Light Stream Relay 3 LITE

Product datasheet

Three-channel relay module for heavy-duty loads, DIN rail mount, RS-485 (Modbus RTU), part number LS-Relay 3. Light Stream Relay 3 LITE switches heavy-duty loads — outlet groups, motors, heaters — on and off without intermediate contactors: three independent outputs up to 20 A (4.5 kW) each. It is controlled over RS-485 (Modbus RTU) and directly from standard switches via four dry-contact inputs. It can control a curtain drive, works on timers, and automatically switches to a safe mode if communication is lost.



Features

Three heavy-duty 20 A outputs

Each output switches up to 20 A (4.5 kW), with inrush current up to 80 A. Outlets, motors, heaters, and water heaters connect directly, without contactors.

Independent channels

The outputs have no common groups or shared wiring: each one can be fed from its own line with its own circuit breaker rated up to 16 A.

Curtain drive control

Two outputs are combined to control a curtain drive. The module prevents "Open" and "Close» from being switched on at the same time and automatically enforces a pause when the direction changes

Scenario buttons

The module distinguishes short press, long press, double press, and "short then long" press. Each can be assigned its own action.

Timers

For each output: on or off delay, timed on or off, cyclic switching.

Grid and load protection

After power-up, the outputs turn on one after another so as not to overload the line with inrush currents. A reconnect delay protects compressors and pumps from frequent starts.

"Turn everything off"

A single switch can de-energize all outputs at once — for example, one placed at the entrance door.

Safe mode

If communication with the system is lost, the outputs automatically switch to a preset state, and control can be handed over to the switches. When communication is restored, the module resumes normal operation.

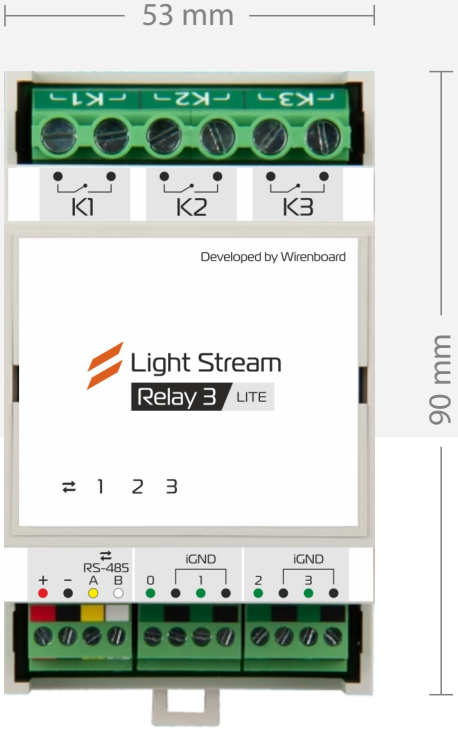
Works with standard switches

Switches and push-buttons connect to the four inputs. The load can be switched on from the switch even if the controller is unavailable.

Pulse and frequency counting

The inputs count pulses and measure frequency up to 5 kHz.

Dimensions



Technical specifications

Ergonomics

Mounting	35 mm DIN rail
Overall dimensions (W × L × H)	53 mm • 90 mm • 58 mm
Weight (with box)	175 g
Indication	S — Modbus communication; separate output status indicators

Outputs

Number of outputs	3, mechanical relays, normally open (C and NO), independent
Switching voltage	up to 250 V AC, up to 30 V DC
Rated current per output (230 V AC)	20 A
Maximum current per output (230 V AC)	26 A
Inrush current (20 ms, 230 V AC)	up to 80 A
Contact resistance	less than 100 Om
Coil-to-contact insulation	4500 V AC (1 min)
Insulation between open contacts	2500 V AC (1 min)
Contact life	30,000 switching cycles at 20 A / 230 V AC
Power-up turn-on delay	0–999 s, per output
Reconnect delay	0–999 s, per output

Inputs

Number of inputs	4 (0–3), dry contact, common iGND terminal
Input voltage / current	~12 V DC / ~2 mA when closed
Permissible voltage	–20 to +40 V
Pulse frequency	up to 10 Hz by default, up to 5 kHz without debounce suppression
Press types	short, long, double, "short then long»

Interfaces

Control interface	RS-485, no galvanic isolation
Power and RS-485 terminals	V+, GND, A, B; 3.5 mm pitch
Wire cross-section with ferrule, inputs	0.35–1 mm^2 (two wires in one ferrule — 0.35–0.5 mm^2)
Wire cross-section with ferrule, power terminals	up to 4 mm^2, solid-core wire — up to 6 mm^2 (two wires in one ferrule — up to 2.5 mm^2)
Ferrule sleeve length	8 mm (inputs), 10 mm (power terminals)
Tightening torque	0.2 N·m (inputs), 0.5 N·m (power terminals)

Modbus

Protocol	Modbus RTU
Address	1–247, factory address on the label on the side of the enclosure
Baud rate	1200–115,200 bps, default 9600
Default format	8N2
Firmware update	over RS-485, settings are preserved

Power supply

Supply voltage	12–28 V DC
Power consumption	0.5 W (relays off), 2 W (all relays on)
Peak consumption	up to 5 W for 20 ms
Ready after power-up	~2 s

Operating conditions

Temperature	от –40 до +80 °C
Humidity	up to 95%, non-condensing
Climatic design category (GOST 15150-69)	O2.1*
Service life	5 years

Wiring

Terminals	Purpose
V+, GND	power supply 12–28 V DC
A, B	RS-485 bus
COM1, COM2	common wires for two groups of three outputs
K1–K3 (C, NO)	relay outputs, each with its own terminals
0–3	dry-contact inputs
iGND	common input terminal

The curtain drive connects to two outputs: they are supplied with phase L, and the "Open" and "Close" wires connect to them.

Attention

- The module is not suitable for three-phase loads: its outputs are not mechanically interlocked with each other (GOST 30011.4.1, clause 7.2.1.1.5).
- The relays are certified for AC only. Their load capacity may be lower on DC.
- When the relays switch on, the module briefly draws up to 5 W — choose a power supply with margin and account for voltage drop on long cables.
- Before connecting a curtain drive, enable "Drive control" mode, otherwise both directions may switch on at the same time.

Maintenance

Connecting cables and wires must be in good condition and securely fastened. If the device works properly and no new features are needed, installing updates is not required. Before updating, it is recommended to back up the settings so that you can return to the previous version.

Safety

- Do not expose the device to rain or moisture — this will void the warranty.
- Do not remove the cover: there are no user-serviceable parts inside.
- Never connect the device to a dimmer.
- Never connect 0 V to electrical ground.

Package contents

- Light Stream Relay 3 LITE

Warranty

1-year limited manufacturer's warranty

Warranty service is not provided:

- for mechanical and other damage to the product caused by the buyer;
- for lamps, fuses, galvanic isolation and protection components;
- if the product was repaired by the buyer or by third parties;
- if the design of the product was modified;
- for equipment operated in violation of the power quality and capacity requirements of GOST 13109-97, under emergency conditions, or exposed to lightning strikes, fire or other extreme conditions;
- for product accessories (including cables, external power supplies, packaging) and parts not included in the delivery;
- if the wiring diagram or the rules of storage, transportation and operation were violated;
- if the product was exposed to chemicals or abrasive cleaning agents;
- if the product was used for purposes other than those stated in the datasheet;
- for damage caused by natural disasters or fire;
- if the manufacturer's (supplier's) label is missing.