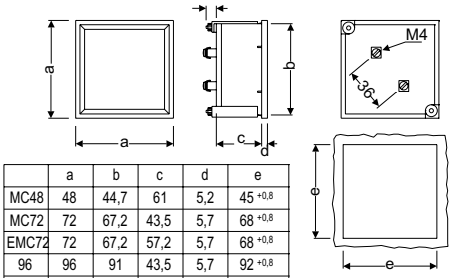
Typ	Fig. EC	Fig. BC	Fig. ZC	Fig. EZC	a	b	c	d	e
48	1-3	1-3	1	-	48	44,7	61	5,2	45
72	1-3-4	2-3-4	1	1	72	67,2	43,5	5,7	68
96	1-3-4	2-3-4	1	1	96	91	43,5	5,7	92
144	2-3-4	2-3-4	1	-	144	137	64,5	7,3	138

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

CBC

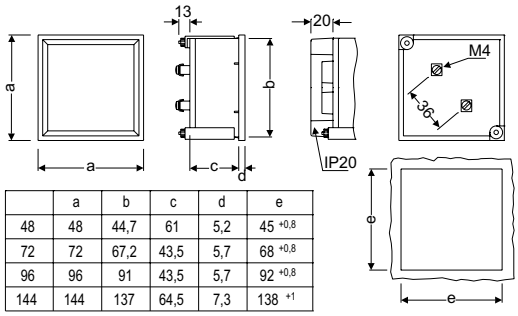


MC



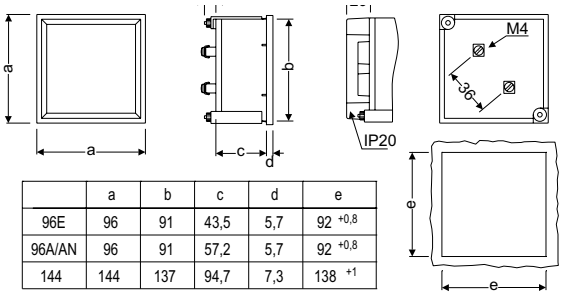
	a	b	c	d	e
MC48	48	44,7	61	5,2	45 +0,8
MC72	72	67,2	43,5	5,7	68 +0,8
EMC72	72	67,2	57,2	5,7	68 +0,8
96	96	91	43,5	5,7	92 +0,8
144	144	137	64,5	7,3	138 +1

HC



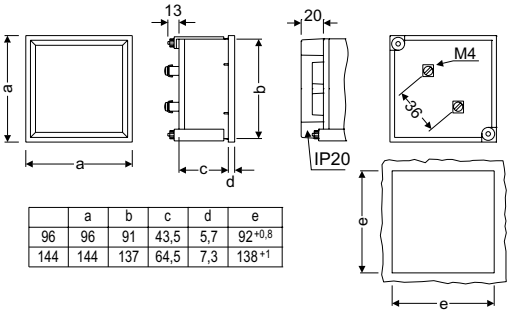
	a	b	c	d	e
48	48	44,7	61	5,2	45 +0,8
72	72	67,2	43,5	5,7	68 +0,8
96	96	91	43,5	5,7	92 +0,8
144	144	137	64,5	7,3	138 +1

WMC / WTC



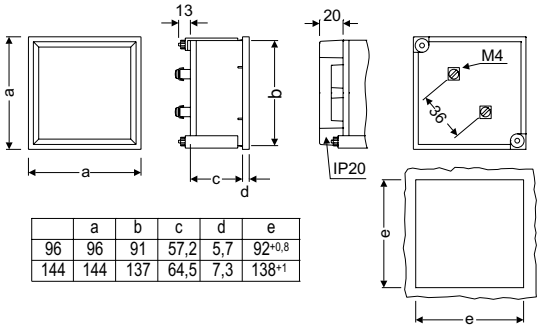
	a	b	c	d	e
96E	96	91	43,5	5,7	92 +0,8
96A/AN	96	91	57,2	5,7	92 +0,8
144	144	137	94,7	7,3	138 +1

2 EC



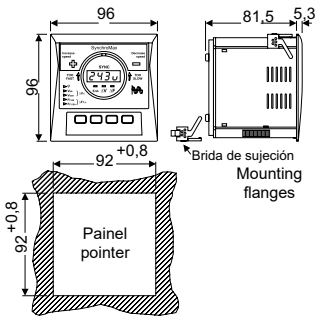
	a	b	c	d	e
96	96	91	43,5	5,7	92 +0,8
144	144	137	64,5	7,3	138 +1

2 HC

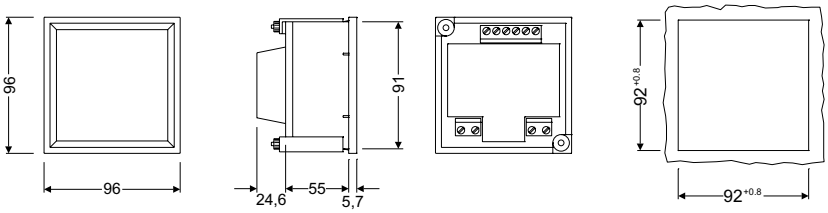


	a	b	c	d	e
96	96	91	57,2	5,7	92 +0,8
144	144	137	64,5	7,3	138 +1

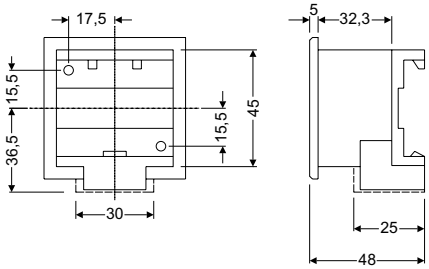
SYNCROMAX

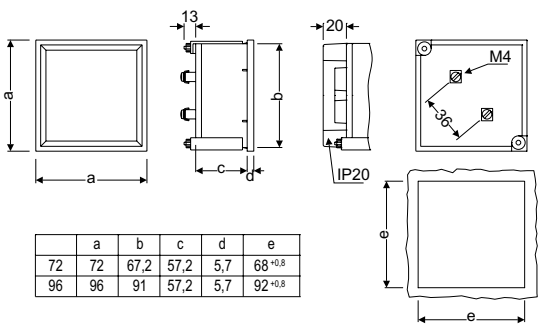


MEG-1000



CH





	a	b	c	d	e
72	72	67,2	57,2	5,7	68 +0,8
96	96	91	57,2	5,7	92 +0,8

Industrial IoT and Automation

EMS Datalogger and SCADA Embedded

Energy manager - Line system

	Line-EDS-PS		Line-EDS-PSS PRO / Line-EDS-iMonitor	
	By Devices	By Variable	By Devices	By Variable
Limits	5 devices	500 variables	20 devices	2000 variables
	10 calculated variables		40 calculated variables	
Events	25	25	100	100
Screen	-	-	5	5
Reports	-	-	5	5

Line-EDS, Energy manager (Efficiency Data Server)

- Integrated EMS software with 1 year of data
- Monitoring and data logging of Circutor and generic Modbus equipment
- Automatic report generation, SCADA screens and alarm dispatch.
- Process automation (with programming logic) with integrated outputs
- Local version with integrated webserver (integrated PowerStudio) or Cloud depending on version
- Ethernet/Wi-Fi/RS-485 communications

Notable for:
Edge controller with integrated SGE

Type	Code	Integrated Software	Transistor output	Generic Modbus	Communications	Protocol
Line-EDS-cloud	[*] D70050.	API's de: SCOUT, AZURE, AWS, GOOGLE, DEXCELL, SENTILO, Generic MQTT	2	●	Ethernet | RS-485 | Bus-Line	Modbus | API's | web
Line-EDS-PS	[*] D70005.	PowerStudio	2	●	Ethernet | RS-485 | Bus-Line	Modbus (Circutor + generic) | XML
Line-EDS-PSS PRO	[*] D70020.	PowerStudio Scada PRO	2	●	Ethernet | RS-485 | Bus-Line	Modbus (Circutor + generic) | XML
Line-EDS-iMonitor	[*] D70021.	PowerStudio Scada PRO + iMonitor	2	●	Ethernet | RS-485 | Bus-Line	Modbus (Circutor + generic) | XML

Bus-Line: RS-485 communications system, with lateral side connector between modules

Line-M, Expansion modules, Line system

- Expansion modules for Line equipment
- Digital inputs: Pulse counting, status signaling or rate change
- Digital outputs: Alarms of any instantaneous value or pulse emission
- Analog inputs/outputs: Analog signal sending
- Communications: Modules for 4G, Ethernet, Wi-Fi, RS-485 and RS-232 media

Notable for:
Add extra features

Type	Code	Transistor output	Relay output	Digital inputs	Analog output	Analogue Input	Communications	Protocol
Input/Output Modules								
Line-M-4IO-T	[*] D73001.	4	-	4	-	-	Bus-Line	Modbus/RTU
Line-M-4IO-R	[*] D73002.	-	4	4	-	-	Bus-Line	Modbus/RTU
Line-M-8I6O	[*] D73008.	-	6	8	-	-	Bus-Line	Modbus/RTU
Line-M-4IO-A	[*] D73003.	-	-	-	4 (0/4 ... 20 mA) |4 (0/2 ... 10 Vdc)	4 (0/4 ... 20 mA)	Bus-Line	Modbus/RTU
Line-M-4IO-RV	[*] D73004.	-	4	4 (230 V)	-	-	Bus-Line	Modbus/RTU
Line-M-20I	[*] D73006.	-	-	20	-	-	Bus-Line	Modbus/RTU

Bus-Line: RS-485 communication system, with side connector between modules

Type	Code	Description
Power supply		
Line-M-EXT-PS	[c] D7300A.	110-277 V ~ (P-N)/110-480 V ~ (P-P) power supply for maximum of 3 Line devices
Modem		
Line-M-4G	[*] D7300C.	4G/GPRS Communications modem and Bus-Line to communicate with Line-EDS devices
Ethernet converter		
Line-TCPRS1	[*] D80030.	Line-TCPRS1, Modbus RTU (RS-485) to Modbus TCP/IP (Ethernet/Wi-Fi) conversion gateway. Integrated web server and mobile app (MyConfig) for configuration.

Line-TCPRS1: Power supply 100... 264 VAC/100... 300 VDC

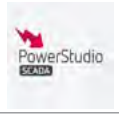
Click on the product code for more information.

Software

PowerStudio Universe, Energy management software

- Scalable On-premise software
- Real-time monitoring and control
- Display of SCADA screens and dashboards
- Process automation, alarms and notifications
- Generation and sending of customized reports
- Interoperability: OPC-UA, SQL, XML and Modbus.
- End-to-end encrypted data

Type	Code	Description
SCADA software		
PowerStudio SCADA Basic	[*] W20100.	SCADA software for monitoring, control and analysis of installations, with CIRCUTOR devices and third-party Modbus equipment. Up to 25 devices
PowerStudio SCADA Pro	[*] W20110.	SCADA software for monitoring, control and analysis of installations, with CIRCUTOR devices and third-party Modbus equipment. Up to 50 devices
PowerStudio SCADA Ultimate	[*] W20120.	SCADA software for monitoring, control and analysis of installations, with CIRCUTOR devices and third-party Modbus equipment. Up to 500 devices.
PowerStudio SCADA Enterprise	[*] W20130.	SCADA software for monitoring, control and analysis of installations, with CIRCUTOR devices and third-party Modbus equipment. More than 500 devices.
OPC UA Server	[*] W20200.	Allows to configure an OPC UA server in PowerStudio for any SCADA with OPC UA client to integrate the desired parameters.



Upgrade-PowerStudio, PowerStudio SCADA License Upgrade

Type	Code	Description
Licence update		
PSSBasic-to-PSSPro	[C] W20111.	Upgrading from PowerStudio SCADA Basic to PowerStudio SCADA Pro
PSSBasic-to-PSSUltimate	[C] W20121.	Upgrading from PowerStudio SCADA Basic to PowerStudio SCADA Ultimate
PSSBasic-to-PSSEnterprise	[C] W20131.	Upgrading from PowerStudio SCADA Basic to PowerStudio SCADA Enterprise
PSSPro-to-PSSUltimate	[C] W20122.	Upgrading from PowerStudio SCADA Pro to PowerStudio SCADA Ultimate
PSSPro-to-PSSEnterprise	[C] W20132.	Upgrading from PowerStudio SCADA Pro to PowerStudio SCADA Enterprise
PSSUltimate-to-PSSEnterprise	[C] W20133.	Upgrading from PowerStudio SCADA Ultimate to PowerStudio SCADA Enterprise

Scout, Cloud-Scout software

- Cloud-Scout Cloud-based electrical monitoring and auditing software:
- Manage multiple installations from a single platform.
- Focus on the most critical issues with alerts based on advanced analytics.
- Collaborate in real time with your team with chats and access to data analysis.
- Access and manage alerts from anywhere with our app available on Android and iOS.
- Detailed reports of your installations.

Type	Code	Description
Digital Link	[*] W10310.	Module for digitising your equipment
Digital Link SIM VPN EU - Single	[*] W10311.	Digital Link module with SIM configured for secure connection via VPN, European coverage
Digital Link SIM VPN WW - Single	[*] W10312.	Digital Link module with SIM configured for secure connection via VPN, worldwide coverage
Digital Link SIM VPN EU - Multi 5	[*] W10313.	Digital Link module with SIM configured for secure connection via VPN, up to 5 devices, European coverage.
Digital Link SIM VPN EU - Multi 25	[*] W10314.	Digital Link module with SIM configured for secure connection via VPN, up to 25 devices, European coverage.
Digital Link SIM VPN WW - Multi 5	[*] W10315.	Digital Link module with SIM configured for secure connection via VPN, up to 5 devices, worldwide coverage.
Digital Link SIM VPN WW - Multi 25	[*] W10316.	Digital Link module with SIM configured for secure connection via VPN, up to 25 devices, worldwide coverage.
Quality Analyst_Scout	[*] W10320.	Module for the analysis and monitoring of power quality
Quality Analyst SIM VPN EU - Single	[*] W10321.	Quality Analyst module with SIM configured for secure connection via VPN, European coverage
Quality Analyst SIM VPN WW - Single	[*] W10322.	Quality Analyst module with SIM configured for secure connection via VPN, worldwide coverage
VAR_Scout	[*] W10340.	Module for battery performance and power factor monitoring
VAR SIM VPN EU - Single	[*] W10341.	VAR module with SIM configured for secure connection via VPN, European coverage
VAR SIM VPN WW - Single	[*] W10342.	VAR module with SIM configured for secure connection via VPN, worldwide coverage

The prices of the modules are for an annual subscription per connected device. Devices compatible with the modules: **QNA-600-D, QNA-D500 series, CVM-D50, CVM-D4XX, R-SABT, computer C Wi-Fi, Computer SMART III + SmartLink-VAR**. Additionally, via **Line-EDS-cloud**, any Circutor device with RS-485 or Ethernet and Modbus protocol.

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

Converters and gateways

Converters and gateways

Type	Code	Description
RS		
RS2RS	[*] D80310.	RS-232/RS-485 converter and amplifier (RTS control) for PC.
USB		
USB-RS 485	[*] D80320.	USB to RS-485 Converter
M-BUS		
CMBUS-8	[*] D80208.	CMBUS-8, M-Bus to Modbus RTU converter, up to 8 M-Bus slaves.
LoRa		
Bridge LR PSAC	[*] D80110.	LoRa to RS-485 Converter (Modbus/RTU) . AC power supply (110...264 Vac)
Bridge LR PSDC	[*] D80111.	LoRa to RS-485 Converter (Modbus/RTU) . DC power supply (9 ... 36 Vdc)
Ethernet		
TCPRS1+	[*] D80010.	TCPRS1+, Modbus RTU (RS-485) to Modbus TCP/IP (Ethernet/Wi-Fi) conversion gateway. Integrated web server and mobile app (MyConfig) for configuration, with AC power supply.
TCPRS1+PSDC	[*] D80011.	TCPRS1+PSDC, Modbus RTU (RS-485) to Modbus TCP/IP (Ethernet/Wi-Fi) conversion gateway. Integrated web server and mobile app (MyConfig) for configuration, with DC power supply.

Antena, Antenna

Type	Code	Description
Accessories antennas		
Antena Antivandalica	[*] DA0001.	Anti-vandal antenna IP67 ~4.4dBi 1 m
Antena Mural 4.1dBi 2 m	[*] DA0002.	Wall Antenna ~4.1dBi 2 m
Antena Mural 4.1dBi 5 m	[*] DA0005.	Wall Antenna ~4.1dBi 5 m

Click on the product code for more information.

Input and Output modules

Kit Line-TCPRS1/M, Impulse centralisers

Type	Code	Digital inputs	Communications	Protocol
Kit line-TCPRS1/M-20I	[*] D90030.	20	Ethernet | WiFi	ModbusTCP | TCP | UDP
Kit line-TCPRS1/2xM-20I	[*] D90031.	40	Ethernet | WiFi	ModbusTCP | TCP | UDP

NEW

LM-A-D, Modules for analog and digital inputs and outputs

Type	Code	Relay output	Digital inputs	Analog output	Analogue Input	Communications	Protocol
LM-A42-D11	[*] D90420.	1	1	2	4	RS-485 | Wi-Fi	Modbus RTU | Modbus TCP/IP

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

NEW

LM-D, Impulse and contact centralisers

Type	Code	Relay output	Digital inputs	Communications	Protocol
LM-D44	[*] D90120.	4	4	RS-485 | Wi-Fi	Modbus RTU | Modbus TCP/IP

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

LM50, Impulse centraliser 50 inputs, Modbus/TCP

Type	Code	Digital inputs	Communications	Protocol
LM50-TCP+	[*] D90011.	50	RS-485	Modbus/TCP

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

LM25, Impulse centraliser 25 inputs. RS-485 in Modbus/RTU

Type	Code	Digital inputs	Communications	Protocol
LM25-M	[*] D90010.	25	RS-485	Modbus/RTU

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

ARM edge controllers

eManager Essential, IoT programmable controllers

› Industrial IoT controller, modular and flexible with embedded Linux Yocto.
› Wi-Fi, Ethernet and RS-232/485 communications. (default)
› Expansion module support for GPRS and 4G communications.
› Software suite integrated with tools such as Node-RED.

Type	Code	CPU	Memory	Power supply	Communications	Módules
eManager Essential						
eManager	[C] D20000.	ARM Cortex A7 Basic	256 MB | 512 MB NAND	85 ... 264 V~	RS232/485 | Ethernet | Wi-Fi	5
eManager GPRS	[C] D20010.	ARM Cortex A7 Basic	256 MB | 512 MB NAND	85 ... 264 V~	RS232/485 | Ethernet | Wi-Fi | GPRS	5
eManager GPRS DC	[C] D20011.	ARM Cortex A7 Basic	256 MB | 512 MB NAND	9...36 Vdc	RS232/485 | Ethernet | Wi-Fi | GPRS	5
eManager Pro	[*] D30000.	ARM Cortex A7 Pro	512 MB | 8 GB eMMC	85 ... 264 V~	RS232/485 | Ethernet | Wi-Fi	5
eManager Pro (DC)	[*] D30001.	ARM Cortex A7 Pro	512 MB | 8 GB eMMC	9...36 Vdc	RS232/485 | Ethernet | Wi-Fi	5
eManager Pro GPRS	[*] D30010.	ARM Cortex A7 Pro	512 MB | 8 GB eMMC	85 ... 264 V~	RS232/485 | Ethernet | Wi-Fi | GPRS	5
eManager Pro 4G	[*] D30020.	ARM Cortex A7 Pro	512 MB | 8 GB eMMC	85 ... 264 V~	RS232/485 | Ethernet | Wi-Fi | 4G EMEA	5
eManager Pro 4G SC	[C] D3002000C0000	ARM Cortex A7 Pro	512 MB | 8 GB eMMC	85 ... 264 V~	RS232/485 | Ethernet | Wi-Fi | 4G EMEA	7
eManager Pro 4G (LATAM/AUX)	[C] D30030.	ARM Cortex A7 Pro	512 MB | 8 GB eMMC	85 ... 264 V~	RS232/485 | Ethernet | Wi-Fi | 4G LATAM,AUS,NZ	5

eManager ActIO, IoT programmable controllers with digital, analog inputs and relays

› Industrial IoT controller, modular and flexible with embedded Linux Yocto.
› Wi-Fi, Ethernet and RS-232/485 communications. (default)
› Expansion module support for GPRS and 4G communications.
› Possibility of incorporating I/O modules.
› Optional current measurement module .../1A.
› Software suite integrated with tools such as Node-RED.

Type	Code	CPU	Memory	Power supply	Commu-nications	Relay output	Digital inputs	Analogue Input	Temp Probe.	Módules
eManager ActIO										
eManager ACTIO 1072	[C] D201000012000	ARM Cortex A7 Basic	256 MB | 512 MB NAND	85 ... 264 V~	RS232/485 | Ethernet | Wi-Fi	2 (6 A)	10	7	-	7
eManager Pro ACTIO 1072	[C] D301000012000	ARM Cortex A7 Pro	512 MB | 8 GB eMMC	85 ... 264 V~	RS232/485 | Ethernet | Wi-Fi	2 (6 A)	10	7	-	7
eManager Pro GPRS ACTIO 1072	[*] D301100012000	ARM Cortex A7 Pro	512 MB | 8 GB eMMC	85 ... 264 V~	RS232/485 | Ethernet | Wi-Fi | GPRS	2 (6 A)	10	7	-	7
eManager Pro GPRS ACTIO 80	[C] D301100030000	ARM Cortex A7 Pro	512 MB | 8 GB eMMC	85 ... 264 V~	RS232/485 | Ethernet | Wi-Fi | GPRS	8 (2 A)	-	-	-	6
eManager Pro 4G ACTIO 1072	[*] D301200012000	ARM Cortex A7 Pro	512 MB | 8 GB eMMC	85 ... 264 V~	RS232/485 | Ethernet | Wi-Fi | 4G EMEA	2 (6 A)	10	7	-	7
eManager Pro 4G ACTIO 221	[C] D301200060000	ARM Cortex A7 Pro	512 MB | 8 GB eMMC	85 ... 264 V~	RS232/485 | Ethernet | Wi-Fi | 4G EMEA	1 (6 A)	2	-	2	6
eManager ActIO Energy										
eManager Pro 4G ActIO 22172 Energy	[*] D303200026700	ARM Cortex A7 Pro	512 MB | 8 GB eMMC	85 ... 264 V~	RS232/485 | Ethernet | Wi-Fi | 4G EMEA	3 (6 A)	2	7	2	9

Click on the product code for more information.

eManager 2 Essential A53, 2nd generation programmable IoT controllers

- Industrial, modular and flexible Edge Computer with embedded Yocto Linux.
- Advanced security with built-in TPM 2.0.
- Wi-Fi, Ethernet, RS232/485 and CAN BUS FD communications. (default)
- Compatibility with expansion modules for NB-IoT&LTE-M, 4G and LoRaWAN BS communications.
- Software suite integrated with tools such as Node-RED.

Type	Code	CPU	Memory	Power supply	Communications	Módules
eManager 2 Essential						
eManager 2	[*] D20400.	ARM Cortex A53 Basic	1 GB | 8 GB eMMC	85 ... 264 V~	RS232/485 | CAN BUS | Ethernet | Wi-Fi	3
eManager 2 (DC)	[*] D20401.	ARM Cortex A53 Basic	1 GB | 8 GB eMMC	9...36 Vdc	RS232/485 | CAN BUS | Ethernet | Wi-Fi	3
eManager 2 NB-IoT & LTE-M	[*] D20440.	ARM Cortex A53 Basic	1 GB | 8 GB eMMC	85 ... 264 V~	RS232/485 | CAN BUS | Ethernet | Wi-Fi | NB-IoT & LTE-M	4
eManager 2 4G	[*] D20450.	ARM Cortex A53 Basic	1 GB | 8 GB eMMC	85 ... 264 V~	RS232/485 | CAN BUS | Ethernet | Wi-Fi | 4G	4
eManager 2 Pro	[*] D30400.	ARM Cortex A53 Pro	4 GB | 16 GB eMMC	85 ... 264 V~	RS232/485 | CAN BUS | Ethernet | Wi-Fi	3
eManager 2 Pro Dual Ethernet	[*] D3040000G0000	ARM Cortex A53 Pro	4 GB | 16 GB eMMC	85 ... 264 V~	RS232/485 | CAN BUS | Ethernet x2 | Wi-Fi	4
eManager 2 Pro 4G	[*] D30450.	ARM Cortex A53 Pro	4 GB | 16 GB eMMC	85 ... 264 V~	RS232/485 | CAN BUS | Ethernet | Wi-Fi | 4G	4
eManager 2 Pro 4G LoRaWAN BS	[*] D3045000H0000	ARM Cortex A53 Pro	4 GB | 16 GB eMMC	85 ... 264 V~	RS232/485 | CAN BUS | Ethernet | Wi-Fi | 4G | LoRaWAN	5

eManager 2 ActIO A53, 2nd generation IoT programmable controllers with digital, analog inputs and relays

- Industrial, modular and flexible Edge Computer with embedded Yocto Linux.
- Advanced security with built-in TPM 2.0.
- Wi-Fi, Ethernet, RS232/485 and CAN BUS FD communications. (default)
- Compatibility with expansion modules for NB-IoT&LTE-M, 4G and LoRaWAN BS communications.
- Expandable through a wide range of I/O expansion modules.
- Optional current measurement module, .../5A, .../1A and .../250 mA.
- Software suite integrated with tools such as Node-RED.

Power supply 90...264 Vac / 90...264 Vdc

Type	Code	CPU	Memory	Commu-nications	System	Relay output	Digital inputs	Analogue Input	Temp Probe.	Módules
eManager 2 ActIO										
eManager 2 4G ActIO 3212	[*] D2055000E0000	ARM Cortex A53 Basic	1 GB | 8 GB eMMC	RS232/485 | CAN BUS | Ethernet | Wi-Fi | 4G	-	2 (5A)	3	2	1	5
eManager 2 ActIO Energy										
eManager 2 Pro 4G ActIO 3212 Energy SC	[*] D3075000CEF00	ARM Cortex A53 Pro	4 GB | 16 GB eMMC	RS232/485 | CAN BUS | Ethernet | Wi-Fi | 4G	1 xThree-phase / 3 xSingle-phase	2 (5A)	3	2	1	7

ESP32 edge controllers

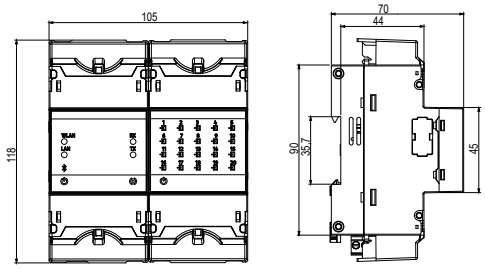
eCore Essential, ESP32 controllers

› IoT controller based on ESP32 technology and FreeRTOS operating system.
› Wi-Fi, Ethernet and RS-232/485 communications. (default)
› Expansion module support for GPRS communications.
› Possibility of incorporating I/O modules.
› Optional current measurement module .../1A and .../250mA.
› Native integration of Modbus RTU/TCP and MQTT protocols.

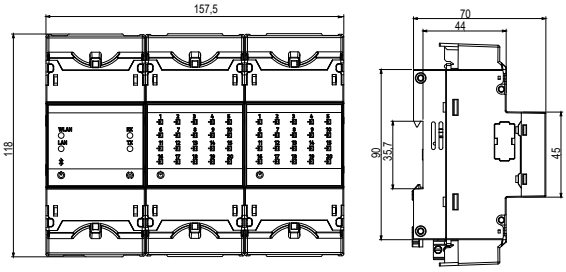
Type	Code	CPU	Memory	Power supply	Communi-cations	Relay output	Digital inputs	Analogue Input	Módules
eCore Essential									
eCore	[*] D10000.	ESP32 Dual-core 32-bit 240 MHz	8 MB | 16 MB	85 ... 264 V~	RS232/485 | Ethernet | Wi-Fi	-	-	-	4
eCore GPRS	[c] D10010.	ESP32 Dual-core 32-bit 240 MHz	8 MB | 16 MB	85 ... 264 V~	RS232/485 | Ethernet | Wi-Fi | GPRS	-	-	-	5
eCore Energy									
eCore GPRS Energy	[c] D102100090000	ESP32 Dual-core 32-bit 240 MHz	8 MB | 16 MB	85 ... 264 V~	RS232/485 | Ethernet | Wi-Fi | GPRS	-	-	-	7
eCore ActIO Energy									
eCore ActIO 22172 Energy	[*] D103000026700	ESP32 Dual-core 32-bit 240 MHz	8 MB | 16 MB	85 ... 264 V~	RS232/485 | Ethernet | Wi-Fi	3 (6 A)	2	7	8

Dimensions

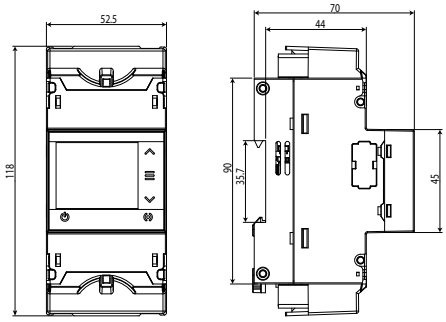
Kit Line-TCPRS1/M-20



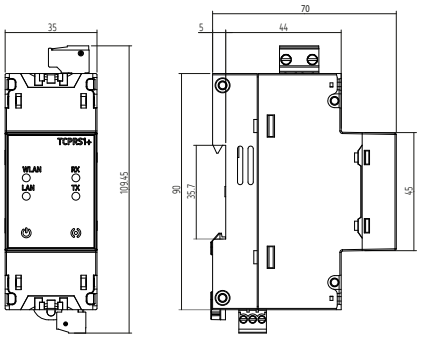
Kit Line-TCPRS1/2xM-20



Line-EDS, line-CVM-D32, line-M, Line-TCPRS1



TCPRS1+



Metering

Multifunction electrical energy meters

PRIME Remote Management

Power Distribution Edge Management

Advanced low voltage monitoring

Partial consumption energy meters

Click on the product code for more information.

Multifunction electrical energy meters

Table: multi-function electrical energy meters Selection

		B502	B505	B410T	B410D
					
Connection	4 wires Direct	–	–	–	●
	3/4 wires Indirect	●	●	●	–
Measurement	4 Quadrants	●	●	●	●
Voltage	3x63,5/110 V_{ca}	ST	ST	ST	–
	3x127/220 V_{ca}	–	–	–	ST
	3x230/400 V_{ca}	ST	ST	ST	ST
	3x57/100 Vca ...3x230/400 V_{ca}	–	ST	ST	–
Frequency	50 Hz	ST	ST	ST	ST
	60 Hz	ST	ST	ST	ST
Comunications	RS-232/RS-485	ST	ST	ST	ST
	RS-232/Ethernet	ST	ST	ST	ST
	RS-485/Ethernet	ST	ST	ST	ST
Auxiliary Cards	Auxiliary power 24 ... 48 Vdc*	OP	OP	OP	–
	6 digital outputs, 250 AC/DC, 100 mA	OP	OP	OP	OP
	4 outputs (300 V C/DC and 100 mA) and 2 digital inputs (12 V and 11 mA)	OP	OP	OP	OP
	OP - Optional / T - According to type				

* The auxiliary power card is not compatible with meters with an ethernet port

CIRWATT B 502, Indirect three-phase meter, recorder, and multi-tariff device, classified as Class 0.2s as per IEC-62053-22 for active energy

- MID and IEC certification
- Active Energy and Reactive Energy
- IEC 870-5-102 and Modbus protocol
- 12 billing closings (1 data year)
- Hourly curve (166 days) and quarter-hourly curve (41 days)
- Optical port + 2 communication ports (user and power company)
- Sealable

Type	Code	Class (Active/ Reactive)	Quadrants	Measurement Range (V)	Measurement Range (A)	Freq. (Hz)	Communications
CIRWATT B 502							
402-MT5A-A0B10	[1] QBP1B	0.2S/0.5	4	3x63,5/110	.../5	50	RS-232 | Ethernet
402-MT5A-90B10	[1] QBP1A	0.2S/0.5	4	3x63,5/110	.../5	50	RS-232 | RS-485
402-MT5A-C0B10	[1] QBP1R	0.2S/0.5	4	3x63,5/110	.../5	50	RS-485 | Ethernet
CIRWATT B 505							
405-MT5A-90B10	[1] QBP1E	C (0,5S)/1	4	3x63,5/110	.../5	50	RS-232 | RS-485
405-MT5A-A0B10	[1] QBP1F	C (0,5S)/1	4	3x63,5/110	.../5	50	RS-232 | Ethernet
405-MT5A-C0B10	[1] QBP1K	C (0,5S)/1	4	3x63,5/110	.../5	50	RS-485 | Ethernet
405-VT5A-90B10	[2] QBK10	C (0,5S)/1	4	3x57/100 ... 3x230/400	.../5	50	RS-232 | RS-485
405-VT5A-A0B10	[1] QBK20	C (0,5S)/1	4	3x57/100 ... 3x230/400	.../5	50	RS-232 | Ethernet
405-VT5A-C0B10	[2] QBK30	C (0,5S)/1	4	3x57/100 ... 3x230/400	.../5	50	RS-485 | Ethernet
CIRWATT B 410T							
410-QT5A-90B10	[1] QB870	B (1) / 2	4	3x230/400	.../5	50	RS-232 | RS-485
410-QT5A-A0B10	[1] QB880	B (1) / 2	4	3x230/400	.../5	50	RS-232 | Ethernet
410-QT5A-C0B10	[1] QB890	B (1) / 2	4	3x230/400	.../5	50	RS-485 | Ethernet
410-MT5A-90B10	[1] QBH30	B (1) / 2	4	3x63,5/110	.../5	50	RS-232 | RS-485
410-MT5A-A0B10	[1] QBH40	B (1) / 2	4	3x63,5/110	.../5	50	RS-232 | Ethernet
410-MT5A-C0B10	[1] QBH50	B (1) / 2	4	3x63,5/110	.../5	50	RS-485 | Ethernet
410-VT5A-90B10	[1] QBJ10	B (1) / 2	4	3x57/100 ... 3x230/400	.../5	50	RS-232 | RS-485
410-VT5A-A0B10	[1] QBJ20	B (1) / 2	4	3x57/100 ... 3x230/400	.../5	50	RS-232 | Ethernet
410-VT5A-C0B10	[2] QBJ30	B (1) / 2	4	3x57/100 ... 3x230/400	.../5	50	RS-485| Ethernet
CIRWATT B 410D							
410-QD1A-90B10	[1] QB4B0	B (1) / 2	4	3x230/400	10 (100)	50	RS-232 | RS-485
410-QD1A-A0B10	[1] QB4C0	B (1) / 2	4	3x230/400	10 (100)	50	RS-232 | Ethernet
410-QD1A-C0B10	[1] QB4D0	B (1) / 2	4	3x230/400	10 (100)	50	RS-485 | Ethernet
410-ND1A-90B10	[1] QB7B0	B (1) / 2	4	3x127/220	10 (100)	50	RS-232 | RS-485
410-ND1A-A0B10	[1] QB7C0	B (1) / 2	4	3x127/220	10 (100)	50	RS-232 | Ethernet
410-ND1A-C0B10	[1] QB7D0	B (1) / 2	4	3x127/220	10 (100)	50	RS-485 | Ethernet

6	
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Accessories

LOC, CIRWATT optical reader

Type	Code	Description
Loc-USB	[*] Q30302.	CIRWATT optical reader with USB port

ReadWatt, Impulse collection with communication

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

Router 4G, Router 4G with Ethernet communications

Type	Code	Description
Router 4G/LTE Wifi	[*] Q30235.	4G/Wifi router with 2 ethernet ports and 2 inputs or outputs (includes PS + antenna + cable)
Router 4G/LTE/RS232/RS485	[C] Q30237.	Router with 4G/WI-Fi, 1 Ethernet ports, 1 RS-232, port, 1 RS-485 port (includes PS + antenna + cable + DIN rail accessories)
ANTENA	[C] Q4994E.	9 dB gain amplifier antenna

Current transformers

kit3-TRMC210 Kit of 3 current transformers for energy meters, primary winding

Type	kit3-TRMC210			kit3-TRMC210-05			kit3-TRMC210.2		
	Size (mm) width xheight xdepth 145x110x86								
A	Class	VA	Code	Class	VA	Code	Class	VA	Code
100/5	0.5S	10	[3] Q309010000001	0.5	10	[3] Q309610000001	0.5S	2,5	[3] Q309810000001
150/5	0.5S	10	[3] Q309020000001	0.5	10	[3] Q309620000001	0.5S	2,5	[3] Q309820000001
200/5	0.5S	10	[3] Q309030000001	0.5	10	[3] Q309630000001	0.5S	2,5	[3] Q309830000001
300/5	0.5S	10	[3] Q309040000001	0.5	10	[3] Q309640000001	0.5S	2,5	[3] Q309840000001
400/5	0.5S	10	[3] Q309050000001	0.5	10	[3] Q309650000001	0.5S	2,5	[3] Q309850000001
500/5	0.5S	10	[3] Q309060000001	0.5	10	[3] Q309660000001	0.5S	2,5	[3] Q309860000001
600/5	0.5S	10	[3] Q309070000001	0.5	10	[3] Q309670000001	0.5S	2,5	[3] Q309870000001

Check availability.../1 A

kit3-TRMC400 Sets of 3 current transformers for energy meters

Type	kit3-TRMC400			kit3-TRMC400-05			kit3-TRMC400.2		
	Size (mm) width xheight xdepth 99x160x68								
Flat strip(mm)	100x20 mm								
A	Class	VA	Code	Class	VA	Code	Class	VA	Code
750/5	0.5S	10	[3] Q309110000001	0.5	10	[3] Q309710000001	0.5S	2,5	[3] Q309A10000001
1000/5	0.5S	10	[3] Q309120000001	0.5	10	[3] Q309720000001	0.5S	2,5	[3] Q309A20000001
1500/5	0.5S	10	[3] Q309130000001	0.5	10	[3] Q309730000001	0.5S	2,5	[3] Q309A30000001
2000/5	0.5S	10	[3] Q309140000001	0.5	10	[3] Q309740000001	0.5S	2,5	[3] Q309A40000001
3000/5							0.5S	2,5	[3] Q309A60000001

Check availability.../1 A

TRMCx3, Current transformers for energy meters

Type	Code	Measurement Range (A)	Class 0,5S Power (VA)	Usefull diam.(mm)	Cable (m)
Outdoor					
TRMC-X3 100/5 Ext	[C] Q301T1010E000	100/5	2.5	38	7
TRMC-X3 200/5 Ext	[C] Q301T2010E000	200/5	2.5	38	7
TRMC-X3 300/5-Ext	[C] Q301T3010E000	300/5	2.5	38	7
TRMC-X3 400/5 Ext	[C] Q301T4010E000	400/5	2.5	38	7

Click on the product code for more information.

