

## Model SC3004

### Transducer Display and Signal Conditioning Unit



#### DESCRIPTION

The SC series models are self-calibrating microprocessor-based transducer signal conditioners. 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 either an isolated voltage or isolated current 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
- RTD temperature probes (Pt100)

#### FEATURES

- One to 14 channels
- $\pm 6$  digit display
- "Sig cal" auto setup
- Up to 800 Hz frequency response, field selectable
- Pressure, load, displacement transducer, voltage, current, strain gage based sensor input
- Alarm outputs
- CE approved

Available output channels for the Model SC3004 include:

- Contact relays for the four standard limits or an additional four limits per card, up to 16 limits
- Isolated digital-to-analog voltage ( $\pm 5$  Vdc or 0 Vdc to 10 Vdc) or current (4 mA to 20 mA)

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

#### Fourteen channel chassis

Model SC3004 can hold up to 14 physical channels in its 19 in, 2U rack-mount enclosure. Up to three quad-line displays can be installed which will display the values of up to 12 channels. Split displays can increase display capacity.

# Model SC3004

## GENERAL SPECIFICATIONS

Characteristic	Measure
Model	SC3004
Number of physical channels	1 to 14
Number of virtual channels	8
Case material	Aluminum
Form factor	2U rack
Mounting	Rack or bench with included rubber feet
Size (W x H x D)	482,6 mm x 88,9 mm x 222,25 mm [19 in x 3.5 in x 8.75 in]
Weight	4,99 kg [11 lb]

## DISPLAY SPECIFICATIONS

Characteristic	Measure
Number of displays	1, 2, or 3 (max. 12 channel display)
Number of lines/display	4
Number of characters/lines	20
Scaling	Automatic or manual setup
Max. display count	9999999
Decimal point selection	0 to 5
Display type	Vacuum/Fluorescent

## ENVIRONMENTAL SPECIFICATIONS

Characteristic	Measure
Temperature, storage	-29 °C to 93 °C [-20 °F to 200 °F]
Temperature, operating	4 °C to 41 °C [40 °F to 105 °F]

## SPECIAL FEATURES SPECIFICATIONS

Characteristic	Measure
Limits setup	Front panel
Limits output, standard	Open-collector
Limits output, relay output chan.	Contact relays
Limits quantity	4 std., 16 max. (contact relays)
Peak/valley hold on input chan.	Yes
Digital, isolated control inputs	4
Approvals	CE approved

## COMMUNICATIONS SPECIFICATIONS

Characteristic	Measure
Serial setup and output	RS-232/RS-485
Isolation	500 V
Max. baud rate	38400

## POWER SPECIFICATIONS

Characteristic	Measure
Standard ac powered	100 Vac to 230 Vac, 47 Hz to 63 Hz
Excitation drive	400 mA max.

Not RoHS compliant

## INPUT AMPLIFIER CARDS

All input cards include non-isolated, open collector control inputs that can be field configured for any one of the following functions: 1) track hold, 2) peak/valley hold, 3) tare on, and 4) tare off.

Input	Strain gage milivolts	High level volts/mA	RTD milivolts	ac/ac displacement transducer
<b>Transducer type</b>	Unamplified pressure or load sensors	Amplified pressure or load, dc/dc displacement transducer	Platinum 100 ohm, alpha = 0.00985	ac/ac displacement transducer
<b>Ranges*</b>	0.5 mV/V to 11 mV/V @ 5 V 0.5 mV/V to 5.5 mV/V @ 10 V	±5 Vdc or ±10 Vdc, 4 mA to 20 mA	-328 °F to 1472 °F	0.1 VRMS to 15 VRMS
<b>Frequency response</b>	See table on page 3	See table on page 3	See table on page 3	See table on page 3
<b>Resolution</b>	See table on page 3	See table on page 3	See table on page 3	See table on page 3
<b>Calibration type</b>	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	2-, 3-, or 5-point known load
<b>Transducer excitation</b>	5 Vdc or 10 Vdc with sense	±15 Vdc, 28 Vdc, or 12 Vdc	10 Vdc	3 Vac @ 3 kHz
<b>Push button 100 % tare</b>	Yes	Yes	N/A	Yes
<b>Push button shunt test</b>	Yes	Yes	N/A	Yes

