




Engine and generator controllers



Lovato

electric

100% electricity

Engine and generator



ENGINE PROTECTION CONTROLLERS



RGK20



RGK30



RGK40



RGK50

STAND ALONE GEN-SET CONTROLLERS



Earth leakage relays



Automatic transfer switch controllers



Automatic battery chargers



Digital metering instruments



Protection relays



Push-buttons and selectors



Available in
90
countries
worldwide

LOVATO Electric presents a complete line of engine and generator controllers.

This range is complemented by a comprehensive offer of electromechanical and electronic products for measurement and engine control.



RGK 60



RGAM12... - RGAM24...



RGAM40 - RGAM41
RGAM42

AUTO MAINS FAILURE (AMF) GEN-SET CONTROLLERS



RGAM10



RGAM20

A complete range of products



Motor protection circuit breakers



Rotary cam switches



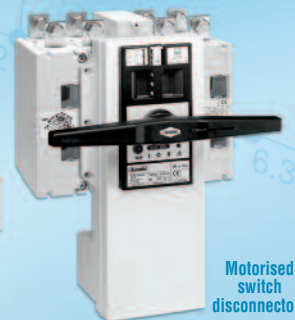
Current transformers



Changeover contactors



Changeover switch disconnectors



Motorised switch disconnectors

Engine and

ENGINE PROTECTION CONTROLLERS

STAND ALONE GEN-

MODEL	RGK30	RGK20	RGK40
Power key switch	—	●	●
Display	—	7 digit LCD	4 digit LED
Current control	—	—	1 phase
Analog sensor inputs	—	—	—
Digital inputs n°	4	4	6
Digital outputs n°	2	3	5
Expansion slots	—	—	—
PC set-up	—	●	●
Remote control	—	—	—
CANbus J1939 interface	—	—	—

Operator interface

- Two programming buttons
 - 1 LED for engine status
 - 1 LED for glow plug pre-heating
 - 5 LEDs for alarm status.
- Inputs/outputs** (programmable functions)
- Digital inputs: 3 negative and 1 positive (external start/stop by key switch)
 - Digital outputs: 2 relay.

Operator interface

- OFF-ON supply key selector switch
 - Semiautomatic engine start button
 - Two programming buttons
 - 7 digit LCD (Hours, Hz, VBatt.)
 - 1 LED for engine status
 - 1 LED for glow plug pre-heating
 - 5 LEDs for alarm status.
- Inputs/outputs** (programmable functions)
- Frequency input
 - Digital inputs: 3 negative and 1 positive
 - Digital outputs: 3 static
 - Inputs, outputs and alarms, all with programmable properties.
- Additional features**
- Quick set-up with PC software (TTL/RS232 port).

Operator interface

- OFF-ON supply key selector switch
 - Semiautomatic engine start button
 - Two programming buttons
 - 4 digit LED display (V, A, kVA, Hours, V batt., Hz)
 - 6 LEDs for measurements/readings
 - 2 LEDs for Gen-Set status indication
 - 1 LED for glow plug pre-heating
 - 8 LEDs for alarm status.
- Inputs/outputs** (programmable functions)
- VAC input L1-L2-L3/N generator
 - Digital inputs: 5 negative and 1 positive
 - Digital outputs: 1 relay and 4 static
 - Inputs, outputs and alarms, all with programmable properties.
- Additional features**
- Quick set-up with PC software (TTL/RS232 port).

