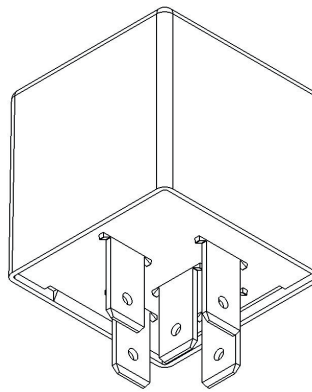


mounting direction



view of plug

DESCRIPTION

Solid State Relays are suitable for switching lamp loads, ohmic and inductive loads. They switch silent and are absolutely wear-free. They are compatible with conventional ISO mini-relays in terms of size and connector design

TECHNICAL DATA

Housing	PA66GF30
Connector	Base plate 5 pin
Weight	40 g
Temperature range (according to ISO 16750-4)	-40 °C to +85 °C (at +85 °C not full load)
Environmental protection	IP53
Current consumption	< 20 µA
Over-current Protection	1A + load
Total inputs and outputs	3 (1 digital inputs, 2 outputs)
Inputs	1 digital input for switching the load (positive or negative)
Outputs	1 digital input for load 1 current sense, proportional to load current
Operating voltage	9-32 V
Starting voltage	6 V
Overvoltage protection	≥ 33 V
Undervoltage cut-off	≤ 6 V
Quiescent current	< 20 µA
Reverse polarity protection	Yes
CAN interfaces	No

REGULATORY APPROVALS AND TESTING

E1 approval	05 8639
Elektrical tests	According to ISO 16750-2: Short circuit protection Reverse polarity protection Interruption pin and connector Overvoltage
	According to ISO 7637-2:2004: Automotive-Pulse 1 to 3b
	According to ISO 11452-4: BCI: 100 mA According to ISO 11452-2: Antenna: 100 V/m



INPUT FEATURES - SUMMARY

Pin 4	Digital input	
Digital input positive	Turn-on threshold	3.9 V
	Turn-off threshold	3.7 V
Digital input negative	Turn-on threshold	0 V
	Turn-off threshold	Operating voltage

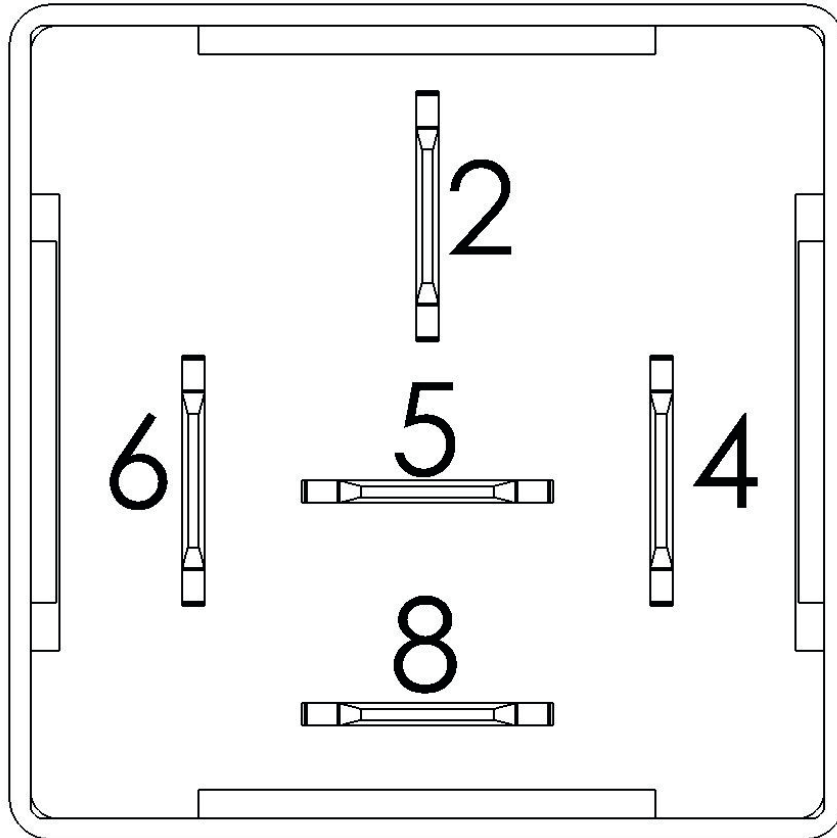
OUTPUT FEATURES - SUMMARY

Pin 8	Protective circuit for inductive loads	No catch diode available
	Wire fault diagnostics	Possible via current sense
	Short circuit diagnostics	Possible via current sense
Digital, positive switching	Switching current	Acc. to assembly option
Short circuit resistance against GND and VS	Shutdown of the output due to overtemperature shutdown of the output driver	
Pin 5	Current sense proportional to the load on pin 8 - Dependent on the supply voltage, indication of reference values	

