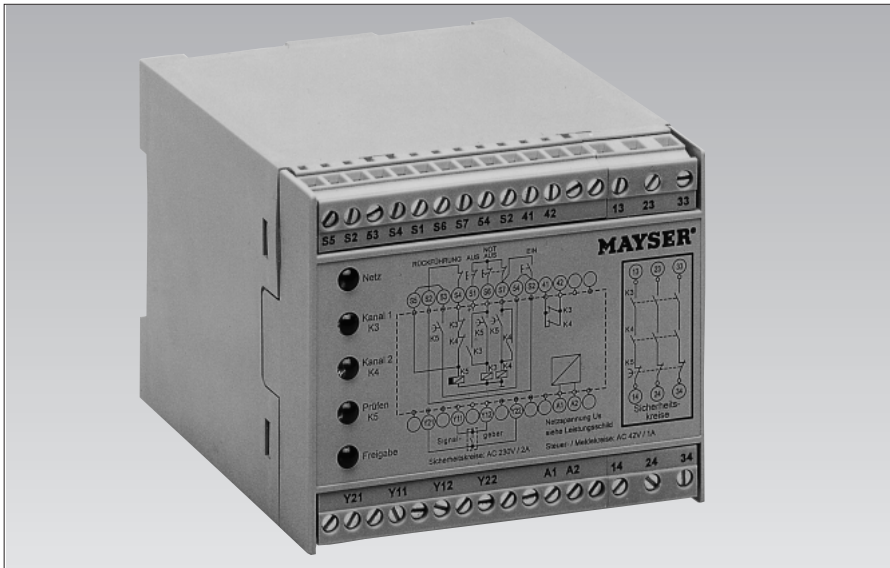


Safety Control Unit SG-SUE 41X4 NA

Operating Instructions



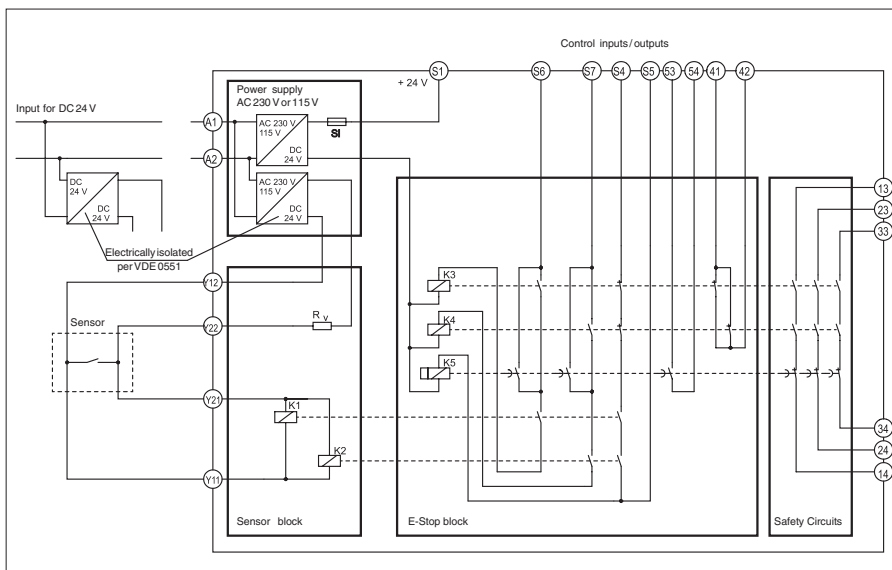
Safety Control Unit with additional E-Stop safety circuits according to EN 60 204 with EEC-type-examination certificate

