



Model EX641B71D

Loop Powered, Current Output, Industrial Vibration Sensor

Installation and Operating Manual

**For assistance with the operation of this product,
contact PCB Piezotronics, Inc.**

**Toll-free: 800-959-4464
24-hour SensorLine: 716-684-0001
Fax: 716-684-3823
E-mail: imi@pcb.com
Web: www.imi-sensors.com**



The information contained in this document supersedes all similar information that may be found elsewhere in this manual.

Total Customer Satisfaction – PCB Piezotronics guarantees Total Customer Satisfaction. If, at any time, for any reason, you are not completely satisfied with any PCB product, PCB will repair, replace, or exchange it at no charge. You may also choose to have your purchase price refunded in lieu of the repair, replacement, or exchange of the product.

Service – 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. 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. Caution should be observed to insure that liquids are not permitted to migrate into devices that are not hermetically sealed. Such devices should only be wiped with a dampened cloth and never submerged or have liquids poured upon them.

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.

Calibration – Routine calibration of sensors and associated instrumentation is

recommended as this helps build confidence in measurement accuracy and acquired data. Equipment calibration cycles are typically established by the users own quality regimen. When in doubt about a calibration cycle, a good “rule of thumb” is to recalibrate on an annual basis. It is also good practice to recalibrate after exposure to any severe temperature extreme, shock, load, or other environmental influence, or prior to any critical test.

PCB Piezotronics maintains an ISO-9001 certified metrology laboratory and offers calibration services, which are accredited by A2LA to ISO/IEC 17025, with full traceability to N.I.S.T. In addition to the normally supplied calibration, special testing is also available, such as: sensitivity at elevated or cryogenic temperatures, phase response, extended high or low frequency response, extended range, leak testing, hydrostatic pressure testing, and others. For information on standard recalibration services or special testing, contact your local PCB Piezotronics distributor, sales representative, or factory customer service representative.

Returning Equipment – *Following these procedures will insure that your returned materials are handled in the most expedient manner.* Before returning any equipment to PCB Piezotronics, contact your local distributor, sales representative, or factory customer service representative to obtain a Return

Materials Authorization (RMA) Number. This RMA number should be clearly marked on the outside of all package(s) and on the packing list(s) accompanying the shipment. A detailed account of the nature of the problem(s) being experienced with the equipment should also be included inside the package(s) containing any returned materials.

A Purchase Order, included with the returned materials, will expedite the turn-around of serviced equipment. It is recommended to include authorization on the Purchase Order for PCB to proceed with any repairs, as long as they do not exceed 50% of the replacement cost of the returned item(s). PCB will provide a price quotation or replacement recommendation for any item whose repair costs would exceed 50% of replacement cost, or any item that is not economically feasible to repair. For routine calibration services, the Purchase Order should include authorization to proceed and return at current pricing, which can be obtained from a factory customer service representative.

Warranty – All equipment and repair services provided by PCB Piezotronics, Inc. are covered by a limited warranty against defective material and workmanship for a period of one year from date of original purchase. Contact

PCB for a complete statement of our warranty. Expendable items, such as batteries and mounting hardware, are not covered by warranty. Mechanical damage to equipment due to improper use is not covered by warranty. Electronic circuitry failure caused by the introduction of unregulated or improper excitation power or electrostatic discharge is not covered by warranty.

Contact Information – International customers should direct all inquiries to their local distributor or sales office. A complete list of distributors and offices can be found at www.pcb.com. Customers within the United States may contact their local sales representative or a factory customer service representative. A complete list of sales representatives can be found at www.pcb.com. Toll-free telephone numbers for a factory customer service representative, in the division responsible for this product, can be found on the title page at the front of this manual. Our ship to address and general contact numbers are:

PCB Piezotronics, Inc.
3425 Walden Ave.
Depew, NY 14043 USA
Toll-free: (800) 828-8840
24-hour SensorLineSM: (716) 684-0001
Website: www.pcb.com
E-mail: info@pcb.com

