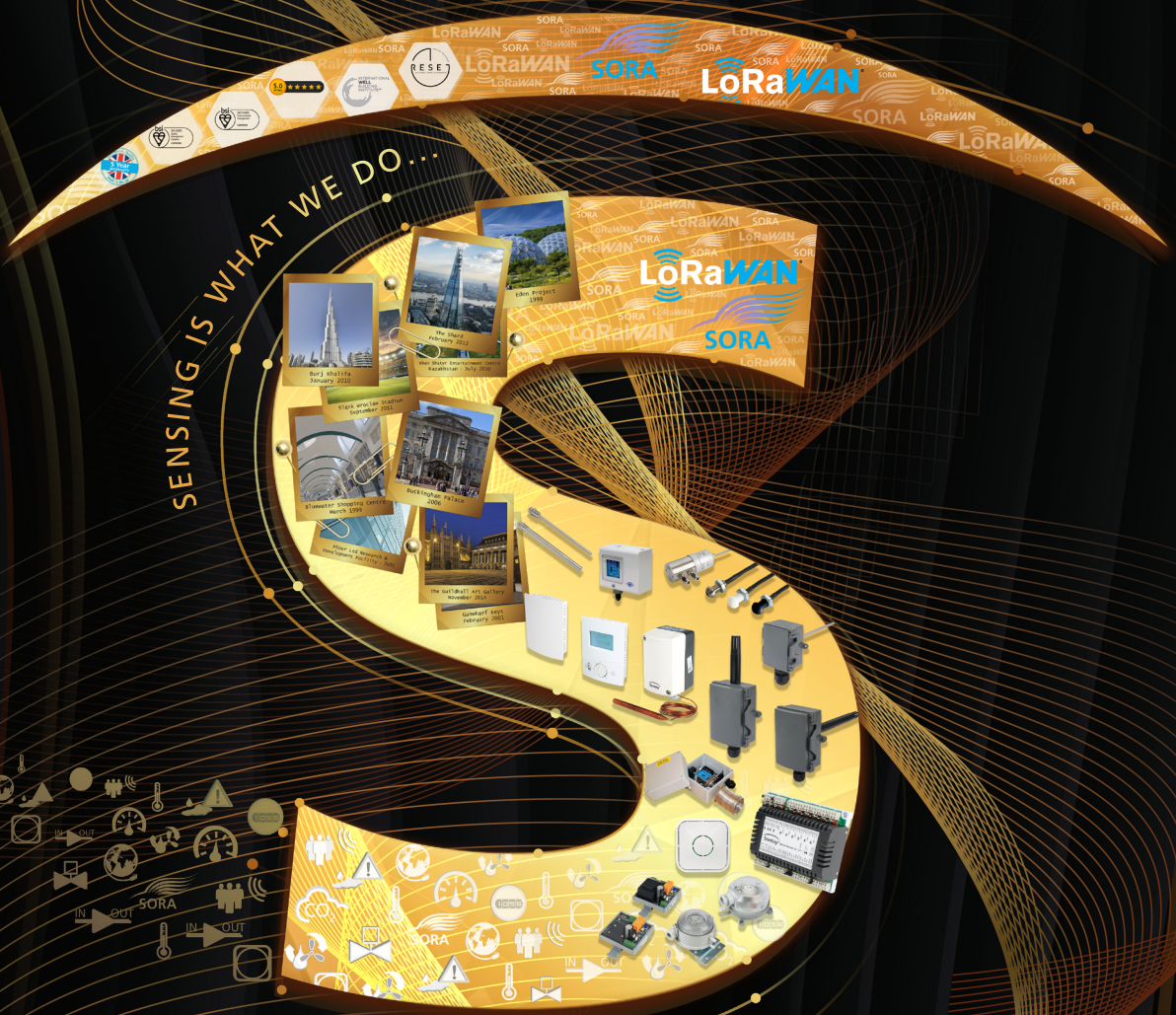


50thntay[®] ANNIVERSARY

SENSING IS WHAT WE DO...



2025

Product Catalogue

50th Anniversary

50



Eaton-Williams
1974
The Beginning



1986
A New Home



1994
Our First Catalogue



2001
Owned by GE



2004
Management Buyout

50 50 50 50
50 50 50 50 5
HISTORY
50 YEARS OF
TAY SONTAY
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INNOVATION
QUALITY · SUP
CASE STUDIES
NOVATION · Q
COMMITMENT
SUPPORT · INN



Royal Museum of Fine Arts, Antwerp



Battersea Power Station, London



Vauxhall, Ellesmere Port



University of Technology, Sydney



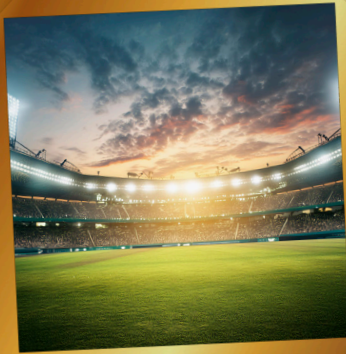


CELEBRATING 50 YEARS OF OUTSTANDING PROJECTS

For half a century, Sontay has been celebrating the success of all the amazing projects that we have been privileged to play a part in. We are proud to have been selected as the trusted partner for sensing devices in so many groundbreaking and prestigious projects both in the UK and around the globe.

With technology continually evolving, and our need for our buildings to perform better than ever, we're excited to see what the next 50 years will hold!





Śląsk Wrocław Stadium
September 2011



Burj Khalifa
January 2010



The Guildhall Art Gallery
November 2014



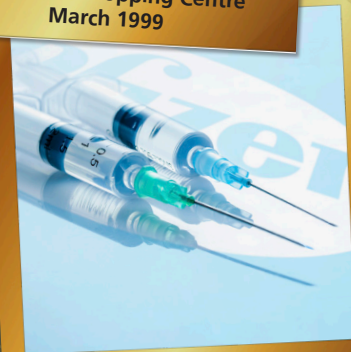
Buckingham Palace
2006



Eden Project
1999



Bluewater Shopping Centre
March 1999



Pfizer Ltd Research &
Development Facility · 2001



Khan Shatyr Entertainment Centre
Kazakhstan · July 2010



Gunwharf Quays
February 2001



The Shard
February 2013

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HISTORY
50 YEARS OF
TAY SONTA

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YEARS
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YEARS
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Made in UK



Our commitment to quality starts at home, with each device proudly manufactured in the UK.

ISO9001



Achieving this certification underscores our dedication to maintaining the highest standards of quality management.

ISO14001



We prioritize sustainability and environmental responsibility in every aspect of our business.

CELEBRATING INNOVATION AND LEADERSHIP

For 50 years, Sontay has been at the forefront of innovation in sensing solutions for building management systems. Our milestones highlight our dedication to quality, sustainability, and customer satisfaction, reinforcing Sontay as your trusted partner in the industry.

99%
of our customers
would recommend us

**WELL Building
Standard**

**Data Quality &
Data Transparency**



5.0
RATING



INTERNATIONAL
WELL
BUILDING
INSTITUTE™



HEALTHY BUILDINGS
RESE
INTERNATIONAL STANDARD

Our customer satisfaction is a testament to the reliability and performance of our products.

Our solutions contribute to creating healthier and more productive environments, aligning with the WELL Building Standard.

We ensure that our devices provide accurate, reliable data, empowering you with the insights needed for optimal building management.



WHAT'S NEW? NEW LoRaWan DEVICES

*Following the success of our outstanding
SORA LoRaWAN sensing range...*



+



Our customers have been asking us to add even **more devices**.
We are excited to now have additional products in the range.

Speak to our Sontay Sales Directors for more details!



Fan Coil Thermostats



Door/Window Open/Close Sensing



Air Velocity Sensing



Water Shut-Off Valve



Water Detection



TRV Radiator Valves



Active Output to LoRaWAN Convertor



Pressure Sensing



Total Indoor Air Quality Monitoring including Vape Sensing.



WELL v2 Compliant

Environmental Sensing including VOC's and more!



Solar Powered Devices



Total Outdoor Air Quality





SONTAY ACADEMY

Through over 50 years in the industry, Sontay has gained great knowledge of products and applications. This offers a fantastic opportunity to pass this information on to the industry through training via the Sontay Academy!

The Sontay Academy offers Building Controls Industry Association (BCIA) courses.



Available at our facilities in Edenbridge, Bristol, Leeds and Uxbridge as well as by online webinar.



Courses delivered to you!



Please contact us to organise group training at your chosen location.



Sontay[®] Academy



sontay-academy.com

The courses incorporate the latest technical information from the building controls sector:

BCIA

- BCM01 - Fundamentals of HVAC & Building Controls
- BCM02 - Measuring & Control Technology
- BCM03 - Hydraulics in Building Services
- BCM04 - Control Function of Heating Plants
- BCM05 - Control of Ventilation and Air Conditioning
- BCM06 - Control of Cooling Systems

SONTAY

- | | |
|-------------------------------------|------------------------------------|
| • Introduction to Building Controls | • Smart Communication using BACnet |
| • Wireless Sensing Systems | • The Importance of Sensing in BMS |
| • Practical BMS Course | |

SONTAY'S Contact Team

Our team will be pleased to hear from you whenever you require any information on our range of products and services.

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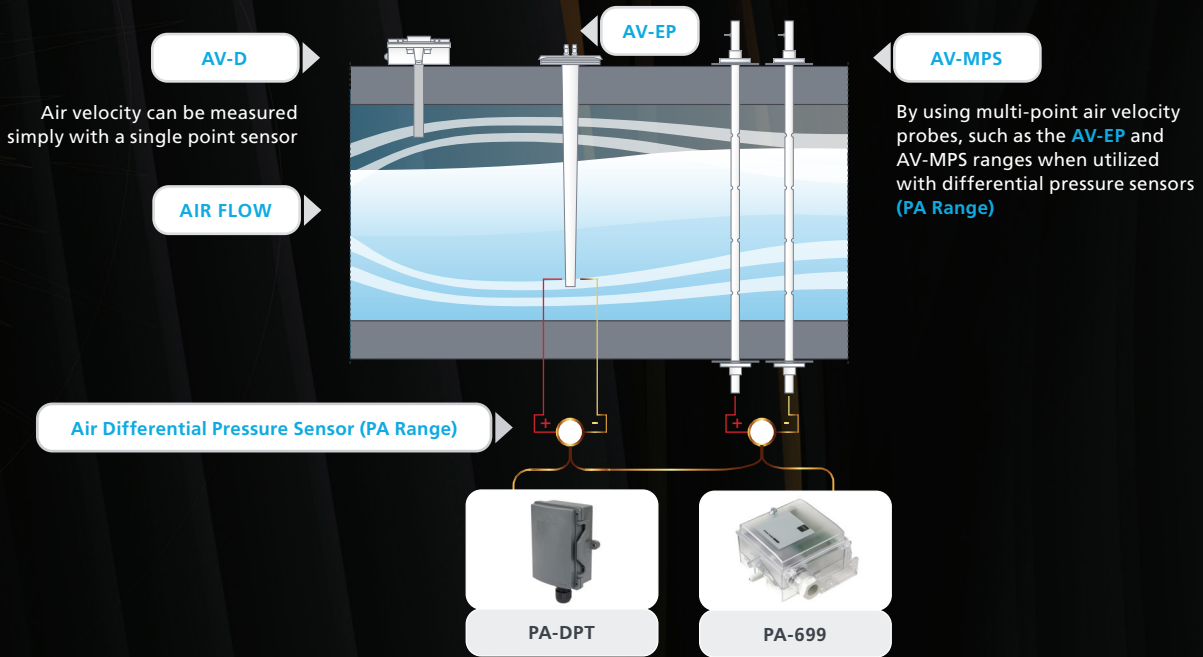
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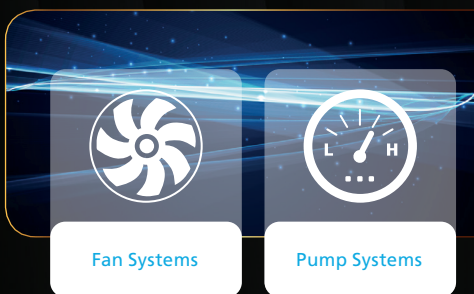
Air & Water Flow

Air Velocity Sensors & Probes

Accurate measurement of air flow and velocity is essential for the efficient delivery of conditioned air in a controlled environment. While monitoring air and liquid flow in heating and cooling systems it is vital for the safe operation of those systems.



Air & Liquid Flow Switches



Air and liquid flow switches, such as the **FS** and **LS** ranges, provide a simple and cost-effective method of proving media flow for fan and pump systems, allowing safe interlocking of other equipment, such as heater batteries.

Liquid Level Switches And Sensors



Liquid level switches and sensors provide auto-filling functions and low or high level alarming for storage tanks, whether mechanical, hydrostatic, capacitive or ultrasonic.



AV-D

Single-Point Multi-Range Air Velocity Transmitter



The AV-D is a single point, multi-range air velocity transmitter with user selectable 0-10Vdc or 4-20mA outputs and 4 user selectable measurement ranges. The unit has a built-in self-test feature and the user can manually override the output to 0%, 50% or 100% of output range to aid commissioning.

FEATURES

- User selectable 0-10Vdc or 4-20mA outputs
- User selectable measurement ranges
- Durable and resistant to chemical reagents
- Adjustable probe depth using the optional DPA
- Built-in self-test feature

SPECIFICATION

Accuracy	±3% of ranges
Environmental Housing	-30 to 60°C 0 to 95% non-condensing
Environmental Media	-10 to +50°C
Housing Dimensions	125 x 105 x 85mm
Housing Material	PC/GF (Halogen free, flame retardant & UV stabilized)
Max.Current	50mA
Output	4-20mA into 100Ω min, 0-10Vdc into 4.7kΩ min
Probe Dimensions	215mm x 20mm dia
Probe Material	Delrin
Protection	IP65
Selectable ranges	0 to 4m/s, 0 to 8m/s, 0 to 16 m/s, 0 to 32 m/s
Supply (Current Output)	20Vdc to 35Vdc for 500Ω loop resistance, 12Vdc to 30Vdc for 100Ω loop resistance
Supply (Voltage output)	17Vdc to 34Vdc, 14Vac to 26Vac supply into 4.7kΩ min.
Weight	220g

Part code	Description
AV-D	Single Point Air Velocity Sensor
Accessory	
DPA	Sontay DPA Duct Probe Flange



AV-W

Wind Speed and Direction Sensors



The AV-W series measures the wind speed and direction, providing output signals compatible with most BEMS controllers. Intended for applications where external weather conditions influence the building control strategy, such as for the automatic closing of windows in high wind conditions. Mounting kit is included.

SPECIFICATION

Accuracy	±2%
Ambient Range	-20 to +70°C
Contact rating Current	1A max.
Contact rating Power	50W max. (dc resistive)
Contact Rating Voltage	100Vdc max
Electrical connections	Flying lead (3m long)
Electrical Travel	357° (±2°)
Mechanical travel	360° endless travel
Min. start speed	0.5m/s typically
Output	1 contact closure per 1.493 metre (zero bounce)
Protection	IP65
Weight	1.45kg

Part code	Description
AV-W-AD	Wind Speed and Direction Transmitter
AV-W-S	Wind Speed Transmitter



AV

Single-Point Multi-Range Air Velocity Transmitter



The AV-EP and the EV -MPS velocity probes are used to ensure that recommended flow rates for public buildings and industrial plants are achieved. They are used with either the PA-DPT, PA-699 or PA-267 Air Differential Pressure Sensor of an appropriate range (please refer to data sheet on Sontay's website for the further information), the output of the sensor represents the velocity pressure and is defined by the following equation:

$$\text{Velocity} = \sqrt{(2 \times \text{Velocity Pressure}) / 1.2}$$

FEATURES

- Push-on connectors to suit PA-TUBE range of PVC tubing
- Neoprene rubber gaskets duct seals included
- Averages across the duct
- Fully compatible with Sontay's range of DP pressure transmitters
- Mounting plates included
- Double gasket seals the probe to the duct

SPECIFICATION INCOME STEAM

Part code	Description
AV-EP-100	100mm Multi-point probe (ABS)
AV-EP-200	200mm Multi-point probe (ABS)
AV-EP-300	300mm Multi-point probe (ABS)
AV-EP-400	400mm Multi-point probe (ABS)
AV-EP-500	500mm Multi-point probe (ABS)
AV-EP-600	600mm Multi-point probe (ABS)
AV-MPS-700	To suit duct size 600-700mm
AV-MPS-800	To suit duct size 700-800mm
AV-MPS-1000	To suit duct size 750-1000mm
AV-MPS-1250	To suit duct size 1000-1250mm
AV-MPS-1500	To suit duct size 1250-1500mm
AV-MPS-1750	To suit duct size 1500-1750mm
AV-MPS-2000	To suit duct size 1750-2000mm



FS-A Air Flow Paddle Switch



The FS-A paddle switch is intended to monitor air flow within a duct and provides a switched output on detection of either a specific air velocity or flow failure. Switching sensitivity can be adjusted by means of a calibration screw within the unit.

FEATURES

- Adjustable switching point
- High capacity, fully encapsulated N/C, N/O micro-switch
- Lid-mounted screws provide tamper proofing
- Cost-effective flow switch for many HVAC applications

SPECIFICATION

Operating ambient temp	-20 to +70°C
Operating media temp	-20 to +120°C
Paddle Material	Stainless Steel
Rod Material	Brass
Enclosure Material	ABS flame retardant (type VO)
Switch rating	15(8)A SPDT @ 230Vac
Paddle dimensions	80 x 175mm
Housing Dimensions	113.5 x 65 x 62mm
Protection	IP65
Weight	580g

Part code	Description
FS-A	80 x 175mm Paddle Switch

FS-W Liquid Flow Switch



The FS-W paddle switch is intended to monitor liquid flow within pipes and provide a VFC output on detection of either a specific flow rate or flow failure. Switching sensitivity can be adjusted by means of a calibration screw within the unit. The paddle can be trimmed to increase sensitivity if necessary.

FEATURES

- Adjustable switching point
- Suitable for applications up to 11bar
- Lid-mounted screws provide tamper proofing
- Well suited for many general industrial plant applications
- Screws directly into a 1" BSPT boss

SPECIFICATION

Operating Temperature	-40 to +120°C
Paddle Material	Stainless Steel
Rod Material	Brass
Enclosure Material	ABS flame retardant (type VO)
Switch rating	15(8)A @ 24 to 250Vac
Pipe suitability	1" to 8"
Housing Dimensions	113.5 x 65 x 62mm
Paddle dimensions	28.5, 54.5, 83.5 and 161.5mm
Protection	IP65
Weight	700g

Part code	Description
FS-W	1" BSPT Flow Switch

LS-RD

Radar level sensor



Radar sensor for non-contact level measurement in all standard applications where a high degree of protection is required. It is particularly suitable for level measurement in pumping stations, water treatment, flow measurement in open channels, and level monitoring and for many other industrial applications. The sensor is suitable both for measuring liquids and for maintenance free use on small bulk silos or bulk solids containers.

FEATURES

- Maintenance-free operation due to non-contact 80 GHz radar technology
- Exact measuring results independent of product, process and ambient conditions
- Low-cost sensor for simple measuring tasks

SPECIFICATION

Operating Voltage	12-35VDC
Output	4-20mA
Control	Bluetooth 5.0 app 25m range
Measurement range	10m
Beam Angle	8 °C
Accuracy	≤5mm
Radar frequency	W-band 80 GHz
Operating Temperature	-40 - +60°C
Housing colour	White
Housing Dimensions	108mm x 76mm Dia.
IP Rating	IP66/68
Country of origin	Germany

Part code	Description
LS-RD	Radar level sensor



LS-SLP

Submersible level probe



This level probe measures the level of liquids continuously and hydrostatically. It can be used in ventilated tanks at filling heights from 2.50 to 10 mH₂O. The level probe can also be used in other places such as rainwater cisterns or in greywater recycling.

FEATURES

- Measuring ranges: 0.25 to 1 bar, Medium temperature 0 to 50 °C
- Piezoresistive silicon sensor
- Accuracy: 0.3% MSP2 (linearity)
- Sensor technology proven thousands of times over Reverse-polarity protection mechanism
- Suitable for indoor installation

SPECIFICATION

Operating pressure	0-0.25 Bar
Operating Temperature	0-50°C Sensor must not freeze in the medium
Output	4-20mA
Supply Voltage	10-30V Nominal 24VDC
Weight	90g

Part code	Description
LS-SLP-0.25	Submers Level probe 0.25 Bar 4-20ma 5m cable
LS-SLP-0.25-V	Submers Level probe 0.25 Bar 0-10Vdc 5m cable
LS-SLP-0.4	Submers Level probe 0.4 Bar 4-20ma 10m cable
LS-SLP-0.4-V	Submers Level probe 0.4 Bar 0-10Vdc 10m cable
LS-SLP-1	Submers Level probe 1 Bar 4-20ma 25m cable
LS-SLP-1-V	Submers Level probe 1 Bar 0-10Vdc 25m cable



LS-541

Float Switch



The LS-541 is liquid level float switch which is intended to monitor liquid level in a tank or vessel, to provide a switched output to provide local alarm, pump or valve control. The differential between switching is equivalent to approximately 15mm. The unit mounts into 1" BSPT female boss. Access is not required from the inside of the tank.

SPECIFICATION

Enclosure Material	ABS Base, PC Cover
Float & Rod Dimensions	200 x 25mm dia max.
Float Material	Acrylic
Housing Dimensions	140 x 65 x 62mm
Media	Non-aggressive fluids
Mounting	1" BSPT boss
Operating pressure	11 bar max
Operating Temperature	-40 to +85°C, media 85°C max.
Protection	IP65
Rod/boss material	Brass
Switch rating	15(8)A SPDT @ 24...250Vac, VFC
Weight	960g

Part code	Description
LS-541	1"BSPT Float Switch (horizontal mount)

LS-FL

Liquid Level Float Switches



The LS-FL series is a range of level switches suitable for single or multi-level applications where access is only available from the top surface or where multiple level sensing is desired from a single penetration. Units consist of a float, which is suspended from a weighted cable. As the liquid level changes, the float follows the surface level, at the same time tilting due to its weighted restraint. Inside the float are a number of micro switches which trigger as the float tips.

SPECIFICATION

Ambient Temperature Range	0 to +55°C
Material	Polypropylene & PVC
Max. ext. pressure	200Kpa
Min. fluid S.G	0.7
Protection	IP68
Std. cable length	5m
Switch rating	6A @ 240Vac
Weight	1.62kg max.

Part code	Description
LS-FL-1H	High Level, Alarm Switch
LS-FL-1L	Low Level, Alarm Switch
LS-FL-2H	Emptying Pump, Control Switch
LS-FL-2L	Filling Pump, Control Switch
LS-FL-2LH	High & Low Level Alarm Switch

LS-S

Liquid Level Float Switches



LS-S Types



The LS-S range of side mounting level switches designed for high or low liquid level detection in tanks and vessels. Units consist of a lever arm reed switch assembly and a tank fixing boss. The LS-S types are for side mounting, type 1 switches fit from the inside of the tank and tighten on to a back nut whilst the type 2 switches mount from the outside into a tapered boss. Units project into the tank by a maximum of 100mm.

SPECIFICATION LS-SN (Polypropylene)

Operating range	-20 to +80°C
Switch Rating	230Vac/200Vdc@0.5A max.
Weight	120g max.

SPECIFICATION LS-SS (Stainless Steel 316)

Operating range	-20 to +120°C
Switch Rating	300Vac/350Vdc@1A max.
Weight	120g max.

Part code	Description
LS-SN-1	Level Switch Side (Int) Polypropylene M16 back nut
LS-SN-2	Level Switch Side Mtg Ext Polypropylene ½" NPT
LS-SS-1	Stainless Level Switch Side Mount Int M8 back nut
LS-SS-2	Stainless Steel Level Switch Side Mounting Ext ½" BSPT

LS-TM Types



The LS-TM is an easy to install Top Mounting Level Switch, and has a reversible float so that it can be used for either high or low level alarms. The float is suspended from a 5 metre PVC weighted cable.

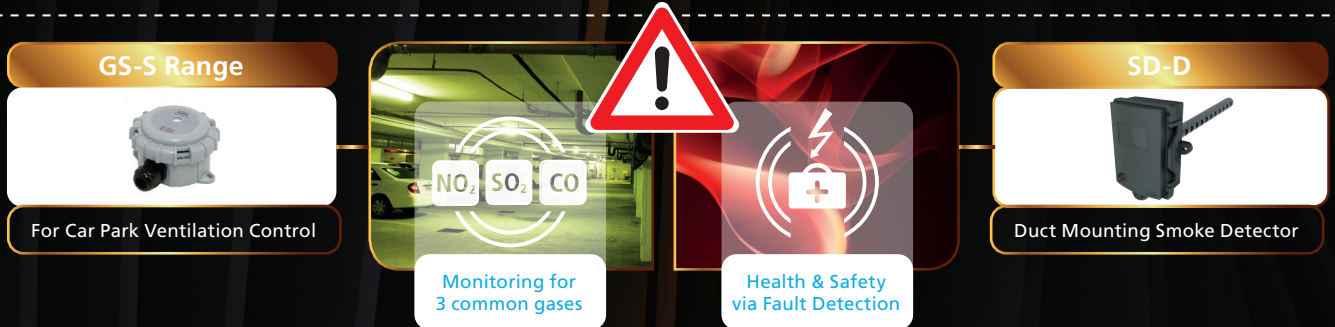
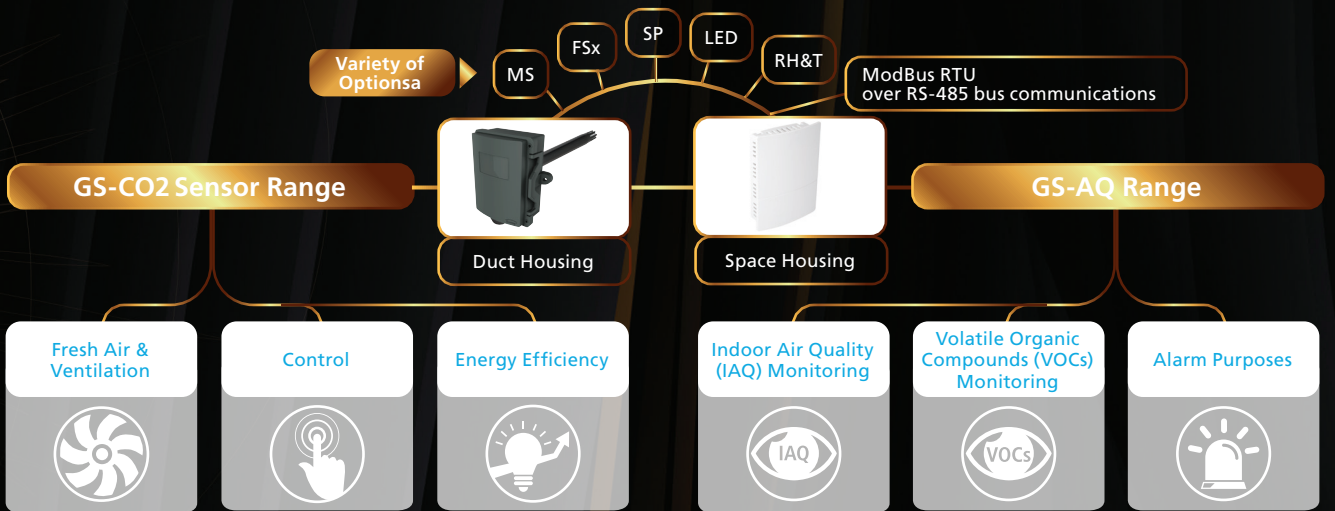
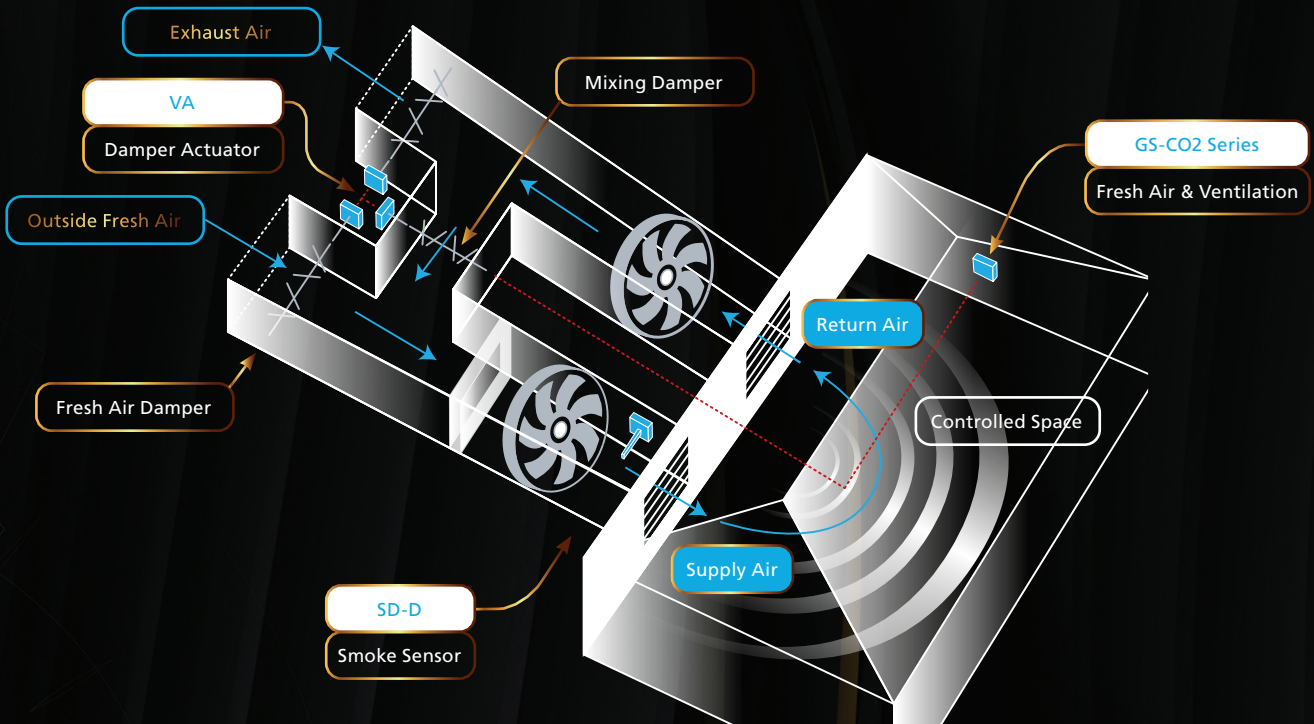
SPECIFICATION

Switch rating	240Vac/200Vdc @ 0.5A max.
Contact	N/O, reversible to N/C
Material	Cable: PVC (5 metres) Float: Nylon Weight: Brass
Operating range	-20 to +80°C
Dimensions	115 x 65mm
Weight	320g

Part code	Description
LS-TM	Top Mounting Level Switch



Air Quality & Gas Sensing





GS-AQ Indoor Air Quality Space Sensors

The GS-AQ series of air quality transmitters determine the air quality through measurement of Total Volatile Organic Compounds (TVOC's).

This signal can be used to control fresh air fans and dampers according to the ventilation load. A valuable feature of this sensor is it automatically detects what the controller input is set to, 4-20mA or 0-10Vdc.

This removes the requirement for output jumpers that can be inadvertently set incorrectly.

