



Two-Hand Control

DUO-TOUCH® SG

page 111

- Monitors STB buttons or other actuators
- Delivers highest level of safety for two-hand controls by meeting or exceeding OSHA/ANSI control reliability requirements
- Designed to meet Safety Category 4 per ISO 13849-1 (EN 954-1) and Type IIIC two-hand control per ISO 13351 (EN 574)
- Offers choice of operating voltages, functions and outputs

DUO-TOUCH® SG
MODULES

STB BUTTONS

DUO-TOUCH®
Run Bars



STB Self-Checking Touch Buttons

page 117

- Delivers highest level of safety for two-hand controls
- Self-checks for internal problems
- Features ergonomic design to prevent repetitive motion stress








DUO-TOUCH® SG Run Bars

page 120

- Provides convenient economical means for two-hand control actuation
- Simplifies installment
- Includes two STB self-checking touch buttons

DUO-TOUCH® SG Selection Chart

Model	Catalog Page	Type	Supply Voltage	Inputs	Safety Outputs	Output Rating	Auxiliary Outputs	Housing Width
AT-FM-10K 	112	IIIC	24V ac/dc	2 STB*	2 NO	6 amps	—	22.5 mm
AT-GM-13A 	112	IIIC	115V ac/ 24V dc	2 STB*	4 NO	6 amps	1 NPN, 1 PNP & 1 NC	45 mm
AT-HM-13A 	112	IIIC	230V ac/ 24V dc	2 STB*	4 NO	6 amps	1 NPN, 1 PNP & 1 NC	45 mm
AT-GM-11KM 	112	IIIC	115V ac/ 24V dc	2 STB* & Muting	2 NO	6 amps	1 NPN, 1 PNP & 1 NC	67.5 mm
AT-HM-11KM 	112	IIIC	230V ac/ 24V dc	2 STB* & Muting	2 NO	6 amps	1 NPN, 1 PNP & 1 NC	67.5 mm

NC = Normally Closed, NO = Normally Open

* May also use two mechanical push buttons, each with one normally open (NO) and one normally closed (NC) contact (Form C). See data sheets for details.

DUO-TOUCH® SG

Two-Hand Control Modules, STB Compatible

- Modules work with Banner STB self-checking touch buttons or can be retrofitted with existing mechanical palm buttons to create a complete, ergonomic two-hand control system (see page 117).
- To ensure OSHA/ANSI Control Reliability, modules have a diverse-redundant microcontroller circuit and multiple redundant, force-guided (mechanically linked) output contacts.
- Anti-tiedown logic requires that both touch buttons are activated within one-half second of each other.
- Designed to meet Safety Category 4 per ISO 13849-1 (EN 954-1) and functional Type IIIC two-hand control per ISO 13851 (EN 574).
- Removable terminal blocks allow convenient wiring and exchanging of modules without rewiring.
- Optional mute inputs allow release of actuating buttons during the non-hazardous portion of the machine cycle.
- Available kits include module and two STB touch buttons.
- Modules easily interface with DUO-TOUCH® Run Bars with STBs for an economical, convenient means for actuation.
- Available in ac and dc voltages: 24V ac/dc, 115V ac/24V dc or 230V ac/24V dc.

DUO-TOUCH® SG
MODULES

STB BUTTONS

DUO-TOUCH®
Run Bars

CORDSETS

PAGE 119

BRACKETS

PAGE 165



AT-GM/HM-11KM Models

- 115V ac/24V dc (GM)
- 230V ac/24V dc (HM)
- 2 NO/NC inputs
- 2 muting inputs
- 1 safety stop interface
- 2 safety outputs
- Auxiliary outputs

Page 113



AT-GM/HM-13A Models

- 115V ac/24V dc (GM)
- 230V ac/24V dc (HM)
- 2 dual NO/NC inputs
- 4 safety outputs, 6 amps
- Auxiliary outputs

Page 113



AT-FM-10K Models

- 24V ac/dc
- 2 dual NO/NC inputs
- 2 safety outputs, 6 amps

Page 113

DUO-TOUCH® SG Run Bar



Page 120

- Provides convenient economical means for two-hand control actuation
- Simplifies installment
- Includes two STB self-checking touch buttons

