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#### EXP SERIES EXPANSION MODULES

- For flush-mount products
- Digital Inputs and Outputs
- Analog Inputs and Outputs
- Inputs for PT100 sensors
- Communication modules (RS232, RS485, Ethernet, etc.)
- GSM/GPRS modem
- Data storage with clock-calendar (RTC)
- Powered directly by the base product
- Automatic identification by base product.



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#### EXM SERIES EXPANSION MODULES

- For modular products.
- Digital Inputs and Outputs
- Communication modules (RS232, RS485, Ethernet, etc.)
- Data storage with clock-calendar (RTC)
- Separate auxiliary power supply
- Base product connection by IR port
- Automatic identification by base product.



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#### ACCESSORIES

- Communication devices
- Remote display unit
- Protective covers
- Converters
- Gateway
- Connecting cables.



- Digital inputs and outputs
- Analog inputs and outputs
- Communication interface
- Data storage with clock-calendar
- Communication devices to connect LOVATO Electric products to personal computers, smartphones and tablets
- Connecting cables to link LOVATO Electric products to personal computers, modems and converter drives.

## Expansion modules

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## Accessories

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### Expansion modules for flush-mount products



EXP10...



Order code	Description	Qty per pkg	Wt
		n°	[kg]

#### Inputs and outputs.

EXP10 00	4 digital inputs, opto-isolated	1	0.060
EXP10 01	4 static outputs, opto-isolated	1	0.054
EXP10 02	2 digital inputs and 2 static outputs, opto-isolated	1	0.058
EXP10 03	2 relay outputs, rated 5A 250VAC	1	0.050
EXP10 04	2 analog inputs, opto-isolated 0/4...20mA, PT100, 0-10V or 0...±5V	1	0.056
EXP10 05	2 analog outputs, opto-isolated 0/4...20mA, 0-10V or 0...±5V	1	0.064
EXP10 06	2 relay outputs to increase number of steps	1	0.064
EXP10 07	3 relay outputs to increase number of steps	1	0.085
EXP10 08	2 opto-isolated digital inputs and 2 relay outputs rated 5A 250VAC	1	0.058
EXP10 40	2 digital/resistive inputs, 2 static outputs	1	0.058
EXP10 41	2 thermocouple inputs, 2 static outputs	1	0.058

#### Communication ports.

EXP10 10	Opto-isolated USB interface	1	0.060
EXP10 11	Opto-isolated RS232 interface	1	0.040
EXP10 12	Opto-isolated RS485 interface	1	0.050
EXP10 13	Opto-isolated Ethernet interface with Web server function	1	0.060
EXP10 14	Opto-isolated Profibus-DP interface	1	0.080
EXP10 18	IEC/EN 61850 interface	1	0.060

#### Various functionality.

EXP10 15	GPRS/GSM modem	1	0.080
EXP10 16	Capacitor bank protection	1	0.080
EXP10 30	Data storage, clock-calendar	1	0.050
EXP10 31	Data storage, clock-calendar with Energy Quality (EN 50160)	1	0.060

#### IEC/EN 61850 protocol

The module will be made available only when the competent authorities have established the exact terms of the supervision and control of the specific commands (at the time of catalogue printing, currently under study as specified in the Italian CEI 0-16 and CEI 0-21 standards).

#### General characteristics

EXP series expansion modules can increase the functionality of the LOVATO Electric products, such as:

- Digital inputs
  - Relay outputs
  - Static outputs
  - Analog inputs
  - Inputs for PT100 temperature sensor
  - Thermocouple inputs "J" or "K" types
  - Analog outputs
  - Communication interface
  - GPRS/GSM modem (without antenna, see page 28-4)
  - Data storage.
- Powered directly by the base product  
– Automatic identification by the base product  
– Rear base product mounting with no need of tools.

#### Certifications and compliance

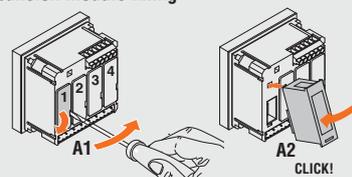
Certifications obtained: UL Listed, for USA and Canada (cULus File E93601), as Listed Accessory under Auxiliary Devices; EXP10 18 excluded, EAC.

