
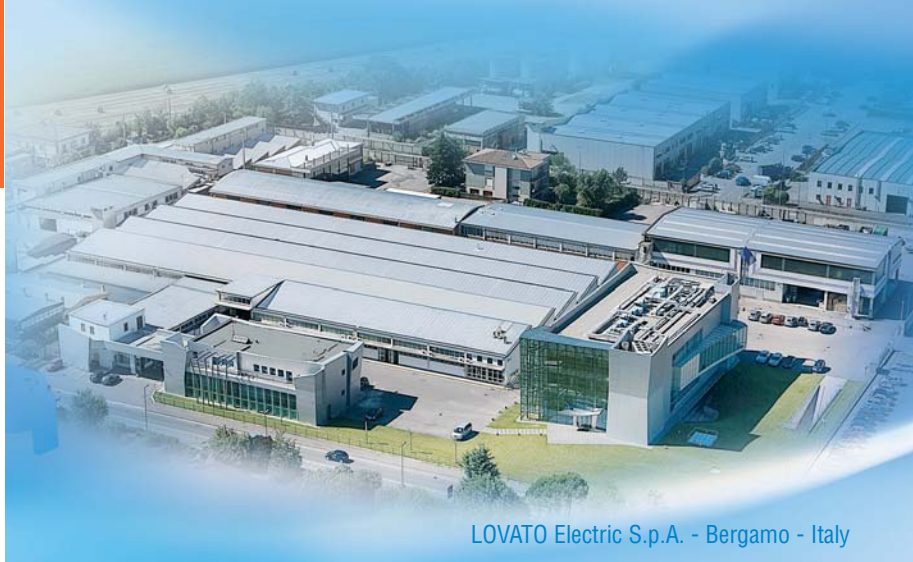


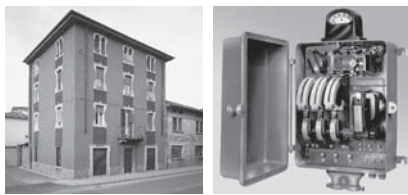
# Products and solutions for generating sets

  
**electric**  
*100% electricity*



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

## Tradition and Innovation



### Since 1922

The first LOVATO Electric headquarters founded in Bergamo 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.



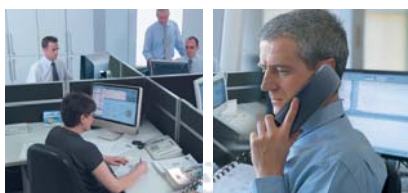
### Most advanced manufacturing facilities

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

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

**Lovato**  
United Kingdom  
LOVATO (UK) LTD

**Lovato**  
Germany  
DELTEC LOVATO GmbH

**Lovato**  
Spain  
LOVATO ELECTRIC S.L.U.

**Lovato**  
Poland  
LOVATO ELECTRIC SP. Z O.O.

**Lovato**  
Czech Republic  
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**Lovato**  
USA  
LOVATO ELECTRIC INC

**Lovato**  
Canada  
LOVATO ELECTRIC CORPORATION

**Lovato**  
Mexico  
LOVATO ELECTRIC DE MEXICO, S.A. DE C.V.

# PRODUCTS AND SERVICES

Automatic linear battery chargers

Automatic switching battery chargers

Earth leakage relays

Protection relays

Fuse holders



Generating set and engine protection controllers

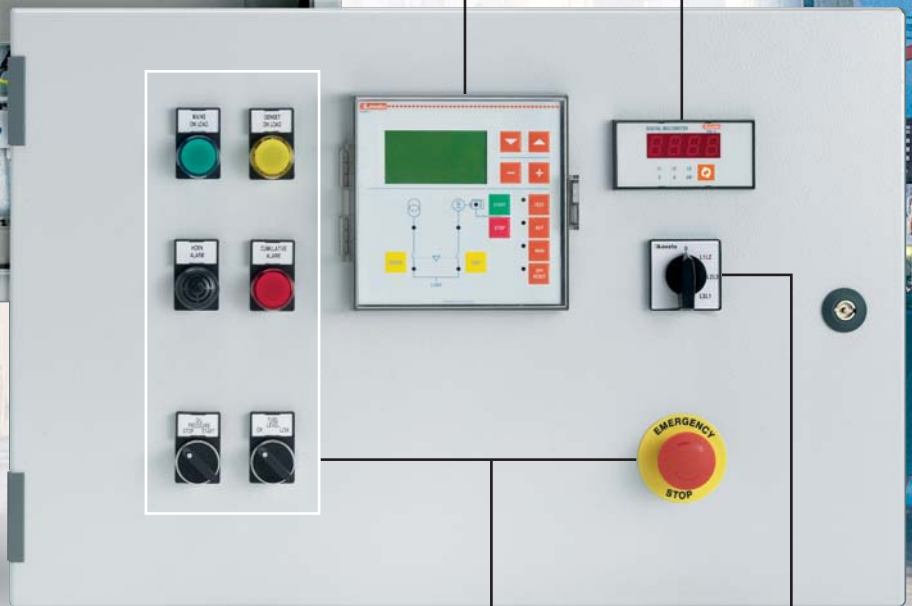
Measuring instruments



Contactors

Switch disconnectors

Current transformers



Control and signalling units

Rotary cam switches

## 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.



## 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.



# SOLUTIONS FOR G

## CONTROL AND SIGNALLING UNITS

- ▶ **Ø22mm push buttons and selectors**
  - Metal and plastic, quick installation by simple rotation
- ▶ **E-stops and pilot lights**
  - Metal and plastic, quick installation by simple rotation
- ▶ **Ø62mm signal beacons**
  - Steady and blinking light, pulsed and continuous sound.



