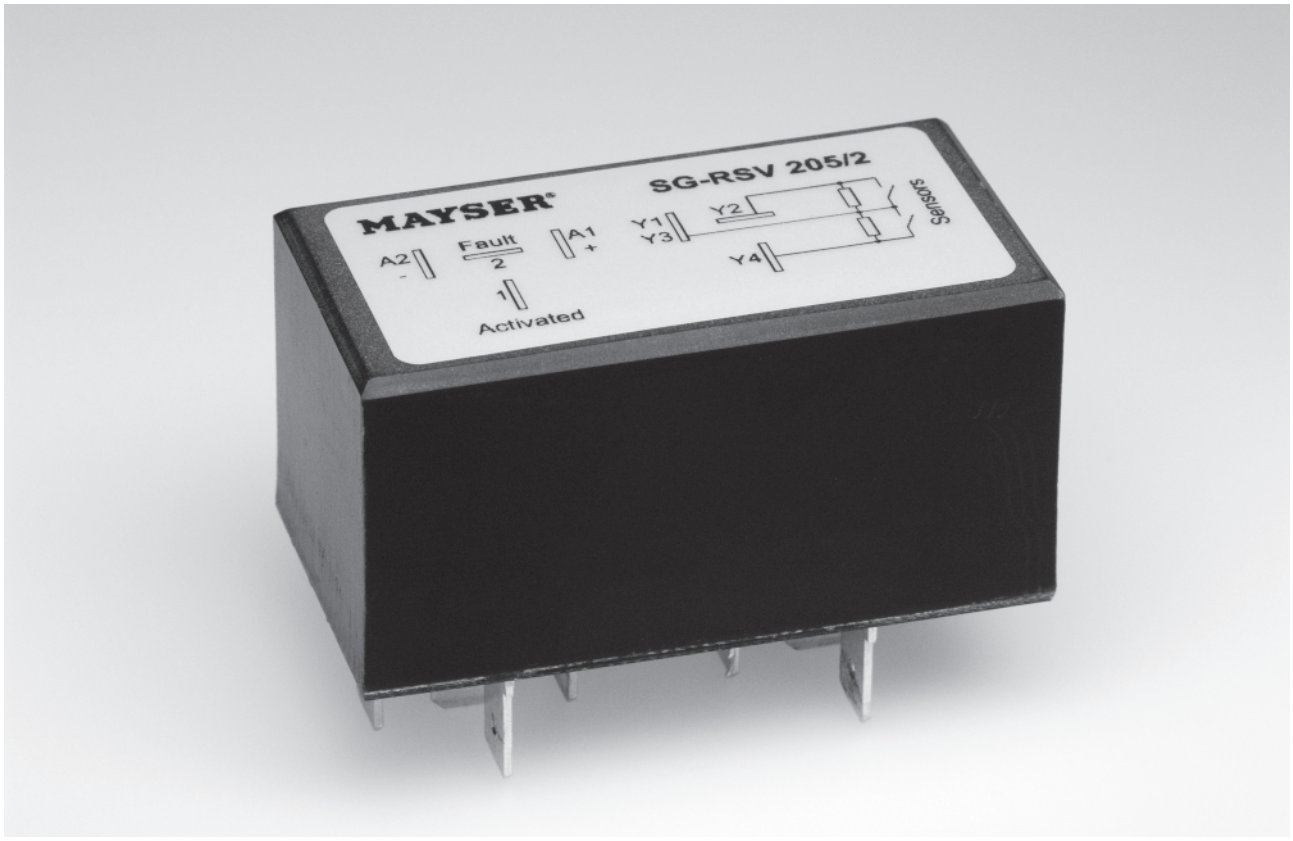
MAYSER®

Innovative by tradition.

Operating instructions



Control unit SG-RSV 205

Version 2

1002378 SG-RSV 205/2 18–32 V=
Semiconductor outputs

Original instructions

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Table of contents

About these operating instructions

These operating instructions are part of the product.
Mayser Polymer Electric accepts no responsibility or warranty claims for damage and consequential damage due to failure to observe the operating instructions.

➔ Read the operating instructions carefully before use.

➔ Keep the operating instructions somewhere safe so you can refer to them throughout the product's entire service life.

➔ Pass the operating instructions on to every subsequent owner or user of the product.

