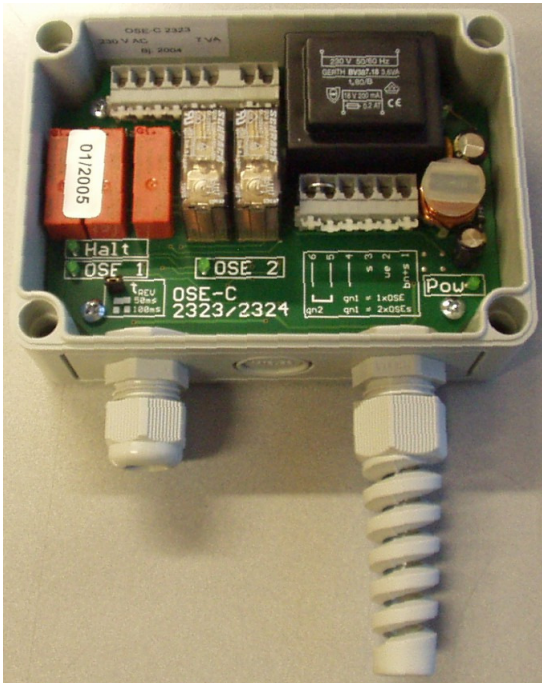


OSE - CONTROL UNITS



Control units

C = Control Unit

Plug-in boards for various door control units are available upon request.

Control units

Designation	Id-No.	Safety category	Supply voltage	Housing	
OSE- C 4524	75113003	1	24 V DC	Clip-on	Control unit for two safety edges
OSE- C 1001	75111007	1	24 V DC / AC	Surface type	Control unit for one safety edge
OSE-C 2300	75111023	3	230 V AC	Surface type	Control unit for two safety edges
OSE-C 2301	75111024	3	24 V DC	Surface type	
OSE- C 2323	75111016	3	230 V AC	Surface type	Control unit for two safety edges and additional NCC evaluation path
OSE- C 2324	75111017	3	24 V DC / AC	Surface type	
OSE-C 5024	75113010	3	24 V DC / AC	Clip-on	Control unit to a maximum of four safety edges
OSE- C 4024	75113000	4	24 V DC	Clip-on	

O S E – C 4 5 2 4

Warning note:

Faultless and safe operating of the devices requires appropriate transportation, handling and storage. The signal transmission unit, the power supply and the enabling circuit have to be mounted and connected by a qualified electrician. The clamps should not be connected and released

under current-carrying conditions. The plug-in cards should not to be plugged in or to be unplugged under current-carrying conditions.

The customer's documentation and operating instructions must be read in its entirety before beginning an installation.

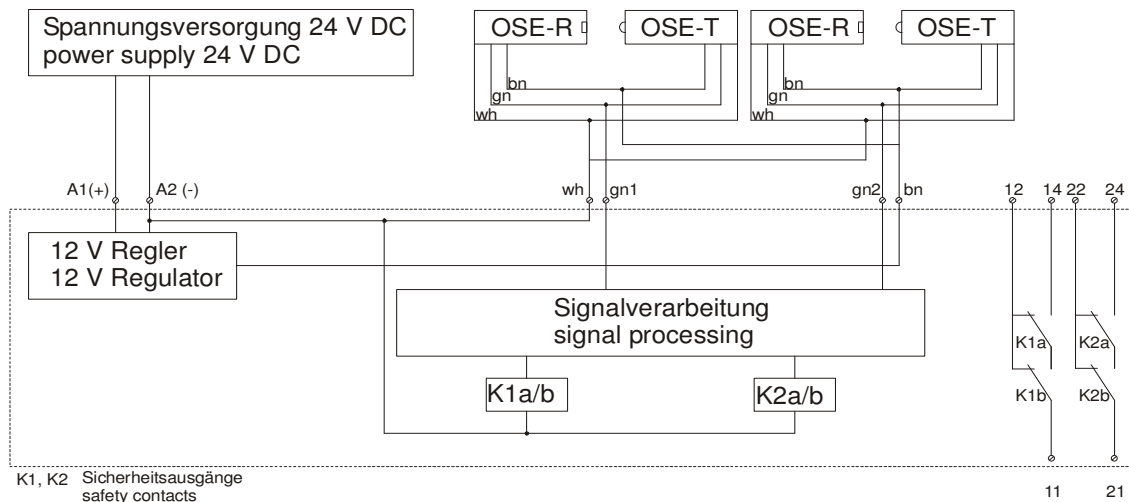
Technical data

General data	
Safety category	Cat. 1 according to DIN EN 954-1, certified (BG)
UL-Certification	E210129
Protection class	Housing IP 40, Contact No. IP 20 (DIN VDE 0470)
Housing material	Polyethylene (black), Crastin (grey)
Housing dimensions	Width: 22.5 mm, Height: 100 mm, Depth: 120 mm
Fitting positions	Any alignment
Operation temperature	+5 °C to +55 °C
Supply voltage	OSE-C 4524: 24 V DC +20 % / -10 %
Frequency range	48 Hz – 64 Hz
Power consumption	max. 4 VA
External fuse	0.2 A slow (not contained in appliance)
Transient voltage suppression	III/4 kV according to DIN VDE 01110, part 1
Soiling category	Cat. 2 according to DIN VDE 01110, part 1
Cyclic duration factor	100 % CDF
Weight	0.34 kg
Response time	16 ms

Indications and terminal assignments	
Voltage supply (Power)	LED green
OSE 1	LED green
OSE 2	LED green
Input contacts	
bn, wh, gn1, gn2	Transmitter / Receiver signal 1 bzw. 2 – wh/gn1 bzw. 2/bn
A1, A2	Voltage supply 24 V DC
Output contacts	
11, 12, 14	Output contacts OSE 1 / OSE 2 (safety contact)
21, 22, 24	Signaling contacts OSE 1 / OSE 2