PRIME Remote Management

GEDE EDC, PRIME PLC Concentrator

- Compatible with PRIME 1.3.6 and PRIME 1.4 counters
- 8 eligible channels working up to 500 kHz
- Identification of meters per phase in PRIME 1.4
- Programmable automatic reports
- Configurable STG version (4.0, 3.4 or 3.1.c)
- Master/Slave architecture for PRIME 1.3.6 to PRIME 1.4 transition
- Multiple models (totalizer, double...)

Type	Code	Digital inputs	Communications	LV supervisor	2° transformer connection	Size (mm) width x height x depth
GEDE EDC	[3] Q67000.	-	PRIME	No	-	127x120x130
GEDE EDC-T 4I	[3] Q67540.	4	PRIME	1	-	203x120x130
GEDE EDC-T 4I4O	[3] Q675A0.	4	PRIME	1	-	203x120x130
GEDE EDC-T	[*] Q67500.	-	PRIME	1	-	165x120x130
GEDE EDC-2T	[3] Q67570.	-	PRIME	1	●	279x120x130
GEDE EDC TGU	[3] Q67080.	-	PRIME	1	-	216x132x135

Type	Code	Description
CIRWATT Repeater	[C] QM4011.	Three-phase repeater to amplify the PLC system of the PRIME system (3 x 127/200 ... 3 x 230/ 400 V)

Power Distribution Edge Management

GEDE -RTU, Low voltage manager

- Transformer station monitoring functions with quality supply
- Analytics and prediction of behaviors
- Rest API
- Integrated into remote control systems
- Modular system in factory
- Compatibility with SCADAs, Remote Management Systems (STGs) and digital twins on the market
- Applications and services are available in docker format

Type	Code	Description
GEDE RTU	[2] Q61000.	Low voltage manager
GEDE TST CURRENT LEAKAGE	[2] Q63100.	Leakage Current Monitoring Cards
GEDE TST EARTH VOLTAGE	[2] Q63200.	Neutral voltage monitoring boards
GEDE TSL	[2] Q62300.	Line supervisor card
GEDE PSU	[2] Q64000.	Power supply for GEDE TSL

Advanced low voltage monitoring

R-SABT, Advanced Low-voltage Remote Monitoring

Type	Code	Description
Advanced Low-voltage Remote Monitoring		
R-SABT	[C] Q46300.	Advanced low voltage remote monitoring
Exit Kits		
Kit CAP JNM_PNZ 400A	[1] Q32803.	Low voltage sensor kit for 400A three-pole base, Jean Müller/Pinazo + T-SABT
Kit CAP PRO_ORM 400A	[1] Q32802.	Low voltage sensor kit for 400A three-pole base, Pronutec/Ormazabal + T-SABT
Kit CAP CDY 400A	[1] Q32801.	Low voltage sensor kit for 400A three-pole base, Crady + T-SABT
Kit TQ	[1] Q32810.	Split core current transformer kit, push-button opening, 3x400/1A + T-SABT
Kit Rogowski	[1] Q32820.	100 mV/kA Rogowski clamp kit, 25 cm long, 3 metre cable + T-SABT Flex
Advanced Monitoring Accessories		
VTN	[1] Q32200.	Neutral to earth voltage monitor
EXT-NEUTRO	[1] Q32103.	Neutral extension plate

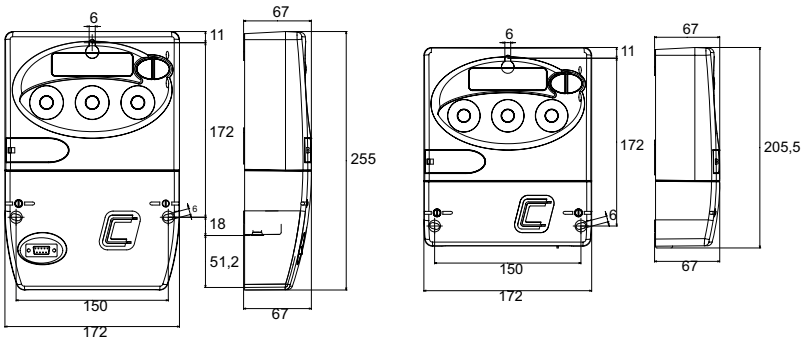
CMBT-SABT, Advanced low-voltage monitoring cabinets

Type	Code	Device	Surge Protection (SPD)	Cabinet	Communications	Size (mm) width x height x depth
Indoor						
CMBT-SABT-INT-1	[C] Q5WGC0.	1 R-SABT	-	Reinforced polyester	Ethernet	360x315x180
CMBT SABT-INT-2	[C] Q5WLJ0.	1 R-SABT | 1 VTN	●	Reinforced polyester	Ethernet	360x315x180
Outdoor						
CMBT-SABT-TP-EXT-1	[C] Q54LL60080100	1 R-SABT | 1 VTN | 1 T-SABT PANEL	●	Reinforced polyester	Ethernet | 4G	600x500x250
CMBT-SABT-TP-EXT-2	[C] Q54LL60080200	1 R-SABT | 1 VTN |2 T-SABT PANEL	●	Reinforced polyester	Ethernet | 4G	600x500x250
CMBT-SABT-TP-EXT-3	[C] Q54LL60080300	1 R-SABT | 1 VTN | 3 T-SABT PANEL	●	Reinforced polyester	Ethernet | 4G	600x500x250

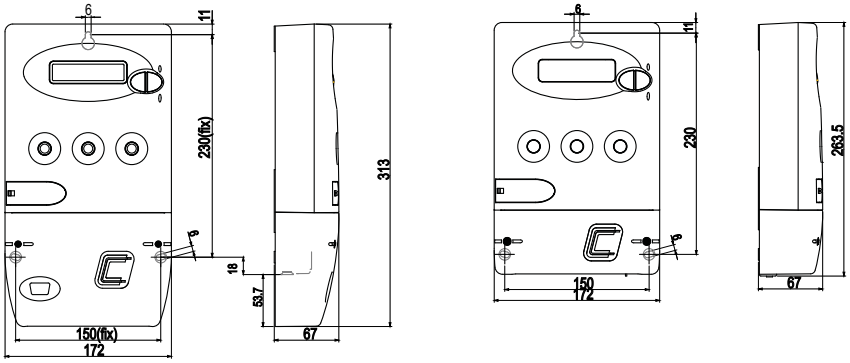
CMBT-SABT-ext requires current transformers that are not included **(3 transformers with .../1 A secundary for each LV output)**

Dimensions

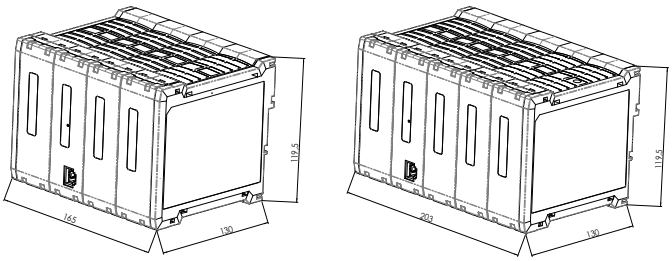
CIRWATT B502 / 505 / 410T / 410D



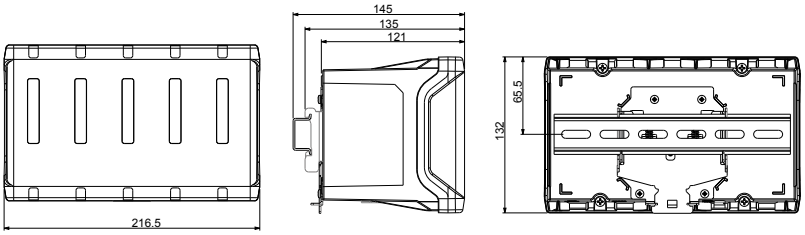
CIRWATT B 410 RCP



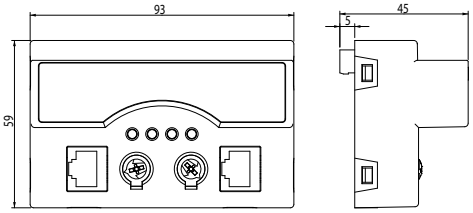
Compact DC + SBT



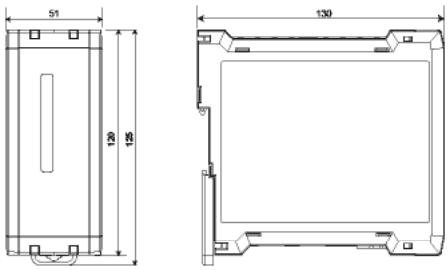
R-SABT



T-SABT



VTN



Partial consumption energy meters

		CEM-C12c	CEM-D210	CEM-D211/D212	CEM-D310	CEM-D311/D312
Mounting	DIN rail (modules)	1	4	4	4	4
	Sealable	●	●	●	●	●
Power supply	CO2 cost and emissions	●	●	●	●	●
Network Type	Three-phase 3/4 wires	—	●	●	●	●
	Single-phase	●	—	—	—	—
Voltage measurement	Certificate (IEC 62052)	230 V_{f-n}	127/220.... 230/400 V	127/220.... 230/400 V	127/220.... 230/400 V	127/220.... 230/400 V
Current measurement	Direct	● (100A)	● (100A)	● (100A)	—	—
	.../5 A	—	—	—	● (MID/IEC)	● (MID/IEC)
	.../1 A	—	—	—	● (IEC)	● (IEC)
Electric parameters	Quadrants	4	4	4	4	4
	Active energy (kWh) IEC 62053-21	● (B/1)	● (B/1)	● (B/1)	● (B/1)	● (B/1)
	Reactive energy (kvarh) IEC 62053-23	● (2)	● (2)	● (2)	● (2)	● (2)
	V, A, W, Hz,FP	●	●	●	●	●
Communications	RS-485	●	—	● (ST)	—	● (ST)
Protocols	Modbus RTU	●	—	● (ST)	—	● (ST)
	M-Bus	—	—	● (ST)	—	● (ST)
Entradas/Salidas	Digital inputs	—	—	● 2	—	● 2
	Digital outputs	—	● 1	—	● 1	—
Additional features	Working time	—	●	●	●	●
	CO2 cost and emissions	—	●	●	●	●
	Tariffs (via Modbus)	—	—	● 4		● 4
Standards	MID Certificate (EN 50470)	● (ST)	● (ST)	● (ST)	● (ST)	● (ST)
	IEC Certificate (IEC 62052)	● (ST)	● (ST)	● (ST)	● (ST)	● (ST)

ST- According to Type / OP - Optional

Click on the product code for more information.

CEM-C12c, Single-phase direct energy meter with basic analyser parameters

- Direct measurement up to 100A with network analyzer function
- Self-powered and sealable
- Class B/1 in active energy
- Class 2 in reactive energy
- RS-485 (Modbus RTU)
- MID or IEC certification

Notable for:
Reduced space

Type	Code	Quadrants	Measurement Range (V)	Measurement Range (A)	Freq. (Hz)	Tariff	Certification	Módules	Communications	Protocol
CEM-C12c	[*] Q27211.	4	1 x 230	5 (100) A	50/60	1	IEC	1	RS-485	Modbus/RTU
CEM-C12c	[C] Q272110020000	4	1 x 127	5 (100) A	60 Hz.	1	IEC	1	RS-485	Modbus/RTU
CEM-C12c-MID	[*] Q27212.	4	1 x 230	0.25 ... 5 (100) A	50/60	1	MID	1	RS-485	Modbus/RTU

Parameters: V, A, kW, kVA, kWh, cos phi

CEM-D200, Three-phase direct meter up to 100A

NEW

- Direct measurement up to 100A with power analyzer function
- Self-powered and sealable
- Class B/1 in active energy and Class 2 in reactive energy
- Pulse output (depending on version)
- Inputs for fare change, pulse counting or status management (depending on version)
- RS-485 (Modbus RTU) or MBUS
- MID or IEC certification

Notable for:
For power outputs up to 69 kW, 400 V

Type	Code	Measurement Range (V)	Measurement Range (A)	Transistor output	Digital inputs	Certification	Módules	Communications	Protocol
Direct three-phase									
CEM-D210	[*] Q22601.	3x127(230)...3x230(400)V	(5) 100A	1	-	IEC	4	-	-
CEM-D210 -MID	[*] Q22602.	3x127(230)...3x230(400)V	(5) 100A	1	-	MID	4	-	-
CEM-D211	[*] Q22611.	3x127(230)...3x230(400)V	(5) 100A	-	2	IEC	4	RS-485	Modbus/RTU
CEM-D211 -MID	[*] Q22612.	3x127(230)...3x230(400)V	(5) 100A	-	2	MID	4	RS-485	Modbus/RTU
CEM-D212	[*] Q22621.	3x127(230)...3x230(400)V	(5) 100A	-	2	IEC	4	-	MBUS
CEM-D212 -MID	[*] Q22622.	3x127(230)...3x230(400)V	(5) 100A	-	2	MID	4	-	MBUS

CEM-D300, Three-phase indirect meter

NEW

- Indirect measurement .../5 A or .../1 A with power analyzer function
- Self-powered and sealable
- Class B/1 in active energy and Class 2 in reactive energy
- Pulse output (depending on version)
- Inputs for fare change, pulse counting or status management (depending on version)
- RS-485 (Modbus RTU) or MBUS
- MID or IEC certification

Notable for:
For power outputs above 69 kW, 400 V

Type	Code	Measurement Range (V)	Measurement Range (A)	Transistor output	Digital inputs	Certification	Módules	Communications	Protocol
Indirect three-phase									
CEM-D310	[*] Q23601.	3x127(230)...3x230(400)V	.../5A o .../1A	1	-	IEC	4	-	-
CEM-D310 -MID	[*] Q23602.	3x127(230)...3x230(400)V	.../5A o .../1A	1	-	MID	4	-	-
CEM-D311	[*] Q23611.	3x127(230)...3x230(400)V	.../5A o .../1A	-	2	IEC	4	RS-485	Modbus/RTU
CEM-D311 -MID	[*] Q23612.	3x127(230)...3x230(400)V	.../5A o .../1A	-	2	MID	4	RS-485	Modbus/RTU
CEM-D312	[*] Q23621.	3x127(230)...3x230(400)V	.../5A o .../1A	-	2	IEC	4	-	MBUS
CEM-D312 -MID	[*] Q23622.	3x127(230)...3x230(400)V	.../5A o .../1A	-	2	MID	4	-	MBUS

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

Converters and gateways

Type	Code	Description
RS		
RS2RS	[*] D80310.	RS-232/RS-485 converter and amplifier (RTS control) for PC.
USB		
USB-RS 485	[*] D80320.	USB to RS-485 Converter
M-BUS		
CMBUS-8	[*] D80208.	CMBUS-8, M-Bus to Modbus RTU converter, up to 8 M-Bus slaves.
LoRa		
Bridge LR PSAC	[*] D80110.	LoRa to RS-485 Converter (Modbus/RTU) . AC power supply (110...264 Vac)
Bridge LR PSDC	[*] D80111.	LoRa to RS-485 Converter (Modbus/RTU) . DC power supply (9 ... 36 Vdc)
Ethernet		
TCPRS1+	[*] D80010.	TCPRS1+, Modbus RTU (RS-485) to Modbus TCP/IP (Ethernet/Wi-Fi) conversion gateway. Integrated web server and mobile app (MyConfig) for configuration, with AC power supply.
TCPRS1+PSDC	[*] D80011.	TCPRS1+PSDC, Modbus RTU (RS-485) to Modbus TCP/IP (Ethernet/Wi-Fi) conversion gateway. Integrated web server and mobile app (MyConfig) for configuration, with DC power supply.

PowerStudio Universe, Energy management software

- Scalable On-premise software
- Real-time monitoring and control
- Display of SCADA screens and dashboards
- Process automation, alarms and notifications
- Generation and sending of customized reports
- Interoperability: OPC-UA, SQL, XML and Modbus.
- End-to-end encrypted data

Type	Code	Description
SCADA software		
PowerStudio SCADA Basic	[*] W20100.	SCADA software for monitoring, control and analysis of installations, with CIRCUTOR devices and third-party Modbus equipment. Up to 25 devices
PowerStudio SCADA Pro	[*] W20110.	SCADA software for monitoring, control and analysis of installations, with CIRCUTOR devices and third-party Modbus equipment. Up to 50 devices
PowerStudio SCADA Ultimate	[*] W20120.	SCADA software for monitoring, control and analysis of installations, with CIRCUTOR devices and third-party Modbus equipment. Up to 500 devices.
PowerStudio SCADA Enterprise	[*] W20130.	SCADA software for monitoring, control and analysis of installations, with CIRCUTOR devices and third-party Modbus equipment. More than 500 devices.
OPC UA Server	[*] W20200.	Allows to configure an OPC UA server in PowerStudio for any SCADA with OPC UA client to integrate the desired parameters.

Upgrade-PowerStudio, PowerStudio SCADA License Upgrade

Type	Code	Description
Licence update		
PSSBasic-to-PSSPro	[C] W20111.	Upgrading from PowerStudio SCADA Basic to PowerStudio SCADA Pro
PSSBasic-to-PSSUltimate	[C] W20121.	Upgrading from PowerStudio SCADA Basic to PowerStudio SCADA Ultimate
PSSBasic-to-PSSEnterprise	[C] W20131.	Upgrading from PowerStudio SCADA Basic to PowerStudio SCADA Enterprise
PSSPro-to-PSSUltimate	[C] W20122.	Upgrading from PowerStudio SCADA Pro to PowerStudio SCADA Ultimate
PSSPro-to-PSSEnterprise	[C] W20132.	Upgrading from PowerStudio SCADA Pro to PowerStudio SCADA Enterprise
PSSUltimate-to-PSSEnterprise	[C] W20133.	Upgrading from PowerStudio SCADA Ultimate to PowerStudio SCADA Enterprise

Digital Link Scout, Cloud-Scout software

Scout
Digital Link

- Automatic network quality reports: EN 50160, IEC 61000-4-30, Grid Code and energy audits.
- Power quality monitoring: harmonics, ITIC curve and waveforms.
- Alerts and notifications: Receive mobile alerts of critical events.
- Remote access to computers: configure, update and query metrics via platform or API.
- Multi-site monitoring and open API: centralize data and connect with your systems.

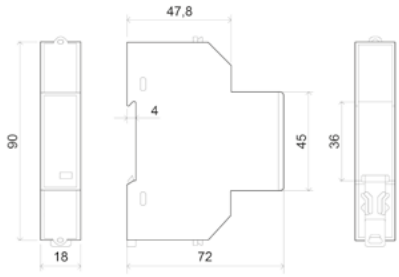
Scout Electrical monitoring and auditing software

Type	Code	Description
Digital Link	[*] W10310.	Module for digitising your equipment
Digital Link SIM VPN EU - Single	[*] W10311.	Digital Link module with SIM configured for secure connection via VPN, European coverage
Digital Link SIM VPN WW - Single	[*] W10312.	Digital Link module with SIM configured for secure connection via VPN, worldwide coverage
Digital Link SIM VPN EU - Multi 5	[*] W10313.	Digital Link module with SIM configured for secure connection via VPN, up to 5 devices, European coverage.
Digital Link SIM VPN EU - Multi 25	[*] W10314.	Digital Link module with SIM configured for secure connection via VPN, up to 25 devices, European coverage.
Digital Link SIM VPN WW - Multi 5	[*] W10315.	Digital Link module with SIM configured for secure connection via VPN, up to 5 devices, worldwide coverage.
Digital Link SIM VPN WW - Multi 25	[*] W10316.	Digital Link module with SIM configured for secure connection via VPN, up to 25 devices, worldwide coverage.

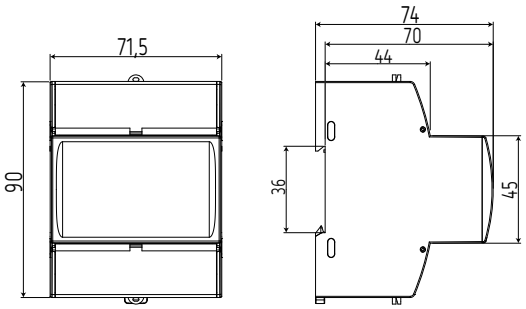
The prices of the modules are for an annual subscription per connected device. Devices compatible with the modules: **QNA 600, CVM-A1600, CVM-B50, CVM-D50, CVM-D4XX, R-SABT, computer C Wi-Fi, Computer SMART III + SmartLink-VAR**. Additionally, via Line-EDS-cloud, any Circutor device with RS-485 or Ethernet and Modbus protocol.

Dimensions

CEM-C12c



CEM-D200 / CEM-D300



Protection and control

Residual current protection

Self-reclosing overcurrent and Residual current protection

Residual current protection for electric vehicles

Protection current transformer

Measuring and testing equipments for substations

Click on the product code for more information.

Residual current protection

Type A transformers and residual current relays

Selection table for Type A devices

	RG1M	RGE-R	WGBU	RGU-2	WRU-10	RGU-10A RGU-100A	CBS-40 CBS-400A
							
Installation type							
Single phase, three-phase, 3 and 4 wires	●	●	●	●	●	●	●
Features / performance							
Ultra-immunized system	●	●	●	●	●	●	●
Monitoring	–	–	–	●	●	●	●
Pre-alarm	–	●	●	●	●	●	●
Remote control	–	–	–	●	●	●	●
Technical characteristics							
Residual current type	A	A	A	A	A	A	A
Measurement channels	1	1	1	1	1	1	4
Fixed current sensitivity	●	–	–	–	–	–	–
Adjustable current sensitivity	–	●	●	●	●	●	●
Fixed delay time	●	–	–	–	–	–	–
Adjustable delay time	–	●	●	●	●	●	●
Built-in current transformer	–	–	35...210	–	28	–	–
External current transformer, WGC Ø 20...500x200 mm	●	●	–	●	–	●	●
Trigger output	●	●	●	●	●	●	●
Pre-alarm output	–	–	–	●	●	●	●
Remote control input	–	–	●	●	●	●	●
RS-485 Communications	–	–	–	–	–	ST	ST
Module size	1	2	-	2	3	3	3

ST - According to type

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

RG1M, Ultraimmunized residual current relays 1 module

› Type A ultra-immunized relay
› Fixed sensitivity at 30mA or 300mA
› Fixed delay at 0.02s
› Requires WGC external transformer

Notable for:
Small space (1 DIN module)

Type	Code	IΔn (A)	N° relays	Delay	Power supply	Módules	Mounting
RG1M - 0,03	[*] P12204.	0,03 A	1	0,02 s	230 Vac	1	DIN rail
RG1M - 0,3	[*] P12214.	0,3 A	1	0,02 s	230 Vac	1	DIN rail

Requires a WGC residual current transformer

RGE-R, Ultraimmunized residual current relay, type A, for WGC transformer, 2 modules with visual prealarm.

› Type A ultra-immunized relay
› Configurable sensitivity by selector
› Configurable delay by selector
› Requires WGC external transformer

Notable for:
Quick installation and configuration

Type	Code	IΔn (A)	N° relays	Delay	Power supply	Módules	Mounting
RGE-RL	[*] P12A32.	0,03 ... 5 A	1	0,02 ... 5 s	230 Vac	2	DIN rail
RGE-R	[*] P122320040000	0,03 ... 5 A	1	0,02 ... 5 s	24...48 Vac | 24...125 Vdc	2	DIN rail

Requires a WGC residual current transformer To encode other parameters, such as the auxiliary power supply voltage, see the table at the end of the section

RGU-2, Ultraimmunized programmable residual current relay, 2 modules with display and static prealarm output

› Type A ultra-immunized relay
› Color LED leakage progress display
› Real-time leak display
› Configurable sensitivity and delays
› Relay for pre-alarm warning
› Requires WGC external transformer

Notable for:
Quick installation and configuration

Type	Code	IΔn (A)	N° relays	Pre-alarm relay	Delay	Power supply	Módules	Mounting
RGU2	[*] P11A61.	0,03 ... 5 A	1	●	0,1 ... 5 s, INS, SEL	120...230 Vac	2	DIN rail

Requires a WGC residual current transformer.

RGU-10, Ultraimmunized residual current relay, type A, for WGC Transformer, 3 modules with display and programmable pre-alarm output.

› Type A ultra-immunized relay
› Color display to show real-time leakage, pre-alarm, and trip
› Configurable sensitivity and delays
› Inputs/outputs for remote control
› RS-485 (Modbus RTU) communications depending on model
› Requires WGC external transformer

Notable for:
Monitoring and contro (Local or Remote)

Type	Code	IΔn (A)	N° relays	Pre-alarm relay	Delay	Commu-nications	Protocol	Power supply	Módules	Mounting
Possibility UL on demand										
RGU-10A	[*] P11A70.	0,03 ...30 A	2	●	0,1... 5 s, INS, SEL	-	-	110 ... 230 Vac	3	DIN rail
RGU-100A	[*] P11A71.	0,03 ...30 A	2	●	0,1... 5 s, INS, SEL	RS-485	Modbus/RTU	110 ... 230 Vac	3	DIN rail

For supply voltages other than 230 Vac, please consult us.

Type	Code	Description
Adap-Panel-D3M	[*] M5ZZF100000E3	Panel adapter CVM-E3-MINI, RGU, CBS (72 x 72)

TABLE OF ADDITIONAL FEATURES

RGU-10A / RGU-100A

P	1	X	X	X	X	0	0	X	
Code						Internal code		↑	Delivery time
Power supply voltage		Standard (230 V_{ac})						0	-
		24...48 $V_{ac/dc}$						1	1

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

Click on the product code for more information.

CBS-40A/400A, Ultraimmunized 4 channels residual current relays, type A, 3 modules with display and a configurable prealarm output.

NEW

- Type A ultra-immunized relay
- 4 independent channels in 3 DIN modules
- Color display to show real-time leakage, pre-alarm, and trip
- Configurable sensitivity and delays
- Inputs/outputs for remote control
- RS-485/Modbus RTU (CBS-400A) communications
- Requires WGC external transformer

Notable for:
Reduced installation space/time

Type	Code	IΔn (A)	N° relays	Pre-alarm relay	Delay	Commu-nications	Protocol	Power supply	Módules	Mounting
CBS-40A	[*] P12A70.	0,03 ... 30 A	4	●	0,1 ... 5 s, INS, SEL	-	-	110 ... 230 V~	3	DIN rail
CBS-400A	[*] P12A71.	0,03 ... 30 A	4	●	0,1 ... 5 s, INS, SEL	RS-485	Modbus/RTU	110 ... 230 V~	3	DIN rail

For supply voltages other than 230 Vac, please consult us.

Associated Transformers

WGC, Residual current transformer

- Compatible with Type A residual current relays
- Currents from 63A to 4000A
- Toroidal protection from 20mm to 500x200mm diameter
- High immunity to transients
- Optimal magnetic flux distribution
- Accessory for DIN rail mounting (PA-TC/WG), depending on model

Notable for:
Compatible with Type A protection relays

Type	Code	Usefull diam.(mm)	In (A)	Cable (m)	weight (kg)
WGC-20-SC	[*] P10181.	20	63	0.5	0,08
WGC-30-SC	[*] P10182.	30	63	0.5	0,09
WGS-20	[*] P10131.	20	63	-	0,06
WGS-30	[*] P10132.	30	63	-	0,10
WGC-25	[*] P10151.	25	63	-	0,08
WGC-35	[*] P10152.	35	80	-	0,11
WGC-55	[*] P10153.	55	160	-	0,17
WGC-80	[*] P10154.	80	250	-	0,29
WGC-110	[*] P10155.	115	400	-	0,41
WGC-140	[*] P10156.	140	600	-	0,68
WGC-180	[*] P10157.	180	800	-	0,91
WGC-220x105	[*] P10158.	220 x 105	1250	-	3,90
WGC-350x150	[*] P10159.	350 x 150	2000	-	6,80
WGC-500x200	[*] P10160.	500 x 200	4000	-	11,00

Type	Code	Description
PA-TC/WG	[*] P19921.	DIN rail mounting accessory for WGC-25, WGC-35 and WGC-55

UL certification for all WGC and WGS models, on demand

TP-WGC, Split-core residual current transformers

- Compatible with Type A residual current relays
- Ideal for installation without interruption of supply
- Currents from 80A to 400A
- Toroidal protection from 80x50 mm to 160x80mm in diameter
- Immune to transients and harmonics

Notable for:
Uninterrupted installation of supply for Type A relays

Type	Code	Usefull diam.(mm)	IΔn (A)	IΔn min.(A)	In (A)	weight (kg)
TP58 WGC	[C] P11121.	80 x 50	acc. relay > 0,3A	0.3	80	0,78
TP88 WGC	[C] P11131.	80 x 80	acc. relay > 0,3A	0.3	125	0,87
TP812 WGC	[C] P11141.	120 x 80	acc. relay > 0,3A	0.3	250	1,06
TP816 WGC	[C] P11151.	160 x 80	acc. relay > 0,3A	0.3	400	2,46

Compatible with Type A relays

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

WRU-10, Ultraimmunized residual current relay, type A, with built-in transformer, ultra-immunised

- Type A ultra-immunized relay
- Integrated leakage measurement toroidal
- Running trigger mark with red background for quick detection
- Configurable sensitivity and delays
- Inputs/outputs for remote control

Notable for:
Integrated residual current transformer

Programmable residual current relay, 3 modules with display and two configurable pre-alarm outputs. 230 Vac Auxiliary power supply

Type	Code	Usefull diam.(mm)	IΔn (A)	N° relays	Pre-alarm relay	Delay	Nr. reclo-sures	Power supply	Módules	Mounting
WRU-10	[*] P14035.	28	0,03 ...30 A	1	●	0,02 ... 10 s, INS, SEL	-	230 Vac	3	DIN rail
WRU-10-HS	[4] P14036.	28	0,01 ... 0,5 A	1	●	0,02 ... 10 s, INS, SEL	30	230 Vac	3	DIN rail

To encode other parameters, such as the auxiliary power supply voltage, see the table at the end of the section.

WGBU, Transformer with built-in residual current relay, type A ultraimmunized

- Type A ultra-immunized system with integrated transformer
- Configurable sensitivity and delays
- Diameter from 35mm to 210mm
- Has inputs/outputs for remote control
- Visual pre-alarm LED

Notable for:
Integrated residual current transformer

Configurable residual current relay with visual pre-alarm. 230 Vac Auxiliary power supply

Type	Code	Usefull diam.(mm)	IΔn (A)	N° relays	Delay	Mounting
WGBU-35	[*] P16011.	35	0,03 ... 3 A	1	0,02...1 s	Panel background
WGBU-70	[*] P16012.	70	0,03 ... 3 A	1	0,02...1 s	Panel background
WGBU-105	[*] P16013.	105	0,03 ... 3 A	1	0,02...1 s	Panel background
WGBU-140	[3] P16014.	140	0,03 ... 3 A	1	0,02...1 s	Panel background
WGBU-210	[3] P16015.	210	0,03 ... 3 A	1	0,02...1 s	Panel background
Relay mounted at 90°. It allows to reduce the mounting space						
WGBU-90-35	[*] P16021.	35	0,03 ... 3 A	1	0,02...1 s	Panel background
WGBU-90-70	[*] P16022.	70	0,03 ... 3 A	1	0,02...1 s	Panel background
WGBU-90-105	[*] P16023.	105	0,03 ... 3 A	1	0,02...1 s	Panel background
WGBU-90-140	[*] P16024.	140	0,03 ... 3 A	1	0,02...1 s	Panel background
WGBU-90-210	[3] P16025.	210	0,03 ... 3 A	1	0,02...1 s	Panel background

TABLE OF ADDITIONAL FEATURES

WRU-10

P	1	X	X	X	X	0	0	X	
Code						Internal code		↑	Delivery time
Power supply voltage			Standard (230 V_{ac})					0	-
			110 V_{ac}					1	1

Click on the product code for more information.

Type B transformers and residual current relays

Selection table for Type B devices

	IDB-4	WGB-35-TB	RGU-10B	RGU-110B	RGU-100B	CBS-400B
						
Installation type						
Single phase, three-phase, 3 and 4 wires	●	●	●	●	●	●
Features / performance						
Monitoring	–	–	●	●	●	●
Pre-alarm	–	–	●	●	●	●
Remote control	–	●	●	●	●	●
Technical characteristics						
Residual current type	B	B	B	B	B	B
Measurement channels	1	1	1	1	1	4
Fixed current sensitivity	●	●	–	–	–	–
Adjustable current sensitivity	–	–	●	●	●	●
Fixed delay time	●	●	–	–	–	–
Adjustable delay time	–	–	●	●	●	●
Built-in current transformer	●	35	–	–	–	–
External current transformer, WGC-TB or WGB	–	–	WGC-TB	WGC-TB	WGB	WGB
Trigger output	–	●	●	●	●	●
Pre-alarm output	–	–	●	●	●	●
Remote control input	–	–	●	●	●	●
RS-485 Communications	–	–	–	●	●	●
Module size	4	-	3	3	3	3

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

RGU-10B, Residual current relay, type B

› Type B protection (loads with AC/DC conversion)
› Display with red background to indicate tripping
› Configurable sensitivity and delays
› Inputs/outputs for remote control
› Requires WGC-TB external transformer

Notable for:
Uses passive transformer up to 800A

Programmable residual current relay, 3 modules with display and configurable pre-alarm output.

Type	Code	IΔn (A)	N° relays	Pre-alarm relay	Delay	Power supply	Módules	Mounting
RGU-10B	[*] P11951.	0,1...3 A	1	●	0,1 ... 10 s	230 Vac	3	DIN rail

Requires an residual current transformer, WGC-TB type. See coding table for other options.