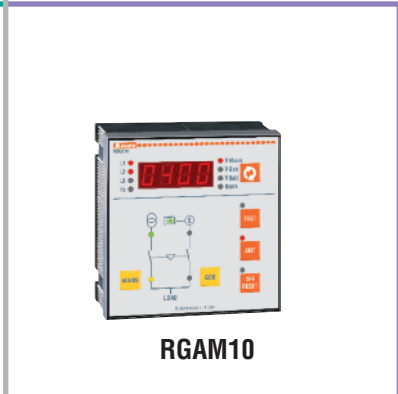
generator cont

SET CONTROLLERS

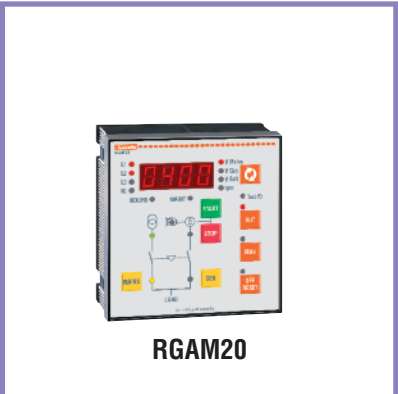
AUTO MAINS FAILURE (AMF) GEN-SET



RGK50



RGAM10



RGAM20



RGAM12 - RGAM12RC
RGAM24 - RGAM24RC

Graphic LCD	4 alphanumeric character LED	4 alphanumeric character LED	3 digit LED
3 phase	-	-	-
Temperature - Pressure - Fuel level	-	-	-
12	4	6	8
7	5	6	7
2	-	-	-
●	●	●	●
●	-	●	●
●	-	-	-
(Option board)	-	-	-

Operator interface

- Voltage, current, power, power factor and frequency of generator line
- Active and reactive energy
- Battery voltage
- Engine speed
- Oil pressure, engine temperature and fuel level
- Running and maintenance hours
- Number of starts and percentage of successful starts
- Event log of the last 255 events.

Inputs/outputs (programmable functions)

- VAC inputs: generator L1-L2-L3-N
- Current inputs L1-L2-L3
- 12 digital inputs; 7 relay outputs
- 2 slots for expansion boards: RS485 interface, clock calendar, digital I/O, etc
- Inputs, outputs and alarms, all with programmable properties.

Additional features

- 5-language support for alarms, events, parameters and help messages
- All texts are user-customisable
- On-line help in case of alarm or during parameter setting
- Generator overload protection
- Quick commissioning with set-up software and status supervision with remote control software
- Modem support with "Autocall" function for automatic email and SMS sending at predefined events.

Operator interface

- Voltage and frequency of mains and generator
- Battery voltage
- Running hours (stored in a non-volatile memory)
- Alphanumeric display for alarm and parameter texts
- Mains and generator supervision: min-max voltage, min-max frequency, phase sequence (for mains only) and voltage asymmetry (for mains only).

Inputs/outputs (programmable functions)

- VAC inputs: mains L1-L2/N-L3, generator L1-L2/N
- 4 digital inputs; 5 relay outputs
- Inputs, outputs and alarms, all with programmable properties.

Additional features

- Wide selection of functions to satisfy particular application requirements
- Quick set-up and commissioning with set-up software via RS232 port.

Operator interface

- Voltage and frequency of mains and generator
- Battery voltage
- Engine speed
- Maintenance hours (stored in a non-volatile memory)
- Running hours (stored in a non-volatile memory)
- Alphanumeric display for alarm and parameter texts
- Mains and generator supervision: min-max voltage, min-max frequency, phase sequence (for mains only) and voltage asymmetry (for mains only).

Inputs/outputs (programmable functions)

- VAC inputs: mains L1-L2/N-L3, generator L1-L2/N
- 6 digital inputs; 6 relay outputs
- Inputs, outputs and alarms, all with programmable properties.

Additional features

- Wide selection of functions to satisfy particular application requirements
- Quick set-up and commissioning with set-up software via RS232 port
- Modem support with "Autocall" function for automatic email and SMS sending at predefined events.

Operator interface

- Voltage of mains and generator lines
- Generator frequency
- Battery voltage
- Running and maintenance hours (stored in a non-volatile memory).

Inputs/outputs (programmable functions)

- VAC inputs: mains L1-L2/N-L3, generator L1-L2/N
- 8 digital inputs; 7 relay outputs.

