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OUTSTANDING PRODUCTS

	QNA500-A	CVM C5	CVM C10	CVM B100 / CVM B15	WiBeee	MDC-20	CIRLAMP
							
	Advanced power quality analyzers class A	Multimeter analyzer	Power analyzer	Power analyzer	Consumption analyzers	Maximum demand control devices	Public lighting control system
Page	24	25	26	26	26	46	47

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

Fixed power analyzers

			Page
Power quality analyzers	Panel	CVMk2	23
	Wall-mounted	QNA500, QNA500-A	
	DIN rail	QNA500, QNA500-A	
Power analyzers	Panel	CVM C5, CVM C10, CVM B100, CVM B150	25
	DIN rail	CVM 1D, CVM MINI, CVM NET, CVM NET4+, CVM BD/BDM	
	Direct to busbar	Power NET	
Consumption analyzers	DIN zero	WiBeee	29

Table: Power quality analyzers selection

		CVMk2	QNA500	QNA500-A
		Class B 	Class S 	Class A 
AC Measurement	Three-phase 3/4 wires	•	•	•
	Quadrants	4	4	4
	Accuracy (Power)	0,2 / 0,5 (T)	0,2	0,2
	Current input	... /5 A - ... /1 A	... /5 A	... /5 A
	Direct Voltage Input (V_{ph-n})	3x 500 V_{f-n} / 866 V_{f-f}	3x 500 V_{f-n} / 866 V_{f-f}	3x500 V_{f-n} / 866 V_{f-f}
	Indirect Voltage Input (V)	config.	config	config
	Measurement of THD and harmonics	50	50	50
	Voltage Events	•	•	•
	Waveform capture (transients)	–	•	•
Communications	Ports	RS-485, TCP-IP (OP)	RS-232, RS-485, TCP-IP	RS-232, RS-485, TCP-IP
	Protocols	ModBus/RTU, Profibus (T), Modbus/TCP (T)	ModBus/RTU, ModBus/TCP, HTTP, FTP	ModBus/RTU, ModBus/TCP, HTTP, FTP
(T)andards	Measurement in accordance with IEC-61000-4-30	B	S	A
	Page	23	24	24

(T) - Depending type / (OP) Optional

CVMk2, Power quality analyzer panel mounted (144x144)



Type	Code	Class in power	Communication	Protocol
COMPACT EQUIPMENT (measurement module + Display)				
CVMk2-ITF-405	**[*] M54400**	0,5	RS-485	Modbus/RTU
CVMk2-ITF-402	**[*] M54402**	0,2	RS-485	Modbus/RTU
MEASUREMENT MODULE				
M-CVMk2-ITF-405	**[*] M54410**	0,5	RS-485	Modbus/RTU
M-CVMk2-ITF-402	**[*] M54412**	0,2	RS-485	Modbus/RTU
MEDIUM VOLTAGE APLICATION (SET INCLUDE: M-CVMk2 + 3 WGS-20)				
M-CVMk2-ITF-EXT-402 (*)	**[*] M544120001300**	0,2	RS-485	Modbus/RTU
Display module				
Display-CVMk2	**[*] M54420**			

Expansion modules

Type	Code	Outputs	SD Memory	Digital Inputs	Analogue Outputs	Protocol	Communication
k2-EXP-8I/8O-Digital-TR	**[*] M54501**	8 Trans.(*)	-	8	-	-	-
k2-EXP-8I/4O-Analog	**[*] M54502**	4 (0/4...20mA)	-	-	8(0/4...20mA)	-	-
k2-EXP-8I/4O-Digital-RL	**[*] M54503**	4 Relay	-	8	-	-	-
k2-EXP-SD-MODBUS/TCP	**[*] M54504**	-	•	-	-	Ethernet	Modbus/TCP
k2-EXP-SD-Memory	**[*] M54506**	-	•	-	-	-	-
k2-EXP-PROFIBUS/DP	**[*] M5450A**	-	–	-	-	-	Profibus/DP

(*) optocoupled transistor output

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

QNA500, Advanced power quality analyzers (according Standard EN-50160 and IEC-61000-4-30)



Type	Code	Accuracy (powrer)	Class	Harmonics and THD	Events	Waveform capture (transients)	Inputs – Outputs	Impulse centralisation	RS-232 / RS-485 / Etehrnet	Load control / WEB Server	Mail Server	Memory (GB)
K-QNA500	**[*] Q20911**	0,2	S	50	•	•	-	–	–	•	•	4
K-QNA500 8I0	**[*] Q20912**	0,2	S	50	•	•	8 in / 8 out digital	•	–	•	•	4
K-QNA500 8I0R	**[*] Q20913**	0,2	S	50	•	•	8 in / 8 out relay	•	•	•	•	4
K-QNA500-A	**[*] Q20931**	0,2	A	50	•	•	-	–	–	•	•	4
K-QNA500-A 8I0	**[*] Q20932**	0,2	A	50	•	•	8 in / 8 out digital	•	–	•	•	4
K-QNA500-A 8I0R	**[*] Q20933**	0,2	A	50	•	•	8 in / 8 out relay	•	•	•	•	4

Each QNA500 is based on a BASE module (power supply) + Measure module + Auxiliary modules (according to type)
Compatible with PowerStudio 4.02

Additional modules



Type	Code	Class	Inputs	Outputs	Memory (GB)	Web server	Communications (*)
QNA500	**[*] Q20901**	S	-	-	4	•	TCP / IP
QNA500-A	**[*] Q20921**	A	-	-	4	•	TCP / IP
8I0	**[*] Q20902**	-	8	8 transistor	4	•	TCP / IP
8I0R	**[*] Q20903**	-	8	8 relay	4	•	TCP / IP

(*) Via BASE module, indispensable
Consult the maximum number of devices that is possible to connect for each BASE module

CVMk2

Code	Internal code									
M	5	X	X	X	X	0	0	X	X	Delivery time
Power supply voltage	Standard 85...265 V_{ac} 95...300 V_{dc}							0		-
	SDC 24...90 V_{dc}							8		2
Voltage measurement	Standard 300/520 V_{ac}								0	-
	500 / 866 V_{ac}								3	2

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

Table: Power analyzer selection

		CVM C5	CVM C10	CVM B100	CVM B150	CVM MINI	CVM NET	CVM NET4+	CVM BDM	CVM 1D	Power NET	WiBeee
												
Mounting	Panel (mm)	96x96	96x96	96x96	144x144	–	–	–	–	–	–	–
	DIN rail (modules)	–	–	–	–	3	3	6	8	1	–	0
	Direct to busbar	–	–	–	–	–	–	–	–	–	•	•
AC Measurement	Three-phase 3/4 wires	•	•	•	•	•	•	•	•	–	•	(T)
	Single-phase	•	•	•	•	–	–	•	–	•	–	(T)
	Quadrants	4	4	4	4	4	4	4	4	4	4	2
	V, A, W, Hz, var, cos φ	•	•	•	•	•	•	•	•	•	•	•
	Hamonics	–	31	50	50	(T)(15)	–	•	•	–	•	–
	Phase parameters	•	•	•	•	•	•	•	•	•	–	•
	Maximum demand	•	•	•	•	•	•	•	•	•	–	–
	Tariffs	2	3	3	3	1	1	1	1	1	–	–
	Hours, cost, kgCO_2	•	•	•	•	–	–	–	–	–	–	cost
Voltage input	Direct (V)	1x300 V, 3x520 V	1x300 V 3x520 V	1x500 V 3x866 V	1x500 V 3x866 V	3x300 V	3x300 V	3x300 V	3x300 V	1x230 V	3x300 V	85...265 V 147..459 V
	Indirect (V)	Config.	Config.	Config.	Config.	Config.	Config.	Config.	Config.	–	–	–
Current Input	Direct	–	–	–	–	–	–	–	–	•	•	70 A max.
	Indirect (ITF)	•	•	•	•	•	•	–	•	–	–	–
	MC System (/250 mA)	•	•	•	•	•	•	•	–	–	–	–
Communica-tions	RS-232	–	–	–	–	–	–	–	•	–	–	–
	RS-485	(T)	•	•	•	(T)	•	•	•	•	•	–
	TCP/IP	–	–	(OP)	(OP)	(T)	–	–	–	–	–	–
	Wifi	–	–	–	–	–	–	–	–	–	–	•
Protocols	ModBus/RTU	(T)	•	•	•	(T)	•	•	•	•	•	–
	ModBus/TCP	–	–	(OP)	(OP)	–	–	–	–	–	–	•
	MBUS	–	–	(OP)	(OP)	–	–	–	–	–	–	–
	BacNet	–	•	•	•	(T)	–	–	–	–	–	–
	Profibus	–	–	(OP)	(OP)	–	–	–	–	–	–	–
	LonWorks	–	–	(OP)	(OP)	(T)	–	–	–	–	–	–
Otthers	Display	LCD	Custom LCD	colour graph	colour graph	LCD	–	–	LCD	LCD	–	–
	Expandible	–	–	•	•	–	–	–	–	–	–	–
Optional	Digital inputs (n.max)	• (1)	•(2)	•(2)	•(2)	–	–	–	–	–	–	–
	Digital outputs (n.max)	•(1)	•(4)	•(4)	•(4)	•(2)	•(2)	•(4)	•(2)	•(1)	–	–
	Analogue inputs (n.max)	–	–	(OP)	(OP)	–	–	–	–	–	–	–
	Analogue outputs (n.max)	–	–	(OP)	(OP)	–	–	–	–	–	–	–
Standards	According UL	–	•	•	•	(T)	–	–	–	–	–	–
	Measurement in acc. with MID	–	•	•	•	–	–	–	–	(T)	–	–
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(T) - depending on the type / (OP) - Optional

CVM C5, Power analyzer mounting panel 96x96

Serie CVM-C5 96x96 panel. Power supply 85...265 V_{ac} / 90...300 V_{dc} , measurement 300 V_{ph-n} / 520 V_{ph-ph}

NEW



Type	Code	Current Measuring Channels	current input	Transistor digital output	Digital inputs	Communication
CVM-C5-IC	**[*] M55853**	3	/5 - /1 A	1	1	-
CVM-C5-MC-IC	**[*] M55873**	3	/250 mA	1	1	-
CVM-C5-mV-IC	**[*] M558730000V00**	3	...333 mV	1	1	-
CVM-C5-ITF-485-C	**[*] M55884**	3	/5 - /1 A	1	0	RS-485
CVM-C5-MC-485-C	**[*] M55894**	3	/250 mA	1	0	RS-485
CVM-C5-mV-485-C	**[*] M558940000V00**	3	...333 mV	1	0	RS-485

4-Quadrants measuring device

CVM C10, Power analyzer mounting panel 96 x96

96x96 panel - Power supply 85...265 V_{ac} / 90...300 V_{dc}, and measurement 300 V_{ph-n} / 520 V_{ph-ph}



	Type	Code	Current Measuring Channels	current input	Transistor digital output	Relay digital output	Digital inputs	Communications
	CVM-C10-ITF-485-ICT2	[*] M55911	3	/5 - /1 A	2	2	2	RS-485 Modbus/BACnet
	CVM-C10-MC-485-ICT2	[*] M55921	3	/ 250mA	2	2	2	RS-485 Modbus/BACnet
	CVM-C10-ITF-IN-485-IC2	[*] M55942	4 (*)	/5 - /1 A	-	2	2	RS-485 Modbus/BACnet
NEW	CVM-C10-mV-485-ICT2	[*] M559210000V00	3	333 mV	2	2	2	RS-485 Modbus/BACnet
	IP64-C10-96	[*] M5ZZ5T	IP64 airtight seal for CVM-C10 (96x96)					

4-Quadrants measuring device
(*) 3 phase current inputs + neutral current input

CVM B, Power analyzer mounting panel, colour display

Power supply 85...265 V_{ac} / 120...300 V_{dc}, and measurement 600 V_{ph-n} / 1000 V_{ph-ph}



Type	Code	Size	Energy accuracy IEC 62053-22, ANSI C1220 50470-3 (MID)	Current measuring secondaries	Communications	Protocol	Digital outputs to transistor	Digital outputs to relay	Digital inputs
CVM-B100-ITF-485-ICT2	[*] M56011	96 x 96	0,5 S	.../5 A .../1 A 250 mA	RS-485	Modbus /BACnet	2	2	2
CVM-B150-ITF-485-ICT2	[*] M56111	144 x 144	0,5 S	.../5 A .../1 A 250 mA	RS-485	Modbus /BACnet	2	2	2

4-Quadrants measuring unit

Expansion modules for CVM B150 and CVM B100

	Type	Code	Outputs	SD Memory	Digital Input	Analogue Inp.	Protocol	Communications
	M-CVM-AB-8I-8OTR	[*] M56E01	8 Trans.(*)	-	8	-	-	-
	M-CVM-AB-8I-8OR	[*] M56E02	8 relays	-	8	-	-	-
	M-CVM-AB-4AI-8AO	[*] M56E03	8 (0/4...20mA)	-	-	4 (0/4...20mA)	-	-
	M-CVM-AB-Modbus-TCP (brigde)	[*] M56E05	-	–	-	-	Ethernet	Modbus/TCP (brigde)
NEW	M-CVM-AB-DATALOGGER	[*] M56E06	–	•	–	–	Ethernet	web, Java, XML
	M-CVM-AB-MBUS	[*] M56E07	-	–	-	-	M-BUS	-
	M-CVM-AB-LonWorks	[*] M56E08	--	–	-	--	LonWorks	LonTalk ISO/IEC 14908 ANSI/EIA 7091
	M-CVM-AB-Profibus	[*] M56E09	-	–	-	-	-	ProfiBus
NEW	IP65-AB-96	[*] M5ZZ5U	IP65 airtight seal for CVM-AB (96x96)					
	IP65-AB-144	[*] M5ZZ5V	IP65 airtight seal for CVM-AB (144x144)					

(*) Optocoupled transistor output

CVM C10, CVM B

Code									
M	5	X	X	X	X	0	0	X	Delivery time
								↑	
Power supply voltage	Standard (85...265 V_{ac} / 120...300 V_{dc}							0	-
	20...120 V_{dc}							F	1

CVM-MINI / CVM NET

Code								Internal code	
M	5	X	X	X	X	0	0	X	
Code								Internal code ↑	Delivery time
Power supply voltage	Standard 230 V_{ac}							0	-
	(*) 85...265 V_{ac} 95...300 V_{dc}							C	1
	24...120 V_{dc} (Only Type M52021)							5	1

(*) Not available in LonWork and BACnet models

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

CVM MINI, Power analyzer, three-phase DIN rail

DIN Rail (3 modules) - Standard power supply 230 V_{ac}





Type	Code	Insulated input	current input	Digital outputs	Harmonics	Protocol	Communication
CVM MINI	[*] M52000	-	.../5 A	-	-	-	-
CVM MINI-ITF-C2	[*] M52011	Yes	.../5 A	2	-	-	-
CVM MINI-MC-ITF-C2(*1)	[*] M52071	Yes	.../250 mA	-	-	-	-
CVM MINI-ITF-RS485-C2	[*] M52021	Yes	.../5 A	2	-	Modbus/RTU	RS-485
CVM MINI-MC-ITF-RS485-C2(*1)	[*] M52081	Yes	.../250 mA	2	-	Modbus/RTU	RS-485
CVM MINI-ITF-HAR-RS485-C2	[*] M52031	Yes	.../5 A	2	*U* & *I* (15º)	Modbus/RTU	RS-485
CVM MINI-mV-ITF-RS485-C2	[*] M520810000V00	Yes	333 mV	2	-	Modbus/RTU	RS-485
CVM-MINI-ITF-ETH-C2	[*] M520J1	Yes	.../5 A	2	-	Modbus/TCP	Ethernet
CVM MINI-MC-ITF-ETH-C2(*1)	[*] M520L1	Yes	.../250 mA	2	-	Modbus/TCP	Ethernet
CVM-MINI-ITF-BACnet-C2 (*2)	[*] M520F1	Yes	.../5 A	2	-	BACnet	-
CVM-MINI-MC-BACnet-C2 (*1*2)	[*] M520H1	Yes	.../250 mA	2	-	BACnet	-
CVM MINI-ITF-LonWorks-C2	[*] M52091	Yes	.../5 A	2	-	LonWoks	LonTalk ISO/IEC 14908 ANSI/EIA 7091
Panel adapter	[*] M5ZZF1	Panel adapter CVM MINI (72 x 72)					

See CODIFICATION TABLE for others options of Power supply

(*1) Needs MC efficient transformers. Transformers not included / (*2) Only available with power supply 230 V_{ac}

CVM NET, Power analyer, three-phase DIN rail

DIN RAIL POWER ANALYZER, 3 MODULES, WITHOUT DISPLAY - Standard power supply 230 V_{ac}



Type	Code	current input	Digital outputs	Harmonics	Protocol	Communication
CVM NET ITF-RS485-C2	[*] M54B21	/5 A	2	-	Modbus/RTU	RS-485
CVM NET-MC-ITF-RS485-C2 (*)	[*] M54B31	/250 mA	2	-	Modbus/RTU	RS-485
CVM NET-mV-ITF-RS485-C2	[*] M54B310000V00	333 mV	2	-	Modbus/RTU	RS-485

(*) Needs MC efficient current transformers. Current input 250 mA / See CODIFICATION TABLE for others options of Power supply

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

Analyzer without display. DIN rail (6 modules) - Power supply 85...265 V_{ac} / 95...300 V_{dc}



Type	Code	current input	Digital outputs	Harmonics	Protocol	Communication
CVM-NET4+-MC-RS485-C4 (*)	[*] M55782	/250 mA	4	15	Modbus/RTU	RS-485

(*) Requires the installation of MC series efficient current transformers. Current input 250 mA
It can configured for 4 three-phase channels and up to 12 single-phase channels

MC1 / MC3, current transformers, MC1 single-phase, MC3 Three-phase





Type	Code	Max. A	Ranges	Class 0,5 Power	Measurement	Inner diameter (mm)
MC3-63	[*] M73121	63	-	0,1 VA	3 phases	7,1 mm
MC3-125	[*] M73122	125	-	0,1 VA	3 phases	14,6 mm
MC3-250	[*] M73123	250	-	0,1 VA	3 phases	26 mm
MC1-35-50/100/150	[*] M73116	150	50/100/150	0,25 VA	1 phase	35 mm
MC1-20-150/200/250	[*] M73113	250	150/200/250	0,25 VA	1 phase	20 mm
MC1-30-250/400/500	[*] M73114	500	250/400/500	0,25 VA	1 phase	30 mm
MC1-55-500/1000/1500	[*] M73115	1500	500/1000/1500	0,25 VA	1 phase	55 mm
MC1-80-1000/1500/2000	[*] M73117	2000	1000/1500/2000	0,25 VA	1 phase	80 mm

SC3, Split three-phase current transformers



SC3-125	[c] M73602	125	-	0,1 VA	3 phases	15 mm

The MC / SC3 transformers have a 250 mA output and are only compatible with EDMk-MC, CVM MINI-MC, CVM NET-MC, CVM-B and CVM-C units

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

CVM 1D, Power analyzer, single-phase DIN rail

CVM 1D DIN rail (1 module) - Power Supply 88...276 V_{ac}



Type	Code	nominal current	Class Power	Digital outputs	Protocol	Communication
CVM 1D-C	[*] M55510	250 mA...32 A	1	1	-	-
CVM 1D-RS485-C	[*] M55511	250 mA...32 A	1	1	Modbus/RTU	RS-485
Single-phase, 4-Quadrants measurement equipment						

CVM BD / CVM BDM, Power analyer, DIN rail

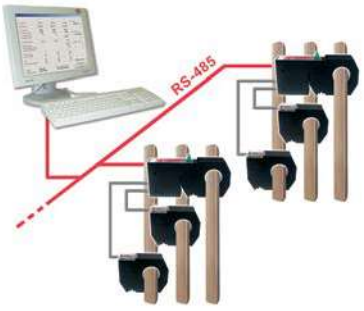
Serie CVM BD DIN Rail (8 modules) - 230 V_{ac} power supply





Type	Code	Relay Output	Output 4...20 mA	Internal memory	Communication	Communication RED
CVM BD - Measurement voltage 500 V_{ph-n} / 866 V_{ph-ph}						
CVM BD-RED-C2-H	[3] M52111	2	-	-	RS-485	RS-485
CVM BD-RED-C420-H	[3] M52122	1	1	-	RS-485	RS-485
CVM BD-RED-420-H	[3] M52123	-	2	-	RS-485	RS-485
CVM BDM - Measurement voltage 300 V_{ph-n} / 520 V_{ph-ph}						
CVM BDM	[3] M52210	-	-	1 (MB)	RS-485	-

Power Net, Power analyzers, direct connection



Type	Code	Useful section (mm)	Current (A)
Power Net-35-50	[*] M52621	35	50
Power Net-35-100	[4] M52622	35	100
Power Net-35-250	[*] M52623	35	250
Power Net-70-500	[*] M52624	70	500
Power Net-70-1000	[*] M52625	70	1 000
TC-Power Net			
TC-Power Net-35-50	[4] M52631	35	50
TC-Power Net-35-100	[*] M52632	35	100
TC-Power Net-35-250	[*] M52633	35	250
TC-Power Net-70-500	[2] M52634	70	500
TC-Power Net-70-1000	[*] M52635	70	1 000
Compatible with PowerStudio Scada			

Requirements for three-phase system: 1 Power Net xx-xxx + 2 TC-Power Net xx-xxx

Master Power Net unit measures the voltage for the three-phase plus the current in phase 1 (L1). To measure the current in L2 and L3, two TC-Power Net units to connected to the master are requiered

CVM-BD, CVM-BDM

Code	Internal code											
M	5	X	X	X	X	0	0	X	X	X	X	X
Code								↑	↑	↑	↑	↑
Power supply voltage	Standard 230 V_{ac}							0				-
	110 V_{ac}							1				1
	24...120 V_{dc}							5				1
Voltage measurement Measurement (TM)	Standard (300 V_{ph-n}/520 V_{ph-ph}) BDM (500 V_{ph-n} / 866 V_{ph-ph}) BD								0			-
	110 V_{ph-n} / 190 V_{ph-ph}								1			1
	500 V_{ph-n} / 866 V_{ph-ph}								3			1
Current input	Standard (.../ 5 A)									0		-
	.../ 1 A (ITF only)									1		1
Others (CVM-BD-RED/ BDM only)	Standard										0 0	-
	Communication RS-232										0 1	2

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

WiBeee, consumption analyzers

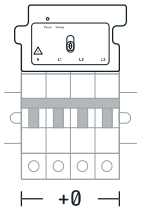
Série WiBeee - Power Analyzers DIN Rail (0 modules) -Power Supply 85...265 V_{ac} 50/60 Hz



NEW

Type	Code	System	Phases order	Protocol	Communications
WiBeee-T-L	**[*] M57020**	Three-phase	N-LIII	HTTP/ModbusTCP/ XML	Wifi
WiBeee-T-R	**[*] M57021**	Three-phase	LIII-N	HTTP/ModbusTCP/ XML	Wifi
WiBeee-M-L	**[*] M57010**	Single-phase	N-L	HTTP/ModbusTCP/ XML	Wifi
WiBeee-M-R	**[*] M57011**	Single-phase	L-N	HTTP/ModbusTCP/ XML	Wifi







