

WDB8 Series

Bearing Temperature Sensor

APPLICATION

For use on any application where bearing temperature monitoring is required.

METHOD OF OPERATION

The WDB 8 series bearing sensors are designed to screw directly into a bearing housing. Each sensor is fitted with a grease zerk to allow lubrication of the bearing without the need for removal of the sensor. The WDB8 series have a 1/4" BSP thread.

Three versions are available; an NTC thermistor or platinum RTD type for continuous temperature monitoring, and a PTC thermistor model with the following trip points (specify when ordering): 50°C, 60°C, 70°C, 80°C, 90°C.

The sensor is supplied with a three meter attached cable and can be connected to a PLC or to a hazard monitoring system, such as 4B's T500 Hotbus Elite, Watchdog Elite, or T400 Elite.

The connections are not polarity sensitive therefore special connection requirements are eliminated, and the cable can be extended in the field.



WDB8 Series Bearing Sensor
(ATEX / IECEx Approved)

FEATURES

- Screw in Positive Mount Installation
- Grease Zerk for Bearing Lubrication
- NTC Version - Continuous Temperature
- PT100 Version - Platinum RTD
- PTC Version - Trip Points from 50°C to 90°C
- ATEX Zone 20 and IECEx Approved



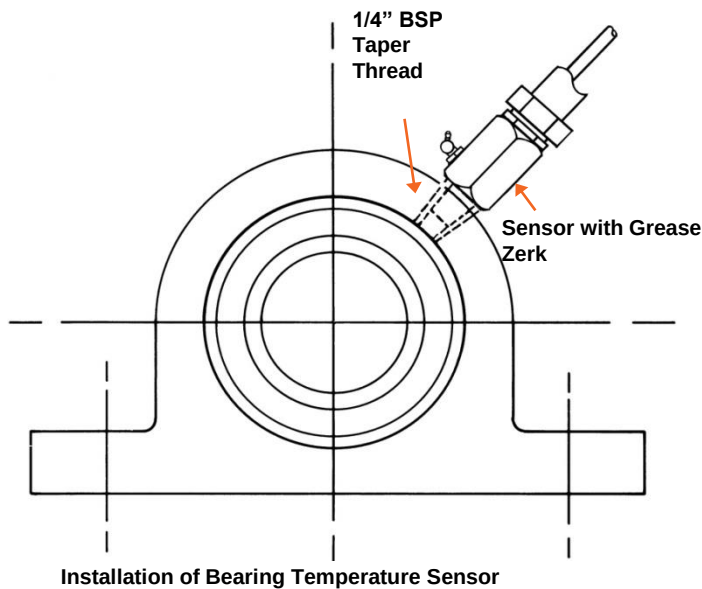
Part Number	Description	Thermistor Type	Thread	ATEX Zone	IECEx
WDB810V3AI	Continuous Temperature Monitoring	NTC	1/4" BSP	20	✓
WDB819V3AI	Continuous Temperature Monitoring	PT100	1/4" BSP	20	✓
WDB811V3AI	50°C Trip Point	PTC	1/4" BSP	20	✓
WDB812V3AI	60°C Trip Point	PTC	1/4" BSP	20	✓
WDB813V3AI	70°C Trip Point	PTC	1/4" BSP	20	✓
WDB814V3AI	80°C Trip Point	PTC	1/4" BSP	20	✓
WDB815V3AI	90°C Trip Point	PTC	1/4" BSP	20	✓

Note: 100°C, 110°C and 120°C Trip Point PTC sensors available on request. ATEX Zone 22; no IECEx

Detailed specifications, wiring diagrams and installation / operating instructions available immediately upon request.

Please refer to instruction manual for correct installation.
Information subject to change or correction. Jan 2013

Bearing Temperature Sensor



Sensor Installed on Conveyor Bearing



Example of Bearing Failure

TECHNICAL SPECIFICATIONS

WDB8 Series Bearing Temperature Sensors

NTC Sensors	
Resistance at 25°C:	10,000 Ohms
Resistance at 60°C:	2,487 Ohms
Resistance at 90°C:	916 Ohms
Sensing Voltage:	5 to 24 VDC
Current Draw:	1 mA

PTC Sensors	
Resistance at 60°C:	≤ 250 Ohms
Resistance at Trip Point:	≥ 2,000 Ohms
Sensing Voltage:	5 to 25 VDC
Current Draw:	20 mA

PT100 Sensors	
Resistance at 0°C:	100 Ohms
Resistance at 100°C:	138.4 Ohms
Sensing Voltage:	Via Transducer
Current Limit:	1 mA

NOTE: WDB Series 8 sensors have brass bodies and do not have conduit entries.

