



Bulletin 800Z Zero-Force™ Touch Buttons

IEC and NEMA Style
General Purpose Range
Heavy Industrial Range

Protection Class
4/4X/13 and 4/13
IP66

Internationally Rated
Ergonomically Designed
Touch Buttons

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General Purpose Range — Momentary Touch Buttons



800Z-GL2Q5



800Z-GF3Q5B

Mounting Hole Size	Input Voltage Range and Output Type	Electrical Connection	No Guard		Black Guard	
			Cat. No.	PQ	Cat. No.	PQ
22.5 mm Mounting Hole	PNP/ NPN Output 10...30 VDC	4 Pin QD (NPN)	800Z-GN2Q4	1	800Z-GN2Q4B	1
		4 Pin QD (PNP)	800Z-GP2Q4		800Z-GP2Q4B	
		1.8 m cabled (NPN)	800Z-GN2064		800Z-GN2064B	
		1.8 m cabled (PNP)	800Z-GP2064		800Z-GP2064B	
	Input voltage: 10...50 VDC + 20...40 VAC Relay output	5 Pin QD	800Z-GL2Q5		800Z-GL2Q5B	
		1.8 m cabled ①	800Z-GL2065		800Z-GL2065B	
		3.6 m cabled ①	800Z-GL2125		800Z-GL2125B	
		7.2 m cabled ①	800Z-GL2245		800Z-GL2245B	
	Input voltage: 90...264 VAC Relay output	5 Pin QD	800Z-GF2Q5		800Z-GF2Q5B	
		1.8 m cabled ①	800Z-GF2065		800Z-GF2065B	
		3.6 m cabled ①	800Z-GF2125		800Z-GF2125B	
		7.2 m cabled ①	800Z-GF2245		800Z-GF2245B	
30.5 mm Mounting Hole	PNP/ NPN Output 10...30 VDC	4 Pin QD (NPN)	800Z-GN3Q4	1	800Z-GN3Q4B	1
		4 Pin QD (PNP)	800Z-GP3Q4		800Z-GP3Q4B	
		1.8 m cabled (NPN)	800Z-GN3064		800Z-GN3064B	
		1.8 m cabled (PNP)	800Z-GP3064		800Z-GP3064B	
	Input voltage: 10...50 VDC + 20...40 VAC Relay output	5 Pin QD	800Z-GL3Q5		800Z-GL3Q5B	
		1.8 m cabled ①	800Z-GL3065		800Z-GL3065B	
		3.6 m cabled ①	800Z-GL3125		800Z-GL3125B	
		7.2 m cabled ①	800Z-GL3245		800Z-GL3245B	
	Input voltage: 90...264 VAC Relay output	5 Pin QD	800Z-GF3Q5		800Z-GF3Q5B	
		1.8 m cabled ①	800Z-GF3065		800Z-GF3065B	
		3.6 m cabled ①	800Z-GF3125		800Z-GF3125B	
		7.2 m cabled ①	800Z-GF3245		800Z-GF3245B	

① This device has a single common wire. If isolated commons are desired, replace the “5” in the Cat. No. with a “6”. See Wiring Diagrams on page 11-136

PQ = Package Quantity

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 Specifications - Page 11-138
 Dimensions - Page 11-140

General Purpose Range — Momentary Touch Buttons

800Z – G **L** **3** **065** **B**
a *b* *c* *d*

a

Input Voltage and Output Type	
Code	Description
Relay Output	
L	Input voltage: 10...50 VDC and 20...40 VAC Output: Relay
F	Input voltage: 90...264 VAC Output: Relay
Transistor Output	
N	10...30 VDC Output: NPN
P	10...30 VDC Output: PNP
Mounting Hole Size	
Code	Description
2	22.5 mm
3	30.5 mm

c

Electrical Connection	
Code	Description
Sink/ Source Output	
Q4	4 Pin QD
064	1.8 m cabled
124	3.6 m cabled
244	7.2 m cabled
Relay Output ❶	
Q5	5 Pin QD
065	1.8 m cabled
125	3.6 m cabled
245	7.2 m cabled
Relay Output — Isolated Commons❷	
066	1.8 m cabled
126	3.6 m cabled
246	7.2 m cabled

d

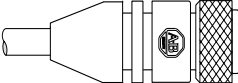
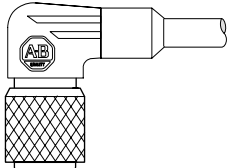
Guard Option	
Code	Description
Blank	No guard
B	Black guard
G	Green guard
R	Red guard
Y	Yellow guard