Available on the App Store

Available on the Google play

Communication accessories



RS2RS/ TCP1RS+ / TCP2RS+, communication converters

Type	Code	
RS2RS	**[*] M62141**	RS-232/485 Intelligent converter and amplifier (RTS control) for PC
USB-RS485 conv.	**[*] M54040**	USB to RS-485 Converter
USB-RS232 conv.	**[*] M54050**	USB to RS-232 Converter
TCP1RS+	**[*] M62121**	RS-485 / Ethernet modbus/TCP Converter
TCP2RS+	**[*] M54033**	RS-232/485 Converter / Ethernet Modbus/TCP. Built-in web server and web set-up
CMBUS-8	**[*] M540A0**	M-Bus to Modbus Converter, up to 8 Mbus slaves
CMBUS-24	**[*] M540B0**	M-Bus to Modbus Converter, up to 24 Mbus slaves







air, wireless converters and probes

air GATEWAY	**[c] M62001**	Router RS485 Modbus/RTU to Radio
air BRIDGE	**[c] M62002**	Radio Router to RS485 Modbus/RTU
air REPEATER	**[c] M62003**	Signal repeater
air THL	**[c] M62004**	Wireless temperature, relative humidity and brightness analyzer
air HANDZER	**[c] M62005**	Portable wireless signal coverage analyzer

NEW



Modems

CM-GSM/GPRS	**[*] Q30250**	RS-232/RS-485-GSM/GPRS Modem
Modem router SGE-3G/GPRS	**[*] Q30230**	GPRS-3G Modem router with Ethernet communications



Software

PowerStudio Scada	**[*] M90231**	*Software* with HASP USB licencie

See **Energy management software** section

Others

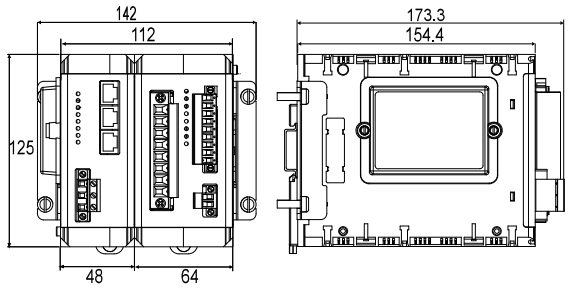


Current transformers (See **Measurement//Current transformers and shunts** section)

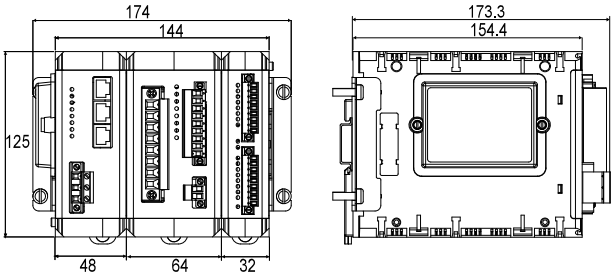
Delivery time: [*] immediate
[x] working weeks
[c] consult

Dimensions

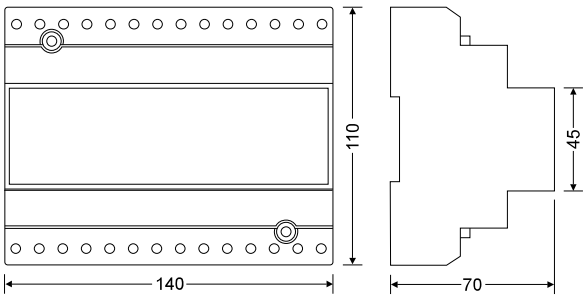
QNA 500



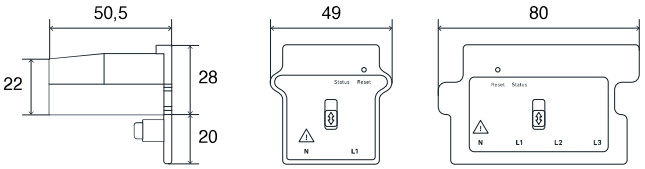
QNA 500 8IO



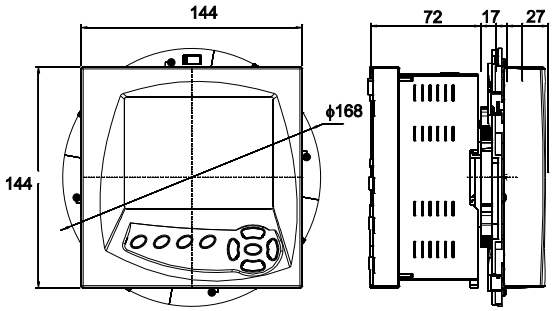
CVM BD/BDM



WiBeee



CVMk2



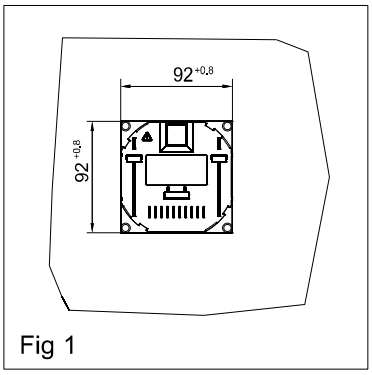


Fig 1

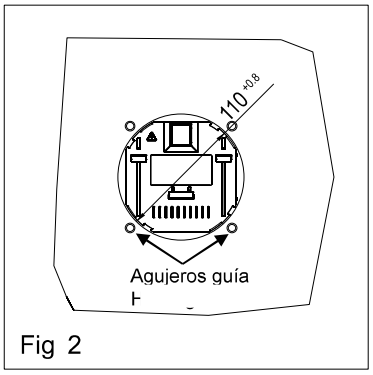


Fig 2

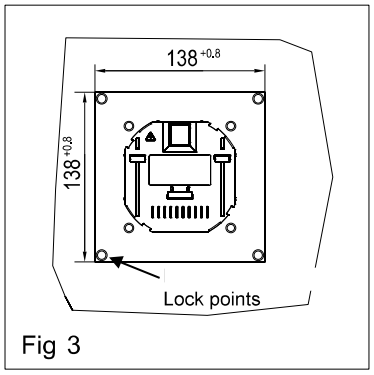
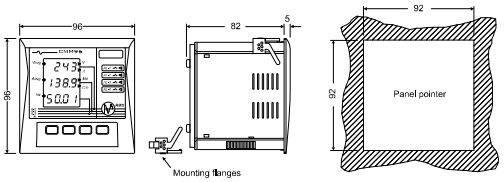


Fig 3

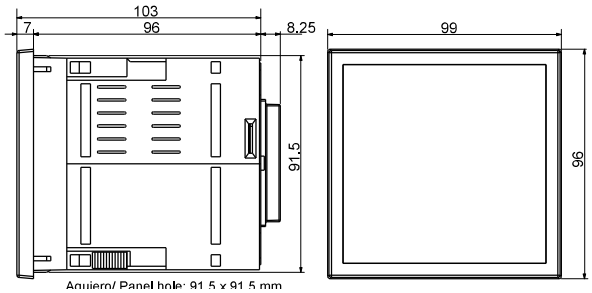
Fig 1, 2 and 3: Shows the way you have to insert the display in the panel. You can fix the CVMk2 in three different types(or measurents) of holes, 91,5x91,5 mm mm (fig. 1), 110 mm of diameter (fig. 2) and 135x138 mm (fig. 3)

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

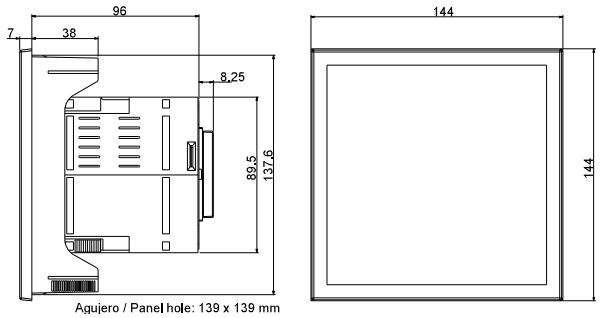
CVM C5 / CVM C10



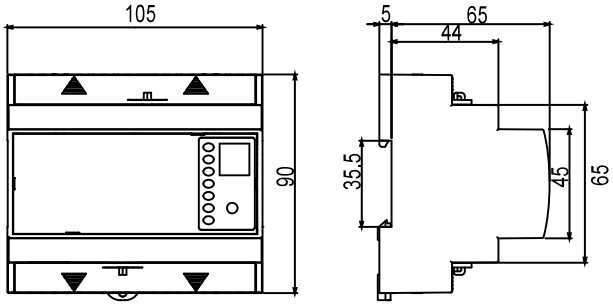
CVM B100



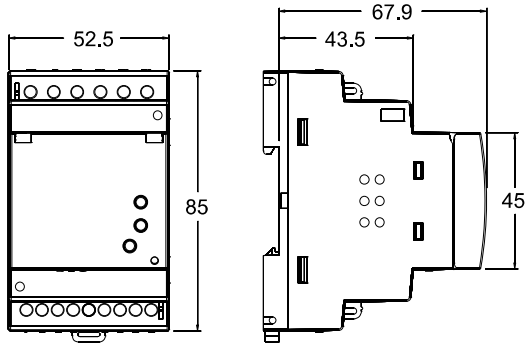
CVM B150



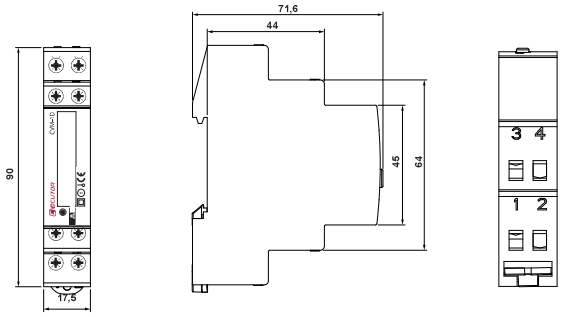
CVM NET4+



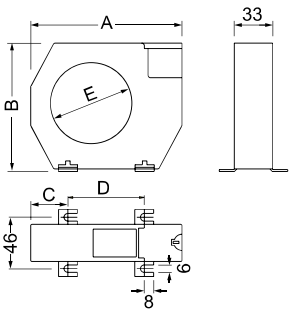
CVM MINI / CVM NET



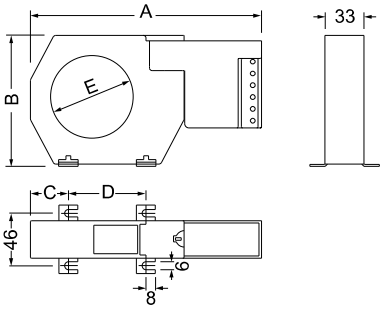
CVM 1D



TC-POWER NET



POWER NET



Type	A	B	C	D	E
PowerNet-35	166	79	26	48,5	35
PowerNet-70	196	110	32	66	70

Type	A	B	C	D	E
TC-PowerNet-35	100	79	26	48,5	35
TC-PowerNet-70	130	110	32	66	70

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

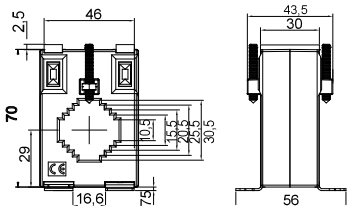
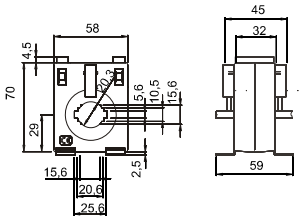
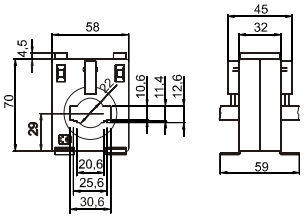
Measuring transformers and shunts

Table: Current transformers and shunts selection

		TC	TCH	TA	TP	STP	MC	TM 45	TRMC	TRM	SH
AC Measurement	For measuring instruments	•	•	•	•	•	•	•	–	•	•
	For billing meters	–	–	–	–	–	–	–	•	–	–
	Wound primary	–	–	T	–	–	–	•	T	–	–
	Passing bar	•	•	T	•	–	•	–	T	•	–
	Split-core	–	–	–	•	•	–	–	–	–	–
	Minimum range (A)	40	50	5	50	100	50	1	100	75	–
	Maximum range (A)	4000	4000	5000	6000	300	2000	50	2000	5000	–
	High accuracy	–	•	–	–	–	–	–	–	–	–
	Three-phase	–	–	–	–	–	T	–	T	–	–
DC measurement	Minimum range (A)	–	–	–	–	–	–	–	–	–	1
	Maximum range (A)	–	–	–	–	–	–	–	–	–	20000
Other parameters	Secondary output	.../5	.../5	.../5	.../5	.../1	...250 mA	.../5	.../5	.../5	.../60 mV
	in resin	OP	OP	–	–	–	–	–	•	•	–
	Sealable	OP	OP	OP	•	–	–	–	•	–	–
	UL Certificate	–	T	T	–	–	–	–	–	–	–
	Individual certificate	OP	OP	OP	OP	–	–	–	OP	OP	–
	Page	32	34	37	35	36	36	36	38	39	41

T - Depending on the type
OP - Optional

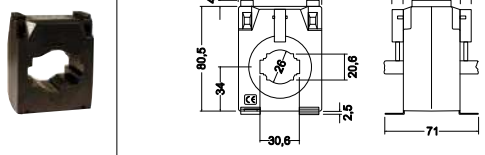
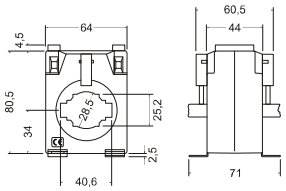
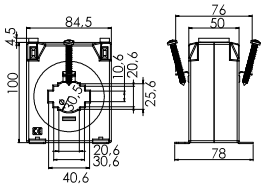
TC, Current transformers narrow section

Type	TC 4	TC 5	TC 5.2
	 		
Flat strip	30 x 10 20 x 10 25 x 5	20 x 10 25 x 5 15 x 5	20 x 12 25 x 10 30 x 10

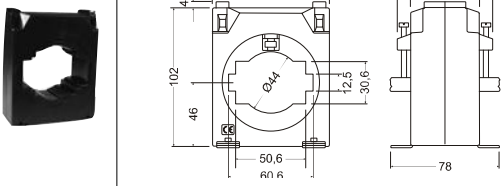
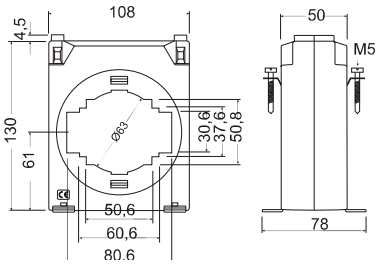
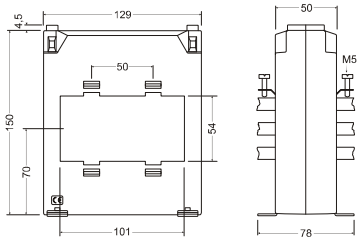
V·A / A	Class 0,5	Class 1	Class 3	Code	Class 0,5	Class 1	Class 3	Code	Class 0,5	Class 1	Class 3	Code
40/5					-	-	1,5	**[*] M70311**				
50/5	-	-	1	**[*] M703D5**	-	-	3	**[*] M70312**				
60/5	-	-	1,25	**[*] M703D6**	-	1,25	3,5	**[*] M70313**				
75/5	-	-	1,25	**[*] M703D7**	-	2	3,5	**[*] M70314**				
100/5	-	2,0	3	**[*] M703D8**	1,5	2,5	3,75	**[*] M70315**	-	1	1,5	**[c] M70321**
125/5	-	2,5	3,75	**[*] M703D9**	1,75	3,5	5	**[*] M70316**	-	1,5	2	**[*] M70322**
150/5	1,5	2,5	4	**[*] M703DA**	2,5	3,5	5	**[*] M70317**	1	2	2,5	**[*] M70323**
200/5	2,5	5	6	**[*] M703DB**	3,75	5	5	**[*] M70318**	2,5	3	3,5	**[*] M70324**
250/5					5	7,5	7,5	**[*] M70319**	3,5	3,75	5	**[*] M70325**
300/5									3,5	3,75	5	**[*] M70326**
400/5									3,5	5	7,5	**[*] M70327**
500/5									5	7,5	10	**[*] M70328**
600/5									5	7,5	10	**[*] M70329**

For other parameter coding, see table at the end of this section

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

Type	TC 6,2	TC 6	TC 8.3
			
Flat strip	20 x 20 25 x 12 30 x 10	30 x 15 20 x 10 40 x 10	20 x 25 30 x 20 40 x 10

V·A / A	Class 0,5	Class 1	Class 3	Code	Class 0,5	Class 1	Class 3	Code	Class 0,5	Class 1	Class 3	Code
100/5	1,75	3,75	7,5	**[*] M70341**								
125/5	3,75	7,5	10	**[*] M70342**								
150/5	5	7,5	10	**[*] M70343**	1	3,5	5	**[*] M70331**				
200/5	7,5	10	10	**[*] M70344**	3,5	5	7,5	**[*] M70332**	15	20	25	**[3] M703B2**
250/5	7,5	10	15	**[*] M70345**	5	7,5	10	**[*] M70333**	10	15	20	**[3] M703B1**
300/5	10	10	15	**[*] M70346**	5	7,5	10	**[*] M70334**	15	20	25	**[3] M703B3**
400/5	10	10	15	**[*] M70347**	5	7,5	10	**[*] M70335**	15	20	25	**[3] M703B4**
500/5	15	15	20	**[*] M70348**	7,5	10	15	**[*] M70336**	15	20	25	**[3] M703B5**
600/5	15	20	25	**[*] M70349**	7,5	10	15	**[*] M70337**	15	20	25	**[3] M703B6**
750/5					10	15	20	**[*] M70338**	20	25	30	**[3] M703B7**
800/5					10	15	20	**[*] M70339**	25	30	35	**[3] M703B8**
1 000/5									25	30	35	**[3] M703B9**

Type	TC 8	TC 10	TC 12
			
Flat strip	50 x 30 60 x 12	50 x 50 60 x 30 80 x 30	3 x 100 x 10

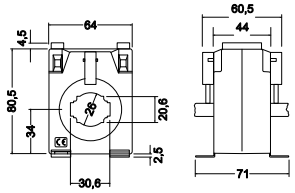
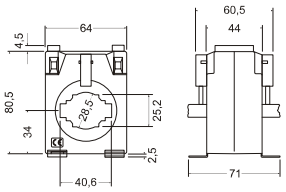
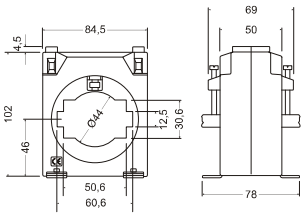
V·A / A	Class 0,5	Class 1	Class 3	Code	Class 0,5	Class 1	Class 3	Code	Class 0,5	Class 1	Class 3	Code
200/5	1	2,5	5	**[*] M7036C**	1	2,5	5	**[*] M7037F**				
300/5	2,5	5	7,5	**[*] M7036B**	2,5	5	7,5	**[*] M7037D**				
400/5	5	7,5	10	**[*] M70361**	2,5	5	7,5	**[3] M7037G**				
500/5	7,5	10	15	**[*] M70362**	5	7,5	10	**[*] M7037B**				
600/5	10	15	20	**[*] M70363**	7,5	10	15	**[*] M7037C**				
750/5	15	20	25	**[*] M70364**	7,5	10	15	**[3] M7037H**				
800/5	15	20	30	**[*] M70365**	7,5	10	15	**[*] M70372**	10	15	20	**[*] M7038B**
1 000/5	15	20	30	**[*] M70366**	10	15	20	**[*] M70373**	10	15	20	**[*] M70381**
1 200/5	15	20	30	**[*] M70367**	10	15	20	**[*] M70374**	10	15	20	**[*] M70382**
1 250/5	15	20	30	**[*] M7036A**	10	15	20	**[*] M7037E**	10	15	20	**[3] M7038D**
1 500/5	15	20	30	**[*] M70368**	15	20	25	**[*] M70375**	15	20	30	**[*] M70383**
1 600/5	15	20	30	**[*] M70369**	15	20	25	**[*] M70376**	15	20	30	**[*] M70384**
2 000/5					15	20	25	**[*] M70377**	15	20	30	**[*] M70385**
2 500/5					15	20	30	**[*] M70378**	20	30	40	**[*] M70386**
3 000/5					15	20	30	**[*] M70379**	30	40	60	**[*] M70387**
3 200/5									30	40	60	**[3] M7038C**
4 000/5									35	40	60	**[*] M70388**

ACCESSORIES

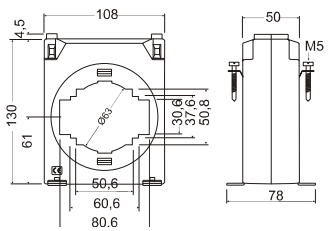
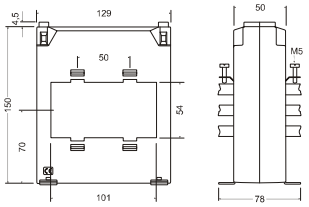
Type	Code
Terminals cover	**[*] M79951**
PA-TC/WG DIN rail mounting accesory	**[*] P19921**

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

TCH , Current transformers narrow section and high accuracy

Type	TCH 6.2	TCH 6	TCH 8
	 		
Flat strip	30 x 10	40 x 10	60 x 12

V·A / A	Class 0,2S	Class 0,2	Class 0,5S	Code	Class 0,2S	Class 0,2	Class 0,5S	Code	Class 0,2S	Class 0,2	Class 0,5S	Code
50/5		0,5		[3] M7044B								
60/5		0,5		[3] M7044C								
100/5	1	1,5	2,5	[*] M70441								
125/5	1	1,5	2,5	[3] M70442								
150/5	2,5	3,5	3,5	[*] M70443	1	1,25	1,5	[*] M70431				
200/5	3,5	5	5	[*] M70444	1,25	1,5	2	[*] M70432				
250/5	5	5	5	[*] M70445	1,5	1,75	2,25	[*] M70433				
300/5	5	5	5	[*] M70446	1,75	2	2,5	[*] M70434				
400/5	7,5	7,5	7,5	[*] M70447	1	5	5	[*] M70435				
500/5					5	7,5	7,5	[*] M70436				
600/5					5	7,5	7,5	[*] M70437	5	10	10	[*] M70463
750/5					7,5	10	10	[*] M70438	7,5	10	10	[*] M70464
800/5					7,5	10	10	[*] M70439	7,5	10	10	[*] M70465
1 000/5									10	15	15	[*] M70466
1 200/5									10	15	15	[*] M70467
1 250/5									10	15	15	[3] M7046A
1 500/5									10	15	15	[*] M70468
1 600/5									10	15	15	[*] M70469

Type	TCH 10	TCH 12
	 	
Flat strip	50 x 50 60 x 30 80 x 30	3 x 100 x 10

V·A / A	Class 0,2S	Class 0,2	Class 0,5S	Code	Class 0,2S	Class 0,2	Class 0,5S	Code
800/5	7,5	10	10	[3] M70472				
1 000/5	7,5	10	10	[*] M70473				
1 200/5	10	10	10	[*] M70474	10	15	15	[3] M70482
1 250/5	10	10	10	[3] M7047C	10	15	15	[c] M7048C
1 500/5	10	10	15	[*] M70475	10	15	15	[*] M70483
1 600/5	10	10	15	[*] M70476	10	15	15	[3] M70484
2 000/5	10	10	15	[*] M70477	10	15	15	[*] M70485
2 500/5	10	10	15	[*] M70478	15	20	20	[*] M70486
3 000/5	10	10	15	[*] M70479	20	25	25	[*] M70487
3 200/5					20	25	25	[3] M7048B
4 000/5					25	30	30	[3] M70488

For other parameter coding, see table at the end of this section - Other primary ratios consult