➔ Add any supplement received from the manufacturer to the operating instructions.

Validity

These operating instructions are only valid for the products specified on the title page.

Target group

The target group of these operating instructions are operators and trained specialist personnel who are familiar with installation and commissioning.

Other applicable documents

➔ In addition to the operating instructions, observe the following documents:

- Drawing of the sensor system (optional)
- Wiring diagram (optional)
- Installation instructions for the sensors used

Symbols used

Symbol	Meaning
➔ ...	Action with one step or with more than one step where the order is not relevant.
1. ... 2. ... 3. ...	Action with more than one step where the order is relevant.
• ... - ...	Bullets first level Bullets second level
(see *Installation*)	Cross-reference

Danger symbols and information

Symbol	Meaning
DANGER 	Immediate danger leading to death or serious injury.
CAUTION 	Possible danger which may lead to minor injury or damage to property.
	Information on easier and safer working practices.

Intended use

The control unit is designed for processing the signals of a pressure-sensitive protection device (PSPD). It evaluates the output signals of sensors with a 1k2 monitoring resistor. The integrated output signal switching devices (OSSD) transmit the evaluated safety signals directly to the downstream machine controls.

The control unit conforms to ISO 13849-1:2006 category 1 PL c. To prevent any reduction in the safety classification, the downstream control must be of the same category or higher.

Safety instructions

➔ **Do not open control unit**
Never open, tamper with or attempt to modify the control unit.

➔ **Check supply voltage**
Check the supply voltage. It must correspond to the connecting voltage U_S specified on the type plate.

➔ **Observe protection class**
Only use the control unit in spaces with a minimum protection class of IP54 (e.g. a switch cabinet).

➔ **Ensure sufficient clearance**
When installing the product in a switch cabinet, ensure sufficient clearance from heat sources (at least 2 cm).

➔ **Observe correct terminal assignment**
Observe the correct terminal assignment when connecting the supply voltage.

➔ **Do not interconnect control units**
Do not combine control units by interconnecting them.
Terminals Y1, Y2, Y3 and Y4 are not voltage-free.

➔ **Do not overload control unit**
Ensure that the specified switching current is not exceeded.

➔ **In the event of a fault, put out of operation**
In the event of malfunctions and visible damage, put the control unit out of operation by decommissioning it.

➔ **Do not use in ATEX zones**
Do not use the control unit in potentially explosive environments (ATEX). The control unit is not authorised for use in these zones.

Parts supplied

1× Control unit
Potted electronics with permanently installed flat connectors.
1× Operating Instructions
1× Declaration of Conformity
Upon receipt, immediately check the parts supplied to ensure they are complete and in good condition.

Transport and storage

Packaging and transport

The control units are packed in such a way as to ensure a good level of protection.
Several control units are stacked together in one large cardboard box.
The documents are enclosed separately.

Storage

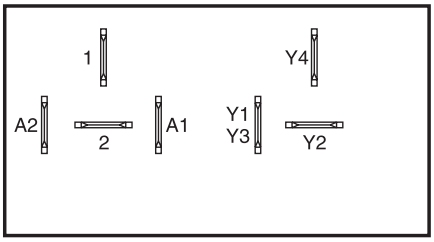
➔ Store control units in a dry place inside the original packaging.

➔ Observe the storage temperatures given in the technical data.

Product overview

Connections

Connections:	**Terminals:**
Supply voltage	A1, A2
"Activated" output	1, A2
"Fault" output	2, A2
Sensor 1	Y1, Y2
Sensor 2	Y3, Y4



