Operating manual
Relay module

Fig. similiar

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1 About these instructions

1.1 Target group

Operator of the device
This documentation is intended for the operator of the device.

Information for service personnel
This documentation is also intended for service personnel who install the device and connect it to the engine.

NOTE

If your end customer carries out installation himself, please note that he should receive the edition of the operating manual.

1.2 Use and safekeeping

- Read and follow the operating manual before working on the device.
- Keep the operating manual in a clearly legible condition.
- The operating manual must be provided when the device is resold.

1.3 Symbols and abbreviations

You can find the most important abbreviations from this operating manual below

Abbreviation	Description
LED	Light Emitting Diode
T.	Terminal
VDD	Operating Voltage

Tab. 1: Abbreviations

Listings in handling instructions:

1. Step 1
2. Step 2
3. …

Numbering in figures and legends:

1 Component 1
2 Component 2
3 …

Item list for information without specific sequence:

- Information
- Information
- …

1.4 Presentation of information

ATTENTION

The signal word **ATTENTION** identifies possible material damage. Non-observance can cause damage to the machine.

Note concerning environmental protection

The signal word **Note concerning environmental protection** identifies information on environmental protection.

NOTE

The signal word **NOTE** identifies additional information about the device or its accessories.

Internal refernce:

The internal reference identifies references to further information within the document.

External reference:

The external reference identifies references to external documents in which optional further information can be found.

2 Safety

2.1 General information on safety

Use

This device is to be operated only in combination with the supplied accessories.

Use only mild cleaning agents.

Do not insert any objects into the device openings not intended for this purpose, since otherwise electronic faults can result.

When operating the device, comply with the general accident prevention regulations.

Do not operate the relay module within range of strong electromagnetic fields.

Note and comply with the temperature specifications given in the “Technical Data” chapter.

Storage

A decommissioned relay module must be stored under the conditions specified.

Installation

Observe the notes of the manufacturer of the plugs and cable harnesses when installing the device.

Shipping

The unit is to be shipped either in its original packaging or in suitable sturdy alternative packaging.

Improper packaging is regarded as *negligence* and results in any claims for repair under guarantee being forfeited.

Maintenance

The relay module requires no maintenance and no special upkeep over its entire service life.

Opening the relay module

The relay module does not contain any parts that can be serviced, replaced or repaired by the end customer.

Please note that any unauthorised opening of the device will lead to the loss of warranty.

ATTENTION

Never use a high-pressure cleaner to clean the device.

It has to be clearly communicated to personnel that high-pressure cleaning will lead to damage and result in the guarantee being rendered null and void.

2.2 Qualification of personnel

Only qualified and trained personnel may connect or install the device. The personnel must have the following qualifications:

- Special knowledge and experience of handling electrical equipment.
- Instruction and operating authorisation from the person responsible for safety.
- Knowledge of relevant standards, regulations, accident prevention regulations and operating conditions for safe application.

NOTE

- Always carry out work on the device according to the existing specifications and legal provisions.
- The legal provisions are different depending on the operation site.
- The operator must ensure that applicable laws are complied with.

2.3 Intended use

The device is only intended for installation in systems and vehicles driven by combustion engines. Together with the ignition key, it is used to start the combustion engine and monitor various typical characteristic values. This also applies for all accessories and parts that are included in the scope of delivery in conjunction with the technical specification. Here the technical data and specifications concerning the permitted use (installation, connection and operating conditions) are particularly authoritative.

Intended use also includes observing the operating manual.

3 Technical data

Parameter	Bedingungen	Grenzwerte			Bemerkung
		Min.	Typ	Max.	
Supply voltage VDD		8,4V	12V	15,6V	
Digital outputs active high Pin 1 Normally Open 1 Pin 5 Normally Open 2 Digital outputs active potential-free Pin 2 Normally Close 1 Pin 6 Normally Close 2			 10A 10A 10A 10A		
Digital inputs active high			>=8,4V		
Operating temperature Storage temperature		-40°C -40°C		+70°C +70°C	
Dimensions	LxWxH	95,5mm x 71mm x 35,4mm			
Weight		approx. 80g			without Accessory
Mounting		2 Screws with fixing lugs			
Protection class	Protected against dust, falling spray water	IP53			Horizontal alignment Plug contacts are not protected

Tab. 2: Technical data

4 Funktional description

The housing contains two changeover relays. Their contacts are largely protected against burning by freewheeling diodes.

The relays are switched by applying VDD to the respective input. The respective normally open contact is then connected to the potential at the common supply input. The normally closed contact becomes potential-free.

