Mounting Recommendations for Sensor Modules of AXISENSE-Series

NOTE
All numerical values are in metric units. Dimensions are in millimeters. Unless otherwise specified, dimensions have a tolerance according ISO 2768 -mK. Figures and illustrations are for identification only and are not drawn to scale.

1. INTRODUCTION

This specification covers the requirements for mounting of inclination sensor modules from the AXISENSE-Series. This series is mainly developed with focus on platform leveling, dynamic engine management, tip-over protection and tilt alarm.

When corresponding with personnel, use the terminology provided in this specification to facilitate inquiries for information. Basic terms and features of this product are provided in Figure 1.

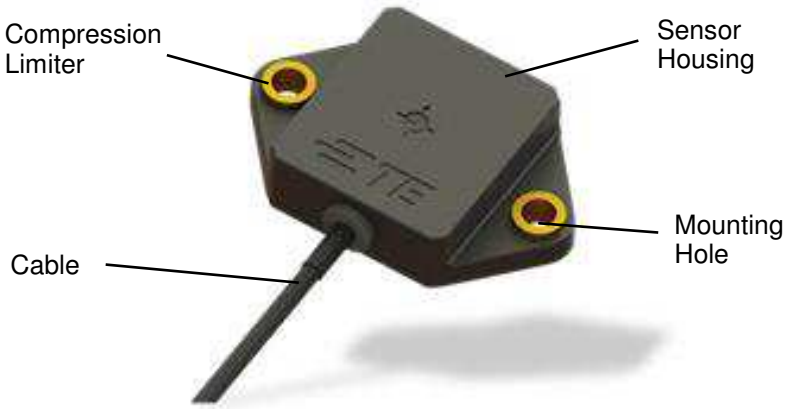

Figure 1 Terminology

2. REFERENCE MATERIAL

2.1. Revision Summary

Introduction of AXISENSE brand

2.2. Customer Assistance

Reference Product Type can be found on the label of the sensor.
Use of this name will identify the product type and help you to obtain product information.
Such information can be obtained through a local Representative, by visiting our Website at www.te.com, or by calling PRODUCT INFORMATION at the numbers at the bottom of page 1.

2.3. Drawings

Customer Drawings for product part numbers are available from the service network. If there is a conflict between the information contained in the Customer Drawings and this specification or with any other technical documentation supplied, the information contained in the Customer Drawings takes priority.

2.4. Specifications

Reference documents which pertain to the products are available via www.te.com or your personal point of contact at TE Connectivity.

3. REQUIREMENTS

The sensor shall always be mounted according the specified mounting direction, which is usually floor mount (see Figure 2) or wall mount with cable pointing down to the floor (see Figure 3), “g” reflects the vector of gravity in zero position of both movement axes.

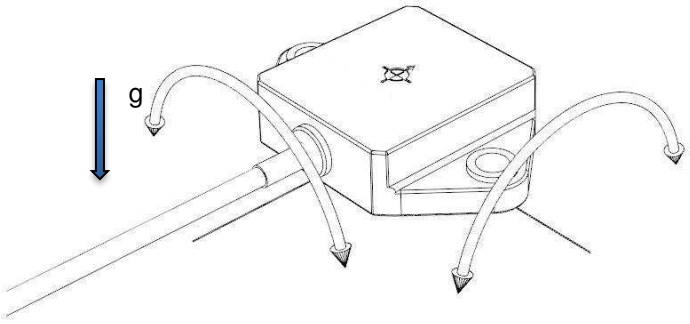

Figure 2 Floor mounted sensor

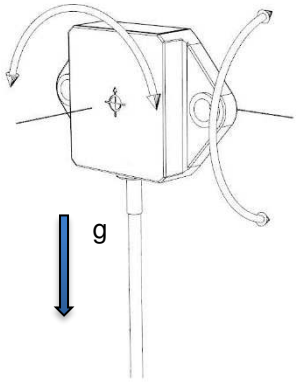

Figure 3 Wall mounted sensor

To obtain best accuracy sensor outputs and prevent accelerated degradation over time, below items should be considered:

- Prevent from direct sunlight
- Avoid high relative humidity
- Avoid extreme temperatures close to the specified operational temperature limits
- Minimize number of temperature changes and temperature shift
- Select location with minimum acceleration from application (vibration, shock, centrifugal etc.)

A flat mounting area with an inner level deviation of less than 0.15 mm must be chosen.
No welding seam or bend present below the shape of the sensor housing is allowed.
While installing the sensor do not exceed minimum bending radius of cable which is 24 mm for static and 48 mm for use in dynamic application.

The recommended mounting torque is 10 Nm, which is also depending on the property class of the used screws (e.g. 6.8 class screw limits torque to 7.5 Nm). The applied mounting torque must not exceed 15 Nm.

To achieve best accuracy of the output values, the reference edge of the housing, as highlighted in Figure 4, should be used. This edge complies with the alignment of the sensor module during the calibration process in factory. Figure 4 reflects these requirements and recommendations.

