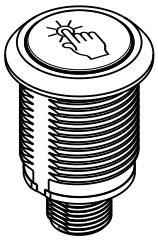
S22 Pro Touch Button

Datasheet

22 mm Programmable Multicolor RGB Flush Mount Indicator with Independent Momentary or Latching Touch Button Output

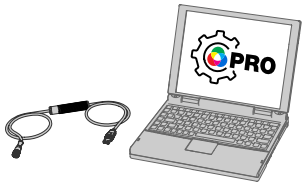


- Programmable using Banner Pro Editor software and Pro Converter Cable; Pro Editor compatibility applies to all S22 Pro Touch Button models
- Resistance to false triggering by water spray, detergents, oils, and other foreign materials
- Rugged, cost-effective, and easy-to-install multicolor indicator with touch button
- Waterproof IP69K per DIN 40050-9 construction for washdown environments
- Up to 7 independent colors in one unit
- 22 mm threaded polycarbonate base
- Ergonomically designed to eliminate hand, wrist, and arm stresses associated with repeated switch operation; require no physical force to operate
- Can be actuated with bare hands or gloves
- 10 V DC to 30 V DC operation
- Terminal connection models available for panel wiring applications
- Bimodal inputs and outputs (PNP/NPN), depending on source wiring

WARNING:

- **Do not use this device for personnel protection**
- Using this device for personnel protection could result in serious injury or death.
- This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A device failure or malfunction can cause either an energized (on) or de-energized (off) output condition.

Pro Editor



Use Banner's Pro Editor software and Pro Converter Cable to create custom configurations by selecting different colors, flash patterns, and animations.
For more information visit www.bannerengineering.com/proeditor.

Models

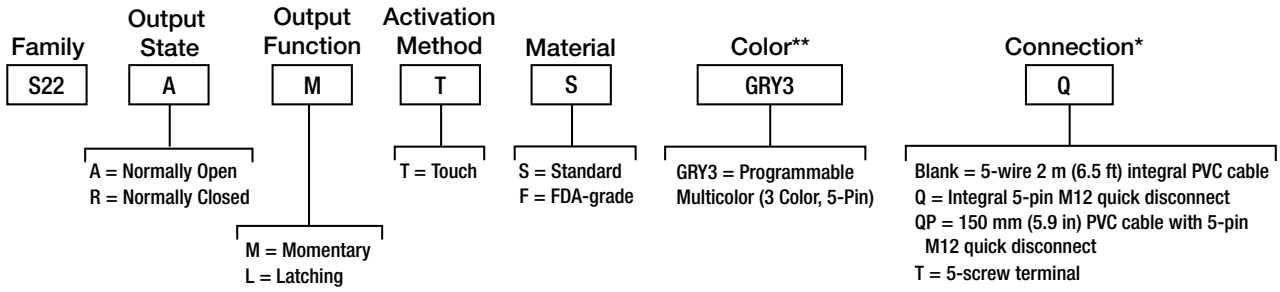
RGB7 Multicolor Models

Family	Output State	Output Function	Activation Method	Material	Color**	Connection*
S22	A	M	T	S	RGB7	QP
	A = Normally Open R = Normally Closed	M = Momentary L = Latching	T = Touch	S = Standard F = FDA-grade	RGB7 = RGB Multicolor	Blank = 6-wire 2 m (6.5 ft) integral cable QP = 150 mm (5.9 in) cable with 8-pin M12 quick disconnect

* Models with a quick disconnect require a mating cordset
** Green, Red, Yellow, Blue, White, Cyan, Magenta

Three inputs activate seven colors. Touch changes output state.