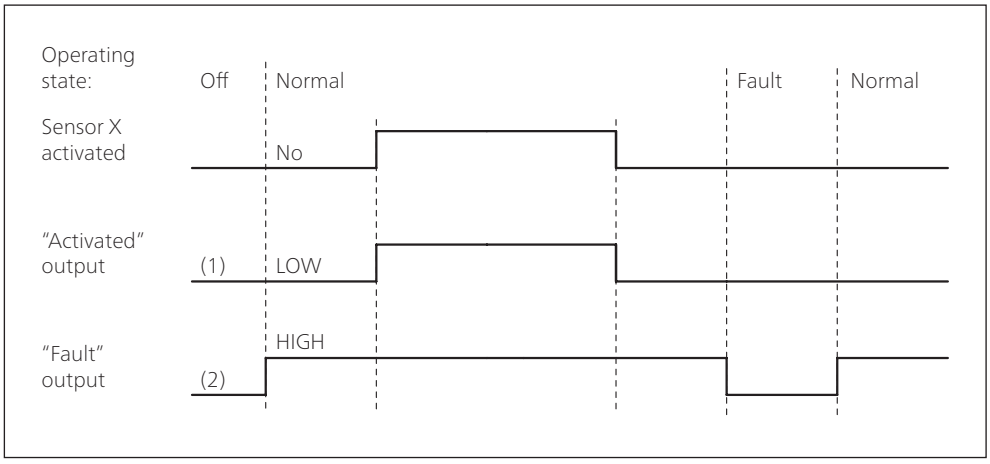
(View from below)

Function, installation and commissioning

Function

The control unit has two monitoring circuits, which operate two output circuits. The electronics monitor the electrical resistance of the sensors, which have a defined closed-circuit current.
The control unit is operated with a voltage of 18 to 32 V DC. If the supply voltage is connected, the control unit is ready for operation.
When the sensors are not activated, the "Activated" output is set to LOW and the "Fault" output to HIGH.
If a sensor is activated, the "Activated" output switches to HIGH. The "Fault" output remains set to HIGH.
In the event of a cable break or supply voltage failure, both the "Activated" and the "Fault" outputs switch to LOW.
The outputs take the form of short-circuit-proof semiconductor outputs.

Flowchart



Installation

DANGER

Danger of injury from electric shock!

➔ Disconnect all devices and live parts in the immediate environment from the power supply and secure them to prevent them from being switched on again (see relevant operating instructions).

➔ Check whether all devices and parts are de-energised.

CAUTION

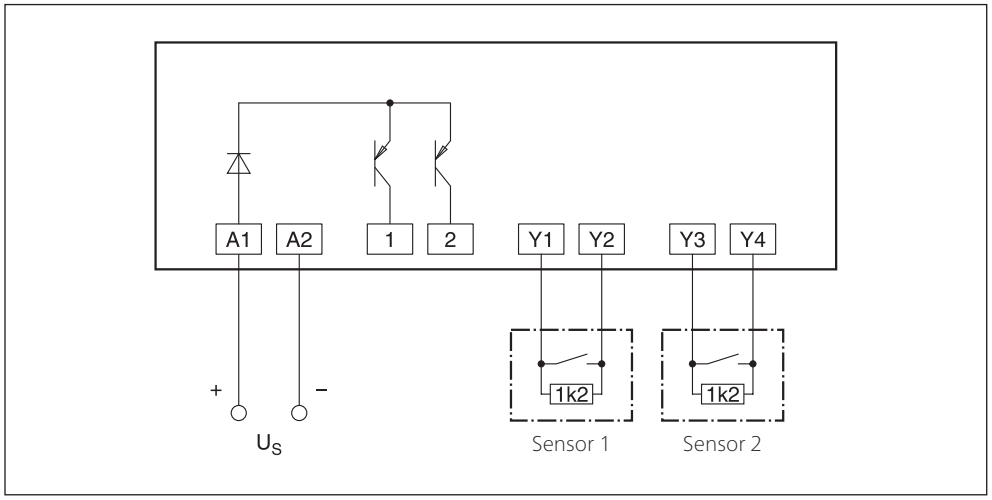
Impaired operation due to overheating or incorrect degree of protection

If the control unit overheats or the incorrect degree of protection is selected, operation of the protection device may be impaired.