STB Self-Checking Touch Buttons

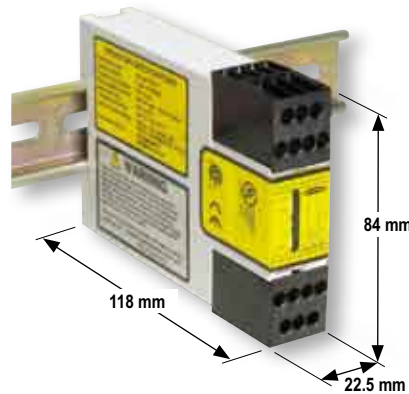


Page 117

- Delivers highest level of safety for two-hand controls
- Self-checks for internal problems
- Features ergonomic design to prevent repetitive motion stress

DUO-TOUCH® SG Two-Hand Control Modules, STB Compatible

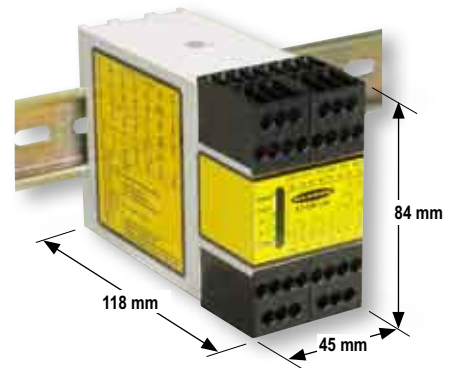
- 24V ac/dc, 115V ac/24V dc or 230V ac/24V dc
- Four green and one red LED indicators
- Minimum NEMA 3 (IP20) polycarbonate housing
- Muting optional
- 35 millisecond output response time



AT-FM-10K Model



AT-GM-11KM & AT-HM-11KM Models
(AT-GM-11KM shown)



AT-GM-13A & AT-HM-13A Models
(AT-GM-13A shown)

DUO-TOUCH® SG Two-Hand Control Modules

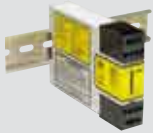




Model	Supply Voltage	Inputs	Safety Outputs	Output Rating	Auxiliary Outputs	Muting	Terminals	Data Sheet
AT-FM-10K	24V ac/dc	2 STB*	2 NO	6 amps	—	—	Removable	64137
AT-GM-13A	115V ac/24V dc	2 STB*	4 NO		1 NPN, 1 PNP & 1 NC	—	Removable	67241
AT-HM-13A	230V ac/24V dc				1 NPN, 1 PNP & 1 NC	Yes	Removable	109782
AT-GM-11KM	115V ac/24V dc	2 STB* & Muting	2 NO		1 NPN, 1 PNP & 1 NC	Yes	Removable	109782
AT-HM-11KM	230V ac/24V dc				1 NPN, 1 PNP & 1 NC	Yes	Removable	109782

NC = Normally Closed, NO = Normally Open

* May also use two mechanical push buttons, each with one normally open (NO) and one normally closed (NC) contact (Form C). See data sheets for details.

NOTE: Kits are available which include one DUO-TOUCH SG Safety Module and two STB Touch Buttons. STB Touch Buttons are also available separately. See page 117.

DUO-TOUCH® SG Kits — Solid-State STB Touch Buttons (Meets Category IIIC)