Relay data	
Contact material	Hard silver, AgCdO
Operating voltage max.	250 V AC / 24 V DC
Operating current max.	6 A
Switching capacity	8 V 24 V DC, 250 VA, AC15: 230 V / 2 A, DC13: 24 V / 3 A
Soiling category	Soiling cat. 2 according to DIN 0160, part 1
Transient voltage suppression	III/4 kV according to DIN VDE 0160
Mechanical service life	2 x 10 ⁷ switching capacity

Connection diagram OSE-C 4524



Output signals

The control units do not need an external reset signal. They behave in accordance with the requirements of DIN EN 1760-2, figure A3.

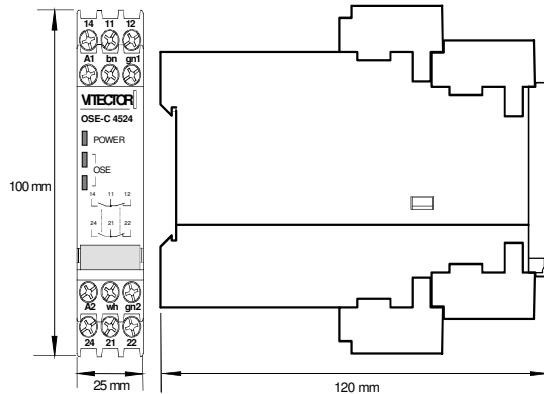
The output contacts 11, 12 and 14 monitor both safety edges. They change their condition, when one or both of the edges are actuated. The contacts 21, 22 and 24 are used for signaling the condition of the edges. If only one OSE is connected to the control unit, the terminals gn1 and gn2 have to be connected.

OSE

The brown and the white leads of the optoelectronic safety edges (OSE) are connected in parallel to the terminals marked bn (brown) and wh (white). The green leads of the edges are connected to terminal gn1, and terminal gn2 respectively.

OSE - C 4524

Drawing



Notes for the mounting

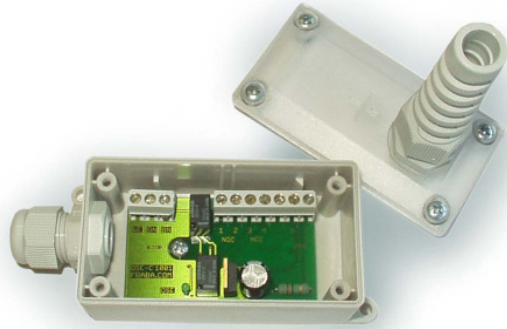
When assembling the control unit into a service cabinet, sufficient distance to a source of heat (> 20 mm) must be observed.

Protection class IP 54 is require

Operating status, fault diagnosis, trouble-shooting OSE-C 4524

Indication	Operating status	Possible cause	Remedy
All LEDs on	OK		
Green LED (Power) out	Error	No voltage or wrong voltage; Control unit defective	Apply voltage; Check voltage
Green LEDs (OSE) out	Actuation or error	Light beam interrupted; Leads interrupted short circuit; Profile damaged Terminal assignment wrong; Only one edge connected Control unit defective	Check whether light path unobstructed; Check leads; Test OSE without profile; Check Terminal assignment Connect gn1 and gn2

OSE - C 1 0 0 1



Scope

This manual is intended for the external control unit OSE-C 1001, in combination with the opto-edge sensors OSE-T and OSE-R.

Description

The external control unit OSE-C 1001 has been developed according to the requirements of safety-category 2 of EN 954-1. The device, consequently can be utilized for automated doors and gates in accordance with the European standards EN 12453 and EN 12978. Without using a testing signal the control unit complies with the safety

category 1 and can not be applied for human protection according to the EN 13241-1 and EN 12453.

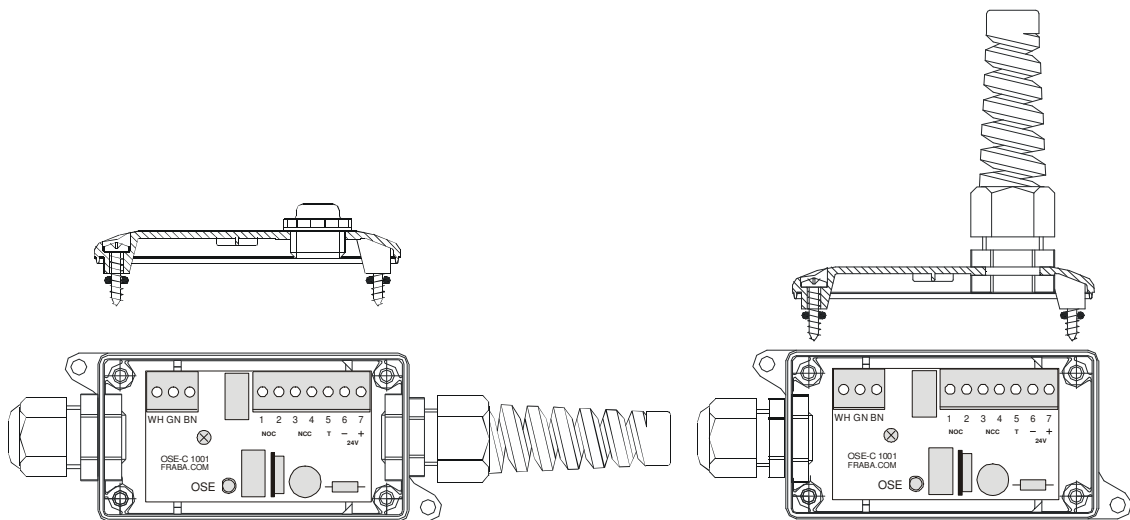
The OSE-C 1001 works with a power supply of 24 V DC. It can be use with AC power supply also (ATTENTION: the maximum power supply is reduced.)

