



**Model 121A44**  
**ICP® Pressure Sensor**  
**Installation and Operating Manual**

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

**Toll-free: 800-828-8840**  
**24-hour SensorLine: 716-684-0001**  
**Fax: 716-684-0987**  
**E-mail: [info@pcb.com](mailto:info@pcb.com)**  
**Web: [www.pcb.com](http://www.pcb.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](http://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](http://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 SensorLine<sup>SM</sup>: (716) 684-0001  
Website: [www.pcb.com](http://www.pcb.com)  
E-mail: [info@pcb.com](mailto:info@pcb.com)

**OPERATION MANUAL FOR  
ICP<sup>®</sup> PRESSURE SENSORS  
MODELS 101A, A02, A03, A04, A05, A06  
MODELS 111A21, A22, A23, A24, A26**

**1.0 INTRODUCTION**

These two miniature sensor series are intended for general purpose pressure measurements. Eight models in the series, 101A02, 101A03, 101A04, 101A06, 111A22 and 111A23, 111A24 and 111A26 are acceleration compensated.

Models 101A, 101A05, and 111A21 also have acceleration compensation but are recommended for applications where acceleration compensation is not critical.

Other applications for these sensors include the monitoring of pulsating pneumatic and hydraulic pressures in R & D and industrial applications.

**2.0 DESCRIPTION**

This series consists of sensors with three basic mechanical configurations and six different sensitivities (.5, 1.0, 5.0, 10, 40 and 50 mV/psi). Each model is basically similar in internal design and construction.

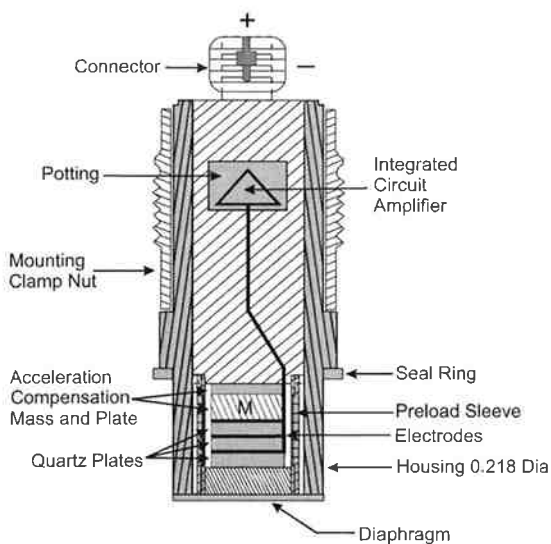
The pressure element used in the 101A, 101A05 and 111A21 sensors is the Model 111A. The acceleration-compensated models in both the 101A and 111A20 Series use the Model 113A quartz element.

These elements consist of an IC source follower amplifier and an acceleration-compensated or non-compensated quartz package. The amplifier and element are joined as an inseparable unit.

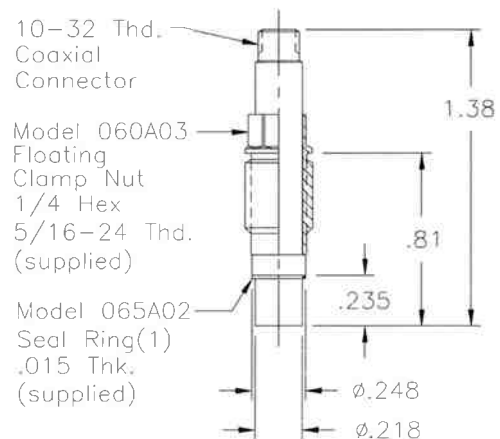
Refer to "General Guide to ICP<sup>®</sup> Instrumentation," G-0001 for a complete treatment of the ICP<sup>®</sup> concept.

The Models 111A21, 111A22, 111A23, 111A24 and 111A26 are in the basic probe configuration as illustrated below and are installed with a hollow clamp nut with 5/16-24 external threads.

The housing of these models is at electrical ground potential.



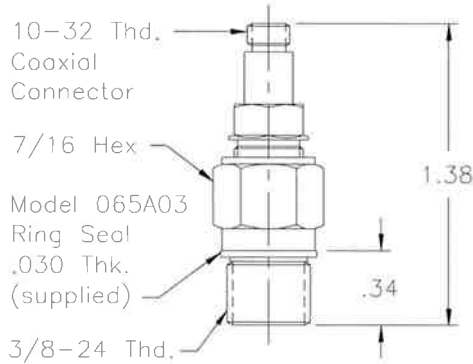
**Typical ICP<sup>®</sup> Probe Style Sensor**



**Series 111A20 Probe Style Sensor**

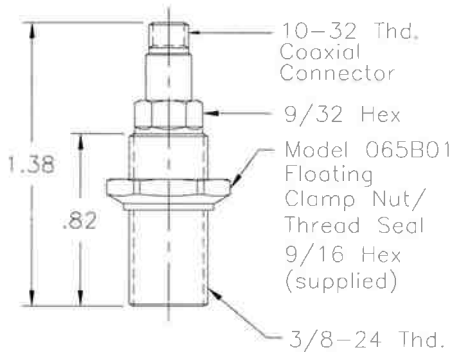
The Models 101A02, 101A03, 101A04, 101A05 and 101A06 use the same basic pressure probe mounted in a 3/8-24 threaded mounting adaptor with shoulder seal. The probe is assembled into the adaptor at the factory in an "off-ground" configuration, i.e. the probe body is electrically insulated from the external mounting adaptor body. Do not attempt to disassemble probe and adaptor.

**OPERATION MANUAL FOR  
ICP<sup>®</sup> PRESSURE SENSORS  
MODELS 101A, A02, A03, A04, A05, A06  
MODELS 111A21, A22, A23, A24, A26**



**Models 101A02 through A06: Thread Mount Design, Ground-Isolated Sensor**

The remaining Model 101A uses the same inner probe design but in a 3/8-24 threaded adaptor with floating clamp nut to permit adjustment of diaphragm depth where it is necessary to adapt to various wall thickness. This model, supplied only in the low-pressure (250 psi) version, is also "off-ground."



**Model 101A: Thread Mount Design With Floating Clamp Nut, Ground-Isolated**

**3.0 INSTALLATION**

Accompanying this manual is an installation drawing for your specific model. Prepare mounting ports in accordance with the installation drawing for the specific model, paying particular attention to sealing surfaces.

These surfaces must be smooth and free from chatter marks, nicks, and other irregularities which could preclude a pressure-tight seal.

Seals are provided with each sensor and should always be used. Extra seals for all standard models are in stock at the factory. Replace seals when they become unserviceable.

**3.1 FLASH TEMPERATURE PROTECTION**

In some cases, e.g. where flash temperatures such as those generated by combustion processes are present, it may be necessary to thermally insulate the diaphragm to minimize spurious signals generated by these effects.

Common black vinyl electrical tape has been found to be an effective insulating material in many cases. One or more layers may be used across the end of the diaphragm without affecting response or sensitivity.

A silicone rubber coating approximately .010 inches thick has also been proven effective in many applications. General Electric RTV type 106 silicone rubber is recommended.

Apply the rubber coating and allow to cure in accordance with the manufacturer's instructions. Use standard coaxial cable between the sensor and power unit.

**4.0 OPERATION**

It is necessary only to supply the sensor with a 2 to 20 mA constant current at +20 to +30 VDC through a current-regulating diode or equivalent circuit. See Guide G-0001B for powering and signal conditioning information pertaining to all ICP<sup>®</sup> instrumentation.

Most of the signal conditioners manufactured by PCB have an adjustable current feature allowing a choice of input currents from 2 to 20 mA. In general, for lowest noise (best resolution), choose the lower current ranges. When driving long cables (to several

**OPERATION MANUAL FOR  
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MODELS 101A, A02, A03, A04, A05, A06  
MODELS 111A21, A22, A23, A24, A26**

thousand feet), use the higher current, up to 20 mA maximum. Consult the factory to determine if higher current settings are required.

Switch power on and observe reading of bias monitoring voltmeter on front panel of power unit.

If indicator is in green section of indicator panel, the IC amplifier is producing proper bias (+8 to 14 VDC), the cable connections are normal, and the system is ready to operate.

If the pointer moves into the red area of the fault monitor meter, output is zero and a short is indicated. Short could be located in amplifier, cable, connectors, or power unit.

If pointer moves into the yellow area of the fault monitor meter, an open circuit is indicated with full power supply voltage. An open circuit could be the result of a faulty amplifier, an open cable, or open connectors.

### 5.0 POLARITY

This sensor series produces a positive-going output voltage for increasing pressure input.

### 6.0 LOW-FREQUENCY RESPONSE

The low-frequency response of an ICP<sup>®</sup> system is determined by:

1. The discharge time constant of the sensor.
2. If AC-coupled at the power unit, the coupling time constant.

Depending upon the sensor's built-in discharge time constant, repetitive output signals slowly or rapidly move toward a stable condition where the average signal level corresponds to a zero voltage position.

In this position, the area contained by the signal above zero is equalized with the area below zero. Such output signal behavior is typical of an AC-coupled system. Since the signal output from the sensor is inherently AC coupled, any static pressure influence applied to the unit will decay away according to the nature of the system's discharge time constant.

Consult Section 7.0 in General Guide G-0001B for detailed explanation of low-frequency characteristics of ICP<sup>®</sup> instruments.

## 7.0 CALIBRATION

Piezoelectric sensors are dynamic devices, but static calibration techniques can be employed if discharge time constants are sufficiently long. Generally, static calibration methods are not employed when testing sensors with a discharge time constant that is less than several hundred seconds.

To calibrate statically, direct couple the sensor to the DVM readout using a T-connector from the "xducer" jack or use the Model 484B in the calibrate mode.

Apply pressure with a dead weight tester and take readings quickly. Release pressure after each calibration point.

For the shorter TC series, rapid step functions of pressure are generated by a pneumatic pressure pulse calibrator or dead weight tester and readout is by recorder or storage oscilloscope.

PCB offers a complete recalibration service. Consult factory for details.

## 8.0 MAINTENANCE

Although ICP<sup>®</sup> sensors have low output impedance and are not usually affected by moisture, in extreme environments it is good practice to protect cable connections with shrink tubing.

The miniature size and sealed construction of the 101A and 111A20 ICP<sup>®</sup> series precludes field maintenance.

APPLICATION		
NEXT ASS'Y	USED ON	VAR

PCB Piezotronics Inc. claims proprietary rights in the information disclosed hereon. Neither it nor any reproduction thereof will be disclosed to others without written consent of PCB Piezotronics Inc.