Temperature Sensors can be used with the following 4B Hazard Monitoring Systems



T500 Hotbus Elite



Watchdog Elite



T400 Elite

Detailed specifications, wiring diagrams and installation / operating instructions available immediately upon request.

Please refer to instruction manual for correct installation. Information subject to change or correction. Sep 2016.

WDB7 Series

Lug Style Surface Temperature Sensor

APPLICATION

For use on any application where surface temperature monitoring is desired or required.

METHOD OF OPERATION

The WDB7 series is a lug style NTC thermistor or platinum RTD (PT100) type for continuous temperature monitoring. It is designed to bolt directly onto a bearing housing, motor, gearbox, or machine casing. The mounting hole is M8 which can be drilled out up to M10 diameter. The sensor can be connected to a PLC or to a hazard monitoring system, such as 4B's T500 Hotbus Elite, Watchdog Elite, or T400 Elite. The connections are not polarity sensitive therefore special connections requirements are eliminated. The WDB7 series is approved for use in ATEX and IECEx Zone 20 dust hazard locations.



WDB7 Series Bearing Sensor
(ATEX and IECEx Approved)

FEATURES

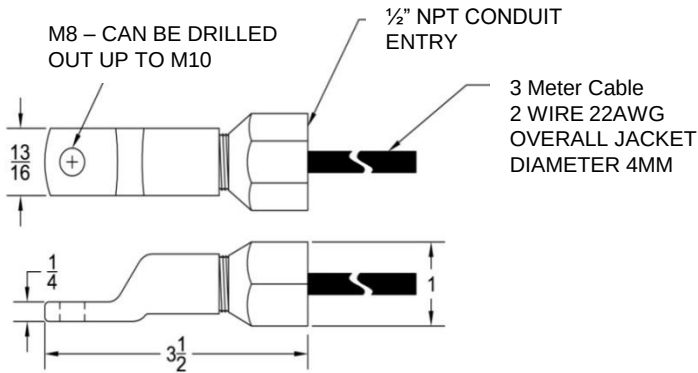
- Surface Mount Installation
- M8 Bolt Mounting Hole
- 1/2" NPT Conduit Entry
- NTC Version - Continuous Temperature
- PT100 Version - Platinum RTD
- PTC Version - Trip Points from 50°C to 90°C
- Continuous Temperature Monitoring
- ATEX and IECEx Zone 20 Approved



Part Number	Description	Thermistor Type	Mounting Hole	ATEX Zone	IECEx
WDB70V3AI	Continuous Temperature Monitoring	NTC	M8	20	✓
WDB79V3AI	Continuous Temperature Monitoring	PT100	M8	20	✓
WDB71V3AI	50°C Trip Point	PTC	M8	20	✓
WDB72V3AI	60°C Trip Point	PTC	M8	20	✓
WDB73V3AI	70°C Trip Point	PTC	M8	20	✓
WDB74V3AI	80°C Trip Point	PTC	M8	20	✓
WDB75V3AI	90°C Trip Point	PTC	M8	20	✓

Note: 100°C, 110°C and 120°C Trip Point PTC sensors available on request. ATEX Zone 22; no IECEx

Surface Temperature Sensor



WDB70V3C Installed on Bearing Housing



Example of Bearing Failure

TECHNICAL SPECIFICATIONS

WDB7 Series Surface Temperature Sensor

NTC Sensors	
Resistance at 25°C:	10,000 Ohms
Resistance at 60°C:	2,487 Ohms
Resistance at 90°C:	916 Ohms
Sensing Voltage:	5 to 24 VDC
Current Draw:	1 mA

PTC Sensors	
Resistance at 60°C:	≤ 250 Ohms
Resistance at Trip Point:	≥ 2,000 Ohms
Sensing Voltage:	5 to 25 VDC
Current Draw:	20 mA

PT100 Sensors	
Resistance at 0°C:	100 Ohms
Resistance at 100°C:	138.4 Ohms
Sensing Voltage:	Via Transducer
Current Limit:	1 mA

Temperature Sensors can be used with the following 4B Hazard Monitoring Systems



T500 Hotbus Elite



Watchdog Elite



T400 Elite

Detailed specifications, wiring diagrams and installation / operating instructions available immediately upon request.