Model 640/641/645/646 B7 Series Industrial 4-20mA Sensor

CE



Operating Guide with Enclosed Warranty Information

3425 Walden Avenue, Depew, New York 14043-2495

Phone (716) 684-0003

Fax (716) 684-3823

Toll Free Line 1-800-959-4IMI

MANUAL NUMBER: 28077
MANUAL REVISION: A
ECN NUMBER: 25747

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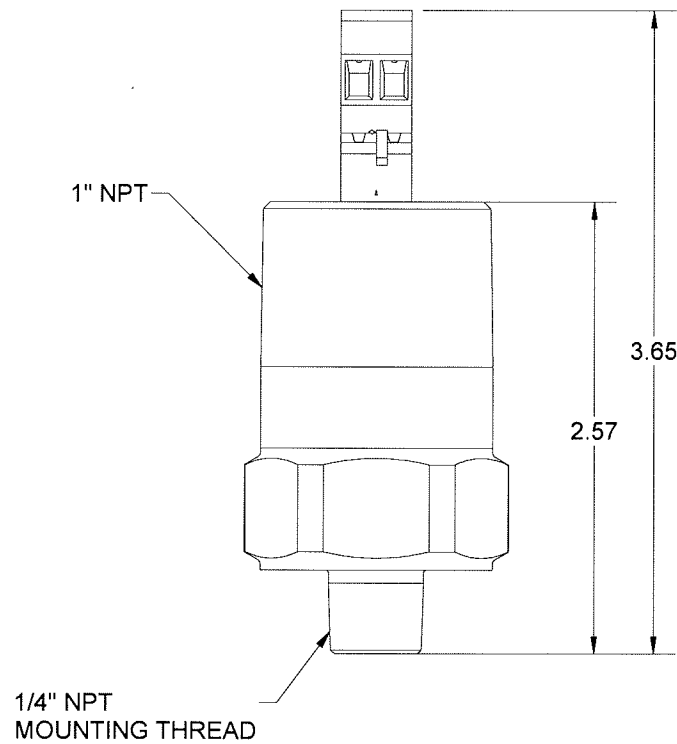
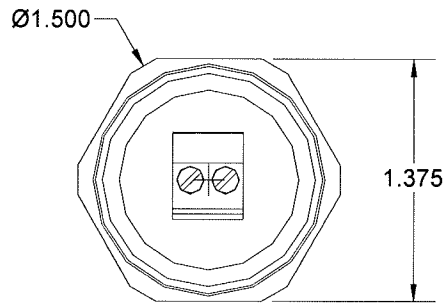
Introduction

The Model 640/641/645/646 B7 Series Industrial 4-20mA Sensors combine the capabilities of a piezoelectric vibration sensor and a 4-20mA vibration transmitter. The sensor outputs a 4-20mA signal that is proportional to the overall velocity or acceleration of the machinery. Ideal for monitoring the vibration of process equipment such as fans, motors and pumps, the output of the sensor is used for process control or predictive maintenance. There are many options in this series. Please refer to specific specification sheets for further details.

General Features

- Imbedded Piezoelectric Accelerometer for improved accuracy and frequency response.
- Vibration range can be in Acceleration or Velocity.
- Allows for continuous vibration monitoring of critical applications.
- Reduces sophisticated vibration analysis requirements.
- RV (Raw Vibration) option for conducting frequency analysis and machinery diagnostics.
- TO (Temperature Output) option via an independent 4-20mA loop.
- EP option includes an Explosion Proof capped elbow.
- Readily interfaces to existing process control and predictive maintenance equipment.
- Rugged stainless steel construction for applications in harsh environments.
- Flexible design allows for various custom requirements.

Dimension Drawing



Inch (mm)

Operation and Wiring

Standard Wiring

The Model 640/641/645/646 B7 Series uses plug-in type screw terminal connectors for all input and output connections and operate from a standard 2-wire, 4-20mA loop. Attach the positive (+) input from the power supply to Pin 2 and the negative (-) input from the power supply to Pin 3.

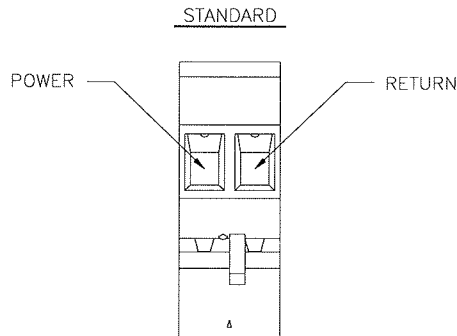


Figure 1 – wiring: standard connection

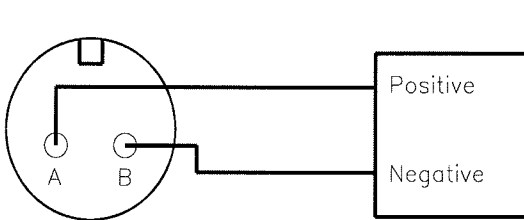


Figure 2 – wiring: loop powered

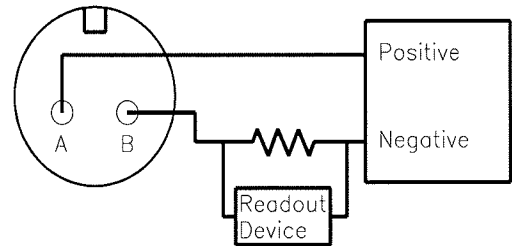


Figure 3 – wiring: loop powered/DC source

If using a standard DC power supply, install either an ammeter and/or load resistor in line with the return connection Pin 3.

The resistor will generate a DC voltage that is proportional to current by:

$$V = IR$$

$$\text{If } R = 500\Omega \text{ and } I = 6\text{mA, then } V = 3\text{Vdc}$$

Note:

- Resistor value must be less than: $(V_{\text{supply}} - 12) \times 50$.

