

Model SC500

Programmable Single-Channel Transducer Indicator/Conditioner



DESCRIPTION

The SC series models are self-calibrating microprocessor-based transducer signal conditioners when used with sig mod equipped transducers. Indicators are available with several different types of input channels and output channels. When used with unamplified strain gage transducers that have the signature calibration module installed, these instruments will completely self calibrate zero, span, decimal point, and engineering units automatically.

Input channels are available for a variety of transducers. Each input channel includes an excitation power supply and an isolated voltage analog output.

- Unamplified pressure or load
- Pressure or load with internal voltage amplifiers
- Pressure or load with internal or external two-wire current amplifiers
- ac/ac displacement transducer
- dc/dc displacement transducer

Available output channels for the SC500 include:

- Contact relays for the two form C or three form A optional limits
- Isolated digital-to-analog voltage (0 Vdc to 5 Vdc, ± 5 Vdc, 0 Vdc to 10 Vdc, ± 10 Vdc)

In addition to the physical input and output channels, up to three virtual channels can be configured to assist in many potential applications.

FEATURES

- Choice of transducer inputs
- Small 1/8 DIN form factor
- Automatic setup, calibration via sig cal
- Shunt-cal, mV/V or known load calibration
- Peak/valley capture
- Optional analog output and RS-232/RS-485
- Field selectable frequency response (up to 250 Hz) and calibration
- Up to three virtual channels (optional)
- CE approved

Model SC500

PHYSICAL SPECIFICATIONS

Characteristic	Measure
Form factor	1/8 DIN
Case material	Aluminum

ENVIRONMENTAL SPECIFICATIONS

Characteristic	Measure
Temperature, operating	5 °C to 40 °C [40 °F to 105 °F]
Temperature, storage	-30 °C to 90 °C [-40 °F to 195 °F]

DISPLAY SPECIFICATIONS

Characteristic	Measure
Display type	Vacuum fluorescent
Numeric display format	+999999 to -999999 (0, 1, 2, 3, 4, 5 decimal places)
Digit size, normal mode (H x W)	5 mm x 2,5 mm [0.2 in x 0.1 in] (with engineering units)
Digit size, large mode (H x W)	10 mm x 5 mm [0.4 in x 0.2 in] (no engineering units)
Engineering units display	4 characters, available in normal mode only
Display update per second	4

POWER SPECIFICATIONS

Characteristic	Measure
Power supply type	ac (with included wall-mount adapter) or dc
dc power supply requirements	10 Vdc to 26 Vdc @ 1 A
ac wall-mount adapter (included)	Interchangeable plugs for use in the Americas, Europe, the United Kingdom and Australia (100 Vac to 240 Vac)

INPUT

	Strain gage millivolts	High level volts/mA	ac/ac displacement transducer
Order code	AE236	AE237	AE238
Transducer type	Unamplified pressure or load	Amplified pressure or load, dc/dc displacement transducer	Displacement transducer
Range	0.5 mV/V to 21 mV/V	±5 Vdc or ±10 Vdc, 4 mA to 20 mA	0.1 VRMS to 15 VRMS
Freq. response & resolution	See table	See table	See table
Calibration (field selectable)	Shunt, mV/V, 2-, 3-, or 5-point known load	Shunt, 2-, 3-, or 5-point known load	2-, 3-, or 5-point known load
Transducer excitation	5 Vdc @ 60 mA max.	12 Vdc, ±15 Vdc, 28 Vdc	3 Vac @ 5 kHz
Push button 100 % tare	Yes	Yes	Yes
Push button shunt test	Yes	Yes	No

COMMUNICATIONS OUTPUT (OPTIONAL)

Characteristic	Measure
Serial setup and output	Isolated RS-232 or RS-485 (factory option)
Max. baud rate	38400 Baud

LIMITS OUTPUT (OPTIONAL) SPECIFICATIONS

Characteristic	Measure
Quantity	2 Form C or 3 Form A (factory option)
Response time	Determined by the scan time of the instrument, typically 16 mS
Relay energized when signal is	Less than, greater than, inside or outside set points
Contact ratings	1 A @ 30 Vdc, 0.5 A @ 50 Vac

Not RoHS compliant

Resolution (counts) (not including min. 10 % overrange/underrange capability)				
Frequency response (Hz) field selectable	Step response (ms) typical	Strain gage	High level	ac/ac displacement transducer
2 (fast mode)	40	±50000	±50000	±25000
2	440	±50000	±50000	±25000
8	110	±25000	±25000	±15000
16	55	±20000	±25000	±10000
32	28	±10000	±20000	±10000
50	16	±5000	±15000	±5000
100	8	±5000	±10000	±5000
250	3	±2000	±10000	±2000

ANALOG OUTPUT (OPTIONAL) SPECIFICATIONS

Characteristic	Measure		
Voltage range	Output	Dac Zero	Dac Full Scale
	0 V to 5 V	2.5 V	5 V
	±5 V	0	5 V
	0 V to 10 V	5 V	10 V
	±10 V	0	10 V
Isolation	500 V		
Digital-to-analog resolution	15 bits		
Frequency response	Same as input		

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How to order: (Quick-ship range/options combinations available. See online configurator).

