orbitACS

SI400

A Four Channel system for easy connections into PLC or Automation

Description

Solartron Metrology, the world leader in linear measurement innovation, introduces a new Orbit®3 based system for easy, low cost connections into PLCs and process control systems. The SI400 will connect to, and power, three additional sensors for a four channel reading. You can even combine gauging probes, Orbit® LT, and Orbit® LTH on the same stack of modules. No other digital system offers this!

Features

Integral Readout with colour LCD Display and keypad.

Set tolerance and process limits via keypad

Detachable probe plug on housing for easy installation.
(Gauging probes, Block Gauges & Flexures only)

Replace probe with no calibration or reprogramming

Modbus output (RTU or ASCII) over RS485 or RS232

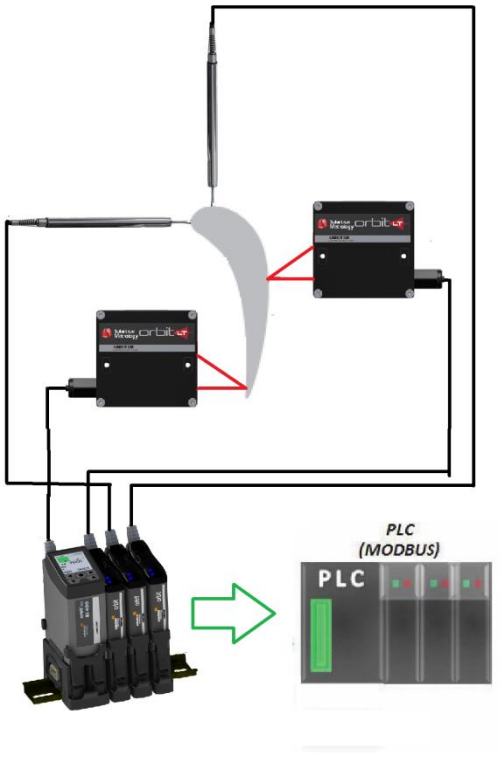
Programmable discrete I/O (4 inputs, 3 outputs)

Track, Peak, and Max-Min Modes for each channel

24 VDC Power Supply

Works with Gauging Probes (all types), Displacement, Orbit® LT, and Orbit® LTH.

Modbus



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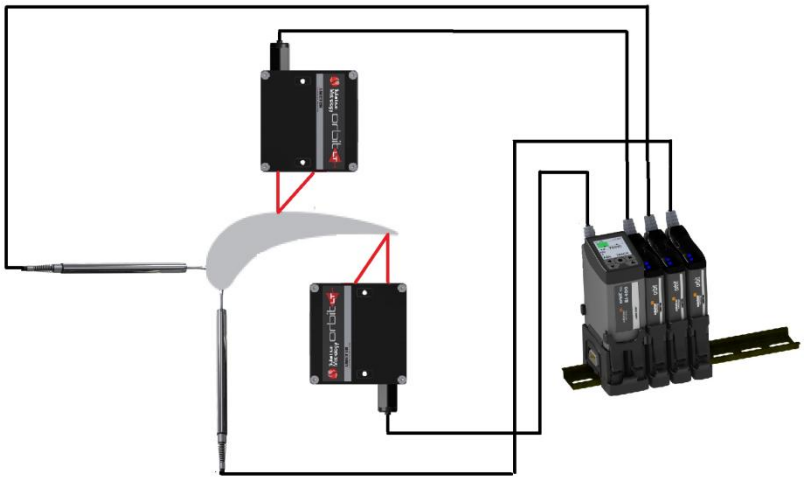
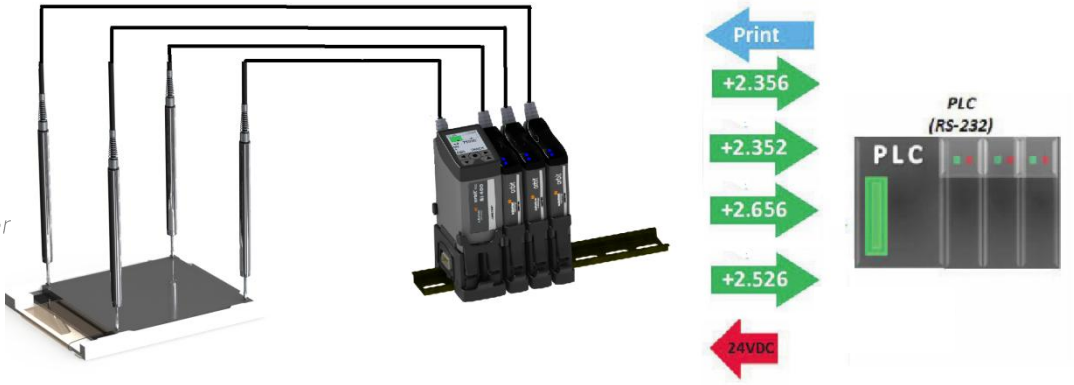
SI 400 Applications