REVISIONS					
ZONE	REV	DESCRIPTION	ECN	DATE	APP'D
	A	REVISED PER ECR	22357	6/14/05	DM6/05
	B	UPDATE DRAWING	25017	9/19/06	MEM/06

Schedule Drawing  
No modifications permitted without reference to the Notified Body

- 4 SHIELDS TO BE EARTHED AT BARRIER ENDS.
- 3 THE INSTALLER SHALL INSURE THAT THE TRANSDUCER MOUNTING STRUCTURE IS AT THE SAME GROUNDING POTENTIAL AS THE BARRIER GROUND. TOTAL EARTH LOOP IMPEDANCE SHALL BE LESS THAN 1 OHM.
- 2 BARRIER WILL BE MOUNTED IN AN ENCLOSURE THE SUITABILITY OF WHICH WILL BE DETERMINED BY LOCAL AUTHORITIES.
- 1 ENTITY APPLICATION

BARRIER	I.S. APPARATUS
$V_{oc}/U_o \leq$	$V_{max} / U_I$
$I_{sc}/I_o \leq$	$I_{max} / I_I$
$C_a/C_o >$	$C_I + C_{CABLE}$
$L_a/L_o >$	$L_I + L_{CABLE}$
$P_o \leq$	$P_I$ (CENELEC ONLY)

BARRIERS WITHIN THE SPECIFIED LIMITATIONS ARE PERMITTED

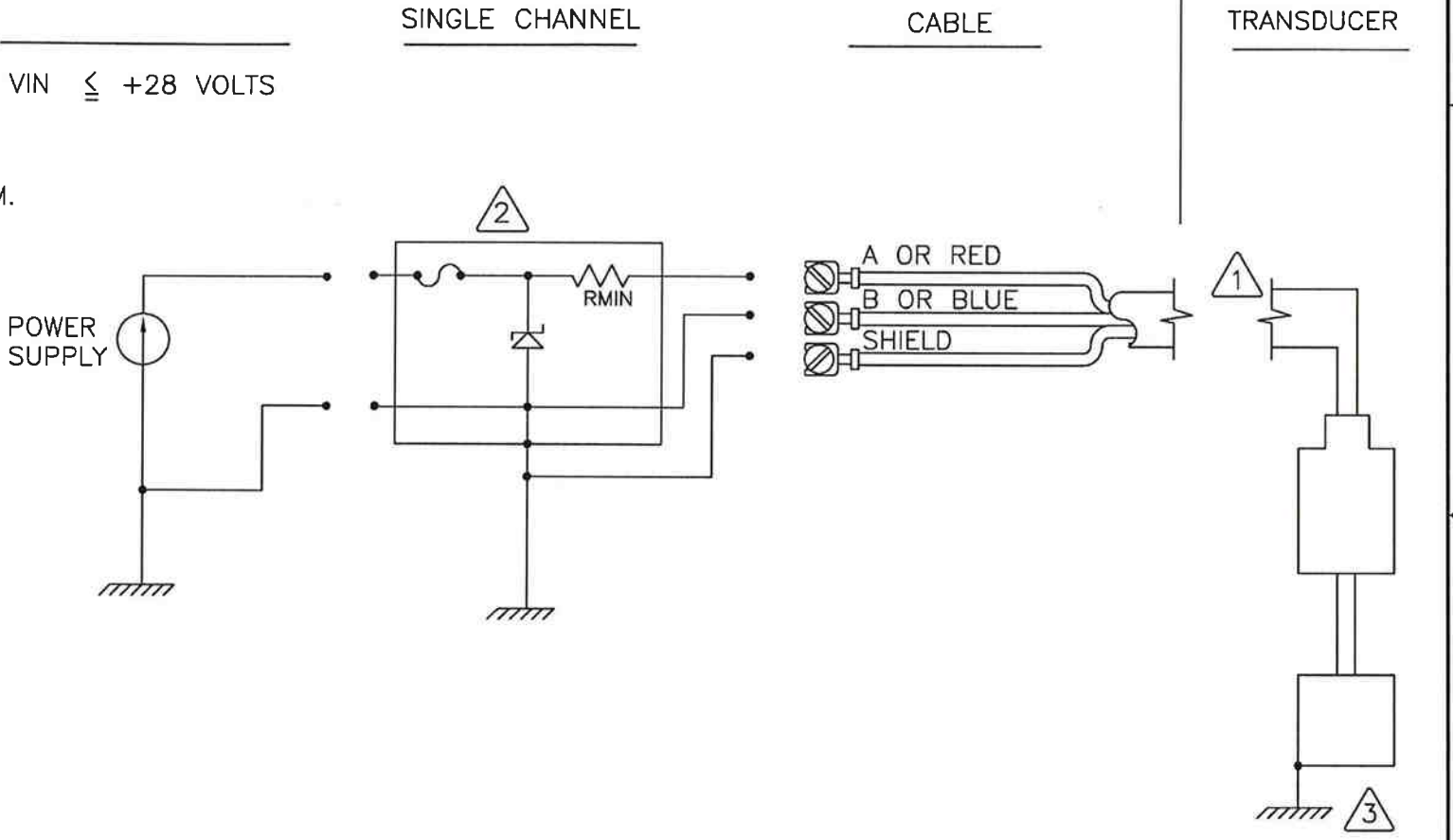
ENTITY PARAMETERS

- $U_i = 30V$
- $I_i = 200\text{ mA}$
- $P_i = 1\text{ W}$
- $C_i = 5.0\text{ nF}$
- $L_i = 0\text{ }\mu\text{H}$

CERTIFIED BY THE APPROPRIATE APPROVAL AUTHORITY FOR CONNECTION TO THE FOLLOWING AREAS:

- ZONE 0
  - Exia IIC
  - AExia IIC
- DIV 1
  - CLASS I, GROUPS A,B,C,D
- ZONE 0
  - Exia IIC

$V_{IN} \leq +28\text{ VOLTS}$



NO CHANGES WITHOUT CSA/LCIE APPROVAL

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES  
DECIMALS X ± .05  
XX ± .01  
XXX ± .005  
ANGLES ±2 DEGREES  
FILLET AND RADI .003 - .005  
HEX DIMENSIONS ARE:  
< 0.5 +.000 / -.003  
> 0.5 +.000 / -.005  
INTERNAL THREAD DEPTH MIN  
REMOVE ALL BURRS  
SHARP = R.000 - R.003  
DD016 REV. D 01/17/2003



DRAWN	ECB	11/6/06	MFG	RC	11-30-06
CHK'D	DM	11/6/06	ENGR	RF	9-22-06
APP'D	MEM	12/1/06			

CSA/LCIE APPROVAL  
INTERCONNECTION

**PCB PIEZOTRONICS**  
3425 WALDEN AVE. DEPEW, NY 14043  
(716) 684-0001 EMAIL: SALES@PCB.COM

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52681	21869
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APPLICATION		
NEXT ASS'Y	USED ON	VAR

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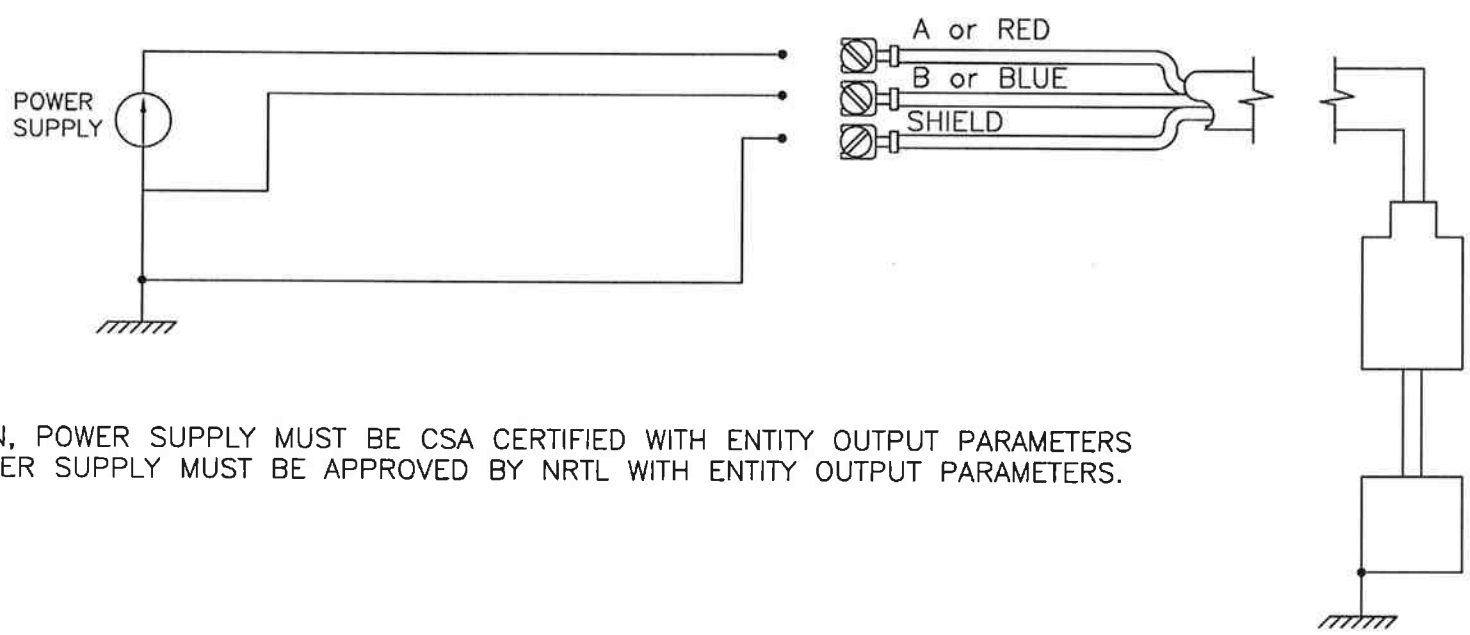
REVISIONS				
ZONE	REV	DESCRIPTION	ECN	DATE
		- SEE SHEET ONE -		

Schedule Drawing  
No modifications permitted without reference to the Notified Body

21869

APPROVED  
POWER SUPPLY/  
SIGNAL CONDITIONER

NON-HAZARDOUS / SAFE AREA  
OR DIV 2 / ZONE 2



4. FOR CANADIAN, DIVISION 2 AND ZONE 2 INSTALLATION, POWER SUPPLY MUST BE CSA CERTIFIED WITH ENTITY OUTPUT PARAMETERS FOR U.S DIVISION 2 AND ZONE 2 INSTALLATION, POWER SUPPLY MUST BE APPROVED BY NRTL WITH ENTITY OUTPUT PARAMETERS.