Additional features

- Wide selection of functions to satisfy particular application requirements
- Quick commissioning with set-up software and status supervision with remote control software
- Modem support with "Autocall" function for automatic email and SMS sending at predefined events
- RS485 port for RGAM...RC only.



rollers

CONTROLLERS



RGAM40 - RGAM41 - RGAM42



RGK60

Graphic LCD	Graphic LCD
3 phase	3 phase
Temperature - Pressure - Fuel level	Temperature - Pressure - Fuel level
8	12
7	7
—	2
●	●
●	●
●	●
(RGAM42 only)	(Option board)

Operator interface

- Voltage, current, power, power factor and frequency of mains and generator lines
- Active and reactive energy
- Battery voltage
- Engine speed
- Oil pressure, engine temperature and fuel level
- Running and maintenance hours
- Number of starts and percentage of successful starts
- Event log of the last 255 events.

Inputs/outputs (programmable functions)

- VAC inputs: mains L1-L2-L3-N, generator L1-L2-L3-N
- Current inputs L1-L2-L3
- 8 digital inputs; 7 relay outputs
- Inputs, outputs and alarms, all with programmable properties.

Additional features

- 5-language support for alarms, events and parameters
- Generator overload protection
- Dummy load control
- Quick commissioning with set-up software and status supervision with remote control software
- Modem support with "Autocall" function for automatic email and SMS sending at predefined events
- Automatic generator test by means of programmable real time clock for RGAM 41 and RGAM 42 only
- CANbus - J1939 interface for RGAM 42 only.

Operator interface

- Voltage, current, power, power factor and frequency of mains and generator lines
- Active and reactive energy
- Battery voltage
- Engine speed
- Oil pressure, engine temperature and fuel level
- Running and maintenance hours
- Number of starts and percentage of successful starts
- Event log of the last 255 events.

Inputs/outputs (programmable functions)

- VAC inputs: mains L1-L2-L3-N, generator L1-L2-L3-N
- Current inputs L1-L2-L3
- 12 digital inputs; 7 relay outputs
- 2 slots for expansion boards: RS485 interface, clock calendar, digital I/O, etc

- Inputs, outputs and alarms, all with programmable properties.

Additional features

- 5-language support for alarms, events, parameters and help messages
- All texts are user-customisable
- On-line help in case of alarm or during parameter setting
- Generator overload protection
- Quick commissioning with set-up software and status supervision with remote control software
- Modem support with "Autocall" function for automatic email and SMS sending at predefined events.

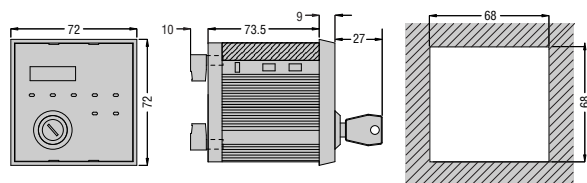
How to order

Order code	Description	Qty per pkg n°	Weight [kg]
ENGINE PROTECTION CONTROLLERS			
RGK 30	12/24VDC, external start key switch	1	0.160
RGK 20	12/24VDC, built-in power key switch with "TTL" programming port	1	0.270
STAND ALONE GEN-SET CONTROLLERS			
RGK 40	12/24VDC, built-in power key switch with "TTL" programming port	1	0.400
RGK 50	12/24VDC, graphic LCD, with RS232 port	1	0.750
AUTO MAINS FAILURE (AMF) GEN-SET CONTROLLERS			
RGAM 10	12/24VDC, 4 alphanumeric character display, with RS232 port (for set-up only)	1	0.480
RGAM 20	12/24VDC, 4 alphanumeric character display, with RS232 port	1	0.460
31 RGAM 12	12VDC, 3 digit LED display, with RS232 port	1	0.900
31 RGAM 24	24VDC, 3 digit LED display, with RS232 port	1	0.900
31 RGAM 12RC	12VDC, 3 digit LED display, with RS485 port	1	1.000
31 RGAM 24RC	24VDC, 3 digit LED display, with RS485 port	1	1.000
RGAM 40	12/24VDC, graphic LCD, with RS232 port	1	0.830
RGAM 41	12/24VDC, graphic LCD, with RTC ①, RS232 and RS485 ports	1	0.840
RGAM 42	12/24VDC, graphic LCD, with RTC ①, RS232 and CANbus ports	1	0.840
RGK 60	12/24VDC, graphic LCD, with RS232 port	1	0.750
INTERFACE SOFTWARE			
31 RGAM SW	Remote control communication software for RGAM 12 - RGAM 12RC - RGAM 24 RGAM 24RC units	1	0.246
RGK SW10	Set-up software for RGK 20 - RGK 40 - RGK 50 - RGAM 10 - RGAM 20 - RGAM 4... - RGK 60 units	1	0.246
RGK SW20	Remote control software (includes RGK SW10) for RGK 50 - RGAM 20 - RGAM 4... - RGK 60 units	1	0.400
ACCESSORIES			
RGK X01	Option board (clock calendar, RS485 port and 2 digital outputs) for RGK 50 - RGK 60 units	1	0.050
RGK X21	Option board (pick-up function, 2 digital outputs and 4 digital inputs) for RGK 50 - RGK 60 units	1	0.090
RGK X22	Option board (4 relay outputs) for RGK 50 - RGK 60 units	1	0.110
RGK X23	Option board for CANbus J1939 interface for RGK 50 - RGK 60 units	1	0.100
51 C2	Cable for PC ↔ RS232 connection, 1.8m long	1	0.090
51 C3	Cable for PC ↔ GSM Modem connection, 1.8m long	1	0.210
51 C4	Cable for PC ↔ PX1/RS232 converter connection, 1.8m long	1	0.147
51 C5	Cable for modem ↔ controller connection, 1.8m long	1	0.111
51 C7	Cable for GSM modem ↔ controller connection, 1.8m long	1	0.100
51 C11	Cable for PC ↔ TTL/RS232 connection, 2.8m long	1	0.090