FEATURES

- Auto detection 0-10Vdc or 4-20mA outputs, 3-wire only
- Direct thermistor options available
- Pluggable terminal blocks and tool free installation
- Optional set point, fan speed & momentary switch
- LCD display option
- Easy installation: 2-part, push-in spring terminals

SPACE SENSORS

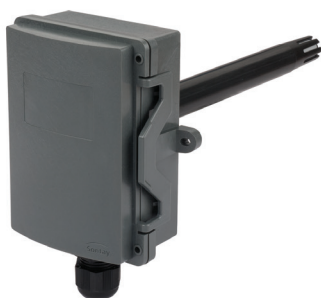


SPECIFICATION

Active outputs	0-10Vdc or 4-20mA (3-wire) self detecting
Air quality output ranges	0 to 1,000ppb TVOC
Environmental Housing	0 to 50°C
Housing Dimensions	115 x 85 x 30mm
Housing Material	ABS (flame retardant)
Optional passive output	PTC/NTC Element Any Sontay resistive type
Override optional passive outputs	VFC
Power Supply	24Vac/dc ±10%
Protection	IP30
Setpoint optional passive outputs	11-1kΩ/0-10kΩ linear
Temperature Output range	0 to 40°C
Weight	180g

Part code	Description
GS-AQ-S	Space Mounted Air Quality & Temperature Sensor

DUCT SENSORS



SPECIFICATION

Active outputs	0-10Vdc or 4-20mA (3 wire) self detecting
Air quality output ranges	0 to 1,000ppb TVOC
Environmental Housing	-30 to +60°C 5 to 95% non-condensing
Environmental Media	-10 to +50°C
Housing Dimensions	125 x 105 x 85mm
Housing Material	PC/GF (Halogen free, flame retardant & UV stabilized)
Housing probe	215 x 20mm dia
Optional passive output	PTC/NTC Element Any Sontay resistive
Power Supply	24Vac/dc ±10%
Protection	IP65
Temperature Output range	-20 to +20°C
Weight	250g

Part code	Description
GS-AQ-D	Duct Mounted Air Quality & Temperature Sensor

Part code	Description
-T	Direct resistive temperature output
-SP*	11-1kΩ/0-10kΩ set point
-MS*	Momentary switch
-LCD	LCD display
-TR	Custom temperature output range -20 to 50°C
-5V	Output 0-5Vdc (instead of 0-10Vdc)
-BLK**	Black Space Housing

Part code	Accessories
DECOR	Decorators trim plate
GASKET	Insulating gasket (pack of 10)

Notes:

- * -T versions use a thermistor element. Please specify type when ordering. When using in space sensors, they are not compensated for self heating. Please see pages 90-93 for Thermistor Types and Compatibility Chart.
- * Only available on Space Sensor Types.
- ** Plain front, no user interface option available (SP/MS/LCD)



GS-AQ-x-UN Single Output Indoor Air Quality Space Sensor

The GS-AQ-x-UN range offers a cost-effective single output for air quality measurement. These can also include a combination of familiar passive options such as temperature, set point adjustment & momentary switch plus an LCD display.

A unique feature of the sensor is its ability to automatically detect what sort of controller input it is connected to, 4-20mA or 0-10Vdc, removing the requirement for output jumpers which can be inadvertently set incorrectly. Just connect it to the controller input and it does the rest.

PCB LED indication of which output type is in operation is provided, with diagnostic LED patterns for determining faults.

FEATURES

- Auto-detection 0-10Vdc or 4-20mA output, 3-wire only
- Fully configurable LCD Display
- Resistive temperature output option
- No jumpers or DIP-switches to select output type

SPACE SENSORS

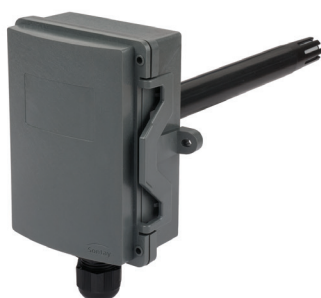


Part code	Description
GS-AQ-S-UN	Space Mounted Air Quality Sensor

SPECIFICATION

Active outputs	0-10Vdc or 4-20mA (3-wire) self-detecting
Environmental Housing	0 to 50°C, 0 to 95% RH non-condensing
Housing Dimensions	115 x 85 x 30mm
Housing Material	ABS (flame retardant)
Optional passive output	PTC/NTC Element Any Sontay resistive type
Output range	0 to 10 (0=good / 10=poor)
Override optional passive outputs	VFC
Power Supply	24Vac/dc ±10%
Protection	IP30
Setpoint optional passive outputs	1-11kΩ
Weight	200g

DUCT SENSORS



Part code	Description
GS-AQ-D-UN	Duct Mounted Air Quality Transmitter

SPECIFICATION

Active outputs	0-10Vdc or 4-20mA (3-wire) self-detecting
Environmental Housing	0 to 50°C, 0 to 95% RH non-condensing
Housing Dimensions	115 x 85 x 30mm
Housing Material	ABS (flame retardant)
Optional passive output	PTC/NTC Element Any Sontay resistive type
Output range	0 to 10 (0=good / 10=poor)
Override optional passive outputs	VFC
Power Supply	24Vac/dc ±10%
Protection	IP30
Setpoint optional passive outputs	1-11kΩ
Weight	250g

Part code	Description
-BLK**	Black Space Housing
-SP*	1-11kΩ set point
-T	Direct resistive temperature output
-LCD	LCD display
-MS*	Momentary switch

Part code	Accessories
DECOR	Decorators trim plate
GASKET	Insulating gasket (pack of 10)

Notes:

- * -T versions use a thermistor element. Please specify type when ordering. When using in space sensors, they are not compensated for self heating. Please see pages 90-93 for Thermistor Types and Compatibility Chart.
- * Only available on Space Sensor Types.
- ** Plain front, no user interface option available (SP/MS/LCD)

GS-CO2

Space Mounted CO2 Sensors



Using a NDIR (non-dispersive infrared) sensor for measuring CO2 concentrations and utilizing ABC (Automatic Baseline Correction) ensures accurate and maintenance free operation. They are also fitted with a IAQ temperature outputs. A valuable feature of this sensor is, when in 3-wire mode, it automatically detects the controller input type, 4-20mA or 0-10Vdc. This removes the requirement for output jumpers. It also provides on-board LED indication for power up status and set output mode. The terminal blocks are pluggable and allow tool free installation (ferrules required).

FEATURES

- Robust sensor enclosure
- Easy installation with LED indication, test button and auto output mode detection (3-wire)
- Pluggable terminal blocks and tool free installation
- Energy saving by ventilating at the optimum CO₂ levels

SPACE SENSORS



SPECIFICATION

Active outputs	0-10Vdc or 4-20mA (3 wire) self-detecting
CO ₂ accuracy	400-2000ppm, ±70ppm ±3%
CO ₂ Output ranges	0-2000ppm
Environmental Housing	-30 to +60°C, 0 to 95% RH non-condensing
Environmental Media	-10 to +50°C
Housing Dimensions	125 x 105 x 85mm
Housing Material	PC/GF (Halogen Free Flame Retardant, UV stabilized)
Housing probe	215 x 20mm dia.
Optional AQ	0 to 1000ppb TVOC
Optional passive output	PTC/NTC Element Any Sontay resistive type
Optional RHT	
Power Supply	24Vac/dc±10%
Temperature Output range	0 to 40°C
Weight	200g

Part code	Description
GS-CO2-S	Space mounted CO ₂ and T sensor 0-2000ppm
GS-CO2-RHT-S	Space Mounted CO ₂ , RH and T Sensor 0-2000ppm
GS-CO2-AQ-S	Space Mounted CO ₂ , T and AQ Sensor 0-2000ppm

DUCT SENSORS



SPECIFICATION

Active outputs	0-10Vdc or 4-20mA (3-wire) self detecting
CO ₂ accuracy	400-2000ppm ±70ppm±3%
CO ₂ Output ranges	0-2000ppm
Environmental Housing	0 to 50°C, 0 to 90% RH non-condensing
Housing Dimensions	115 x 85 x 30mm
Housing Material	ABS (flame retardant)
Optional AQ	0 to 1000ppb TVOC
Optional HR	
Optional passive output	PTC/NTC Element Any Sontay resistive type
Optional RHT	
Override optional passive outputs	VFC
Power Supply	24Vac/dc ±10%
Setpoint optional passive outputs	11-10/0-10Ω linear

Part code	Description
GS-CO2-D	Duct Mounted CO ₂ and T Sensor 0-2000ppm
GS-CO2-RHT-D	Duct Mounted CO ₂ , RH and T Sensor 0-2000ppm
GS-CO2-AQ-D	Duct Mounted CO ₂ , T and AQ Sensor 0-2000ppm

Part code	Suffixes (add to part code)
-T*	Direct resistive temperature output
-SP*	11-1kΩ/0-10kΩ set point
-MS*	Momentary switch
-LCD	LCD display
-5V	Output 0-5Vdc (instead of 0-10Vdc)
-HR	0 to 5000ppm CO ₂ range
-BLK**	Black space housing

Part code	Accessories
DECOR	Decorators trim plate
GASKET	Insulating gasket (pack of 10)

Notes:

- * -T versions use a thermistor element. Please specify type when ordering. When using in space sensors, they are not compensated for self heating. Please see pages 90-93 for Thermistor Types and Compatibility Chart.
- * Only available on Space Sensor Types.
- ** Plain front, no user interface option available (SP/MS/LCD)



GS-CO2-x-UN

Space Mounted Single Output Carbon Dioxide Sensors

The GS-CO2-x-UN range offers a cost-effective single output for CO₂ measurement. These can also include a combination of familiar passive options such as temperature, set point adjustment, momentary switch and fan speed, plus an LCD display.

A unique feature of the sensor is its ability to automatically detect what sort of controller input it is connected to, 4-20mA or 0-10Vdc, removing the requirement for output jumpers which can be inadvertently set incorrectly. Just connect it to the controller input and it does the rest.

PCB LED indication of which output type is in operation is provided, with diagnostic LED patterns for determining faults.

FEATURES

- Auto-detection 0-10Vdc or 4-20mA output, 3-wire only
- Fully configurable LCD Display
- Resistive temperature output option
- No jumpers or DIP-switches to select output type
- CO₂ self-calibration over full sensor lifetime achieved by ABC logic
- Traffic Light LED indication option

SPACE SENSORS



Part code	Description
GS-CO2-S-UN	Space Mounted CO ₂ Sensor 0-2000ppm

SPECIFICATION

Active outputs	0-10Vdc or 4-20mA (3-wire) self-detecting
CO ₂ accuracy	400 to 2000ppm, ±25ppm ±3% of CO ₂
Environmental Housing	0 to 50°C, 0 to 95% RH non-condensing
Housing Dimensions	115 x 85 x 30mm
Housing Material	ABS (flame retardant)
Optional passive output	PTC/NTC Element Any Sontay resistive type
Output range	0 to 2000ppm
Override optional passive outputs	VFC
Power Supply	24Vac/dc ±10%
Protection	IP30
Setpoint optional passive outputs	1-11kΩ
Weight	200g

DUCT SENSORS



Part code	Description
GS-CO2-D-UN	Duct Mounted CO ₂ Sensor 0-2000ppm

SPECIFICATION

Active outputs	0-10Vdc or 4-20mA (3-wire) self-detecting
CO ₂ accuracy	400 to 2000ppm ±25ppm ±3% of CO ₂
Environmental Housing	-30 to +60°C 5 to 95% non-condensing
Environmental Media	-10 to +50°C
Housing Dimensions	125 x 105 x 85mm
Housing Material	PC/GF (Halogen free, flame retardant & UV stabilized)
Housing probe	215 x 20mm dia.
Optional passive output	PTC/NTC Element Any Sontay resistive type
Output range	0-2000ppm
Power Supply	24Vac/dc±10%
Protection	IP65
Weight	250g

Part code	Description
-T*	Direct resistive temperature output
-SP*	1-11kΩ set point
-MS*	Momentary switch
-LCD	LCD display
-LED	3-Colour LED indication for CO ₂
-BLK**	Black Space Housing

Part code	Accessories
DECOR	Decorators trim plate
GASKET	Insulating gasket (pack of 10)

Notes:

- * -T versions use a thermistor element. Please specify type when ordering. When using in space sensors, they are not compensated for self heating. Please see pages 90-93 for Thermistor Types and Compatibility Chart.
- * Only available on Space Sensor Types.
- ** Plain front, no user interface option available (SP/MS/LCD)



GS-CO Space Mounted Carbon Monoxide Sensors

Using latest electro-chemical sensor technology with high repeatability and sensitivity to Carbon Monoxide gases in the ambient air, this sensor ensures accurate and maintenance free operation in residential and commercial environments.

The sensor modules have a catalytic ability to ensure years of operation with no chance of sensor life degradation as known from other electro-chemical sensors. The long life electrochemical Carbon Monoxide sensor makes it ideal for many applications including underground parking, loading bays and warehouses.

FEATURES

- Latest electro-chemical sensor technology with a lifetime up to 10 years
- Easy installation with LED indication, test button and auto output mode detection (3-wire)
- Auto detection 0-10Vdc or 4-20mA outputs, loop powering via DIP
- Direct thermistor options
- Easy installation: 2-part, push-in spring terminal blocks



SPACE SENSORS

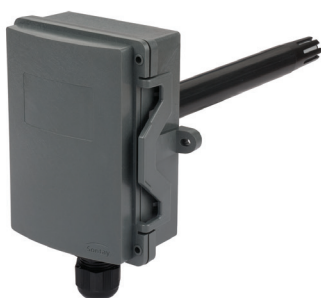


SPECIFICATION

Active outputs	0-10Vdc or 4-20mA (3-wire) self-detecting, 4-20mA (2-wire) via DIP
Carbon Monoxide output range	0 to 500ppm
Environmental Housing	0 to +50°C, 0 to 95% RH non-condensing
Housing Dimensions	115 x 85 x 30mm
Housing Material	ABS (flame retardant) RAL9003
Optional passive output	PTC/NTC Element Any Sontay resistive type
Override optional passive outputs	VFC
Power Supply	24Vac/dc ±10%
Protection	IP30
Setpoint optional passive outputs	11-1kΩ/0-10kΩ linear
Temperature Output range	0 to 40°C
Weight	200g

Part code	Description
GS-CO-S	Space Mounted CO and T Sensor

DUCT SENSORS



SPECIFICATION

Active outputs	0-10Vdc or 4-20mA (3-wire) self-detecting, 4-20mA (2-wire) via DIP
Carbon Monoxide output range	0 to 500ppm
Environmental Housing	-30 to +60°C 5 to 95% non-condensing
Environmental Media	-10 to +50°C
Housing Dimensions	125 x 105 x 85mm
Housing Material	PC/GF (Halogen free, flame retardant & UV stabilized)
Housing probe	215 x 20mm dia.
Optional passive output	PTC/NTC Element Any Sontay resistive type
Power Supply	24Vac/dc ±10%
Protection	IP65
Temperature Output range	-20 to +50°C
Weight	250g

Part code	Description
GS-CO-D	Duct Mounted CO and T Sensor

Part code	Description
-T*	Direct resistive temperature output
-SP*	11-1kΩ/0-10kΩ set point
-MS*	Momentary switch
-TR	Custom temperature output range -20 to 50°C
-5V	Output 0-5Vdc (instead of 0-10Vdc)
-BLK**	Black Space Housing

Part code	Accessories
DECOR	Decorators trim plate
GASKET	Insulating gasket (pack of 10)

IMPORTANT

The sensor is not designed, manufactured or intended for use or re-sale as control or monitoring equipment in environments requiring life safety performance, in which the failure of the sensor could lead directly to death, personal injury, or severe physical or environmental damage. Sontay and its suppliers specifically disclaim any express or implied warranty of fitness for life safety.

Notes:

- * -T versions use a thermistor element. Please specify type when ordering. When using in space sensors, they are not compensated for self heating. Please see pages 90-93 for Thermistor Types and Compatibility Chart.
- * Only available on Space Sensor Types.
- ** Plain front, no user interface option available (SP/MS/LCD)



GL-CO

Gas Leak Alarm System



The GL-CO-RFG-361 is a single channel gas leak alarms system, that is designed for the detection of gas leaks in spaces such as boiler plant rooms, workshops and other industrial gas installations, to provide safety alarm and shutdown facilities on detection of gas leakage.

FEATURES

- Remote sensors for natural gas, LPG and CO
- Relay output for remote alarms
- DIN-rail as standard, panel mounting kit available
- Adjustable alarm sensitivity
- Self-diagnosis fault system
- Audio & visual alarms

SPECIFICATION

Ambient relative humidity	0 to 95% RH non-condensing
Ambient Temperature Range	0 to 50°C
Base materials	Nylon
Cover Material	ABS
Power Supply	230Vac \pm 10% @ 50/60Hz or 12V \pm 10%
Protection	IP30
Relay output	SPDT 250V @ 5(1)A
Weight	250g

Part code	Description
Controllers (DIN-rail mount)	
GL-CO-RFG-361	1-channel, 1 x SPDT
GL-CO-RFG-651	1-channel, 2 x SPDT
GL-CO-RFG-652	2-channel, 2 x SPDT
GL-CO-RFG-653	3-channel, 2 x SPDT
Options	
GL-CO-RFG-FMK3	Panel door mounting kit for RFG361
GL-CO-RFG-FMK6	Panel door mounting kit for RFG65x
GL-CO-RFG-WMK6	Wall Mounting Kit For RFG65x
Sensors	
GL-CO-SRS-150	Combustibles Sensor (Natural Gas)
GL-CO-SRS-250	Propane/LPG Sensor
GL-CO-SRS-350	Carbon Monoxide Sensor

GS-S

Gas Sensors



The GS-S range of 4-20mA loop powered gas sensors are fitted into a robust housing, to detect the following gases:

- Nitrogen dioxide (NO₂)
- Oxygen (O₂)
- Sulphur dioxide (SO₂)

FEATURES

- 4-20mA output
- Wide supply voltage range, 10 to 30Vdc
- Loop powered
- Tamperproof lid
- Excellent long term stability

⚠ Note: These units are not intended for use in life safety applications.

SPECIFICATION

Environmental Housing	-30 to +50°C, 15 to 90% RH non-condensing
Housing Material	ABS (flame retardant) only for internal mounting
Output	4-20mA
Protection	IP65
Supply	7.5 to 35Vdc
Weight	160g

Part code	Range
CO – Carbon Monoxide	
GS-5-CM-100	CO ₂ - Carbon Monoxide Sensor 0-100ppm
GS-5-CM-1000	CO ₂ - Carbon Monoxide Sensor 0-1000ppm
NO₂ – Nitrogen Dioxide Sensors	
GS-5-ND10	NO _{a2} - Nitrogen Dioxide Sensors
O₂ – Oxygen Sensor	
GS-5-OX25	O ₂ - Oxygen Sensor
SO₂ – Sulphur Dioxide Sensor	
GS-5-SD20	SO ₂ - Sulphur Dioxide Sensor

SD-D

Duct Smoke Detector



The SD-D provides relay outputs on the detection of smoke or fault conditions. The alarm output relay can be either manual or auto reset.

FEATURES

- Manual or auto reset
- Fault relay output
- Self-test feature

SPECIFICATION

Duct Size	100 x 320mm (min.) 450 x 450mm (max.)
Environmental Housing	-30 to 60°C, 20 to 80% RH non-condensing
Environmental Media	10 to 40°C
Housing Dimensions	125 x 105 x 85mm
Housing Material	PC/GF (Halogen Free Flame Retardant, UV stabilized)
LED indication	On in alarm
Probe Dimensions	300 x 20mm dia.
Probe Material	Plastic
Protection	IP65
Relay output	SPST 2A @48V (smoke & fault)
Reset	Manual or Auto rest (selectable)
Supply	24Vac/dc \pm 20%
Weight	350g

Part code	Description
SD-D	Duct Smoke Detector

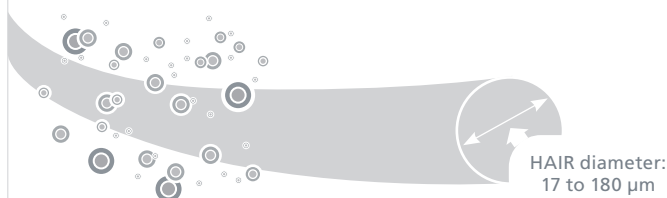
Room Particulate Matter Sensing

How to improve the health and wellbeing of building occupants indoors.

THE HUMAN BODY CAN BE NEGATIVELY AFFECTED BY FINE DUST UNSEEN BY THE HUMAN EYE



The fine dust particles enter the nose, mouth and throat to cause breathing difficulties. Those particles can even penetrate deep into the lungs, can cause lung cancer and cardiovascular diseases.

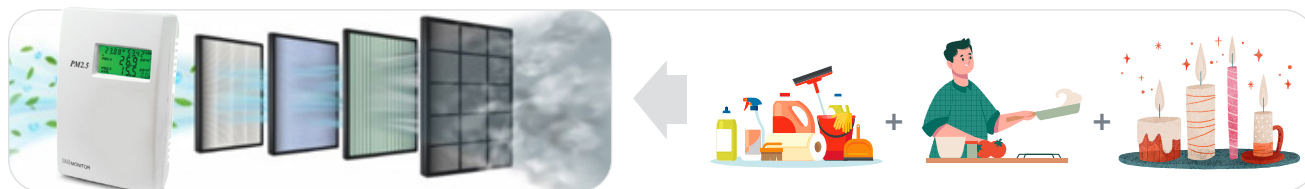


Fine dust particles in proportion

PM10+	●	10+ µm diameter	[Blocked by nose]
PM5.0	●	2.5 to 10 µm diameter	[Blocked in mouth and throat]
PM2.5	•	2.5 µm diameter	[Can penetrate deep into the lungs, causing lung and cardiovascular diseases]

WHERE DO INDOOR PM2.5 AND PM10 POLLUTANTS COME FROM?

Our indoor air quality can be impacted by many things. From outdoor air pollution coming in, to our activities indoors. Things like, cooking, cleaning, or even burning a candle can create particulate matter.



HOW CAN YOU IMPROVE INDOOR AIR QUALITY AND REDUCE PARTICULATE MATTER?

There are many ways that you can improve your air quality, and this is where monitoring levels can really help!

If your indoor air quality is poor and you know your outdoor air quality is good, the simple way to improve air quality would be to introduce fresh air from outside. However, if the air quality outside is not good, you would not want to introduce more particulate matter into the indoor environment. You could then look at processes such as filtering and cleaning the air using many devices or systems available.

The most effective filter against particulate matter is HEPA. You can also help to improve or prevent poor indoor air quality by paying attention to things like cleanliness, activities and products being used that emit particulate matter. Things like vacuuming regularly, using safer cleaning products, not smoking or removing coats or clothing worn when smoking outside can all have an impact on levels.

HOW CAN WE REDUCE OVERALL PARTICULATE MATTER?

This is down to us and the way we live our lives. We can all make small changes in things that we do that when multiplied amongst all of us can help to make a big difference.

The Building Controls industry has a great opportunity to be part of the difference. Take a look at the BCIA "One Small Change" campaign to see how we can all play our part.

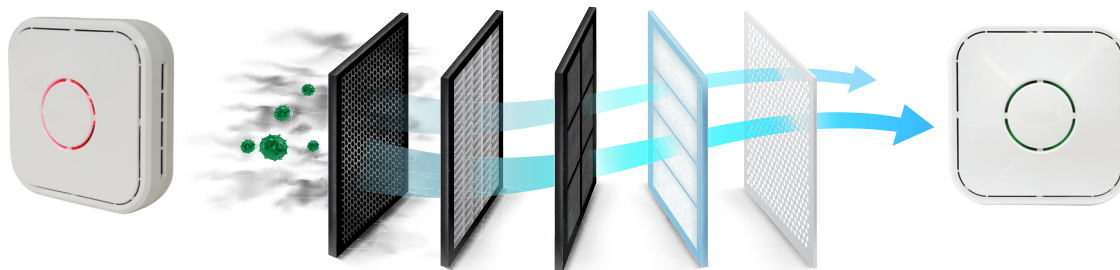
<https://bcia.co.uk/news/one-small-change-one-big-difference/>



PM2.5 & PM10

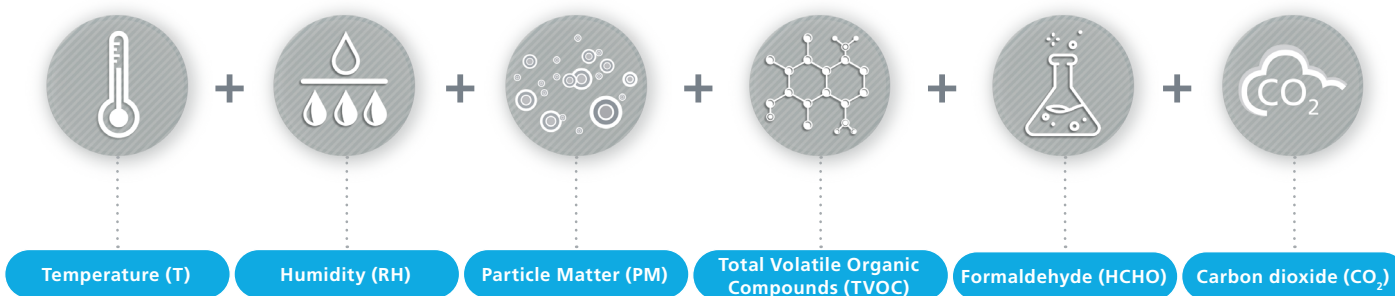
PM2.5 & PM10 Sensing with the GS-PM and GS-IAQ Ranges

It is proven that particulate matter such as PM2.5 and PM10 particles can have major health impacts on us all when breathed in over the long term. We all know that pollution from things like road traffic and industry can reduce our overall air quality and have seen in recent years that there are links between quality and poor air.








Air Quality & Gas Sensing

MONITORING PARTICULATE MATTER



For ease of use and indication to building occupants, there is a colour LCD display showing the stages from green to red of worsening conditions.

APPLICATIONS	BENEFITS
 <p>Offices</p>	Air purifying and ventilation to reduce fatigue and tiredness, resulting in higher productivity and better business results.
 <p>Schools</p>	Filtering viruses and harmful matter to enhance health and wellbeing of pupils, resulting in improved academic results.
 <p>Hospitals</p>	Controlling temperature and filtering viruses in air pollution, creates a break in cycle of secondary infections leading to increased recovery results.
 <p>Public buildings</p>	Real time measurements of hazardous gases and filtering of harmful air pollutants to avoid mass outbreaks of illnesses.
 <p>Transport</p>	High air pollution levels for commuters entering and exiting of vehicles may effect wellbeing. Monitoring and controlling pollutants demonstrates consideration to their health and wellbeing.

Data sheets online: www.sontay.com

GS-PM **Particulate Matter Sensor**



The GS-PM-5 is for PM2.5, humidity and temperature measurement, they can be monitored via the Modbus RTU output or via the 6-colour LCD. The PM2.5 display reading is an average value of PM2 updated hourly, humidity & temperature measurements are real time. PM2.5 is sensed via a laser particle sensor, light scattering method, making these suitable for homes, offices, small ventilation systems etc.

Using unique technology of compensating method, and up to nine calibration points, to guarantee GS-PM-5 measurements accuracy in different environments. PM2.5 display reading is an average value of PM2 updated hourly, humidity & temperature measurements are real time. PM2.5 is sensed via a laser particle sensor, light scattering method, making these suitable for homes, offices, small ventilation systems etc.

FEATURES

- Real time indoor PM2.5 via optical IR LED
- Compensating automatic re-calibration
- Humidity & temperature measurement
- Backlit 6 level LCD to indicate PM2.5 concentration levels
- Modbus RTU output

SPECIFICATION

Output	Modbus RTU 38400 baud rate
Power Supply	24Vac/dc ±10%
Current Consumption	1.2W (1200mA)
Warm Up Time	60 seconds
PM2.5 Output Ranges	0 to 600µg/m ³
Humidity Output ranges	0 to 100%RH
Temperature Output range	-20 to +50°C
PM2.5 Accuracy	±10µg/m + 10% of reading @ 15-35°C, 20-80%RH
Humidity Accuracy	<±3%RH (20-80%RH)
Temperature Accuracy	<±0.5°C @ 25°C
Operational life PM2.5	>5 years (Avoid dust and bright lights)
Environmental temperature	0 to 60°C
Environmental humidity	5 to 95% non-condensing
Housing Material	PC/ABS
Housing Dimensions	85 x 130 x 36.5mm

Part code	Description
GS-PM-5	Wall mount PM2.5, T and RH sensor with 6 colour LCD

GS-PM-D **Duct Mounted PM2.5, Humidity & Temp. Sensor**



The GS-PM-D is for PM2.5, humidity and temperature measurement, they can be monitored via the Modbus RTU output or via the 6-colour LCD. The PM2.5 display reading is an average value of PM2 updated hourly, humidity & temperature measurements are real time. PM2.5 is sensed via a laser particle sensor, light scattering method, making these suitable for homes, offices, small ventilation systems etc.

Using unique technology of compensating method, and up to nine calibration points, to guarantee GS-PM-D measurements accuracy in different environments. cle sensor, light scattering method, making these suitable for homes, offices, small ventilation systems etc.

FEATURES

- Real time indoor PM2.5 via optical IR LED
- Compensating automatic re-calibration
- Humidity & temperature measurement
- Backlit 6 level LCD to indicate PM2.5 concentration levels
- Modbus RTU output

SPECIFICATION

Outputs	Modbus RTU 9600 8NI (default)
Power Supply	12-28Vdc or 18-27Vac
Current consumption	2-15m/s
Air speed (within duct)	60 seconds
Output ranges	PM2.5/10 0 to 500µg/m ³ CO ₂ 0 to 2000ppm TVOC 0.01 to 4.00mg/m ³ Humidity 0 to 99%RH Temperature -20 to +60°C
Accuracy	PM2.5 ±5µg/m + 10% of reading {0to 300µg/m ³ 10-30°C, 10-60%RH) CO ₂ ±50ppm + 3% reading TVOC <±0.05 mg/m ³ + 15% of reading Humidity <±3.5%RH (10-60%RH) Temperature <±0.5°C@25°C
Environmental	Temperature -20 to 60°C Humidity 0 to 95% non-condensing
Housing	Material PC Dimensions 180 x 125 x 65.5mm
Pitot tube	240 x 30.4mm dia.
Protection	IP30
Certification	RESET, WELL

Part code	Description
GS-PM-D	Duct PM2.5, CO ₂ ,TVOC, RH and T sensor

GS-IAQ

Indoor Air Quality Monitor



The GS-IAQ-S measures multiple different sensor types for all-round indoor air quality. Sensor types include is for PM2.5, PM10, TVOC, HCHO, CO₂, humidity & temperature measurement. All can be monitored via the Modbus RTU output, there is also a 3-colour LED ring indicating different indoor air quality levels.

A built-in large flow bearing blower and the control technology of automatic constant flow, the GS-IAQ-S has the much higher and long-term operation stability and life, of course more accuracy.