ENTITY APPLICATION

<u>BARRIER</u>		<u>I.S. APPARATUS</u>
Voc/Uo	≤	V <sub>MAX</sub> / UI
Isc/Io	≤	I <sub>MAX</sub> / II
Ca/Co	>	CI + C <sub>CABLE</sub>
La/Lo	>	LI + L <sub>CABLE</sub>
Po	≤	PI (CENELEC ONLY)

ENTITY PARAMETERS:

- Ui = 30 V
- Ii = 200 mA
- Pi = 1 W
- Ci = 5.0 nF
- Li = 0 μH

- 3. MAXIMUM VOLTAGE OF POWER SUPPLY/SIGNAL CONDITIONER NEVER TO EXCEED 250 Vrms. NO CHANGES WITHOUT CSA/LCIE APPROVAL
- 2. FOR GUIDANCE ON CANADIAN INSTALLATION, REFER TO CEC PART I. FOR GUIDANCE ON U.S. INSTALLATION, INSTALL IN ACCORDANCE WITH NEC [ANSI/NFPA70] AND [ANSI/ISA RP12.6].
- 1. CERTIFIED BY THE APPROPRIATE APPROVAL AUTHORITY FOR CONNECTION TO THE FOLLOWING AREAS:

- ZONE 2  
ExnL IIC, AExnA IIC T4
- DIV 2  
CLASS I, GROUPS A, B, C, D
- ZONE 2  
ExnL IIC  
ExnA IIC

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES  
DECIMALS X ± .05  
XX ± .01  
XXX ± .005  
ANGLES ±2 DEGREES  
FILLETS AND RADII .003 - .005  
HEX DIMENSIONS ARE:  
< 0.5 +.000 / -.003  
> 0.5 +.000 / -.005  
INTERNAL THREAD DEPTH MIN  
REMOVE ALL BURRS  
SHARP = R.000 - R.003  
DD016 REV. D 01/17/2003



DRAWN	ECB	11/6/06	MFG	RC	11-30-06
CHK'D	DM	11/6/06	ENGR	RF	9-22-04
APP'D	MEM	12/1/06			

CSA/LCIE APPROVAL  
INTERCONNECTION

**PCB PIEZOTRONICS™**  
3425 WALDEN AVE. DEPEW, NY 14043  
(716) 684-0001 EMAIL: SALES@PCB.COM

CODE IDENT. NO. 52681	DWG. NO. 21869
SCALE: FULL SHEET 2 OF 2	



APPLICATION		
NEXT ASS'Y	USED ON	VAR

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ZONE	REV	DESCRIPTION	ECN	DATE	APP'D
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	B	UPDATE DRAWING	25017	9/19/06	MEM/06

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- 1 ENTITY APPLICATION

BARRIER	I.S. APPARATUS
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$I_{sc}/I_o \leq$	$I_{max} / I_I$
$C_a/C_o >$	$C_I + C_{CABLE}$
$L_a/L_o >$	$L_I + L_{CABLE}$
$P_o \leq$	$P_I$ (CENELEC ONLY)

BARRIERS WITHIN THE SPECIFIED LIMITATIONS ARE PERMITTED

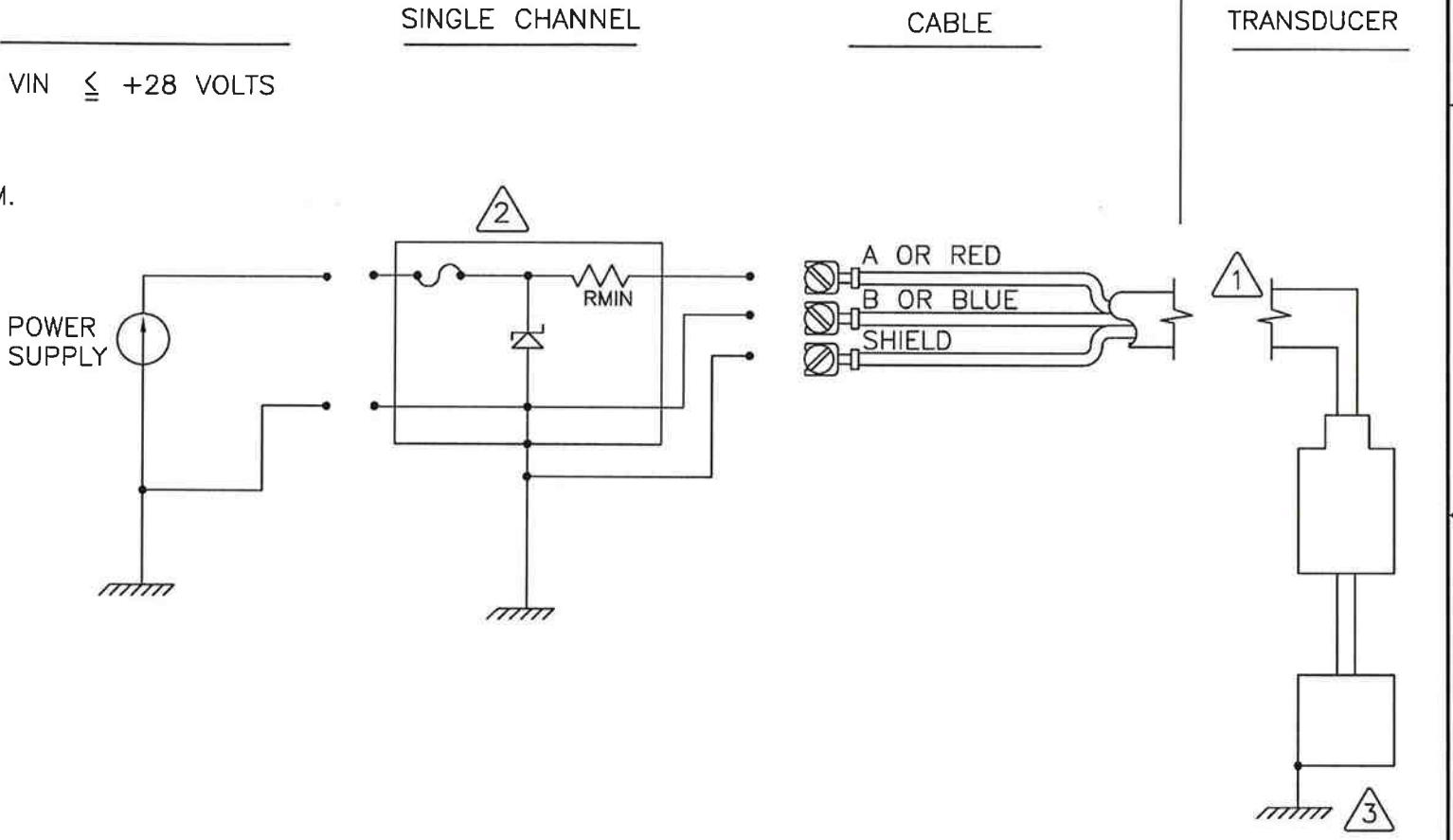
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- $L_i = 0\text{ }\mu\text{H}$

CERTIFIED BY THE APPROPRIATE APPROVAL AUTHORITY FOR CONNECTION TO THE FOLLOWING AREAS:

- ZONE 0
  - Exia IIC
  - AExia IIC
- DIV 1
  - CLASS I, GROUPS A,B,C,D
- ZONE 0
  - Exia IIC

$V_{IN} \leq +28\text{ VOLTS}$



NO CHANGES WITHOUT CSA/LCIE APPROVAL

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES  
DECIMALS X ± .05  
XX ± .01  
XXX ± .005  
ANGLES ±2 DEGREES  
FILLETS AND RADII .003 - .005  
HEX DIMENSIONS ARE:  
< 0.5 +.000 / -.003  
> 0.5 +.000 / -.005  
INTERNAL THREAD DEPTH MIN  
REMOVE ALL BURRS  
SHARP = R.000 - R.003  
DD016 REV. D 01/17/2003



DRAWN	ECB	11/6/06	MFG	RC	11-30-06
CHK'D	DM	11/6/06	ENGR	RF	9-22-06
APP'D	MEM	12/1/06			

CSA/LCIE APPROVAL  
INTERCONNECTION

**PCB PIEZOTRONICS**  
3425 WALDEN AVE. DEPEW, NY 14043  
(716) 684-0001 EMAIL: SALES@PCB.COM

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SCALE: FULL SHEET 1 OF 2	



Related Document  
No modifications permitted  
without the approval of the  
authorized person

**ATEX Approved Sensors**  
**Pressure Sensors**  
**(Models 1xxAyyy, 1xxByyy, and 1xxMyyy)**

**English**

This sensor has been approved for Hazardous Locations Directive 94/9/EC, Ex ia IIC T4 and Ex nL IIC T4 and Ex nA IIC T4.

For safe use:

- All applicable local electrical laws must be followed
- The supply electrical parameters must not exceed any of the following values:
  - o  $U_o \leq 30V$ ,  $I_o \leq 200mA$ ,  $P_o \leq 1W$ ,  $C \leq 5nF$ ,  $L \approx 0$
- Ambient operating temperature range:
  - o  $-54^\circ C$  to  $+121^\circ C$
- For Ex ia IIC T4 installations, the apparatus must only be connected to a certified associated intrinsically safe equipment and this combination must be compatible as regards intrinsic safety rules.

**Deutsch**

Dieser ist genehmigt worden für Gefährliche Orte Direktive 94/9/EC, Ex ia IIC T4 und Ex nL IIC T4 und Ex nA IIC T4.

Für sicheren Gebrauch:

- Alle zutreffenden örtlichen elektrischen Gesetze müssen gefolgt werden
- Die Versorgung elektrische Parameter müssen kein von den Folgenden Werten überschreiten:
  - o  $U_o \leq 30V$ ,  $I_o \leq 200mA$ ,  $P_o \leq 1W$ ,  $C \leq 5nF$ ,  $L \approx 0$
- Umgebungsbedienungstemperaturbereich:
  - o  $-54^\circ C$  to  $+121^\circ C$
- Für Ex ia IIC T4 Installationen muss der Apparat nur zu einen bescheinigten verbundenen inner sicheren Ausrüstungen verbunden werden und diese Kombination muss vereinbar sein, während innere Sicherheitsregeln betrachtet.

**Français**

Ce détecteur a été approuvé pour les Emplacements Hasardeux Directif 94/9/EC, Ex ia IIC T4 et Ex nL IIC T4 et Ex nA IIC T4.

Pour l'usage sûr :

- Toutes lois électriques, locales et applicables doivent être suivies
- La provision les paramètres électriques ne doivent pas dépasser n'importe quel des valeurs suivantes :
  - o  $U_o \leq 30V$ ,  $I_o \leq 200mA$ ,  $P_o \leq 1W$ ,  $C \leq 5nF$ ,  $L \approx 0$
- La gamme de température d'opération Ambiante :
  - o  $-54^\circ C$  to  $+121^\circ C$
- Pour les installations de Ex ia IIC T4, l'appareil doit être seulement connecté à un équipement intrinsèquement sûr, associé et certifié et cette combinaison doit être compatible comme considère des mesures de sécurité intrinsèques.