Taking Measurements

When measuring the current output from the unit, use the following formula to calculate the vibration level:

$$\text{Vibration Output} = (\text{Measured Output} - 4\text{mA}) \times (\text{Full Scale Vibration Output} / 16\text{mA})$$

Measured mA	640BX0	640BX1	640BX2
4.00	0.0 ips, pk	0.0 ips, pk	0.0 ips, pk
8.00	0.125 ips, pk	0.25 ips, pk	0.5 ips, pk
12.0	0.25 ips, pk	0.5 ips, pk	1.0 ips, pk
15.75	0.37 ips, pk	0.73 ips, pk	1.47 ips, pk
20	0.5 ips, pk	1.0 ips, pk	2.0 ips, pk

Measured mA	641BX0	641BX1	641BX2
4.00	0.0 ips, rms	0.0 ips, rms	0.0 ips, rms
8.00	0.125 ips, rms	0.25 ips, rms	0.5 ips, rms
12.0	0.25 ips, rms	0.5 ips, rms	1.0 ips, rms
15.75	0.37 ips, rms	0.73 ips, rms	1.47 ips, rms
20	0.5 ips, rms	1.0 ips, rms	2.0 ips, rms

Measured mA	645	646
4.00	0.0 g rms	0.0 g rms
8.00	1.25 g rms	2.50 g rms
12.0	2.50 g rms	5.00 g rms
15.75	3.67 g rms	7.34 g rms
20	5.00 g rms	10.0 g rms

RV Option

The RV (raw vibration) option includes a 100mV/g $\pm 20\%$ additional output. The accelerometer frequency range is 1 Hz-1 kHz, maximum amplitude of 15 g-pk. Data collectors or analyzers can use this vibration signal for further analysis.

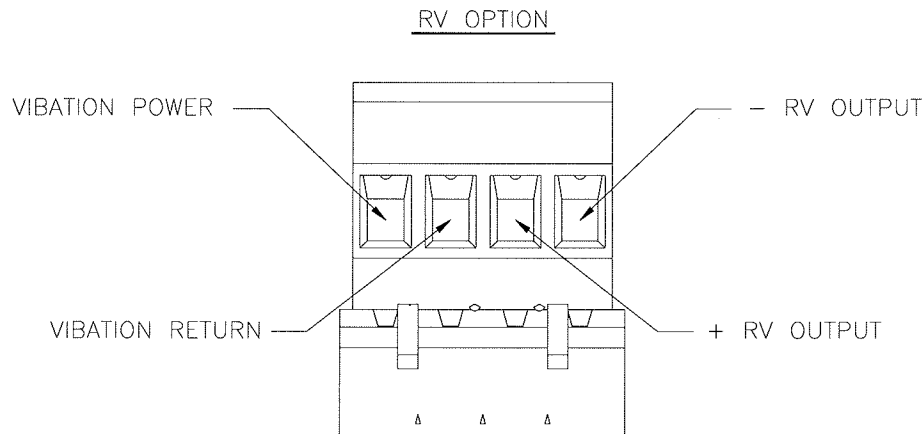


Figure 3 – RV wiring

Note:

- The Acceleration Signal Negative has to be isolated from any grounding. If this terminal is grounded, the 4-20mA loop will short, causing no output.
- The acceleration output signal is ideally suited for use with portable battery powered data collectors or analyzers.

TO Option

The TO (Temperature Output) option includes an additional independent 4-20mA output for temperature measurement. The temperature range is from -40°C to 125°C with an overall accuracy of $\pm 5\%$ FSO. The imbedded temperature sensor monitors the environment internal to the sensor housing and is situated at approximately mid level.

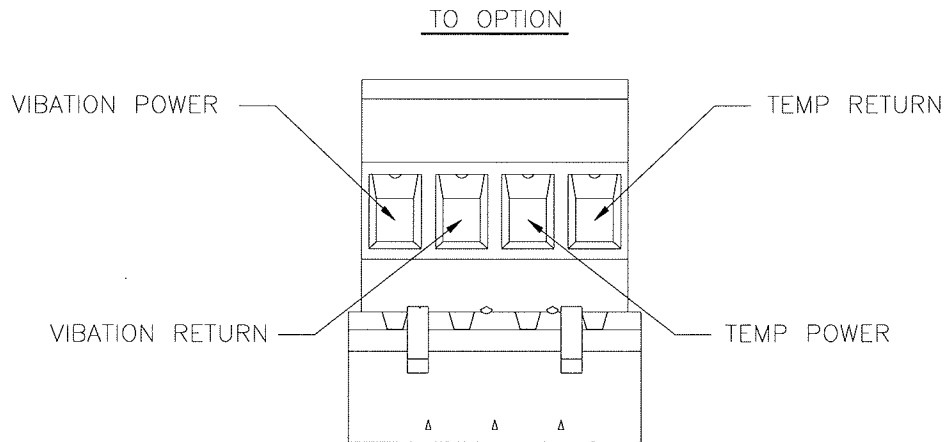


Figure 4 – TO wiring

Note:

- The same power supply can be used for both 4-20mA loops. Connect both positive terminals directly to the power supply, then use the negative terminals for independent process loops.

EP Option

The EP option includes an Explosion Proof capped elbow for applications in rigid or IMC conduit systems where space is limited and access is needed for pulling conductors or maintenance. Standard conduit hub size is 1"NPT.

