

Products and solutions for generating sets

 **Lovato**
electric
ENERGY AND AUTOMATION

Tradition and Innovation



LOVATO Electric S.p.A. - Bergamo - Italy

Since 1922

The first LOVATO Electric headquarters founded in Bergamo (Italy) in 1922: the starting point of the grand industrial adventure.



Italian design

Highly-qualified design, technical and research staff fully develop and design innovative and reliable products in the Bergamo offices, using state-of-the-art software.



Most advanced manufacturing facilities

LOVATO Electric manufactures its products with cutting-edge technology.



Quality and certifications

LOVATO Electric products comply with the major international quality standard requirements.



Customer care service

The Customer Service team offers prompt and professional assistance for products and applications.



International presence in over 100 countries

Foreign branches and widespread official sales affiliates assure product assistance and availability in over 100 countries worldwide.



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|--|---|--|---|
| <p>Italy
LOVATO ELECTRIC S.P.A.</p> | <p>Canada
LOVATO ELECTRIC CORP.</p> | <p>China
LOVATO ELECTRIC (SHANGAI) CO LTD</p> | <p>Czech Republic
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LOVATO ELECTRIC ME FZE</p> | <p>United Kingdom
LOVATO ELECTRIC LTD</p> | <p>USA
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PRODUCTS AND SERVICES

Automatic linear battery chargers

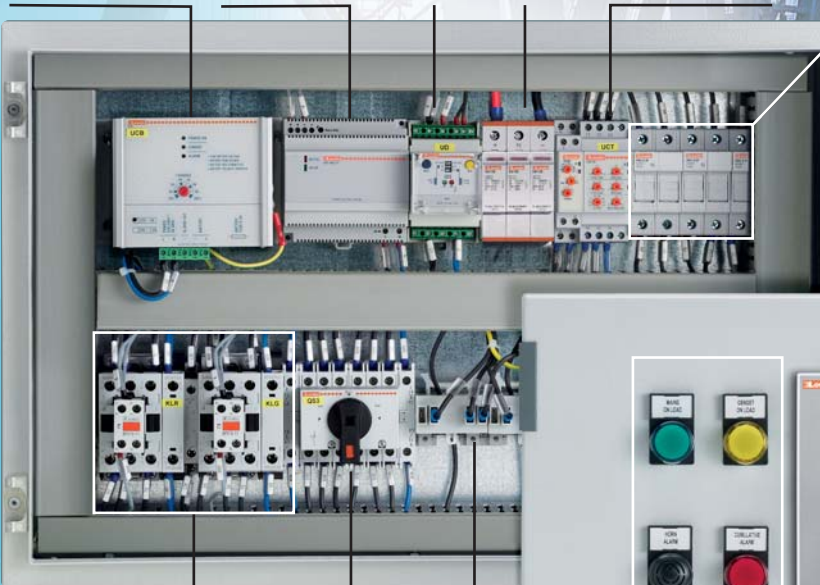
Automatic switching battery chargers

Earth leakage relays

Surge protection devices

Protection relays

Fuse holders and MCBs



Contactors

Switch disconnectors

Current transformers

Generating set and engine protection controllers

Measuring instruments



Control and signalling units

Rotary cam switches

CONTACTORS

- ▶ Four-pole versions up to 1600A in AC1 duty
- ▶ Three-pole versions up to 630A in AC3 duty
- ▶ Four-pole versions with 2NO+2NC or 4NC
- ▶ AC or DC control versions.



CONTROL AND SIGNALLING UNITS

- ▶ **Push buttons and selectors**
 - Simple and snap on installation
 - Highly conductive contacts
 - High degree of protection per IEC IP66, IP67, IP69K and UL type 4X.
- ▶ **Ø70mm signal towers**
 - Modular and combinations up to 7 modules
 - Steady or blinking light, flash, pulsed or continuous sound.
- ▶ **Ø62mm signal beacons**
 - Steady and blinking light, pulsed and continuous sound.



SOLUTIONS FOR G

ROTARY CAM SWITCHES

- ▶ 16A to 125A ratings
- ▶ Suitable for motor starting, circuit connection, changeover, switching on and off
- ▶ Custom circuit schemes available
- ▶ Versions in housing.



SWITCH DISCONNECTORS

- ▶ 16A to 1600A ratings
- ▶ Versions: direct operating, door coupling and in housing
- ▶ Manual and motorised line changeover (O-I-II) switches
- ▶ Wide range of accessories.



FUSE HOLDERS

- ▶ Modular concept for 10x38, 14x51 and 22x58 fuse sizes
- ▶ IP20 protection degree, finger safe and sealable cover to increase user's safety
- ▶ Version with status indicator to quickly identify the fuse to replace
- ▶ UL and CSA certified versions.