**Italiano**

Questo sensore è stato approvato per le Posizioni Pericolose Direttivo 94/9/EC, Ex ia IIC T4 ed Ex nL IIC T4 ed Ex nA IIC T4.

Per l'uso sicuro:

- Tutte le leggi applicabili, locali elettriche devono essere seguite
- La provvista i parametri elettrici non devono eccedere qualunque dei valori seguenti: seguenti:
  - o  $U_o \leq 30V$ ,  $I_o \leq 200mA$ ,  $P_o \leq 1W$ ,  $C \leq 5nF$ ,  $L \approx 0$
- la gamma di temperatura di funzionamento di Ambiente:
  - o  $-54^\circ C$  to  $+121^\circ C$
- Per le installazioni di Ex ia IIC T4, il dispositivo deve essere soltanto collegato a un'apparecchiatura certificata, associata intrinsecamente sicura e questa combinazione deve essere compatibile considera come le regole di sicurezza intrinseche.

**Español**

Este sensor se ha aprobado para Ubicaciones Peligrosas Directivas 94/9/EC, Ex ia IIC T4 y Ex nL IIC T4 y Ex nA IIC T4.

Para el uso seguro:

- Todas leyes eléctricas, locales y aplicables se deben seguir
- El suministro los parámetros eléctricos no deben exceder cualquiera de los siguientes valores:
  - o  $U_o \leq 30V$ ,  $I_o \leq 200mA$ ,  $P_o \leq 1W$ ,  $C \leq 5nF$ ,  $L \approx 0$
- El Ambiente que opera la gama de la temperatura:
  - o  $-54^\circ C$  to  $+121^\circ C$
- Para instalaciones de Ex ia IIC T4, el aparato sólo debe ser conectado a un equipo intrinsecamente seguro, asociado y certificado y esta combinación debe ser compatible considera como las reglas intrínsecas de la seguridad.

Drawing Number: 31663  
Revision: C  
Ecn Number: 28707

### Русский

Этот датчик был одобрен для Опасной Директивы 94/9/ЕС Местоположений, Ex ia IIC T4 и Ex nL IIC T4 и Ex nA IIC T4.

Для безопасного использования:

- Все применимые местные электрические законы должны сопровождаться
- Поставка электрические параметры не должна превысить ни одной из следующих ценностей:
  - o  $U_0 \leq 30V$ ,  $I_0 \leq 200mA$ ,  $P_0 \leq 1W$ ,  $C \leq 5nF$ ,  $L \approx 0$
- Окружающий операционный температурный диапазон:
  - o  $-54^{\circ}C$  to  $+121^{\circ}C$
- Поскольку Ex ia IIC T4 сооружения, аппарат должен только быть связан с гарантированным связанным свойственно безопасным оборудованием, и эта комбинация должна быть совместимой, что касается свойственных правил безопасности.

### Norsk

Denne sensoren godkjenner for Farlige Plasseringer Direktiv 94/9/EC, Ex ia IIC T4 og Ex nL IIC T4 og Ex nA IIC T4.

For sikker bruk:

- Alle anvendelige lokale elektriske lover fulgt
- Forsyningen elektriske parametre må ikke overskride noe av de følgende verdiene:
  - o  $U_0 \leq 30V$ ,  $I_0 \leq 200mA$ ,  $P_0 \leq 1W$ ,  $C \leq 5nF$ ,  $L \approx 0$
- Omgivende betjeningsav temperaturrekkevidde:
  - o  $-54^{\circ}C$  to  $+121^{\circ}C$
- For Ex ia IIC T4 installasjoner, apparatet bare bli koplet til et sertifisert tilknyttet indre sikkert utstyr og denne kombinasjonen må være forenelig med hensyn til indre sikkerhetsregel.

### Nederlands

Deze sensor is voor Gevaarlijke Locaties Leidinggevende 94/9/EC, Ex ia IIC T4 en Ex nL IIC T4 en Ex nA IIC T4 goedgekeurd worden.

Voor veilige gebruik:

- Alle toepasbare plaatselijke elektrische wetten moeten gevolgd worden
- De aanbod elektrische parameters moeten de volgende waarde niet overschrijden:
  - o  $U_0 \leq 30V$ ,  $I_0 \leq 200mA$ ,  $P_0 \leq 1W$ ,  $C \leq 5nF$ ,  $L \approx 0$
- Het omgevend bediening temperatuur bereik:
  - o  $-54^{\circ}C$  to  $+121^{\circ}C$
- Voor Ex ia IIC T4 installaties, moet het apparaat enkel aan een gecertificeerde geassocieerde intrinsiek veilige uitrusting worden aangesloten en deze combinatie moet compatibel zijn als intrinsieke veiligheidsregels beschouwt.

### Português

Este sensor foi aprovado para a Diretiva 94/9/EC de Posições Arriscada, Ex ia IIC T4 e Ex nL IIC T4 e Ex nA IIC T4.

Para uso seguro:

- Todas as leis elétricas locais aplicáveis devem ser seguidas
- O estoque parâmetros elétricos não devem exceder qualquer dos seguintes valores:
  - o  $U_0 \leq 30V$ ,  $I_0 \leq 200mA$ ,  $P_0 \leq 1W$ ,  $C \leq 5nF$ ,  $L \approx 0$
- Variedade de temperatura operacional ambiente:
  - o  $-54^{\circ}C$  to  $+121^{\circ}C$
- Para instalações Ex ia IIC T4, o aparelho só deve ser ligado a um associado equipamento seguro certificado, intrinsecamente e esta combinação deve ser compatível como considera regras intrínsecas de segurança.

### Svensk

Den här sensoren er blitt gillat för Riskabel Lokaliseringarna Direktiv 94/9/ EC Ex ia IIC T4 och Ex nL IIC T4 och Ex nA IIC T4.

För kassaskåp använda :

- All användbar lokal elektrisk lag måste bli följde efter
- Tillförselen som elektriska parametar inte måste överskrida några av värderar efter:
  - o  $U_0 \leq 30V$ ,  $I_0 \leq 200mA$ ,  $P_0 \leq 1W$ ,  $C \leq 5nF$ ,  $L \approx 0$
- Omgivande opera- temperatur ställa i rad :
  - o  $-54^{\circ}C$  to  $+121^{\circ}C$
- För installationer Ex ia IIC T4 måste apparaturen endast förbindas till en tillhörande i sitt innersta väsen kassaskåputrustning för auktoriserad revisor, och denna kombination måste vara kompatibel, som hälsningar inneboende säkerhet härskar.

Drawing Number: 31663

Revision: C

Ecn Number: 28707

APPLICATION

REVISIONS

NEXT ASS'Y	USED ON	VAR

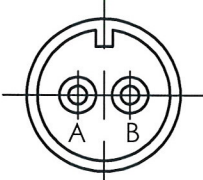
REV	DESCRIPTION	ECN	APP'D
NR	RELEASED TO DRAFTING		ECB 2907

36687

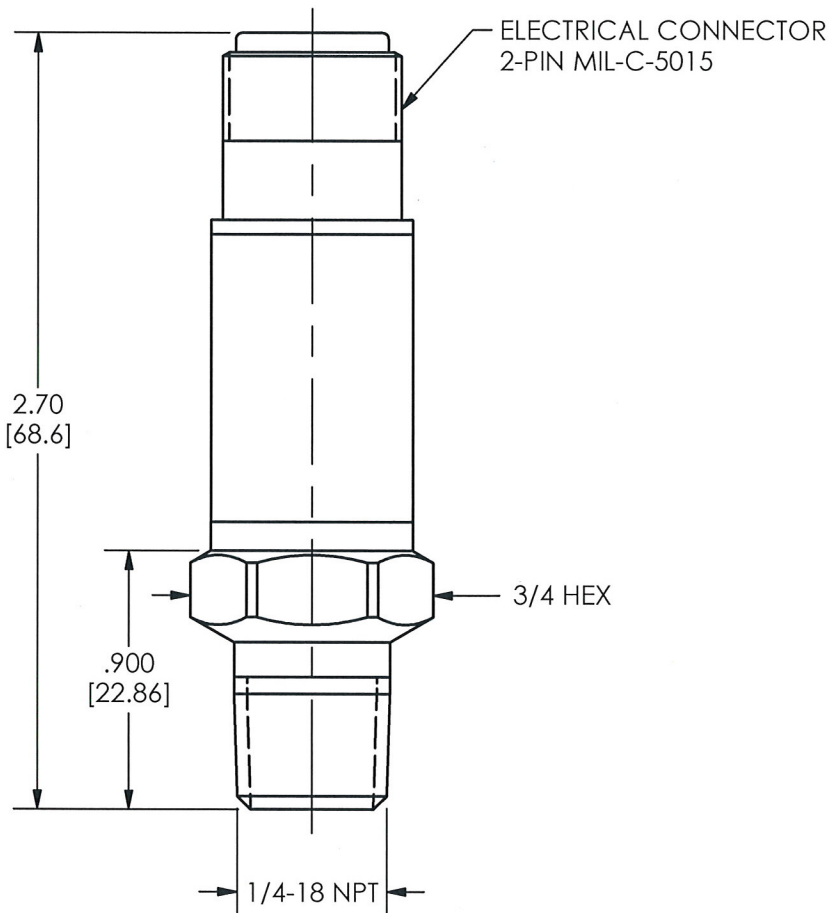
Related Drawing

No modifications permitted without the approval of the authorized person

PINOUT



A = POWER/INPUT  
B = GROUND

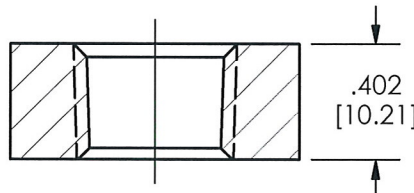


ELECTRICAL CONNECTOR  
2-PIN MIL-C-5015

3/4 HEX

1/4-18 NPT

MOUNTING HOLE PREPERATION  
Ø.437 [Ø11.10]  
X .402 [10.21] ▽ MIN  
1/4-18 NPT



- 4.) THIS IS A SEALED ASSEMBLY AND SHOULD BE RETURNED TO THE FACTORY SHOULD SERVICE BECOME NECESSARY.
- 3.) USE PIPE JOINT COMPOUND TO ASSURE A TIGHT SEAL.
- 2 RECOMMENDED MOUNTING TORQUE ON 3/4 HEX: 5-7FT LBS [7-9 Nm].
- 1.) RECOMMENDED MAX INSERTION OF ADAPTOR INTO MOUNTING HOLE NOT TO EXCEED .402[10.21].

