



**Model 378C01**  
**ICP Microphone System**  
**Installation and Operating Manual**

**This manual contains the 377C01, 426B03 installation and operating manuals that  
comprise a Model 378C01 ICP Microphone System kit.**

**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:

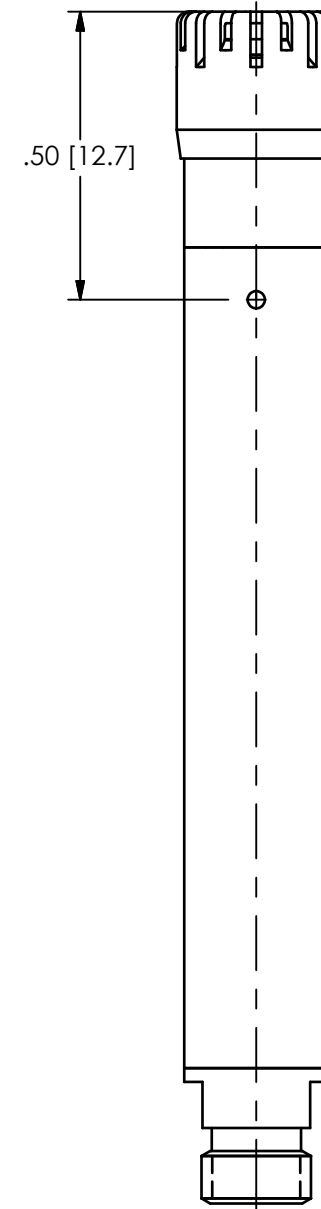