## ROTARY CAM SWITCHES

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



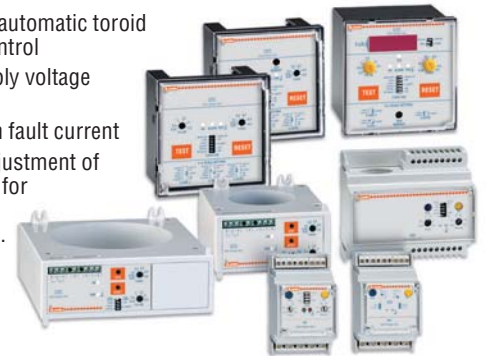
## PROTECTION RELAYS

- ▶ 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.



## EARTH LEAKAGE RELAYS

- ▶ Modular, flush and internal panel mount versions, with or without flag 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.



## 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.



## CURRENT TRANSFORMERS

- ▶ Primary current: 40-4000A
- ▶ Solid and split core versions
- ▶ Secondary current: 5A.



## AUTOMATIC BATTERY CHARGERS

- ▶ 1 charging level
- ▶ Linear or switching technology
- ▶ For 1.25A to 12A rated lead-acid batteries
- ▶ Configurable charging current limitation.



# GENERATING SETS

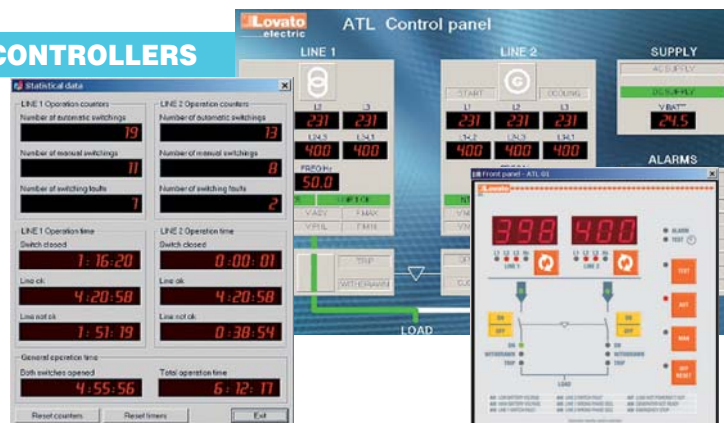
## AUTOMATIC TRANSFER SWITCH CONTROLLERS

- Supervision of two three-phase supply lines
- Emergency demand supervision for stand-by generating set
- Control of contactors, motorised circuit breakers or motorised changeover switches
- Event logging
- TRMS measurements of voltage values
- Remote control and supervision
- RS232 and RS485 ports
- Modbus®-RTU and Modbus®-ASCII communication protocols
- Real time clock.



## SOFTWARE FOR AUTOMATIC TRANSFER SWITCH CONTROLLERS

- Measurement viewing of 2 sources
- Status viewing of transfer equipment
- Controller power supply and alarm status
- Set-up data programming with save/load/print capability of parameter settings
- Data and event viewing and printout
- Statistical data viewing
- Real time clock programming
- Virtual front panel viewing with key activation feature
- Analog and GSM modem support
- Automatic function for SMS or email messaging.



## GENERATING SET AND ENGINE PROTECTION 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).



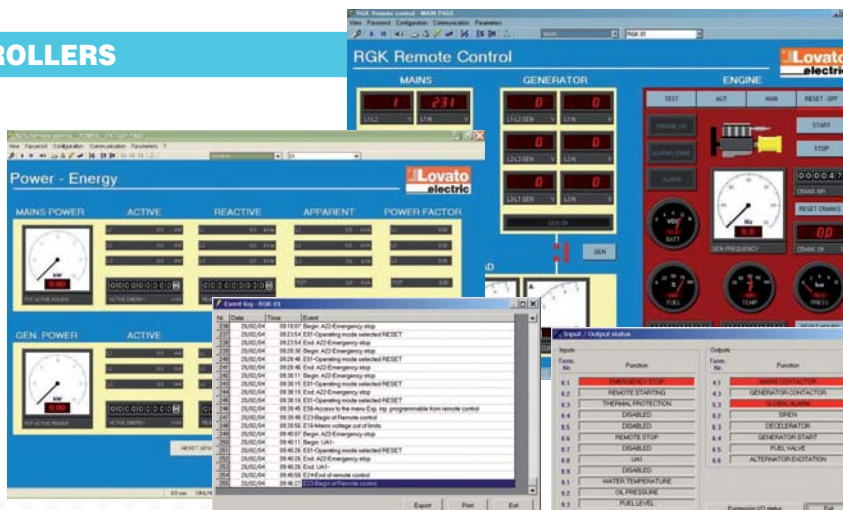
### AMF

- 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).



## SOFTWARE FOR GENERATING SET CONTROLLERS

- Can be utilised by end-users or technical and service staff to monitor generator status
- Graphic display of all measurements
- Event log viewing with time stamp
- Central viewing of alarm status data collection
- Input/output status page
- Data recording
- User customisable pages
- Remote control by various interface:
  - RS232
  - GSM modem-analog modem
  - RS485
  - Ethernet - TCP/IP
- Simultaneous supervision available for more than one generating set
- Customisable page configured with different icons to view current status of generators
- Automatic function for SMS or email messaging.





Present in over 100 countries

[www.LovatoElectric.com](http://www.LovatoElectric.com)

**LOVATO ELECTRIC S.P.A.**

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