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:

DIMENSIONS IN INCHES	DIMENSIONS IN MILLIMETERS [IN BRACKETS]
DECIMALS XX ± .01	DECIMALS X ± 0.3
XXX ± .005	XX ± 0.13
ANGLES ± 2 DEGREES	ANGLES ± 2 DEGREES

FILLETS AND RADII  
.003 - .005

FILLETS AND RADII  
[0.07 - 0.13]

DRAWN	ECB 2907	MFG	PRR 2-9-07
CHK'D	ECB 2907	ENGR	RF 2-9-07
APP'D	NJL 2/19/07	SALES	DPC 2/19/07

INSTALLATION DRAWING  
MODEL 121A41,A44,A45  
PRESSURE SENSOR

**PCB PIEZOTRONICS**<sup>INC</sup>  
3425 WALDEN AVE. DEPEW, NY 14043  
(716) 684-0001 E-MAIL: sales@pcb.com

CODE IDENT. NO. 52681	DWG. NO. <b>36687</b>
SCALE: 1.5X	SHEET 1 OF 1





LCIE

1 ATTESTATION D'EXAMEN 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 de type LCIE 06 ATEX 6103 X

4 Appareil ou système de protection : Transmetteur de pression Type : 1xxAyyy, 1xxByyy, 1xxMyyy

5 Demandeur : PCB Piezotronics Inc. 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 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 94/9/CE du Parlement européen et du Conseil du 23 mars 1994.

Les résultats des vérifications et essais figurent dans le rapport confidentiel N° 60051173/551969.

9 Le respect des exigences essentielles de sécurité et de santé est assuré par la conformité à : - EN 60079-0 (2004) - EN 60079-15 (2005)

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 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 TYPE EXAMINATION CERTIFICATE

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

3 Type Examination Certificate number LCIE 06 ATEX 6103 X

4 Equipment or protective system : Pressure transmitter Type : 1xxAyyy, 1xxByyy, 1xxMyyy

5 applicant : PCB Piezotronics Inc. Address : 3425 Walden avenue Depew, New York 14043 USA

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

8 LCIE 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 system intended for use in potentially explosive atmospheres, given in Annex II of the Directive 94/9/EC of the European Parliament and Council of 23 March 1994.

The examination and test results are recorded in confidential report N° 60051173/551969.

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with : - EN 60079-0 (2004) - EN 60079-15 (2005)

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 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 manufacture 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 informations as detailed at 15.

Fontenay-aux-Roses, le 13 novembre 2006



Marc GILLAUX

Le responsable de certification ATEX ATEX certification manager

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LCIE 33, av du Général Leclerc Laboratoire Central BP 8 des Industries Electriques 92206 Fontenay-aux-Roses cedex Une société de Bureau Veritas France

Tel : +33 1 40 95 60 60 Fax : +33 1 40 95 86 56 contact@lcie.fr www.lcie.fr Société Anonyme au capital de 15 745 964 € RCS Nanterre B 408 363 174

Page 1 sur 2 03-Anneze III\_typ\_app - rev0.DOC

36115-C ECO#: 34407



LCIE



13 ANNEXE

14 ATTESTATION D'EXAMEN DE TYPE

LCIE 06 ATEX 6103 X

15 DESCRIPTION DE L'APPAREIL OU DU SYSTEME DE PROTECTION

Transmetteur de pression  
Type : 1xxAyyy, 1xxByyy, 1xxMyyy

Ce matériel est composé d'un ensemble piézoélectrique, d'un amplificateur de charge et d'un connecteur. L'ensemble est monté dans une enveloppe métallique.

Paramètres spécifiques du ou des modes de protection concernés :

$U \leq 30 \text{ V}$  ,  $I \leq 200 \text{ mA}$  ,  $P \leq 1 \text{ W}$  ,  $C \leq 5 \text{ nF}$  ,  $L \approx 0$

Le marquage doit être :

PCB Piezotronics Inc.  
Adresse : ...  
Type : 1xxAyyy, 1xxByyy ou 1xxMyyy  
N° de fabrication : ...  
Année de fabrication : ...  
 II 3 G  
Ex nA IIC T4  
LCIE 06 ATEX 6103 X  
Tamb. : - 54°C à + 121°C

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

16 DOCUMENTS DESCRIPTIFS

Dossier de certification N° 35706 du 16/10/2006.  
Ce document comprend 22 rubriques (25 pages).

17 CONDITIONS SPECIALES POUR UNE UTILISATION SÛRE

Les paramètres électriques d'alimentation ne doivent pas excéder les valeurs mentionnées au paragraphe 15.

18 EXIGENCES ESSENTIELLES DE SECURITE ET DE SANTE

Couvertes par les normes listées au point 9.

19 VERIFICATIONS ET ESSAIS INDIVIDUELS

Néant.

13 SCHEDULE

14 TYPE EXAMINATION CERTIFICATE

LCIE 06 ATEX 6103 X

15 DESCRIPTION OF EQUIPMENT OR PROTECTIVE SYSTEM

Pressure transmitter  
Type : 1xxAyyy, 1xxByyy, 1xxMyyy

This apparatus is made of a piezo-crystal assembly, a charge amplifier and a connector. The assembly is mounted inside a metallic enclosure.

Specific parameters of the mode(s) of protection concerned :

$U \leq 30 \text{ V}$  ,  $I \leq 200 \text{ mA}$  ,  $P \leq 1 \text{ W}$  ,  $C \leq 5 \text{ nF}$  ,  $L \approx 0$

The marking shall be :

PCB Piezotronics Inc.  
Address : ...  
Type : 1xxAyyy, 1xxByyy or 1xxMyyy  
Serial number : ...  
Year of manufacturing : ...  
 II 3 G  
Ex nA IIC T4  
LCIE 06 ATEX 6103 X  
Tamb. : - 54°C to + 121°C

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

16 DESCRIPTIVE DOCUMENTS

Certification file N° 35706 dated 16/10/2006.  
This file includes 22 items (25 pages).

17 SPECIAL CONDITIONS FOR SAFE USE

The supply electrical parameters shall not exceed the values mentioned in paragraph 15.

18 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS

Covered by standards listed at 9.

19 ROUTINE VERIFICATIONS AND TESTS

None.





**EC Declaration of Conformity PS 059**  
In Accordance with ISO/IEC 17050

<b>Manufacturer:</b> PCB Piezotronics, Inc. 3425 Walden Avenue Depew, New York 14043 USA	<b>Authorized European Representative:</b> PCB Piezotronics Europe GmbH PO Box 1148 D-52473 Linnich, Germany
--	--

**Certifies that type of equipment:** Pressure Transmitter(s)

**Whose Product Models Include:** 1xxAyy, 1xxByy, 1xxMyy Series

Note: "xx," is a place holder for two numbers.  
"yy," is a place holder for two numbers.  
For example:

These letters and numbers are included in the model numbers of the series. For details see the related data sheets.

This declaration is applicable to all Pressure Transmitter(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.

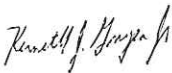
Conform to the following EC Directive(s) when installed per product documentation:	2004/108/EC 94/9/EC	EMC directive ATEX
--	------------------------	-----------------------

**Standards to which Conformity is Declared:**

<b>Harmonized Standards</b>	EN61326-1:2006 EN61326-2-3: 2006 EN61010-1:2001 EN60079-0 (2006) EN60079-11 (2007)	Electrical Equipment for Measurement, Control and Laboratory Use- EMC Electrical Equipment for Measurement, Control and Laboratory Use- EMC Safety Standard General Explosive Atmosphere Intrinsic safe, I
<b>Emissions Test Standards</b>	EN 55011 (2007)	Industrial, scientific and medical(ISM) radio frequency equipment Electromagnetic disturbance characteristics- Limits and methods of Measurement Class B
<b>Immunity Test Standards</b>	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
<b>Test Reports</b>	EMC Reports Safety Reports	GM29034c GM29035s
	ATEX Cert	LCIE 03 ATEX 6279 X/03 Ex ia IIC T4, II 1G
<b>Notified Body Name</b>		Laboratoire Central des Industries Electriques (0081)
<b>Notified Body's Address</b>		<b>FONTENAY-AUX-ROSES (Head Office)</b> 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: 07/07/2010

Signature:   
 Name: Kenneth J. Gonyea Jr.  
 Title: V.P. Manufacturing



LCIE

1 ATTESTATION D'EXAMEN DE TYPE

2 Appareils et systèmes de protection destinés à être utilisés en atmosphères explosibles Directive 94/9/CE

3 Numéro de l'attestation d'examen de type LCIE 05 ATEX 6111 X

4 Appareil ou système de protection : Transmetteur de pression Type : 1xxAyyy, 1xxByyy ou 1xxMyyy

5 Demandeur : PCB Piezotronics Inc.

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

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

8 Le LCIE certifie que cet appareil est conforme aux exigences essentielles en ce qui concerne la sécurité et la santé pour la conception et la construction d'appareils de catégorie 3 destinés à être utilisés en atmosphères explosibles, données dans l'annexe II de la directive. Les vérifications et épreuves figurent dans notre rapport confidentiel N° 60037418-537028.

9 Le respect des exigences essentielles en ce qui concerne la sécurité et la santé est assuré par la conformité au document suivant : -EN 50021 (1999).

10 Le signe X lorsqu'il est placé à la suite du numéro de l'attestation, indique que ce matériel 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 de type concerne uniquement la conception et la construction de l'appareil ou du système de protection spécifié, conformément à la directive 94/9/CE. Des exigences supplémentaires de cette directive sont applicables pour la fabrication et la fourniture de l'appareil ou du système de protection.

12 Le marquage de l'appareil ou du système de protection devra comporter, entre autres indications utiles, les mentions suivantes :

II 3 G EEx nL IIC T4

Fontenay-aux-Roses, le 31 août 2005

1 TYPE EXAMINATION CERTIFICATE

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

3 Type Examination Certificate number LCIE 05 ATEX 6111 X

4 Equipment or protective system : Pressure transmitter Type : 1xxAyyy, 1xxByyy or 1xxMyyy

5 Applicant : PCB Piezotronics Inc.

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

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

8 LCIE certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of category 3 equipment intended for use in potentially explosive atmospheres, given in Annex II to the directive. The examination and test results are recorded in confidential report No. 60037418-537028.

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with : -EN 50021 (1999).

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 Type Examination Certificate relates only to the design and construction of this specified equipment or protective system in accordance with the Directive 94/9/EC. Further requirements of the Directive applies to the manufacture and supply of this equipment or protective system.