Please refer to instruction manual for correct installation.
Information subject to change or correction. Sep 2016.

MDB Series

Bearing Temperature Sensor

APPLICATION

For use on any application where bearing temperature monitoring is required.

METHOD OF OPERATION

The MDB series is a range of bearing sensors manufactured to screw directly into a bearing housing through the existing 1/4" BSP threaded grease zerk (can be installed in 1/8" NPT grease zerk fitting with an adapter). Each sensor is fitted with a grease zerk to allow lubrication of the bearing without the need for removal of the sensor. The sensor is fitted with a M12 connector for use with a separately supplied cable and socket assembly which can be attached connected directly to a PLC or to a hazard monitoring system, such as 4B's T500 Hotbus Elite, Watchdog Elite, or T400 / T400 NTC Elite. The connections are not polarity sensitive therefore special connection requirements are eliminated. Four versions are available, a NTC thermistor model or PT100 type for continuous temperature monitoring, and PTC or Contact thermistor models with five trip points (60°C, 70°C, 80°C).

FEATURES

- **Screw in Installation**
- **Grease Zerk for Bearing Lubrication**
- **Wiring Connector**
- **NTC Version – Continuous Temperature**
- **PTC or Contact Versions – Trip Points from 60°C to 80°C**
- **PT100 Version**
- **ATEX Zone 22 Approved**

SENSOR SELECTION

Part Number	Description	Thermistor Type	Thread	ATEX Zone
MDB810V3AI	Continuous Temperature Monitoring	NTC	1/4" BSP	22
MDB819V3AI	Continuous Temperature Monitoring	PT100	1/4" BSP	22
MDB812V3AI	60°C Trip Point	PTC	1/4" BSP	22
MDB813V3AI	70°C Trip Point	PTC	1/4" BSP	22
MDB814V3AI	80°C Trip Point	PTC	1/4" BSP	22
MDB832V3AI	60°C Trip Point	Contact	1/4" BSP	22
MDB833V3AI	70°C Trip Point	Contact	1/4" BSP	22
MDB834V3AI	80°C Trip Point	Contact	1/4" BSP	22



Sensor

Connector



Zone 22

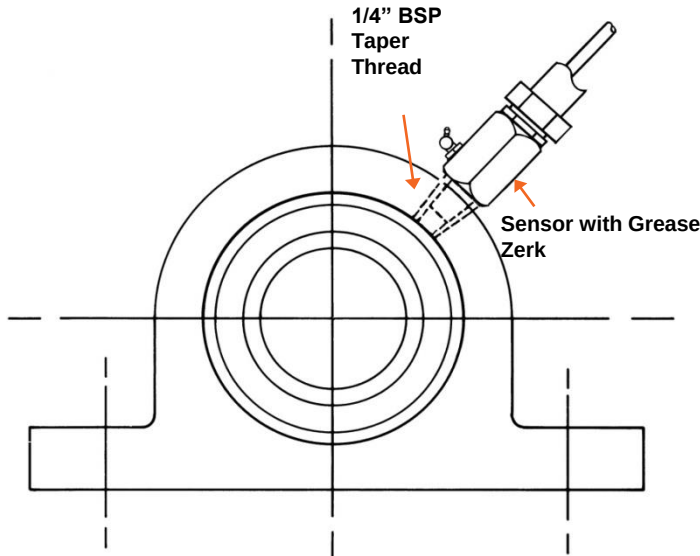
ACCESSORIES

Part Number	Description	ATE X Zone
CA4SW03AI	3m long cable; M12 to bare ended	22
CA4SW05AI	5m long cable; M12 to bare ended	22
CA4SW10AI	10m long cable; M12 to bare ended	22
CA4SW30AI	30m long cable; M12 to bare ended	22
CA4SP03AI	3m long cable; M12 to M12	22
CA4SP05AI	5m long cable; M12 to M12	22
CA4SP10AI	10m long cable; M12 to M12	22
CA4SP30AI	30m long cable; M12 to M12	22

Detailed specifications, wiring diagrams and installation / operating instructions available immediately upon request.

