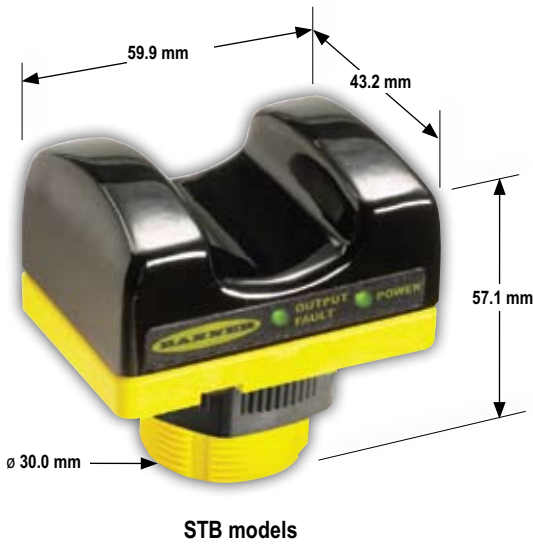


STB Self-Checking Touch Buttons

- Provides highest level of safety for two-hand control input devices, per independent certification tests
- Provides redundant microprocessor and optical path
- Responds to a finger blocking light rather than to pressure
- Features ergonomic design to prevent repetitive motion stress
- Includes yellow field cover to prevent unintended switching
- Immune to ambient light, EMI and RFI
- Available with e/m relays rated for 1 amp switch capacity or solid-state outputs rated for 150 mA
- Withstands exposure to a variety of chemicals, depending on model
- For safety applications, STB buttons must be used with DUO-TOUCH® SG Two-Hand control modules, SC22-3.. Safety Controller or comparable control Type IIIC Two-Hand system



STB Self-Checking Buttons – Solid-State Outputs, 10-30V dc

Connection	Upper Housing	Solid-State Outputs	Models
2 m	Polyetherimide	2 Complementary PNP (1 ON, 1 OFF)	STBVP6
4-Pin Mini QD			STBVP6Q
4-Pin Euro QD			STBVP6Q5

STB Self-Checking Buttons – e/m Relay Outputs, 20-30V ac/dc


Connection	Upper Housing	e/m Relay Outputs	Models
2 m	Polyetherimide	2 Complementary SPST (1 NC, 1 NO)	STBVR81
5-Pin Mini QD			STBVR81Q
5-Pin Euro QD			STBVR81Q6

NC = Normally Closed, NO = Normally Open


Connection options: A model with a QD requires a mating cordset (see page 563).

For 9 m cable, add suffix **W/30** to the 2 m model number (example, **STBVP6 W/30**).

STB Self-Checking Buttons Specifications

Supply Voltage and Current	STBVP6 Models: 10 to 30V dc @ 75 mA, typical STBVR81 Models: 20 to 30V ac/dc or 20V to 30V ac (peak-to-peak value), (50/60 Hz ± 5%) @ 75 mA
Supply Protection Circuitry	Protected against transient voltages and reverse polarity
Output Configuration	STBVP6 Models: Complementary PNP (sourcing) open-collector transistors STBVR81 Models: Complementary electromechanical relay
Output Rating	STBVP6 Models (solid-state outputs): Max. load: 150 mA ON-state saturation voltage: +V _(supply) -1.5V OFF-state leakage current: less than 1 µA STBVR81 Models (electromechanical relay): Max. switching voltage: 125V dc/150V ac Max. switching current: 1A @ 24V dc; 0.4A @ 125V ac (resistive loads) Max. resistive load power: 24 W dc; 50 VA ac Mechanical life of relay: 10 ⁹ cycles Electrical life of relay: 1.5 x 10 ⁵ cycles at 1 amp 24V resistive
Output Protection	All models protected against false pulse on power-up. Models with solid-state outputs have overload and short-circuit protection.
Output Response Time	20 milliseconds ON/OFF
Indicators	2 green LED indicators: Power: ON –power applied OFF –power off Output/fault: ON –button is activated OFF –button is deactivated Flashing –internal fault or blocked button on power-up detected
Construction	Totally encapsulated, non-metallic enclosure. Black Polyetherimide (PEI) upper housing; fiber-reinforced PBT polyester base. Electronics fully epoxy-encapsulated. Supplied with polypropylene (TP) field cover.
Environmental Rating	Meets NEMA standards 1, 3, 4, 4X, 12 and 13; IP66
Connections	PVC-jacketed 2 m cables standard on integral-cable kits; QD fitting, depending on model. Accessory QD mating cordsets required for QD models. QD cordsets are ordered separately. See page 563. STBVP6: 4-wire (4-pin Mini-style QD, add suffix Q or 4-pin Euro-style QD, add suffix Q5) STBVR81: 5-wire (5-pin Mini-style QD, add suffix Q or 5-pin Euro-style QD, add suffix Q6) Integral 9 m cables are also available by adding suffix W/30 to the 2 m model number.
Ambient Light Immunity	Up to 100,000 lux
Applicable Agency Standards	(Used with an AT-FM-10K module or an SC22-3 Safety Controller) Analysis of measures for fault avoidance and fault control according to SIL3 (IEC 61508 and IEC 62061) and Category 4 (EN ISO 13849-1) passes EMI/RFI test levels as specified in IEC61496 and IEC62061.
Operating Conditions	Temperature: 0° to +50° C Relative humidity: 90% @ +50° C (non-condensing)
Application Notes	Environmental considerations for models with Polyetherimide (PEI) upper housings: The Polyetherimide upper housing will become brittle with prolonged exposure to outdoor sunlight. Window glass effectively filters ultraviolet light and provides excellent protection from sunlight. Avoid contact with strong alkalis hydrocarbons and fuels. Clean periodically using mild soap solution and a soft cloth.
Two-Hand Control System Note	When the STBVP6 is used with Banner's SC22-3 Safety Controller in a two-hand control system, the power supply to the STBVP6 must be of the same voltage that is used to power the Safety Controller and they must have a common supply ground.
Certifications	
Hookup Diagrams	STB Solid State (PNP): DC03 (p. 744) STB e/m Relay: UN01 (p. 753)