12 The marking of the equipment or protective system shall include the following :

II 3 G EEx nL IIC T4

Le Directeur de l'organisme certificateur Manager of the certification body

Signature and stamp: Timbre sec / Dry seal

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LCIE Laboratoire Central des Industries Electriques Une société de Bureau Veritas

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Société Anonyme au capital de 15 745 984 € RCS Nanterre B 408 363 174

31632-D ECO#: 34407



L C I E

(A1) ANNEXE

(A1) SCHEDULE

(A2) ATTESTATION D'EXAMEN DE TYPE

(A2) TYPE EXAMINATION CERTIFICATE

LCIE 05 ATEX 6111 X

LCIE 05 ATEX 6111 X

(A3) Description de l'équipement ou du système de protection :

(A3) Description of Equipment or Protective System :

Transmetteur de pression  
Type : 1xxAyyy, 1xxByyy ou 1xxMyyy

Pressure transmitter  
Type : 1xxAyyy, 1xxByyy or 1xxMyyy

Ce matériel est composé d'un ensemble piézoélectrique, d'un amplificateur de charge et d'un connecteur. L'ensemble est monté dans une enveloppe métallique.

This apparatus is made of a piezo-crystal assembly, a charge amplifier and a connector. The assembly is mounted inside a metallic enclosure.

Le marquage est le suivant :

Marking is as follow :

PCB Piezotronics Inc.  
Adresse : ...  
Type : 1xxAyyy, 1xxByyy ou 1xxMyyy  
N° de fabrication : ...  
Année de fabrication : ...  
II 3 G  
EEx nL IIC T4  
LCIE 05 ATEX 6111 X  
Tamb. : - 54°C à + 121°C

PCB Piezotronics Inc.  
Address : ...  
Type : 1xxAyyy, 1xxByyy or 1xxMyyy  
Serial number : ...  
Year of manufacturing : ...  
II 3 G  
EEx nL IIC T4  
LCIE 05 ATEX 6111 X  
Tamb. : - 54°C to + 121°C

Le matériel devra également comporter le marquage normalement prévu par les normes de construction du matériel électrique concerné.

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

Paramètres spécifiques du ou des modes de protection concerné(s) :

Specific parameters of the concerned protective mode(s) :

U ≤ 30 V                      C ≤ 5 nF  
I ≤ 200 mA                    L ≈ 0  
P ≤ 1 W

U ≤ 30 V                      C ≤ 5 nF  
I ≤ 200 mA                    L ≈ 0  
P ≤ 1 W

(A4) Documents descriptifs :

(A4) Descriptive documents :

Dossier technique N°30362 Rév. NC du 4 mai 2005.  
Ce document comporte 22 rubriques (25 pages).

Technical file No. 30362 Rev. NC dated May 4<sup>th</sup>, 2005.  
This file includes 22 items (25 pages).

(A5) Conditions spéciales pour une utilisation sûre :

(A5) Special conditions for safe use :

Les paramètres électriques d'alimentation ne doivent pas excéder les valeurs mentionnées au paragraphe (A3).

The supply electrical parameters shall not exceed the values mentioned in paragraph (A3).

(A6) Exigences essentielles en ce qui concerne la sécurité et la santé :

(A6) Essential Health and Safety Requirements :

Conformité à la norme européenne EN 50021 (1999).

Conformity to the European standard EN 50021 (1999).

Vérifications et épreuves individuelles :

Individual examinations and tests :

Néant.

Néant.



**LCIE**

**1 AVENANT D'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'avenant :

**LCIE 05 ATEX 6111 X / 01**

**4 Appareil ou système de protection :**

Transmetteur de pression

Type : 1xxAyyy, 1xxByyy, 1xxMyyy

**5 Demandeur :** PCB PIEZOTRONICS Inc.

**15 DESCRIPTION DE L'AVENANT**

- Certification suivant les normes EN 60079-0 (2004) et EN 60079-15 (2005)
- Mise à jour des schémas.

Les résultats des vérifications et essais figurent dans le rapport confidentiel N° 60051509/552320.

Paramètres spécifiques du ou des modes de protection concerné(s) :

Inchangés.

Le marquage doit être :

Modifié comme suit : Ex nL IIC T4

**16 DOCUMENTS DESCRIPTIFS**

Dossier de certification N° 30362 rev.A du 19/09/2006. Ce dossier comprend 22 rubriques (25 pages).

**17 CONDITIONS SPECIALES POUR UNE UTILISATION SURE**

Inchangées.

**18 EXIGENCES ESSENTIELLES DE SECURITE ET DE SANTE**

Modifiées comme suit :

Conformité aux normes Européennes EN 60079-0 (2004) et EN 60079-15 (2005).

**19 VERIFICATIONS ET ESSAIS INDIVIDUELS**

Inchangées.

Fontenay-aux-Roses, le 13 novembre 2006

**1 SUPPLEMENTARY EC TYPE EXAMINATION CERTIFICATE**

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

**3** Supplementary certificate number :

**LCIE 05 ATEX 6111 X / 01**

**4 Equipment or protective system :**

Pressure transmitter

Type : 1xxAyyy, 1xxByyy, 1xxMyyy

**5 Applicant :** PCB PIEZOTRONICS Inc

**15 DESCRIPTION OF THE SUPPLEMENTARY CERTIFICATE**

- Certification following the EN 60079-0 (2004) and EN 60079-15 (2005) standards.
- Update drawings.

The examination and test results are recorded in confidential report N° 60051509/552320.

Specific parameters of the mode(s) of protection concerned:

Unchanged.

The marking shall be :

Modified as follows : Ex nL IIC T4

**16 DESCRIPTIVE DOCUMENTS**

Certification file N° 30362 rev.A dated 19/09/2006. This file includes 22 items (25 pages).

**17 SPECIAL CONDITIONS FOR SAFE USE**

Unchanged.

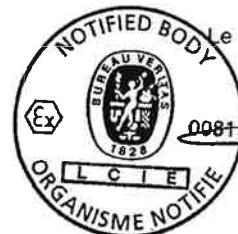
**18 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS**

Modified as follows :

Conformity to the European standards EN 60079-0 (2004) and EN 60079-15 (2005).

**19 ROUTINE VERIFICATIONS AND TESTS**

Unchanged.



Le responsable de certification ATEX  
ATEX certification manager

Marc BILLAUX

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**EC Declaration of Conformity PS 059**  
In Accordance with ISO/IEC 17050

<b>Manufacturer:</b> PCB Piezotronics, Inc. 3425 Walden Avenue Depew, New York 14043 USA	<b>Authorized European Representative:</b> PCB Piezotronics Europe GmbH PO Box 1148 D-52473 Linnich, Germany
--	--

**Certifies that type of equipment:** Pressure Transmitter(s)

**Whose Product Models Include:** 1xxAyy, 1xxByy, 1xxMyy Series

Note: "xx," is a place holder for two numbers.  
"yy," is a place holder for two numbers.  
For example:

These letters and numbers are included in the model numbers of the series. For details see the related data sheets.

This declaration is applicable to all Pressure Transmitter(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.

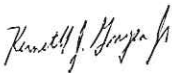
Conform to the following EC Directive(s) when installed per product documentation:	2004/108/EC 94/9/EC	EMC directive ATEX
--	------------------------	-----------------------

**Standards to which Conformity is Declared:**

<b>Harmonized Standards</b>	EN61326-1:2006 EN61326-2-3: 2006 EN61010-1:2001 EN60079-0 (2006) EN60079-11 (2007)	Electrical Equipment for Measurement, Control and Laboratory Use- EMC Electrical Equipment for Measurement, Control and Laboratory Use- EMC Safety Standard General Explosive Atmosphere Intrinsic safe, I
<b>Emissions Test Standards</b>	EN 55011 (2007)	Industrial, scientific and medical(ISM) radio frequency equipment Electromagnetic disturbance characteristics- Limits and methods of Measurement Class B
<b>Immunity Test Standards</b>	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
<b>Test Reports</b>	EMC Reports Safety Reports	GM29034c GM29035s
	ATEX Cert	LCIE 03 ATEX 6279 X/03 Ex ia IIC T4, II 1G
<b>Notified Body Name</b>		Laboratoire Central des Industries Electriques (0081)
<b>Notified Body's Address</b>		<b>FONTENAY-AUX-ROSES (Head Office)</b> 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: 07/07/2010

Signature:   
Name: Kenneth J. Gonyea Jr.  
Title: V.P. Manufacturing





LCIE

1 ATTESTATION D'EXAMEN CE DE TYPE

2 Appareils et systèmes de protection destinés à être utilisés en atmosphères explosibles Directive 94/9/CE

3 Numéro de l'attestation d'examen CE de type LCIE 03 ATEX 6279 X

4 Appareil ou système de protection : Transmetteur de pression Type : 102Mbox

5 Demandeur : PCB PIEZOTRONICS Inc.

6 Adresse : 3425 Walden Avenue Depew, New York 14043 U.S.A.

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

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 en ce qui concerne la sécurité et la 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 vérifications et épreuves figurent dans nos rapports confidentiels N° 41086010.

9 Le respect des exigences essentielles en ce qui concerne la sécurité et la santé est assuré par la conformité aux documents suivants : -EN 50014 (1997) + amendements 1 et 2, -EN 50020 (2002).

10 Le signe X lorsqu'il est placé à la suite du numéro de l'attestation, indique que ce matériel 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 la directive 94/9/CE. Des exigences supplémentaires de cette directive sont applicables pour la fabrication et la fourniture de l'appareil ou du système de protection.

12 Le marquage de l'appareil ou du système de protection devra comporter, entre autres indications utiles, les mentions suivantes :

II 1 G EEx ia IIC T4

Fontenay-aux-Roses, le 22 juillet 2003

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 03 ATEX 6279 X

4 Equipment or protective system : Pressure transmitter Type : 102Mbox

5 Applicant : PCB PIEZOTRONICS Inc.

6 Address : 3425 Walden Avenue Depew, New York 14043 U.S.A.

7 This equipment or protective system and any acceptable variation thereto is 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 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 system intended for use in potentially explosive atmospheres, given in Annex II of the Directive. The examination and test results are recorded in confidential reports No. 41086010.

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with : -EN 50014 (1997) + amendments 1 and 2, -EN 50020 (2002).

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 the Directive 94/9/EC. Further requirements of the Directive applies to the manufacture and supply of this equipment or protective system.

12 The marking of the equipment or protective system shall include the following :

II 1 G EEx ia IIC T4

Le Directeur de l'organisme certificateur Manager of the certification body

Handwritten signature and stamp: Timbre sec / Dry seal

de

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Page 1/3

LCIE Laboratoire Central des Industries Electriques Une société de Bureau Veritas 33, av du Général Leclerc BP 8 92266 Fontenay-aux-Roses cedex France

Tél : +33 1 40 95 60 60 Fax : +33 1 40 95 86 56 contact@lcie.fr www.lcie.fr Société anonyme à directoire et conseil de surveillance au capital de 15 745 984 € RCS Nanterre B 408 363 179

23497-F ECO#: 34407



(A1) ANNEXE

(A1) SCHEDULE

(A2) ATTESTATION D'EXAMEN CE DE TYPE

(A2) EC TYPE EXAMINATION CERTIFICATE

LCIE 03 ATEX 6279 X

LCIE 03 ATEX 6279 X

(A3) Description de l'équipement ou du système de protection :

(A3) Description of Equipment or Protective System :

Transmetteur de pression  
Type : 102Mxxx

Pressure transmitter  
Type : 102Mxxx

Ce matériel est composé d'un ensemble piézoélectrique, d'un amplificateur de charge et d'un connecteur.  
L'ensemble est monté dans une enveloppe métallique.

