- switched voltage 30V=
- switched current up to 15A
- switch-on delay up to 2ms
- optically separated input
- built-in protecting diode

Application

The SH1-24-31 switching module is intended for switching of DC current. The output of this switch may be (when comply with the polarity) connected in series with other switches (also contact ones). A fast-operating diode is built-in in the module's box, serving as protection when switching inductive load. The module's input is optically separated and one green pilot-light indicates the active input. Concerning design, the SH1-24-31 module is intended for assembly in the electric cabinet, by means of standard 35 mm mounting rail.

Description

After SH1-24-31 switching module's input terminals, there is connected a protective circuit matching input control voltage to the optical component, which serves as exciter for output circuits. The protective circuit protects the optical component against control voltage of opposite polarity, as well as against exceeding of limit input current. At the same time, this circuit ensures also input's noise immunity. The output circuit contains the transistor MOSFET having very low on-state resistance. To ensure proper function of the switching module, a load voltage must be always connected to the output circuits; this is the only way to ensure secure saturation of the output transistor, and, thereby also very low voltage drop is ensured at the on-state switch.

The SH1-24-31 module is fitted with protecting diodes, which protect the output transistor against control voltage of opposite polarity, as well as during switching-off inductive. These diodes are connected parallel with the load, namely with the cathode to the positive potential of load.

The SH1-24-31 switching module isn't equipped with fuses; if there isn't other over-current protection, a quick-acting tube-fuse (with maximum rating current FF 20A) must be used in the module's output.

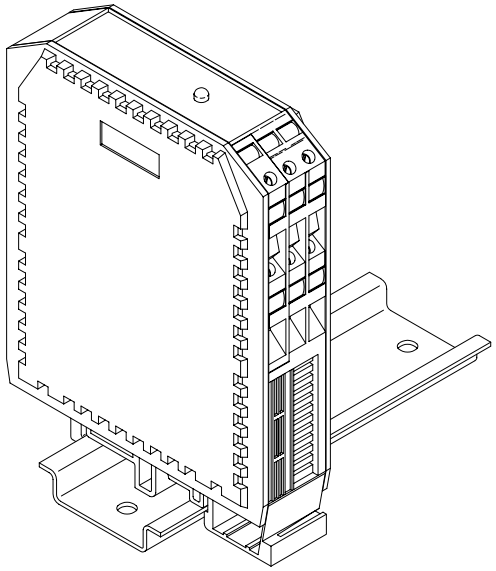
The output transistor's cooling radiator corresponds to maximum allowed power loss. The switches may be assembled "side-by-side" onto the mounting rail; nevertheless, it is necessary to keep sufficient space above/under the modules, in order to enable good air circulation. Should the temperature exceed 40°C, an airspace of 5 mm between individual switches is necessary to facilitate cooling.

The source is designed as one printed-circuit board bearing whole electronic circuits, placed into standardized plastic box. This plastic box provides electric protection of IP20.

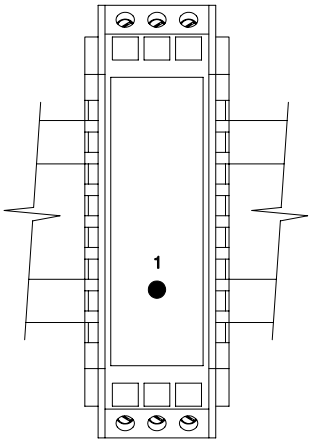
Absolute maximum ratings

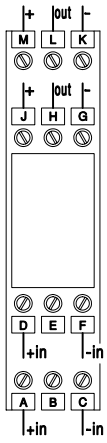
Maximum switched voltage	30V=
Maximum switched current	13A
Maximum switched current after 0.1s	15A
Maximum power dissipation	4W
Maximum voltage drop on the switch	0.2V
Maximum input voltage	50V=
Maximum input current	50mA
Operation temperature range	-20°C to +50°C
Storage temperature range	-30°C to +80°C

Switching module SH1-24-31



Terminals





out	output switch 24V= / 15A
+	positive potential supplying the load
-	negative potential supplying the load
+in, **-in**	input control voltage 24V= / 10mA