\* Ranges are field programmable, except for RTD input

# Transducer Display and Signal Conditioning Unit

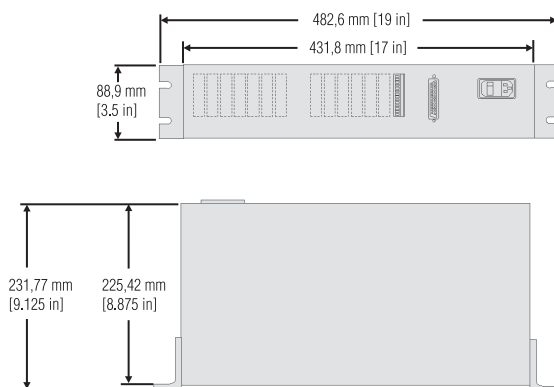
## OUTPUT

Output	Strain gage milivolts	High level volts/mA	RTD milivolts	ac/ac displacement transducer
<b>Voltage range (field selectable)</b>	5 Vdc, ±5 Vdc, 10 Vdc, ±10 Vdc	5 Vdc, ±5 Vdc, 10 Vdc, ±10 Vdc	5 Vdc, ±5 Vdc, 10 Vdc, ±10 Vdc	5 Vdc, ±5 Vdc, 10 Vdc, ±10 Vdc
<b>Current range</b>	4 mA to 20 mA	4 mA to 20 mA	4 mA to 20 mA	4 mA to 20 mA
<b>Source</b>	Any channel	Any channel	Any channel	Any channel
<b>Isolation</b>	500 V	500 V	500 V	500 V
<b>Resolution</b>	13 bits	13 bits	13 bits	13 bits
<b>Frequency response</b>	Same as input	Same as input	Same as input	Same as input

**Resolution (counts) (not including min. 10 % overrange/underrange capability)**

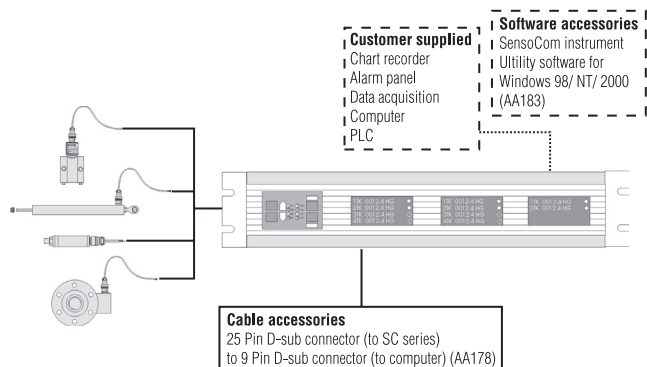
Frequency response (Hz) field selectable	Step response (ms) typical	Strain gage/RTD	High level	ac/ac displacement transducer
2 (fast mode)	40	±50000	±50000	±25000
2	440	±50000	±50000	±25000
8	110	±25000	±25000	±15000
16	55	±20000	±25000	±10000
32	28	±10000	±20000	±10000
50	16	±5000	±15000	±5000
100	8	±5000	±10000	±5000
250	3	±2000	±10000	±2000
500	2	±2000	±4000	±2000
800	2	±2000	±2500	±2000