Kit	Kit Components†					
	DUO-TOUCH® SG Safety Module	Supply Voltage	Safety Outputs	Auxiliary Outputs	STB Touch Buttons (see page 118)	
					Model	Cable*
ATK-VP6	 AT-FM-10K	24V ac/dc	2 NO	-	STBVP6	2 m
ATK-VP6Q					STBVP6Q	4-Pin Mini QD
ATK-VP6Q5					STBVP6Q5	4-Pin Euro QD
ATGMK-VP6	 AT-GM-13A	115V ac/24V dc	4 NO	1 NPN, 1 PNP & 1 NC	STBVP6	2 m
ATGMK-VP6Q					STBVP6Q	4-Pin Mini QD
ATGMK-VP6Q5					STBVP6Q5	4-Pin Euro QD
ATHMK-VP6	 AT-HM-13A	230V ac/24V dc	4 NO	1 NPN, 1 PNP & 1 NC	STBVP6	2 m
ATHMK-VP6Q					STBVP6Q	4-Pin Mini QD
ATHMK-VP6Q5					STBVP6Q5	4-Pin Euro QD
ATGMKM-VP6	 AT-GM-11KM	115V ac/24V dc	2 NO	1 NPN, 1 PNP & 1 NC	STBVP6	2 m
ATGMKM-VP6Q					STBVP6Q	4-Pin Mini QD
ATGMKM-VP6Q5					STBVP6Q5	4-Pin Euro QD
ATHMKM-VP6	 AT-HM-11KM	230V ac/24V dc	2 NO	1 NPN, 1 PNP & 1 NC	STBVP6	2 m
ATHMKM-VP6Q					STBVP6Q	4-Pin Mini QD
ATHMKM-VP6Q5					STBVP6Q5	4-Pin Euro QD

NC = Normally Closed, NO = Normally Open

* For 9 m cable, add suffix **W/30** to the 2 m model number (example, **ATK-VP6 W/30**). A model with a QD requires a mating cordset. Order QD cordsets separately (see page 119).



† Contact factory for DUO-TOUCH SG kits with e/m relay STB Buttons.

DUO-TOUCH® SG
MODULES


STB BUTTONS

DUO-TOUCH®
Run Bars

DUO-TOUCH® SG AT-FM-10K Modules Specifications

Supply Voltage and Current	24V ac/dc $\pm 15\%$ @ 150 mA												
Supply Protection Circuitry	Protected against transient voltages and reverse polarity												
Safety Outputs	<p>Outputs (K1 and K2): two redundant (total of four) forced-guided safety relay contacts</p> <p>Contacts: AgNi, 5 μm gold-plated</p> <p>Low Current Rating: Caution: The 5 μm gold-plated contacts allow the switching of low current/low voltage.</p> <p>To preserve the gold plating on the contacts, the following max. values should not be exceeded at any time:</p> <table> <tr> <td>Min. voltage: 1V ac/dc</td> <td>Max. voltage: 60V</td> </tr> <tr> <td>Min. current: 5 mA ac/dc</td> <td>Max. current: 300 mA</td> </tr> <tr> <td>Min. power: 5 mW (5 mVA)</td> <td>Max. power: 7 W (7 VA)</td> </tr> </table> <p>High Current Rating: If higher loads must be switched through one or more of the contacts, the minimum and maximum values of the contact(s) changes to:</p> <table> <tr> <td>Min. voltage: 15V ac/dc</td> <td>Max. voltage: 250V ac/dc</td> </tr> <tr> <td>Min. current: 30 mA</td> <td>Max. current: 6 A ac or dc (resistive load)</td> </tr> <tr> <td>Min. power: 5 W (5 VA)</td> <td>Max. power: 200 W (1,500 VA)</td> </tr> </table> <p>Mechanical life: 50,000,000 operations Electrical life: 150,000 operations typical, @ 200 W (1,500 VA) switched power, resistive load.</p> <p>NOTE: Transient suppression is recommended when switching inductive loads. Install suppressors across load. Never install suppressors across output contacts.</p>	Min. voltage: 1V ac/dc	Max. voltage: 60V	Min. current: 5 mA ac/dc	Max. current: 300 mA	Min. power: 5 mW (5 mVA)	Max. power: 7 W (7 VA)	Min. voltage: 15V ac/dc	Max. voltage: 250V ac/dc	Min. current: 30 mA	Max. current: 6 A ac or dc (resistive load)	Min. power: 5 W (5 VA)	Max. power: 200 W (1,500 VA)
Min. voltage: 1V ac/dc	Max. voltage: 60V												
Min. current: 5 mA ac/dc	Max. current: 300 mA												
Min. power: 5 mW (5 mVA)	Max. power: 7 W (7 VA)												
Min. voltage: 15V ac/dc	Max. voltage: 250V ac/dc												
Min. current: 30 mA	Max. current: 6 A ac or dc (resistive load)												
Min. power: 5 W (5 VA)	Max. power: 200 W (1,500 VA)												
Output Response Time	35 milliseconds max. ON/OFF												
Input Requirements	Outputs from actuating devices (1 NO and 1 NC) must each be capable of switching 20 mA @ 12V dc.												
Simultaneity Monitoring Period	≤ 500 milliseconds												
External Device Monitoring (EDM)	One pair of terminals (Y1 and Y2) are provided to monitor the state of external devices controlled by the safety outputs. Each device must be capable of switching 15 to 30V dc at 10-50 mA.												
Status Indicators	<table> <tr> <td>4 green LEDs:</td> <td>1 red LED:</td> </tr> <tr> <td>Power ON</td> <td>Fault</td> </tr> <tr> <td>Input 1 energized</td> <td></td> </tr> <tr> <td>Input 2 energized</td> <td></td> </tr> <tr> <td>Output</td> <td></td> </tr> </table>	4 green LEDs:	1 red LED:	Power ON	Fault	Input 1 energized		Input 2 energized		Output			
4 green LEDs:	1 red LED:												
Power ON	Fault												
Input 1 energized													
Input 2 energized													
Output													
Environmental Rating	Polycarbonate. Rated NEMA 1; IP20												
Mounting	Mounts to standard 35 mm DIN rail track. Safety Module must be installed inside an enclosure rated NEMA 3 (IP54), or better.												
Vibration Resistance	10 to 55 Hz @ 0.35 mm displacement per IEC 60068-2-6												
Operating Conditions	Temperature: 0° to +50° C Relative humidity: 90% @ +50° C (non-condensing)												
Design Standards	Designed to comply with Category 4 per ISO 13849-1; Type IIIC per ISO 13851 (EN 574)												
Certifications	 												
Wiring Diagrams	WD064 (p. 261)												