Compliant with standards:

- For EXP10 18: IEC/EN 61850 and Italian CEI 0-16, CEI 0-21
- For EXP10 04 and EXP10 10: IEC/EN 61010-1, IEC/EN 61000-6-2, IEC/EN 61000-6-4, UL508, CSA C22.2 n° 14
- For EXP10 15: IEC/EN 61010-1, IEC/EN 62311, ETSI EN 301 489-1, ETSI EN 301 469-7, EN 301511, USA/FCC 47 CFR part 15, Subpart B, CAN/ICES-003
- For all other types: IEC/EN 61010-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL508 (pending for EXP10 40 and EXP10 41), CSA C22.2 n° 14 (pending for EXP10 40 and EXP10 41).

For overall dimensions, wiring diagrams and technical characteristics, consult the technical instructions in Downloads of the local or global websites; see details on inside front cover.

#### Expansion module fixing



#### EXP series compatibility with LOVATO Electric products

TYPE	INTERFACE PROTECTION SYSTEM UNITS	DIGITAL MULTIMETERS				DIGITAL POWER ANALYZERS	POWER FACTOR CONTROLLERS		AUTOMATIC TRANSFER SWITCH CONTROLLERS		ENGINE AND GENERATOR CONTROLLERS			
	PMV/F20/30	DMG 600/610	DMG 700	DMG 800	DMG 900/900T	DCRL 3/5/8	DCRG 8	ATL 610	ATL 800/900	RGK 4...SA	RGK 610...	RGK 800...	RGK 900...	
EXP10 00		●	●	●	●		●	●	●			●	●	
EXP10 01		●	●	●	●		●	●	●			●	●	
EXP10 02		●	●	●	●		●	●	●			●	●	
EXP10 03	●	●	●	●	●	●	●	●	●			●	●	
EXP10 04				●	●		●	●	●			●	●	
EXP10 05				●	●		●	●	●			●	●	
EXP10 06						●	●	●	●					
EXP10 07						●	●	●	●					
EXP10 08		●	●	●	●		●	●	●			●	●	
EXP10 10	●	●	●	●	●	●	●	●	●		●	●	●	
EXP10 11	●	●	●	●	●	●	●	●	●		●	●	●	
EXP10 12	●	●	●	●	●	●	●	●	●		●	●	●	
EXP10 13	●	●	●	●	●	● (DCRL 8)	●	●	●			●	●	
EXP10 14				●	●		●	●	●			●	●	
EXP10 15					●		●	●	●			●	●	
EXP10 16							●							
EXP10 18	●													
EXP10 30				●	●		●							
EXP10 31					●									
EXP10 40										●		●	●	
EXP10 41												●	●	
Max n° of modules addable	2	1	4	4	4	1 (DCRL 3/5) 2 (DCRL 8)	4	2	3	1		3	4	

### Expansion modules for modular products



EXM10 00



EXM10 10

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Inputs and outputs.			
EXM10 00	2 digital inputs and 2 static outputs, opto-isolated	1	0.137
EXM10 01	2 digital inputs, opto-isolated and 2 relay outputs, rated 5A 250VAC	1	0.147
EXM10 02	4 opto-isolated digital inputs and 2 relay outputs rated 5A 250VAC	1	0.155
Communication ports.			
EXM10 10	Opto-isolated USB interface	1	0.140
EXM10 11	Opto-isolated RS232 interface	1	0.125
EXM10 12	Opto-isolated RS485 interface	1	0.140
EXM10 13	Opto-isolated Ethernet interface with Web server function	1	0.140
EXM10 18	IEC/EN 61850 interface	1	0.140
EXM10 20	Opto-isolated RS485 interface and 2 relay outputs, rated 5A 250VAC	1	0.140
EXM10 30	Data storage, RTC with backup reserve energy for data logging	1	0.140

**IEC/EN 61850 protocol**

The module will be made available only when the competent authorities have established the exact terms of the supervision and control of the specific commands (at the time of catalogue printing, currently under study as specified in the Italian CEI 0-21 standard).

#### General characteristics

EXM series expansion modules can increase functionality of LOVATO Electric products, such as:

- Digital inputs
- Relay outputs
- Static outputs
- Communication interface
- Data storage.
- Connection to base product by IR (infrared beam) port
- Automatic identification by the base product
- Side base product mounting.

#### Certifications and compliance

Certifications obtained: UL Listed, for USA and Canada (cULus File E93601), as Listed Accessory under Auxiliary Devices; EXM10 18 excluded, EAC.