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

TP , Current transformers, split core






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

	Class			Code	Class			Code	Class			Code
	0,5	1	3		0,5	1	3		0,5	1	3	
50/5	-	-	1,5	[*] M7011A								
75/5	-	-	1,5	[*] M70117								
100/5	-	-	1,5	[*] M70111	-	-	2	[*] M7012D				
125/5	-	-	1,5	[3] M70118								
150/5	-	-	2	[*] M70112	-	-	3	[*] M7012A				
200/5	-	1,5	2,5	[*] M70113	-	-	3	[*] M7012B				
250/5	-	2	4	[*] M70114	-	2	4	[*] M70121	1	2	4	[*] M70131
300/5	1,5	4	6	[*] M70115	1,5	3	6	[*] M70122	1,5	3	6	[*] M70132
400/5	2,5	6	10	[*] M70116	1,5	3	10	[*] M70123	1,5	3	10	[*] M70133
500/5					2,5	5	15	[*] M70124	2,5	5	15	[*] M70134
600/5					2,5	5	17,5	[*] M70125	2,5	5	17,5	[*] M70135
700/5					2,5	-	-	[3] M7012C				
750/5					3	6	18	[*] M70126	3	6	18	[*] M70136
800/5					3	7	18	[*] M70127	3	7	18	[*] M70137
1 000/5					5	10	20	[*] M70128	5	10	20	[*] M70138





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

	Class			Code	Class			Code
	0,5	1	3		0,5	1	3	
500/5	-	4	12	[*] M70141	3	-	-	[3] M7015F
600/5	-	5	14	[*] M70142	3	-	-	[3] M7015H
750/5	2,5	6	17	[*] M70143	5	-	-	[3] M70158
800/5	3	7	18	[*] M70144				
1 000/5	5	9	20	[*] M70145	10	15	20	[*] M70151
1 200/5	6	11	24	[*] M70146				
1 250/5	7	15	28	[*] M70147	8	-	-	[3] M7015A
1 500/5	8	17	30	[*] M70148	15	20	25	[*] M70152
1 600/5	8	17	30	[*] M70149	8	-	-	[3] M7015B
2 000/5					15	20	25	[*] M70153
2 500/5	10	17	25	[*] M7014A	15	20	25	[*] M70154
3 000/5					20	25	30	[*] M70155
3 200/5					20	-	-	[3] M7015C
4 000/5					20	25	30	[*] M70156
5 000/5					20	25	30	[*] M70157
6 000/5					20	-	-	[3] M7015E

ACCESSORIES

Type	Code
TET 114. TP outdoor protector	[*] M79972
TET 144. TP outdoor protector	[*] M79973

For other parameter coding, see table at the end of this section

Other primary ratios consult

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

STP-24, current transformers, split core, small size



Type	STP-24								
Flat strip	∅ 24 mm								
Secundary	5 A			1 A			250 mA		
 a b c	75,4 66 55								
V·A / A	Class	VA	Code	Class	VA	Code	Class	VA	Code
100	3	1	[c] M73323	3	1	[c] M733230010000	3	0,1	[c] M7332300G0000
150	3	1	[c] M73325	3	1	[c] M733250010000	3	0,1	[c] M7332500G0000
200	3	1	[c] M73326	3	0,5	[c] M733260010000	3	0,1	[c] M7332600G0000
250	3	1	[c] M73327	1	1	[c] M733270010000	1	0,1	[c] M7332700G0000
300	3	1	[c] M73328	1	1	[c] M733280010000	1	0,1	[c] M7332800G0000

MC1 / MC3, current transformers, MC1 single-phase, MC3 Three-phase





Type	Code	Max. A	Ranges	Class 0,5 Power	Measurement	Inner diameter (mm)
MC3-63	[*] M73121	63	-	0,1 VA	3 phases	7,1 mm
MC3-125	[*] M73122	125	-	0,1 VA	3 phases	14,6 mm
MC3-250	[*] M73123	250	-	0,1 VA	3 phases	26 mm
MC1-35-50/100/150	[*] M73116	150	50/100/150	0,25 VA	1 phase	35 mm
MC1-20-150/200/250	[*] M73113	250	150/200/250	0,25 VA	1 phase	20 mm
MC1-30-250/400/500	[*] M73114	500	250/400/500	0,25 VA	1 phase	30 mm
MC1-55-500/1000/1500	[*] M73115	1500	500/1000/1500	0,25 VA	1 phase	55 mm
MC1-80-1000/1500/2000	[*] M73117	2000	1000/1500/2000	0,25 VA	1 phase	80 mm

SC3, Split three-phase current transformers



NEW SC3-125	[c] M73602	125	-	0,1 VA	3 phases	15 mm

The MC / SC3 transformers have a 250 mA output and are only compatible with EDMk-MC, CVM MINI-MC, CVM NET-MC, CVM-B and CVM-C units

TM45, current transformers, winding primary, DIN rail

Type	TM 45			
				
	Winding primary			
a b c 	85 52,5 70			
V·A / A	Class			Code
	0,5	1	3	
1/5	2,5	5	7	[c] 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

TC-420 / TP-420 / TCM / TCB, Current transformers with 4 ... 20 mA transducer check section Digital instruments and transducers

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

TA 210, current transformers, winding primary

Type	TA 210			
				
internal Ø	Winding primary			
a b c 	104.5 75 134			
V·A / A	Class 0,5	Class 1	Class 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	[*] M70549
75/5	15	20	30	[*] M7054A
80/5	15	20	30	[1] M7054K
100/5	15	20	30	[*] M7054B
125/5	15	20	30	[*] M7054C
150/5	15	20	30	[*] M7054D
200/5	15	20	30	[*] M7054E
250/5	15	20	30	[*] M7054F
300/5	15	20	30	[*] M7054G
400/5	15	20	30	[*] M7054H

Sealable terminal cover and anchorage base are included

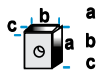
TA, Current transformers

Type	TA 400				TA 500				TA 600			
												
Flat strip	100 x 20 mm				100 x 30 mm				125 x 60 mm			
a b c 	165 95 59				185 115 63				196 124 62			
V·A / A	Class 0,5	Class 1	Class 3	Code	Class 0,5	Class 1	Class 3	Code	Class 0,5	Class 1	Class 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	[*] M70594								
800/5	15	20	30	[*] M70595					15	15		[3] M705BB
1 000/5	15	20	30	[*] M70596	15	20	30	[3] M705A2	15	20	30	[*] M705B1
1 200/5	15	20	30	[*] M70597	15	20	30	[3] M705A3	15	20	30	[3] M705B2
1 500/5	15	30	40	[*] M70598	15	30	40	[*] M705A4	15	20	30	[*] M705B3
2 000/5	20	40	50	[*] M70599	20	40	50	[*] M705A6	15	20	30	[*] M705B5
2 500/5	20	40	50	[c] M7059B	20	40	50	[*] M705A7	20	30	40	[*] M705B6
3 000/5					20	45	60	[*] M705A8	30	40	60	[*] M705B7
3 200/5									30	40	60	[3] M705BA
4 000/5					35	50	70	[*] M705A9	35	50	70	[*] M705B8
5 000/5									40	60	80	[*] M705B9

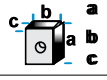
Delivery time: [*] immediate
[x] working weeks
[c] consult

Current Transformers encapsulated in resin

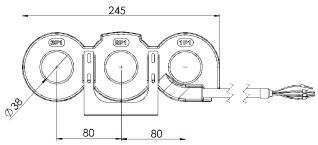
kit3-TRMC 210, Sets of 3 current transformers for energy meters

	3 X 					
Type	**kit 3-TRMC 210**					
	Primary winding					
Flat strip	Flat strip dimensions (Wound primary)					
	145 111 48					
A	**Class 0,5S** **V·A**	**Code**	**Class 0,5** **V·A**	**Code**	**Class 0,5S** **V·A**	**Code**
100/5	10	**[3] Q309010100000**	10	**[3] Q309610100000**	2,5	**[3] Q309810100000**
150/5	10	**[3] Q309020100000**	10	**[3] Q309620100000**	2,5	**[3] Q309820100000**
200/5	10	**[3] Q309030100000**	10	**[3] Q309630100000**	2,5	**[3] Q309830100000**
300/5	10	**[3] Q309040100000**	10	**[3] Q309640100000**	2,5	**[3] Q309840100000**
400/5	10	**[3] Q309050100000**	10	**[3] Q309650100000**	2,5	**[3] Q309850100000**
500/5	10	**[3] Q309060100000**	10	**[3] Q309660100000**	2,5	**[3] Q309860100000**
600/5	10	**[3] Q309070100000**	10	**[3] Q309670100000**	2,5	**[3] Q309870100000**

kit3-TRMC 400, Sets of 3 current transformers for energy meters

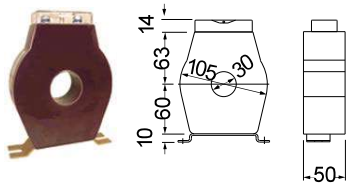
	3 X 					
Type	**kit 3-TRMC 400**					
Ø	100 x 20					
Flat strip	Bus bar					
	160 99 68					
A	**Class 0,5S** **V·A**	**Code**	**Class 0,5** **V·A**	**Code**	**Class 0,5** **V·A**	**Code**
750/5	10	**[3] Q309110100000**	10	**[3] Q309710100000**	2,5	**[3] Q309A10100000**
1 000/5	10	**[3] Q309120100000**	10	**[3] Q309720100000**	2,5	**[3] Q309A20100000**
1 500/5	10	**[3] Q309130100000**	10	**[3] Q309730100000**	2,5	**[3] Q309A30100000**
2 000/5	10	**[3] Q309140100000**	10	**[3] Q309740100000**	2,5	**[3] Q309A40100000**
3 000/5					2,5	**[3] Q309A60100000**

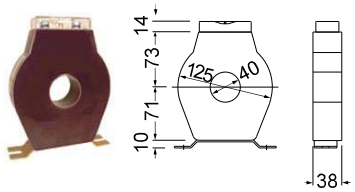
TRMCx3, Three-phase current transformers for energy meters

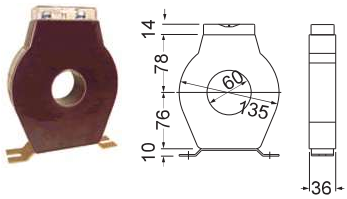
	 						
Ø	38 mm						
		Indoor			Outdoor		
A	**Class 0,5S** **V·A**	**Type**	**Code**	**cable (m)**	**Type**	**Code**	**cable (m)**
100/5	2,5	**TRMCx3 100/5**	**[*] Q301T1**	**1,5**	**TRMCx3 100/5-ext**	**[c] Q301T1010E000**	**7**
200/5	2,5	**TRMCx3 200/5**	**[*] Q301T2**	**1,5**	**TRMCx3 200/5-ext**	**[c] Q301T2010E000**	**7**
300/5	2,5	**TRMCx3 300/5**	**[*] Q301T3**	**1,5**	**TRMCx3 300/5-ext**	**[c] Q301T3010E000**	**7**
400/5	2,5	**TRMCx3 400/5**	**[*] Q301T4**	**1,5**	**TRMCx3 400/5-ext**	**[c] Q301T4010E000**	**7**

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

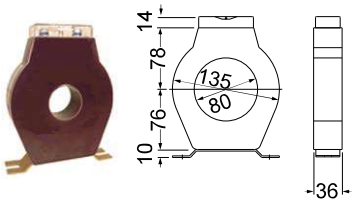
TRM, Measuring transformers encapsulated in resin

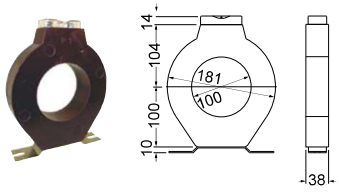






Type	TRM 30				TRM 40			TRM 60		
Ø inner	30				40			60		
A	Power V·A Class 0,5	Power V·A Class 1	Code	Weight kg	Power V·A Class 0,5	Code	Weight kg	Power V·A Class 0,5	Code	Weight kg
75/5		2	**[4] P50101**	1,2						
100/5		5	**[4] P50102**	1,1						
150/5		5	**[4] P50103**	1,1	5	**[4] P50111**	1,3			
200/5	10		**[4] P50104**	1,2	7,5	**[4] P50112**	1,3			
250/5	15		**[4] P50105**	1,2	10	**[4] P50113**	1,2	5	**[4] P50121**	1,0
300/5	20		**[4] P50106**	1,3	15	**[4] P50114**	1,3	7,5	**[4] P50122**	1,2
400/5	25		**[4] P50107**	1,2	20	**[4] P50115**	1,3	10	**[4] P50123**	1,2
500/5					25	**[4] P50116**	1,2	15	**[4] P50124**	1,3
600/5					30	**[4] P50117**	1,2	20	**[4] P50125**	1,3
800/5					35	**[4] P50118**	1,3	25	**[4] P50126**	1,4
1 000/5								30	**[4] P50127**	1,4
1 200/5								35	**[4] P50128**	1,5

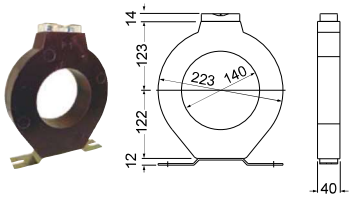
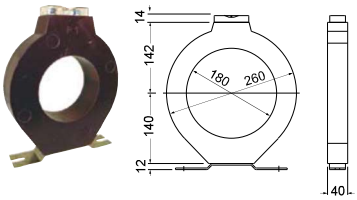




Type	TRM 80			TRM 100		
Ø inner	80			100		
A	**Power V·A Class 0,5**	**Code**	**Weight kg**	**Power V·A Class 0,5**	**Code**	**Weight kg**
500/5	5	**[4] P50131**	0,9			
600/5	7,5	**[4] P50132**	0,9			
750/5	10	**[4] P50133**	0,9	15	**[4] P50141**	1,6
1 000/5	15	**[4] P50134**	0,9	20	**[4] P50142**	1,7
1 500/5	20	**[4] P50135**	1,0	20	**[4] P50144**	1,6
2 000/5	25	**[4] P50136**	1,0	20	**[4] P50145**	1,7
2 500/5	30	**[4] P50137**	1,2	20	**[4] P50146**	1,8
3 000/5				25	**[4] P50147**	1,9

FOR OTHER PARAMETER CODING see table at the end of this section

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

Type	 TRM 140			 TRM 180		
Ø inner	140			180		
	Power V·A Class 0,5	Code	Weight kg	Power V·A Class 0,5	Code	Weight kg
1 000/5	15	**[4] P50151**	2,1	-		
1 250/5	20	**[4] P50152**	2,2	15	**[4] P50161**	1,7
1 500/5	25	**[4] P50153**	2,2	20	**[4] P50162**	1,8
2 000/5	30	**[4] P50154**	2,3	20	**[4] P50163**	1,9
2 500/5	35	**[4] P50155**	2,3	20	**[4] P50164**	2,0
3 000/5	35	**[4] P50156**	2,5	20	**[4] P50165**	2,5
4 000/5	35	**[4] P50157**	3,0	20	**[4] P50166**	3,0
5 000/5				20	**[4] P50167**	4,0

CODIFICATION TABLE

P	5	X	X	X	X	0	0	X

Code		Internal code	Delivery time
Secondary	Standard (.../ 5 A)	0	-
	... / 1A	1	3

FOR OTHER PARAMETER CODING see table at the end of below

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

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

SHP / SHB / SH , Shunts

Type		SHP		SHB		SH	
							
Acuracy		1		0,5		0,5	
	A	Type	Code	Type	Code	Type	Code
1 A / 60 mV	1			**SHB-1**	**[3] M71221**		
1,5 A / 60 mV	1,5			**SHB-1,5**	**[3] M71222**		
2,5 A / 60 mV	2,5			**SHB-2,5**	**[3] M71223**		
4 A / 60 mV	4			**SHB-4**	**[3] M71224**		
5 A / 60 mV	5			**SHB-5**	**[3] M71225**		
6 A / 60 mV	6			**SHB-6**	**[3] M71226**		
10 A / 60 mV	10			**SHB-10**	**[*] M71227**		
15 A / 60 mV	15			**SHB-15**	**[*] M71228**		
25 A / 60 mV	25			**SHB-25**	**[*] M71229**		
30 A / 60 mV	30	**SHP-30**	**[3] M71211**	**SHB-30**	**[*] M7122A**	**SH-30**	**[*] M71231**
40 A / 60 mV	40	**SHP-40**	**[3] M71212**	**SHB-40**	**[*] M7122B**	**SH-40**	**[2] M71232**
50 A / 60 mV	50	**SHP-50**	**[3] M71213**	**SHB-50**	**[*] M7122C**	**SH-50**	**[*] M71233**
60 A / 60 mV	60	**SHP-60**	**[3] M71214**	**SHB-60**	**[*] M7122D**	**SH-60**	**[*] M71234**
75 A / 60 mV	75	**SHP-75**	**[3] M71215**				
80 A / 60 mV	80			**SHB-80**	**[*] M7122E**	**SH-80**	**[*] M71235**
100 A / 60 mV	100	**SHP-100**	**[3] M71216**	**SHB-100**	**[*] M7122F**	**SH-100**	**[*] M71236**
150 A / 60 mV	150	**SHP-150**	**[3] M71217**			**SH-150**	**[*] M71237**
200 A / 60 mV	200	**SHP-200**	**[3] M71218**	**SHB-200**	**[2] M7122N**	**SH-200**	**[*] M71238**
250 A / 60 mV	250					**SH-250**	**[*] M71239**
300 A / 60 mV	300					**SH-300**	**[*] M7123A**
400 A / 60 mV	400					**SH-400**	**[*] M7123B**
500 A / 60 mV	500					**SH-500**	**[*] M7123C**
600 A / 60 mV	600					**SH-600**	**[*] M7123D**
750 A / 60 mV	750					**SH-750**	**[2] M7123E**
800 A / 60 mV	800					**SH-800**	**[2] M7123F**
1 000 A / 60 mV	1 000					**SH-1000**	**[*] M7123G**
1 200 A / 60 mV	1 200					**SH-1200**	**[3] M7123H**
1 500 A / 60 mV	1 500					**SH-1500**	**[*] M7123J**
2 000 A / 60 mV	2 000					**SH-2000**	**[3] M7123K**
2 500 A / 60 mV	2 500					**SH-2500**	**[3] M7123L**
3 000 A / 60 mV	3 000					**SH-3000**	**[3] M7123M**
4 000 A / 60 mV	4 000					**SH-4000**	**[3] M7123N**
5 000 A / 60 mV	5 000					**SH-5000**	**[3] M7123P**
6 000 A / 60 mV	6 000					**SH-6000**	**[3] M7123Q**
7 500 A / 60 mV	7 500					**SH-7500**	**[3] M7123R**
8 000 A / 60 mV	8 000					**SH-8000**	**[c] M7123S**
10 000 A / 60 mV	10 000					**SH-10000**	**[c] M7123T**
12 500 A / 60 mV	12 500					**SH-12500**	**[c] M7123U**
15 000 A / 60 mV	15 000					**SH-15000**	**[c] M7123V**
18 000 A / 60 mV	18 000					**SH-18000**	**[c] M7123Z**
20 000 A / 60 mV	20 000					**SH-20000**	**[c] M7123O**

Insulating base for SHB types (up to 100 A)
All shunts are supplied with cables of 1,5 m length and 1,5 m^2 section

FOR OTHER PARAMETER CODING see table at the end of below

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

VT, Measurement voltage transformers

Measurement voltage transformers, VT series, Class 1, 25 V·A, Class 0,5, 10 V·A



Type	Relation	Code
VT2311	230 / 110 V	**[3] M72311**
VT3823	380 / 230 V	**[3] M72352**
VT4011	400 / 110 V	**[3] M72321**
VT4023	400 / 230 V	**[3] M72322**
VT4411	440 / 110 V	**[3] M72331**
VT4423	440 / 230 V	**[3] M72332**
VT4811	480 / 110 V	**[3] M72341**
VT4823	480 / 230 V	**[3] M72342**
VT7011	700 / 110 V	**[3] M72381**
VT7023	700 / 230 V	**[3] M72382**

Accessories for transformers



TSR, Current adding transformers fixed on a DIN rail

Type	Code	Nº Inputs	Power and class
TSR-2	**[*] M70701**	2 x 5 A	15 VA, Class 0,5 / 30 VA class 1
TSR-3	**[*] M70702**	3 x 5 A	15 VA, Class 0,5 / 30 VA class 1
TSR-4	**[*] M70703**	4 x 5 A	15 VA, Class 0,5 / 30 VA class 1
TSR-5	**[*] M70704**	5 x 5 A	15 VA, Class 0,5 / 30 VA class 1

TE, Impendace elevator transformer

Type	Code	Current relation	Power and class
TE-5/0,1	**[*] M70911**	5 / 0,1 A	15 V·A, Class 1

The transformers added must have the same ratio
Others rations, consult

CODIFICATION TABLE

TC, TP, TA, TCH, TM45, TSR

Code		Internal code		Delivery time
M 7 X X X X 0 0		X	X	
Secundary	Standard (.../ 5 A)	0		-
	.../ 1 A(*)	1		1
Certificate	-		0	-
	Individual (**)		1	1

(*) Not avalilable in TC4 type

(**) A certificate is attached for every transformer

TRM

Code		Internal code	Delivery time
P 5 X X X X 0 0		X	
Secundario	Estándar (.../ 5 A)	0	-
	... / 1A	1	3

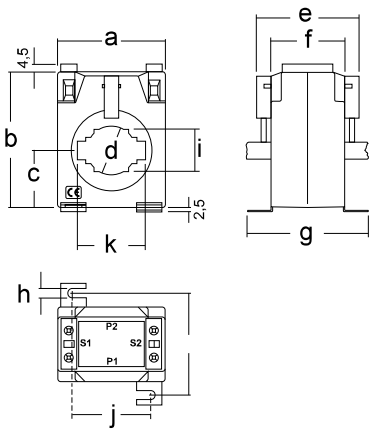
SH, SHB

Code		Internal code	Delivery time
M 7 X X X X 0 0		X	
Input	Standard .../60 mV	0	-
	.../50 mV	1	2
	.../75 mV	7	consult
	.../100 mV	2	2
	.../150 mV	3	2
	.../200 mV	4	2
	.../250 mV	8	consult
	.../300 mV	5	consult
	.../400 mV	9	consult
	.../600 mV	6	consult

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

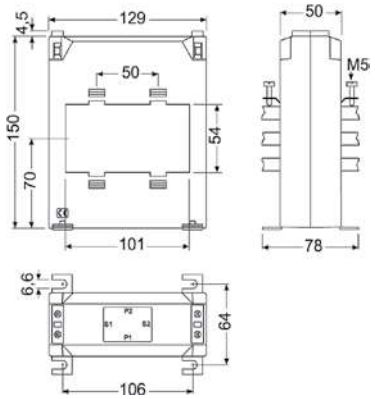
Dimensions

TC / TCH

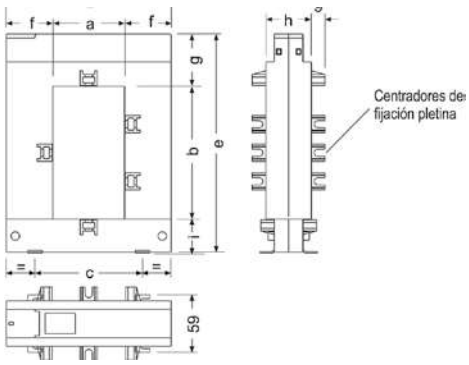


Dimensions (mm)	TC 4	TC 5 TCH 5	TC 5.2 TCH 5.2	TC 6.2 TCH6.2	TC 6 TCH 6	TC 8 TCH 8	TC 10 TCH 10
a	50	58	58	64	64	84,5	108
b	70	70	70	80,5	80,5	102	130
c	29	29	29	34	34	46	61
d	21	20,3	22	26	28,5	44	63
e	43,5	45	45	60,5	66,5	69	---
f	30	32	32	44	44	50	50
g	56	59	59	71	71,2	78	78
h	5,5	5,6	5,6	5,6	5,6	6,6	6,6
i	45,5	48	48	60	60	64	64
j	31,6	39	39	46	46	62	86
k	30,5	25,6	30,6	20,6	40,6	60,6	80,6
l	30,5	15,6	15,6	30,6	25,2	30,6	50,8