Category 4 per EN 954-1 (self monitoring) for E-Stop buttons

Category 3 per EN 954-1 for Safety Mats, Safe Edges and Safety Bumpers, type BK

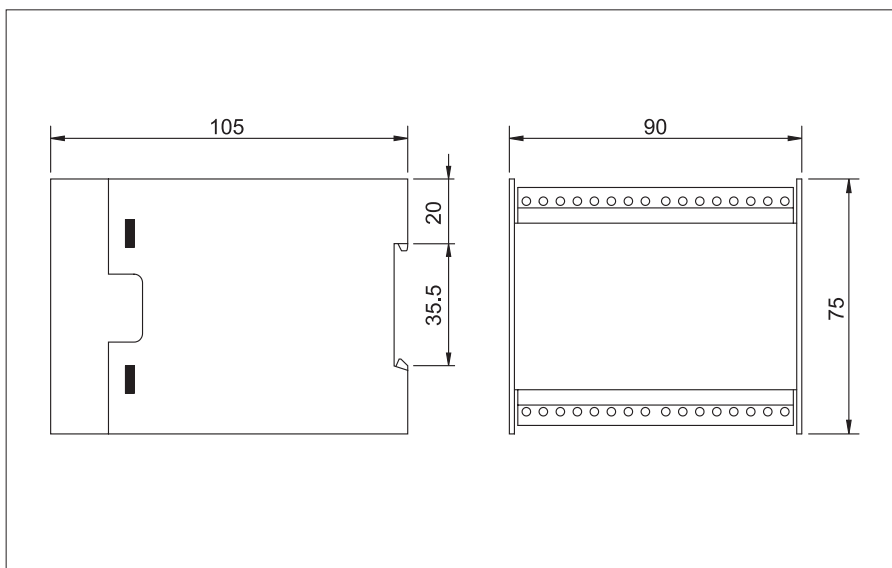
These operating instructions apply to the following control units:

SG-SUE 4104 NA	24 V=
SG-SUE 4114 NA	115 V~
SG-SUE 4134 NA	230 V~



Control

- Electronics: single-fault-safe
2 channels (redundant)
- Relays: self-testing
force-guided
- Outputs: 3 NO / 1 NC
- Connection possibilities:
E-Stop button
Reset button
4-wire-connection
system sensors
- Feedback circuit for several control switches
- LEDs to indicate
operating voltage
channel 1 / channel 2
relay test
sensor release



Enclosure

W x H x D (mm)	90 x 75 x 105
Weight = model	approx. 400 g
~ model	approx. 500 g
Protection class	IP 20

Note on protection class:

The units may only be used in locations with minimum protection class IP 54 (eg. cabinet).

Parts supplied

- Control Unit

Enclosure with electronics module and plug-in connectors.

Safety Control Unit SG-SUE 41X4 NA

IMPORTANT NOTES!

Please read!

To ensure correct and safe operation of the unit, it must be properly transported and stored, properly installed and commissioned, and operated in accordance with its purpose.

Only persons familiar with the installation, commissioning and operation, and with the corresponding qualifications to prove their skills, may work on the units.

They must observe the contents of these instructions, the notes given on the type plate of the unit and the safety requirements relevant to the

installation and operation of electrical systems.

This unit is constructed and tested to EN 1760 and DIN V 31006 and left our factory in perfect condition with regard to safety. In order to maintain this state, you must observe the safety regulations marked "**WARNING!**" in these operating instructions. Failure to observe the safety regulations can lead to death, injury to personnel, or damage to the unit and other systems and equipment.

Should the information given in these operating instructions be inadequate in

any way, please contact your local technical centre, subsidiary or representative.

When using the device outside the European Union, you must observe the relevant regulations valid for the country of use.

Technical Data

Connecting Voltage U_s

SG-SUE 4104 NA		DC 24 V
SG-SUE 4114 NA	AC 115 V	
SG-SUE 4134 NA	AC 230 V	
Voltage tolerance	- 10% to + 10%	- 15% to + 10%
Frequency tolerance	50 - 60 Hz	
Power consumption	< 5 VA	5 W

Sensor voltage

Protective low voltage	DC 24 V	DC 24 V
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Control voltage

Internal (S1)	DC 24 V /125 mA	DC 24 V /125 mA
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Control Unit Outputs