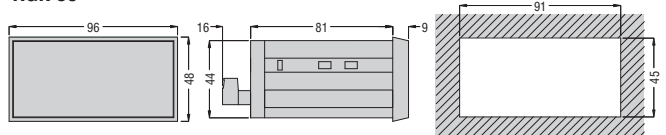
① RTC = Real Time Clock with backup battery.

Dimensions [mm]

RGK 20



RGK 30



Technical characteristics

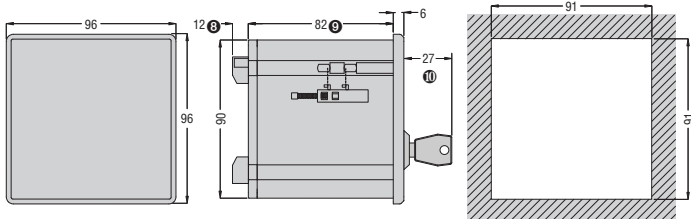
Model	ENGINE PROTECTION CONTROLLERS		STAND ALONE GEN-SET CONTROLLERS		RGAM 10
	RGK30	RGK20	RGK40	RGK50	
Rated battery voltage	12/24VDC	12/24VDC	12/24VDC	12/24VDC	12/24VDC
Power supply range	9...33VDC	9...35VDC	9...35VDC	9...33VDC	9...35VDC
Mains voltage control	–	–	–	–	L1-L2/N-L3
Generator voltage control	–	L-N ⑦	L1-L2-L3/N	L1-L2-L3-N	L1-L2/N
Rated voltage range	–	10...227VAC	100...415VAC	100...480VAC	100...415VAC
Current control	–	–	L1	L1-L2-L3	–
Rated frequency	–	50/60Hz	50/60Hz	50/60/400Hz	50/60Hz
PT programming	–	–	●	●	–
Rated input current	–	–	5A	5A	–
Engine running pick-up input	–	–	–	● ⑤	–
TRMS voltage measurement	–	–	●	●	●
TRMS current measurement	–	–	●	●	–
Display	–	7 digit LCD	4 digit LED	Graphic backlit LCD, 192x64 pixels	4 alphanumeric character LED
LEDs	n° 7	7	17	8	16
Digital inputs	n° 4	4	6	12	4
Digital outputs	n° 2 (Relay)	3 (SSR)	1 (Relay) + 4 (SSR)	7 (Relay)	5 (Relay)
Output rating	5A 30VDC DC1	1.2ADC (SSR)	n° 1 - 8A 250VAC AC1 5A 30VDC DC1 n° 4 - 1.2ADC (SSR)	8A 250VAC AC1 5A 30VDC DC1	8A 250VAC AC1 8A 30VDC DC1
Engine running inputs	“D+” and “AC”	“D+” and “AC”	“D+” and “AC”	“D+” and “AC”	“D+” and “AC”
Engine speed input	“W”	“W” or generator frequency	“W” or generator frequency	“W” or generator frequency or “Pickup ⑤”	–
Analog input: Level-Pressure-Temperature	–	–	–	●	–
I/O expansion	–	–	–	●	–
RS232 port	–	● (TTL)	● (TTL)	●	●
RS485 port	–	–	–	● ⑤	–
Remote control ②	–	–	–	● ⑥	–
CANbus interface	–	–	–	● ⑤	–
Event logging	–	–	–	●	–
RTC (Real Time Clock)	–	–	–	● ⑤	–
Parameters	n° 6	46	88	161	110
I/O functions	n° –	31	53	67	25
Alarms	n° 6	13	25	45	18
User alarms	n° –	1	1	8	–
Alarm property customisation	–	●	●	●	●
Texts for alarms, events and parameters	–	–	–	●	●
Languages	n° –	–	–	5 GB - I - F - P - E	1 GB
Text customisation	–	–	–	●	–
Degree of protection	IP41 ④	IP41 ④	IP54 ④	IP54 ④	IP54 ④
Plug-in removable terminal connections	●	●	●	●	●