TC 12



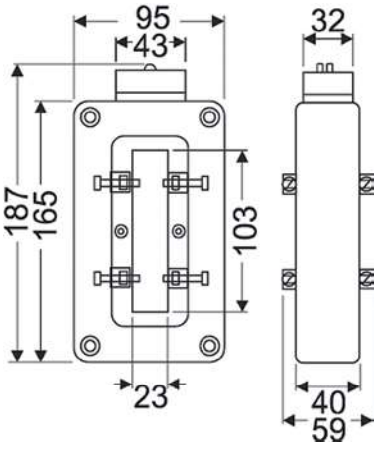
TP



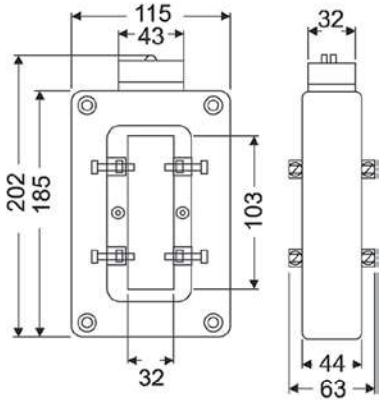
Dimensions (mm)	TP-23	TP-58	TP-88	TP-812	TP-816
a	20	50	80	80	80
b	30	80	80	120	160
c	51	78	108	108	120
d	89	114	144	144	184
e	110	145	145	185	245
f	34	32	32	32	52
g	47	32	32	32	47
h	40	32	32	32	52
i	32	32	32	32	38

Note: All types have fixing centering units, except for TP-23

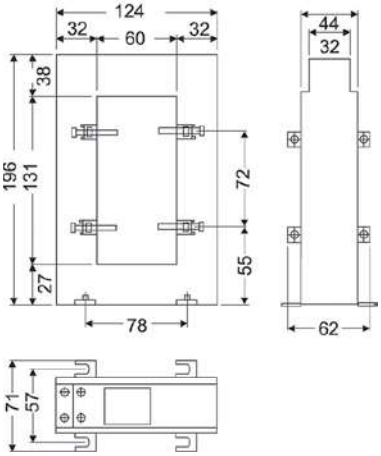
TA 400



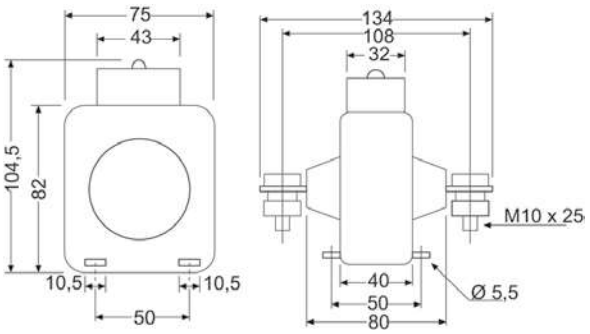
TA 500



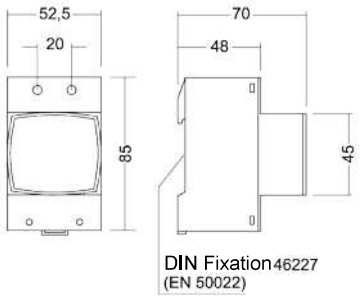
TA 600



TA 210



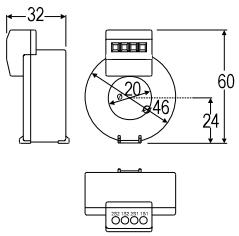
TM 45



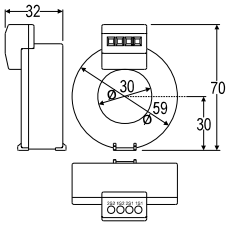
Delivery time: [*] immediate
[x] working weeks
[c] consult

MC1

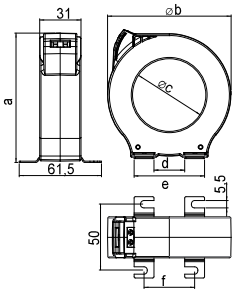
MC1-20



MC1 - 30



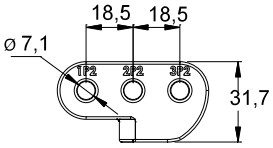
MC1 - 35 / MC1 - 55 / MC1-80



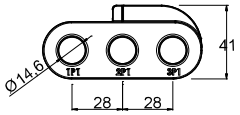
mm	MC1 -35	MC1 -55	MC1 -80
a	75,5	98	130
b	70,5	92	124,5
c	35	55	80
d		23	45
e		53	75
f		38	60

MC3

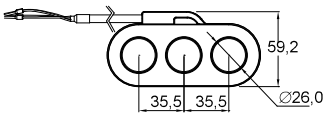
MC3-63



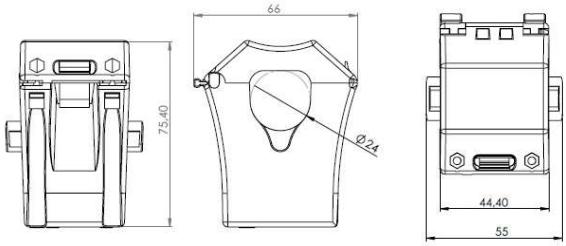
MC3 -125



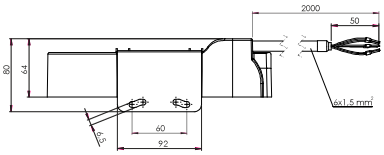
MC3-250

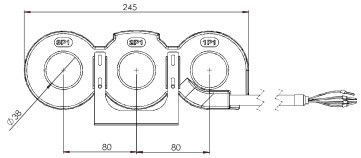


STP-24



TRMCx3





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

Control devices

		Page
Energy manager	EDS	45
Maximum demand control device	MDC-20	46
	DH96-CPP	46
	MDC-4	46
Impulse and contact centralisers	LM	46
Public lighting control system	CIR-LAMP	47
Communication accesories	Cable communication converters	47
	Wireless converters and probes	47
	Modems	47

EDS, Energy manager with powerStudio and built-in web server

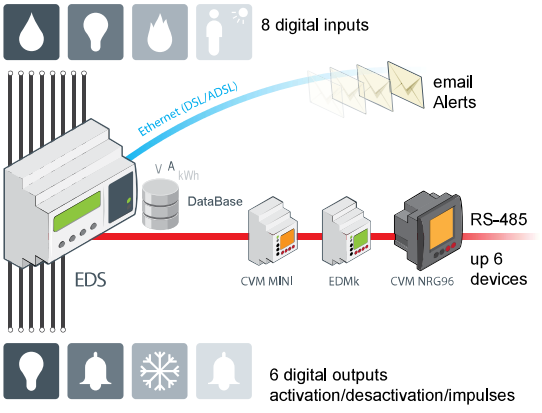
EDS (Efficiency Data Server) - Telemanagement with PowerStudio Embedded

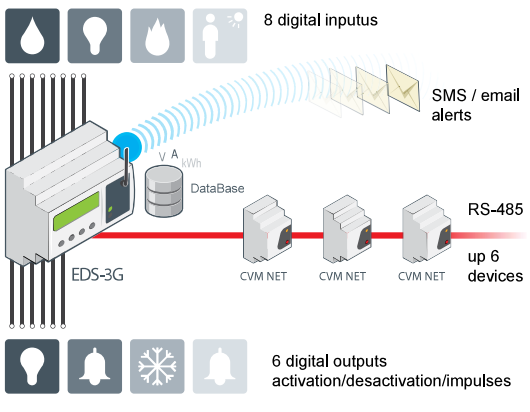




Type	Code	Generic Modbus	3G communication	digital inputs	Digital output by relay
EDS	**[*] M61010**	-	--	8	6
EDS-Deluxe	**[*] M61020**	Yes	--	8	6
With 3G communications					
EDS-3G	**[*] M61012**	-	Yes	8	6
EDS-3G-Deluxe	**[c] M61022**	Yes	Yes	8	6
accessories antennas					
GXS2	**[*] M610A1**	Antenna 4 GHz, 2,14 dBi + cable 5 m			
GC2	**[*] M610A2**	Antenna 4 GHz, 2,2 dBi antibanda			

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



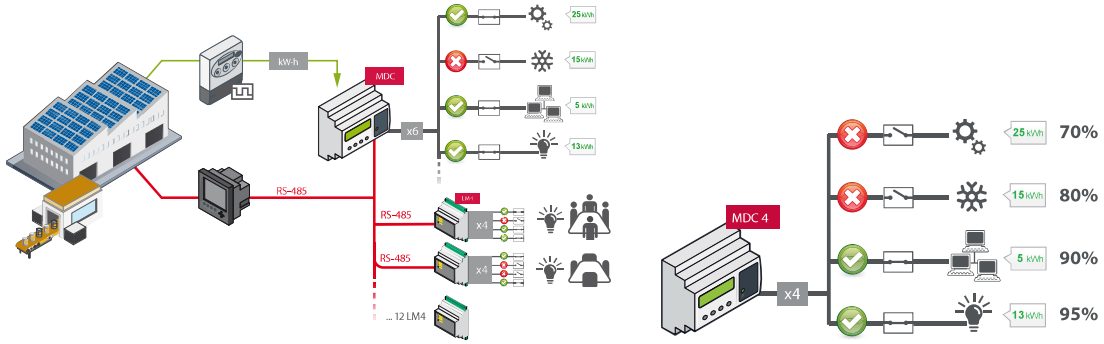


Delivery time: [*] immediate
[x] working weeks
[c] consult

MDC-20/ MDC-4, maximum demand control devices

Maximum demand control devices

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



	**DH 96CPP,** 4 cargas, ventana deslizante o fija, método predictivo o preventivo	
	DH96 CPP-RS, con comunicaciones RS-232 ó RS-485	**[*] M60211**
	**MDC-4** Maximum demand control unit, by level. Includes a built-in three-phase power analyzer and 4 relay outputs of up to 6 A for controlling non-priority loads	**[*] M61430**

LM, impulse and contact centralisers






Type	Code	Digital inputs (*)	Analogue inputs 4...20 mA	Digital outputs	Communications	Protocols	DIN rail Modules
LM50-TCP+	**[*] M31566**	50	–	–	RS-485	TCP , UDP, Modbus/TCP	8
LM25-M	**[*] M31567**	25	–	–	RS-485	Modbus/RTU	8
LM 4I/4O-M	**[*] M31563**	4	–	4	RS-485	Modbus/RTU	4
LM-4A 2IO-M	**[*] M31565**	2	4	2	RS-485	Modbus/RTU	4

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

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

CIRLAMP, Public lighting control system

CIRLAMP manager, master device to manage the light control devices (CIRLAMP nodo)



Type	Code	Description
CIRLAMP manager	**[*] M63001**	CIRLAMP has a configuration Web site, where the user can fully configure the configuration parameters of each light point. In addition, the device has an XML server, so that it can be integrated in any global control and maintenance platform
CIRLAMP 8I/8O	**[c] M63002**	Input/Output module

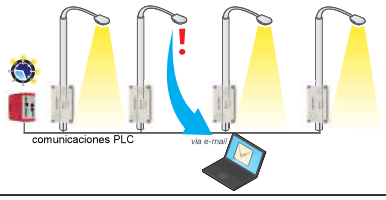


CIRLAMP Nodos, light control devices		
CIRLAMP nodo DN	**[c] M63021**	For managing the lights with 2-level electronic ballasts / drivers (lamp power of up to 600 W)
CIRLAMP nodo 1...10	**[c] M63011**	For managing the lights with electronic ballasts / drivers with 1...10V regulation (lamp power of up to 600 W)
NEW **CIRLAMP nodo DALI**	**[c] M63030**	For managing the lights with electronic ballasts/drivers with DALI protocol (lamp power of up to 600 W)

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

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

AppleStore	PlayStore



Communication accessories

RS2RS/ TCP1RS+, cable communication converters







Type	Code	
RS2RS	**[*] M62141**	RS-232/485 Intelligent converter and amplifier (RTS control) for PC
USB-RS485 conv.	**[*] M54040**	USB to RS-485 Converter
USB-RS232 conv.	**[*] M54050**	USB to RS-232 Converter
TCP1RS+	**[*] M62121**	RS-485 / Ethernet modbus/TCP Converter
TCP2RS+	**[*] M54033**	RS-232/485 Converter / Ethernet Modbus/TCP. Built-in web server and web set-up
CMBUS-8	**[*] M540A0**	M-Bus to Modbus Converter, up to 8 Mbus slaves
CMBUS-24	**[*] M540B0**	M-Bus to Modbus Converter, up to 24 Mbus slaves



air, wireless converters and probes



air GATEWAY	**[c] M62001**	Router RS485 Modbus/RTU to Radio
air BRIDGE	**[c] M62002**	Radio Router to RS485 Modbus/RTU
air REPEATER	**[c] M62003**	Signal repeater
air THL	**[c] M62004**	Wireless temperature, relative humidity and brightness analyzer
air HANDZER	**[c] M62005**	Portable wireless signal coverage analyzer



Modems

CM-GSM/GPRS	**[*] Q30250**	RS-232/RS-485-GSM/GPRS Modem
Modem router SGE-3G/GPRS	**[*] Q30230**	GPRS-3G Modem router with Ethernet communications

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

TH-DG, temperature and humidity probe



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

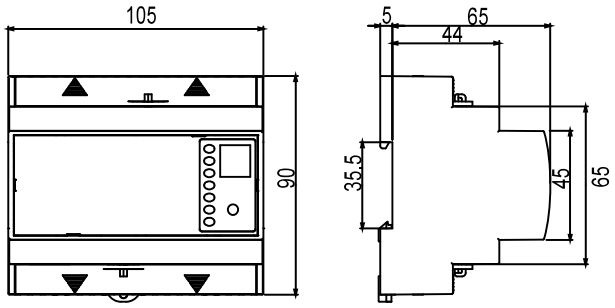
ReadWatt, impulse collection with communications



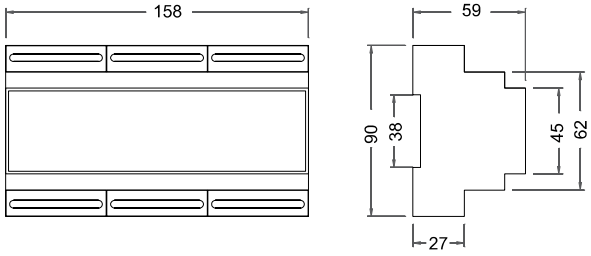
Type	Code	Description
ReadWatt	[*] M62311	Impulse collector with RS232/RS485 Modbus communications. Built in transistor output. PowerStudio supported
PS- 100-240Vcc	[*] M62331	ReadWatt power supply

Dimensions

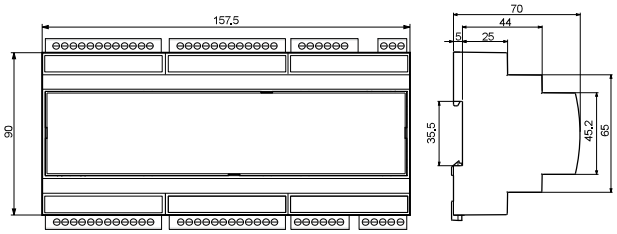
EDS / MDC-4 / MDC-20



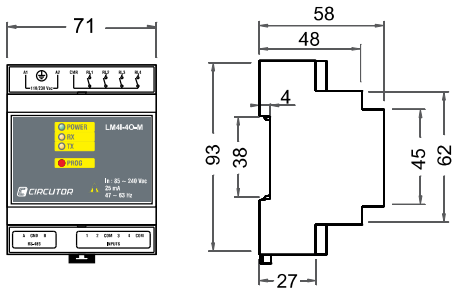
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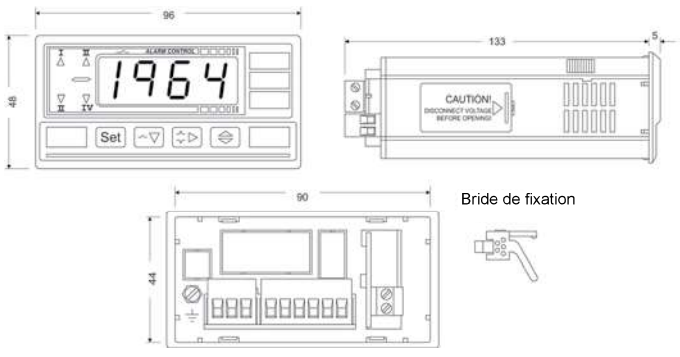
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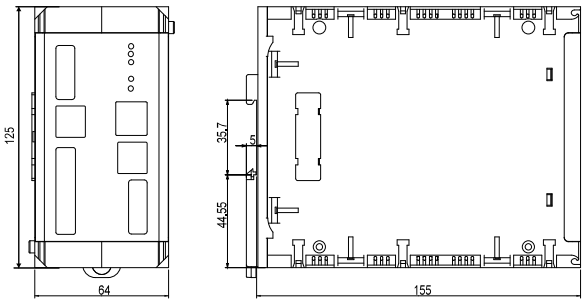
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DH96 CPP



CIRLAMP Manager



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

Energy management software

PowerVision, Data management sofware for devices with memory

Data management software

	Type	Code	Description
	**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-BDM, CIR-E3 and AR6 series**

PowerStudio / PowerStudio SCADA, energy management software

***PowerStudio* SCADA**

	**PowerStudio SCADA (License USB)**	**[*] M90231**	Energy supervision software for buildings and industrial installations, with the possibility of viewing reports, layouts and single-line diagrams. Other functions include: • Remote parameterisation of the units • Real-time display of parameters • Recording and printout of logs in table or graphic format • Multi-station Web Server and integrated XML Server • Creation of access users and profiles for the application with user name and password • Great versatility and very simple use • Compatible with OPC software for PS/PSS • Custom event configuration (Alarms, Calculations, Sending Emails) • Construction of customised screens • Possibility of performing control actions on the units • Report generator and energy bill simulator module, Possibility to emulate tariffs or time periods • Parameterisation of custom calculations to obtain EnPIs • Comparison of historical data stored in the system • Management of multi-point remote systems in combination with EDS and EDS-3G data servers • Compatible with the 32 and 64-bit Windows 7 and 8 platforms
	**PowerStudio Scada DELUXE (License USB)**	**[c] M90241**	In addition to the performance features offered by the standard module, Power Studio Scada, Deluxe can: • Generic Modbus driver used to connect to other devices available in the market • RS485 with Modbus/RTU protocol (driver composition). • Transparent Ethernet connections with the UDP, TCP and Modbus/TCP protocols • Variables to be integrated must have a hexadecimal format. • Acquisition of data with the OPC/DA protocol (real-time data). • Connection and display of video surveillance cameras with an IP connection (no recording functions). • Connection of PSSDs in cascade. • Generic driver used to download meters with the IEC 870 protocol (standard ASDUS) • Global integration of remote PowerStudio applications in a single server • Compatible with the 32 and 64-bit Windows 7 and 8 platforms • Compatible with OPC software for PS/PSS
	**OPC Server PS/PSS/PSSD (License USB)**	**[1] M91111**	OPC Sever for PowerStudio is an integration platform that can easily integrate the parameters received from PowerStudio (or any of its versions) in any SCADA platform available in the market with a simple approach. The format of requests that can be integrated will be DA real time data. It includes the Tunnelling function, establishing OPC connections over IP through a corporate network. In addition, it can establish decentralised or remote connections (routing). Therefore, any SCADA platform available in the market with an OPC/DA client function can immediately integrate all parameters received from the CIRCUTOR platform
	**SQL Data Export**	**[1] M91301**	SQL Data Export for PS/PSS is a software tool for the integration of data from PS/PSS to a new or existing SQL database. Main advantages of SQL Data Export: • Exporting historic data stored in SQL databases • Optional selection of devices or databases to be exported • Programming the download frequency • Multiple architectures

Portable power analyzers

Table: Portable power analyzers

NEW

		AR6	AR5-L	CIR-e+	QNA-P	CAVA	C-80
							
Type	Single-phase	–	–	–	–	•	•
	Three-phase	•	•	•	•	–	–
Measurement features	Voltage	•	•	•	•	•	•
	Current	•	•	•	•	T	•
	Neutral current	•	•	–	•	–	–
	Leakage current	•	•	–	–	–	–
	Neutral-ground voltage	•	–	–	•	•	–
	Power ratings	•	•	•	•	T	–
	Energy (active and reactive)	•	•	•	•	–	•
	Harmonics	•	•	•	•	•	
	Flicker	•	•	•	•	•	–
	Events (overvoltages, gaps and outages)	•	•	•	•	•	–
	Transients	•	(T)	–	–	–	–
Other features	Memory	•	•	•	•	•	
	Communications	USB	RS-232	USB / SD CARD	RS-232 / GSM RS232 / RS485	–	–
	Display	VGA	LCD pixels	–	7 segments	–	LCD pixels
	On-site file display	•	–	–	•	–	–
USES	Maintenance and Test	•	•	•	–	•	
	Energy audits	•	•	•	–	–	–
	Expert / Specialist	•	•	–	–	–	–
	Power quality and energy	•	–	–	•	•	–
	Page	51	52	53	53	54	54

T - depending on the type

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

AR6, portable power analyzer with graphic display

AR6 three-phase portable analyzer



Type	Code	Description
AR6, basic kit	[*] M82511	AR6 analyzer with battery and power supply
AR6, kit-case	[*] M82512	Includes AR6 (M82511) + rolling carring case

Includes voltage cables, cocodrile clips, power supply and PowerVisionPlus software.