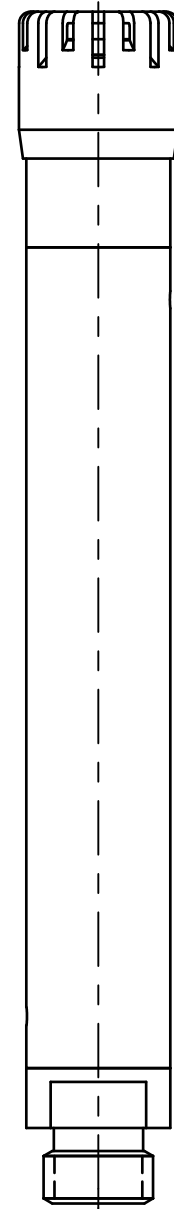
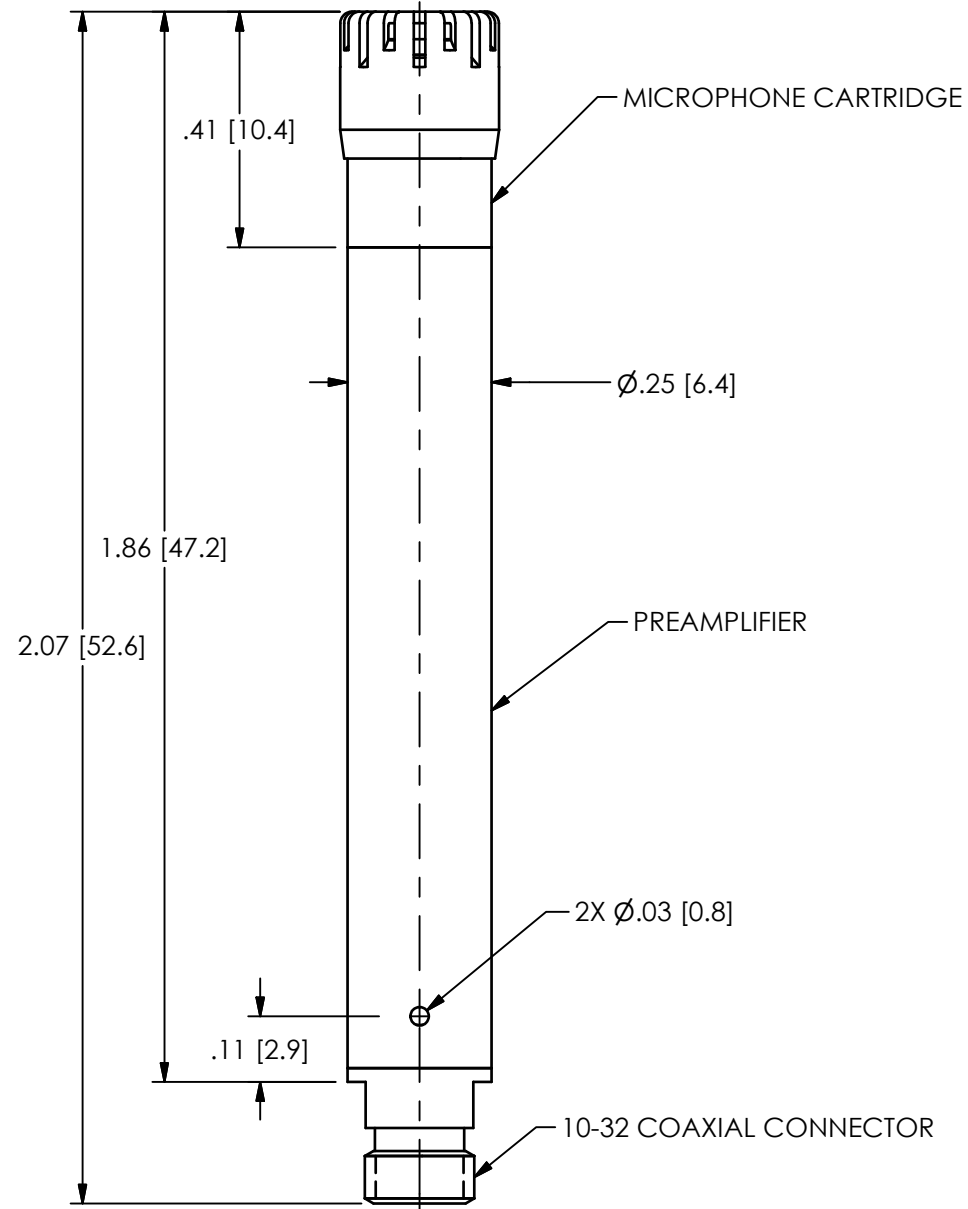
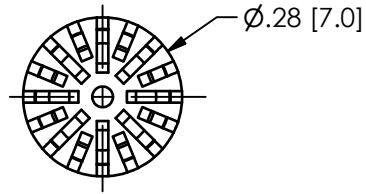
PCB Piezotronics, Inc.  
3425 Walden Ave.  
Depew, NY 14043 USA  
Toll-free: (800) 828-8840  
24-hour SensorLine<sup>SM</sup>: (716) 684-0001  
Website: [www.pcb.com](http://www.pcb.com)  
E-mail: [info@pcb.com](mailto:info@pcb.com)