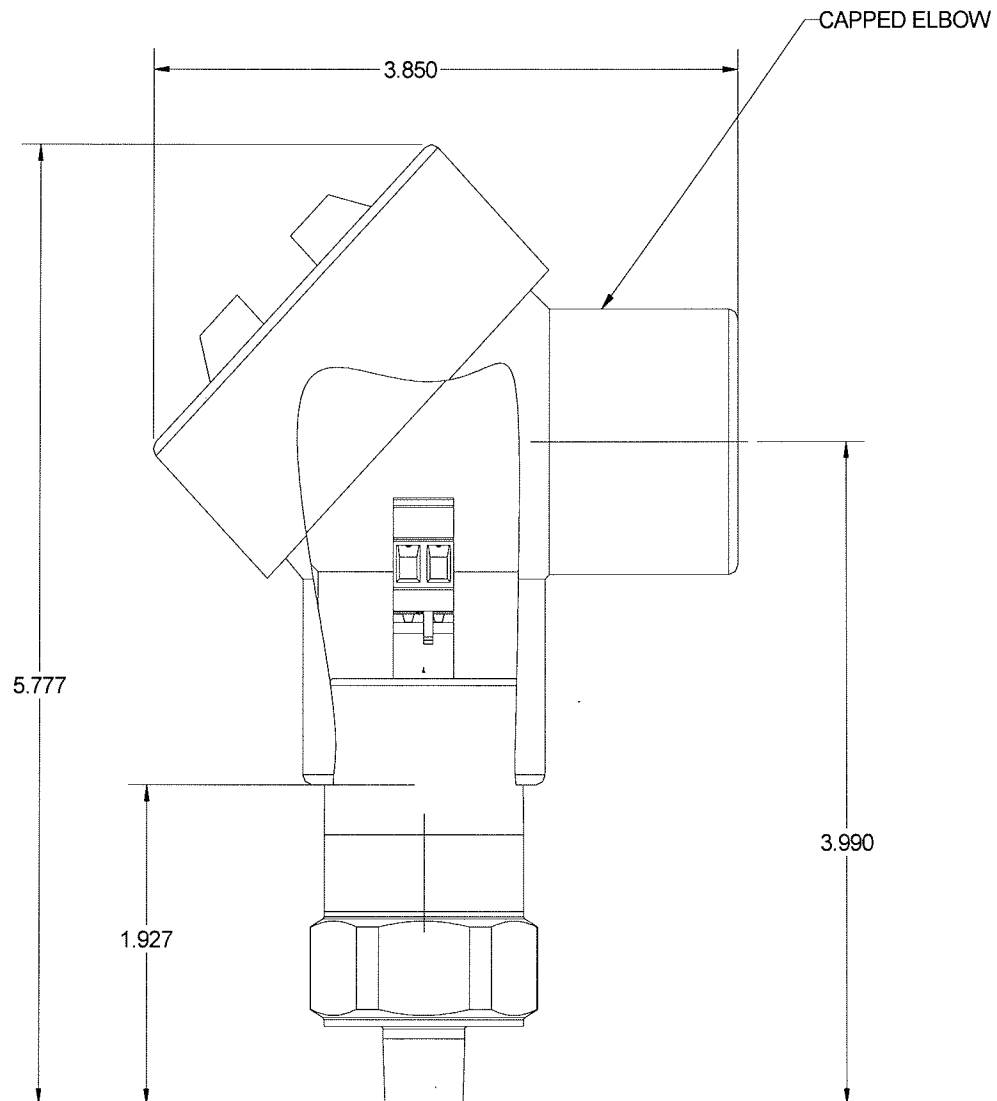


Figure 5 – EP option

Warning 1 – ESD sensitivity

The power supply/signal conditioner should not be opened by anyone other than qualified service personnel. This product is intended for use by qualified personnel who recognize shock hazards and are familiar with the safety precautions required to avoid injury.

Warning 2 – ESD sensitivity

This equipment is designed with user safety in mind; however, the protection provided by the equipment may be impaired if the equipment is used in a manner not specified by PCB Piezotronics, Inc.

Caution 1 – ESD sensitivity

Cables can kill your equipment. High voltage electrostatic discharge (ESD) can damage electrical devices. Similar to a capacitor, a cable can hold a charge caused by triboelectric transfer, such as that which occurs in the following:

- Laying on and moving across a rug,
- Any movement through air,
- The action of rolling out a cable, and/or
- Contact with a non-grounded person.

The PCB solution for product safety:

- Connect the cables only with the AC power off.
- Temporarily “short” the end of the cable before attaching it to any signal input or output.



CAUTION
ELECTROSTATIC
DISCHARGE SENSITIVE

Caution 2 – ESD sensitivity

ESD considerations should be made prior to performing any internal adjustments on the equipment. Any piece of electronic equipment is vulnerable to ESD when opened for adjustments. Internal adjustments should therefore be done ONLY at an ESD-safe work area. Many products have ESD protection, but the level of protection may be exceeded by extremely high voltage.

Warranty

IMI instrumentation is warranted against defective material and workmanship for 1 year unless otherwise expressly specified. Damage to instruments caused by incorrect power or misapplication, is not covered by warranty. *If there are any questions regarding power, intended application, or general usage, please consult with your local sales contact or distributor.* Batteries and other expendable hardware items are not covered by warranty.

Service

Because of the sophisticated nature of IMI instrumentation, field repair is typically **NOT** recommended and may void any warranty. If factory service is required, return the instrumentation according to the "Return Procedure" stated below. *A repair and/or replacement quotation will be provided prior to servicing at no charge.* Before returning the unit, please consult a factory IMI applications engineer concerning the situation as certain problems can often be corrected with simple on-site procedures.