② Remote control means: ASCII proprietary and Modbus® RTU protocols, GSM modem management, AUTOCALL function (SMS and email sending, etc).

③ Option board.
④ On front. IP20 at rear.
⑤ Events in volatile memory.

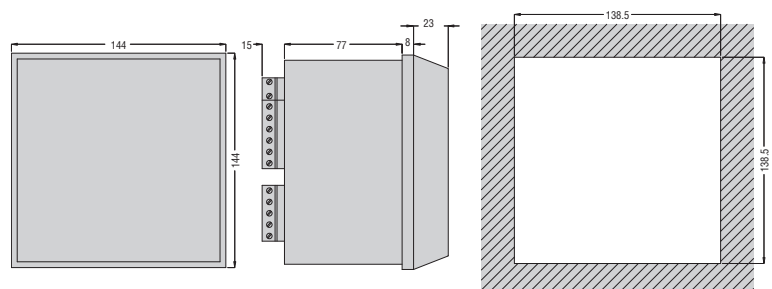
⑥ Remote control software with RS232, RS485, MODEM or ETHERNET communication by means of TCP/IP protocol.
⑦ Frequency only.

RGK 40 - RGAM 10 - RGAM 20



① 14mm for RGK40.
② 62mm for RGK40.
③ Key dimension for RGK40 only.

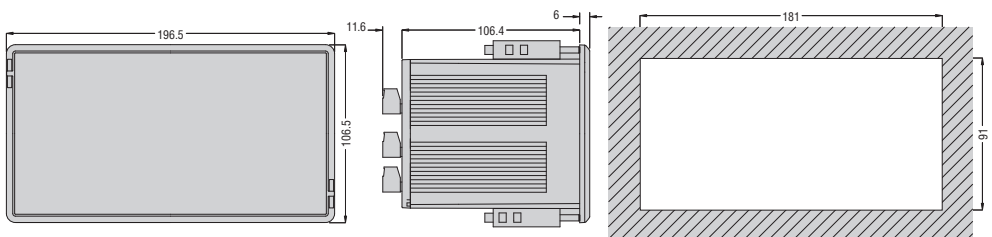
RGAM 12 - RGAM 12RC - RGAM 24 - RGAM 24RC - RGAM 40 - RGAM 41 - RGAM 42



