

# Three-position device

## JSHD4

JSHD4 is a three-position device used to allow a limited movement of the machine when the operator is in the dangerous area, for example during troubleshooting, test running and programming.

The operator pushes the larger black button to a middle position in order to allow a movement. In case of danger, the operator will either release the button or squeeze it to its bottom position and the machine will stop.

JSHD4 is available with different types of connectors for an optimal adaptation to the application. Some models offer additional top and front button to control a non-safe signal, for ex. move forward and/or backward.



Safety and protection

### Cheat-safe hand recognition

All JSHD4 models comply with PL e/ Cat 4. Some models offer an “anti-tamper” function: an extra signal indicate if the JSHD4 is held in the middle position by a human hand. A machine movement will be authorized only in presence of this signal and not if the device is held in run position by any other (fraudulent) mean.



Optimum interface

### Ergonomic shape and operation

JSHD4 is ergonomic, both in respect of its shape, fitting to the hand, and the way the buttons are operated. JSHD4 is easy to operate using just the fingers (even with gloves), and the middle position provides a safe resting position.



Continuous operation

### Safely inspect a running machine

JSHD4 allows the operators to safely inspect the manufacturing process without completely stopping the machine.

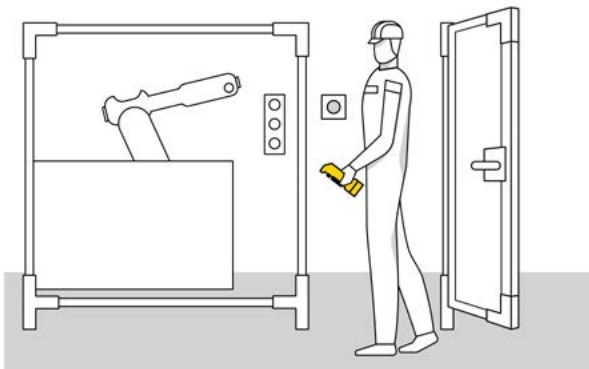
## Applications and features

### JSHD4

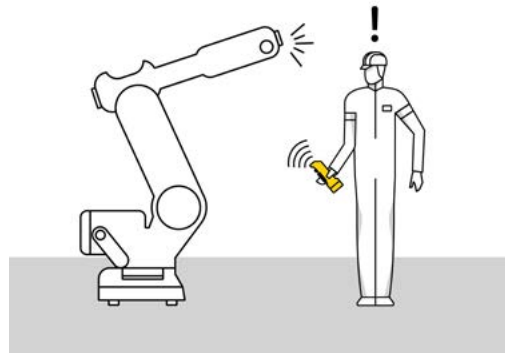
#### Applications

##### Safe troubleshooting, programming and testing

If the operator has to enter a risk area for troubleshooting or test running, it is extremely important that he/she is able to stop the machinery without having to rely on someone else pushing a stop button. In addition, no-one else should be able to start the machinery after it has been stopped by the operator. An operator who is under pressure must also be able to give a stop signal, whether in panic he/she pushes harder on the button or just releases it.



JSJD4 three-position control device can be used for troubleshooting, programming and test running in situations where no other protection is available or feasible. JSJD4 allows the operator to safely inspect the process without completely stopping the machine. The big black button has 3 distinct positions: released, pressed gently and pressed hard. The middle position allows the machine to run with limited speed or range, but when released or pressed hard the machine stops.



#### Features

##### Hand recognition for protection against tampering

An optional “anti-tamper” function sends an extra signal to indicate if the JSJD4 is held by a human hand or not. By using this, the safety level is increased, and the risk of manipulation or bypass of the safety function is reduced. It is no longer possible to expose the operator to danger by trying to lock the three-position control device in run mode.

##### Ergonomic design

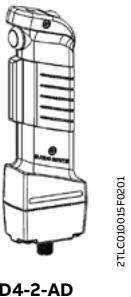
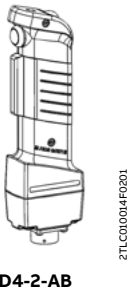
JSJD4 is ergonomic, both in respect of its shape, fitting to the hand and the way the buttons are operated. It is easy to operate the device by using just the fingers (even with gloves), and the middle position provides a secure resting position.