Checking a jet engine turbine blade with two Orbit® LTH Lasers, and Two Ultra Feather Touch probes over Modbus



Check four corners of cell phone glass with Ultra Feather Touch Probes, via Print command over RS232

Pin Configuration

12	Input 4
11	Input 3
10	Input 2
9	Input 1
8	Output Supply In
7	Output 3
6	Output 2
5	Output 1
4	Modbus B (RS485 or RS232)
3	Modbus A (RS485 or RS232)
2	0V Power in Return
1	18-32 V DC Power In

Mini-USB Port for configuration via a PC and firmware updates

- Input pins can be set Active Hi or Active Lo
- Output pins can be Active Hi or Active Lo and set to NPN, PNP or Logic
- DIN Rail mount
- Input pins are programmable (typical functions: Zero, Print, Preset)

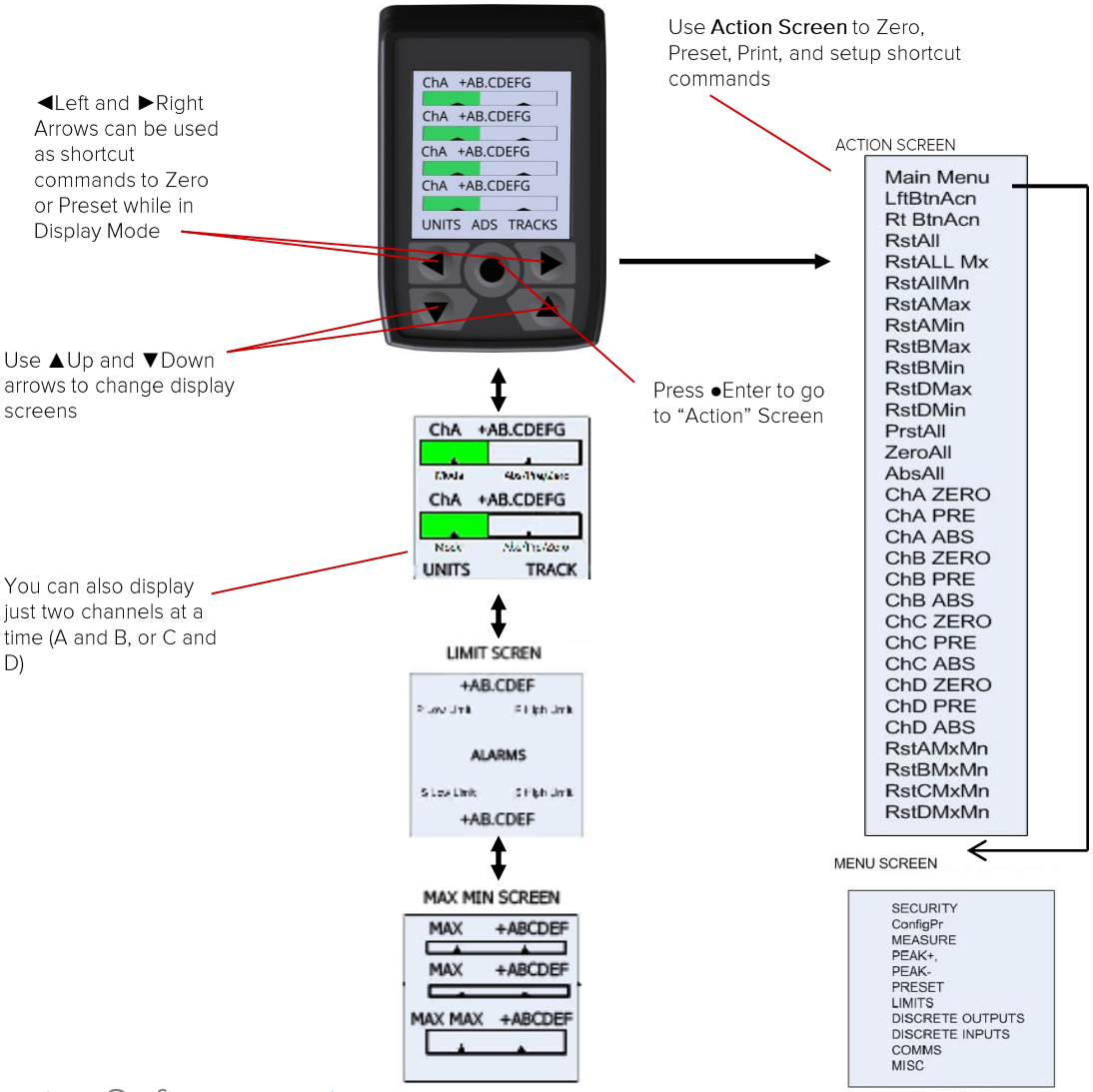
Serial Output Options

The SI400 has a standard Modbus interface (RTU or ASCII). However, pins 3 & 4 can be configured as an ASCII serial interface. (Pin 3: RS232TX, Pin 4: RS232 RX). In this mode, the user can select from several different ASCII protocols, including compatibility with Solartron's SI1500, SI3500 and C55.

Accessories

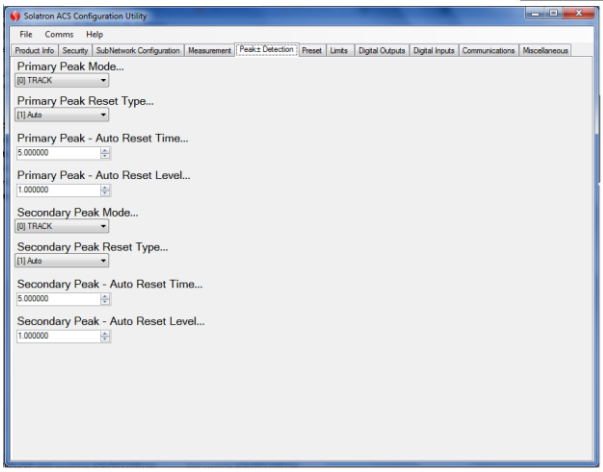
+24 V Power Block with Mains Leads. Available with UK, EU, and US plugs
Spare T-con Mounts
USB to Mini-USB cable for PC connection

Display and Interface



Configurator Software

Connect SI400 to PC via Mini-USB to USB cable. Then use Solartron provided software to configure unit, and backup settings to PC file!