AUTO MAINS FAILURE (AMF) GEN-SET CONTROLLERS

RGAM 20	RGAM 12 RGAM 12-RC RGAM 24 RGAM 24-RC	RGAM 40 RGAM 41 RGAM 42	RGK 60
12/24VDC	12VDC or 24VDC	12/24VDC	12/24VDC
9...35VDC	9...16VDC or 13...32VDC	9...35VDC	9...33VDC
L1-L2/N-L3	L1-L2/N-L3	L1-L2-L3-N	L1-L2-L3-N
L1-L2/N	L1-L2/N	L1-L2-L3-N	L1-L2-L3-N
100...415VAC	100...480VAC	100...480VAC	100...480VAC
–	–	L1-L2-L3	L1-L2-L3
50/60Hz	50/60Hz	50/60/400Hz	50/60/400Hz
●	–	●	●
–	–	5A	5A
–	–	●	● ⑤
●	●	●	●
–	–	●	●
4 alphanumeric character LED	3 digit LED	Graphic backlit LCD, 128x64 pixels	Graphic backlit LCD, 192x64 pixels
19	16	9	10
6	8	8	12
6 (Relay)	7 (Relay)	7 (Relay)	7 (Relay)
8A 250VAC AC1 8A 30VDC DC1	8A 250VAC AC1 5A 30VDC DC1	8A 250VAC AC1 8A 30VDC DC1	8A 250VAC AC1 5A 30VDC DC1
“D+” and “AC”	“D+” and “AC”	“D+” and “AC”	“D+” and “AC”
“W” or generator frequency	–	“W” or generator frequency or “Pickup”	“W” or generator frequency or “Pickup” ⑤
–	–	●	●
–	–	–	●
●	●	●	●
–	● (RGAM...RC only)	● (RGAM 41 only)	● ⑤
● ⑥	●	● ⑥	● ⑥
–	–	● (RGAM 42 only)	● ⑤
● ⑤	● ⑤	●	●
–	–	● (RGAM 41 - RGAM 42 only)	● ⑤
163	80	177	182
50	8	67	71
31	17	43	47
4	4	4	8
●	–	●	●
●	–	●	●
5 GB - I - F - P - E	–	5 GB - I - F - P - E	5 GB - I - F - P - E
–	–	● (only user alarms)	●
IP54 ④	IP41 ④	IP41 ④	IP54 ④
●	●	●	●

RGK 50 - RGK 60



Additional products

AUTOMATIC BATTERY CHARGERS



BCE...

Order code	Rated output current [A]	Rated output voltage DC [V]	Qty per pkg n°	Wt [kg]
1 CHARGING LEVEL				
31 BCE 0312	3	12	1	1.900
31 BCE 0612	6		1	4.750
31 BCE 1212	12		1	8.600
31 BCE 2V524	2.5	24	1	1.900
31 BCE 0524	5		1	4.925
31 BCE 1024	10		1	9.550

DIGITAL METERING INSTRUMENTS



DMK15



DMK15 R1



DMK25



DMK26

Order code	Description	Qty per pkg n°	Wt [kg]
DMK 15	Voltmeter, ammeter and wattmeter, 220-240VAC supply (96x48mm)	1	0.332
DMK 15 R1	Voltmeter, ammeter and wattmeter with programable output relay, 220-240VAC supply (96x48mm)	1	0.350
DMK 25	Multimeter for Gen-Set duty, 12-24VDC supply (96x96mm)	1	0.350
DMK 26	Multimeter for Gen-Set duty with maximum current demand, voltage and current imbalance, 12-24VDC supply (96x96mm)	1	0.350

AUTOMATIC TRANSFER SWITCH CONTROLLERS



ATL10



ATL20 A240



ATL30 A240

Order code	Description	Qty per pkg n°	Wt [kg]
ATL10	Version with RS232 port, 12/24/48VDC supply (96x96mm)	1	0.460
ATL20 A240	Version with RS232 port, 12-48VDC and 220-240VAC supply (144x144mm)	1	0.700
ATL30 A240	Version with RS232 and RS485 ports and real time clock, 12-48VDC and 220-240VAC supply (144x144mm)	1	0.700

INTERFACE SOFTWARE

ATL SW	Set-up software complete with 51 C2 cable for ATL10, ATL20 and ATL30	1	0.246
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ACCESSORIES FOR ATL10

31 PA96X96	Front IP54 protective cover	1	0.077
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ACCESSORIES AND SPARE PARTS FOR ATL20 AND ATL30

