

Instructions:

AS8xx Flameproof Assemblies

⊕ II 2 G Ex db IIC T6...T1 Gb IP66

IECEX Ex db IIC T6...T1 Gb IP66

AS8xx Increased Safety Assemblies

⊕ II 2 G Ex eb IIC T6...T1 Gb IP66

IECEX Ex eb IIC T6...T1 Gb IP66

AS8xx Intrinsic Safety Assemblies

⊕ II 1 G Ex ia IIC T6...T1 Ga IP66

IECEX Ex ia IIC T6...T1 Ga IP66

SPI 75-1087 Appendix A Rev. I (Document 1148912)

1. Warnings

Warning



- Follow these cautions:
- Do not open while energized.
- Do not open cover when explosive atmosphere is present.
- When measuring the temperatures of fluids above 40°C using assemblies with transmitters, do not operate in an atmosphere that could ignite at a temperature 45°C above the fluid temperature.
- When measuring the temperature of fluids above 55°C using assemblies without transmitters, do not operate in an atmosphere that could ignite at a temperature 30°C above the fluid temperature.

Avertissement

- Ne pas ouvrir sous tension.
- Ne pas ouvrir en présence d'atmosphère dangereuse.
- Assemblages avec transmetteur : lorsque la température du fluide est supérieure à 40°C, ne pas utiliser dans une atmosphère dont la température d'inflammation est inférieure ou égale à la température du fluide, augmentée de 45°C.
- Assemblages sans transmetteur : lorsque la température du fluide est supérieure à 55°C, ne pas utiliser dans une atmosphère qui pourrait s'enflammer à une température inférieure ou égale à la température du fluide, augmentée de 30°C.

Warnung

- Deckel nicht unter Spannung öffnen.
- Deckel in explosiver Atmosphäre nicht öffnen.
- Wenn sie die Temperaturen von Flüssigkeiten über 40°C messen (Baugruppen mit Messumformern) führen sie das nicht in einer Atmosphäre durch, die sich bei 45°C über der Flüssigkeitstemperatur entzünden könnte.
- Wenn sie die Temperaturen von Flüssigkeiten über 55°C messen (Baugruppen ohne Messumformern) führen sie das nicht in einer Atmosphäre durch, die sich bei 30°C über der Flüssigkeitstemperatur entzünden könnte.

Advertencia

- Peligro no lo abra bajo presión.
- No quite la tapa en la presencia de una atmósfera explosiva o inflamable.
- Cuando mida temperaturas de fluidos que sobrepasen los 40°C usando ensamblajes sin transmisores no opere en una atmósfera o ambiente que pueda iniciar fuego a temperatura de 45°C o, que sobrepase la temperatura del fluido a medirse.
- Cuando mida temperaturas de fluidos que sobrepasen los 55°C usando ensamblajes sin transmisores no opere en una atmósfera o ambiente que pueda iniciar fuego a temperatura de 30°C o, que sobrepase la temperatura del fluido a medirse.

2. EU Declaration of Conformity

This Declaration of Conformity is issued under the sole responsibility of the manufacturer.

Temperature Detector Assembly Type: Series AS8xx.

The product defined above is in conformity with the following relevant legislation:

ATEX Directive 2014/34/EU

EN 60079-0:2012+A11:2013 Explosive atmospheres - Part 0: Equipment - General requirements

EN 60079-1:2007* Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"

EN 60079-7:2007* Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

EN 60079-11:2012 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

IEC 60079-0:2011-06 Explosive atmospheres - Part 0: Equipment - General requirements

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

IEC 60079-7:2006-07* Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

IEC 60079-11:2011-06 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

**NOTE: The harmonized standards EN 60079-1:2014 and IEC 60079-1:2014 have been compared to the standards used for certification purposes and no changes in the "state of the art" apply to the product. The standards EN 60079-7:2015 and IEC 60079-7:2015 have been compared to the standards used for certification purposes and no changes in the "state of the art" apply to the product.*