Enter the order code and option code. For example:

AE23X

Order code

QC

Power input option

53X

Digital option

58X

Relay options

58X

Analog output option

SXXX

Math function option(s)

ORDERING OPTIONS

Base Order Code Descriptions

Option Code	Description
AE236	SC500, ac power, strain gage mV/V bridge-based sensors
AE237	SC500, ac power, high-level volts/mA sensors
AE238	SC500, ac power, ac/dc displacement transducers

Power Input Options

Option Code	Description
QC	

Digital Options

Option Code	Description
53a	RS-232 (not available with 53d)
53d	RS-485 (not available with 53a)

Relay Options

Option Code	Description
58a	Two limit set-points with form C contact relays (not available with 58h)
58h	Three limit set-points with form A contact relays (not available with 58a)

Analog Output Options

Option Code	Description
58i	Isolated analog output (0 Vdc to 5 Vdc)
58u	Isolated analog output (± 5 Vdc)
58v	Isolated analog output (0 Vdc to 10 Vdc)
58w	Isolated analog output (± 10 Vdc)

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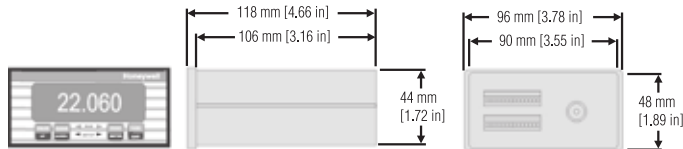
MATH FUNCTIONS

The maximum number of math functions allowed for the SC500 is three.

Option	Part Number	Short Description	Description
S8	084-2004-06	Channel 1 divided by constant (set by user)	Channel 1 track Value divided by USER VALUE1. Default User value = 2, Can be updated by user thru the instrument menu or the Serial Communications port. On reset or power up user value is set to 2.
S13	084-2005-04	Execute FL Transmit command when set time elapses (set by user)	Transmits a set of readings as defined by the WL command upon time-out of USER VALUE1 in seconds thru the serial communications port. USER VALUE1 is set thru the instrument menu or Serial Communications port. Please reference the Serial Communications guide for details with the WL command.
S38	084-2008-01	Average channel 1 over time (time period set by user)	Average of channel 1 track value over time. USER VALUE1 sets the time period in seconds. USER VALUE1 is set thru the instrument menu or the Serial Communications port.
S50	084-2010-00	Start Up Instrument Displaying Channel 1 Peak Value	On power up or reset condition initially set display to Channel 1 Peak Value.
S80	084-2067-01	Display channel 1 peak	Function Channel always displays Channel 1 Peak value.
S91	084-2086-01	Absolute Value (channel 1)	Absolute value of Channel 1 Track value.
S96	084-2111-01	Display channel 1 on power up or reset	Read and display Channel 1 Track Value only on power up or reset condition . Displays this value continuously.
S101	084-2007-01	Convert channel 1 from pounds to grams	Channel 1 Track value multiplied by the constant 453.5924. This would be used to convert Channel 1 Track Value in LBS to GRAMS.
S103	084-2012-01	Channel 1 multiplied by constant (set by user)	Channel 1 Track Value multiplied by the constant USER VALUE1. USER VALUE1 is set thru the instrument menu or the Serial Communications port.
S113	084-2057-01	Convert channel 1 from inches of mercury to altitude (feet)	Altitude in feet using the following formula. $a + b(\ln X) + c(\ln X)^2 + d(\ln X)^3 + e(\ln X)^4$, $a = 69272.174$, $b = -14455.994$, $c = -1394.1419$, $d = -97.69379$, $e = -1.3452404$, $X = \text{USER VALUE1} - \text{Channel 1 track value in INHG}$. Where $\text{USER VALUE1} = \text{Current Barometric Pressure in INHG}$.
S300	084-2032-00	Reset channel 1 peak when channel 1 track > constant (set by user)	Reset Channel 1 Peak value when Channel 1 Track value goes above USER VALUE1. Function Channel Display= Peak clear status, 0= Signal <= User Value1, 1= Signal > user Value1.
S324	084-2045-01	(Constant 1 * channel 1) + constant 2 (constants set by user)	Equation of a line slope-intercept form. $Y = mx + b$, $\text{USER VALUE1} = \text{slope (m)}$, $\text{USER VALUE2} = \text{offset (y intercept)}$, $x = \text{channel 1 track value}$, USER VALUE1 and USER VALUE2 are set thru the instrument menu or the Serial Communications port.
S359	084-2101-00	Channel 1 rate of change per minute (Sample time set by user, default = 60)	Rate of change per minute of time for channel 1 track value. $\text{USER VALUE1} = \text{Sample Time in seconds between successive readings}$, default is set to 60 seconds. The following calculation is performed. $(60 / \text{USER VALUE1}) * \text{DIFFERENCE in channel 1 track values}$. USER VALUE1 is set thru the instrument menu or the Serial Communications port.

