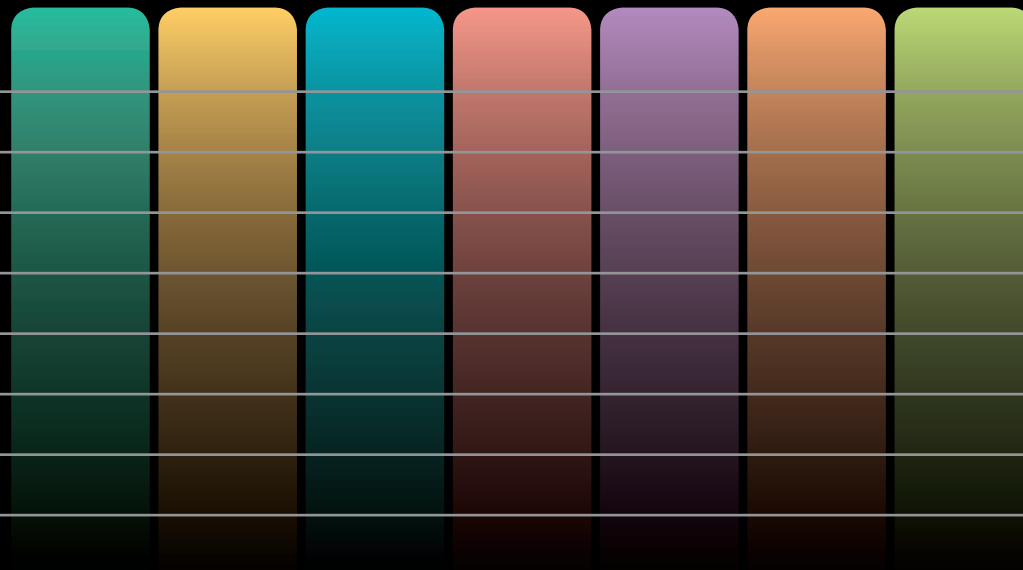




# P R O D U C T   G U I D E





## Welcome to the Status Instruments Product Guide

Here at Status Instruments we've been making top-quality instrumentation for over 25 years - constantly striving to meet and exceed expectations, and always taking pride in delivering the best solutions we can.

We like to say that what goes into our products is **inspiration, dedication and application** - and what comes out is **performance, reliability and value**. It's a formula that's worked fantastically well for all these years, and won us the loyalty of many customers all over the world.

This Product Guide presents our products in a way that shows the full extent of what we have to offer. We think you'll find it more informative and easier to use than anything we've done before. And as always, if you want to find out even more, go to our website at **status.co.uk** where product datasheets, user manuals, hardware configuration details and free software downloads are available.

Thank you for your interest in Status Instruments.

## How to use this Guide

The seven major product groupings are listed below. Each one is colour-coded, so you can find where you want to go in a moment. Each section shows what the range has to offer, and the products are then listed individually with their relevant specification details beneath.

## Ordering

Please place your order directly with the distributor or agent who sent you this Guide; their details should be on the back cover. If you acquired this Guide independently, please contact Status Instruments directly, and we will be able to help you.

**Sales team: +44 (0) 1684 296818**

**Website: [www.status.co.uk](http://www.status.co.uk)**

**E-mail: [sales@status.co.uk](mailto:sales@status.co.uk)**

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Green Lane,  
Tewkesbury,  
Glos GL20 8DE, UK









## Temperature transmitters

# The SEM200 & 300 range

Adaptable digital transmitters for environments and conditions of every kind

In many ways, this is where it all began – 25 years ago, we pioneered a new range of in-head transmitters, which introduced users to new standards of performance and reliability – which in turn helped to establish the name and reputation of Status Instruments. Now we are the UK's leading designer and producer of temperature transmitters, exporting them all over the world. And every model is backed by an unprecedented 10-year warranty.

	SEM 203 P	SEM 213 P *	SEM 203 TC	SEM 213 TC *	SEM 205 XP	SEM 206 P
Model						
Particular Features	Cost-effective Pt100 digital transmitter - in-head, push-button configuration	Cost-effective Pt100 digital transmitter - DIN-rail, push-button configuration	Cost-effective digital thermocouple transmitter - in-head, push-button configuration	Cost-effective digital thermocouple transmitter - DIN-rail, push-button configuration	ATEX digital Pt100 transmitter - PC configuration	Cost-effective digital Pt100 transmitter - PC configuration
Type	In-head	DIN rail	In-head	DIN rail	In-head	In-head
● INPUT						
Pt100 <sup>8 9</sup>	(-200 to 850) °C	(-200 to 850) °C	N/A	N/A	(-200 to 850) °C	(-200 to 850) °C
Custom linearisation	N/A	N/A	N/A	N/A	N/A	N/A
Potentiometer input	(0-5) or (0-10) kΩ <sup>4</sup>	N/A	N/A	N/A	N/A	N/A
Thermocouple type <sup>8</sup>	N/A	N/A	K, J, N, E, T, R, S	K, J, N, E, T, R, S	N/A	N/A
Voltage	N/A	N/A	(-10 to 70) mV	(-10 to 70) mV	N/A	N/A
Current	N/A	N/A	N/A	N/A	N/A	N/A
Sensor referencing	Yes - push button	Yes - push button	Yes - push button	Yes - push button	Yes	Yes
● ACCURACY <sup>1</sup>						
Pt100	± 0.2°C ± 0.05% rdg	± 0.2°C ± 0.05% rdg	N/A	N/A	± 0.1°C ± 0.05% rdg	± 0.2°C ± 0.05% rdg
Thermocouple	N/A	N/A	± 0.5°C ± 0.1% FSR <sup>5</sup>	± 0.5°C ± 0.1% FSR <sup>5</sup>	N/A	N/A
Voltage	N/A	N/A	± 0.2% FSR	± 0.2% FSR	N/A	N/A
Current	N/A	N/A	N/A	N/A	N/A	N/A
Potentiometer	0.1% FSR	N/A	N/A	N/A	N/A	N/A
● GENERAL						
Response time	1 sec (90%)	1 sec (90%)	1 sec (90%)	1 sec (90%)	1 sec (90%)	1 sec (90%)
Isolation	No	No	250V DC	250V DC	500V AC RMS	No
Communications	N/A	N/A	N/A	N/A	USB configurator	USB configurator
Display	N/A	N/A	N/A	N/A	N/A	N/A
Ambient operating temp	(-40 to 85) °C	(-40 to 85) °C	(-40 to 85) °C	(-40 to 85) °C	(-40 to 85) °C	(-40 to 85) °C
Power supply	(10 to 30) V DC	(10 to 30) V DC	(10 to 30) V DC	(10 to 30) V DC	(10 to 35) V DC	(10 to 30) V DC
Configuration	Push button	Push button	Push button	Push button	PC	PC
Width / diameter	43mm diameter	12.5 mm	43mm diameter	12.5 mm	43mm diameter	43mm diameter
● APPROVALS						
Ex ia	N/A	N/A	N/A	N/A	II 1G EEx ia IIc T4-T6	N/A
Ex N	N/A	N/A	N/A	N/A	N/A	N/A
FM	N/A	N/A	N/A	N/A	N/A	N/A
● OUTPUT	(4 to 20) mA	(4 to 20) mA	(4 to 20) mA	(4 to 20) mA	(4 to 20) mA	(4 to 20) mA

Notes - see top of page 6

\* available autumn 2008









Temperature transmitters

The SEM200 & 300 range

continued

Notes:

- 1 Accuracies are approximate - consult full data sheet for more details
- 2 Requires external resistor
- 3 Voltage outputs programmable (0 to 10) (0 to 5) (2 to 10) (0 to 5) and (0 to 1) V @ 2mA
- 4 Potentiometer input optional - contact sales office
- 5 Type T 0.2% FSR
- 6 Voltage drop: 0.054V
- 7 The output can be scaled to any sub-multiple of the input, and even the direction can be reversed
- 8 Minimum span is recommended at 10°C for Pt100, and 25°C for thermocouples, although ranges less than this can be programmed
- 9 All transmitters accommodate 2 or 3 wire sensors - the SEM310/315 also accommodates 4 wire sensors

