Cat. No. XAE-213

XAE

SAFETY BUMPERS, EDGES

INSTRUCTION SHEET

Thank you for selecting INNO for your requirement.

This sheet describes the procedure and precautions required for installing and operating the product.

Kindly read this sheet before operating or installing the product. Store the sheet for future reference.

CAUTION FOR SAFETY

ⓘ Please keep this sheet for review before use of unit.

ⓘ Please observe the following:

⚠ WARNING
Serious injury/ death may occur if instructions are not followed

⚠ CAUTION
Product failure or injury can occur if instructions are not followed

⚠ WARNING

1. DO NOT use this device where a risk assesment has determined that "*control reliability*" is required, such as for hazardous machinery.
2. Use only in places where the worst case injury from an accident can be remedied by first aid.
3. Do not use unless this device is installed and tested according to local safety standards and complying to the instruction manual.
4. This device is compliant to UL 508 standard for Industrial Control Equipment, CSA C22.2 No.14 ICE, DIN EN 1760-1:1998, INO ISO 13849-1:2009, ANSI/RIA R15.06-1999, ANSI B11.19-2003. It is not to be used in places requiring last level safety control of machinery.
5. The device as such does not confirm to any standards of safety. It is to be used with a Safety Mat Controller to adhere to Type II/ IV Safety standard.
6. Do not disassemble this unit. It may lead to electric shock/ fire.

⚠ WARNING - *FOR USERS*

The device must be installed, configured and incorporated onto a machine or control circuit by sufficiently trained and qualified personnel. An unqualified person may not be able to perform the operations properly, this may cause a problem to go undetected and hence resulting in serious injury.

⚠ WARNING - *FOR INSTALLATION*

Make sure that the operation of the XAE is tested before and after installation to verify that XAE operates as intended. Make sure that the machine is powered down and not in operation till the test is complete. Not completing this check may result in the device not working as intended, resulting in accident.

It should be ensured that the XAE is installed at a safe distance from the hazardous part of the equipment. Otherwise, the machine may not stop before the person reaches the hazardous part, resulting in accident.

Ensure that a protective structure is installed around the hazardous part of the machine in such a way that the person can reach the hazardous part only by passing through the sensing area of the device. Also ensure that interlocks are present to prevent the machine from restarting once a person passes through the detection zone. Failure to do the above may result in an accident.

Install an interlock reset switch with all XAE bumpers and edges. The switch should be in a location that provides a clear view of the entire hazardous zone but also remains at a safe distance from the hazardous zone.

XAE performs sensing based on pressure applied to the bumper/ edge. It cannot detect objects/ personnel passing though or over the sensor without contact on the bumper/ edge.

Install the XAE in an even surface without any undulations/ slopes. Failure to do so may lead to false alarms & detection errors.

When using more than one set of XAEs, install them in such a way that they are not in contact with each other and there is a gap of atleast 1inch between the bumpers and a gap of 0.5 inch between the edges. Do not use them near one another if each is meant for different controls.

⚠ WARNING - *FOR WIRING*

The XAE can be connected under two different modes:

2 Wire direct connection - This is not a safety certified connection
Connect the load in series with the sensor. Do not connect Black and White wires; they are to be insulated from any electrical connection.
4 Wire connection - This connection is to be used only when connected to a Safety Controller. The wiring diagram for the same should be provided by the controller manufacturer. Do not wire the sensor without reffering to the connection diagram. Red and Black form a pair for the +ve leads, Green and White for the pair for the +ve leads.

The edge/ bumper is pressure sensitive momentary action device. The output contacts are Normally Open.

Configure the system by connecting to a safety controller to perform the control function. Direct connection to a non-safety control device may result in output failure, resulting in accident.

Reinforced insulation from hazardous voltage must be applied to sensor cable. Failure to do so may result in electric shock and/ or false triggers.

No more than 3 cable joints between the sensor and controller.

Extension of cable must be within 20 meters. If it isn't, output may not work properly, resulting in accident.

⚠ WARNING - *FOR MACHINES*

Do not use this sensor for machines that cannot be stopped by electrical control. Otherwise, the machine may not stop before the person reaches the hazardous zone, resulting in accident.

⚠ WARNING - *GENERAL*

Perform daily 6-month inspections for XAE using the local authorised service technician. Otherwise the system may fail to work properly, resulting in accident.