##### Additional top and front buttons for non-safe signals

The two additional buttons can be used for e.g. start/stop, up/down or forward/ back. These buttons should not be used for safety related functions.

# Ordering information

## JSHD4



### Complete list of JSHD4 models

This list shows the possible combination of features. Some combinations can be ordered pre-assembled with a single order code. Other combinations need to be ordered in separate parts (see next page).

Top part	Bottom part	Anti-tamper	Type	Order code
Buttons and LEDs	Feature	ID	Connection	
JSHD4-1 No LEDs No buttons	Use your own cable	AA	Cable gland and 5 screw connections	JSHD4-1-AA 2TLA019995R0000
	Cost effective and quick connection	AC	M12-5 male	JSHD4-1-AC 2TLA019995R0100
	Holder for Eva (used with JSM54)	AL	Cable gland and 10 screw connections	JSHD4-1-AL Order separate parts
JSHD4-2 LEDs Front button Top button	Cost effective and robust	AB	Cannon 12 male pins	JSHD4-2-AB 2TLA019995R0200
	Cost effective and quick connection	AD	M12-8 male	● JSHD4-2-AB-A Order separate parts
				● JSHD4-2-AD-A Order separate parts
	Use your own cable, simplified connection	AH	Cable gland and 10 screw connections	● JSHD4-2-AH 2TLA019995R0800
	Use your own cable, full pin connection	AJ	Cable gland and 16 screw connections	● JSHD4-2-AH-A Order separate parts
				● JSHD4-2-AJ-A Order separate parts
	Replacement of old units*	AK	Cannon 12 male pins	JSHD4-2-AK 2TLA019995R4800
	Holder for Eva (used with JSM54)	AL	Cable gland and 10 screw connections	● JSHD4-2-AL Order separate parts
				● JSHD4-2-AL-A Order separate parts
	JSHD4-3 LEDs No buttons	Cost effective and robust	AB	Cannon 12 male pins
Cost effective and quick connection		AD	M12-8 male	● JSHD4-3-AB-A Order separate parts
				● JSHD4-3-AD-A Order separate parts
E-stop		AE	M12-8 male	JSHD4-3-AE Order separate parts
Use your own cable, simplified connection		AH	Cable gland and 10 screw connections	● JSHD4-3-AH 2TLA019995R2000
				● JSHD4-3-AH-A Order separate parts
Use your own cable, full pin connection		AJ	Cable gland and 16 screw connections	● JSHD4-3-AJ Order separate parts
				● JSHD4-3-AJ-A Order separate parts
Replacement of old units*		AK	Cannon 12 male pins	JSHD4-3-AK Order separate parts
Holder for Eva (used with JSM54)		AL	Cable gland and 10 screw connections	● JSHD4-3-AL Order separate parts
	● JSHD4-3-AL-A Order separate parts			
JSHD4-4 LEDs Front button	Cost effective and robust	AB	Cannon 12 male pins	JSHD4-4-AB Order separate parts
	Cost effective and quick connection	AD	M12-8 male	● JSHD4-4-AB-A Order separate parts
				● JSHD4-4-AD-A Order separate parts
	Use your own cable, simplified connection	AH	Cable gland and 10 screw connections	● JSHD4-4-AH Order separate parts
				● JSHD4-4-AH-A Order separate parts
	Use your own cable, full pin connection	AJ	Cable gland and 16 screw connections	● JSHD4-4-AJ Order separate parts
				● JSHD4-4-AJ-A Order separate parts
	Replacement of old units*	AK	Cannon 12 male pins	JSHD4-4-AK Order separate parts
	Holder for Eva (used with JSM54)	AL	Cable gland and 10 screw connections	● JSHD4-4-AL Order separate parts
				● JSHD4-4-AL-A Order separate parts
JSHD4-5 LEDs Top button	Cost effective and robust	AB	Cannon 12 male pins	JSHD4-5-AB Order separate parts
	Cost effective and quick connection	AD	M12-8 male	● JSHD4-5-AB-A Order separate parts
				● JSHD4-5-AD-A Order separate parts
	Use your own cable, simplified connection	AH	Cable gland and 10 screw connections	● JSHD4-5-AD Order separate parts
				● JSHD4-5-AH Order separate parts
	Use your own cable, full pin connection	AJ	Cable gland and 16 screw connections	● JSHD4-5-AH-A Order separate parts
				● JSHD4-5-AJ Order separate parts
	● JSHD4-5-AJ-A Order separate parts			
	Replacement of old units*	AK	Cannon 12 male pins	JSHD4-5-AK Order separate parts
	Holder for Eva (used with JSM54)	AL	Cable gland and 10 screw connections	● JSHD4-5-AL Order separate parts
● JSHD4-5-AL-A Order separate parts				