	SEM 206 TC	SEM 210	SEM 210 X	SEM 310	SEM 310 X	SEM 315
Model						
Particular Features	Cost-effective digital thermocouple transmitter - PC configuration	High performance universal digital transmitter - PC configuration	ATEX high performance universal digital transmitter - PC configuration	High performance universal digital transmitter - HART protocol	ATEX high performance universal digital transmitter - HART protocol	High performance universal digital transmitter - HART protocol, DIN rail
Type	In-head	In-head	In-head	In-head	In-head	DIN rail
● INPUT						
Pt100 <sup>8 9</sup>	N/A	(-200 to 850) °C	(-200 to 850) °C	(-200 to 850) °C	(-200 to 850) °C	(-200 to 850) °C
Custom linearisation	N/A	Yes	Yes	Yes	Yes	Yes
Potentiometer input	N/A	up to 100 kΩ <sup>2</sup>	up to 100 kΩ <sup>2</sup>	up to 100 kΩ <sup>2</sup>	up to 100 kΩ <sup>2</sup>	up to 100 kΩ <sup>2</sup>
Thermocouple type <sup>8</sup>	K, J, N, E, T, R, S	K, J, T, R, S, E, L, N, custom	K, J, T, R, S, E, L, N, custom	K, J, T, R, S, E, L, N, custom	K, J, T, R, S, E, L, N, custom	K, J, T, R, S, E, L, N, custom
Voltage	(-10 to 70) mV	(-10 to 75) mV	(-10 to 75) mV	(-10 to 75) mV	(-10 to 75) mV	(-10 to 75) mV
Current	N/A	N/A	N/A	N/A	N/A	N/A
Sensor referencing	Yes	Yes	Yes	Yes	Yes	Yes
● ACCURACY <sup>1</sup>						
Pt100	N/A	± 0.1°C ± 0.05% rdg	± 0.1°C ± 0.05% rdg	± 0.1°C ± 0.07% rdg	± 0.1°C ± 0.07% rdg	± 0.1°C ± 0.05% rdg
Thermocouple	± 0.5°C ± 0.1% FSR <sup>5</sup>	± 0.5°C ± 0.1% FSR	± 0.5°C ± 0.1% FSR	± 0.5°C ± 0.1% FSR	± 0.5°C ± 0.1% FSR	± 0.5°C ± 0.1% FSR
Voltage	± 0.2% FSR	± 10µV ± 0.07% rdg	± 10µV ± 0.07% rdg	± 10µV ± 0.07% rdg	± 10µV ± 0.07% rdg	± 10µV ± 0.07% rdg
Current	N/A	N/A	N/A	N/A	N/A	N/A
Potentiometer	N/A	0.1% FSR	0.1% FSR	0.1% FSR	0.1% FSR	0.1% FSR
● GENERAL						
Response time	1 sec (90%)	0.5 sec (90%)	0.5 sec (90%)	0.5 sec (90%)	0.5 sec (90%)	0.5 sec (90%)
Isolation	250V DC	500V AC RMS	500V AC RMS	500V AC RMS	500V AC RMS	500V AC RMS
Communications	USB configurator	USB configurator	USB configurator	HART protocol	HART protocol	HART protocol
Display	N/A	N/A	N/A	N/A	N/A	N/A
Ambient operating temp	(-40 to 85) °C	(-40 to 85) °C	(-40 to 85) °C	(-40 to 85) °C	(-40 to 85) °C	(-40 to 85) °C
Power supply	(10 to 30) V DC	(10 to 35) V DC	(10 to 35) V DC	(10 to 40) V DC	(10 to 40) V DC	(10 to 40) V DC
Configuration	PC	PC	PC	PC / HART configurator	PC / HART configurator	PC / HART configurator
Width / diameter	43mm diameter	43 mm diameter	43 mm diameter	44 mm diameter	44 mm diameter	18.25 mm
● APPROVALS						
Ex ia	N/A	N/A	II 1G EEx ia IIc T4-T6	N/A	II 1G EEx ia IIc T4-T6	N/A
Ex N	N/A	N/A	SEM210N Ex NII T4-T6	N/A	SEM310N Ex NII T4-T6	N/A
FM	N/A	N/A	IS/II/1/ABCD/T4	N/A	IS/II/1/ABCD/T4	N/A
● OUTPUT	(4 to 20) mA	(4 to 20) mA	(4 to 20) mA	(4 to 20) mA HART	(4 to 20) mA HART	(4 to 20) mA HART

## A collection of various industrial components, including a large cylindrical pressure washer, several white electronic modules, and four circular blue and white components, all arranged on a dark surface.

**Notes - see top of page 6**









## Signal conditioners

# The SEM1400, 1600, 1700, and the MEDACS range

Superlative performance and flexibility.

Our latest range of DIN-rail signal conditioners offer solutions for virtually every application. The SEM1600 and the all-new SEM1700 are highly cost-effective conditioner/transmitters, featuring our unique USB interface for super-fast configuration. MEDACS goes even further, offering many advanced features such as customised functions to suit specific applications, using our unique TFML software. With Modbus RS485 comms as standard, MEDACS can easily be integrated into larger control systems.

Model	SEM 1402	SEM 1630	SEM 1700 *	MED 2100	MED 2111	MED 2113
						
<b>Particular Features</b>	Loop powered trip amplifier with 2 change over relay outputs	Universal input trip amplifier with 2 change over relay outputs	Universal powered, universal input, smart transmitter / trip amplifier with current or voltage and 2 change over relay outputs	Universal input / RS485 modbus converter	Universal input conditioner with 2 current outputs	Universal input conditioner with 2 normally-closed relay and current outputs
● <b>INPUT</b>	Single channel	Single channel	Single channel	Single channel	Single channel	Single channel
Pt100	N/A	(-200 to 850) °C	(-200 to 850) °C	(-200 to 850) °C	(-200 to 850) °C	(-200 to 850) °C
Potentiometer	N/A	N/A	> 1 kΩ <sup>8</sup>	50Ω to 10kΩ	50Ω to 10kΩ	50Ω to 10kΩ
Thermocouple type	N/A	K, T, N, E, J, R, S	K, J, T, R, S, E, L, N, B, U, C, D, W	K, J, T, R, S, E, L, N, B	K, J, T, R, S, E, L, N, B	K, J, T, R, S, E, L, N, B
Voltage	N/A	(-10 to 75) mV	±200mV, ±1V, ±10V	±100mV, ±1V, ±10V	±100mV, ±1V, ±10V	±100mV, ±1V, ±10V
Current	(4 to 20) mA	(-10 to 25) mA	±25mA	4-20mA, ±20mA, ±10mA	4-20mA, ±20mA, ±10mA	4-20mA, ±20mA, ±10mA
Remote digital inputs	N/A	N/A	N/A	Yes <sup>2</sup>	Yes <sup>2</sup>	Yes <sup>2</sup>
Frequency	N/A	N/A	N/A	N/A	N/A	N/A
User linearisation	N/A	N/A	N/A	Linear, SQRT, power 3/2, power 5/2, user	Linear, SQRT, power 3/2, power 5/2, user	Linear, SQRT, power 3/2, power 5/2, user
● <b>ACCURACY</b> <sup>1</sup>						
Pt100	N/A	± 0.15°C ± 0.05% rdg	± 0.15°C ± 0.05% rdg	± 0.1°C ± 0.05% rdg	± 0.1°C ± 0.05% rdg	± 0.1°C ± 0.05% rdg
Potentiometer	N/A	N/A	± 0.04% FSR	± 0.05% FSR	± 0.05% FSR	± 0.05% FSR
Thermocouple	N/A	± 0.5°C ± 0.1% FSR	± 0.5°C ± 0.1% FSR	± 0.5°C ± 0.1% FSR	± 0.5°C ± 0.1% FSR	± 0.5°C ± 0.1% FSR
Voltage	N/A	± 0.04 mV ± 0.01% FSR	± 0.04% FSR ± 0.04% rdg	± 0.04% FSR ± 0.04% rdg	± 0.04% FSR ± 0.04% rdg	± 0.04% FSR ± 0.04% rdg
Current	N/A	± 0.008 mA ± 0.01% FSR	± 0.04% FSR ± 0.04% rdg	± 0.05% FSR ± 0.05% rdg	± 0.05% FSR ± 0.05% rdg	± 0.05% FSR ± 0.05% rdg
Frequency	N/A	N/A	N/A	N/A	N/A	N/A
● <b>GENERAL</b>						
Isolation	500V DC / 3.75 kV AC <sup>5</sup>	500V DC / 3.75 kV AC <sup>5</sup>	500V DC / 3.75 kV AC <sup>5</sup>	500V DC	500V DC	500V DC
Response time	0.5 sec	1 sec	1 sec	300 mS	300 mS	300 mS
Display	N/A	N/A	N/A	4-digit LED 7mm	4-digit LED 7mm	4-digit LED 7mm
Ambient operating temp	(0 to 50) °C	(-20 to 70) °C	(-20 to 70) °C	(-30 to 60) °C	(-30 to 60) °C	(-30 to 60) °C
Power supply	Input loop	24 V DC	Universal (22 to 300) V DC and (22 to 253) V AC	24 V DC	24 V DC	24 V DC
Loop power supply	N/A	N/A	Input and output	Yes - input	Yes - input	Input and output
Configuration	Trim potentiometer	USB direct	USB direct/push-button trim	PC / push-button	PC / push-button	PC / push-button
Max / min display	N/A	N/A	N/A	Yes	Yes	Yes
Communications	N/A	PC	PC	RS485 modbus	RS485 modbus	RS485 modbus
Totalise	N/A	N/A	N/A	N/A	N/A	N/A
TFML maths function	N/A	N/A	N/A	Yes - optional <sup>4</sup>	Yes - optional <sup>4</sup>	Yes - optional <sup>4</sup>
Width	21 mm	17.5 mm	22 mm	35 mm	35 mm	35 mm
● <b>OUTPUT</b>						
Relay	2 off (250V AC @ 2A) C/O relay	2 off (250V AC @ 2A) C/O relay	2 off (250V AC @ 2A) C/O relay	N/A	N/A	2 off (48V AC @ 1A) N/C relay
Retransmission, (0 to 20), (4 to 20)mA	N/A	N/A	Yes - active or passive	N/A	Yes - 2 channels, both passive	Yes - active or passive
Voltage	N/A	N/A	Yes <sup>6</sup>	N/A	N/A	Yes <sup>7</sup>

