It is important to read these instructions in their entirety before installing the ABB Ability™ Smart Sensor for hazardous areas with flat surface mount.

ATTENTION
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.

ATTENTION
The mounting piece must be grounded if the sensor is installed in Ex Zone 0 or Zone 20 environments. Grounding can be achieved by attaching a wire to the M3 screw provided.

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
Motor 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 motor should be switched off and allowed to cool before attempting to install the sensor. Motor 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 voids the certifications of the Smart Sensor, such as hazardous area certifications, safety certifications, and IP rating. Dispose of used sensors according to instructions.
Installation instruction

Please follow the following instructions for the installation of ABB Ability™ Smart Sensors on motors and pumps.

• 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
• 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
The sensor must be located between the drive-end and non-drive-end bearings, as close 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.
• Detailed information about which motor types can be monitored with the ABB Ability™ Smart Sensor can be found on www.abb.com/smartsensor.

Mounting position on pump
The sensor must be mounted on the pump housing above the drive-end bearing of the pump, closest 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: \( b_{\text{MIN}} = 3 \)
• Speed control: fixed / direct-online (DOL) or variable-speed
• Maximum blade-pass frequency (BPF): 49800 RPM
  - Rotating speed \( \omega \)
  - No. of blades \( b \)
    \[ \text{BPF} = \omega \times b < 49800 \text{ RPM} \]
• Power / size: shaft height from 150 mm to 450 mm

Quick start guide

• Step 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.
• Step 2: Register in the ABB Ability™ Smart Sensor Platform App
  - Follow the sign-up link in the app
  - 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 the ABB Ability™ Smart Sensor Platform App
  - Follow the instructions on the screen
• Step 4: Install the ABB Ability™ Smart Sensor
  - Verify that you have the right components and install the sensor according to the instructions described in this manual.
• Step 5: Activate the sensor with the ABB Ability™ Smart Sensor Platform App
  - The sensor can be activated with NFC. Please turn on NFC in your smartphone and place the smartphone on top of the sensor.
  - See Step 7 on page 4 for more detailed information
• Step 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
• Step 7: Take first measurements and check the asset condition
  - Select the asset and navigate to “Load Measurements”
• Step 8: For more detailed instructions, visit www.abb.com/smartsensor
Items required for the installation

- 1 Flat surface mount
- 2 Hexagon socket screw (2 pcs)
  - ¼” – 28 (black)
  - M6
- 3 ABB Ability™ Smart Sensor for hazardous areas
- 4 Loctite™ EA 3463 or similar putty
- 5 Cover for screw hole
- Degreasing agent
- Rubber gloves
- Safety goggles
- 50 mm hex bit and suitable wrench
  - 3/16” for ¼” – 28 screw
  - 5 mm for M6 screw

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 following these instructions.

Installation steps

Step 1
Degrease the installation surface at the recommended mounting position.

CAUTION: REVIEW AND FOLLOW 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 FOLLOW ALL MANUFACTURER’S INSTRUCTIONS AND SAFETY PRECAUTIONS WHEN USING PUTTY.

Step 3
Place the flat surface mount in the center of the putty disc.

For installations in Zone 0 and Zone 20 environments, the mounting piece must be grounded via a wire. Please verify that the mounting piece is grounded by measuring the resistance between the motor frame and the mounting piece.
Step 4
Press the flat surface mount against the putty. Make sure that the mount is pressed deep enough.

CAUTION: ALLOW PUTTY TO DRY FOR 10 MINUTES BEFORE MOVING ON TO STEP 5 TO MAKE SURE THAT THE INSTALLATION IS ROBUST. THE AMBIENT TEMPERATURE AND THE SURFACE TEMPERATURE MUST BE WITHIN 15 °C – 35 °C (59 °F – 95 °F) FOR THE PUTTY TO CURE.

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. Make sure to 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 by turning on the smartphone’s NFC and tap the left side of the sensor with the smartphone. Digitally connect the sensor by using the ABB Ability™ Smart Sensor Platform App. Log in using your ABB credentials and navigate to the “Commission new asset” menu, to pair the Smart Sensor to the asset to be monitored.

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™. Please check with your local ABB partner if the ABB Ability Marketplace™ is available in your region.