- ❶ these devices have a 1 N.O. and 1 N.C. mechanically-linked relay output with one common wire. See Wiring Diagrams on page 11-136 for details
- ❷ These devices have a 1 N.O. and 1 N.C. mechanically-linked relay output with isolated commons. See Wiring Diagrams on page 11-136 for details

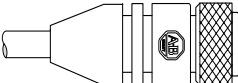
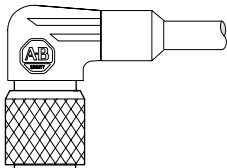
Accessories - Page 11-133
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Quick Disconnect Cables

For 22.5 mm Mounting Hole Version

	Length	4 Pin QD Cable (Micro)		5 Pin QD Cable (Micro)	
		Cat. No.	PQ	Cat. No.	PQ
	2 m	889D-F4AC-2	1	889D-F5AC-2	1
	5 m	889D-F4AC-5		889D-F5AC-5	
	10 m	889D-F4AC-10		889D-F5AC-10	
	2 m	889D-R4AC-2		889D-R5AC-2	
	5 m	889D-R4AC-5		889D-R5AC-5	
	10 m	889D-R4AC-10		889D-R5AC-10	






For 30.5 mm Mounting Hole Version

	Length	4 Pin QD Cable (Mini)		5 Pin QD Cable (Mini)	
		Cat. No.	PQ	Cat. No.	PQ
	1.8 m	889N-F4AE-6F	1	889N-F5AE-6F	1
	3.6 m	889N-F4AE-12F		889N-F5AE-12F	
	6 m	889N-F4AE-20F		889N-F5AE-20F	
	1.8 m	889N-R4AE-6F		889N-R5AE-6F	
	3.6 m	889N-R4AE-12F		889N-R5AE-12F	
	6 m	889N-R4AE-20F		889N-R5AE-20F	

PQ = Package Quantity

Accessories for the General Purpose Range


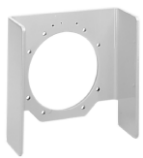




General Accessories

Guards	Description	Colour	Cat. No.	PQ
 <p><i>Guards</i></p>	These guards prevent accidental activation of the touch button surface and protect it from damage. To be used for both the 22.5 mm and 30.5 mm mounting.	Yellow	800Z-G3AG1	1
		Black	800Z-G3AG2	
		Green	800Z-G3AG3	
		Red	800Z-G3AG4	
Front Ring	Description	Type	Cat. No.	PQ
Mounting Ring Nut for 22.5 mm Holes  <p><i>Plastic mounting set</i> <i>Cat. No. 800Z-G2AH1</i></p>	Used on 22.5 mm devices.	Plastic	800Z-G2AH1	1
Mounting Ring Nut for 30.5 mm Holes  <p><i>Plastic mounting set</i> <i>Cat. No. 800Z-G3AH1</i> <i>Metal mounting set</i> <i>Cat. No. 800Z-G3AH2</i></p>	Used on 30.5 mm devices.	Plastic	800Z-G3AH1	1
		Metal	800Z-G3AH2	
Swivel/Tilt Mounting Assembly	Description	Size	Cat. No.	PQ
30.5 mm Swivel/Tilt Mounting Assembly  <p><i>Swivel mounting</i> <i>Cat. No. 60-2439</i></p>	This bracket allows you to orient the Touch Button in any position. It can be mounted on any vertical or horizontal surface. Compatible with 30.5 mm mounting only.	57 mm 2.25" extension	60-2681	1
		29 mm 1.15" extension	60-2439	
Adapter	Description	Type	Cat. No.	PQ
30.5 mm to 22.5 mm Hole Size Adapter 	This adapter allows a 22.5 mm Push Button operator to be installed in a panel with existing 30.5 mm mounting holes.	Shiny metal	800E-AHA1	1
		Black metal	800E-AHA2	

