

**INSTRUCTIONS FOR USE - EX(TO)(M)602yzzz/aaa, EX(TO)(M)603yzzz/aaa, EX(TO)(M)606yzzz/aaa, EX(TO)(M)607yzzz/aaa, and EX(TO)(M)608yzzz/aaa Series**

Model(s)	<p>EX(TO)(M)602yzzz/aaa, EX(TO)(M)603yzzz/aaa, EX(TO)(M)606yzzz/aaa, EX(TO)(M)607yzzz/aaa, and EX(TO)(M)608yzzz/aaa Series where:            Model Options Include:                TO – Temperature Output Sensor                M – Metric mounting hardware and cable            y = One Letter from A to Z denoting revision level (with “M” reserved for customer Special Orders)            zzz = Two or Three Numbers 00 to 999 which cable/connector type and sensitivity, filtering, or bias (two numbers) or special order sequential number (up to three digits)            aaa = Designates cable length and/or connector type</p>
Markings	<p>PCB            Depew, NY            IECEX LCIE 13.0045X            LCIE 06, ATEX 6033X            LCIE 06, ATEX 6032X            Ex ia IIC T4 Ga Ta=121°C            Ex nA IIC T4 Gc Ta=121°C            Install per 64371</p>
Putting Into Service	<p>Powering: All ICP® sensors require constant current excitation for proper operation. For this reason, use only PCB constant-current signal conditioners or other approved constant-current sources. The power supply consists of a current-regulated, 18 to 30 VDC source. This power is regulated by a current-limiting circuit, which provides the constant-current excitation required for proper operation of ICP® sensors.            In general, battery-powered devices offer versatility for portable, low-noise measurements, whereas line-powered units provide the capability for continuous monitoring. Consult the Vibration Division’s product catalog for more information about signal conditioners.</p> <p><b>NOTE:</b> <i>Under no circumstances should a voltage be supplied to an ICP® accelerometer without a current-regulating diode or equivalent electrical circuit. This may include ohmmeters, multi-meters and continuity testers.</i></p>
Safe Use	<p>After completing the system setup, switch on the signal conditioner and allow 1 to 2 minutes for the system to stabilize. The meter (or LED) on the signal conditioner should be reading “green.” This indicates proper operation and you may begin taking measurements. If a faulty condition is indicated (red or yellow reading), first check all system connections, then check the functionality of the cable and signal conditioner. If the system still does not operate properly, consult a PCB factory representative.</p> <p><b>NOTE:</b> <i>Always operate the accelerometer within the limitations listed on the enclosed <b>Specification Sheet</b>. Operating the device outside these parameters can cause temporary or permanent damage to the sensor.</i></p> <p><b>WARNING:</b> <i>Do not separate when Energized.</i></p>
Assembling	<p>The EX(TO)(M)602yzzz/aaa, EX(TO)(M)603yzzz/aaa, EX(TO)(M)606yzzz/aaa, EX(TO)(M)607yzzz/aaa, and EX(TO)(M)608yzzz/aaa Series have hermetically sealed titanium housings, with a sealed integral cable, and do not require any assembly. Only mounting to the machine being monitored using standard mounting accessories.</p>
Dismantling	<p>Other than removal from the mounting, there is no disassembly of the sensor required to take it out of service.</p>

