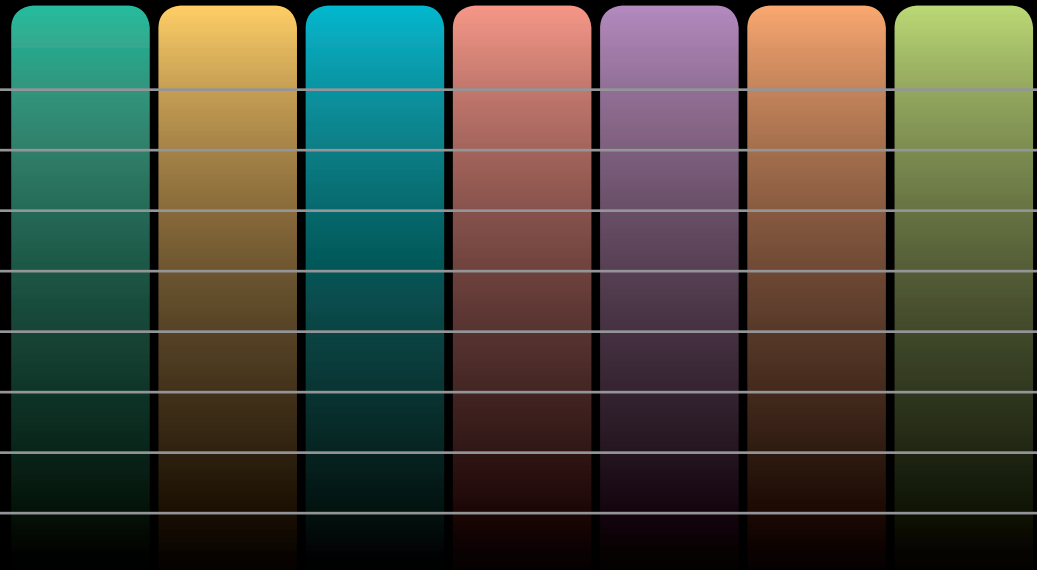




P R O D U C T G U I D E





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.

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Website: www.status.co.uk

E-mail: sales@status.co.uk

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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 ^{8 9} | (-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 ⁴ | N/A | N/A | N/A | N/A | N/A |
| Thermocouple type ⁸ | 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 ¹ | | | | | | |
| 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 ⁵ | ± 0.5°C ± 0.1% FSR ⁵ | 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 | SEM 206 TC | SEM 210 | SEM 210 X | SEM 310 | SEM 310 X | SEM 315 |
|--------------------------------|--|---|--|--|---|--|
| 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 ^{8 9} | 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 ² | up to 100 kΩ ² | up to 100 kΩ ² | up to 100 kΩ ² | up to 100 kΩ ² |
| Thermocouple type ⁸ | 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 ¹ | | | | | | |
| 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 ⁵ | ± 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 |

The SEM700 & 1600 range



SEM 710

SEM 1603 i

SEM 1603 P

SEM 1603 TC

SEM 1610

SEM 1620

Model



Particular Features

Universal digital transmitter - in-head, with integrated display - USB direct configuration

Scaleable loop isolator - PC configuration ⁷

Cost-effective digital Pt100 transmitter - PC configuration

Cost-effective digital thermocouple transmitter - PC configuration

High performance universal digital transmitter - USB direct configuration

High performance universal digital voltage transmitter - USB direct configuration

Type

In-head (stainless or ABS)

