CONAX TECHNOLOGIES
2300 WALDEN AVENUE, BUFFALO, NY 14225

No. TSD 40.001	
Rev.	**Date**
Orig.	**11/04/2022**

SUGGESTED INSTALLATION PROCEDURE

FOR

MINIATURE BEARING SENSORS (MBS) STYLE CASE "B"

WITH SPRING AND RETAINING RING

CT P/N: 10-4026- (T/C ASSEMBLIES)
&
CT P/N: 10-4031- (RTD ASSEMBLIES)

PREPARED BY P. Marinaccio, Sr. Project Engineer DATE 10/18/24

APPROVED BY J. Michaels, Manager, Power DATE 10/30/23

REVISION RECORD				
Revision	Affected Paragraphs	Brief Description of Revision	Date	Approval Signature
Orig.	All	Original Release per ECN 220269	11/04/22	P. Marinaccio

1. Introduction

1.1. This Technical Support Document (TSD) provides the field installation instructions for Conax Technologies (CT) Miniature Bearing Sensor (MBS) Style Case "B" with spring and retaining ring in Thrust Bearings.

2. Applicable Conax Drawings

2.1. 10-4026- (T/C Assy.) & 10-4031- (RTD Assy.)
All MBS Style Case "B" Assemblies with Spring and Retaining Rings

3. Installation Procedure using 48-0054-001 or -002 Retaining Ring

3.1. Slip the compression (coil) spring over the lead wire and onto the sensor case.
3.2. Slip the self-locking retaining ring over the lead wires to the point where it is in contact with the spring making sure the angle of the retaining ring prongs are away from the case.
3.3. Insert the case, spring and retaining ring into the .311/.313" (7.90/7.95mm) diameter hole. Slip a short .190" (4.8mm) O.D. thin wall tube over the lead wire and into contact with the self-locking retaining ring, and press them home to bottom in the hole using the .190" (4.8mm) tube as an insertion tool. Remove the tube after insertion is complete.
3.4. "Install per drawing 70-0034" (for TCs) and "Install per drawing 70-0035" (for RTDs)

4. Installation Procedure using 48-0354-001 Beryllium Copper Retaining Ring

4.1. Slip the compression (coil) spring over the lead wires and onto the sensor case.
4.2. Slip the retaining ring over the lead wires to the point where it is in contact with the spring.
4.3. Insert the case, spring and retaining ring into the .311/.313" (7.90/7.95mm) diameter hole. Slip a short .250" (6.35mm) O.D. thin wall tube over the lead wire and into contact with the beryllium copper retaining ring, and press them home to bottom in the hole using the .250" (6.35mm) tube as an insertion tool. Remove the tube after insertion is complete.

NOTE:
Beryllium copper retaining ring, CT P/N 48-0354-001 is a reusable component if properly installed.

5. Product Certification for this MBS "B" Cap Configuration

5.1 CSA 23CA80129811U

5.1.1 Ex ia IIC Ga
Class I, Zone 0, AEX ia IIC Ga
CLASS I, Div 1, Group ABCD

Entity Parameters:

Ui	**30 V**
Ii	**45 mA**
Pi	**0.4 W**
Ci	**1.7 nF**
Li	**0.26 mH**

Condition of Acceptability (Intrinsic Safety Installation Only):

1. These device assemblies Shall only be powered by a certified "Ex ia" Associated apparatus (barrier device) meeting the entity concept for the Entity parameters as designated. The designated installation for Intrinsically Safe protection is declared prior to installation on the Ex marking label using A permanent marking method. These assemblies shall only be powered by an "[Ex ia]" associated apparatus (barrier device).

5.1.2 Ex eb IIC Gb
Ex ic IIC Gc
Class I, Zone 1, AEx eb IIC Gb
Class I, Zone 2 , AEx ic IIC Gc
Class I, Div 2, Group ABCD

Electrical Parameters:

Vmax	**30 V**
Imax	**45 mA**
Pmax	**0.4 W**

Condition of Acceptability (Schedule of Limitation):

1. The device assemblies designated for increase safety "Ex eb" installation are declared Prior to installation on the manufacturer's marking label using a permanent marking method. These assemblies shall only be powered by supply having a limited energy electric circuit in accordance with CAN/CSA C22.2 No. 61010-1-12 and ANSI/UL 61010-1, CSA/UL 62368-1 or Class 2 as defined in the Canadian Electrical Code C22.1 Section 16-200 and/or National Electrical Code (NFPA70), article 725.121.

2. The device assemblies designated for level of protection "Ex ic" and non-incendive (Division 2) installation are declared prior to installation on the Manufacturer's Marking

Using a permanent marking method. These assemblies shall only be powered by an "[Ex ic]" associated apparatus (barrier device).