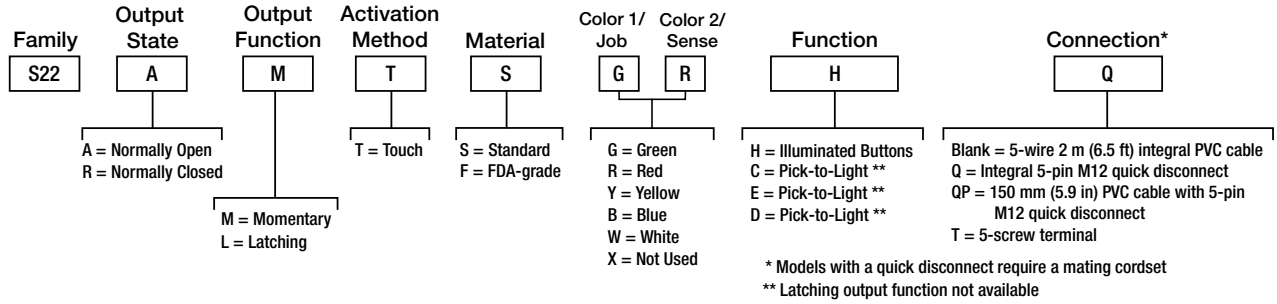
GRY3 Multicolor Models



* Models with a quick disconnect require a mating cordset
** Green, Red, Yellow

Two inputs activate three colors. Touch changes output state.

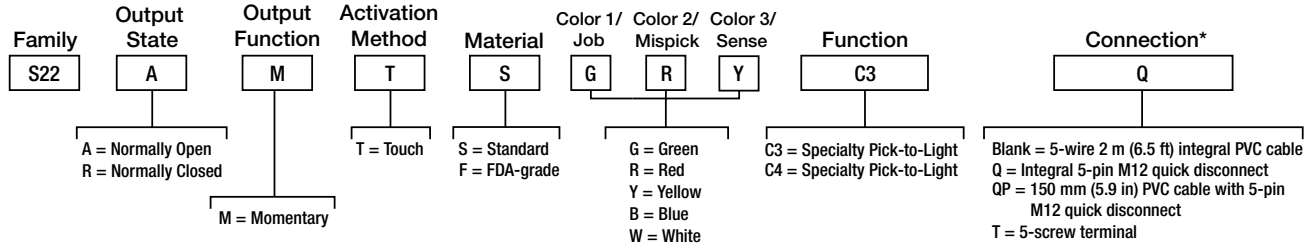
One- or Two-Color/Function Models



* Models with a quick disconnect require a mating cordset
** Latching output function not available

H Logic: Power activates Color 1. Touch changes output state and activates Color 2. Latch and momentary options.
C Logic: Input activates Color 1. Touch activates Color 2 and Output.
E Logic: Input activates Color 1. Touch activates Output. Touch with inactive input activates Color 2.
D Logic: Input activates Color 1. Touch activates Output.

One-, Two-, or Three-Color/Function Models



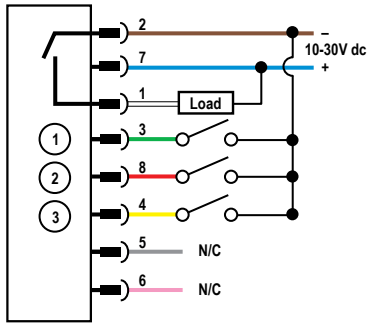
* Models with a quick disconnect require a mating cordset

C3 Logic: Input activates Color 1. Touch with active input activates Color 3 and Output. Touch with inactive input activates Color 2 and Output. 500 ms leading edge off-delay.
C4 Logic: Input activates Color 1. Touch with active input activates Color 3 and Output. Touch with inactive input activates Color 2 and Output for 5 seconds. 500 ms leading edge off-delay.

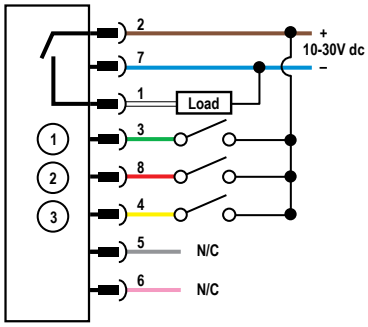
Wiring Diagrams

RGB7 Multicolor Models

NPN



PNP



Key

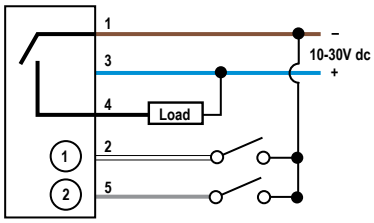
Pin 1 = White
Pin 2 = Brown
Pin 3 = Green
Pin 4 = Yellow
Pin 5 = Gray
Pin 6 = Pink
Pin 7 = Blue
Pin 8 = Red

