

Mechanical Installation



OBJECTIVE

This document gives instructions on the installation of SCA111T, SCA121T, SCA115T and SCA125T Series inclinometer modules.

APPLICATION DESCRIPTION

VTI Technologies offers a family of inclination measurement modules with various measuring ranges and two alternative signal interfaces. The module is encapsulated in a metal housing (yellow chromated zinc casting, protection class IP66).

The function of the sensor is based on change in acceleration (direction of gravity field), so all position errors or dynamic movements will effect the output signal.

DIMENSIONS AND RECOMMENDED MOUNTING

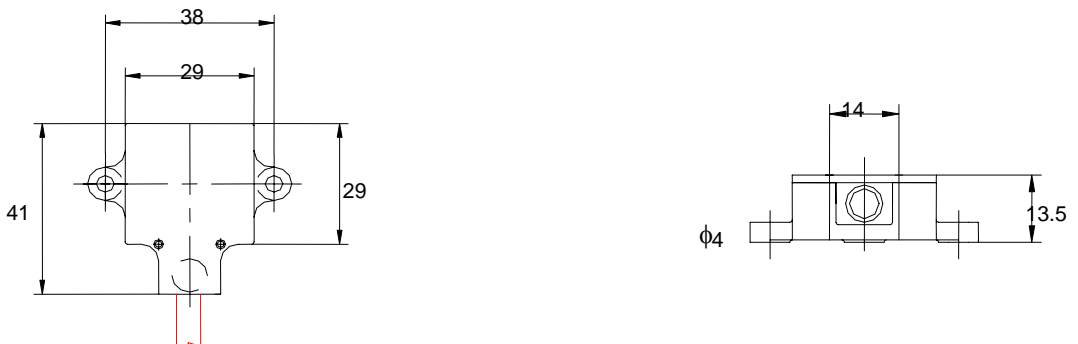
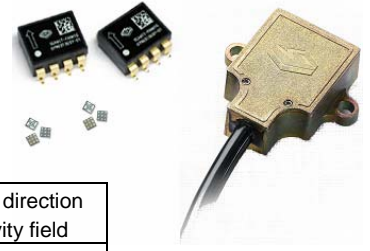


Figure 1. Dimensions

The sensor module is to be mounted with 2 screws, dimension M4. Mounting torque is $5 \pm 1\text{Nm}$. Optional mounting bracket mounted with 2 screws, dimension M6. Mounting torque $10 \pm 2\text{Nm}$.

NOTES

- It is important that the module is parallel to the mounting plane and that output equals the supplied zero value when sensor is in zero position.
 - 1° mounting error from measuring plane will increase the cross-axis sensitivity by 1.7 %
 - 1° mounting alignment error around the measuring axis will change the output by 17 mg
- The illustrations in Table 1 provide information on how the output of the accelerometer module behaves under different circumstances when installed. Please note that the part can be rotated around the measuring axis for optimum mounting location.



X-channel	Positive inclination Vout > 2.5 V	Zero position Vout = 2.5 V	Negative inclination Vout < 2.5 V	Positive direction of gravity field
Alternative 1				↓
Alternative 2				

Y-channel	Positive inclination Vout > 2.5 V	Zero position Vout = 2.5 V	Negative inclination Vout < 2.5 V	Positive direction of gravity field
Alternative 1				↓
Alternative 2				

Z-channel	Positive inclination Vout > 2.5 V	Zero position Vout = 2.5 V	Negative inclination Vout < 2.5 V	Positive direction of gravity field
Alternative 1				↓
Alternative 2				

Table 1. Positions

ELECTRICAL CONNECTIONS

For connecting the analogue modules, please see Table 1. The module is equipped with a 30cm “pig tail” PUR cable and it has 0,14mm² leads.

Name	Function	Pigtail wire color
GND	Ground	Blue
V _{cc}	Power supply	Red
Out Y	Output SCA121T, Y-direction	Yellow
Out X	Output SCA121T, X-direction	Green
Out X	Output SCA111T (X-direction)	White

Table 2. Electrical connections

For details on connecting and operating digital modules with RS-485 interface, please see the instruction manual of digital modules (available on www.vti.fi).

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