PQ = Package Quantity

Accessories for the Heavy Industrial Range

General Accessories

Replaceable Output Relay	Description	Input Voltage	Cat. No.	PQ
 Replaceable Output Relay Cat. No. 800Z-N10, 800Z-N11	These replaceable output relays are used if the current output relay fails. For use with 800Z-HL devices.	10...50 VDC and 20...40 VAC	800Z-N10	2
	These replaceable output relays are used if the current output relay fails. For use with 800Z-HF devices.	90...264 VAC	800Z-N11	
Guard	Description	Colour	Cat. No.	PQ
 Guard Cat. No. 800Z-HAG1	This guard prevents accidental activation of the touch surface and protects it from damage. Longer mounting screws are included. Note: Guards are required in most two hand safety applications (See applicable standards).	Yellow	800Z-HAG1	1
Bases	Description	Style	Cat. No.	PQ
 Single Hub Base Cat. No. 800P-B1 Double Hub Base Cat. No. 800P-B2	The Heavy Industrial Range products mount directly on these bases. The conduit hub(s) come with a 3/4" opening.	Single hub	800P-B1	1
		Double hub	800P-B2	
Legend Plates	Description	Marking	Cat. No.	PQ
 Legend Plates	These legend plates can be mounted onto the yellow guard. Each legend plate includes two mounting screws.	Blank (gray)	800P-X107	1
		Blank (red)	800P-X129	
		START	800P-X130	
		STOP	800P-X131	
		INCH	800P-X132	
		RUN	800P-X133	
		RUN INCH	800P-X134	
TOP-STOP	800P-X135			
Mounting Screws	Description	Cat. No.	PQ	
 Cat. No. 800Z-HAH1	These replacement screws are the proper length to mount the Heavy Industrial Zero-Force™ Touch Button with metal guard to a 800P-B1 or 800P-B2 base, or a custom mounting surface.	800Z-HAH1	4	
Adapter	Description	Cat. No.	PQ	
	This adapter is used if mounting Zero-Force™ Touch Button onto a 4-1/2" x 2-3/8" (114.3 x 60.3 mm) enclosure pattern.	800P-N150	1	

PQ = Package Quantity

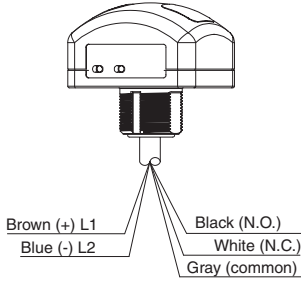
Wiring Diagrams

General Purpose Range

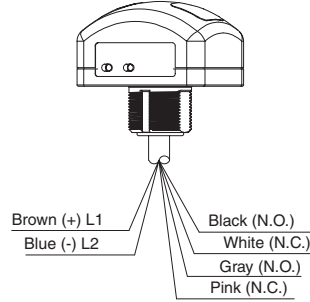
Electrical Connections: Input voltage 10...50 VDC and 20...40 VAC (Relay Output)
Input voltage 90...264 VAC (Relay Output)

Note: Utilizes one mechanically-linked output relay (1 N.O. + 1 N.C.).

5 conductor cabled
(Relay output)
 For 800Z-GL__5 models
 For 800Z-GF__5 models

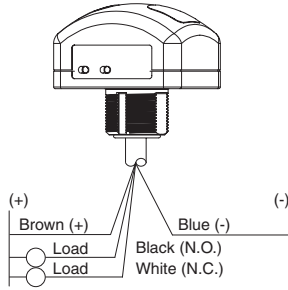


6 conductor cabled
(assembled contacts build relay output)
 For 800Z-GL__6 models
 For 800Z-GF__6 models

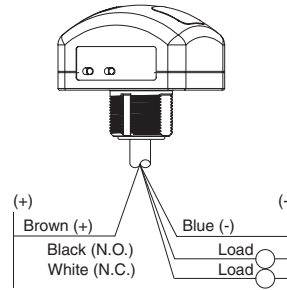


Electrical Connections: Input voltage 10...50 VDC and 20...40 VAC (Relay Output)
Input voltage 90...264 VAC (Relay output)

4 conductor cabled
(Relay output)