DUO-TOUCH® SG AT-..M-13A Modules Specifications

Supply Voltage and Current	AT-GM-13A: 115V ac, ±15%; 50/60 Hz & 24V dc, ±15%, 10% max. ripple AT-HM-13A: 230V ac, ±15%; 50/60 Hz & 24V dc, ±15%, 10% max. ripple										
Power Consumption	Approx. 4 W/7 VA										
Supply Protection Circuitry	Protected against transient voltages and reverse polarity										
Safety Outputs (including Auxiliary NC output 51/52)	Outputs (K1 and K2): four redundant (total of eight) forced-guided safety relay contacts Contact ratings: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Min. voltage: 15V ac/dc</td> <td style="width: 50%;">Max. voltage: 250V ac or 250V dc</td> </tr> <tr> <td>Min. current: 30 mA</td> <td>Max. current: 6A ac or dc (resistive load)</td> </tr> <tr> <td>Min. power: 5 VA, 5 watts</td> <td>Max. power: 1500 VA, 200 watts</td> </tr> <tr> <td colspan="2">Mechanical life: 50,000,000 operations</td> </tr> <tr> <td colspan="2">Electrical life: 150,000 cycles (typically @ 1.5 kVA switching power)</td> </tr> </table> <p>NOTE: Transient suppression is recommended when switching inductive loads. Install suppressors across load. Never install suppressors across output contacts.</p>	Min. voltage: 15V ac/dc	Max. voltage: 250V ac or 250V dc	Min. current: 30 mA	Max. current: 6A ac or dc (resistive load)	Min. power: 5 VA, 5 watts	Max. power: 1500 VA, 200 watts	Mechanical life: 50,000,000 operations		Electrical life: 150,000 cycles (typically @ 1.5 kVA switching power)	
Min. voltage: 15V ac/dc	Max. voltage: 250V ac or 250V dc										
Min. current: 30 mA	Max. current: 6A ac or dc (resistive load)										
Min. power: 5 VA, 5 watts	Max. power: 1500 VA, 200 watts										
Mechanical life: 50,000,000 operations											
Electrical life: 150,000 cycles (typically @ 1.5 kVA switching power)											
Auxiliary Supply Voltage (for Solid-State outputs)	24V dc @ 1A (between Y30 & Y31)										
Auxiliary Solid-State Output Current	500 mA max., short circuit protected (Y32 or Y33)										
Output Response Time	35 milliseconds max. ON/OFF										
Input Requirements	Outputs from actuating devices (1 NO and 1 NC) must each be capable of switching 20 mA @ 12V dc.										
Simultaneity Monitoring Period	≤ 500 milliseconds										
Z1/Z2 Courtesy Voltage	24V dc @ 150 mA (for STB button power)										
External Device Monitoring (EDM)	One pair of terminals (Y1 and Y2) are provided to monitor the state of external devices controlled by the safety outputs. Each device must be capable of switching 15 to 30V dc at 10-50 mA.										
Status Indicators	4 green LEDs: Power ON Input 1 energized Input 2 energized Output 1 red LED: Fault										
Environmental Rating	Polycarbonate. Rated NEMA 1; IP20										
Mounting	Mounts to standard 35 mm DIN rail track. Safety Module must be installed inside an enclosure rated NEMA 3 (IP54), or better.										
Vibration Resistance	10 to 55 Hz @ 0.35 mm displacement per IEC 68-2-6										
Operating Conditions	Temperature: 0° to +50° C Relative humidity: 90% @ +50° C (non-condensing)										
Design Standards	Designed to comply with Category 4 per ISO 13849-1 (EN 954-1); Type IIIC per ISO 13851 (EN 574)										
Certifications	<div style="display: flex; align-items: center;">  <div> <p>Important Notice: European Community Machinery Directive 2006/42/EC The DUO-TOUCH SG AT-..M-13A Two-Hand Control Modules comply with Machine Directive 98/37/EC. After December 29, 2009, when Machine Directive 2006/42/EC will be in force, the DUO-TOUCH SG AT-..M-13A Two-Hand Control Modules can only be installed as a replacement component within the European Union (EU). For more information, please see www.bannerengineering.com/144763 or call 1-888-373-6767.</p> </div> </div>										