Kits



Type	Code	Description
AR6, carrying case clamps CP	[*] M82541	Includes AR6 carrying case (M82512) + 3 CP-5 + 3 CPG-2000/200
AR6, Kit 3 CPRG-500	[1] M8252V	Includes AR6 carrying case (M82512) + 3 clamps CPRG-500
AR6 Kit 4 CPRG-500	[1] M8252T	Includes AR6 carrying case (M82512) + 4 clamps CPRG-500
AR6 Kit 3 CPRG-1000	[1] M8252R	Includes AR6 carrying case (M82512) + 3 clamps CPRG-1000
AR6 Kit 4 CPRG-1000	[1] M8252P	Includes AR6 carrying case (M82512) + 4 clamps CPRG-1000
AR6, 3AM54-Flex carrying case	[1] M82522	Includes AR6 carrying case(M82512) + 1 kit 3 AM54-FLEX (3 clamps)
AR6, 4AM54-Flex kit with carrying case	[*] M82523	Includes AR6 carrying case(M82512) + 1 kit 4 AM54-FLEX (4 clamps)

Clamps



I_{min} / Measurement Range	Type	Code 1 clamp	Code kit 3 clamps	Code kit 4 clamps
0,05 A / 0,5 ... 5A	CPG-5	[*] M810B1	[*] M810C1	[*] M810D1
1 A / 10 ... 100 A	CPG-100	[*] M810B2	[*] M810C2	[*] M810D2
1 A / 50 ... 500 A	CPRG-500	[*] M810B3	[*] M810C3	[*] M810D3
1 A / 20... 1000 A	CPRG-1000	[*] M810B4	[*] M810C4	[*] M810D4
1/10 ... 200A / 10/150 ... 2000A	CPG-200/2000	[*] M810B5	[*] M810C5	[*] M810D5
Residual current clamps				
0,01 A / 0,1 ... 5 A	CFG-5	[3] M810BD		
0,05 A / 0,1 ... 10 A	CFG-10	[*] M810BE		

Flexible Clamps



Type	Code	Description	Sensor length	I_{min} / Measurement Range
kit 4 AMS14-FLEX	[1] M82539	KIT 4 clamps + 5 tie bar	14 cm	1/10...100 A - 2/10...200 A
kit 4 AM54-FLEX	[*] M82533	Kit with 4 AM54-flex flexible clamps and + tie bar	54 cm	1/10...100 A - 10/100...1000 A - 500/1000...10000 A
kit 3 AM54-FLEX	[1] M82532	Kit with 3 AM54-flex flexible clamps + tie bar	54 cm	
AM54-FLEX	[1] M82531	AM54-flex clamp + all coloured tie bars	54 cm	

Accesories



Type	Code
AR6 cover	[*] M82503
Rolling carrying case for AR6	[*] M82504

Spare parts	
Cocodrile CLAMP (1 unit)	[*] M89909
(UL) black voltage cables with 12 tie bars 6 colours (AR6), clamp brackets	[*] M82501
AM54-flex clamps, 5 colours tie bars	[*] M82502
Coloured tie bar voltage cables	[*] M82505
Lexan front panel phase colour (AR6)	[*] M82506
AR6 power supply	[*] M82507
AR6 battery	[*] M82508

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

AR5, Portable Power analyzer

Portable three-phase power analyzer, AR5



Type	Code	
AR5-L	**[*] M80111**	**Power analyzer with 4 current inputs**
Connection cables and power supply included		
Programs		
AR5L-FL program	**[*] M80223**	Flicker program (evaluation PST and PLT)
AR5L-PERTURB program	**[*] M80224**	Detection of disturbance in the system
AR5L-CM program	**[*] M80225**	CHECK METER, meter checking
AR5L-Fast program	**[*] M80226**	FAST CHECK, motor start up
AR5L-Leak program	**[*] M80229**	LEAK METER, detection and analysis of leaks

Clamps



I_{min} / Measurement Range	Type	Code 1 clamp	Code kit 3 clamps	Code kit 4 clamps
0,05 A / 0,5 ... 5A	**CPG-5**	**[*] M810B1**	**[*] M810C1**	**[*] M810D1**
1 A / 10 ... 100 A	**CPG-100**	**[*] M810B2**	**[*] M810C2**	**[*] M810D2**
1 A / 50 ... 500 A	**CPRG-500**	**[*] M810B3**	**[*] M810C3**	**[*] M810D3**
1 A / 20... 1000 A	**CPRG-1000**	**[*] M810B4**	**[*] M810C4**	**[*] M810D4**
1/10 ... 200A / 10/150 ... 2000A	**CPG-200/2000**	**[*] M810B5**	**[*] M810C5**	**[*] M810D5**
Residual current clamps				
0,01 A / 0,1 ... 5 A	**CFG-5**	**[3] M810BD**		
0,05 A / 0,1 ... 10 A	**CFG-10**	**[*] M810BE**		

Flexible Clamps



Type	Code	Sensor lenght	I_{min} / Measurement Range
kit 3 C-FLEX 20000/2000/200 A-45	**[*] M81141**	45 cm	2/20…200 A - 20/200...2000 A - 1000/2000…20000 A
kit 3 C-FLEX 20000/2000/200 A-80	**[*] M81142**	80 cm	
kit 3 C-FLEX 20000/2000/200 A-120	**[*] M81143**	120 cm	
Includes 3 clamps (kit-3), amplifier and 9 V supplier			

Portable analyzers kits



Type	Code	Transport	Clamps	Program
With AR5-L analyzer				
Kit 3L AR5L	**[*] M80811**	Carrying bag	3 x CPRG-1000, 1 x CPRG-500	Harmonics
Kit 4L AR5L	**[*] M80821**	Carrying bag	3 x CPG-2000/200, 1 x CPRG-1000	Harmonics
Kit 12L AR5L-RBT	**[*] M80853**	Carrying bag	3 x C-FLEX - 80 cm 1 x CF-5	Harmonics Disturbances
Kit 12LM AR5L-RBT	**[*] M80653**	Carrying case	3 x C-FLEX - 80 cm 1 x CF-5	Harmonics Disturbances

PowerVision software included in all kits.

Example of the memory capacity: The Energy Programme, registers 30 network parameters, with a register period of 15 mins and 80 day memory autonomy.

Accessories and Spare parts



Type	Code
Shunt kit AR5-L	**[*] M89925**
Supplier, charger and interface (RS-232)	**[*] M89926**
AR5-L carrying bag	**[*] M89905**
1000L case (with protection rubber, CPR-1000 clamp, for AR5-L)	**[*] M89923**
2000L case (with protection rubber, CPR-2000 clamp, for AR5-L)	**[*] M89924**
C-FLEX case (with protection rubber, C-FLEX clamp, for AR5-L)	**[*] M8992F**
Carriyng case for current clamps for AR5-L	**[*] M89921**
Communication cable to PC	**[*] M8991E**
Battery	**[*] M89904**
Kit 4 voltage cables 1000 V CAT III (UL)	**[*] M8990B**
AR5-L power supply cable	**[*] M8992C**
Crocodile clamp (1 unit)	**[*] M89909**

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

CIR-e+, Energy audit analyzer









Type	Code	Analyzer	Clamps
Portable energy audit analyzer			
CIR-e+	**[*] M85060**	CIR-e+	without clamps
CIR-e+/ 3 CPG-100	**[*] M85070**	CIR-e+	3 x 3 x CP100
CIR-e+/ 3 EFLEX 54	**[*] M85050**	CIR-e+	3 x E-FLEX 54 cm

Includes transport bag, crocodile clamps, 54 cm flexible sensors, measuring and power supply cables, SD card and card reader

Rigid current sensors	Code	Range	∅ max. (mm)	Busbar (mm)
kit 3 CPG 5 CIR-e	**[*] M86019**	0,05 ... 5A	20	20 x 5
kit 3 CPG 100 CIR-e	**[*] M8601A**	1 ... 100 A	20	20 x 5
kit 3 CPG 500 CIR-e	**[*] M86016**	1 ... 500 A	52	1 of 50 x 5 or 4 of 30 x 5
kit 3 CPG 1000 CIR-e	**[*] M86017**	1 ... 1000 A	52	1 of 50 x 5 or 4 of 30 x 5
kit 3 CPG 2000/200 CIR-e	**[*] M86018**	1 ... 200 A / 10 ... 2000 A	64	5 of 125 x 5 or 3 of 100 x 10

flexible sensors	Code	Scales	Length (mm)	I_{min} / Measurement Range
KIT 3 R-FLEX54 20000/2000/200A	**[1] M86010**	200 A / 2000 A / 20 kA	54	2/20…200 A - 20/200...2000 A - 1000/2000…20000 A
KIT 3 R-FLEX80 20000/2000/200A	**[1] M86013**	200 A / 2000 A / 20 kA	80	
KIT 3 R-FLEX120 20000/2000/200A	**[1] M86014**	200 A / 2000 A / 20 kA	120	
KIT 3 AMS14-FLEX	**[1] M86015**	100 A / 200 A	14	1/10…100 A - 2/10…200 A
KIT 3 R-FLEX54 10000/1000/100A	**[1] M8601B**	100 A / 1000 A/ 10 kA	54	1/10…100 A - 10/100…1000 A - 500/1000…10000 A

Includes transport bag, crocodile clamps, measuring and power supply cables, SD card and card reader

Other Accessories

RS-232 Cable	**[2] M86030**	
Kit of 6 voltage cables	**[2] M86020**	**Kit 6 cables (voltage measurement and power)**
1 Crocodile clamp	**[*] M89909**	
Carry bag	**[*] M89931**	

QNA-P, Portable Power quality kits, class A (in accordance with Standard EN 50160 and IEC 61000-4-30)



Type	Code	Equipment	Clamps
With QNA-412 analyzer			
Kit 1 QNA P-RS	**[2] Q20711**	**QNA-412 RS232/RS485**	4 x R-FLEX 10k/1k/100 A - 55 cm 1 x CPRG-500 A
Kit 1 QNA P-GPRS	**[2] Q20731**	**QNA-412 GPRS/RS232**	4 x R-FLEX 10k/1k/100 A - 55 cm 1 x CPRG-500 A
Kit 2 QNA P-RS	**[2] Q20712**	**QNA-412 RS232/RS485**	4 x R-FLEX 10k/1k/100 A - 55 cm 3 x CPG-5 A 1 x CPRG-500 A
Kit 2 QNA P-GPRS	**[2] Q20732**	**QNA-412 GPRS/RS232**	4 x R-FLEX 10k/1k/100 A - 55 cm 3 x CPG-5 A 1 x CPRG-500 A

Case and **PowerVision** software included in all kits

CAVA, Power Quality Single-Phase Analyzers



Type	Code	Description
CAVA-251	[*] Q20112	Single-phase recorder of voltage, flicker and harmonics. RS-232 output
CAVA-252	[*] Q20122	Single-phase recorder of voltage, current, flicker and harmonics. RS-232 output
CAVA-253	[*] Q20132	Single-phase recorder of voltage, current, active power, flicker and harmonics. RS-232 output
Clamps		
CP-2000/200	[*] M81015	Ammeter clamp 2000/200 A
CPR-1000	[*] M81014	Ammeter clamp 1000 A
CPR-500	[*] M81013	Ammeter clamp 500 A
CP-100	[*] M81012	Ammeter clamp 100 A
CP-5	[*] M81011	Ammeter clamp 5 A

C 8o, Single-phase or balanced three-phase portable power analyzer

Portable sigle-phase or balanced three-phase power analyzer, C-80



Type	Code
C-80	[*] M80120

Kits

Type	Code	Analyzer	Clamps
C-80 / 2000	[*] M80122	C-80	CP-2000/200
C-80 / CFLEX45	[*] M80123	C-80	C-FLEX 10000/1000/100 A 45 cm

The kits includes 3 voltage cables and carrying case

Clamps



Type	Code	I_{min} / Measurement Range	∅ max. (mm)	Flat strip (mm)
CPG-5	[*] M810B1	0,05 A / 0,5 ... 5A	20	20 x 5
CPG-100	[*] M810B2	1 A / 10 ... 100 A	20	20 x 5
CPRG-500	[*] M810B3	1 A / 50 ... 500 A	52	1 de 50 x 5 4 de 30 x 5
CPRG-1000	[*] M810B4	1 A / 20... 1000 A	52	1 de 50 x 5 4 de 30 x 5
CPG-200/2000	[*] M810B5	1/10 ... 200A / 10/150 ... 2000A	64	5 de 125 x 5 3 de 100 x 10
Residual current clamps				
CFG-5	[3] M810BD	1 ... 5 A		

Other accessories

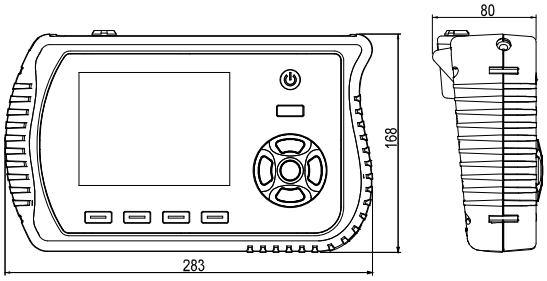
Type	Code
3 spare voltage cables	[1] M89907
Carrying case for C-80	[*] M89931

Accessories for portable power analyzers

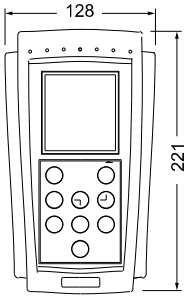
Type	Code	Description
VCC-1	[*] M89909	Crocodile clamp (1 unit)
TBV	[*] M82505	Coloured tie bar voltage cables
MAV-7	[*] M8990C	Voltage magnetic adapter 7 ∅
MAV-7x3	[*] M8990D	3 x Voltage magnetic adapter 7 ∅
MAV-7x4	[*] M8990E	4 x Voltage magnetic adapter 7 ∅
MAV-7x5	[*] M8990F	5 x Voltage magnetic adapter 7 ∅

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

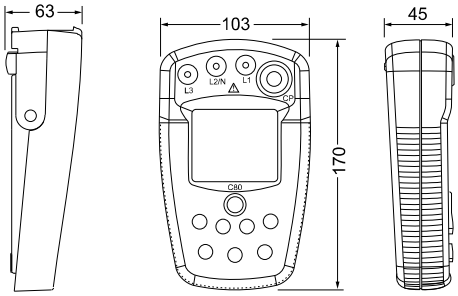
AR6



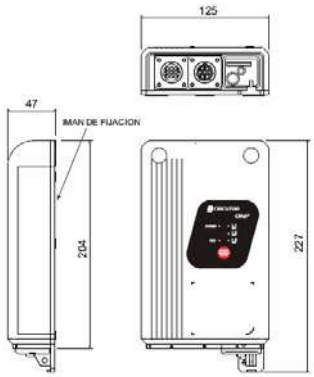
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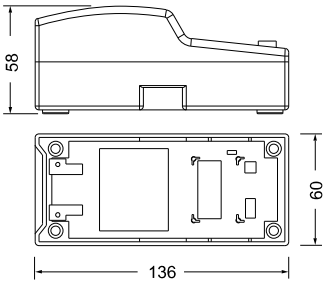
C-80



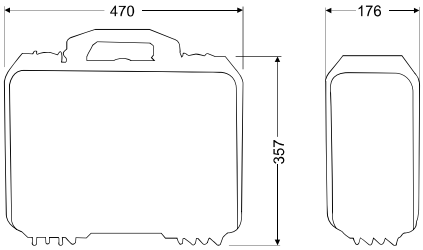
CIR-e+



CAVA



QNA-P



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

Digital instruments and Measuring Transducers

Table: Digital intruments selection

		DM45	DC B	DHB
				
Mounting	Pannel	–	48 x 48 72 x 72	96 x 48
	DIN rail	2 modules		
AC measurement	Single-phase	•	•	•
AC measurement Parameters	Voltage	•	T	T (DHB-300)
	Current	•	T	T (DHB-300)
	Active power(W)	–	–	T (DHB-300)
	Frequenz (Hz)	•	T	T (DHB-300)
	Maximum demand (A)	•	–	–
DC measurement Parameters	Voltage	–	T	T (DHB-200)
	Current	–	T	T (DHB-200)
	process signal	–	T	T (DHB-400)
Accuracy	0,1	–	–	T
	0,50%	–	•	•
	1%	•	–	
No electric parameters	Hour run meter	–	–	T (DHB-100)
	Temperature	–	T	T (DHB-400)
	Chronometer, impulse meter	–		T (DHB-100)
	Tachometer (r/min)	–		T (DHB-100)
Other options	auxiliar output relay	•		2 (4 OP)
	Analog output	–		T
	communications port	–		T
	Auxliar power supply	•	•	–
	Frontal adapter	–	•	–
	Page	56	57	58

T - Depending type / OP - Optional

DM-45, Digital instruments, DIN rail

DM45 series, Rail DIN, 230 V, 40...70 Hz



Type	Code		Input	Relay
DM45-V	**[*] M20901**	Voltmeter	600 V ac	1
DM45-A	**[*] M20911**	Ammeter	... / 5 A	1
DM45-AD	**[*] M20921**		30 A	1
DM45-F	**[*] M20931**	Frequencymeter	10 ... 600 Hz	1
DM45-CM	**[*] M20941**	Analizer (V, A, Hz, THD)	600 V / .../5 A / 10...600 Hz	1
DM45-CMD	**[*] M20951**		600 V / 30 A / 10...600 Hz	1

Other parameters: Dimensions: 2 modules

DM45

Code			Internal code							
M	2	X	X	X	X	0	0	X	Delivery time	
Auxiliary supply										
					Standard (230 V)			0	-	
					100 ... 115 V ac			1	1	
					18 ... 36 V dc			7	1	

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

DC B, Digital instruments, panel mounting

DC B SERIE, 230 VCA, 40...70 HZ, 0,5% FE



DC 48B



DC 72B

Voltmeters / Process indicators

Type	Code	Mesure	Scale	Input	Dimensions
DC 48B V ac (150,300,600 V)	[*] M20210	AC	150, 300, 600 V	Direct: 600 V Transformer: Programmable	48 x 48
DC 72B V ac (150,300,600 V)	[*] M20220				72 x 72
DC 48B V dc (10,50,200 V)	[*] M20213	DC	10, 50, 200 V	Direct: -200 / +200 V Process: 0...10 V	48 x 48
DC 72B V dc (10,50,200 V)	[*] M20223				72 x 72
DC 48B V dc (600 V)	[1] M20214	DC	600 V	-600 / 600 V	48 x 48
DC 72B V dc(600 V)	[*] M20224				72 x 72
DC 48B mV dc (60,150,200 mV)	[1] M20217	DC	60, 150, 200 mV	Direct: -200 mV / +200 mV Shunt: .../60 mV , .../150 mV	48 x 48
DC 72B mV dc (60,150,200 mV)	[*] M20227				72 x 72

Ammeters / Process indicators

Type	Code	Mesure	Scale	Input	Dimensions
DC 48B A ac (/5 A)	[*] M20211	AC	.../ 5 A	Direct: 5 A Transformer: .../ 5 A	48 x 48
DC 72B A ac (/5 A)	[*] M20221				72 x 72
DC 72 MD	[*] M2022A	AC	.../ 5 A	Direct: 5 A Transformer: .../ 5 A 1 Relay	72 x 72
DC 48B A ac (10 A)	[1] M20212	AC	10 A	Direct: 10 A	48 x 48
DC 72B A ac (10 A)	[*] M20222				72 x 72
DC 48B A dc (5, 20, 200 mA)	[1] M20215	DC	5, 20, 200 mA	Direct: -200 mA / +200 mA Process: 0...20 mA 4...20 mA	48 x 48
DC 72B A dc (5, 20, 200 mA)	[*] M20225				72 x 72
DC 48B A dc (10 A)	[1] M20216	DC	10	Direct: 10 A	48 x 48
DC 72B A dc (10 A)	[*] M20226				72 x 72

All the AC instruments mesure in true effective value.
For other supply values, see codification table (110 Vdc auxiliary supply not possible)

ADAPTERS





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

CODIFICATION TABLE

DC

Code	Internal code								
M	2	X	X	X	X	0	0	X	X

				Delivery time
Power Supply auxiliar	Standard (230 V)	0		-
	100 ... 120 V_{ac}	1		2
	480 ... 500 V_{ac}	4		2
	9...18 V_{dc}	6		2
	18 ... 36 V_{dc}	7		2
Current input	Standard (.../5 A)		0	-
	.../1 A		1	2

110 V_{dc} auxiliary supply not possible

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

DHB, Digital multimeter

Power supply 85... 253 V_{ac} / V_{dc}



Variables	Type	Code	Outputs	Measurement
Impulses, frequency, circular speed, periods, worktime, encoder position	**DHB-102**	**[1] M22021**	1 relays	imp, Hz,
	DHB-124	**[1] M22022**	3 relays + 1 analog + RS-485	
Voltmeter or ammeter ± 100...500 V_{dc} ± 1...5 A_{dc}	**DHB-202**	**[1] M22023**	2 relays	± 100...500 V_{dc} ± 1...5 A_{dc}
	DHB-224	**[1] M22024**	4 relays + 1 analog + RS-485	
Single-phase analyzer	**DHB-302**	**[1] M22025**	2 relays	± 100/400 V_{ac} ± 1/5 A_{ac}
	DHB-324	**[1] M22026**	4 relays + 1 analog + RS-485	
Process / Resistance / Temperature	**DHB-402**	**[1] M22027**	2 relays	Pt100/500/1000 Thermocouple J,K,N,E,R,S ± 20 mA, ± 10 V, 60 mV
	DHB-424	**[1] M22028**	4 relays + 1 analog + RS-485	

DH 96 CPM, DC multimeter

DH 96 series, 230 V ac, 45...65 Hz (panel mounting 96 x 48 mm)



Measurement center

Type	Code	Mesure	Accuracy	Range	Parameter
DH 96CPM	**[2] M20419**	DC	0,2 % (± 1 dig)	Programmable Selec. V : 100 / 300 / 800 V_{DC}	V, A, kW, kW·h

CODIFICATION TABLE

DH 96

Code		Internal Code								
M	2	X	X	X	X	0	0	X	X	
								↑	↑	Delivery time
Auxiliary supply										
	Standard (230 V_{ac})							0		-
	100 ... 120 V_{ac}							1		2
	380 ... 400 V_{ac}							3		
	480 ... 500 V_{ac}							4		2
	18 ... 36 V_{dc}							7		2
	36 ... 72 V_{dc}							8		
	40 ... 170 V_{dc}							9		

DHB

Code		Internal Code							
M	2	X	X	X	X	0	0	X	
								↑	Delivery time
Auxiliary supply									
	Standard (85... 253 V_{ac}/V_{dc})							0	-
	20 ... 40 V_{ac} / V_{dc}							1	1
	20 ... 40 V_{ac} / 20 ... 60 V_{dc}							2	1

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

Transducers

Table: Measurement transducer selection



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

CVE / CCE / CFE , Narrow section transducers

Narrow section transducers, 230 V, 45...65 Hz



<- 22,3 mm ->

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

To specify: 1. Code / 2. Input range / 3. Output range / 4. Auxiliary supply / 5. In CFE-AP type specify network voltage (See table for other parameter coding)
(1) External auxiliary supply not required. 4...20 mA output Not possible

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

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

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

Electric parameters transducers



< -- 40 mm -->



< -- 95 mm -->

(1) Accuracy: ± 0,5 % reading, 40...90 Hz

	Type	Code	Input range	Output	Output Standard
AC Voltage ± 0,2 % reading	**CV-A-AP(1)**	**[1] M25041**	0 ... 400 V	Output 1	0...20mA
	CV-A	**[1] M25031**	0 ... 690 V	Output 1	0...20mA
	CV-A	**[1] M25032**		Output 2	4...20mA
	CV-A-RMS	**[1] M25051**		Output 1	0...20mA
	CV-A-RMS	**[1] M25052**		Output 2	4...20mA
AC Current ± 0,2 % reading	**CC-A**	**[1] M25131**	.../ 1 A or .../ 5 A	Output 1	0...20mA
	CC-A	**[*] M25132**		Output 2	4...20mA
	CC-A-AP (1)	**[*] M25141**		Output 1	0...20mA
	CC-A-RMS	**[1] M25151**		Output 1	0...20mA
	CC-A-RMS	**[*] M25152**		Output 2	4...20mA

External auxiliary supply not required.
Specify: Zero value, full scale and output type. See table at the end of This section

Auxiliary supply 230 V, 40...90 Hz, Accuracy: ± 0,5 % reading

	Type	Code	System	Output	Output Standard
Active power	**CW-M**	**[1] M25211**	Single-phase	Output 1, 3	0...20mA
	CW-M	**[1] M25212**		Output 2	4...20mA
	CW-TE	**[1] M25221**	Balanced three-phase	Output 1, 3	0...20mA
	CW-TE	**[1] M25222**		Output 2	4...20mA
	CW-TA	**[1] M25231**	Unbalanaced three-phase ARON (3 wires)	Output 1, 3	0...20mA
	CW-TA	**[1] M25232**		Output 2	4...20mA
	CW-TAN	**[1] M25241**	Unbalanaced three-phase (4 wires)	Output 1, 3	0...20mA
	CW-TAN	**[1] M25242**		Output 2	4...20mA

Specify: zero value, full scale, output type, U_n (between phases), I_n and f_n, see table at the end of This section