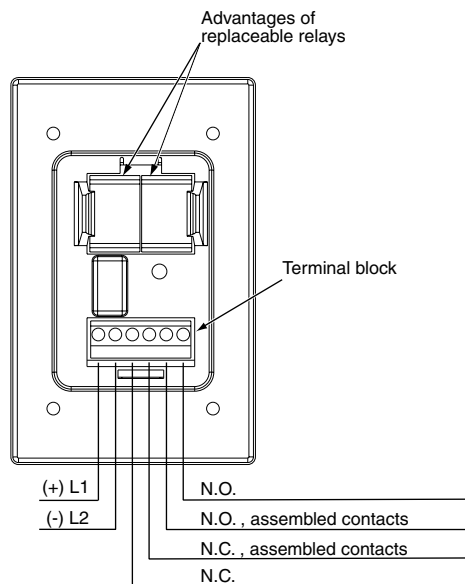


4 conductor cabled
(assembled contacts build relay output)



Heavy Industrial Range

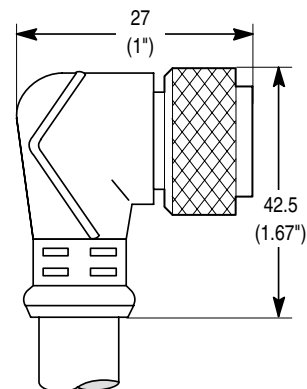
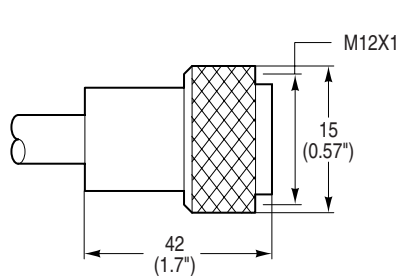
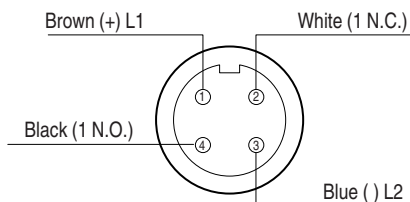
Note: Utilizes two replaceable mechanically-linked output relays (each has a 1 N.O. + 1 N.C. circuit) internally connected in series for a total of 2 N.O. + 2 N.C. contacts.



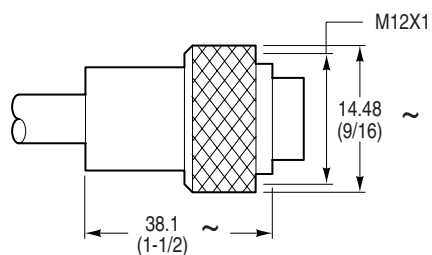
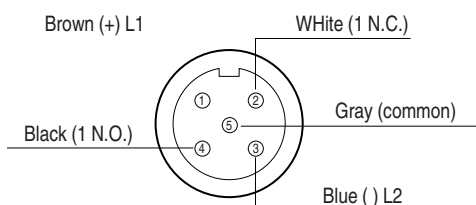
Wiring Diagrams

For 22.5 mm Mounting Hole Version

4 Pin Quick Disconnect Version (Mini)

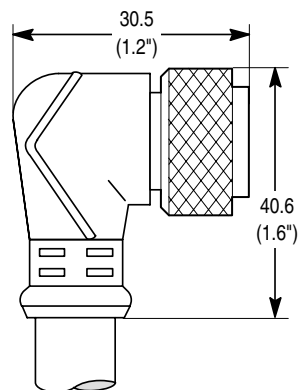
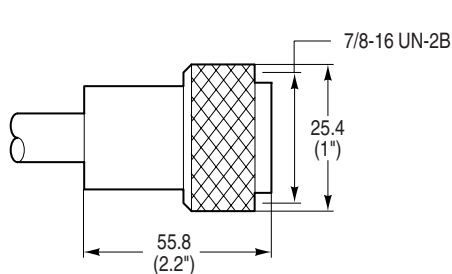
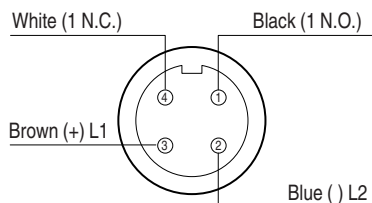