Table 1: RGB Multicolor Color/Function Definition

	Red	Yellow	Green	Cyan	Blue	Magenta	White
Input 1	X	X				X	X
Input 2		X	X	X			X
Input 3				X	X	X	X

GRY3 Multicolor Models

NPN



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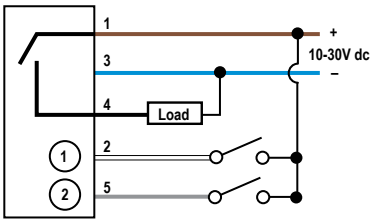


Key

Pin 1 = Brown
Pin 2 = White
Pin 3 = Blue
Pin 4 = Black
Pin 5 = Gray

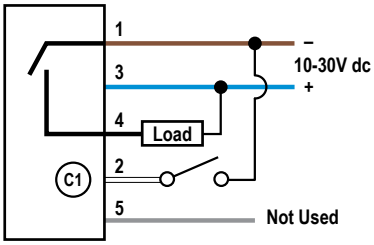
Touch toggles output

Table 2: GRY3 Multicolor Color/Function Definition

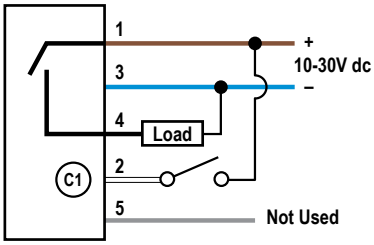
	Green	Yellow	Red
Input 1	X	X	
Input 2		X	X

One- or Two-Color/Function; C, D, and E Logic Models

NPN



PNP

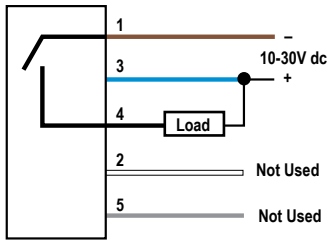


Key

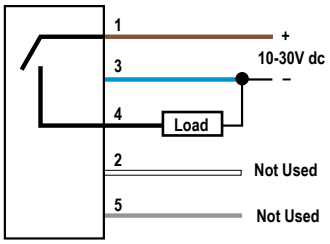
Pin 1 = Brown
Pin 2 = White
Pin 3 = Blue
Pin 4 = Black
Pin 5 = Gray

One- or Two-Color/Function; H Logic Models

NPN



PNP

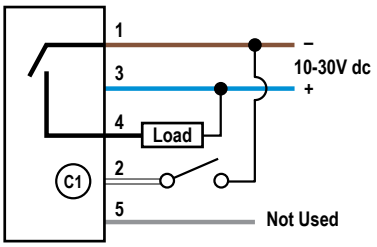


Key

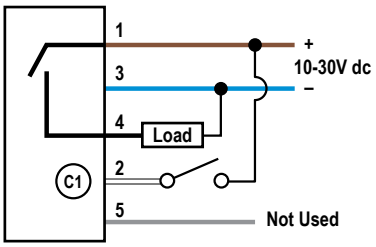
Pin 1 = Brown
Pin 2 = White
Pin 3 = Blue
Pin 4 = Black
Pin 5 = Gray

One-, Two-, or Three-Color/Function; C3 & C4 Logic Models

NPN



PNP



Key

Pin 1 = Brown
Pin 2 = White
Pin 3 = Blue
Pin 4 = Black
Pin 5 = Gray

Cabled wiring diagrams are shown. Quick disconnect wiring diagrams are functionally identical.

Specifications

Supply Voltage
10 V DC to 30 V DC

Supply Current
80 mA maximum current at 10 V DC (exclusive of load)
70 mA maximum current at 12 V DC (exclusive of load)
45 mA maximum current at 24 V DC (exclusive of load)
40 mA maximum current at 30 V DC (exclusive of load)

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Output Rating
Maximum Load: 150 mA
ON-state saturation voltage: <2 V DC at 10 mA; <2.5 V DC at 150 mA
OFF-state leakage current: <10 µA at 30 V DC

Leakage Current Immunity
400 µA

Response Time
Power-Up Delay: 250 milliseconds maximum
Input Response: 20 milliseconds maximum
Output Response: 300 milliseconds maximum

Touch Dwell Time
If touch dwells for longer than 60 seconds, the output will revert back to the untouched state.