Notes - see top of page 12

\* available autumn 2008







Signal conditioners

The MEDACS range



Notes:

- 1 Accuracies are approximate - consult full data sheet for more details
- 2 For use as control input only for reset/clear function, and for use with TFML, TTL, Open Collector, PFC
- 3 TTL, Namur, Low Voltage, Open Collector, PFC
- 4 **Transfer Function Module Library** - allows you to perform maths functions between input(s) and outputs. See datasheet for details
- 5 Check data sheet for isolation details
- 6 Programmable; not available with current output
- 7 Uses external resistor
- 8 Range of 0 / 400Ω also programmable for other resistive sensors - see data sheet







Model	MED 2122	MED 2133	MED 2200	MED 2211	MED 2213	MED 2222
						
Particular Features	Universal input smart trip amplifier with 2 change over relay outputs	Universal input trip amplifier with 4 normally-closed relay outputs	Dual universal input / modbus RS485 converter	Dual universal input conditioner with 2 current outputs	Dual universal input conditioner with current and 2 normally-closed relay outputs	Dual universal input trip amplifier with 2 change over relay outputs
● INPUT	Single channel	Single channel	Dual channel	Dual channel	Dual channel	Dual channel
Pt100	(-200 to 850) °C	(-200 to 850) °C	(-200 to 850) °C	(-200 to 850) °C	(-200 to 850) °C	(-200 to 850) °C
Potentiometer	50Ω to 10kΩ	50Ω to 10kΩ	50Ω to 10kΩ	50Ω to 10kΩ	50Ω to 10kΩ	50Ω to 10kΩ
Thermocouple type	K, J, T, R, S, E, L, N, B	K, J, T, R, S, E, L, N, B	K, J, T, R, S, E, L, N, B	K, J, T, R, S, E, L, N, B	K, J, T, R, S, E, L, N, B	K, J, T, R, S, E, L, N, B
Voltage	±100mV, ±1V, ±10V	±100mV, ±1V, ±10V	±100mV, ±1V, ±10V	±100mV, ±1V, ±10V	±100mV, ±1V, ±10V	±100mV, ±1V, ±10V
Current	4-20mA, ±20mA, ±10mA	4-20mA, ±20mA, ±10mA	4-20mA, ±20mA, ±10mA	4-20mA, ±20mA, ±10mA	4-20mA, ±20mA, ±10mA	4-20mA, ±20mA, ±10mA
Remote digital inputs	Yes <sup>2</sup>	Yes <sup>2</sup>	N/A	N/A	N/A	N/A
Frequency	N/A	N/A	N/A	N/A	N/A	N/A
User linearisation	Linear, SQRT, power 3/2, power 5/2, user	Linear, SQRT, power 3/2, power 5/2, user	Linear, SQRT, power 3/2, power 5/2, user	Linear, SQRT, power 3/2, power 5/2, user	Linear, SQRT, power 3/2, power 5/2, user	Linear, SQRT, power 3/2, power 5/2, user
● ACCURACY <sup>1</sup>						
Pt100	± 0.1°C ± 0.05% rdg	± 0.1°C ± 0.05% rdg	± 0.1°C ± 0.05% rdg	± 0.1°C ± 0.05% rdg	± 0.1°C ± 0.05% rdg	± 0.1°C ± 0.05% rdg
Potentiometer	± 0.05% FSR	± 0.05% FSR	± 0.05% FSR	± 0.05% FSR	± 0.05% FSR	± 0.05% FSR
Thermocouple	± 0.5°C ± 0.1% FSR	± 0.5°C ± 0.1% FSR	± 0.5°C ± 0.1% FSR	± 0.5°C ± 0.1% FSR	± 0.5°C ± 0.1% FSR	± 0.5°C ± 0.1% FSR
Voltage	± 0.04% FSR ± 0.04% rdg	± 0.04% FSR ± 0.04% rdg	± 0.04% FSR ± 0.04% rdg	± 0.04% FSR ± 0.04% rdg	± 0.04% FSR ± 0.04% rdg	± 0.04% FSR ± 0.04% rdg
Current	± 0.05% FSR ± 0.05% rdg	± 0.05% FSR ± 0.05% rdg	± 0.05% FSR ± 0.05% rdg	± 0.05% FSR ± 0.05% rdg	± 0.05% FSR ± 0.05% rdg	± 0.05% FSR ± 0.05% rdg
Frequency	N/A	N/A	N/A	N/A	N/A	N/A
● GENERAL						
Isolation	500V DC	500V DC	500V DC	500V DC	500V DC	500V DC
Response time	300 mS	300 mS	300 mS	300 mS	300 mS	300 mS
Display	4-digit LED 7mm	4-digit LED 7mm	N/A	N/A	N/A	N/A
Ambient operating temp	(-30 to 60) °C	(-30 to 60) °C	(-30 to 60) °C	(-30 to 60) °C	(-30 to 60) °C	(-30 to 60) °C
Power supply	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Loop power supply	Yes - input	Yes - input	Yes - 2 inputs	Yes - 2 inputs	Yes - 2 inputs	Yes - 2 inputs
Configuration	PC / push-buttton	PC / push-buttton	PC	PC	PC	PC
Max / min display	Yes	Yes	N/A	N/A	N/A	N/A
Communications	RS485 modbus	RS485 modbus	RS485 modbus	RS485 modbus	RS485 modbus	RS485 modbus
Totalise	N/A	N/A	N/A	N/A	N/A	N/A
TFML maths function	Yes - optional <sup>4</sup>	Yes - optional <sup>4</sup>	Yes - optional <sup>4</sup>	Yes - optional <sup>4</sup>	Yes - optional <sup>4</sup>	Yes - optional <sup>4</sup>
Width	35 mm	35 mm	35 mm	35 mm	35 mm	35 mm
● OUTPUT						
Relay	2 off (48V AC @ 1A) C/O relay	4 off (48V AC @ 1A) N/C relay	N/A	N/A	2 off (48V AC @ 1A) N/C relay	2 off (48V AC @ 1A) C/O relay
Retransmission, (0 to 20), (4 to 20)mA	N/A	N/A	N/A	Yes - 2 channels, both passive	Yes - passive	N/A
Voltage	N/A	N/A	N/A	N/A	N/A	N/A

