

- ◆ *Level monitoring for electrically conductive liquids*
- ◆ *Modular version*
- ◆ *Adjustable 2.5-200kΩ sensitivity*
- ◆ *Startup priority change relays.*



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Modular single-voltage relay



LVM20

Control power	Type of output contacts	Catalog number	Price
[V] 50/60Hz			\$ each
Automatic resetting.			
24VAC	SPDT	LVM20 A024	108.00
110-127VAC	SPDT	LVM20 A127	108.00
220-240VAC	SPDT	LVM20 A240	108.00
380-415VAC	SPDT	LVM20 A415	108.00

Operational characteristics

- 3 sensing electrodes, MIN, MAX and COM
- 2.5-50kOhm sensitivity
- 1 relay output with SPDT contact
- Double insulation between supply, electrodes and output relay circuit
- Fixed probe signal delay: <1 second
- Green LED indicator for power on
- Red LED indicator for output relay state
- Modular housing, 1.38in (35mm) wide
- Degree of protection: IP40 on front (only when mounted in housing or electric board with IP40); IP20 on terminals.

Certifications and compliance

UL listed for USA and Canada, File E93601.
Compliant with standards: IEC/EN 60255-6, IEC/EN 61000-6-2, IEC/EN 61000-6-3.

Electrodes and Electrode holders

Use electrodes and electrode holders type: SN1/PS31/PS3S/SCM/CGL or similar type. See page 12-4.

Modular multi-voltage relay



LVM25

Control power	Type of output contacts	Catalog number	Price
[V]			\$ each
Filling or emptying function. Automatic resetting.			
24-48VAC/DC	SPDT	LVM25 024	127.00
110-240VAC/DC	SPDT	LVM25 240	127.00

Operational characteristics

- 3 sensing electrodes, MIN, MAX and COM
- 2.5-100kOhm sensitivity
- Insensitivity to stray electrode-cable capacitance
- Programming selector for emptying or filling function with fail-safe operation
- 1 relay output, with SPDT contact
- Double insulation between each supply, electrode and output relay circuit
- Fixed probe signal delay: <1 second
- Green LED indicator for power on
- Red LED indicator for output relay state
- Modular housing, 0.69in (17.5mm) wide
- Degree of protection: IP40 on front (only when mounted in housing or electric board with IP40); IP20 at terminals.

Certifications and compliance

UL listing for USA and Canada pending completion.
Compliant with standards: IEC/EN 60255-6, IEC/EN 61000-6-2, IEC/EN 61000-6-3.

Electrodes and Electrode holders

Use electrodes and electrode holders type: SN1/PS31/PS3S/SCM/CGL or similar type. See page 12-4.

Modular dual-voltage relay



LVM30

Control power	Type of output contacts	Catalog number	Price
[V] 50/60Hz			\$ each
Filling or emptying function. Automatic resetting.			
24/220-240VAC	DPDT	LVM30 A240	140.00
110-127VAC / 380-415VAC	DPDT	LVM30 A415	140.00

Operational characteristics

- 3 sensing electrodes, MIN, MAX and COM
- 2.5-50kOhm sensitivity
- Programming selector for emptying or filling function with fail-safe operation
- 1 relay output, with DPDT contacts
- Double insulation between each supply, electrode and output relay circuit
- Adjustable probe signal delay: 1-10 seconds
- Adjustable pump start delay: 0-300 seconds
- Green LED indicator for power on
- Red LED indicator for output relay state
- Modular housing, 2.07in (52.5mm) wide
- Degree of protection: IP40 on front (only when mounted in housing or electric board with IP40); IP20 on terminals.

Certifications and compliance

UL listed for USA and Canada, File E93601.
Compliant with standards: IEC/EN 60255-6, IEC/EN 61000-6-2, IEC/EN 61000-6-3.

Electrodes and Electrode holders

Use electrodes and electrode holders type: SN1/PS31/PS3S/SCM/CGL or similar type. See page 12-4.

