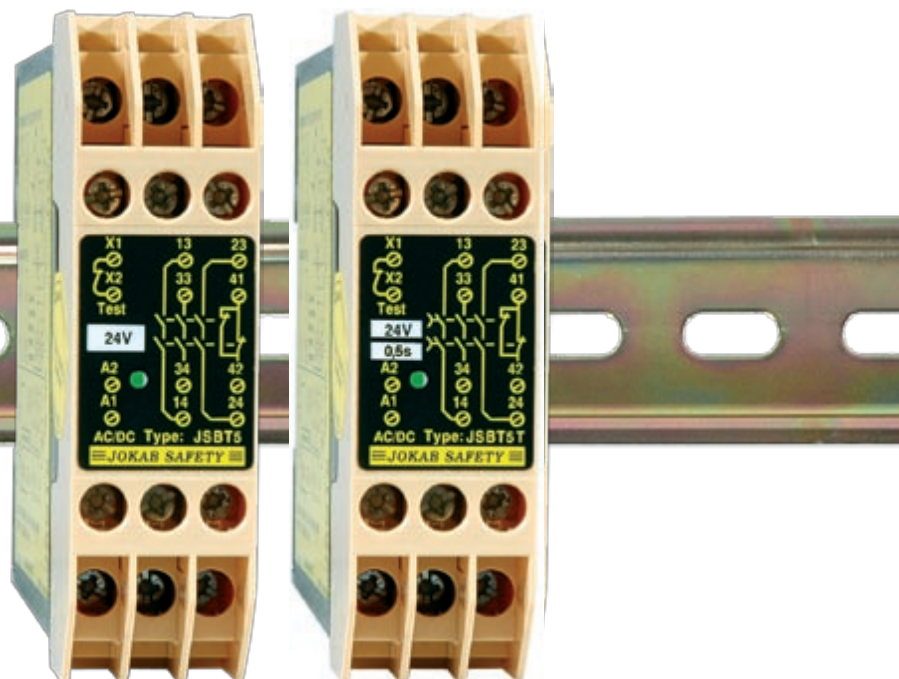


## Safety relay

# JSBT5(T)



### Approvals:



### Safety relay for:

Emergency stop  
Interlocked hatch

### Features:

Single and “dual” channel  
Test/start input  
Width 22.5 mm  
LED indication  
3 NO/1NC relay outputs  
(T) = delayed outputs  
0.5 sec.  
Supply 12 VDC, 24 VDC/  
AC

### Single channel safety relay

The JSBT5 is designed to connect safety devices, such as emergency stops, directly in the voltage supply circuit to the relay. Despite a maximum built-in width of 22.5 mm the relay is very powerful.

With 3 NO safety outputs, 1 NC, test input and complete internal supervising, the JSBT5 is quite unique. In addition you can order delayed outputs (JSBT5T).

In order for the safety outputs to close, the supply voltage, e.g. by means of an emergency stop button, must be connected to A1 and A2 and the test input closed. After actuation of the relay the test input can be opened again.

The test input is intended to supervise that contactors or valves have dropped/returned before a new start can be permitted. The test input can also be used for starting and the start button can be supervised (see connection example on next page).

### Safety level

The JSBT5 has a twin and supervised internal safety function. Power failure, internal component faults or external interference cannot result in dangerous functions.

Input via A1 only is not protected from short circuiting, and therefore installation is critical for the safety level to be achieved. To achieve a higher safety level a screened cable can be used and/or connection made to both A1 and A2 (see example overleaf).

### Regulations and standards

The JSBT5 is designed and approved in accordance with appropriate directives and standards. See technical data.

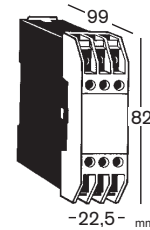
### Connection examples

For examples of how our safety relays can solve various safety problems, please see the section “Connection examples”.