Please refer to instruction manual for correct installation.
Information subject to change or correction. Jan 2013

Bearing Temperature Sensor



Installation of Bearing Temperature Sensor



Example of Bearing Failure

Detailed specification, wiring diagrams and installation/operating instructions available immediately upon request.

TECHNICAL SPECIFICATIONS

MDB Series Bearing Temperature Sensors

NTC Sensors	
Resistance at 25°C:	10,000 Ohms
Resistance at 60°C:	2,487 Ohms
Resistance at 90°C:	916 Ohms
Sensing Voltage:	5 to 24 VDC
Current Draw:	1 ma

PTC Sensors	
Resistance at 60°C:	≤ 250 Ohms
Resistance at Trip Point:	≥ 2,000 Ohms
Sensing Voltage:	5 to 25 VDC
Current Draw:	20 ma

Contact Sensors	
Resistance at 60°C:	≤ 2 Ohms
Resistance at Trip Point:	Open Circuit
Sensing Voltage:	24v DC Typical
Current Draw:	1.5 amps

PT100 Sensors	
Resistance at 0°C:	100 Ohms
Resistance at 80°C:	131 Ohms
Sensing Voltage:	Via Transducer
Current Draw:	1 ma

Bearing Temperature Sensors can be used with the following 4B Hazard Monitoring Systems



T500 Hotbus Elite



Watchdog Elite



T400 Elite / T400 NTC Elite

Detailed specifications, wiring diagrams and installation / operating instructions available immediately upon request.

Please refer to instruction manual for correct installation. Information subject to change or correction. Sep 2016.

ADB Series –Cable Entry

Adjustable Depth Bearing Temperature Sensor

APPLICATION

For use on any application where bearing temperature monitoring is desired or required.

METHOD OF OPERATION

The ADB series have been designed to allow the depth of the sensor to be adjustable depending on your application. A number of versions are available with probe lengths of 50, 100, 200 and 300 mm. The sensors screw directly into a bearing housing through a 1/4" BSPT threaded grease zerk. Each sensor is fitted with a grease zerk to allow lubrication of the bearing without the need for removal of the sensor. The ADB series have NTC or PT100 type thermistors which allow for continuous temperature monitoring. The sensor is supplied with a 3m attached cable and can be connected to a PLC or to a hazard monitoring system, such as 4B's T500 Hotbus Elite, Watchdog Elite, or T400 NTC Elite. The connections are not polarity sensitive therefore special connection requirements are eliminated, and the cable can be extended in the field.



ADB Sensor – Cable Entry
(ATEX and IECEx Zone 20 Approved)

FEATURES

- Adjustable Sensor Depth
- Screw in Positive Mount Installation
- Grease Zerk for Bearing Lubrication
- NTC or PT100 Thermistor -Continuous Temperature
- ATEX and IECEx Zone 20 Approved



Part Number	Description	Thermistor Type	Thread	ATEX Zone	IECEx
ADB810V3AI	3m Cable; 100mm Probe	NTC	1/4" BSPT	20	✓
ADB810V3AI/D2	3m Cable; 50mm Probe	NTC	1/4" BSPT	20	✓
ADB810V3AI/D8	3m Cable; 200mm Probe	NTC	1/4" BSPT	20	✓
ADB810V3AI/D12	3m Cable; 300mm Probe	NTC	1/4" BSPT	20	✓
ADB819V3AI	3m Cable; 100mm Probe	PT100	1/4" BSPT	20	✓
ADB819V3AI/D2	3m Cable; 50mm Probe	PT100	1/4" BSPT	20	✓
ADB819V3AI/D8	3m Cable; 200mm Probe	PT100	1/4" BSPT	20	✓
ADB819V3AI/D12	3m Cable; 300mm Probe	PT100	1/4" BSPT	20	✓

Note: 5m Cable Sensors are Available on Request

Detailed specifications, wiring diagrams and installation / operating instructions available immediately upon request.