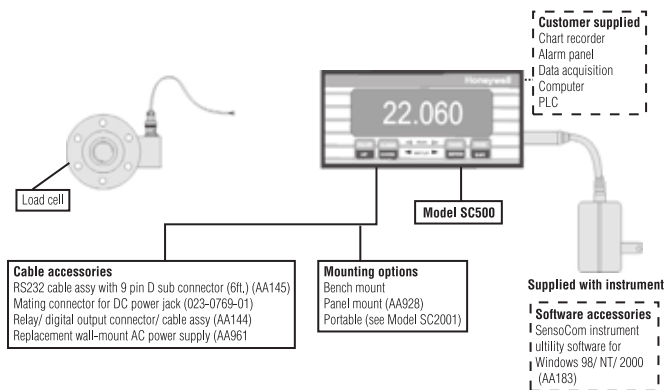
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MOUNTING DIMENSIONS AND CHARACTERISTICS

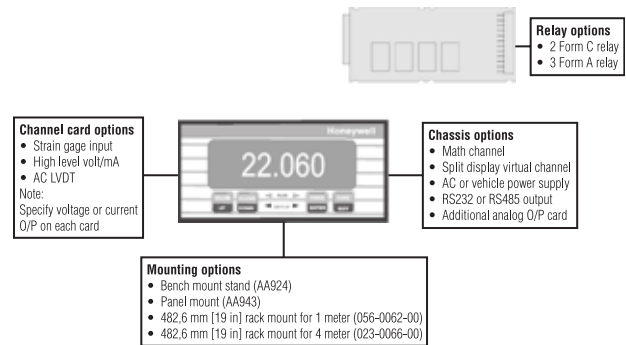


For reference only

TYPICAL SYSTEM DIAGRAM

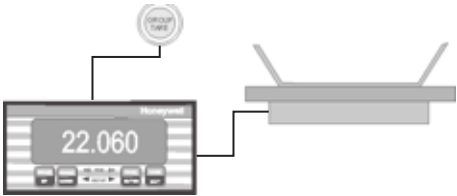

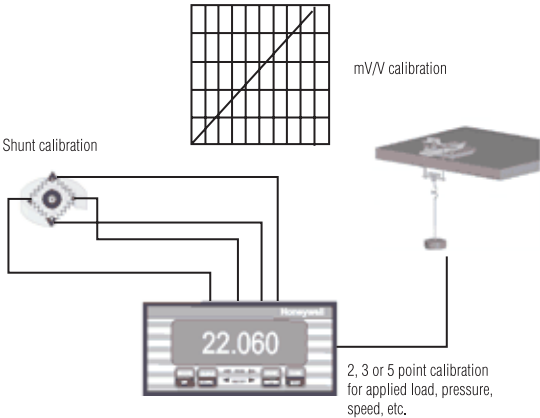
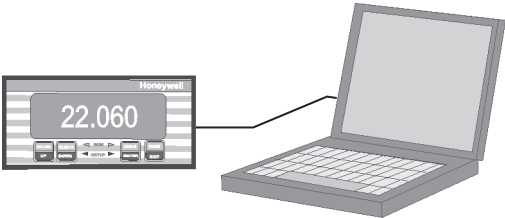
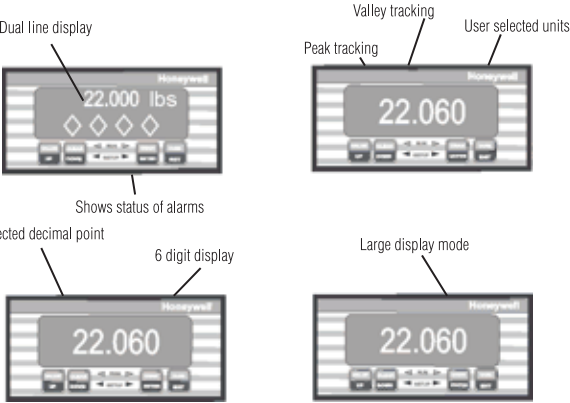
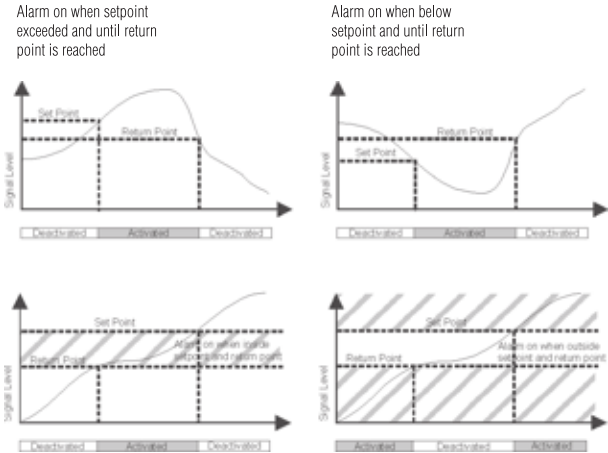