Wiring Diagrams	AT-..M-13A models: WD067 (p. 263) AT-..M-13A to STB Buttons: WD069 (p. 264)										

DUO-TOUCH® SG AT-..M-11KM with Muting Specifications

Supply Voltage and Current	AT-GM-11KM: 115V ac, ± 15%; 50/60Hz & 24V dc, +/- 15%, 10% max. ripple AT-HM-11KM: 230V ac, ± 15%; 50/60Hz & 24V dc, +/- 15%, 10% max. ripple
Power Consumption	Approx. 4 W / 7 VA
Supply Protection Circuitry	Protected against transient voltages and reverse polarity
Safety Outputs	<p>Outputs (K1 and K2): two redundant (total of four) safety relay (forced-guided) contacts</p> <p>Contact ratings:</p> <p>Min voltage: 15V ac/dc Max. voltage: 250V ac or 250V dc Min. current: 30 mA Max. current: 6A ac or dc (resistive load) Min. power: 5 W (5 VA) Max. power: 1500 VA, 200 watts Mechanical life: 50,000,000 operations Electrical life: 150,000 cycles (typically @ 1.5 kVA switching power)</p> <p>NOTE: Transient suppression is recommended when switching inductive loads. Install suppressors across load. Never install suppressors across output contacts.</p>
Auxiliary Supply Voltage (for solid-state outputs)	24V dc @ 1A (applied between Y30 & Y31)
Auxiliary Solid-State Output Current	500 mA max., short circuit protected, Y32 is a PNP output, Y33 is an NPN output
Output Response Time	35 milliseconds max. ON/OFF
Input Requirements	Outputs from actuating devices must each be capable of switching up to 20 mA @ 12V dc.
Simultaneity Monitoring Period	≤ 500 milliseconds
Z1/Z2 Courtesy Voltage	24V dc @ 150 mA (for STB button power, separate from Auxiliary output, unregulated)
External Device Monitoring (EDM)	One pair of terminals (Y1 and Y2) are provided to monitor the state of external devices controlled by the safety outputs. Each device must be capable of switching 15 to 30V dc at 10-50 mA.
Muting Device Inputs (M1, M2)	The muting devices work as a pair (M1 and M2). The simultaneity requirement is that they be "closed" within 3 seconds of each other to initiate a mute condition or allow a mute cycle, assuming all other conditions are met. Each muting device must be capable of switching 15 to 30V dc at 10-50 mA.
Mute Enable Input (ME)	Mute Enable input must be closed in order to start a mute cycle. Opening this input after a mute cycle has begun has no effect. The switching device must be capable of switching 15 to 30V dc at 10-50 mA.
Safety Stop Interface (SSI)	This input consists of two concurrent channels (SSI-A and SSI-B) and is always active. Any time either or both channels open, the Safety Outputs will go OFF. When using the SSI, the external device must be capable of switching 15 to 30V dc at 10-50 mA.
Status Indicators	<p>6 green LED indicators 1 red LED indicator</p> <p>Power ON Fault</p> <p>Input 1 energized</p> <p>Input 2 energized</p> <p>SSI inputs closed</p> <p>Muting activated</p> <p>Output</p>
Environmental Rating	Polycarbonate. Rated NEMA 1; IP20
Mounting	Mounts to standard 35 mm DIN rail track. Safety Module must be installed inside an enclosure rated NEMA 3 (IP54), or better.
Vibration Resistance	10 to 55 Hz @ 0.35 mm displacement per IEC 60068-2-6
Operating Conditions	Temperature: 0° to +50° C Relative humidity: 90% @ +50° C (non-condensing)
Design Standards	Designed to comply with Category 4 per ISO 13849-1 (EN 954-1); Type IIC per ISO (EN 574)
Certifications	For certification information, please call 1-888-373-6767.
Wiring Diagrams	AT-..M-11KM: WD068 (p. 263) AT-..M-11KM to STB Buttons: WD069 (p. 264)