Model Number <b>378C01</b>	<b>ICP MICROPHONE SYSTEM</b>			Revision: B ECN #: 44184	
<b>Performance</b> Nominal Microphone Diameter Frequency Response Characteristic(at 0° incidence) Open Circuit Sensitivity Open Circuit Sensitivity(+/-3.0 dB) Frequency Range(+/-1 dB) Frequency Range(+/-2 dB) Frequency Range(+/-3 dB) Lower Limiting Frequency(-3 dB) Inherent Noise(Linear) Inherent Noise Dynamic Range(3% Distortion Limit) TEDS Compliant	<b>ENGLISH</b> 1/4" Free-Field 2.0 mV/Pa -54 dB re 1 V/Pa 7 to 12,500 Hz 5 to 80,000 Hz 4 to 100,000 Hz 0.75 to 4.0 Hz <53 dB re 20 µPa <45 dB(A) re 20 µPa >162 dB re 20 µPa Yes	<b>SI</b> 1/4" Free-Field 2.0 mV/Pa -54 dB re 1 V/Pa 7 to 12,500 Hz 5 to 80,000 Hz 4 to 100,000 Hz 0.75 to 4.0 Hz <53 dB re 20 µPa <45 dB(A) re 20 µPa >162 dB re 20 µPa Yes	<b>OPTIONAL VERSIONS</b> Optional versions have identical specifications and accessories as listed for the standard model except where noted below. More than one option may be used.  <b>TLD</b> - TEDS Capable of Digital Memory and Communication Compliant with IEEE 1451.4 Optional Accessory : Model ACS-63 Calibration (with TEDS) of Precision Condenser Microphones and Preamplifiers together (mated pair). (1) replaces Model ACS-42		
<b>Environmental</b> Temperature Range(Operating) Temperature Coefficient of Sensitivity(+14 to +158°F (-10 to +70°C)) Static Pressure Coefficient Humidity Coefficient of Sensitivity(0 to 100%, non-condensing) Influence of Axial Vibration(0.1g (1 m/s <sup>2</sup> )) <b>Electrical</b> Polarization Voltage Excitation Voltage Constant Current Excitation Output Bias Voltage Maximum Output Voltage Output Impedance	-40 to +158 °F 0.003 dB/°F -0.009 dB/kPa ± 0.0014 60 dB re 20 µPa 0 V 20 to 32 VDC 2 to 20 mA 10 to 14 VDC +/-8 Vpk <50 Ohm	-40 to +70 °C 0.006 dB/°C -0.009 dB/kPa ± 0.0014 60 dB re 20 µPa 0 V 20 to 32 VDC 2 to 20 mA 10 to 14 VDC +/-8 Vpk <50 Ohm	<b>NOTES:</b> [1]Prepolarized [2]Typical. [3]re 250 Hz [4]Linear inherent noise is specified over the operating bandwidth (20 Hz - 100 kHz). [5]A-Weighted inherent noise is specified from 20 Hz - 20 kHz. [6]TEDS Capable Digital Memory and Communication, compliant with IEEE P1451.4 [7]Venting through Preamp. [8]See PCB Declaration of Conformance PS076 for details.		
<b>Physical</b> Housing Material Venting Electrical Connector Mounting Thread(Grid) Size (Diameter x Height)(with grid) Size (Diameter x Height)(without grid) Weight	Stainless Alloy Rear 10-32 Jack 0.25 - 60 UNS 0.28 in x 2.07 in 0.25 x 2.02 in 0.27 oz	Stainless Alloy Rear 10-32 Jack 0.25 - 60 UNS 7.1 mm x 52.6 mm 6.35 x 51.3 mm 7.8 gm	<b>SUPPLIED ACCESSORIES:</b> Model ACS-42 Calibration of microphone with preamplifier (1)		
	Entered: AP	Engineer: MT	Sales: MV	Approved: MT	Spec Number:
	Date: 5/18/2015	Date: 5/18/2015	Date: 5/18/2015	Date: 5/18/2015	<b>57856</b>
 [8] All specifications are at room temperature unless otherwise specified. In the interest of constant product improvement, we reserve the right to change specifications without notice. ICP® is a registered trademark of PCB Group, Inc.	 3425 Walden Avenue, Depew, NY 14043			<b>Phone: 716-684-0001</b> <b>Fax: 716-684-0987</b> <b>E-Mail: info@pcb.com</b>	