The control unit is designed for one OSE safety edge. When the safety edge detects an obstacle, the safety contact 3 and 4 opens. At the same time the second contact 1 and 2 close.

The contact 1 and 2 can be used to reverse the door. There is no time delay between opening contact 3 and 4 and closing contacts 1 and 2.

Mounting of the enclosure

The enclosure may be mounted with two bolts on any surface, even on surfaces with vibrations (Max. surface vibrations 10 to 55 Hz, 3.3-mm double amplitude, Shock resistance 100 m/s²).



VITECTOR

FRABA

OSE - C 1001

Technical data

General data	
Safety category	Cat. 2 according to DIN EN 954-1
Protection class	Housing IP 65 (DIN VDE 0470)
Housing material	ABS (light grey, similar RAL 7035)
Housing dimensions	Width: 48,5 mm, Height: 40 mm, Depth: 90 mm
Fitting positions	Any alignment
Operation temperature	-20 °C to +55 °C
Supply voltage	24 V DC +20 % / -10 % 24 V AC, +5/ -35 %
Frequency range	48 Hz – 64 Hz
Power consumption	max. 1,5 W
External fuse	not contained in appliance
Cyclic duration factor	100 % ED
Weight	0.34 kg
Response time	16 ms

Relay data	
Operating voltage max.	125 V AC / 60 V DC
Operating current	max. 0,5 A; min 10 mA
Switching capacity	62,5 VA / 30 W

Terminal description

Terminal designation	Function
Power 6, 7	Power supply: : 24 V DC +20 % / -10 %; 24 V AC, +5/ -35 %
1 BN	12 V – Power supply for OSE transmitter and receiver unit (brown lead)
2 WE	0 V – Supply for OSE transmitter and receiver unit (white lead)
4 GN	Signal transmission for connection of first safety edge optical (green lead)
1,2 NOC	contact closes if safety edge is actuated
3,4 NCC	Safety contact, contact opens if safety edge is actuated
5	Testing input, permanent + 24 V for testing 0 V

OSE - C 1001

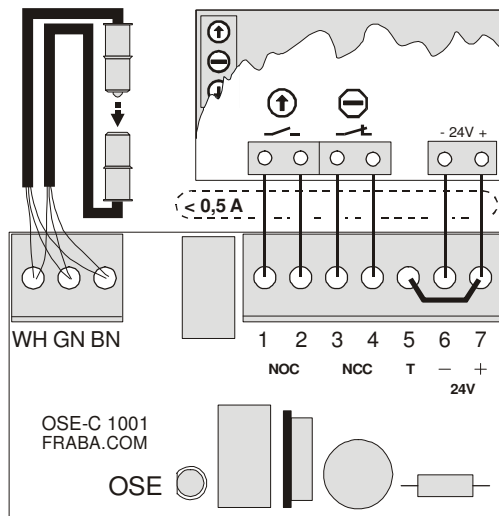
Indication

LED	Status when lit
OSE	Safety contact closed

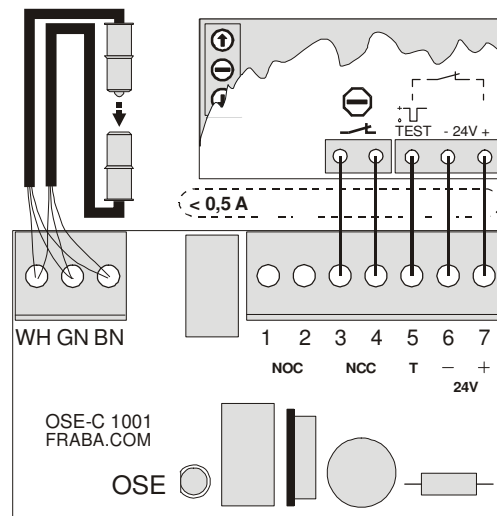
Operating status, fault diagnosis, trouble-shooting

Indication	Operating status	Possible cause	Remedy
LED "OSE" lit	no error		
LED "OSE" out	not ready	no power supply	proving power supply
		Testing input (5) is not connected	set jumper between 5 and 7
		safety edge defect	proving all wires; changing safety edge

Connection OSE safety edge

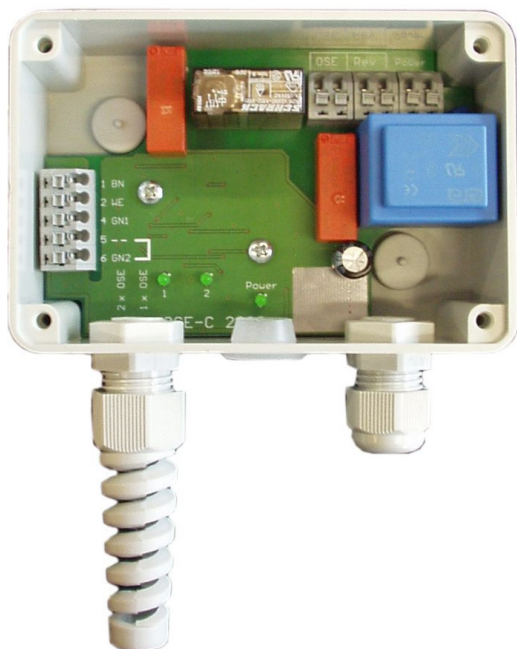


No testing, using contact 1, 2 to reverse the door



Using testing input reversion of door with door control unit.