Signal conditioners

The MEDACS range

continued



Model	MED 2233	MED 2300	MED 2311	MED 2313	MED 2322	MED 2333
						
Particular Features	Dual universal input trip amplifier with 4 normally-closed relay outputs	Frequency / RS485 modbus converter	Frequency / current converter with 2 current outputs	Frequency / current trip converter with current and 2 normally-closed relay outputs	Frequency / trip amplifier with 2 change over relay outputs	Frequency / trip amplifier with 4 normally-closed relay outputs
● INPUT	Dual channel	Single channel	Single channel	Single channel	Single channel	Single channel
Pt100	(- 200 to 850) °C	N/A	N/A	N/A	N/A	N/A
Potentiometer	50Ω to 10kΩ	N/A	N/A	N/A	N/A	N/A
Thermocouple type	K, J, T, R, S, E, L, N, B	N/A	N/A	N/A	N/A	N/A
Voltage	±100mV, ±1V, ±10V	N/A	N/A	N/A	N/A	N/A
Current	4-20mA, ±20mA, ±10mA	N/A	N/A	N/A	N/A	N/A
Remote digital inputs	N/A	Yes <sup>2</sup>	Yes <sup>2</sup>	Yes <sup>2</sup>	Yes <sup>2</sup>	Yes <sup>2</sup>
Frequency	N/A	0.1Hz to 20kHz <sup>3</sup>	0.1Hz to 20kHz <sup>3</sup>	0.1Hz to 20kHz <sup>3</sup>	0.1Hz to 20kHz <sup>3</sup>	0.1Hz to 20kHz <sup>3</sup>
User linearisation	Linear, SQRT, power 3/2, power 5/2, user	N/A	N/A	N/A	N/A	N/A
● ACCURACY <sup>1</sup>						
Pt100	± 0.1°C ± 0.05% rdg	N/A	N/A	N/A	N/A	N/A
Potentiometer	± 0.05% FSR	N/A	N/A	N/A	N/A	N/A
Thermocouple	± 0.5°C ± 0.1% FSR	N/A	N/A	N/A	N/A	N/A
Voltage	± 0.04% FSR ± 0.04% rdg	N/A	N/A	N/A	N/A	N/A
Current	± 0.05% FSR ± 0.05% rdg	N/A	N/A	N/A	N/A	N/A
Frequency	N/A	0.003% FSR	0.003% FSR	0.003% FSR	0.003% FSR	0.003% FSR
● GENERAL						
Isolation	500V DC	500V DC	500V DC	500V DC	500V DC	500V DC
Response time	300 mS	300 mS	300 mS	300 mS	300 mS	300 mS
Display	N/A	4-digit LED 7mm	4-digit LED 7mm	4-digit LED 7mm	4-digit LED 7mm	4-digit LED 7mm
Ambient operating temp	(-30 to 60) °C	(-30 to 60) °C	(-30 to 60) °C	(-30 to 60) °C	(-30 to 60) °C	(-30 to 60) °C
Power supply	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Loop power supply	Yes - 2 inputs	N/A	N/A	Yes - output	N/A	N/A
Configuration	PC	PC / push-button	PC / push-button	PC / push-button	PC / push-button	PC / push-button
Max / min display	N/A	N/A	N/A	N/A	N/A	N/A
Communications	RS485 modbus	RS485 modbus	RS485 modbus	RS485 modbus	RS485 modbus	RS485 modbus
Totalise	N/A	Yes	Yes	Yes	Yes	Yes
TFML maths function	Yes - optional <sup>4</sup>	Yes - optional <sup>4</sup>	Yes - optional <sup>4</sup>	Yes - optional <sup>4</sup>	Yes - optional <sup>4</sup>	Yes - optional <sup>4</sup>
Width	35 mm	35 mm	35 mm	35 mm	35 mm	35 mm
● OUTPUT						
Relay	4 off (48V AC @ 1A) N/C relay	N/A	N/A	2 off (48V AC @ 1A) N/C relay	2 off (48V AC @ 1A) C/O relay	4 off (48V AC @ 1A) N/C relay
Retransmission, (0 to 20), (4 to 20)mA	N/A	N/A	Yes - 2 channels, both passive	Yes - active or passive	N/A	N/A
Voltage	N/A	N/A	N/A	Yes <sup>7</sup>	N/A	N/A

Notes - see top of page 12








Signal conditioners

The MEDACS range

continued



Model	MED 2400	MED 2411	MED 2413	MED 2422	MED 2433
					
Particular Features	Dual frequency input / RS485 modbus converter	Dual frequency input / current converter with 2 current outputs	Dual frequency input / current trip amplifier with current and 2 normally-closed relay outputs	Dual frequency input / trip amplifier with 2 change over relay outputs	Dual frequency input / trip amplifier with 4 normally-closed relay outputs
● INPUT	Dual channel	Dual channel	Dual channel	Dual channel	Dual channel
Pt100	N/A	N/A	N/A	N/A	N/A
Potentiometer	N/A	N/A	N/A	N/A	N/A
Thermocouple type	N/A	N/A	N/A	N/A	N/A
Voltage	N/A	N/A	N/A	N/A	N/A
Current	N/A	N/A	N/A	N/A	N/A
Remote digital inputs	Yes <sup>2</sup>	Yes <sup>2</sup>	Yes <sup>2</sup>	Yes <sup>2</sup>	Yes <sup>2</sup>
Frequency	0.1Hz to 20kHz <sup>3</sup>	0.1Hz to 20kHz <sup>3</sup>	0.1Hz to 20kHz <sup>3</sup>	0.1Hz to 20kHz <sup>3</sup>	0.1Hz to 20kHz <sup>3</sup>
User linearisation	N/A	N/A	N/A	N/A	N/A
● ACCURACY <sup>1</sup>					
Pt100	N/A	N/A	N/A	N/A	N/A
Potentiometer	N/A	N/A	N/A	N/A	N/A
Thermocouple	N/A	N/A	N/A	N/A	N/A
Voltage	N/A	N/A	N/A	N/A	N/A
Current	N/A	N/A	N/A	N/A	N/A
Frequency	0.003% FSR	0.003% FSR	0.003% FSR	0.003% FSR	0.003% FSR
● GENERAL					
Isolation	500V DC	500V DC	500V DC	500V DC	500V DC
Response time	300 mS	300 mS	300 mS	300 mS	300 mS
Display	N/A	N/A	N/A	N/A	N/A
Ambient operating temp	(-30 to 60) °C	(-30 to 60) °C	(-30 to 60) °C	(-30 to 60) °C	(-30 to 60) °C
Power supply	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Loop power supply	N/A	N/A	N/A	N/A	N/A
Configuration	PC	PC	PC	PC	PC
Max / min display	N/A	N/A	N/A	N/A	N/A
Communications	RS485 modbus	RS485 modbus	RS485 modbus	RS485 modbus	RS485 modbus
Totalise	N/A	N/A	N/A	N/A	N/A
TFML maths function	Yes - optional <sup>4</sup>	Yes - optional <sup>4</sup>	Yes - optional <sup>4</sup>	Yes - optional <sup>4</sup>	Yes - optional <sup>4</sup>
Width	35 mm	35 mm	35 mm	35 mm	35 mm
● OUTPUT					
Relay	N/A	N/A	2 off (48V AC @ 1A) N/C relay	2 off (48V AC @ 1A) C/O relay	4 off (48V AC @ 1A) N/C relay
Retransmission, (0 to 20), (4 to 20)mA	N/A	Yes - 2 channels, both passive	Yes - passive	N/A	N/A
Voltage	N/A	N/A	N/A	N/A	N/A








Notes - see top of page 12



# The SEM1000 range

Fast, affordable and efficient instrumentation for multiple purposes

Here is a diverse range of very adaptable DIN-rail products which provide multiple types of interface between two sets of equipment. So if you're looking to handle tasks such as removing earth loops, converting large or small DC voltage signals to current, power supply isolation, signal splitting, loop boosting or current to voltage conversion, the SEM1000 range is for you.