Safety circuits	13/14, 23/24, 33/34	
Switching voltage	max. AC 230 V	max. DC 50 V
Switching power	max. 4 A	max. 3 A
Indicator circuits	41/42, 53/54	
Switching voltage	max. AC 120 V	max. DC 80 V
Switching power	max. AC 1 A	max. DC 1 A

Reaction times

Stop	≤ 15 ms
Turn-on	≤ 130 ms

Connections

Plug-in connectors	2x 13 channels and 2x 3 channels
Single connection (1x)	
flexible without end sleeve	max. 2,5 mm ²
flexible with end sleeve	max. 2,5 mm ²
Multiple connection (2x)	
flexible without end sleeve	max. 1,5 mm ² (per line)
flexible with end sleeve	max. 1,0 mm ² (per line)

Operating conditions

Protection installation location	min. IP 54
Permissible ambient temp.	+ 5 °C to + 50 °C

Important notes:

- Supply voltage

must be in accordance with the connecting voltage U_s indicated on the type plate.

- Permissible temperature range

when mounting into a cabinet maintain sufficient distance from heat sources (min. 2 cm).

- Wiring

must be carried out in accordance with connection schematics (see last page), in order to ensure protective function.

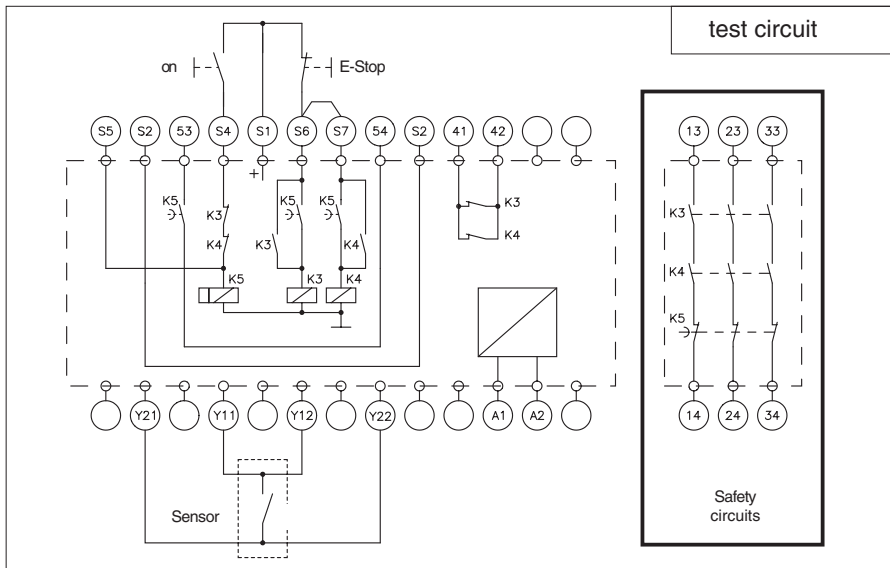
- Relay contacts fuse protection

necessary due to risk of welding, external protection with 8.0 A fast-blow or 6.3 A slow-blow.

LEDs information

- (green) LED "Power" unit is ready for operation
- (yellow) LED "Channel 1 K3" and (yellow) LED "Channel 2 K4" Rel. K3 / K4 are energized and the safety circuits are complete. When pressure is applied to the sensor, relays K3 / K4 deenergize immediately.
- (yellow) LED "Test K5" Unit tests the relay positions of Rel. K3 / K4, in the case of positive result Rel. K5 switches Rel. K3 / K4 on.
- (green) LED "Ready" all contacts in off-position; ready to set the safety circuits.