OSE - C 2300 / OSE - C 2301



Scope

This manual is intended for the external control unit OSE-C 2300 (230V) or OSE-C 2301 (24V), in combination with the opto-edge sensors OSE-T and OSE-R.

Description

The external control unit, OSE-C 2300 / 2301 has been developed according to the requirements of safety-category 3 of EN 954-1. The device consequently can be utilized for automated doors and gates in accordance to the European standards EN 12453 and EN 12978.

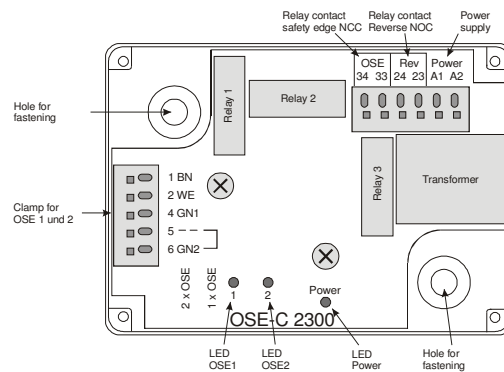
The control unit will monitor up to two optical safety edges. The contacts of the redundant output-relay (terminals 33/34,) open, if one of the two installed optical safety edges is actuated. A differentiation between the two optical safety edges is not possible.

After the opening of the output-relays, a NO-reverse contact (terminals 23/24) will be closed for a short period to re-open the door. The time delay before the door reverses is set to 50 ms. The relay is actuated for a duration of 500 ms.

For easy installation the unit is equipped with quick release terminals. The electric wires without conductor sleeves are to insert into the connection terminals from above with the following procedure: Open a clamp by pressing the lever with a small screwdriver. Insert the wire into the clamp. Release the lever. The wire now is fixed correctly. (Attention: Do not press the levers for opening too strong, because they could be damaged!)

Mounting of the enclosure

The enclosure may be mounted with two bolts on any even, non-vibrating surface. The two fixture holes are pre-punched and may be opened carefully on site. Drilling with a power drill is forbidden. When the housing is firmly mounted, the bolts have to be covered with the enclosed plastic caps.



OSE – C 2300 / OSE – C 2301

Technical data

General data	
Safety category	Cat. 3 according to DIN EN 954-1
Protection class	IP 56 (DIN VDE 0470)
Housing material	PS, grey RAL 7035, grey cover
Housing dimensions	Length: 83 mm, Width: 123 mm, Height: 61 mm
Operation temperature	-20 °C to +55 °C
Fitting position	Any alignment
Supply voltage	OSE-C 2300 230 V AC \pm 20 % OSE-C 2301 24 V DC \pm 20
Frequency range	48 Hz - 64 Hz
Power consumption	2,8 VA
External fuse	not necessary
Transient voltage suppression	III/4 kV according to DIN VDE 01110, part 1
Soiling category	Cat. 2 according to DIN VDE 01110, part 1
Cyclic duration factor	100 % ED
Weight	0.36 kg

Indication and terminal assignments

LED "Pow"	LED green – Readiness for working
LED "1"	Safety edge on clamp 4 is working
LED "2"	Safety edge on clamp 6 is working
Input contacts	
1, 2, 3, 4, 5, 6	Transmitter / Receiver signal 1, Transmitter / Receiver signal 2,
A1, A2	Supply voltage
Output contacts	
23, 24	Reverse contact
33, 34	Release contact OSE 1 / OSE 2 (safety contact)

OSE – C 2300 / OSE – C 2301

Terminal assignment

Terminal designation	Function
Power A1, A2	Power supply : OSE-C 2300: 230 V AC +/- 10%; protection class II (DIN EN 60529) OSE-C 2301: 24 V DC +/- 20 %
1 BN	12 V – Power supply for OSE transmitter and receiver unit (brown lead)
2 WE	0 V – Supply for OSE transmitter and receiver unit (white lead)
4 GN1	Signal transmission for connection of first safety edge optical (green lead)
5	In case of connection of one safety edge optical: wire bridge to terminal 6 In case of connection of two safety edges optical: without wire bridge
6 GN2	In case of connection of one safety edge optical: wire bridge to terminal 5 In case of connection of two safety edges optical: signal transmission of second safety edge optical (green lead)

Indications

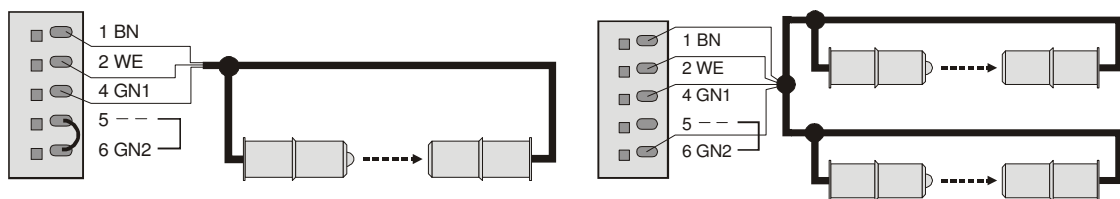
LED	Status when lit
LED "Power"	Ready for working
LED "1"	Optical safety edge at terminal 4 in function and enabled
LED "2"	Optical safety edge at terminal 6 in function and enabled

When only one safety edge is in use, and terminals 5 and 6 are bridged, both LEDs have identical function.