This apparatus is made of a piezo-crystal assembly, a charge amplifier and a connector.  
The assembly is mounted inside a metallic enclosure.

Le marquage est le suivant :

Marking is as follow :

PCB  
Adresse : ...  
Type : 102Mxxx (1)  
N° de fabrication : ...  
Année de fabrication : ...  
⊕ II 1 G  
EEx ia IIC T4  
LCIE 03 ATEX 6279 X  
T.amb. : -54°C à +121°C

PCB  
Address : ...  
Type : 102Mxxx (1)  
Serial number : ...  
Year of manufacturing : ...  
⊕ II 1 G  
EEx ia IIC T4  
LCIE 03 ATEX 6279 X  
T.amb. : -54°C to +121°C

(1) Suivant le modèle

(1) According to the model

Le marquage CE est accompagné du numéro d'identification de l'organisme notifié responsable de la surveillance du système approuvé de qualité (0081 pour le LCIE).

The CE marking shall be accompanied by the identification number of the notified body responsible for surveillance of the approved quality system (0081 for LCIE).

Le matériel devra également comporter le marquage normalement prévu par les normes de construction du matériel électrique concerné.

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

Paramètres électriques relatifs à la sécurité :

Electrical parameters relative to safety :

U<sub>i</sub> = 30 V  
I<sub>i</sub> = 200 mA  
P<sub>i</sub> = 1 W  
L<sub>i</sub> = 0  
C<sub>i</sub> = 5 nF

U<sub>i</sub> = 30 V  
I<sub>i</sub> = 200 mA  
P<sub>i</sub> = 1 W  
L<sub>i</sub> = 0  
C<sub>i</sub> = 5 nF





(A1) **ANNEXE (suite)**

(A1) **SCHEDULE (continued)**

(A2) **ATTESTATION D'EXAMEN CE DE TYPE**

(A2) **EC TYPE EXAMINATION CERTIFICATE**

**LCIE 03 ATEX 6279 X**

**LCIE 03 ATEX 6279 X**

(A4) Documents descriptifs :

(A4) Descriptive documents :

Dossier technique N° 23208 Rév. NC du 18 juin 2003.  
Ce document comporte 19 rubriques (21 pages).

Technical file No. 23208 Rev. NC dated June 18<sup>th</sup>, 2003.  
This file includes 19 items (21 pages).

(A5) Conditions spéciales pour une utilisation sûre :

(A5) Special conditions for safe use :

Ce matériel est un appareil de sécurité intrinsèque, il peut être placé en atmosphère explosible.  
Le matériel ne doit être raccordé qu'à un matériel associé de sécurité intrinsèque certifié et cette association doit être compatible du point de vue sécurité intrinsèque.  
Les caractéristiques électriques du matériel associé de sécurité intrinsèque ne doivent excéder aucune des valeurs suivantes :  
 $U_0 \leq 30 \text{ V}$ ,  $I_0 \leq 0,2 \text{ A}$ ,  $P_0 \leq 1 \text{ W}$

This equipment is an intrinsically safe apparatus, it can be mounted in explosive atmosphere.  
The apparatus must be only connected to a certified associated intrinsically safe equipment and this combination must be compatible regarding intrinsic safety rules.  
Electrical parameters of associated intrinsically safe equipment shall not exceed any of the following values :  
 $U_0 \leq 30 \text{ V}$ ,  $I_0 \leq 0,2 \text{ A}$ ,  $P_0 \leq 1 \text{ W}$

(A6) Exigences essentielles en ce qui concerne la sécurité et la santé :

(A6) Essential Health and Safety Requirements :

Conformité aux normes européennes EN 50014 (1997 + amendements 1 et 2) et EN 50020 (2002).

Conformity to the European standards EN 50014 (1997 + amendments 1 and 2) and EN 50020 (2002).

Vérifications et épreuves individuelles :

Individual examinations and tests :

L'appareil est dispensé d'épreuve individuelle.

The equipment is not submitted to routine test.



**L C I E**

(A1) **ATTESTATION D'EXAMEN CE DE TYPE  
LCIE 03 ATEX 6279 X du 22 juillet 2003**

(A1) **EC TYPE EXAMINATION CERTIFICATE  
LCIE 03 ATEX 6279 X dated July 22<sup>th</sup>, 2003**

**AVENANT 03 ATEX 6279 X / 01**

**VARIATION 03 ATEX 6279 X / 01**

(A2) **DESIGNATION DE L'EQUIPEMENT OU DU SYSTEME DE  
PROTECTION :**

(A2) **DESIGNATION OF EQUIPMENT OR PROTECTIVE  
SYSTEM :**

Capteurs de pression  
Type : 102Mxxx Series  
Construit par : PCB Piezotronics Inc.

Pressure Sensors  
Type : 102Mxxx Series  
Manufactured by : PCB Piezotronics Inc.

(A3) **OBJET DE L'AVENANT, DESCRIPTION DE L'APPAREIL  
OU SYSTEME DE PROTECTION :**

(A3) **SUBJECT OF THE VARIATION, DESCRIPTION OF  
EQUIPMENT OR PROTECTIVE SYSTEM :**

Modification de l'assemblage de l'amplificateur 21760  
Ajout d'un assemblage amplificateur 28040 avec schema  
28041

Modification of amplifier 21760 assembly  
Add of amplifier 28040 assembly with 28041 schematic  
diagram

Marquage : Inchangé

Marking : Unchanged

(A4) **DOCUMENTS DESCRIPTIFS :**

(A4) **DESCRIPTIVE DOCUMENTS :**

Dossier technique N° 23208 Rév A du 1 octobre 2004.  
Ce document comprend 22 rubriques ( 25 pages).

Technical file N° 23208 Rev A dated October 1<sup>st</sup>, 2004.  
This file includes 22 items (25 pages).

(A5) **CONDITIONS SPECIALES POUR UNE UTILISATION  
SURE :**

(A5) **SPECIAL CONDITIONS FOR SAFE USE :**

Inchangées

Unchanged

(A6) **EXIGENCES ESSENTIELLES EN CE QUI CONCERNE LA  
SECURITE ET LA SANTE :**


(A6) **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS :**

Inchangées

Unchanged

Fontenay-aux-Roses, le 25 novembre 2004

Le Directeur de l'organisme certificateur  
Manager of the certification body

  
**Michel BRÉNON**  
Timbre sec / Dry seal  
Société Anonyme  
au capital de 15 745 984 €

**LCIE**  
**Laboratoire Central**  
**des Industries Electriques**  
**Une société de Bureau Veritas**  
33, av du Général Leclerc  
BP 8  
92266 Fontenay-aux-Roses cedex  
France

Tél : +33 1 40 95 60 60  
Fax : +33 1 40 95 86 56  
contact@lcie.fr  
www.lcie.fr  
RCS Nanterre B 408 363 174



**LCIE**

(A1) **ATTESTATION D'EXAMEN CE DE TYPE  
LCIE 03 ATEX 6279 X du 22 juillet 2003**

(A1) **EC TYPE EXAMINATION CERTIFICATE  
LCIE 03 ATEX 6279 X dated July 22<sup>nd</sup>, 2003**

**AVENANT 03 ATEX 6279 X/02**

**VARIATION 03 ATEX 6279 X/02**

(A2) DESIGNATION DE L'EQUIPEMENT OU DU SYSTEME  
DE PROTECTION :

(A2) NAME OF EQUIPMENT OR PROTECTIVE SYSTEM :

Transmetteur de pression  
Type : 1xxAyyy, 1xxByyy ou 1xxMyyy

Pressure transmitter  
Type : 1xxAyyy, 1xxByyy or 1xxMyyy

Construit par :  
PCB PIEZOTRONICS Inc.

Manufactured by :  
PCB PIEZOTRONICS Inc.

(A3) OBJET DE L'AVENANT, DESCRIPTION DE  
L'APPAREIL OU DU SYTEME DE PROTECTION :

(A3) SUBJECT OF THE VARIATION, DESCRIPTION OF  
EQUIPMENT OR PROTECTIVE SYSTEM :

- Modification du type pour permettre de mieux définir les  
différentes variantes

-Modification of the type to more accurately define variations.

Le marquage est modifié comme suit :

The marking is modified as follows :

Type : 1xxAyyy, 1xxByyy ou 1xxMyyy

Type : 1xxAyyy, 1xxByyy or 1xxMyyy

Paramètres spécifiques du ou des modes de protection  
concerné(s) :

Specific parameters of the mode of protection concerned :

Inchangés.

Unchanged.

(A4) DOCUMENTS DESCRIPTIFS :

(A4) DESCRIPTIVE DOCUMENTS :

Dossier technique N°23208 Rév. B daté du 4 mai 2005.  
Ce document comprend 3 rubriques (4 pages).

Technical file No. 23208 Rev. B dated May 4<sup>th</sup>, 2005.  
This file includes 3 items (4 pages).

(A5) CONDITIONS SPECIALES POUR UNE UTILISATION  
SURE :

(A5) SPECIAL CONDITIONS FOR SAFE USE :

Inchangées.

Unchanged:

(A6) EXIGENCES ESSENTIELLES EN CE QUI  
CONCERNE LA SECURITE ET LA SANTE :

\*(A6) ESSENTIAL HEALTH AND SAFETY REQUI-REMENTS :

Inchangées.

Unchanged.

Fontenay-aux-Roses, le 31 août 2005

Le Directeur de l'organisme certificateur  
Manager of the certification body

P/O  
  
Timbre sec/Dry seal

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Page 1/1

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**Laboratoire Central**  
**des Industries Electriques**  
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92266 Fontenay-aux-Roses cedex  
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contact@lcie.fr  
www.lcie.fr

Société Anonyme  
au capital de 15 745 984 €  
RCS Nanterre B 408 363 174

L-01



LCIE



**1 AVENANT D'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'avenant :  
**LCIE 03 ATEX 6279 X / 03**

4 Appareil ou système de protection :  
Transmetteur de pression  
Type : 1xxAyyy, 1xxByyy, 1xxMyyy

5 Demandeur : PCB PIEZOTRONICS Inc.

**15 DESCRIPTION DE L'AVENANT**

- Certification suivant les normes EN 60079-0 (2004) et EN 60079-11 (2006)  
- Mise à jour des schémas.