Model	SEM 1000	SEM 1010	SEM 1015	SEM 1020	SEM 1100	SEM 1200	SEM 1300
							
Particular Features	Loop-powered current loop isolator	Output loop powered isolator, providing isolation between two loops <sup>1</sup>	Converts DC voltage to an isolated 4-20mA signal	Current loop booster	Powered isolating converter, with current or voltage input, and current plus voltage outputs	Current loop splitter	Cool operating 24V DC power supply unit
● INPUT	(4 to 20) mA	2-wire (4 to 20) mA; powers 2-wire transmitter from loop output	DC voltage	(4 to 20) mA	(0 to 20) or (4 to 20) mA active or passive, or 6 voltage ranges between (0 to 10)V DC	(4 to 20) mA	(90 to 253) V AC
Range	(4 to 20) mA	(4 to 20) mA	Any between (-10 to 100) V DC	(4 to 20) mA	(4 to 20) mA or (0 to 10)V DC	(4 to 20) mA	N/A
Protection	Reverse polarity	Current limited	Reverse polarity / overvoltage	Reverse polarity	Reverse polarity / overvoltage	Reverse polarity	1A surge-protected fuse <sup>2</sup>
● GENERAL							
Voltage drop	5V DC typical	5V DC typical	N/A	2.7V DC	N/A	5V DC	N/A
Maximum loop supply	35V DC	35V DC	30V DC	35V DC	25V DC	32V DC	N/A
Isolation	500V DC	500V DC	500V DC	500V DC	500V DC / 3.75 kV AC	500V DC	3.75 kV AC
Maximum load	500Ω	N/A	N/A	1200Ω	1000Ω	1200Ω	N/A
Response time	< 100 mS (63%)	< 100 mS (63%)	< 100 mS (63%)	< 100 mS (63%)	< 100 mS (63%)	< 100 mS (63%)	N/A
Power supply	Input loop	Output loop	Output loop	Both loops	(110 to 240)V AC or 24V DC	Input loop	(90 to 253)V AC
Loop power supply	N/A	N/A	N/A	N/A	Yes - input and output	N/A	N/A
Ambient operating temp	(0 to 70) °C	(0 to 70) °C	(0 to 70) °C	(0 to 70) °C	(0 to 70) °C	(0 to 70) °C	(0 to 50) °C
Width	12.5 mm	21 mm	12.5 mm	12.5 mm	22.5 mm	12.5 mm	21 mm
● OUTPUT	(4 to 20) mA passive	(4 to 20) mA current, reverse protected	(4 to 20) mA passive	(4 to 20) mA passive	(0 to 20) or (4 to 20) mA active or passive, or one of 6 voltage ranges between (0 to 10)V DC	2 off, 2-wire (4 to 20) mA passive	24V DC @ 250mA

<sup>1</sup> Provides power for input loop from output loop






<sup>2</sup> Fuse recommended in live supply line (not supplied)

## Digital panel indicators

# The DM 2000 and 3000 range

## Efficient, cost-effective panel indicators

This amazingly versatile range of cost-effective panel indicators will help you meet every conceivable need. They accept all common industrial sensors and have a complete range of output options. From the new DM2000 with its universal power supply and unique USB configuration, through to the highly advanced DM3600 which can customise its function to suit specific applications via the unique TFML software, there's a DM-range panel indicator to meet every requirement.

Model	DM 2010 *	DM 2030 *	DM 3410	DM 3420	DM 3430
					
Particular Features	Cost-effective universal panel meter, with current or voltage output	Cost-effective universal panel meter, with current or voltage, and 4 relay outputs	Pt100 / thermocouple smart panel meter with output options	Current / voltage smart panel meter with output options	High voltage true RMS AC / DC smart panel meter with output options
Type	96 x 48mm panel mount	96 x 48mm panel mount	96 x 48mm panel mount	96 x 48mm panel mount	96 x 48mm panel mount
● INPUT					
Pt100	(-200 to 850) °C	(-200 to 850) °C	(-200 to 850) °C	N/A	N/A
Potentiometer <sup>10</sup>	> 1 kΩ	> 1 kΩ	N/A	N/A	N/A
Thermocouple	K, J, T, R, S, E, L, N, B, U, C, D, W	K, J, T, R, S, E, L, N, B, U, C, D, W	K, J, T, R, S, E, L, N, B	N/A	N/A
Current	±25mA	±25mA	N/A	(0 to 10) (0 to 20) (4 to 20) mA	±6A AC / DC
Voltage	±200mV, ±1V, ±10V,	±200mV, ±1V, ±10V,	N/A	(0 to 1) (1 to 5) (0 to 10) V DC	±550V AC / DC
Remote digital inputs	N/A	N/A	N/A	N/A	N/A
Linearisation	Linear, Pt100, thermocouple	Linear, Pt100, thermocouple	Custom <sup>2</sup>	N/A	N/A
● ACCURACY <sup>1</sup>					
Pt100	± 0.15°C ± 0.05% rdg	± 0.15°C ± 0.05% rdg	± 0.1°C ± 0.05% rdg	N/A	N/A
Potentiometer <sup>10</sup>	± 0.04% FSR	± 0.04% FSR	N/A	N/A	N/A
Thermocouple	± 0.5°C ± 0.1% FSR	± 0.5°C ± 0.1% FSR	± 0.5°C ± 0.1% FSR	N/A	N/A
Current	± 0.04% FSR ± 0.04% rdg	± 0.04% FSR ± 0.04% rdg	N/A	± 0.05% FSR ± 0.05% rdg	0.1% rdg ± 0.1% FSR
Voltage	± 0.04% FSR ± 0.04% rdg	± 0.04% FSR ± 0.04% rdg	N/A	± 0.04% FSR ± 0.04% rdg	0.1% rdg ± 0.1% FSR
● GENERAL					
Isolation	500V DC / 3.75 kV AC <sup>9</sup>	500V DC / 3.75 kV AC <sup>9</sup>	500V DC / 3.75 kV AC <sup>9</sup>	500V DC / 3.75 kV AC <sup>9</sup>	500V DC / 3.75 kV AC <sup>9</sup>
Response time	1 sec	1 sec	1 sec <sup>3</sup>	1 sec <sup>3</sup>	N/A
Display	4 digit LED, 14.2mm	4 digit LED, 14.2mm	4 digit LED, 14.2mm	4 digit LED, 14.2mm	4 digit LED, 14.2mm
Ambient operating temp	(-30 to 60) °C	(-30 to 60) °C	(-30 to 60) °C	(-30 to 60) °C	(-30 to 60) °C
Power supply	Universal (22 to 300) V DC and (22 to 253) V AC	Universal (22 to 300) V DC and (22 to 253) V AC	(20 to 35) V DC or (90 to 253) V AC	(20 to 35) V DC or (90 to 253) V AC	(20 to 35) V DC or (90 to 253) V AC
Loop power supply	Input / output	Input / output	Output	Input / output	Output
Configuration	USB direct	USB direct	Push-button / comms option	Push-button / comms option	Push-button / comms option
Max / min display	N/A	N/A	N/A	Yes	N/A
Communications	N/A	N/A	RS485 modbus option <sup>4</sup>	RS485 modbus option <sup>4</sup>	RS485 modbus option <sup>4</sup>
TFML maths function <sup>8</sup>	N/A	N/A	N/A	N/A	N/A
● OUTPUT					
Relay	N/A	4 off (250V AC@1A)isolated <sup>5</sup>	2 off (250V AC@5A)option <sup>4 6</sup>	2 off (250V AC@5A)option <sup>4 6</sup>	2 off (250V AC@5A)option <sup>4 6</sup>
Retransmission, (0 to 20), (4 to 20)mA	Yes - active or passive	Yes - active or passive	Option <sup>4</sup> - active or passive	Option <sup>4</sup> - active or passive	Option <sup>4</sup> - active or passive
Voltage	Yes <sup>11</sup>	Yes <sup>11</sup>	Yes <sup>12</sup>	Yes <sup>12</sup>	Yes <sup>12</sup>

Notes - see top of page 22

\* available autumn 2008



Digital panel indicators

The DM 2000 and 3000 range

continued



Notes:

- 1 Accuracies are approximate - consult full data sheet for more details
- 2 Factory set
- 3 Programmable OFF, 2 sec, 10 sec, or adaptive
- 4 Provision for 2 x POD plug-and-play options
- 5 High, low, adjust hysteresis
- 6 High, low, adjust hysteresis, programmable delay, programmable latch, programmable invert
- 7 For use as control input only for reset/clear function, and for use with TFML, TTL, open collector, PFC
- 8 Transfer Function Module Library - allows you to perform maths functions between input and outputs. See website for details
- 9 Check data sheet for isolation details
- 10 Range of 0 / 400Ω also programmable for other resistive sensors - see data sheet
- 11 Not available with current output
- 12 Uses external resistor

