

INSTALLATION GUIDE

ABB Ability™ Smart Sensor for hazardous areas

Installation with flat surface mount



IMPORTANT! Read these instructions in their entirety before installing the ABB Ability™ Smart Sensor for hazardous areas with flat surface mount.



ATTENTION

Install as per industry codes and regulations

The Smart Sensor should be installed by technically qualified personnel. Failure to install the sensor in compliance with applicable codes and regulations and according to the manufacturer's recommendations may result in electrical shock, fire hazard, unsatisfactory performance or equipment failure, and may void the sensor warranty.

Grounding of sensor

The mounting piece must be grounded if the sensor is installed in any of the below zones:

- Zone 0, 1: Group I, Group IIA, Group IIB, Group IIC
- Zone 2: Group I
- Zone 20, 21: Group I, Group III
- Zone 22: Group I.

For grounding, attach a wire using the M3 screw hole.



WARNING

Only qualified individuals who are familiar with appropriate national codes, local codes and sound practices should install, repair or modify electric motor and/or related accessories. Installation should conform to appropriate codes and practices. Failure to follow these instructions could result in serious personal injury, death and/or property damage.

Electrical live circuit hazard. Do not touch electrically live parts or equipment. For a safe installation, disconnect, lockout and tagout the asset's power supply before installing or servicing the sensor.



CAUTION

Asset surface temperature hazard. The external surface of an electric motor may reach temperatures which can cause discomfort, burns or injury to individuals who come into contact with the hot surface. For safety reasons the asset should be switched off and allowed to cool before attempting to install the sensor. Asset surface temperatures should only be measured with suitable instruments and not estimated by hand touch or direct skin contact. Failure to observe this precaution could result in bodily injury.

Do not replace batteries! Incorrect use of batteries voids the certifications of the Smart Sensor, such as hazardous area certifications, safety certifications, and IP rating. Dispose of used sensors according to instructions.

Quick start guide

Step	Instructions	Additional information
1	Install the ABB Ability™ Smart Sensor Platform App.	The Smart Sensor Platform App can be found in App Store (Apple) and Google Play Store (Android). Note: In some countries these stores may not be accessible. For more information see www.abb.com/smartsensor .
2	Register in the ABB Ability™ Smart Sensor Platform App.	- Follow the sign-up link in the app. - Alternatively, you can sign up on the web portal at https://smartsensor.abb.com . - Skip this step if you have already registered.
3	Log in to the ABB Ability™ Smart Sensor Platform App.	- Create or join an existing organization. - Follow the instructions on the screen.
4	Install the ABB Ability™ Smart Sensor.	- Make sure that you have the required components. - Install the sensor according to the installation steps in this manual.
5	Activate the sensor with the ABB Ability™ Smart Sensor Platform App.	- Navigate to the main menu in the app and tap “Activate Sensor”. - Follow the instructions displayed on the mobile screen.
6	Commission the asset in the ABB Ability™ Smart Sensor Platform App.	- Navigate to the “Commission new asset” menu in the app. - Follow the instructions on the screen.
7	Take first measurements and check the asset condition.	Select the asset and navigate to “Load Measurements”.

For more detailed instructions, visit www.abb.com/smartsensor.

Installation instruction

Obey the following instructions for the installation of ABB Ability™ Smart Sensors on assets.

Notes:

- For effective Bluetooth® communication, mount the sensor with a clear line of sight to any communication devices to be used (your smartphone or a Bluetooth® gateway).
- The mounting orientation must be such that the A-axis on the sensor housing is parallel to the rotating shaft. If this is not physically possible, the T-axis must be parallel to the rotating shaft.

Mounting position on motor

Mount the sensor between the drive-end and non-drive-end bearings, near to the center as possible.

Note: The sensor mount cannot be removed after installation.

Supported motors

This mounting instruction applies for motors up to frame sizes equivalent to IEC 500.

For information on motor types monitored with the ABB Ability™ Smart Sensor, visit www.abb.com/smartsensor.

Mounting position on pump

Mount the sensor on the pump housing above the drive-end bearing of the pump, near to the motor coupling.