Operating status, fault diagnosis, trouble-shooting

Indication	Operating status	Possible cause	Remedy
LED "Power" out of function	Not operative	Power supply defective or interrupted	Check power supply
LED "1" and/or "2" out of function	"OSE" – relays open	The respective safety edge optical open or defective	Discharge respective safety edge optical, otherwise check function
LED "1" and/or "2" blink periodical	Error-detecting mode in external control unit	Technical defect in external control unit	Switch on an off power supply. When identical error, change external control unit

Wiring diagram for one or two safety edges



Technical data

General data	
Safety category	Cat. 3 according to DIN EN 954-1
Protection Class	IP 65 (DIN VDE 0470)
Housing material	Polycarbonate, grey RAL 7035, transparent cover
Housing dimensions	Length: 94 mm, Width: 130 mm, Height: 60 mm (without PG-joints)
Operation temperature	-20 °C to +55 °C
Fitting position	Any alignment
Supply voltage	OSE-C 2323 230 V AC \pm 20 % OSE-C 2324 24 V DC \pm 20 % or 24 V AC \pm 20 %
Frequency range	48 Hz - 64 Hz
Power consumption	max. 7 VA
External fuse	0.2 A slow (not contained in appliance)
Transient voltage suppression	III/4 kV according to DIN VDE 01110, part 1
Soiling category	Cat. 2 according to DIN VDE 01110, part 1
Cyclic duration factor	100 % CDF
Weight	0.5 kg (OSE-C 2323) / 0.36 kg (OSE-C 2324)
Response time	max. 16 ms

Indication and terminal assignments	
LED "Pow"	LED green – Readiness for working
LED "Halt"	LED yellow – Slack rope/extra passage switch chain closed
LED "OSE 1"	LED green – Opto-electronic safety edge at clamp 4 in regular condition and enabled
LED "OSE 2"	LED green – Opto-electronic safety edge at clamp 6 in regular condition and enabled
Input contacts	
1, 2, 3, 4, 5, 6	Transmitter / Receiver signal 1, Transmitter / Receiver signal 2, Slack rope switch / extra passage switch chain
A1, A2	Supply voltage
Output contacts	
13, 14	Release contact, safety switch
23, 24	Reverse contact
33, 34	Release contact OSE 1 / OSE 2 (safety contact)

OSE – C 2323 / OSE – C 2324

Relay data	Output 33/34	Output 13/14, 23/24
Contact material	Hard silver, AgCdO	Hard silver, AgCdO
Operating voltage max.	250 V AC/DC	250 V AC / 24 V DC
Limit of constant current	4 V	6 V
Operating current max.	4 A	8 A 24 V DC, 250 VA, AC15: 230 V / 2 A, DC13: 24 V / 3 A
Switching capacity	1000 VA	8 A 24 V DC, 250 VA, AC15: 230 V / 2 A, DC13: 24 V / 3 A
Mechanical service life	30 x 10 ⁶ switching capacity	20 x 10 ⁶ switching capacity
Fuse	4 A slow (not contained in appliance)	6 A slow (not contained in appliance)
Protection class	Soiling category 2 according to DIN 0160, part 1 Transient voltage suppression III/4 kV according to DIN VDE 0160	

OSE

The brown and the white leads of OSE are connected in parallel to the terminals 1 - marked bn (brown) - and 2 - marked wh (white). The green leads of the edges are connected to terminal 4 = gn1, and terminal 6 = gn2 respectively. If only one edge is connected the terminals 5 and 6 have to be bridged.

Release contact (NCC)

The relay contact 33/34 is closed, when the safety edge is not actuated. In case of an error or an actuation, the contact opens. The release contact for the safety switches (13/14) behaves likewise.

Reverse contact

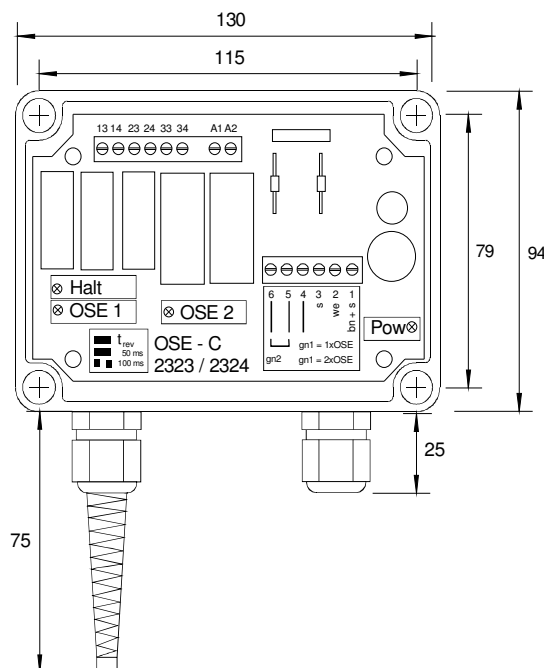
The signal created by the reverse contact is a delayed signal, which is generated 50 or 100 ms after the actuation (selectable by jumper setting) of the safety edge and lasts for 0.5 seconds.

The relay contact (23/24) is open, when the safety edge is not actuated. In case of an error or an actuation, the contact closes as described above. the release signal could be used to reverse the door and thus to release the obstacle.