FEATURES

- Real time indoor air quality monitoring
- Multiple sensors, PM2.5, PM10, TVOC, HCHO, CO₂, humidity & temperature
- Three colour light ring indicating indoor air quality levels
- Ceiling or wall mounted
- Modbus RTU output

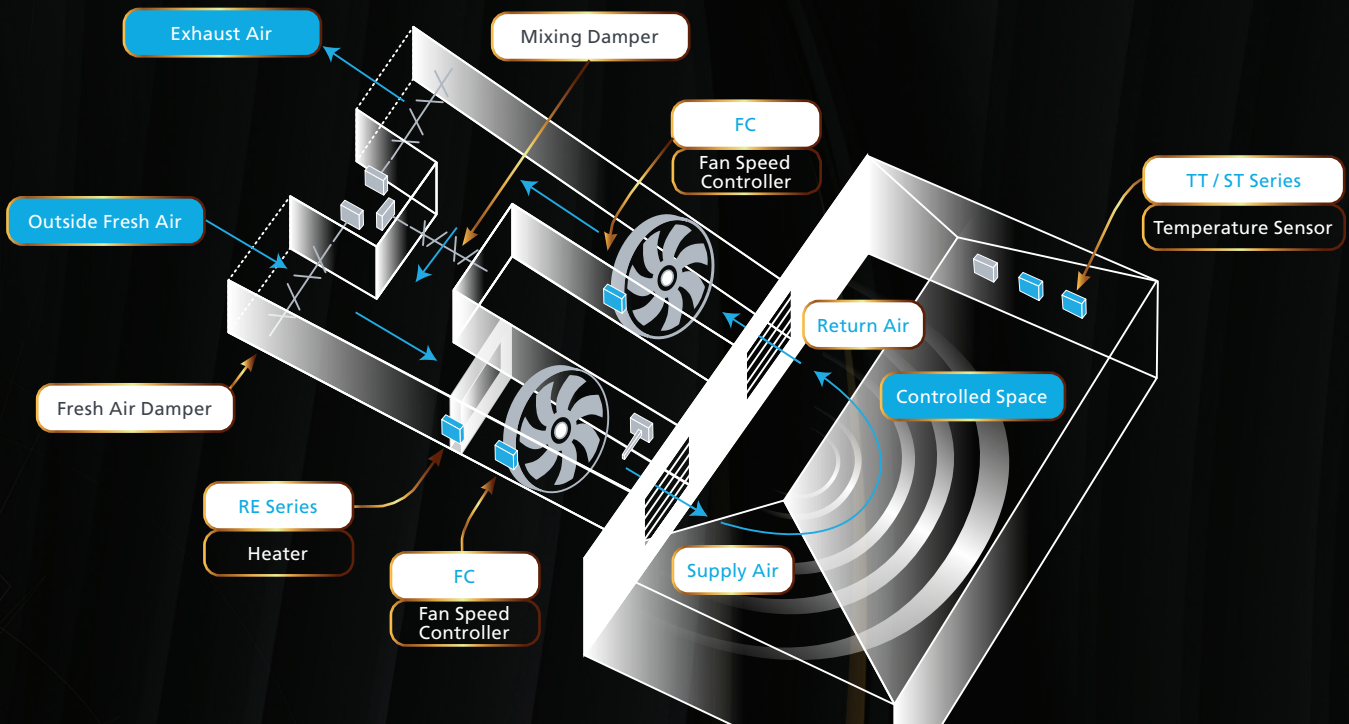
SPECIFICATION

Certification	RESET, Grade B WELL
CO ₂ Accuracy	±50ppm +3% of reading
CO ₂ Output ranges	0 to 5000ppm
Current Consumption	1.9W (80mA)
Electrical connections	Rising cage to suit 0.2 to 1.5mm ²
Environmental humidity	5 to 90% non-condensing
Environmental temperature	0 to 50°C
HCHO Accuracy	±0.005 µg/m ³ +5% of reading
HCHO Output ranges	0 to 0.6mg/m ³
Housing Dimensions	130 x 130 x 45mm
Housing Material	PC/ABS
Humidity Accuracy	<±4%RH (20-80% RH)
Humidity Output ranges	0 to 99%RH
PM10 Output ranges	0 to 800µg/m ³
PM2.5 Accuracy	10% of reading, 0-300µg/m ³
PM2.5 Output Ranges	0 to 500µg/m ³
Power Supply	12-28Vdc or 18-27Vac
Protection	IP20
Temperature Accuracy	<±0.6°C @ 25°C
Temperature Output range	-20 to +60°C
TVOC Accuracy	±0.5µg/m ³ +10% of reading
TVOC Output ranges	0 to 3.5mg/m ³

Part code	Description
GS-IAQ-S	PM2.5/10, TVOC, HCHO, CO ₂ , RH & Temp. Monitor



Controllers



FC Fan Speed Controller Range

For fans and suitable single-phase AC electric motors.



FC Speed Controller

Close Control at Optimal Speeds



Accurate Duct Pressure Maintenance

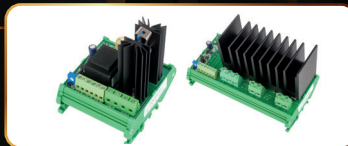


Manual and Automatic Variants



RE Electric Heater Battery Controllers

Are used to accurately modulate the heating output of single and 3-phase heaters.



RE Single Phase & 3-Phase Controller

Accurately Modulate the Heating Output



Automatic Reset & Alarm Function



FC-SDY

Manual Fan Speed Controller for Small Motors



Manual control for small, single-phase motors up to 3 amps. The minimum speed can be adjusted via an internal trimmer. The unregulated output is active when the motor is enabled. The enclosure allows inset mounting (IP44) or surface mounting (IP54). Microprocessor controlled to guarantee accurate motor control and to minimise motor noise. Phase angle control (Triac technology) is used to vary the motor voltage and for regulating the motor speed. This variable speed controller is often used to ceiling fans, bathroom exhaust fans, extraction fans etc.

SPECIFICATION

Control type	Manual via potentiometer
Current Ratings	0.1 to 1.5A
Flush mount dimensions	82 x 87 x 23.5mm
Flush protection	IP44
Minimum speed	Adjustable via trim pot
Mounting Style	Wall and flush mount
Nominal Supply	230Vac, 1 phase, 50/60Hz
On/Off Switch	Inbuilt with pot.
Pot.action	Clockwise = min. to max. speed
Surface protection	IP54
Wall mount dimensions	82 x 87 x 63.5mm
Weight	360g max.

Part code	Description
FC-SDY-1.5	1.5A, 1-Phase Controller
FC-SDY-3	3A, 1-Phase Controller



FC-ITR

Manual Speed Controllers



The FC-ITR range of manual speed controllers provide an economic means of speed regulation for voltage controllable single-phase AC motors. Centrifugal fans, axial fans, propeller fans, and centrifugal pumps are prime candidates for electronic speed control.

SPECIFICATION

Control type	Separate to potentiometer, mounted on side
Minimum speed	Adjustable via trim pot
Mounting Style	Wall mount
Nominal Supply	110 to 240Vac, 1 phase, 50/60Hz
On/Off Switch	Full speed for 8 to 10 secs
Pot.action	Clockwise = min. to max. speed
Protection	IP54
Weight	740g max.

Part code	Description
FC-ITR-3D	3A, 1-Phase Controller
FC-ITR-10D	10A, 1-phase Controller



FC-EVS

Fan Speed Controllers



The FC-EVS series of electronic speed controllers provide an economic means of regulation for voltage controllable single-phase AC motors. Centrifugal fans, axial fans, propeller fans, and centrifugal pumps are prime candidates for electronic speed control. Fan speed is controlled via a remote invertible 0-10Vdc / 10-0Vdc or 0-20mA / 20-0mA signal, suitable for direct connection to BEMS or transmitters. It is equipped with Modbus RTU communication and provides a wide range of functionalities: remote control options, adjustable off level, min. and max. output voltage settings, and time-limited motor operation initiated by a logic or switch signal.

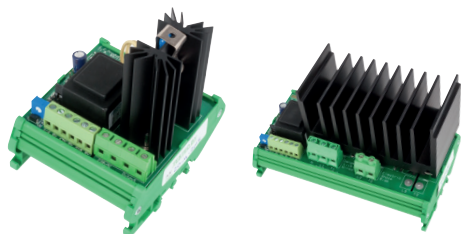
SPECIFICATION

Control type	Automatic from remote signal
Fuse	20mm 'FF' type
Minimum speed	According to signal value
Mounting Style	Wall mount
Nominal Supply	230Vac, 1 phase, 50/60Hz
On/Off Switch	Mounted on side
Pot.action	Two wire 4-20mA, 0-10Vdc or Modbus
Protection	IP54
Weight	810g max.

Part code	Description
FC-EVS-1.5	1.5A, 1-Phase Controller
FC-EVS-3	3A, 1-Phase Controller
FC-EVS-6	6A, 1-phase Controller
FC-EVS-10	10A, 1-Phase Controller



RE-1P Single Phase Controllers



The 2kW single phase DIN Rail mounting controller is suitable for providing control of electric heating loads from an analogue signal. Applications include electric heating coils, heating cables and electric furnaces. The units utilise solid-state switching with "zero crossing technology" to provide accurate switching control. All items are provided with an alarm output for over temperature protection and LED Indication of Output ON, and are designed to mount on DIN rails.

SPECIFICATION

Alarm Output	(as power supply) 0V when over temp alarm is active
Ambient Temperature Range	0-45°C without de-rating
Input Signal	Selectable; 0-5V, 0-10V, 2-10V or 4-20mA
LED indication	ON when output is on
Supply (load)	220-255Vac 50/60Hz

Part code	Description
RE-1P-2	2kW Controller
RE-1P-4N	4kW Controller
RE-1P-7	7kW Controller

FEATURES

- Selectable control input
- Over temperature protection with auto reset
- Line powered
- LED Indication
- Efficient electronic switching
- No additional heat sinks or RFI filters required

RE-3P 3-phase Controllers



The RE-3P range are suitable for providing control of electric heating loads from an analogue signal. Applications include electric heating coils, heating cables and electric furnaces. The units utilise solid-state switching with "zero crossing technology" to provide accurate switching control.

All controllers are provided with an alarm output for over temperature protection and LED Indication of Output ON.

The 12 & 18kW versions are for Din-rail mounting and 27, 36, 57, 86 & 105kW are designed to mount on the control panel back plate.

SPECIFICATION

Input signal	Selectable; 0-5V, 0-10V, 2-10V or 4-20mA
Supply (load)	220-255Vac 50/60Hz
Supply (control)	DIN-Rail: 24Vac/dc
	Panel Mount: 230Vac
LED indication	ON when output is on
Alarm output	(as power supply), 0V when over temp alarm is active*
Ambient temperature	0-45°C without de-rating
Dimensions (W, H, D)	RE-3P-12/18 - 170 x 110 x 102mm RE-3P-27/36 - 257 x 102 x 142mm RE-3P-57/86 - 257 x 200 x 158mm RE-3P-105 - 257 x 265 x 159mm
Weight	RE-3P-12 - 621g RE-3P-18 - 882g RE-3P-27/36 - 3.8kg RE-3P-57 - 7.2kg RE-3P-105 - 10kg

Part code	Description
RE-3P-12	Din-rail 12kW Controller
RE-3P-18	Din-rail 18kW Controller
RE-3P-27	Panel mount 27kW Controller
RE-3P-36	Panel mount 36kW Controller
RE-3P-57	Panel mount 57kW Controller
RE-3P-86	Panel mount 86kW Controller
RE-3P-105*	Panel mount 105kW Controller

* No Alarm Output available on 105kW.

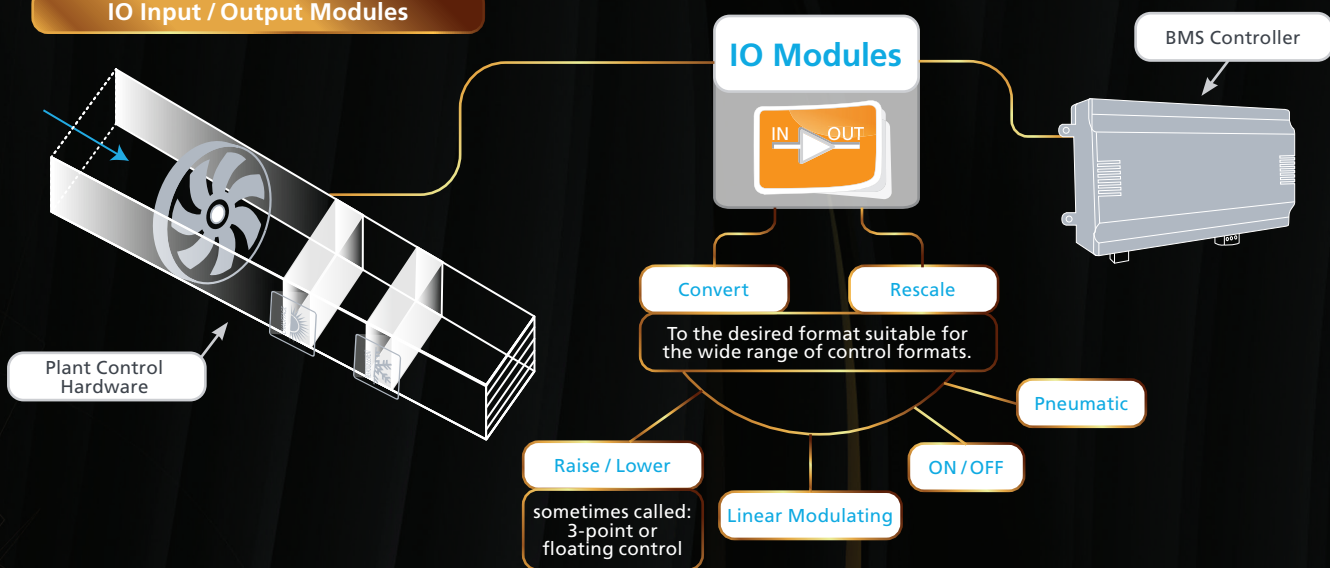
FEATURES

- Selectable control input
- Over temperature protection with auto reset
- No additional heat sinks or RFI filters required
- Efficient electronic switching
- Small foot print



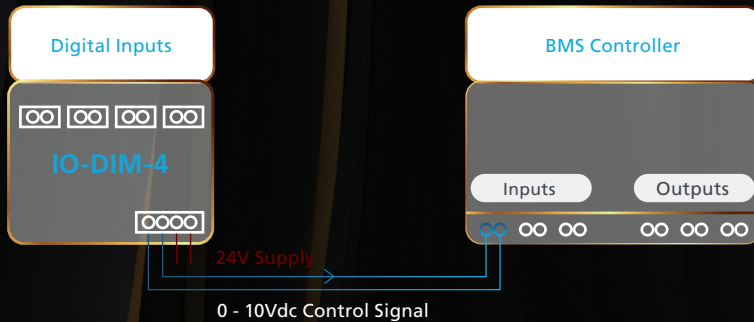
IO Modules

IO Input / Output Modules



IO-DIMs Digital Input Multiplexers

Allows up to 6 digital inputs to be connected to a single analogue input on a BMS controller, effectively expanding the available input count.

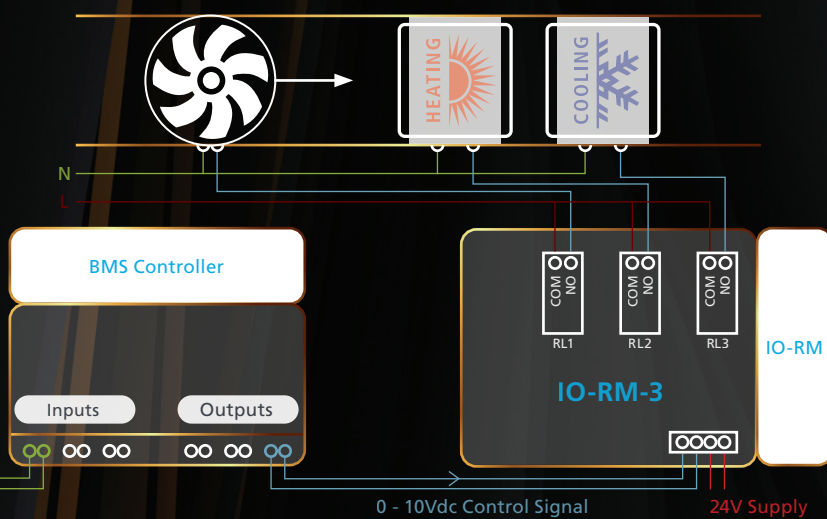


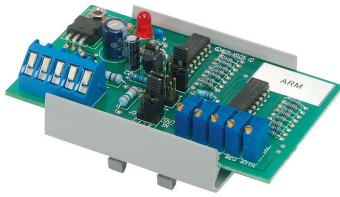
IO-RM Relay Output Modules

Allows up to 8 digital relay outputs to be connected to a single analogue output on a BMS controller, effectively expanding the available output count.

The relays can be configured to switch in commonly used control patterns.

The Sontay IO series is highly cost-effective from a commissioning perspective, with a comprehensive range of input and output compatibilities.



IO-A-RM
Analogue Rescaling Module

SPECIFICATION

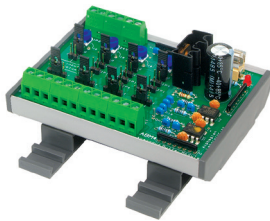
Ambient relative humidity	10 to 95% RH non-condensing
Ambient Temperature Range	-10 to +50°
Current input signal	0 to 44mA max.
Current Output	1 to 44mA max.
Power Supply	24Vac/dc ±10%, 200mA max.
Voltage input signal	0 to 35Vdc max.
Voltage output signal	0.25 to 20Vdc max.
Weight	60g

The IO-A-RM can accept either a voltage or current input, which can be converted and /or rescaled to a voltage or current output. The IO-A-RM can also be used to reverse an input signal.

FEATURES

- Field selectable ranges
- Voltage to current, current to voltage conversion
- Reverse or normal output
- DIN Rail mounting
- Accurate signal rescaling
- Allows conversion of non-compatible signals
- LED indication

Part code	Description
IO-A-RM	Analogue Re-Scaling Module

IO-ABM4
Analogue Override Module

SPECIFICATION

Ambient Range	-10 to +50°C
Fuse	8A max.
Fused Output	24Vac @ 8A
Input Signal	0-10Vdc
Max. supply current	AC supply 260mA DC supply 115mA
Max.output current	20mA per channel in buffered mode
Output signals	0-10Vdc direct or buffered
Power Supply	24Vac/dc ±15%
Weight	110g

Intended for applications which require independent manual override of analogue output channels from a BMS controller, as a fail-safe in the event of controller failure. This enables actuators and other plants to be manually overridden from the panel where local access may be difficult. The module is also useful for commissioning or temporary control of a plant prior to controller installation.

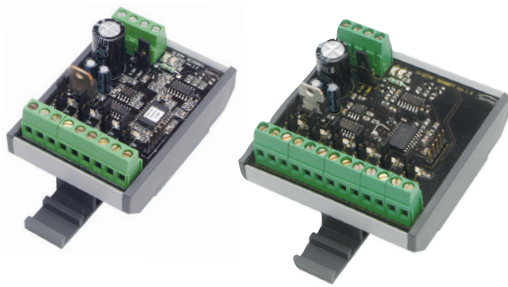
FEATURES

- 4 x 0-10Vdc channels & 24Vac/dc powered
- Hand/off/auto link selectable
- DIN Rail mounting
- Enables actuators or other equipment to be manually overridden
- Used as a fail-safe in event of controller failure
- Up to four outputs to be controlled from one input

Part code	Description
IO-ABM4	4-channel Module

IO-DIM

Digital Input Multiplexers



These modules are to expand a BMS controller's input capacity by multiplexing four or six digital signals, or 24Vac/dc inputs into a single analogue controller unit. Each combination of input states corresponds to an analogue value from the module which can be decoded into four or six digital status bits.

FEATURES

- Input status indication & simulation
- Calibrated output
- DIN Rail mounting
- Expands controller input capacity
- Fault finding LED indication
- Input status LED indication

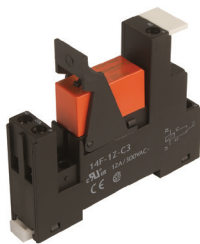
SPECIFICATION

Ambient Relative Humidity	0 to 80% RH non-condensing
Ambient Temperature Range	-10 to +50°C
Current	35mA max. voltage output mode, 55mA max. current output mode
Inputs	VFC, 24Vac or 24Vdc
LED indication	Supply OK, supply voltage low, supply voltage high, current output (4-20mA output only)
Output range	0-10Vdc into 2kΩ impedance, 4-20mA into 500Ω max.
Power Supply	24Vac ±15% @ 50Hz or 24Vdc +15% -6%

Part code	Description
IO-DIM-4	4 x VFC or 24Vac/dc inputs, selectable output
IO-DIM-6	6 x VFC or 24Vac/dc inputs,selectable output

IO-RM1

Single Relay Modules



A range of relays for use with BMS controllers for switching plant and isolation of input signals. They are supplied complete with DIN-rail mounting base and retaining clip.

FEATURES

- Various coil types available
- Rising cage terminals
- DIN Rail mounting

SPECIFICATION

Relay clip	Auto eject type supplied
Input signals	IO-RM1-12DC 10Vdc IO-RM1-24DC 24Vdc IO-RM1-24AC 24Vac IO-RM1-240AC 230Vac
Output contacts	IO-RM1-12DC 10A resistive Others 12A resistive
Ambient range	-10 to +50°C
Dimensions	55 x 12 x 50mm
Weight	60g

Part code	Description
IO-RM1-12DC	Single Relay, 12Vdc Module
IO-RM1-24DC	Single Relay, 24Vdc Module
IO-RM1-24AC	Single Relay, 24Vac Module
IO-RM1-240AC	Single Relay, 230Vac Module

IO-RM

Relay Modules



This range of relay modules is intended for use with BMS controllers to convert an analogue control output to various switching relay modes.

The IO-RM-A adjustable relay module provides individually adjustable on and off switching points.

Applications include the control of raise/lower valves, damper actuators, pump changeover and boiler control. LEDs indicate correct operation and Hand/Off/Auto jumpers ease commissioning.

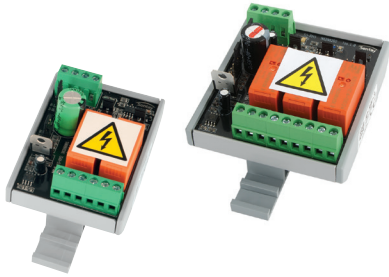
FEATURES

- Fault finding LED indication
- Relay status LED indication
- Link selectable switching modes
- On/Off/Auto links for ease of commissioning

FEATURES for IO-RM-A

- Adjustable switching relay point
- Slave 0 to 10V output

IO-RM-2 & 3

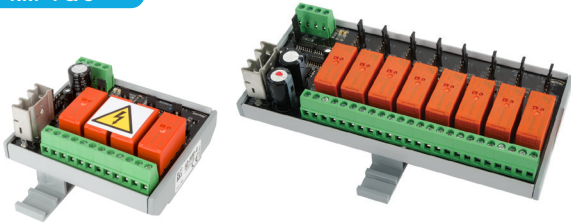


Part code	Description
IO-RM-2	2-stage Relay Module
IO-RM-3	3-stage Relay Module

SPECIFICATION

Input signal	0 to 10Vdc <1mA	
Input impedance	Approx. 11kΩ	
Output contacts	8A @ 230Vac (resistive load)	
Power supply	24Vac/dc ±15% @ 50Hz	
Modes (selectable)	IO-RM-2	Raise/lower, hi/low or binary
	IO-RM-3	Binary, heat/cool, staged or sequenced
Power consumption	100mA max.	
Ambient range	Temperature:	-10 to +40°C
	RH:	0 to 80% RH non-condensing
Dimensions	IO-RM-2	72 x 49.5 x 55mm
	IO-RM-3	72 x 64 x 55mm
Weights	IO-RM-2	100g
	IO-RM-3	140g

IO-RM-4 & 8



Part code	Description
IO-RM-4	4-stage Relay Module
IO-RM-8	8-stage Relay Module

SPECIFICATION

Input signal	0 to 10Vdc <1mA	
Input impedance	Approx. 11kΩ	
Output contacts	8A @ 230Vac (resistive load)	
Power supply	24Vac/dc ±15% @ 50Hz	
Modes (selectable)	IO-RM-4	Binary, staged or sequenced
	IO-RM-8	Staged or sequenced
Power consumption	100mA max.	
Ambient range	Temperature:	-10 to +40°C
	RH:	0 to 80% RH non-condensing
Dimensions	IO-RM-4	72 x 82 x 55mm
	IO-RM-8	72 x 156 x 55mm
Weights	IO-RM-4	200g
	IO-RM-8	300g

IO-RM-A



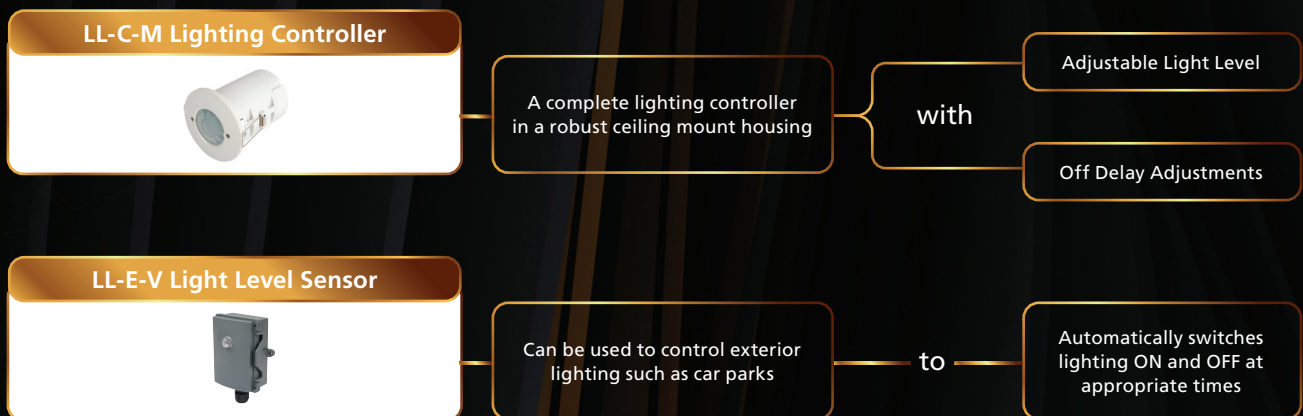
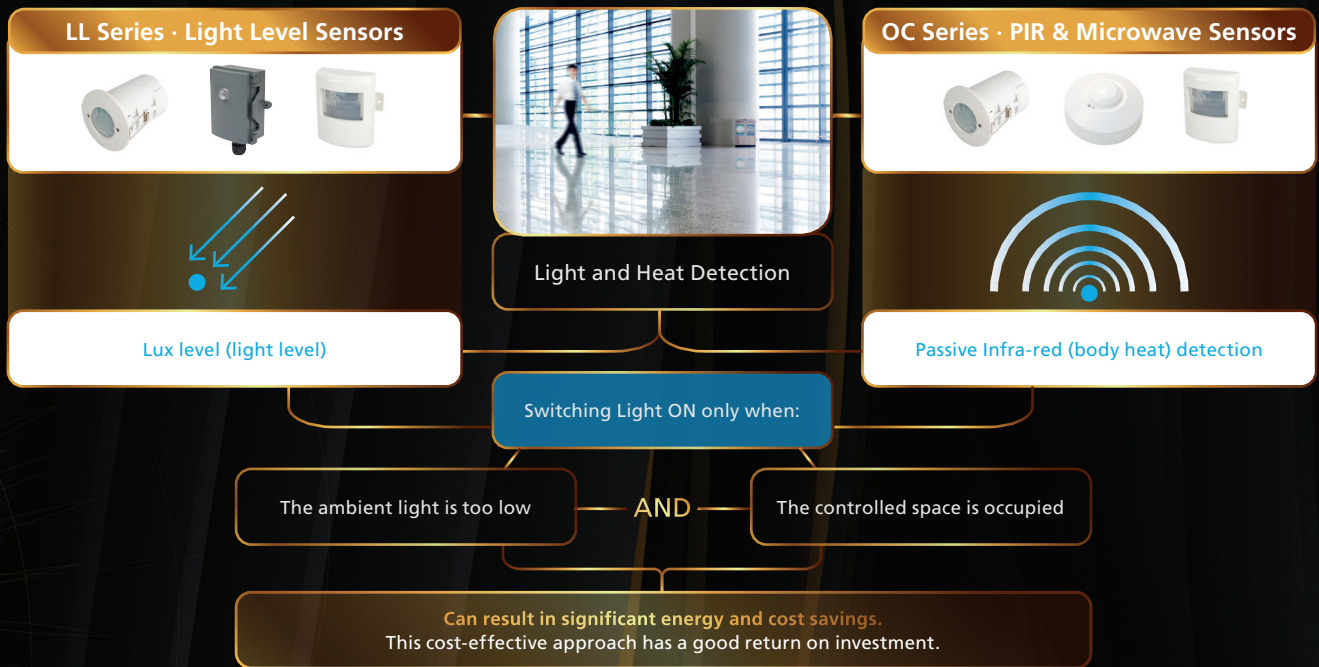
Part code	Description
IO-RM-A	Adjustable Switching Point Relay Module

SPECIFICATION

Input signal	0 to 10Vdc <1mA	
Input impedance	Approx. 11kΩ	
Output contacts	8A @ 230Vac (resistive load)	
Power supply	24Vac/dc ±15% @ 50Hz	
Ambient range	Temperature:	-10 to +40°C
	RH:	0 to 80% RH non-condensing
Dimensions	172 x 49.5 x 55mm	
Weight	82g	



Energy Saving through Lighting Control



LL External Light Level Sensor



The LL-P-V is a light level transmitter designed for use in the active control of artificial lighting, both to optimise light levels and to achieve maximum energy efficiency.

Using a photo-diode cell to detect light levels the LL-P-V provides a 10 to 2000 and 10 to 10,000 lux range, with a linear 0-10Vdc output signal.

FEATURES

- 0-10Vdc output
- Flush mounted
- 24Vac/dc powered
- Energy saving by dimming light ballast

SPECIFICATION

Accuracy	±5% across range
Environmental Housing	-30 to +60°C, 0 to 90% RH non-condensing
Housing Material	PC/GF (Halogen Free Flame Retardant, UV Stabilized)
Output	0-10Vdc
Protection	IP65
Ranges (selectable)	10 to 2000 Lux, 10 to 10,000 Lux
Sensor Reference	Photo-diode
Supply	24Vac/dc
Weight	140g

LL-P-V



Part code	Description
LL-P-V	External Light Level Sensor

LL-C-V



Part code	Description
LL-C-V	Ceiling Mounted Internal, Light Level Sensor

SPECIFICATION

Accuracy	±5% across range
Ambient relative humidity	0 to 90% RH non-condensing
Ambient Temperature Range	-10 to +40°C
Housing Material	Flame retardant ABS, Polypropylene
Output	0-10Vdc
Protection	IP30
Range	10 to 2000 Lux
Sensor Reference	Photo-diode
Supply	24Vac/dc
Weight	140g

LL External Light Level Sensor



SPECIFICATION

Occupancy sensor	Passive infra-red detector
Field of view	360°
Coverage	6 metres max.
Light range	10 to 2000 Lux
Off delay timer	10 seconds to 30 minutes
Connections	Live, neutral & switched live
Ambient	Temperature: -10 to +40°C, RH: 0 to 90% RH, non-condensing
Housing material	Flame retardant ABS, polypropylene
Dimensions	76mm dia. x 95mm height
Protection	IP30
Weight	150g

FEATURES

- Combined light level & occupancy detection
- Flush mounted
- 6 meter coverage
- Energy saving
- Easy adjustment of light level and delay time

The LL-C-M is designed to give savings over uncontrolled lighting whilst retaining an ease of installation and configuration. A Passive Infra-Red detector monitors occupancy through moving body heat and a photo-sensitive device monitors light level. This will ensure that lighting is only switched on when the area covered is occupied and the light level is too low for normal working use. In this way lighting remains off until required.

Part code	Description
LL-C-M	230Vac. Flush ceiling mounted light level and occupancy controller



OC Ceiling Mounted PIR Occupancy Detector

The OC-C-LVN is a Passive Infra-Red detector for monitoring occupation through moving body heat. Detection of occupancy causes the internal SPDT relay to activate and the volt free contact ensures compatibility with a vast array of equipment including BMS digital inputs.

An LED indicates detection, this flashes every 2 seconds on detection. The LED will be off when no occupancy is detected.

FEATURES

- 24Vac/dc powered
- Flush mounted
- LED status for occupancy
- 6 meter coverage
- Low voltage loads (6(2)A @24V) can be switched directly without the need for interposing relays
- Easy adjustment of delay time

OC-C-LVN



The OC-C-LVN is a Passive Infra-Red detector for monitoring occupation through moving body heat. Detection of occupancy causes the internal SPDT relay to activate and the volt free contact ensures compatibility with a vast array of equipment including BMS digital inputs. An LED indicates detection, this flashes every 2 seconds on detection. The LED will be off when no occupancy is detected.