## MOUNTING DIMENSIONS AND CHARACTERISTICS

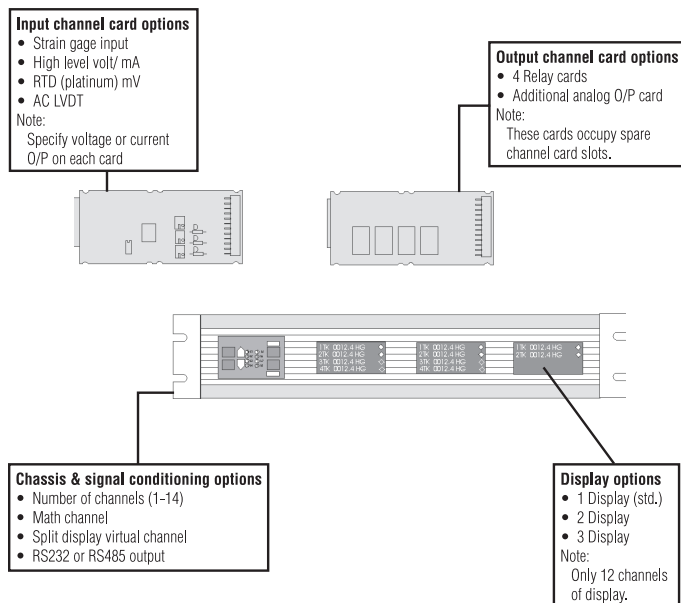


For reference only

## TYPICAL SYSTEM DIAGRAM



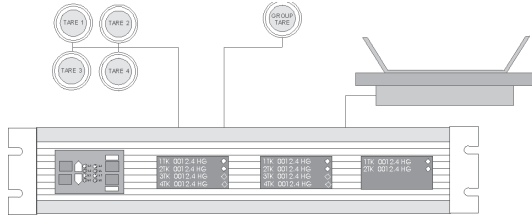
## FLEXIBLE AND EXPANDABLE PLATFORM



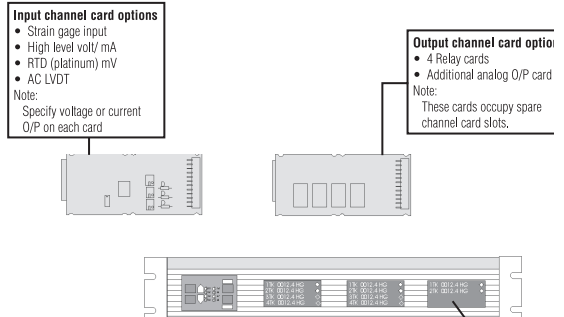
# Model SC3004

## SC3004 CAPABILITIES

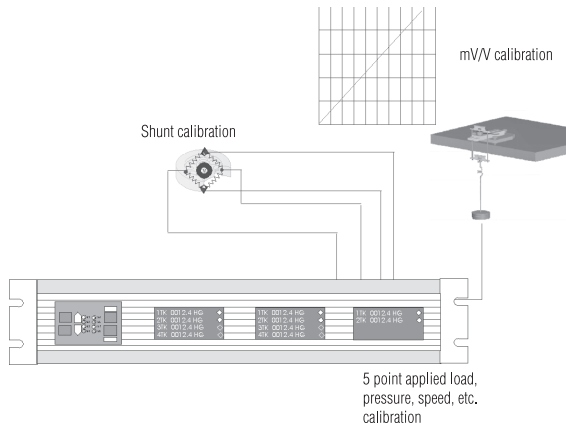
### Front panel or remote tare



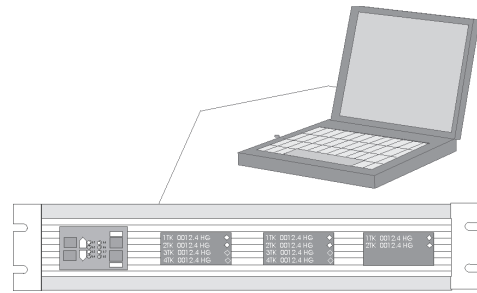
### Flexible user setup



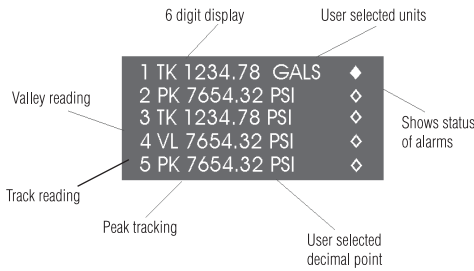
### mV/V or shunt calibration or five-point calibration