Electric parameters transducers

Reactive power	**CY-M**	**[1] M25251**	Single-phase	Output 1, 3	0...20mA
	CY-M	**[1] M25252**		Output 2	4...20mA
	CY-TE	**[1] M25261**	Balanced three-phase	Output 1, 3	0...20mA
	CY-TE	**[1] M25262**		Output 2	4...20mA
	CY-TA	**[1] M25271**	Unbalanaced three-phase ARON (3 wires)	Output 1, 3	0...20mA
	CY-TA	**[1] M25272**		Output 2	4...20mA
	CY-TAN	**[1] M25281**	Unbalanaced three-phase (4 wires)	Output 1, 3	0...20mA
	CY-TAN	**[1] M25282**		Output 2	4...20mA
Power factor	**CPF-M**	**[1] M25311**	Single-phase	Output 1, 3	0...20mA
	CPF-M	**[1] M25312**		Output 2	4...20mA
	CPF-TE	**[1] M25321**	Balanced three-phase (3 wires)	Output 1, 3	0...20mA
	CPF-TE	**[1] M25322**		Output 2	4...20mA
	CPF-TEN	**[1] M25331**	Balanced three-phase (4 wires)	Output 1, 3	0...20mA
	CPF-TEN	**[1] M25332**		Output 2	4...20mA
Cos φ	**CCOS-M**	**[1] M25341**	Single-phase	Output 1, 3	0...20mA
	CCOS-M	**[1] M25342**		Output 2	4...20mA
	CCOS-TE	**[1] M25351**	Balanced three-phase (3 wires)	Output 1, 3	0...20mA
	CCOS-TE	**[1] M25352**		Output 2	4...20mA
	CCOS-TEN	**[1] M25361**	Balanced three-phase (4 wires)	Output 1, 3	0...20mA
	CCOS-TEN	**[1] M25362**		Output 2	4...20mA

Specify: zero value, full scale, output type, U_n (between phases), I_n and f_n, see table at the end of This section

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

Other electric parameters transducers



<- 40 mm ->

	Type	Code	Input range	Output	Standard Output
			Auxiliary supply 230 V, 40...90 Hz, Accuracy: ± 0,2 % reading		
Frequency	CF	[3] M25531	40 ... 690 V 0 ... 20 kHz	Output 1	0...20mA
	CF	[1] M25532		Output 2	4...20mA
Leakage current	CC-WG	[3] M25631	0 ... 3 A ac	Output 2	4...20mA
			See table at the end of M2		
DC transducers. Auxiliary supply 230 V, 40...90 Hz, Accuracy: ± 0,5 % reading					
	Type	**Code**	**Input range**	**Output**	**Output**
DC Voltage	**CV-D**	**[1] M25061**	10 mV ... 500 V	Output 1, 3	0...20mA
	CV-D	**[1] M25062**		Output 2	4...20mA
DC Current	**CC-D**	**[1] M25161**	500 µA ... 10 A	Output 1, 3	0...20mA
	CC-D	**[1] M25162**		Output 2	4...20mA
Galvanic insulator transducer					
	CC-G	**[*] M25610**	0 ... 20 mA / 0 ... 20 mA		-
Other transducers					
	Type	**Code**	**Input range**	**Output**	**Output**
Temperature	**CT-PT100**	**[1] M25651**	According probe PT-100	Output 1, 3	0...20mA
	CT-PT100	**[*] M25652**		Output 2	4...20mA
Resistance	**CR2**	**[1] M25641**	1 ... 20 kΩ	Output 1, 3	0...20mA
	CR2	**[1] M25642**		Output 2	4...20mA
Process universal	**CUP**	**[1] M25612**		Configurable	Configurable

Specify: zero value, full scale and output type. See table at the end of This section

TC-420, Current transformer with converter





Type	TC 420			TC 020	
	TC 5 420	**TC 6 420**	**TC 8 420**	**TC 6 020A**	**TC 8 020A**
internal Ø	20	28	44	28	44
Flat strip mm	25 x 5	40 x 10	60 x 12	40 x 10	60 x 12
a b c 	70 58 32	80,5 64 44	102 84,5 50	80,5 64 44	102 84,5 50
A	Output 4...20 mA, ext. supply 7,5...36 V_{dc}			Output 0...20 mA	
5	**[*] M72112**				
10	**[*] M72113**				
20	**[*] M72114**				
50		**[*] M72131**		**[*] M72031**	
100		**[*] M72132**		**[*] M72032**	
200		**[*] M72134**		**[*] M72034**	
300		**[*] M72136**		**[*] M72036**	
500			**[*] M72151**		**[3] M72051**
1 000			**[*] M72152**		**[1] M72052**
1 500			**[*] M72153**		**[*] M72053**

For higher currents use transformer + transducer

TI-420 / TP-420 / TCM / TCB, Current transformer with converter 4...20 mA






Type	TI-420 35	TI-420 70	TI-420 105	TP-420 23	TP-420 58	TCM-420 25 (*)	TCB-420 35	TCB-420 70
internal Ø /Flat strip	35	70	105	20 x 30	50 x 80	25	35	70
a b c	79 100 33	110 130 33	146 170 33	110 89 58	145 114 50	87 70 70	79 166 33	110 196 33
A	10...28 V_{dc} supply, Output 4...20 mA					Output internal supply 4...20 mA (230 V_{ac} Auxiliary supply)		
2,5	[1] M70811					[2] M71041	[3] M71011	
5	[*] M70812			[*] M70211		[*] M71042	[*] M71012	
10	[*] M70813			[*] M70212		[*] M71043	[*] M71013	
20	[*] M70814			[*] M70213		[*] M71044	[*] M71014	
50	[*] M70815			[*] M70214		[*] M71045	[*] M71015	
100	[*] M70816	[*] M70821		[*] M70215	[*] M70221	[*] M71046	[*] M71016	[*] M71021
200				[*] M70216		[*] M71047		
250	[*] M70817	[*] M70822	[1] M70831	[*] M70217	[*] M70222		[*] M71017	[*] M71022
300								
500		[*] M70823	[1] M70832	[*] M70218	[*] M70223			[*] M71023
750		[*] M70824	[1] M70833		[*] M70224			[*] M71024
1 000			[1] M70834					
1 500			[1] M70835					

For higher currents use transformer + transducer

CVM BD / CVM BDM, Power analyer, DIN rail

CVM BD series - DIN Rail (8 modules) - 230 V_{ac} supply



Type	Code	Relay output	4...20 mA output	Internal memory	Communication
CVM BD - Measurement voltage 500 V_{ph-n} / 866 V_{ph-ph}					
CVM BD-420-8-H	[*] M52105	-	8	-	-

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

CODIFICATION TABLE

Narrow section transducers

Code	Internal code											
	M	2	X	X	X	X	0	0	X	X	X	X	X	
														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
Voltage CVE-A-AP	Standard (230 V)								0					-
	110 V								1					2
	400 V								2					2
Current	Standard (5 A)								0					-
	1 A								1					2
	10 A								4					2
Frequency	Standard (45...55 Hz)								0					-
	55...65 Hz								1					2
	47...53 Hz								2					2
	45...65 Hz								3					2
	0...100 Hz								4					2
	380...420 Hz								5					2
	360...440 Hz								6					2
	340...460 Hz								7					2
CVE-A, CCE-A, CFE	Standard (4...20 mA)									0				-
	0...20 mA									1				2
	0...10 V									2				2
	2...10 V									3				2
CVE-A-AP, CCE-A-AP, CFE-AP	Standard (0...20 mA)									0				-
	0...10 V									1				2
Auxiliary supply	Standard (220...240 V)										0			-
	380...400 Vca 40/60 Hz										3			2
	18...36 Vdc										7			2
Net. voltage CFE-AP)	Standard (230 V)											0	0	2
	110 V											0	1	2
	400 V											0	2	2

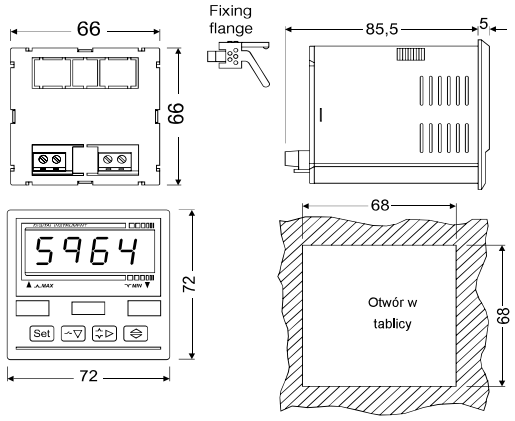
Transducers

Code	Internal code										
	M	2	X	X	X	X	0	0	X	X	X	
												Delivery time
AC Voltage	Standard (300 V)								0			-
	110 V								1			1
	400 V								2			1
	500 V								3			1
	690 V								4			1
AC Current	Standard (5 A)								0			
	1 A								1			1
	10 A								4			1
DC Voltage	Standard (10 V)								0			
	60 mV								1			1
	1 V								2			1
	100 V								3			1
	500 V								4			1
DC Current	Standard (20 mA)								0			
	200 mA								1			1
	1 A								2			1
	10 A								3			1
Power, power factor, cos φ (V, A)	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
Leakage current, process universal									0			
Resistance	Standard (20 Ω)								0			
	200 Ω								1			1
	2 kΩ								2			1
	20 kΩ								3			1
Temperature	Standard (-200...+200 °C)								0			
	-200...+800 °C								1			1
Frequency	Standard (45...55 Hz)								0			
	55...65 Hz								1			1
	47...53 Hz								2			1
	57...63 Hz								3			1
	0...100 Hz								4			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

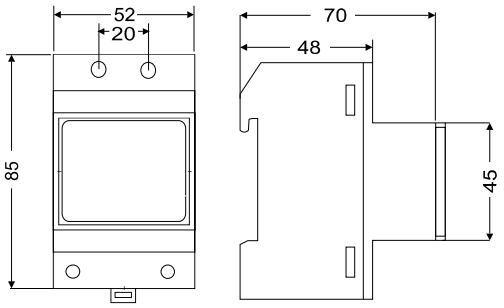
Delivery time: [*] immediate
[x] working weeks
[c] consult

Dimensions

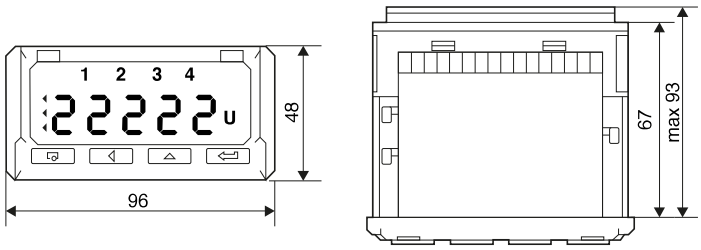
DC B 72



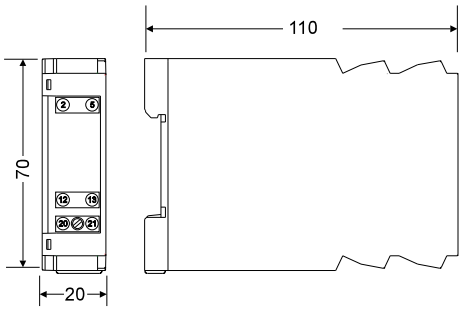
DM 45



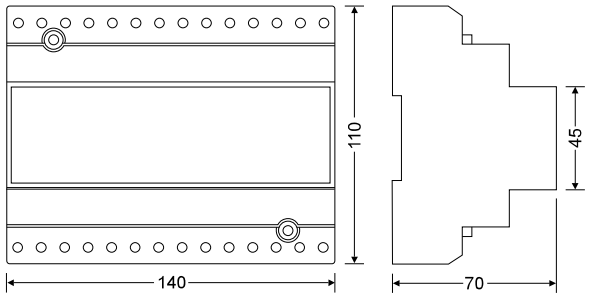
DHB



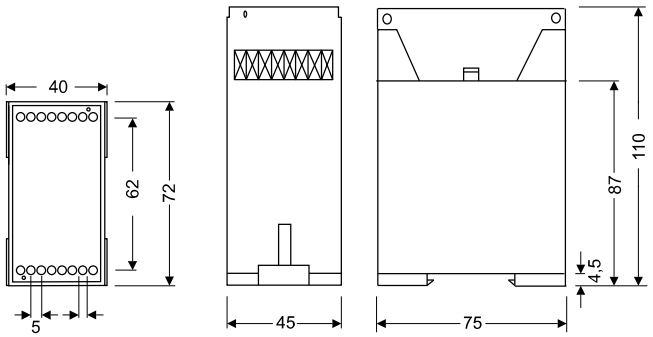
CVE / CEE / CCE / CFE



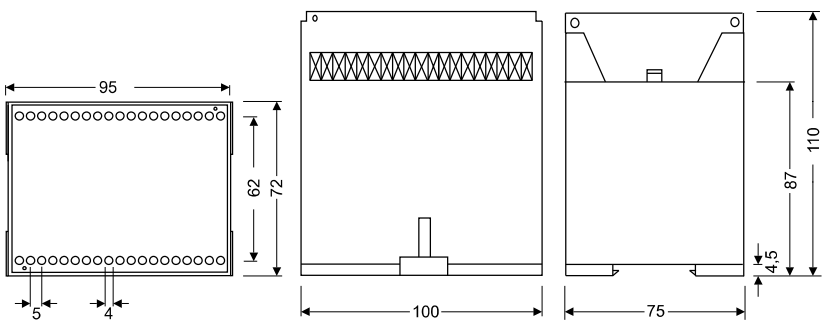
CVM BD/BDM



CV-A / CV-D / CC-A / CC-D / CR2 / CT-PT100 / CUP / CF



CW / CY / CPF / CCOS / CFD



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

Analogue instrument selection table

	Measurement system	Assembly	Specifications	Range	Size mm	Accuracy class	Scale angle	Scale extension	Type
Ammeters	AC	Panel	Miliammeter	100...600 mA	48 x 48, 72 x 72, 96 x 96, 144 x 144	1,5	90º	P2	EC
	~		-	5...100 A ,.../5A					EC
				.../5A	72 x 72, 96 x 96		240º		EZC
			With switch	.../5A			90º	P1	EC FA
			With relays	.../5A	96 x 96				CEC
		DIN rail	-	5...60 A, .../5A	85 x 52			P2	EM 45
	CC	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
		DIN rail	-	5...60 A, .../60 mV	85 x 52				BM 45
Voltmeters	AC	Panel	-	150 ... 600 V, .../110 V	48 x 48, 72 x 72, 96 x 96, 144 x 144	1,5	90º	P1	EC
	~			250 V, 500 V	72 x 72, 96 x 96		240º		EZC
				150 ... 600 V					EC F
			With relays	150 ... 600 V, .../110 V	96 x 96		90º		CEC
		DIN rail	-	300 V, 500 V, .../110 V	85 x 52				EM 45
	CC	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
		DIN rail	-	15...150 V	85 x 52				BM45
Process indicators	CC	Panel	-	0...10 V, 0/4... 20 mA	48 x 48, 72 x 72, 96 x 96, 144 x 144	1,5	90º	P1	BC
	⎓			0...10 V, 4... 20 mA, .../60 mV			240º	P1	ZC
		DIN rail		0...10 V, 0/4... 20 mA	85 x 52		90º		BM
Maximeters	-	Panel	Bimetallic	.../5 A				P1,2	MC
			Bimetallic + HM					P2	EMC
	-	DIN rail	Bimetallic		85 x 52	3		P1,2	MMC 45
Sheet	Needle	Panel	-	45...65 Hz depending type	48 x 48, 72 x 72, 96 x 96, 144 x 144	0,5	90º	-	HC
			-		96 x 96, 144 x 144		240º		HZC
		DIN rail	-		85 x 52		90º		HM
	Sheets	Panel	-		72 x 72, 96 x 96, 144 x 144		-		HLC
Wattmeter		Panel	Single-phase	400 V, .../5 A	96 x 96, 144 x 144	1,5	90º	P1	WMC
			Three-phase						WTC
Varmeter		Panel	Single-phase	400 V, .../5 A	96 x 96, 144 x 144	1,5	90º	P1	YMC
			Three-phase						YTC
Phase-meters	Electronic	Panel	Single-phase	cos φ 0,5 - 1 - 0,5	96 x 96, 144 x 144	1,5	90º	P1	FEMC
			Three-phase						FETC
			Single-phase				240º		FMZ
			Three-phase						FTZ
	Induction		Single-phase	cos φ 0 - 1 - 0			90º		PIC
			Three-phase	cos φ 0 - 1 - 0					PIC

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

Analogue instruments

EC / EM / EZC / CEC, Moving Iron Miliammeters and Ammeter

Miliammeters and Ammeters, 90º - P2 - Class 1,5

Type					
	EC 48	**EC 72**	**EC 96**	**EC 144**	**EM 45**
a 	48	72	96	144	85
b	48	72	96	144	52
c	86,2	69,2	69,2	91,8	65
mA					
100	**[1] M10111**	**[1] M10121**	**[1] M10131**	**[1] M10141**	**[1] M10151**
150	**[1] M10112**	**[1] M10122**	**[1] M10132**	**[1] M10142**	**[1] M10152**
250	**[1] M10114**	**[1] M10124**	**[1] M10134**	**[1] M10144**	**[1] M10154**
300	**[1] M10115**	**[1] M10125**	**[1] M10135**	**[1] M10145**	**[1] M10155**
400	**[1] M10116**	**[1] M10126**	**[1] M10136**	**[1] M10146**	**[1] M10156**
500	**[1] M10117**	**[1] M10127**	**[1] M10137**	**[1] M10147**	**[1] M10157**
600	**[1] M10118**	**[1] M10128**	**[1] M10138**	**[1] M10148**	**[1] M10158**
A					
5	**[*] M10212**	**[*] M10222**	**[*] M10232**	**[3] M10242**	**[1] M10252**
10	**[*] M10213**	**[*] M10223**	**[*] M10233**	**[3] M10243**	**[*] M10253**
15	**[*] M10214**	**[*] M10224**	**[*] M10234**	**[3] M10244**	**[*] M10254**
20	**[*] M10215**	**[*] M10225**	**[*] M10235**	**[3] M10245**	**[1] M10255**
25	**[*] M10216**	**[*] M10226**	**[*] M10236**	**[3] M10246**	**[*] M10256**
30	**[*] M10217**	**[*] M10227**	**[1] M10237**	**[3] M10247**	**[*] M10257**
40	**[*] M10218**	**[*] M10228**	**[*] M10238**	**[3] M10248**	**[*] M10258**
50	**[*] M10219**	**[*] M10229**	**[*] M10239**	**[3] M10249**	**[3] M10259**
60	**[*] M1021A**	**[*] M1022A**	**[*] M1023A**	**[3] M1024A**	**[3] M1025A**
75	-	**[*] M1022B**	**[1] M1023B**	**[3] M1024B**	-
100	-	**[*] M1022C**	**[*] M1023C**	**[3] M1024C**	-
.../5 A (*1)	**[*] M10210**	**[*] M10220**	**[*] M10230**	**[3] M10240**	**[*] M10250**

(*1) Exchangeable scales. See next page.

	Ammeters, 240°		**Ammeters with phase switch**		**Ammeters with 2 relays**
					
Type	**EZC 72**	**EZC 96**	**EC 72 FA**	**EC 96 FA**	**CEC 96**
Class	5		1,5		1,5
Scale	240°, P2		90°, P1		90°, P2
a 	72	96	72	96	96
b	72	96	72	96	96
c	69,2	69,2	69,2	69,2	85,3
A					
(*2) .../5 A(*1)	**[3] M10920**	**[3] M10930**	**[*] M10521**	**[*] M10531**	**[*] M16410**

(*1) Exchangeable scales. See next page.
(*2) Specify primary current of the measuring transformer

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

Exchangeable scales, moving iron ammeters

Type	SEC 48	SEC 72	SEC 96	SEM 45	SEC 72 FA	SEC 96 FA	SEZC 72	SEZC 96
Equipment	EC 48	EC 72	EC 96	EM 45	EC 72 FA	EC 96 FA	EZC 72	EZC 96
A								
5/5	[*] M102Z2	[*] M102Y2	[*] M102X2	-	-	-	[2] M109Y2	[*] M109X2
10/5	[*] M102Z3	[*] M102Y3	[*] M102X3	-	-	-	[*] M109Y3	[*] M109X3
15/5	[*] M102Z4	[*] M102Y4	[*] M102X4	-	-	-	[*] M109Y4	[*] M109X4
20/5	[*] M102Z5	[*] M102Y5	[*] M102X5	-	-	-	[*] M109Y5	[*] M109X5
25/5	[*] M102Z6	[*] M102Y6	[*] M102X6	-	-	-	[*] M109Y6	[*] M109X6
30/5	[*] M102Z7	[*] M102Y7	[*] M102X7	-	-	-	[*] M109Y7	[*] M109X7
40/5	[*] M102Z8	[*] M102Y8	[*] M102X8	-	-	-	[*] M109Y8	[2] M109X8
50/5	[*] M102Z9	[*] M102Y9	[*] M102X9	[*] M102V9	[*] M105Y9	[*] M105X9	[*] M109Y9	[2] M109X9
60/5	[*] M102ZA	[*] M102YA	[*] M102XA	[*] M102VA	[2] M105YA	[*] M105XA	[*] M109YA	[*] M109XA
75/5	[*] M102ZB	[*] M102YB	[*] M102XB	[*] M102VB	[*] M105YB	[*] M105XB	[*] M109YB	[*] M109XB
100/5	[*] M102ZC	[*] M102YC	[*] M102XC	[*] M102VC	[*] M105YC	[*] M105XC	[2] M109YC	[2] M109XC
125/5	[*] M102ZD	[*] M102YD	[*] M102XD	[*] M102VD	[2] M105YD	[*] M105XD	[*] M109YD	[*] M109XD
150/5	[*] M102ZE	[*] M102YE	[*] M102XE	[*] M102VE	[*] M105YE	[2] M105XE	[2] M109YE	[2] M109XE
200/5	[*] M102ZF	[*] M102YF	[*] M102XF	[*] M102VF	[*] M105YF	[*] M105XF	[2] M109YF	[2] M109XF
250/5	[*] M102ZG	[*] M102YG	[*] M102XG	[1] M102VG	[*] M105YG	[*] M105XG	[2] M109YG	[2] M109XG
300/5	[*] M102ZH	[*] M102YH	[*] M102XH	[*] M102VH	[*] M105YH	[*] M105XH	[2] M109YH	[*] M109XH
400/5	[*] M102ZJ	[*] M102YJ	[*] M102XJ	[*] M102VJ	[*] M105YJ	[*] M105XJ	[*] M109YJ	[2] M109XJ
500/5	[2] M102ZK	[*] M102YK	[*] M102XK	[*] M102VK	[*] M105YK	[*] M105XK	[*] M109YK	[*] M109XK
600/5	[*] M102ZL	[*] M102YL	[*] M102XL	[*] M102VL	[*] M105YL	[*] M105XL	[*] M109YL	[2] M109XL
750/5	[*] M102ZM	[*] M102YM	[*] M102XM	[*] M102VM	[*] M105YM	[*] M105XM	[*] M109YM	[2] M109XM
800/5	[*] M102ZN	[*] M102YN	[*] M102XN	[*] M102VN	[*] M105YN	[*] M105XN	[*] M109YN	[*] M109XN
1 000/5	[*] M102ZP	[*] M102YP	[*] M102XP	[1] M102VP	[*] M105YP	[*] M105XP	[*] M109YP	[2] M109XP
1 200/5	[*] M102ZQ	[*] M102YQ	[*] M102XQ	[1] M102VQ	[*] M105YQ	[*] M105XQ	[*] M109YQ	[*] M109XQ
1 500/5	[*] M102ZR	[*] M102YR	[*] M102XR	[1] M102VR	[*] M105YR	[*] M105XR	[2] M109YR	[*] M109XR
2 000/5	[*] M102ZS	[*] M102YS	[*] M102XS	[1] M102VS	[*] M105YS	[*] M105XS	[*] M109YS	[2] M109XS
2 500/5	[*] M102ZT	[*] M102YT	[*] M102XT	[1] M102VT	[*] M105YT	[*] M105XT	[*] M109YT	[*] M109XT
3 000/5	[*] M102ZU	[*] M102YU	[*] M102XU	[1] M102VU	[*] M105YU	[*] M105XU	[*] M109YU	[2] M109XU
4 000/5	[*] M102ZV	[*] M102YV	[*] M102XV	[1] M102VV	[*] M105YV	[*] M105XV	[*] M109YV	[2] M109XV
5 000/5	[*] M102ZW	[2] M102YW	[*] M102XW	[1] M102VW	[*] M105YW	[*] M105XW	[*] M109YW	[*] M109XW