Les résultats des vérifications et essais figurent dans le rapport confidentiel N° 60051175/551970.

Paramètres spécifiques du ou des modes de protection concerné(s) :

Inchangés.

Le marquage doit être :

Modifié comme suit : Ex ia IIC T4

**16 DOCUMENTS DESCRIPTIFS**

Dossier de certification N° 23208 rev.C du 19/09/2006. Ce dossier comprend 22 rubriques (25 pages).

**17 CONDITIONS SPECIALES POUR UNE UTILISATION SURE**

Inchangées.

**18 EXIGENCES ESSENTIELLES DE SECURITE ET DE SANTE**

Modifiées comme suit :  
Conformité aux normes Européennes EN 60079-0 (2004) et EN 60079-11 (2006).

**19 VERIFICATIONS ET ESSAIS INDIVIDUELS**

Inchangées.

Fontenay-aux-Roses, le 13 novembre 2006

**1 SUPPLEMENTARY EC TYPE EXAMINATION CERTIFICATE**

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

3 Supplementary certificate number :  
**LCIE 03 ATEX 6279 X / 03**

4 Equipment or protective system :  
Pressure transmitter  
Type : 1xxAyyy, 1xxByyy, 1xxMyyy

5 Applicant : PCB PIEZOTRONICS Inc

**15 DESCRIPTION OF THE SUPPLEMENTARY CERTIFICATE**

- Certification following the EN 60079-0 (2004) and EN 60079-11 (2006) standards.  
- Update drawings.

The examination and test results are recorded in confidential report N° 60051175/551970.

Specific parameters of the mode(s) of protection concerned:

Unchanged.

The marking shall be :

Modified as follows : Ex ia IIC T4

**16 DESCRIPTIVE DOCUMENTS**

Certification file N° 23208 rev.C dated 19/09/2006. This file includes 22 items (25 pages).

**17 SPECIAL CONDITIONS FOR SAFE USE**

Unchanged.

**18 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS**

Modified as follows :  
Conformity to the European standards EN 60079-0 (2004) and EN 60079-11 (2006).

**19 ROUTINE VERIFICATIONS AND TESTS**

Unchanged.



Le responsable de certification ATEX  
ATEX certification manager

Marc GILLAUD

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Page 1 sur 1  
01A-Annexe III\_CE\_typ\_app\_ev - rev1.DOC

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des Industries Electriques  
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www.lcie.fr

Société Anonyme  
au capital de 15 745 984 €  
RCS Nanterre B 408 363 174

LCIE



**EC Declaration of Conformity PS 059**  
In Accordance with ISO/IEC 17050

<b>Manufacturer:</b> PCB Piezotronics, Inc. 3425 Walden Avenue Depew, New York 14043 USA	<b>Authorized European Representative:</b> PCB Piezotronics Europe GmbH PO Box 1148 D-52473 Linnich, Germany
--	--

**Certifies that type of equipment:** Pressure Transmitter(s)

**Whose Product Models Include:** 1xxAyy, 1xxByy, 1xxMyy Series

Note: "xx," is a place holder for two numbers.  
"yy," is a place holder for two numbers.  
For example:

These letters and numbers are included in the model numbers of the series. For details see the related data sheets.

This declaration is applicable to all Pressure Transmitter(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.

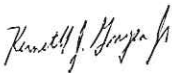
Conform to the following EC Directive(s) when installed per product documentation:	2004/108/EC 94/9/EC	EMC directive ATEX
--	------------------------	-----------------------

**Standards to which Conformity is Declared:**

<b>Harmonized Standards</b>	EN61326-1:2006 EN61326-2-3: 2006 EN61010-1:2001 EN60079-0 (2006) EN60079-11 (2007)	Electrical Equipment for Measurement, Control and Laboratory Use- EMC Electrical Equipment for Measurement, Control and Laboratory Use- EMC Safety Standard General Explosive Atmosphere Intrinsic safe, I
<b>Emissions Test Standards</b>	EN 55011 (2007)	Industrial, scientific and medical(ISM) radio frequency equipment Electromagnetic disturbance characteristics- Limits and methods of Measurement Class B
<b>Immunity Test Standards</b>	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
<b>Test Reports</b>	EMC Reports Safety Reports	GM29034c GM29035s
	ATEX Cert	LCIE 03 ATEX 6279 X/03 Ex ia IIC T4, II 1G
<b>Notified Body Name</b>		Laboratoire Central des Industries Electriques (0081)
<b>Notified Body's Address</b>		<b>FONTENAY-AUX-ROSES (Head Office)</b> 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: 07/07/2010

Signature:   
 Name: Kenneth J. Gonyea Jr.  
 Title: V.P. Manufacturing



CSA INTERNATIONAL

# Certificate of Compliance

**Certificate:** 1420405 (LR 103016-10)

**Master Contract:** 184981

**Project:** 1844878

**Date Issued:** 2006/10/23

**Issued to:** Industrial Monitoring Instr. (IMI)

A Div. of PCB Piezotronics, Inc.  
3425 Walden Ave  
Depew, NY 14043  
USA  
Attention: Richard Furner

*The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US'*



**Issued by:** Ron Wildish

**Authorized by:** Patricia Pasemko, Operations Manager

## **PRODUCTS**

**CLASS 2258 84** - PROCESS CONTROL EQUIPMENT - Intrinsicly Safe, Entity - - For Hazardous Locations - Certified to US Standards

**CLASS 2258 04** - PROCESS CONTROL EQUIPMENT - Intrinsicly Safe, Entity - For Hazardous Locations

Class I, Div. 1, Groups A, B, C and D:

Exia IIC T4; Class I, Zone 0:

AEx ia IIC T4; Class I, Zone 0:

The 'C' and 'US' indicators adjacent to the CSA Mark signify that the product has been evaluated to the applicable CSA and ANSI/UL Standards, for use in Canada and the U.S., respectively. This 'US' indicator includes products eligible to bear the 'NRTL' indicator. NRTL, i.e. National Recognized Testing Laboratory, is a designation granted by the U.S. Occupational Safety and Health Administration (OSHA) to laboratories which have been recognized to perform certification to U.S. Standards.

**PCB Cont. No. 23498-C**



CSA INTERNATIONAL

**Certificate:** 1420405 (LR 103016-10)

**Master Contract:** 184981

**Project:** 1844878

**Date Issued:** 2006/10/23

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- Models 1xxAyyy, 1xxByyy and 1xxMyyy Pressure Sensors, input rated 28 Vdc max, 20 mA max; intrinsically safe with entity parameters of:  $V_{max}/U_i = 30V$ ,  $I_{max}/I_i = 200mA$ ,  $L_i = 0$ ,  $C_i = 5 nF$ ; when installed per installation Dwg. 21869; Temp. Code T4 @ Max Ambient 121 Deg C.

Notes:

1. The "xx" in the model number denotes frequency response.
2. The "yyy" in the model number denotes minor mechanical mounting variations, variations in pressure range and variations in low frequency response.

#### **APPLICABLE REQUIREMENTS**

CSA Std C22.2 No. 142-M1987 - Process Control Equipment

CAN/CSA-C22.2 No. 157-92 - Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations

UL Std No. 913 - Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II and III, Division 1, Hazardous Locations

UL Std No. 916 - Energy Management Equipment

CAN/CSA-E60079-0:02 - Electrical Apparatus for Explosive Gas Atmospheres - Part 0: General Requirements

CAN/CSA-E60079-11:02 - Electrical apparatus for Explosive Gas Atmospheres - Part 11: Intrinsic Safety "i"

ANSI/UL 60079-0:02 - Electrical Apparatus for Explosive Gas Atmospheres - Part 0: General Requirements

ANSI/UL 60079-11:02 - Electrical apparatus for Explosive Gas Atmospheres - Part 11: Intrinsic Safety "i"

**CLASS 2258 03 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe and Non-Incendive Systems - For Hazardous Locations**

**CLASS 2258 83 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe and Non-Incendive Systems - For Hazardous Locations - CERTIFIED TO U.S. STANDARDS**

Ex nL IICT4; Class I, Zone 2:

AEx nA IICT4: Class I, Zone 2:

Class I, Div. 2, Groups A, B, C, D:

- Models 1xxAyyy, 1xxByyy and 1xxMyyy Pressure Sensors, input rated 28 Vdc max, 20 mA max; non-incendive,





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with entity parameters of:  $V_{max}/U_i = 30V$ ,  $I_{max}/I_i = 200mA$ ,  $L_i = 0$ ,  $C_i = 5 nF$ ; when installed per installation Dwg. 21869; Temp. Code T4 @ Max Ambient 121 Deg C.

Notes:

1. The "xx" in the model number denotes frequency response.
2. The "yyy" in the model number denotes minor mechanical mounting variations, variations in pressure range and variations in low frequency response.
3. For Canadian Installations, sensor case must be bonded to ground according to Section 18-182 of the CEC, Part 1.
4. For US Installations, sensor case must be bonded to ground according to Article 501.16 of the NEC.

**APPLICABLE REQUIREMENTS**

CSA Std C22.2 No. 142-M1987 - Process Control Equipment

CSA Std. C22.2 No. 213-M1987 - Non-incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations

UL Std No. 916 - Energy Management Equipment

FM Std. No. 3600-1998 - Electrical Equipment for Use in Hazardous (Classified) Locations – General Requirements

FM Std. No. 3611-1999 - Nonincendive Electrical Equipment for Use in Class I and II, Division 2, and Class III, Divisions 1 and 2, Hazardous (Classified) Locations

CAN/CSA-E60079-15:02 - Electrical apparatus for Explosive Gas Atmospheres - Part 15: Type of Protection "n"

ANSI/UL 60079-15:02 - Electrical apparatus for Explosive Gas Atmospheres - Part 15: Electrical Apparatus with Type of Protection "n"



## *Supplement to Certificate of Compliance*

Certificate: 1420405

Master Contract: 184981

*The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.*

### Product Certification History

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<b>Project</b>	<b>Date</b>	<b>Description</b>
1844878	2006/10/23	Update to cover minor drawing Revisions.
1697653	2005/08/04	Update to Include Zone 0, Zone 2, and Div. 2 Certification; model # change to 1xxAyyy, 1xxByyy and 1xxMyyy.
1612847	2004/11/09	Update of report to cover modifications to existing Amplifier, and addition of new Amplifier

### History

1420405; June 20, 2003; Update to include entire 102Mxxx Seires. Delisting of model 100M34.

LR 103164-15; Nov. 5, 1998; Update to cover report corrections.

LR 103164-10; Mar. 25, 1998; Original Certification – Models 102M206 and 100M34.