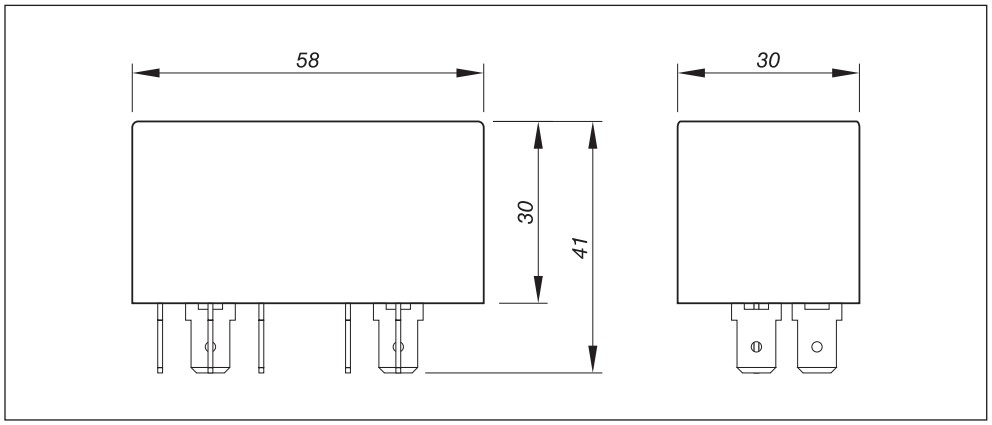
➔ When installing the product in a switch cabinet, ensure sufficient clearance from heat sources (at least 2 cm).

➔ Only use the control unit in spaces with a minimum protection class of IP54 (e.g. a switch cabinet).

1. Wire the sensors, outputs and supply voltage on the socket plate.



2. Insert the 7 flat connectors into the relevant sockets. Plug in the control unit evenly.



CAUTION

Overall safety at risk

Overall safety is affected by the quality and reliability of the interface between the protection device and the machine.

➔ Take particular care when setting up the interface.

Operation with only one monitoring circuit

It is also possible to operate the control unit with only one monitoring circuit.

➔ To do this, use a 1k2 resistor to bridge the monitoring circuit that is not required.

Commissioning

1. Make sure that the control unit is securely seated.

2. Connect the supply voltage.

DANGER

Danger of injury from electric shock!

➔ Never disconnect terminals while live.

➔ Never unplug plug connections while live.

Testing the function

1. Make sure that everything is connected and no sensor is activated.
   - "Activated" output is set to LOW (1)
   - "Fault" output is set to HIGH (2)

2. Activate sensor X.
   - "Activated" output is set to HIGH (1)
   - "Fault" output is set to HIGH (2)

3. Repeat step 1.

4. Disconnect sensor X.
   - "Activated" output is set to LOW (1)
   - "Fault" output is set to LOW (2)

5. Repeat step 1.

Recommissioning

DANGER

Danger of injury!

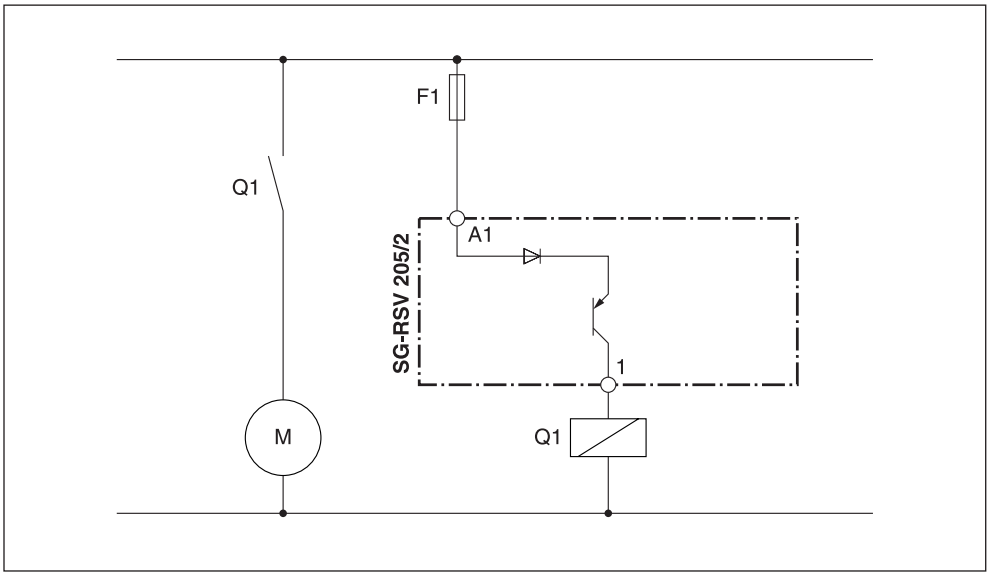
➔ Never start your machine as long as the danger remains.

