



ENERGY AND AUTOMATION



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electric

MOTOR PROTECTION AND CONTROL

MOTOR PROTECTION CIRCUIT BREAKERS

- Wide adjustment range 0.1 to 100A
- IEC breaking capacity Icu 50kA (400V) up to 100A
- Comprehensive line of accessories
- High reliability and accuracy of tripping.



CONTROL AND SIGNALLING

PUSHBUTTONS AND SELECTOR SWITCHES

- Simple and snap on installation
- Highly conductive contacts
- High degree of protection per IEC IP66, IP67, IP69K and UL type 4X.



CIRCUIT PROTECTION AND ISOLATION

SWITCH DISCONNECTORS

- 16A to 1600A ratings
- Versions: direct operating handle, door coupling and in housing
- Wide range of accessories
- Types for photovoltaic applications up to 850A (1000VDC, DC21-B)
- Changeover switches in non-metallic enclosure.



AUTOMATION AND CONTROL

TIME RELAYS

- Modular version for modular-slot switchboards
- DIN mount version
- Plug-in or flush-mount version.



ENERGY MANAGEMENT

METERING INSTRUMENTS AND CURRENT TRANSFORMERS

- Digital voltmeters, ammeters, wattmeters, frequency meters and cosphi meters
- Digital multimeters and power analyzers, expandable, with graphic LCD
- Connection to single, two, three phase systems
- Totally programmable digital outputs
- RS485, RS232, USB, Ethernet, Profibus DP serial interface for remote control and data-logger.



CONTACTORS

- Versions:
 - Three-pole up to 630A in IEC AC3 duty
 - Four-pole up to 1600A in IEC AC1 duty
 - For power factor correction up to 60kvar at 400VAC
 - Four-pole with 2NO+2NC or 4NC main poles
 - Low-consumption with DC control circuit for control relays and 9-38A contactors in IEC AC3 duty.



MOTOR PROTECTION RELAYS

- Thermal overload relays for currents between 0.09 and 420A
- Phase failure sensitive and non phase failure sensitive versions
- Automatic and/or manual resetting
- Thermistor protection relay.



SIGNAL TOWERS AND BEACONS

SIGNAL TOWERS Ø70MM

- Modular and combinations up to 7 modules
- Steady or blinking light, pulsed or continuous sound modules.

SIGNAL BEACONS Ø62MM

- Steady or blinking light, pulsed or continuous sound modules.



LIMIT, MICRO AND FOOT SWITCHES

LIMIT SWITCHES

- Dimensions to EN 50047 standards
- Dimensions compatible to EN 50041 standards
- Extensive range of operating heads
- IP67 prewired limit switches.



FUSE HOLDERS AND FUSES

- Modular size for 10x38, 14x51 and 22x58mm fuses
- Version with status indicator to quickly determine if the fuse is still operative or needs to be replaced
- UL and CSA certified versions.



MINIATURE CIRCUIT BREAKERS

- High breaking capacity
- Different tripping curves: B, C or D type
- Wide range of current 1 to 125A
- Differentials with type A and AC
- UL approved versions.



PROTECTION RELAYS

- Minimum and maximum voltage monitoring relays for single and three-phase systems, with or without neutral
- Voltage asymmetry, phase sequence and phase loss control relays
- Minimum and maximum current monitoring relays
- Frequency monitoring relay
- Voltage and frequency control relay.



LEVEL CONTROL RELAYS

- For electrically conductive liquids
- Modular and plug-in versions
- Adjustable 2.5-200kΩ sensitivity
- Single and three-pole electrodes
- Startup priority change relays.



POWER FACTOR CONTROLLERS AND THYRISTOR MODULES

- Versions with 2, 3, 5, 7, 8, 12, 14 and 16 steps
- Versions with static outputs
- Use in co-generation and medium-voltage systems
- USB, serial and Ethernet communication interface
- ASCII and MODBUS-RTU communication protocols
- Thyristor modules for dynamic correction.



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
- Microprocessor remote control and supervision
- Front optical port
- Dual power supply module.



ELECTROMECHANICAL STARTERS

- Direct-on-line starters in non-metallic enclosure complete with or without thermal relay
- Reversing and changeover contactor assemblies
- Star-delta starters, open frame and in non-metallic enclosure versions.



SOFT STARTERS

- 12A to 1200A starter ratings
- Standard and severe-duty types
- Internal by-pass contactor up to 245A rating
- Torque ramp starting
- Total motor protection incorporated
- Digital control and adjustment
- RS232 and RS485 serial ports for remote supervision and control.



MICRO SWITCHES

- Polymer thermoplastic housing
- Changeover contact switch.



FOOT SWITCHES

- Version with or without protection cover
- Self-extinguishing polymer thermoplastic housing
- Aluminium-zinc alloy housing.



ROTARY CAM SWITCHES

- Suitable for circuit connection, changeover, switching on and off as well as motor starting
- Possibility of special circuit schemes
- IEC IP40 or IP65 front degree of protection
- Wide range of features.



SURGE PROTECTION DEVICES

- Types with plug-in cartridges provide fast servicing capability
- Mechanical indicator for visual failure status signalling of single modules
- Versions with or without contact type of remote SPD status indicator signalling
- Versions for photovoltaic applications.



MODULAR CONTACTORS

- Two, three and four-pole versions, 20A to 63A
- Very silent during operation or control stage
- Operation flag indicator
- Add-on auxiliary contacts.



MICRO PLCs

- 10, 12 and 20 Input-Output base units
- Expansion modules with 4 digital Inputs and 4 digital Outputs
- Expansion modules with analog Inputs-Outputs
- Modbus[®]-RTU communication module
- RS232 serial interface port for PC, HMI operator panel or program backup memory connection.



SWITCHING POWER SUPPLIES

- Versions: modular and 35mm DIN rail mount
- Output voltage adjustment by front potentiometer
- Short-circuit protection
- Built-in input voltage surge suppressor.



ENGINE AND GENERATOR CONTROLLERS

- Engine protection controllers
- Stand alone gen-set controllers
- Auto mains failure (AMF) gen-set controllers
- Paralleling controller for mains-generator and generator-generator
- Optical front port
- Expandable with inputs, outputs and communications interface (RS232, RS485, Ethernet, etc.)



SOFTWARE AND APPLICATIONS

- **Synergy** is a web-based, multiclient software for energy management
- 3 level multiclient 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.



AC MOTOR DRIVES

- Versions for single-phase up to 2.2kW / 3HP and three-phase up to 630kW / 1000HP
- Special function for pump and fan control using PID algorithm
- Active earth leakage protection
- EMC suppressor built in all versions
- Selectable motor control mode: V/f, vector, energy saving.



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ENERGY AND AUTOMATION

EARTH LEAKAGE RELAYS

- Modular, flush and internal panel mount version, with or without flag indicator, configurable prealarm indication and fail safe operation
- Versions with automatic toroid connection control.



AUTOMATIC BATTERY CHARGERS

- Switching or linear technology
- 1 charging level
- For sealed and non sealed lead-acid batteries
- 1.25 to 12A ratings
- Charging current limitation selectable.



EXPANSION MODULES AND ACCESSORIES

- Digital inputs and outputs
- Analog inputs and outputs
- Communication interface (RS232, RS485, Ethernet, Profibus-DP, etc.)
- Data storage with clock-calendar
- GPRS/GSM modem
- Communication devices to connect LOVATO Electric products to personal computers, smartphones and tablets.



Machine builders
(OEM)



Pumping, irrigation
and piping



Power factor
correction



Lifting systems



Photovoltaics



Generating sets



Electric power
distribution



Energy management