RGU-110B, Residual current relay, type B

› Type B protection (AC/DC conversion loads)
› Real-time leakage and tripping level display
› Leak monitoring in AC, DC and total AC+DC
› Configurable sensitivity and delays
› Color display with pre-alarm
› RS-485 Communication (Modbus RTU)

Notable for:
For loads up to 400 A

Type	Code	IΔn (A)	N° relays	Pre-alarm relay	Delay	Commu-nications	Protocol	Power supply	Módules	Mounting
RGU-110B	[C] P11952.	1 ... 10 A	1	●	1...5s	RS-485	Modbus/RTU	110...230 Vac	3	DIN rail

Requires an residual current transformer, WGC-TB type. See coding table for other options.

WGC-TB, Residual current transformers for type-B relays

› Currents from 63 to 4000 A
› TYPE B toroidal from 20 mm to 500x200 mm in diameter
› High immunity to transients
› Optimal magnetic flux distribution
› Accessory for DIN rail mounting (PA-TC/WG), depending on model

Type	Code	Usefull diam.(mm)	IΔn min.(A)	In (A)	weight (kg)
Only for RGU-10B					
WGS-20-TB	[*] P11731.	20	0.1	63	0,08
WGC-25-TB	[*] P11751.	25	0.1	63	0,12
WGC-35-TB	[*] P11752.	35	0.1	80	0,11
WGC-55-TB	[*] P11753.	55	0.3	160	0,18
WGC-80-TB	[*] P11755.	80	0.5	250	0,25
WGC-110 TB	[*] P11756.	110	0.5	400	0,38
WGC-140 TB	[*] P11757.	140	0.5	600	0,48
WGC-180 TB	[*] P11758.	180	0.5	800	0,65
Only for RGU-110B					
WGC-220x105-TB	[C] P11759.	220 x 105	1	1250	3,90
WGC-350x150-TB	[C] P11760.	350 x 150	1	2000	6,80
WGC-500x200-TB	[C] P11761.	500 x 200	1	4000	11,00

RGU-100B, Residual current relay, type B

› Type B protection (loads with AC/DC conversion)
› Leakage monitoring in AC, DC and total AC+DC
› Real-time leak display and trigger level
› Configurable sensitivity and delays
› Color display to show pre-alarm
› Inputs/outputs for remote control
› RS-485 communications (Modbus RTU)

Notable for:
Monitoring and Local/remote control for AC/DC loads

Type	Code	IΔn (A)	N° relays	Pre-alarm relay	Delay	Commu-nications	Protocol	Power supply	Módules	Mounting
RGU-100B	[*] P11961.	0,03 ... 3 A	1	●	0,1 ... 5 s, INS, SEL	RS-485	Modbus/RTU	230 Vac	3	DIN rail

Associated with WGB-type residual current transformers

RGU-10B

P	1	X	X	X	X	0	0	X	
Code						Internal code		↑	Delivery time
Power supply voltage		Standard (230 V_{ac})						0	-
		110 V_{ac}						1	1
		24...48 V_{ac} / 24...125 V_{dc}						4	1

Click on the product code for more information.

CBS-400B, 4 type B residual current channels

- Type B protection (loads with AC/DC conversion)
- 4 independent channels in 3 DIN modules
- Leakage monitoring in AC, DC and total AC+DC
- Color display to show real-time leakage, pre-alarm, and trip
- Configurable sensitivity and delays
- Inputs/outputs for remote control
- RS-485 communications (Modbus RTU)

Notable for:
Reduced installation space/time for AC/DC loads

Type	Code	IΔn (A)	Nº relays	Pre-alarm relay	Delay	Commu-nications	Protocol	Power supply	Módules	Mounting
CBS-400B	[*] P12721.	0,03 ... 3 A	4	●	0,1 ... 5 s, INS, SEL	RS-485	Modbus/RTU	230 Vac	3	DIN rail

Associated with WGB-type residual current transformers

Type	Code	Description
Adap-Panel-D3M	[*] M5ZZF100000E3	Panel adapter CVM-E3-MINI, RGU, CBS (72 x 72)

WGB, Residual current transformers for type-B relays

- Type B protection (loads with AC/DC conversion)
- Currents from 80A to 630A
- Toroidal protection from 35mm to 140mm in diameter
- High immunity to transients
- Optimal magnetic flux distribution

Notable for:
Ease of interconnection via Ethernet cable

Type	Code	Usefull diam.(mm)	IΔn (A)	In (A)	weight (kg)
WGB-35	[*] P11B52.	35.5	0.03 ... 3 A	80	0,22
WGB-55	[*] P11B53.	55.5	0.03 ... 3 A	160	0,55
WGB-80	[*] P11B54.	80.5	0.03 ... 3 A	250	0,53
WGB-110	[*] P11B55.	110.5	0.03 ... 3 A	400	0,69
WGB-140	[*] P11B56.	140.5	0,1 ... 3 A	630	0,69

Only for relays type RGU-100B and CBS-400B

WGB-35-TB, Type B relay with built-in residual current transformer

- Type B protection (loads with AC/DC conversion)
- Integrated transformer with a diameter of 35mm
- Fixed sensitivity at 30mA or 300mA, depending on model
- Fixed delay Instantaneous or selective, depending on model

Notable for:
Type B Integrated residual current transformer

Type	Code	Usefull diam.(mm)	Nº relays	Delay	Sensitivity	weight (kg)
WGB-35-TB30	[C] P16111.	35	1	INS	30 mA	0,25
WGB-35-TB300	[C] P16121.	35	1	INS	300 mA	0,27
WGB-35-TB300S	[C] P16131.	35	1	SEL	300 mA	0,25

IDB-4, Type B RCCB

- Type B protection (loads with AC/DC conversion)
- 30mA or 300mA
- 40A or 63A
- 4 poles

Notable for:
Direct connection without transformer

Type	Code	In (A)	Poles	Sensitivity	Mounting
IDB-4 4P-40A-30 mA	[*] P17221.	40 A	4	30 mA	DIN rail
IDB-4 4P-40A-300 mA	[*] P17222.	40 A	4	300 mA	DIN rail
IDB-4 4P-63A -30 mA	[*] P17231.	63 A	4	30 mA	DIN rail
IDB-4 4P-63A -300mA	[*] P17232.	63 A	4	300 mA	DIN rail

For three-phase and single-phase networks

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

Residual current monitoring

	CBS-2000-AB	CBS-1600-A
Installation type and features		
	●	●
	●	●
	●	●
	●	●
	16	16
	4	-
	0,03 a 3 A	0,03 a 3 A
	0,03 a 3 A	-
	1	1
	1	1
	0,1 a 5 s	0,1 a 5 s
	0,1 a 5 s	-
	WGC	WGC
	WGB	-
	●	●
	6	6

Click on the product code for more information.

CBS-1600A, 16 type A residual current channels monitoring

NEW

- Monitoring in TT, TN-S and IT systems
- 16 independent channels in 6 DIN modules
- Color display to show real-time leakage and pre-alarm
- Configurable sensitivity and delays
- RS-485 communications (Modbus RTU)
- Requires WGC external transformers

Notable for:
16-channel monitoring in a small space

Type	Code	IΔn (A)	Nº relays	Pre-alarm relay	Nª Input channels	Communi-cations	Power supply	Módules	Mounting
CBS-1600A	[4] P12B01.	0,03...3 A	2	●	16 (A)	RS-485	230 V ~ (± 15%)	6	DIN rail

Associated with WGC-type residual current transformers

CBS-2000AB, 20 type A/B residual current channels monitoring

NEW

- Monitoring in TT, TN-S and IT systems
- 20 independent channels (16 Type A + 4 Type B) in 6 DIN modules
- Color display to show real-time leakage and pre-alarm
- Configurable sensitivity and delays
- RS-485 communications (Modbus RTU)
- Requires WGC and WGB external transformers

Notable for:
20-channel monitoring in a small space

Type	Code	IΔn (A)	Nº relays	Pre-alarm relay	Nª Input channels	Communi-cations	Power supply	Módules	Mounting
CBS-2000AB	[4] P12B02.	0,03...3 A	2	●	16 (A) / 4 (B)	RS-485	230 V ~ (± 15%)	6	DIN rail

Associated with type WGC-type residual current transformers for type A channels and WGB-type for type B channels.

WGC, Residual current transformer

- Compatible with Type A residual current relays
- Currents from 63A to 4000A
- Toroidal protection from 20mm to 500x200mm diameter
- High immunity to transients
- Optimal magnetic flux distribution
- Accessory for DIN rail mounting (PA-TC/WG), depending on model

Notable for:
Compatible with Type A protection relays

Type	Code	Usefull diam.(mm)	In (A)	Cable (m)	weight (kg)
WGC-20-SC	[*] P10181.	20	63	0.5	0,08
WGC-30-SC	[*] P10182.	30	63	0.5	0,09
WGS-20	[*] P10131.	20	63	-	0,06
WGS-30	[*] P10132.	30	63	-	0,10
WGC-25	[*] P10151.	25	63	-	0,08
WGC-35	[*] P10152.	35	80	-	0,11
WGC-55	[*] P10153.	55	160	-	0,17
WGC-80	[*] P10154.	80	250	-	0,29
WGC-110	[*] P10155.	115	400	-	0,41
WGC-140	[*] P10156.	140	600	-	0,68
WGC-180	[*] P10157.	180	800	-	0,91
WGC-220x105	[*] P10158.	220 x 105	1250	-	3,90
WGC-350x150	[*] P10159.	350 x 150	2000	-	6,80
WGC-500x200	[*] P10160.	500 x 200	4000	-	11,00

WGB, Residual current transformers for type-B relays

- Type B protection (loads with AC/DC conversion)
- Currents from 80A to 630A
- Toroidal protection from 35mm to 140mm in diameter
- High immunity to transients
- Optimal magnetic flux distribution

Notable for:
Ease of interconnection via Ethernet cable

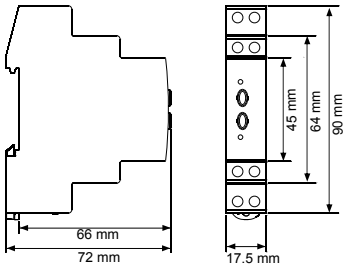
Type	Code	Usefull diam.(mm)	IΔn (A)	In (A)	weight (kg)
WGB-35	[*] P11B52.	35.5	0.03 ... 3 A	80	0,22
WGB-55	[*] P11B53.	55.5	0.03 ... 3 A	160	0,55
WGB-80	[*] P11B54.	80.5	0.03 ... 3 A	250	0,53
WGB-110	[*] P11B55.	110.5	0.03 ... 3 A	400	0,69
WGB-140	[*] P11B56.	140.5	0,1 ... 3 A	630	0,69

Only for relays type RGU-100B and CBS-400B

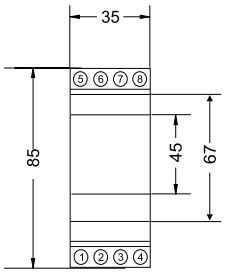
Delivery time: [*] Immediate, [x] working weeks, [c] Consult

DImensions

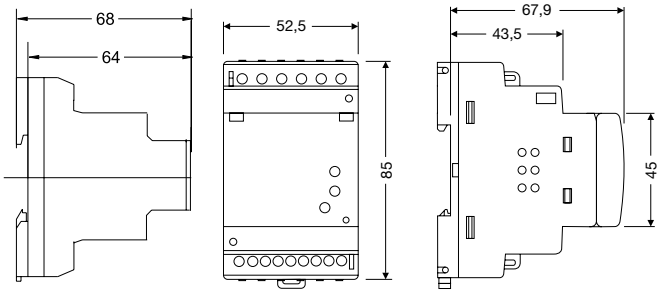
RG1M



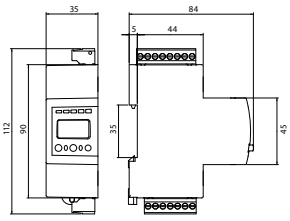
RGE



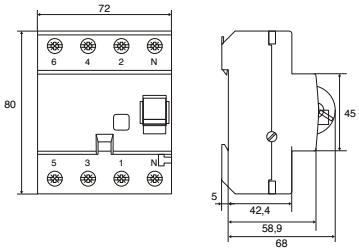
RGU-10B



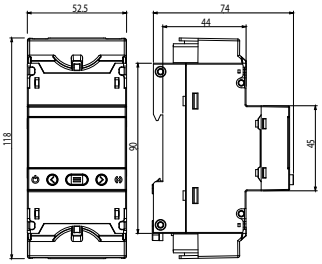
RGU-2



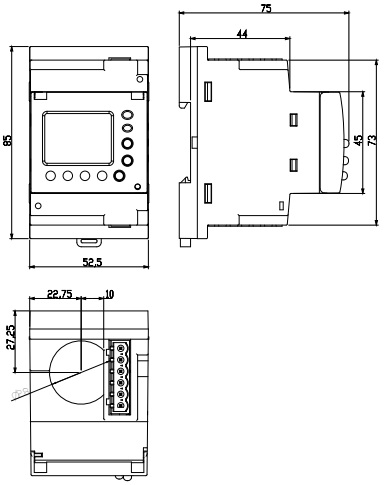
IDB-4



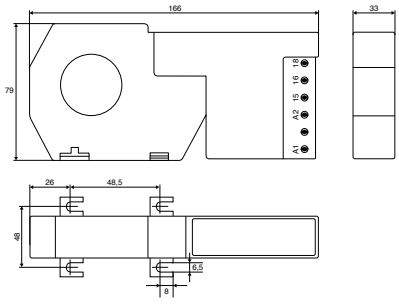
RGU-10A / RGU-100B / CBS-400B / RGU-110B



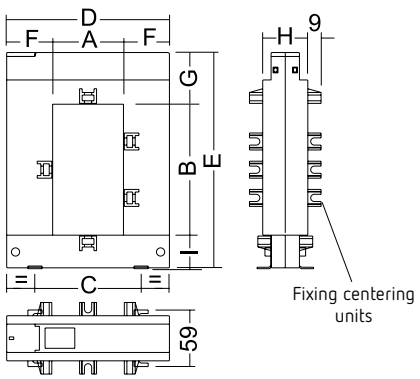
WRU-10



WGB-35-TB



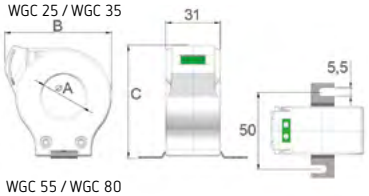
TP-WGC



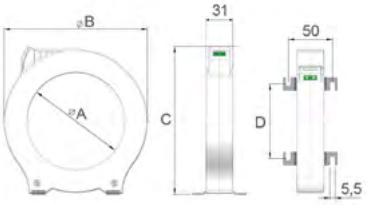
Dimensions (mm)	TP-58	TP-88	TP-812	TP-816
a	50	80	80	80
b	80	80	120	160
c	78	108	108	120
d	114	144	144	184
e	145	145	185	245
f	32	32	32	52
g	32	32	32	47
h	32	32	32	52
i	32	32	32	38

WGC / WGC-TB

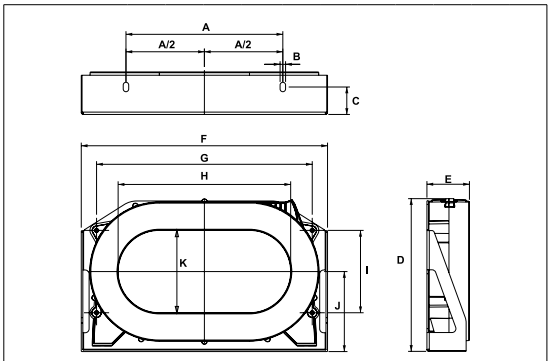
WGC 25 / WGC 35



WGC 55 / WGC 80
WGC 110 / WGC 140

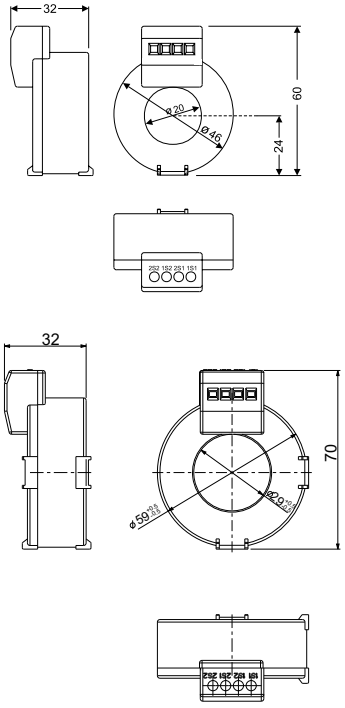


Modelo	A	B	C	D
WGC 25	25	60,5	64	
WGC 35	35	70,5	75,5	
WGC 55	55	92	98	38
WGC 80	80	124,5	130	60
WGC 110	110	163	168	84,5
WGC 140	140	201	206	110
WGC 180	180	252	256	144

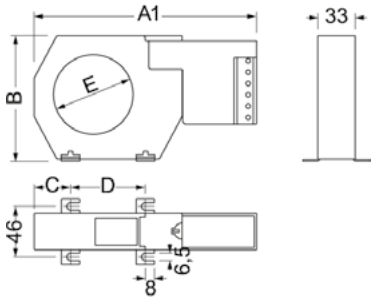


	A	B	C	D	E	F	G	H	I	J	K
WGC 220x105	200	7	35	195	54,2	314	275	220	105	102	105
WGC 350x150	340	7	30	279	50,2	479	430	350	165	143	150
WGC 500x200	460	7	40	306	64	614	550	500	180	155	200

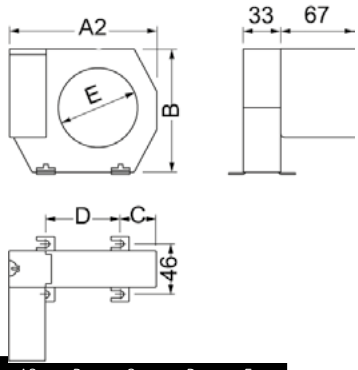
WGS



WGBU

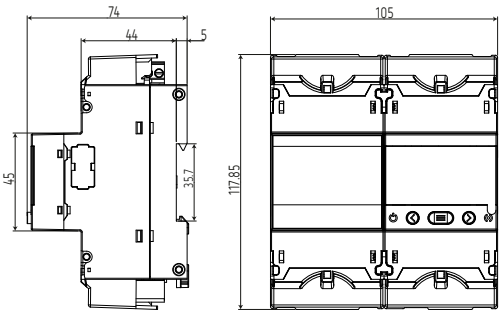


WGBU-90



Type	A1	A2	B	C	D	E
WGBU-35 (A1) / WGBU-90-35 (A2)	166	100	79	26	48,5	35
WGBU-70 (A1) / WGBU-90-70 (A2)	196	130	110	332	66	70
WGBU-105 (A1) / WGBU-90-105 (A2)	236	170	146	38	94	105
WGBU-140 (A1) / WGBU-90-140 (A2)	286	220	196	48,5	123	140
WGBU-210 (A1) / WGBU-90-210 (A2)	365	299	284	69	161	210

CBS-1600A / CBS-2000AB



Self-reclosing overcurrent and Residual current protection

Table of residual current device and circuit breaker devices with automatic reclosing system

RCCBs	**REC4, REC4-C, RECB, RECB-C**
Residual current relays	**WRU-10 RAL, RGU-10 RAL, CBS4-RA**
Residual current and circuit breaker protection	**RGU-10MT, RECMaxLPD, RECMaxCVM,**

Selection table RCCBs	REC4	REC4-C	RECB
			
Protection type			
Residual current	●	●	●
Reclosure type			
Residual current	●	●	●
Installation type			
Single phase, three-phase, 3 and 4 wires	●	●	●
Circuit breaker			
breaker (included)	●	●	●
Features / performance			
Status indication	–	●	–
Insulation control	●	●	–
Technical specifications			
Residual current type	A	A	B
Fixed current sensitivity	●	●	●
FIxed delay time	●	●	●
Built-in current transformer	●	●	●
Output status	–		–
Self-reclosing	●	●	●
Module size	3 (2P) 5 (4P)	3 (2P) 5 (4P)	5 (4P)

Click on the product code for more information.

Residual current protection and self-reclosing

REC4, RCCB with self-reclosing system, type A

- Type A reconnection for insulation for domestic sector: Avoids reconnection while handling the installation.
- Time-based reconnection for industrial, tertiary and service sectors: Performs up to 3 reconnections to detect if the defect is punctual.
- Up to 3 automatic reconnections: 3s, 20s and 180s.
- Self-powered and with integrated motor without external cables
- 2 or 4 poles
- 30 mA or 300 mA / 40 or 63 A

Notable for:
Ensures supply continuity without supervision.

Type	Code	N° relays	Breaking element	In (A)	Poles	Sensitivity	Reclosing mode	Módules
Domestic								
REC4-2P-40-30	[*] P26A21.	1	built-in	40 A	2	30 mA	Insulation	3
REC4-2P-63-30	[*] P26A31.	1	built-in	63 A	2	30 mA	Insulation	3
Industrial, tertiary								
REC4-2P-40-300	[*] P26A23.	1	built-in	40 A	2	300 mA	Time	3
REC4-2P-63-300	[*] P26A33.	1	built-in	63 A	2	300 mA	Time	3
REC4-4P-40-30	[*] P26F21.	1	built-in	40 A	4	30 mA	Time	5
REC4-4P-40-300	[*] P26F23.	1	built-in	40 A	4	300 mA	Time	5
REC4-4P-63-30	[*] P26F31.	1	built-in	63 A	4	30 mA	Time	5
REC4-4P-63-300	[*] P26F33.	1	built-in	63 A	4	300 mA	Time	5

3 reconnections: 3, 20, 180 s.

REC4-C, RCCB with self-reclosing system, type A with status output

- NO contact output to indicate blocking for end of reconnection
- Type A reconnection for time for industrial, tertiary and service sectors: Performs up to 3 reconnections to detect if the defect is punctual.
- Up to 3 automatic reconnections: 3s, 20s and 180s.
- Self-powered and with integrated motor without external cables
- 2 or 4 poles
- 30mA or 300mA / 40 or 63A

Notable for:
Indicates end of automatic reconnections or switch status

Type	Code	N° relays	Breaking element	In (A)	Poles	Sensitivity	Reclosing mode	Módules
REC4-C 2P 40 30	[*] P27A21.	1	built-in	40 A	2	30 mA	Time	3
REC4-C 2P 40 300	[*] P27A31.	1	built-in	40 A	2	300 mA	Time	3
REC4-C 2P 63 30	[3] P27A23.	1	built-in	63 A	2	30 mA	Time	3
REC4-C 2P 63 300	[3] P27A33.	1	built-in	63 A	2	300 mA	Time	3
REC4-C 4P 40 30	[*] P27F21.	1	built-in	40 A	4	30 mA	Time	5
REC4-C 4P 40 300	[*] P27F31.	1	built-in	40 A	4	300 mA	Time	5
REC4-C 4P 63 30	[3] P27F23.	1	built-in	63 A	4	30 mA	Time	5
REC4-C 4P 63 300	[*] P27F33.	1	built-in	63 A	4	300 mA	Time	5

3 reconnections: 3, 20, 180 s. Consult reference for different modes of operation of the status output.

RECB, RCCB with self-reclosing system, type B

- Type B reconnection by time for AC/DC loads
- Up to 3 automatic reconnections: 3s, 20s and 180s.
- Self-powered and with integrated motor without external cables
- 30mA or 300mA / 40 or 63A

Notable for:
Ensures supply continuity without supervision.

Type	Code	N° relays	Breaking element	In (A)	Poles	Sensitivity	Reclosing mode	Módules
RECB-4P-40-30	[*] P26G21.	1	built-in	40 A	4	30 mA	Time	5
RECB-4P-40-300	[*] P26G23.	1	built-in	40 A	4	300 mA	Time	5
RECB-4P-63-30	[4] P26G31.	1	built-in	63 A	4	30 mA	Time	5
RECB-4P-63-300	[4] P26G33.	1	built-in	63 A	4	300 mA	Time	5

3 reconnections: 3, 20, 180 s.

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

Residual current protection and reclosing system

Selection table residual current relays

Residual current and reconnection control

	WRU-10 RAL	RGU-10 RAL	CBS4-RA
			
Protection type			
Residual current	●	●	●
Reclosure type			
Residual current	●	●	●
Installation type			
Single phase, three-phase, 3 and 4 wires	●	●	●
Circuit breaker			
Contactor (not included)	●	●	●
Features / performance			
Monitoring	●	●	●
Pre-alarm	●	●	
Remote control	●	●	●
Technical specifications			
Residual current type	A	A	A
Circuit breaker: contact	●	●	●
Measurement channels	1	1	4
Adjustable current sensitivity	●	●	●
Adjustable delay time	●	●	●
Built-in current transformer (Ø mm)	28 mm	–	–
External current transformer, WGC Ø 20...500x200	-	●	●
Trigger output	●	●	●
Pre-alarm output	●	●	–
Remote control input	●	●	●
Adjustable reclosing time	●	●	●
RS-485 communications	–	ST	ST
Module size	3	3	3

ST - Depending on type

RGU-10 RAL, Type A ultraimmunized residual current relay with reconnection

- Type A ultra-immunized relay for street lighting
- External contactor trip and reconnection
- Color display to show real-time leakage and configurable tripping sensitivity and delays
- Inputs/outputs for remote control
- RS-485 (Modbus RTU) communications depending on model
- Requires WGC external transformer

Notable for:
Display and Local/Remote control

Type A ultra-immunised residual current relay, programmable, 3 modules with display and locking status release by reclosing. 230 Vac auxiliary power supply.

Type	Code	IΔn (A)	N° relays	Breaking element	Delay	Communications	Nr. reclosures
RGU-10 RAL	[*] P24622.	0,03 ... 30 A	1	Contactor	0,02...10 s, INS, SEL	-	Programmable
RGU-10C RAL	[*] P24662.	0,03 ... 30 A	1	Contactor	0,02...10 s, INS, SEL	RS-485	Programmable

Requires an residual current transformer, WGC type (not included). The breaking element to be associated must be a contactor not included.
To encode other parameters, see the table at the end of the section.

CBS4-RA, Type A ultraimmunized 4 channels residual current relay with reconnection

- Type A ultra-immunized relay for street lighting
- 4 independent channels in 3 DIN modules
- External contactor trip and reconnection
- Color display to show real-time leakage and tripping
- Configurable sensitivity and delays
- Inputs/outputs for remote control
- RS-485 (Modbus RTU) communications depending on model

Notable for:
Remote control in the smallest space

4 Type A ultra-immunised residual current relays, programmable, 4 modules with display and locking status release by reclosing. 230 Vac Auxiliary power supply.

Type	Code	IΔn (A)	N° relays	Breaking element	Delay	Communications	Nr. reclosures
CBS-4 RA	[*] P24911.	0,03 ... 30 A	4	Contactor	0,02...10 s, INS, SEL	-	Programmable
CBS-4C-RA	[*] P24912.	0,03 ... 30 A	4	Contactor	0,02...10 s, INS, SEL	RS-485	Programmable

Requires an residual current transformer, WGC type (not included). The breaking element to be associated must be a contactor not included.
To encode other parameters, see the table at the end of the section

WGC, Residual current transformer

- Compatible with Type A residual current relays
- Currents from 63A to 4000A
- Toroidal protection from 20mm to 500x200mm diameter
- High immunity to transients
- Optimal magnetic flux distribution
- Accessory for DIN rail mounting (PA-TC/WG), depending on model

Notable for:
Compatible with Type A protection relays

Type	Code	Usefull diam.(mm)	In (A)	Cable (m)	weight (kg)
WGC-20-SC	[*] P10181.	20	63	0.5	0,08
WGC-30-SC	[*] P10182.	30	63	0.5	0,09
WGS-20	[*] P10131.	20	63	-	0,06
WGS-30	[*] P10132.	30	63	-	0,10
WGC-25	[*] P10151.	25	63	-	0,08
WGC-35	[*] P10152.	35	80	-	0,11
WGC-55	[*] P10153.	55	160	-	0,17
WGC-80	[*] P10154.	80	250	-	0,29
WGC-110	[*] P10155.	115	400	-	0,41
WGC-140	[*] P10156.	140	600	-	0,68
WGC-180	[*] P10157.	180	800	-	0,91
WGC-220x105	[*] P10158.	220 x 105	1250	-	3,90
WGC-350x150	[*] P10159.	350 x 150	2000	-	6,80
WGC-500x200	[*] P10160.	500 x 200	4000	-	11,00

WRU-10RAL Type A ultraimmunized residual current relay with reconnection and built-in transformers

- Type A ultra-immunized relay for street lighting
- Integrated leakage measurement toroidal
- External contactor trip and reconnection
- Color display to show real-time leakage and tripping
- Configurable sensitivity and delays
- Inputs/outputs for remote control
- Blocking of reconnections

Notable for:
Integrated transformer and remote control

Programmable residual current relay, 3 modules, display with prealarm output and reclosing locking system. 230 Vac Auxiliary power supply

Type	Code	Usefull diam. (mm)	IΔn (A)	N° relays	Breaking element	Delay	Nr. reclosures	Time betwen reclosures
WRU-10-RAL	[*] P24453.	28	0,03 ... 3 A | 0,03 ... 30 A	1	Contactor	0,02...10 s, INS, SEL	Programmable	Programmable
WRU-10-RAL0,3-1	[*] P24457.	28	0,3 ... 1 A	1	Contactor	0,02 INS	Programmable	Programmable

Residual current and circuit breaker protection

Selection table residual current and circuit breaker protection with reconnection

Residual current protection and reclosure control	WRU-10MT	RGU-10MT	RECMaxLPD	RECMaxCVM	RECMaxMP
					
Circuit breaker protection	**RECMaxMP | MT-TSD**	**RECMaxMP | MT-TSD**			
Protection type					
Residual current	●	●	●	●	–
Circuit breaker	●	●	●	●	●
Reclosure type					
Residual current	●	●	●	●	–
Circuit breaker	●	●	●	●	●
Installation type					
Single phase, three-phase, 3 and 4 wires	●	●	●	●	●
Circuit breaker					
Switch (included)	MT-TSD	MT-TSD	●	●	●
Features / performance					
Monitoring	●	●	●	●	–
Remote control	●	●	●	●	●
Power analyzer	–	–	–	●	–
Technical specifications					
Residual current type	A	A	A	A	–
Adjustable current sensitivity	●	●	●	●	–
Adjustable delay time	●	●	●	●	–
Built-in current transformer	28 mm	–	–	–	–
External current transformer, WGC Ø 20...500x200 mm	–	●	●	●	–
Digital output	–	–	–	●	–
Reclosing end output	●	●	●	●	●
Switch status output	●	●	●	●	●
Alarm output	●	●	●	●	●
Reclosing blocked output	–	–	–	●	–
Remote control input	●	●	●	●	●
Self-reclosing	–	–	–	–	●
Adjustable reclosing time	●	●	●	●	–
Communications	–	ST	–	–	–
Module size	7,5 (2P) 9,5 (4P)	7,5 (2P) 9,5 (4P)	4,5 (2P) 6,5 (4P)	5,5 (2P) 7,5 (4P)	4,5 (2P) 6,5 (4P)

Click on the product code for more information.

MCB and residual current protection with reclosing

RECmax-CVM, MCB/RCD and power analyzer with reclosing and transformers included

- Residual current reconnection and self-reclosing circuit breaker
- Type A ultra-immunized relay
- Programmable number and time of reconnections
- Includes toroidal measurement and protection
- Plug&play with power analyzer and display
- Status output and input for remote control
- Self-powered and with RS-485 communications (Modbus RTU)

Notable for:
Total protection, measurement and control in the smallest space

Type	Code	In (A)	Commu-nications	Poles	Mó-dules
2 Poles, C Curve					
RECmax-CVM 2P C2-10	[3] P2B111.	10 A	RS-485	2	5.5
RECmax-CVM 2P C2-16	[*] P2B112.	16 A	RS-485	2	5.5
RECmax-CVM 2P C2-20	[3] P2B113.	20 A	RS-485	2	5.5
RECmax-CVM 2P C2-25	[*] P2B114.	25 A	RS-485	2	5.5
RECmax-CVM 2P C2-32	[*] P2B115.	32 A	RS-485	2	5.5
RECmax-CVM 2P C2-40	[3] P2B116.	40 A	RS-485	2	5.5
RECmax-CVM 2P C2-50	[3] P2B117.	50 A	RS-485	2	5.5
RECmax-CVM 2P C2-63	[*] P2B118.	63 A	RS-485	2	5.5
4 Poles, C Curve					
RECmax-CVM 4P C4-10	[3] P2B121.	10 A	RS-485	4	7.5
RECmax-CVM 4P C4-16	[3] P2B122.	16 A	RS-485	4	7.5
RECmax-CVM 4P C4-20	[3] P2B123.	20 A	RS-485	4	7.5
RECmax-CVM 4P C4-25	[*] P2B124.	25 A	RS-485	4	7.5
RECmax-CVM 4P C4-32	[3] P2B125.	32 A	RS-485	4	7.5
RECmax-CVM 4P C4-40	[*] P2B126.	40 A	RS-485	4	7.5
RECmax-CVM 4P C4-50	[3] P2B127.	50 A	RS-485	4	7.5
RECmax-CVM 4P C4-63	[*] P2B128.	63 A	RS-485	4	7.5

Type	Code	In (A)	Commu-nications	Poles	Mó-dules
2 Poles, D Curve					
RECmax-CVM 2P D2-10	[2] P2B131.	10 A	RS-485	2	5.5
RECmax-CVM 2P D2-16	[2] P2B132.	16 A	RS-485	2	5.5
RECmax-CVM 2P D2-20	[2] P2B133.	20 A	RS-485	2	5.5
RECmax-CVM 2P D2-25	[2] P2B134.	25 A	RS-485	2	5.5
RECmax-CVM 2P D2-32	[2] P2B135.	32 A	RS-485	2	5.5
RECmax-CVM 2P D2-40	[2] P2B136.	40 A	RS-485	2	5.5
RECmax-CVM 2P D2-50	[3] P2B137.	50 A	RS-485	2	5.5
4 Poles, D Curve					
RECmax-CVM 4P D4-10	[3] P2B141.	10 A	RS-485	4	7.5
RECmax-CVM 4P D4-16	[2] P2B142.	16 A	RS-485	4	7.5
RECmax-CVM 4P D4-20	[2] P2B143.	20 A	RS-485	4	7.5
RECmax-CVM 4P D4-25	[*] P2B144.	25 A	RS-485	4	7.5
RECmax-CVM 4P D4-32	[2] P2B145.	32 A	RS-485	4	7.5
RECmax-CVM 4P D4-40	[3] P2B146.	40 A	RS-485	4	7.5
RECmax-CVM 4P D4-50	[3] P2B147.	50 A	RS-485	4	7.5

All models feature the WGC20/30-SC residual current transformer and MC-3 or MC-1 measuring transformer with connected terminal.
C/D curve circuit breaker with 6 kA cut off power (IEC 60898).