\* See document 2TLC010007L0201 for information about replacement

## Ordering information

### JSHD4



JSHD4-2 Top part



AA, AH, AJ - Cable gland



AB, AK - Cannon connection



AC, AD - M12 connection



AE - M12 with E-stop



AL - Cable gland and holder for Eva (used with JSM54)



Anti-tamper PCB

#### Top parts, bottom parts and anti-tamper

To order a complete JSHD4, a top part and a bottom part must be included. Don't forget the anti-tamper PCB if required.

For example, if you want to order a JSHD4-3-AB-A, please order

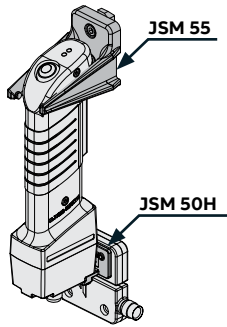
- JSHD4-3 top part
- JSHD4 AB bottom part
- Anti-tamper PCB (the "-A" at the end of the designation stands for Anti-tamper)

Please note that all combinations are not compatible. See previous page for possible combinations.

Description	Type	Order code
<b>Top parts</b>		
Top part with no LEDs, no buttons	JSHD4-1 Top part	2TLA020006R2100
Top part with LEDs, front and top buttons	JSHD4-2 Top part	2TLA020006R2200
Top part with LEDs, no buttons	JSHD4-3 Top part	2TLA020006R2300
Top part with LEDs, front button	JSHD4-4 Top part	2TLA020006R2400
Top part with LEDs, top button	JSHD4-5 Top part	2TLA020006R2500
<b>Bottom parts</b>		
Bottom part with cable gland	JSHD4 AA	2TLA020005R1000
Bottom part with Cannon connector	JSHD4 AB	2TLA020005R1100
Bottom part with M12-5 connector	JSHD4 AC	2TLA020005R1200
Bottom part with M12-8 connector	JSHD4 AD	2TLA020005R1300
Bottom part with M12-8 connector and E-stop button	JSHD4 AE	2TLA020005R1400
Bottom part with cable gland and PCB with 10 screw terminals	JSHD4 AH	2TLA020005R1700
Bottom part with cable gland and PCB with 16 screw terminals	JSHD4 AJ	2TLA020005R1800
Bottom part with cannon connector (replacement of former JSHD4)	JSHD4 AK	2TLA020005R1900
Bottom part with cable gland and holder for Eva	JSHD4 AL	2TLA020005R2000
<b>Anti tamper</b>		
Anti-tamper PCB	JSHD4 Anti-tamper	2TLA020005R0900

## Accessories

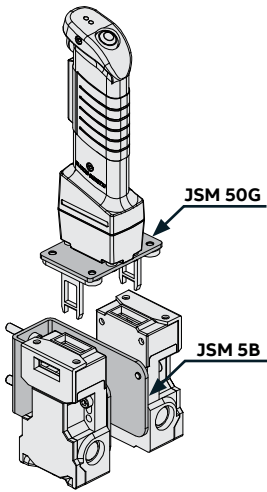
### JSHD4



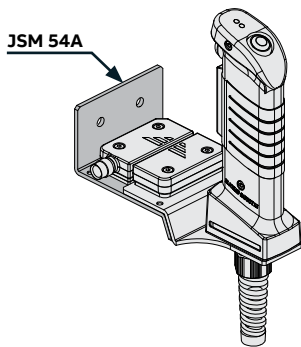
**JSM 55 wall bracket and JSM 50H bracket for Eden**