Compliant with standards:

- For EXM10 18: IEC/EN 61850 and Italian CEI 0-21
- For EXM10 10: IEC/EN 61010-1, IEC/EN 61000-6-2, IEC/EN 61000-6-4, UL 508, CSA C22.2 n° 14
- For all other types: IEC/EN 61010-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL508, CSA C22.2 n° 14.

For overall dimensions, wiring diagrams and technical characteristics, consult technical instructions online in Downloads of the local or global website; see details on inside front cover.

#### Expansion module fixing



CLICK!

#### EXM series compatibility with LOVATO Electric products

	INTERFACE PRO. SYSTEM UNITS	ENERGY METERS		DATA CONCENTRATORS		DIGITAL MULTIMETER
	PMVF51	DMED 130	DME D310 T2	DME CD	DMED CDPV1	DMG 300
EXM10 00			●	●	●	●
EXM10 01	●	●	●	●	●	●
EXM10 02			●	●	●	●
EXM10 10	●		●	●	●	●
EXM10 11	●		●	●	●	●
EXM10 12	●		●	●	●	●
EXM10 13	●		●	●	●	●
EXM10 18	●					
EXM10 20			●	●	●	●
EXM10 30			●	●	●	●
Max n° of modules addable	2	1	3	3	3	3

### Communication devices



CX 01



CX 02



CX 03

Order code	Description	Qty per pkg	Wt
		n°	[kg]
CX 01	PC ↔ LOVATO Electric product dongle, with USB optic connector for programming, data download, diagnostics and firmware upgrade	1	0.090
CX 02	PC ↔ LOVATO Electric product Wi-Fi dongle for programming, data download, diagnostics and firmware upgrade	1	0.090
CX 03	GSM penta-band (850/900/1800/1900/2100MHz) for EXP10 15 expansion module	1	0.090

#### General characteristics

Communication devices to link LOVATO Electric products to:

- Personal computers (PC)
- Smartphones
- Tablets.

#### CX 01

This USB/optical dongle, complete with cable, allows to connect compatible LOVATO Electric products with a PC without having to disconnect the power supply from the electric panel.

The PC identifies the connection as a standard USB.

#### CX 02

This Wi-Fi point connection, lets LOVATO Electric products be viewed by a PC, smartphone and tablet without having to connect cables.

#### CX 03

Antenna compatible with major part of worldwide mobile networks, thanks to the 850/900/1800/1900/2100MHz frequencies.

IEC degree of protection: IP67. Fixing by Ø10mm/0.39" drilling.

Cable length 2.5m/2.73yd.

For overall dimensions, wiring diagrams and technical characteristics, consult technical instructions online in Downloads of local global website; see details on inside front cover.

#### Certification

Certification obtained: EAC.

### Remote display unit



EXC RDU 1 - RGK RA



Order code	Description	Qty per pkg	Wt
		n°	[kg]
EXC RDU 1	Remote display unit, graphic LCD, touch screen 128x112 pixels for ADXL..., IP65 protection	1	0.360
RGK RA	Remote display unit, graphic LCD, touch screen 128x112 pixels for RGK..., IP65 protection	1	0.360

#### General characteristics

Alarm conditions can be viewed on the remote display and alarm silencing can also be activated.

- Dual 100...240VAC / 12...24VDC power supply
- Touch screen 128x112 pixel backlight graphic LCD
- Built-in buzzer
- Static (SSR) output for global alarm signalling
- Opto-isolated RS485 interface port
- Conductor cross section: 0.2...2.5mm<sup>2</sup> (24...12 AWG; 18...12 AWG per UL/CSA)
- Tightening torque: 0.56Nm (4.5lbin)
- Compatible with RGK... for RGK RA
- Compatible with ADXL... for EXC RDU 1.

#### Certification and compliance

Certification obtained: cULus, EAC (both pending for EXC RDU 1).

Compliant with standard: IEC/EN 61010-1, IEC/EN 61000-6-2, IEC 61000-6-3, UL508, CSA C22.2 n° 14.

### Protective covers



31 PA96X96

Order code	Description	Qty per pkg	Wt
		n°	[kg]
PA 96X48	Front IP65 protective cover for DMK 0/1...	1	0.048
31 PA96X96	Front IP54 protective cover for DMK 2...	1	0.077

#### General characteristics

If high IEC degree of protection is needed, the protective covers give to the device the necessary protection required.