SPECIFICATION

Ambient relative humidity	0 to 90% RH non-condensing
Ambient Temperature Range	-10 to 40°C
Coverage	6 meter max.
Field Of View	360°
Off Delay Timer	10 seconds to 30 minutes
Protection	IP30
Sensor Type	Passive infra-red detector
Supply	24Vac/dc
Switching Capacity	6(2)A @24V
Weight	140g

Part code	Description
OC-C-LVN	Ceiling Mounted, PIR Occupancy Detector

OC-W-LV



The OC-W-LV can be directly fixed to a wall or mounted using the angled bracket supplied

SPECIFICATION

Ambient relative humidity	0 to 90% RH non-condensing
Ambient Temperature Range	-10 to +40°C
Coverage	18 meters
Field Of View	90°
Off Delay Timer	10 seconds to 30 minutes
Protection	IP30
Sensor Type	Passive infra-red detector
Supply	24Vac/dc
Switching Capacity	6(2)A @24V
Weight	70g

Part code	Description
OC-W-LV	Wall Mounted, PIR Occupancy Dedetector

OC-C-M



The OC-C-M is an active motion detector for direct ceiling mounting. It emits high-frequency electro-magnetic wave (5.8GHz). It detects the change in echo from even the slightest movement in its detection zone.

SPECIFICATION

Supply	220-240Vac
Sensor type	Microwave, 5.8GHz CW radar, ISM band
Field of View	360°
Coverage	1 to 8 meters radius (adjustable)
Off delay timer	8 seconds to 12 minutes
Switching capacity	1200W
Ambient range	Temperature: -10 to 40°C RH:0 to 90% RH. non-condensing
Dimensions	95mm x 40mm (H)
Protection	IP30
Weight	140g

Part code	Description
OC-C-M	Ceiling Mounted, Microwave Occupancy Detector



Power Monitoring



PM-CS

Current Switches



Sontay's current switches offer adjustable or fixed set point's and provide accurate, reliable and maintenance-free operation. Output switching options include 30V @ 1A or 240V @ 1A, with current ratings up to 150A. Both versions have a unique self-gripping feature which allows the switch to literally clip on to a cable without the need for a base mounting plate.

APPLICATIONS

- Detection of fan belt breakage & motor failure
- Verifying lighting circuits & Process equipment status
- Monitoring critical motors (compressors etc.)



SPECIFICATION

Supply	Self-powered from monitored line
Trip set point	PM-CS-A01 - 0.75 to 150A PM-CS-F01 - 0.35A or less PM-CS-A02 - 0.5 to 150A PM-CS-F02 - 0.25A or less PM-CS-A03 - 0.75 to 150A PM-CS-F03 - 0.5A or less
Ambient	Humidity: 0 to 95% RH non-condensing Temperature: -35 to +60°C
Dimensions	Split core types: 65 x 50 x 30mm Hole: 13 x 13mm Solid core types: 53 x 37 x 24mm Hole: 13mm dia
Weight	100g max.

ADJUSTABLE SETPOINT TYPES

Allow for easy detection of broken drive belts, drive belt slip or pump coupling shear. A typical HVAC motor that loses its load has a reduction of current draw of up to 50%.

FEATURES

- Adjustable set-point & Self-powered
- More reliable and cost-effective than differential pressure switches
- 100% solid-state output, no moving parts to fail
- Output status LEDs for fast setup

Part code	Description
Adjustable Setpoint Types	
PM-CS-A-01	0.75 to 150A 30Vac/dc, split core
PM-CS-A-02	0.5 to 150A 30Vac/dc, solid core
PM-CS-A-03	0.75 to 150A 240Vac, split core

FIXED SETPOINT TYPES

Provide a cost-effective solution for monitoring the status of unit vents, exhaust fans, recirculation pumps and other fixed loads where belt loss is not a concern.

FEATURES

- More reliable for status than relays across auxiliary contacts
- Ideal for lighting status
- Monitor status of fans, pumps, motors and other electrical loads
- Self-powered

Part code	Description
Fixed Setpoint Types	
PM-CS-F-01	0.35 to 150A 30Vac/dc, split core
PM-CS-F-02	0.25 to 150A 30Vac/dc, solid core
PM-CS-F-03	0.50 to 150A 240Vac, split core

PM-CTR

Current Transducers



Current transducers provide accurate load trending information with a choice of 4-20mA, 0-5Vdc and 0-10Vdc output signals. They provide accurate, reliable and maintenance-free operation. Solid and split-core versions are available with current ratings up to 100A. Current versions are supplied with pre-wired 400mm tails and voltage versions have screw terminals. All versions have a unique self-gripping feature which allows the switch to literally clip on to a cable without the need for a base mounting plate.

FEATURES

- Load trending
- Voltage output versions self-powered, no supply required
- Dip-switch selectable ranges on 0-10Vdc version
- Unique wire clamp, for easy installation
- Split core versions for fast retrofit installation with no need to remove conductor

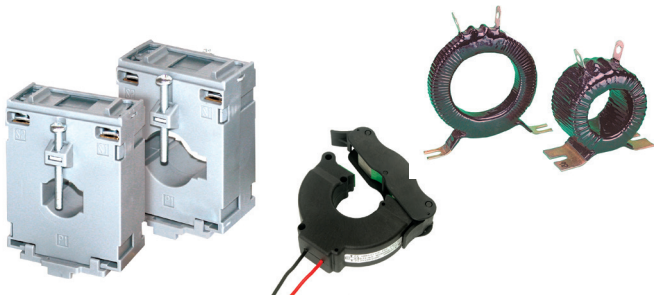
SPECIFICATION

Supply	Current output: Loop powered Voltage output: Self powered
Accuracy	Current output: 99% FS (25-100% span) Voltage output: 96.8% FS
Ambient	Humidity: 0 to 95% RH non-condensing Temperature: -35 to +60°C
Dimensions	Split core types: 65 x 50 x 30mm Hole: 13 x 13mm, self-gripping clamp Solid core types: 53 x 37 x 24mm Hole: 13mm dia.
Weight	100g

Part code	Description
PM-CS-A-01	0.75 to 150A 30Vac/dc, split core
PM-CS-A-02	0.5 to 150A 30Vac/dc, solid core
PM-CS-A-03	0.75 to 150A 240Vac, split core
PM-CS-F-01	0.35 to 150A 30Vac/dc, split core
PM-CS-F-02	0.25 to 150A 30Vac/dc, solid core
PM-CS-F-03	0.50 to 150A 240Vac split core

PM-CT

Current Transformers



SPECIFICATION

Ambient relative humidity	up to 95% RH non-condensing
Ambient Temperature Range	-30 to +85°C
Frequency	50/60Hz
Insulation level	3kV (50Hz) for 1 minute (not PM-CT-M)
Overload	1.2 x rated current (continuous)
Weight	750g max.

FEATURES

- Ratings from 50 to 800A
- SA secondary current

The PM-CT-R range of ring type current transformers are for use with Sontay's PM-EM210 & PM-EM24 kWh meters and other suitable equipment.

Part code	Description
Moulded Types	
PM-CT-M100	100A, 2.5VA Current Transformer
PM-CT-M150	150A, 2.5VA Current Transformer
PM-CT-M200	200A, 5VA Current Transformer
PM-CT-M250	250A, 5VA Current Transformer
PM-CT-M300	300A, 5VA Current Transformer
PM-CT-M400	400A, 5VA Current Transformer
PM-CT-M500	500A, 10VA Current Transformer
PM-CT-M600	600A, 10VA Current Transformer
PM-CT-M800	800A, 10VA Current Transformer
Split Core Types	
PM-CT-100SC	100A, 1VA Current Transformer
PM-CT-150SC	150A, 1.5VA Current Transformer
PM-CT-200SC	200A, 2.5VA Current Transformer
PM-CT-250SC	250A, 2.5VA Current Transformer

Part code	Description
Split Core Types (continued)	
PM-CT-300SC	300A, 2.5VA Current Transformer
PM-CT-400SC	400A, 5VA Current Transformer
PM-CT-500SC	500A, 5VA Current Transformer
PM-CT-600SC	600A, 5VA Current Transformer
PM-CT-800SC	800A, 5VA Current Transformer
Ring Types	
PM-CT-R50	50A, 2.5VA Current Transformer
PM-CT-R100	100A, 10VA Current Transformer
PM-CT-R150	150A, 15VA Current Transformer
PM-CT-R250	250A, 15VA Current Transformer
PM-CT-R300	300A, 15VA Current Transformer
PM-CT-R400	400A, 15VA Current Transformer
PM-CT-R500	500A, 15VA Current Transformer
PM-CT-R800	800A, 15VA Current Transformer

PM-EM210

Energy Analyser (DIN-rail or panel mounted)



SPECIFICATION

Ambient relative humidity	0 to 90% RH non-condensing
Ambient Temperature Range	-25 to +55°C
Display	2 lines
Frequency	45 to 65Hz
Housing	Nylon PA66, self-extinguishing UL 94 V-0
Modbus Output Type	RS485
Mounting	DIN-rail or panel
Protection	IP50 (front)
Pulse Output Type	Open collector
Refresh time	1/s
RS 485 address	Programmable, 1 to 247
Single-Phase Measurements	VLL, VLN, A, PF, kWh, Kvarh
System Measurements	W, var, PF, Hz, Phase-sequence
Weight	260g

The PM-EM210-M is a compact energy meter that has a removable front LCD display that allows it to be either DIN-rail or panel mounted. The energy meter is designed for active and reactive energy metering. All operations, including programming and viewing up to seven display pages are performed using the two push buttons on the detachable display. It is possible to block the access to programming by means of a trimmer position on the rear of the display. Standard meters are non-MID. For billing use, add annex -B+D option. Extra system information is required please contact Sontay Support.

FEATURES

- Detachable display
- Multi-use housing for both Din-rail and panel mounting applications
- Compact size
- Modbus output
- Self-powered

Part code	Description
PM-EM210-M	Energy Analyser - Modbus Output
PM-EM210-P	Energy Analyser - Pulsed Output
Option (add to part code above)	
-B+D	MID Cert Annex B+D

APPLICATIONS

- 3-Phase, 4-wire balanced & unbalanced load
- 3-Phase, 3-wire balanced & unbalanced load
- 2-Phase, 3-wire
- 1-Phase, 2-wire

PM-EM24

Energy Analyser (DIN-rail)



The PM-EM24 DIN-rail mounted energy analyser is designed for active and reactive energy metering. When using the optional RS-485 Modbus output it is possible to connect up to three additional pulse inputs from other metering equipment enabling all consumption data to be read from just one meter.

PM-EM24 features eight user-selectable applications are available to allow fast setup, with lockable programme selector, and joystick control of up to 31 LCD display pages. Standard meters are non-MID. For billing use, add annex -D option. Extra system information is required please contact Sontay Support.

FEATURES

- Gas and water measurements and multi-tariff management in only one instrument
- Easy variable scrolling by means of the front joystick
- Pulsed or Modbus output options
- Two digital outputs (alarms or/and pulses) or RS485 communication port

SPECIFICATION

Ambient relative humidity	0 to 90% RH non-condensing
Ambient Temperature Range	-25 to +55°C
Baud rate output type	Programmable, 4800, 9600 bit/s
Display	3 lines (1 x 8 digit, 2 x 4 digit)
Display Refresh time	750m/s
Frequency	45 to 65Hz
Housing	Nylon PA66, self-extinguishing UL 94 V-0
Modbus Output Type	RS485
Mounting	DIN-rail or panel (optional PM-PMK)
Protection	IP50 (front)
Pulse Output Type	Open collector
Sampling rate	1600 samples /s @50Hz, 1900 samples /s @60Hz
Weight	360g

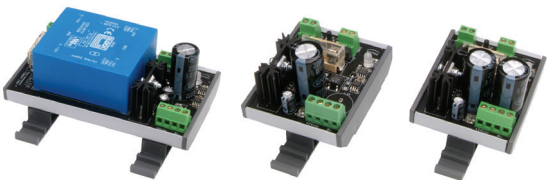
Part code	Description
PM-EM24-M	Energy Analyser - Modbus Output
-D	Annex-D Certification
PM-EM24-P	Energy Analyser - Pulsed Output
PM-PMK	Panel door mounting kit

APPLICATIONS

- Advanced LED indication of faults
- PCB self-test function
- DIN Rail mounting
- Fault finding LED indication
- Alarm output

PS

24Vdc Output Supplies



Sontay's range of 24Vdc power supplies offer advanced protection, self diagnostics and self-test facilities to make installation and commissioning quicker and easier than ever before. 240Vac and 24Vac input versions are available, all featuring over-current and over-voltage protection, LED indication of a wide range of conditions, an optional alarm relay output for loss of input and on-PCB reset button.

FEATURES

- Advanced LED indication of faults
- PCB self-test function
- DIN Rail mounting
- Fault finding LED indication
- Alarm output

SPECIFICATION

Ambient relative humidity	0 to 95% RH non-condensing
Ambient Temperature Range	-10 to +50°C
LED indication	Power ON, low output voltage, high output voltage, output voltage within limits, reset button pressed, self-test in progress
Output	24Vdc @ 1A
Supply	240Vac and 24Vac

Part code	Description
PS-230-24DC-1A	24Vac-24Vdc, grounded Supply module
PS-24-24DC-1A	24Vac-24Vdc, 1A floating Supply module
PS-24-24DC-E	240Vac-24Vdc, 1A Supply module

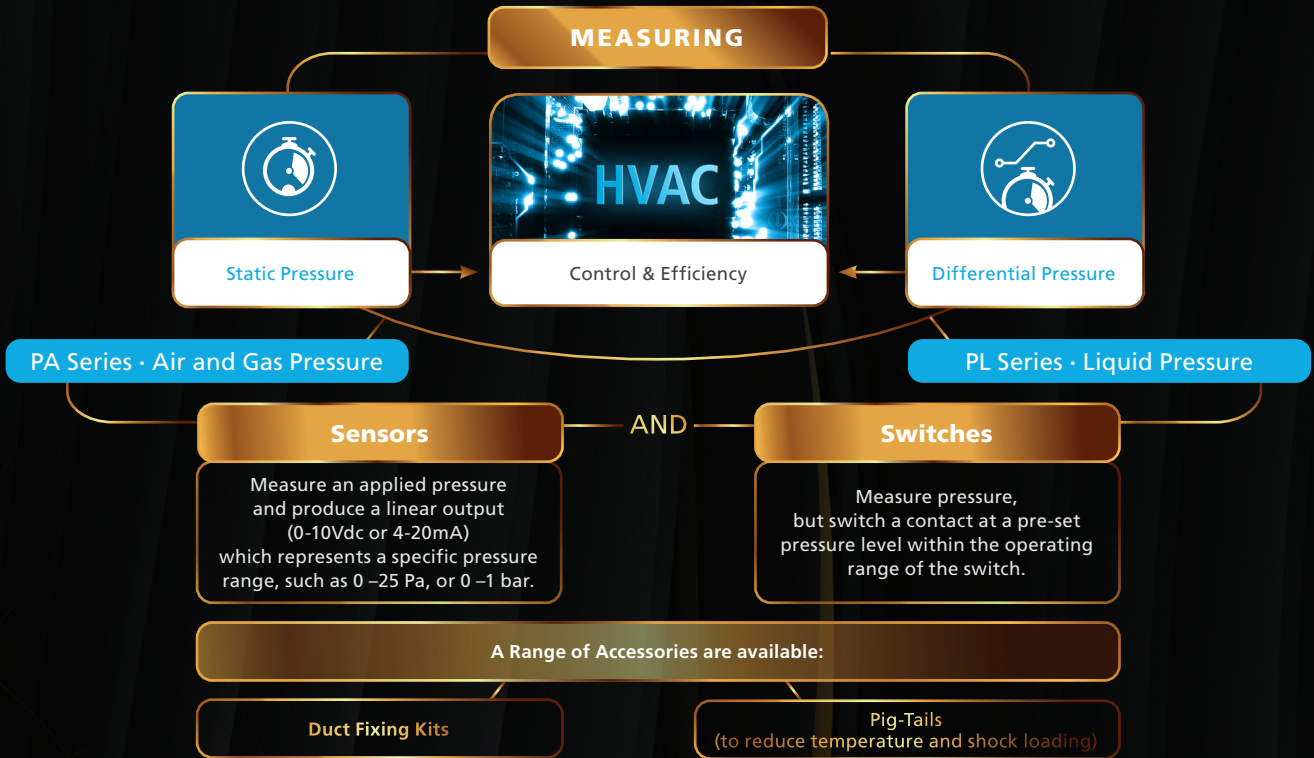
The 24Vac input type is available in two versions:

1. PS-24-24DC-1A – the input 0V and the output 0V are NOT common.
2. PS-24-24DC-E – the input 0V and the output 0V are common on the PCB.

This allows the user a choice, depending on what type of field wiring is installed.

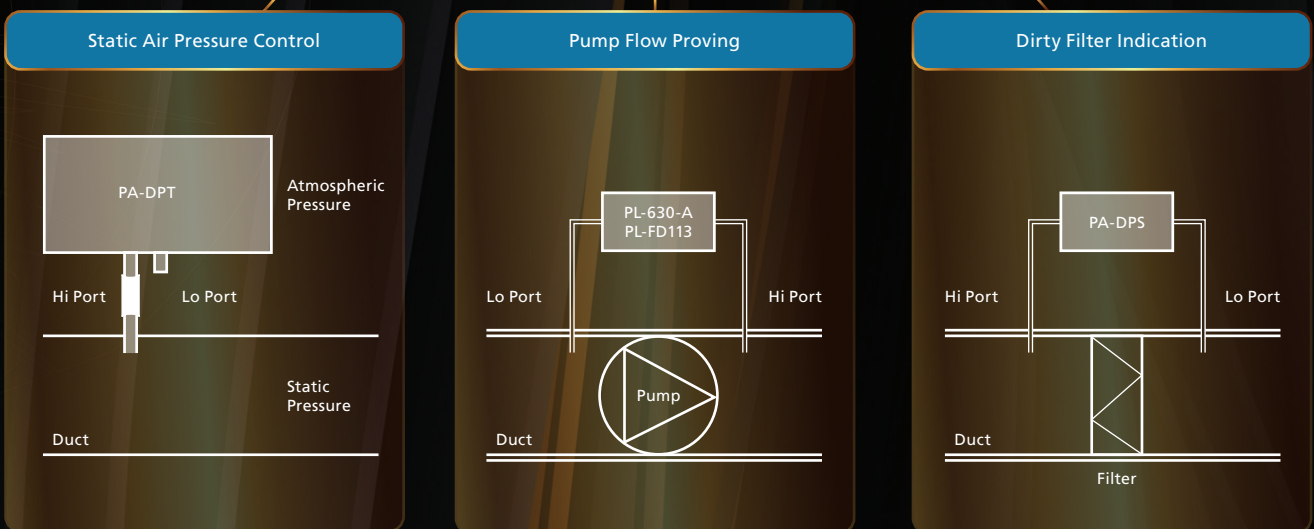


Pressure



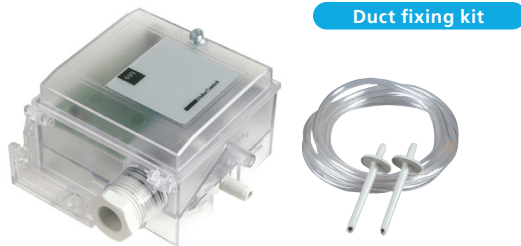
APPLICATIONS

Applications include fan and pump proving, dirty filter indication and fan and pump speed control.



PA-699

Multi-range Air DP Sensor



The PA-699 range of differential pressure transmitters incorporates a proved ceramic fulcrum lever technology for pressure measurement. They deliver calibrated, temperature-compensated sensor signals, available as standard voltage or current outputs. They are ideal for registering low air flow in air conditioning systems and for the measurement of fine pressures in environmental, laboratory and clean room applications (air and non-corrosive gases). The PA-699 has three field selectable ranges in one unit, providing versatility for a multitude of applications.

Part code	Description
PA-699-01	±30, ±50 & ±100Pa, 4-20mA Multi Range, Bi-directional
PA-699-02	0 to 30, 50, 100Pa, 4-20mA Multi Range
PA-699-04	0 to 100, 300, 500Pa, 4-20mA Multi Range
PA-699-06	0 to 500, 1000, 1600Pa, 4-20mA Multi Range
PA-699-08	0 to 1600, 2500, 5000Pa, 4-20mA Multi Range
Suffix (add to above part code)	
-V	0-10V voltage output
-LCD	Integral LCD option

Notes: * This option must be specified at time of sensor order. They are built to order and not available ex-stock.

SPECIFICATION

Ambient Range	0 to 70°C
Current power supply	11 to 33 vdc
Diaphragm	Silicone
Housing	Polycarbonate PC
Protection	IP65
Rupture pressure	2 x overload at ambient temp.
Voltage power supply	13.5 to 33Vdc or 24Vac ±15%
Weight	92g

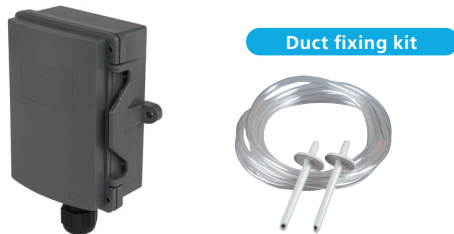
FEATURES

- Adjustable measurement range
- IP65 housing
- Duct fixing kit included
- Compact construction

Part code	Description
Accessories	
TEE	Tee Piece Air Pressure (Pack of 10)
PITOT	Aluminium pitot tubes (pair)
DFK	Duct fixing kit (supplied with the sensor, 2m of 5mm i/d plastic tubing, 2 x pitot tubes, 4 x fixing screws)
PA-TUBE-CLEAR	PVC tube 8mm o/d x 1.5mm wall, 30m reel
PA-TUBE-RED	Red PVC tube 8mm o/d x 1.5mm wall, 30m reel
PA-TUBE-BLUE	Blue PVC tube 8mm o/d x 1.5mm wall, 30m reel
PA-BRK	DIN-rail bracket
PA-699-CAL *	Calibration certificate

PA-DPT 3 Wire

Multi-Range Air Differential Pressure Transmitter, 3-wire



The PA-DPT differential pressure transmitter is ideal for measuring filter conditions, as well as many other applications in ventilation/air conditioning systems in buildings, laboratories and clean rooms (air and non-corrosive gases). Featuring field-selectable output signals (3-wire 4-20mA, 0-10Vdc or 2-10Vdc) and 8 pressure ranges, unidirectional or bi-directional via jumpers. An optional LCD display is also available. Sensor types 01 & 02 have manual re-zero facility whereas the 01-HA version has an auto zero function for automatic zero point calibration making it a virtually maintenance free sensor.

FEATURES

- User selectable measurement range and output type
- IP65 Housing
- Duct fixing kit included
- Re-zero facility

Part code	Description
PA-DPT-01	Air DP Sensor 1.5% Acc 0-25/50/100/150/250/300/500&±50Pa
PA-DPT-01-HA	Air DP Sensor 1% Acc 0-25/50/100/150/250/300/500&±50Pa
PA-DPT-02	Air DP Sensor 1.5% Acc 0-125/250/500/750/1250/1500/2500&±250Pa
Suffix (add to above part code)	
-LCD	Integral LCD display
-S	Static Probe

Note: A duct fixing kit (DFK) is supplied with the sensor, consisting of 2m of 5mm i/d plastic tubing, 2 x pitot tubes and 4 x fixing screws.

SPECIFICATION

Power Supply	Current output 24Vac/dc ±10% (3-wire) Consumption <1.2W Load 500Ω maximum / 20Ω ,minimum Voltage output 4Vac/dc ±10% Consumption <1.0W Load 1kΩ minimum
Electrical connections	Terminals to suit 0.2-1.5mm ² (12-24 AWG) cables
Accuracy (from applied pressure)	PA-DPT-1: 1.5% AP + ±2Pa PA-DPT-1-HA: 1.0% AP + ±2Pa PA-DPT-2: 1.5% AP + ±2Pa
Over Pressure	0.1bar
Overpressure	Proof pressure 25kPa Burst pressure 30kPa
Response time	8.0 or 0.8s selectable
Measuring element	MEMS, no flow through
Pressure connections	5mm ID tubing
Housing	Material: PC/GF (Halogen free, flame retardant & UV stabilized), Dimensions: 125 x 105 x 85mm
Environmental	Operating temp.: -20 to +50°C (PA-DPT-01 & 02), -5 to +50°C (PA-DPT-01-HA) Storage: -20 to 60°C, 0 to 95% non-condensing
Protection	IP65
Weight	240g

Part code	Description
Accessories	
DFK	Duct fixing kit
TEE	Tee piece air pressure (pack of 10)
PITOT	Aluminum Pitot Tubes (Pair)
PA-TUBE-CLEAR	Clear PVC tube 8mm o/d x 1.5mm wall, 30m reel
PA-TUBE-RED	Red PVC tube 8mm o/d x 1.5mm wall, 30m reel
PA-TUBE-BLUE	Blue PVC tube 8mm o/d x 1.5mm wall, 30m reel
PA-BRK	DIN-rail bracket
PA-DPT-CAL *	Calibration certificate

PA-DPT 2 wire
Multi-Range Air Differential Pressure Transmitter, 2-wire

Duct fixing kit


The PA-DPT differential pressure transmitter is ideal for measuring filter conditions, as well as many other applications in ventilation/air conditioning systems in buildings, laboratories and clean rooms (air and non-corrosive gases). Featuring a 2-wire 4-20mA output signal and 8 pressure ranges, unidirectional or bi-directional via jumpers. An optional LCD display is also available.

FEATURES

- User selectable measurement range
- 2-wire Loop powered 4-20mA output
- IP65 Housing
- Duct fixing kit included
- Manual Re-zero

Part code	Description
PA-DPT-04	Air DP sensor, 0 - 25/50/100/150/250/300/500Pa & ±50Pa
PA-DPT-05	Air DP sensor, 0 - 125/250/500/750/1250/1500/2500Pa & ±250Pa
Suffix (add to above part code)	
-LCD	Integral LCD display
-S	Static probe

SPECIFICATION

Accuracy	1.5% AP + ±2Pa Ap = Applied Pressure
Electrical connections	Terminals to suit 0.2-1.5mm ² cables
Environmental humidity	0 to 95% non-condensing
Environmental operating temp	0 to +50°C
Environmental storage	-20 to 60°C
Housing Dimensions	125 x 105 x 85mm
Housing Material	PC/GF (Halogen free, flame retardant & UV stabilized)
Long Term Stability	0... ±8Pa (typical 1 year)
Measuring Element	MEMS, no flow through
Output accuracy (mA)	±0.04mA typical, at 25°C, load 100Ω
Overpressure	Proof pressure 25kPa, Burst pressure 30kPa
Power Supply	24Vc ±10% (2-wire)
Pressure connection	5mm ID tubing
Weight	240g

Note: A duct fixing kit (DFK) is supplied with the sensor, consisting of 2m of 5mm i/d plastic tubing, 2 x pitot tubes and 4 x fixing screws.

Accessories	
TEE	Tee Piece Air Pressure (Pack of 10)
PITOT	Aluminium pitot tubes (pair)
DFK	Duct fixing kit (supplied with the sensor, 2m of 5mm i/d plastic tubing, 2 x pitot tubes, 4 x fixing screws)
PA-TUBE-CLEAR	PVC tube 8mm o/d x 1.5mm wall, 30m reel
PA-TUBE-RED	Red PVC tube 8mm o/d x 1.5mm wall, 30m reel
PA-TUBE-BLUE	Blue PVC tube 8mm o/d x 1.5mm wall, 30m reel
PA-BRK	DIN-rail bracket
PA-DPT-CAL *	Calibration certificate

PA-267
Air DP Sensors

Duct fixing kit


The PA-267 is designed for overpressure, under pressure, and differential pressure measurements of air and other neutral gases. It is recommended that for applications where control is involved, the high accuracy version is used. The measurement cell uses an advanced design of capacitive elements to ensure excellent linearity and zero stability. The differential pressure to be measured induces a movement of the stainless steel diaphragm which is converted to an electronic output signal by a capacitance measurement and unique electronic circuit.

FEATURES

- User selectable measurement range
- 2-wire Loop powered 4-20mA output
- IP65 Housing
- Duct fixing kit included
- Manual Re-zero

Part code	Description
PA-267-25	0 to 25Pa 4-20mA Transmitter
PA-267-50	0 to 50Pa 4-20mA Transmitter
PA-267-100	0 to 100Pa 4-20mA Transmitter
PA-267-300	0 to 300Pa 4-20mA Transmitter
PA-267-500	0 to 500Pa 4-20mA Transmitter
PA-267-1000	0 to 1000Pa 4-20mA Transmitter
PA-267-1600	0 to 1600Pa 4-20mA Transmitter
PA-267-2500	0 to 2500Pa 4-20mA Transmitter
PA-267-3000	0 to 3000Pa 4-20mA Transmitter

SPECIFICATION

Current Output	4-20mA, Load: 100 to 800Ω
Current power supply max	30Vdc + (0.004 x load resistance)
Current power supply min	9Vdc + (0.02 x load resistance)
Diaphragm	Stainless Steel 304 s/s
High accuracy	±0.40% fsd
Housing	Glass-filled Polycarbonate to UL94V-0
Operating Temperature	-18 to +65°C
Over pressure	68kPa
Pressure connection	Push fit for 6mm i/d tube
Protection	IP65
Standard accuracy	±0.1% fsd
Voltage Output	0-10Vdc (o/p impedance <100kΩ)
Voltage power supply	9-30 Vac or 12-40Vdc

Notes: * These options must be specified at time of sensor order. A duct fixing kit (DFK) is supplied with the sensor, consisting of 2m, 5mm i/d plastic tubing, 2 x pitot tubes and 4 x fixing screws.

Part code	Description
Suffixes (add to above part code)	
-V	0-10V voltage output
-B	Bi-directional
-AH	High accuracy
-LCD *	Integral LCD display
Accessories	
TEE	Tee Piece Air Pressure (Pack of 10)
PITOT	Aluminium pitot tubes (pair)
DFK	Duct fixing kit (supplied with the sensor, 2m of 5mm i/d plastic tubing, 2 x pitot tubes, 4 x fixing screws)
PA-TUBE-CLEAR	PVC tube 8mm o/d x 1.5mm wall, 30m reel
PA-TUBE-RED	Red PVC tube 8mm o/d x 1.5mm wall, 30m reel
PA-TUBE-BLUE	Blue PVC tube 8mm o/d x 1.5mm wall, 30m reel
PA-BRK	DIN-rail bracket
PA-267-CAL *	Calibration certificate

PA-DPS

Air DP Switch



These are highly sensitive air differential pressure switches. Suitable for providing an indication of fan status and 'dirty filter' conditions. The switching set point is adjustable by means of a knob mounted under the main cover. Units are supplied complete with a duct fixing kit.

FEATURES

- Duct fixing kit included
- IP54 or IP65 housing option
- One screw needed for housing cover
- Scale in Pascal's

Part code	Description
IP54 Housing	
PA-DPS-83	50 to 500Pa DP switch
PA-DPS-85	200 to 1000Pa DP switch
PA-DPS-88	20 to 300Pa DP switch
PA-DPS-90	Air DP Switch 20-300Pa
PA-DPS-91	Air DP Switch 50-500pa
PA-DPS-92	Air DP Switch 100-1000pa

SPECIFICATION

Ambient relative humidity	0 to 95% RH non-condensing
Ambient Temperature Range	-20 to +85°C
Electrical rating (IP54)	1.5A (0.4)/250Vac AgCdO contacts
Electrical rating (IP65)	5A (0.4)/250Vac AgCdO contacts
Housing Material	Plastic moulding
IP54 Dimensions	85mm dia x 59mm
IP65 Dimensions	81mm dia x 58mm
Max operating pressure	5000Pa
Operating Range	50 to 500Pa
Pressure connection	6mm i/d push-on tubing
Protection	IP54
Weight	250g

Part code	Description
IP65 Housing	
PA-DPS-90W	20 to 300Pa DP Switch
PA-DPS-91W	50 to 500Pa DP Switch
PA-DPS-92W	100 to 1000Pa DP Switch
PA-DPS-94W	500 to 2000Pa DP Switch
Accessories	
PA-DPS-B	Right Angled Mount Bracket (PA-DPS-88 only)
TEE	Tee Piece Air Pressure (Pack of 10)
PITOT	Aluminium pitot tubes (pair)
DFK	Duct fixing kit (supplied with the sensor, 2m of 5mm i/d plastic tubing, 2 x pitot tubes, 4 x fixing screws)
PA-TUBE-CLEAR	PVC tube 8mm o/d x 1.5mm wall, 30m reel
PA-TUBE-RED	Red PVC tube 8mm o/d x 1.5mm wall, 30m reel
PA-TUBE-BLUE	Blue PVC tube 8mm o/d x 1.5mm wall, 30m reel

PL-PSA

Liquid Pressure Switch



Adjustable pressure switches, suitable for the monitoring of flow failure and proving in pumps, chillers, valves etc. Units have an adjustable set point and differential.