#### Accessories

Description	Type	Order code
<b>Brackets and bottom plates</b>		
JSM 55 Wall bracket for three position device	JSM 55	2TLA040005R0500
JSM 5B Wall bracket for 2 pcs MKey5 interlock switches	JSM 5B	2TLA040005R0700
JSM 54A Wall bracket for Adam. Used with AL bottom part that has a holder for Eva	JSM 54A	2TLA020205R2800
JSM 50G Bracket for key switches	JSM 50G	2TLA020205R6300
JSM 50H Bracket for Eden sensor	JSM 50H	2TLA020205R6400
<b>Others</b>		
JSHD4 protection coat	JSHD4 Coat	2TLA020200R4600



**JSM 50G bracket for key switches and JSM 5B wall bracket for 2 pcs MKey5**



**JSM 54A wall bracket for Adam (and AL bottom part that has a holder for Eva)**



**JSHD4 protection coat**

2TLC17235IF001

## Accessories

### JSHD4



**JSHD4H2A**



**JSHD4H2B**



**JSHD4H2**

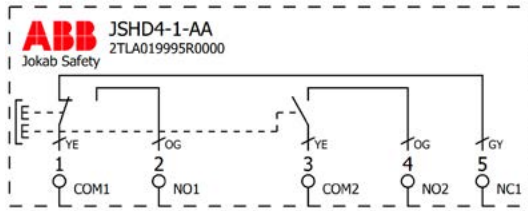
#### JSHD4H2

The three-position button of JSHD4 is available as a separate part for either external mounting or panel mounting. JSHD4H2A/B are intended for mounting on the back side of a handheld teaching pendant or similar. JSHD4H2 can be mounted in a panel hole.

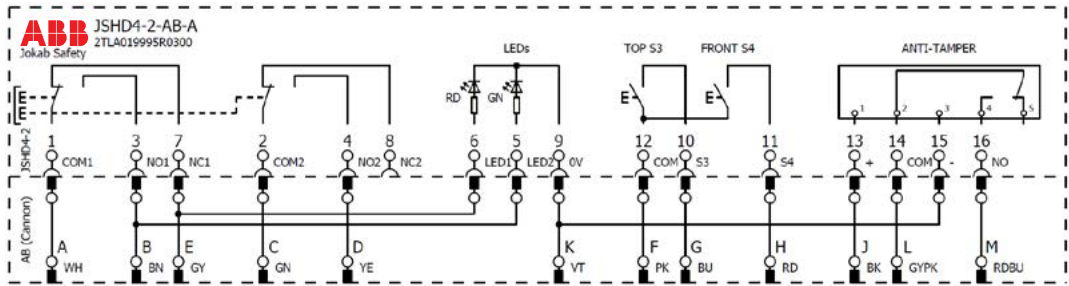
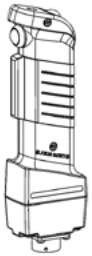
Mounting	Leads	Hand	Type	Order code
External mounting	6 x 150 mm	Left	JSHD4H2A	2TLA020002R0200
		Right	JSHD4H2B	2TLA020002R0210
Internal panel mounting	6 x 150 mm	-	JSHD4H2 0.15 m	2TLA020002R3100
	6 x 1200 mm	-	JSHD4H2 1.2 m	2TLA020002R4500

## Electrical wiring diagrams

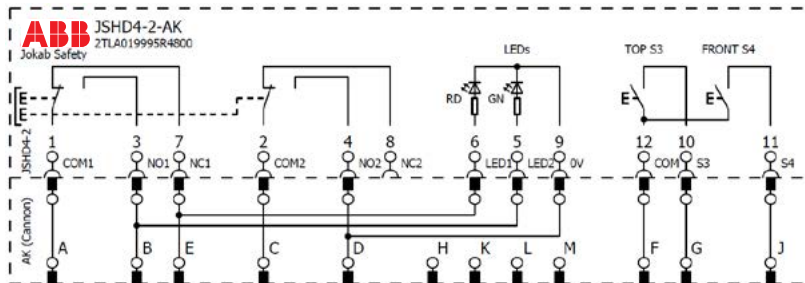
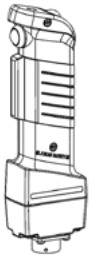
Examples with JSHD4-1 and JSHD4-2 models