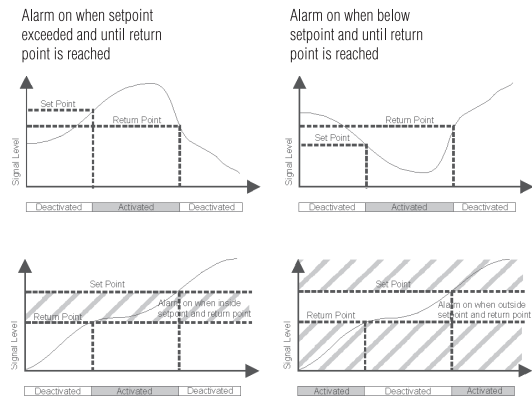
### Remote setup



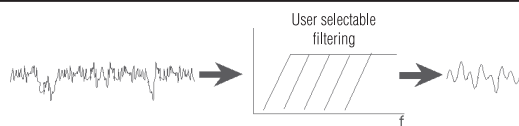
### User selectable display options



### Different alarm configurations

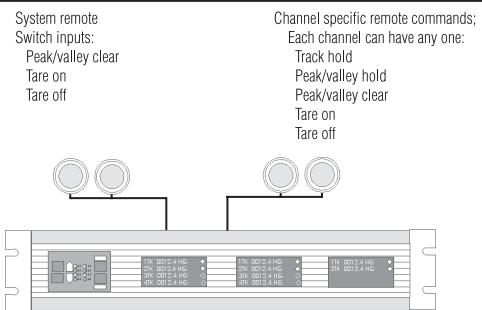


### User selectable filtering



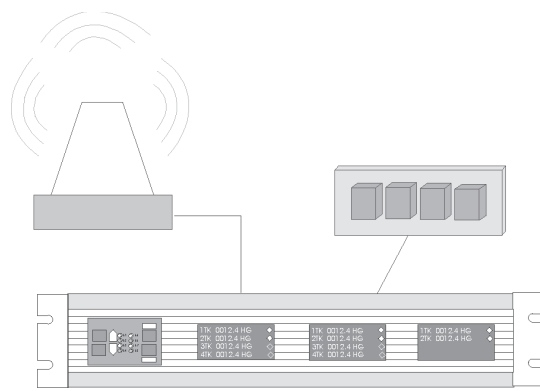
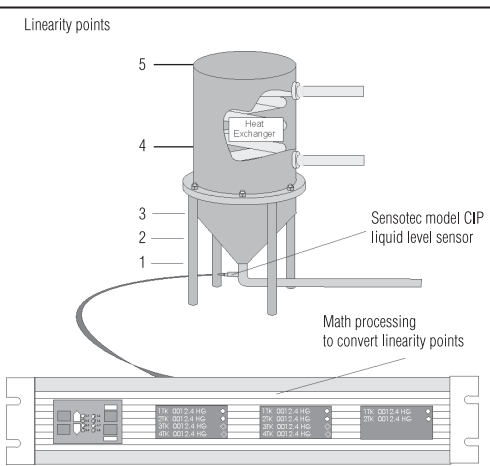
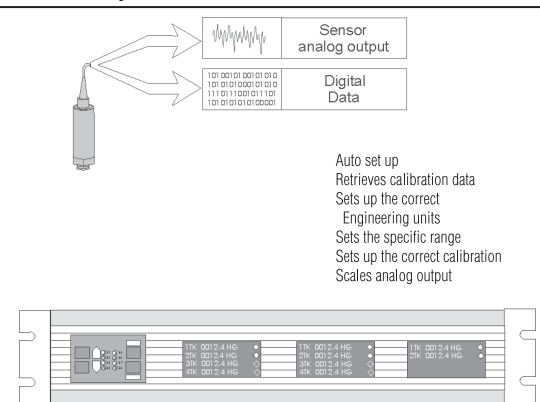
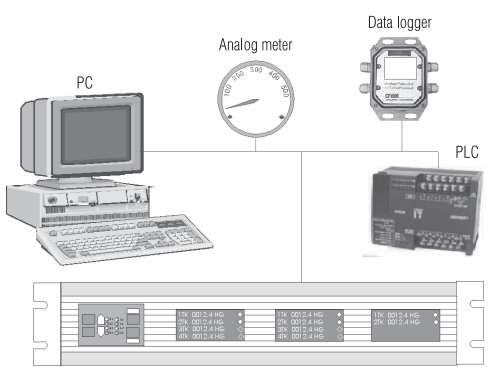
Frequency Response (Hz)	Step Response (ms)	Resolution (counts)	Resolution (counts) not including maximum 1% overrange/underrange capability	AC-DC LVDT
2 (base mode)	40	-40000	-40000	-25000
2	440	-50000	-50000	-25000
9	110	-20000	-20000	-10000
25	55	-20000	-20000	-10000
32	28	-10000	-20000	-10000
66	16	-5000	-10000	-5000
100	8	-5000	-10000	-5000
250	3	-2000	-10000	-2000
500	2	-2000	-4000	-2000
800	2	-2000	-2500	-2000

### Group and individual channel remote inputs



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## SC3004 CAPABILITIES

<p><b>Open collector alarms or via optional four-relay cards</b></p> 	<p><b>Optional math channel can act like PLC</b></p> 
<p><b>Sig cal auto setup</b></p>  <p>Auto set up Retrieves calibration data Sets up the correct Engineering units Sets the specific range Sets up the correct calibration Scales analog output</p>	<p><b>Analog and digital outputs</b></p> 

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

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- 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.**