FEATURES

- Adjustable pressure range
- Narrow adjustable differential

SPECIFICATION

Range	PL-PSA-1: -0.75 to +3 bar PL-PSA-2: -0.8 to +1.5 bar PL-PSA-3: -0.5 to +7 bar
Differential	PL-PSA-1: 0.25 to 2 bar PL-PSA-2: 0.2 to 1 bar PL-PSA-3: 0.5 to 5 bar
Pressure connections	¼" BSP male
Ambient	-50 to +70°C
Switch rating	230Vac @ 24(10)A
Protection	IP44
Dimensions	42 x 85 x 75mm
Weight	346g

Part code	Description
PL-PSA-1	-0.75 to +3 bar
PL-PSA-2	-0.8 to +1.5 bar
PL-PSA-3	-0.5 to +7 bar
Accessories	
PL-PIG	2m of 6mm copper tubing + fitting
BRK	Bracket for PL-PSAx

PL-FD113

Liquid DP Switch



The PL-FD113 liquid differential pressure switch is suitable for the monitoring flow across pumps, chillers, valves etc. The set point is adjustable in the range 0.3 to 4.5bar, and is suitable for non-aggressive media such as water, air, oil, diesel, steam (with pigtail) etc. Approximate set point can be viewed on the dial at the front of the unit.

FEATURES

- ¼" BSP female connections
- Visible set point scale
- Single unit covers a wide pressure range

SPECIFICATION

Ambient Temperature Range	-10 to +70°C
Liquid temperature	70°C max.
Pipe connections	¼" BSP female
Protection	IP30
Range	0.3 to 4.5 bar
Switch rating	3A @ 230Vac
Switching Differential	0.2 bar
Weight	800g

Note: The PL-FD113-PIG consistsat 2m of 6mm copper tubing and 4 x compression fittings (¼")

Part code	Description
PL-FD113	0.3 to 4.5 bar Liquid DP Switch
Accessories	
PL-FD113-PIG	Connection Kit

PL-52x

Static Pressure Sensors



The PL-525 static pressure sensors are suitable for use with a large range of liquids and gases compatible with the FPM (Viton) seal. The pressure transmitter is based on proven ceramic technology for exceptional performance speed and reliability. PL-520 pressure sensor is based upon the thick film technology where the pressure cell is fully welded. This sensor meets the high burst protection demands and is suitable for a wide range of applications.

SPECIFICATION

Ambient Temperature Range	-30 to +85°C
Material	Pressure connections: S/S 1.4305/AISI 303, Sensor: Ceramic Al2O3 (96%), Sealing Material: FPM (Viton)
Media Temperature	-15 to +125°C
Output	4-20mA
Pressure connection	½" BSP male
Protection	IP65
Response Time	<2ms. 1ms typical
Supply Voltage	10Vdc to 30Vdc
Weight	105g

FEATURES

- Compact rugged construction
- Negligible temperature influence on accuracy
- IP65 protection
- Electrical terminals and gland to DIN EN175 301-803-A
- Supply short circuit & polarity reversal protection

Part code	Description	Part code	Description
4-20mA Output (2-wire loop powered)		0-10Vdc Output	
PL-525-0.1	0 to 100 mbar	PL-525-0.1-V	0 to 100 mbar
PL-525-0.2	0 to 200 mbar	PL-525-0.2-V	0 to 200 mbar
PL-525-0.3	0 to 300 mbar	PL-525-0.3-V	0 to 300 mbar
PL-525-0.6	0 to 600 mbar	PL-525-0.6-V	0 to 600 mbar
PL-520-1	0 to 1 bar	PL-520-1-V	0 to 1 bar
PL-520-1.6	0 to 1.6 bar	PL-520-1.6-V	0 to 1.6 bar
PL-520-2.5	0 to 2.5 bar	PL-520-2.5-V	0 to 2.5 bar
PL-520-4	0 to 4 bar	PL-520-4-V	0 to 4 bar
PL-520-6	0 to 6 bar	PL-520-6-V	0 to 6 bar
PL-520-10	0 to 10 bar	PL-520-10-V	0 to 10 bar
PL-520-16	0 to 16 bar	PL-520-16-V	0 to 16 bar
PL-520-25	0 to 25 bar	PL-520-25-V	0 to 25 bar
PL-520-40	0 to 40 bar	PL-520-40-V	0 to 40 bar

Part code	Description
Accessories	
PL-HS	Pressure Transmitter Heat Sink
PL-525-CAL *	Calibration certificate
PL-520-CAL *	Calibration certificate

Notes:

1. Heat Sink PL-HS can be used where media has a higher temperature than the sensor allows.
2. * This option must be specified at the time of sensor order. It is built to order and not available ex-stock.

PL-625

Static Pressure Switch



The PL-625 range of pressure switches is suitable for use with liquids and gases. The unit has an adjustable switching threshold. Reproducibility is $\pm 10\%$ of the switching point. The rugged mechanics are the assurance of high operating reliability, even in the presence of percussions or vibrations.

FEATURES

- Suitable for liquids and gases
- Adjustable switching differences
- $\frac{1}{4}$ " BSP connection
- Spade connectors and gland supplied

SPECIFICATION

Contact system	Changeover contact
Electrical rating	6A(3A) @ 250 Vac
Max. operating pressure	1½ x range
Max. test pressure	10 bar
Media	Water. Air and steam (with pigtail siphon)
Operating Range	-10 to +80°C
Pressure connection	$\frac{1}{4}$ " BSP male
Protection	IP54
Weight	260g

Part code	Description
PL-625-2.2	0.12 to 2.2 bar switch
PL-625-6	1 to 6 bar switch

PL-625

Differential Pressure Switch



The PL-630-A range of differential pressure switches is suitable for use with liquids and gases. The unit has an adjustable switching threshold. Reproducibility is $\pm 10\%$ of the switching point, but as a minimum ± 0.8 mbar. The rugged mechanics are the assurance of high operating reliability, even in the presence of percussions or vibrations. Ideal for flow monitoring and proving applications in heating, ventilating and air-conditioning systems.

FEATURES

- Suitable for liquids and gases
- Robust construction
- Adjustable switching differences
- $\frac{1}{8}$ " BSP connection
- Spade connectors and gland supplied

SPECIFICATION

Contact system	Changeover contact
Electrical rating	1A(0.5A) @ 250Vac
Max. operating pressure and overload on one side (P1>P2)	with range ≤ 200 mbar: 10bar, with range 0.15 to 5.5 bar: 20 bar
Media	Water, air and steam (with pigtail siphon)
Operating Range	-10 to +80°C
Pressure connection	$\frac{1}{8}$ " BSP female
Protection	IP65
Weight	1.08kg

Part code	Description
PL-630-A-0.02	6 to 20 mbar Liquid DP switch
PL-630-A-0.06	15 to 60 mbar Liquid DP switch
PL-630-A-0.2	40 to 200 mbar Liquid DP switch
PL-630-A-1	0.15 to 1 bar Liquid DP switch
PL-630-A-3	1 to 3 bar Liquid DP switch
PL-630-A-5.5	2 to 5.5 bar Liquid DP switch
Accessories	
PL-630-PIG	Connection Kit

PL-652

Low Range Differential Pressure Sensor



SPECIFICATION

Max. operating pressure overload on one side	10 bar (P1>P2)
Media	Water, air and steam (with pigtail siphon)
Operating Range	-10 to +80°C
Pressure connection	1/8" BSP female
Protection	IP65
Supply Voltage	20 to 30 Vdc
Weight	940g

The PL-652 range of differential pressure transmitters is suitable for use with liquids and non-aggressive gases. The pressure or pressure differential to be monitored acts on a diaphragm, which in turn acts against a spring. As a result of the pressure action and resultant diaphragm movement a permanent magnet fastened on the diaphragm moves in the direction of the hall sensor arranged outside the pressure case. The sensor and transmitter are housed in a robust brass casing, sealed for IP65 protection.

FEATURES

- Output signal in current or voltage
- High over pressure safety margin
- High linearity, accuracy and repeatability
- Rugged IP65 case construction
- Suitable for mildly aggressive liquids & gases

Part code	Description
4-20mA Output (3-wire)	
PL-652-0.05	0 to 50 mbar Liquid DP Sensor
0-10Vdc Output	
PL-652-0.05-V	0 to 50 m bar Liquid DP Sensor
Accessory	
PL-652-CAL	

Notes:

A mounting bracket is supplied with the sensor.
 * This option must be specified at the time of sensor order.
 It is built to order and not available ex-stock.

PL-692

Low Range Differential Pressure Sensor



SPECIFICATION

Supply voltage	4-20mA: 11 to 33Vdc 0-10Vdc: 18 to 33Vdc or 24Vac ±15%
Response time	<5ms
Pressure connection	6mm compression
Media	Water, air and steam (with pigtail siphon)
Temperature	Ambient & media -15 to +80°C
Protection	IP65
Dimensions	130 x 40mm
Weight	640g

The PL-692 range of differential pressure transmitters is suitable for use with liquids and non-aggressive gases. With unique ceramic sensing technology for no mechanical aging and creepage. The sensor and transmitter are housed in a robust stainless steel casing with a 1.5 meter flying lead for electrical connection and sealed for IP65 protection.

FEATURES

- Output signal in current or voltage
- High over pressure safety margin
- High linearity, accuracy and repeatability
- Rugged IP65 case construction
- Suitable for mildly aggressive liquids & gases

Part code	Description
4-20mA Output (2-wire loop powered)	
PL-692-0.1	0 to 100mbar Liquid DP sensor
PL-692-0.2	0 to 200mbar Liquid DP sensor
PL-692-0.4	0 to 400mbar Liquid DP sensor
PL-692-1	0 to 1 bar Liquid DP sensor
PL-692-2.5	0 to 2.5 bar Liquid DP sensor
PL-692-4	0 to 4 bar Liquid DP sensor
PL-692-6	0 to 6 bar Liquid DP sensor
PL-692-10	0 to 10 bar Liquid DP sensor
PL-692-16	0 to 16 bar Liquid DP sensor
0-10Vdc Output	
PL-692-0.1-V	0 to 100mbar Liquid DP sensor
PL-692-0.2-V	0 to 200mbar Liquid DP sensor
PL-692-0.4-V	0 to 400mbar Liquid DP sensor
PL-692-1-V	0 to 1 bar Liquid DP sensor
PL-692-2.5-V	0 to 2.5 bar Liquid DP sensor
PL-692-4-V	0 to 4 bar Liquid DP sensor
PL-692-6-V	0 to 6 bar Liquid DP sensor
PL-692-10-V	0 to 10 bar Liquid DP sensor
PL-692-16-V	0 to 16 bar Liquid DP sensor
Accessories	
PL-692-CAL *	Calibration certificate
PL-692-PIG *	Connection Kit

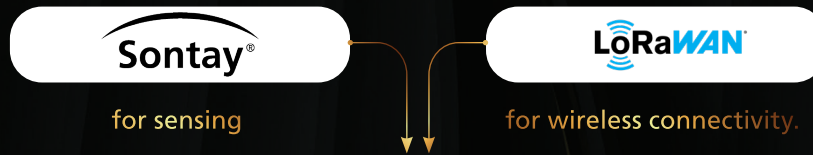
Notes:

A mounting bracket is supplied with the sensor.
 * This option must be specified at the time of sensor order.
 It is built to order and not available ex-stock.



Introduction to SORA

The name **SORA** is a combination of the 2 key fundamentals of the product:



It is Japanese for sky which perfectly describes the possibilities and capabilities of the range.

The name SORA is the epitome of what we wanted the product to be.

For projects that require a fast turnaround, with minimal interruption and downtime along with minimum cost, SORA is the ideal solution.

End users can see vast improvements in a short period of time on their ambient conditions and energy efficiencies with minimal disruption.

Cost Efficient

Time Efficient



Introducing SORA! The ultimate solution for wireless sensing in BMS applications.

Combining the tried, tested and trusted sensing reliability of Sontay sensing devices with the unrivalled wireless power of LoRaWAN technology, SORA is set to change the way building sensors are selected and installed for the future.

GO THE DISTANCE

SORA has the wireless capability to cover substantial areas and penetrate through materials that would have been a challenge for other wireless systems.

Connectivity has been demonstrated to reach an excess of 10KM in plain sight.



LOW POWER

The whole ethos behind LoRaWAN is that it runs on low power.

This leads to extraordinary battery longevity in the field.



SECURITY

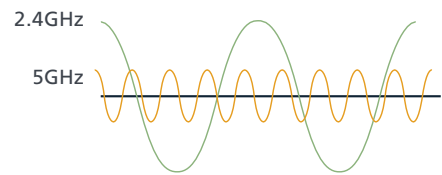
SORA offers excellent security with the state-of-the-art dedicated end-to-end encryption designed into LoRaWAN technology.





What is LoRaWAN?

- LoRaWAN is a wireless sensor network technology associated with IoT applications
- It stands for Long Range Wide Area Network
- It uses licence-free frequencies to transmit information
- Uses CHIRP Spread Spectrum technology for reliable, low-powered, long distance communications
- Communication range in excess of 10km outdoors
- Excellent resilience against attenuation in indoor environments



How does it work?

- LoRaWAN uses a licence-free frequency spectrum for transmitting data
- Networks support frequencies from the sub-gigaHertz range and also 2.4 GHz
- Higher frequencies can allow greater bandwidth

Why is SORA different?

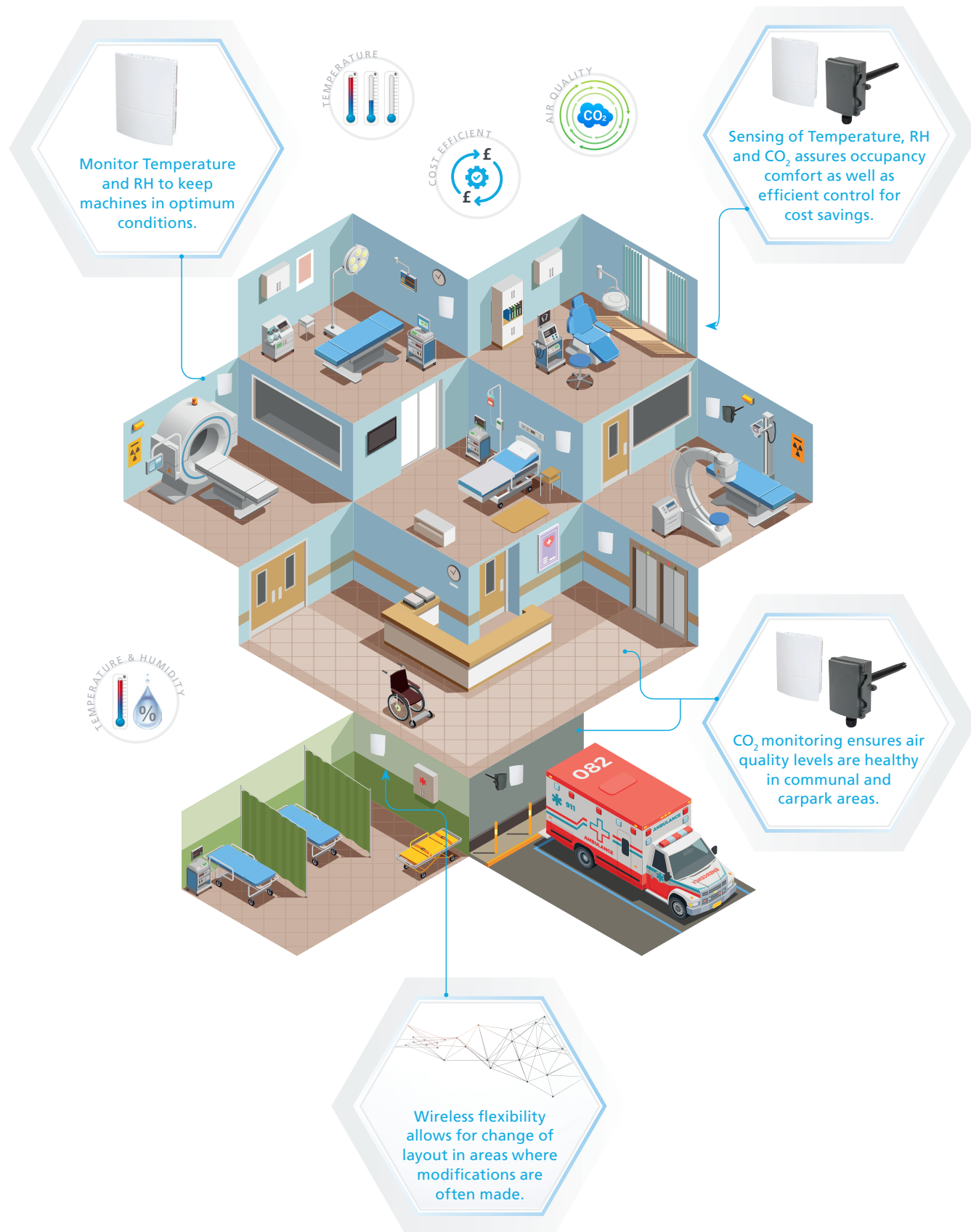


- SORA's sensing pedigree is based on Sontay's trusted sensing devices with the wireless technology of LoRaWAN. LoRaWAN is different to any other wireless sensing network out there due to it being an open-protocol technology. This enables total interoperability with other devices. Compared to legacy systems, there are multiple advantages including reliability, security and range.
- The architecture of LoRaWAN makes SORA a sensor network rather than a means of simply transmitting data from one point to another. Once the data is available at the application server part of the network it is available to other applications or via another protocol. Effectively this creates a data set which is not limited by manufacturer, building or geographical constraints. Data exists in a manner in which it can be consumed, whether that is for a control algorithm or as part of an analytical data set.
- LoRaWAN also has a range of APIs to expose data to other relevant systems such as REST API, MQTT broker or BACnet/IP objects. SORA has been developed with a gateway that integrates specifically with BACnet or Modbus protocols which are typically used in building control applications.



SORA Application in a building

The floorplan shows how SORA can provide vital monitoring in a hospital application.



SORA – Sontay Open Range Application

SORA Products

The SORA product range - sensing devices and gateways.



Gateway



Our SORA gateway enables seamless integration of your SORA LoRaWAN devices to your BMS controller via the BACnet smart protocol. It offers the most simple and easy to use functionality enabling you to set up your sensing devices in no time.

Sontay SORA Gateway: Enhancing Building Management with LoRaWAN
The Sontay SORA Gateway is an advanced solution designed to integrate wireless LoRaWAN sensors into Building Management Systems (BMS), providing a seamless and efficient way to monitor and control various building environments. This gateway leverages the powerful capabilities of LoRaWAN technology, making it a vital tool for modern building automation.

Key Features and Benefits:

Effortless Integration: The SORA Gateway connects LoRaWAN-enabled devices to BMS controllers using standard protocols like BACnet and Modbus. This ensures that data from various sensors, such as temperature, humidity, and occupancy, is easily accessible and actionable within the BMS framework. By supporting these widely-used protocols, the SORA Gateway simplifies the process of integrating IoT devices into existing building infrastructure, reducing the time and cost associated with setup.

Long-Range Communication: One of the standout features of LoRaWAN is its ability to provide reliable, long-distance communication. The SORA Gateway can maintain connections with sensors located up to 10 kilometers away in outdoor environments, making it ideal for large buildings or sprawling facilities. Even in indoor environments with obstacles, LoRaWAN's robust signal penetration ensures consistent data transmission, overcoming many of the limitations faced by traditional wireless technologies.

Low Power Consumption: LoRaWAN devices are known for their energy efficiency, and the SORA Gateway takes full advantage of this. Sensors connected through LoRaWAN can operate for years on a single battery, drastically reducing maintenance needs and costs. This makes the SORA Gateway an excellent choice for applications where sensor longevity and minimal maintenance are crucial.

Scalability and Flexibility: Whether you're managing a small office or a large commercial complex, the SORA Gateway is designed to scale with your needs. Its ability to support a large number of devices and integrate with various protocols means it can grow alongside your building management requirements. Additionally, the open nature of LoRaWAN technology ensures that the system remains flexible, allowing for easy updates and the integration of new devices as technology evolves.

Ideal Applications:

The SORA Gateway is particularly well-suited for environments that require reliable, long-range wireless communication with minimal installation disruption. It is an ideal solution for:

- **Commercial Buildings:** Enhancing HVAC, lighting, and security systems with real-time sensor data.
- **Industrial Facilities:** Monitoring environmental conditions across large areas with minimal infrastructure.
- **Educational Institutions:** Managing and optimizing energy usage in campus-wide buildings.
- **Healthcare Facilities:** Communication range in excess of 10km outdoors

In summary, the Sontay SORA Gateway is a versatile and powerful tool for integrating IoT technology into modern building management systems. Its combination of long-range communication, low power consumption, and seamless integration makes it a valuable asset for improving the efficiency, safety, and comfort of any building environment.

Part code	Description
RF-LW-HUB-EU868-100	SORA Hub 100 Points European Version
RF-LW-HUB-EU868-500	SORA Hub 500 Points European Version
RF-LW-HUB-EU868-1000	SORA Hub 1000 Points European Version
RF-LW-HUB-EU868-5000	SORA Hub 5000 Points European Version
RF-LW-HUB-AU915-100	SORA Hub 100 Points Australian Version
RF-LW-HUB-AU915-500	SORA Hub 500 Points Australian Version
RF-LW-HUB-AU915-1000	SORA Hub 1000 Points Australian Version
RF-LW-HUB-AU915-5000	SORA Hub 5000 Points Australian Version

SORA Devices



SORA – Sontay Open Range Application

Temperature only

Part code	Description
RF-LW-T-S	Space mounted temp sensor
RF-LW-T-D	Duct mounted temp sensor
RF-LW-T-I	Immersion temp sensor
RF-LW-T-C	Clamp-on temp sensor
RF-LW-T-O	Outside air temp sensor
RF-LW-T-OR	Outside air with rad shield temp sensor
RF-LW-T-555	Flying lead temp sensor

Temperature & Humidity

Part code	Description
RF-LW-RH-D	Duct mounted temp and humidity sensor
RF-LW-RH-W	Wall mounted temp and humidity sensor
RF-LW-RH-O	Outside temp and humidity sensor
RF-LW-RH-S	Space mounted temp and humidity sensor

CO₂ only

Part code	Description
RF-LW-CO2-D	Duct mounted CO ₂ sensor

Temperature & CO₂

Part code	Description
RF-LW-CO2-T-S	Space mounted temp and CO ₂ sensor

Temperature, Humidity & CO₂

Part code	Description
RF-LW-RHT-CO2-S	Space mounted temp and humidity sensor

Accessories

Part code	Description
RF-AERIAL-PM0.75	Aerial Extension c/w Bulk Head Fitting 0.75 Metre
RF-AERIAL-PM2	Aerial Extension c/w Bulk Head Fitting 2 Metre
RF-AERIAL-PM5	Aerial Extension c/w Bulk Head Fitting 5 Metre
RF-LS-14500-S2	2 x Lithium AA size battery

Data sheets online: www.sontay.com

What makes it different to other wireless protocols?



Reliability



Interoperability



Security



Accuracy

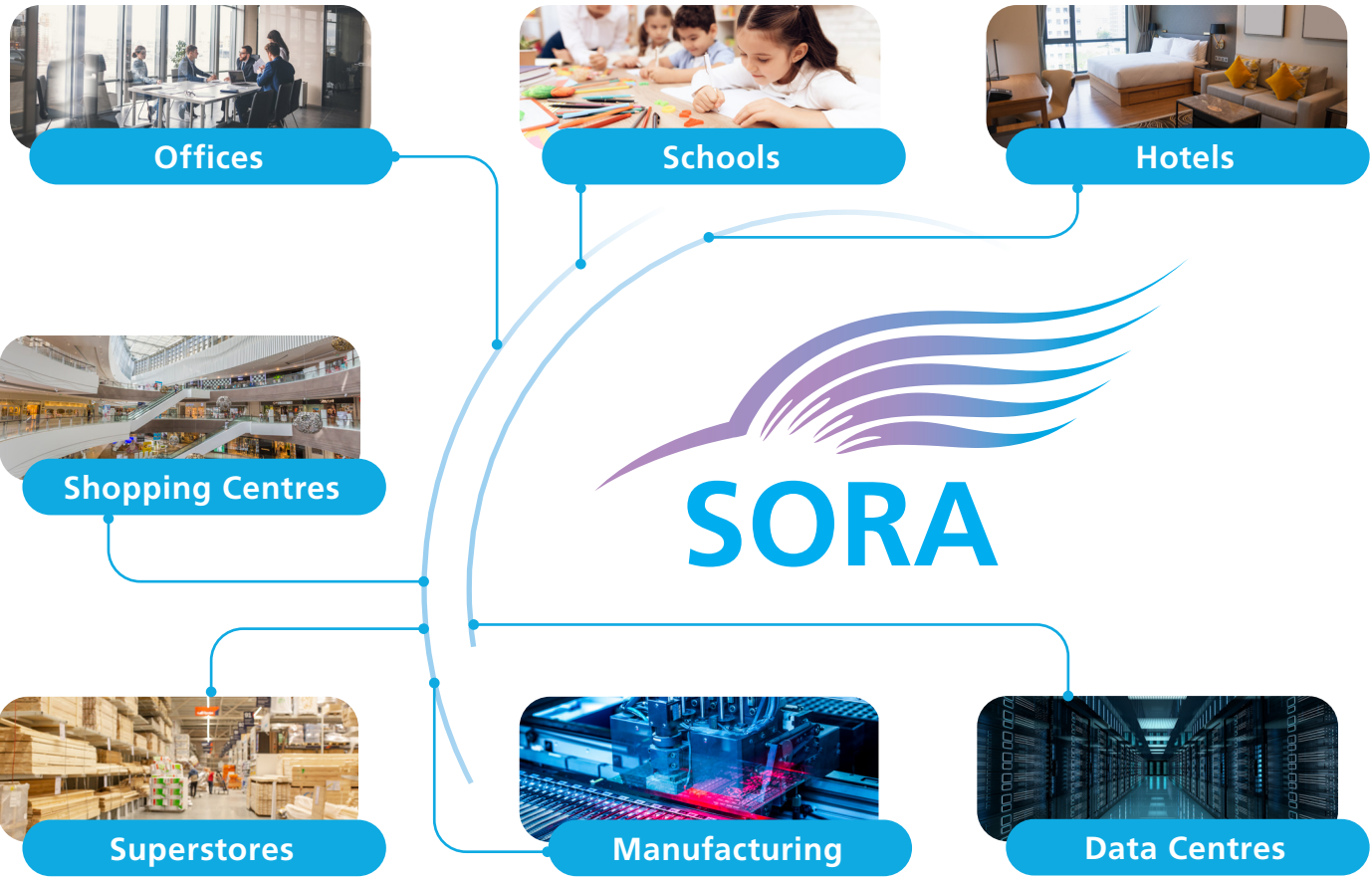


Range

SORA Ideal Applications

SORA provides a vast range of benefits on a variety on applications.

SORA – Sontay Open Range Application



...anywhere that requires a simple installation with a short turnaround and minimum cost.

How far can SORA go?



Data sheets online: www.sontay.com

Introduction to LoRaWAN

Long Range Wide Area Network

wireless communication technology designed for the Internet of Things (IoT)



It allows small devices, like sensors, to send data over long distances using very little power. This makes it ideal for connecting things like smart meters, environmental sensors, and even tracking devices across large areas.

Long-Range, Low-Power Connectivity

Your products offer reliable long-range communication with minimal power consumption, making them perfect for large buildings or remote locations.



This efficiency means that devices can operate for years on a single battery, reducing maintenance costs and ensuring continuous operation in critical environments.

Seamless Integration and Scalability

Your LoRaWAN products are designed to easily integrate with existing building management systems, such as BACnet and Modbus.



They also support a wide range of IoT applications, allowing for effortless expansion as your needs grow. This flexibility ensures that your investment is future-proof, adaptable to both current and emerging technologies.

Future-Proof Connectivity: Reliable Long-Range Performance and Seamless Integration for Your Building's IoT Needs.



Experience unmatched efficiency and flexibility with our LoRaWAN solutions, offering long-lasting connectivity and easy integration for all your building management needs.

LoRaWAN Products

The LoRaWAN product range - sensing devices and gateways.



RF-LW-HUB Indoor LoRaWAN 8-Channel Gateway



LoRa® Technology for Building Management Systems with BACnet™ Connectivity

Our Indoor LoRaWAN 8-Channel Gateway, powered by the mPower™ Edge Intelligence OS, serves as a gateway or access point, enabling seamless connectivity between LoRaWAN® IoT devices and network or cloud infrastructures.

This gateway offers robust in-building wireless coverage with various connectivity options, including Ethernet and optional 4G LTE Backhaul. It supports the LoRaWAN protocol, ensuring flexible integration depending on your specific model and configuration.

Part code	Description
RF-LW-HUB-E-BAC	Ethernet Only mPower/BACnet Programmable Access Point, 8-channel, 868 MHz w/external LoRa antenna and EU/GB Accessory Kit
RF-LW-HUB-EC-BAC	LTE Category 4 mPower/BACnet Programmable Access Point, 8-channel, 868 MHz w/external LoRa antenna and EU/GB Accessory Kit
RF-LW-HUB-E	Ethernet Only mPower Programmable Access Point w/external LoRa antenna and EU/GB Accessory Kit
RF-LW-HUB-EC	LTE Cat 4 mPower Programmable Access Point 8-channel, 868 MHz w/external LoRa antenna and EU/GB Accessory Kit
RF-LW-HUB-E-BAC-GL	Ethernet Only mPower/BACnet Programmable Access Point, 8-channel, 915 MHz w/external LoRa antenna and Global Accessory Kit
RF-LW-HUB-E-USAU	Ethernet Only mPower Programmable Access Point w/external LoRa antenna and US/AUS Accessory kit
RF-LW-HUB-EC-AU	LTE Cat 1 mPower Programmable Access Point 8-channel, AU915 MHz w/external LoRa antenna and AU Accessory Kit (Australia)

MODEL OPTIONS

Ethernet Only Models	<ul style="list-style-type: none"> RF-LW-HUB-E-BAC RF-LW-HUB-E RF-LW-HUB-E-BAC-GL RF-LW-HUB-E-USAU
LTE Models	<ul style="list-style-type: none"> RF-LW-HUB-EC-BAC RF-LW-HUB-EC RF-LW-HUB-EC-AU
Accessory Kits	Include power supply, Ethernet cable, mounting bracket, and region-specific power blades, antennas.