EC-Type Examination Certificate TRAC14ATEX0045X

Certificate of Conformity IECEx TRC 14.0017X

Element Materials Technology Rotterdam BV (2812)

Voorelf 18, 4824 GN Breda, Netherlands

Rob Bohland 29 May 2020

Rob Bohland, Ex Authorized Person

Minco Products, Inc

7300 Commerce Lane

Minneapolis, MN 55432 USA

Q.A. Notified Body: DEKRA Certification B.V. (0344)

Guillaume Vetter

29 May 2020

Guillaume Vetter, Ex Authorized Person

Minco SAS (France)

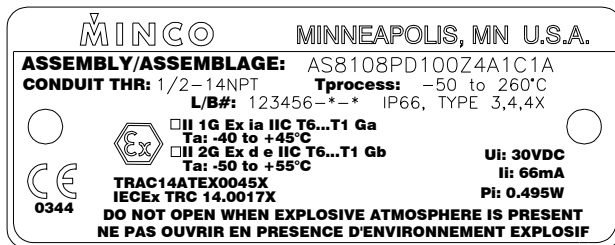
Zone Industrielle

09310 Aston, France

Q.A. Notified Body: LCIE Bureau Veritas (0081)

3. Marking Examples

Examples of the marking are pictured below.

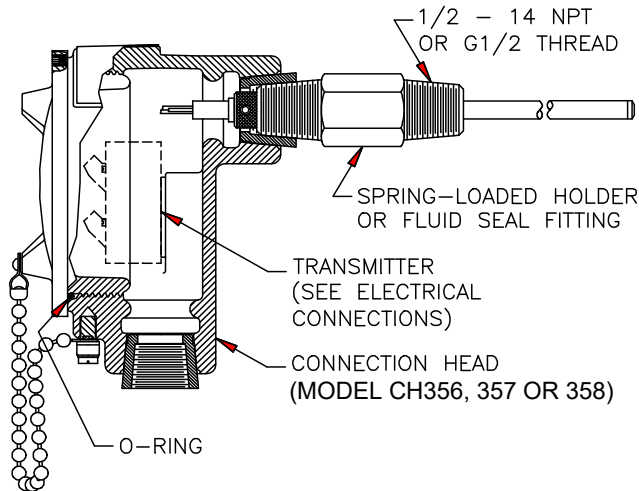


4. Installation Instructions

Flameproof Assembly

The flameproof assembly is pictured below.

NOTE: Assembled components are only shipped as hand tight.



Follow the step below to prepare to install a flameproof assembly.

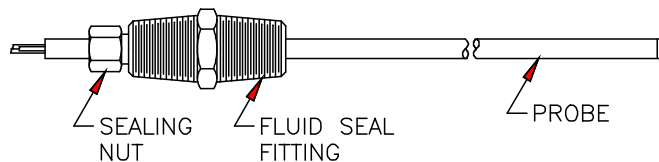
1. Unscrew the connection head from the spring-loaded holder or fluid seal fitting. This is hand-tight and should not require tools.

Conditions for safe use:

Assemblies have been tested and approved with a maximum diametrical gap of 0.13 mm between the probe and spring loaded holder or fluid seal fitting. Contact the manufacturer when replacing any components of this assembly.

Fluid Seal Fitting Assembly

A probe sensor with a fluid seal fitting is pictured below.



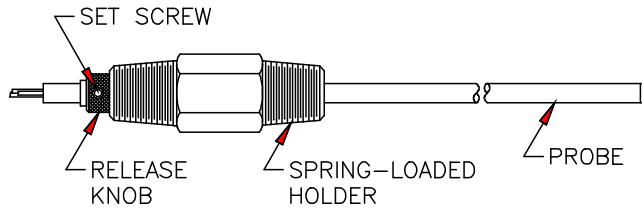
Follow the steps below to install a fluid seal fitting assembly.