Model

DM 3600 U

DM 3600 U/01

DM 3600 A

DM 3600 A/01



Particular Features

6-digit universal intelligent panel meter with output options

6-digit universal intelligent panel meter with RS485 modbus comms and output options

6-digit universal intelligent panel meter with totaliser function and output options

6-digit universal intelligent panel meter with totaliser function, RS485 modbus comms and output options

Type

96 x 48mm panel mount

96 x 48mm panel mount

96 x 48mm panel mount

96 x 48mm panel mount

INPUT

Pt100

(-200 to 850) °C

(-200 to 850) °C

(-200 to 850) °C

(-200 to 850) °C

Potentiometer

N/A

N/A

N/A

N/A

Thermocouple

K, J, T, R, S, E, L, N, B

K, J, T, R, S, E, L, N, B

K, J, T, R, S, E, L, N, B

K, J, T, R, S, E, L, N, B

Current

(4 to 20)mA ±20mA ±10mA

(4 to 20)mA ±20mA ±10mA

(4 to 20)mA ±20mA ±10mA

(4 to 20)mA ±20mA ±10mA

Voltage

±100mV, ±1V DC, ±10V DC

±100mV, ±1V DC, ±10V DC

±100mV, ±1V DC, ±10V DC

±100mV, ±1V DC, ±10V DC

Frequency

N/A

N/A

N/A

N/A

Remote digital inputs

Yes <sup>7</sup>

Yes <sup>7</sup>

Yes <sup>7</sup>

Yes <sup>7</sup>

Linearisation

Linear, SQRT, power 3/2, power 5/2, user

Linear, SQRT, power 3/2, power 5/2, user

Linear, SQRT, power 3/2, power 5/2, user

Linear, SQRT, power 3/2, power 5/2, user

ACCURACY <sup>1</sup>

Pt100

± 0.1°C ± 0.05% rdg

± 0.1°C ± 0.05% rdg

± 0.1°C ± 0.05% rdg

± 0.1°C ± 0.05% rdg

Potentiometer

N/A

N/A

N/A

N/A

Thermocouple

± 0.5°C ± 0.1% FSR

± 0.5°C ± 0.1% FSR

± 0.5°C ± 0.1% FSR

± 0.5°C ± 0.1% FSR

Current

± 0.05% FSR ± 0.05% rdg

± 0.05% FSR ± 0.05% rdg

± 0.05% FSR ± 0.05% rdg

± 0.05% FSR ± 0.05% rdg

Voltage

± 0.04% FSR ± 0.04% rdg

± 0.04% FSR ± 0.04% rdg

± 0.04% FSR ± 0.04% rdg

± 0.04% FSR ± 0.04% rdg

Frequency

N/A

N/A

N/A

N/A

GENERAL

Isolation

500V DC / 3.75 kV AC <sup>9</sup>

500V DC / 3.75 kV AC <sup>9</sup>

500V DC / 3.75 kV AC <sup>9</sup>

500V DC / 3.75 kV AC <sup>9</sup>

Response time

1 sec <sup>3</sup>

1 sec <sup>3</sup>

1 sec <sup>3</sup>

1 sec <sup>3</sup>

Display

6 digit LED, 14.2mm

6 digit LED, 14.2mm

6 digit LED, 14.2mm

6 digit LED, 14.2mm

Ambient operating temp

(-30 to 60) °C

(-30 to 60) °C

(-30 to 60) °C

(-30 to 60) °C

Power supply

(20 to 35) V DC or (90 to 253) V AC

(20 to 35) V DC or (90 to 253) V AC

(20 to 35) V DC or (90 to 253) V AC

(20 to 35) V DC or (90 to 253) V AC

Loop power supply

Input / output

Input / output

Input / output

Input / output

Configuration

Push-button

Push-button / comms

Push-button

Push-button / comms

Max / min display

Yes

Yes

Yes

Yes

Communications

N/A

RS485 modbus <sup>2</sup>

N/A

RS485 modbus <sup>2</sup>

TFML maths function <sup>8</sup>

N/A

Yes

N/A

Yes

OUTPUT

Relay

2 off (250V AC@5A)option <sup>4 6</sup>

2 off (250V AC@5A)option <sup>4 6</sup>

2 off (250V AC@5A)option <sup>4 6</sup>

2 off (250V AC@5A)option <sup>4 6</sup>

Retransmission, (0 to 20), (4 to 20)mA

Option <sup>4</sup> - active or passive

Option <sup>4</sup> - active or passive

Option <sup>4</sup> - active or passive

Option <sup>4</sup> - active or passive

Voltage

Yes <sup>12</sup>

Yes <sup>12</sup>

Yes <sup>12</sup>






Yes <sup>12</sup>

# Digital thermometers and loop-powered indicators

## The DM500, 600 & 700 range

Clever and adaptable thermometers and indicators, with a host of options and capabilities

The battery-powered DM540 and 640 range provides digital temperature readouts in a dial-type indicator housing, and offers an advantage over the traditional bimetallic or gas filled dial thermometers. These products feature max/min logging or ATEX options, and can accept standard Pt100 or thermocouple sensors. The loop-powered DM500 and 700 range provide a 4-digit panel or in-head display of process value – which can be easily programmed to your requirements.

Model	DM 500	DM 540	DM 640 P	DM 640 XP	DM 640 TC
					
Particular Features	(4 to 20) mA loop-powered LCD process indicator	Battery-powered Pt100 thermometer, with max / min display	Cost-effective battery-powered Pt100 thermometer	ATEX-approved battery-powered Pt100 thermometer	Cost-effective battery-powered thermocouple thermometer
Type	100 mm dial style, head / wall mount <sup>2</sup>	100 mm dial style, head / wall mount	Head / wall mount	Head / wall mount	Head / wall mount
● INPUT					
Pt100	N/A	(-50 to 399.9) °C	(- 100 to 800) °C	(- 100 to 800) °C	N/A
Thermocouple	N/A	N/A	N/A	N/A	K, J, T, R, S, E, L, N
Current	(4 to 20) mA loop	N/A	N/A	N/A	N/A
Voltage	N/A	N/A	N/A	N/A	N/A
Pulse	N/A	N/A	N/A	N/A	N/A
Linearisation / offset	N/A	N/A	User	User	User
● ACCURACY <sup>1</sup>					
Pt100	N/A	± 0.1°C ± 0.15% rdg	± 0.2°C ± 0.1% rdg	± 0.2°C ± 0.1% rdg	N/A
Thermocouple	N/A	N/A	N/A	N/A	± 0.5°C ± 0.1% FSR
Current	± 0.1% rdg ± 1 count	N/A	N/A	N/A	N/A
Response time	0.5 sec (90%)	Selectable	0.5 sec (90%)	0.5 sec (90%)	0.5 sec (90%)
● GENERAL					
Ambient operating temp	(0 to 50) °C	(0 to 50) °C	(-10 to 70) °C	(-10 to 70) °C	(-10 to 70) °C
Power supply	Loop	Battery	Battery	Battery	Battery
Battery life	N/A	2 years typical	2 years typical	2 years typical	2 years typical
Enclosure	Stainless steel	Stainless steel	ABS or stainless steel	ABS	ABS or stainless steel
Environmental rating	IP65 <sup>4</sup>	IP65 <sup>4</sup>	IP67 <sup>4</sup>	IP67 <sup>4</sup>	IP67 <sup>4</sup>
Configuration	Potentiometer	Fixed	Push button	Push button	Push button
● APPROVALS					
Ex ia	N/A	N/A	N/A	II 1 G D EEx ia IIC T4 <sup>3</sup>	N/A
● OUTPUT					
Display	4 digit LCD 20 mm	4 digit LCD 20 mm	4 digit LCD 8.5 mm	4 digit LCD 8.5 mm	4 digit LCD 8.5 mm

Notes - see top of page 26







Digital thermometers and loop-powered indicators

The DM500, 600 & 700 range

continued

Notes:

- 1 Accuracies are approximate - consult full data sheet for more details
- 2 Transmitter can be installed in deep case option
- 3 ABS housing only
- 4 When assembled in base housing
- 5 HART transparent
- 6 Can be supplied with STS2 or 9-sensor, to your specification