5 Pin Quick Disconnect Version (Mini)

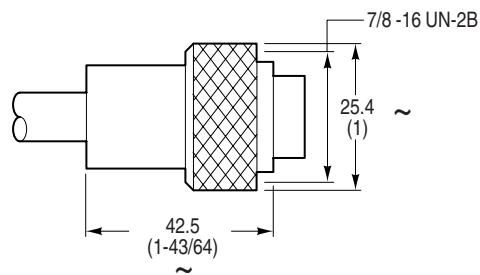
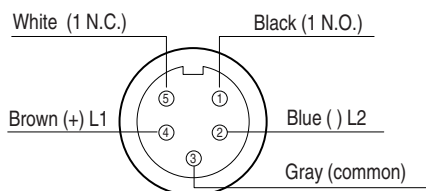


For 30.5 mm Mounting Hole Version

4 Pin Quick Disconnect Version (Mini)



5 Pin Quick Disconnect Version (Mini)



Bulletin 800Z
Zero-Force™ Touch Buttons
Specifications

Specifications

Mechanical Ratings

	General Purpose Range (800Z-G)	Heavy Industrial Range (800Z-H)
Vibration	10 ... 55 Hz; 1.50 mm (0.06 in.)	
Mechanical Shock [G]	100 (mechanical durability)	
Degree of Protection	Type 4/4X/13 IP66 Water splash approx. 830 mbar	Type 4/13 IP66
Mechanical Design Life (Typical) [operations]	50.000.000 min.	
Operating Force	zero (slight pressure may be required if thick gloves are used)	

Environmental Ratings

Temperature Range		
Operation [°C] / (°F)	-5 ... 50 (23 ... 122)	
Storage [°C] / (°F)	-40 ... 85 (-40 ... 185)	
Humidity	95 % RH from 25 °C ... 50 °C full operation	

Materials

Upper & Lower Housing	Valox 357	
Guard	Valox 325	
Gasket	BUNA-N	1.6 mm 1/16" Cork-BUNA-N

Agency Approvals

Approvals	cULus, CE	
Standards Conformity	UL508, UL50, EN55011, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11, EN60947-5-1	

Electrical Ratings

Input voltage: 800Z-GL ... 800Z-HL...	10...50 VDC and 20...40 VAC at 50/60 Hz	
Input voltage: 800Z-GF...800Z-HF...	90...264 VAC at 50/60 Hz	
Electrical Design Life Relay output [operations]	150.000 min. incl. load	150.000 min. incl. load
Terminal Block	N/O	IP2X rated terminal block Max. wire size #12-22 AWG (0.5...4 mm ²) Tightening torque: 1 Nm
Current Draw		
at 12 VDC [mA]	35	45
at 24 VDC [mA]	60	70
at 120 VAC [mA]	40 eff.	50 eff.
at 240 VAC [mA]	80 eff.	90 eff.

Output Relay Ratings

	Utilization Category	I _{th}	Volt	24 V	120 V	240 V
General Purpose Range 30.5 mm 22.5 mm All	B300, AC-15	5	Amp	5	3	1.5
	C300, AC-15	2.5	Amp	2.5	1.5	0.75
	Resistive, AC-13	2 A maximum at 24 VDC				
General Purpose Range	B300, AC-15	5	Amp	5	3	1.5
	Resistive, AC-13	2 A maximum at 24 VDC				

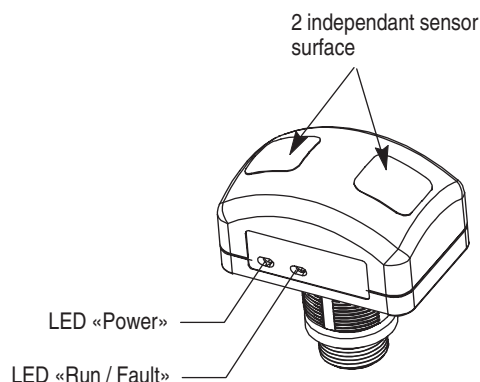
Cable Data

Electrical Ratings

	General Purpose Range 22.5 mm	General Purpose Range 30.5 mm
Cabled Devices Cabled options	5 wire (single common), or 6 wire (isolated common) 105 °C, 300 V multiconductor cable	
Wire termination	Window stripped — individual wires	
5 PIN Cable length [m]	2, 5, 10	1.8, 3.6, 6
QD Wire size [mm ²]	0.5 (No. 22 AWG)	0.75 (No. 18 AWG)
Cables Wire termination	Blunt Cut	

Product Operation

1. When the power LED is lit, the Zero-Force™ touch button is ready for operation.
2. To send an output, simply place palm or fingers onto ergonomically contoured surface, covering both raised sensor pads (see Figure 1).
3. Safety/redundancy has been incorporated by requiring both sensors to be touched within 0.2 seconds of each other, otherwise the device will not send an output.
4. The SPST (SPST - N.O. + SPST N.C.) electromechanical relay stays activated as long as both pads remain touched. The relay provides a one pin circuit breaker (SPST - N.O.) and a one pin circuit breaker (SPST - N.C.).



