

Extracts from the original instructions

# BSR10 Sentry safety relay

[EN] The complete original instructions can be found at:  
 [SE] Den kompletta bruksanvisningen i original finns på:  
 [DE] Die komplette Originalbetriebsanleitung ist zu finden unter:  
 [IT] Le istruzioni originali complete si trovano qui:  
 [FR] La notice originale intégrale est disponible sur:  
 [ES] La versión original de las instrucciones está disponible en:

[www.abb.com/jokabsafety](http://www.abb.com/jokabsafety)

## Product description

BSR10 is a safety relay with basic monitoring functions for 1- and 2-channel sensors and equivalent contacts for expansion of safety modules.

## Installation

**WARNING:** The product must be installed by a trained electrician following applicable safety regulations, standards and the machine directive.

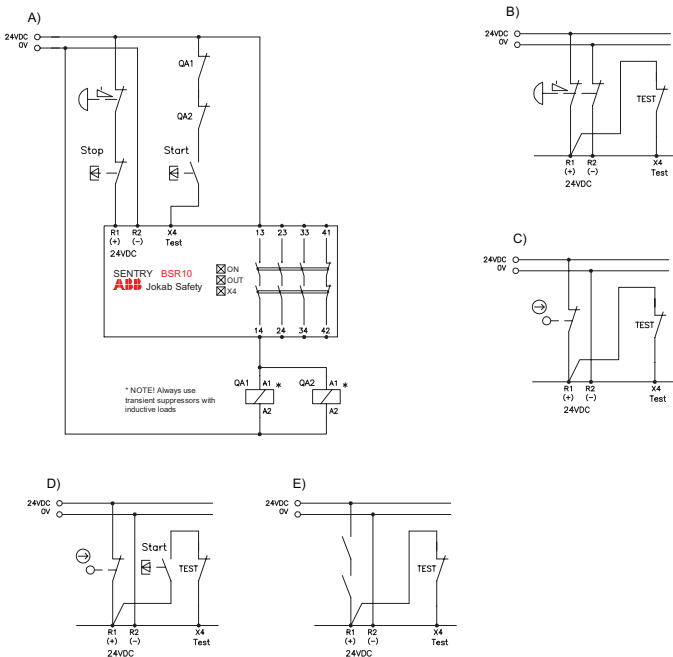
**CAUTION:** The safety relay shall be attached on a 35 mm DIN rail in an enclosure that has at least protection class IP54.

**CAUTION:** Make sure there is at least 10 mm distance between the safety relay and other non-Sentry safety relay units to prevent uncontrolled heating.

**CAUTION:** Make sure there is at least 50 mm distance above and below the safety relay and other units for correct air flow in the venting holes of the safety relay.

## Connection

**WARNING:** The safety relay and the sensor device for monitoring must be connected to SELV/PELV power supply.



\* The start input should not be used as reset

- A. One signal from +24VDC, start and stop
- B. Two signals from +24VDC / 0V
- C. One signal from +24VDC
- D. One signal from +24VDC, start
- E. One signal from +24VDC

## LED indication

ON/OUT/X4	Indication	Procedure for correction
off/off/off	Loss of power supply or too low voltage. Occurs during regular operation.	Measure R1/R2 voltage.
green/off/off	Input X4 is not powered with correct voltage. Occurs during regular operation.	Measure X4/R2 voltage. Troubleshoot the monitored device.
green/off/green	Safety relay internal error.	Exchange the safety relay.
off/off/green	No signal to R1. Occurs during regular operation.	Measure R1/R2 voltage.
green/green/green	Relay is activated	