Please refer to instruction manual for correct installation.
Information subject to change or correction. Sep 2016.

ADB Series –Conduit Entry Adjustable Depth Bearing Temperature Sensor

APPLICATION

For use on any application where bearing temperature monitoring is desired or required.

METHOD OF OPERATION

The ADB series have been designed to allow the depth of the sensor to be adjustable depending on your application. A number of versions is available with probe lengths of 50, 100, 200 mm. The sensors screw directly into a bearing housing through the existing 1/8" NPT threaded grease zerk. Each sensor is fitted with a grease zerk to allow lubrication of the bearing without the need for removal of the sensor. The ADB series have NTC type thermistors which allow for continuous temperature monitoring. The sensor is supplied with a 3m attached cable and can be connected to a PLC or to a hazard monitoring system, such as 4B's T500 Hotbus Elite, Watchdog Elite, or T400 NTC Elite. The connections are not polarity sensitive therefore special connection requirements are eliminated, and the cable can be extended in the field.

FEATURES

- Adjustable Sensor Depth
- Screw in Positive Mount Installation
- Grease Zerk for Bearing Lubrication
- 1/2" NPT Conduit Entry (Steel Body)
- NTC or PT100 Thermistor - Continuous Temperature
- CSA, ATEX and IECEx Approved



**ADB Sensor – Conduit Entry
(CSA, ATEX and IECEx Approved)**



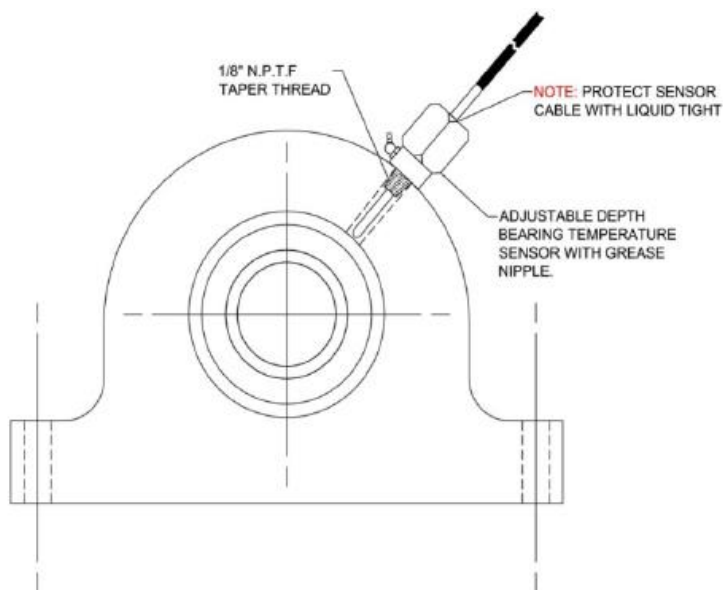
**Note: 5m Cable Sensors
are Available on Request**

Part Number	Description	Thermistor Type	Mounting Thread	CSA	ATEX Zone	IECEx
ADB20V3CAI	3m Cable; 100mm Probe	NTC	1/8" NPT	Class II Div 1	20	✓
ADB20V3CAI/D2	3m Cable; 50mm Probe	NTC	1/8" NPT	Class II Div 1	20	✓
ADB20V3CAI/D8	3m Cable; 200mm Probe	NTC	1/8" NPT	Class II Div 1	20	✓
ADB20V3CAI/D12	3m Cable; 300mm Probe	NTC	1/8" NPT	Class II Div 1	20	✓
ADB29V3CAI	3m Cable; 100mm Probe	PT100	1/8" NPT	Class II Div 1	20	✓
ADB29V3CAI/D2	3m Cable; 50mm Probe	PT100	1/8" NPT	Class II Div 1	20	✓
ADB29V3CAI/D8	3m Cable; 100mm Probe	PT100	1/8" NPT	Class II Div 1	20	✓
ADB29V3CAI/D12	3m Cable; 300mm Probe	PT100	1/8" NPT	Class II Div 1	20	✓

Detailed specifications, wiring diagrams and installation / operating instructions available immediately upon request.