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REVISIONS		
REV	DESCRIPTION	DIN
A	ADDED ADDITIONAL VENT HOLE	43127



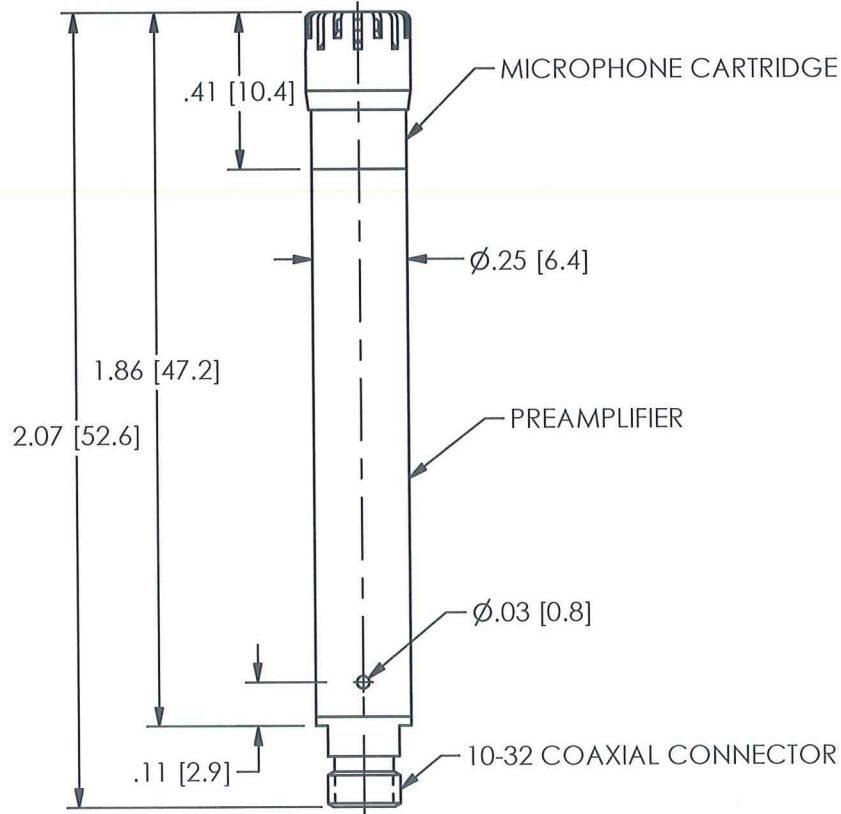
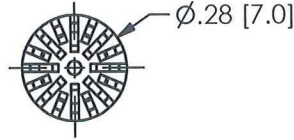
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		DRAWN		CHECKED		ENGINEER	
DIMENSIONS IN INCHES	DIMENSIONS IN MILLIMETERS [IN BRACKETS]	JDM	7/7/14	ECB	7/7/14	NJL	7/7/14
DECIMALS XX ±.03 XXX ±.010	DECIMALS X ±0.8 XX ±0.25	TITLE OUTLINE DRAWING 1/4" ICP MICROPHONE SYSTEM					
ANGLES ± 2 DEGREES	ANGLES ± 2 DEGREES						
FILLETS AND RADII .003 - .005	FILLETS AND RADII 0.07 - 0.13	CODE IDENT. NO. 52681		DWG. NO. 57747		3425 WALDEN AVE. DEPEW, NY 14043 (716) 684-0001 E-MAIL: sales@pcb.com	
		SCALE: 3X		SHEET 1 OF 1			

jmorawski 09:01 7/8/2014

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REVISIONS		
REV	DESCRIPTION	DIN
NR	RELEASED TO DRAFTING	42375

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UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:

DIMENSIONS IN INCHES	DIMENSIONS IN MILLIMETERS [ IN BRACKETS ]
DECIMALS XX ±.03 XXX ±.010	DECIMALS X ± 0.8 XX ± 0.25
ANGLES ± 2 DEGREES	ANGLES ± 2 DEGREES
FILLETS AND RADII .003 - .005	FILLETS AND RADII 0.07 - 0.13

DRAWN		CHECKED		ENGINEER	
JDM	1/3/14	<i>JDM</i>	1/6/14	MT	1/3/14

TITLE  
OUTLINE DRAWING  
1/4" ICP MICROPHONE SYSTEM

**PCB PIEZOTRONICS**  
 3425 WALDEN AVE. DEPEW, NY 14043  
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CODE IDENT. NO. 52681	DWG. NO. <b>57747</b>
SCALE: 2X	SHEET 1 OF 1