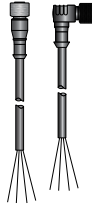
STB Self-Checking Button Field Covers

Description	Models	
Black cover	OTC-1-BK	
Green cover	OTC-1-GN	
Red cover	OTC-1-RD	
Yellow cover	OTC-1-YW	

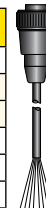
Field covers are designed to prevent inadvertent activation of buttons due to objects (loose clothing, debris, etc.) which might accidentally block their sensing beams. Field covers are constructed of rugged polypropylene and are highly resistant to abrasion and to damage by most chemicals. Standard model numbers are shipped with a yellow cover.


Cordsets

Euro QD to Flying Leads				
See page 682				
Length	Threaded 4-Pin		Threaded 5-Pin	
	Straight	Right-Angle	Straight	Right-Angle
1.83 m	MQDC-406	MQDC-406RA	MQDC1-506	MQDC1-506RA
4.57 m	MQDC-415	MQDC-415RA	MQDC1-515	MQDC1-515RA
9.17 m	MQDC-430	MQDC-430RA	MQDC1-530	MQDC1-530RA
15.2 m	MQDC-450	MQDC-450RA	-	-









Mini QD to Flying Leads		
See page 700		
Length	Threaded 4-Pin	Threaded 5-Pin
	Straight	Straight
1.83 m	MBCC-406	MBCC-506
3.66 m	MBCC-412	MBCC-512
9.14 m	MBCC-430	MBCC-530



 Additional cordset information available. See page 679.

Brackets

STB				
				
pg. 639	pg. 640	pg. 641	pg. 648	pg. 648
SMB30A	SMB30MM	SMB30SC	SMBAMS30P	SMBAMS30RA

 Additional brackets and information available. See page 620.

- Photoelectrics Sensors
- Fiber Optic Sensors
- Special Purpose Sensors
- Measurement & Inspection Sensors
- Vision
- Wireless
- Lighting & Indicators
- Safety Light Screens
- Safety Laser Scanners
- Fiber Optic Safety Systems
- Safety Controllers & Modules
- Safety Two-Hand Control Modules**
- Safety Interlock Switches
- Emergency Stop & Stop Control

- DUO-TOUCH SG
- STB BUTTONS**
- DUO-TOUCH RUN BARS

DC Hookups

DC01	Current Sinking (NPN)	<p>Key</p> <p>1 = Brown 3 = Blue 4 = Black</p>
Current Sourcing (PNP)		<p>Key</p> <p>1 = Brown 3 = Blue 4 = Black</p>
3-Pin Pico		

DC02	Emitter	<p>Key</p> <p>1 = Brown 2 = White† 3 = Blue 4 = Black†</p> <p>† Not Used</p>	
3-Pin Pico	4-Pin Pico	4-Pin Euro	4-Pin Mini

DC03	Complementary Current Sinking (NPN)	<p>Key</p> <p>1 = Brown 2 = White 3 = Blue 4 = Black</p>
Complementary Current Sourcing (PNP)		<p>Key</p> <p>1 = Brown 2 = White 3 = Blue 4 = Black</p>
4-Pin Pico	4-Pin Euro	4-Pin Mini

DC04	Bipolar (NPN + PNP)	<p>Key</p> <p>1 = Brown 2 = White 3 = Blue 4 = Black</p>
4-Pin Pico	4-Pin Euro	4-Pin Mini



Universal AC/DC Hookups

Accessories

Reference

Hookups

Wiring Diagrams

Glossary

International Reps

UN01 SPDT Electromechanical Relay Output				
<p>** NOTE: Connection of dc power is without regard to polarity.</p>	<p>Key</p> <p>5-Pin Euro 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray†</p> <p>5-Pin Mini 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Yellow*</p>			
	<table border="1"> <tr> <th>5-Pin Euro</th> <th>5-Pin Mini</th> </tr> <tr> <td></td> <td></td> </tr> </table>	5-Pin Euro	5-Pin Mini	
5-Pin Euro	5-Pin Mini			

UN02 Emitters				
<p>* NOTE: Connection of dc power is without regard to polarity.</p>	<p>Key</p> <p>1 = Brown 2 = Blue 3 = Black†</p> <p>† Not Used</p>			
	<table border="1"> <tr> <th>3-Pin Mini</th> <th>4-Pin Mini</th> </tr> <tr> <td></td> <td></td> </tr> </table>	3-Pin Mini	4-Pin Mini	
3-Pin Mini	4-Pin Mini			

UN03 Emitters with Attached Cable	
	<p>Key</p> <p>1 = Brown 3 = Blue 4 = Black†</p> <p>† No Connection</p>

UN04 Emitters with Quick-Disconnect Cable	
	<p>Key</p> <p>1 = Red/Black 2 = Red/White 3 = Red† 4 = Green †</p> <p>† No Connection</p>
	<p>4-Pin Micro</p>