Automatic reset

The control unit works without a reset. If the sensor is released after activation, the "Activated" output returns to "LOW" after a delay t_w.

➔ After recommissioning, check the unit for proper functioning (see section ***Commissioning***).

Connection example



Maintenance and cleaning

Maintenance

The control unit is maintenance-free.

➔ Repeat the functional test monthly.

Cleaning

DANGER

Danger of injury from electric shock!

➔ Disconnect the control unit – as well as all devices and live parts in the immediate environment – from the power supply and secure them to prevent them from being switched on again (see relevant operating instructions).

➔ Check whether all devices and parts are de-energised.

➔ Clean the outside of the enclosure with a dry cloth.

Troubleshooting and remedies

Pre-requisites: the control unit is connected to the supply voltage and sensors; the sensors are not activated.

Error state	Possible cause	Remedy
"Activated" and "Fault" outputs both set to LOW	No or incorrect supply voltage	1. Check supply voltage, compare with type plate 2. Check terminal assignment
	Incorrect monitoring resistor in sensor 1 or 2	1. Check non-activated sensor; resistance = 1k2 ±5% 2. Measured resistance deviates significantly ➔ Replace sensor
	Cable break	1. Check activated sensor; resistance < 400 ohms 2. Measured resistance deviates significantly ➔ Replace sensor
	If supply voltage is correctly connected and sensor is OK: control unit is faulty	➔ Replace control unit

Error state	Possible cause	Remedy
"Activated" and "Fault" outputs both set to HIGH	Sensor short circuit	1. Check non-activated sensor; resistance = 1k2 ±5% 2. Measured resistance deviates significantly ➔ Replace sensor
	Control unit faulty	➔ Replace control unit

Still unable to resolve the fault?
➔ Contact Mayser-Support: Tel. +49 731 2061-0.

Replacement parts

CAUTION

Overall safety at risk

If the sensor and control unit are not replaced using original parts from Mayser, operation of the protection device may be impaired.

➔ Only use original parts from Mayser.

Disposal

The control units produced by Mayser are professional electronic tools exclusively intended for commercial use (known as B2B devices). Unlike the B2C (business-to-consumer) devices mainly used in private households, they must not be disposed of at the collection centres of public waste management organisations (e.g. municipal recycling depots). At the end of their useful life, the devices may be returned to us for disposal.
WEEE reg. no. DE 39141253

Conformity

CE

The design type of the product complies with the basic requirements of the following directives:

- 2004/104/EC (EMC)

The Declaration of Conformity can be found in the Downloads area of our website: www.mayser-sicherheitstechnik.de

Technical data

SG-RSV 205/2	18 to 32 V DC	
Testing basis	ISO 13849-1	
Connecting voltage U_S		
Voltage tolerance	–	
Nominal current	23 to 36 mA	
Nominal frequency	–	
External fuse protection	1 A time-lag	
Power consumption	< 1.5 W (without load)	
Times		
Reaction time t_a	< 1 ms	
Restart time t_w	< 1 ms	
Safety classifications		
EN 1760: Reset function	Without	
ISO 13849-1:2006	Category 1 PL c	
$MTTF_d$	499 years	
DC_{avg}	–	
n_{op} (assumption)	52,560 per year	
CCF	–	
Control unit inputs		
Sensors 1 and 2	Y1, Y2 and Y3, Y4	
Monitoring resistor	1k2 ohms	
Short-circuit resistance	≤ 400 ohms	
Line resistance	≤ 100 ohms	
Line length (max.)	100 m	
Switching thresholds		
Sensor activated	< 650 ohms	
Cable break	> 3.5 kiloohms	
Control unit outputs		
Outputs 1 and 2 (PNP)	1, A2 and 2, A2	
HIGH (min.)	U_S – 1.0 V	
LOW (max.)	0.5 V	
Switching current (max.)	0.4 A	
External contact fuse protection	1 A time-lag	
Mechanical operating conditions		
Flat connectors	6.3 × 0.8 mm	
IEC 60529: degree of protection	IP40	
Max. humidity (23 °C)	85%, non-condensing	
Operating temperature	–40 to +80 °C	
Storage temperature	–40 to +80 °C	
Vibration fatigue limit	1 g in all 3 levels	
Dimensions (W × H × D)	58 × 41 × 30 mm	
Weight	70 g	