Connections
5-pin or 8-pin integral M12 quick disconnect, 2 m (6.5 ft) integral PVC cable, or 5-pin or 8-pin 150 mm (5.9 inch) PVC cable with a M12 quick disconnect, depending on model
Models with a quick disconnect require a mating cordset

Mounting
M22 by 1.5 threaded base, maximum torque 2.25 N·m (20 inch·lbf)

Construction
Standard Model Base, Dome, and Nut: Polycarbonate
FDA Model Base, Dome, and Nut: FDA-grade copolyester

Vibration and Mechanical Shock
Meets IEC 60068-2-6 requirements (Vibration: 10 Hz to 55 Hz, 1.0 mm amplitude, 5 minutes sweep, 30 minutes dwell)
Meets IEC 60068-2-27 requirements (Shock: 30G 11 ms duration, half sine wave)

Pro Editor Configuration
Connection to Pro Editor software enables control of:

- **Animation:** Steady, Flash, Two Color Flash, Intensity Sweep, Demo
- **Color:** Green, Red, Yellow, Blue, White, Cyan, Magenta, Amber, Rose, Lime Green, Orange, Sky Blue, Violet, Spring Green
- **Intensity:** Low, Medium, High
- **Speed:** Slow, Standard, Fast
- **Output State:** Normally Open, Normally Closed, Momentary, Latching, On Delay, Off Delay
- **Logic Type:** Three State Advanced Control (F2 Mode), Seven State Advanced Control (F2 Mode), Four State Full Logic (Custom)

Pro Converter Cable required to interface between PC and indicator, see accessories

Default Indicator Characteristics

Color	Dominant Wavelength (nm)or Color Temperature (CCT)	Color Coordinates [1]		Lumen Output (Typical at 25 °C)
		x	y	
Green	527	0.178	0.700	0.175
Red	625	0.699	0.297	0.075
Yellow	572	0.438	0.500	0.250
Blue	465	0.141	0.056	0.025
White	5700K	0.328	0.337	0.240
Cyan	492	0.192	0.336	0.195
Magenta	–	0.354	0.149	0.095
Amber	585	0.520	0.434	0.165
Rose	–	0.506	0.213	0.085
Lime Green	557	0.350	0.564	0.210
Sky Blue	485	0.167	0.240	0.165
Orange	597	0.594	0.379	0.130
Violet	424	0.184	0.085	0.045
Spring Green	507	0.167	0.517	0.180

[1] Refer to the CIE 1930 (x,y) Chromaticity Diagram, to show equivalent color with indicated color coordinates.

Operating Conditions
–40 °C to +50 °C (–40 °F to +122 °F)
90% at +50 °C maximum relative humidity (non-condensing)
Storage Temperature: –40 °C to +70 °C (–40 °F to +158 °F)

Environmental Rating
Standard Models: IEC IP66, IEC IP67, IP69K per DIN 40050-9
Cabled models also meet IP69K per DIN 40050-9 if the cable and cable entrance are protected from high-pressure spray
Indicator side of terminal models meet IP69K per DIN 40050-9 when installed in an enclosure
Screw connection points meet IEC IP00
FDA Models: IEC IP66, IEC IP67, and IP69K per DIN 40050-9

Certifications

Required Overcurrent Protection

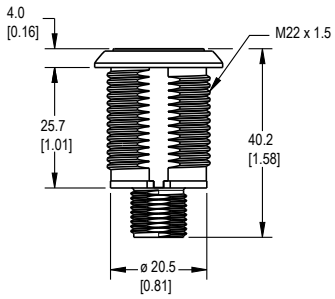
WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.
Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.
Supply wiring leads < 24 AWG shall not be spliced.
For additional product support, go to www.bannerengineering.com.