#### Certification

Certification obtained: EAC.

### Accessories



EXP80 00



EXP80 01

Order code	Description	Qty per pkg	Wt
		n°	[kg]
EXP80 00	Plastic insert for customising label for DMG 600/610 and DCRL...	10	0.005
EXP80 01	IP65 gasket seal for ATL600/610 and DCRL8	1	0.150
EXM80 04	Set of sealable terminal covers for DMG 100/101/110/200/210/300	1	0.020
NTC 01	External/remote temperature sensor, with 3m/3.3yd long cable	1	0.150
RGK X00	IP65 gasket seal for RGK600/601	1	0.100

#### Certification

Certification obtained: EAC.

### Converters



EXC CON 01



Order code	Description	Qty per pkg	Wt
		n°	[kg]
EXC CON 01	RS485/ Ethernet converter, 12...48VDC, including DIN rail fixing kit	1	0.400
4 PX1	RS232/RS485 converter, opto-isolated, 220...240VAC power supply (110...120VAC on request). Repeater drive for RS485 bus extension	1	0.600



4 PX1

#### General characteristics

The EXC CON 01 converter can interface "Slave" devices connected in a RS485 bus with a "Master" equipped with an Ethernet interface port:

- Kit consisting of a converter and DIN rail mounting accessory
- Web interface programming
- No power pack included.

The 4 PX1 converter can interface "Slave" devices connected in an RS485 bus with a "Master" equipped with RS232 interface port.

When configured appropriately, it can also be used as RS485 repeater whenever the devices connected to the bus are many or the maximum distance among the bus devices is longer than the allowed.

#### Certifications and compliance

Certifications obtained: cULus (UL 60950-1) Listed, FCC CLASS A for EXC CON 01; EAC only for 4 PX1.

Compliant with standards:

- for MOXA NPORT5230: EN 60950-1.

### Gateway



EXC M3G 01



Order code	Description	Qty per pkg	Wt
		n°	[kg]
EXC M3G 01	RS485 Gateway/3G modem, 9.5...27VAC/9.5...35VDC, including antenna and programming cable	1	0.340

#### General characteristics

The EXC M3G 01 gateway can interface "Slave" devices connected in a RS485 with a "Master" using a 3G network:

- Connection TCP server through 3G or 2G network
- Transparent mode: data is transferred from the 3G side to the serial side and vice versa without protocol conversion
- Settable parameters: TCP server IP and remote port, network operator apn (with username and password), SIM card pin (with enabling), connection time-out, serial parameters (baud rate from 1,200 bps to 115,200 bps, stop bit, character length, parity)
- RJ45 port for programming parameters and diagnostics with simple software tool
- Antenna compatible with major part of worldwide mobile networks, thanks to the 850/900/1800/1900/2100MHz frequencies. IEC degree of protection: IP67. Fixing by Ø10mm/0.39" drilling. Cable length 2.5m/2.73yd.

#### Compliance

Compliance with standards: EN 60950-1.

### Connecting cables



51 C4

Order code	Description	Qty per pkg	Wt
		n°	[kg]
Connecting cables.			
51 C2	For PC ↔ LOVATO Electric device, 1.8m/2yd long	1	0.090
51 C3	For PC ↔ GSM modem, 1.8m/2yd long <sup>❶</sup>	1	0.210
51 C4	For PC ↔ RS232/RS485 converter drive, 1.8m/2yd long	1	0.147
51 C5	For Analog modem ↔ LOVATO Electric device, 1.8m/2yd long <sup>❶</sup>	1	0.111
51 C6	For 4 PX1 converter drive ↔ LOVATO device + EXP10 11, 1.8m/2yd long	1	0.102
51 C7	For GSM modem ↔ LOVATO Electric device, 1.8m/2yd long <sup>❶</sup>	1	0.101
51 C8	For ADX ↔ remote keypad, 3m/3.3yd long	1	0.080
51 C9	For 4 PX1 converter drive ↔ front IP54 modem	1	0.137

<sup>❶</sup> Consult Customer Service for information; see contact details on inside front cover.

#### General characteristics

Connecting cables to link LOVATO Electric devices to:

- Personal computer (PC)
- Modem
- Bus converter.

For overall dimensions, wiring diagrams and technical characteristics, consult technical instructions online in Downloads of local or global website; see details on inside front cover.

#### Certification

Certification obtained: EAC.