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

CODIFICATION TABLE

EC, EZC

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

EC (mA), EM (mA)

Code		Internal code		Delivery time
M 1 X X X X 0 0		X		
		↑		
Adjustment	Standard 2P	0		-
	1P	1		2
	5P	6		2

SEC, SEM, EM

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

EC FA

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

CEC

Code		Internal code				Delivery time
M 1 6 4 1 X 0 0		X	X	X		
		↑	↑	↑		
Current input	/5 A 0					
	/ 1 A 1					
	/0,1 A 2					
Scale	60	A				-
	75	B				-
	100	C				-
	125	D				-
	150	E				-
	200	F				-
	250	G				-
	300	H				-
	400	J				-
	500	K				-
	600	L				-
	750	M				-
	800	N				-
	1000	P				-
	1200	Q				-
	1500	R				-
	2000	S				-
	2500	T				-
	3000	U				-
Adjustment + relay	1 P (max+min)		1			
	1,2 P (max+min)		2			
	2 P (max+min)		3			
Supply	230 V_{ac}			4		
	400 V_{ac}			6		
	110 V_{dc}			M		

Consult for others configurations

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

EC / EM / EZC / CEC, Moving Iron Voltmeters

	Voltmeters, 90º				Voltmeters, 90º	Voltmeters, 240º	
							
Type	**EC 48**	**EC 72**	**EC 96**	**EC 144**	**EM 45**	**EZC 72**	**EZC 96**
Class	1,5				1,5	5	
Scale	90º , P1				90º , P1	240º, P1	
a b c 	48 48 86,2	72 72 69,2	96 96 69,2	144 144 91,8	85 52 65	72 72 69,2	96 96 69,2
V							
250	**[*] M10415**	**[*] M10425**	**[*] M10435**	**[3] M10445**	**-**	**[3] M11125**	**[3] M11135**
300	**[*] M10416**	**[*] M10426**	**[*] M10436**	**[3] M10446**	**[*] M10456**	**-**	**-**
400	**[1] M10417**	**[1] M10427**	**[1] M10437**	**[3] M10447**	**-**	**-**	**-**
500	**[*] M10418**	**[*] M10428**	**[*] M10438**	**[3] M10448**	**[*] M10458**	**[3] M11128**	**[3] M11138**
600	**[1] M10419**	**[*] M10429**	**[1] M10439**	**[3] M10449**	**-**	**-**	**-**
.../110 V(*1)	**[1] M10410**	**[*] M10420**	**[*] M10430**	**[3] M10440**	**[1] M10450**	**-**	**-**

(*1) Exchangeable scales, Voltmeters 90º

	Voltmeters with phases switch					Voltmeters with 2 relays
						
	Three-phase 3 wire		Three-phase 4 wire		with sequence meter	
Type	**EC 72 F III**	**EC 96 F III**	**EC 72 F III +N**	**EC 96 F III *N**	**EC 96 FN-S**	**CEC 96**
Class	1,5					1,5
Scale	90º , P1					90º, P1
a b c 	72 72 69,2	96 96 69,2	72 72 69,2	96 96 69,2	96 96 69,2	96 96 85,3
V						
150	-	-	-	-	-	**[3] M16527**
250	**[*] M10625**	**[3] M10635**	**[3] M10725**	**[3] M10735**	-	**[3] M16528**
300	**[*] M10626**	**[*] M10636**	**[*] M10726**	**[*] M10736**	-	**[3] M16529**
400	**[*] M10627**	**[3] M10637**	**[*] M10727**	**[3] M10737**	-	**[3] M1652A**
500	**[*] M10628**	**[*] M10638**	**[*] M10728**	**[*] M10738**	**[2] M11038**	**[3] M1652B**
600	**[*] M10629**	**[3] M10639**	**[2] M10729**	**[3] M10739**	-	**[3] M1652C**
(1).../110 V	-	**[2] M10632**	-	-	-	**[3] M16520**

(1) Specify primary voltage of the measuring transformers

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

Exchangeable scales, moving iron voltmeters, 1,2P

Type	SEC 48	SEC 72	SEC 96	SEM 45
Equipment	EC 48	EC 72	EC 96	EM 45
V				
1 000/110	**[1] M104Z1**	**[1] M104Y1**	**[1] M104X1**	**[1] M104V1**
3 300/110	**[1] M104Z2**	**[1] M104Y2**	**[1] M104X2**	**[1] M104V2**
6 600/110	**[1] M104Z3**	**[1] M104Y3**	**[1] M104X3**	**[1] M104V3**
13 200/110	**[1] M104Z4**	**[1] M104Y4**	**[1] M104X4**	**[1] M104V4**
15 000/110	**[1] M104Z5**	**[1] M104Y5**	**[1] M104X5**	**[1] M104V5**
20 000/110	**[1] M104Z6**	**[1] M104Y6**	**[1] M104X6**	**[1] M104V6**
22 000/110	**[1] M104Z7**	**[1] M104Y7**	**[1] M104X7**	**[1] M104V7**
25 000/110	**[1] M104Z8**	**[1] M104Y8**	**[1] M104X8**	**[1] M104V8**

CODIFICATION TABLE

EC Voltmeters with external transformer and EZC

Code	Internal code									
M	1	X	X	X	X	0	0	X	X	X

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

EC and EC-F direct Voltmeters

Code	Internal code							
M	1	X	X	X	X	0	0	X

			Delivery time
Adjustment	Standard 1P	0	-
	1,2P	2	2

EC scales and EM Voltmeters and scales

Code	Internal code							
M	1	X	X	X	X	0	0	X	X

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

CEC Voltmeters

Code	Internal code									
M	1	6	5	2	X	0	0	X	X	X

				Delivery time
Voltage input	.../110 V	0		
	... / 100 V	1		
	... / 63,5 V	3		
Scales (For equipments with external transformer and all EC)	1000	9		2
	3300	A		2
	6600	D		2
	13200	H		2
	15000	J		2
	20000	L		2
	22000	N		2
	25000	O		2
Scale + Relay	1 P (max+min)		1	
	1,2 P (max+min)		2	
	2 P (max+min)		3	
Supply	230 V_{ac}		4	
	400 V_{ac}		6	
	110 V_{dc}		M	

Consult for others configurations

T7, Switch for Voltmeters - moving iron Ammeters



Type	Code	Mounting	Positions
T 701 -DIN	**[*] M19911**	**carril DIN**	4 - 0 and voltages between phases
T 705 -DIN	**[*] M19912**	**carril DIN**	7 - 0, voltages between phases and voltages between phase and neutral
T 720 -DIN	**[*] M19913**	**carril DIN**	3 - Each phase currents
T 701	**[*] M199C1**	**Panel**	4 - 0 and voltages between phases
T 705	**[3] M199C2**	**Panel**	7 - 0, voltages between phases and voltages between phase and neutral
T 720	**[3] M199C3**	**Panel**	3 - Each phase currents

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

BC / BM / CBC, Moving coil ammeters

	Ammeters, 90º				Ammeters, 90º	ammeters with 2 relays
						
Type	**BC 48**	**BC 72**	**BC 96**	**BC 144**	**BM 45**	**CBC 96**
Class			1,5		1,5	1,5
Scale			90º , P1		90º , P1	90º, P1
a 	48	72	96	144	85	96
b	48	72	96	144	52	96
c	86,2	69,2	69,2	91,8	65	85,3
5	**[3] M11412**	**[*] M11422**	**[3] M11432**	**[3] M11442**	**[3] M11452**	-
10	**[3] M11413**	**[*] M11423**	**[3] M11433**	**[3] M11443**	**[*] M11453**	-
25	**[*] M11416**	**[*] M11426**	**[*] M11436**	**[3] M11446**	**[3] M11456**	-
50	**[3] M11419**	**[*] M11429**	**[3] M11439**	**[3] M11449**	**[*] M11459**	-
60	-	**[3] M1142A**	**[3] M1143A**	**[3] M1144A**	-	-
../60 mV(*1)	**[*] M11410**	**[*] M11420**	**[*] M11430**	**[3] M11440**	**[3] M11450**	**[3] M16430**

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

Exchangeable Scales

Type	SBC 48	SBC 72	SBC 96	SBM 45	Type	SBC 48	SBC 72	SBC 96	SBM 45
Device	BC 48	BC 72	BC 96	BM 45	**Device**	BC 48	BC 72	BC 96	BM 45
A / mV					**A / mV**				
50/60	**[1] M114Z9**	**[*] M114Y9**	**[*] M114X9**	**[1] M114V9**	300/60	**[1] M114ZH**	**[1] M114YH**	**[1] M114XH**	**[1] M114VH**
60/60	**[1] M114ZA**	**[1] M114YA**	**[1] M114XA**	**[1] M114VA**	400/60	**[1] M114ZJ**	**[1] M114YJ**	**[*] M114XJ**	**[1] M114VJ**
75/60	**[1] M114ZB**	**[1] M114YB**	**[1] M114XB**	**[1] M114VB**	600/60	**[1] M114ZL**	**[*] M114YL**	**[*] M114XL**	**[1] M114VL**
100/60	**[1] M114ZC**	**[*] M114YC**	**[*] M114XC**	**[1] M114VC**	1 000/60	**[1] M114ZP**	**[1] M114YP**	**[*] M114XP**	**[1] M114VP**
150/60	**[1] M114ZE**	**[1] M114YE**	**[1] M114XE**	**[1] M114VE**	1 500/60	**[1] M114ZR**	**[1] M114YR**	**[1] M114XR**	**[1] M114VR**
200/60	**[1] M114ZF**	**[*] M114YF**	**[*] M114XF**	**[1] M114VF**	2 500/60	**[1] M114ZT**	**[1] M114YT**	**[1] M114XT**	**[1] M114VT**
250/60	**[1] M114ZG**	**[1] M114YG**	**[1] M114XG**	**[1] M114VG**					

BC and BM ammeter

Code	Internal code										Delivery time
M	1	X	X	X	X	0	0	X	X	X	
Adjustment	Standard							0			-
	central zero							1			2
Shunt input range	Standard (.../60 mV)								0		-
	... / 50 mV								1		2
	... / 150 mV								3		2
	... / 300 mV								5		2
Scale	50									9	2
	60									A	2
	75									B	2
	100									C	2
	150									E	2
	200									F	2
	250									G	2
	300									H	2
	400									J	2
	500									K	2
	600									L	2
	1000									P	2
	1500									R	2
	2500									T	2

SBC, SBM45 scales

Code	Internal code									Delivery time
M	1	X	X	X	X	0	0	X	X	
Adjustment	Standard							0		-
	central zero							1		2
Shunt input range	Standard (.../60 mV)								0	-
	... / 50 mV								1	2
	... / 150 mV								3	2
	... / 300 mV								5	2

CODIFICATION TABLE

CBC ammeter

Code	Internal code									Delivery time
M	1	6	4	3	X	0	0	X	X	X	
Current input	/60 mV				0						-
	/150 mV				4						-
	/300 mV				6						-
Scale	60							A			-
	75							B			-
	100							C			-
	125							D			-
	150							E			-
	200							F			-
	250							G			-
	300							H			-
	400							J			-
	500							K			-
	600							L			-
	750							M			-
	1000							P			-
	1500							R			-
	2000							S			-
	2500							T			-
Scale + Relay	1 P (max+min)								1		-
	1,2 P (max+min)								2		-
	2 P (max+min)								3		-
Supply	230 Vca									4	-
	400 Vca									6	-
	110 Vcc									M	-

Consult for others configurations

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

BC / BM / CBC, Moving coil voltmeters

	Voltmeters, 90º				Voltmeters, 90º	Voltmeters with relay
						
Type	**BC 48**	**BC 72**	**BC 96**	**BC 144**	**BM 45**	**CBC 96**
Class	1,5				1,5	1,5
Scale	90º , P1				90º , P1	90º, P1
a b c 	48 48 86,2	72 72 69,2	96 96 69,2	144 144 91,8	85 52 65	96 96 85,3
V						
0...10 V (*1)	**[*] M11813**	**[*] M11823**	**[*] M11833**	**[3] M11843**	-	-
1	**[3] M11711**	**[1] M11721**	**[1] M11731**	**[3] M11741**	-	-
15	**[*] M11714**	**[*] M11724**	**[*] M11734**	**[3] M11744**	**[3] M11754**	-
30	**[*] M11716**	**[*] M11726**	**[*] M11736**	**[3] M11746**	**[3] M11755**	-
60	**[*] M11718**	**[*] M11728**	**[*] M11738**	**[3] M11748**	**[3] M11756**	-
100	**[3] M11719**	**[*] M11729**	**[*] M11739**	**[3] M11749**	**[3] M11757**	**[3] M16544**
150	**[3] M1171A**	**[*] M1172A**	**[*] M1173A**	**[3] M1174A**	**[*] M11758**	**[3] M16547**
250	**[3] M1171B**	**[*] M1172B**	**[*] M1173B**	**[3] M1174B**	-	**[3] M16548**
300	-	-	-	-	-	**[3] M16549**
400	**[3] M1171D**	**[*] M1172D**	**[*] M1173D**	**[3] M1174D**	-	**[3] M1654A**
500	**[3] M1171E**	**[*] M1172E**	**[1] M1173E**	**[3] M1174E**	-	**[3] M1654B**
600	**[3] M1171F**	**[1] M1172F**	**[1] M1173F**	**[3] M1174F**	**[3] M1175F**	**[3] M1654C**

(*1) Scale NOT included

CODIFICATION TABLE

BC and BM equipment

Code			Internal code	
M 1 X X X X 0 0			X	Delivery time
Adjustment	Standard		0	-
	Central zero		1	2

CBC volmeter

Code			Internal code	
M 1 6 5 X X 0 0 X			X	X Delivery time
Scale + relay	1 P (max+min)		1	-
	1,2 P (max+min)		2	-
	2 P (max+min)		3	-
Supply	230 Vac			4 -
	400 Vac			6 -
	110 Vdc			M -

Consult for others configurations

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

BC / BM / ZC, Process indicators

Process indicators, 90º





Type	BC 48	BC 72	BC 96	BC 144	BM 45
Class	1,5				1,5
Scale	90º , P1				90º , P1
a b c	48 48 86,2	72 72 69,2	96 96 69,2	144 144 91,8	85 52 65
Scope					
0...10 V	**[*] M11813**	**[*] M11823**	**[*] M11833**	**[3] M11843**	**[3] M11853**
0...20 mA	**[1] M11812**	**[1] M11822**	**[1] M11832**	**[3] M11842**	**[3] M11852**
4...20 mA	**[*] M11811**	**[*] M11821**	**[*] M11831**	**[3] M11841**	**[3] M11851**

Scales NOT included

Exchangeable scales

Type	SIP 48	SIP 72	SIP 96	SIPM 45
Equipment	BC 48	BC 72	BC 96	BM 45
Scope				
0...10 V	**[3] M118Z3**	**[3] M118Y3**	**[3] M118X3**	**[1] M118V3**
0...20 mA	**[3] M118Z2**	**[3] M118Y2**	**[3] M118X2**	**[1] M118V2**
4...20 mA	**[3] M118Z1**	**[3] M118Y1**	**[3] M118X1**	**[1] M118V1**

Process indicators, 240º



Type	ZC 48	ZC 72	ZC 96	ZC 144
Class	1,5			
Scale	240º, P1			
a b c	48 48 86,2	72 72 69,2	96 96 69,2	144 144 91,8
Scope				
0...10 V	**[1] M12513**	**[1] M12523**	**[1] M12533**	**[1] M12543**
4...20 mA(*)	**[1] M12511**	**[1] M12521**	**[1] M12531**	**[1] M12541**
.../60 mV	**[1] M12510**	**[1] M12520**	**[1] M12530**	**[1] M12540**

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

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

CODIFICATION TABLE

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

(*) Only for ZC equipments. 0 € for SIP scales

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

MC / MMC / EMC, maximeter ammeters

	Bimetallic maximeter ammeter					Bimetallic maximeter ammeters + moving iron ammeters		
								
Type	**MC 48**	**MC 72**	**MC 96**	**MC 144**	**MMC 45**	**EMC 72**	**EMC 96**	**EMC 144**
Class	3					Bimetallic: 3 Moving iron:1,5		
Scale	90º , P1,2					Double Scale 90º, P1,2, moving iron P2		
a b c 	48 48 86,2	72 72 69,2	96 96 69,2	144 144 91,8	85 52 65	72 72 69,2	96 96 69,2	144 144 91,8
A								
.../ 5 A	**[1] M12211**	**[*] M12221**	**[*] M12231**	**[3] M12241**	**[*] M12651**	**[*] M12622**	**[*] M12632**	**[3] M12642**
	Scales NOT included							
Scale	120% 90º , P1,2							
.../ 5 A		**[3] M15521**	**[3] M15531**					
	Scale included							

Exchangeable scales

Type	**SMC 48**	**SMC 72**	**SMC 96**	**SMMC 45-A**	**SEMC 72**	**SEMC 96**
Equipment	MC 48	MC 72	MC 96	MMC 45	EMC 72	EMC 96
A						
100/5	**[1] M122ZC**	**[*] M122YC**	**[*] M122XC**	**[1] M126VC**	**[*] M126YC**	**[*] M126XC**
200/5	**[*] M122ZF**	**[*] M122YF**	**[*] M122XF**	**[1] M126VF**	**[*] M126YF**	**[*] M126XF**
300/5	**[*] M122ZH**	**[*] M122YH**	**[*] M122XH**	**[1] M126VH**	**[*] M126YH**	**[*] M126XH**
400/5	**[*] M122ZJ**	**[*] M122YJ**	**[*] M122XJ**	**[1] M126VJ**	**[*] M126YJ**	**[*] M126XJ**
500/5	**[*] M122ZK**	**[*] M122YK**	**[*] M122XK**	**[1] M126VK**	**[*] M126YK**	**[*] M126XK**
600/5	**[1] M122ZL**	**[3] M122YL**	**[*] M122XL**	**[1] M126VL**	**[3] M126YL**	**[*] M126XL**
750/5	**[1] M122ZM**	**[3] M122YM**	**[*] M122XM**	**[1] M126VM**	**[*] M126YM**	**[*] M126XM**
800/5	**[1] M122ZN**	**[*] M122YN**	**[*] M122XN**	**[1] M126VN**	**[*] M126YN**	**[*] M126XN**
1 000/5	**[1] M122ZP**	**[*] M122YP**	**[*] M122XP**	**[1] M126VP**	**[*] M126YP**	**[*] M126XP**
1 500/5	**[1] M122ZR**	**[*] M122YR**	**[*] M122XR**	**[1] M126VR**	**[*] M126YR**	**[*] M126XR**
2 000/5	**[1] M122ZS**	**[*] M122YS**	**[*] M122XS**	**[1] M126VS**	**[*] M126YS**	**[*] M126XS**

CODIFICATION TABLE

MC and EMC maximeters and SMC and SEMC scales

M 1 X X X X 0 0 X X X

Code		Internal code	Delivery time
Adjustment	Standard (15 minutes)	0	-
	8 minutes	1	1
	30 minutes	2	2
Current input	Standard (.../5 A)	0	-
	.../ 1 A	1	1
Scale	100	C	2
	125	D	2
	150	E	2
	200	F	2
	250	G	2
	300	H	2
	400	J	2
	500	K	2
	600	L	2
	750	M	2
	800	N	2
	1000	P	2
	1200	Q	2
	1500	R	2
	2000	S	2
	2500	T	2
	3000	U	2
	4000	V	2
	5000	W	2

MMC 45 Maximeter

M 1 X X X X 0 0 X

Code		Internal code	Delivery time
Adjustment	Standard (15 minutes)	0	-
	8 minutes	1	1
	30 minutes	2	2

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

HC / HM / HZC / HLC, Frequencymeters

	Pointer type frequencymeters, 90º , 230 V				Pointer type frequencymeters, 90 ª , 230 V	Pointer type frequencymeters, 240 ª , 230 V	
							
Type	HC 48	HC 72	HC 96	HC 144	HM 45	HZC 96	HZC 144
Class	0,5				0,5	0,5	
Scale	90º				90º	240º	
a b c 	48 48 86,2	72 72 69,2	96 96 69,2	144 144 91,8	85 52 65	96 96 121.2	144 144 122
45...55 Hz	[*] M12711	[*] M12721	[*] M12731	[3] M12741	[2] M12751	[1] M12831	[1] M12841

Reed type frequencymeters

			
Type	HLC 72	HLC 96	HLC 144
Class	0,5		
a b c 	72 72 69,2	96 96 69,2	144 144 91,8
Hz			
47...53, 13 reeds	[*] M12921	[*] M12931	[3] M12941

CODIFICATION TABLE

HC, HZC and HM frequencymeters

Code	Internal code			Delivery time
M 1 X X X X 0 0	X	X		
Frequency	Standard (45...55 Hz)	0		-
	57...63 Hz	1		2
	55...65 Hz	3		2
	45...65 Hz	4		2
	47...53 Hz	5		2
Voltage	Standard (230 V)		0	-
	100 ... 120 V		1	2
	380 ... 400 V		3	2
	440 V		4	2
	(*) 380 ... 440 V		6	

(*) Only HC

HLC frequencymeters

Code	Internal code			Delivery time
M 1 X X X X 0 0	X	X		
Frequency / Num. reeds	Standard (47...53 Hz/ 13 reed.)	0		-
	57...63 Hz / 13 reed.	1		2
	45...55 Hz / 11 reed.	2		2
	55...65 Hz / 11 reed.	3		2
	57...63 Hz / 7 reed.	4		2
	47...53 Hz / 7 reed.	5		2
	45...55 Hz / 21 reed.	6		2
	55...65 Hz / 21 reed.	7		2
Voltage	Standard (230 V)		0	-
	100 ... 120 V		1	2
	380 ... 400 V		3	2
	440 V		4	2

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

WMC / WTC / YMC / YTC, Wattmeters and varmeters

WATTMETERS, 45 ... 65 Hz

Type								
	Single-phase		Balanced three-phase		Three-phase 3 wire (ARON)		Three-phase 4 wire	
	WMC 96	WMC 144	WTC 96E	WTC 144E	WTC 96A	WTC 144A	WTC 96AN	WTC 144AN
Class	1,5							
Scale	90º P1							
a b c 	96 96 69,2	144 144 91,8	96 96 69,2	144 144 91,8	96 96 82,9	144 144 91,8	96 96 82,9	144 144 91,8
$U_{phase-phase}$	400 V		400 V		110 V (*1)		400 V	
	[*] M13031	[4] M13041	[*] M13032	[4] M13042	[3] M13034	[3] M13044	[*] M13033	[4] M13043

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

Varmeters, 45 ... 65 Hz

Type								
	Single-phase		Balanced three-phase		Three-phase 3 wire (ARON)		Three-phase 4 wire	
	YMC 96	YMC 144	YTC 96E	YTC 144E	YTC 96A	YTC 144A	YTC 96AN	YTC 144AN
Class	1,5							
Scale	90 º P1							
a b c 	96 96 69,2	144 144 91,8	96 96 69,2	144 144 91,8	96 96 82,9	144 144 91,8	96 96 82,9	144 144 91,8
$U_{fase-fase}$	400 V		400 V		110 V		400 V	
	[3] M13231	[3] M13241	[3] M13232	[3] M13242	[2] M13234	[3] M13244	[3] M13233	[3] M13243