Return procedure

To expedite returned instrumentation, contact a factory IMI applications engineer for a RETURN MATERIAL AUTHORIZATION (RMA) NUMBER. Please have information available such as model and serial number. Also, to insure efficient service, provide a written description of the symptoms and problems with the equipment to a local sales representative or distributor, or contact IMI if none are located in your area.

Customers outside the U.S. should consult their local IMI distributor for information on returning equipment. For exceptions, please contact the International Sales department at IMI to request shipping instructions and an RMA. For assistance, please call (716) 684-0003, or fax us at (716) 684-3823. You may also receive assistance via e-mail at imi@pcb.com or visit our web site at www.pcb.com.

Customer Service

IMI, a division of PCB Piezotronics, guarantees **Total Customer Satisfaction**. If, at any time, for any reason, you are not completely satisfied with any IMI product, IMI will repair, replace, or exchange it at no charge. You may also choose to have your purchase price refunded.

IMI offers to all customers, at no charge, 24-hour phone support. This service makes product or application support available to our customers, day or night, seven days a week. When unforeseen problems or emergency situations arise, call the **IMI Hot Line at (716) 684-0003**, and an application specialist will assist you.



3425 Walden Avenue, Depew, NY 14043-2495
Phone: (716) 684-0003 • USA Fax: (716) 684-3823 • INTL Fax: (716) 684-4703

*ICP® is a registered trademark of PCB Group, Incorporated,
which uniquely identifies PCB sensors that incorporate built-in microelectronics.*

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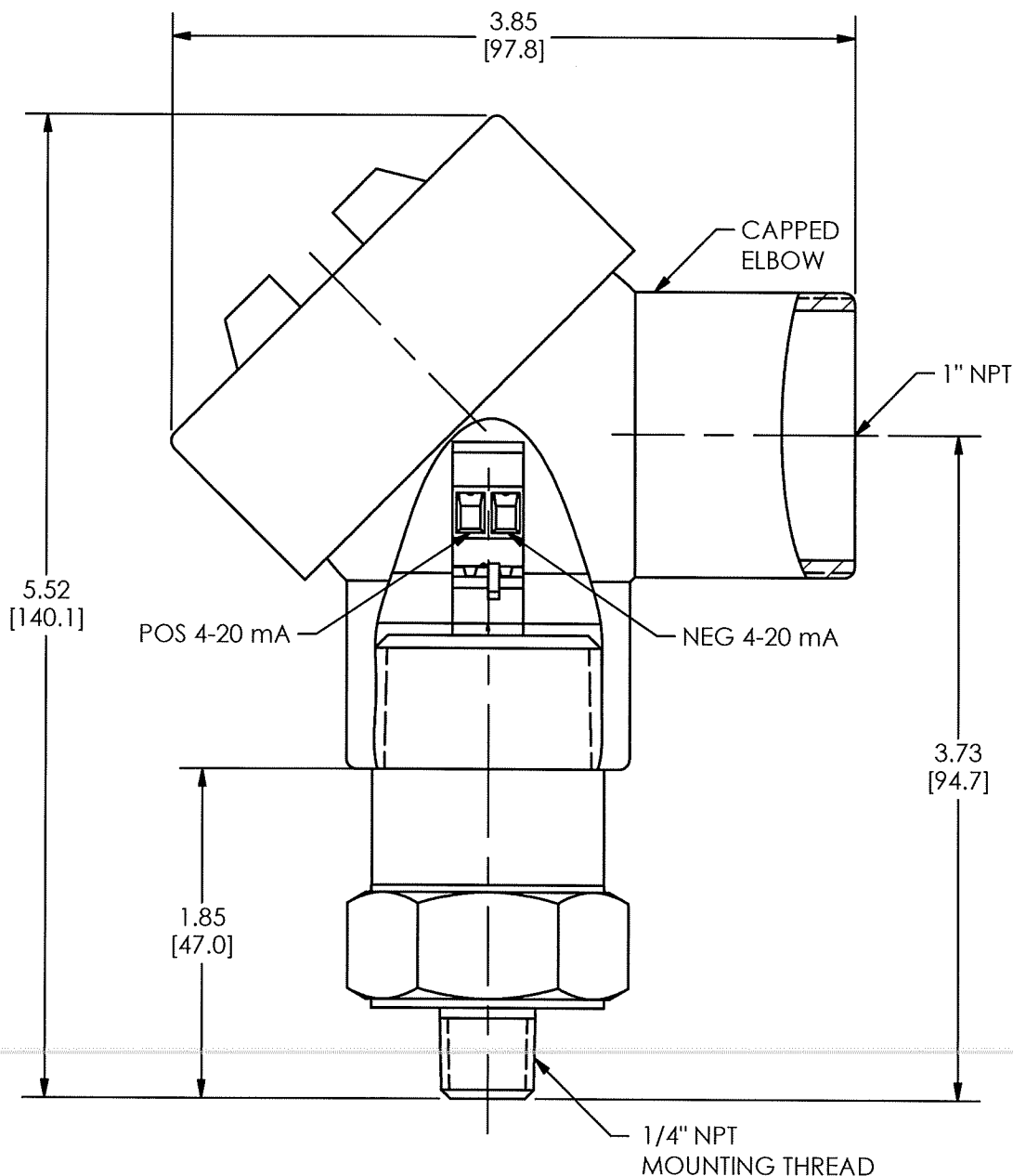
REVISIONS

