

ABB Ability™ Smart Sensor for pumps

This instruction sheet provides information on the installation of the ABB Ability™ Smart Sensor for pumps. Read these instructions in their entirety before attempting installation.



ATTENTION:

The 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.

WARNING:

Only qualified individuals who are familiar with appropriate national codes, local codes and sound practices should install, repair or modify electric motors 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.

WARNING:

Electrical Live Circuit Hazard. Do not touch electrically live parts or equipment. Disconnect, lock out and tag out the motor’s power supply before installing or servicing the sensor.

CAUTION:

Surface Temperature Hazard.

The external surface of an electric motor or of the driven pump may reach temperatures which can cause discomfort, burns or injury to individuals who come into contact with the hot surface. For safety reasons, the equipment should be switched off and allowed to cool before attempting to install the sensor. Equipment 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.

CAUTION:

Do not replace batteries! Incorrect use of batteries may void the certifications of the smart sensor, such as hazardous area certifications, safety certifications, and IP rating. Dispose of used sensors according to instructions.

Sequence for setup

Step 1 Install the Ability™ Smart Sensor Platform App

- Smart Sensor Platform App can be found in: Apple – App Store, Android – Google Play Store.
- Note:** In some countries these stores may not be accessible. For more information see www.abb.com/smartsensor.

Step 2 Register in the Ability™ Smart Sensor Platform App

- Follow the sign up link
- Alternatively, sign up on the web portal at <https://smartsensor.abb.com>
- Skip this step if you are already registered

Step 3 Log in to ABB Ability™ Smart Sensor App

- Follow the on-screen instructions.

Step 4 Activate the Smart Sensor with the ABB Ability™ Smart Sensor App

- Follow the instructions on the screen.

Step 5 Install ABB Ability™ Smart Sensor

- Verify that you have the right components and install the sensor according to the instructions on pages 3 and 4.
- Follow the safety instructions carefully.

Step 6 Add the pump in the ABB Ability™ Smart Sensor Platform App

Step 7 Take first measurements and check the pump condition

Step 8 For more detailed instructions

- Visit www.abb.com/smartsensor.

Items needed



WARNING:

Direct skin exposure to solvents and/or mounting putty could cause discomfort or injury, including but not limited to burning or skin irritation. Use appropriate protective gloves when following these instructions.

Items included in the ABB Ability™ Smart Sensor for pumps kit:

- 1 Loctite™ 3463 mounting putty (1 tube)
- 2 Receiving mount
- 3 Mounting bracket
- 4 Phillips head screws (2 qty) M4-0.7 x 10 mm
- 5 Tapered hex Drive Flat Head Screw (1 qty) 1/4" x 5/8" (UNF 28)
- 6 ABB Ability™ Smart Sensor for pumps

Additional items needed but not included in the kit:

- Degreasing agent
- Clean shop rag
- Rubber gloves
- Mechanical abrasive pad (i.e. sandpaper)
- Allen wrench (4 mm or 5/32")
- Small Phillips head screw driver
- Leveling tool
- Cutting tool
- Loctite™ Blue Threadlocker

Further information on Loctite™ 3463 mounting putty is available from:

- Safety and technical data sheets for Loctite™ 3463 mounting putty are available from: <http://www.henkel.com>

Installation notes

Where to mount:

1. The sensor must be mounted on the pump housing above the drive-end bearing of the pump, closest to the motor coupling.
2. For best Bluetooth® communication, mount the sensor with a clear line of sight to any communication devices to be used: your smartphone or a Bluetooth® gateway.
3. 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.

Supported pump specifications

Pump type: Centrifugal or vortex pump

Fluid type: Water or wastewater

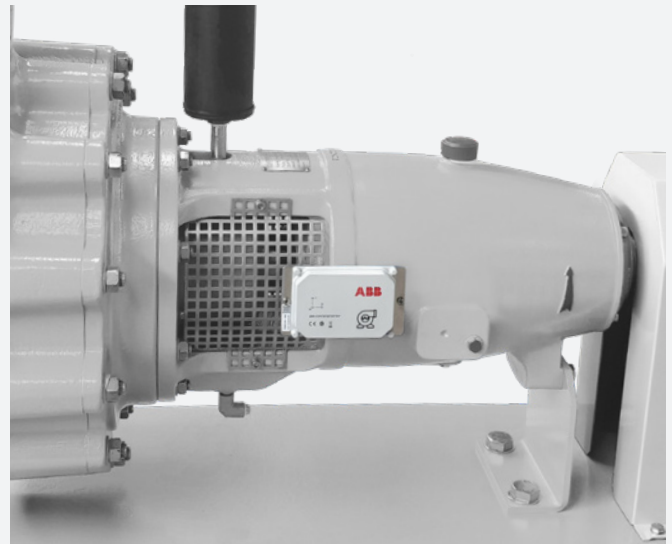
Maximum number of impeller blades: $b_{MIN} = 1$, $b_{MAX} = 8$

Speed type and range

- Direct online or variable-speed (VSD);
- MIN = 500 RPM; MAX = (750 RPM x b); b: no. of blades

Power / size:

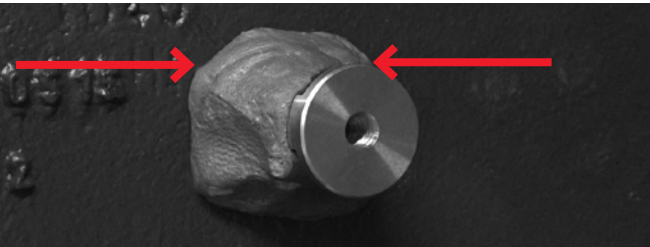
- The driving motor's frame must be supported by the Smart Senso, i.e. up to 450 mm



Installation steps

Use the smallest possible receiver mounts for the pump housing. Loctite™ 3463 putty is provided to ensure a robust connection.