RECmaxLPD, MCB/RCD with reclosing system

- Self-resetting residual current reconnection
- Type A ultra-immunized relay
- Programmable number and time of reconnections
- Status output and input for remote control

Notable for:
MCB/RCD with reclosing system

Type	Code	In (A)	Poles	Módules
2 Poles, C Curve				
RECmaxLPd-C2-10	[*] P2A111.	10 A	2	4.5
RECmaxLPd-C2-16	[*] P2A112.	16 A	2	4.5
RECmaxLPd-C2-20	[*] P2A113.	20 A	2	4.5
RECmaxLPd-C2-25	[*] P2A114.	25 A	2	4.5
RECmaxLPd-C2-32	[*] P2A115.	32 A	2	4.5
RECmaxLPd-C2-40	[*] P2A116.	40 A	2	4.5
RECmaxLPd-C2-50	[3] P2A117.	50 A	2	4.5
RECmaxLPd-C2-63	[*] P2A118.	63 A	2	4.5
4 Poles, C Curve				
RECmaxLPd-C4-10	[3] P2A121.	10 A	4	6.5
RECmaxLPd-C4-16	[*] P2A122.	16 A	4	6.5
RECmaxLPd-C4-20	[*] P2A123.	20 A	4	6.5
RECmaxLPd-C4-25	[*] P2A124.	25 A	4	6.5
RECmaxLPd-C4-32	[*] P2A125.	32 A	4	6.5
RECmaxLPd-C4-40	[*] P2A126.	40 A	4	6.5
RECmaxLPd-C4-50	[3] P2A127.	50 A	4	6.5
RECmaxLPd-C4-63	[*] P2A128.	63 A	4	6.5

Type	Code	In (A)	Poles	Módules
2 Poles, D Curve				
RECmaxLPd-D2-10	[1] P2A131.	10 A	2	4.5
RECmaxLPd-D2-16	[1] P2A132.	16 A	2	4.5
RECmaxLPd-D2-20	[1] P2A133.	20 A	2	4.5
RECmaxLPd-D2-25	[1] P2A134.	25 A	2	4.5
RECmaxLPd-D2-32	[1] P2A135.	32 A	2	4.5
RECmaxLPd-D2-40	[*] P2A136.	40 A	2	4.5
RECmaxLPd-D2-50	[*] P2A137.	50 A	2	4.5
4 Poles, D Curve				
RECmaxLPd-D4-10	[1] P2A141.	10 A	4	6.5
RECmaxLPd-D4-16	[1] P2A142.	16 A	4	6.5
RECmaxLPd-D4-25	[*] P2A144.	25 A	4	6.5
RECmaxLPd-D4-32	[1] P2A145.	32 A	4	6.5
RECmaxLPd-D4-40	[1] P2A146.	40 A	4	6.5
RECmaxLPd-D4-50	[*] P2A147.	50 A	4	6.5

WGS-20/30 and WGC-25/35 residual current transformers.
C/D curve circuit breaker with 6 kA cut off power (IEC 60898). Consult 10 kA

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

RGU-10 MT, Reclosing residual current relay for motorized circuit breakers

- Reclosing residual current relay via motorized circuit breaker
- Reconnect up to 63A via RECmaxMP or up to 630A via MT-TSD
- Type A ultra-immunized relay with remote control
- Color display to show real-time leakage and tripping
- Configurable sensitivity and delays
- RS-485 (Modbus RTU) communications depending on model
- Requires WGC external transformer

Notable for:
Residual current reconnection with remote control

Type	Code	IΔn (A)	Breaking element	Delay	Communications	Nr. reclosures	Time betwen reclosures
RGU-10 MT	[*] P24642.	0,03 ... 30 A	RECmaxMP | MT-TSD	0,02...10 s, INS, SEL	-	Programmable	Programmable
RGU-10C MT	[*] P24652.	0,03 ... 30 A	RECmaxMP | MT-TSD	0,02...10 s, INS, SEL	RS-485	Programmable	Programmable

The delay is cancelled in all relays with a sensitivity adjustment of 0.03 A, IEC 60947-2, annex M
INS, SEL trip curves, according to IEC 61008-1, for trigger coils with a trip time <0.02 s
Requires a WGS/WGC residual current transformer (not included).
To operate with RECmax MP (in<63 A), with MT-TSD (in>63 A)

WRU-10-MT, Residual current relay with built-in transformer

- Reclosing residual current relay via motorized circuit breaker
- Integrated leakage measurement toroidal
- Reconnect up to 63A via RECmaxMP or up to 630A via MT-TSD
- Type A ultra-immunized relay with remote control
- Color display to show real-time leakage and tripping
- Configurable sensitivity and delays

Notable for:
Integrated residual current transformer

Type	Code	Usefull diam.(mm)	IΔn (A)	Delay	Nr. reclosures	Time betwen reclosures
WRU-10-MT	[*] P24275.	28	0,03 ... 30 A	0,02...10 s, INS, SEL	Programmable	Programmable

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

RECmaxMP, Motorized MCB with reclosing (up to 63 A)

- Circuit breaker reconnection
- Status output and input for remote control and remote reconnection
- For currents up to 63A
- C or D curve, depending on model

Notable for:
Resettable circuit breaker by remote control

Type	Code	In (A)	Poles	Módules
2 Poles, C Curve				
RECmax MP-C2-10	[3] P27111.	10 A	2	4.5
RECmax MP-C2-16	[3] P27112.	16 A	2	4.5
RECmax MP-C2-20	[3] P27113.	20 A	2	4.5
RECmax MP-C2-25	[*] P27114.	25 A	2	4.5
RECmax MP-C2-32	[*] P27115.	32 A	2	4.5
RECmax MP-C2-40	[*] P27116.	40 A	2	4.5
RECmax MP-C2-50	[3] P27117.	50 A	2	4.5
RECmax MP-C2-63	[3] P27118.	63 A	2	4.5
4 Poles, C Curve				
RECmax MP-C4-10	[3] P27121.	10 A	4	6.5
RECmax MP-C4-16	[3] P27122.	16 A	4	6.5
RECmax MP-C4-20	[3] P27123.	20 A	4	6.5
RECmax MP-C4-25	[3] P27124.	25 A	4	6.5
RECmax MP-C4-32	[3] P27125.	32 A	4	6.5
RECmax MP-C4-40	[3] P27126.	40 A	4	6.5
RECmax MP-C4-50	[3] P27127.	50 A	4	6.5
RECmax MP-C4-63	[*] P27128.	63 A	4	6.5

Type	Code	In (A)	Poles	Módules
2 Poles, D Curve				
RECmax MP-D2-10	[C] P27131.	10 A	2	4.5
RECmax MP-D2-16	[C] P27132.	16 A	2	4.5
RECmax MP-D2-20	[1] P27133.	20 A	2	4.5
RECmax MP-D2-25	[1] P27134.	25 A	2	4.5
RECmax MP-D2-32	[1] P27135.	32 A	2	4.5
RECmax MP-D2-40	[C] P27136.	40 A	2	4.5
RECmax MP-D2-50	[C] P27137.	50 A	2	4.5
RECmax MP-D2-63	[C] P27138.	63 A	2	4.5
4 Poles, D Curve				
RECmax MP-D4-10	[C] P27141.	10 A	4	6.5
RECmax MP-D4-16	[1] P27142.	16 A	4	6.5
RECmax MP-D4-20	[C] P27143.	20 A	4	6.5
RECmax MP-D4-25	[C] P27144.	25 A	4	6.5
RECmax MP-D4-32	[C] P27145.	32 A	4	6.5
RECmax MP-D4-40	[C] P27146.	40 A	4	6.5
RECmax MP-D4-50	[C] P27147.	50 A	4	6.5

C/D curve circuit breakers with 6 kA cut off power (IEC 60898). Consult 10 kA

TABLE OF ADDITIONAL FEATURES

RGU-10/C RAL / RGU-10/C MT

P	2	X	X	X	X	0	0	X	X	X	X	X

Code		Internal code			Delivery time
Power supply voltage	Standard (230 V_{AC})	0			-
	110 V_{AC} (WRU-10 RAL / MT)	1			2
	24...48 V_{AC} / 24...125 V_{DC} (RGU-10/C RAL RGU-10/C MT)	4			1
	Certificate UL (Only RGU-10C MT 230 V_{AC})		0	7	2

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

Click on the product code for more information.

MT-TS Motorised circuit-breaker

Type	Code	In (A)	Poles
3 poles			
MT-TS- 80A- 3P	[1] P20H60.	80 A	3
MT-TS- 100A- 3P	[1] P20H61.	100 A	3
MT-TS- 125A- 3P	[1] P20H62.	125 A	3
MT-TS- 160A- 3P	[1] P20H63.	160 A	3
MT-TS- 250A- 3P	[1] P20H64.	250 A	3
MT-TS- 400A- 3P	[1] P20H65.	400 A	3
MT-TS- 630A- 3P	[1] P20H66.	630 A	3

Type	Code	In (A)	Poles
4 poles			
MT-TS- 80A- 4P	[1] P20H70.	80 A	4
MT-TS- 100A- 4P	[1] P20H71.	100 A	4
MT-TS- 125A- 4P	[1] P20H72.	125 A	4
MT-TS- 160A- 4P	[1] P20H73.	160 A	4
MT-TS- 250A- 4P	[1] P20H74.	250 A	4
MT-TS- 400A- 4P	[1] P20H75.	400 A	4
MT-TS- 630A- 4P	[1] P20H76.	630 A	4

MT-TSD Motorised circuit-breaker suitable for residual current protection

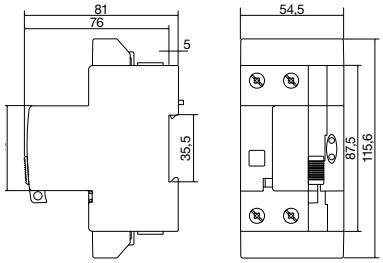
Type	Code	In (A)	Poles
3 poles			
MT-TSD- 80A- 3P	[1] P20K60.	80 A	3
MT-TSD- 100A- 3P	[1] P20K61.	100 A	3
MT-TSD- 125A- 3P	[1] P20K62.	125 A	3
MT-TSD- 160A- 3P	[1] P20K63.	160 A	3
MT-TSD- 250A- 3P	[1] P20K64.	250 A	3
MT-TSD- 400A- 3P	[1] P20K65.	400 A	3
MT-TSD- 630A- 3P	[1] P20K66.	630 A	3

Type	Code	In (A)	Poles
4 poles			
MT-TSD- 80A- 4P	[1] P20K70.	80 A	4
MT-TSD- 100A- 4P	[1] P20K71.	100 A	4
MT-TSD- 125A- 4P	[1] P20K72.	125 A	4
MT-TSD- 160A- 4P	[1] P20K73.	160 A	4
MT-TSD- 250A- 4P	[1] P20K74.	250 A	4
MT-TSD- 400A- 4P	[1] P20K75.	400 A	4
MT-TSD- 630A- 4P	[1] P20K76.	630 A	4

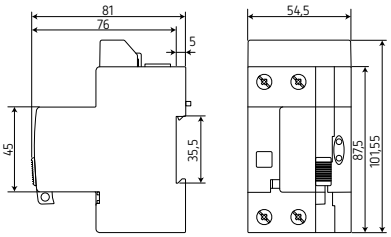
Delivery time: [*] Immediate, [x] working weeks, [c] Consult

Dimensiones

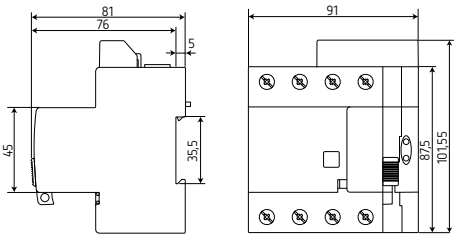
REC4 2P 30



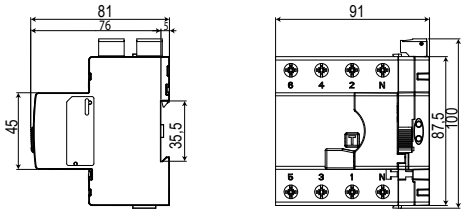
REC4 2P 300



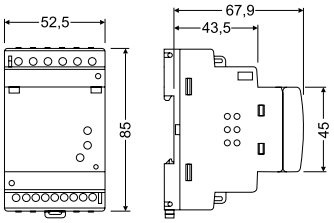
REC4 4P / RECB



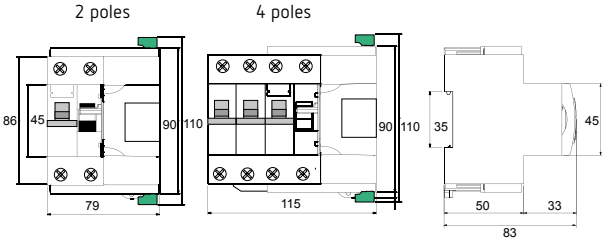
RECB-C



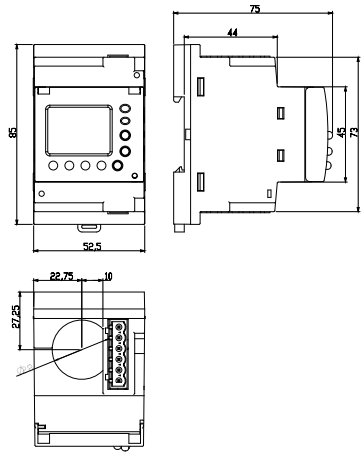
RGU-10 / CBS-4



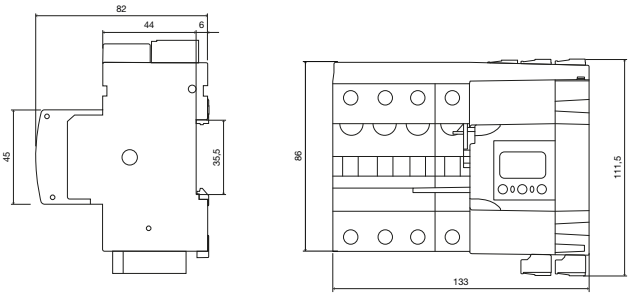
RECmax



WRU-10



RECmax CVM



Click on the product code for more information.

Residual current protection for electric vehicles

Selection table RCCBs

	IDA-EV	REC4-EV	REC4-EV-C	RECB-EV-C
				
Protection type				
Residual current	●	●	●	●
Installation type				
Single phase, three-phase, 3 and 4 wires	●	●	●	●
Circuit breaker				
Switch (included)	●	●	●	●
Features / performance				
Status LEDs	–	●	●	●
Switch status output	–	–	●	●
Remote reclosing input	–	–	●	●
Remote trigger input	–	–	●	●
Technical specifications				
Residual current type	A + 6 mAdc	A + 6 mAdc	A + 6 mAdc	B
Self-powered	●	●	–	–
Auxiliary power supply	–	–	●	●
Fixed current sensitivity	●	●	●	●
Fixed delay time	●	●	●	●
Built-in current transformer	●	●	●	●
Self-reclosing	–	●	–	–
Remote control	–	–	●	●
Module size	4	5	5	5

Residual current protection for electric vehicles

IDA-EV, RCCB with 6 mAdc supervision type A

› Direct type A protection.
Current trip 6 mA dc.
residual current sensivity 30 mA.
40A or 63A.
4 poles.

Type	Code	In (A)	Poles	Sensitivity	Mounting
IDA-EV-40-30	[*] P17321.	40 A	4	30 mA + 6 mAdc	DIN rail
IDA-EV-63-30	[*] P17322.	63 A	4	30 mA + 6 mAdc	DIN rail

Residual current protection and reclosing system for electric vehicles

REC4-EV, RCCB with supervision and self-reclosing 6mAdc, type A

› • Type A residual current circuit breaker with monitoring of currents higher than 6 mA in DC
• Time-based reconnection to ensure continuity of EV chargers
• Up to 3 automatic reconnections: 3s, 20s and 180s.
• Self-powered and with integrated motor without external cables
• 40 or 63A and 30mA sensitivity

Notable for:
Automatic reconnection to ensure continuity in EV chargers

Type	Code	In (A)	Poles	Sensitivity	Reclosing mode	Módules
REC4-EV-4P-40-30	[4] P26H00.	40 A	4	30 mA	Time	5
REC4-EV-4P-63-30	[4] P26H01.	63 A	4	30 mA	Time	5

3 reconnections: 3, 20, 180 s. Complies with the EN 50557 Standard

REC4-EV-C, RCCB with supervision and reclosing 6mAdc, type A

› • Type A residual current circuit breaker with monitoring of currents higher than 6 mA in DC
• Remote control signal actuation mode (non-automatic)
• Requires 12V DC power from the charging point.
• Digital input is available to enable reconnection
• Remote triggering input
• Digital output to signal the status of the switch.
• 40 or 63A and 30mA sensitivity

Notable for:
Remote control reconnection to ensure continuity in EV chargers

12 VAC auxiliary power supply

Type	Code	In (A)	Poles	Sensitivity	Reclosing mode	Módules
Self-reclosing RCCB with status output						
REC4-EV-C-4P-40-30	[*] P26L00.	40 A	4	30 mA	remote control	5
REC4-EV-C-4P-63-30	[4] P26L01.	63 A	4	30 mA	remote control	5

3 reconnections: 3, 20, 180 s. Complies with the EN 50557 Standard

RECB-EV-C, RCCB with reclosing, type B

› • Type B residual current circuit breaker for EV chargers
• Remote control signal actuation mode (non-automatic)
• Requires 12V DC power from the charging point.
• Digital input is available to enable reconnection
• Remote triggering input
• Digital output to signal the status of the switch.
• 40 or 63A and 30mA sensitivity

Notable for:
Remote control reconnection to ensure continuity in EV chargers

12 VAC auxiliary power supply

Type	Code	In (A)	Poles	Sensitivity	Reclosing mode	Módules
Reclosing RCCB with status output						
RECB-EV-C-4P-40-30	[*] P26M00.	40 A	4	30 mA	remote control	5
RECB-EV-C-4P-63-30	[4] P26M10.	63 A	4	30 mA	remote control	5

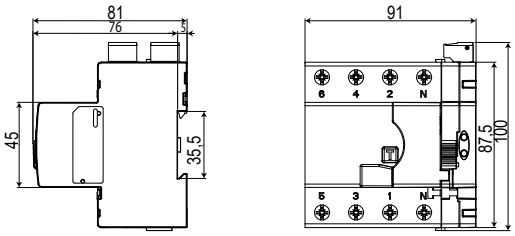
REC4-EV-C

P	2	X	X	X	X	0	0	X
Code						Internal code		Delivery time
Frecuency			Standard 50 Hz				0	-
			60 Hz				1	1

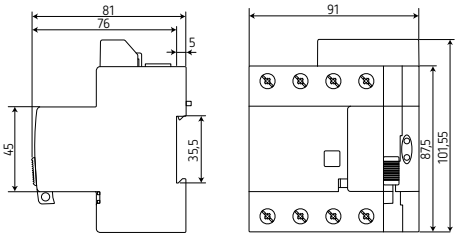
Delivery time: [*] Immediate, [x] working weeks, [c] Consult

Dimensions

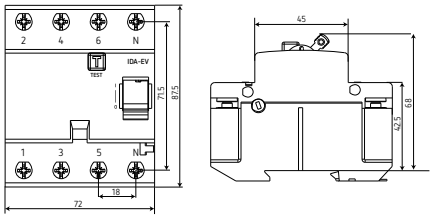
REC4-EV-C/ RECB-EV-C



REC4-EV 4P



IDA-EV

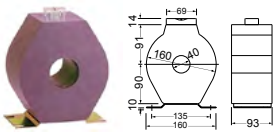
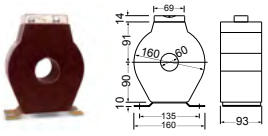


Protection current transformer

TRP model selection table, according to:
- Primary current intensity
- Maximum wiring diameter
- Assigned VA power
- Assigned accuracy/protection class

	TRP 40	TRP 60	TRP 80	TRP 100	TRP 140	TRP 180
	5P10-5P20	5P10-5P20	5P10-5P20	5P10-5P20	5P10-5P20	5P10-5P20
	Power (VA)					
100/5	5					
150/5	5	2.5				
200/5	10	2.5				
250/5	10	5	5			
300/5	15	5	5			
400/5	20	7.5	7.5			
500/5	25	10	10	Cable Cable		
600/5	Cable Cable	10	10	Ø 100 mm		
750/5	Ø 40 mm	15	15	5	Cable Cable	
800/5		15	15	5	Ø 140 mm	
1 000/5		20	20	7.5	5	
1 200/5		Cable Cable	25	10	5	Cable
1 250/5		Ø 60 mm	25	10	5	Ø 180 mm
1 500/5			30	10	10	5
1 600/5			30	15	10	5
1 800/5			35	15	10	5
2 000/5			Cable Cable	15	10	7.5
2 500/5			Ø 80 mm	20	10	10
3 000/5				25	15	10
4 000/5					15	15
5 000/5						15

TRP, Protection transformers encapsulated in resin

Type	TRP40-5P10			TRP40-5P20			TRP60-5P10			TRP60-5P20		
												
Usefull diam.(mm)	ø 40 mm						ø 60 mm					
Accuracy	5P10			5P20			5P10			5P20		
A	VA	Code	weight (kg)	VA	Code	weight (kg)	VA	Code	weight (kg)	VA	Code	weight (kg)
100	5	[4] P50311.	5,00	5	[4] P50211.	9,30						
150	5	[4] P50312.	5,00	5	[4] P50212.	9,40	2.5	[4] P50321.	2,60	2.5	[4] P50221.	13,30
200	10	[4] P50313.	5,00	10	[4] P50213.	9,40	2.5	[4] P50322.	2,70	2.5	[4] P50222.	13,30
250	10	[4] P50314.	5,00	10	[4] P50214.	9,50	5	[4] P50323.	2,70	5	[4] P50223.	13,30
300	15	[4] P50315.	5,10	15	[4] P50215.	9,60	5	[4] P50324.	2,70	5	[4] P50224.	13,40
400	20	[4] P50316.	5,10	20	[4] P50216.	9,60	7.5	[4] P50325.	2,80	7.5	[4] P50225.	13,50
500	25	[4] P50317.	5,20	25	[4] P50217.	9,80	10	[4] P50326.	2,80	10	[4] P50226.	13,60
600							10	[4] P50327.	2,90	10	[4] P50227.	13,80
750							15	[4] P50328.	3,00	15	[4] P50228.	13,90
1000							20	[4] P50329.	3,20	20	[4] P50229.	13,80

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

Type	TRP80-5P10			TRP80-5P20			TRP100-5P10			TRP100-5P20		
												
Usefull diam.(mm)	ø 80 mm						ø 100 mm					
Accuracy	5P10			5P20			5P10			5P20		
A	VA	Code	weight (kg)	VA	Code	weight (kg)	VA	Code	weight (kg)	VA	Code	weight (kg)
250	5	[4] P50331.	3,20	5	[4] P50231.	5,90						
300	5	[4] P50332.	3,30	5	[4] P50232.	6,00						
400	7.5	[4] P50333.	3,30	7.5	[4] P50233.	5,60						
500	10	[4] P50334.	3,40	10	[4] P50234.	6,20						
600	10	[4] P50335.	3,50	10	[4] P50235.	6,10						
750							5	[4] P50341.	3,40	5	[4] P50241.	5,60
800	15	[4] P50336.	3,60	15	[4] P50236.	6,00						
1000	20	[4] P50337.	3,70	20	[4] P50237.	6,40	7.5	[4] P50342.	3,40	7.5	[4] P50242.	7,30
1200	25	[4] P50338.	3,80	25	[4] P50238.	6,40	10	[4] P50343.	3,40	10	[4] P50243.	7,00
1500	30	[4] P50339.	4,00	30	[4] P50239.	6,60	10	[4] P50344.	3,60	10	[4] P50244.	7,40
2000							15	[4] P50346.	3,70	15	[4] P50246.	8,20
2500							15	[4] P50347.	3,90	15	[4] P50247.	9,00
3000							20	[4] P50348.	4,56	20	[4] P50248.	7,65

Type	TRP140-5P10			TRP140-5P20			TRP180-5P10			TRP180-5P20		
												
Usefull diam.(mm)	ø 140 mm						ø 180 mm					
Accuracy	5P10			5P20			5P10			5P20		
A	VA	Code	weight (kg)	VA	Code	weight (kg)	VA	Code	weight (kg)	VA	Code	weight (kg)
1000	5	[4] P50351.	3,70	5	[4] P50251.	12,20						
1250	5	[4] P50352.	3,80	5	[4] P50252.	12,30						
1500	10	[4] P50353.	3,90	10	[4] P50253.	12,50	5	[4] P50361.	4,50	5	[4] P50261.	8,10
2000	10	[4] P50354.	5,00	10	[4] P50254.	12,80	7.5	[4] P50362.	4,50	7.5	[4] P50262.	16,10
2500	10	[4] P50355.	4,50	10	[4] P50255.	9,25	10	[4] P50363.	5,00	10	[4] P50263.	16,60
3000	15	[4] P50356.	4,60	15	[4] P50256.	8,00	10	[4] P50364.	5,20	10	[4] P50264.	17,20
4000	15	[4] P50357.	5,20	15	[4] P50257.	8,90	15	[4] P50365.	5,70	15	[4] P50265.	9,70
5000							15	[4] P50366.	6,20	15	[4] P50266.	10,60

TRP

P	5	X	X	X	X	0	0	X	
Code						Internal code	↑		Delivery time
Secondary current		Standard (.../ 5 A)					0		-
		... / 1A					1		5

TRM, Measure current transformers encapsulated in resin, see section **Measurements and control / Measuring current transformers and shunts**

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

Measuring and testing equipments for substations

GETEST, Step and contact voltage meter

› Step and contact tension measurements 5... 50A
Smartphone included
Complies with High Voltage Regulations

Type	Code	Description	Communications
GETEST 5...50A	[C] P6012300A0000	Indirect earth contact simulator 5 ... 50 A, includes PDA	wireless
Trolley GETEST	[C] P6990A.	Transport trolley GETEST	-
GETEST Probe	[C] P69928.	Measurement electrode	-

Includes the CIRCUTOR laboratory certificate

TABLE OF ADDITIONAL FEATURES

P	6	X	X	X	X	0	0	X	
Code						Internal Code	↑	Delivery time	
Certificate			ENAC calibration certificate				E	C	

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

Power factor correction and harmonic filtering

Power factor regulators

Low voltage power capacitors

Low voltage capacitor banks

Harmonic filters

Capacitor and MV accessories

Table: Selection of the reactive energy compensation unit

					Page
Multiple loads	Slow variations	Without harmonics	OPTIM P&P		127
		With harmonics	SVGm	Inmunity to harmonics	132
			OPTIM FR P&P	Elimination of resonances	129
	Quick variations	Without harmonics	OPTIM EMK		133
		With harmonics	OPTIM SVGm	Inmunity to harmonics	131
			SVGm	Inmunity to harmonics	132
			OPTIM FRE	Elimination of resonances	134
Fixed individual compensation	without harmonics	Fuse protection	CSB-F	Transformers	122
		Fuse protection and contactor	CCF	Medium and high-power motors	123
		Miniature circuit breaker protection	CSB-M	Medium-power transformers	122
		Miniature circuit breaker protection and contactor	CLP-C	Low-power motors	122
		Circuit breaker protection	CPA	High power transformers	123
	With harmonics	Fuse protection	OPTIM FRF	Elimination of resonances	124
		Circuit breaker protection	OPTIM FRM	Elimination of resonances	124

GUIDE OF SELECTION FOR HARMONIC OR DISTURBANCE FILTERING EQUIPMENT

Types of anomalies

Faults	Causes	Solutions	Equipments
After disconnecting the capacitors: • Overload in capacitors • Problems with electronic controls • Transformer vibrations	Resonance in the capacitor bank with the transformer as a result of existing harmonics	Resonance elimination	Detuned filter banks **OPTIM FR P&P**, OPTIM **FRE, SVGm OPTIM SVGm**
Neutral overload in lines for: • Lighting • Computers	Circulation of third harmonic (homopolar)	Filter the third harmonic	• **AFQm** harmonic active filters
Overheating and overload in: • Phase cables • Transformers • Motors • Automatic circuit breakers	Existence of harmonics in different ranges	Harmonic filtering	• **LCL** absorption filters • • **AFQm** Active filters
Trips in: • Earth leakage circuit breakers	Existence of high frequency current leakages. Caused by EMI filters	Residual current protection and Filtering	• Immunized residual current relays (2)
Unbalanced lines + harmonics in neutral	Unequal distribution of single phase loads	Phase balancing and harmonic filtering	**AFQm** Active filter

Power factor regulators

computer C Wi-Fi, Power factor controller with communications

› Single-phase measurement
› Plug&Play programming system with phase selection function
› Measurement and Display by Display and through Wi-Fi connectivity of up to 27 electrical variables
›
› Up to 10 alarms configurable per display or relay

Type	Code	Power supply	Measurement Range (V)	Input current	Switching unit	Nr steps	Alarm relay	Size (mm) width x height x depth
computer C6 Wi-Fi	[*] R14831.	400 Vac	400	.../ 5A	Contactor	6	●	144x144x54.85
computer C6 Wi-Fi	[*] R148310020000	230 Vac	230	.../ 5A	Contactor	6	●	144x144x54.85
computer C12 Wi-Fi	[*] R14842.	400 Vac	400	.../ 5A	Contactor	12	●	144x144x54.85
computer C12 Wi-Fi	[*] R148420020000	230 Vac	230	.../ 5A	Contactor	12	●	144x144x54.85

Compatible with Anti Reactive Surveillance System - VAR. Programming via the MyConfig app.

computer SMART III, Three-phase Power factor controllers. Regulation, measurement, leakage control and communications

› Control for capacitor banks with contactor operation from 6 to 14 steps
› Commissioning with Plug&Play system
› Measured with one or three current transformers (analogous to a company meter)
› Built-in advanced network analyzer and up to 14 configurable alarms
› Measurement of leakage current for battery disconnection.
› Anti-resonance system and fixed-pitch configuration
› RS-485 (Modbus RTU) communications and connectable to cloud software VAR_Scout via SLVAR converter.

Notable for:
Measure analogous to tax counter with Plug&Play system

Type	Code	Power supply	Measu-rement Range (V)	Input current	Switching unit	IΔn	Nr steps	Alarm relay	Commu-nications	Size (mm) width x height x depth
computer SMART III 6	[*] R13851.	100...520 Vac	20...300	.../5A | .../1A	Contactor	yes	6	●	RS-485	144x144x71
computer SMART III 12	[*] R13862.	100...520 Vac	20...300	.../5A | .../1A	Contactor	yes	12	●	RS-485	144x144x71
computer SMART III 14	[*] R13864.	100...400 Vac	20...300	.../5A | .../1A	Contactor	yes	14	●	RS-485	144x144x71

computer PV12, Reactive energy regulator for photovoltaic applications

› Capacitor bank control with contactor operation for installations with photovoltaic panels
› Allows currents from up to three different power sources to be added using single-phase readings taken in the same phase
› Commissioning with Plug&Play system
› Built-in advanced network analyzer and up to 14 configurable alarms
› Measurement of leakage current for battery disconnection.
› RS-485 (Modbus RTU) communications and connectable to cloud software VAR_Scout via SLVAR converter.

Type	Code	Power supply	Measu-rement Range (V)	Input current	Switching unit	IΔn	Nr steps	Alarm relay	Communi-cations	Size (mm) width x hei-ght x depth
Computer PV 12	[*] R13882.	100...520 Vac	20...300	.../5A	Contactor	yes	12	●	RS-485	144x144x71

SmartLink-VAR, RS-485 to Ethernet/WiFi converter for connecting batteries with Computer Smart to the VAR system

Type	Code	Description
SmartLink-VAR	[*] R1LVAR.	RS-485 to Ethernet/Wi-Fi converter to connect the batteries with Computer Smart to the VAR system

VAR_Scout, Cloud-Scout software

NEW

Scout VAR

- Power factor monitoring to control performance in real time.
- Alerts and notifications about anomalous behavior.
- Automatic reports and diagnostics of preventive maintenance
- View and monitor capacitor bank status from anywhere.
- Multi-site monitoring and open API to connect data with external systems.

Notable for:
Monitor capacitor banks from our cloud platform

Cloud-Scout Electrical monitoring and auditing software

Type	Code	Description
VAR_Scout	[*] W10340.	Module for battery performance and power factor monitoring
VAR SIM VPN EU - Single	[*] W10341.	VAR module with SIM configured for secure connection via VPN, European coverage
VAR SIM VPN WW - Single	[*] W10342.	VAR module with SIM configured for secure connection via VPN, worldwide coverage

The prices of the modules are for an annual subscription per connected device. Compatible devices: **computer C Wi-Fi**, **computer SMART III** connected to the **SmartLink-VAR** converter.

Fast power factor regulator (static switching)

computer SMART III-Fast, Power factor controllers for static switching

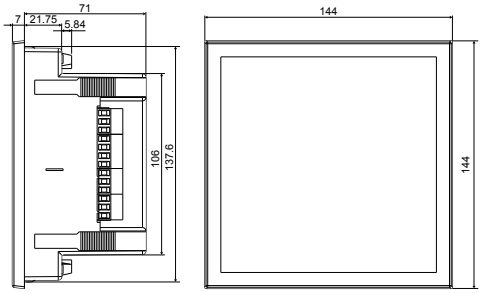
- Control for capacitor banks with static operation from 6 to 12 steps
- Commissioning with Plug&Play system
- Measured with one or three current transformers (analogous to a company meter)
- Built-in advanced network analyzer and up to 14 configurable alarms
- Measurement of leakage current for battery disconnection.
- Anti-resonance system and fixed-pitch configuration
- RS-485 (Modbus RTU) communications and connectable to cloud software VAR_Scout via SLVAR converter.