Current sense output 25 A variant, measured at RT= 20 °C			Current sense output 5 A variant, measured at RT= 20 °C		
Load current [A]	Supply voltage		Load current [A]	Supply voltage	
	8 V	12-32 V		8 V	12-32 V
1	0,08	0,1	0,5	0,3	0,3
5	0,4	0,7	1	0,7	0,7
10	0,9	1,5	1,5	1	1,1
15	1,8	2,3	2	1,3	1,5
20	2,8	3	2,5	1,8	1,8
25	3,5	3,8	3	2,2	2,2
			3,5	2,6	2,7
			4	2,9	3
			4,5	3,3	3,4
			5	3,6	3,9
Current sense output 15 A variant, measured at RT= 20 °C					
Load current [A]	Supply voltage				
	8 V	12-32 V			
1	0,2	0,3			
5	1,2	1,3			
10	2,4	2,6			
15	3,9	4,2			

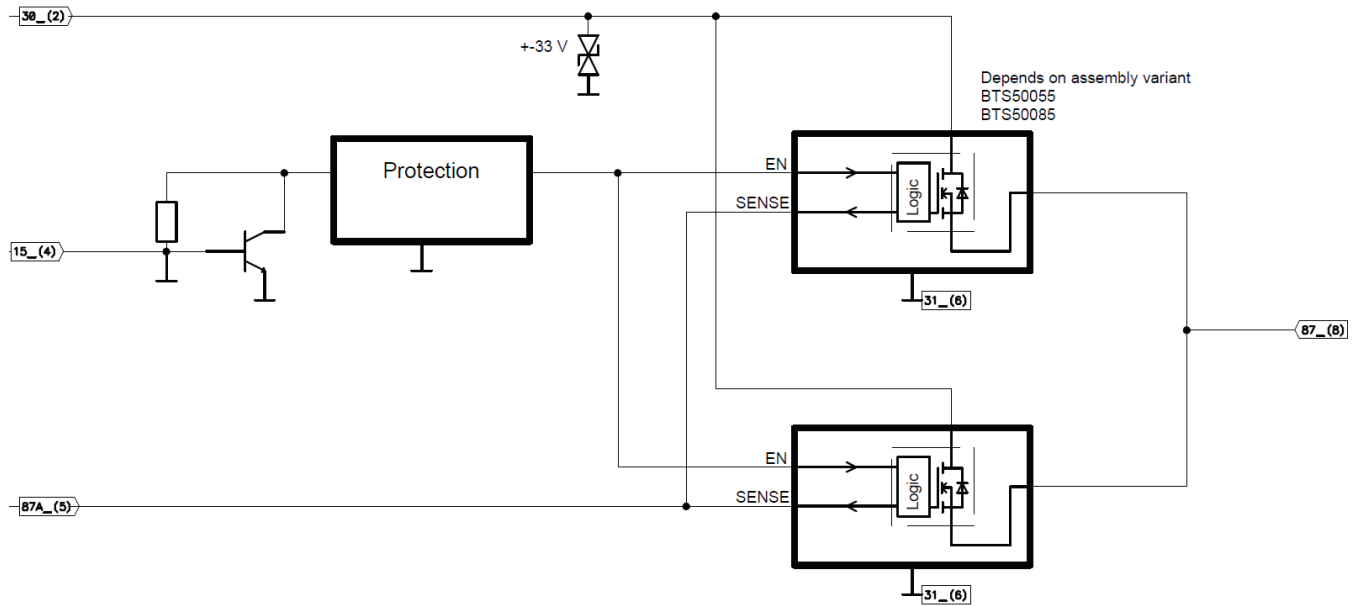
PIN ASSIGNMENT POWER SUPPLY AND INTERFACES

Pin	Description	Pin	Description
2	Supply voltage/KL30	6	Ground

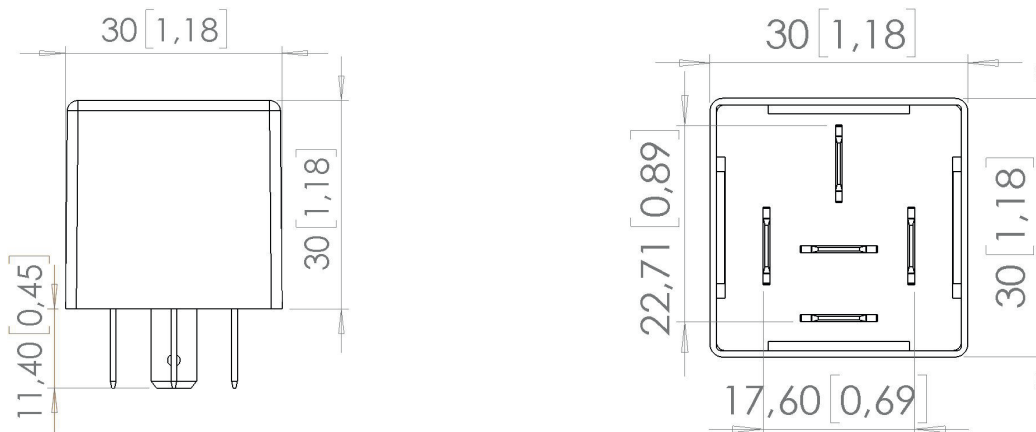


Pin assignment - bottom view

BLOCK FUNCTION DIAGRAM



TECHNICAL DRAWING (IN MM)