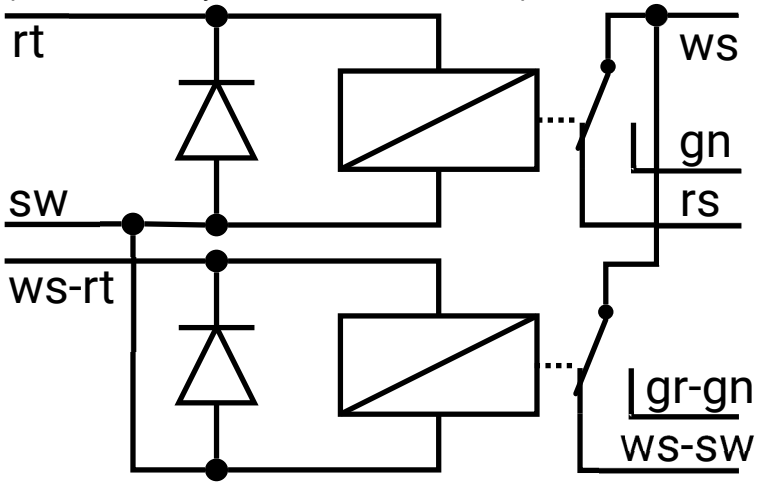

Figure 1: Schematic diagram

5 Commissioning

5.1 Installation and connection information

Installation site

The selection of the installation site at the machine has a direct effect on the service life of the device.

- Select the installation site so that the device is protected as much as possible against external influences, e.g. extreme temperature, moisture and vibration.
- Observe the specifications in the Technical data chapter here.

Accessories (option)

If required, the following accessories for installation or connection can be ordered from ehb electronics gmbh.

- Customized cable harnesses

Installation

1. Fasten the device to the mounting brackets with screws.

Connection

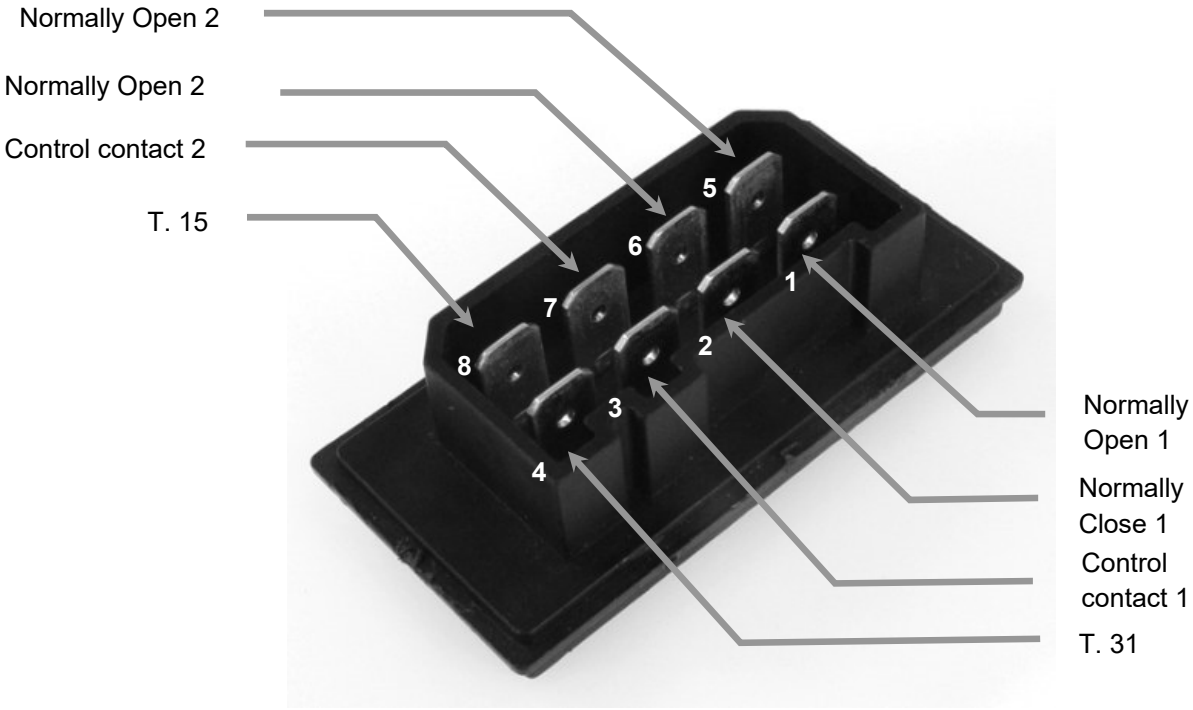

Abb. 1: Connetions (example)

1. Crimp the connecting cable with the quick disconnect terminal from the accessories using the crimping tool for cable sockets.
2. Insert the connecting cables with crimped quick disconnect terminal into the socket housing from the accessories until they click into place.
3. Insert the socket housing with the crimped quick disconnect terminals into the receptacle on the housing as far as it will go.

NOTE

All switched inductors must be provided with a free-wheeling diode.

Inputs that are not used can remain unconnected.