You can also provide a thread bore matching the dimensions of the mounting bracket's hex head screw directly on the housing, eliminating the need for the extra mounting piece. **If so, please refer to the corresponding installation instructions.**



Step 1

Use solvent (i.e. paint thinner or acetone) to remove debris and oils from mounting surface.



CAUTION:

Review and follow all manufacturer's instructions and safety precautions when using solvents.

Step 2

Use sandpaper or similar abrasive material to remove paint from mounting surface. Repeat step 1.

Step 3

Remove putty from tube and cut an approx. 2 inch (5 cm) length for installation of receiving mount. The amount used may vary depending on the size of the receiving mount.



CAUTION:

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

Step 4

Squeeze, knead, twist and roll putty until it assumes a uniform, homogeneous color according to manufacturer's instructions. This should take 5–10 minutes.

Step 5

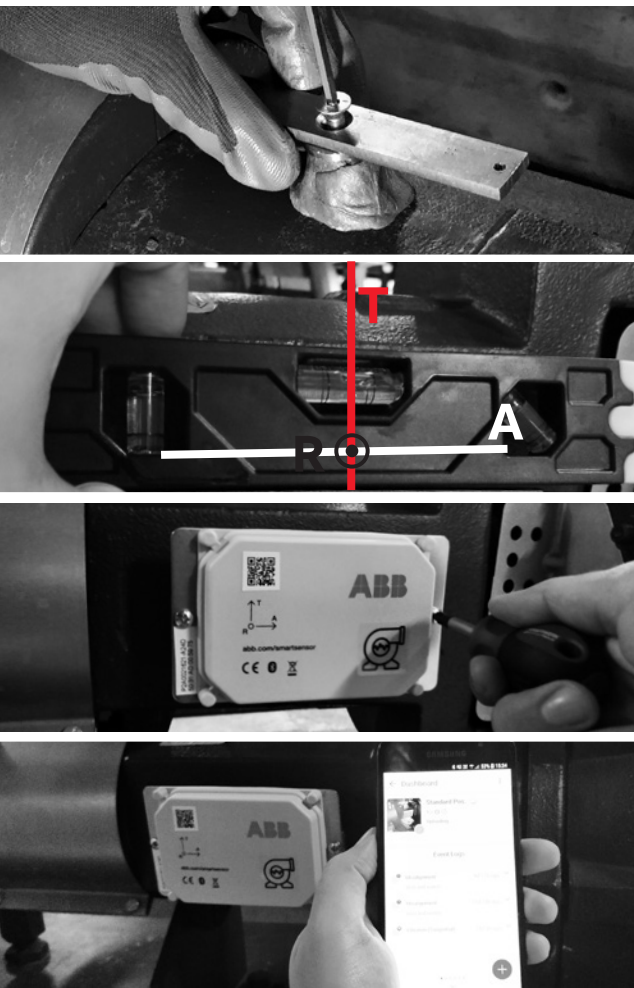
Firmly apply putty to the clean housing surface or, alternatively, wrap the putty around the end of the receiving mount before attaching to the surface.

The putty should be approx. 1.25 inch (3 cm) wide, but this may vary with the size of the receiving mount.

Step 6

Immediately after applying putty, insert receiving mount into center of putty, pressing firmly **until the bottom makes contact with the pump housing**. Form any excess putty around the sides of the mounting piece.

Alternatively, apply the receiving mount with the putty wrapped around the end, directly to the housing.



CAUTION:

Allow sufficient time for putty to harden before proceeding. curing time depends on surface and ambient temperatures. typical curing time is 10 minutes, but this can take longer in cold environments.

Step 7

Secure bracket to receiving mount (or thread bore) using the hex head screw. Apply Loctite™ or equivalent threadlocker to the screw threads, ensuring that the screw head is locked 1 mm above chamfer for the best heat and vibration transmission.



CAUTION:

Review and follow all manufacturer's instructions and safety precautions when using Threadlocker.

Step 8

Use a level to verify the alignment. The axial direction (white line) must be parallel to the pump shaft. The tangential axis (red line) should be at a right angle to the axial line, on a plane tangential to the housing. The radial direction (black line) points towards the center line of the shaft. If this is not possible, the T-axis must be parallel to the rotating shaft.

Step 9

Use 2 Phillips head screws to securely fasten the ABB Ability™ Smart Sensor to mounting bracket.

Next step

Digitally connect Smart Sensor using the ABB Ability™ Smart Sensor app. Log on using your myABB credentials and follow the prompts to connect.

For questions and support, please contact

ABB
Motors and Generators Service

Product information
www.abb.com/smartsensor

Support e-mail address
support.smartsensor@abb.com

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