DIN rail

DIN rail

DIN rail

DIN rail

DIN rail

INPUT

Pt100 ^{8 9}

(-200 to 850) °C

N/A

(-200 to 850) °C

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

N/A

N/A

N/A

N/A

N/A

N/A

Thermocouple type ⁸

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

N/A

N/A

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

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

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

Voltage

N/A

N/A

N/A

(-40 to 75) mV

(-40 to 75) mV

(-40 to 75) mV

Current

N/A

(-10 to 25) mA ⁶

N/A

N/A

(-10 to 25) mA ⁶

(-10 to 25) mA ⁶

Sensor referencing

Yes - push-button

N/A

N/A

N/A

Yes - push-button

Yes - push button

ACCURACY ¹

Pt100

± 0.15°C ± 0.05% rdg

N/A

± 0.15°C ± 0.05% rdg

N/A

± 0.15°C ± 0.05% rdg

± 0.15°C ± 0.05% rdg

Thermocouple

± 0.5°C ± 0.1% FSR

N/A

N/A

± 0.5°C ± 0.1% FSR

± 0.5°C ± 0.1% FSR

± 0.5°C ± 0.1% FSR

Voltage

N/A

N/A

N/A

± 0.04mV ± 0.01% FSR

± 0.04mV ± 0.01% FSR

± 0.04mV ± 0.01% FSR

Current

N/A

± 0.008mA ± 0.01% FS

N/A

N/A

± 0.008mA ± 0.01% FS

± 0.008mA ± 0.01% FS

Potentiometer

N/A

N/A

N/A

N/A

N/A

N/A

GENERAL

Response time

0.5 sec (95%)

0.5 sec (95%)

0.5 sec (95%)

0.5 sec (95%)

0.5 sec (95%)

0.5 sec (95%)

Isolation

500V DC

500V DC

500V DC

500V DC

500V DC

500V DC

Communications

USB direct

USB configurator

USB configurator

USB configurator

USB direct

USB direct

Display

4 digit LED 9mm

N/A

N/A

N/A

N/A

N/A

Ambient operating temp

(-20 to 70) °C

(-20 to 70) °C

(-20 to 70) °C

(-20 to 70) °C

(-20 to 70) °C

(-20 to 70) °C

Power supply

(15 to 30) V DC

(11 to 30) V DC

(11 to 30) V DC

(11 to 30) V DC

(11 to 30) V DC

(15 to 28) V DC

Configuration

USB direct / push-button trim

PC

PC

PC

USB direct / push-button trim

USB direct / push button trim

Width / diameter

N/A

17.5 mm

17.5 mm

17.5 mm

17.5 mm

17.5 mm

APPROVALS

Ex ia

N/A

N/A

N/A

N/A

N/A

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

Voltage ³

Notes - see top of page 6



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 |
|--|--|---|--|--|--|--|
| Particular Features | 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 |
| INPUT | 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 ⁸ | 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 ² | Yes ² | Yes ² |
| 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 |
| ACCURACY¹ | | | | | | |
| 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 |
| GENERAL | | | | | | |
| Isolation | 500V DC / 3.75 kV AC ⁵ | 500V DC / 3.75 kV AC ⁵ | 500V DC / 3.75 kV AC ⁵ | 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 ⁴ | Yes - optional ⁴ | Yes - optional ⁴ |
| Width | 21 mm | 17.5 mm | 22 mm | 35 mm | 35 mm | 35 mm |
| OUTPUT | | | | | | |
| 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 ⁶ | N/A | N/A | Yes ⁷ |

Notes - see top of page 12

* available autumn 2008

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**

| | | | | | | |
|-----------------------|--|--|--|--|--|--|
| Pt100 | Single channel (-200 to 850) °C | Single channel (-200 to 850) °C | Dual channel (-200 to 850) °C | Dual channel (-200 to 850) °C | Dual channel (-200 to 850) °C | Dual channel (-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 ² | Yes ² | 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** ¹

| | | | | | | |
|---------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| 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-button | PC / push-button | 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 ⁴ | Yes - optional ⁴ | Yes - optional ⁴ | Yes - optional ⁴ | Yes - optional ⁴ | Yes - optional ⁴ |
| 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 |

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**

Pt100 (-200 to 850) °C
Potentiometer 50Ω to 10kΩ
Thermocouple type K, J, T, R, S, E, L, N, B
Voltage ±100mV, ±1V, ±10V
Current 4-20mA, ±20mA, ±10mA
Remote digital inputs N/A
Frequency N/A
User linearisation Linear, SQRT, power 3/2, power 5/2, user