Model	DM 640 XTC	DM 700	DM 700 X	DM 720
				
Particular Features	ATEX-approved battery-powered thermocouple thermometer	(4 to 20mA) loop-powered process indicator, with in-head temperature transmitter capability	ATEX-approved (4 to 20mA) loop-powered process indicator, with in-head temperature transmitter capability	(4 to 20mA) loop-powered panel mount indicator
Type	Head / wall mount	Head / wall mount	Head / wall mount	48 x 24mm panel mount
● INPUT				
Pt100 6	N/A	N/A	N/A	N/A
Thermocouple 6	K, J, T, R, S, E, L, N	N/A	N/A	N/A
Current	N/A	(4 to 20) mA 5 loop	(4 to 20) mA 5 loop	(4 to 20) mA 5 loop
Voltage	N/A	N/A	N/A	N/A
Pulse	N/A	N/A	N/A	N/A
Linearisation / offset	User	Linear, SQRT, power 3/2, power 5/2, user	Linear, SQRT, power 3/2, power 5/2, user	N/A
● ACCURACY 1				
Pt100	N/A	N/A	N/A	N/A
Thermocouple	± 0.5°C ± 0.1% FSR	N/A	N/A	N/A
Current	N/A	± 0.1% rdg ± 1 count	± 0.1% rdg ± 1 count	± 0.1% rdg ± 3 counts
Response time	0.5 sec (90%)	0.5 sec (90%)	0.5 sec (90%)	0.5 sec (90%)
● GENERAL				
Ambient operating temp	(-10 to 70) °C	(-20 to 75) °C	(-20 to 75) °C	(-10 to 60) °C
Power supply	Battery	Loop	Loop	Loop
Battery life	2 years typical	N/A	N/A	N/A
Enclosure	ABS	ABS or stainless steel	ABS	Polycarbonate s/UL 94 V-O
Environmental rating	IP67 4	IP67 4	IP67 4	IP65 panel seal
Configuration	Push button	Push button	Push button	Push button
● APPROVALS				
Ex ia	II 1 G D EEx ia IIC T4 3	N/A	II 1 G EEx ia IIC T4 3	N/A
● OUTPUT				
Display	4 digit LCD 8.5 mm	4 digit LED 7 mm	4 digit LED 7 mm	4 digit LED 10 mm



Humidity transmitters

The SEM160 range

Advanced and highly accurate humidity and temperature measurement



The SEM161 and 162 range is our latest design of humidity transmitter, available with single or dual outputs, measuring dewpoint and delta T as well as temperature and humidity. Any one of these four can be output on the single-channel version, or any two on the dual-channel version, making this a very powerful and versatile product.

For high-temperature applications there is the SEM165 with its stainless steel stem, and for more harsh environments there is the SEM167 with its electronics housed in an epoxy-painted aluminium enclosure.

Model	SEM 161 W/H	SEM 161 D/H	SEM 161 R/H	SEM 162 W/HP	SEM 162 D/HP
	<div>(shown with optional display)</div> <div></div>	<div>(shown with optional display)</div> <div></div>	<div>(shown with optional display)</div> <div></div>	<div>(shown with optional display)</div> <div></div>	<div>(shown with optional display)</div> <div></div>
Particular Features	Wall-mount humidity transmitter, with dewpoint capability	Duct-mount humidity transmitter, with dewpoint capability	Remote mount humidity transmitter, with dewpoint capability	Wall-mount temperature / humidity transmitter, with dewpoint capability	Duct-mount temperature / humidity transmitter, with dewpoint capability
● INPUT					
Temperature range	(-30 to 100) °C <sup>2</sup>	(-30 to 100) °C <sup>2</sup>	(-30 to 100) °C <sup>2</sup>	(-30 to 100) °C <sup>2</sup>	(-30 to 100) °C <sup>2</sup>
Humidity (RH)	(0 to 100) %	(0 to 100) %	(0 to 100) %	(0 to 100) %	(0 to 100) %
● ACCURACY					
Temperature	± 0.5°C	± 0.5°C	± 0.5°C	± 0.5°C	± 0.5°C
Humidity (RH)	± 2% RH	± 2% RH	± 2% RH	± 2% RH	± 2% RH
● GENERAL					
Plug-in sensor	Yes	Yes	Yes	Yes	Yes
Sensor stem dimensions	(130 x 20) mm diameter	(130 x 20) mm diameter (270 x 20) mm diameter	(160 x 20) mm diameter	(130 x 20) mm diameter	(130 x 20) mm diameter (270 x 20) mm diameter
Optional sensor stem dimensions	N/A	(550 x 20) mm diameter	N/A	N/A	(550 x 20) mm diameter
Sensor stem material	Polycarbonate	Polycarbonate	Polycarbonate	Polycarbonate	Polycarbonate
Cable length	N/A	N/A	2m or 5m	N/A	N/A
Housing material	Impact-resistant ABS plastic	Impact-resistant ABS plastic	Impact-resistant ABS plastic	Impact-resistant ABS plastic	Impact-resistant ABS plastic
Housing IP rating	IP67	IP67	IP67	IP67	IP67
Display option	4 digit LED <sup>5</sup>	4 digit LED <sup>5</sup>	4 digit LED <sup>5</sup>	4 digit LED <sup>5</sup>	4 digit LED <sup>5</sup>
Configuration	USB link	USB link	USB link	USB link	USB link
Ambient operating electronics	(-30 to 70) °C	(-30 to 70) °C	(-30 to 70) °C	(-30 to 70) °C	(-30 to 70) °C
Power supply	(10 to 30) V DC <sup>1</sup>	(10 to 30) V DC <sup>1</sup>	(10 to 30) V DC <sup>1</sup>	(10 to 30) V DC <sup>1</sup>	(10 to 30) V DC <sup>1</sup>
● OUTPUT					
Output channels	1 x (4 to 20) mA	1 x (4 to 20) mA	1 x (4 to 20) mA	2 x (4 to 20) mA	2 x (4 to 20) mA
Output choices:					
Temperature	Programmable	Programmable	Programmable	Default	Default
Humidity	Default	Default	Default	Default	Default
Dewpoint	Programmable	Programmable	Programmable	Programmable	Programmable
Delta T <sup>8</sup>	Programmable	Programmable	Programmable	Programmable	Programmable

Notes - see top of page 30

Humidity transmitters

The SEM160 range

continued



Notes:

- 1 Supply voltage (15 to 30) V DC when display fitted
- 2 Temperature range is programmable between these values
- 3 (0 to 10) V DC output available as an option
- 4 Factory-set - see data sheet for available ranges between these points.
- 5 Display will alternate between measured parameters
- 6 Uses DM700 loop-powered indicator for display
- 7 Temperature output on SEM167 is optional
- 8 Delta T = difference between dewpoint temperature and ambient temperature. Display value not available for this output