Modular single-voltage multifunction relay



LVM40

moduLo

Control power	Type of output contacts	Catalog number	Price
[V] 50/60Hz			\$ each
Multiple functions. Automatic resetting.			
24VAC	SPDT + 1 N/O	LVM40 A024	265.00
110-127VAC	SPDT + 1 N/O	LVM40 A127	265.00
220-240VAC	SPDT + 1 N/O	LVM40 A240	265.00
380-415VAC	SPDT + 1 N/O	LVM40 A415	265.00

Operational characteristics

- 5 sensing electrodes, MIN1, MAX1, MIN2, MAX2 and COM
- 2.5-200kOhm sensitivity
- Sensitivity adjustment: 25-50-100-200kOhm
- Separate sensitivity adjustment of MAX electrodes for foam detection
- Insensitivity to stray electrode-cable capacitance
- Programming selector for 5 different functions:
 - Standard emptying and filling with alarms
 - Emptying and filling with SUPER-MIN and/or SUPER-MAX relay
 - Emptying and filling with priority start-up change control
 - Emptying and filling with priority start-up change pump and standby pump control
 - Well draining and tank filling with dry-running alarm relay
- 2 relay outputs, one with SPDT contact and one with normally open (N/O) contact
- Double insulation between each supply, electrodes and output relay circuits
- Adjustable probe signal delay: 1-10 seconds
- Adjustable pump start delay: 0-30 minutes
- Green LED indicator for power on
- Red LED indicators for output relay and electrode state
- Modular housing, 2.07in (52.5mm) wide
- Degree of protection: IP40 on front (only when mounted in housing or electric board with IP40); IP20 on terminals.

Certifications and compliance

UL listed for USA and Canada, File E93601.
Compliant with standards: IEC/EN 60255-6.

Electrodes and Electrode holders

Use electrodes and electrode holders type: SN1/PS31/PS3S/SCM/CGL or similar type. See page 12-4.

Electrodes and electrode holders



11 SN1



31 SCM...



31 CGL125...



31 PS31



31 PS3S

Rod probe length	Rod probe included	Catalog number	Price
[in / mm]			\$ each
Single-pole electrodes. For wells and storage tanks.			
0.39 / 10	Yes	11 SN1	25.00
For boilers and autoclaves.			
1.57 / 40	Yes	31 SCM 04	61.00
19.7 / 500	Yes	31 SCM 50	106.00
39.4 / 1000	Yes	31 SCM 100	111.00
For boilers and autoclaves.			
15.75 / 300	Yes	31 CGL125 3	126.00
19.7 / 500	Yes	31 CGL125 5	136.00
27.6 / 700	Yes	31 CGL125 7	152.00
39.4 / 1000	Yes	31 CGL125 10	176.00
Three-pole electrodes. For small containers.			
15.75 / 300	Yes	31 PS31	96.00
Electrode holder for 3 rod probes. For general use.			
31 PS3S	No	31 PS3S	122.00

General characteristics

SN1 SINGLE-POLE ELECTRODE

Used for level control in wells and storage tanks.

It comprises an AISI 313 stainless steel probe, a plastic (PPOX) holder and a cable gland.

A sealing ring and the tightening of the cable gland prevent liquid from entering the wire terminal connector which causes oxidation.

The external wire diameter must be 0.1-0.24in (2.5-6mm) to warrant perfect sealing of the PG7 gland

Terminal connection: Screw

Maximum operating temperature: +140°F/+60°C

Application: Tanks and deep wells.

SCM ELECTRODE

Used for level control on boilers, autoclaves and in general where pressure (10 bar maximum) and high temperature (212°F/100°C maximum) are present.

It includes an AISI 303 stainless steel probe embedded in an alumina oxide body and a 3/8" GAS threaded metal support holder.

Terminal connection: Screw.

Application: Tanks, pressurized tanks and boilers.

CGL125 ELECTRODE

Used for level control on boilers and autoclaves and in general wherever pressure is up to 10 bar maximum.

It includes an AISI 302 probe and 3/8" threaded terminal.