Single channel
 N/A
 N/A
 N/A
 N/A
 Yes²
 0.1Hz to 20kHz³
 N/A

Single channel
 N/A
 N/A
 N/A
 N/A
 Yes²
 0.1Hz to 20kHz³
 N/A

Single channel
 N/A
 N/A
 N/A
 N/A
 Yes²
 0.1Hz to 20kHz³
 N/A

Single channel
 N/A
 N/A
 N/A
 N/A
 Yes²
 0.1Hz to 20kHz³
 N/A

Single channel
 N/A
 N/A
 N/A
 N/A
 Yes²
 0.1Hz to 20kHz³
 N/A

● **ACCURACY**¹

Pt100 ± 0.1°C ± 0.05% rdg
Potentiometer ± 0.05% FSR
Thermocouple ± 0.5°C ± 0.1% FSR
Voltage ± 0.04% FSR ± 0.04% rdg
Current ± 0.05% FSR ± 0.05% rdg
Frequency N/A

N/A
 N/A
 N/A
 N/A
 N/A
 0.003% FSR

N/A
 N/A
 N/A
 N/A
 N/A
 0.003% FSR

N/A
 N/A
 N/A
 N/A
 N/A
 0.003% FSR

N/A
 N/A
 N/A
 N/A
 N/A
 0.003% FSR

N/A
 N/A
 N/A
 N/A
 N/A
 0.003% FSR

● **GENERAL**

Isolation 500V DC
Response time 300 mS
Display N/A
Ambient operating temp (-30 to 60) °C
Power supply 24 V DC

500V DC
 300 mS
 4-digit LED 7mm
 (-30 to 60) °C
 24 V DC

500V DC
 300 mS
 4-digit LED 7mm
 (-30 to 60) °C
 24 V DC

500V DC
 300 mS
 4-digit LED 7mm
 (-30 to 60) °C
 24 V DC

500V DC
 300 mS
 4-digit LED 7mm
 (-30 to 60) °C
 24 V DC

500V DC
 300 mS
 4-digit LED 7mm
 (-30 to 60) °C
 24 V DC

Loop power supply Yes - 2 inputs
Configuration PC
Max / min display N/A
Communications RS485 modbus
Totalise N/A
TFML maths function Yes - optional⁴
Width 35 mm

N/A
 PC / push-button
 N/A
 RS485 modbus
 Yes
 Yes - optional⁴
 35 mm

N/A
 PC / push-button
 N/A
 RS485 modbus
 Yes
 Yes - optional⁴
 35 mm

Yes - output
 PC / push-button
 N/A
 RS485 modbus
 Yes
 Yes - optional⁴
 35 mm

N/A
 PC / push-button
 N/A
 RS485 modbus
 Yes
 Yes - optional⁴
 35 mm

N/A
 PC / push-button
 N/A
 RS485 modbus
 Yes
 Yes - optional⁴
 35 mm

● **OUTPUT**

Relay 4 off (48V AC @ 1A) N/C relay
Retransmission, (0 to 20), (4 to 20)mA N/A
Voltage N/A

N/A
 N/A
 N/A

N/A
 Yes - 2 channels, both passive
 N/A

2 off (48V AC @ 1A) N/C relay
 Yes - active or passive
 Yes⁷

2 off (48V AC @ 1A) C/O relay
 N/A
 N/A

4 off (48V AC @ 1A) N/C relay
 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 ² | Yes ² | Yes ² | Yes ² | Yes ² |
| Frequency | 0.1Hz to 20kHz ³ | 0.1Hz to 20kHz ³ | 0.1Hz to 20kHz ³ | 0.1Hz to 20kHz ³ | 0.1Hz to 20kHz ³ |
| User linearisation | N/A | N/A | N/A | N/A | N/A |
| ● ACCURACY ¹ | | | | | |
| 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 ⁴ | Yes - optional ⁴ | Yes - optional ⁴ | Yes - optional ⁴ | Yes - optional ⁴ |
| 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 ¹ | 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 ² |
| 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 |