INTERFACES

DC Power	5VDC, 2.5mm barrel power jack
Ethernet	RJ-45 (10/100)
SIM Card Holder	3FF Micro SIM
Reset Button	Recessed switch
LoRa Antenna	Female Reverse Polarity SMA (on select models)

HARDWARE SPECIFICATIONS

Processor	Cortex A7 with 512 MB SDRAM and 512 MB NAND flash memory, 568 MHz
Backhaul Options	Ethernet 10/100 BaseT (with LTE Category 4 for select models)
LoRaWAN	SX1303 baseband processor
LED Indicators	POWER, STATUS, LORA, CELL (select models)
Power	5 VDC, 2.5A
Dimensions	165 x 135 x 36 mm
Weight	1.5 kg
Chassis Type	PC-ABS
Mounting	Desk or wall mount
Operating Temperature	0°C to +70°C
Storage Temperature	-40°C to +85°C
Humidity	20% to 90%, non-condensing

QUALITY & COMPLIANCE

Certified Regions	
LoRaWAN	Certified in Australia/New Zealand, Canada, European Union, United Kingdom & United States.
Cellular	Certified in Canada, European Union, United Kingdom & United States.
EMC Compliance	
Regions Covered	Australia/New Zealand, Canada, European Union, United Kingdom & United States.
Standards	Compliance with standards such as CISPR 32, EN 301-489, and FCC Part 15.
LoRaWAN Specifications	
Sensitivity	-141dBm
Frequency Bands	<ul style="list-style-type: none"> US915, AU915, AS923: 902-928 MHz, up to 30 dBm EIRP EU868, IN868: 863-870 MHz, up to 27 dBm EIRP
Channel Plan	8 channels with support for multiple spreading factors (SF5-SF12)

CELLULAR WAN SPECIFICATIONS

Technology	4G LTE Category 4, with 3G HSPA+ fallback
Frequency Bands	
North America	4G (B2, B4, B5, B12, B13), 3G (B2, B4, B5)
Europe/UK	4G (B1, B3, B7, B8, B20, B28A), 3G (B1, B8), 2G (B3, B8)
Data Rates	Up to 150 Mbps downlink, 50 Mbps uplink
SIM Card	3FF Micro SIM
MNO Approvals	PTCRB, AT&T, Verizon, GCF, and others

SOFTWARE SPECIFICATIONS

Operating System	mPower Edge Intelligence (Yocto-based Linux)
Languages Supported	Python, C, C++, JavaScript, Node.js
Security Features	Secure Boot, signed firmware, VPN support, MAC filtering, firewall rules, user access control
Management Tools	MultiTech DeviceHQ, SNMP, LDAP, configuration restore
Connectivity	LoRa Network Server, LoRa Packet Forwarder, LoRaWAN MQTT application

LoRaWAN Products

The LoRaWAN product range - sensing devices and gateways.



RF-LW-WD

LoRaWAN Water Detection



Detects the presence of water leaks, flooding and condensation using water detection cable. Leakage or moisture is detected over the entire length of the cable, various cable lengths are available to facilitate leakage sensing over a wide area. When a leak is detected, a message is transmitted using long range LoRa wireless to generate an alarm so early action can be taken.

Part code	Description
RF-LW-WD-AM-3M	Water leak detector plus 3 metre detection cable plus 1m leader.
RF-LW-WD-AM-1M	Water leak detector plus 1 metre detection cable plus 0.5m leader
RF-LW-WD-AM-5M	Water leak detector plus 5 metre detection cable plus 0.5m leader
RF-LW-WD-AM-10M	Water leak detector plus 10 metre detection cable plus 0.5m leader
RF-LS-14500-S2	2 X Lithium AA size battery (3+ Years)

RF-LW-GP1

LoRaWAN Gauge Pressure Sensor



Our RF-LW-GP1 measures gauge pressure with industry leading accuracy. It is a vital tool in areas where the need to monitor liquid or gas pressure is paramount, such as in laboratories and medical applications and BMS applications.

The one-piece 17-4ph stainless-steel construction is suitable for use in environments where material corrosion may occur such as contaminated water, steam, and mildly corrosive fluids.

Part code	Description
RF-LW-GP1	Status with Gauge Pressure 0 to 10 Bar
RF-LS-14500-S2	2 X Lithium AA size battery (3+ Years)

RF-LW-MODB

LoRaWAN ModBus Bridge



Our Modbus Bridge instantly converts wired Modbus devices such as meters, PLC's and sensors to LoRa long range wireless. Any instrument, device or sensor with a wired Modbus RS485 interface can be read and converted to a LoRaWAN wireless device.

Part code	Description
RF-LW-MODB	Modbus Bridge - 32 Data Points
Power Requirement	Externally powered 12-24V DC (120mA max.)

RF-LW-AV
Air Velocity


Our RF-LW-AV range measure air velocity in the range of 0 to 40m/s with industry leading accuracy of 0.1% of selected range. A unique Multi-Range digital sensor allows multiple ranges to be selected automatically or remotely. These sensors can be used to ensure that recommended air flow rates for public buildings and industrial plant are achieved.

Part code	Description
RF-LW-AV-100	Status with Air Flow. 100mm Air Velocity Probe
RF-LW-AV-200	Status with Air Flow. 200mm Air Velocity Probe
RF-LW-AV-300	Status with Air Flow. 300mm Air Velocity Probe
RF-LW-AV-400	Status with Air Flow. 400mm Air Velocity Probe
RF-LW-AV-500	Status with Air Flow. 500mm Air Velocity Probe
RF-LW-AV-600	Status with Air Flow. 600mm Air Velocity Probe
RF-LS-14500-S2	2 X Lithium AA size battery (3+ Years)

RF-LW-PULSE
LoRaWAN Pulse Counter


This handy device counts meter pulses on three channels and transmits the accumulated data using LoRaWAN wireless where it can be displayed and analysed. It is the easiest, fastest way to access your energy data in real time.

There are three 50 standard pulse inputs to collect data from electricity, gas, water, heat or any other pulse enabled meter. A Change-of-State feature can be optionally enabled. This will send a radio packet when any of the inputs change from open to closed, or closed to open.

Part code	Description
RF-LW-PULSE	Pulse Counter LoRaWAN
RF-LS-14500-S2	2 X Lithium AA size battery (3+ Years)

RF-LW-VC-IN
Active Output Sensor Converter


This innovative device measures Voltage (0-10V) or Current (4-20mA) and transmits the reading using long range LoRa wireless where the device data can be displayed and analysed. Any sensor or instrument with a 0-10V or 4-20mA signal can be instantly converted into a wireless device so that the information can be easily remotely acquired.

Part code	Description
RF-LW-VC-IN	Status with Voltage (0-10V) or Current (4-20mA)
RF-LS-14500-S2	2 X Lithium AA size battery (3+ Years)

RF-LW-DP1
LoRaWAN Pressure Sensing


The RF-LW-DP1 measures differential pressure in the range of 0 to 5000Pa with industry leading accuracy of 0.1% of selected range. Our unique Multi-Range digital sensor allows multiple pressure ranges to be selected automatically. Differential Pressure data is transmitted using long range LoRa wireless where the device data can be displayed and analysed to reveal operational performance and generate alerts.

Part code	Description
RF-LW-DP1	Status with Differential Pressure 0 to 5000Pa
RF-LS-14500-S2	2 X Lithium AA size battery (3+ Years)

RF-LW-TIAQ

LoRaWAN Indoor Air Quality Monitoring



FEATURES

- Leading edge optical and digital sensors provide high accuracy and long life
- Drift free readings without further calibration
- Helping companies achieve WELL® and RESET® compliance
- One sensor per 325 m² [3500 ft²] of occupiable space to meet WELL standard
- Built in USB port for easy configuration
- Ultimate wireless connectivity through LoRaWAN
- Simple integration with BACnet and Modbus through gateway
- One sensor per 325m² (3500ft²) of occupiable space to meet WELL standard

Our Indoor Air Quality Monitor is a precision instrument which accurately measures up to 9 key environmental parameters including Temperature, Relative humidity, Light level, Particle Matter (PM1, PM 2.5, PM4 & PM10), Sound Level, Volatile organic compounds, Carbon Dioxide, Barometric Pressure. Up to two additional gas sensors may be fitted; one of which must be ozone if two sensors are required. Ammonia, Ozone, Formaldehyde, Carbon Monoxide, Nitrogen Dioxide, Hydrogen Sulphide, Sulphur Dioxide and Oxygen.

Part code	Description
RF-LW-TIAQ	Indoor Air Quality Monitor. Temperature, Relative Humidity, VOC's, Barometric Pressure. Particulate Matter - PM 1, 2.5, 4, 10 (MCERTS Certified). Carbon Dioxide - CO ₂ IWBI WELL v2 Compliant
RF-LS-14500-S2	4 x Lithium AA size battery OR 12-24VDC
RF-LW-TIAQ-CO2	Indoor Air Quality Monitor with ultrafine particle sensor. Temperature, Relative Humidity, VOC's, Barometric Pressure. Particulate Matter - PM 0.1, 0.3, 0.5, 1, 2.5, 5, 10 Carbon Dioxide - CO ₂ IWBI WELL v2 Compliant. Requires external power 12-24V DC.
Power Requirement	12-24V DC or via a PoE splitter
RF-LW-TIAQ-VAPE	Indoor Air Quality Monitor with vape/cigarette smoke detection function and ultrafine particles. Temperature, Relative Humidity, VOC's, Barometric Pressure. Particulate Matter - PM 0.1, 0.3, 0.5, 1, 2.5, 5, 10 Carbon Dioxide - CO ₂ IWBI WELL v2 Compliant. Requires external power 12-24V DC.
Power Requirement	12-24V DC or via a PoE splitter
Accessories	
-SND	Sound monitoring option, available for all IAQ Models

RF-LW-TIAQ-OX

LoRaWAN Indoor Air Quality Monitoring Enhanced



FEATURES

- Built in USB port for configuration
- Multiple sensor options
- Vertical wall mounting or horizontal ceiling mounting
- Whisper quiet fan to draw air through the enclosure for sampling & monitoring

Our Air Quality Monitor is a precision instrument which accurately measures up to 14 key environmental parameters including Temperature, Humidity, Light Level, VOC's, Carbon Dioxide, Particulate Matter (PM1, 2.5, 4 & PM10), Oxygen, Barometric Pressure, Ozone, Sound Level, plus up to 4 plug-in calibrated gas sensors from a range of over 200 gases / sensitivities.

Part code	Description
RF-LW-TIAQ-OX	Air - Indoor Air Quality Monitor with Temperature, Relative Humidity, Light Level (LUX), VOC's, Barometric Pressure. CO ₂ , Oxygen. Particulate Matter - PM1, 2.5, 4, 10 (MCERTS Certified). IWBI WELL v2 Compliant.
Power Requirement	12-24V Volts DC. 1 Amp (max)

RF-LW LoRaWAN Thermostats



Fan Coil Thermostat LoRaWAN



The RF-LW-TH-FSSP Fan Coil Thermostat (FCT) is a LoRaWAN device for 2- and 4-pipe Fan Coil Units, accommodating 3-speed or ECM fans. Ideal for building retrofitting, it enhances energy efficiency and reduces heating/cooling expenses significantly. With its 4.2" e-ink fast refresh display it allows the end-user to change the target temperature and see current indoor conditions.

FEATURES

- Fast refresh e-ink display provides overview of the indoor environment
- Compatible with 2-pipe and 4-pipe Fan Coil Units (FCU)
- Works with 1-3-speed fans and ECM (0-10V) fans (FCU)

Part code	Description
RF-LW-TH-FSSP	Fan Coil Thermostat LoRaWAN
Power Requirement	110-230VAC (Included)



Wireless Thermostat LoRaWAN



Our RF-LW-THPIR-SP Wireless Thermostat is a stand-alone thermostat powered entirely by solar energy using an organic solar panel. The device features a 2.9" e-ink screen, sensor for movement (PIR), temperature and humidity sensor, LUX sensor and 3 buttons. The user can change the target temperature and see current indoor conditions. The device sends an uplink after any event as well as periodically.

FEATURES

- Motion Detection
- Organic Solar Panel charged by room light
- Integrates with BMS and other devices for optimum room control

Part code	Description
RF-LW-THPIR-SP	Wireless Thermostat LoRaWAN
Power Requirement	Solar-powered Lithium-ion capacitor (LIC) AND/OR 4xAA 1.5VDC batteries

RF-LW LoRaWAN Automation Devices



Multi-Purpose Button LoRaWAN



APP CONTROL

The Multi-Purpose Button LoRaWAN allows you to control various smart functions with a single press. Through the app, you can configure the button to trigger climate control actions, like adjusting heating or cooling systems. For example, pressing the button can activate a pre-set temperature or switch the system to energy-saving mode when you leave. This makes managing your home's climate simple and efficient.

LoRaWAN Multipurpose Button is a simple but versatile device with many applications. Featuring a single button with 3 types of clicks and a temperature sensor, there are unlimited configuration options across industries and end customers. With a 10 year battery life, it has endless possibilities.

APPLICATIONS

- Hospital or nursing home call button
- Restaurants to call staff
- Hotels to request services
- Shut off switch - Switch for lighting or heating

Part code	Description
RF-LW-BTN	Multi-Purpose Button LoRaWAN
Power Requirement	ER10280 (Included) (>10 Years)



Open/Close Sensor LoRaWAN



APP CONTROL

The Open/Close Sensor LoRaWAN helps monitor the opening and closing of doors or windows, which can be controlled via an app. The app lets you set up notifications and integrates with climate control systems to automatically adjust heating or cooling when a window or door is opened. This smart function helps maintain an efficient climate by reducing energy waste.

The Open/Close window and door detector can detect even slightly opened windows and doors, increasing the security and protection of any building, contributing to energy management and automation.

FEATURES

- Built in temperature sensor to support control of room temperature
- 10 year battery life
- Tool free installation

Part code	Description
RF-LW-OC	Open/Close Sensor LoRaWAN
Power Requirement	ER14250 or 1/2 AA (Included) (>10 Years)

RF-LW

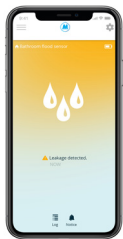
LoRaWAN Water Control



Flood Sensor LoRaWAN



>10 Year Battery Life



APP CONTROL

Through the Flood Sensor LoRaWAN app, you can monitor the sensor's status and receive instant notifications if water is detected. The smart function in the app can be integrated with climate control systems to automatically shut off heating or cooling when a leak is detected, preventing further damage and conserving energy.

Flood Sensor is a discreet device designed to quickly detect floods as they happen and within seconds sends notifications to your system as well as activate an audible alarm on the spot. Featuring a temperature sensor, an LED, and a Buzzer, the device enables you to immediately respond when a flood occurs.

FEATURES

- 10 year battery life
- Works with T-Valve to shut off water supply on detection of a flood

Part code	Description
RF-LW-WD-FLOOD	Flood Sensor LoRaWAN
Power Requirement	CR123A (>10 Years)



Water Shut-Off Valve LoRaWAN



>12 Year Battery Life



APP CONTROL

The Water Shut-Off Valve LoRaWAN allows you to control your water supply remotely through the app. You can use the app to automatically shut off the valve if a leak is detected, preventing water damage. This smart function can also be integrated with other devices, like the Flood Sensor, for enhanced home protection. The app ensures you have full control over your water supply, making it easy to manage and conserve water.

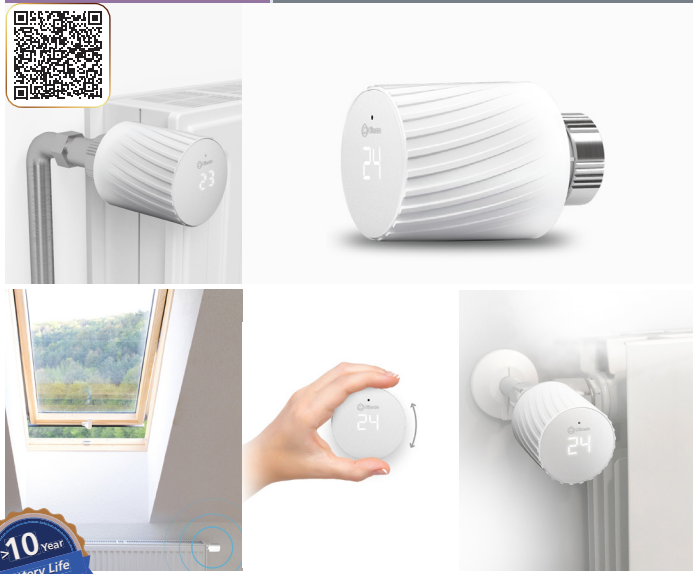
T-Valve is LoRaWAN 1.0.1, a class A device that allows you to control the water flow remotely and prevents major water damage. With 3/4" and 1 1/4" versions, respectively DN20 and DN32, the device fits all standard plumbing systems and is suited to all building types. Equipped with buttons, LEDs, a Buzzer, and device status indicators you can also interact with it manually along with the core remote control functions.

FEATURES

- 12 year battery life
- Drinking water certified
- Support legionella prevention

Part code	Description
RF-LW-VZ	Water Shut-Off Valve LoRaWAN
Power Requirement	LiSO C12 ER26500 3.6V 9000mAh (Included) (>12 Years)

RF-LW-TRV | LoRaWAN Smart Radiator Thermostat



Vicki LoRaWAN® Smart Radiator Thermostat is tailored specifically to improve energy efficiency, achieve substantial cost savings and reduce the CO₂ footprint within all types of buildings through its remote temperature control capabilities and innovative data analytics.

With seamless integration into various BMS systems, through BACnet or Modbus protocols via a gateway, installation and control is effortless.



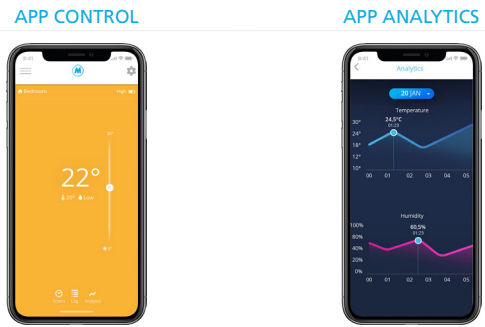
FEATURES

- Simple and fast installation
- 10 year battery life
- Remotely or manually adjust temperature in any room
- Temporarily stops heating when an open window is detected

Part code	Description
RF-LW-TRV	LoRaWAN TRV Valve
RF-LS-14500-S2	2 x Lithium AA (Included) (>10 Years)

APP CONTROL

The Vicki Thermostat App features include an automatic climate control that adjusts the temperature based on your settings or external temperature readings. You can manually adjust the target temperature by rotating the device's outer ring, or use the app for more advanced controls. It also detects open windows and has a child lock feature to prevent unwanted adjustments. Additionally, it includes a weekly schedule feature for setting different temperatures throughout the day and an energy-saving mode to reduce heating costs when you're away.



APP CONTROL

THERMOSTAT GEO CONTROL



RF-LW-THLC-S | LoRaWAN Organic Solar Air Quality Sensor



This clever sensor is equipped with temperature and humidity, LUX and NDIR CO₂ sensor. Featuring a 1.54" e-ink screen the device displays the current levels of CO₂ as well as historical trends.

The data is transmitted by LoRaWAN connectivity to a gateway which converts it to BACnet or Modbus to be utilised in any Building Management System to control demand-based ventilation.

Part code	Description
RF-LW-THLC-S	LoRaWAN Solar Air Quality Sensor

FEATURES

- ABC calibration for accurate CO₂ measurement
- Solar power offers a maintenance free solution
- Simple and fast installation
- Ideal for school applications

RF-LW-TOAQ

LoRaWAN Outdoor Air Quality Monitoring



Outdoor air quality monitor measures key environmental parameters continuously and in real time with exacting accuracy. Using cutting-edge digital and gas sensing technology, the OAQ ensures drift-free reading without further calibration and extended instrument longevity.

Available with temperature, relative humidity, particulate matter, CO₂, Ozone, VOC's, barometric pressure, sound level and internationally approved Air Quality Index – AQI.

FEATURES

- Accurately measures up to ten key outdoor air quality parameters
- Powered via battery or an external source
- Optional Solar Power Supply (SPS)
- Optional gas sensor, CH₂O, CO, NO₂, H₂S, SO₂
- Optional sound sensor
- Communicates via outstanding LoRaWAN wireless technology
- Simple integration into BMS via BACnet or Modbus gateway

Part code	Description
RF-LW-TOAQ	Outdoor Air Quality Monitor Temperature, Relative Humidity, VOC's, Barometric Pressure, Particulate Matter - PM1, 2.5, 4, 10 (MCERTS Certified). EPA AQI Air Quality Index (based on NO ₂ and O ₃).
RF-LW-TOAQ-CO2	Outdoor Air Quality Monitor Temperature, Relative Humidity, VOC's, Barometric Pressure, Particulate Matter - PM1, 2.5, 4, 10 (MCERTS Certified). EPA AQI Air Quality Index (based on NO ₂ and O ₃). Carbon Dioxide - CO ₂
RF-LS-14500-S2	4 x Lithium AA sized battery (2+ Years) OR 12-24VDC, 0.15 Amp (max)

RF-LW-THVB

LoRaWAN Wireless Indoor Environment Sensors



Part code	Description
RF-LW-THVB-S	Temperature, Humidity, VOC's, Barometric Pressure
RF-LW-THLVBPM-S	Temperature, Humidity, Light Level (LUX), VOC's, Barometric Pressures, Motion (PIR)
RF-LW-THLVBC-S	Temperature, Humidity, Light Level (LUX), VOC's, Barometric Pressure, CO ₂
RF-LW-THLVBCM-S	Temperature, Humidity, Light Level (LUX), VOC's, Barometric Pressure, CO ₂ , Motion (PIR)
RF-LS-14500-S2	2 x Lithium AA-size battery (>3 Years)

Part code	Description
RF-LW-THLVBS-S	Temperature, Humidity, Light Level (LUX), VOC's, Barometric Pressure, Sound (dBA)
RF-LW-THLVBMS-S	Temperature, Humidity, Light Level (LUX), VOC's, Barometric Pressure, Motion (PIR), Sound (dBA)
RF-LW-THLVBCS-S	Temperature, Humidity, Light Level (LUX), VOC's, Barometric Pressure, CO ₂ , Sound (dBA)
RF-LW-THLVBCMS-S	Temperature, Humidity, Light Level (LUX), VOC's, Barometric Pressure CO ₂ , Motion (PIR), Sound (dBA)
RF-LS-14500-S2	Up to 4 x Lithium AA-size battery (>3 Years) OR 2 pole Molex push button connector 12-24V DC

FEATURES

- Multiple sensor options
- Built in USB port for configuration
- Battery or mains powered
- Long-range communication via LoRaWAN wireless technology
- Integration with any BMS through BACnet or Modbus through gateway

Wireless sensors measuring up to 8 air quality / environmental parameters. The sound monitoring sensors also have additional battery capacity, all the sensors can be externally powered if desired.

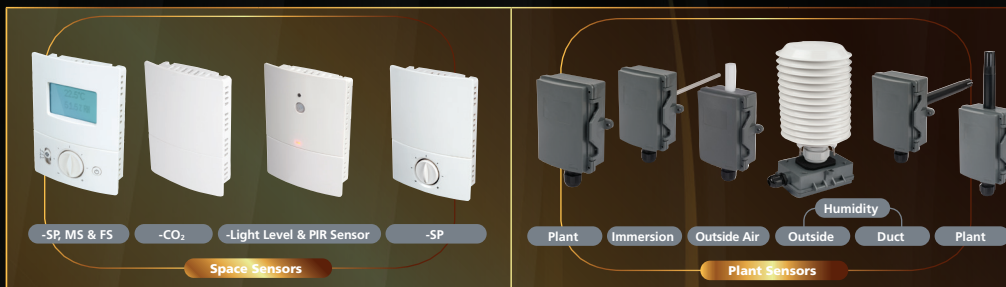
Leading edge digital sensors to provide high accuracy, long life, drift free readings without further calibration. The optical CO₂ sensor provides high accuracy readings with a sensor life of greater than 15 years.





SMART Sensing

... where intelligence meets technology,
Smart Communication connects hardware with software



Smart Communication Space Sensor | Smart Communication Duct, Immersion and Outside Sensor



SC-IO-24 - Smart I/O Module | SC-IO-10x - Smart Remote IO Modules | SC-RC Smart Networkable Controllers



SC-Gateways for Air Conditioners | PA-DPT-MOD Air DP Sensor | SC-FS-EZ-x Protocol Gateways | SC-FS-IOT-x IoT Gateway



BENEFITS

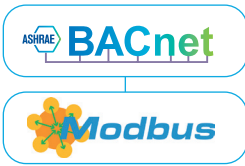
- Building owners as they are no longer compelled to procure from a single manufacturer.
- FMs benefit from optimal system performance and the ability to minimize the risk to properties.
- Trained service companies can provide analysis of true requirements for maintenance or operational plans.
- Contractors, installers, and integrators receive concise and accurate information.

FEATURES

- The ability to integrate all aspects of building control: HVAC, fire, access, security and lighting can all be connected.
- Smart devices report errors and failures to a central monitoring system.
- Smart devices generate and transmit alarms to a central monitoring system, with the requirement of the BMS systems involvement.



SMART COMMUNICATION SENSORS



- Save time and cost on installation through smart connectivity.
- Our Smart Communications sensors offer total environmental sensing in one single space sensors.
- Installation of all sensors is over one twisted pair cable and configuration is simple.
- All option outputs are available via BACnet MS/TP or Modbus RTU.

SC-S Smart Communication Space Sensor



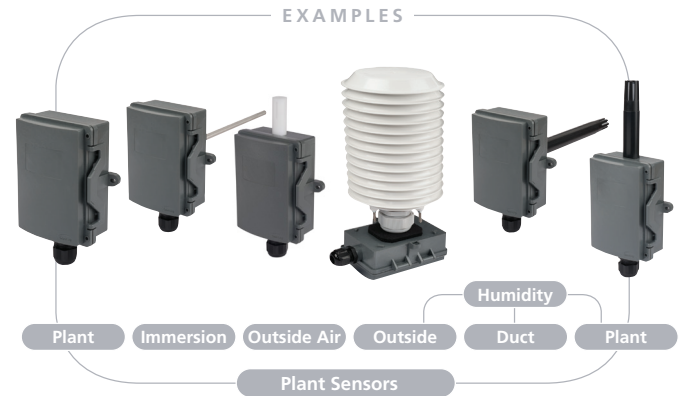
SPECIFICATION

Supply voltage	24Vac/dc ±10%
Communication	RS-485 (EIA-485) Protocol selectable via DIP switch
BACnet MS/TP	9k6 to 78k8bps or auto baud rate detection
Modbus RTU	9k6 to 57k6bps Selectable parity and stop bit configuration

Measurement Ranges

T:	-20°C to +110 units (°C or °F), 5 pre-set ranges plus one user configurable range
RH:	0 to 100% RH
CO ₂ :	0 to 2,000 or 5,000ppm CO ₂ (user selectable)
CO:	0 to 500ppm CO
IAQ:	0 to 1,000ppb TVOC
LL:	0 to 10,000lux
PIR:	PIR occupancy status, off delay 0-900 seconds user configurable
User Interfaces	SP: Set point adjuster 0-100%, user configurable FS: Fan speed slider 5-stages Off, Lo, Med, Hi, Auto MS: Momentary switch button Active/Inactive LCD Display: Showing T, RH, CO ₂ or IAQ (if fitted) measured variable LED: "Traffic light" LED user configurable
Input options	AI: Analogue Input 0-10Vdc linear or NTC thermistor (10K3A1) sensor DI: VFC or pulse count, user selectable
Output options	AO: 3x Analogue Output 0-10V, configurable DO: 2x Digital Output, 24Vac Triac
Environmental	Housing: 0 to +50°C 0 to 95% non-condensing
Housing	Material: ABS (flame retardant) Colour: Polished white finish Dimensions: 115 x 85 x 30mm Protection: IP30

SC Smart Communication Plant Sensor



SPECIFICATION

Supply voltage	24Vac/dc ±10%
Communication	RS-485 (EIA-485) Protocol selectable via DIP switch
BACnet MS/TP	9k6 to 78k8bps or auto baud rate detection
Modbus RTU	9k6 to 57k6bps Selectable parity and stop bit configuration

Measurement Ranges

Temp.:	-20°C to +110 units (°C or °F) 5 pre-set ranges plus one user configurable range
RH:	0 to 100% RH
CO ₂ :	0 to 2,000 or 5,000ppm CO ₂ (user selectable)
CO:	0 to 500ppm CO
IAQ:	0 to 1,000ppb TVOC
LL:	0 to 10,000lux
PIR:	PIR occupancy status, off delay 0-900 seconds user configurable
User Interfaces	LCD Display: Showing T, RH, CO ₂ or IAQ (if fitted) measured variable LED: "Traffic light" LED user configurable for any sensing variable or network value
Input options	AI: Analogue Input 0-10Vdc linear or NTC thermistor (10K3A1) sensor DI: VFC or pulse count, user selectable
Output options	AO: 3x Analogue Output 0-10V, configurable DO: 2x Digital Output, 24Vac Triac
Environmental	Housing: -30 to +60°C 0 to 95% non-condensing Media: -10 to +50°C
Housing	Material: PC/GF (Halogen Free Flame Retardant, UV stabilized) Colour: Basalt grey Dimensions: 125 x 105 x 85mm Protection: IP65

Part code	Description
SPACE SENSOR	
SC - S -	Space Temperature
x x x x x x	Configuration Sensing Options RH/CO₂
0	- none
1	- RH
2	- CO ₂
3	- CO ₂ and Traffic Light LED
4	- RH and CO ₂
5	- RH, CO ₂ and Traffic Light LED
	Configuration Sensing Options CO/IAQ
0	- none
1	- CO
2	- IAQ
3	- CO and IAQ
	Configuration User Indication
0	- none
1	- LCD Display
2	- Light Level Sensor
3	- PIR Sensor
4	- Light Level and PIR Sensor
	Configuration Interface Options
0	- none
1	- SP
2	- MS
4	- SP and MS
5	- SP and FS
6	- FS and MS
7	- SP, MS and FS
	Configuration Digital Outputs
0	- none
1	- 2x DO
	Configuration Analogue Outputs
0	- none
1	- 3x AO
DUCT SENSOR	
SC - D -	Duct Temperature and RH
x x x 0 x x	Configuration Sensing Options CO₂
0	- none
1	- CO ₂
2	- CO ₂ and Traffic Light LED
	Configuration Sensing Options CO/IAQ
0	- none
1	- CO
2	- IAQ
3	- CO and IAQ
	Configuration User Indication
0	- none
1	- LCD Display
	Configuration Digital Outputs
0	- none
1	- 2x DO
	Configuration Analogue Outputs
0	- none
1	- 3x AO

Part code	Description
IMMERSION / DUCT TEMPERATURE	
SC - I -	Immersion/Duct Temperature
0 0 x 0 x x	Configuration User Indication
0	- none
1	- LCD Display
	Configuration Digital Outputs
0	- none
1	- 2x DO
	Configuration Analogue Outputs
0	- none
1	- 3x AO
PLANT SENSOR	
SC - W -	Plant Temperature
x 0 x 0 x x	Configuration Sensing Options RH
0	- none
1	- RH
	Configuration User Indication
0	- none
1	- LCD Display
2	- Light Level Sensor
3	- PIR Sensor
4	- Light Level and PIR Sensor
	Configuration Digital Outputs
0	- none
1	- 2x DO
	Configuration Analogue Outputs
0	- none
1	- 3x AO
OUTSIDE WALL SENSOR (RAD SHIELD)	
SC - O -	Outside Temperature (Radiation Shield)
x 0 x 0 x x	Configuration Sensing RH
0	- none
1	- RH
	Configuration User Indication
0	- none
1	- LCD Display
2	- Light Level Sensor *
3	- PIR sensor *
4	- Light Level and PIR Sensor *
	Configuration Digital Outputs
0	- none
1	- 2x DO
	Configuration Analogue Outputs
0	- none
1	- 3x AO

Note: Not available for RH configurations.

Other Sensor types are available, please contact us.



SC-S Smart Communication Space Sensor



SC Smart Communication Plant Sensor



SC-RC

Smart Networkable Controllers



These are specifically designed for straightforward and accurate control of heat pump, rooftop unit, fan coil units (2 or 4-pipes) or any other heating/cooling equipment or humidity control. Its field-configurable algorithms allow for versatility when implementing required control sequences.