1. Loosen sealing nut on fitting and remove probe.
2. Thread fluid seal fitting into place and slide the probe, tip first, into place.
3. Tighten using an open-end or adjustable wrench.
4. Screw the connection head onto the back of the spring-loaded holder and hand-tighten.

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Spring-Loaded Holder Assembly: Adjustable Set Screw Style

A probe sensor with an adjustable set screw style of spring-loaded holder is pictured below.

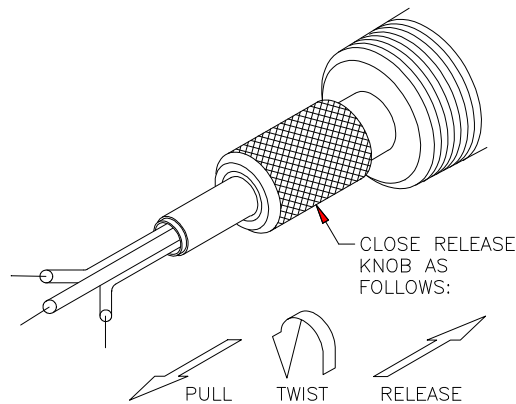


Follow the steps below to install the adjustable set screw type of spring-loaded holder assembly.

1. Loosen set screw on spring-loaded holder release knob and remove probe.
2. Thread spring-loaded holder into place and tighten with an open-end or adjustable wrench.
3. Slide probe, tip first, through spring-loaded holder into place until it bottoms out.
4. Pull back release knob approximately 1/2" and tighten set screw to secure probe.
5. Screw connection head onto the back of spring-loaded holder and hand-tighten.

Spring-Loaded Holder Assembly: Release Knob Style

The motions for operating a spring-loaded holder are pictured below.



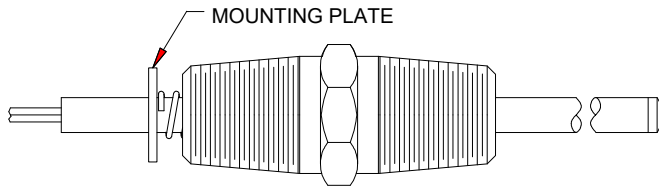
Follow the steps below to install the release knob type of spring-loaded holder assembly.

1. Grasp release knob, pull it out, and twist approximately 1/2 turn clockwise against the stop. Push in to lock open.
2. Remove the probe.
CAUTION: Do not pull on probe leadwires.
3. Install the spring-loaded holder into a 1/2-14 NPT female thread in the machining housing.
4. Insert the probe (tip first) through the hole in release knob of spring-loaded holder. Push the probe slowly through o-ring seal until it contacts the surface to be sensed.
NOTE: Spring loading is only required when surface or bearing temperature is being monitored. When monitoring liquid or gas temperature, spring-loading is not required, however probe should be inserted 1/4" short of desired depth.
5. Grasp release knob, pull out, twist it approximately 1/2 turn counter clockwise against the stop and release.
NOTE: If the probe is not bearing against a surface, the knob will move fully inward, (approximately 1/4" when release), and will lock the probe in position.
6. After installation, probe depth may be adjusted or probe may be removed by operating release knob as in steps 1-5.
7. Screw the connection head onto the 3/4-14 NPT thread of the spring-loaded holder and tighten.

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Spring-Loaded Holder Assembly: Fixed-Spring Style

This holder is factory installed in the correct position and cannot be removed from, or repositioned on the probe. A fixed-spring probe sensor with a probe fitting is pictured below.



Follow the steps below to install the fixed-spring holder assembly.

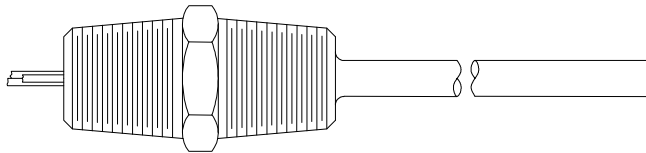
1. Thread the holder into the thermowell.
2. Tighten using an open-end or adjustable wrench.
3. Screw the connection head onto the back of the spring-loaded holder and hand-tighten.
4. Slide the probe, tip first, into thermowell.
5. Secure mounting plate to the inside of the connection head using the two #6-32 screws provided.