Notable for:
Measure analogous to tax counter with Plug&Play system

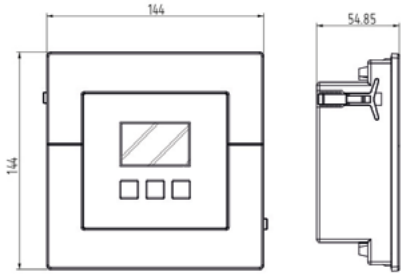
Type	Code	Power supply	Measu-rement Range (V)	Input current	Switching unit	IΔn	Nr steps	Alarm relay	Commu-nications	Size (mm) width x height x depth
computer SMART III F6-12Vdc	[4] R13953.	100...520 Vac	100...520	.../5A | .../1A	EMB-2PH	yes	6	●	RS-485	144x144x71
computer SMART III F12-12Vdc	[*] R13964.	100...520 Vac	100...520	.../5A | .../1A	EMB-2PH	yes	12	●	RS-485	144x144x71
computer SMART III Fast 6	[*] R13951.	100...520 Vac	100...520	.../5A | .../1A	EMF / EMB	yes	6	●	RS-485	144x144x71
computer SMART III Fast 12	[*] R13962.	100...520 Vac	100...520	.../5A | .../1A	EMF / EMB	yes	12	●	RS-485	144x144x71

Dimensions

computer Smart III / computer SMART III fast



computer C Wi-Fi



Low voltage power capacitors

CLZ-FP HD 50Hz, Three-phase tubular power capacitor (Heavy Duty range)

- More than 180,000 hours of service life.
- High temperature resistance from -50°C to +65°C.
- Up to 2x In of maximum current
- Overpressure membrane for disconnection in case of incident
- Low losses for higher efficiency (0.4W/kvar)

Notable for:
Designed for maximum durability

CLZ-FPT - Capacitors with Faston terminal / CLZ-FP - Capacitors with terminal block

Type	Code	220 V kvar	230 V kvar	Hz	dia.x height (mm)	weight (kg)	Terminal
Terminal block, Un = 3 x 230 V / 50 Hz							
CLZ-FP-23/5-HD	[C] R2H516.	4.6	5	50	85 x 175	0,81	A
CLZ-FP-23/6,25-HD	[C] R2H517.	5.7	6.25	50	85 x 245	0,95	A
CLZ-FP-23/7,5-HD	[C] R2H518.	6.8	7.5	50	85 x 245	1,07	A
CLZ-FP-23/10-HD	[*] R2H51B.	9.15	10	50	100 x 245	1,38	A
CLZ-FP-23/12,5-HD	[*] R2H51D.	11.4	12.5	50	100 x 245	1,60	A
CLZ-FP-23/15-HD	[C] R2H51E.	13.75	15	50	116 x 245	1,94	B

Type	Code	400 V kvar	440 V kvar	Hz	dia.x height (mm)	weight (kg)	Terminal
Faston terminal, Un = 3 x 440 V / 50 Hz							
CLZ-FPT-44/1,25-HD	[*] R2H541.	1	1.25	50	63,5 x 98	0,36	F
CLZ-FPT-44/2,5-HD	[*] R2H542.	2	2.5	50	63,5 x 127	0,53	F
CLZ-FPT-44/3-HD	[*] R2H543.	2.5	3	50	63,5 x 127	0,46	F
CLZ-FPT-44/3,75-HD	[*] R2H544.	3	3.75	50	63,5 x 127	0,47	F
CLZ-FPT-44/5-HD	[*] R2H546.	4	5	50	63,5 x 175	0,62	F
CLZ-FPT-44/6,25-HD	[*] R2H547.	5	6.25	50	63,5 x 175	0,62	F
CLZ-FPT-44/7,5-HD	[*] R2H848.	6.25	7.5	50	63,5 x 202	0,71	F
Terminal block, Un = 3 x 440 V / 50 Hz							
CLZ-FP-44/10-HD	[*] R2H54B.	8	10	50	85 x 245	0,90	A
CLZ-FP-44/12,5-HD	[*] R2H54D.	10	12.5	50	85 x 245	1,01	A
CLZ-FP-44/15-HD	[*] R2H54E.	12.5	15	50	85 x 245	1,09	A
CLZ-FP-44/18,2-HD	[3] R2H54G.	15	18.2	50	100 x 245	1,38	A
CLZ-FP-44/20-HD	[*] R2H54J.	16	20	50	100 x 245	1,46	A
CLZ-FP-44/25-HD	[*] R2H54L.	20	25	50	100 x 245	1,69	B
CLZ-FP-44/30-HD	[*] R2H54N.	25	30	50	116 x 245	1,99	B
CLZ-FP-44/40-HD	[3] 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

Type	Code	440 V kvar	460 V kvar	Hz	dia.x height (mm)	weight (kg)	Terminal
Faston terminal, Un = 3 x 460 V / 50 Hz							
CLZ-FPT-46/6,25-HD	[*] R2H857.	5.7	6.25	50	63,5 x 202	0,71	F
Terminal block, Un = 3 x 460 V / 50 Hz							
CLZ-FP-46/12,5-HD	[*] R2H55D.	11.4	12.5	50	85 x 245	1,10	A
CLZ-FP-46/15-HD	[*] R2H55E.	13.7	15	50	85 x 245	1,27	A
CLZ-FP-46/19-HD	[*] R2H55H.	17.4	19	50	100 x 245	1,53	A
CLZ-FP-46/25-HD	[*] R2H55L.	22.9	25	50	116 x 245	2,03	B
CLZ-FP-46/30-HD	[*] R2H55N.	27.4	30	50	136 x 220	2,45	B
CLZ-FP-46/33.3-HD	[*] R2H55P.	30.5	33.3	50	136 x 261	2,69	B

Type	Code	460 V kvar	480 V kvar	Hz	dia.x height (mm)	weight (kg)	Terminal
Terminal block, Un = 3 x 480 V / 50 Hz							
CLZ-FP-48/10-HD	[3] R2H56B.	9.2	10	50	85 x 245	0,93	A
CLZ-FP-48/12,5-HD	[3] R2H56D.	11.5	12.5	50	85 x 245	1,07	A
CLZ-FP-48/15-HD	[3] R2H56E.	13.8	15	50	85 x 245	1,18	A
CLZ-FP-48/25-HD	[3] R2H56L.	23	25	50	116 x 245	1,90	B
CLZ-FP-48/28,2-HD	[3] R2H56M.	26	28.2	50	116 x 245	2,40	B
CLZ-FP-48/30-HD	[3] R2H56N.	27.6	30	50	116 x 245	2,15	B
CLZ-FP-48/40-HD	[3] R2H56R.	36.75	40	50	136 x 261	2,90	B

CLZ-FP HD 50Hz, Three-phase tubular power capacitor (Heavy Duty range)

CLZ-FPT - Capacitors with Faston terminal / CLZ-FP - Capacitors with terminal block

Type	Code	500 V kvar	525 V kvar	Hz	dia.x height (mm)	weight (kg)	Terminal
Faston terminal, Un = 3 x 525 V / 50 Hz							
CLZ-FPT-52/5-HD	[C] R2H876.	4.5	5	50	63,5 x 175	0,61	F
Terminal block, Un = 3 x 525 V / 50 Hz							
CLZ-FP-52/8-HD	[3] R2H579.	7.25	8	50	85 x 175	0,86	A
CLZ-FP-52/10-HD	[3] R2H57B.	9.1	10	50	85 x 245	0,99	A
CLZ-FP-52/12,5-HD	[3] R2H57D.	11.3	12.5	50	85 x 245	1,13	A
CLZ-FP-52/15-HD	[*] R2H57E.	13.6	15	50	85 x 245	1,20	A
CLZ-FP-52/20-HD	[*] R2H57J.	18.15	20	50	100 x 245	1,62	A
CLZ-FP-52/25-HD	[*] R2H57L.	22.7	25	50	116 x 245	1,63	B
CLZ-FP-52/30-HD	[*] R2H57N.	27.2	30	50	116 x 245	2,18	B
CLZ-FP-52/40-HD	[*] R2H57R.	36.3	40	50	136 x 261	2,80	B
CLZ-FP-52/50-HD	[*] R2H57S.	45.4	50	50	136 x 355	5,24	C

Type	Code	660 V kvar	690 V kvar	Hz	dia.x height (mm)	weight (kg)	Terminal
Terminal block, Un = 3 x 690 V / 50 Hz							
CLZ-FP-69/7,5-HD	[3] R2H598.	6.9	7.5	50	85 x 175	1,00	A
CLZ-FP-69/10-HD	[3] R2H59B.	9.15	10	50	85 x 245	1,00	A
CLZ-FP-69/12,5-HD	[3] R2H59D.	11.4	12.5	50	85 x 245	1,10	A
CLZ-FP-69/15-HD	[3] R2H59E.	13.7	15	50	85 x 245	1,20	A
CLZ-FP-69/20-HD	[3] R2H59J.	18.3	20	50	100 x 245	1,70	A
CLZ-FP-69/25-HD	[*] R2H59L.	22.9	25	50	116 x 245	1,90	B
CLZ-FP-69/30-HD	[3] R2H59N.	27.5	30	50	136 x 220	2,70	B
CLZ-FP-69/40-HD	[3] R2H59R.	36.6	40	50	136 x 355	5,00	C
CLZ-FP-69/50-HD	[3] R2H59S.	45.75	50	50	136 x 401	5,00	C

CMC B, CMC-B contactors

Type	Code	220-240V kvar	400-440-480 V kvar	500-550 V kvar	660-690 V kvar	Hz	Size (mm) width x height x depth	weight (kg)
Maximum operating power (Kvar)								
CMC 7.5 B	[*] R281A5.	5	7.5	9	11	50 / 60	44.8x72.2x71	0,28
CMC 12 B	[*] R281A6.	6.7	12.5	15	18	50 / 60	44.8x72.2x107.9	0,32
CMC 20 B	[*] R281A4.	11	20	24	30	50 / 60	54.8x72.2x107.9	0,38
CMC 32 B	[*] R281A8.	14	25	30	35	50 / 60	54.6x80x121.4	0,47
CMC 40 B	[*] R281A1.	20	30	35	40	50 / 60	54.8x80x124.5	0,60
CMC 75 B	[*] R281A9.	29	50	60	70	50 / 60	64.6x120x150	1,00
CMC 85 B	[*] R281A3.	32	60	70	80	50 / 60	64.6x120x150	0,85
CMC 150 D	[*] R281AH.	45	80	100	115	50 / 60	90x179x192	2,20

RD Fast discharging resistors

Type	Code	Impedance (Ω)	Dissipated power (w)
RD-60 2X1000	[*] R3Z220.	2 x 1000	10
RD-100 2X1000	[*] R3Z230.	2 x 1000	15

IR Current limiting impedances

Type	Code	Cable section (mm2)
IR-6	[*] R3Z310.	6
IR-10	[2] R3Z320.	10
IR-25	[*] R3Z330.	25
IR-50	[*] R3Z350.	50

ELEB

CSB coils

Type	Code	Use voltage (V)	µF
ELEB10100PCA	[4] R213A8.	230	100
ELEB10150PCA	[4] R213AE.	230	150
ELEB14069PCA	[4] R2139H.	400/440/690(*)	69
ELEB14082PCA	[4] R2139R.	400/440/690(*)	82
ELEB18027PCA	[4] R2137T.	460	27.4

Type	Code	Use voltage (V)	µF
ELEB18035PCA	[4] R2137A.	460	35
ELEB18050PCA	[4] R2137P.	460	50
ELEB20038PCA	[4] R2138G.	480/525/550	38.4

(*) Wye (star) connection

CLZ-FP HD 60Hz, Three-phase tubular power capacitor (Heavy Duty range)

CLZ-FPT - Capacitors with Faston terminal / CLZ-FP - Capacitors with with terminal block

Type	Code	230 V kvar	240 V kvar	Hz	dia.x height (mm)	weight (kg)	Terminal
Faston terminal, Un = 3 x 240 V / 60 Hz							
CLZ-FPT-24/2,5-60Hz-HD	[*] R2H622.	2.3	2.5	60	63,5 x 127	0,57	F
Terminal block, Un = 3 x 240 V / 60 Hz							
CLZ-FP-24/5-60Hz-HD	[3] R2H626.	4.6	5	60	85 x 175	0,85	A
CLZ-FP-24/6,25-60Hz-HD	[3] R2H627.	5.75	6.25	60	85 x 175	0,84	A
CLZ-FP-24/7,5-60Hz-HD	[*] R2H628.	6.9	7.5	60	85 x 245	0,96	A
CLZ-FP-24/10-60Hz-HD	[*] R2H62B.	9.2	10	60	85 x 245	1,06	A
CLZ-FP-24/12,5-60Hz-HD	[*] R2H62D.	11.5	12.5	60	85 x 245	1,25	A
CLZ-FP-24/15-60Hz-HD	[*] R2H62E.	13.8	15	60	100 x 245	1,51	A

Type	Code	400 V kvar	440 V kvar	Hz	dia.x height (mm)	weight (kg)	Terminal
Faston terminal, Un = 3 x 440 V / 60 Hz							
CLZ-FPT-44/1,25-60Hz-HD	[3] R2H641.	1	1.25	60	63,5 x 98	0,37	F
CLZ-FPT-44/2,5-60Hz-HD	[3] R2H642.	2.1	2.5	60	63,5 x 127	0,44	F
CLZ-FPT-44/5-60Hz-HD	[3] R2H646.	4.15	5	60	63,5 x 127	1,20	F
Terminal block, Un = 3 x 440 V / 60 Hz							
CLZ-FP-44/6,25-60Hz-HD	[3] R2H647.	5.2	6.25	60	85 x 175	0,67	A
CLZ-FP-44/7,5-60Hz-HD	[3] R2H648.	6.2	7.5	60	85 x 175	0,75	A
CLZ-FP-44/10-60Hz-HD	[3] R2H64B.	8.3	10	60	85 x 175	0,87	A
CLZ-FP-44/12,5-60Hz-HD	[3] R2H64D.	10.3	12.5	60	85 x 245	0,90	A
CLZ-FP-44/15-60Hz-HD	[3] R2H64E.	12.4	15	60	85 x 245	0,98	A
CLZ-FP-44/20-60Hz-HD	[3] R2H64J.	16.5	20	60	85 x 245	1,14	A
CLZ-FP-44/25-60Hz-HD	[3] R2H64L.	20.7	25	60	100 x 245	1,46	A
CLZ-FP-44/30-60Hz-HD	[*] R2H64N.	24.8	30	60	116 x 245	1,78	B
CLZ-FP-44/40-60Hz-HD	[3] R2H64R.	33.1	40	60	136 x 220	2,38	B
CLZ-FP-44/50-60Hz-HD	[3] R2H64S.	41.3	50	60	136 x 355	5,10	C

Type	Code	460 V kvar	480 V kvar	Hz	dia.x height (mm)	weight (kg)	Terminal
Faston terminal, Un = 3 x 480 V / 60 Hz							
CLZ-FPT-48/2,5-60Hz-HD	[C] R2H762.	2.3	2.5	60	63,5 x 127	0,47	F
CLZ-FPT-48/6,25-60Hz-HD	[C] R2H767.	5.75	6.25	60	63,5 x 175	0,90	F
CLZ-FPT-48/7,5-60Hz-HD	[C] R2H768.	6.9	7.5	60	63,5 x 175	0,61	F
Terminal block, Un = 3 x 480 V / 60 Hz							
CLZ-FP-48/10-60Hz-HD	[*] R2H66B.	9.2	10	60	85 x 175	0,85	A
CLZ-FP-48/12,5-60Hz-HD	[*] R2H66D.	11.5	12.5	60	85 x 245	0,97	A
CLZ-FP-48/15-60Hz-HD	[*] R2H66E.	13.8	15	60	85 x 245	1,07	A
CLZ-FP-48/20-60Hz-HD	[*] R2H66J.	18.4	20	60	100 x 245	1,32	A
CLZ-FP-48/25-60Hz-HD	[*] R2H66L.	23	25	60	100 x 245	1,57	B
CLZ-FP-48/30-60Hz-HD	[*] R2H66N.	27.6	30	60	116 x 245	1,86	B
CLZ-FP-48/40-60Hz-HD	[*] R2H66R.	36.75	40	60	136 x 220	2,43	B
CLZ-FP-48/50-60Hz-HD	[*] R2H66S.	46	50	60	136 x 355	5,00	C

Type	Code	480 V kvar	525 V kvar	Hz	dia.x height (mm)	weight (kg)	Terminal
Faston terminal, Un = 3 x 525 V / 60 Hz							
CLZ-FPT-52/2,5-60Hz-HD	[C] R2H772.	2.1	2.5	60	63,5 x 127	0,45	F
CLZ-FPT-52/5-60Hz-HD	[C] R2H776.	4.2	5	60	63,5 x 175	3,00	F
CLZ-FPT-52/7,5-60Hz-HD	[C] R2H778.	6.25	7.5	60	63,5 x 202	0,33	F
Terminal block, Un = 3 x 525 V / 60 Hz							
CLZ-FP-52/8,5-60Hz-HD	[3] R2H67A.	7.1	8.5	60	85 x 175	0,85	A
CLZ-FP-52/10-60Hz-HD	[3] R2H67B.	8.4	10	60	85 x 175	0,91	A
CLZ-FP-52/11,5-60Hz-HD	[3] R2H67C.	9.6	11.5	60	85 x 245	0,97	A
CLZ-FP-52/12,5-60Hz-HD	[3] R2H67D.	10.5	12.5	60	85 x 245	0,99	A
CLZ-FP-52/15-60Hz-HD	[*] R2H67E.	12.5	15	60	85 x 245	1,11	A
CLZ-FP-52/17-60Hz-HD	[3] R2H67I.	14.2	17	60	85 x 245	1,17	A
CLZ-FP-52/20-60Hz-HD	[3] R2H67J.	16.7	20	60	100 x 245	1,45	A
CLZ-FP-52/22,5-60Hz-HD	[3] R2H67K.	18.8	22.5	60	100 x 245	1,50	A
CLZ-FP-52/25-60Hz-HD	[*] R2H67L.	20.9	25	60	100 x 245	1,66	A
CLZ-FP-52/30-60Hz-HD	[*] R2H67N.	25	30	60	116 x 245	1,95	B
CLZ-FP-52/34-60Hz-HD	[*] R2H67P.	28.4	34	60	116 x 245	2,13	B
CLZ-FP-52/40-60Hz-HD	[3] R2H67R.	33.4	40	60	136 x 261	5,00	B

Click on the product code for more information.

CLZ-FP HD 60Hz, Three-phase tubular power capacitor (Heavy Duty range)

CLZ-FPT - Capacitors with Faston terminal / CLZ-FP - Capacitors with with terminal block

Type	Code	600 V kvar	Hz	dia.x height (mm)	weight (kg)	Terminal
Faston terminal, Un = 3 x 600 V / 60 Hz						
CLZ-FPT-60/5-60Hz-HD	[C] R2H786.	5	60	63,5 x 175	1,20	F
CLZ-FPT-60/7,5-60Hz-HD	[C] R2H788.	7.5	60	63,5 x 175	1,20	F
Terminal block, Un = 3 x 600 V / 60 Hz						
CLZ-FP-60/10-60Hz-HD	[3] R2H68A.	10	60	85 x 175	1,50	A
CLZ-FP-60/12,5-60Hz-HD	[3] R2H68B.	12.5	60	85 x 245	1,50	A
CLZ-FP-60/15-60Hz-HD	[3] R2H68E.	15	60	85 x 245	1,30	A
CLZ-FP-60/17,5-60Hz-HD	[3] R2H68I.	17.5	60	85 x 245	1,25	A
CLZ-FP-60/20-60Hz-HD	[3] R2H68J.	20	60	100 x 245	1,60	A
CLZ-FP-60/21-60Hz-HD	[3] R2H68K.	21	60	100 x 245	1,60	A
CLZ-FP-60/25-60Hz-HD	[3] R2H68L.	25	60	100 x 245	1,60	A
CLZ-FP-60/30-60Hz-HD	[3] R2H68N.	30	60	116 x 245	2,10	B
CLZ-FP-60/34,5-60Hz-HD	[3] R2H68P.	34.5	60	136 x 261	3,00	B

Type	Code	660 V kvar	690 V kvar	Hz	dia.x height (mm)	weight (kg)	Terminal
Terminal block, Un = 3 x 690 V / 60 Hz							
CLZ-FP-69/10-60Hz-HD	[3] R2H69B.	9.15	10	60	85 x 245	1,50	A
CLZ-FP-69/12,5-60Hz-HD	[3] R2H69D.	11.4	12.5	60	85 x 245	1,50	A
CLZ-FP-69/15-60Hz-HD	[3] R2H69E.	13.7	15	60	85 x 245	1,40	A
CLZ-FP-69/20-60Hz-HD	[3] R2H69J.	18.3	20	60	100 x 245	2,00	A
CLZ-FP-69/25-60Hz-HD	[3] R2H69L.	22.9	25	60	116 x 245	1,76	B
CLZ-FP-69/30-60Hz-HD	[3] R2H69N.	27.5	30	60	116 x 245	2,50	B
CLZ-FP-69/40-60Hz-HD	[3] R2H69R.	36.6	40	60	136 x 220	3,00	B
CLZ-FP-69/50-60Hz-HD	[3] R2H69S.	45.75	50	60	136 x 355	5,00	C

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

CSB Power capacitors for LV

Type	Code	kvar 50 Hz	kvar 60 Hz	Size (mm) width x height x depth	weight (kg)
230 Vac					
CSB-23/10	[*] R2321C.	10	12.5	359x330x120	2,00
CSB-23/12,5	[2] R2321D.	12.5	15	360x330x120	3,30
CSB-23/15	[*] R2321E.	15	17.5	360x330x120	6,00
CSB-23/20	[*] R2321F.	20	25	360x330x120	2,00
CSB-23/25	[2] R2321G.	25	30	360x330x120	7,50
CSB-23/30	[2] R2321H.	30	35	360x330x120	8,00
CSB-23/40	[*] R2321J.	40	50	360x520x120	11,00
CSB-23/50	[*] R2321K.	50	60	360x520x120	5,50
400 Vac					
CSB-40/15	[*] R2323E.	15	17.5	360x330x120	5,76
CSB-40/20	[*] R2323F.	20	25	360x330x120	6,01
CSB-40/25	[*] R2323G.	25	30	360x330x120	5,68
CSB-40/30	[*] R2323H.	30	35	360x330x120	6,70
CSB-40/40	[*] R2323J.	40	50	360x330x120	7,70
CSB-40/50	[*] R2323K.	50	60	360x330x120	7,60
CSB-40/60	[*] R2323L.	60	70	360x520x120	10,80
CSB-40/80	[*] R2323Q.	80	95	360x520x120	12,85
CSB-40/100	[*] R2323R.	100	120	360x520x120	13,50
440 Vac					
CSB-44/15	[*] R2324E.	15	17.5	360x330x120	4,70
CSB-44/20	[*] R2324F.	20	25	360x330x120	4,90
CSB-44/25	[2] R2324G.	25	30	360x330x120	5,90
CSB-44/30	[*] R2324H.	30	35	360x330x120	6,00
CSB-44/40	[*] R2324J.	40	50	360x330x120	6,90
CSB-44/50	[*] R2324K.	50	60	360x330x120	7,90
CSB-44/60	[*] R2324L.	60	70	360x330x120	7,30
CSB-44/80	[*] R2324Q.	80	95	360x520x120	10,00
CSB-44/100	[*] R2324R.	100	120	360x520x120	12,00
460 Vac					
CSB-46/15	[2] R2325E.	15	17.5	360x330x120	5,20
CSB-46/20	[*] R2325F.	20	25	360x330x120	5,50
CSB-46/25	[2] R2325G.	25	30	360x330x120	6,40
CSB-46/30	[*] R2325H.	30	35	360x330x120	0,42
CSB-46/40	[*] R2325J.	40	50	360x330x120	7,60
CSB-46/50	[*] R2325K.	50	60	360x520x120	14,00
CSB-46/60	[*] R2325L.	60	70	360x520x120	11,40
CSB-46/80	[*] R2325Q.	80	95	360x520x120	11,00
CSB-46/100	[*] R2325R.	100	120	360x610x120	16,00

Type	Code	kvar 50 Hz	kvar 60 Hz	Size (mm) width x height x depth	weight (kg)
525 Vac					
CSB-52/10	[C] R2326C.	10	12.5	360x330x120	2,60
CSB-52/15	[C] R2326E.	15	17.5	360x330x120	3,30
CSB-52/20	[C] R2326F.	20	25	360x330x120	3,30
CSB-52/25	[C] R2326G.	25	30	360x330x120	6,20
CSB-52/30	[C] R2326H.	30	35	360x330x120	13,00
CSB-52/40	[C] R2326J.	40	50	360x330x120	15,00
CSB-52/60	[C] R2326L.	60	70	360x520x120	11,70
CSB-52/70	[C] R2326M.	70	85	360x520x120	12,00
690 Vac					
CSB-69/10	[3] R232BC.	10	12.5	360x330x120	2,60
CSB-69/15	[3] R232BE.	15	17.5	360x330x120	3,30
CSB-69/20	[3] R232BF.	20	25	360x330x120	5,00
CSB-69/25	[3] R232BG.	25	30	360x330x120	3,30
CSB-69/30	[3] R232BH.	30	35	360x330x120	4,20
CSB-69/40	[3] R232BJ.	40	50	360x330x120	7,90
CSB-69/50	[3] R232BK.	50	60	360x330x120	8,10
CSB-69/60	[3] R232BL.	60	70	360x520x120	13,80
CSB-69/80	[3] R232BQ.	80	95	360x520x120	11,00
CSB-69/100	[3] R232BR.	100	0	360x610x120	12,00
1100 Vac for LV networks					
CSB-110/10	[1] R2327C.	10	12	360x330x120	3,50
CSB-110/20	[1] R2327F.	20	24	360x330x120	7,50
CSB-110/30	[1] R2327H.	30	36	360x330x120	6,00
CSB-110/40	[1] R2327J.	40	48	360x520x120	11,80
CSB-110/50	[1] R2327K.	50	60	360x520x120	16,00
CSB-110/60	[1] R2327L.	60	72	360x520x120	13,50
CSB-110/70	[1] R2327M.	70	84	360x610x120	12,00

CFB, Power capacitors for detuned filters, type P=7% (fres=189 Hz)

Type	Code	400 V kvar	440 V kvar	690 V kvar	For reactor	Size (mm) width x height x depth	weight (kg)
CFB 460							
CFB-46/6	[2] R2415A.	5	6.25	-	RZ-6,25-460	360x330x120	3,30
CFB-46/12,5	[2] R2415D.	10	12.5	-	RZ-10-400	360x330x120	5,20
CFB-46/15	[2] R2415E.	12.5	15	-	RZ-12,5-400	360x330x120	3,90
CFB-46/19	[2] R2415F.	15	18.5	-	RZ-15-400	360x330x120	8,50
CFB-46/25	[*] R2415G.	20	25	-	RBZ-20-400	360x330x120	6,50
CFB-46/30	[*] R2415H.	25	30	-	RBZ-25-400	360x330x120	7,00
CFB-46/37	[*] R2415J.	30	40	-	RBZ-30-400	360x330x120	7,50
CFB-46/50	[*] R2415K.	40	50	-	RBZ-40-400	360x520x120	10,50
CFB-46/62	[*] R2415L.	50	60	-	RBZ-50-400	360x520x120	11,00
CFB-46/74	[*] R2415P.	60	75	-	RBZ-60-400	360x520x120	12,90
CFB-46/100	[*] R2415R.	80	100	-	RBZ-80-400	360x610x120	12,00
CFB 790							
CFB-79/6	[2] R241DA.	-	-	5	REZ-5-400	360x330x120	2,60
CFB-79/12,5	[2] R241DD.	-	-	10	REZ-10-400	360x330x120	2,60
CFB-79/19	[2] R241DF.	-	-	15	REZ-15-400	360x330x120	3,30
CFB-79/25	[2] R241DG.	-	-	20	REZ-20-400	360x330x120	5,50
CFB-79/30	[2] R241DH.	-	-	25	REZ-25-400	360x330x120	7,50
CFB-79/37	[2] R241DI.	-	-	30	REZ-30-400	360x330x120	7,00
CFB-79/50	[2] R241DK.	-	-	40	REZ-40-400	360x520x120	5,50
CFB-79/62	[2] R241DL.	-	-	50	RBEZ-50-400	360x520x120	5,50
CFB-79/74	[2] R241DP.	-	-	60	RBEZ-60-400	360x520x120	13,10
CFB-79/100	[*] R241DR.	-	-	80	RBEZ-80-400	360x610x120	15,00

RZ-RBZ, Reactors III for detuned filters

Type	Code	400 V kvar	Hz	For capacitor	In (A)	L(mH)	Losses (W)	Size (mm) width x height x depth	weight (kg)
400 Vac, 50 Hz, f resonance = 189 Hz / p= 7%									
RZ-5-400	[*] P73110.	5	50	CLZ-FP-46/6,25	7,2	7.66	26	155x165x92	4,00
RZ-6,25-400	[C] P73112.	6.25	50	CLZ-FP-52/10	9	6.1	33	180x190x100	6,00
RZ-10-400	[*] P73115.	10	50	CLZ-FP-46/12,5	15	3.83	52	180x190x100	7,50
RZ-12,5-400	[*] P73117.	12.5	50	CLZ-FP-46/15	18	3.05	57	180x192x110	9,00
RZ-15-400	[*] P73120.	15	50	CLZ-FP-46/19	22	2.55	59	180x190x110	8,00
RBZ-20-400	[*] P73125.	20	50	CLZ-FP-46/25	29	1.91	79	235x165x125	12,00
RBZ-25-400	[*] P73130.	25	50	CLZ-FP-46/30	36	1.53	93	235x165x125	12,80
RBZ-30-400	[*] P73135.	30	50	2 x CLZ-FP-46/19	43	1.27	124	255x200x125	16,50
RBZ-40-400	[*] P73140.	40	50	2 x CLZ-FP-46/25	58	0.95	149	255x200x125	17,80
RBZ-50-400	[*] P73145.	50	50	2 x CLZ-FP-46/30	72	0.76	189	255x220x145	23,00
RBZ-60-400	[*] P73150.	60	50	3 x CLZ-FP-46/25	87	0.63	210	255x240x145	27,20
RBZ-80-400	[*] P73155.	80	50	3 x CLZ-FP-46/33,3	115	0.48	241	305x255x155	33,00
400 Vac, 50 Hz, f resonance = 134 Hz / p= 14%									
RZ-5-400-14%	[C] P731100000300	5	50	CLZ-FP-52/7,5-HD | CFB-52/7,5	7,2	16.31	62	180x195x100	10,00
RZ-10-400-14%	[C] P731150000300	10	50	CLZ-FP-52/15-HD | CFB-52/15	15	8.15	91	250x245x130	16,00
RZ-12,5-400-14%	[C] P731170000300	12.5	50	CLZ-FP-52/20-HD | CFB-52/19	18	6.52	130	250x245x130	16,75
RZ-15-400-14%	[C] P731200000300	15	50	CLZ-FP-52/25-HD | CFB-52/23	22	5.43	130	250x245x145	20,00
RZ-20-400-14%	[C] P731250000300	20	50	CLZ-FP-52/30-HD | CFB-52/30	29	4.07	150	250x245x145	21,00
RBZ-30-400-14%	[C] P731350000300	30	50	CLZ-FP-52/25-HD + CLZ-FP-52/20-HD | CFB-52/46	43	2.71	191	300x255x155	16,50
RBZ-40-400-14%	[C] P731400000300	40	50	2 x CLZ-FP-52/30-HD | CFB-52/60,5	58	2.03	267	345x255x155	40,00
RBZ-50-400-14%	[C] P731450000300	50	50	3 x CLZ-FP-52/25-HD | CFB-52/76	72	1.63	341	345x275x175	46,15
RBZ-60-400-14%	[C] P731500000300	60	50	3 x CLZ-FP-52/30-HD | CFB-52/91	87	1.35	421	375x275x185	61,00

RZ-RBZ-60Hz, Reactors III for detuned filters, 60 Hz

Type	Code	480 V kvar	Hz	For capacitor	In (A)	L(mH)	weight (kg)
480 Vac, 60 Hz, f resonance = 227 Hz / p= 7%							
RZ-7,5-480-60 Hz-7%	[C] P731130017000	7.5	60	CLZ-FP-52/8,5-60Hz-HD	9	6.12	4,00
RZ-10-480-60Hz-7%	[C] P731150017000	10	60	CLZ-FP-52/11,5-60Hz-HD	12	4.58	5,00
RZ-12,5-480-60 Hz-7%	[C] P731170017000	12.5	60	CLZ-FP-52/15-60Hz-HD	14	3.66	0,00
RZ-15-480-60 Hz-7%	[C] P731200017000	15	60	CLZ-FP-52/17-60Hz-HD	18	3.06	7,20
RBZ-20-480-60Hz-7%	[C] P731250017000	20	60	CLZ-FP-52/22,5-60Hz-HD	24	2.29	15,00
RBZ-25-480-60 Hz-7%	[C] P731300017000	25	60	CLZ-FP-52/30-60Hz-HD	30	1.83	17,65
RBZ-30-480-60 Hz-7%	[C] P731350017000	30	60	CLZ-FP-52/34-60Hz-HD	36	1.53	17,30
RBZ-40-480-60Hz-7%	[C] P731400017000	40	60	2 x CLZ-FP-52/22,5-60Hz-HD	48	1.15	0,00
RBZ-50-480-60 Hz-7%	[C] P731450017000	50	60	2 x CLZ-FP-52/30 -60Hz-HD	60	0.92	22,50
RBZ-60-480-60 Hz-7%	[C] P731500017000	60	60	2 x CLZ-FP-52/34-60Hz-HD	72	0.76	23,00
RBZ-80-480-60Hz-7%	[C] P731550017000	80	60	3 x CLZ-FP-52/30-60Hz-HD	96	0.58	32,00
480 Vac, 60 Hz, f resonance = 160 Hz / p= 14%							
RZ-12,5-480-60Hz-14%	[C] P731170017300	12.5	60	CLZ-FP-60/17,5-60Hz-HD	14	7.81	16,00
RZ-15-480-60Hz-14%	[C] P731200017300	15	60	CLZ-FP-60/21-60Hz-HD	18	6.52	12,00
RBZ-25-480-60Hz-14%	[C] P731300017300	25	60	CLZ-FP-60/34,5-60Hz-HD	30	3.91	16,05
RBZ-30-480-60Hz-14%	[C] P731350017300	30	60	2 x CLZ-FP-60/21-60Hz-HD	36	3.26	18,00
RBZ-50-480-60Hz-14%	[C] P731450017300	50	60	2 x CLZ-FP-60/34,5-60Hz-HD	60	1.95	32,00

TABLE OF ADDITIONAL FEATURES

RZ, RBZ

P	7	X	X	X	X	0	0	X	X	X

Code		Internal code		Delivery time
Frequency	Standard (50 Hz)	0		-
	60 Hz	1		C
Voltage	Standard (400 $V_{c.a.}$)		0	-
	230 $V_{c.a.}$		1	C
	Other voltages		C	C
Factor P %	Standard (7 %)			0 -
	5,67 %			4 C
	8,7 %			6 C
	14 %			3 C

CFB-6B, Power capacitors for harmonics filters with static switching operation of the FRE series

Capacitors with 6 terminals for CPCb boards. f resonance = 189 Hz

Type	Code	400 V kvar	440 V kvar	For reactor	Size (mm) width x height x depth	weight (kg)
400 Vac						
CFB-46/6-6B	[2] R2425A.	5	6.25	REZ-5-400	360x330x120	3,30
CFB-46/12,5-6B	[2] R2425D.	10	12.5	REZ-10-400	360x330x120	3,90
CFB-46/25-6B	[*] R2425G.	20	25	REZ-20-400	360x330x120	7,10
CFB-46/37-6B	[2] R2425J.	30	40	REZ-30-400	360x330x120	7,10
CFB-46/50-6B	[*] R2425K.	40	50	REZ-40-400	360x520x120	10,70
CFB-46/62-6B	[2] R2425L.	50	60	RBEZ-50-400	360x520x120	20,00
CFB-46/74-6B	[2] R2425P.	60	75	RBEZ-60-400	360x520x120	13,00
CFB-46/100-6B	[*] R2425R.	80	100	RBEZ-80-400	360x610x120	16,30

REZ-RBEZ, Reactors III for detuned static filters for FRE static switching bank

For capacitors with 6 terminals

Type	Code	400 V kvar	Hz	For capacitor	In (A)	L(mH)	Losses (W)	Size (mm) width x height x depth	weight (kg)
400 V, 50 Hz, f resonance = 189 Hz / p= 7%									
REZ-5-400	[4] P73210.	5	50	CFB-46/6-6B	5 A	23.67	63	90x155x150	4,00
REZ-10-400	[4] P73215.	10	50	CFB-46/12,5-6B	9 A	11.27	69	110x195x180	7,00
REZ-15-400	[4] P73220.	15	50	CFB-46/19-6B	13 A	7.5	70	120x195x180	9,00
REZ-20-400	[4] P73225.	20	50	CFB-46/25-6B	17 A	5.68	91	130x245x250	15,00
REZ-25-400	[4] P73230.	25	50	CFB-46/30-6B	21 A	4.68	110	130x245x250	16,00
REZ-30-400	[4] P73235.	30	50	CFB-46/37-6B	26 A	3.84	109	130x245x250	20,00
RBEZ-40-400	[4] P73240.	40	50	CFB-46/50-6B	35 A	2.84	179	180x235x300	25,00
RBEZ-50-400	[4] P73245.	50	50	CFB-46/62-6B	42 A	2.29	189	180x235x300	30,00
RBEZ-60-400	[4] P73250.	60	50	CFB-46/74-6B	51 A	1.89	252	180x235x300	30,00
RBEZ-80-400	[4] P73255.	80	50	CFB-46/100-6B	68 A	1.42	263	195x255x345	40,00

Supplement selection table to adapt **CSB / CFB** capacitor height to a capacitor bank equipped with **CS / CF** capacitors

CS / CF Capacitor TO REPLACE		**CSB / CFB** capacitor				
Total capacitor height (box + terminals) (mm)	Height box capacitor (mm)	Total heigh of capacitor (box+terminals) (mm)	Capacitor box height (mm)			
390	330	330	270	**SP-60**	[*] **R2ZZZ1**	
610	550	520	460	**SP-90**	[*] **R2ZZZ2**	
760	700	610	550	**SP-150**	[*] **R2ZZZ3**	

TABLE OF ADDITIONAL FEATURES

REZ, RBEZ

P	7	X	X	X	X	0	0	X	X	X	
Code						Internal code					Delivery time
Frequency						Standard (50 Hz)		0			-
						60 Hz		1			C
Voltage						Standard (400 $V_{c.a.}$)			0		-
						230 $V_{c.a.}$			1		C
						Other voltages			C		C
Factor P %						Standard (7 %)				0	-
						5,67 %				4	C
						8,7 %				6	C
						14 %				3	C

Click on the product code for more information.

Basic fixed compensation

CLP, Power capacitor with miniature circuit breaker, 50 Hz

› Cylindrical capacitor for low voltage Circuit breaker protection Icu=6kA

Type	Code	440 V kvar	Hz	In (A)	Cut off power	IP	Size (mm) width x height x depth	weight (kg)
440 Vac / 50Hz								
CLP-C-44/3	[C] R22575.	3	50	3.94	6 kA	20	215x490x147	1,20
CLP-C-44/5	[C] R22578.	5	50	6.57	6 kA	20	215x490x147	1,20
CLP-C-44/6,25	[C] R22579.	6.25	50	8.21	6 kA	20	215x490x147	1,20
CLP-C-44/7,5	[C] R2257A.	7.5	50	9.85	6 kA	20	215x490x147	1,20
CLP-C-44/10	[C] R2257C.	10	50	13	6 kA	20	215x490x147	1,20
CLP-C-44/12,5	[C] R2257D.	12.5	50	16	6 kA	20	215x490x147	1,20
CLP-C-44/15	[C] R2257E.	15	50	20	6 kA	20	215x490x147	5,00
CLP-C-44/20	[C] R2257F.	20	50	26	6 kA	20	215x490x147	5,00
CLP-C-44/25	[C] R2257G.	25	50	33	6 kA	20	215x490x147	1,20

CSB-F, Power capacitors with fuse protection, 50 Hz.