5.2 Connection plan

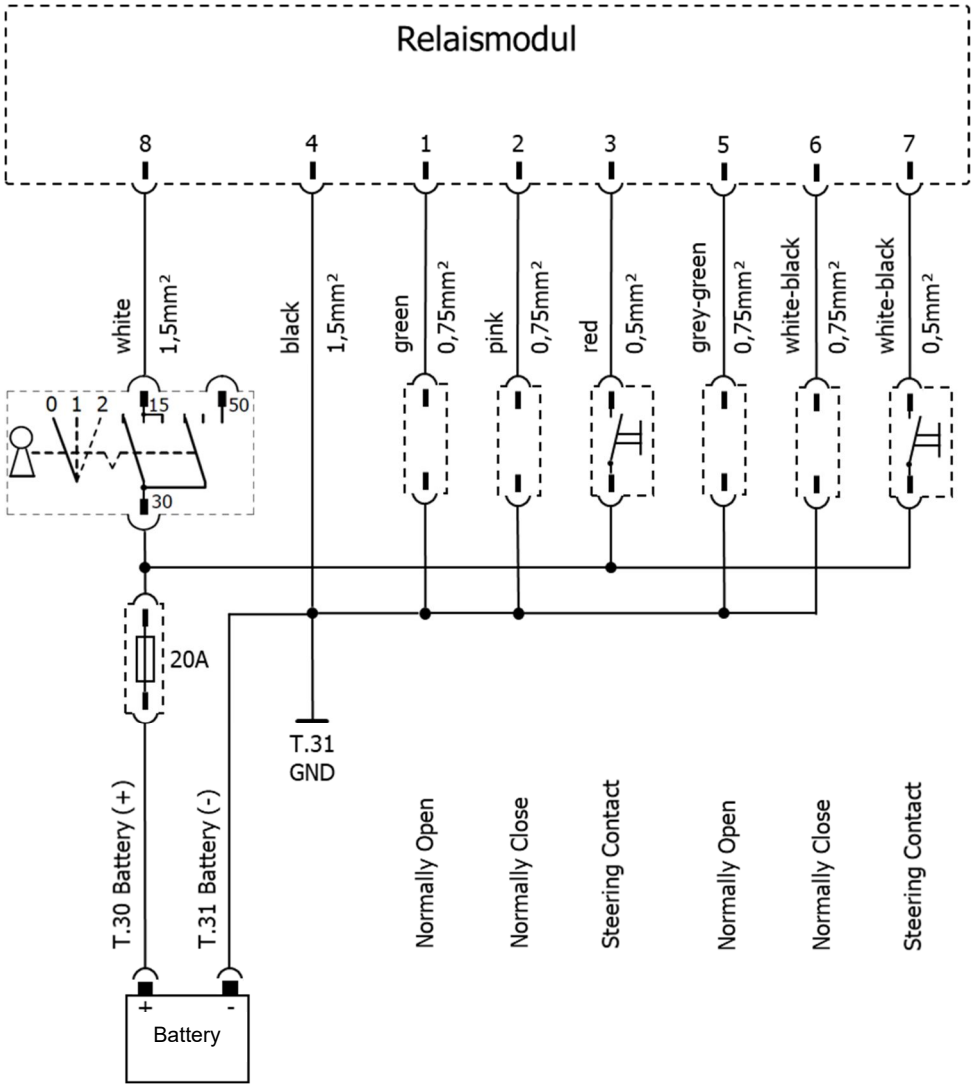

Fig. 2: Wiring diagram example

Nr.	Bezeichnung	Nr.	Bezeichnung
1	Low power contact 8 pol. Phoenix green	1	Normally open 1 max. 10A
		2	Normally close 1 max. 10A
		3	Control contact 1
		4	Terminal "31", input battery – / mass
		5	Normally Open 2 max. 10A
		6	Normally Close 2 max. 10A
		7	Control contact 2
		8	Terminal "30", Input battery +

Tab. 3: In- and outputs

6 Operation

6.1 Switching

1. Start VDD
2. Connect VDD to control input

7 Decommissioning

NOTE

- Decommission the device according to the applicable local regulations and laws.

7.1 Disposal

Note concerning environmental protection

Risk of environmental damage

Improper disposal may have an environmental impact.

- Observe the local regulations and legal provisions for disposal.

8 Maintenance

8.1 Maintenance of relay module

The relais module is maintenance-free

Cleaning

ATTENTION

Never use a high-pressure cleaner to clean the device.
High pressure cleaning causes damage to the device

8.2 Repair

Should the device require repair work, please return it to:

ehb electronics gmbh
Hans-Böckler-Str. 20
30851 Langenhagen
GERMANY

Please make sure that you include a written fault description. This will facilitate the work of the ehb electronics gmbh service department and ensure faster return of your relay module.

Alternatively you can use our online service for the returning of devices:
www.ehbservice.de

NOTE

ehb electronics GmbH assumes liability only for the proper execution of services and the correct characteristics of the materials used.
Any further claims such as for loss of profit and for direct and indirect consequential damages such as loss of data are excluded.

ATTENTION

Damages arising from improper packaging of the device for shipping and/or unauthorised intervention will invalidate the guarantee.

9 Dokumentation information und history

Projekt:	Relais module
Type of dokument:	Technical document
Version:	1.0
Prepared on:	03.02.2022
Prepared by:	ehb electronics gmbh, Hannover

Änderungen:

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1.0	First edition of the operating manual preliminary release - edited	03.02.2022 15.03.2022	Hk Kal

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