Model	SEM 162 R/HP	SEM 165 HP	SEM 167 H1P	SEM 167 H1C	SEM 167 H1R
	<div>(shown with optional display)</div>				
Particular Features	Remote mount temperature/humidity transmitter, with dewpoint capability	High-temperature duct-mount humidity and temperature transmitter	Heavy duty wall-mount humidity and temperature transmitter	Heavy duty duct-mount humidity and temperature transmitter	Heavy duty remote mount humidity and temperature transmitter
● INPUT					
Temperature range	(-30 to 100) °C <sup>2</sup>	(-30 to 140) °C <sup>4</sup>	(-30 to 100) °C <sup>4</sup>	(-30 to 100) °C <sup>4</sup>	(-30 to 100) °C <sup>4</sup>
Humidity (RH)	(0 to 100) %	(0 to 100) %	(0 to 100) %	(0 to 100) %	(0 to 100) %
● ACCURACY					
Temperature	± 0.5°C	± 0.5°C	± 0.5°C	± 0.5°C	± 0.5°C
Humidity (RH)	± 2% RH	± 2% RH	± 2% RH	± 2% RH	± 2% RH
● GENERAL					
Plug-in sensor	Yes	Fixed	Yes	Yes	Yes
Sensor stem dimensions	(160 x 20) mm diameter	(185 x 10) mm diameter	(110 x 20) mm diameter	(250 x 20) mm diameter	(160 x 20) mm diameter
Optional sensor stem dimensions	N/A	(300 x 10) mm diameter	N/A	(530 x 20) mm diameter	N/A
Sensor stem material	Polycarbonate	Stainless steel	Polycarbonate	Polycarbonate	Polycarbonate
Cable length	2m or 5m	N/A	N/A	N/A	2m or 5m
Housing material	Impact-resistant ABS plastic	Impact-resistant ABS plastic	Epoxy painted aluminium	Epoxy painted aluminium	Epoxy painted aluminium
Housing IP rating	IP67	IP67	IP66	IP66	IP66
Display option	4 digit LED <sup>5</sup>	4 digit LED; one channel only <sup>6</sup>	4 digit LCD <sup>5</sup>	4 digit LCD <sup>5</sup>	4 digit LCD <sup>5</sup>
Configuration	USB link	Fixed	Fixed	Fixed	Fixed
Ambient operating electronics	(-30 to 70) °C	(-20 to 55) °C	(-20 to 60) °C	(-20 to 60) °C	(-20 to 60) °C
Power supply	(10 to 30) V DC <sup>1</sup>	(10 to 30) V DC	(20 to 30) V DC or (18 to 27) V AC	(20 to 30) V DC or (18 to 27) V AC	(20 to 30) V DC or (18 to 27) V AC
● OUTPUT					
Output channels	2 x (4 to 20) mA	2 x (4 to 20) mA	2 x (4 to 20) mA <sup>3 7</sup>	2 x (4 to 20) mA <sup>3 7</sup>	2 x (4 to 20) mA <sup>3 7</sup>
Output choices:					
Temperature	Default	Standard	Optional <sup>3</sup>	Optional <sup>3</sup>	Optional <sup>3</sup>
Humidity	Default	Standard	Standard <sup>3</sup>	Standard <sup>3</sup>	Standard <sup>3</sup>
Dewpoint	Programmable	N/A	N/A	N/A	N/A
Delta T <sup>8</sup>	Programmable	N/A	N/A	N/A	N/A



# Temperature sensors and connection heads

## The STS and STW ranges

### Versatile sensors and thermowells

To complement our range of temperature transmitters and connection heads, we offer a wide range of temperature sensors to suit virtually any specification. Over the years, we have gained a great deal of experience in this field, including ATEX and explosion-proof certified products, and we believe our offering is second to none. Because that scope is so great, we have shown only a selection of the more popular types here, so if you have a requirement for a particular specification, please contact us and we will meet your needs, whatever they might be.

### Temperature Sensors

Model	sts Style 1	sts Style 2	sts Style 3	sts Style 4	sts Style 9	Your style
						
Particular Features	Temperature sensor with fixed process connection	Temperature sensor for use with compression gland	Temperature sensor with removable inset sensor	Temperature sensor for use with compression gland, and with flying lead	Temperature sensor for use with DM500/600/700 range. Allows head display to be orientated	We can supply temperature sensors to <u>any</u> specification - please contact our sales office
Sensing element <sup>2</sup>	Pt100 <sup>2</sup>	Pt100 <sup>2</sup>	Pt100 <sup>2</sup>	Pt100 <sup>2</sup>	Pt100 <sup>2</sup>	Your specification
Sheath, typical	6mm diameter	6mm diameter	7.9mm diameter	6mm diameter	6mm diameter	Your specification
Process thread	1/2" BSP <sup>4</sup>	Compression gland	1/2" BSP <sup>4</sup>	Compression gland	1/2" BSP <sup>4</sup>	Your specification
Extension	(75 x 12.7)mm diameter	N/A	(75 x 12.7)mm diameter	N/A	(75 x 9.5)mm diameter	Your specification
Head thread	M24	M24	M24	N/A	M16	Your specification
Wire leads	PTFE - 150mm long	PTFE - 150mm long	PTFE - 150mm long	PTFE - 1m <sup>1</sup>	PTFE - 150mm long	Your specification
Temperature range	(-50 to 200) °C	(-50 to 200) °C	(-50 to 200) °C	(-50 to 200) °C	(-50 to 200) °C	Your specification
Stocked immersion lengths <sup>3</sup>	50, 75, 100, 150, 200mm	50, 75, 100, 150, 200mm	To order	To order	To order	To order
Material	316 stainlesss steel	316 stainlesss steel	316 stainlesss steel	316 stainlesss steel	316 stainlesss steel	Your specification

### Thermowells

Model	stw Style 1	stw Style 2	stw Style 4	Your style
				
Particular Features	Thermowell for temperature sensors STS styles 1 and 9	Thermowell for temperature sensors STS styles 2 and 4	Solid-turned thermowell for higher mechanical strength applications. For STS styles 1 and 9	We can supply thermowells to <u>any</u> specification - please contact our sales office
Parallel sheath	7.9 mm diameter	7.9 mm diameter	N/A	Your specification
Tapered sheath	N/A	N/A	(13.4 to 19)mm diameter	Your specification
Process thread	3/4" BSP	1/2" BSPT	3/4" BSP	Your specification
Internal thread	1/2" BSP	N/A	1/2" BSP	Your specification
Compression fitting	N/A	N/A	N/A	Your specification
Stocked versions <sup>4</sup>	50, 75, 100, 150, 200mm	50, 75, 100, 150, 200mm	To order	To order
Material	316 stainless steel	316 stainless steel / compression gland brass	316 stainless steel	Your specification
Flange	N/A	N/A	N/A	Your specification

- Notes:**
- <sup>1</sup> Any length can be supplied
  - <sup>2</sup> Standard Pt100 element is class B accuracy. Others available on request
  - <sup>3</sup> Other immersion lengths available on STS styles 1 and 2 on request
  - <sup>4</sup> Others available on request








Temperature sensors and connection heads

Heads and Accessories






Complementary equipment for temperature sensors

Just a few examples from our very flexible and adaptable range of connecting heads solutions and other accessories. Remember, we can meet your needs whatever they might be, so please call us to discuss your particular requirements.


Connecting Heads

Model	SCH 4	SCH 6	SCH 11	SCH 15	SCH 50
					
Particular Features	ABS plastic connection head / terminal box	Stainless steel connection head	Aluminium alloy connection head	Stainless steel connection head for use with DM600/SEM710	EExD explosion-proof aluminium alloy connection head
Optional head display	DM600 / DM700 / SEM710	N/A	N/A	DM600 / DM700 / SEM710	Loop indicator based on DM700
Cable entry	M16, M20, M24, 1/2" BSP, 1/2" NPT	M20	M20	M16 (M20 pending)	M20
Sensor entry	M16, M20, M24, 1/2" BSP, 1/2" NPT	M24	M24	M16	1/2" BSP
Protection	IP67	IP67	IP67	IP67	IP68
Mounting	Head, wall, duct, pipe	Head	Head	Head	Head, wall, pipe
Body entry styles	Base / side Side / side Side only	Base / side	Base / side	Side / side Side only	Base / side Side / side Side / base / side
Approvals	N/A	N/A	N/A	N/A	EExd IIc T6

Temperature Sensor Accessories

Model	Compression glands	CB4 / CB6	Mounting kit SMK	Mounting kit RMK / 1G	Mounting kit RMK / 3T
					
Particular Features	For use with temperature sensors styles 2 or 4	Connection blocks - for use where high temperatures are to be measured	For mounting transmitters or connection blocks to heads fitted with style 3 sensors	For mounting in-head transmitters to DIN G rail	For mounting in-head transmitters to DIN top hat rail
Stocked versions	1/4" BSP or 1/2" BSP x 6mm	In stock	In stock	In stock	In stock
Your specification	To order	N/A			
Material	316 stainless steel	Ceramic			
Terminals	N/A	4 or 6 way			

Temperature Sensor with built-in transmitter

Model	STA 100
	
Particular Features	Cost-effective temperature sensor with built-in transmitter
Sensing element	Pt100 (class B)
Measuring range <sup>1</sup>	(0 to 100) °C
Sheath, typical	6mm diameter
Process thread	1/2" BSP
Stocked immersion lengths	50, 100, 150, 200, 250 mm
Material	316 stainless steel
Accuracy	± 0.25% FSR
Power supply	(10 to 30) V DC
Output	(4 to 20) mA

<sup>1</sup> Factory set. Others available on request



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