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 system

DUO-TOUCH® SG
MODULES

STB BUTTONS

DUO-TOUCH®
Run Bars

PAGE 119



PAGE 119

STB Self-Checking Touch Buttons

- LED power, output and fault indicators
- 10 to 30V dc or 20 to 30V ac/dc
- 2 m or 9 m integral cable, or quick-disconnect fitting
- Housing sealed to IP66
- Optional field cover colors



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

Models	Cable*	Upper Housing	Solid-State Outputs	Data Sheet
STBVP6	2 m	Polyetherimide	2 Complementary PNP (1 ON, 1 OFF)	64136
STBVP6Q	4-Pin Mini QD			
STBVP6Q5	4-Pin Euro QD			

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

Models	Cable*	Upper Housing	e/m Relay Outputs	Data Sheet
STBVR81	2 m	Polyetherimide	2 Complementary SPST (1 NC, 1 NO)	64136
STBVR81Q	5-Pin Mini QD			
STBVR81Q6	5-Pin Euro QD			


NC = Normally Closed, NO = Normally Open

* For 9 m cable, add suffix **W/30** to the 2 m model number (example, **STBVP6 W/30**). A model with a QD requires a mating cordset (see page 119).

STB Self-Checking Buttons Specifications

Supply Voltage and Current	STBVP6 Models: 10 to 30V dc; Power Consumption: approx. 1.8 W @ 24V dc (with no output load) STBVR81 Models: 20 to 30V ac/dc; Power Consumption: approx. 1.8 W/1.8 VA @ 24V ac/dc
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: ≤ 15V @ full load OFF-state leakage current: less than 1 μA STBVR81 Models (electromechanical relay): Max. switching voltage: 150V dc, 125V 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); 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 119. 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.