REV	DESCRIPTION	DIN
D	CHANGE BRACKETS TO METRIC DIMENSIONS	35186

28148

RELATED DRAWING

NO MODIFICATIONS PERMITTED WITHOUT THE APPROVAL OF THE AUTHORIZED PERSON



UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:

DIMENSIONS IN INCHES

DECIMALS XX ± 0.03
XXX ± 0.010

ANGLES ± 2 DEGREES

FILLETS AND RADII
.003 - .005

DIMENSIONS IN MILLIMETERS
[IN BRACKETS]

DECIMALS X ± 0.8
XX ± 0.25

ANGLES ± 2 DEGREES

FILLETS AND RADII
0.07 - 0.13

DRAWN

MDP 3/3/11

TITLE

CHECKED

ECB 3/4/11

ENGINEER

JDK 3/3/11

OUTLINE DRAWING
MODEL EP64XB7X, EX64XB7X
4-20 mA VELOCITY SENSOR



PCB PIEZOTRONICS INC.

3425 WALDEN AVE. DEPEW, NY 14043
(716) 684-0001 E-MAIL: sales@pcb.com

CODE
IDENT. NO.
52681

DWG. NO.

28148

SCALE: FULL

SHEET 1 OF 1

2

1



L C I E

1 ATTESTATION D'EXAMEN CE DE TYPE

2 Appareil ou système de protection destiné à être utilisé en atmosphères explosibles (**Directive 94/9/CE**)

3 Numéro de l'attestation d'examen CE de type
LCIE 11 ATEX 3024

4 Appareil ou système de protection :
Capteurs de vibration
Type :
EX (RV) (TO) (M) 64x
EX (RV) (TO) (M) 649
EX (RV) (TO) (M) 686

5 Demandeur : IMI SENSORS
Adresse : 3425 Walden Avenue
Depew, New York 14043 USA

6 Fabricant : IMI SENSORS
Adresse : 3425 Walden Avenue
Depew, New York 14043 USA

7 Cet appareil ou système de protection et ses variantes éventuelles acceptées sont décrits dans l'annexe de la présente attestation et dans les documents descriptifs cités en référence.

8 Le LCIE, organisme notifié sous la référence 0081 conformément à l'article 9 de la directive 94/9/CE du Parlement européen et du Conseil du 23 mars 1994, certifie que cet appareil ou système de protection est conforme aux exigences essentielles de sécurité et de santé pour la conception et la construction d'appareils et de systèmes de protection destinés à être utilisés en atmosphères explosibles, données dans l'annexe II de la directive. Les résultats des vérifications et essais figurent dans le rapport confidentiel N° 98678-595924.

9 Le respect des exigences essentielles de sécurité et de santé est assuré par la conformité à :
- EN 60079-0 (2009) - EN 60079-1 (2007)

10 Le signe X lorsqu'il est placé à la suite du numéro de l'attestation, indique que cet appareil ou système de protection est soumis aux conditions spéciales pour une utilisation sûre, mentionnées dans l'annexe de la présente attestation.

11 Cette attestation d'examen CE de type concerne uniquement la conception et la construction de l'appareil ou du système de protection spécifié, conformément à l'annexe III de la directive 94/9/CE. Des exigences supplémentaires de la directive sont applicables pour la fabrication et la fourniture de l'appareil ou du système de protection. Ces dernières ne sont pas couvertes par la présente attestation.

12 Le marquage de l'appareil ou du système de protection doit comporter les informations détaillées au point 15.

1 EC TYPE EXAMINATION CERTIFICATE

2 Equipment or protective system intended for use in potentially explosive atmospheres (**Directive 94/9/EC**)

3 EC type examination certificate number
LCIE 11 ATEX 3024

4 Equipment or protective system :
Vibration sensors
Type :
EX (RV) (TO) (M) 64x
EX (RV) (TO) (M) 649
EX (RV) (TO) (M) 686

5 Applicant : IMI SENSORS
Address : 3425 Walden Avenue
Depew, New York 14043 USA

6 Manufacturer : IMI SENSORS
Address : 3425 Walden Avenue
Depew, New York 14043 USA

7 This equipment or protective system and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

8 LCIE, notified body number 0081 in accordance with article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment or protective system has been found to comply with the essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive. The examination and test results are recorded in confidential report N° 98678-595924.

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with :
- EN 60079-0 (2009) - EN 60079-1 (2007)

10 If the sign X is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

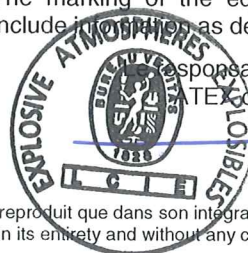
11 This EC type examination certificate relates only to the design and construction of this specified equipment or protective system in accordance with annex III to the directive 94/9/EC. Further requirements of the directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include information as detailed at 15.

