Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

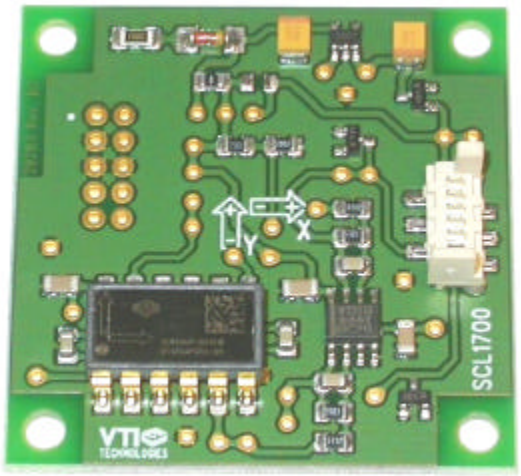
We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

SCL1700-D01

PRODUCT SPECIFICATION

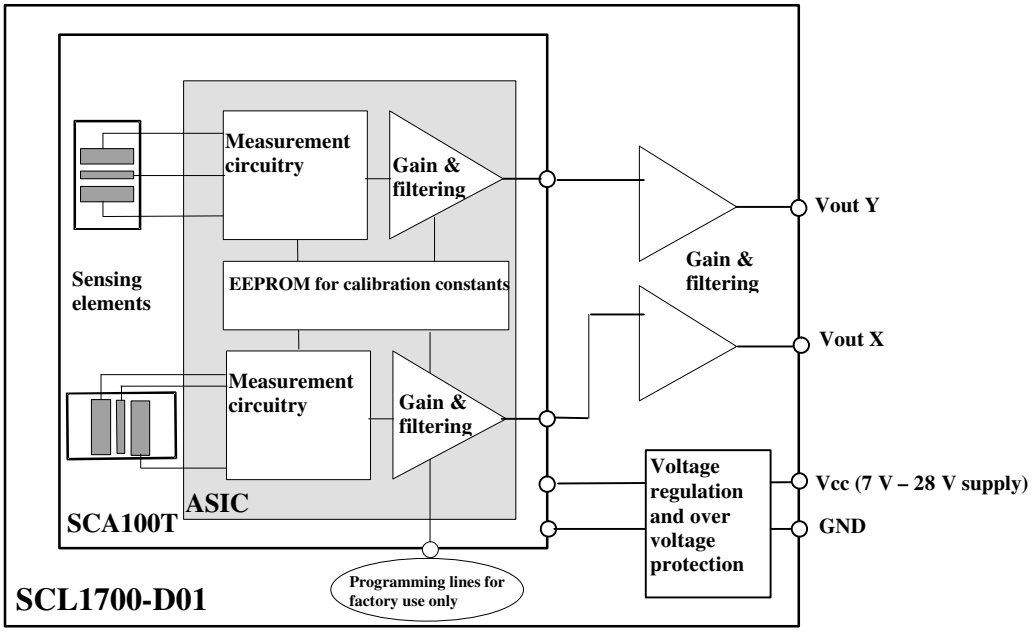


1 General description

This document describes an inclination module, suitable for various industrial applications. Inclinometer is available in 2 axis configuration. The sensor used is a VTI standard inclinometer component SCA100T-D01. Output interface is analogue voltage.

1.1 Block diagram

Products are based on SCA100T-D01 components, mounted on PCB. Electronics are not encapsulated.



1.2 Inclinometer Features

- Measuring range: ±10°
- Controlled frequency response
- Easy to use and design in
- High resolution analogue output
- Dual axis inclination measurement
- Advanced failure detection
- Wide supply voltage range

Benefits

- Excellent long term stability
- Outstanding shock durability
- Harsh environment robustness
- Fit, form and function compatible with commonly used 45 x 45mm dual axis inclination board

2 Electrical specifications

2.1 Electrical Connection

Connector: Molex, Picoflex PF-50, see picture 2.

Name	Function	Connector pin #
V_{cc}	Power supply	1
NC	Internally not connected	2
GND	Ground	3
Out X	Analogue X-direction output	4
Out Y	Analogue Y-direction output	5
NC	Internally not connected	6

2.2 Absolute maximum ratings

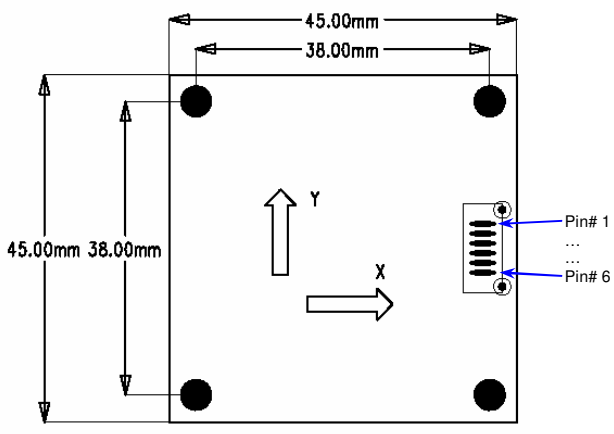
Parameter	Condition	Min.	Typ	Max.	Units
Supply voltage		6		35	V
Current consumption	No load		4.5	7	mA
Output load	Resistive	30	50		kΩ
	Capacitive			20	nF
Storage temp		-40		125	°C
Operating temp		-25		85	°C
Mechanical shock	1m drop on concrete		20 000		g