› Prismatic capacitor for low voltage
Capacitor protection by means of APR / NH-00 fuses Icu=120 kA

Type	Code	400 V kvar	440 V kvar	Cut off power	Fuses (A)	Cable section (mm2)	Size (mm) width x height x depth	weight (kg)
440 V, 50 Hz								
CSB-F-5-440	[2] R23958.	4	5	120 kA	16	6	140x381x280	5,50
CSB-F-12,5-440	[2] R2395D.	10	12.5	120 kA	35	6	140x381x280	2,00
CSB-F-15-440	[2] R2395E.	12.5	15	120 kA	50	6	140x381x280	2,00
CSB-F-20-440	[2] R2395F.	17	20	120 kA	50	10	140x381x280	5,50
CSB-F-25-440	[2] R2395G.	21	25	120 kA	50	10	140x381x280	2,00
CSB-F-30-440	[2] R2395H.	25	30	120 kA	80	16	140x381x280	0,42
CSB-F-37,5-440	[2] R2395J.	31	37.5	120 kA	100	25	140x381x280	5,50
CSB-F-50-440	[2] R2395K.	42	50	120 kA	125	25	140x381x280	10,00
CSB-F-60-440	[2] R2395L.	50	60	120 kA	160	35	140x571x280	10,00
CSB-F-75-440	[2] R2395P.	63	75	120 kA	160	50	140x571x280	5,00

CSB-M, Power capacitors with miniature circuit breaker protection, 50 Hz

› Prismatic capacitor for low voltage
Condenser protection by circuit breaker Icu= 10kA

Type	Code	400 V kvar	440 V kvar	Cut off power	Aut.Switch (A)	Cable section (mm2)	Size (mm) width x height x depth	weight (kg)
440 Vac, 50 Hz								
CSB-M-5-440	[2] R23948.	4	5	6 kA	10	6	140x381x280	5,50
CSB-M-7,5-440	[2] R2394A.	6	7.5	6 kA	16	6	140x381x280	5,50
CSB-M-10-440	[2] R2394C.	8	10	6 kA	20	6	140x381x280	6,00
CSB-M-12,5-440	[2] R2394D.	10	12.5	6 kA	25	6	140x381x280	5,50
CSB-M-15-440	[2] R2394E.	12.5	15	6 kA	32	6	140x381x280	5,30
CSB-M-20-440	[*] R2394F.	17	20	6 kA	40	10	140x381x280	0,23
CSB-M-25-440	[*] R2394G.	21	25	6 kA	50	10	140x381x280	7,00
CSB-M-30-440	[*] R2394H.	25	30	6 kA	63	16	140x381x280	7,00
CSB-M-37,5-440	[*] R2394J.	31	37.5	10 kA	80	25	140x381x280	7,90
CSB-M-50-440	[*] R2394K.	42	50	10 kA	100	25	140x381x280	9,00
CSB-M-60-440	[*] R2394L.	50	60	10 kA	125	35	140x571x280	11,00
CSB-M-75-440	[*] R2394M.	66	75	10 kA	160	50	140x571x280	2,50

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

Advanced fixed compensation

CCF, CSB capacitor with contactor and fuses, 50 Hz

› Prismatic capacitor for low voltage
Contactor with fast discharge resistor
Protection by fuses NH-00/ Icu= 120 kA

Type	Code	400 V kvar	440 V kvar	In (A)	Cut off power	Fuses (A)	Cable section (mm2)	Size (mm) width x height x depth	weight (kg)
440 V / 50 Hz									
CCF-12,5-440	[2] R3SA21.	10	12.5	16	120 kA	35	6	360x814x196	12,00
CCF-15-440	[2] R3SA31.	12.5	15	20	120 kA	35	10	360x814x196	12,00
CCF-20-440	[2] R3SA41.	17	20	26	120 kA	50	10	360x814x196	14,00
CCF-25-440	[2] R3SA51.	21	25	33	120 kA	63	10	360x814x196	15,00
CCF-30-440	[2] R3SA61.	25	30	39	120 kA	80	16	360x814x196	15,00
CCF-37,5-440	[2] R3SA81.	31	37.5	49	120 kA	80	25	360x814x196	17,00
CCF-50-440	[2] R3SA91.	42	50	66	120 kA	125	35	360x814x196	21,00
CCF-60-440	[2] R3SAA1.	50	60	79	120 kA	160	50	360x1004x196	22,00
CCF-75-440	[2] R3SAB1.	63	75	99	120 kA	160	50	360x1004x196	24,00
CCF-100-440	[2] R3SAD1.	80	100	131	120 kA	160	70	360x1004x196	29,00

CPA, Fixed capacitors with automatic 50-Hz switch protection

› Prismatic capacitor for low voltage
Capacitor protection by means of circuit breaker Icu= 50 kA

Type	Code	400 V kvar	440 V kvar	Cut off power	Aut.Switch (A)	Cable section (mm2)	Size (mm) width x height x depth	weight (kg)
CPA-15-440	[2] R24A3D.	12.5	15	50 kA	63	16	360x814x196	10,00
CPA-25-440	[2] R24A3H.	21	25	50 kA	63	16	360x814x196	16,00
CPA-37,5-440	[2] R24A3G.	31	37.5	50 kA	80	25	360x814x196	13,00
CPA-50-440	[2] R24A3J.	42	50	50 kA	100	25	360x814x196	15,00
CPA-60-440	[2] R24A3K.	50	60	50 kA	125	35	360x814x196	18,00
CPA-75-440	[2] R24A3L.	62	75	50 kA	160	50	360x1004x196	11,00
CPA-100-440	[2] R24A3M.	83	100	50 kA	200	70	360x1004x196	22,00
CPA-120-440	[2] R24A3N.	100	120	50 kA	250	95	360x1004x196	28,00

OPTIM FRF, Fixed capacitors with detuned reactor of P = 7% (fres=189 Hz), 50 Hz

- Fixed reactive energy compensation
- Includes filtering ballasts to prevent resonances from the 5th harmonic onwards.
- Fuse protection
- Floor mount

Notable for:
Stable load compensation

Mounted on a metal cabinet. Floor mounted

Type	Code	400 V kvar	440 V kvar	Cable section (mm2)	Size (mm) width x height x depth	weight (kg)
OPTIM FRF, fuse protection APR, 440 V, 50 Hz						
OPTIM FRF-25-440	[2] R5X350.	21	25	10	650x1060x420	78,00
OPTIM FRF-37,5-440	[2] R5X370.	31	37.5	16	650x1060x420	82,00
OPTIM FRF-50-440	[2] R5X380.	42	50	25	650x1060x420	85,00
OPTIM FRF-60-440	[2] R5X390.	50	60	35	650x1060x420	90,00
OPTIM FRF-75-440	[2] R5X3A0.	62	75	50	650x1060x420	85,00
OPTIM FRF-100-440	[2] R5X3B0.	83	100	70	650x1060x420	95,00

OPTIM FRM, Fixed capacitors with detuned reactor of P = 7% (fres=189 Hz), 50 Hz

- Fixed reactive energy compensation
- Includes filtering ballasts to prevent resonances from the 5th harmonic onwards.
- Three-pole circuit breaker protection
- Floor mount

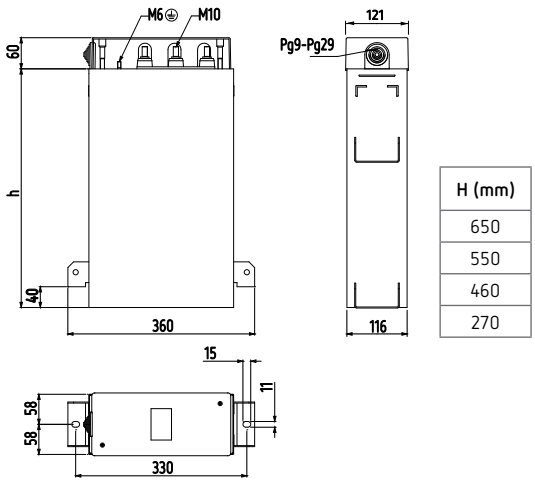
Notable for:
Stable load compensation

Mounted on a metal cabinet. Floor mounted

Type	Code	400 V kvar	440 V kvar	Cut off power	Cable section (mm2)	Size (mm) width x height x depth	weight (kg)
OPTIM FRM, molded case circuit breaker protection, 440 V, 50 Hz							
OPTIM FRM-25-440	[2] R5Y350.	21	25	50 kA	10	650x1060x420	78,00
OPTIM FRM-37,5-440	[2] R5Y370.	31	37.5	50 kA	16	650x1060x420	78,00
OPTIM FRM-50-440	[2] R5Y380.	42	50	50 kA	25	650x1060x420	78,00
OPTIM FRM-60-440	[2] R5Y390.	50	60	50 kA	35	650x1060x420	90,00
OPTIM FRM-75-440	[2] R5Y3A0.	62	75	50 kA	50	650x1060x420	96,00
OPTIM FRM-100-440	[2] R5Y3B0.	83	100	50 kA	70	650x1060x420	110,00

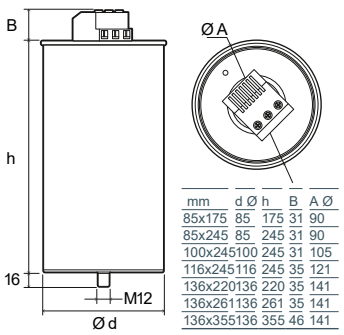
Dimensions

CSB / CFB



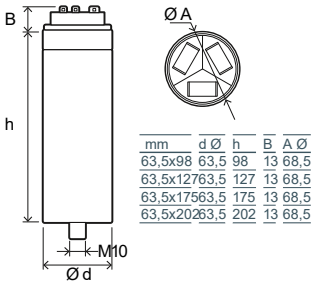
H (mm)
650
550
460
270

CLZ-FP



mm	d Ø	h	B	A Ø
85x175	85	175	31	90
85x245	85	245	31	90
100x245	100	245	31	105
116x245	116	245	35	121
136x220	136	220	35	141
136x261	136	261	35	141
136x355	136	355	46	141

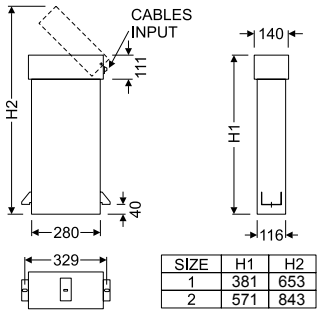
CLZ-FPT



mm	d Ø	h	B	A Ø
63,5x98	63,5	98	13	68,5
63,5x127	63,5	127	13	68,5
63,5x175	63,5	175	13	68,5
63,5x202	63,5	202	13	68,5

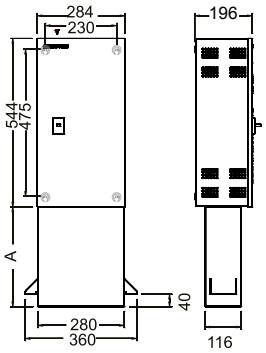
Dimensions

CSB-F / CSB-M



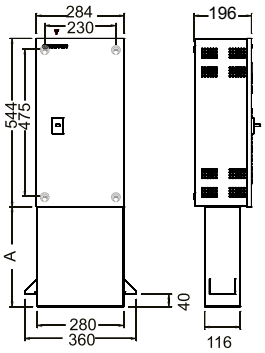
SIZE	H1	H2
1	381	653
2	571	843

CPA



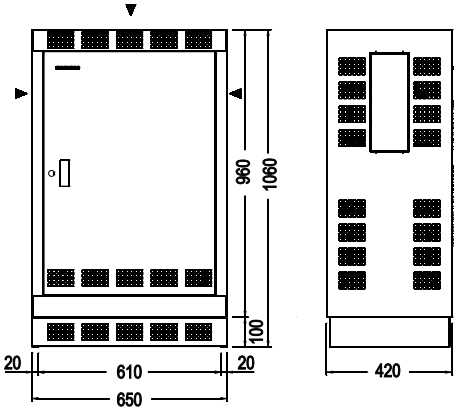
A
270
460

CCF

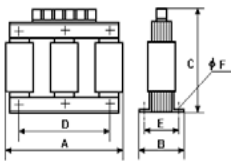


	A
ACF-40	324
ACF-60	549
ACF-80	699

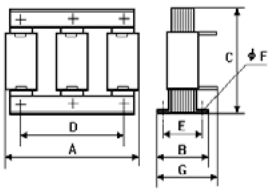
OPTIM FRF / OPTIM FRM



RZ / REZ



RBZ / RBEZ



Type	A mm	B mm	C mm	D* mm	E* mm	F mm	G mm	kg
RZ-5-400	155	76	165	75	55	7	--	4
RZ-6,24-400	180	112	190	90	75	7	--	6
RZ-10-400	180	112	190	90	75	7	--	6,5
RZ-12,5-400	180	112	190	90	85	7	--	7
RZ-15-400	180	110	190	90	85	7	--	8
RBZ-20-400	235	125	165	150	95	7	145	14
RBZ-25-400	235	125	165	150	95	7	145	14
RBZ-30-400	255	125	200	160	95	9	150	19
RBZ-40-400	255	125	200	160	95	9	150	20
RBZ-50-400	255	145	220	160	115	9	175	25
RBZ-60-400	255	145	240	180	115	9	175	28
RBZ-80-400	305	155	255	180	115	11	190	31

Type	A mm	B mm	C mm	D* mm	E* mm	F mm	G mm	kg
REZ-05-400	150	90	155	75	70	7	-	4
REZ-10-400	180	110	195	90	83	7	-	7
REZ-15-400	180	120	195	90	93	7	-	9
REZ-20-400	250	130	245	130	98	7	-	15
REZ-25-400	250	130	245	130	98	7	-	16
REZ-30-400	250	130	245	130	98	7	-	17
RBEZ-40-400	300	145	235	160	113	9	180	30
RBEZ-50-400	300	145	235	160	113	9	180	30
RBEZ-60-400	300	145	235	160	113	9	180	30
RBEZ-80-400	345	155	255	180	121	11	195	40

* Distance between fixings

Click on the product code for more information.

Low voltage capacitor banks

Table: Selection of the reactive energy compensation unit

Multiple loads	Slow variations	Without harmonics	OPTIM P&P	
		With harmonics	SVGm / OPTIM SVGm	Inmunity to harmonics
			OPTIM FR P&P	Elimination of resonances
	Fast variations	Without harmonics	OPTIM EMK	
		With harmonics	SVGm	Inmunity to harmonics
			OPTIM FRE	Elimination of resonances

Table: Selection of the OPTIM

		OPTIM 3 P&P / 5 P&P	**OPTIM 9 P&P / 8 P&P**	**OPTIM 8L / 14L / 16L**
				
Rated voltage		440 V	440 V	440 V
Service voltage		400 V	400 V	400 V
Power range at rated voltage		OPTIM 3: 12,5 ... 62,5 kvar OPTIM 5: 55 ... 150 kvar	OPTIM 9: 165 ... 270 kvar OPTIM 8: 300 ... 480 kvar	OPTIM 8L: 450 a 800 kvar OPTIM 14L: 900 a 1400 kvar OPTIM 16L: 1500 a 1600 kvar
Contactor switching		●	●	●
No. Steps (maximum)		3 / 5	9 / 8	8 / 14 / 16
Enclosure	Thermoplastic IP 21	–	–	–
	Metallic IP 21	●	●	●
Installation (indoor)		●	●	●
Assembly	Wall-mounted	●	–	–
	Floor-mounted	–	●	●
Regulator	computer C Wi-Fi	●	●	●
	computer Smart III	Optional	Optional	Optional
Capacitor	Cylindrical CLZ	●	●	●
Built-in protection	General miniature circuit breaker	OPTIM 3: General OPTIM 5: By step	–	–
	APR NH-00 Fuses	–	●	●
Autotransformer for aux. supply		–	●	●

Table: Recommended capacitor bank power ratings - 7.5 to 105 kvar

kvar	Recommended capacitor bank	Electrical steps (**kvar**)
7,5 ... 17,5 kvar	OPTIM 3-P&P-17,5-440	7 x 2,5
17,5 ... 31,25 kvar	OPTIM 3-P&P-31,25-440	5 x 6,25
31,25 ... 43,75 kvar	OPTIM 3-P&P-43,75-440	7 x 6,25
43,75 ... 55 kvar	OPTIM 5-P&P-55-440	11 x 5
55 ... 70 kvar	OPTIM 5-P&P-70-440	7 x 10
75 ... 105 kvar	OPTIM 5-P&P-105-440	15 + 3 x 30

OPTIM P&P, Automatic capacitor banks, 12,5 to 1600 kvar, 50 Hz.

- Reactive energy compensation in harmonic-free networks
- Manoeuvring by three-phase contactors (slow variation of loads)
- 440V Reinforced Cylindrical Capacitors (CLZ-UH)
- Computer C Wi-Fi or Computer Smart III controller (optional)
- IP 21, wall-mounted or floor-mounted (depending on model), hardened steel enclosure
- Cable entry from the bottom or side of the cabinet.
- Other optional items: protective polycarbonate, fan or manual/automatic switch

Type	Code	400 V kvar	440 V kvar	Composition	Aut.Switch (A)	Man. Switch (A)	Cable section (mm2)	Size (mm) width x height x depth	weight (kg)
OPTIM 3 P&P, automatic capacitor banks with computer C Wi-Fi regulator									
OPTIM 3 P&P-12,5-440	[*] R3L110.	10	12.5	2,5+5+5	Included	-	6	400x600x260	18,00
OPTIM 3 P&P-17,5-440	[*] R3L120.	14	17.5	2,5+5+10	Included	-	6	400x600x260	18,00
OPTIM 3 P&P-25-440	[*] R3L130.	20	25	5+10+10	Included	-	10	400x600x260	18,00
OPTIM 3 P&P-31,25-440	[*] R3L140.	26	31.25	6,25+12,5+12,5	Included	-	10	400x600x260	18,00
OPTIM 3 P&P-37,5-440	[*] R3L150.	31.25	37.5	7,5+15+15	Included	-	16	400x600x260	18,00
OPTIM 3 P&P-43,75-440	[*] R3L160.	36	43.75	6,25+12,5+25	Included	-	25	400x600x260	18,00
OPTIM 3 P&P-52,5-440	[*] R3L170.	43	52.5	7,5+15+30	Included	-	25	400x600x260	20,00
OPTIM 3 P&P-62,5-440	[*] R3L180.	51	62.5	12,5+25+25	Included	-	35	400x600x260	20,00
OPTIM 5 P&P, automatic capacitor banks with computer C Wi-Fi regulator									
OPTIM 5 P&P-55-440	[*] R3L210.	45	55	5+10+20+20	125	200	35	600x740x260	31,00
OPTIM 5 P&P-70-440	[*] R3L220.	58	70	10+3x20	125	200	50	600x740x260	31,00
OPTIM 5 P&P-90-440	[*] R3L230.	74	90	15+15+30+30	200	200	70	600x740x260	31,00
OPTIM 5 P&P-105-440	[*] R3L240.	87	105	15+30+30+30	200	200	70	600x740x260	31,00
OPTIM 5 P&P-135-440	[*] R3L250.	112	135	15+30+30+30+30	250	250	95	600x740x260	37,00
OPTIM 5 P&P-150-440	[*] R3L260.	124	150	30+30+30+30+30	250	250	95	600x740x260	39,00
OPTIM 9 P&P, automatic capacitor banks with computer C Wi-Fi regulator. Built-in power supply autotransformer									
OPTIM 9 P&P-165-440	[2] R3L310.	136	165	15+5x30	400	400	120	700x1350x440	80,00
OPTIM 9 P&P-195-440	[2] R3L320.	161	195	15+6x30	400	400	150	700x1350x440	85,00
OPTIM 9 P&P-225-440	[2] R3L330.	186	225	15+7x30	400	400	185	700x1350x440	86,00
OPTIM 9 P&P-255-440	[2] R3L340.	211	255	15+8x30	630	630	240	700x1350x440	98,00
OPTIM 9 P&P-270-440	[2] R3L350.	223	270	9x30	630	630	240	700x1350x440	100,00
OPTIM 8 P&P, automatic capacitor banks with computer C Wi-Fi regulator. Built-in power supply autotransformer									
OPTIM 8 P&P-300-440	[2] R3L410.	248	300	2x30+4x60	630	630	2x150	1000x1750x440	126,00
OPTIM 8 P&P-330-440	[2] R3L420.	273	330	30+5x60	630	630	2x150	1000x1750x440	128,00
OPTIM 8 P&P-390-440	[2] R3L430.	322	390	30+6x60	800	800	2x185	1000x1750x440	135,00
OPTIM 8 P&P-450-440	[2] R3L440.	372	450	30+7x60	800	800	2x240	1000x1750x440	142,00
OPTIM 8 P&P-480-440	[2] R3L450.	396	480	8x60	1000	1000	2x240	1000x1750x440	163,00
OPTIM 8L P&P, automatic capacitor banks with computer C Wi-Fi regulator. Built-in power supply autotransformer									
OPTIM 8L P&P-550-440	[2] R35L10.	454	550	50+5x100	1000	1000	2x240	1200x1900x650	234,00
OPTIM 8L P&P-650-440	[2] R35L20.	537	650	50+6x100	1250	1250	3x150	1200x1900x650	255,00
OPTIM 8L P&P-750-440	[2] R35L30.	620	750	50+7x100	1600	1600	3x185	1200x1900x650	280,00
OPTIM 8L P&P-800-440	[2] R35L40.	661	800	8x100	1600	1600	3x185	1200x1900x650	290,00
OPTIM 14L P&P, automatic capacitor banks with computer C Wi-Fi regulator. Built-in power supply autotransformer									
OPTIM 14L P&P-900-440	[2] R36L10.	743	900	2X50+8x100	1250+400	1250+400	3x150/185	2100x1900x650	435,00
OPTIM 14L P&P-950-440	[2] R36L20.	785	950	50+9x100	1600+400	1600+400	3x185/185	2100x1900x650	445,00
OPTIM 14L P&P-1050-440	[2] R36L30.	867	1050	50+10x100	1600+630	1600+630	3x185/240	2100x1900x650	470,00
OPTIM 14L P&P-1150-440	[2] R36L40.	950	1150	50+11x100	1600+800	1600+800	3x185/2x150	2100x1900x650	495,00
OPTIM 14L P&P-1200-440	[2] R36L50.	991	1200	12x100	1600+800	1600+800	3x185/2x185	2100x1900x650	505,00
OPTIM 14L P&P-1300-440	[2] R36L60.	1074	1300	100+6x200	1600+1000	1600+1000	3x185/2x240	2100x1900x650	535,00
OPTIM 14L P&P-1400-440	[2] R36L70.	1156	1400	100+100+6x200	1600+1000	1600+1000	3x185/3x120	2100x1900x650	560,00
OPTIM 16L P&P, automatic capacitor banks with computer C Wi-Fi regulator. Built-in power supply autotransformer									
OPTIM 16L P&P-1500-440	[2] R37L30.	1239	1500	100+7x200	1600+1250	1600+1250	3x185/3x150	2400x1900x650	583,00
OPTIM 16L P&P-1600-440	[2] R37L40.	1322	1600	100+100+7x200	1600+1600	1600+1600	3x185/3x185	2400x1900x650	580,00

Click on the product code for more information.

Table: selection capacitor banks with rejection filters, Type P=7% (f_{res}=189 Hz), 50 Hz

		OPTIM FRS P&P	OPTIM FR P&P
			
Rated voltage		440 V	440 V
Service voltage		400 V	400 V
Power range at rated voltage (50 Hz)		de 31,25 a 120 kvar	OPTIM FR4 P&P: 150 a 400 kvar OPTIM FR6 P&P: 400 a 600 kvar OPTIM FR8 P&P: 600 a 800 kvar OPTIM FR10 P&P: 800 a 1000 kvar OPTIM FR12 P&P: 1050 a 1200 kvar
Contactor switching		•	•
No. Steps (maximum)		4	4 / 6 / 8 / 10 / 12
Enclosure	Metallic IP 21	•	•
Installation (indoor)		•	•
Assembly (floor-mounted)		•	•
Regulator	Computer C Wi-Fi	•	•
	Computer Smart III	Optional	Optional
Capacitor	Cylindrical CLZ	•	•
Reactors tuned to 189 Hz (ask if you require other tuning values)		•	•
Built-in protection	Miniature ircuit breaker per step	•	–
	APR NH-00 Fuses	–	•
Autotransformer for aux. supply		•	•

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

OPTIM FR P&P, Automatic capacitor banks with detuned filters (contactors switching), type P=7% (fres=189 Hz), 50 Hz.

- Reactive energy compensation in harmonic-present networks
- Manoeuvring by three-phase contactors (slow variation of loads)
- Rejection reactance tuned to 7% (189Hz@50 Hz/227Hz@60Hz) to prevent resonances from the 5th harmonic onwards.
- Other tuning options: 14% (134Hz@50Hz / 160 Hz@60Hz), 8.7% (170Hz), 6% (204Hz) or customized as needed
- 460V Reinforced Cylindrical Capacitors (CLZ-UH)
- Computer C Wi-Fi or Computer Smart III controller (optional)
- Other optional items: protective polycarbonate, fan or manual/automatic switch

Type	Code	400 V kvar	440 V kvar	Composition	Aut.Switch (A)	Man. Switch (A)	Cable section (mm2)	Size (mm) width x height x depth	weight (kg)
OPTIM FRS-P&P, automatic capacitor banks with computer C Wi-Fi regulator									
OPTIM FRS-P&P-31,25-440	[2] R54R64.	26	31.25	6,25 + 2 x 12,5	-	Included	10	800x1200x500	82,00
OPTIM FRS-P&P-43,75-440	[2] R54R74.	36	43.75	6,25 + 12,5 + 25	-	Included	25	800x1200x500	108,00
OPTIM FRS-P&P-62,5-440	[2] R54R81.	52	62.5	12,5 + 2 x 25	-	Included	35	800x1200x500	100,00
OPTIM FRS-P&P-90-440	[2] R54R88.	74	90	2 x 15 + 2 x 30	-	Included	70	800x1200x500	133,00
OPTIM FRS-P&P-105-440	[2] R54R92.	87	105	15 + 3 x 30	-	Included	70	800x1200x500	122,00
OPTIM FRS-P&P-120-440	[2] R54R95.	99	120	4 x 30	-	Included	95	800x1200x500	129,00
OPTIM FR4-P&P, automatic capacitor banks with computer C Wi-Fi regulator									
OPTIM FR4-P&P-150-440	[2] R54S24.	125	150	30 + 2 x 60	400	400	95	900x1900x650	195,00
OPTIM FR4-P&P-175-440	[2] R54S25.	145	175	25 + 50 + 100	400	400	120	900x1900x650	3,00
OPTIM FR4-P&P-200-440	[2] R54S28.	165	200	50 + 50 + 100	400	400	150	900x1900x650	209,00
OPTIM FR4-P&P-250-440	[2] R54S29.	207	250	50 + 2 x 100	630	630	185	900x1900x650	242,00
OPTIM FR4-P&P-300-440	[2] R54S30.	248	300	50 + 50 + 2 x 100	630	630	240	900x1900x650	270,00
OPTIM FR4-P&P-350-440	[2] R54S32.	289	350	50 + 3 x 100	630	630	2x150	900x1900x650	299,00
OPTIM FR4-P&P-400-440	[2] R54S34.	331	400	4 x 100	800	800	2x185	900x1900x650	0,00
OPTIM FR6-P&P, automatic capacitor banks with computer C Wi-Fi regulator									
OPTIM FR6-P&P-400-440	[2] R54T25.	331	400	50 + 50 + 3 x 100	800	800	2x185	1200x1900x650	0,00
OPTIM FR6-P&P-450-440	[2] R54T30.	372	450	50 + 4 x 100	800	800	2x185	1200x1900x650	376,00
OPTIM FR6-P&P-500-440	[2] R54T35.	413	500	5 x 100	1000	1000	2x240	1200x1900x650	397,00
OPTIM FR6-P&P-550-440	[2] R54T40.	455	550	50 + 5 x 100	1000	1000	2x240	1200x1900x650	155,00
OPTIM FR6-P&P-600-440	[2] R54T45.	496	600	6 x 100	1000	1000	2x240	1200x1900x650	685,00
OPTIM FR8-P&P, automatic capacitor banks with computer C Wi-Fi regulator									
OPTIM FR8-P&P-600-440	[2] R54U36.	496	600	50 + 50 + 5 x 100	1250	1250	2x240	1500x1900x650	250,00
OPTIM FR8-P&P-650-440	[2] R54U38.	537	650	50 + 6 x 100	1250	1250	3x150	1500x1900x650	504,00
OPTIM FR8-P&P-700-440	[2] R54U40.	579	700	7 x 100	1250	1250	3x150	1500x1900x650	0,00
OPTIM FR8-P&P-750-440	[2] R54U42.	620	750	50 + 7 x 100	1600	1600	3x185	1500x1900x650	580,00
OPTIM FR8-P&P-800-440	[2] R54U44.	661	800	8 x 100	1600	1600	3x185	1500x1900x650	582,00
OPTIM FR10-P&P, automatic capacitor banks with computer C Wi-Fi regulator									
OPTIM FR10-P&P-800-440	[6] R54V25.	661	800	8 x 100	1000+400	1000+400	2x240/ 240	2100x1900x650	695,00
OPTIM FR10-P&P-850-440	[2] R54V30.	702	850	50 + 8 x 100	1000+630	1000+630	2x240/ 240	2100x1900x650	710,00
OPTIM FR10-P&P-900-440	[6] R54V35.	744	900	9 x 100	1000+630	1000+630	2x240/ 240	2100x1900x650	345,00
OPTIM FR10-P&P-950-440	[2] R54V40.	785	950	50 + 9 x 100	1000+800	1000+800	2x240/ 2x185	2100x1900x650	0,00
OPTIM FR10-P&P-1000-440	[2] R54V45.	826	1000	10 x 100	1000+800	1000+800	2x240/ 2x185	2100x1900x650	0,00
OPTIM FR12-P&P, automatic capacitor banks with computer C Wi-Fi regulator									
OPTIM FR12-P&P-1050-440	[6] R54W50.	868	1050	50 + 10 x 100	1000+1000	1000+1000	2x240/ 2x240	2400x1900x650	0,00
OPTIM FR12-P&P-1100-440	[6] R54W55.	909	1100	11 x 100	1000+1000	1000+1000	2x240/ 2x240	2400x1900x650	0,00
OPTIM FR12-P&P-1150-440	[2] R54W60.	950	1150	50 + 11 x 100	2x1000	2x1000	2x240/ 2x240	2400x1900x650	947,00
OPTIM FR12-P&P-1200-440	[2] R54W65.	992	1200	12 x 100	2x1000	2x1000	2x240/ 2x240	2400x1900x650	0,00

Click on the product code for more information.

TABLE OF ADDITIONAL FEATURES

OPTIM P&P

R	3	X	X	X	X	0	0	X	X	X

Code		Internal code			Delivery time	
Options	Standard	0			-	
	Autotransformer for aux. supply	1			-	OPTIM 3 & 5 P&P
	Fan	2			-	**No** OPTIM 3 P&P
	Policarbonate	3			-	**No** OPTIM 3 P&P
	Autotransf. + Fan	4			-	OPTIM 5 P&P
	Autotransf. + Policarbonate	5			-	OPTIM 5 P&P
	Policarbonate + Fan	6			-	**No** OPTIM 3 P&P
	Autotransf. +Policarbonate + Fan	7			-	OPTIM 5 P&P
Regulator	Standard		0		-	
	computer SMART III 6		S		-	
	computer SMART III 12		T		-	
	computer SMART III 14		Z			
	computer SMART III 12 +SmartLink VAR		L			**No** OPTIM 3 P&P
Switch	without switch			0	-	
	Manual switch 200 A			3	-	
	Manual switch 250A			4	-	
	Manual switch 400 A			5	-	
	Manual switch 630 A			6	-	
	Manual switch 800 A			7	-	
	Manual switch 1000 A			8	-	
	Manual switch 1250 A			Y	-	
	Manual switch 1600 A			9	-	
	Circuit breaker 63 A			A	-	
	Circuit breaker 125 A			B	-	
	Circuit breaker 160 A / 200 A			C	-	
	Circuit breaker 250A			D	-	
	Circuit breaker 400 A			E	-	
	Circuit breaker 630 A			F	-	
	Circuit breaker 800 A			G	-	
	Circuit breaker 1000 A			H	-	
	Circuit breaker 1250 A			I	-	
	Circuit breaker 1600 A			J	-	
	Circuit breaker 63 A + Residual current			K	-	
	Circuit breaker 125 A + Residual current			L	-	
	Circuit breaker160 A + Residual current			M	-	
	Circuit breaker 250 A + Residual current			N	-	
	Circuit breaker 400 A + Residual current			O	-	
	Circuit breaker 630 A + Residual current			P	-	
	Circuit breaker 800 A + Residual current			Q	-	
	Circuit breaker 1000 A + Residual current			R	-	
	Circuit breaker 1250 A + Residual current			S	-	
	Circuit breaker 1600 A + Residual current			T	-	

OPTIM FRS P&P / OPTIM FR P&P

R	5	X	X	X	X	0	0	X	X	X

Code		Internal code			Delivery time
Options	Standard	0			-
	Fan	2			-
	Policarbonate	3			-
	Policarbonate + Fan	6			-
Regulator	Standard		0		-
	computer SMART III 6		S		-
	computer SMART III 12		T		-
	computer SMART III 14		Z		
	computer SMART III 12 +SmartLink VAR		L		
Switch	without switch			0	-
	Manual switch 200 A			3	-
	Manual switch 250A			4	-
	Manual switch 400 A			5	-
	Manual switch 630 A			6	-
	Manual switch 800 A			7	-
	Manual switch 1000 A			8	-
	Manual switch 1250 A			Y	-
	Manual switch 1600 A			9	-
	Circuit breaker 63 A			A	-
	Circuit breaker 125 A			B	-
	Circuit breaker 160 A / 200 A			C	-
	Circuit breaker 250A			D	-
	Circuit breaker 400 A			E	-
	Circuit breaker 630 A			F	-
	Circuit breaker 800 A			G	-
	Circuit breaker 1000 A			H	-
	Circuit breaker 1250 A			I	-
	Circuit breaker 1600 A			J	-
	Circuit breaker 63 A + Residual current			K	-
	Circuit breaker 125 A + Residual current			L	-
	Circuit breaker160 A + Residual current			M	-
	Circuit breaker 250 A + Residual current			N	-
	Circuit breaker 400 A + Residual current			O	-
	Circuit breaker 630 A + Residual current			P	-
	Circuit breaker 800 A + Residual current			Q	-
	Circuit breaker 1000 A + Residual current			R	-
	Circuit breaker 1250 A + Residual current			S	-
	Circuit breaker 1600 A + Residual current			T	-

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

OPTIM-SVGm, Hybrid var compensators

› • Avoids penalties for inductive or capacitive reactive consumption
• Hybrid compensation: Capacitor for slow variations and IGBT for fast load variations
• Up to 700 kvar of inductive reactive compensation via capacitors and contactor
• Up to 100 kvar of inductive or capacitive reactive compensation via IGBTs
• Rejection ballast tuned to 7% (189 Hz@50 Hz / 227 Hz@60 Hz) to prevent resonances from the 5th harmonic onwards.
• Small-amplitude cabinet mounting (627 mm width for 400 kvar)

Type	Code	400 V kvar	440 V kvar	Composition	Frequency (Hz)	Size (mm) width x height x depth	weight (kg)
50 Hz							
OPTIM SVGm-200-440	[4] RG20F1.	182	200	1 x 100 kvar + 100 kvar	50 Hz	627x1959x804	261,00
OPTIM SVGm-300-440	[4] RG20F3.	264	300	2 x 100 kvar + 100 kvar	50 Hz	627x1959x804	305,00
OPTIM SVGm-400-440	[4] RG20F5.	346	400	3 x 100 kvar + 100 kvar	50 Hz	627x1959x804	349,00
OPTIM SVGm-500-440	[4] RG20F7.	428	500	4 x 100 kvar + 100 kvar	50 Hz	1254x1959x804	598,00
OPTIM SVGm-600-440	[4] RG20F9.	510	600	5 x 100 kvar + 100 kvar	50 Hz	1254x1959x804	642,00
OPTIM SVGm-700-440	[4] RG20FB.	592	700	6 x 100 kvar + 100 kvar	50 Hz	1254x1959x804	686,00
OPTIM SVGm-800-440	[4] RG20FD.	674	800	7 x 100 kvar + 100 kvar	50 Hz	1254x1959x804	730,00

OPTIM-SVGm-60Hz, Hybrid var compensators , 60 Hz

›

Type	Code	480 V kvar	Composition	Frequency (Hz)	Size (mm) width x height x depth	weight (kg)
60 Hz						
OPTIM SVGm-175-480-60Hz	[C] RG26F1.	175	1 x 75 kvar + 100 kvar	60 Hz	627x1959x804	250,00
OPTIM SVGm-250-480-60Hz	[C] RG26F3.	250	2 x 75 kvar + 100 kvar	60 Hz	627x1959x804	310,00
OPTIM SVGm-325-480-60Hz	[C] RG26F5.	325	3 x 75 kvar + 100 kvar	60 Hz	627x1959x804	370,00
OPTIM SVGm-400-480-60Hz	[C] RG26F7.	400	4 x 75 kvar + 100 kvar	60 Hz	1254x1959x804	555,00
OPTIM SVGm-475-480-60Hz	[C] RG26F9.	475	5 x 75 kvar + 100 kvar	60 Hz	1254x1959x804	615,00
OPTIM SVGm-550-480-60Hz	[C] RG26FB.	550	6 x 75 kvar + 100 kvar	60 Hz	1254x1959x804	675,00
OPTIM SVGm-625-480-60Hz	[C] RG26FD.	625	7 x 75 kvar + 100 kvar	60 Hz	1254x1959x804	735,00

SVGm, Static Var Generator with multilevel technology, 50 / 60 Hz.