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ULTRA PRECISION TECHNOLOGIES

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Products						
Spring Push Axial Cable	SI400P/1/S	SI400P/2/S	SI400P/5/S	SI400P/10/S	SI400P/20/S	SI400P10/2S
Spring Push Radial Cable		SI400PR/2/S	SI400PR/5/S	SI400PR/10/S	SI400PR/20/S	SI400PR10/2/S
Spring Push Axial Cable Feather Touch		SI400T/2/S	SI400T/5/S	SI400T/10/S	SI400T/20/S	SI400T10/2S
Spring Push Radial Cable Feather Touch		SI400TR/2/S	SI400TR/5/S	SI400TR/10/S	SI400TR/20/S	SI400TR10/2S
Pneumatic Axial Cable		SI400P/2/P	SI400P/5/P	SI400P/10/P	SI400P/20/P	SI400P10/2S
Pneumatic Radial Cable		SI400PR/2/P	SI400PR/5/P	SI400PR/10/P	SI400PR/20/P	SI400PR10/2/P
Pneumatic Axial Cable Feather Touch		SI400T/2/P	SI400T/5/P	SI400T/10/P	SI400T/20/P	SI400T10/2S
Pneumatic Radial Cable Feather Touch		SI400TR/2/P	SI400TR/5/P	SI400TR/10/P	SI400TR/20/P	SI400TR10/2S

Measurement Performance						
Measurement Range	1	2	5	10	20	2
Accuracy (% of Reading) (Note 1)	0.2	0.2	0.15	0.15	0.15	0.2
Repeatability (worst case) µm (Note 2)	0.15	0.15	0.15	0.15	0.15	0.15
Repeatability (typical) µm (Note 3)	0.05	0.05	0.05	0.07	0.07	0.05
Resolution (µm)	0.01	0.01	0.05	0.05	0.1	0.01
Pre Travel (mm)	0.15	0.15	0.15	0.15	0.15	0.15
Post Travel (mm)	0.35	0.85	0.85	0.85	0.85	8.85
Tip Force (N) at Middle of Range ±20%						
Spring Push	0.7	0.7	0.7	0.7	0.7	0.7
Spring Push Feather Touch	0.3	0.3	0.3	0.3	0.3	0.3
Pneumatic at 0.4 bar	N/A	0.7	0.7	0.7	0.7	0.7
Pneumatic at 1 bar	N/A	2.6	2.6	2.6	2.6	2.6
Pneumatic Feather Touch ±30% at 0.3 bar	N/A	0.18	0.18	0.18	0.18	0.18
Pneumatic Feather Touch ±30% at 1 bar	N/A	1.1	1.1	1.1	1.1	1.1
Pneumatic Jet	N/A	0.85	0.85	0.85	0.85	0.85
Temperature Coefficient %FS/ºC	0.01	0.01	0.01	0.01	0.01	0.01

Environmental	
Sealing for Probe	IP65 with gaiter or IP50 without gaiter
Sealing for Probe Interface Electronics	Top and Front: IP41, Rear: IP20, In line connector: IP67
Storage Temperature (ºC)	-20 to +70
Probe Operating Temperature with Gaiter (ºC)	+5 to +80
Probe Operating Temperature without Gaiter (ºC)	-10 to +80
Electronics Operating Temperature (ºC)	0 to 60
EMC Emissions	EN61000-6-3 and EN61326
EMC Immunity	EN61000-6-2 and EN61326
Power	18 to 32 VDC @ 0.07A typical

Material	
Probe Body	Stainless Steel
Probe Tip (options)	Nylon, Ruby, Silicon Nitride, Tugsten Carbide
Gaiter (standard)	Fluoroelastomer
Cable	PUR
Electronics Module	ABS

Electronics Interface (Orbit ACS)	
Alarm Outputs - selectable High, OK, Low	3 outputs either NPN, PNP, logic Programable Active Hi or Lo
Discrete Inputs - user selectable	4 inputs user configurable eg. Print, Zero, Preset
Update Rate for I/O discretes (ms)	5
Bandwidth of Electronics (Hz) - user selectable	460, 230, 115, 58, 29, 14, 7,4
Communications Interface Protocol	MODBUS (RTU or ASCII) or Solartron Serial Formats
Communications Interface Hardware	RS485 or RS232 (User selectable) Up to 115,200 Baud
Update Rate for Serial Data (ms)	25

Note 1: Accuracy 0.1 µm or % reading whichever greater

Note 2: Obtained by repeated operation against a carbide target with side load applied to the bearing using max-min

Note 3: Obtained by repeated operation against a carbide target standard deviation from average (68%)

For specifications of other Gauging and Displacement Transducers, Orbit® LT, or Orbit® LTH, please refer to their respective datasheets.