Switches

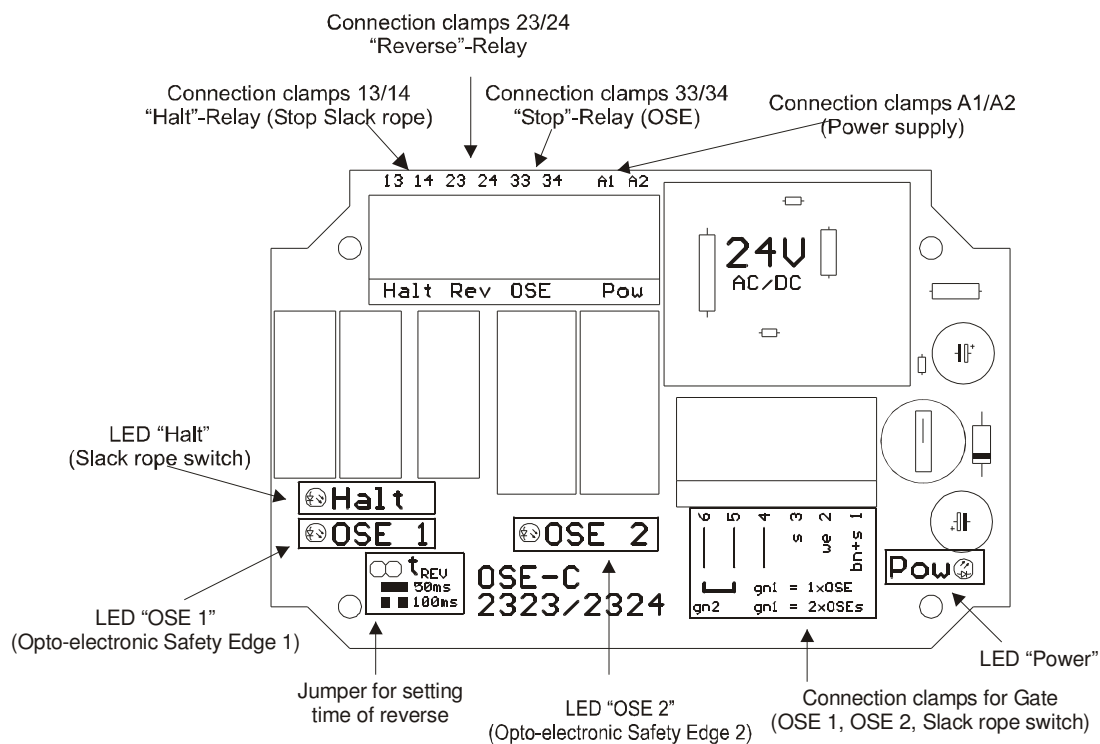
Between contacts 1 and 3 safety switches can be connected (slack rope switches and extra passage switches. They got to be designed as release contacts (NCC). The condition of the switches is indicated at the contacts 13/14.

Drawing



OSE - C 2323 / OSE - C 2324

Connection diagram OSE-C 2323 / OSE-C 2324



Operating status, fault diagnosis, trouble-shooting OSE-C 2323 / OSE-C 2324

Indication	Operating status	Possible cause	Remedy
All LEDs on	OK		
Green LED (Pow) out	Error	No voltage or wrong voltage; Control unit defective	Apply voltage; Check voltage
Green LED (OSE 1, OSE 2) out	Actuation or error	Light beam interrupted; Leads interrupted short circuit; Profile damaged Terminal assignment wrong; Control unit defective	Check whether light path unobstructed; Check leads; Test OSE without profile; Check terminal assignment
Green LED (Halt) out	Error	Safety switch open; Lead to the safety switches interrupted	Check the safety switches; Check leads

Technical data

General data	
Safety category	3 according to DIN EN 954-1, Certified (BG)
Protection class	Housing IP 40, Terminal block IP 20 (DIN VDE 0470)
Housing material	Polyethylene (black), Crastin (grey)
Housing dimensions	Width: 22.5 mm, Height: 100 mm, Depth: 120 mm
Fitting position	Any alignment
Operation temperature	-10 °C to +55 °C
Supply voltage	24 V DC (+20% / -10%) / 24 V AC (+10 % / -10 %)
Power consumption	max. 4 VA
Fuse	1 A slow (not contained in appliance)
Transient voltage suppression	III/4 kV DIN, VDE 0110, part 1
Soiling condition	Cat. 2 according DIN VDE 0110, part 1
Cyclic duration factor	100 % CDF
Weight	0.15 kg
Response time	18 ms

Indications and terminal assignments	
Power	LED green – Readiness for working
Stop	LED green – Release
OSE1 – OSE4	LED green – safety edge 1 – 4 OK
Input contacts	
we, bn, gn1 – gn4	Signaling transmitter 1 – 4 OK
A1 / A2	Supply voltage
X2 / X3	Reset
Output contacts	
13/14	Safety contact S
X1	Signaling contact (semiconductor, PNP)

Relay data	
Contact material	Hard silver AgNi 10 + 0.2 µm Au
Operating voltage max.	250 V AC / 250 V DC
Marginal continuous current	2 A
Operating current max.	2 A
Switching capacity	AC15: 230 V / 3A; DC13: 24 V / 4 A
Fuse	2 A slow (not contained in appliance)
Mechanical service life	> 10 ⁷ switching capacity

Relais data	
Contact material	Hard silver, AgNi 10 + 0,2 µm Au
Operating voltage max.	250 V AC / 250 V DC
Marginal continuous current	2 A
Operating current max.	2 A
Switching capacity	AC15: 230 V / 3A; DC13: 24 V / 4 A
Fuse	2 A inert (do not contain in the equipment)
Mechanical service life	> 10 ⁷ Switching cycles

Notes for the mounting

When assembling the control unit into a service cabinet, sufficient distance to a source of heat (> 20 mm) has to be observed therefore a service cabinet of protection class IP 54 is necessary.

OSE

The brown and the white leads of the optoelectronic safety edges are connected in parallel to the terminals marked bn (brown) and wh (white). The green leads of the edges are connected to terminal gn1, respectively to terminals gn1 – gn4.