Please refer to instruction manual for correct installation.
Information subject to change or correction. Sep 2016.

ADB Series Temperature Sensor



Installation of Bearing Temperature Sensor



Bearing Sensor on Belt Conveyor



Example of Bearing Failure

TECHNICAL SPECIFICATIONS

ADB Series - Bearing Temperature Sensor

NTC Type	
Resistance at 25°C:	10,000 Ohms
Resistance at 60°C:	2,487 Ohms
Resistance at 90°C:	916 Ohms
Sensing Voltage:	5 to 24 VDC
Current Draw:	1 ma
Fixing Thread:	1/8" NPT
Minimum Temp:	-30°C
Maximum Temp:	110°C

PT100 – RTD Type	
Resistance at -30°C:	88.22 Ohms
Resistance at 60°C:	123.24 Ohms
Resistance at 100°C:	138.50 Ohms
Sensing Voltage:	Via Transducer
Current Draw:	1 ma
Fixing Thread:	1/8" NPT
Minimum Temp:	-30°C
Maximum Temp:	110°C

Temperature Sensors can be used with the following 4B Hazard Monitoring Systems



T500 Hotbus Elite



Watchdog Elite



T400 NTC Elite

Detailed specifications, wiring diagrams and installation / operating instructions available immediately upon request.

Please refer to instruction manual for correct installation.
Information subject to change or correction. Sep 2016.

ADB Series – Accessories

ADBW -Probe Depth Adjustment Tool

APPLICATION

This specially designed wrench will allow the installer to tighten the olive nut during installation.

INSTALLATION INSTRUCTIONS

- 1) Remove the existing grease nipple from the bearing sensor.
- 2) Slacken the olive nut and remove the sensor probe.
- 3) Screw the sensor body in to the threaded hole in the bearing housing.
- 4) Re-insert the temperature probe in to the olive nut adjusting the depth to suit the bearing depth.
- 5) Tighten the olive nut using the recommended special spanner.
- 6) The maximum recommended torque for the olive nut is 2 Nm (18 lb-in)



ADB Probe Depth
Adjustment Tool

Milli-Temp Temperature Sensor Series ADBxxMV3AI

**Adjustable Depth Bearing & Surface Temperature Sensor: 4
20 mA Output**

**Approved for explosive atmospheres:
ATEX and IECEx Zones 20, 21 & 22 for dust**

APPLICATION

For use on any application where bearing or surface temperature monitoring is desired or required.

METHOD OF OPERATION

The Milli Temp is a loop powered analogue sensor with a 4-20 mA linear output that is scaled across a temperature range for continuous temperature monitoring.

The sensor has been designed to allow the depth of the probe to be adjustable depending on your application.

The sensor screws directly into a bearing housing through the existing grease zerk thread. Each sensor is fitted with a zerk to allow lubrication of the bearing without the need for removal of the sensor.

For surface mount applications, a lug style adaptor bolts directly onto a bearing housing, motor, gearbox, or machine casing. The mounting hole is 9.5mm from the factory, but can be drilled up to 12.5mm if needed.

The sensor is supplied with a 3m cable. The connections are not polarity sensitive therefore special connection requirements are eliminated, and the cable can be extended in the field.

FEATURES

- 4-20 mA Output
- Screw in Positive Mount Installation (Bearing Temp.)
- Grease Zerk for Bearing Lubrication (Bearing Temp.)
- Lug Style Adaptor (Surface Temp.)
- 304 Stainless Steel Body

PART NUMBERS/ACCESSORIES

- | | |
|----------------|-------------------------------------|
| • ADBxxV3AI/D2 | Milli-Temp: 50 mm |
| • ADBxxV3AI/D3 | Milli-Temp: 75 mm |
| • ADBxxV3AI/D4 | Milli-Temp: 100 mm |
| • ADBxxV3AI/D6 | Milli-Temp: 150 mm |
| • ADBxxV3AI/D8 | Milli-Temp: 200 mm |
| • KIT-LUG-MIL | Lug Style Adaptor (ADB2MV3AI only) |
| • ADBT4 | ADB Sensor Tester |

*Longer probe lengths available on request



**Probe Wrench
(Included with Sensor)**



**Lug Style Adaptor for Surface Mounting
(Sold Separately)**

ADB Sensor Tester

During planned maintenance or periodic testing, the ADB sensor tester can be used as a diagnostic tool to verify the alarm and shutdown sequences of the control unit are functioning as expected .