FEATURES:

- Heat pump, humidity control or general unit controller
- Fan control: 1, 2 or 3-speed (auto/on) or analog (EMC)
- Precise temperature control with configurable PI function
- Low limit set protection
- Occupancy and night set back mode

COMMUNICATION:

- Selectable BACnet or Modbus communication
- MAC address set via menu or network
- Copy & broadcast configuration to other controllers (BACnet only)
- BACnet schedule (up to 6 events per day)
- Supports CVO (BACnet only)

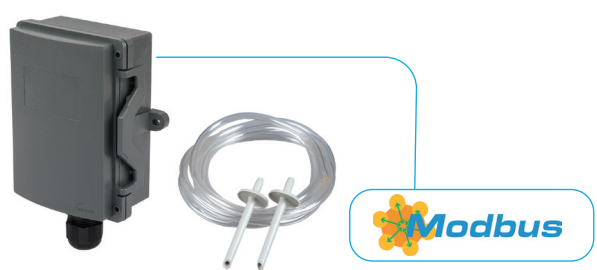
SPECIFICATION

Supply voltage	24Vac	
Supply current	1VA (41.6mA @ 24Vac)	
Inputs	SC-RC1	2 Universal: 0-10Vdc, 10kΩ Thermistor or dry contact
	SC-RC2	4 Universal: 0-10Vdc, 10kΩ Thermistor or dry contact
Outputs	SC-RC1	5 Binary (OptoFET, 250mA max.) 2 Analog (0-10Vdc, adjustable)
	SC-RC2	6 Binary (OptoFET, 250mA max.) 4 Analog (0-10Vdc, adjustable)
Set point range	10 to 40°C	
Proportional band	0.5 to 5°C adjustable	
Dead band	0.0 to 5°C adjustable	
BACnet	MS/TP, 9600, 19200, 38400 or 76800	
Modbus	RTU slave, 9600, 19200, 38400 or 57600	
	Selectable parity & stop bits No parity, 2 stop bit	
Accuracy	Temperature	±0.4°C (control)
	Humidity	±3.5%RH (control)
	CO ₂	±30ppm ±3% of reading
Ambient	Temperature	0 to 50°C
	RH	5 to 95% RH. non-condensing
Housing	Material	ABS
	Dimensions	24 x 83 x 20mm (without CO ₂) 24 x 83 x 24mm (with CO ₂)
Protection	IP30	
Weight	135g	

Models	Temp.	RH	PIR	
● SC-RC1-T-WG	•			
● SC-RC1-T-BB				
○ SC-RC1-T-WB				
● SC-RC1-RHT-WG	•	•		
● SC-RC1-RHT-BB				
○ SC-RC1-RHT-WB				
● SC-RC1-TPIR-WG	•		•	
● SC-RC1-TPIR-BB				
○ SC-RC1-TPIR-WB				
● SC-RC1-RHT-PIR-WG	•	•	•	
● SC-RC1-RHT-PIR-BB				
○ SC-RC1-RHT-PIR-WB				

Models	Temp.	RH	PIR	CO ₂	VOC	
● SC-RC2-T-WG	•					
● SC-RC2-T-BB						
○ SC-RC2-T-WB						
● SC-RC2-RHT-WG	•	•				
● SC-RC2-RHT-BB						
○ SC-RC2-RHT-WB						
● SC-RC2-RHT-CO2-WG	•	•		•		
● SC-RC2-RHT-CO2-BB						
○ SC-RC2-RHT-CO2-WB						
● SC-RC2-T-PIR-WG	•		•			
● SC-RC2-T-PIR-BB						
○ SC-RC2-T-PIR-WB						
● SC-RC2-RHT-PIR-WG	•	•	•			
● SC-RC2-RHT-PIR-BB						
○ SC-RC2-RHT-PIR-WB						
● SC-RC2-RHT-CO2P-WG	•	•		•	•	
● SC-RC2-RHT-CO2P-BB						
○ SC-RC2-RHT-CO2P-WB						
● SC-RC2-RHT-CO2PV-WG	•	•	•	•	•	
● SC-RC2-RHT-CO2PV-BB						
○ SC-RC2-RHT-CO2PV-WB						

PA-DPT-MOD Air DP Sensor



SPECIFICATION

Power Supply	24Vac/dc ±10%
Measurement ranges	-250 to 2500Pa
Accuracy	<125Pa = 1% + ±2Pa >125Pa = 1% + ±Pa
Pressure Connections	Push fit for 6mm ID tubing
Housing	Material: PC/GF (Halogen Free Flame Retardant, UV stabilized) Dimensions: 125 x 105 x 85mm
Environmental	Housing -40°C to 70°C 0 to 95% RH non-condensing Media: -20 to 50°C
Protection	IP65
Weight	300g

Note: A duct fixing kit (DFK) is supplied with the sensor, consisting of 2m and 5mm i/d plastic tubing, 2 x pitot tubes and 4 x fixing screws.

The PA-DPT-MOD differential pressure transmitter is ideal for measuring filter conditions, as well as many other applications in ventilation/air conditioning systems in buildings, laboratories and clean rooms (air and non-corrosive gases).

FEATURES

- Duct fixing kit included
- Snap-fit cover

Part code	Description
PA-DPT-MOD	Air DP 1% Acc -250 to 2500Pa ModBus
Accessories	
DFK	Duct fixing kit
TEE	Tee Piece Air Pressure 6mm Pack of 10
PITOT	Aluminium pitot tube (pair)
PA-TUBE-CLEAR	PVC tube 8mm o/d x 1.5mm wall, 30m reel
PA-TUBE-RED	PVC tube 8mm o/d x 1.5mm wall, 30m reel
PA-TUBE-BLUE	PVC tube 8mm o/d x 1.5mm wall, 30m reel

SC-FS-IOT Fieldserver BACnet Internet of Things



SPECIFICATION

Power	12-24Vdc, 240mA at 12V
Communication	Serial RS-485, galvanic isolation Ethernet: 10/100BaseT, MDIX, DHCP Wifi: 802.11 b/g/n Cellular: 3G and GPS
Ambient	Temperature -40 to +75°C Humidity 5 to 90% RH non condensing
Dimensions	102 x 68 x 28mm
Weight	200g

FEATURES

- Eliminate all custom engineering development time and expense
- Register gateways through SMC's tenant based IoT Cloud Platform
- Monitor and control devices
- Generate cloud-based notifications/alerts via SMS and/or emails to keep users informed as soon as events occur
- Retrieve 30 days of data stored in the gateway by viewing the dashboard or download as csv, JSON or RESTful API

The BACnet Internet of Things Gateway offers all you would expect from a high end Explorer product and more. It not only automatically discovers BACnet IP and BACnet MS/TP networks, but with Monitor View and Historian features, device data points can be precisely tracked and logged for analysis. Additionally it also acts as a Wifi Access Point for remote access from any mobile device without user restrictions. Cellular data (SIM card required) is an option.

Part code	Description
SC-FS-IOT-BAC	BACnet Internet of Things Gateway
SC-FS-IOT-BAC-W	BACnet Internet of Things Gateway (WiFi)
SC-FS-IOT-BAC-C	BACnet Internet of Things Gateway (WiFi and cellular)

SMART Sensing – BACnet /Modbus

Data sheets online: www.sontay.com



SC-FS-ROUTER-BAC

Fieldserver BACnet Router



- Routing between BACnet MS/TP (RS-485) and BACnet IP (Ethernet)
- Available in single port (32 devices) or dual port (64 devices).
- Easy installation with DeviceFind™, one page configuration via web browser and device discovery button
- SMC Cloud connects your device to the cloud, allowing remote access for diagnostics, monitoring, alarming & configuration
- Wifi connectivity (-BACW) and BACnet Explorer for easy commissioning

SPECIFICATION

Power	9-30Vdc or 12-24Vac, 240mA at 12V 12-24Vdc, 240mA at 12V (-BACW)
Ambient	Temperature -40 to +75°C Relative Humidity 5 to 90% RH non condensing
Communication	Serial RS-485, galvanic isolation Baud rate 4k8, 9k6, 19k2, 38k4, 57k6, 115k2 Ethernet: 10/100BaseT, MDIX, DHCP Wifi (-BACW) only: 802.11 b/g/n
Dimensions	115 x 74 x 41mm 102 x 68 x 28mm
Weight	200g

Part code	Description
SC-FS-ROUTER-BAC2	Fieldserver BACnet Router (Dual Port)
SC-FS-ROUTER-BACW	Fieldserver Wifi BACnet Router (Single Port)

SC-FS-EZ

Fieldserver EZ Gateways into BACnet/Modbus



- **M-Bus:** M-Bus Explorer and Device Profiles App allow each M-Bus device to be auto-discovered, templated and presented to quickly configure new M-Bus devices. This turns each corresponding M-Bus device into a virtual BACnet device within the EZ Gateway, thereby providing granular visibility and control over each device via BACnet.
- **Modbus:** Supports virtual nodes allowing each Modbus device connected to a single EZ Gateway to be seen as a separate device on the BACnet network. The web interface is used to configure the local network settings and create profiles for Modbus devices.
- **KNX:** The EZ Gateways KNX interface is compatible with all KNX certified products. Easy data mapping via built in KNX data map graphical user interface and import of XML and ESF files.

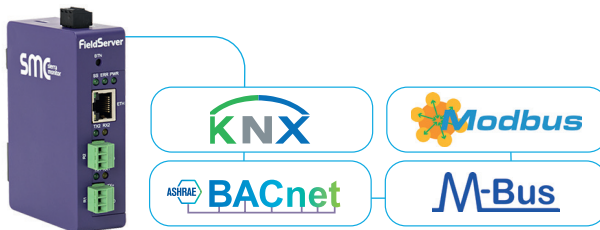
SPECIFICATION

Power	9-30Vdc or 12-24Vac.
Ambient	Temperature -40 to +75°C Relative Humidity 5 to 90% RH non condensing
Communication	Serial RS-485, galvanic isolation Baud rate 4k8, 9k6, 19k2, 38k4, 57k6, 115k2 Ethernet: 10/100BaseT, MDIX, DHCP
Dimensions	115 x 74 x 41mm
Weight	200g

Part code	Description
SC-FS-EZ1-MBUS-MOD-BAC	M-Bus to Modbus/BACnet 16 devices, 500 points
SC-FS-EZ2-MBUS-MOD-BAC	M-Bus to Modbus/BACnet 32 devices, 1000 points
SC-FS-EZ3-MBUS-MOD-BAC	M-Bus to Modbus/BACnet, 64 devices, 5000 points
SC-FS-EZ3-MOD-BAC	Modbus to BACnet, 500 points
SC-FS-EZ4-MOD-BAC	Modbus to BACnet, 1000 points
SC-FS-EZ1-KNX-BAC	KNX to BACnet, 500 points
SC-FS-EZ2-KNX-BAC	KNX to BACnet, 1000 points

SC-FS-QS-2x10-F

Quickserver 2xx0 Series Full Function Gateways



- The Quickserver is a high performance, fully configurable, cost effective Building and Industrial Automation gateway for integrators to easily interface devices to networks.
- The Quickserver FS-QS-2XX0-F series: is available at four different point capacities. Each Quickserver is preloaded with 140 different drivers, such as Modbus, BACnet, SNMP, EtherNet/IP and many more.
- See our webpage for the complete list. www.sontay.com

SPECIFICATION

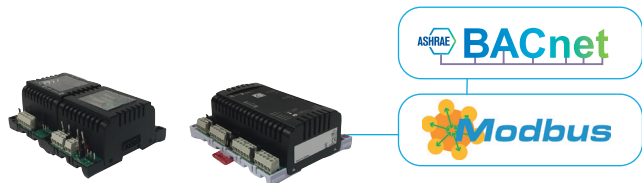
Power	9-30Vdc or 24Vac, 250mA at 12Vdc
Ambient	Temperature: -20 to +70°C Relative Humidity: 10-95% non condensing
Communication	2x RS-485, galvanic isolated Baud rate: 9k6, 19k2, 34k8, 57k6, 76k8 Ethernet: 10/100 Base T, MDIX, DHCP
Installation	DIN rail mount
Dimensions	102 x 28 x 68mm
Weight	200g

Part code	Description
SC-FS-QS-2010-F	Quickserver 2xx0 Series Full Function, 250 points
SC-FS-QS-2210-F	Quickserver 2xx0 Series Full Function, 500 points
SC-FS-QS-2310-F	Quickserver 2xx0 Series Full Function, 3000 points
SC-FS-QS-2410-F	Quickserver 2xx0 Series Full Function, 5000 points

Please enquire!

SC-IO-10x

Smart Remote IO Modules



Sontay's new range of mini Smart IO Modules offers extensions to any BACnet or Modbus network when you require additional inputs & outputs. They allow easy integration of non-intelligent inputs and outputs to BACnet or Modbus network protocols.

FEATURES

- **SC-IO-100:** 8 Universal Inputs
- **SC-IO-102:** 4 Universal Inputs - 2 Binary Outputs - 2 Analogue Outputs
- Manual output override switches on SC-IO-102
- DIN-rail mounting
- LED status for power & inputs/outputs

COMMUNICATION

- Selectable BACnet or Modbus communication
- MAC address set via DIP switch or network
- Copy & broadcast configuration to other SC-IO-10x modules (BACnet only)

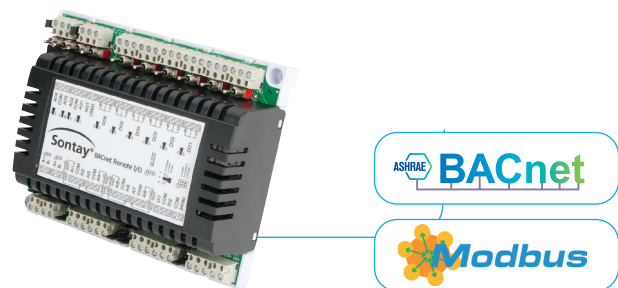
SPECIFICATION

Supply voltage	24Vac/dc
Supply current	3VA (175mA @ 24Vac)
Inputs (12 bits resolution)	SC-IO-100 8 Universal inputs , 0-10Vdc, Thermistor, on/off or 4-20mA
	SC-IO-102 4 Universal inputs: 0-10Vdc, pulsed signal (20mA drive), on/off or 4-20mA, 2 Universal outputs: 0-10Vdc, pulsed signal (20mA drive) or on/off 2 Binary outputs: Normally open/closed or direct/reverse independent common per relay 5A resistive
BACnet	MS/TP, 9600, 19200, 38400 or 57600 Selectable parity & stop bits
Modbus	RTU slave, 9600, 19200, 38400 or 57600 Selectable parity & stop bits
	No parity, 2 stop bit
	Even parity, 1 stop bit
Ambient	Temperature: 0 to 50°C
	RH: 5 to 95% RH. non-condensing
Housing	Material: ABS
	Dimensions: 81 x 125 x 58mm
Protection	IP30
Weight	200g

Part code	Description
SC-IO-100	Smart Communication IO Module 8 U/I
SC-IO-102	Smart Communication IO Module 4 U/I, 2 U/O & 2 B/O

SC-IO-24

Smart I/O Modules



The Sontay Smart Communication I/O-Modules extend your system when your application requires additional inputs and outputs on a physical controller. Integrating 20 IO points to the BMS provides a simple and cost effective expansion of a new or existing controller.

FEATURES

- 8 Universal and 2 Digital Inputs
- 2 Universal, 2 Analogue and 6 Digital Outputs
- Manual override of the outputs, all supervised via the network
- Automatic baud rate detection and automatic device instance configuration (BACnet)
- Connects to any Modbus master controller
- LED for power up and input/output status
- DIN rail mounting

COMMUNICATION

- **Selectable communication protocol via Dip switch:** BACnet MS/TP or Modbus RTU
- Copy & broadcast configuration to other Sontay SC-IO-24 via BACnet
- Selectable MAC address via DIP switches or via network

SPECIFICATION

Supply voltage	24Vac/dc ±10%
Supply current	8VA (OmA @ 24Vac)
Inputs	8 x Universal (12-bit resolution) 0-10Vdc, Thermistor On/off (VFC), 4-20mA, 2 x Digital (12-bit resolution) Normally open/closed or direct/reverse
Outputs	2 x Universal (12-bit resolution) 0-10Vdc, Pulsed signal (20mA drive), On/off, 4-20mA, 2 x Analogue (12-bit resolution) 0-10Vdc, 6 x Digital relay, Normally open/closed, Independent common per relay, 5A resistive
BACnet	MS/TP (BAS-C): 9k6, 19k2, 38k4 or 76k8 bps or auto baud rate detection
Modbus	RTU Slave @ 9k6, 19k2, 38k4 or 57k6, Selectable parity and stop bit conf, No parity, 2 stop bit, Even parity, 1 stop bit, Odd parity, 1 stop bit
Ambient	Temperature: 0 to 50°C
	RH: 5 to 95% RH. non-condensing
Housing	Material: ABS
	Dimensions: 160 x 126 x 57mm
Protection	IP30
Weight	400g

Part code	Description
SC-IO-24	Smart Communication IO Module BACnet / ModBus

SC-Gateways

Gateways for Air Conditioners



The IntesisBox gateways for Air Conditioners help improve the integration time of the most popular AC brands like Daikin, Mitsubishi or Toshiba into BMS, SCADA or EMS system via Modbus or BACnet. For Modbus a common register map can be used across the range no matter which manufacturer. For BACnet the IntesisBox range offers all the necessary BACnet objects to integrate the AC units into projects. Additional ranges are available on request.

FEATURES

- Automation, building management, hotel management, HAVC and many more
- Daikin Domestic Line S21 or Skyair/VAV Line via P1P2, Toshiba or Mitsubishi
- Integration of on/off, mode, set point, ambient temperature, fan speed, vanes, errors
- Integration of many extra points like number of hours, window status, remote lock, outside temperature

SPECIFICATION

Communication	BACnet MS/TP via RS-485 or IP via Ethernet, Modbus, RTU via RS-485, 8 data bits, no parity, 1 stop bit, 2k4, 4k8, 9k6 or 19k2bpd baud rate
Ambient	Temperature: 0 to +40°C RH: 5 to 95% RH non-condensing
Material	PC (UL94 V-0), light grey, RAL 7035
Dimensions	93 x 53 x 58mm
Weight	85g

Part code	Description
BACnet seVser gateways for Air Conditioners	
SC-DK-AC-BAC-1	AC Gateway Daikin Domestic line S21 - BACnet
SC-DK-RC-BAC-1	AC Gateway Daikin Skyair/VAV line P1P2 - BACnet
SC-TO-RC-BAC-1	AC Gateway Toshiba – BACnet
SC-ME-AC-BAC-1	AC Gateway Mitsubishi - BACnet
Modbus slave gateways for Air Conditioners	
SC-DK-AC-MBS-1	AC Gateway Daikin Domestic line S21 - Modbus
SC-DK-RC-MBS-1	AC Gateway Daikin Skyair/VAV line P1P2 - Modbus
SC-TO-RC-MBS-1	AC Gateway Toshiba – Modbus
SC-ME-AC-MBS-1	AC Gateway Mitsubishi - Modbus



Relative Humidity & Temperature Sensors

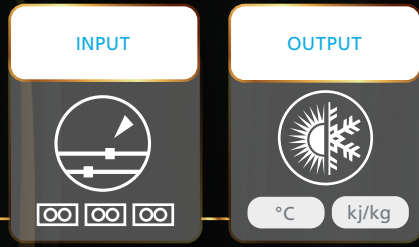
Of all the sensors available on the market, probably the most diverse are those for temperature. Relative Humidity is also a key control parameter in buildings, for comfort, fabric protection and energy efficiency.



RH&T Measurements

Basic psychrometry allows other key control values to be calculated, such as enthalpy in kg/kJ (an increasingly popular method of energy efficient close control), dewpoint in °C and absolute humidity in g/m³.

Sontay's RH&T sensors offer options to calculate and output these optional values.



BASIC TYPES

- SPACE MOUNT
- DUCT MOUNT
- WALL MOUNT
- OUTSIDE AIR

An LCD display is available on all temperature and humidity sensors. In either case, a range of passive options include set point, override switch and fan speed switch, with a third active output for either IAQ, CO or CO₂ (0-2000ppm or 0-5000ppm).

Custom temperature output ranges can be specified at the time of order, and there is an additional option for a direct, passive thermistor output too.

Many variations of sensors are available to suit applications such as space, outside air, duct & immersion.



Each sensor can be user-configured for 4-20mA output or 0-10Vdc output. An advanced ASIC design gives excellent accuracy, essential for good control and reliable data recording.



Passive options such as set point, can override switch and fan speed switch are available.



RH-S Space Relative Humidity and Temperature Sensor $\pm 3\%$

The RH-S uses the latest high accuracy RH & T elements, and offers options such as set point adjust & momentary switch, together with a multi-line backlit LCD display. It allows effective control strategies to improve indoor environments, save energy and protect building fabric from moisture and condensation. A 0-10Vdc override status input option is also available, allowing occupancy indication on the display. A valuable feature of this sensor is, when in 3-wire mode, it automatically detects the controller input type, 4-20mA or 0-10Vdc. This removes the requirement for output jumpers. 2-wire loop powered is selectable via a DIP switch. It also provides on-board LED indication for power up status and set output mode. The terminal blocks are pluggable and allow tool free installation (ferrules required).

FEATURES

- Slim design for room applications
- High stability and reliability
- Auto detection 0-10Vdc or 4-20mA outputs, loop powering via DIP
- Direct thermistor option available
- LCD display and user interface options
- Easy installation: Two part, push-in spring terminal blocks

SPACE SENSORS $\pm 3\%$



Part code	Description
RH-S	Space Mounted T and RH Sensor $\pm 3\%$
RH-S-EN	Space Mounted Enthalpy and Dewpoint Sensor

SPACE SENSORS $\pm 2\%$



Part code	Description
RH-S-AH	Space Mounted T and RH Sensor High Accuracy $\pm 2\%$

SPECIFICATION

Active outputs	0-10Vdc or 4-20mA (3-wire) self-detecting, 4-20mA (2-wire via DIP)
AH accuracy	$\pm 2\%$ (20 to 60% RH)
Dewpoint output ranges	-50 to 50°C
Enthalpy output ranges	-20 to +250kJ/kg
Environmental Housing	0 to 50°C, 0 to 95% RH non-condensing
Other accuracy	$\pm 3\%$ (20 to 60% RH)
Other options	PTC/NTC Element: Any Sontay resistive type
Override optional passive outputs	VFC
Power Supply	24Vac/dc $\pm 10\%$
RH output ranges	0 to 100%
Setpoint optional passive outputs	11-1k Ω /0-10k Ω . Linear
Temperature Accuracy	$\pm 0.5\%$ (20 to 40°C)
Temperature Output range	0 to 40°C as standard. Others available on request. Range of 0 to +50°C
Weight	180g

Notes:

1. **-T** version uses a thermistor element for direct measurement of temperature. Please specify thermistor type when ordering.
2. When using the **-x** option, they are not compensated for internal heating.
3. Please see pages 90-93 for Thermistor Types and Compatibility Chart.
4. **RH-S-EN** outputs only enthalpy and dewpoint values.
5. ****Plain Front**, no user interface options available (SP/MS/LCD)

Part code	Description
Suffixes (add to part code)	
-T*	Direct resistive temperature output
-SP	11-1k Ω /0-10k Ω set point
-MS	Momentary switch
-LCD	Integral LCD display
-TR	Custom temperature output range
-5V	0 - 5V option
-BLK**	Black space housing

Part code	Description
Accessories	
DECOR	Decorators trim plate
GASKET	Insulating gasket (pack of 10)

RH-S-UN

Space Relative Humidity Sensor



A valuable feature of this sensor is its ability to automatically detect what the controller input is set to, 4-20mA or 0-10Vdc. This removes the requirement for output jumpers that can be inadvertently set incorrectly. On board LED indication of which output type is in operation is provided. Also available with passive resistive output for temperature, along with other passive outputs.

FEATURES

- Auto-detection 0-10Vdc or 4-20mA output, 3-wire only
- Fully configurable LCD Display
- Resistive temperature output option
- No jumpers or DIP-switches to select output type
- Direct thermistor option available

SPACE SENSORS ±3%



SPECIFICATION

Accuracy (typical)	±3% (20 to 80% RH)
Active outputs	0-10Vdc or 4-20mA (3-wire) self-detecting
Environmental Housing	0 to 50°C, 0 to 95% non-condensing
Fanspeed	Resistive
Housing Dimensions	115 x 85 x 30mm
Housing Material	ABS (Flame retardant)
Output range	0 to 100% Relative humidity
Override optional passive outputs	VFC
Power Supply	24Vac/dc ±10%
Protection	IP30
PTC/NTC Element	Any Sontay Resistive type
Setpoint optional passive outputs	1-11kΩ
Weight	180g

Notes:

1. *-T version uses a thermistor element for direct measurement of temperature. Please specify thermistor type when ordering.
2. When using the -T option, they are not compensated for internal heating.
3. Please see pages 90-93 for Thermistor Types and Compatibility Chart.
4. *-T version uses a thermistor element for direct measurement of temperature. Please specify thermistor type when ordering.
5. **Plain Front, no user interface options available (SP/MS/LCD)

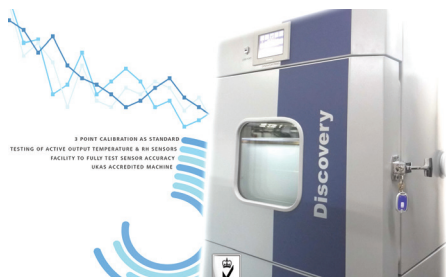
Part code	Description
RH-S-UN	Space Mounted RH Sensor

Part code	Description
Suffixes (add to part code)	
-T*	Direct resistive temperature output
-LCD	Integral LCD display
-MS	Momentary Switch
-SP	1-11kΩ set point
-BLK**	Black Space Housing

Part code	Description
Accessories	
DECOR	Decorators trim plate
GASKET	Insulating gasket (pack of 10)

RH-CAL

Calibration



Calibration is available for Sontay's RH range of sensors. Sontay can provide test certificates for 3-point calibration, with additional points if required.

Part code	Description
RH-CAL	3-Point RH Calibration at 30, 50 & 70% RH at 20°C



RH Duct Mounted RH & T Sensors

The RH-D range of humidity and temperature sensors offer the latest technology high precision and accuracy RH & T element. A valuable feature of this sensor is when in 3-wire mode it automatically detects the controller input type, 4-20mA or 0-10Vdc. This removes the requirement for output jumpers. 2-wire loop powering selectable via DIP switch. It also provides on-board LED indication for power up status and set output mode. The terminal blocks are pluggable and allow tool free installation (ferrules required). An optional multi-line backlit LCD display is available, along with a direct PTC/NTC sensing element.

DUCT SENSORS



Part code	Description
RH-D	Duct Mounted T and RH Sensor $\pm 3\%$
RH-D-AH	Duct Mounted T and RH Sensor High Accuracy $\pm 2\%$
RH-D-EN	Duct Mounted Enthalpy and Dewpoint Sensor

WALL SENSORS



Part code	Description
RH-W	Wall Mounted T and RH Sensor $\pm 3\%$
RH-W-AH	Wall Mounted T and RH Sensor $\pm 2\%$
RH-W-EN	Wall Mounted Enthalpy and Dewpoint Sensor

OUTSIDE



Part code	Description
RH-O	Outside Mounted T and RH Sensor $\pm 3\%$
RH-O-AH	Outside Mounted T and RH Sensor $\pm 2\%$
RH-O-EN	Outside Enthalpy & Dewpoint Transmitter

REMOTE



Part code	Description
RH-R	Remote Probe T and RH Sensor $\pm 3\%$
RH-R-AH	Remote Probe T and RH Sensor $\pm 2\%$
RH-R-EN	Remote Probe Enthalpy and Dewpoint Sensor

FEATURES

- Robust sensor enclosure
- Easy installation with LED indication, test button and autooutput mode detection (3-wire)
- Supports 2-wire loop powering or 3-wire installation
- Pluggable terminal blocks and tool free installation

SPECIFICATION

Active outputs	0-10Vdc or 4-20mA (3-wire) self-detecting, 4-20mA (2-wire via DIP)
AH accuracy	$\pm 2\%$ (20 to 80% RH)
Dewpoint output ranges	-50 to +50°C
Duct probe dimensions	240 x 20mm dia
Enthalpy output ranges	-20 to +250kJ/kg
Housing Dimensions	125 x 105 x 85mm
Material	PC/GF (Halogen Free Flame Retardant, UV Stabilized)
Other accuracy	$\pm 3\%$ (20 to 80% RH)
Passive temp. output	PTC/NTC Element: Any Sontay resistive
Power Supply	24Vac/dc $\pm 10\%$
RH output ranges	0 to 100%
Temperature Accuracy	$\pm 0.5^\circ\text{C}$ (20 to 40°C)
Temperature Output range	-20 to 50°C as standard, Others available on request
Wall probe dimensions	90 x 20mm dia
Weight	Duct: 240g Wall: 220g Outside: 1.16kg Remote probe: 230g

Notes:

1. * -T version uses a thermistor element for direct measurement of temperature. Please specify thermistor type when ordering.
2. Please see pages 85-88 for Thermistor Types and Compatibility Chart.
3. -EN versions only output enthalpy and dewpoint values.

Part code	Description
Suffixes (add to part code)	
-T *	Direct resistive temperature output
-TR	Custom temperature output range
-LCD	Integral LCD display
Accessory	
DPA	Duct probe adjustment flange (for RH-D only)

RH-x-UN Wall Mounted RH Sensor $\pm 3\%$

The RH-x-UN range offers a cost-effective single output for relative humidity measurement. These can also include a combination of familiar passive options such as temperature, set point adjustment, momentary switch and fan speed, plus an LCD display.

A unique feature of the sensor is its ability to automatically detect what sort of controller input it is connected to, 4-20mA or 0-10Vdc, removing the requirement for output jumpers which can be inadvertently set incorrectly. Just connect it to the controller input and it does the rest. PCB LED indication of which output type is in operation is provided, with diagnostic LED patterns for determining faults.

FEATURES

- Auto-detection 0-10Vdc or 4-20mA output, 3-wire only
- Fully configurable LCD Display
- Resistive temperature output option
- No jumpers or DIP-switches to select output type
- Direct thermistor option available

SPECIFICATION

Accuracy (typical)	$\pm 3\%$ (20 to 80% RH)
Active outputs	0-10Vdc or 4-20mA (3-wire) self-detecting
Duct probe dimensions	210 x 20mm dia.
Environmental Housing	-30 to 60°C, 0 to 95% RH non-condensing
Environmental Media	-10 to 50°C
Housing Dimensions	125 x 105 x 85mm
Material	PC/GF (Halogen Free Flame Retardant, UV stabilized)
Other protection	IP65
Output range	0 to 100% Relative Humidity
Passive temp. output	PTC/NTC Element: Any Sontay resistive
Power Supply	24Vac/dc $\pm 10\%$
Shield dimensions	200 x 118mm dia.
Wall probe dimensions	90 x 20mm dia.
Wall protection	IP54
Weight	Duct: 240g
	Wall: 220g
	Outside: 1.16kg

Notes:

1. * -T version uses a thermistor element for direct measurement of temperature. Please specify thermistor type when ordering.
2. Please see pages 90-93 for Thermistor Types and Compatibility Chart.

Part code	Description
Suffixes (add to part code)	
-T *	Direct resistive temperature output
-LCD	Integral LCD display
Accessory	
DPA	Duct probe adjustment flange (for RH-D-UN only)

DUCT SENSORS



Part code	Description
RH-D-UN	Duct Mounted RH Sensor $\pm 3\%$

WALL SENSORS



Part code	Description
RH-W-UN	Wall Mounted RH Sensor $\pm 3\%$

OUTSIDE



Part code	Description
RH-O-UN	Outside Mounted RH Sensor $\pm 3\%$

RH-SH

Humidistats



The RH-SH range of humidistats are designed for wall or ductmounts for the ON/OFF control of humidification and dehumidification equipment, or the initiation of alarms or override controls. High quality sensing elements ensure accurate measurement and switching differential.

FEATURES

- Concealed or exposed set point adjustment
- Suitable for swimming pool environments

SPECIFICATION

Case construction	ABS
Differential	4% RH
Duct switch rating	15(2)A @ 24 to 250Vac
Operating Range	30-100% RH
Probe Dimensions	225 x 19mm dia.
Protection	RH-SH-xD IP65
Room switch rating	2A @ 250Vac
Weight	300g max.