Number	gn1	gn2	gn3	gn4
1	OSE1			
2	OSE 1		OSE 2	
3	OSE 1	OSE 2	OSE 3	
4	OSE 1	OSE 2	OSE 3	OSE 4

Release contact (NCC)

The relay contact between clamps 13 and 14 is closed in normal status of the safety edge. It opens at activations or faults and interrupts thereby. Releasing the circuit.

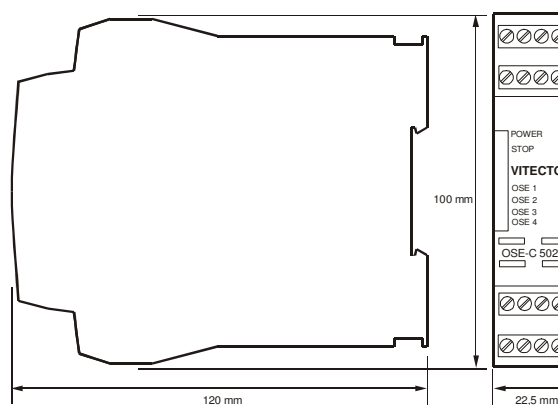
Signaling contact

A semiconductor output (signaling output, not safety directed) serves for signaling the fault to the control system (PNP-'Open-Collector').

Reset

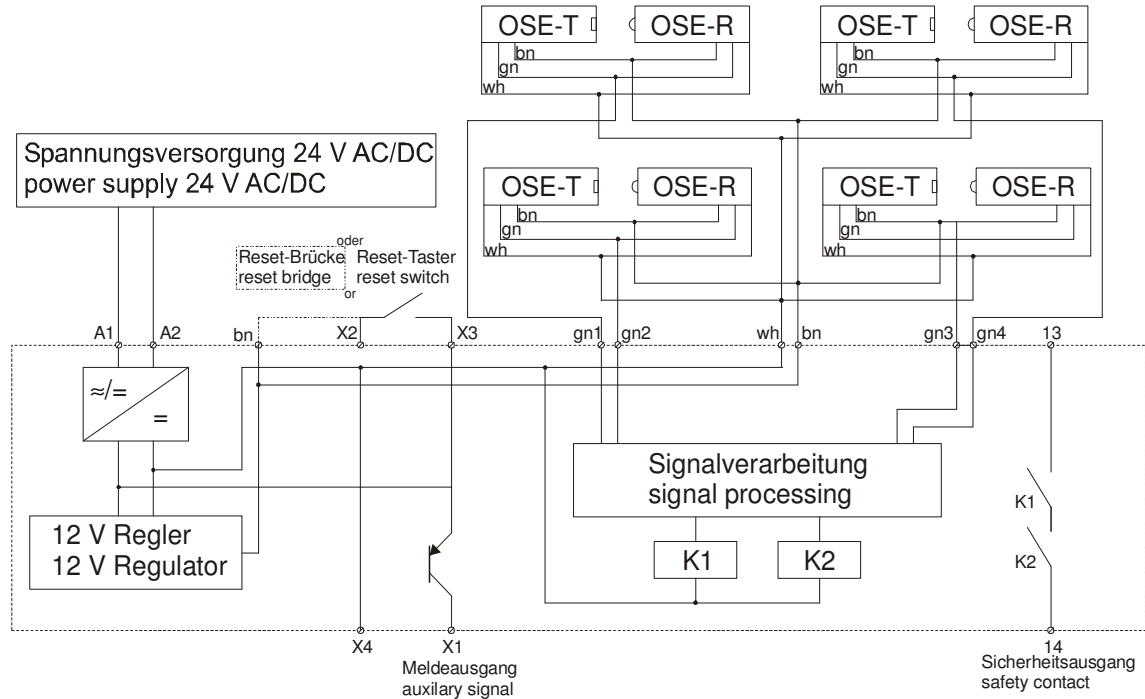
- Manual Reset (X2 / X3)
- The manual reset meets the requirements of EN 1760-2 (Status diagram A2) and of section 5.4 DIN EN 954-1.
- Bridged Reset (X2 / bn)
- At bridged reset the system meets the requirements of EN 1760-2 (Status diagram A3).

Drawing



OSE - C 5024

Connection diagram OSE-C 5024



Operating status, fault diagnosis, trouble shooting OSE-C 5024

Indication	Operating status	Possible cause	Remedy
LED "Power" out	Not operative	Supply voltage interrupted or defective	Check voltage supply
LED "Stop" out	"Stop" – Relay open	At least one safety edge is activated or defective	Release safety edges; if necessary check functions
LED "OSE n" out	"Stop" – Relay open	The respective safety edge respective is activated or defective	Relieve safety edge; if necessary check functions
LEDs "OSE n" blink (running light)	Error detecting in device	Technical fault in control unit	Switch Supply voltage off and on. If the same fault happens change control unit

Technical data

General data	
Safety category	Cat. 4 according to DIN EN 954-1, Certified (BG)
UL-Certification	E210129
Protection Class	Housing IP 40, Terminal block IP 20 (DIN VDE 0470)
Housing material	Polyethylene (black), Crastin (grey)
Housing dimensions	Width: 22.5 mm, Height: 100 mm, Depth: 120 mm
Fitting positions	Any alignment
Operation temperature	+5 °C to +55 °C
Supply voltage	24 V DC (+20% / -10%)
Power consumption	max. 4 VA
Fuse	1 A slow
Transient voltage suppression	III/4 kV (DIN, VDE 0110, part 1)
Soiling-condition	Cat. 2 according to DIN VDE 0110, part 1
Cyclic duration factor	100 % CDF
Weight	0.2 kg
Response time	32 ms

Indications and terminal assignments

Power	LED green
Channel / OSE	LED green
Input contacts	
we, bn, gn	Signaling transmitter
A1	Supply voltage (24 V DC)
A2	GND
X2 / X3	Reset
Output contacts	
13/14/23/24	Release, safety contact S
X1	Signaling-contact (Semiconductor NPN)

Relay Data	
Contact material	Hard silver, AgCdO
Operating voltage max.	250 V AC/DC
Continuos current max.	4 A
Operating current max.	4 A
Fuse	4 A slow (not contained in appliance)
Switching capacity	1000 VA
Mechanical service life	30 x 10 ⁶ contacts

Notes for the mounting

When assembling the control unit into a service cabinet, sufficient distance to a source of heat (> 20 mm) has to be observed, therefore a servic3e cabinet of protection class IP 54 is necessary.