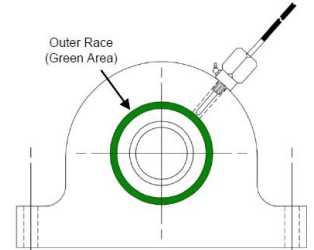
VERDI

Milli-Temp Temperature Sensor

TECHNICAL SPECIFICATIONS

Model	ADBxxMV3AI
Power supply	24 VDC Nominal (15 to 28 VDC)
Reverse Polarity Protection	Yes
Current -40°C	4 mA
Current 120°C	20 mA
Temperature Accuracy	Typical $\pm 0,6^{\circ}\text{C}$, C, Over Entire Range $\pm 2,7^{\circ}\text{C}$
Default Temperature Resolution	0,05°C
Operating Temperature (Probe)	Min -40°C Max 120°C
Output Resolution (Typical)	5 – 10 μA
Current Out of Range	20,5 mA or < 4 mA
Body / Probe Material	304 Stainless Steel
Fixing Thread	ADB81 = 1/4" BSPT, ADB91 = 1/8" BSPT, ADB2 1/8" NPT
Cable	3m - 2 Conductor
Certificates and approvals	ATEX: Ex II 1D ta IIIC T200125°C Da IP66 Tamb da -15°C a +50°C IECEX: Ex ta IIIC T200125°C Da IP66 Tamb da -15°C a +50°C

INSTALLATION



Installation on Pillow Block Bearing
(Bearing Temperature Application)

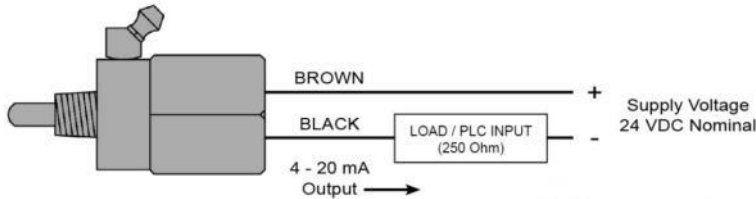


Lug Mount on Bearing Housing

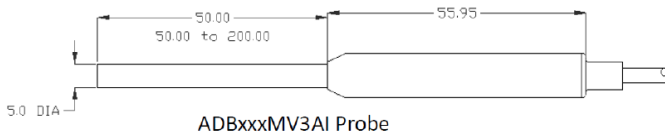


Bearing Sensor on Belt Conveyor

WIRING DIAGRAM

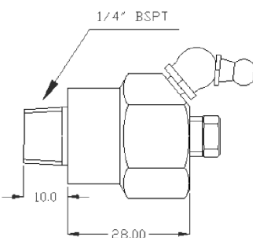


DIMENSIONS

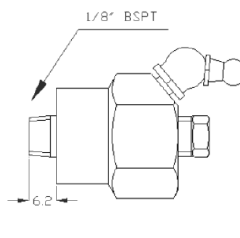


ADBxxxMV3AI Probe

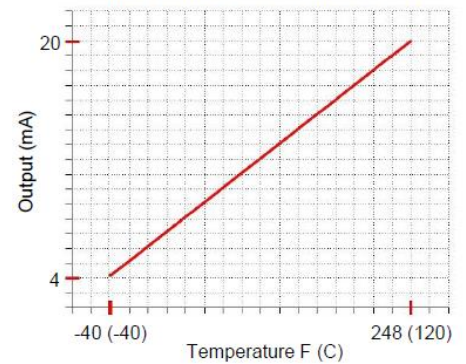
ADB81MV3AI Body



ADB91MV3AI Body



Milli-Temp Linear Output Scale



ADB2MV3AI Body