Maximum operating temperature: 356°F/+180°C

Threaded rod and nut.

Application: Tanks, pressurized tanks and boilers.

PS31 Electrode

A small electrode holder, complete with three AISI 304 stainless steel probes.

Particularly suited to small containers whenever pressure is up to 2 bar maximum.

1/2" GAS threaded coupling.

Faston termination for wire connection; relative lugs standard supplied.

Maximum operating temperature: +158°F/+70°C

Application: Tanks and automatic dispensers.

PS3S ELECTRODE HOLDER

A thermoset resin electrode holder to be used with three probes (rod probes to be purchased separately) comes complete with terminal cover.

1/2" GAS threaded coupling.

Maximum operating temperature: +212°F/+100°C.

Wire connection: Screw

Application: Tanks.

Rod probes

Rod probe length	Catalog number	Price
[in / mm]		\$ each
Extensions for SCM electrode.		
18.1 / 460	31 ASTA 460 MM4	30.00
37.8 / 960	31 ASTA 960 MM4	35.00
Coupler unit for ASTA...MM4 probe extension.		
-	31 RE213	6.00
For PS3S electrode holder.		
18.1 / 460	31 ASTA 460 MM6	37.00
37.8 / 960	31 ASTA 960 MM6	43.00

General characteristics

Stainless steel AISI 304 probes with 4M or 6M threaded extremity suitable as extensions for SCM electrode or as rod probe for PS3S a holder.

Modular start-up priority change relays



moduLo

LVM P05



moduLo

LVM P10

Control power	Type of output contacts	Catalog number	Price
[V]			\$ each
2 outputs. AC/DC supply voltage.			
24-48VDC 24-240VAC	2 N/O	LVM P05	116.00
2 outputs. AC supply voltage.			
24VAC	2 N/O	LVM P10 A024	133.00
110-127VAC	2 N/O	LVM P10 A127	133.00
220-240VAC	2 N/O	LVM P10 A240	133.00
390-415VAC	2 N/O	LVM P10 A415	133.00

General characteristics

The relays are designed to balance the operating time, and hence the wear of pumps, compressors, generators, when two units – primary and stand-by – are installed. The LVM P05 type is multivoltage and has simple operation and installation. It alternates the starting of two motors at each power up. The flashing rate of the relay LED identifies which of the two relay outputs is energized. The LVM P10 is programmable and is normally used with float switches, level controls, pressure switches, etc., equipped with dry contacts. It can be connected to either 2 or 3-wire start-stop motor control, to exclude control contact chattering when used with float or pressure switches.

It has 4 inputs for motor control, 2 of which for starting and 2 for stopping, each protected against over-voltage conditions. Usage can be either as priority change of 2 motors or the control for the simultaneous operation of 2 motors, by activating the stand-by motor 4 seconds after the first motor starting, to avoid current peaks and subsequent mains voltage drop.

Operational characteristics

- Operating limit: 0.85-1.1 U_e
- Maximum power consumption: 16VA for LVM P05; 3.5VA for LVM P10
- Maximum power dissipation: 0.9W for LVM P05; 1.8W for LVM P10
- Connection: permanent
- 2 output relays each with 1 normally open (N/O) contact
- Rated contact voltage: 250VAC
- Rated switching voltage: 400VAC
- UL designation: B300 (AC1 8A 250V)
- Green LED indicator for power on
- Red LED indicators for output relay state
- Modular housing: 0.71in (18mm) wide for LVM P05; 2.07in (52.5mm) wide for LVM P10
- Degree of protection: IP40 on front (only when mounted in housing or electric board with IP40); IP20 on terminals.

Certifications and compliance

UL listed for USA and Canada, File E93601.
Compliant with standards: IEC/EN 60255-6.



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SINGLE PHASE DIGITAL INSTRUMENTS

- Modular and flush-mount types
- Single function voltmeter
- Single function ammeter
- Single function voltmeter or ammeter
- Single function frequency meter
- Single function cosphi meter
- Available without or complete with programmable relay output for protection activation.