Maintenance	Routine maintenance, such as the cleaning of electrical connectors, housings, and mounting surfaces with solutions and techniques that will not harm the physical material of construction, is acceptable.
Servicing	Due to the sophisticated nature of the sensors and associated instrumentation provided by PCB Piezotronics, user servicing or repair is not recommended and, if attempted, may void the factory warranty. However, routine calibration of sensors and associated instrumentation is recommended as this helps build confidence in measurement accuracy and acquired data.
Repair	In the event that equipment becomes damaged or ceases to operate, arrangements should be made to return the equipment to PCB Piezotronics for repair. User servicing or repair is not recommended and, if attempted, may void the factory warranty.
Installation	<p>Overview: Sensor must be mounted in order to be put into service. When choosing a mounting method, consider closely both the advantages and disadvantages of each technique. Characteristics like location, ruggedness, amplitude range, accessibility, temperature, and portability are extremely critical. However, the most important and often overlooked consideration is the effect the mounting technique has on the high-frequency performance of the accelerometer. Mounting methods include: Stud mount, adhesive mount, magnetic mount, handheld, or probe tip mount.</p> <p>Cabling: Care and attention to cable installation and cable condition is essential as the reliability and accuracy of any measurement system is no better than that of its weakest link. Due to the nature of vibration measurements, all sensor cables will ultimately fatigue and fail. Good installation practice will extend the life of a cable, however, it is highly recommended to keep spare cables on hand to enable continuation of the test in the event of a cable failure.</p>
Adjustment	The sensor is a sealed device and no user adjustments are possible. However, routine calibration of sensors by the manufacturer is recommended as this helps build confidence in measurement accuracy and acquired data.
Danger Areas (for pressure-relief devices)	N/A – not a pressure relief device.
Training Instructions	Industrial sensors must be installed in Hazardous Locations by trained professionals according to EN/IEC 60079-14 requirements.
Details on Safety of Protection Category	Ex ia is “intrinsic safety”, which limits the energy of sparks and surface temperatures to safe levels. Ex nA is “Non-Sparking”, which ensures that there is no risk of arcing and sparking or hot surfaces during normal operation.
Entity Parameters and Limits (Values)	<p>Temperature Range: -54°C to +121°C</p> <p>Connector Version:  <math>U_i = 28V</math>, <math>I_i = 120\text{ mA}</math>, <math>P_i = 0.84W</math>, <math>C_i = 46.5nF</math>, <math>L_i = 0</math></p> <p>Integral Cable Version (with a max cable length of 152.5 m (500 ft.))  <math>U_i = 28V</math>, <math>I_i = 120\text{ mA}</math>, <math>P_i = 0.84W</math>, <math>C_i = 77nF</math>, <math>L_i = 152.5\text{ }\mu H</math></p>
Special Conditions of Use	<p>Version Ex ia :</p> <p>The apparatus must only be connected to a certified associated intrinsically safe equipment. This combination must be compatible regarding intrinsic safety rules (see electrical parameters). The apparatus shall be connected according to drawing 64371 (page 1/2).</p> <p>Version Ex nA:</p> <p>The apparatus must be only connect to an equipment whose electrical parameters are compatible with the electrical parameters. The apparatus shall be connected according to drawing 64371 (page 2/2).</p> <p><b>WARNING:</b> Do not separate when Energized.</p>
Essential Characteristics of tools fitted to the system (if any).	N/A – No tools are fitted to the system.

Drawings and Diagrams	33701, 33700, 56178, 56179, 64371, 23402, 23575, 64374, and 41721.
Other	EN 60079-0:2012+A11:2013 EN 60079-11:2012 EN 60079-15:2010 IEC 60079-0 Ed. 6 IEC 60079-11 Ed. 6 IEC 60079-15 Ed. 4

Note: Literature (such as the manual or marketing materials) describing the equipment or protective system must not contradict the instructions with regard to safety aspects.

**Note:** IMI sensors is a Division of PCB Piezotronics. This Division is wholly contained in the PCB Piezotronics manufacturing facility at 3425 Walden Avenue, Depew, New York. Same address, same manufacturing facility. Some of the documentation contained in the Technical File associated with this application is labeled IMI Sensors, A PCB Piezotronics Div. and some is labeled simply PCB Piezotronics. PCB Piezotronics labeled drawing are higher level drawings which are used across multiple divisions, while IMI labeled drawing are specific to IMI models. There will be a mixture of IMI and PCB drawing to support this application, and in reality they are the same entity however with an associated trade name (IMI) that is recognized by our customer base.