FLEXIBLE AND EXPANDABLE PLATFORM



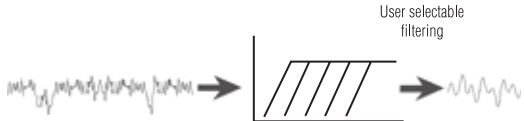
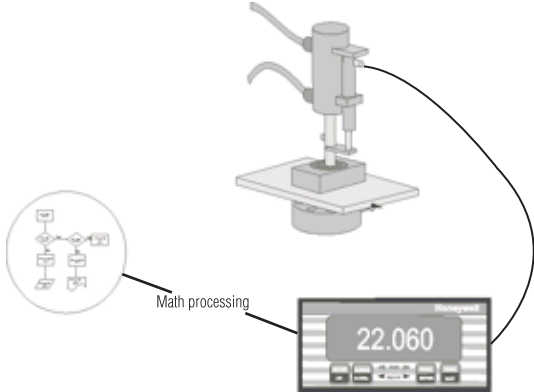
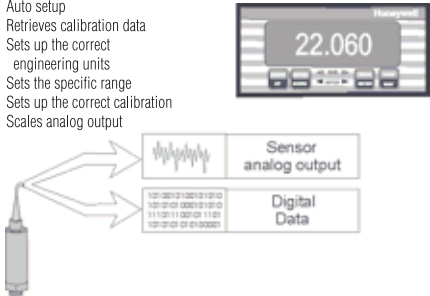
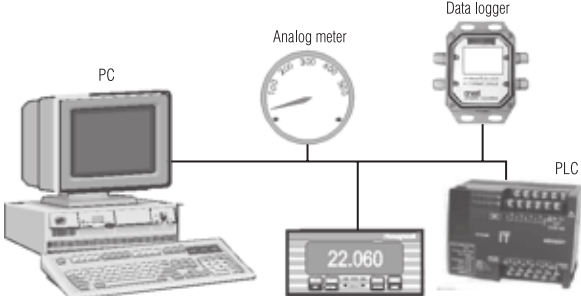
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SC500 CAPABILITIES

<div> <div>Front panel or remote tare</div>  </div>	<div> <div>Flexible user setup</div> <div> <div>Update signature module</div> <div>Number of decimal places</div> <div>Serial communications (optional)</div> <div>Output voltage (optional)</div> <div>Engineering units</div> <div>Alarm outputs (optional)</div> <div>Display averaging</div> </div>  </div>
<div> <div>mV/V or shunt calibration or five-point calibration</div>  </div>	<div> <div>Remote setup</div>  </div>
<div> <div>User selectable display options</div> <div> <div>Dual line display</div> <div>Shows status of alarms</div> <div>User selected decimal point</div> <div>6 digit display</div> <div>Valley tracking</div> <div>Peak tracking</div> <div>User selected units</div> <div>Large display mode</div> </div>  </div>	<div> <div>Different alarm configurations (optional)</div> <div> <div>Alarm on when setpoint exceeded and until return point is reached</div> <div>Alarm on when below setpoint and until return point is reached</div> <div>Alarm on when inside setpoint and return point</div> <div>Alarm on when outside setpoint and return point</div> </div>  </div>

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SC500 CAPABILITIES

User selectable filtering	Math channel (optional) can act like PLC
	
Sig cal auto setup	Analog and digital outputs (optional)
<p>Auto setup Retrieves calibration data Sets up the correct engineering units Sets the specific range Sets up the correct calibration Scales analog output</p> 	

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Warranty. Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

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Sensing and Control

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WARNING **PERSONAL INJURY**

- DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

WARNING **MISUSE OF DOCUMENTATION**

- The information presented in this datasheet is for reference only. DO NOT USE this document as product installation information.
- Complete installation, operation and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

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