Installation and Operation



Terminal grouping

for SM, SL and SB sensors

2 x 2-wired cable:
white (ws),
brown (br)

SL			
Y21	Y11	Y12	Y22
ws	br	br	ws

2 x 2-wired cable:
red (rt),
black (sw)

SM, SL, SB			
Y21	Y11	Y12	Y22
rt	sw	sw	rt

1 x 4-wired cable:
blue (bl),
black (sw),
brown (br),
white (ws)

SM, SB			
Y21	Y11	Y12	Y22
bl	sw	br	ws

Installation

The enclosure can be mounted in any position:

- on a 35 mm EN 50 022 rail

Wiring takes place at the cable terminals of the plug-in connector:

Sensor	Y21/Y11, Y12/Y22
Mains voltage	A1/A2
Switching channel 1	13/14
Switching channel 2	23/24
Switching channel 3	33/34
Indicator circuit	41/42
Reset switch	S1/S4
E-Stop switch	S1/S6/S7

Commissioning

After connecting up sensors, relay points and mains, carry out a function test in the following order:

Sensor not activated

- green LED "Power" lights up
- green LED "Ready" lights up

Push reset button

- (only in the case of manual reset)
- both yellow LEDs "K3/K4" light up
- both output relays are energized

Sensor activated

- both yellow LEDs "K3/K4" are off
- green LED "Ready" is off
- both output relays have deenergized

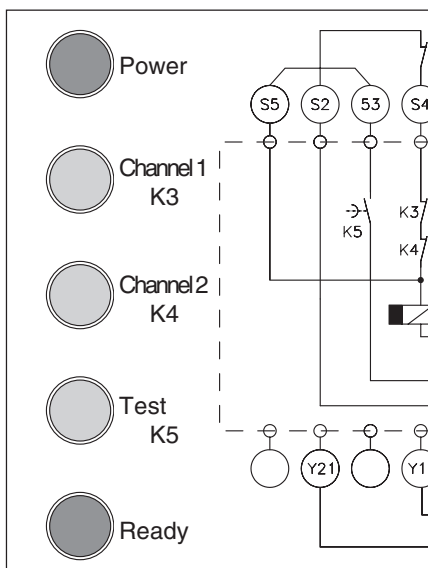
WARNING!

Do not disconnect terminals or unplug connector with power on.

The operator must foresee suitable measures to prevent the installation from restarting independently following power failure and E-Stop (89/392/EEC).

Maintenance

The control unit is maintenance free. The safety installation must be checked on a monthly basis by activating the sensors.

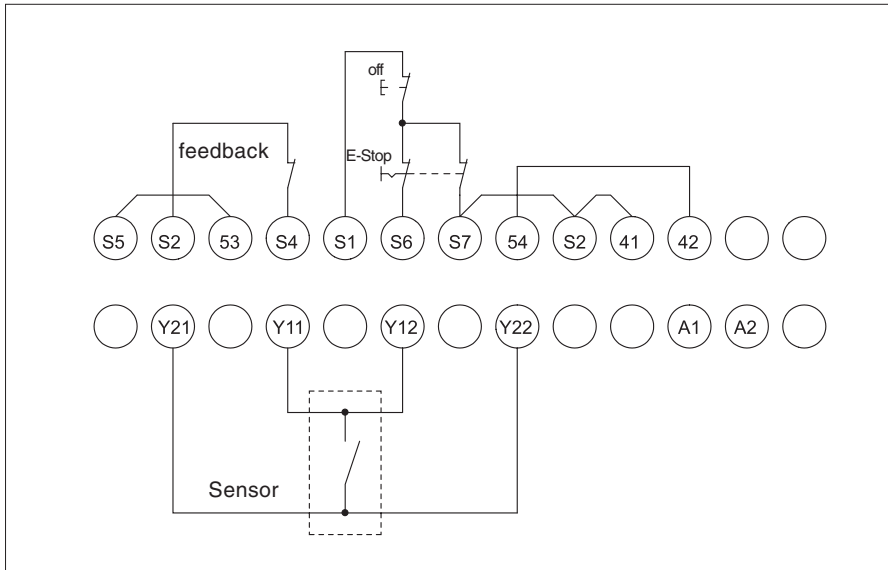


Troubleshooting / Remedies

Prerequisite: SG-SUE with connected, but not activated sensor and mains supply.