Diagnostics

Code 2:

If the device is being touched during power up, the Fault LED will flash a code, and the microprocessor will disable the output. The device will resume operation 10 seconds after it is no longer being touched.

Code 3:

If an object, such as a wet rag, touches the device during operation, and remains in contact with the device after the operator removes their hand, the Fault LED will flash a code, and the device will be disabled until the object is removed.

Code 4:

Even if conductive films deposit on the sensor surface over time, a false output will NOT be triggered. The Fault LED will flash a code, and the device will be disabled until the sensor surface is cleaned.

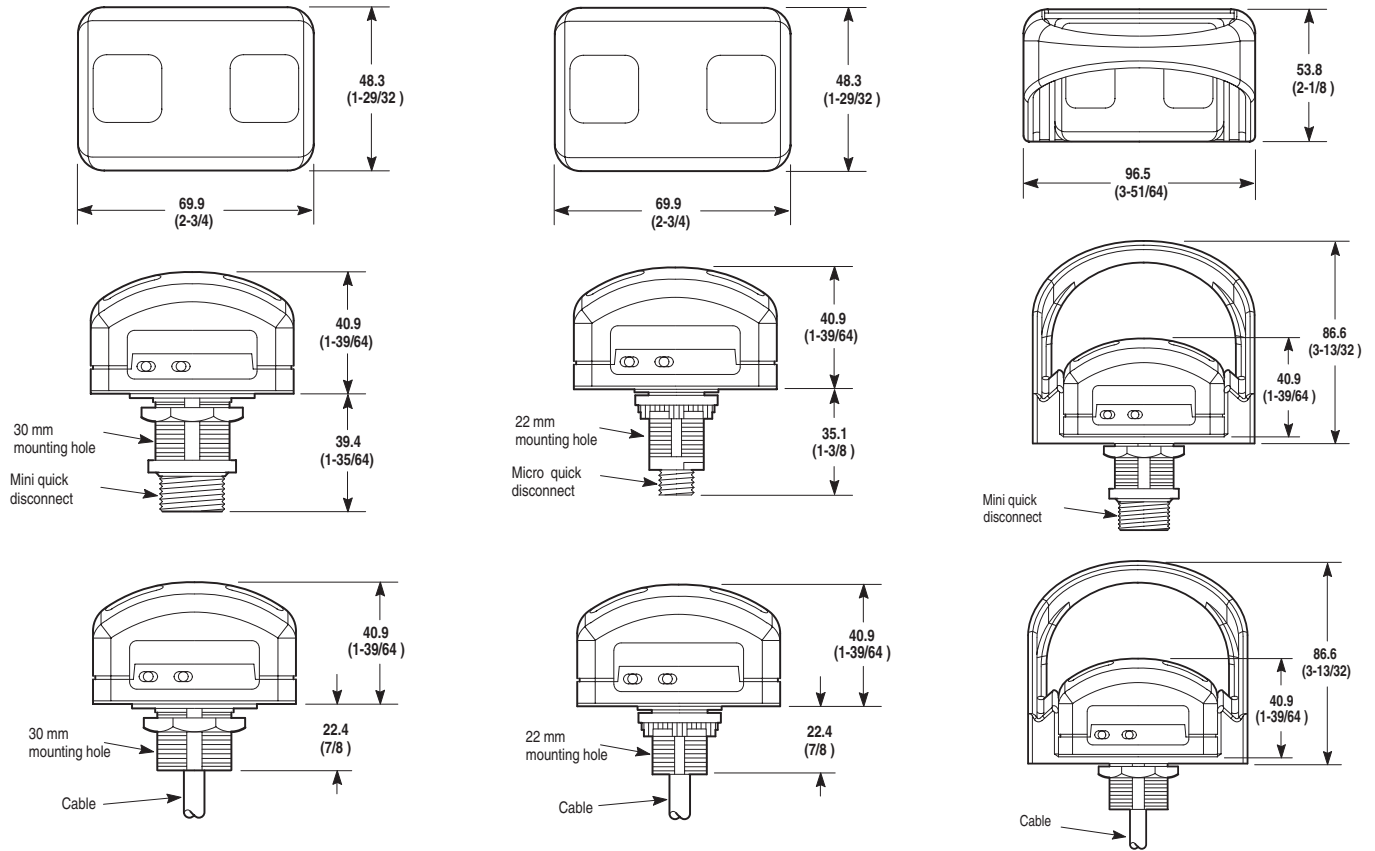
Code Type	Description	Fault LED Flash Sequence
Code 2	Power Interruption Safety	● ● ● ●
Code 3	Tie Down Protection	● ● ● ● ● ● ● ●
Code 4	Margin Detection	● ● ● ● ● ● ● ● ● ●