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

Wattmeters and varmeters Exchangeable scales

	Single-phase			Three-phase				
Type		**SWM 96**	**SYM 96**		**SWT 96E (*1)**	**SWT 96AN (*2)**	**SYT 96E (*1)**	**SYT 96AN(*2)**
Equipment		WMC 96	YMC 96		WTC 96E	WTC 96AN	YTC 96E	YTC 96AN
A	**Full scale**	Code	Code	**Full scale**	Code	Code	Code	Code
50/5	20 kW	**[1] M130J9**	**[1] M132J9**	30 kW	**[1] M130K9**	**[1] M130L9**	**[1] M132K9**	**[1] M132L9**
75/5	-	-	-	50 kW	**[1] M130KB**	**[1] M130LB**	**[1] M132KB**	**[1] M132LB**
100/5	40 kW	**[1] M130JC**	**[1] M132JC**	60 kW	**[1] M130KC**	**[1] M130LC**	**[1] M132KC**	**[1] M132LC**
150/5	60 kW	**[1] M130JE**	**[1] M132JE**	90 kW	**[1] M130KE**	**[1] M130LE**	**[1] M132KE**	**[1] M132LE**
200/5	80 kW	**[1] M130JF**	**[1] M132JF**	120 kW	**[1] M130KF**	**[1] M130LF**	**[1] M132KF**	**[1] M132LF**
300/5	120 kW	**[1] M130JH**	**[1] M132JH**	180 kW	**[1] M130KH**	**[1] M130LH**	**[1] M132KH**	**[1] M132LH**
400/5	160 kW	**[1] M130JJ**	**[1] M132JJ**	240 kW	**[1] M130KJ**	**[1] M130LJ**	**[1] M132KJ**	**[1] M132LJ**
500/5	200 kW	**[1] M130JK**	**[1] M132JK**	300 kW	**[1] M130KK**	**[1] M130LK**	**[1] M132KK**	**[1] M132LK**
600/5	240 kW	**[1] M130JL**	**[1] M132JL**	360 kW	**[1] M130KL**	**[1] M130LL**	**[1] M132KL**	**[1] M132LL**
1 000/5	400 kW	**[1] M130JP**	**[1] M132JP**	600 kW	**[1] M130KP**	**[1] M130LP**	**[1] M132KP**	**[1] M132LP**
1 500/5	600 kW	**[1] M130JR**	**[1] M132JR**	900 kW	**[1] M130KR**	**[1] M130LR**	**[1] M132KR**	**[1] M132LR**
2 000/5	800 kW	**[1] M130JS**	**[1] M132JS**	1,2 MW	**[1] M130KS**	**[1] M130LS**	**[1] M132KS**	**[1] M132LS**
3 000/5	1,2 MW	**[1] M130JU**	**[1] M132JU**	1,8 MW	**[1] M130KU**	**[1] M130LU**	**[1] M132KU**	**[1] M132LU**
4 000/5	1,6 MW	**[1] M130JV**	**[1] M132JV**	2,4 MW	**[1] M130KV**	**[1] M130LV**	**[1] M132KV**	**[1] M132LV**
5 000/5	2,0 MW	**[1] M130JW**	**[1] M132JW**	3 MW	**[1] M130KW**	**[1] M130LW**	**[1] M132KW**	**[1] M132LW**

(*1) Balanced three-phase wattmeters and varmeters type WTC 93E and YTC 96E, 230 V, 400 V
(*2) Unbalanced three-phase wattmeters and varmeters type WTC 96AN and YTC 96AN, 400 V

CODIFICATION TABLE

Wattmeters and Varmeters

Code		Código interno									
M	1	X	X	X	X	0	0	X	X	X	
											Delivery time
Current input		Standard .../ 5 A						0			-
		... / 1 A						1			2
Voltage		Standard (400 V_{ph-ph})							0		-
		110 V_{ph-ph} (a)							1		2
		230 V_{ph-ph}							2		2
		440 V_{ph-ph}							5		2
		460 V_{ph-ph}							6		2
Scale ranges Primary current transformer		50								9	2
		75								B	2
		100								C	2
		150								E	2
		200								F	2
		300								H	2
		400								J	2
		500								K	2
		600								L	2
		1000								P	2
		1500								R	2
		2000								S	2
		3000								U	2
		4000								V	2
		5000								W	2

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

Wattmeters and Varmeters scales

Code		Internal code								
M	1	X	X	X	X	0	0	X	X	
										Delivery time
Current input		Standard .../ 5 A						0		-
		... / 1 A						1		2
Voltages (V)		Standard (400 V)							0	-
		110 (a)							1	2
		230							2	2
		440							5	2
		460							6	2

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

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

FEMC / FETC / FMZ / FTC / PIC, Phasemeters

Electronic phasemeters, 90 °, 50 Hz



Electronic phasemeters, 240 °, 50 Hz



Type	Single-phase		Balanced three-phase		Single-phase		Balanced three-phase	
	FEMC 96	FEMC 144	FETC 96	FETC 144	FMZ 96	FMZ 144	FTZ 96	FTZ 144
Class	1,5							
Scale	90º P1				240º P1			
a b c	96 96 82,9	144 144 91,8	96 96 82,9	144 144 91,8	96 96 121,2	144 144 91,8	96 96 121,2	144 144 91,8
V	cos φ 0,5-1-0,5							
100/√3	**[1] M13431**	**[3] M13441**	-	-	**[4] M13531**	**[4] M13541**	-	-
110/√3	**[1] M13432**	**[3] M13442**	-	-	**[4] M13532**	**[4] M13542**	-	-
100	**[1] M13433**	**[3] M13443**	**[1] M1343C**	**[3] M1344C**	**[4] M13533**	**[4] M13543**	**[4] M1353C**	**[4] M1354C**
110	**[1] M13434**	**[3] M13444**	**[1] M1343D**	**[3] M1344D**	**[4] M13534**	**[4] M13544**	**[4] M1353D**	**[4] M1354D**
230	**[1] M13435**	**[3] M13445**	**[3] M1343E**	**[3] M1344E**	**[4] M13535**	**[4] M13545**	**[4] M1353E**	**[4] M1354E**
400	**[1] M13436**	**[3] M13446**	**[*] M1343F**	**[3] M1344F**	**[4] M13536**	**[4] M13546**	**[4] M1353F**	**[4] M1354F**
440	**[1] M13437**	**[3] M13447**	**[1] M1343G**	**[3] M1344G**	**[4] M13537**	**[4] M13547**	**[4] M1353G**	**[4] M1354G**
500	**[1] M13438**	**[3] M13448**	**[1] M1343H**	**[3] M1344H**	**[4] M13538**	**[4] M13548**	**[4] M1353H**	**[4] M1354H**

Current range: from 0,1 to 1,2 In. To connect to .../ 5 A transformers. Electronic converter included.

Induction phasemeters 360º, 50 Hz, 4 quadrants



Type	Single-phase		Balanced three-phase		Unbalanced three-phase	
	PIC 96 A	PIC 144 A	PIC 96 B	PIC 144 B	PIC 96 E	PIC 144 E
Class	1,5					
Scale	360º, P1					
a b c	96 96 121,2	144 144 122	96 96 121,2	144 144 122	96 96 121,2	144 144 122
V	cos φ 0-1-0					
110	**[4] M13631**	**[4] M13641**	**[4] M13634**	**[4] M13644**	**[4] M13637**	**[4] M13647**
230	**[4] M13632**	**[4] M13642**	**[4] M13635**	**[4] M13645**	**[4] M13638**	**[4] M13648**
400	**[4] M13633**	**[4] M13643**	**[4] M13636**	**[4] M13646**	**[*] M13639**	**[4] M13649**

Current range: from 0,1 to 1,2 In. To connect to .../ 5 A transformers.

CODIFICATION TABLE

Electronic phasemeters

Code									
M	1	X	X	X	X	0	0	X	
								↑	Delivery time
Secondary current				Standard .../ 5 A				0	-
				... / 1 A				1	3

Induction phasemeters

Code										
M	1	X	X	X	X	0	0	X	X	
								↑	↑	Delivery time
Secondary current				Standard .../ 5 A				0		-
				... / 1 A				1		3

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

PRG , Protection vatmeters

Protective dual bidirectional wattmeter, 230 V



Type	Single-phase	Balanced three-phase	Three-phase 3 wire (ARON)	Three-phase 4 wire
	PGR 96 M	**PGR 96E**	**PGR 96A**	**PGR 96AN**
Converter	CW-M	CW-TE	CW-TA	CW-TAN
Class	1,5			
Scale	90º , P2			
a b c	96 96 110			
.../ 5 A	**[4] M1661***	**[4] M1663***	**[4] M1665***	**[4] M1667***
.../ 1 A	**[4] M1662***	**[4] M1664***	**[4] M1666***	**[4] M1668***

MUST SELECT THE REST OF PARAMETERS ON THE BELOW TABLE
The instrument includes the analogue converter and indicator.
Specify the primary voltage and current of the current transformers, the full scale power value and main voltage.
Included and exchangeable scales. Standarized scales.

CODIFICATION TABLE

PGR wattmeter

Code			Internal code						Delivery time
M 1 6 6 X *			0 0	X	X	X			
			↑	↑	↑	↑			
Primary current	20	5							-
	30	7							-
	50	9							-
	75	B							-
	100	C							-
	150	E							-
	250	G							-
	400	J							-
Scale			50	9					-
			75	B					-
			100	C					-
			150	E					-
			250	G					-
			300	H					-
			400	J					-
			500	K					-
			750	M					-
			800	N					-
			1000	P					-
			1200	Q					-
			2000	S					-
			2500	T					-
			4000	V					-
Converter input voltage					110 / √3	2			-
					230	8			-
					400	C			-
					440	D			-
Power Supply							230 V_{ac}	4	-
							400 V_{ac}	6	-
							110 V_{dc}	M	-

Consult for others configurations

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

2EC / 2HC / 2HLC / SMC / STC / UC / Synchronization and marine applications equipment

Double voltmeters



Type	2 EC 96	2 EC 144
Class	1,5	
Scale	90º	
a b c	96 96 69,2	144 144 91,8
V		
2 x .../100	[3] M13831	[4] M13841
2 x .../110	[3] M13832	[4] M13842
2 x 220	[3] M13833	[4] M13843
2 x 380	[3] M13834	[*] M13844
2 x 440	[3] M13835	[4] M13845

Specify voltage transformers

Double frequencymeters





	Pointer type, 230 V		Reed type, 400 v		
Type	2 HC 96	2 HC 144		2 HLC 96	2 HLC 144
Class	0,5			0,5	
Scale	90º			-	
a b c	96 96 82,9	144 144 91,8		96 96 82,9	144 144 91,8
Hz			Hz		
45...55	[3] M12732	[4] M12742	47...53, 13 reeds	[*] M12932	[4] M12942

Synchroscopes, 50 Hz



Type	Single-phase		Three-phase	
	SMC 96	SMC 144	STC 96	STC 144
Class	1,5		1,5	
a b c	96 96 121,2	144 144 122	96 96 121,2	144 144 122
V				
110	[3] M14431	[4] M14441	[*] M14435	[4] M14445
230	[3] M14432	[4] M14442	[3] M14436	[4] M14446
400	[3] M14433	[4] M14443	[*] M14437	[4] M14447
500	[3] M14434	[4] M14444	[3] M14438	[4] M14448

Phase sequence indicators, 50 Hz





Type	UC 72	UC 96	CUC 96
Control Relay	No		Yes
a b c	72 72 82,9	96 96 82,9	96 96 82,9
V			
100...150	[1] M13726	[1] M13736	-
150...500	[1] M13721	[1] M13731	-
230	-	-	[3] M13754
400	-	-	[*] M13755

SynchroMAX, Power Supply 400 V





Type	SynchroMAX	SynchroMAX PID
PID Control	No	Yes
a b c	96 96 82,9	
Frequency	30 ... 70 Hz	
$V_{Measurement}$		
30...150	[*] M14624	[*] M14634
110...600	[*] M14625	[4] M14635

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

CH , Hour run meters

Hour run meters



Type	CH 48	CH 72	CH 96	CH 48
Display	5 + 2			
a b c	48 48 86,2	72 72 69,2	96 96 69,2	
Code	[3] M14911	[3] M14921	[3] M14931	[3] M14951
EUR				

MEG-1000 , Insulation resistance meter

Insulation resistance meter, 230 V (*), 50...60 Hz



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

CODIFICATION TABLE

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

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

SMC, STC, UC

Code	Internal code								
M	1	X	X	X	X	0	0	X	
								↑	Delivery time
Frequency	Standard (50 Hz)							0	-
	60 Hz							1	3

SynchroMAX

Code	Internal code								
M	1	X	X	X	X	0	0	X	
								↑	Delivery time
Voltage supply	Standard (400 V)							0	-
	110 V							1	-
	230 V							2	-
	90...140 Vc.c							C	2

2HLC

Code	Internal code								
M	1	X	X	X	X	0	0	X	X
								↑	↑ Delivery time
Frequency / No. reeds	Standard (47...53 Hz/ 13 reed.)							0	-
	57...63 Hz / 13 reed.							1	2
	45...55 Hz / 11 reed.							2	2
	55...65 Hz / 11 reed.							3	2
Voltage	Standard (400 V)							0	-
	100 ... 120 V							1	2
	440 V							4	2
	380 ... 400 V							3	2
	380 ... 440 V							6	2

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

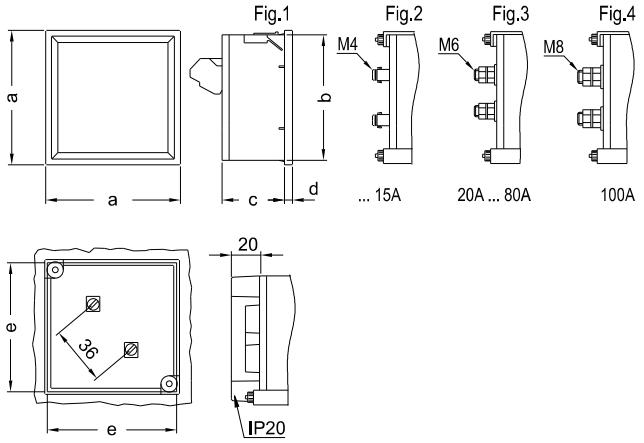
GENERAL options for analogue instruments

Type	Code
Protection IP 54, 48 x 48	[1] M19931
Protection IP 54, 72 x 72	[1] M19932
Protection IP 54, 96 x 96	[1] M19933
Protection IP 54, 144 x 144	[1] M19934
Protection IP 65, 48 x 48	[1] M19941
Protection IP 65, 72 x 72	[1] M19942
Protection IP 65, 96 x 96	[1] M19943
Protection IP 65, 144 x 144	[1] M19944
Terminal covers (IP 20) 48 x 48	[3] M19921
Terminal covers (IP 20) 72x 72	[*] M19922
Terminal covers (IP 20) 96 x 96	[*] M19923

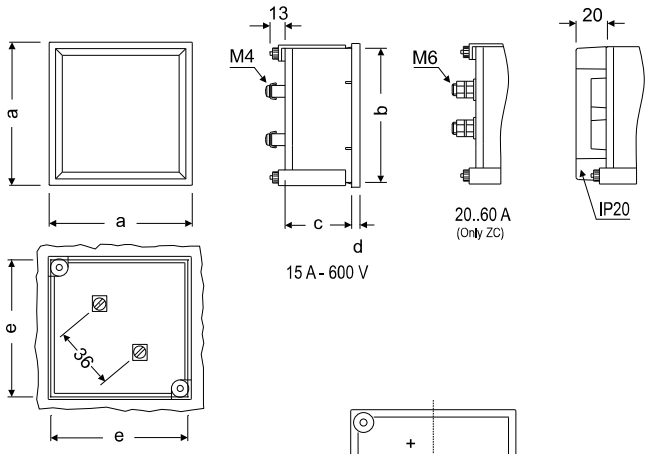
Code	Internal code											
	M	1	X	X	X	X	0	0	X	X	X	X
											↑	↑
												Delivery time
Other options	Tropical proof (assembly panel only)										0	1	2
	Externally regulated pointer										0	2	2
	Anti-reflection glass										0	3	2
	Makrolon glass										0	4	2
	Interior lighting (6-12-48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

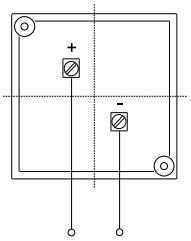
Dimensions

EC / BC



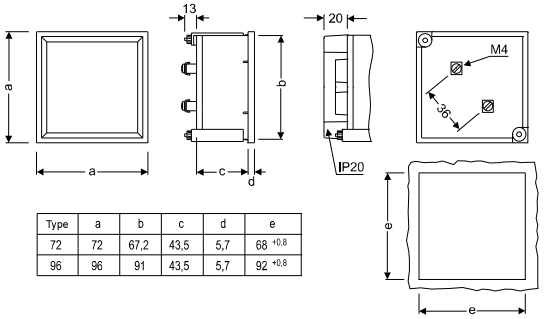
EZC / ZC





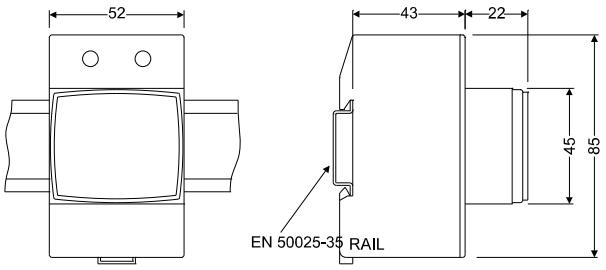
Typ	Fig. EC	Fig. BC	Fig. ZC	Fig. EZC	a	b	c	d	e
48	1-3	1-3	1	-	48	44,7	61	5,2	45
72	1-3-4	2-3-4	1	1	72	67,2	43,5	5,7	68
96	1-3-4	2-3-4	1	1	96	91	43,5	5,7	92
144	2-3-4	2-3-4	1	-	144	137	64,5	7,3	138

EC-FA, EC-F, EC-FN



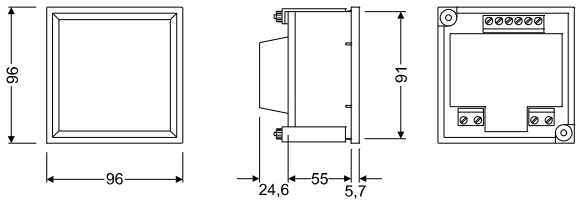
Type	a	b	c	d	e
72	72	67,2	43,5	5,7	68 $^{+0,8}$
96	96	91	43,5	5,7	92 $^{+0,8}$

EM 45 / BM 45 / MMC 45 / HM 45

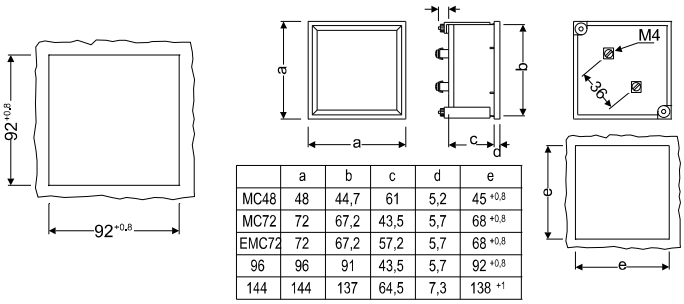


Delivery time: [*] immediate
[x] working weeks
[c] consult

CEC/ CBC / PGR

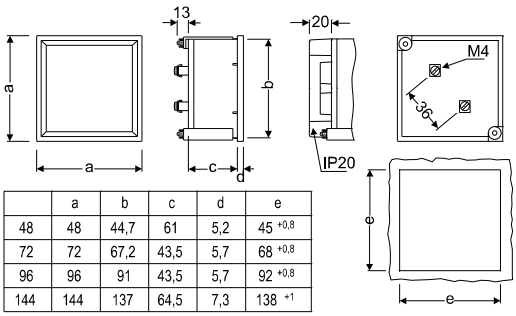


EMC / MC



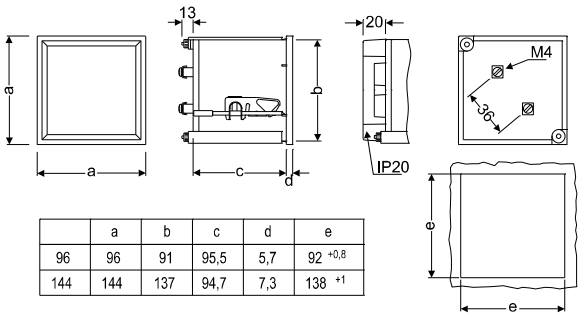
	a	b	c	d	e
MC48	48	44,7	61	5,2	45 +0,8
MC72	72	67,2	43,5	5,7	68 +0,8
EMC72	72	67,2	57,2	5,7	68 +0,8
96	96	91	43,5	5,7	92 +0,8
144	144	137	64,5	7,3	138 +1

HC



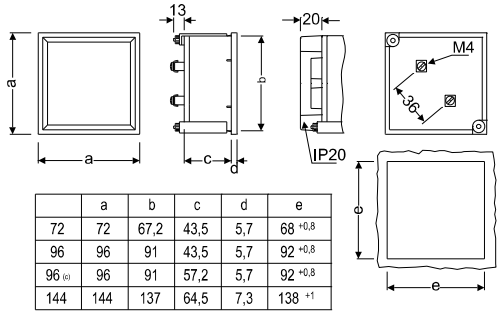
	a	b	c	d	e
48	48	44,7	61	5,2	45 +0,8
72	72	67,2	43,5	5,7	68 +0,8
96	96	91	43,5	5,7	92 +0,8
144	144	137	64,5	7,3	138 +1

HZC



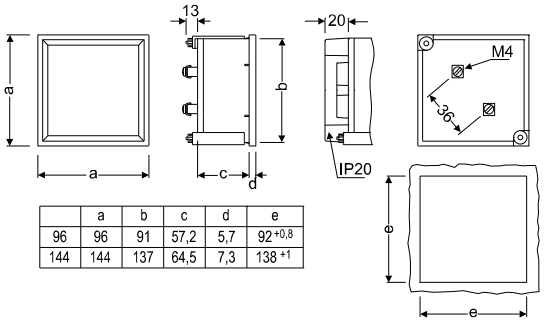
	a	b	c	d	e
96	96	91	95,5	5,7	92 +0,8
144	144	137	94,7	7,3	138 +1

HLC



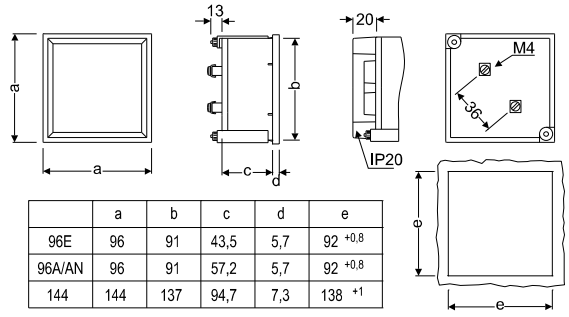
	a	b	c	d	e
72	72	67,2	43,5	5,7	68 +0,8
96	96	91	43,5	5,7	92 +0,8
96 (ω)	96	91	57,2	5,7	92 +0,8
144	144	137	64,5	7,3	138 +1

FEMC / FETC



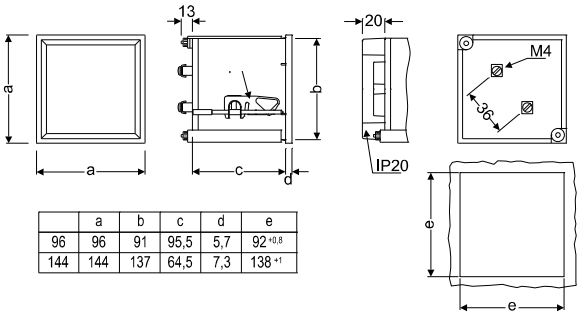
	a	b	c	d	e
96	96	91	57,2	5,7	92 +0,8
144	144	137	64,5	7,3	138 +1

WMC / YTC



	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

FMZ / FTZ / PIC



	a	b	c	d	e
96	96	91	95,5	5,7	92 +0,8
144	144	137	64,5	7,3	138 +1

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