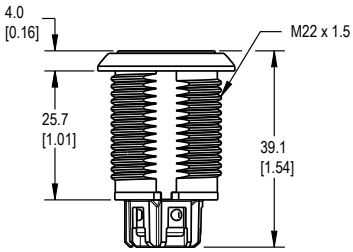
Supply Wiring (AWG)	Required Overcurrent Protection (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

Dimensions

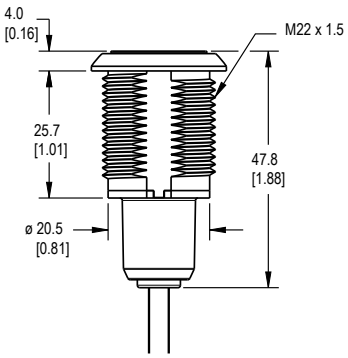
Quick-Disconnect Models



Terminal Models



Cabled Models

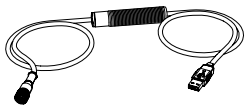


All measurements are listed in millimeters [inches], unless noted otherwise.

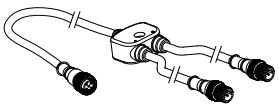
Accessories

Pro Editor Hardware

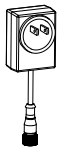
MQDC-506-USB
- Pro Converter Cable
- 1.83 m (6 ft) length 5-pin M12 quick disconnect to Device and USB to PC
- Required for connection to Pro Editor



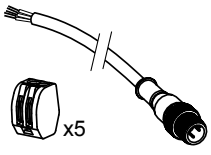
CSB-M1251FM1251M
- 5-pin parallel Y splitter (Male-Male-Female)
- For full Pro Editor preview capability
- Requires external power supply, sold separately



PSW-24-1
- 24 V DC, 1 A power supply
- 2 m (6.5 ft) PVC cable with M12 quick disconnect
- Provides external power with splitter cable, sold separately



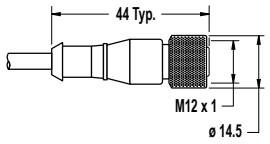
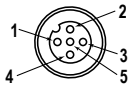
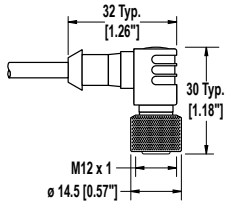
ACC-PRO-CABLE5
- Mating accessory for cabled and terminal models
- 150 mm (6 inch) PVC cable with M12 quick disconnect
- Lever wire nuts included (qty 5)
- Required to connect cabled models and screw terminal models to Pro Converter Cable, sold separately



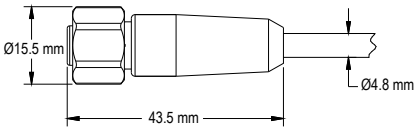
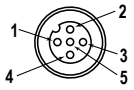
MQDC-801-5M-PRO
- 8-pin to 5-pin double-ended cordset
- 0.31 m (1 ft) PVC cable with M12 quick disconnects
- Required to connect 8-pin Pro Series-enabled devices to Pro Converter Cable (MQDC-506-USB), sold separately

Cordsets

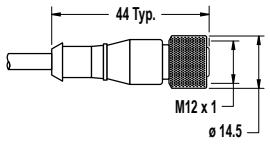
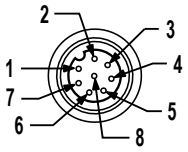
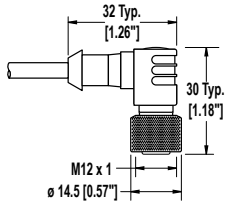
5-Pin Threaded M12 Cordsets—Single Ended

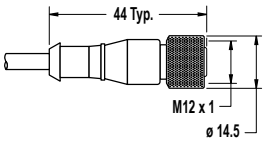
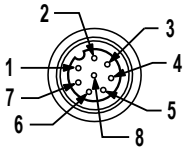
Model	Length	Style	Dimensions	Pinout (Female)
MQDC1-501.5	0.5 m (1.5 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray
MQDC1-506	2 m (6.5 ft)			
MQDC1-515	5 m (16.4 ft)			
MQDC1-530	9 m (29.5 ft)			
MQDC1-506RA	2 m (6.5 ft)	Right-Angle		
MQDC1-515RA	5 m (16.4 ft)			
MQDC1-530RA	9 m (29.5 ft)			

5-Pin Threaded M12 Stainless Steel Washdown Cordsets—Single Ended

Model	Length	Style	Dimensions	Pinout (Female)
MQDC-WDSS-0506	2 m (6.56 ft)	Straight		 1 = Brown 2 = White 3 = Blue 4 = Black 5 = Gray
MQDC-WDSS-0515	5 m (16.4 ft)			
MQDC-WDSS-0530	9 m (29.5 ft)			