- Avoids penalties for inductive or capacitive reactive consumption (From 0.7L to 0.7C)
- Compensation by power electronics (IGBT) for wall or cabinet mounting
- Immune to harmonics
- Up to 690V and 400kvar (3 or 4 wires-expandable)
- Minimal maintenance
- Integrated Webserver and alarms (derating and anti-resonance included)
- Low or Medium Voltage Compensation (via step-up transformer)

50 / 60 Hz, reactive power compensation

Type	Code	System	230 V kvar	400 V kvar	440 V kvar	480 V kvar	500 V kvar	690 V kvar	Phase current	Size (mm) width x height x depth	weight (kg)
3 wires 480 V, Wall-mounted cabinet											
SVGm-3WF-30M-480	[4] R4P3M0.	3 wires, 230...480 V	17.4	30	30	30	-	-	44	430x530x178	21,00
SVGm-3WF-075M-480	[4] R4P3M6.	3 wires, 230...480 V	43.1	75	75	75	-	-	110	439x745x288	56,00
SVGm-3WF-100M-480	[4] R4P3M2.	3 wires, 230...480 V	57.5	100	100	100	-	-	145	439x745x288	56,00
3 wires 480 V, Floor-mounted cabinet											
SVGm-3WF-100C-480	[4] R4P3F2.	3 wires, 230...480 V	57.5	100	100	100	-	-	145	608x1890x812	190,00
SVGm-3WF-200C-480	[4] R4P3F3.	3 wires, 230...480 V	115	200	200	200	-	-	290	608x1890x812	245,00
SVGm-3WF-300C-480	[4] R4P3F4.	3 wires, 230...480 V	172.5	300	300	300	-	-	435	608x1890x812	300,00
SVGm-3WF-400C-480	[4] R4P3F5.	3 wires, 230...480 V	230	400	400	400	-	-	580	608x1890x812	355,00
3 wires 690 V, Floor-mounted cabinet											
SVGm-3WF-100C-690	[4] R4P5F2.	3 wires, 500 ... 690 V	-	-	-	-	72	100	84	608x1890x812	190,00
SVGm-3WF-200C-690	[4] R4P5F3.	3 wires, 500 ... 690 V	-	-	-	-	144	200	168	608x1890x812	249,00
SVGm-3WF-300C-690	[C] R4P5F4.	3 wires, 500 ... 690 V	-	-	-	-	216	300	252	608x1890x812	306,00
SVGm-3WF-400C-690	[C] R4P5F5.	3 wires, 500 ... 690 V	-	-	-	-	288	400	336	608x1890x812	363,00
4 wires 400 V, Wall-mounted cabinet											
SVGm-4WF-020M-400	[4] R4P4MA.	4 wires, 230...400 V	12	20.7	-	-	-	-	30	430x530x178	21,00
SVGm-4WF-050M-400	[4] R4P4ML.	4 wires, 230...400 V	30	51.7	-	-	-	-	75	439x745x288	56,00
SVGm-4WF-069M-400	[4] R4P4MC.	4 wires, 230...400 V	40	69	-	-	-	-	100	439x745x288	56,00
4 wires 400 V, Floor-mounted cabinet											
SVGm-4WF-069C-400	[4] R4P4FC.	4 wires, 230...400 V	40	69	-	-	-	-	100	608x1890x812	190,00
SVGm-4WF-138C-400	[4] R4P4FD.	4 wires, 230...400 V	80	138	-	-	-	-	200	608x1890x812	245,00
SVGm-4WF-207C-400	[4] R4P4FE.	4 wires, 230...400 V	119.1	207	-	-	-	-	300	608x1890x812	310,00
SVGm-4WF-276C-400	[4] R4P4FF.	4 wires, 230...400 V	159	276	-	-	-	-	400	608x1890x812	365,00
4 wires 550 V, Floor-mounted cabinet											
SVGm-4WF-067C-550	[C] R4P6FG.	4 wires, 440 ... 550 V	-	-	53	58	-	-	70	608x1890x812	192,00
SVGm-4WF-134C-550	[C] R4P6FH.	4 wires, 440 ... 550 V	-	-	106	116	-	-	140	608x1890x812	249,00
SVGm-4WF-201C-550	[C] R4P6FJ.	4 wires, 440 ... 550 V	-	-	159	174	-	-	210	608x1890x812	306,00
SVGm-4WF-268C-550	[C] R4P6FK.	4 wires, 440 ... 550 V	-	-	212	232	-	-	280	608x1890x812	363,00
Rack module											
SVGm-3WF-100R-480	[4] R4P3R2.	3 wires, 230...480 V	57.5	100	100	100	-	-	145	482.5x263x714.5	55,00
SVGm-4WF-069R-400	[4] R4P4RC.	4 wires, 230...400 V	40	69	-	-	-	-	100	482.5x263x714.5	55,00

All equipment has built-in EMI filters

TABLE OF ADDITIONAL FEATURES

SVGm

R	4	P	X	X	X	0	0	X	X	0
Code						Internal code				

				Delivery time
Protection degree	Standard IP-20	0		-
	IP-41	5		consult
	IP-54	7		consult
	Top cable entry		3	consult
	Int. Auto. for 100 kvar In = 200 A		A	consult
	Int. Auto. for 200 kvar In = 400 A		B	consult
	Int. Auto. for 300 kvar In = 630 A		C	consult
	Mod. connections Qn = 300 kvar		D	consult
	Mod. connections Qn = 400 kvar		E	consult

OPTIM EMK, Automatic capacitor banks with static contactor, 50 Hz.

› • Reactive energy compensation in harmonic-free networks
• Static contactor/thyristor operation (rapid load variation)
• 440V Reinforced Cylindrical Capacitors (CLZ-UH)
• Computer Smart III-Fast Controller
• IP 21, wall-mounted or floor-mounted (depending on model), hardened steel enclosure
• Cable entry from the bottom
• Other optional items: protective polycarbonate, fan or manual/automatic switch

Type	Code	400 V kvar	440 V kvar	Composition	Aut.Switch (A)	Man. Switch (A)	Cable section (mm2)	Size (mm) width x height x depth	weight (kg)
OPTIM EMk4									
OPTIM EMK4-175-440	[3] R46420.	147	175	25 + 50 + 100	400	400	120	900x1900x650	169,00
OPTIM EMK4-250-440	[6] R46422.	207	250	50 + 2x100	630	630	185	900x1900x650	181,00
OPTIM EMK4-300-440	[6] R46424.	248	300	50 + 50 + 2x100	630	630	240	900x1900x650	203,00
OPTIM EMK4-350-440	[6] R46425.	289	350	50 + 3x100	630	630	2x150	900x1900x650	203,00
OPTIM EMK4-400-440	[C] R46426.	331	400	4x100	800	800	2x185	900x1900x650	231,00
OPTIM EMk6									
OPTIM EMK6-400-440	[C] R46431.	331	400	50 + 50 + 3x100	800	800	2x185	1200x1900x650	262,00
OPTIM EMK6-450-440	[C] R46435.	372	450	50 + 4x100	800	800	2x185	1200x1900x650	281,00
OPTIM EMK6-550-440	[C] R46437.	455	550	50 + 5x100	1000	1000	2x240	1200x1900x650	320,00
OPTIM EMK6-600-440	[C] R46438.	496	600	6x100	1000	1000	2x240	1200x1900x650	334,00
OPTIM EMk8									
OPTIM EMK8-600-440	[C] R46442.	496	600	50 + 50 + 5x100	1250	1250	2x240	1500x1900x650	365,00
OPTIM EMK8-650-440	[C] R46444.	537	650	50 + 6x100	1250	1250	3x150	1500x1900x650	384,00
OPTIM EMK8-750-440	[6] R46450.	620	750	50 + 7x100	1600	1600	3x185	1500x1900x650	0,00
OPTIM EMK8-800-440	[C] R46455.	661	800	8x100	1600	1600	2x240 / 240	1500x1900x650	373,00
OPTIM EMk10									
OPTIM EMK10-850-440	[C] R46505.	702	850	50 + 8x100	1000+630	1000+630	2x240 / 240	2100x1900x650	512,00
OPTIM EMK10-950-440	[C] R46604.	785	950	50 + 9x100	1000+800	1000+800	2x240 / 2x185	2100x1900x650	551,00
OPTIM EMK10-1000-440	[C] R46605.	826	1000	10x100	1000+800	1000+800	2x240 / 2x185	2100x1900x650	565,00
OPTIM EMk12									
OPTIM EMK12-1050-440	[C] R46606.	868	1050	50 + 10x100	1000+800	1000+800	2x240 / 2x240	2400x1900x650	615,00
OPTIM EMK12-1150-440	[C] R46608.	950	1150	50 + 11x100	2x1000	2x1000	2x240 / 2x240	2400x1900x650	654,00
OPTIM EMK12-1200-440	[C] R46609.	992	1200	12x100	2x1000	2x1000	2x240 / 2x240	2400x1900x650	668,00

CPC3, Zero-crossing control board (for EMF / EMB modules)

› For static batteries with thyristors En 230, 400 and 690 V

Type	Code	Vac	Control	Size (mm) width x height x depth	weight (kg)
CPCb-230/400	[*] R4Z111.	230 / 400	Three-phase	230x110x40	0,62

EMB-2PH, Three-phase static switching units for 3-terminal capacitors

› Static contactor for connection of 3-terminal capacitors
Transient-free contactor manoeuvring
Real-time response to compensation needs with highly variable loads
Minimization of maintenance of the capacitor connection elements with less wear on the capacitors in the absence of connection peaks.

Type	Code	230 V kvar	400 V kvar	Size (mm) width x height x depth	weight (kg)
EMB-M-2PH-80-400	[2] R4132M.	45	80	165x220x250	4,00

Click on the product code for more information.

Table: Selection of Static automatic capacitor banks with rejection filters

		OPTIM FRE
		
Rated voltage		440 V
Service voltage		400 V
Power range at rated voltage (50 Hz)		OPTIM FRE4: 150 ... 400 kvar OPTIM FRE6: 400 ... 600 kvar OPTIM FRE8: 600 ... 800 kvar OPTIM FRE10: 800 ... 1000 kvar OPTIM FRE12: 1050 ... 1200 kvar
Thyristor operation		●
No. Steps (maximum)		4 / 6 / 8 / 10 / 12
Enclosure	Metallic IP 21	●
Installation (indoor)		●
Assembly (floor-mounted)		●
Regulator	Computer Max F-12DC	–
	Computer Smart Fast III-12DC	Included
Capacitor		Cylindrical CLZ
Reactors tuned to 189 Hz (please ask about other tuning values)		●
Built-in protection	circuit breaker per step	–
	APR NH-00 Fuses	●

OPTIM FRE, Automatic capacitor banks with rejection filters (static contactor), 50 Hz.

- Reactive energy compensation in harmonic-present networks
- Manoeuvring by three-phase contactors (slow variation of loads)
- Rejection reactance tuned to 7% (189Hz@50 Hz/227Hz@60Hz) to prevent resonances from the 5th harmonic onwards.
- Other tuning options: 14% (134Hz@50Hz / 160 Hz@60Hz), 8.7% (170Hz), 6% (204Hz) or customized as needed
- 460 V Reinforced Cylindrical Capacitors (CLZ-UH)
- Computer C Wi-Fi or Computer Smart III controller (optional)
- Other optional items: protective polycarbonate, fan or manual/automatic switch

Optional installation of a mains switch, f resonance =189 Hz

Type	Code	400 V kvar	440 V kvar	Composition	Aut.Switch (A)	Man. Switch (A)	Cable section (mm2)	Size (mm) width x height x depth	weight (kg)
FRE4									
OPTIM FRE4-150-440	[2] R64E24.	125	150	30 + 2 x 60	400	400	95	900x1900x650	217,00
OPTIM FRE4-175-440	[2] R64E25.	145	175	25 + 50 + 100	400	400	120	900x1900x650	0,00
OPTIM FRE4-200-440	[2] R64E28.	165	200	50 + 50 + 100	400	400	150	900x1900x650	0,00
OPTIM FRE4-250-440	[6] R64E29.	207	250	50 + 2 x 100	630	630	185	900x1900x650	0,00
OPTIM FRE4-300-440	[2] R64E30.	248	300	50 + 50 + 2 x 100	630	630	240	900x1900x650	272,00
OPTIM FRE4-350-440	[2] R64E32.	289	350	50 + 3 x 100	630	630	2x150	900x1900x650	302,00
OPTIM FRE4-400-440	[2] R64E34.	331	400	4 x 100	800	800	2x185	900x1900x650	318,00
FRE6									
OPTIM FRE6-400-440	[2] R64J25.	331	400	50 + 50 + 3 x 100	800	800	2x185	1200x1900x650	0,00
OPTIM FRE6-450-440	[2] R64J30.	372	450	50 + 4 x 100	800	800	2x185	1200x1900x650	376,00
OPTIM FRE6-500-440	[2] R64J35.	413	500	5 x 100	1000	1000	2x240	1200x1900x650	0,00
OPTIM FRE6-550-440	[6] R64J40.	455	550	50 + 5 x 100	1000	1000	2x240	1200x1900x650	650,00
OPTIM FRE6-600-440	[2] R64J45.	496	600	6 x 100	1000	1000	2x240	1200x1900x650	337,00
FRE8									
OPTIM FRE8-600-440	[2] R64K36.	496	600	50 + 50 + 5 x 100	1250	1250	2x240	1500x1900x650	0,00
OPTIM FRE8-650-440	[2] R64K38.	537	650	50 + 6 x 100	1250	1250	3x150	1500x1900x650	520,00
OPTIM FRE8-700-440	[6] R64K40.	579	700	7 x 100	1250	1250	3x150	1500x1900x650	0,00
OPTIM FRE8-750-440	[6] R64K42.	620	750	50 + 7 x 100	1600	1600	3x185	1500x1900x650	0,00
OPTIM FRE8-800-440	[6] R64K44.	661	800	8 x 100	1600	1600	3x185	1500x1900x650	0,00
FRE10									
OPTIM FRE10-800-440	[6] R64C25.	661	800	8 x 100	1000+400	1000+400	2x240 / 240	2100x1900x650	0,00
OPTIM FRE10-850-440	[6] R64C30.	702	850	50 + 8 x 100	1000+630	1000+630	2x240 / 240	2100x1900x650	0,00
OPTIM FRE10-900-440	[6] R64C35.	744	900	9 x 100	1000+630	1000+630	2x240 / 240	2100x1900x650	0,00
OPTIM FRE10-950-440	[6] R64C40.	785	950	50 + 9 x 100	1000+800	1000+800	2x240 / 2x185	2100x1900x650	0,00
OPTIM FRE10-1000-440	[2] R64C45.	826	1000	10 x 100	1000+800	1000+800	2x240 / 2x185	2100x1900x650	0,00
FRE12									
OPTIM FRE12-1050-440	[2] R64L50.	868	1050	50 + 10 x 100	1000+1000	1000+1000	2x240 / 2x240	2400x1900x650	0,00
OPTIM FRE12-1100-440	[6] R64L55.	909	1100	11 x 100	1000+1000	1000+1000	2x240 / 2x240	2400x1900x650	0,00
OPTIM FRE12-1150-440	[6] R64L60.	950	1150	50 + 11 x 100	2x1000	2x1000	2x240 / 2x240	2400x1900x650	0,00
OPTIM FRE12-1200-440	[6] R64L65.	992	1200	12 x 100	2x1000	2x1000	2x240 / 2x240	2400x1900x650	0,00

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

OPTIM FRE 60Hz, Automatic capacitor banks with rejection filters (static contactor), 60 Hz.

› Capacitor banks for installations with slow variations in consumption and high harmonic levels
› Cylindrical three-phase capacitors
› Static maneuver (thyristors)

Optional installation of a mains switch, f resonance =227 Hz

Type	Code	240 V kvar	Composition	Aut.Switch (A)	Size (mm) width x height x depth	weight (kg)
OPTIM FRES, automatic thyristor banks with computer SMART III regulator. Steps protections by Circuit Breaker						
OPTIM FRES-25-240-60Hz	[C] R64RBN.	25	2x5+10	3 x 100	800x1200x500	105,00
OPTIM FRES-30-240-60Hz	[C] R64RBP.	30	3x10	3 x 125	800x1200x500	113,00
OPTIM FRES-40-240-60Hz	[C] R64RBS.	40	4x10	3 x 160	800x1200x500	148,00
OPTIM FRE4, automatic thyristor banks with computer SMART III regulator. Steps protections by blade fuse type NH-00.						
OPTIM FRE4-50-240-60Hz	[C] R64SF2.	50	2x12,5+25	3 x 200	900x1900x650	225,00
OPTIM FRE4-62,5-240-60Hz	[C] R64SF3.	62.5	12,5+2x25	3 x 250	900x1900x650	235,00
OPTIM FRE4-75-240-60Hz	[C] R64SF4.	75	3x25	3 x 250	900x1900x650	240,00
OPTIM FRE4-87,5-240-60Hz	[C] R64SF5.	87.5	12,5+3x25	3 x 400	900x1900x650	285,00
OPTIM FRE4-100-240-60Hz	[C] R64SF6.	100	4x25	3 x 400	900x1900x650	290,00
OPTIM FRE4-140-240-60Hz	[C] R64SF8.	140	20+3x40	3 x 400	900x1900x650	320,00
OPTIM FRE4-160-240-60Hz	[C] R64SF9.	160	4x40	3 x 630	900x1900x650	345,00
OPTIM FRE6-180-240-60Hz	[C] R64SG3.	180	20+4x40	3 x 630	1200x1900x650	420,00
OPTIM FRE6-200-240-60Hz	[C] R64SG4.	200	5x40	3 x 630	1200x1900x650	460,00
OPTIM FRE6, automatic thyristor banks with computer SMART III regulator. Steps protections by blade fuse type NH-00.						
OPTIM FRE6-220-240-60Hz	[C] R64SG6.	220	20+5x40	3 x 800	1200x1900x650	485,00
OPTIM FRE6-240-240-60Hz	[C] R64SG7.	240	6x40	3 x 800	1200x1900x650	510,00
OPTIM FRE8, automatic thyristor banks with computer SMART III regulator. Steps protections by blade fuse type NH-00.						
OPTIM FRE8-280-240-60Hz	[C] R64SH1.	280	7x40	3 x 1000	1500x1900x650	575,00
OPTIM FRE8-320-240-60Hz	[C] R64SH2.	320	8x40	3 x 1000	1500x1900x650	625,00
OPTIM FRE10, automatic thyristor banks with computer SMART III regulator. Steps protections by blade fuse type NH-00.						
OPTIM FRE10-360-240-60Hz	[C] R64SJ4.	360	9x40	3 x 1250	2100x1900x650	795,00
OPTIM FRE10-400-240-60Hz	[C] R64SJ6.	400	10x40	3 x 1250	2100x1900x650	845,00
OPTIM FRE12, automatic thyristor banks with computer SMART III regulator. Steps protections by blade fuse type NH-00.						
OPTIM FRE12-440-240-60Hz	[C] R64SK4.	440	11x40	3 x 1600	2400x1900x650	955,00
OPTIM FRE12-480-240-60Hz	[C] R64SK6.	480	12x40	3 x 1600	2400x1900x650	1.005,00

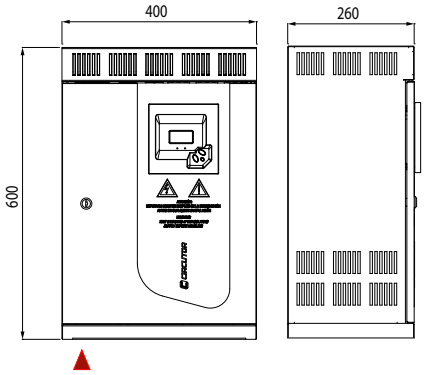
TABLE OF ADDITIONAL FEATURES

OPTIM EMK, OPTIM FRE

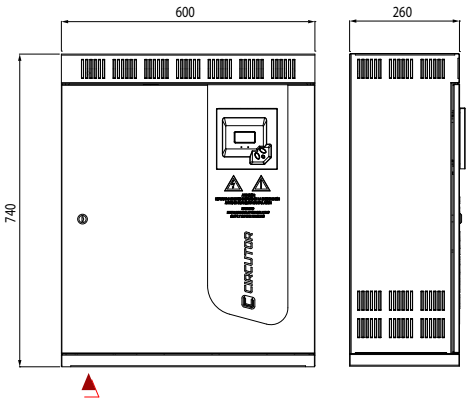
R	X	X	X	X	X	0	0	X	X	X	
Code							Internal Code				Delivery time
Options			Standard					0			-
			Fan					2			-
			Policarbonate					3			-
			Policarbonate + Fan					6			-
Choose the most suitable regulator for your needs			Standard						0		-
			computer Smart III f-12Vdc						9		-
			computer Smart III f-12Vdc						D		
Switch			Without switch							0	-
			Manual switch 200 A							3	-
			Manual switch 250A							4	-
			Manual switch 400 A							5	-
			Manual switch 630 A							6	-
			Manual switch 800 A							7	-
			Manual switch 1000 A							8	-
			Manual switch 1250 A							Y	-
			Manual switch 1600 A							9	-
			Circuit breaker 63 A							A	-
			Circuit breaker 125 A							B	-
			Circuit breaker 160 / 200 A							C	-
			Circuit breaker 250A							D	-
			Circuit breaker 400 A							E	-
			Circuit breaker 630 A							F	-
			Circuit breaker 800 A							G	-
			Circuit breaker 1000 A							H	-
			Circuit breaker 1250 A							I	-
			Circuit breaker 1600 A							J	-
			Circuit breaker 63 A + Residual current							K	-
			Circuit breaker 125 A + Residual current							L	-
			Circuit breaker 160 / 200 A + Residual current							M	-
			Circuit breaker 250 A + Residual current							N	-
			Circuit breaker 400 A + Residual current							O	-
			Circuit breaker 630 A + Residual current							P	-
			Circuit breaker 800 A + Residual current							Q	-
			Circuit breaker 1000 A + Residual current							R	-
			Circuit breaker 1250 A + Residual current							S	-
			Circuit breaker 1600 A + Residual current							T	-

Dimensions

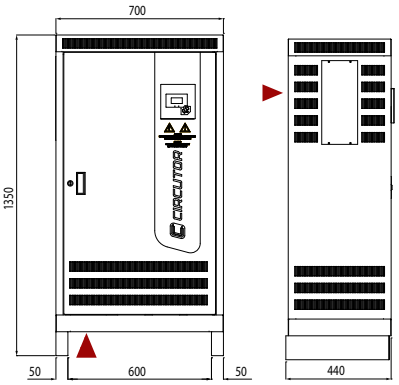
OPTIM 3 P&P



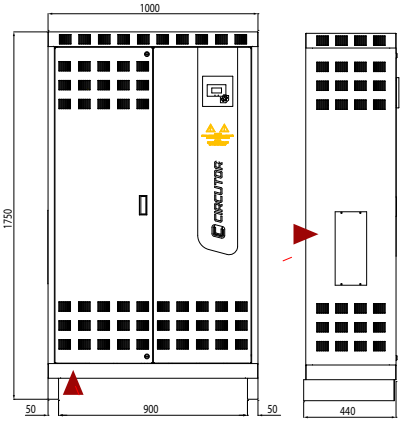
OPTIM 5 P&P



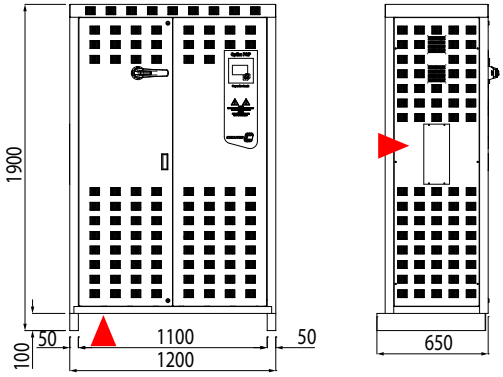
OTPIM 9 P&P



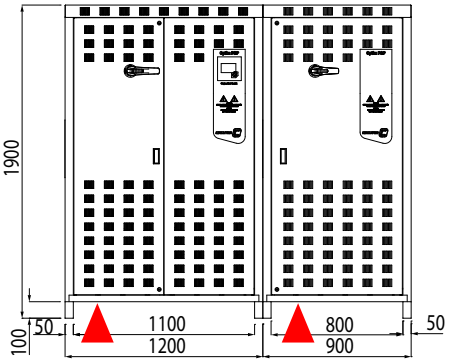
OPTIM 8



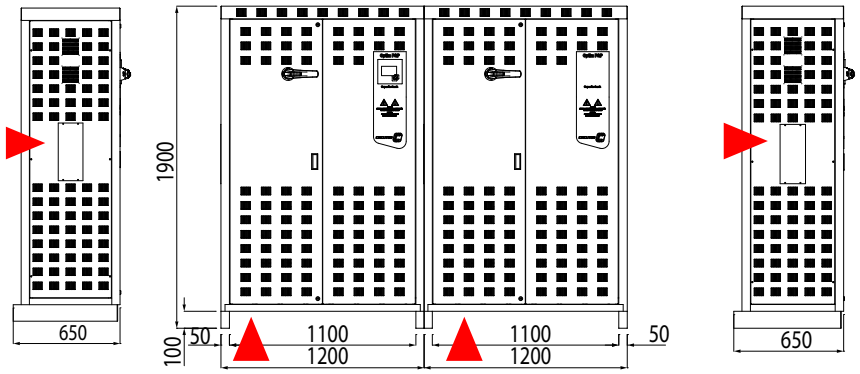
OPTIM 8L



OPTIM 14L

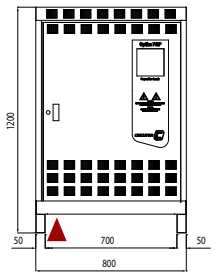


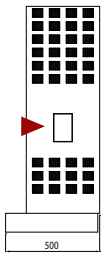
OPTIM 16L



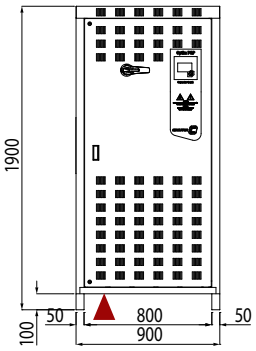
Dimensions

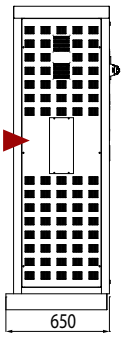
OPTIM FRS



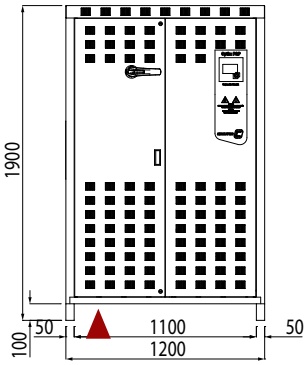


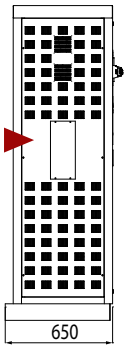
OPTIM EMK4 / OPTIM FR4 / OPTIM FRE4



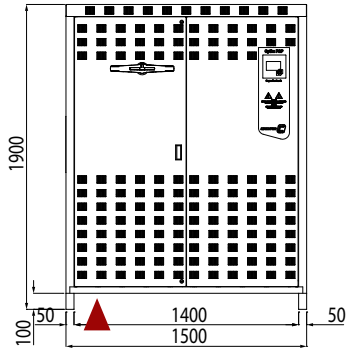


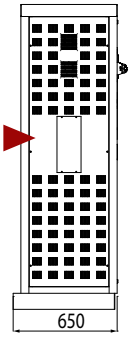
OPTIM EMK6 / OPTIM FR6 / OPTIM FRE6



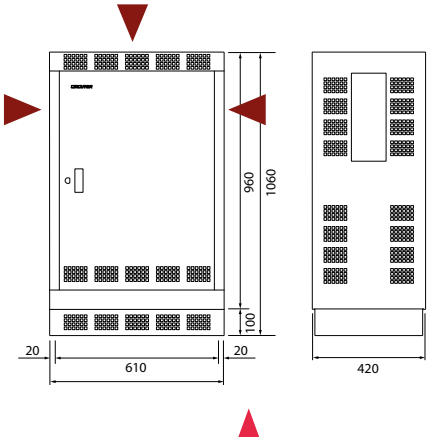


OPTIM EMK8 / OPTIM FR8 / OPTIM FRE8





OPTIM FRF / OPTIM FRM



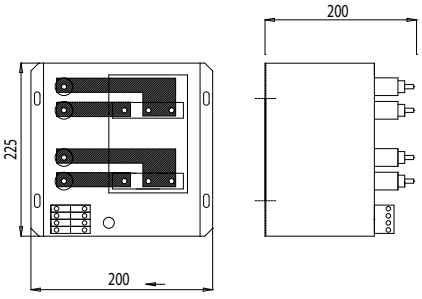
OPTIM EMk10 / OPTIM FR10 / OPTIM FRE10

OPTIM FR10 = OPTIM FR4 + OPTIM FR6. / Width: OPTIM FR4+ OPTIM FR6+100 mm

OPTIM EMk12 / OPTIM FR12 / OPTIM FRE12

OPTIM FR12 = 2 x OPTIM FR6. / Width= 2 x OPTIM FR6+100 mm

EMB-2PH



Harmonic filters

AFQs, Active multifunction filter

- Wall-mount silicon carbide (SiC) technology
- High yield (>98%)
- Up to 30A filtering power for networks up to 480V (3-wire)
- Filters harmonics up to 25° (selection of harmonic to be filtered or the entire spectrum in real time)
- Inductive or capacitive reactive compensation (From 0.7L to 0.7C)
- Minimal maintenance and reduced footprint
- Built-in webserver and alarms

Type	Code	System	Phase current	Peak current	Max.neutral current	Size (mm) width x height x depth	weight (kg)
3 wires 480 V, Wall-mounted cabinet							
AFQs-3WF-030M	[C] R7MS0F.	3 wires, 208...480 V	30	60	-	205x490x201	14,00

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

All equipment has built-in EMI filters

AFQm, Active multifunction filter, 50 / 60 Hz

- 3-in-1: Harmonic filtering, reactive compensation and phase balancing using power electronics (IGBT)
- Avoids penalties for inductive or capacitive reactive consumption (From 0.7L to 0.7C)
- Flicker mitigation
- Up to 690V and 400A (3 or 4 wires - expandable)
- Integrated Webserver and alarms (derating and anti-resonance included)
- Filtering and compensation in Low or Medium Voltage (by means of a step-up transformer)
- Wall or cabinet mounting

Type	Code	System	Phase current	Peak current	Max.neutral current	Size (mm) width x height x depth	weight (kg)
3 wires 480 V, Wall-mounted cabinet							
AFQm-3WF-075M-480	[C] R7MMAF.	3 wires, 230...480 V	75	150	-	439x745x288	56,00
AFQm-3WF-100M-480	[C] R7MM2F.	3 wires, 230...480 V	100	200	-	439x745x288	58,00
3 wires 480 V, Floor-mounted cabinet							
AFQm-3WF-100C-480	[C] R7MF2F.	3 wires, 230...480 V	100	200	-	608x1890x812	192,00
AFQm-3WF-200C-480	[C] R7MF3F.	3 wires, 230...480 V	200	400	-	608x1890x812	252,00
AFQm-3WF-300C-480	[C] R7MF4F.	3 wires, 230...480 V	300	600	-	608x1890x812	192,00
AFQm-3WF-400C-480	[C] R7MF5F.	3 wires, 230...480 V	400	800	-	608x1890x812	360,00
3 wires 690 V, Floor-mounted cabinet							
AFQm-3WF-070C-690	[C] R7JF6F.	3 wires, 400...690 V	70	140	-	608x1890x812	192,00
AFQm-3WF-140C-690	[C] R7JF7F.	3 wires, 400...690 V	140	280	-	608x1890x812	249,00
AFQm-3WF-210C-690	[C] R7JF8F.	3 wires, 400...690 V	210	420	-	608x1890x812	306,00
AFQm-3WF-280C-690	[C] R7JF9F.	3 wires, 400...690 V	280	560	-	608x1890x812	363,00
4 wires 400 V, Wall-mounted cabinet							
AFQm -4WF-030M-400	[C] R7RM0F.	4 wires, 230...400 V	30	60	90	430x530x178	24,50
AFQm -4WF-075M-400	[C] R7RMAF.	4 wires, 230...400 V	75	150	225	439x745x288	56,00
AFQm-4WF-100M-400	[C] R7RM2F.	4 wires, 230...400 V	100	200	300	439x745x288	68,00
4 wires 400 V, Floor-mounted cabinet							
AFQm-4WF-100C-400	[C] R7RF2F.	4 wires, 230...400 V	100	200	300	608x1890x812	182,00
AFQm-4WF-200C-400	[C] R7RF3F.	4 wires, 230...400 V	200	400	600	608x1890x812	248,00
AFQm-4WF-300C-400	[C] R7RF4F.	4 wires, 230...400 V	300	600	900	608x1890x812	315,00
AFQm-4WF-400C-400	[C] R7RF5F.	4 wires, 230...400 V	400	800	1200	608x1890x812	355,00
4 wires 550 V, Floor-mounted cabinet							
AFQm-4WF-070C-550	[C] R7NF6F.	4 wires, 400...550 V	70	140	210	608x1890x812	192,00
AFQm-4WF-140C-550	[C] R7NF7F.	4 wires, 400...550 V	140	280	420	608x1890x812	248,00
AFQm-4WF-210C-550	[C] R7NF8F.	4 wires, 400...550 V	210	420	630	608x1890x812	306,00
Rack module							
AFQm-3WF-070R-690	[C] R7JR6F.	3 wires, 400...690 V	70	140	-	482.5x266x714.5	55,00
AFQm-4WF-070R-550	[C] R7NR6F.	4 wires, 400...550 V	70	140	210	482.5x266x714.5	55,00
AFQm-3WF-100R-480	[C] R7MR2F.	3 wires, 230...480 V	100	200	-	482.5x266x714.5	48,00
AFQm-4WF-100R-400	[C] R7RR2F.	4 wires, 230...400 V	100	200	300	482.5x266x714.5	46,00

Please contact our technical department for networks with high THD(V) levels.**All equipment has built-in EMI filters**

AFQs

R	4	P	X	X	X	0	0	X	X	X
Code						Internal code				

				Delivery time	
Protection degree	Standard IP-20	0	-		
	IP-41	5	consult	consult	
	IP-54	7	consult	consult	
	Top cable entry	3	consult	consult	
	Int. Auto. for 100 kvar In = 200 A	A	consult	consult	
	Int. Auto. for 200 kvar In = 400 A	B	consult	consult	
	Int. Auto. for 300 kvar In = 630 A	C	consult	consult	
	Mod. connections Qn = 300 kvar	D	consult	consult	
	Mod. connections Qn = 400 kvar	E	consult	consult	

AFQm-xWF-xxxC

R	7	P	X	X	X	0	0	X	X	0
Code						Internal code				Delivery time
Protection degree	Standard IP-20								0	-
	IP-41								5	consult
	IP-54								7	consult

Delivery time: [*] Immediate, [x] working weeks, [c] Consult

Click on the product code for more information.

