

Inductive Proximity Sensor

E2Q2

Limit Switch Style Proximity Sensor with 5-Position Sensing Head

- Sensing face easily adjusts to one of five directions
- Easy to install and same mounting dimensions as a standard limit switch
- Integrated short circuit and reverse polarity protection
- Plastic body with stainless steel screws
- Weld field immune models available
- Conduit openings 1/2"-NPT and Brad Harrison MiniChange[®] connector versions available





Ordering Information

■ DC INPUT TYPE

Туре	Sensing distance	Output type	Part number	
			1/2"-NPT conduit opening	4-pin MiniChange connector*
Shielded	20 mm (0.79 in)	NPN (NO+NC)	E2Q2-N20E3-U	E2Q2-N20E3-50
		PNP (NO+NC)	E2Q2-N20F3-U	E2Q2-N20F3-50
Unshielded	30 mm (1.18 in)	NPN (NO+NC)	E2Q2-N30ME3-U	E2Q2-N30ME3-50
		PNP (NO+NC)	E2Q2-N30MF3-U	E2Q2-N30MF3-50

Note: *Use Brad Harrison connector #104000A01F120 (12 foot) or equivalent.

■ AC INPUT TYPE

Туре	Sensing distance	Output type	Part number	
			1/2"-NPT conduit opening	4-pin MiniChange connector*
Shielded	15 mm (0.59 in)	SCR (NO or NC)	E2Q2-N15Y4-U	E2Q2-N15Y4-50
Unshielded	30 mm (1.18 in)	SCR (NO or NC)	E2Q2-N30MY4-U	E2Q2-N30MY4-50

Note: *Use Brad Harrison connector #103000A01F120 (12 foot) or equivalent.

■ WELD FIELD IMMUNE TYPES

These sensors withstand 25,400 amps at 1 inch (100 mT).

Туре	Sensing distance	Input	Output type Part number		
		type		1/2"-NPT conduit opening	MiniChange connector
Shielded	15 mm (0.59 in)	DC	PNP (NO)	E2Q2-N15F1-51	E2Q2-N15F1-52*
		AC	SCR (NO or NC)	E2Q2-N15Y4-51	E2Q2-N15Y4-52**

Note: *Use 4-pin Brad Harrison connector #104000A01F120 (12 foot) or equivalent.
**Use 3-pin Brad Harrison connector #103000A01F120 (12 foot) or equivalent.

Specifications _____

■ DC INPUT TYPES

Part number	,	E2Q2-N15□	E2Q2-N20□	E2Q2-N30□				
Operating voltage		10 to 60 VDC; 10 to 30 VDC for weld-field immune types						
Current consumption		20 mA max.	7					
Sensing obj	•	Ferrous metals		TO THAT HUA.				
Sensing dist		15 mm ±10%, shielded	20 mm ±10%, shielded	30 mm ±10%, unshielded				
Setting distance with standard sensing object (L x W x H mm)		0 to 12 mm; 0 to 15 mm (45 x 45 x 1 mm, mild steel)	0 to 16 mm, 0 to 20 mm (60 x 60 x 1 mm, mild steel)	0 to 24 mm, 0 to 30 mm (90 x 90 x 1 mm, mild steel)				
Differential t	ravel	15% max. of sensing distance						
Control output	Туре	F1: PNP-NO	E3: NPN (NO+NC) F3: PNP (NO+NC)	ME3: NPN (NO+NC) MF3: PNP (NO+NC)				
	Max. load	200 mA	200 mA					
	Max. on-state voltage drop	3 VDC at 200 mA load current						
Response fr	equency	10 Hz (weld field immune)	150 Hz	100 Hz				
Circuit prote	ction	Reverse polarity, output short-circuit						
Weld field immunity		25,400 amps at 1 inch (100 mT)	-	-				
Indicator		Operating indicator (yellow LED)						
Material	Case	PBT						
	Terminal base	Aluminum						
	Sensing face	PBT						
Connections		-U, -51: 1/2"-NPT conduit opening; -G: PG 13.5 conduit opening -50, -52: 4-pin MiniChange connector						
Enclosure ra	ating	IP67 (EN 60947-1)						
Approvals		UL listed, CSA certified						
Operating ambient temperature		-25° to 70°C (-13° to 158°F)						
Relative humidity		35% to 95% RH						
Influence of temperature		±10% max. of sensing distance at 23°C (73.4°F) in temperature range of -25° to 70°C (-13° to 158°F)						
Dielectric strength		1,500 VAC, 50/60 Hz for 1 minute between current carrying parts and case						
Electromagnetic compatibility		EN 60947-5-2						
Vibration resistance		10 to 55 Hz, 1 mm amplitude according to IEC 60068-2-6						
Shock resist	tance	Approx. 30 G for 11 ms according to IEC 60068-2-27						