Fontenay Aux Roses

23 MARS 2011

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Responsable de certification ATEX
ATEX certification manager

Marc GILLAUX



L C I E

**13 ANNEXE****14 ATTESTATION D'EXAMEN CE DE TYPE**

LCIE 11 ATEX 3024

15 DESCRIPTION DE L'APPAREIL OU DU SYSTEME DE PROTECTION

Capteurs de vibration

Type :

EX (RV) (TO) (M) 64x

EX (RV) (TO) (M) 649

EX (RV) (TO) (M) 686

L'équipement est constitué de deux éléments vissés ensembles. Un capteur de vibration déjà certifié séparément (modèle EX64x, EX649 ou EX686) et un élément de raccord coudé avec couvercle.

Le marquage doit être :

IMI SENSORS

Adresse : ...

Type : ...

Modèle : ...

N° de fabrication : ...

Année de fabrication : ...

II 2G

Modèle EX (RV) (TO) (M) 64x :

Ex d IIC T4 Gb

 $-20^{\circ}\text{C} \leq T_{\text{amb}} \leq +80^{\circ}\text{C}$

Modèle EX (RV) (TO) (M) 649 :

Ex d IIC T4 Gb

 $-20^{\circ}\text{C} \leq T_{\text{amb}} \leq +100^{\circ}\text{C}$

Modèle EX (RV) (TO) (M) 686 :

Ex d IIC T3 Gb

 $-20^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$

LCIE 11 ATEX 3024

L'appareil doit également comporter le marquage normalement prévu par les normes de construction qui le concerne.

16 DOCUMENTS DESCRIPTIFS

Dossier de certification N° 48813 Rev.NR du 06/01/2011.

Ce document comprend 7 rubriques (27 pages).

17 CONDITIONS SPECIALES POUR UNE UTILISATION SÛRE

Néant.

18 EXIGENCES ESSENTIELLES DE SECURITE ET DE SANTE

Couvertes par les normes listées au point 9.

19 VERIFICATIONS ET ESSAIS INDIVIDUELS

Néant.

20 CONDITIONS DE CERTIFICATION

Les détenteurs d'attestations d'examen CE de type doivent également satisfaire les exigences de contrôle de production telles que définies à l'article 8 de la directive 94/9/CE.

13 SCHEDULE**14 EC TYPE EXAMINATION CERTIFICATE**

LCIE 11 ATEX 3024

15 DESCRIPTION OF EQUIPMENT OR PROTECTIVE SYSTEM

Vibration sensors

Type :

EX (RV) (TO) (M) 64x

EX (RV) (TO) (M) 649

EX (RV) (TO) (M) 686

The equipment is made of two separate elements screwed together. One vibration sensor already certified (model EX64x, EX649 or EX686) and one connection elbow with cover.

The marking shall be :

IMI SENSORS

Address : ...

Type : ...

Model : ...

Serial number : ...

Year of construction : ...

II 2G

Model EX (RV) (TO) (M) 64x :

Ex d IIC T4 Gb

 $-20^{\circ}\text{C} \leq T_{\text{amb}} \leq +80^{\circ}\text{C}$

Model EX (RV) (TO) (M) 649 :

Ex d IIC T4 Gb

 $-20^{\circ}\text{C} \leq T_{\text{amb}} \leq +100^{\circ}\text{C}$

Model EX (RV) (TO) (M) 686 :

Ex d IIC T3 Gb

 $-20^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$

LCIE 11 ATEX 3024

The equipment shall also bear the usual marking required by the manufacturing standards applying to such equipment.

16 DESCRIPTIVE DOCUMENTS

Certification file N° 48813 Rev.NR dated January 6th 2011.

This file includes 7 items (27 pages).

17 SPECIAL CONDITIONS FOR SAFE USE

None.

18 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS

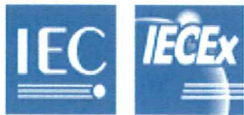
Covered by standards listed at 9.

19 ROUTINE VERIFICATIONS AND TESTS

None.

20 CONDITIONS OF CERTIFICATION

Holders of EC type examination certificates are also required to comply with the production control requirements defined in article 8 of directive 94/9/EC.



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx LCI 11.0022 issue No.: 0 Certificate history:

Status: **Current**

Date of Issue: 2011-03-23 Page 1 of 3

Applicant: **IMI Sensors**
3425 Walden Avenue
Depew, New York 14043
United States of America

Electrical Apparatus: **Vibration sensors - type EX (RV) (TO) (M) 64x, 649, 686**
Optional accessory:

Type of Protection: **Ex d**

Marking: **IMI Sensors**
Address : ...
Type : ...
Model : ...
Serial number : ...
Year of manufacturing : ...
Model EX (RV) (TO) (M) 64x :
Ex d IIC T4 Gb
-20°C ≤ Tamb ≤ +80°C
Model EX (RV) (TO) (M) 649 :
Ex d IIC T4 Gb
-20°C ≤ Tamb ≤ +100°C
Model EX (RV) (TO) (M) 686 :
Ex d IIC T3 Gb
-20°C ≤ Tamb ≤ +85°C
IECEX LCI 11.0022