MINIATURE AND RESIDUAL CIRCUIT BREAKERS

- ▶ High breaking capacity
- ▶ Various trip characteristic curves: type B, C and D
- ▶ 1 to 125A current range
- ▶ Accessories available
- ▶ UL approved versions.



SURGE PROTECTION DEVICES

- ▶ Protection against overvoltage and high surge conditions caused by direct or indirect lightning strikes
- ▶ Types with plug-in cartridge provide fast servicing capability
- ▶ Mechanical indicator for visual failure status signalling of single modules
- ▶ Versions with or without output for remote SPD status indication.



EARTH LEAKAGE RELAYS

- ▶ Modular, flush and internal panel mount versions, with or without indicator, configurable pre-alarm indication and fail-safe output
- ▶ Versions with automatic toroid connection control
- ▶ Choice of supply voltage ranges
- ▶ Adjustable $I_{\Delta n}$ fault current
- ▶ Choice and adjustment of tripping range for both current and delay time.



PROTECTION RELAYS

- ▶ Modular versions, also for 35mm DIN rail fixing
- ▶ Minimum and maximum voltage monitoring relays for single and three-phase systems, with or without neutral
- ▶ Voltage monitoring relays for asymmetry, phase loss and phase sequence control
- ▶ Minimum and maximum current monitoring relays
- ▶ Frequency monitoring relays
- ▶ Phase shift control relays.



CURRENT TRANSFORMERS

- ▶ Primary current: 50-4000A
- ▶ Solid and split core versions
- ▶ Secondary current: 5A.



AUTOMATIC BATTERY CHARGERS

- ▶ Switching and linear technology
- ▶ 1 charging level
- ▶ Versions for non-sealed and sealed lead-acid batteries, 1.25 to 12A ratings
- ▶ Charging current limitation selectable.



GENERATING SETS

AUTOMATIC TRANSFER SWITCH CONTROLLERS

- ▶ Supervision of two three-phase supply lines
- ▶ Emergency demand supervision for standby generating set
- ▶ Control of contactors, motorised circuit breakers or motorised changeover switches
- ▶ Event logging
- ▶ TRMS measurements of voltage values
- ▶ Remote control and supervision
- ▶ Front optical port
- ▶ Expandability
- ▶ Modbus-RTU and Modbus-ASCII communication protocols
- ▶ Real time clock
- ▶ Dual power supply module.



SOFTWARE AND APPLICATIONS

- ▶ **Synergy** is a web-based, multi-client software for energy management
 - 3 level multi-client web access
 - Simultaneous control of multiple communication channels.
- ▶ **Sam1** is an APP to view alarms, send commands, read measurements, set parameters, download events and send data via e-mail
 - iOS and Android compatible.

Synergy



Sam1



ENGINE AND GENERATOR CONTROLLERS

▶ Engine protection

- Can be used on any machine with internal combustion engine (generators, engine driven pumps and farm equipment, etc.)
- Control of essential signals by digit inputs (oil pressure, temperature, etc.)
- Programmable inputs and outputs
- Battery charger control
- RPM control
- Programmable alarms
- Indication by LED and/or display
- Versions with/without built-in key operation
- Programmable remote starting function.



▶ Stand-alone

- Application on mobile or rental generators, at construction sites or used with external transfer switches
- Built-in engine protection functions, both digital and/or analog
- Complete generator monitoring of electrical measurements, in various systems (single, two and three phase)
- Programmable inputs and outputs
- Wide choice of configurable functions
- Programmable alarms
- Available remote supervision and remote event signalling
- Communication interface (RS232, RS485, CAN).



▶ AMF

- Application on stand-by generating sets
- Built-in engine protection functions, both digital and/or analog
- Built-in load changeover control
- Programmable periodical testing
- Complete mains and generator of electrical measurements in various systems (single, two and three phase)
- Programmable inputs and outputs
- Extensive choice of configurable functions
- Programmable alarms
- Available remote supervision and alarm/event messaging
- Communication interface (RS232, RS485, CAN).



▶ Paralleling controllers for mains-generator and generator-generator

- Mains-generator "closed transition" synchronising
- Mains-generator load sharing with source peak demand control
- Generator paralleling supervision (island mode with load sharing)
- Built-in engine protection functions, both digital and/or analog
- Built-in load changeover control
- Programmable periodical testing
- Complete mains and generator of electrical measurements in various systems (single, two and three phase)
- Programmable inputs and outputs
- Extensive choice of configurable functions
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- Available remote supervision and alarm/event messaging
- Communication interface (RS232, RS485, CAN).



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LOVATO Electric products are available in over 100 countries through its distributors

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