ASSEMBLY OPTIONS AND ORDER INFORMATION

Order number	Inputs	Outputs	Driver	
	Selection of the outputs via pin 4	In A	BTS50055	BTS50085
1.069.300.05	positive	5 A		X
1.069.301.05	negative	5 A		X
1.069.300.15	positive	15 A	X	
1.069.301.15	negative	15 A	X	
1.069.300.25	positive	25 A	X	
1.069.301.25	negative	25 A	X	

ACCESSORIES

Description	Order number
Socket ST FL 9-pin 5x 6.3 / 4 x 2.8	1.017.002.00
Tab receptacle for latching 6.3 mm 1.0 mm <sup>2</sup>	102355
Tab receptacle for latching 6.3 mm 1.5-.2.5 mm <sup>2</sup>	103064



MANUFACTURER

MRS Electronic GmbH & Co. KG  
 Klaus-Gutsch-Str. 7  
 78628 Rottweil



## GENERAL PROVISIONS

- Safe operation of series production equipment may not be guaranteed if samples or prototypes are used.
- Wiring examples provided by MRS Electronic GmbH & Co. KG do not imply any endorsement, responsibility, or liability for the overall system performance.
- Incorrect wiring may result in unexpected or inconsistent signals at the outputs of the control device.
- Potential hazards during operation of equipment cannot be excluded when using incorrect software programs or parameter settings in the control device.
- To avoid a loss of manufacturer's warranty, installation, modification, or exchange of product firmware or software has to be performed by MRS Electronic GmbH & Co. KG personnel or a qualified professional contractor.
- It is prohibited to open, modify or repair the control device. Modifications or repairs may result in hazardous malfunctions of the device.
- Maintenance and repair should be performed by MRS Electronic GmbH & Co. KG personnel only.
- It is not permitted to apply voltage to device terminals other than the power terminals if the power supply of the control device is shut down or disconnected. If the power supply is shut down, it is important that power to the control device, power amplifiers, and external sensors is shut down simultaneously.
- In case of failure or malfunction of the control device, please ensure that this condition of the device does not result in a hazardous malfunction of the overall system. Such unintended system behavior may lead to personnel injuries or serious property damage.
- System design, installation, and commissioning of electrical systems must only be performed by a qualified professional who is familiar with the components used and the overall system.
- Unforeseeable hazards may be caused by the machinery during commissioning and maintenance of the control device. To prevent such events, please ensure that the machinery is always in a safe state.
- Faulty components or components with malfunction must not be used. If components fail or show signs of malfunction they have to be replaced or repaired immediately.
- Control devices that are used for software development and have been flashed more than 500 times with software updates must not be used in commercial machinery.

## WIRING AND CABLE ROUTING RECOMMENDATIONS

- Electrical and power terminals of the control device have to be sourced by the same electric circuit.
- Connect the product only when wires/cables are de-energized.
- Mechanically secure the cable harness in close range of the installation location of the control device. Fix and adjust the cable harness for in-phase mechanical motion with the control device.
- It is not allowed to bridge PWM outputs together.
- Power levels of the sensor inputs may be amplified as a result of external wiring, because they are designed as power supply and not as power sink. Amplified power levels may lead to unforeseeable malfunction and in case of permanent operation to damage of the control device.
- The combined usable pins (I / Os) must not be externally switched against supply voltage.
- Special information for proportional magnets and solenoid switches or other switched inductive loads:
- The electronic circuitry must only be validated with the proportional valve connected.

## INSTALLATION RECOMMENDATIONS

- Do not install the control device close to components which emit considerable amounts of heat.
- Ensure that water cannot get inside the control device by properly sealing all cables and wires.
- Always install the control device with the connector(s) pointing downwards allowing for condensation water to drain off (see figures on the first page).

## INTENDED USE

- If there are no restrictions for specific applications in this datasheet, the control device is designed for applications in mobile working machines.
- Use the control device only within the technical limits stated in this datasheet, especially with respect to voltages, currents, temperature, vibration, shock or any other specified environmental conditions.

## NOT INTENDED USE

- If the control unit is used in any other way than described in the paragraph „INTENDED USE“, it is not an intended use.
- Any use or application of the control device in explosive environments is prohibited.
- The manufacturer's warranty is void for any damages resulting from unintended use and/or arbitrary modifications which are not expressly indicated in this datasheet.