2.3 Electrical Specification

Parameter	Condition	Min.	Typ	Max.	Units
Supply voltage		7		35	V
Measuring range (1			± 10		°
Offset (2,3,4	Output @ 0°		2.5 ± 0.02		V
Offset calibration point error (3,4,5			± 0.1		°
Offset temperature error (3,4,6	0°C…70°C		± 0.2		°
	-25°C…85°C		± 0.5		°
Sensitivity (3,4,7	@ 0° (offset position)	198	200	202	mV/ °
Sensitivity calibration error (3,4,8				1%	%
Sensitivity temperature error (3,4,9	0°C…70°C		± 0.5		%
	-25°C…85°C		± 1.0		%
Nonlinearity (10	Sine fitting		± 0.03		°
Frequency response –3dB	True DC response		3		Hz
Output noise DC…10 Hz	@ 0° (offset position)		< 0.001		°

Note 1. The measuring range is limited by sensitivity, offset and supply voltage rails of the device.
Note 2. Offset specified as Voffset = Vout(@0°) [V].
Note 3. +15V supply voltage used in calibration and testing.
Note 4. See proposed connection of SCL1700 in picture 2.
Note 5. Offset calibration error specified as Offset_Calib_error = arcsin(Offset_Calib_error_in_g) [°],
Offset_Calib_error_in_g = {Vout(@0°) – 2.5 V} / Vsens [g], Vsens=11.46 V/g.
Note 6. Offset temperature error specified as Offset_Error_@_temp. = arcsin(Offset_Error_@_temp_in_g) [°],
Offset_Error_@_temp_in_g = {Vout @ temp. – Vout @ room temp.} / Vsens [g], Vsens=11.46 V/g.
Note 7. Sensitivity target in calibration 11.46 V/g (→ 200 mV/°)
Sensitivity specified as Vsens = {Vout(@+10°) - Vout(@+10°)}/(2*sin(10°) g) [V/g].
Note 8. Sensitivity calibration error specified as Sensitivity_calibr_error = {Vsens - Vsens_nom} / Vsens_nom x 100% [%],
Vsens_nom = nominal sensitivity.
Note 9. Sensitivity temperature error specified as
Sensitivity_temp_error = {Vsens @ temp – Vsens @ room temp} / Vsens @ room temp} x 100% [%].
Note 10. From best fit sine-function to output through –10° and +10°.

3 Mechanical specification



- PCB Material: FR4
- PCB thickness: 1.6 mm
- Size: 45 mm × 45 mm
- Mounting holes: ∅ 3.5 mm
- Height: max 10 mm
- Weight: < 10 g
- Connector: Molex, Picoflex PF-50, 1.27mm pitch, mates with Molex 90327

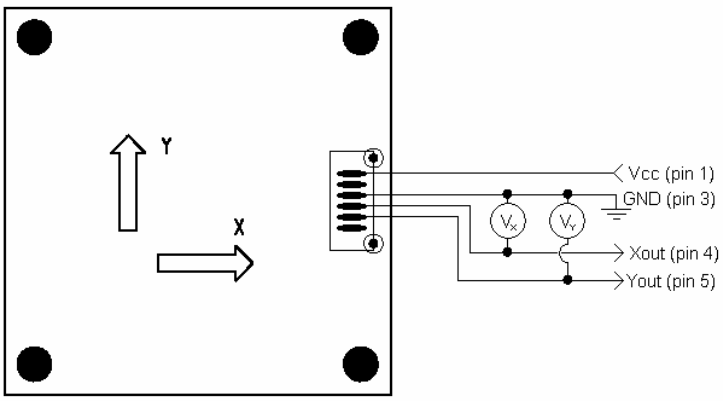
Picture 1. SCL1700-D01 mechanical dimensions.

4 Mounting

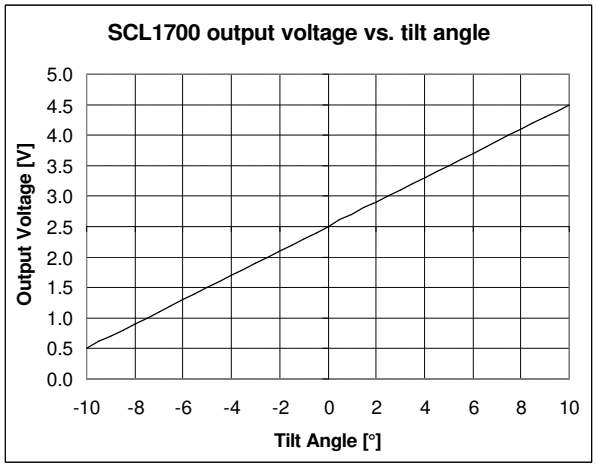
The sensor module is to be mounted with 4 screws, dimension M3.

5 Connection and output signal

Proposed connection in applications.



Picture 2. Proposed connection for SCL1700-D01.



Picture 3. SCL1700-D01 output signal.