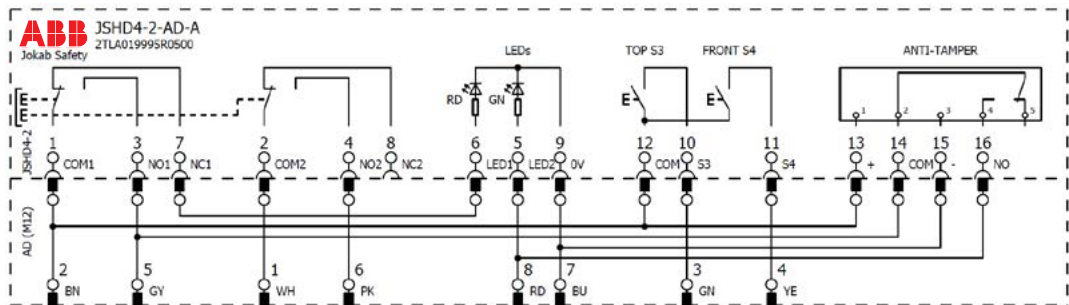
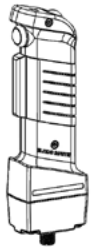
JSHD4-1-AA, cable gland and 5 screw connections on JSHD4-1



JSHD4-2-AB-A, Cannon 12 pins



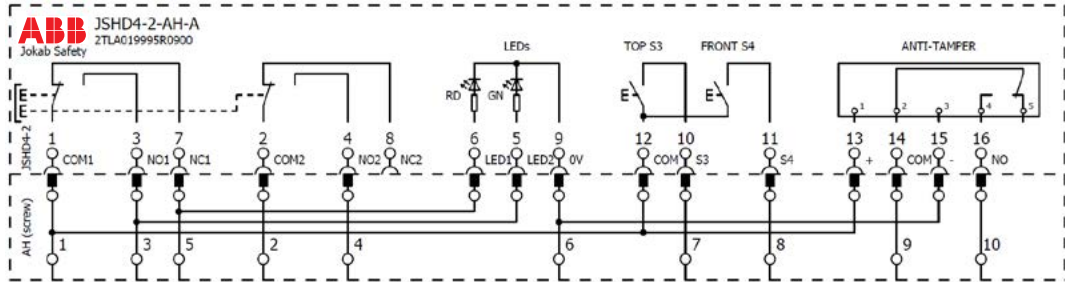
JSHD4-2-AK, Cannon 12 pins



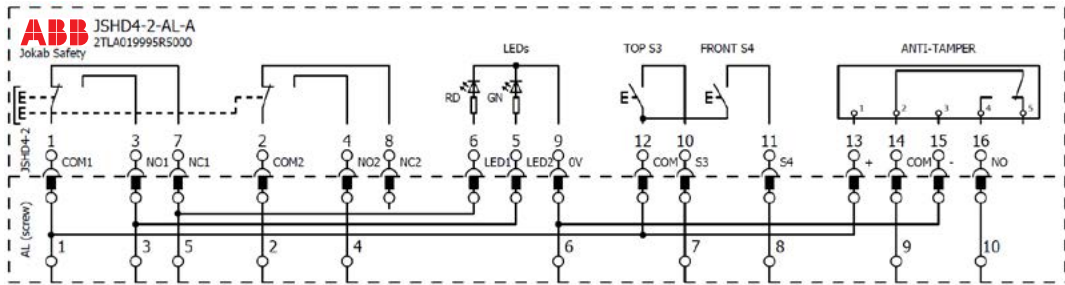
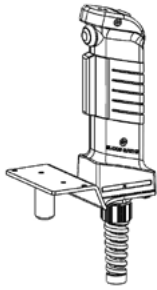
JSHD4-2-AD-A, M12-8