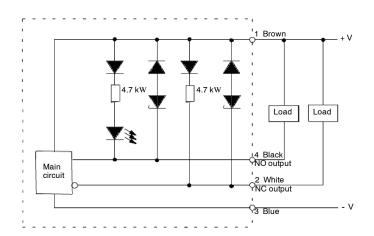
■ AC INPUT TYPES

Part number		E2Q2-N15Y□	E2Q2-N30MY4□	
Operating voltage		20 to 253 VAC, 50/60 Hz		
Current consumption		20 mA max.	10 mA max.	
Leakage curre	ent	1.9 mA max. (2.5 mA max. for weld field im	nmune types)	
Sensing object	ct	Ferrous metals		
Sensing dista	nce	15 mm ±10%, shielded	30 mm ±10%, unshielded	
	ce with standard ct (L x W x H mm)	0 to 12 mm; 0 to 15 mm (45 x 45 x 1 mm, mild steel)	0 to 24 mm, 0 to 30 mm (90 x 90 x 1 mm, mild steel)	
Differential tra	ivel	15% max. of sensing distance		
Control	Туре	SCR (NO or NC)		
output	Max. load	500 mA		
	Min. load	8 mA (10 mA for weld field immune types)		
	Max. on-state voltage drop	12 VDC at 500 mA load current		
Response free	quency	20 Hz		
Circuit protect	tion	None		
Weld field imn	nunity	25,400 amps at 1 inch (100 mT)		
Indicator		Operating indicator (yellow LED)		
Material	Case	PBT		
	Terminal base	Aluminum		
Sensing face		PBT		
Connections		-U, -51: 1/2"-NPT conduit opening; -50, -52: 3-pin MiniChange connector		
Enclosure rati	ng	IP67 (EN 60947-1)		
Approvals		UL listed, CSA certified		
Operating am	bient temperature	-25° to 70°C (-13° to 158°F)		
Relative humidity		35% to 95% RH		
Influence of temperature		±10% max. of sensing distance at 23°C (73.4°F) in temperature range of -25° to 70°C (-13° to 158°F)		
Dielectric strength		1,500 VAC, 50/60 Hz for 1 minute between current carrying parts and case		
Electromagnetic compatibility		EN 60947-5-2		
Vibration resistance		10 to 55 Hz, 1 mm amplitude according to IEC 60068-2-6		
Shock resistar	nce	Approx. 30 G for 11 ms according to IEC 60068-2-27		

Operation

■ OUTPUT CIRCUIT DIAGRAMS AND TIMING CHARTS

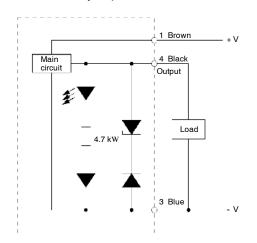
NPN (NO + NC) Output



E2Q2-N E3-...

Output		NO	NC
Target	Present Absent		Present Absent
Load (output)	Operates Releases	******	Operates Releases
Operation indicator	ON OFF	*****	ON OFF

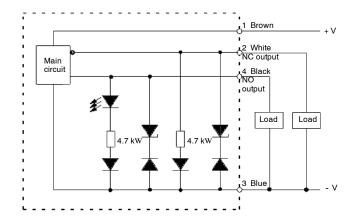
PNP-NO Output (Weld Field Immune Models)



E2Q2-N15F1-5

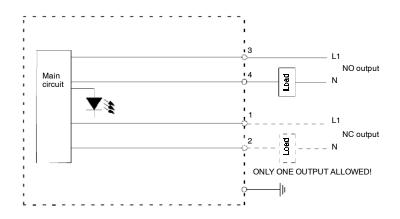
Output		NO
Target	Present Absent	*******
Load (output)	Operates Releases	
Operation indicator	ON OFF	