More on
next page

STB Self-Checking Buttons Specifications (cont'd)	
Ambient Light Immunity	Up to 100,000 lux
EMI/RFI Immunity	Immune to EMI and RFI noise sources per IEC 60947-5-2 and IEC 61496-1 Type 4 requirements
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.
Certifications	
Hookup Diagrams	STB Solid State (PNP): WD065 (p. 262) STB e/m Relay: WD066 (p. 262)

Accessories

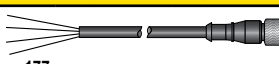
STB Self-Checking Touch Buttons


STB Self-Checking Button Field Covers


Models	Description	Data Sheet
OTC-1-BK	Black cover	 28436
OTC-1-GN	Green cover	
OTC-1-RD	Red cover	
OTC-1-YW	Yellow cover	

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-Style to Flying Leads		
		
pg. 177		
Length	4-Pin	5-Pin
2 m	MQDC-406	MQDC1-506
5 m	MQDC-415	MQDC1-515
9 m	MQDC-430	MQDC1-530
15 m	MQDC-450	–

Euro-Style to Flying Leads		
		
pg. 177		
Length	4-Pin	5-Pin
2 m	MQDC-406RA	MQDC1-506RA
5 m	MQDC-415RA	MQDC1-515RA
9 m	MQDC-430RA	MQDC1-530RA
15 m	MQDC-450RA	–

Mini-Style QD to Flying Leads		
		
pg. 183		
Length	4-Pin	5-Pin
2 m	MBCC-406	MBCC-506
4 m	MBCC-415	MBCC-515
10 m	MBCC-430	MBCC-530

Brackets

STB				
				
pg. 173	pg. 173	pg. 173	pg. 173	pg. 174
SMB30A	SMB30MM	SMB30SC	SMBAMS30P	SMBAMS30RA

DUO-TOUCH® SG
MODULES

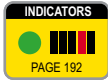
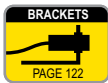
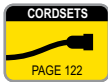
STB
BUTTONS

DUO-TOUCH®
Run Bars

Run Bar

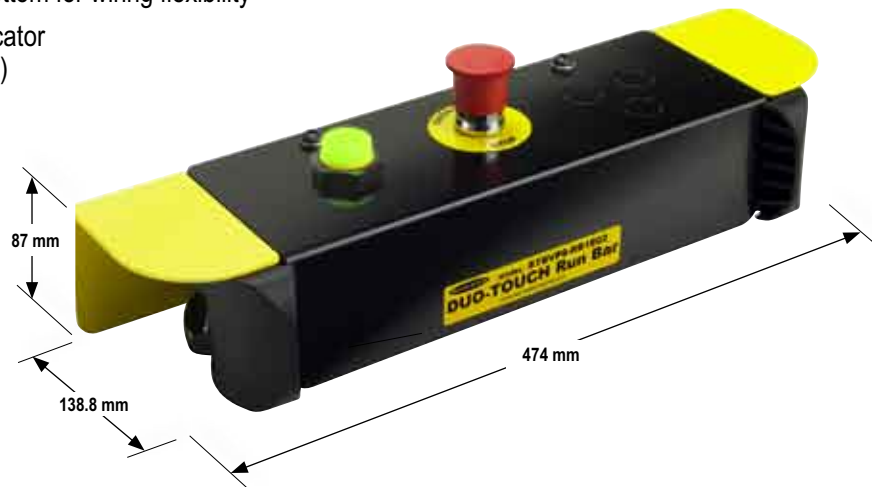
DUO-TOUCH® Run Bar with STBs

- Minimizes risk of defeat and accidental machine actuation
- Provides a convenient and economical means for safeguarding when interfaced with DUO-TOUCH® SG Two-Hand Control Modules or comparable control systems
- Offers ergonomic design for reduced hand, wrist and arm stress
- Provides two diverse-redundant microcontroller-based photoelectric STB Touch Buttons with continuous internal self-checking
- Features bright LED power, output and fault indicators on STBs
- Provides immunity to ambient light, EMI and RFI interference
- Offers optional telescoping stands and brackets
- Provides knockouts for wiring flexibility and installation of accessory EZ-LIGHT™ indicators



DUO-TOUCH® Run Bar with STB Self-Checking Touch Buttons

- ANSI B11.19 and ISO 13851 (EN 574) compliant
- Pre-installed STB optical touch buttons
- Robust, 13-gauge cold-rolled steel construction
- Emergency stop button on some models
- Knockouts on top, back and bottom for wiring flexibility
- Knockout for EZ-LIGHT™ indicator (sold separately, see page 192)
- Models with Mini-style QD or terminal strip connection
- IP20 & IP65 models