Ensure that power cables and high frequency radio/ signal cables do not pass near the XAE installation, the same may result in may result in false triggers and the output may malfunction resulting in accident.

Ensure that the power supply and output lines are free of EMI noise, as the same may cause disturbances in the internal functioning of the XAE resulting in false triggers.

Do not touch the cable terminals when power is on.
RISK OF ELECTRIC SHOCK!

⚠ CAUTION

1. This unit shall not be used outdoors or in places with direct sunlight, humidity, oily and corrosive environments or other harsh conditions.
2. Do not use the unit in areas exposed to vibration or shock levels higher than that given in the specifications.
3. Do not use the unit in environments where flammable or explosive gases are present. Doing so may result in explosion.
4. Do not connect the outputs to loads beyond 100mA.
5. Do not use water or oil based detergent for cleaning the unit.
6. When replacing or extending the cables/ connectors with other than specified type, ensure a protection degree of IP65 or more.
7. Cable extensions must not exceed 20meters.
8. Do not use excessive force to fasten the unit and do not hammer the unit.
9. Please process it as industrial waste and dispose responsibily.

PRECAUTION FOR CORRECT USE

Observe the precautions described below to ensure proper functioning of the product and to avoid undesirable effects on product performance.

1. Do not install, use or store the product for a long time at a temperature and humidity out of the specified range.
2. Do not use the device in altitudes above 2000ft.
3. Do not operate the control system until 3 seconds or more after turning on the power to the XAE
4. Be sure to route the cable of the XAE thtough an exclusive conduit, to avoid interference from other power/ signal cables.
5. Do not use thinner, benzene or acetone for cleaning because they affect the casing and paint on the extrusion.
6. The XAE cannot detect detect objects that do not come in contact with the mat surface even if they pass though the sensor area.

LIMITATIONS OF LIABILITY

INNO SHALL NOT BE RESPONSIBLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH A CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE OR STICET LIABILITY.
Inno is not responsible for the proper functioning of the product unless it has been installed by a certified Class C electrical technician.
In no event shall the responsibility of INNO or it's end supplier for any act exceed the individual price of the product on which liability is asserted.
In no event shall INNO be held responsible for the mal-functioning of the product once it has been opened/ disassembeled or modified by unauthorised personnel.

OTHER IMPORTANT INFORMATION

PLEASE READ AND UNDERSTAND THIS DOCUMENT BEFORE USING THE PRODUCT. CONTACT US IN CASE OF ANY QUESTIONS OR COMMENTS.

Suitability for Use:

INNO shall not be responsible for conformity with any standards, codes or regulations that apply to the combination of products in the customer's application or use of the product.
At the request of the customer, INNO shall provide documents relating to the specification and ratings of the product. This information however by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system or any other application or use.

ⓘ The device is not intended for use in environments given below. This list is not intended to be exhaustive list, but rather a general coverage of most critical environments.

- Outdoor use, uses involving potential chemical contamination or conditions/ environments described in this document.
- Nuclear energy control systems, Combustion systems, Railroad systems, Aviation systems, Medical equipment, Amusement machines, Vehicles, Military installations.
- Systems, machinery & equipment that could present a risk to life or property.

Know and observe all prohibitions of use applicable to the product.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE XAM IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Errors and Omissions:

The information in this document has beleived to be accurate; however no responsibility is assumed by INNO for any errors present.

DEVICE TEST PROCEDURE

⚠ WARNING Failure to perform this test procedure properly could result in accident and serious injury to personnel.

The following test procedure is to be perfrormed before initial installation and commissioning of the bumper/ edge, regular inspection schedule and after any adjustment or modification to the sensor.
This test ensures that the sensor, safety system and the machine control system work in conjuction without any problems.

1. Disable the guarded machine and Power OFF. Apply power only to the control circuit (including the XAE sensor).

2. Check for signs of external damage to the bumper/ edge, the machine and the electrical cables and wiring. If damage is found, replace the damaged equipment.
3. Disconnect the bumper/ edge wiring. Check for continuity between RED-BLACK and GREEN-WHITE. If there is no continuity in either of the pair; the bumper/ edge has to be replaced.