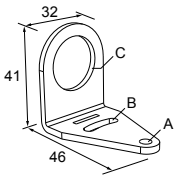
8-Pin Threaded M12 Cordsets with Open-Shield—Single Ended

Model	Length	Style	Dimensions	Pinout (Female)
MQDC2S-806	2.04 m (6.7 ft)	Straight		 1 = White 2 = Brown 3 = Green 4 = Yellow 5 = Gray 6 = Pink 7 = Blue 8 = Red
MQDC2S-815	5.04 m (16.54 ft)			
MQDC2S-830	10.04 m (32.95 ft)			
MQDC2S-850	16 m (52.49 ft)			
MQDC2S-806RA	2 m (6.56 ft)	Right-Angle		
MQDC2S-815RA	5 m (16.4 ft)			
MQDC2S-830RA	10 m (32.81 ft)			
MQDC2S-850RA	16 m (52.49 ft)			

8-Pin Threaded M12 Cordsets with Open-Shield—Washdown, Stainless Steel					
Model	**Length**	**Style**	**Dimensions**	**Pinout (Female)**	
MQDC-WDSS-0806	2 m (6.56 ft)	Straight			
MQDC-WDSS-0815	5 m (16.4 ft)			1 = White 2 = Brown 3 = Green 4 = Yellow	5 = Gray 6 = Pink 7 = Blue 8 = Red
MQDC-WDSS-0830	9 m (29.53 ft)				

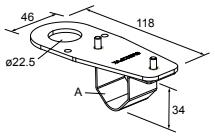
Brackets

SMB22A
- Right-angle bracket with curved slot for versatile orientation
- 12-ga. stainless steel
- Mounting hole for 22 mm sensor



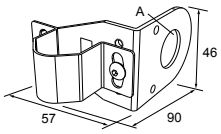
Hole center spacing: A to B = 26.0
Hole size: A = ø 4.6, B = 4.6 x 16.9, C = 22.2

SMB22FVK
- V-clamp, flat bracket and fasteners for mounting to pipe or extensions
- Clamp accommodates 28 mm diameter tubing or 1 in. square extrusions
- 22 mm hole for mounting sensor



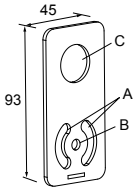
Hole size: A = ø 22.5

SMB22RAVK
- V-clamp, right-angle bracket and fasteners for mounting to pipe or extensions
- Clamp accommodates 28 mm diameter tubing or 1 in. square extrusions
- 22 mm hole for mounting sensor



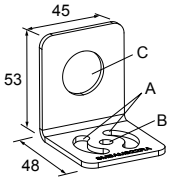
Hole size: A = ø 22.5

SMBAMS22P
- Flat SMBAMS series bracket with 22 mm hole for mounting sensors
- Articulation slots for 90+° rotation
- 12-ga. (2.6 mm) cold-rolled steel



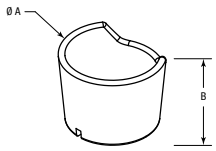
Hole center spacing: A = 26.0, A to B = 13.0
Hole size: A = 26.8 x 7.0, B = ø 6.5, C = ø 22.5

SMBAMS22RA
- Right-angle SMBAMS series bracket with 22 mm hole for mounting sensors
- Articulation slots for 90+° rotation
- 12-ga. (2.6 mm) cold-rolled steel



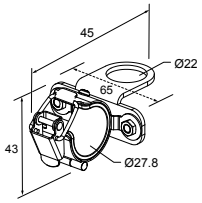
Hole center spacing: A = 26.0, A to B = 13.0
Hole size: A = 26.8 x 7.0, B = ø 6.5, C = ø 22.5

TC-K30-CL
- Touch cover



Diameter: A = 40.7
Height: B = 31

LMB22LPC
- For 28 mm tubular racking
- Toolless mount to racking
- 22 mm mounting hole



All measurements are listed in millimeters, unless noted otherwise.

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FCC Part 15 and CAN ICES-3 (B)/NMB-3(B)

This device complies with part 15 of the FCC Rules and CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules and CAN ICES-3 (B)/NMB-3(B). These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the manufacturer.