Supported pumps

- Pump type: Single-stage, overhung, end-suction centrifugal pump
- Impeller type: Single-channel or vortex
- Fluid type: Water or wastewater
- Min. recommended no. of impeller blades: $b_{MIN} = 3$
- Speed control: fixed / direct-online (DOL) or variable-speed
- Maximum blade-pass frequency (BPF): 49800 RPM
 - Rotating speed ω
 - No. of blades b
$$BPF = \omega \times b < 49800 \text{ RPM}$$
- Power / size: shaft height from 150 mm to 450 mm.

Materials needed for the installation

1	Flat surface mount
2	M6 hexagon socket screw
3	ABB Ability™ Smart Sensor for hazardous areas
4	Loctite™ EA 3463 or similar putty
5	Cover for screw hole
6	50 mm hex bit and suitable wrench (5 mm for M6 screw)
7	Rubber gloves
-	Other miscellaneous items: Safety goggles and degreasing agent.



WARNING

Direct skin exposure to solvents and/or thread locker could cause discomfort or injury, including, but not limited to, burning or skin irritation. Use appropriate protective gloves and goggles when performing this task.

Installation steps

Step 1

Degrease the installation surface at the recommended mounting position.



CAUTION

Review and obey all manufacturer's instructions and safety precautions when using degreasing agent.

Step 2

Apply Loctite™ EA 3463 or similar putty to the installation surface. Form the putty as a round disc as shown in the picture.

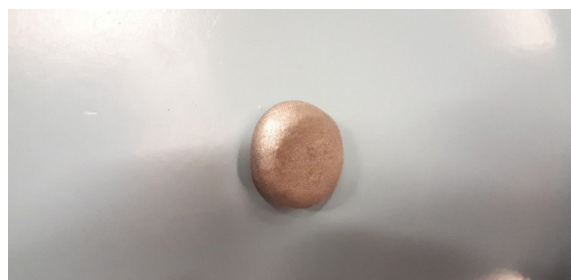


CAUTION

Review and obey all manufacturer's instructions and safety precautions when using putty.

Step 3

Keep the flat surface mount in the center of the putty disc.



Step 4

Press the flat surface mount against the putty. Make sure that the mount is pressed deep enough. The mounting piece must be grounded if the sensor is installed in the zones mentioned on page 1. After grounding the mounting piece, measure the resistance between asset frame and mounting piece. Make sure that the resistance is below the maximum resistance of 1 MΩ. Allow the putty to dry before performing step 5. For information on curing time, see the instructions and recommendation in the putty manufacturer's user manual.



Step 5

Fasten the ABB Ability™ Smart Sensor to the flat surface mount by using the M6 hexagon socket screw. Tighten the screw with 10 Nm (7.4 ft-lb) of torque. Hold the sensor while tightening the screw to avoid exerting torque on the putty and the flat surface mount.



Step 6

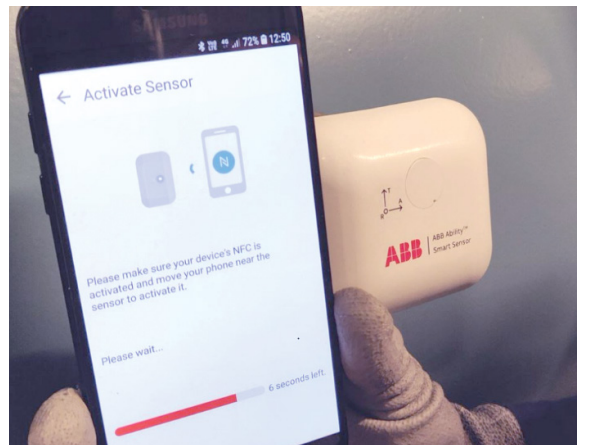
Make sure that the ABB Ability™ Smart Sensor is mounted parallel to the rotating shaft. Assemble the screw hole cover to hide the screw hole.



Step 7

Activate the sensor and commission the asset. See section Quick start guide, steps 5–7.

Note: After commissioning, the sensor has a two-month trial period with full functionality. After the trial period, the usage can be continued by activating a subscription acquired from a local ABB sales unit or from ABB Ability Marketplace™. Contact your local ABB partner to know if the ABB Ability Marketplace™ is available in your region.



For questions, feedback and support, contact:

Product information

www.abb.com/smartsensor

Support

support.smartsensor@abb.com

Subscriptions

<https://eu.marketplace.ability.abb/>



We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB Ltd does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB Ltd. Copyright© 2021 ABB All rights reserved