# Electrical wiring diagrams

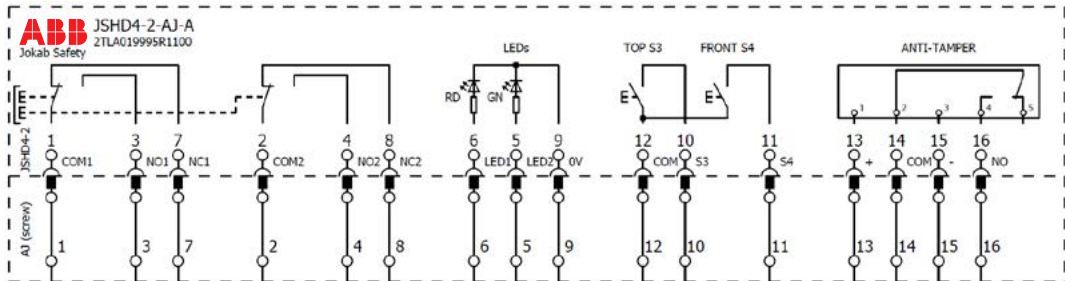
Examples with JSHD4-2 models



JSHD4-2-AH-A, cable gland and 10 screw connection



JSHD4-2-AL-A, cable gland and 10 screw connection






JSHD4-2-AJ-A, cable gland and 16 screw connection



## Technical data and dimension drawings

JSHD4

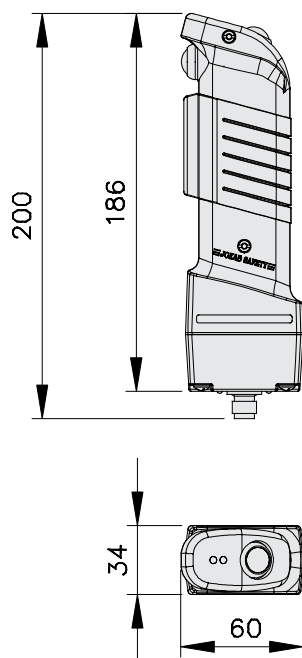
### Technical data

Approvals	  
Conformity	<b>CE</b> 2006/42/EC - Machines 2014/30/EU - EMC 2011/65/EU - RoHS EN ISO 12100-1:2010, EN ISO 13849-1:2015, EN ISO 13849-2:2012, EN 60204-1:2006+A1:2009, EN 61000-6-2:2005, EN 61000-6-3:2007
Functional safety data	
EN ISO 13849-1:2016	Up to PL e (depending on number of operations per year) B <sub>10d</sub> : 2 000 000 to middle position, 968 000 to bottom position
Electrical data	
Current allowed, three-position button	Per channel: Maximum +30 VDC, 20 mA, (Minimum +10 VDC, 8 mA)
Current allowed, extra button	Maximum 500 mA
Operation force	Approx. 15 N for three-position buttons (ON) Approx. 45 N for three-position buttons (OFF) Approx. 2.5 N for top/front push button
Mechanical data	
Operating temperature	-10 ... +50 °C
Protection class	IP65
Mechanical life	1 000 000 cycles to middle position
Weight	Approx. 0.2 kg without cable

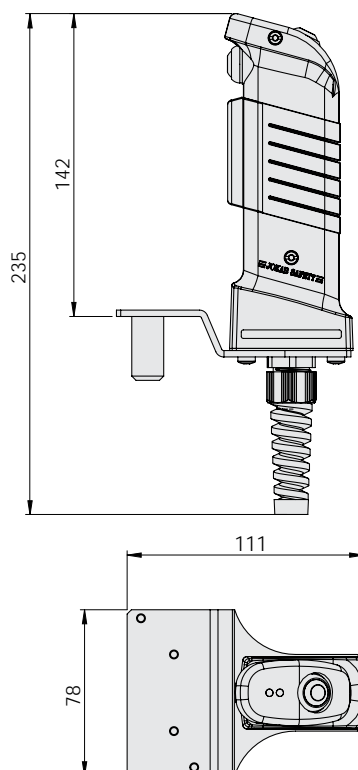
### More information

For more information, e.g. the complete technical information, see product manual for: [JSHD4\\_2TLC172072M0201](#)

### Dimension drawings



JSHD4-2-AD



JSHD4-2-AL

All dimensions in mm