6. Product Certification for this MBS "B" Cap Configuration, (ATEX)

6.1 CSANe 23ATEX1098U (Category 1&2)

6.1.1 II 1G Ex ia IIC Ga
II 2G Ex eb IIC Gb

6.2 CSANe 23ATEX1099U (Category 3)

6.2.1 II 3G Ex ec IIC Gc

7. Product Certification for this MBS "B" Cap Configuration, (IECEx)

7.1 IECEx CSA 23.0021U

7.1.1 Ex ia IIC Ga
Ex eb IIC Gb
Ex ic IIC Gc

Entity Parameters (Intrinsic Safety, Ex ia only):

Ui	**30 V**
Ii	**45 mA**
Pi	**0.4 W**
Ci	**1.7 nF**
Li	**0.26 mH**

Electrical Parameters (Increased Safety, Ex eb/ec only):

Vmax	**30 V**
Imax	**45 mA**
Pmax	**0.4 W**

Condition of Acceptability(Schedule of Limitation):

1. For devices assemblies designated levels of protection “Ex eb” and “Ex ic” this devise is installed in a sealed bearing and the assembly extension wires To be installed in an appropriate certified enclosure. (eg. Ex eb, Ex ic) respectively, or Greater explosion protection concept0, and ingress protection of IP 54 and meets the Enclosure requirements of IEC/EN 60079-0 and IEC/EN 60079-7. The suitability of the Enclosure is subject to investigation by the local Authority having jurisdiction at the time of Installation.

2. End user shall ensure proper earthing of the devise/extension wires upon installation In accordance with IEC/EN 60079-14. The mounting of the device for installation must ensure that the metallic body is reliably connected to system earth, continuity to be checked and confirmed.

3. Wiring that is part of the final MBS sensors in which enters or leaves the system enclosure, shall utilize wiring methos as specified in IEC/EN 60079-14 as appropriate for Installation.

4. The devise assemblies designated for Intrinsically Safe “Ex ia” installation are declared Prior to installation on the manufacturer Ex marking label using a permanent marking method. These assemblies shall only be powere by an “[Ex ia]” associated apparatus (barrier device).

5. The device assemblies designated for Increased Safety ”Ex eb” installation are declared prior to assemblies on the manufacturer Ex marking label using a permanent marking method. These assemblies shall only be powered by a supply having limited energy electric circuit in accoradance with IEC/EN 61010-1, or in accordance with IEC/EN 62368-1.

6. The device Assemblies designated for level of protection “Ex ic” installation are declared prior to installation on the manufacture Ex label using a permanent marking method. These assemblies shall only be powered by an “[Ex ic]” associated apparatus (barrier device).

7. An aluminum enclosure may be capable of producing incendive sparks when impacted or equipment must be mounted and/or physically guarded such that it is not subjected to impact or friction. (Note:, Enclosures are not supplied by the device manufacturer)

8. A nonmetalic enclosure parts of the devices may become a spark ignition hazard in the presence of static electricity. The enclosure shall be mounted to avoid building static electric charge from nonconductive process flow, strong air currents or other potential charging through friction.