Conditions for safe use:

The IP66 rating does not apply to the fixed-spring holder assembly, as there is no o-ring seal.

Welded Fitting

This fitting is factory-welded in the correct position and cannot be removed from, or repositioned on the probe. A probe with a welded fitting is pictured below.



Follow the steps below to install a probe with a welded fitting.

1. Slide the probe, tip first, into position.
 2. Thread the fitting into the process connections.
 3. Tighten using an open-end or adjustable wrench.
 4. Screw the connection head onto the back of the spring-loaded holder and hand-tighten.
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5. Special Conditions of Use

- Overall temperature class of the complete assemblies is determined by process temperature as stated below.

$T_{process}$ [°C]	Temperature class of the assembly	Max. surface temperature of the assembly [°C] Ex db eb Applications -50°C to +55°C	Max. surface temperature of the assembly [°C] Ex ia Applications -40°C to +45°C
80	T6	85	85
95	T5	100	100
130	T4	135	135
190	T3	200	200
290	T2	300	300
440	T1	450	450
>440	-	$T_{process} + 10$	$T_{process} + 10$

Alternatively, the temperature class may be determined by temperature measurement on the actual installation. This must be performed when no flammable atmosphere is present. The hottest point shall be established – typically the closest part to where the equipment passes through a boundary wall into the hot zone.

- Set Screw or Release Knob type fittings shall not be used with process temperatures $\geq 260^{\circ}\text{C}$. Magnesium oxide (MgO) probe types may be used for process temperatures up to 600°C .
- For equipment utilizing enclosures CH357/CH358 in Category 1 Ex ia applications, the equipment must be installed such that ignition sources due to impact and friction sparks are excluded.
- Termination of intrinsically safe circuits that are fed externally from the equipment installed in Category 1 Ex ia applications, must maintain a clearance of at least 6mm between bare live parts of separate intrinsically safe circuits and at least 3mm between bare live parts of intrinsically safe circuits and earthed parts.
- The end user shall take into account inherent inductance and capacitance in regards to previously assigned parameters of the transmitters during cable selection for Category 1 Ex ia applications.
- Maximum power dissipation within the enclosure head shall not exceed 1.35W, 45VDC, 30mA for Category 2 Ex db eb applications.
- Maximum power dissipation within the enclosure head shall not exceed the parameters below for Category 1 Ex ia applications:

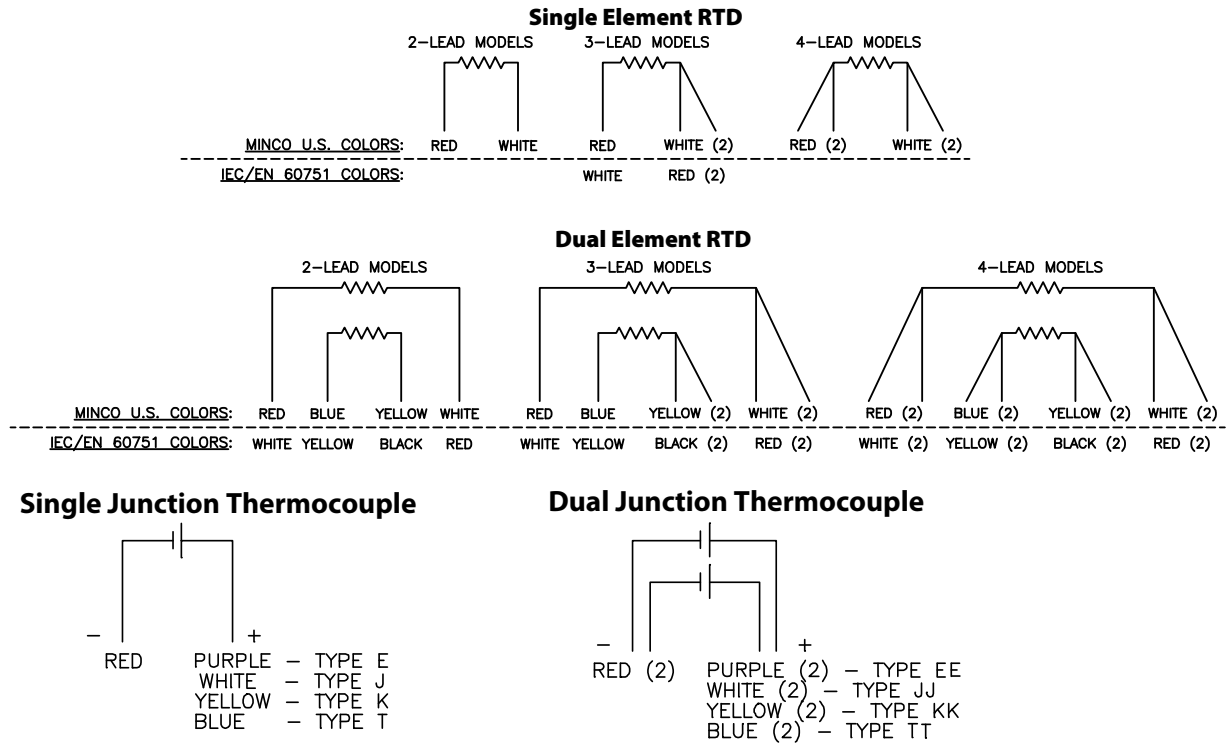
Minco Model Option	Transmitter Model No.	V_i	I_i	P_i	C_i	L_i
TT518	5333D	30VDC	120mA	0.84W	1nF	10 μH
TT519	5334B	30VDC	120mA	0.84W	1nF	10 μH
TT520	5331D	30VDC	120mA	0.84W	1nF	10 μH
TT521	5337D	30VDC	120mA	0.84W	1nF	10 μH
TT522	5350B	30VDC	120mA	0.84W	2nF	1 μH
No approved I.S. transmitter used (RTD or thermocouple output)	n/a	30VDC	66mA	0.495W	n/a	n/a

- For Category 1 Ex ia applications the transmitters housed within the enclosure heads must be fed by a previously approved ATEX/IECEX Ex ia external barrier meeting the transmitters' defined parameters.
- Only the following previously approved ATEX/IECEX Ex ia transmitters are permitted to be used in Category 1 Ex ia applications:

Minco Model Option	Transmitter Model No.	Certificate	Coding
TT518	5333D	KEMA03ATEX1535X IECEX DEK13.0036X	II 1 G Ex ia IIC Ga
TT519	5334B	KEMA06ATEX0062X IECEX DEK13.0035X	II 1 G Ex ia IIC Ga
TT520	5331D	KEMA06ATEX0062X IECEX DEK13.0035X	II 1 G Ex ia IIC Ga
TT521	5337D	KEMA03ATEX1537 IECEX DEK10.0083X	II 1 G Ex ia IIC Ga
TT522	5350B	KEMA02ATEX1318 IECEX DEK12.0035X	II 1 G Ex ia IIC Ga

6. Electrical Connections

Diagrams of electrical connections are below.



Follow these guidelines to connect the RTD probe to external wiring.

NOTE: If assembly contains a transmitter, skip this section and see special instructions, manual number 974MN, *4-20 mA Current Transmitters with Wire Leads or Terminal Block Connections*.

- Make connection to external wiring using connectors provided (terminals or wire nuts). See the schematic diagrams above for probe leadwire color code. External wiring and conduit must be in accordance with all applicable electrical codes for the specific hazardous atmosphere.
- The cable entry devices shall be of a certified flameproof type, suitable for the conditions of use and correctly installed.
- With the use of conduit, a suitable certified sealing device such as a stopping box with compound shall be provided immediately at the entrance to the flameproof enclosure.