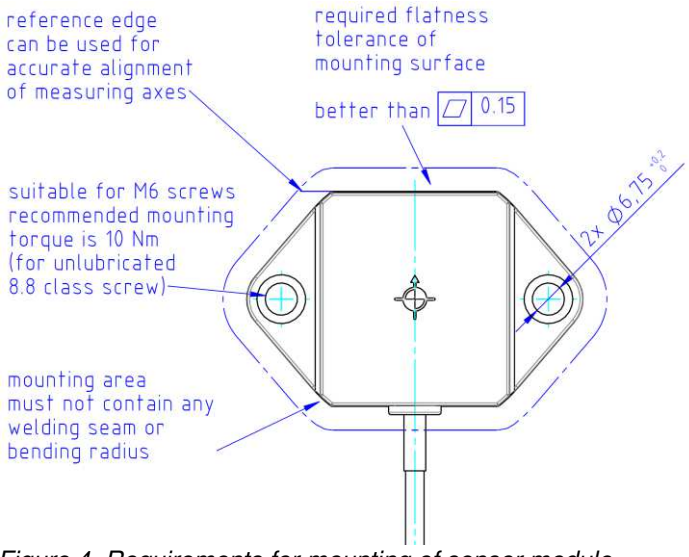

Figure 4 Requirements for mounting of sensor module

The sensor module should be mounted with screws onto a part already containing M6 size threaded holes with a distance of 56 ±0.25 mm. Mounting of the sensor module with M6 hexagon nuts and threaded pins fixed to the part is also recommended as long as the required flatness below the sensor module is guaranteed (see Figure 5).

It is advised to use a washer with the screw or hexagon nut in any of those cases.

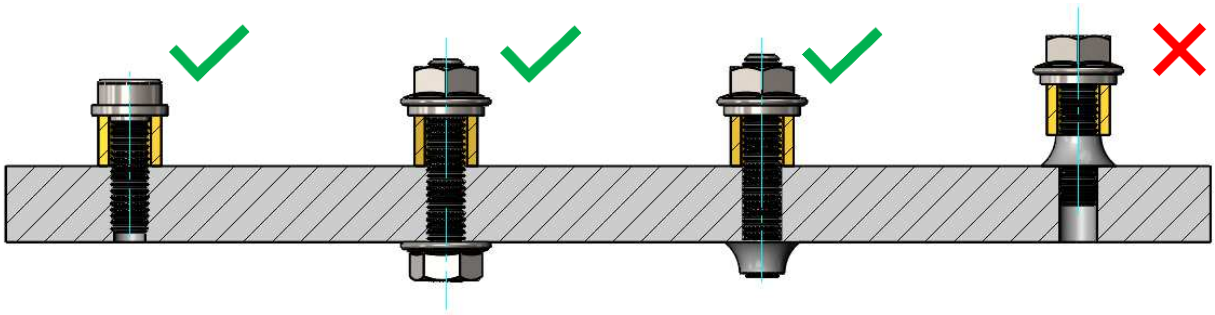

Figure 5 Mounting scenarios

When the counterpart in application contains through holes and the module is mounted with screws and hexagon nuts, it is recommended to use the through hole dimension and distance displayed in Figure 6.

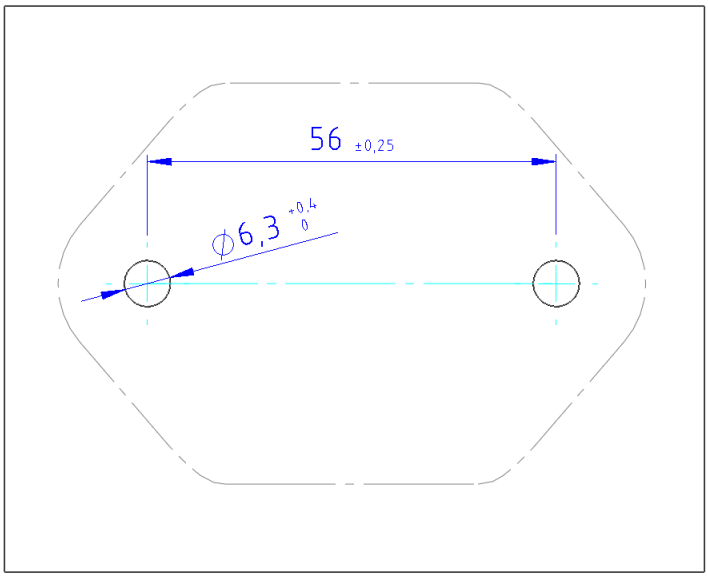

Figure 6 Recommended through hole dimension & distance for mounting of sensor module

In the case of an ideal alignment in application, the sensor axes would match exactly the axes to be measured. Using the minimum diameter for the through holes will reduce the possible deviation of the sensor module axes from ideal alignment. Thus, compared to the use of the maximum diameter, a better system accuracy can be achieved in application.

Beside limiting any undesired rotation, the maximum diameter of the through holes in the part shall be limited for another reason. Limiting the diameter to Ø6.7 mm will assure that the force onto the sensor housing emerged by the mounting torque of the screws applies only to the metal compression limiters of the sensor housing.

This is necessary, because it avoids the influence of mechanical stress caused by the mounting torque on other parts of the sensor module assembly. Otherwise it would have a negative effect on the performance and accuracy of the system.