51 C2	PC ↔ ATL connecting cable, 1.8m long	1	0.090
31 PACR	Front IP54 protective cover	1	0.107

ACCESSORIES AND SPARE PARTS FOR ATL30

51 C4	PC ↔ 4 PX1 converter connecting cable, 1.8m long	1	0.147
51 C5	ATL30 ↔ analog modem connecting cable, 1.8m long	1	0.111
51 C6	ATL30 ↔ 4 PX1 converter connecting cable, 1.8m long	1	0.102
51 C9	PC ↔ analog modem connecting cable, 1.8m long	1	0.137
4 PX1	RS232/RS485 converter drive, opto-isolated, 220-240VAC ^①	1	0.600

^① RS232/RS485 opto-isolated converter drive, 38,400 Baud rate maximum, automatic or manual TRANSMIT line supervision. 220-240VAC ±10% (110-120VAC supply on request).

	ATL10	ATL20 A240	ATL30 A240
Voltage control	L1-L2-L3	L1-L2-L3-N	L1-L2-L3-N
Serial interface	With RS232 port (Modbus [®])	With RS232 port (Modbus [®])	With RS232 and RS485 opto-isolated ports and real time clock (Modbus [®])
Display	1	2	2
Auxiliary voltage	12/24/48VDC	12-48VDC / 220-240VAC	12-48VDC / 220-240VAC
Rated voltage Ue	100-480VAC	100-690VAC	100-690VAC
Digital:			
inputs n°	6	8	8
outputs n°	6	7	7



Changeover switch disconnectors



Motorised switch disconnectors



Changeover contactors



Current monitoring relays

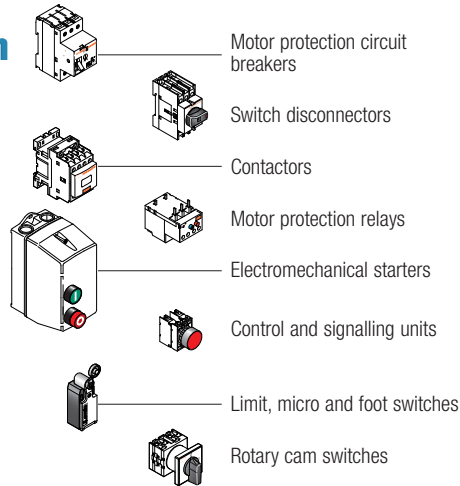


Frequency meter

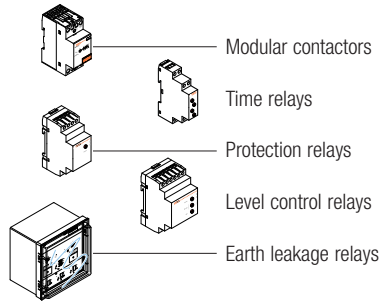


Digital metering instruments

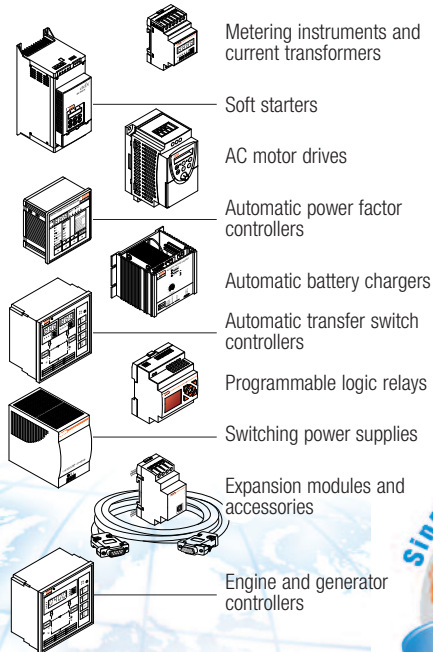
PLANET Switch



PLANET Din



PLANET Logic



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Present in over 90 countries

The products described in this publication are subject to be revised or improved at any moment. Catalogue descriptions and details, such as technical and operational data, drawings, diagrams and instructions, etc., do not have any contractual value. In addition, products should be installed and used by qualified personnel and in compliance with the regulations in force for electrical systems in order to avoid damages and safety hazards.