PNP (NO + NC) Output



Coutput NO NC Target Present Absent Absent Operates (output) Releases Rele

AC (NO or NC) Output

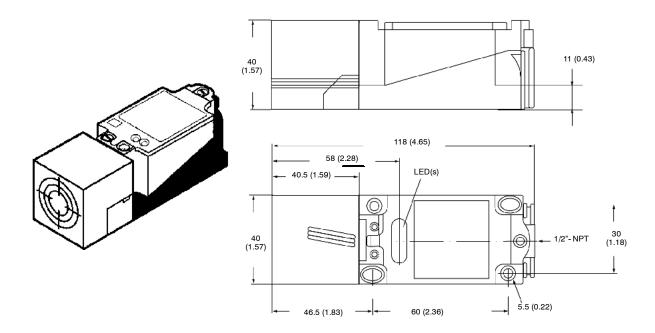


Output		NO	NC		
Target	Present Absent		Present Absent		
Load (output)	Operates Releases		Operates Releases		
Operation indicator	ON OFF	******	ON OFF		

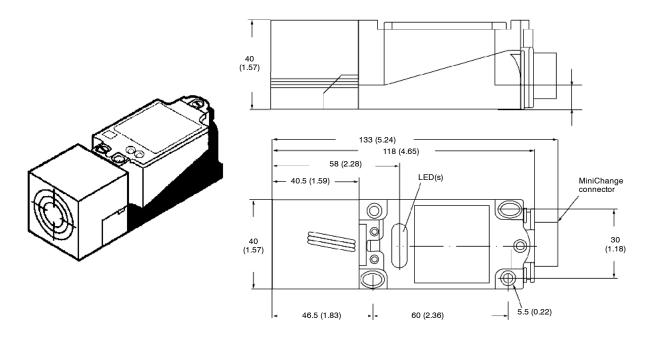
Dimensions

Unit: mm (inch)

■ E2Q2-N□□□-U AND -51 TYPE



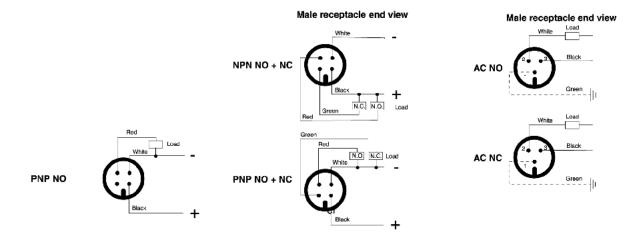
■ E2Q2-N□□□□-50 AND -52 TYPE



Installation

■ PIN ARRANGEMENT

MiniChange connections



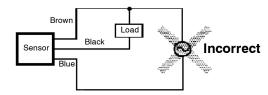
Precautions

/!\ CAUTION

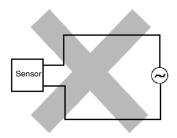
Power supply

Do not impose an excessive voltage on the E2Q2, otherwise it may explode or burn.

Do not impose AC voltage on any E2Q2 DC model, otherwise it may explode or burn.



Do not connect the AC types without load to the power supply. The sensor will be damaged.



■ INSTALLATION

Power Reset Time

The Proximity Sensor is ready to operate within 300 ms after power is supplied. If power supplies are connected to the Proximity Sensor and load respectively, be sure to supply power to the Proximity Sensor before supplying power to the load.

Power OFF

The Proximity Sensor may output a pulse signal when it is turned off. Therefore, it is recommended to turn off the load before turning off the Proximity Sensor.

Power Supply Transformer

When using a DC power supply, make sure that the DC power supply has an insulated transformer. Do not use a DC power supply with an auto-transformer.

Sensing Object

Metal coating: The sensing distance of the proximity sensor will vary with the metal coating on sensing objects.

■ WIRING

High-Tension Lines Wiring through Metal Conduit

If there is a power or high-tension line near the cable of the Proximity Sensor, wire the cable through an independent metal conduit to prevent against Proximity Sensor damage or malfunctioning.

MOUNTING

The Proximity Sensor must not be subjected to excessive shock with a hammer when it is installed, otherwise the Proximity Sensor may be damaged or lose its water resistance.

■ ENVIRONMENT

Water Resistance

Do not use the proximity sensor underwater, outdoors or in the rain

Operating Environment

Be sure to use the Proximity Sensor with operating ambient temperature range and do not use the Proximity Sensor outdoors so that its reliability and life expectancy can be maintained. Although the Proximity Sensor is water resistant, a cover to protect he proximity sensor from water or soluble machining oil is recommended so that its reliability and life expectancy can be maintained. Do not use the Proximity Sensor in an environment with chemical gas (e.g., strong alkaline or acid gases including nitric, chromic, and concentrated sulfuric acid gases).

NOTE: DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

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