¹ Provides power for input loop from output loop

² 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 ¹⁰ | > 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 ² | N/A | N/A |
| ACCURACY ¹ | | | | | |
| Pt100 | ± 0.15°C ± 0.05% rdg | ± 0.15°C ± 0.05% rdg | ± 0.1°C ± 0.05% rdg | N/A | N/A |
| Potentiometer ¹⁰ | ± 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 ⁹ | 500V DC / 3.75 kV AC ⁹ | 500V DC / 3.75 kV AC ⁹ | 500V DC / 3.75 kV AC ⁹ | 500V DC / 3.75 kV AC ⁹ |
| Response time | 1 sec | 1 sec | 1 sec ³ | 1 sec ³ | 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 ⁴ | RS485 modbus option ⁴ | RS485 modbus option ⁴ |
| TFML maths function ⁸ | N/A | N/A | N/A | N/A | N/A |
| OUTPUT | | | | | |
| Relay | N/A | 4 off (250V AC@1A)isolated ⁵ | 2 off (250V AC@5A)option ^{4 6} | 2 off (250V AC@5A)option ^{4 6} | 2 off (250V AC@5A)option ^{4 6} |
| Retransmission, (0 to 20), (4 to 20)mA | Yes - active or passive | Yes - active or passive | Option ⁴ - active or passive | Option ⁴ - active or passive | Option ⁴ - active or passive |
| Voltage | Yes ¹¹ | Yes ¹¹ | Yes ¹² | Yes ¹² | Yes ¹² |

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 inputsYes ⁷Yes ⁷Yes ⁷Yes ⁷**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** ¹**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 ⁹500V DC / 3.75 kV AC ⁹500V DC / 3.75 kV AC ⁹500V DC / 3.75 kV AC ⁹**Response time**1 sec ³1 sec ³1 sec ³1 sec ³**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 ²

N/A

RS485 modbus ²**TFML maths function** ⁸

N/A

Yes

N/A

Yes

● **OUTPUT****Relay**2 off (250V AC @ 5A) option ^{4 6}2 off (250V AC @ 5A) option ^{4 6}2 off (250V AC @ 5A) option ^{4 6}2 off (250V AC @ 5A) option ^{4 6}**Retransmission, (0 to 20), (4 to 20)mA**Option ⁴ - active or passiveOption ⁴ - active or passiveOption ⁴ - active or passiveOption ⁴ - active or passive**Voltage**Yes ¹²Yes ¹²Yes ¹²Yes ¹²

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 ² | 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 ¹ | | | | | |
| 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 ⁴ | IP65 ⁴ | IP67 ⁴ | IP67 ⁴ | IP67 ⁴ |
| 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 ³ | 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-0

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 |
|---------------------------------|--|--|--|--|--|
| | <i>(shown with optional display)</i>  | <i>(shown with optional display)</i>  | <i>(shown with optional display)</i>  | <i>(shown with optional display)</i>  | <i>(shown with optional display)</i>  |
| 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 ² | (-30 to 100) °C ² | (-30 to 100) °C ² | (-30 to 100) °C ² | (-30 to 100) °C ² |
| 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 ⁵ | 4 digit LED ⁵ | 4 digit LED ⁵ | 4 digit LED ⁵ | 4 digit LED ⁵ |
| 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 ¹ | (10 to 30) V DC ¹ | (10 to 30) V DC ¹ | (10 to 30) V DC ¹ | (10 to 30) V DC ¹ |
| 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 ⁸ | Programmable | Programmable | Programmable | Programmable | Programmable |