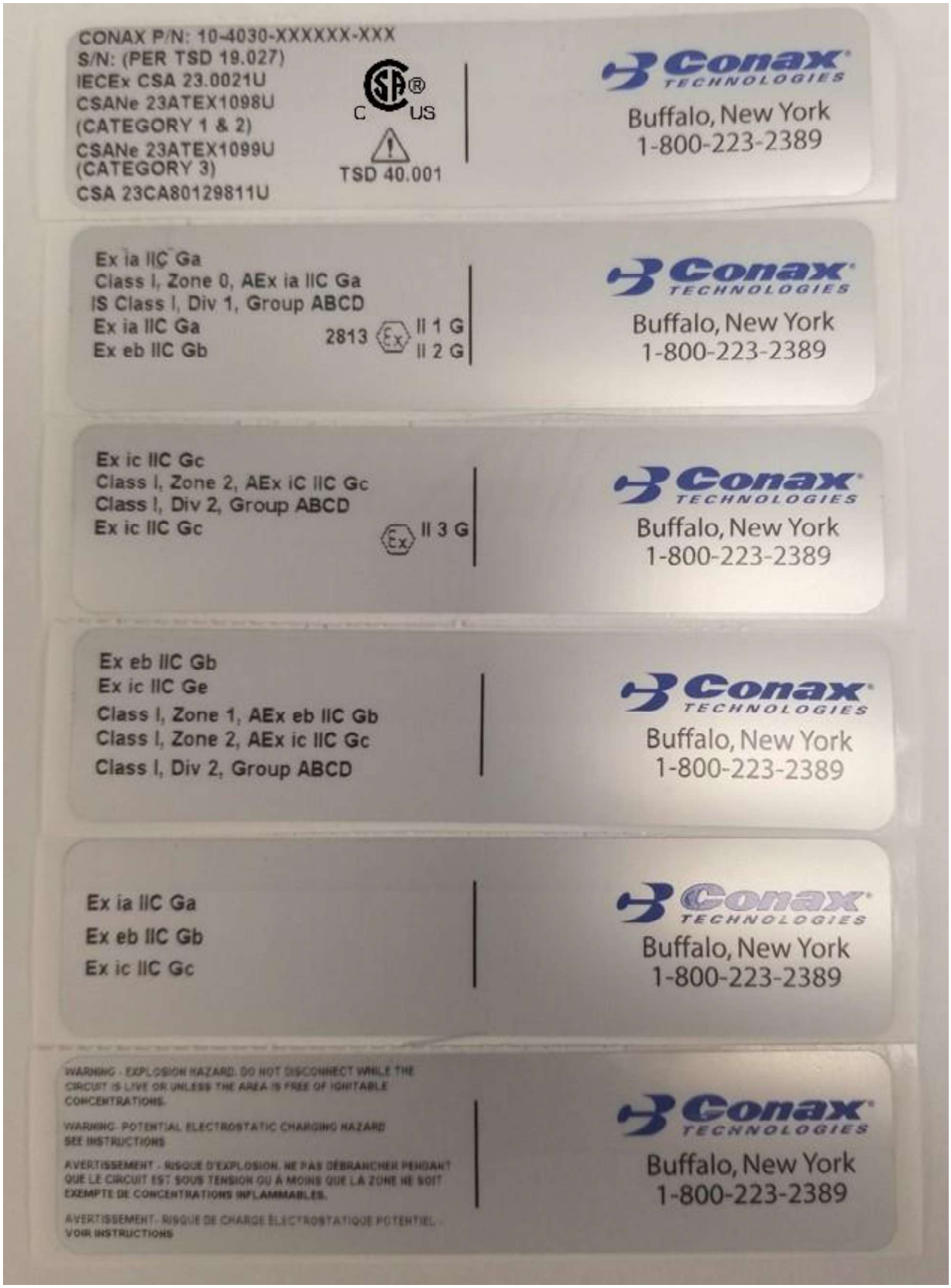
9. The nonmetallic markings label (tag) shall be cleaned only with a damp cloth, and the equipment shall be mounted to avoid static electric charge from nonconductive process flow, strong air currents or other potential charging through friction.

Marking Examples: (Showing 6 labels for Clarity)

1. Label showing TSD 40.001 under the international information symbol is for MBS Cap designated as (Type “B”). See example below.

2. Two labels, First label shown below, Starting with **Conax P/N:** and the **Warning label** will be attached to each individual MBS sensor at pig tail end of extension wire.

3. A copy of TSD 40.001 shall be shipped with every order.


CONAX P/N: 10-4030-XXXXXX-XXX
S/N: (PER TSD 19.027)
IECEx CSA 23.0021U
CSANe 23ATEX1098U
(CATEGORY 1 & 2)
CSANe 23ATEX1099U
(CATEGORY 3)
CSA 23CA80129811U
C US
TSD 40.001
Conax TECHNOLOGIES
Buffalo, New York
1-800-223-2389
Ex ia IIC Ga
Class I, Zone 0, AEx ia IIC Ga
IS Class I, Div 1, Group ABCD
Ex ia IIC Ga
Ex eb IIC Gb
2813
II 1 G
II 2 G
Conax TECHNOLOGIES
Buffalo, New York
1-800-223-2389
Ex ic IIC Gc
Class I, Zone 2, AEx iC IIC Gc
Class I, Div 2, Group ABCD
Ex ic IIC Gc
II 3 G
Conax TECHNOLOGIES
Buffalo, New York
1-800-223-2389
Ex eb IIC Gb
Ex ic IIC Ge
Class I, Zone 1, AEx eb IIC Gb
Class I, Zone 2, AEx ic IIC Gc
Class I, Div 2, Group ABCD
Conax TECHNOLOGIES
Buffalo, New York
1-800-223-2389
Ex ia IIC Ga
Ex eb IIC Gb
Ex ic IIC Gc
Conax TECHNOLOGIES
Buffalo, New York
1-800-223-2389
WARNING - EXPLOSION HAZARD. DO NOT DISCONNECT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS FREE OF IGNITABLE CONCENTRATIONS.
WARNING- POTENTIAL ELECTROSTATIC CHARGING HAZARD
SEE INSTRUCTIONS
AVERTISSEMENT - RISQUE D'EXPLOSION. NE PAS DÉBRANCHER PENDANT QUE LE CIRCUIT EST SOUS TENSION OU À MOINS QUE LA ZONE NE SOIT EXEMPTE DE CONCENTRATIONS INFLAMMABLES.
AVERTISSEMENT- RISQUE DE CHARGE ÉLECTROSTATIQUE POTENTIEL - VOIR INSTRUCTIONS
Conax TECHNOLOGIES
Buffalo, New York
1-800-223-2389

END OF DOCUMENT