6. Re-connect the sensor wiring with the control circuit. Simulate impact to the edge/ sensor by applying the minimum rated force. If the contact is made the bumper/ edge is working properly.

6. Start the machine. While the machine is in motion, impact the sensor. The machine should stop immediately, else check the control wiring.

8. If the safety devices or the machine fails any one of these tests, do not run the machine. Immediately tag or lockout the machine to prevent use and initiate process to rectify the faults. Re-run all the above test procedures once the fault has been rectified.

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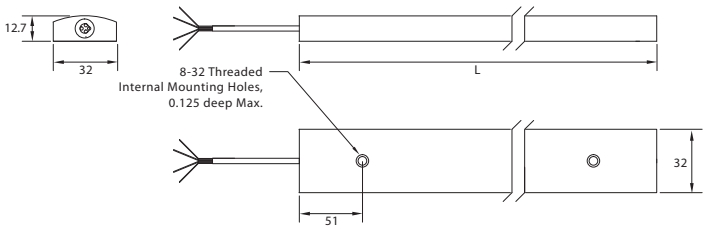
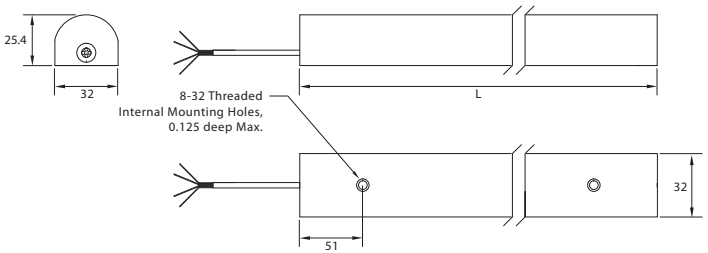
DIMENSIONS

• XAE-E5H- _ NN



• XAE-E1- _ NN



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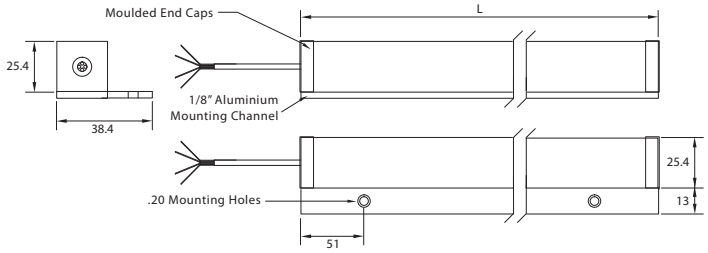

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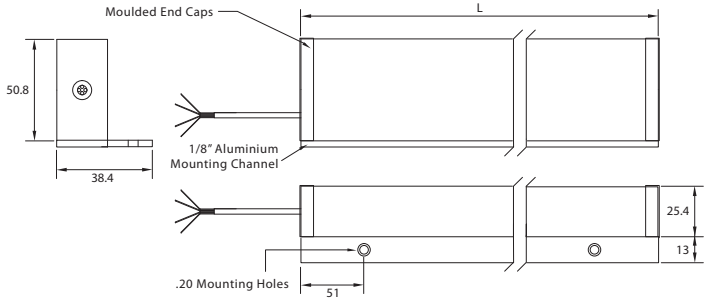

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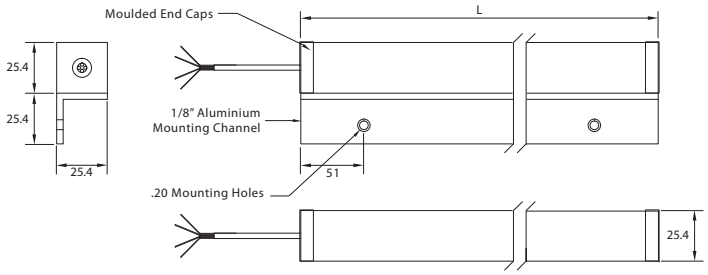

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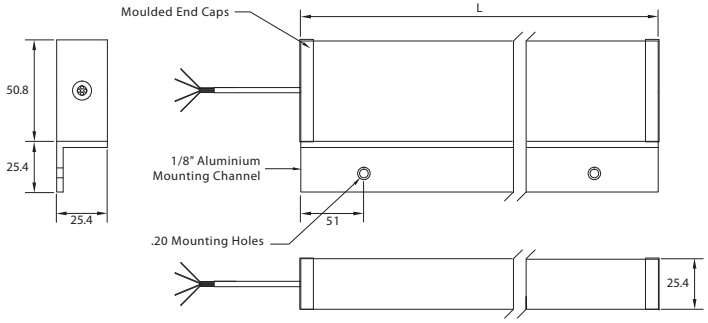