Bulletin 800Z
Zero-Force™ Touch Buttons
Dimensions

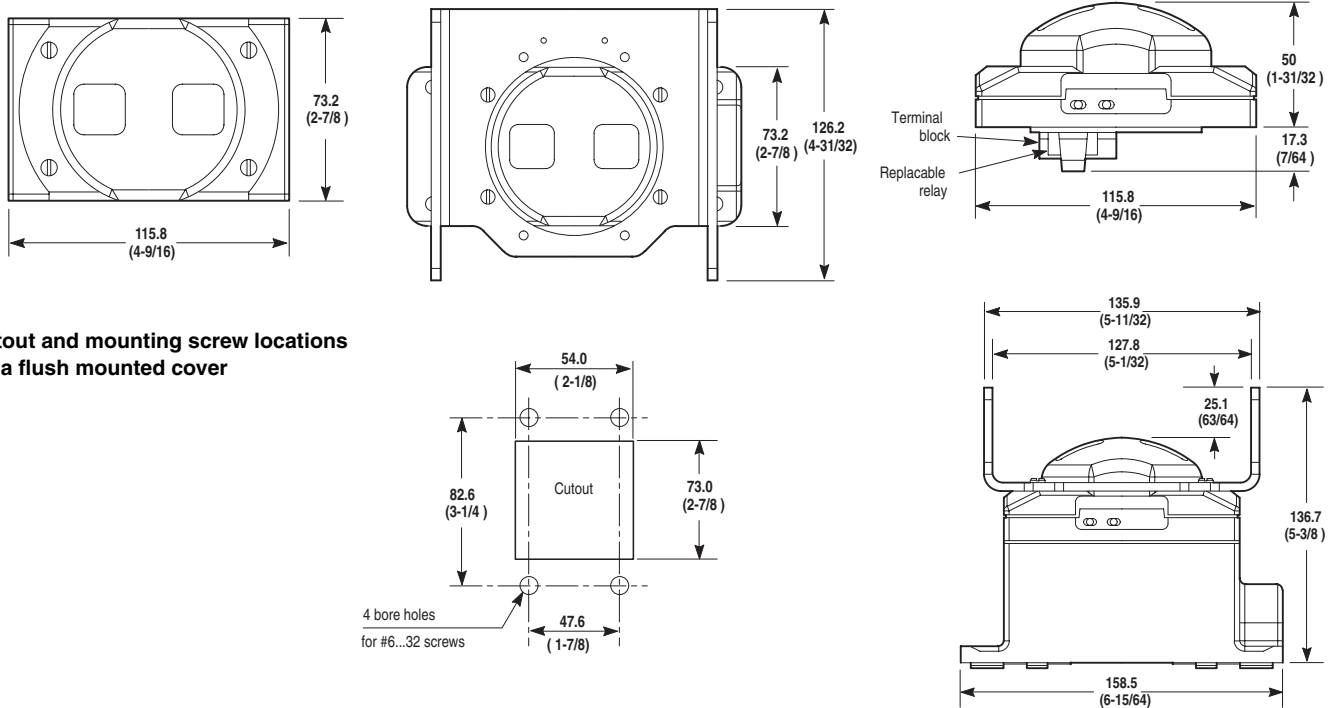
Approximate Dimensions

Dimensions in Millimetres (Inches). Dimensions are not intended to be used for manufacturing purposes.

General Purpose Range



Heavy Industrial Range



Cutout and mounting screw locations for a flush mounted cover