Operating status indication

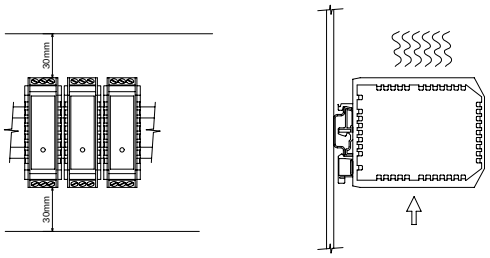
LED1	active input, green
ACTIVE "IN"	LED1 is shining
PASSIVE "IN"	LED1 is dark

Parameters

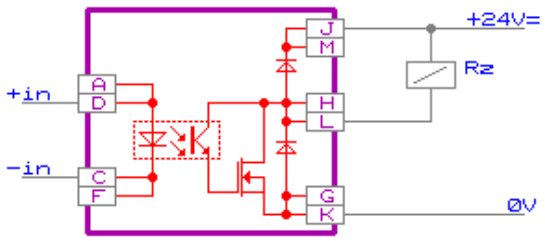
Switched voltage - rated ..... 24V=
Switched current - rated 10A
Power dissipation ..... about 3W
Voltage for excitation of input ..... 13 to 24V=
Input current ..... 10 to 15mA
Switch-on time ..... max 2ms
Switch-off time ..... max 5ms
Switching frequency ..... max 10Hz
Prescribed fuse ..... fuse F20A
Terminals ..... screwed, for wires of 0.05 to 2.5 mm^2
Degree of protection IP20
Dimensions (W×H×L) ..... 75×100×23mm
Mounting position ..... vertical
Weight 0.1kg
Operating conditions ..... normal, no mechanic impurities
..... no corrosive vapours/gases
..... relative humidity 20 to 80%
..... absolute humidity up to 40g/m^3
..... barometric pressure 75 to 125kPa

Assembly

The SH1-24-31 module will be fixed onto 35mm mounting rail. To do this, proceed as follows: at first, set the upper clasp onto rail; then lock the ratchet by pressing downward. After sliding the module into desired position, connect the cables into terminals. When dismantling, at first disconnect the cables from the terminals; then release the ratchet using screwdriver, and, by pulling for lower nose on the box holder. See following illustration for preferred assembly position.



Typical application



ATTENTION! The **J** or **M** terminals must be always connected, because these ones supply the internal exciting circuit!

Caution

Before connecting/switching-on the module read this catalogue sheet carefully. In case of any doubt, please contact your local dealer or the producer.

When using the module, it is a good idea to consider some reserve, to cover the function in case of temporary aggravation of operational conditions (violent increase of ambient temperature, distortion, spikes, etc.).

The SH1-24-31 switching module doesn't require any attendance/maintenance; the repairs must be performed by producer. Any intervention into module's electric circuits causes loss of all warranties!

Never connect/switch-on the module that is damaged as a result of transport or due to any other influences!

Never connect the module to the voltage when it is dewy; wait until the visible moisture evaporates!

Before performing any operation on the terminals of the module, disconnect at first the module from the supply voltage!

Should the product be used in a way other as recommended by producer, the electrical/fire accident protection may be disturbed.

Others

This catalogue sheet serves also as accompanying document for the SH1-24-31 switching module.

The data contained in this catalogue sheet only describes the product's characteristics without ensure it. NEWTE undertakes no responsibility for wrong using of this catalogue sheet.

Considering the developing of each product, it is possible that there will be some improvements that cannot be included in this catalogue sheet. NEWTE retains the right anytime to modify and to improve described product without previous notice.

The technical suggestions and schemes included in this catalogue sheet express briefly the main purpose. The user has to judge separately the applicability for all individual cases. The modules stated in this description are in industrial terminology designated as "devices". Nevertheless, these aren't devices or machines capable to be directly used or to be directly connected to the electric network, but these are the components. The final function of such components is set when these are integrated into user's construction. Concerning conformity of such construction with existing legal rules, the responsibility for this fully rests on the user.

This instruction doesn't needs to be complete and error-free. In case of any doubt, please contact your local dealer or producer.

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