SPECIFICATIONS

*For details on Customized/ Special Models contact Seller

Type		Safety Edge		Safety Bumper	
*Models		XAE-E5H- _ NN	XAE-E1- _ NN	XAE-B1- _ _ _	XAE-B2- _ _ _
Sensor Height		0.5" (12mm)	1" (25mm)	1" (25mm)	2" (50mm)
Mounting Arrangement		Threaded Base		Flat/ L- angle Aluminium Channel	
Detection Method		Pressure sensing switch			
Switch Type		4- Lead wire type			
Switch Function		Normally Open; Momentary Action			
Switch Activation Life		upto 5 million cycles			
Activation Force		<2 lbs (0.91 kg)	<3 lbs (1.36 kg)	<3.3 lbs (1.5 kg)	<4 lbs (1.814 kg)
Ambient Temperature		Operation: -18° ~ 50°C; Storage: -25° ~ 55°C (non- freezing; non- condensing)			
Ambient Humidity		Operation: 15 ~ 85% RH; Storage: 15 ~ 95% RH (non- condensing)			
Dielectric Strength		750 VAC for 1 minute			
Protection Class		IP67			
Compliance Standard		UL 508 standard for ICE; CSA C22.2 #14 ICE; DIN EN 1760-2:2009			
Weight		5.5 lbs (2.5 kg)/ meter	5.5 lbs (2.5 kg)/ meter	5.5 lbs (2.5 kg)/ meter	5.5 lbs (2.5 kg)/ meter
Chemical Resistance		Water, Oil & Gasoline		Water, Acids, Alcohols, Petroleum Solvents & Oils	
Material	Surface	Extruded Oil resistant Nitrile Rubber (BUNA-N)		Heavy duty Rip stop Vynil	
	End Caps	-		Black PVC	
	Mounting Channel	-		Aluminium	
Mounting		.201 holes for #10 fastner, 8-32 Threaded inserts		.201 hole (Countersunk)	
Cables		2 meters, 22 AWG, 4 wire Oil Resistant PVC			

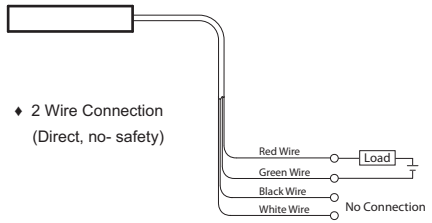
Available Standard Lengths	
XAE- _ _ - 06 - _ _	150mm
XAE- _ _ - 12 - _ _	305mm
XAE- _ _ - 24 - _ _	610mm
XAE- _ _ - 36 - _ _	915mm
XAE- _ _ - 48 - _ _	1220mm
XAE- _ _ - 60 - _ _	1530mm
XAE- _ _ - 72 - _ _	1830mm
XAE- _ _ - 84 - _ _	2135mm
XAE- _ _ - 96 - _ _	2440mm

XAE-B _ - _ _ M
Models with Mittered edges; the edges are tappered at 45°. Rest stay the same

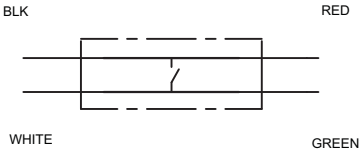
The bumpers/ edges provide contact outputs that can directly be connected to a relay coil or be used as in input signal (current not exceeding 200mA). It is however recomended that the mat be used in conjunction with a Safety Controller when used for safety control.
For 4 wire connection to a Safety Controller Black is Red wire's pair and White is Green wire's pair.
Pl. check for continuity before comencement of wiring. Wiring diagram between the Safety Controller and the bumper/ edge is to be provided by the controller manufacturer.

All dimensions are in mm

CONNECTION DIAGRAM



The safety bumpers and edges provide contact outputs that can directly be connected to a relay coil or be used as in input signal (current not exceeding 200mA). It is however recomended that the sensor be used in conjunction with a Safety Mat Controller when used for safety control and to comply with the local safety laws.



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