DUO-TOUCH® Run Bars with STB Self-Checking Touch Buttons

Models*	Connection	STB Touch Buttons		Environmental Rating	E-Stop Button	Data Sheet
		Model	Output			
STBVP6-RB1	Terminal Strip	STBVP6	Solid-State Complementary PNP	IP20	Not included	131634
STBVP6-RB1Q8	8-pin Mini* QD**				Not included	
STBVP6-RB1E02	Terminal Strip				Model SSA-EBM-02L E-stop button (two NC safety contacts)	
STBVP6-RB2	Terminal Strip			IP65	Not included	
STBVP6-RB2Q8	8-pin Mini QD**				Not included	
STBVP6-RB2E02	Terminal Strip				Model SSA-EBM-02L E-stop button (two NC safety contacts)	

* DUO-TOUCH Run Bar kits available with two-hand control module. Contact factory for combinations.

** Order QDS-8..C cordsets separately, see page 122.

DUO-TOUCH® Run Bars with STB Self-Checking Touch Buttons	
Supply Voltage and Current	10 to 30V dc Power consumption: approx. 1.8W @ 24V dc (with no output load), for each STB
Supply Protection Circuitry	Protected against transient voltages and reverse polarity
Output Configuration	Complementary PNP (sourcing) open-collector transistors
Output Rating	Maximum load: 150 mA ON-state saturation voltage: ≤ 15V @ full load OFF-state leakage current: < 1 μA
Output Protection Circuitry	Protected against false pulse on power-up; overload and short-circuit protection.
Output Response Time	20 milliseconds ON/OFF
STB Indicators	2 green LEDs: Power: ON—power applied Output/fault: ON—button is activated OFF—button is deactivated Flashing internal fault or blocked button on power-up detected
Construction	STB Buttons: Totally encapsulated, non-metallic enclosure; black polyetherimide yoke housing; fiber-reinforced polyester base; electronics fully epoxy-encapsulated. E-Stop Button: Polyamide red button with metal base. Run Bar Housing: 13 ga. cold rolled steel with powder coat paint; polypropylene copolymer STB mount.
Environmental Rating	STBVP6-RB1 Run Bar models meet IP20 STBVP6-RB2 Run Bar models meet IP65
Connections	Models STBVP6-RB1/RB2 and -RB1E02/RB2E02: Terminal strip connections inside run bar housing (STBs are pre-wired). E-stop button and EZ-LIGHT indicator (if used) are wired separately. Models STBVP6-RB1Q8/RB2Q8: 8-pin Mini-style quick-disconnect fitting. Accessory QD mating cordsets required for QD models. QD cordsets are ordered separately. See page 122.
Ambient Light Immunity	Up to 100,000 lux
EMI/RFI Immunity	Immune to EMI and RFI noise sources, per IEC 60947-5-2
Operating Conditions	Temperature: 0° to +50° C Relative humidity: 90% @ +50° C (non-condensing)
Certification	STB Buttons:  STBVP6-RB2 Run Bar models:  (pending)
Wiring Diagrams	WD070, WD071 (p. 265)




Accessories

DUO-TOUCH® Run Bar



Cordsets

Mini-Style QD to Flying Leads	
pg. 184	
Length	8-Pin
4.5 m	QDS-815C
7.6 m	QDS-825C
15.2 m	QDS-850C
22.8 m	QDS-875C


Brackets

Run Bar		
		
pg. 175	pg. 175	pg. 175
Used with STBVP6-RB1 models		
STBA-RB1-MB1	STBA-RB1-MB2	STBA-RB1-MB3
Used with STBVP6-RB2 models		
STBA-RB2-MB1	STBA-RB2-MB2	STBA-RB2-MB3

Stands

Telescoping	
	
pg. 199	pg. 199
Used with STBVP6-RB1 models	
STBA-RB1-S1	STBA-RB1-S2
Used with STBVP6-RB2 models	
STBA-RB2-S1	STBA-RB2-S2

Indicators

EZ-LIGHT™	
	
pg. 192	pg. 192
T30...	K50L...