Approved for issue on behalf of the IECEx
Certification Body:

Marc GILLAUD

Position:

Certification manager

Signature:
(for printed version)

Date:



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Laboratoire Central des Industries Electriques (LCIE)
33 Avenue du General Leclerc
FR-92260 Fontenay-aux-Roses
France





IECEx Certificate of Conformity

Certificate No.: IECEx LCI 11.0022

Date of Issue: 2011-03-23

Issue No.: 0

Page 2 of 3

Manufacturer: **IMI Sensors**
3425 Walden Avenue
Depew, New York 14043
United States of America

Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2007-10 Explosive atmospheres - Part 0: Equipment - General requirements

Edition: 5

IEC 60079-1 : 2007-04 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"

Edition: 6

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[FR/LCI/ExTR11.0022/00](#)

Quality Assessment Report:

[CA/CSA/QAR09.0018/00](#)



IECEx Certificate of Conformity

Certificate No.: IECEx LCI 11.0022

Date of Issue: 2011-03-23

Issue No.: 0

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The equipment is a flameproof vibration sensors. It is made of two separate elements screwed together. One vibration sensor already certified (model EX64x, EX649 or EX686) and one connection elbow with cover (standard version model Y-3 or the already ATEX/IECEx certified model Y-3-EX). The two elements are factory installed and torqued with the addition of Loctite so the two elements can not be separated by the end user. The elbow and its cover are made of aluminium.

CONDITIONS OF CERTIFICATION: NO

EC Declaration of Conformity PS111

In Accordance with ISO/IEC 17050

Manufacturer: PCB Piezotronics, Inc. 3425 Walden Avenue Depew, New York 14043 USA	Authorized European Representative: PCB Piezotronics Europe GmbH PO Box 1148 D-52473 Linnich, Germany
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Certifies that type of equipment: Vibration Sensor(s)

Whose Product Models Include: EX (RV) (TO) (M) 64x
 EX (RV) (TO) (M) 649
 EX (RV) (TO) (M) 686

This declaration is applicable to all Vibration Sensor(s) of the above series which have the CE & (EX) ATEX mark on their data sheets and where those data sheets refer to this declaration of conformity. The data sheets for all model numbers referenced above, which include the CE & (EX) ATEX mark on such data sheets and refer to this Declaration of Conformity are hereby incorporated by reference into this Declaration.

Conform to the following EC Directive(s) when installed per product documentation:	2004/108/EC 94/9/EC	EMC directive ATEX
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Standards to which Conformity is Declared:

Harmonized Standards	EN61326-1:2006 EN61326-2-3: 2006 EN61010-1:2001 EN60079-0 (2009) EN60079-1 (2007) IEC 60079-0 2007-10 IEC 60079-1 2007-04	Electrical Equipment for Measurement, Control and Laboratory Use- EMC Electrical Equipment for Measurement, Control and Laboratory Use- EMC Safety Standard General Explosive Atmosphere Explosive Atmosphere Equipment protection by flameproof enclosures "d" Explosive Atmospheres- Part 0: Equipment – General Requirements Explosive Atmospheres -Part 1: Equipment protection by flameproof enclosures "d"
Emissions Test Standards	EN 55011 (2007)	Industrial, scientific and medical(ISM) radio frequency equipment Electromagnetic disturbance characteristics- Limits and methods of Measurement Class B
Immunity Test Standards	EN 61000-4-2:2001 EN 61000-4-3:2006 EN 61000-4-4:2004 EN 61000-4-5:2005 EN 61000-4-6:2006 EN 61000-4-8:2001	Electrostatic discharge (ESD) Radiated, radio-frequency, electromagnetic field immunity Electrical fast transient (EFT) / Burst immunity Surge immunity Immunity to RF conducted line disturbances Power frequency magnetic field immunity
Test Reports	EMC Reports Safety Reports	GM29032c, GM29045c, GM27047c GM29033s, GM29046s, GM27048s
	ATEX Cert IECEX Cert	LCIE 11 ATEX 3024 Model EX (RV) (TO) (M) 64x Ex d IIC T4 Gb Model EX (RV) (TO) (M) 649 Ex d IIC T4 Gb Model EX (RV) (TO) (M) 686 Ex d IIC T3 Gb IECEX LCI 11.0022 Model EX (RV) (TO) (M) 64x EX d IIC T4 Gb Model EX (RV) (TO) (M) 649 Ex d IIC T4 Gb Model EX (RV) (TO) (M) 686 Ex d IIC T3 Gb

- ISO 9001 Certified PCB Piezotronics, Inc. Phone: 716-684-0001 FAX: 716-684-0987

PS111 REV. B 03/01/2012

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Notified Body Name	Laboratoire Central des Industries Electriques (0081)
Notified Body's Address	FONTENAY-AUX-ROSES (Head Office) 33 Avenue du Général Leclerc FR- 92260 Fontenay-aux-Roses Tel. : + 33 1 40 95 60 60 Fax : + 33 1 40 95 86 56

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) Standard(s)

Place: Depew, NY **Date:** 03/01/2012

Signature:

Kenneth J. Gougeon Jr

Name: Kenneth J. Gonyea Jr.

Title: V.P. Manufacturing