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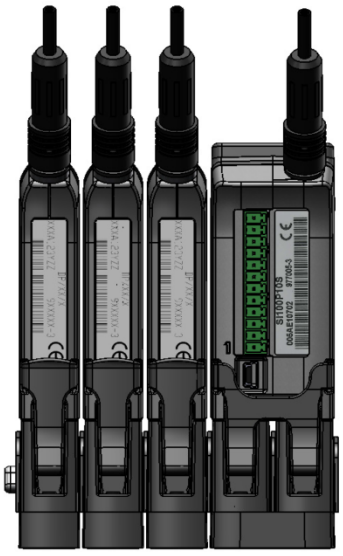
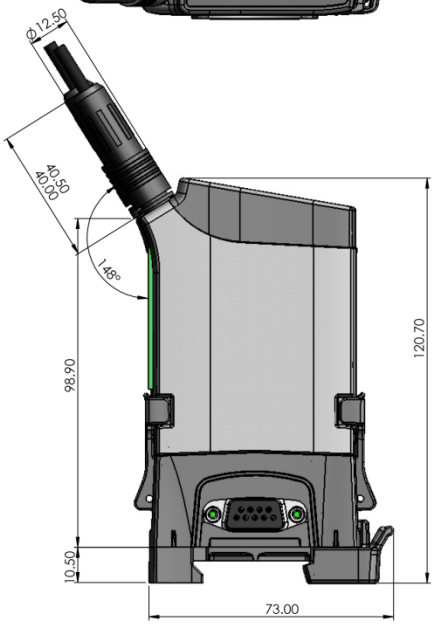
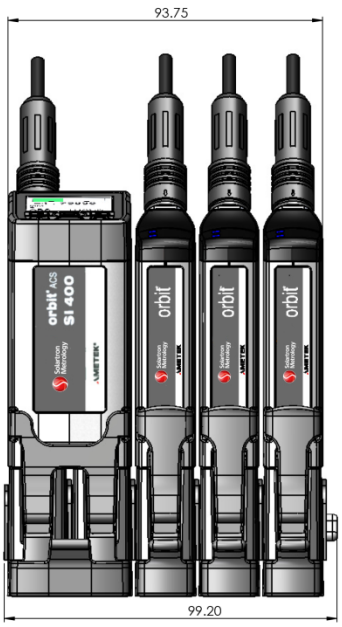
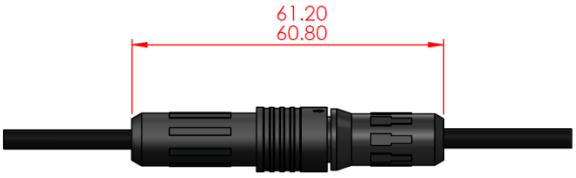
Instrument Functionality	
Measurement	
Measurement SI400	A, MAXA-MINA, B, MAXB-MINB, C, MAXC-MINC, D, MAXD-MIND,
Measurement Types	Track. Peak+, Peak -
Measurement Modes	Absolute, Zero (tare), Preset
Measurement Units	mm, inches, mils
Display	
Analogue SI400	Four Bars representing reading showing limits
Digital SI400	Four Digital up to 5 decimal places mm (6 for inches)
Keypad	
Type	Sealed Membrane

Drawing









DP IN LINE CONNECTORS - ASSEMBLED

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