LRZ / LRBZ, Filter reactors for power converters (network side), 50 Hz

Type	Code	In (A)	Motor P. (kW)	Motor P. (CV)	L(mH)	Losses (W)	Size (mm) width x height x depth	weight (kg)
LRZ 04-050	[4] P7330B.	47	22	30	0.67	64	180x197x110	11,00
LRBZ 04-080	[4] P7330E.	76	37	50	0.4	110	180x160x135	12,50
LRBZ 04-115	[4] P7330G.	110	55	75	0.28	145	237x195x131	16,00
LRBZ 04-185	[4] P7330J.	180	90	122	0.17	230	242x256x154	32,00
LRBZ 04-200	[4] P7330K.	200	110	150	0.15	245	245x256x154	27,00
LRBZ 04-300	[4] P7330M.	300	160	220	0.1	355	280x300x164	0,00

LCL, Harmonic filters for power converters

› Passive harmonic filters for three-phase power converters based on 6-pulse rectifier at the input. Final THD(I) less than 10%. Range from 6 to 1000 A.- 230....690 V - 50/60 Hz. Robustness and high reliability.

Type	Code	Q (kvar)	Load current (A)	Frequency (Hz)	Size (mm) width x height x depth
400 V					
LC L35-220A-400	[4] R73119.	46,42	220	50	800x1900x650
460 - 480 V					
LC L36-76A-480	[4] R732140070000	22,77	76	60	650x1060x420
LC L36-90A-480	[4] R732150070000	26,56	90	60	800x1900x650
LC L36-110A-480	[4] R732160070000	30,36	110	60	800x1900x650
LC L36-150A-480	[4] R732170070000	45,53	150	60	800x1900x650
LC L36-180A-480	[4] R732180070000	53,12	180	60	800x1900x650
LC L36-220A-480	[4] R732190070000	60,71	220	60	800x1900x650
LC L36-260A-480	[4] R732200070000	68,3	260	60	800x1900x650

Please contact us for other current, frequency and/or voltage values Optional: Overcompensation kit

TABLE OF ADDITIONAL FEATURES

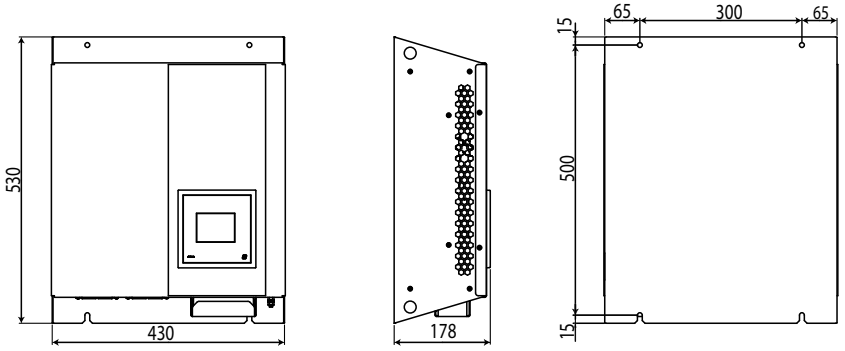
LRZ / LRBZ

P	7	X	X	X	X	0	0	X	X	X	
Code						Internal code					Delivery time
Voltage drop						Standard (4 %)		0			-
						3 %		1			consult
						2 %		2			consult
Frequency						Estandard (50 Hz)			0		-
						60 Hz			1		consult
System						Standard (three-phase)				0	-
						Single-phase				1	consult

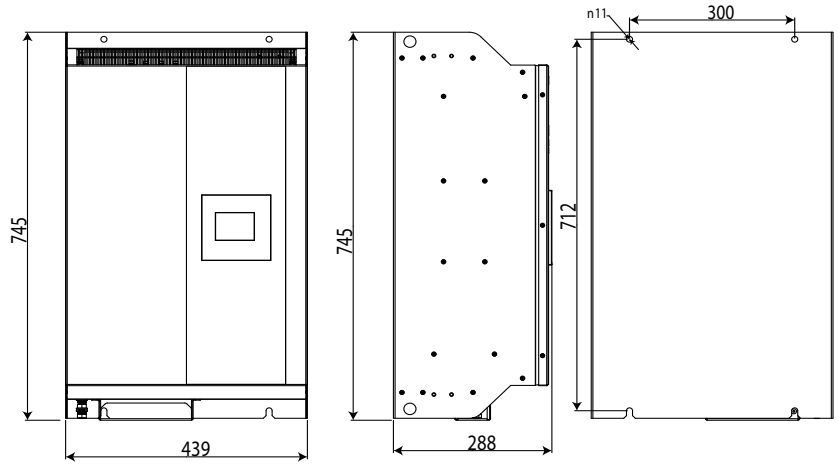
Delivery time: [*] Immediate, [x] working weeks, [c] Consult

Dimensions

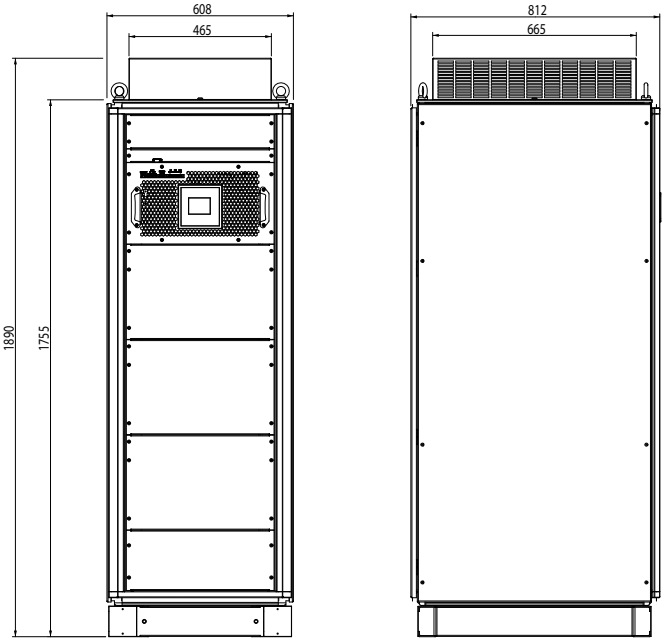
AFQm-30 / SVGm-30



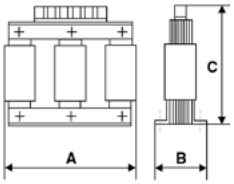
AFQm-75M/ SVGm-75M
AFQm-100M/ SVGm-100M

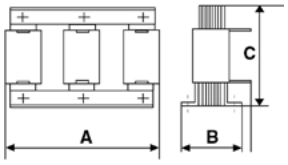


AFQm-100C // SVGm-100C
AFQm-200C/ SVGm-200C
AFQm-300C / SVGm-300C
AFQm-400C/ SVGm-400C



LRZ / LRBZ





Type	A mm	B mm	C mm	kg
LRZ 04-003	120	60	125	1,8
LRZ 04-004	120	60	125	1,8
LRZ 04-006	120	60	125	2
LRZ 04-008	120	60	125	2
LRZ 04-010	120	70	125	2,3
LRZ 04-013	120	70	125	2,3
LRZ 04-017	150	75	150	3,5
LRZ 04-022	150	90	152	4,6
LRZ 04-033	150	90	152	5
LRZ 04-041	180	100	193	7,5
LRZ 04-050	180	110	197	9
LRZ 04-058	180	110	197	9,5
LRZ 04-066	180	120	197	11

Type	A mm	B mm	C mm	kg
LRBZ 04-080	180	135	160	13
LRBZ 04-095	237	120	195	18
LRBZ 04-115	237	131	195	21
LRBZ 04-150	237	131	215	26
LRBZ 04-185	242	154	256	32
LRBZ 04-200	245	154	256	36
LRBZ 04-250	285	154	300	44
LRBZ 04-300	280	164	300	48

Capacitor and MV accessories

10% surcharge for orders less than or equal to 3 units (per type)

The prices shown in the price list refer to capacitors for indoor/outdoor installation, with internal fuses (depending on type), 50 Hz, class C temperature and without pressure switch.

According to IEC 60871-1 , IEC 60871-2 and IEC 60871-4 standards

CHV-T, Three-phase MV power capacitors

- For three-phase networks from 2.1 kV to 12 kV
- Power from 50 kvar to 750 kvar
- Internal fuse and pressure switch (electrical protection and longer service life)
- Class D (maximum temperature up to +55°C)
- Indoor or outdoor installation
- Made in Spain

Ask about other powers and voltages

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	0,00
CHV-T 75/3,3	[C] R8K0750003305	75	50	350x472x160	22,80
CHV-T 100/3,3	[C] R8K100000330E	100	50	350x472x160	22,80
CHV-T 150/3,3	[C] R8K150000330E	150	50	350x572x160	31,00
CHV-T 200/3,3	[C] R8K200000330E	200	50	350x632x160	0,00
CHV-T 250/3,3	[C] R8K250000330E	250	50	350x802x160	0,00
CHV-T 333/3,3	[C] R8K333000330E	333	50	350x862x175	55,60
CHV-T 400/3,3	[C] R8K400000330E	400	50	350x892x175	58,30
BIL 20/60 kV (50 Hz) - 6,6 kV					
CHV-T 50/6,6	[C] R8K0500006605	50	50	350x422x160	0,00
CHV-T 75/6,6	[C] R8K0750006605	75	50	350x472x160	17,00
CHV-T 100/6,6	[C] R8K1000006605	100	50	350x472x160	0,00
CHV-T 150/6,6	[C] R8K1500006605	150	50	350x572x160	67,00
CHV-T 200/6,6	[C] R8K200000660E	200	50	350x632x160	0,00
CHV-T 250/6,6	[C] R8K250000660E	250	50	350x802x160	0,00
CHV-T 300/6,6	[C] R8K300000660E	300	50	350x802x160	46,90
CHV-T 333/6,6	[C] R8K333000660E	333	50	350x862x175	55,90
CHV-T 400/6,6	[C] R8K400000660E	400	50	350x892x175	0,00
CHV-T 500/6,6	[C] R8K500000660E	500	50	350x1032x175	57,00
CHV-T 600/6,6	[C] R8K600000660E	600	50	350x1182x175	97,60
CHV-T 750/6,6	[C] R8K750000660E	750	50	350x1252x200	97,60
BIL 28/75 kV (50 Hz) - 11 kV					
CHV-T 50/11	[C] R8L0500011005	50	50	350x422x160	19,30
CHV-T 75/11	[C] R8L0750011005	75	50	350x472x160	22,70
CHV-T 100/11	[C] R8L1000011005	100	50	350x472x160	23,00
CHV-T 150/11	[C] R8L1500011005	150	50	350x572x160	29,10
CHV-T 200/11	[C] R8L2000011005	200	50	350x632x160	30,00
CHV-T 250/11	[C] R8L2500011005	250	50	350x802x160	45,70
CHV-T 300/11	[C] R8L3000011005	300	50	350x802x160	46,50
CHV-T 333/11	[C] R8L3330011005	333	50	350x862x175	53,00
CHV-T 600/11	[C] R8L600001100E	600	50	350x1182x175	80,70
CHV-T 750/11	[C] R8L750001100E	750	50	350x1252x200	92,10

Codes R8xxxxxxxxxxx5 cannot have an internal fuse.

10% surcharge for orders less than or equal to 3 units (per type)
The prices shown in the price list refer to capacitors for indoor/outdoor installation, with internal fuses (depending on type), 50 Hz, class C temperature and without pressure switch.
According to IEC 60871-1 , IEC 60871-2 and IEC 60871-4 standards

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

- Voltages from 2.1 kV to 20 kV
- For networks up to 110 kV (connected in series)
- Power from 50 kvar to 750 kvar
- Internal fuse and pressure switch (electrical protection and longer service life)
- Class D (maximum temperature up to +55°C)
- Indoor or outdoor installation
- Made in Spain

Ask about other powers and voltages

Type	Code	Q (kvar)	Frequency (Hz)	Size (mm) width x height x depth	weight (kg)
BIL 20/60 kV (50 Hz) - 3,81 kV					
CHV-M 50/3,81	[C] R8A0500003815	50	50	350x487x160	18,20
CHV-M 75/3,81	[C] R8A075000381E	75	50	350x487x160	18,50
CHV-M 100/3,81	[C] R8A100000381E	100	50	350x537x160	21,90
CHV-M 150/3,81	[C] R8A150000381E	150	50	350x637x160	29,10
CHV-M 167/3,81	[C] R8A167000381E	167	50	350x637x160	29,30
CHV-M 200/3,81	[C] R8A200000381E	200	50	350x697x160	33,50
CHV-M 250/3,81	[C] R8A250000381E	250	50	350x867x160	44,80
CHV-M 300/3,81	[C] R8A300000381E	300	50	350x867x160	45,80
CHV-M 333/3,81	[C] R8A333000381E	333	50	350x957x160	52,30
CHV-M 500/3,81	[C] R8A500000381E	500	50	350x1097x175	68,30
BIL 28/75 kV (50 Hz) - 6,35 kV					
CHV-M 50/6,35	[C] R8B0500006355	50	50	350x487x160	17,90
CHV-M 75/6,35	[C] R8B0750006355	75	50	350x537x160	0,00
CHV-M 100/6,35	[C] R8B1000006355	100	50	350x537x160	21,80
CHV-M 150/6,35	[C] R8B150000635E	150	50	350x637x160	28,60
CHV-M 167/6,35	[C] R8B167000635E	167	50	350x637x160	49,40
CHV-M 250/6,35	[C] R8B250000635E	250	50	350x757x160	37,80
CHV-M 300/6,35	[C] R8B300000635E	300	50	350x867x160	45,30
CHV-M 333/6,35	[C] R8B333000635E	333	50	350x857x175	49,40
CHV-M 400/6,35	[C] R8B400000635E	400	50	350x927x175	54,50
CHV-M 500/6,35	[C] R8B500000635E	500	50	350x1067x175	65,60
CHV-M 600/6,35	[C] R8B600000635E	600	50	350x1247x175	79,20
CHV-M 750/6,35	[C] R8B750000635E	750	50	350x1217x200	90,40
BIL 38/95 kV (50 Hz) - 9,53 kV					
CHV-M 50/9,53	[C] R8C0500009535	50	50	350x530x160	19,50
CHV-M 75/9,53	[C] R8C0750009535	75	50	350x530x160	20,20
CHV-M 100/9,53	[C] R8C1000009535	100	50	350x580x160	23,60
CHV-M 150/9,53	[C] R8C1500009535	150	50	350x680x160	31,00
CHV-M 250/9,53	[C] R8C2500009535	250	50	350x910x160	46,90
CHV-M 300/9,53	[C] R8C300000953E	300	50	350x910x160	48,00
CHV-M 333/9,53	[C] R8C333000953E	333	50	350x1000x160	54,70
CHV-M 400/9,53	[C] R8C400000953E	400	50	350x1000x175	59,70
CHV-M 500/9,53	[C] R8C500000953E	500	50	350x1140x175	71,00
CHV-M 600/9,53	[C] R8C600000953E	600	50	350x1290x175	83,10
CHV-M 750/9,53	[C] R8C750000953E	750	50	350x1257x200	90,40
BIL 50/125 kV (50 Hz) - 12,7 kV					
CHV-M 50/12,7	[C] R8D0500012705	50	50	350x615x160	19,70
CHV-M 75/12,7	[C] R8D0750012705	75	50	350x665x160	23,40
CHV-M 100/12,7	[C] R8D1000012705	100	50	350x715x160	26,80
CHV-M 150/12,7	[C] R8D1500012705	150	50	350x765x160	0,00
CHV-M 167/12,7	[C] R8D1670012705	167	50	350x825x160	35,10
CHV-M 250/12,7	[C] R8D2500012705	250	50	350x995x160	47,00
CHV-M 300/12,7	[C] R8D3000012705	300	50	350x995x160	48,10
CHV-M 333/12,7	[C] R8D3330012705	333	50	350x1055x175	56,90
CHV-M 400/12,7	[C] R8D4000012705	400	50	350x1085x175	59,60
CHV-M 600/12,7	[C] R8D600001270E	600	50	350x1375x175	83,00
CHV-M 750/12,7	[C] R8D750001270E	750	50	350x1405x200	98,80
BIL 70/170 kV (50 Hz) - 19,05 kV					
CHV-M 50/19,05	[C] R8E0500019055	50	50	350x644x160	23,30
CHV-M 75/19,05	[C] R8E0750019055	75	50	350x644x160	23,60
CHV-M 150/19,05	[C] R8E1500019055	150	50	350x804x160	35,00
CHV-M 167/19,05	[C] R8E1670019055	167	50	350x804x160	35,30
CHV-M 200/19,05	[C] R8E2000019055	200	50	350x864x160	39,40
CHV-M 250/19,05	[C] R8E2500019055	250	50	350x964x175	50,80
CHV-M 300/19,05	[C] R8E3000019055	300	50	350x1034x175	56,50
CHV-M 333/19,05	[C] R8E3330019055	333	50	350x1034x175	57,10
CHV-M 400/19,05	[C] R8E4000019055	400	50	350x1134x175	64,40
CHV-M 500/19,05	[C] R8E5000019055	500	50	350x1244x175	74,00
CHV-M 600/19,05	[C] R8E6000019055	600	50	350x1264x200	84,10
CHV-M 750/19,05	[C] R8E7500019055	750	50	350x1454x200	104,20

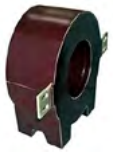
Codes R8xxxxxxxxxxx5 cannot have an internal fuse.

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)
VC-6Z44ED 6,6kV 220V	[C] R80921.	6,6 kVca	3 x 400	220 Vac	353x398.6x247	35,00
VC-6Z44ED 6,6kV 110V	[C] R809210010000	6,6 kVca	3 x 400	110 Vdc	353x398.6x247	0,00

RMV, Choke reactors for MV capacitor banks



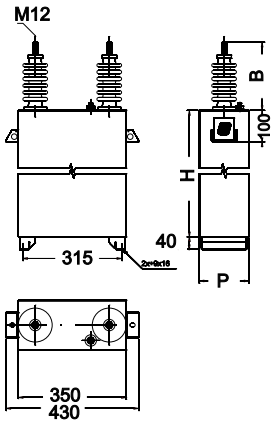
- Short-circuit current up to 16 kA/1s (depending on model)
- Indoor or outdoor installation
- Made in Spain

Type	Code	In (A)	L (µH)	Size (mm) width x height x depth	weight (kg)
RMV-260					
RMV-260-50-350	[C] R80628.	50	350	370x290x110	12,00
RMV-260-60-250	[C] R80637.	60	250	370x290x110	13,00
RMV-260-100-100	[C] R80664.	100	100	370x290x110	8,00
RMV-260-125-50	[C] R80672.	125	50	370x290x110	13,00
RMV-260-175-30	[C] R80691.	175	30	370x290x110	14,00
RMV-330					
RMV-330-60-450	[C] R80739.	60	450	470x355x110	19,00
RMV-330-75-350	[C] R80748.	75	350	470x355x110	21,00
RMV-330-90-250	[C] R80757.	90	250	470x355x110	26,00
RMV-330-125-100	[C] R80774.	125	100	470x355x110	0,00
RMV-330-200-50	[C] R807A2.	200	50	470x355x110	5,00

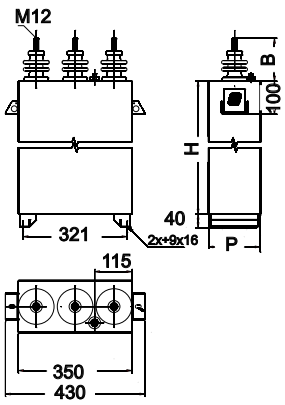
Selection parameters for RMV reactances are: * Maximum operating current (1,43 In) * Required inductance in µH * Isolating voltage kV The isolating voltage is 12 kV (28/75). Other voltages on request Thermal current is 43 In / 1 s. Other values on request Other currents and µH please request Price.

Dimensions

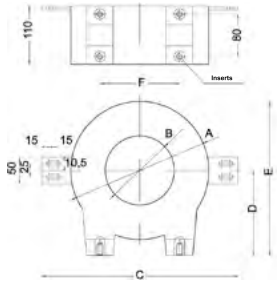
CHV-M



CHV-T



RMV

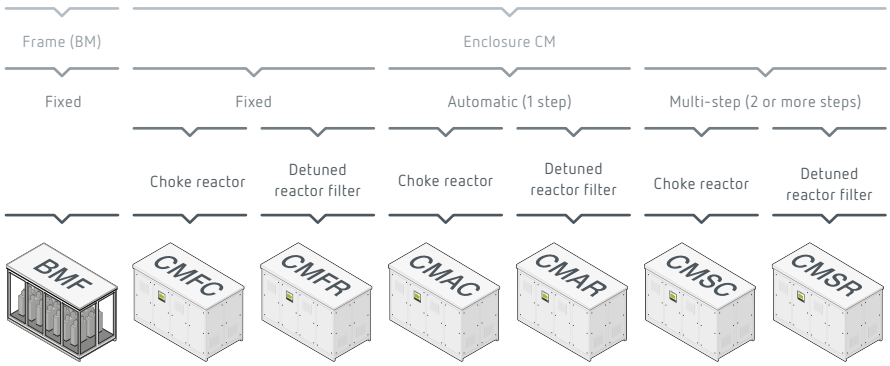


Type	A Ø mm	B Ø mm	C mm	D mm	E mm	F mm	Inserts
RMV-260	260	130	370	160	370	290	M12
RMV-330	330	150	470	190	355	210	M12/M16

CIRKAP. Easy to choose complete products

Selection of capacitor banks

CIRKAP capacitor banks are divided in two main groups: Capacitor banks in a CM frame and capacitor banks in open BM frames.



References for CIRKAP BM

Code						
B	M	X	X	X	X X X	X X X X X
Fixed (step 1)		F				
Without choke reactor			-			
With choke reactor			C			
Number of steps (1)				n°		
Rated voltage (3 figures) 3.3 kV					033	
Rated voltage (3 figures) 4.2 kV					042	
Rated voltage (3 figures) 5.5 kV					055	
Rated voltage (3 figures) 6.0 kV					060	
Rated voltage (3 figures) 6.3 kV					063	
Rated voltage (3 figures) 6.6 kV					066	
Rated voltage (3 figures) 11 kV					110	
Rated voltage (3 figures) 13.2 kV					132	
Rated voltage (3 figures) 15 kV					150	
Rated voltage (3 figures) 16.5 kV					165	
Rated voltage (3 figures) 22 kV					220	
Rated voltage (3 figures) 33 kV					330	
Nominal capacitor bank power in kvar (5 figures)						n°

References for CIRKAP CM

Code						
C	M	X	X	X	X X X	X X X X X
Fixed (step 1)		F				
Automatic (1 step)		A				
Multistep		S				
Without choke reactor			-			
With choke reactor			C			
With detuned filter			R			
Number of steps (1...9)				n°		
Rated voltage (3 figures) 3.3 kV					033	
Rated voltage (3 figures) 4.2 kV					042	
Rated voltage (3 figures) 5.5 kV					055	
Rated voltage (3 figures) 6.0 kV					060	
Rated voltage (3 figures) 6.3 kV					063	
Rated voltage (3 figures) 6.6 kV					066	
Rated voltage (3 figures) 11 kV					110	
Rated voltage (3 figures) 13.2 kV					132	
Rated voltage (3 figures) 15 kV					150	
Rated voltage (3 figures) 16.5 kV					165	
Rated voltage (3 figures) 22 kV					220	
Rated voltage (3 figures) 33 kV					330	
Nominal capacitor bank power in kvar (5 figures)						n°

Application examples

Water treatment installation

Automatic multi-step capacitor bank with detuned filter, model CMSR, 2250 kvar at 6,6 kV, 50 Hz, 5x650 kvar composition, tuned to 189 Hz (p:7%), outdoor installation and IP44 protection degree. Details of the step with fuse protection, vacuum contactor, filtering reactor and three-phase capacitor.

Paper industry

Automatic multi-step capacitor bank with detuned filter, model CMSR, 6750 kvar at 22 kV, 50 Hz, 750+4x1500 kvar composition, tuned to 189 Hz (p:7%), outdoor installation and IP54 protection degree. Voltage presence indicator, ON/OFF step, manual or automatic step selection, reactive energy regulator with three-phase measurement and overcurrent, short-circuit and step offset protection relays.

Road infrastructures

Automatic multi-step capacitor banks with detuned filter, model CMAR,100 kvar at 3.3 kV, 50 Hz, 1x100 kvar composition, indoor installation and IP23 protection degree, tuned to 189 Hz. Details of the structure adapted to the space available in the tunnel and corporate colour requested by the client.

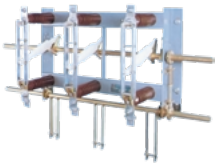
Additional components of MV capacitor banks

Pressure switch
Disconnects the step/capacitor bank with the pressure generated after a serious fault inside a capacitor, in order to prevent greater damage. It enables the power circuit to be disconnected and signals the fault when the pressure reaches the maximum value.

Voltage presence indicator
A unit that lights up permanently when the power circuit is powered to provide greater safety during operations carried out on the unit.

Smoke detector
Smoke detectors are devices that warn about the possibility of internal combustion in the capacitor bank and that send a signal to activate an alarm (in the unit or at the discretion of the user), disconnecting the of the battery if necessary.

Electric circuit with opening delay for doors
For units that are ordered with doors in the power modules, Circutor offers the possibility of including a solenoid electrical interlock system in order to prevent access to the capacitor bank's interior if the necessary time has not elapsed.



SVacuum off-load and/or earthing switch
The cut-off and/or earthing switch enables the unit to be visually disconnected and isolated at the capacitor bank input.

Ventilation
In the case of capacitor banks installed in environmental conditions where natural convention cooling is insufficient, an auxiliary thermostat-controlled forced air system is essential for evacuating the internal heat of the capacitor bank.

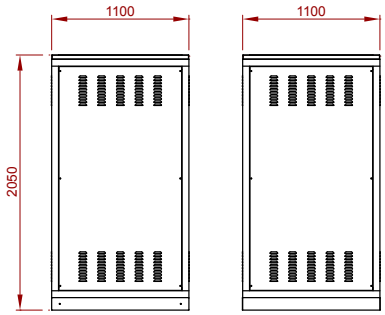
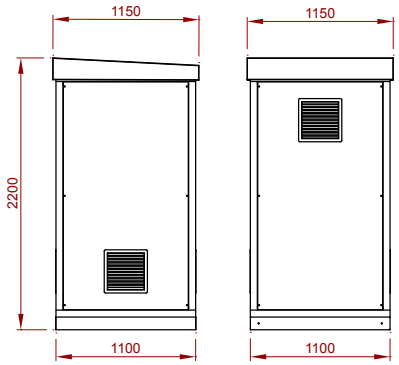
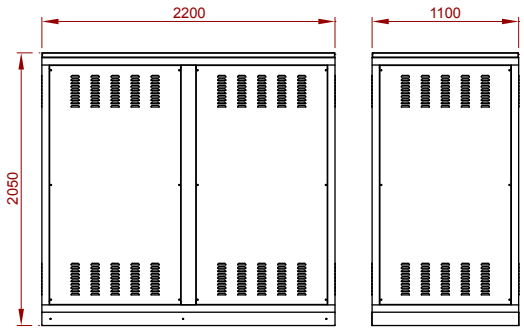
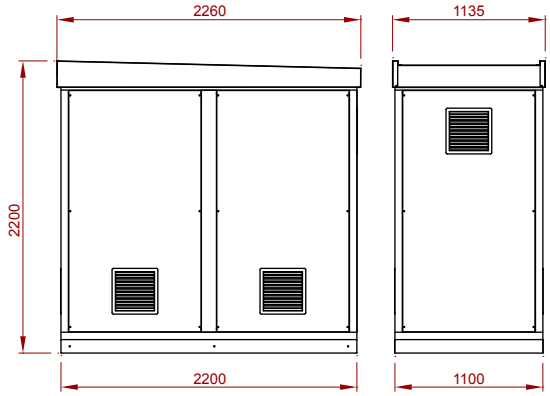
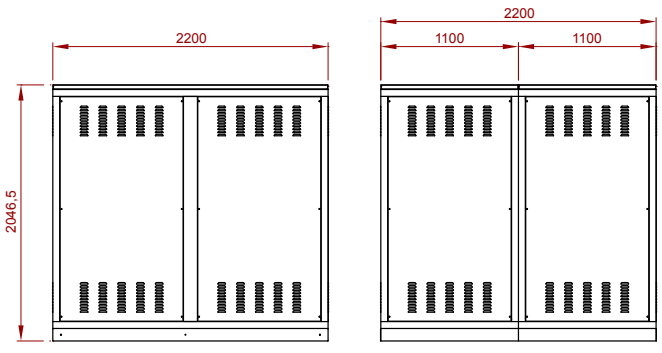
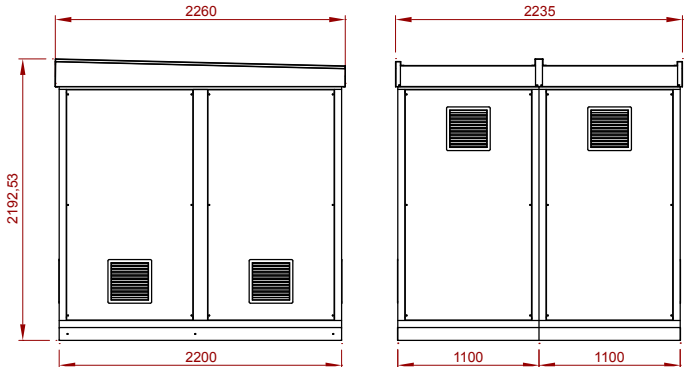
Anti-condensation heating resistors
These are used to avoid condensation due to temperature gradients during the day, under saline environmental conditions, high relative humidity and low temperatures. Heating resistors controlled by thermostat and/or hygrometer.

Power factor correction and harmonic filtering.

Step dimensions

Power	7,2 kV	12 kV	24 kV	36 kV
≤250 kvar	A	A	B	C
21-500 kvar	A	A	B	C
501-750 kvar	A	B	B	C
751-1000 kvar	A, B	B	B	C
1001-1500 kvar	B	B	C	C
1501-2000 kvar	B	B	C	C
201-2500 kvar	B	B	C	C
2501-3000 kvar	B	C	C	C
3001-4000 kvar	C	C	C	C
4001-5000 kvar	C	C	C	
5001-6000 kvar	C	C	C	
6001-7000 kvar	C	C	C	

Dimensions are approximate and may differ depending on the specifications for each team.

	INDOOR	OUTDOOR
A		
B		
C		

Software

Management software

PowerStudio Universe, Energy management software

- Scalable On-premise software
- Real-time monitoring and control
- Display of SCADA screens and dashboards
- Process automation, alarms and notifications
- Generation and sending of customized reports
- Interoperability: OPC-UA, SQL, XML and Modbus.
- End-to-end encrypted data

Type	Code	Description
SCADA software		
PowerStudio SCADA Basic	[*] W20100.	SCADA software for monitoring, control and analysis of installations, with CIRCUTOR devices and third-party Modbus equipment. Up to 25 devices
PowerStudio SCADA Pro	[*] W20110.	SCADA software for monitoring, control and analysis of installations, with CIRCUTOR devices and third-party Modbus equipment. Up to 50 devices
PowerStudio SCADA Ultimate	[*] W20120.	SCADA software for monitoring, control and analysis of installations, with CIRCUTOR devices and third-party Modbus equipment. Up to 500 devices.
PowerStudio SCADA Enterprise	[*] W20130.	SCADA software for monitoring, control and analysis of installations, with CIRCUTOR devices and third-party Modbus equipment. More than 500 devices.
OPC UA Server	[*] W20200.	Allows to configure an OPC UA server in PowerStudio for any SCADA with OPC UA client to integrate the desired parameters.

Upgrade-PowerStudio, PowerStudio SCADA License Upgrade

Type	Code	Description
Licence update		
PSSBasic-to-PSSPro	[C] W20111.	Upgrading from PowerStudio SCADA Basic to PowerStudio SCADA Pro
PSSBasic-to-PSSUltimate	[C] W20121.	Upgrading from PowerStudio SCADA Basic to PowerStudio SCADA Ultimate
PSSBasic-to-PSSEnterprise	[C] W20131.	Upgrading from PowerStudio SCADA Basic to PowerStudio SCADA Enterprise
PSSPro-to-PSSUltimate	[C] W20122.	Upgrading from PowerStudio SCADA Pro to PowerStudio SCADA Ultimate
PSSPro-to-PSSEnterprise	[C] W20132.	Upgrading from PowerStudio SCADA Pro to PowerStudio SCADA Enterprise
PSSUltimate-to-PSSEnterprise	[C] W20133.	Upgrading from PowerStudio SCADA Ultimate to PowerStudio SCADA Enterprise

Scout, Cloud-Scout software

NEW

- Cloud-Scout Cloud-based electrical monitoring and auditing software:
- Manage multiple installations from a single platform.
- Focus on the most critical issues with alerts based on advanced analytics.
- Collaborate in real time with your team with chats and access to data analysis.
- Access and manage alerts from anywhere with our app available on Android and iOS.
- Detailed reports of your installations.

Type	Code	Description
Digital Link	[*] W10310.	Module for digitising your equipment
Digital Link SIM VPN EU - Single	[*] W10311.	Digital Link module with SIM configured for secure connection via VPN, European coverage
Digital Link SIM VPN WW - Single	[*] W10312.	Digital Link module with SIM configured for secure connection via VPN, worldwide coverage
Digital Link SIM VPN EU - Multi 5	[*] W10313.	Digital Link module with SIM configured for secure connection via VPN, up to 5 devices, European coverage.
Digital Link SIM VPN EU - Multi 25	[*] W10314.	Digital Link module with SIM configured for secure connection via VPN, up to 25 devices, European coverage.
Digital Link SIM VPN WW - Multi 5	[*] W10315.	Digital Link module with SIM configured for secure connection via VPN, up to 5 devices, worldwide coverage.
Digital Link SIM VPN WW - Multi 25	[*] W10316.	Digital Link module with SIM configured for secure connection via VPN, up to 25 devices, worldwide coverage.
Quality Analyst_Scout	[*] W10320.	Module for the analysis and monitoring of power quality
Quality Analyst SIM VPN EU - Single	[*] W10321.	Quality Analyst module with SIM configured for secure connection via VPN, European coverage
Quality Analyst SIM VPN WW - Single	[*] W10322.	Quality Analyst module with SIM configured for secure connection via VPN, worldwide coverage
VAR_Scout	[*] W10340.	Module for battery performance and power factor monitoring
VAR SIM VPN EU - Single	[*] W10341.	VAR module with SIM configured for secure connection via VPN, European coverage
VAR SIM VPN WW - Single	[*] W10342.	VAR module with SIM configured for secure connection via VPN, worldwide coverage

The prices of the modules are for an annual subscription per connected device. Devices compatible with the modules: **QNA-600-D, QNA-D500 series, CVM-D50, CVM-D4XX, R-SABT, computer C Wi-Fi, Computer SMART III + SmartLink-VAR**. Additionally, via **Line-EDS-cloud**, any Circutor device with RS-485 or Ethernet and Modbus protocol.

Click on the product code for more information.

PowerVision, Data management sofware for devices with memory

PowerVision, data management software for portable devices with memory

Type	Code	Description
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