## Technical data – JSBT5(T)

<b>Manufacturer</b>	ABB AB/Jokab Safety, Sweden
<b>Article number/Ordering data</b> JSBT5 24 AC/DC JSBT5 12 VDC JSBT5T 24 AC/DC	2TLJ010005R0100 2TLJ010005R0700 2TLJ010005R1100
<b>Colour</b>	Black and beige
<b>Operational voltage</b> JSBT5: JSBT5T:	24 VDC/AC + 15%–25%, 50–60 Hz 12 VDC, 24 VDC/AC + 15% – 25%, 50 - 60 Hz
<b>Power consumption</b>	1 W/1,9 VA
<b>Relay Outputs</b>	3 NO + 1 NC
<b>Max. switching capacity</b> Resistive load AC Inductive load AC Resistive load DC Inductive load DC	6A/250 VAC/1500 VA AC15 240VAC 2A 6A/24 VDC/150 W DC13 24VDC 1A
<b>Max. res. load total switching capacity:</b>	9A distributed on all contacts
<b>Min. load</b>	10mA/10 V (if load on contact has not exceeded 100 mA)
<b>Contact material</b>	AgCuNi
<b>Fuses Output (External)</b>	5A gL/gG
<b>Conditional short-circuit current (1 kA)</b>	6A gG
<b>Max Input Wire res. at nom. voltage</b>	200 Ohm
<b>Response time at deactivation</b>	<60 ms or delayed max 500 ms (JSBT5T)

<b>Terminals (Max. screw torque 1 Nm)</b> Single strand: Conductor with socket contact:	2x1.5 mm <sup>2</sup> 2x1mm <sup>2</sup>
<b>Mounting</b>	35 mm DIN-rail
<b>Protection class enclosure/ terminals</b>	IP 40/20 IEC 60529
<b>Impulse Withstand Voltage</b>	2.5kV
<b>Pollution Degree</b>	2
<b>Operating temperature range</b>	-10°C to +55°C (with no icing or condensation)
<b>Operating humidity range</b>	35% to 85%
<b>Function indication</b>	Electrical Supply
<b>Weight</b>	200 g
<b>Performance (max.)</b> Functional test: The relays must be cycled at least once a year.	Category 4/PL e (EN ISO 13849-1:2008) SIL 3 (EN 62061:2005) PFH <sub>d</sub> 1.22E-08
<b>Conformity</b>	2006/42/EC, 2006/95/EC, 2004/108/EC EN 954-1:1996, EN 62061:2005 EN ISO 13849-1:2008



## Technical description – JSBT5(T)



When supply voltage is connected to A1 and A2, relays K1 and K2 are activated. K1 and K2 drop if the supply voltage is disconnected. Both relays K1 and K2 must drop for them to be activated again. Another requirement is that the test circuit, X1 - X2, must be closed for the outputs to be activated. Thereafter X1 - X2 can either be open or constantly closed.

The supervising circuit ensures that both

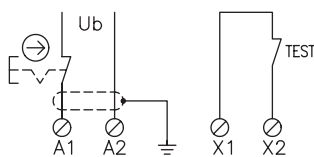
K1 and K2 have dropped before they can be reactivated. The stop function complies with the requirement that a component fault or external interference cannot lead to a dangerous function.

The safety outputs consist of contacts from K1 and K2 connected internally in series across terminals 13 - 14, 23 - 24, and 33 - 34. These contacts are used to cut the power to components which stop

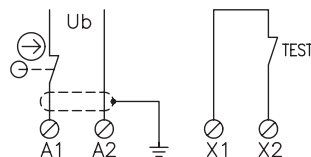
or prevent hazardous movements/functions. It is recommended that all switched loads are adequately suppressed and/or fused in order to provide additional protection for the safety contacts.

The NC output 41 - 42 should only be used for monitoring purposes e.g. indication lamp for emergency stop pressed.

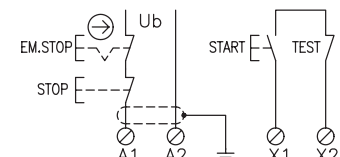
## Electrical connection – JSBT5(T)



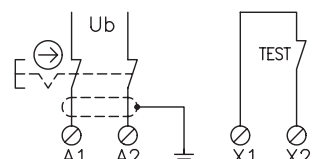
Emergency stop with automatic reset when emergency button returns.



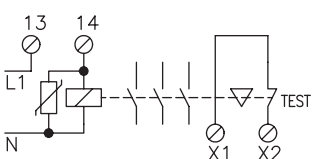
Hatch with automatic reset.



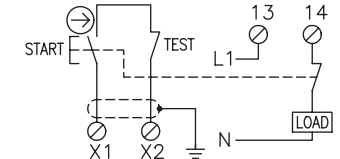
JSBT5 as emergency stop and control relay with Start and Stop function.



Emergency stop with dual connection direct to the supply voltage.



Controlled monitoring of external contactor, relay, valve or ABB Jokab Safety's expansion relays.



Monitoring to ensure that the On button is not stuck in pressed position. A short circuit over the closing contact is not monitored. The JSBR4 has built in short circuit monitored resetting.