THREE PHASE DIGITAL INSTRUMENTS

- Modular and flush-mount types
- Single function voltmeter
- Single function ammeter
- Multifunction: voltage, current, watt readouts
- Available without or complete with programmable relay output for protection activation.



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DIGITAL MULTIMETERS

- DMK 2... - DMK 5... (47 electric parameters)
- Basic version: DMK 20 - DMK 50
 - Version with energy meters: DMK 21 - DMK 51
 - Version with energy meters and RS485 port: DMK 22 - DMK 52
 - Version for use with generating sets: DMK 25 - DMK 55.
- DMK 3... - DMK40 - DMK 6... (251 electric parameters)
- Basic version: DMK 30 - DMK 60
 - Version with 2 programmable outputs: DMK 31 - DMK 61
 - Versions with 2 programmable outputs and RS485 port: DMK 32 - DMK 62
 - Version with data-logger, RS232 and RS485 ports: DMK 40.



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CURRENT TRANSFORMERS

- Primary: 40-1000A
- Secondary: 5A.

MULTIMETER FUNCTIONS SUMMARY	96x96mm housing → Modular housing →	DMK 25	DMK 26	DMK 20 DMK 50	DMK 21 DMK 51	DMK 22 DMK 52	DMK 30 DMK 60	DMK 31 DMK 61	DMK 32 DMK 62	DMK 40
Usage in medium and high voltage systems										
INSTANTANEOUS MEASUREMENTS:										
Instantaneous measurements:										
Voltage (phase-to-phase, phase, system)										
Current ①		•	•	•	•	•	•	•	•	•
Apparent power (phase, system)		•	•	•	•	•	•	•	•	•
Active-reactive import power (phase, system)										
Frequency (input voltage)										
Power factor (phase)										
cosφ										
Active-reactive export power (phase, system), system integral apparent power							•	•	•	•
Battery supply voltage		•	•							
Voltage imbalance			•							
Current imbalance						• ②				
HARMONIC ANALYSIS										
Even-odd, 2° to 22° orders, of phase voltages and currents							•	•	•	•
Total and residual distortion										
METER/COUNTER										
Imported active-reactive energy power					•	•	•	•	•	•
Exported active-reactive energy power							•	•	•	•
Total and partial operating hours		•	•	•						
STORAGE OF INSTANTANEOUS MINIMUM AND MAXIMUM VALUES										
Voltage and current (phase)		•	•	•	•	•	•	•	•	•
Import active-reactive power (system)		•		•	•	•	•	•	•	•
Export active-reactive power (system)							•	•	•	•
Average/maximum integral active-apparent power							•	•	•	•
DIGITAL OUTPUTS										
1 relay, rated B300/5A 250V AC1								•	•	
1 static, rated 55mA 60VAC/DC AC1										
SERIAL INTERFACE										
RS485 port						•			•	• ③
RS232 port										• ③

① Maximum integral phase, system and imbalance current values obtainable with DMK SW remote control software only.
 ② Available with use of DMK SW remote control software only. ...
 ③ Serial ports cannot be used simultaneously.

- ◆ Metering instruments for voltage, current, frequency, power factor and watt readouts, also including a variety of programmable protections features available on version with relay output
- ◆ Single and multi function metering devices
- ◆ Monitor and measure of 47, 51 and 251 electric parameters
- ◆ Single and three-phase connection
- ◆ Ideal for co-generation energy systems, stand-by generating sets or on-board machine tools
- ◆ High measurement accuracy
- ◆ Totally programmable digital outputs
- ◆ RS485 serial port used with Modbus® RTU or ASCII protocols.



PLANET - LOGIC

Digital metering instruments

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Single-phase modular instruments, without or complete with output relay	13-	2
Three-phase modular instruments, without or complete with output relay	13-	4

Digital multimeters

51 measurements - flush-mount three-phase type	13-	6
47 measurements - flush-mount and modular types	13-	7
251 measurements - flush-mount and modular types	13-	8