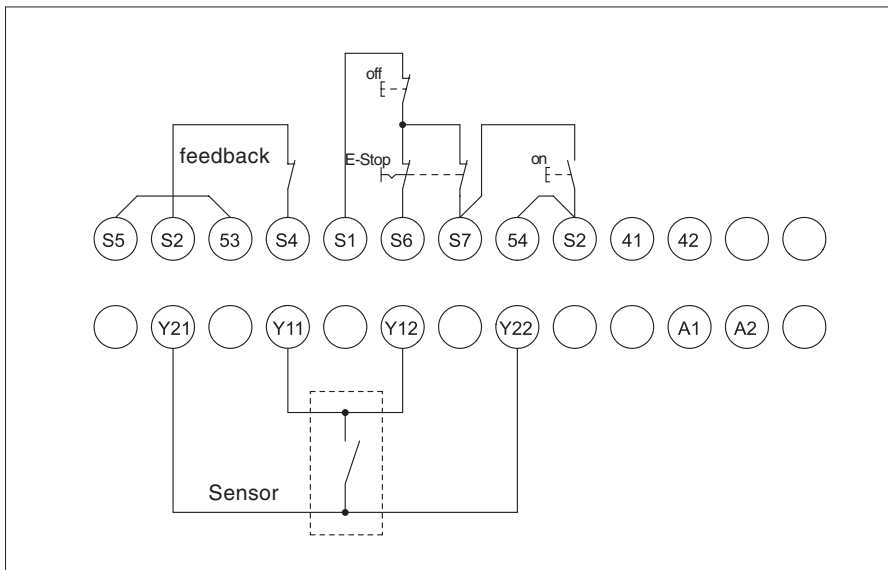
- green LED "Power" does not light up
 - > Supply voltage off or incorrect
 - ☞ Check supply voltage, compare with type plate
- green LED "Ready" does not light up
 - > Faulty sensor or supply lines (break in connection)
 - ☞ Check sensors and supply lines are connected correctly
- yellow LED "K5" permanently on
 - ☞ Check external control switches
- yellow LEDs "K3/K4" do not light up, green LED "Ready" is on
 - ☞ Check external control switches

Examples of connection schematics



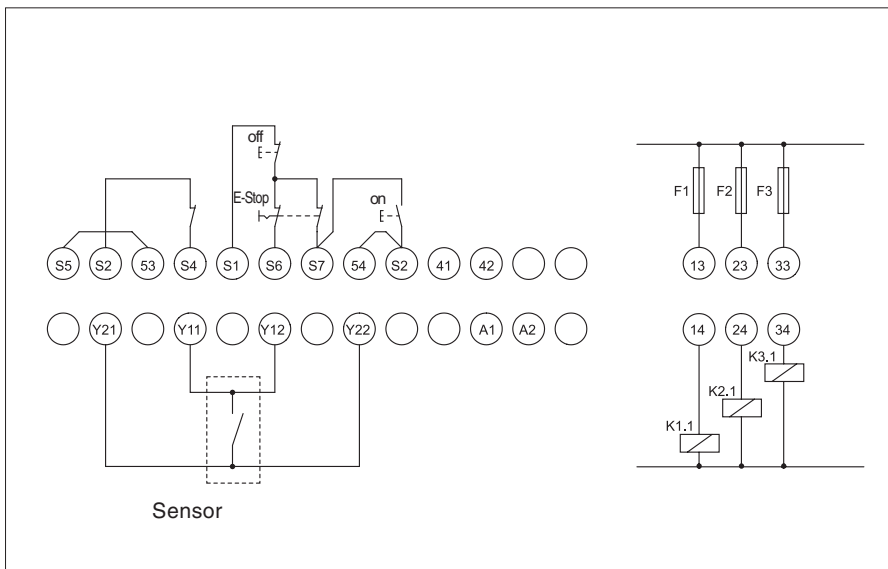
Connection schematics 1:

- Wiring with
- automatic restart,
 - turn-on check and
 - contactor check.



Connection schematics 2:

- Wiring with
- start interlock,
 - restart interlock,
 - turn-on check and
 - contactor check.



Contact duplication:

by means of external contactors

Subject to technical modifications.