OSE

The leads of the opto-electronic safety edge (OSE) must be connected to the terminals marked bn (brown) wh (white) and gn (green).

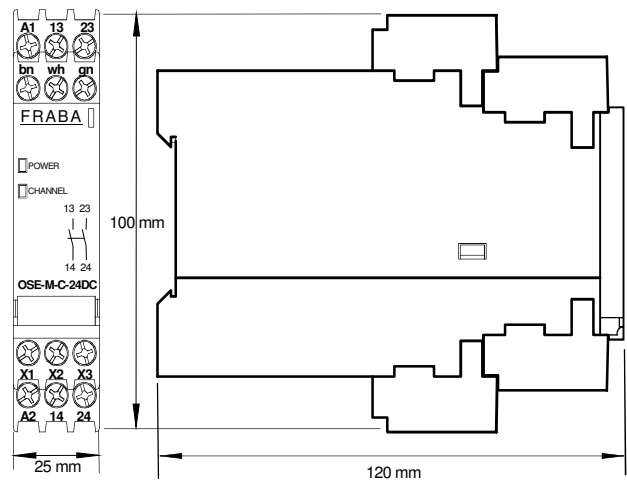
Release contact (NCC)

The redundant relay contact is closed in the normal status of the safety edge. It opens at activation of faults and interrupts thereby Re-leasing thee circuit.

Signaling contact

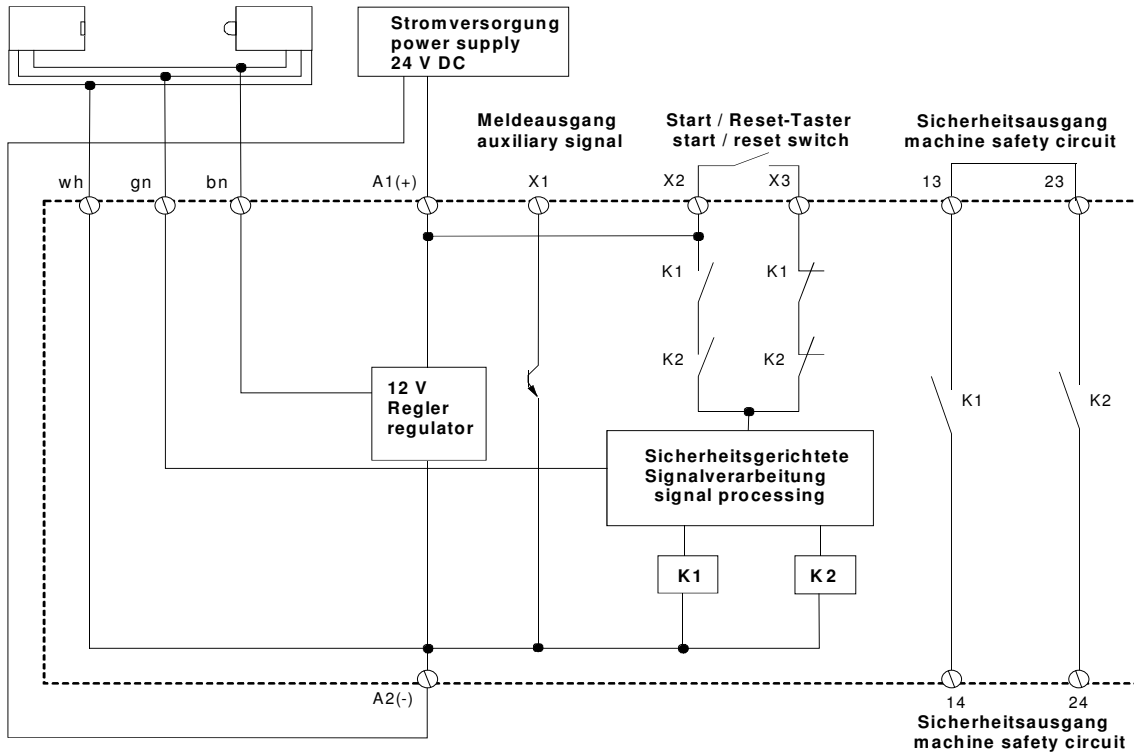
A semiconductor output (signaling output, not safety directed) serves for signaling the faults to the control system (NPN-'Open-Collector').

Drawing



OSE - C 4024

Connection diagram OSE-C 4024



Operating status, fault diagnosis, trouble-shooting OSE-C 4024

Indication	Operating status	Possible cause	Remedy
LED "Power" out	OK		
Green LED (Power) out	Error	No voltage or wrong voltage; Control unit defective	Apply voltage; Check voltage
Green LED (OSE1 or OSE2) out	Actuation or error	Light beam interrupted; Leads interrupted short circuit; Profile damaged Terminal assignment wrong; Control unit defective	Check whether light path unobstructed; Check leads; Test OSE without profile; Check terminal assignment