## Technical data

Measurements	
Height/width/depth	120 mm/22.5 mm/120 mm
Relay output specification	
Maximum operating switching voltage	250 VAC
Overvoltage category	II
Input R1, R2 and X1	
Minimum high/Maximum low voltage	15 V/1 V
Maximum current sink	200 mA
NO contact	
AC load (AC15, AC1), rated operational voltage, current 1/2/3 contact(s)	250 VAC, 5 A/5 A/4.6 A
DC load (DC13, DC1), rated operational voltage, current 1/2/3 contact(s)	+24 VDC, 6 A/5.6 A/4.6 A
Required fuse	6.3 A gG, 1 kA short circuit protection (6 A according to UL248)
NC contact	
AC load (AC15, AC1), rated operational voltage/current	250 VAC/0.5 A
DC load (DC13, DC1), rated operational voltage/current	+24 VDC/2 A
Required fuse	4 A gG, 1kA short circuit protection (4 A according to UL 248)
Connection block and wire properties	
Maximum screw torque	0.8 Nm
Solid conductor, minimum	1 x 24 AWG (0.2 mm <sup>2</sup> ), 2 x 24 AWG (0.2 mm <sup>2</sup> )
Solid conductor, maximum	1 x 12 AWG (3.31 mm <sup>2</sup> ), 2 x 16 AWG (1.31 mm <sup>2</sup> )
Conductor with crimp sleeve, minimum	1 x 24 AWG (0.2 mm <sup>2</sup> ), 2 x 24 AWG (0.2 mm <sup>2</sup> )
Conductor with crimp sleeve, maximum	1 x 12 AWG (3.31 mm <sup>2</sup> ), 2 x 16 AWG (1.31 mm <sup>2</sup> )
Wire strip length	6-7 mm
Maximum response time	
Response time at activation, start	40 ms
Response time at deactivation	20 ms

Extracts from the original instructions

# BSR10

## Sentry safety relay

[EN] The complete original instructions can be found at:  
[SE] Den kompletta bruksanvisningen i original finns på:  
[DE] Die komplette Originalbetriebsanleitung ist zu finden unter:  
[IT] Le istruzioni originali complete si trovano qui:  
[FR] La notice originale intégrale est disponible sur:  
[ES] La versión original de las instrucciones está disponible en:  
[www.abb.com/jokabsafety](http://www.abb.com/jokabsafety)

Electrical operations life time	
Load $\Sigma I_{th}^2 \leq 64$ , AC1, AC15	160 000 operations
Load $\Sigma I_{th}^2 \leq 64$ , DC1, DC13	100 000 operations
Mechanical operations lifetime	
10 <sup>7</sup> operations	
Environmental data	
Protection class, safety relay	IP20
Protection class, enclosure	At least IP54
Ambient temperature range for operation within specified operation range	-10°C – +65°C
Humidity range for operation	25 % ≤ Rh ≤ 90 %, non-condensing and without icing
Suitable for use at ≤ 2000 metres above sea level.	
Standard compliance and approvals	
Functional safety standard compliance	EN 61508-1:2010, up to SIL3 EN ISO 13849-1:2008, up to PLe/Cat.4 EN 62061:2005, up to SILCL3 EN 61511-1:2003
Approvals	CE, TÜV SÜD, cULus
Declaration of conformity	Can be found at: <a href="http://www.abb.com/jokabsafety">www.abb.com/jokabsafety</a>
Information for use in USA/Canada	
Intended use	Applications according to NFPA 79
Power source	A suitable isolating source in conjunction with a fuse in accordance with UL 248
Fuse	The fuse shall be rated max. 4 A and be installed in the +24 VDC power supply to the device in order to limit the available current.

### Maintenance



**WARNING:** The safety functions and mechanics shall be tested every year to confirm that the safety functions work properly.



**WARNING:** Repair and exchange of parts of the safety relay is not permitted since it may accidentally cause permanent damage to the product, impairing safety of the device which in turn could lead to serious injury to personnel. In case of breakdown or damage to the product contact ABB Jokab safety to replace the safety relay with a similar product.

While every effort has been taken to ensure the accuracy of information contained in this book and any associated promotional and information material ABB Jokab Safety cannot accept responsibility for errors or omissions and reserves the right to make any improvements without notice. It is the users responsibility to ensure that this equipment is correctly designed, specified, installed, cared for and operated to meet all applicable local, national and international codes/regulations. Technical data in our book is correct to the level of accuracy of ABB Jokab Safety's test procedures as verified by various international approved bodies. Other information (such as application examples, wiring diagrams, operation or use) is intended solely to illustrate the various uses of our products. ABB Jokab Safety does not guarantee or imply that the product when used in accordance with such examples in a particular environment will fulfil any particular safety requirement and does not assume any responsibility or liability for actual use of the product based on the examples given.