Notes - see top of page 30

Humidity transmitters

The SEM160 range

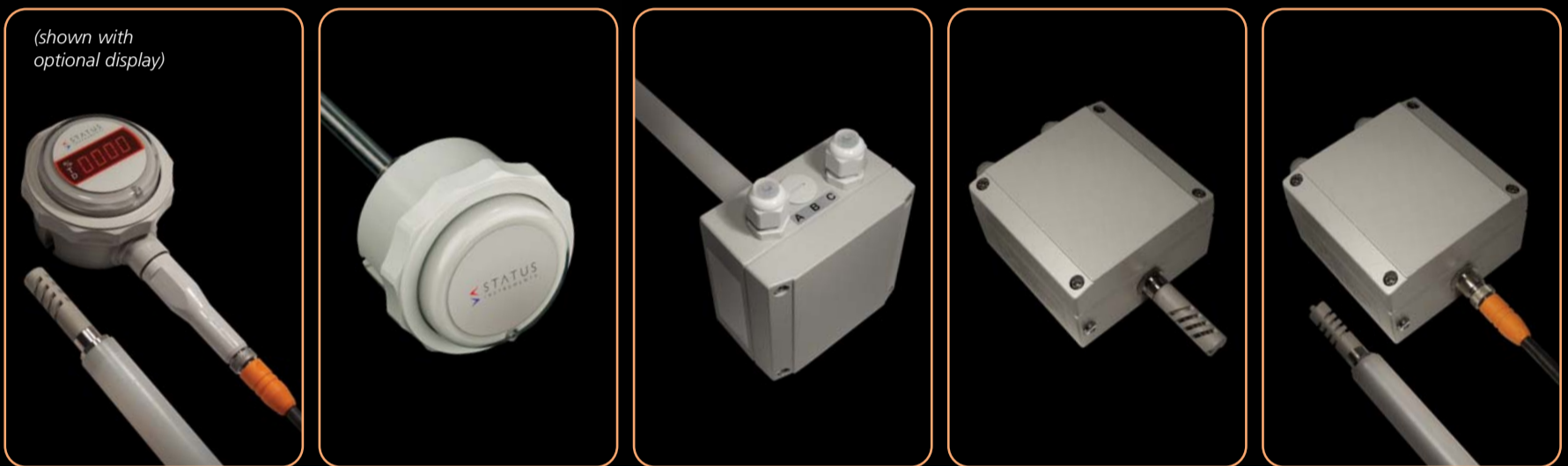
continued



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



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

| | SEM 162 R/HP | SEM 165 HP | SEM 167 H1P | SEM 167 H1C | SEM 167 H1R |
|---------------------------------|------------------------------|--|------------------------------------|------------------------------------|------------------------------------|
| ● INPUT | | | | | |
| Temperature range | (-30 to 100) °C ² | (-30 to 140) °C ⁴ | (-30 to 100) °C ⁴ | (-30 to 100) °C ⁴ | (-30 to 100) °C ⁴ |
| 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 ⁵ | 4 digit LED; one channel only ⁶ | 4 digit LCD ⁵ | 4 digit LCD ⁵ | 4 digit LCD ⁵ |
| 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 ¹ | (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 ^{3 7} | 2 x (4 to 20) mA ^{3 7} | 2 x (4 to 20) mA ^{3 7} |
| Output choices: | | | | | |
| Temperature | Default | Standard | Optional ³ | Optional ³ | Optional ³ |
| Humidity | Default | Standard | Standard ³ | Standard ³ | Standard ³ |
| Dewpoint | Programmable | N/A | N/A | N/A | N/A |
| Delta T ⁸ | 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 ² | Pt100 ² | Pt100 ² | Pt100 ² | Pt100 ² | Pt100 ² | Your specification |
| Sheath, typical | 6mm diameter | 6mm diameter | 7.9mm diameter | 6mm diameter | 6mm diameter | Your specification |
| Process thread | 1/2" BSP ⁴ | Compression gland | 1/2" BSP ⁴ | Compression gland | 1/2" BSP ⁴ | 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 ¹ | 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 ³ | 50, 75, 100, 150, 200mm | 50, 75, 100, 150, 200mm | To order | To order | To order | To order |
| Material | 316 stainless steel | 316 stainless steel | 316 stainless steel | 316 stainless steel | 316 stainless 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 ⁴ | 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:

- Any length can be supplied
- Standard Pt100 element is class B accuracy. Others available on request
- Other immersion lengths available on STS styles 1 and 2 on request
- 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 ¹ | (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 |

¹ Factory set. Others available on request



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