Part code	Description
Room Humidistats	
RH-SH-1R	Single-stage, concealed set point adjust.
RH-SH-1RE	Single-stage, exposed set point adjust.
Duct Humidistats	
RH-SH-1D	Single-stage, concealed set point adjust.
RH-SH-1DE	Single-stage, exposed set point adjust.

ST

General Purpose Thermostats



SPECIFICATION

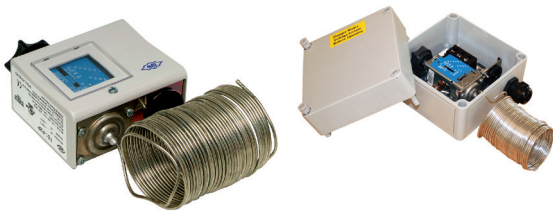
Ambient relative humidity	0 to 95% non-condensing
Ambient Temperature Range	-35 to +65°C
Capillary length (ST-C)	1.5m
Capillary weight	340g
Duct probe (ST-D)	
Duct weight	700g
Housing Material	ABS (flame resistant)
Immersion pocket dimensions (ST-I)	130mm thread 1/2" BSP
Immersion pocket material (ST-I)	Stainless Steel
Immersion weight	580g
Protection	IP43
Sensing element	Liquid filled copper element
Switch rating	24 to 250Vac @ 16(4)A

Sontay's range of thermostats are well suited for a number of applications of temperature control or safety cut-out in pipe work systems, calorifiers, duct work systems, green houses and many other installations. They all have the set-point adjustment under the cover to prevent unauthorised tampering.

FEATURES

- Robust housing
- Immersion sensors supplied with pocket
- Ideal for many applications
- Volt free contacts
- Concealed adjustment

Part code	Description
Capillary	
ST-C-01M	50 to 140°C Manual Reset
Duct	
ST-D-01A	-35 to +35°C Auto Reset
ST-D-02A	0 to 90°C Auto Reset
ST-D-03A	-30 to +30°C Auto Reset
ST-D-04M	0 to +90°C Manual Reset
Immersion	
ST-I-01A	0 to 120°C Auto Reset
ST-I-02M	0 to 110°C Manual Reset
ST-I-03M	20 to 90°C Manual Reset
Wall	
ST-W-01A	-30 to +30°C Auto Reset
Strap-on	
ST-S-02A	0 to 90°C Auto Reset
Accessory	
ST-IMM-PKT	Replacement stainless steel pocket (ST-I range only)

ST-FRE
Capillary Frost Thermostats


The ST-FRE range of frost thermostats provide a switch output based on the average temperature detected along a two or six metre capillary sensor. A common application is for frost protection on fresh air intakes or airconditioning systems, to prevent the icing up of filters, fans and coils. The capillary is fixed in a matrix across the duct, in a position downstream of the pre-heater or frost coil.

FEATURES

- Easy adjustment of set point
- Setting indicator
- IP65 option

Part code	Description
Accessories	
ST-DFK	Pack of six additional plastic capillary fixing clips
BRK	Mounting bracket for ST-FREx

SPECIFICATION

Ambient Range	50°C max.
Contact Configuration	SPST open-on-rise
Housing Material	ABS V0
Operating Voltage	200/240Vac @50/60Hz
Protection	IP20
Sensor system	Bi-metallic
Switching current	250Vac @ 10(2)A
Switching Differential	<1°K
Temperature Range	5 to 35°C
Weight	220g

Note: All these thermostats include metal capillary fixing clips as standard.

Part code	Description
ST-FRE-1	Auto reset, 6m capillary, Frost Thermostat
ST-FRE-1-IP65	Auto reset, 6m capillary, Frost Thermostat
ST-FRE-2	Manual reset, 6m capillary, Frost Thermostat
ST-FRE-2-IP65	Manual reset, 6m capillary, Frost Thermostat
ST-FRE-3	Auto reset, 2m capillary, Frost Thermostat
ST-FRE-3-IP65	Auto reset, 2m capillary, Frost Thermostat
ST-FRE-4	Manual reset, 2m capillary, Frost Thermostat
ST-FRE-4-IP65	Manual reset, 2m capillary, Frost Thermostat

ST-TY
Space Thermostats


The ST-TY series of wall mounting space thermostats are suitable for heating and/or cooling and frost protection applications.

FEATURES

- Tamperproof option
- Bi-metallic switch mechanism for reliability

HEATING STAT SPECIFICATION – ST-TY92-C1

Contact configuration	SPST open-on-rise
Temperature range	5 to 35°C
Switching current:	250Vac @ 10(2)A

FROST STAT SPECIFICATION – ST-TY92-C1F

Contact configuration	SPST open-on-rise
Temperature range	-5 to +15°C
Switching current	250Vac @ 10(2)A

HEATING OR COOLING STAT SPECIFICATION – ST-TY92-C3T & ST-TY92-C3

Contact configuration	SPDT
Temperature range	5 to 35°C
Switching current	250Vac @ 3(1)A

COMMON SPECIFICATION

Operating voltage	220/240Vac @ 50/60Hz
Switching differential	<1°K
Sensor system	Bi-metallic
Housing material	ABS V0
Ambient range	50°C max.
Protection	IP20
Dimensions	ST-TY92-C3T 78 x 78 x 36mm max. Others: 82 x 82 x 32mm max.
Weights	ST-TY92-C3T 120g,

Part code	Description	Range
ST-TY92-C1	Heating Thermostat	5 to 35°C
ST-TY92-C1F	Frost Thermostat	-5 to +15°C
ST-TY92-C3	Heating or Cooling Thermostat	5 to 35°C
ST-TY92-C3T	Heating or Cooling Tamperproof	5 to 35°C

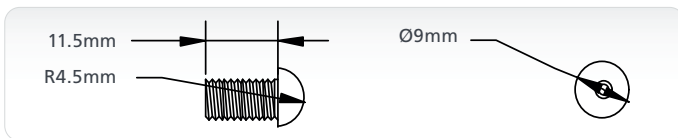
TT-512

Low Profile Temperature Sensors



The TT-512 range of low profile button temperature sensors are used for measuring air temperature in indoor space where style or a robust solution is required. Their discreet appearance offers reliable temperature monitoring without being obtrusive.

These sensors are particularly effective in applications where anti-ligature sensors are required for the safety of the building occupants. Due to the robust design and materials, the sensors are also tamperproof. They are available in either white plastic or stainless steel finishes and contain either a high quality Thermistor, Platinum or Nickel sensing element.



SPECIFICATION

Cable Dimensions	2 or 5 meters
Environmental Housing	-10 to +60°C, 0 to 95% RH non-condensing
Material	Black plastic
Mounting	M6, Nut supplied
Output Type	Resistive
Protection	IP20
Weight	8g

Part code			Description
Stainless Steel	White Plastic	Black Plastic	
TT-512-SS-A	TT-512-WP-A	TT-512-BLK-A	10K3A1, Trend, Cylon, Distech, Heatmiser
TT-512-SS-B	TT-512-WP-B	TT-512-BLK-B	10K4A1, Andover, Delta Controls
TT-512-SS-C	TT-512-WP-C	TT-512-BLK-C	20K6A1, Honeywell
TT-512-SS-D	TT-512-WP-D	TT-512-BLK-D	PT100A, Serck
TT-512-SS-E	TT-512-WP-E	TT-512-BLK-E	PT1000A, Cylon
TT-512-SS-F	TT-512-WP-F	TT-512-BLK-F	Ni1000A, Sauter
TT-512-SS-G	TT-512-WP-G	TT-512-BLK-G	Ni1000A/TCR (LAN1), Siemens
TT-512-SS-L	TT-512-WP-L	TT-512-BLK-L	TAC1, TAC
TT-512-SS-M	TT-512-WP-M	TT-512-BLK-M	2.2K3A1, Johnson Controls
TT-512-SS-N	TT-512-WP-N	TT-512-BLK-N	3K3A1, Alerton
TT-512-SS-P	TT-512-WP-P	TT-512-BLK-P	30K6A1, Drayton
TT-512-SS-Q	TT-512-WP-Q	TT-512-BLK-Q	50K6A1
TT-512-SS-Z	TT-512-WP-Z	TT-512-BLK-Z	10K NTC, Carel

Suffix (add to part code)

-5M	5m probe length
-LSZH	Low Smoke Zero Halogen option



TT-515

Low Profile Plate Sensors



The TT-515 range of low profile plate sensors are used for measuring air temperature in indoor space where style or a robust solution is required. Their discreet appearance offers reliable temperature monitoring without being obtrusive.

These sensors are particularly effective in applications where anti-ligature sensors are required for the safety of the building occupants. Due to the robust design and materials, the sensors are also tamperproof. They are available in either white plastic or stainless steel finishes and contain either a high quality Thermistor, Platinum or Nickel sensing element. Sensor types compatible with most controls manufacturers' equipment are available.

FEATURES

- Anti-ligature & tamperproof
- Wide range of sensing element types
- White plastic or stainless steel finishes
- Discreet temperature measurement
- For direct mounting onto a standard UK back box

SPECIFICATION

Ambient housing range	-10 to +60°C, 0 to 95% RH non-condensing
Housing Dimensions	85 x 85mm
Housing Material	Stainless Steel
Mounting	Flush, to standard UK wall box
Output Type	Resistive
Protection	IP20
Weight	220g

Part code		Description
Stainless Steel	White Plastic	
TT-515-SS-A	TT-515-WP-A	10K3A1, Trend, Cylon, Distech, Heatmiser
TT-515-SS-B	TT-515-WP-B	10K4A1, Andover, Delta Controls
TT-515-SS-C	TT-515-WP-C	20K6A1, Honeywell
TT-515-SS-D	TT-515-WP-D	PT100A, Serck
TT-515-SS-E	TT-515-WP-E	PT1000A, Cylon
TT-515-SS-F	TT-515-WP-F	Ni1000A, Sauter
TT-515-SS-G	TT-515-WP-G	Ni1000A/TCR (LAN1), Siemens
TT-515-SS-H	TT-515-WP-H	SAT1, Satchwell
TT-515-SS-K	TT-515-WP-K	STA1, Landis & Staefa
TT-515-SS-L	TT-515-WP-L	TAC1, TAC
TT-515-SS-M	TT-515-WP-M	2.2K3A1, Johnson Controls
TT-515-SS-N	TT-515-WP-N	3K3A1, Alerton
TT-515-SS-P	TT-515-WP-P	30K6A1, Drayton
TT-515-SS-Q	TT-515-WP-Q	50K6A1
TT-515-SS-R	TT-515-WP-R	100K6A1, York >40°C
TT-515-SS-S	TT-515-WP-S	SAT2, Satchwell
TT-515-SS-T	TT-515-WP-T	SAT3, Satchwell
TT-515-SS-W	TT-515-WP-W	SIE1, Siebe
TT-515-SS-Y	TT-515-WP-Y	STA2, Landis & Staefa
TT-515-SS-Z	TT-515-WP-Z	10K NTC, Carel





The TT-518 range of thimble temperature sensors are used for measuring air temperature in indoor spaces. They are available in various finishes, plastic, aluminium, stainless steel and brass. Units contain either a high quality thermistor, Platinum or Nickel sensing element. Sensor types compatible with most controls manufacturers' equipment are available.

FEATURES

- Wide range of sensing element types
- 2m Screened flying lead as standard
- Plastic, aluminium, brass and stainless steel finishes
- Discreet temperature measurement



Note for ALL sensors with CVO output options:
The stated ambient range overrides any CVO output details.

SPECIFICATION

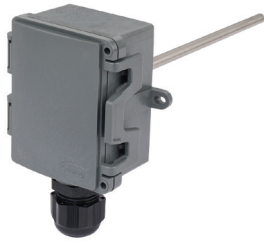
Ambient housing range	-10 to +60°C, 0 to 95% RH, non-condensing
Current Output	4 to 20mA
Metal dimensions	30mm overall x 19mm dia.
Other thread	m16 x 1.5 x 12mm
Passive output types	Resistive
Plastic dimensions	45mm overall x 22mm dia.
Plastic thread	M16 x 1.5 x 25mm
Protection	IP30
Voltage output types	0-10Vdc
Weight	8g

Part code	Description
Passive Output	
TT-518-A	10K3A1, Trend, Cylon, Distech, Heatmiser
TT-518-B	10K4A1, Andover, Delta Controls
TT-518-C	20K6A1, Honeywell
TT-518-D	PT100A, Serck
TT-518-E	PT1000A, Cylon
TT-518-F	Ni1000A, Sauter
TT-518-G	Ni1000A/TCR (LAN1), Siemens
TT-518-H	SAT1, Satchwell
TT-518-K	STA1, Landis & Staefa
TT-518-L	TAC1, TAC
TT-518-M	2.2K3A1, Johnson Controls
TT-518-N	3K3A1, Alerton
TT-518-P	30K6A1, Drayton
TT-518-Q	50K6A1
TT-518-S	SAT2, Satchwell
TT-518-T	SAT3, Satchwell
TT-518-W	SIE1, Siebe
TT-518-Y	STA2, Landis & Staefa
TT-518-Z	10K NTC, Carel
Active Output	
TT-518-CVO	<i>Selectable:</i> 4-20mA/0-10Vdc * <i>Output ranges:</i> -10 to +40°C or -10 to +110°C (selectable)
TT-518-CVO-C	<i>Selectable:</i> 4-20mA/0-10Vdc (custom temp, scaling) *, Scaled to customer specification in the range of -10 to +60°C
Suffixes (add to part code)	
-AL	Aluminium thimble
-SS	Stainless steel thimble
-BLK	Black Thimble
-BR	Brass thimble
-5M	5m cable length
-LSZH	Low Smoke Zero Halogen option



TT-D

Duct Temperature Sensors



The TT-D are used to measure air temperature in ducts. The sensing element is fitted into a stainless steel probe. A flange plate is available for adjustment of penetration depth (order as TT-DFP).

Part code	Description
Passive Output	
TT-D-A	10K3A1, Trend, Cylon, Distech
TT-D-B	10K4A1, Andover, Delta Controls
TT-D-C	20K6A1, Honeywell
TT-D-D	PT100A, Serck
TT-D-E	PT1000A, Cylon
TT-D-F	Ni1000A, Sauter
TT-D-G	Ni1000A/TCR (LAN1), Siemens
TT-D-H	SAT1, Satchwell
TT-D-K	STA1, Landis & Staefa
TT-D-L	TAC1, TAC
TT-D-M	2.2K3A1, Johnson Controls
TT-D-N	3K3A1, Alerton
TT-D-P	30K6A1, Drayton
TT-D-Q	50K6A1

SPECIFICATION

Current Output	4 to 20mA
Environmental Housing	-30 to +70°C, 0 to 95% RH non-condensing
Environmental Media	-10 to +100°C
Housing Dimensions	80 x 79 x 44mm
Housing Material	PC/GF (Halogen Free Flame Retardant, UV stabilized)
Passive output types	Resistive
Probe Dimensions	65, 150 or 250mm x 6mm dia.
Probe Material	Stainless steel 304
Protection	IP65
Voltage output types	0 to 10Vdc
Weight	160g

Part code	Description
Passive Output	
TT-D-R	100K6A1, York >40°C
TT-D-S	SAT2, Satchwell
TT-D-T	SAT3, Satchwell
TT-D-W	SIE1, Siebe
TT-D-Y	STA2, Landis & Staefa
TT-D-Z	10K NTC, Carel
Active Output	
TT-D-CVO	Selectable: 4-20mA/0-10Vdc Output ranges: -10 to +40°C or -10 to +110°C (selectable)
TT-D-CVO-C	Selectable: 4-20mA/0-10Vdc (custom temp. scaling), Scaled to customer specification in the range of -10 to +100°C
Suffixes (add to part code)	
-65	65mm Probe length
-250	250mm Probe length
Accessory	
TT-DFP	Duct flange plate

TT-DA

Duct Averaging Temperature Sensors



The TT-DA temperature sensors are used for measuring temperature in ducts where an average reading across the air flow is required. Sensing elements are housed in a nylon tube, and spaced at intervals along the standard 2.2m length.

Part code	Description
Passive Output	
TT-DA-A	10K3A1, Trend, Cylon, Distech
TT-DA-B	10K4A1, Andover, Delta Control
TT-DA-C	20K6A1, Honeywell
TT-DA-D	PT100A, Serck
TT-DA-E	PT1000A, Cylon
TT-DA-F	Ni1000A, Sauter
TT-DA-G	Ni1000A/TCR (LAN1), Siemens
TT-DA-H	SAT1, Satchwell
TT-DA-K	STA1, Landis & Staefa
TT-DA-L	TAC1, TAC
TT-DA-M	2.2K3A1, Johnson Controls
TT-DA-N	3K3A1, Alerton

SPECIFICATION

Output types	Passive: Resistive, Current: 4 to 20mA, Voltage: 0 to 10Vdc
Probe	Material: Nylon 12 Dimensions: 2.2m x 8mm dia.
Housing	Material: PC/GF (Halogen Free Flame Retardant, UV stabilized) Dimensions: 80 x 79 x 44mm
Environmental	Housing -30 to +70°C, 0 to 95% RH, non-condensing Media -10 to +100°C
Protection	IP65
Weight	220g

Part code	Description
Passive Output	
TT-DA-P	30K6A1, Drayton
TT-DA-Q	50K6A1
TT-DA-R	100K6A1, York >40°C
TT-DA-S	SAT2, Satchwell
TT-DA-T	SAT3, Satchwell
TT-DA-W	SIE1, Siebe
TT-DA-Y	STA2, Landis & Staefa
TT-DA-Z	10K NTC, Carel
Active Output	
TT-DA-CVO	Selectable: 4-20mA/0-10Vdc Output ranges: -10 to +40°C or -10 to +110°C – selectable
TT-DA-CVO-C	Selectable: 4-20mA/0-10Vdc (custom temp. scaling), Scaled to customer specification in the range of -10 to +100°C
Suffix (add to part code)	
-5M	5m probe length

TT-TDA True Duct Averaging Temperature Sensors



Sontay's true duct averaging sensor contains a PT100B element, which measures at point along the full length of the copper tube.

SPECIFICATION

Current Output	4 to 20mA
Environmental Housing	-30 to +70°C, 0 to 95% RH non-condensing
Environmental Media	-10 to +100°C
Housing Dimensions	125 x 165 x 85mm
Housing Material	PC/GF (Halogen Free Flame Retardant, UV Stabilized)
Probe Dimensions	2050mm (50mm collar x 1/4" dia)
Probe Material	Copper
Protection	IP65
PT100B output types	Resistive output type
Voltage output types	0 to 10Vdc
Weight	420g

Part code	Description
Passive Output	
TT-DTA-PT100B	PT100B Thermistor Output
Active Output	
TT-DTA-CVO	Selectable: 4-20mA/0-10Vdc Output ranges: -10 to +40°C or -10 to +110°C (selectable)
TT-DTA-CVO-C	Selectable: 4-20mA/0-10Vdc (custom temp. scaling), Scaled to customer specification in the range of -10 to +100°C

TT-O Outside Air Temperature Sensors



The TT-O range are use for measuring outside air temperature. The sensors are housed in IP65 rated enclosures. The TT-O should always be situated in a sheltered position on a north facing wall.

FEATURES

- Weatherproof Housing
- Wide range of sensing element types
- Hinged lid with the facility of tamper proofing

SPECIFICATION

Current Output	4 to 20mA
Environmental Housing	-30 to +70°C, 0 to 95% RH non-condensing
Environmental Media	-30 to +100°C
Housing Material	PC/GF (Halogen Free Flame Retardant, UV Stabilized)
Passive output types	Resistive
Protection	IP65
Voltage output types	0 to 10Vdc
Weight	160g

Note: A calibration certificate is available on CVO Types see page 79.

Part code	Description
Passive Output	
TT-O-N	3K3A1, Alerton
TT-O-P	30K6A1, Drayton
TT-O-Q	50K6A1
Passive Output	
TT-O-R	100K6A1, York >40°C
TT-O-S	SAT2, Satchwell
TT-O-T	SAT3, Satchwell
TT-O-V	SAT4, Satchwell
TT-O-W	SIE1, Siebe
TT-O-Y	STA2, Landis & Staefa
TT-O-Z	10K NTC, Carel
Active Output	
TT-O-CVO	Selectable: 4-20mA/0-10Vdc Output ranges: -10 to +40°C or -10 to +110°C – selectable
TT-O-CVO-C	Selectable: 4-20mA/0-10Vdc (custom temp.), Scaled to customer specification in the range of -10 to +100°C

Part code	Description
Passive Output	
TT-O-A	10K3A1, Trend, Cylon, Distech
TT-O-B	10K4A1, Andover, Delta Controls
TT-O-C	20K6A1, Honeywell
TT-O-D	PT100A, Serck
TT-O-E	PT1000A, Cylon
TT-O-F	Ni1000A, Sauter
TT-O-G	Ni1000A/TCR (LAN1), Siemens
TT-O-H	SAT1, Satchwell
TT-O-K	STA1, Landis & Staefa
TT-O-L	TAC1, TAC
TT-O-M	2.2K3A1, Johnson Controls

TT-OR

Outside Air Temperature Sensors with Radiation Shield



The TT-OR has the element fitted into a PTFE radiation shield, designed to provide fast response times to changes in outside air temperature and to protect the element from the effects of direct sunlight.

Part code	Description
Passive Output	
TT-OR-A	10K3A1, Trend, Cylon, Distech
TT-OR-B	10K4A1, Andover, Delta Controls
TT-OR-C	20K6A1, Honeywell
TT-OR-D	PT100A, Serck
TT-OR-E	PT1000A, Cylon
TT-OR-F	Ni1000A, Sauter
TT-OR-G	Ni1000A/TCR (LAN1), Siemens
TT-OR-H	SAT1, Satchwell
TT-OR-K	STA1, Landis & Staefa
TT-OR-L	TAC1, TAC

SPECIFICATION

Current Output	4 to 20mA
Environmental Housing	-30 to +70°C, 0 to 95% RH non-condensing
Environmental Media	-30 to +100°C
Housing Material	PC/GF (Halogen Free Flame Retardant, UV Stabilized)
Passive output types	Resistive
Protection	IP65
Voltage output types	0 to 10Vdc
Weight	160g

Part code	Description
Passive Output	
TT-OR-M	2.2K3A1, Johnson Controls
TT-OR-N	3K3A1, Alerton
TT-OR-P	30K6A1, Drayton
TT-OR-Q	50K6A1
TT-OR-R	100K6A1, York >40°C
TT-OR-S	SAT2, Satchwell
TT-OR-T	SAT3, Satchwell
TT-OR-V	SAT4, Satchwell
TT-OR-W	SIE1, Siebe
TT-OR-Y	STA2, Landis & Staefa
TT-OR-Z	10K NTC, Carel
Active Output	
TT-OR-CVO	Selectable: 4-20mA/0-10Vdc Output ranges: -10 to +40°C or -10 to +110°C – selectable
TT-OR-CVO-C	Selectable: 4-20mA/0-10Vdc (custom temp. scaling), Scaled to customer specification in the range of -10 to +100°C

TT-I

Immersion Temperature Sensors



Immersion sensors are used for measuring the temperature of liquids in pipework. The sensing element is housed in a stainless steel probe fitted to an IP65 rated enclosure, for direct mounting into TT-PO-521 or TT-PO-HP range of stainless steel pockets.

Part code	Description
Passive Output	
TT-I-A	10K3A1, Trend, Cylon, Distech
TT-I-B	10K4A1, Andover, Delta Controls
TT-I-C	20K6A1, Honeywell
TT-I-D	PT100A, Serck
TT-I-E	PT1000A, Cylon
TT-I-F	Ni1000A, Sauter
TT-I-G	Ni1000A/TCR (LAN1), Siemens
TT-I-H	SAT1, Satchwell
TT-I-L	TAC1, TAC
TT-I-M	2.2K3A1, Johnson Controls
TT-I-N	3K3A1, Alerton
TT-I-P	30K6A1, Drayton
TT-I-Q	50K6A1
TT-I-R	100K6A1, York >40°C

SPECIFICATION

Current Output	4 to 20mA
Environmental Housing	-30 to +70°C, 0 to 95% RH non-condensing
Environmental Media	-30 to +100°C
Housing Material	PC/GF (Halogen Free Flame Retardant, UV Stabilized)
Passive output types	Resistive
Probe Dimensions	65, 150 or 250mm x 6mm dia.
Probe Material	Stainless Steel 304
Protection	IP65
Voltage output types	0 to 10Vdc
Weight	160g

Part code	Description
Passive Output	
TT-I-S	SAT2, Satchwell
TT-I-T	SAT3, Satchwell
TT-I-W	SIE1, Siebe
TT-I-Y	STA2, Landis & Staefa
TT-I-Z	10K NTC, Carel
Active Output	
TT-I-CVO	Selectable: 4-20mA/0-10Vdc Output ranges: -10 to +40°C or -10 to +110°C – selectable
TT-I-CVO-C	Selectable: 4-20mA/0-10Vdc (custom temp. scaling), Scaled to customer specification in the range of -10 to +100°C
Suffixes (add to part code)	
-65	65mm probe length
-100	100mm probe length
-250	250mm probe length

TT-IH High Temperature Immersion Sensors



The TT-IH is for use in high temperature applications up to 400°C. The sensor consists of a stainless steel probe fitted to an aluminium head, and connected by a 1 m cable to a plant housing where terminations and transmitters are located. The TT-IH is available in two standard probe lengths of 150 mm or 250 mm, for direct mounting into the TT-PO-521 or TT-PO-HP range of stainless steel pockets.

SPECIFICATION

Current Output	4 to 20mA
Environmental Housing	-30 to +70°C, 0 to 95% RH non-condensing
Environmental Media	-30 to +100°C
Housing Material	PC/GF (Halogen Free Flame Retardant, UV Stabilized)
Passive output types	Resistive
Probe Dimensions	65, 150 or 250mm x 6mm dia.
Probe Material	Stainless Steel 304
Protection	IP65
Voltage output types	0 to 10Vdc
Weight	160g

Note: A calibration certificate is available on CVO Types see page 79.

Part code	Description
Active Output (150mm Probe)	
TT-IH-CVO	Selectable: 4-20mA/0-10Vdc Output ranges: -10 to +40°C, -10 to +110°C, -10 to +160°C or 0 to 400°C – selectable
TT-IH-CVO-C	Selectable: 4-20mA/0-10Vdc (custom temp. scaling), Scaled to customer specification in the range of -10 to +400°C
Suffix (add to part code)	
-250	250mm probe length
Accessory	
TT-DFP	Duct flange plate

Part code	Description
Passive Output (150mm Probe)	
TT-IH-D	PT100A Sensor
TT-IH-E	PT1000A Sensor

TT-C Clamp On Temperature Sensors



The TT-C range of temperature strap-on sensors are used on pipe work systems to detect liquid temperature where fitting an immersion sensor is not practical. The sensor is housed in a 50mm long probe with two metres of PTFE 2-core cable as standard connecting the probe to an IP65 housing for termination. Units contain either a high quality thermistor, Nickel or Platinum sensing element.

SPECIFICATION

Cable Dimensions	2 meters
Current Output	4 to 20mA
Environmental Housing	-30 to +70°C, 0 to 95% RH non-condensing
Environmental Media	-30 to +100°C
Housing Material	PC/GF (Halogen Free Flame Retardant, UV Stabilized)
Passive output types	Resistive
Protection	IP65
Voltage output types	0 to 10Vdc
Weight	200g

Part code	Description
Passive Output	
TT-C-A	10K3A1, Trend, Cylon, Distech
TT-C-B	10K4A1, Andover, Delta Controls
TT-C-C	20K6A1, Honeywell
TT-C-D	PT100A, Serck
TT-C-E	PT1000A, Cylon
TT-C-F	Ni1000A, Sauter
TT-C-G	Ni1000A/TCR (LAN1), Siemens
TT-C-H	SAT1, Satchwell
TT-C-L	TAC1, TAC
TT-C-M	2.2K3A1, Johnson Controls
TT-C-N	3K3A1, Alerton
TT-C-P	30K6A1, Drayton
TT-C-Q	50K6A1
TT-C-R	100K6A1, York >40°C
TT-C-S	SAT2, Satchwell

Part code	Description
Passive Output	
TT-C-T	SAT3, Satchwell
TT-C-W	SIE1, Siebe
TT-C-Y	STA2, Landis & Staefa, Distech
TT-C-Z	10K NTC, Carel
Active Output	
TT-C-CVO	Selectable: 4-20mA/0-10Vdc Output ranges: -10 to +40°C or -10 to +110°C (selectable)
TT-C-CVO-C	Selectable: 4-20mA/0-10Vdc (custom temp. scaling), Scaled to customer specification in the range of -10 to +100°C
Suffix (add to part code)	
-5M	5m cable length
Accessory	
BAND	Additional Metal Band

TT-554

Remote Probe Sensors



The TT-554 range of remote probe temperature sensors are perfect for tight locations, hard to access areas or for applications where the usual duct (TT-D) or immersion (TT-I) sensor will not fit. A 150mm probe is used with either the TT-PO-521 or TT-DFP duct flange plate. Units contain either a high quality thermistor, Platinum or Nickel sensing element. Sensor types compatible with most controls manufacturers' equipment are available.

Part code	Description
Passive Output	
TT-554-A	10K3A1, Trend, Cylon, Distech
TT-554-B	10K4A1, Andover, Delta Controls
TT-554-C	20K6A1, Honeywell
TT-554-D	PT100A, Serck
TT-554-E	PT1000A, Cylon
TT-554-F	Ni1000A, Sauter
TT-554-G	Ni1000A/TCR (LAN1), Siemens
TT-554-L	TAC1, TAC
TT-554-M	2.2K3A1, Johnson Controls
TT-554-P	30K6A1, Drayton
TT-554-Z	10K NTC, Carel

SPECIFICATION

Current Output	4 to 20mA
Environmental Housing	-10 to +60°C, 0 to 95% RH non-condensing
Environmental Media	-30 to +100°C
Lead Length	2 meters (5 meter option)
Passive output types	Resistive
Probe Dimensions	150 x 6mm
Probe Material	Stainless steel
Protection	IP65
Voltage output types	0 to 10Vdc
Weight	125g

Part code	Description
Active Output	
TT-554-CVO	Selectable: 4-20mA/0-10Vdc Output ranges: -10 to +40°C or -10 to +110°C (selectable)
TT-554-CVO-C	Selectable: 4-20mA/0-10Vdc (custom temp. scaling) *, Scaled to customer specification in the range of -10 to +100°C
Suffix (add to part code)	
-5M	5 meter cable length
-65	65 mm probe length
-250	250 mm probe length
-LSZH	Low Smoke Zero Halogen option
Accessories	
TT-DFP	Duct flange plate
TT-PO-521	Stainless steel immersion pocket

Notes: Custom lengths available.

- * These units are supplied with the transmitter in the plant housing.
- A calibration certificate is available on CVO Types see page 79.

TT-555

Flying Lead Temperature Sensors



The flying lead range of temperature sensors are designed to measure air temperature in small duct spaces such as VAV boxes, fan coil units or other restricted spaces. The standard cable length is two metres of 2-core screened cable with a 5 meter option. Longer lengths can be made to order (at extra cost). Units contain either a high quality thermistor, Nickel or Platinum sensing element.

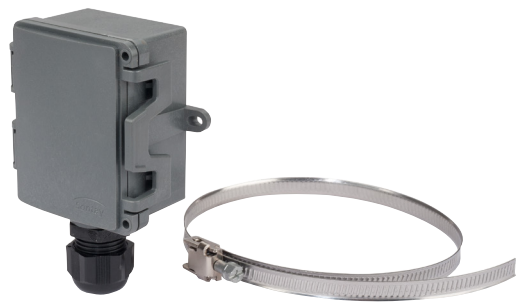
Part code	Description
Passive Output	
TT-555-A	10K3A1, Trend, Cylon, Distech
TT-555-B	10K4A1, Andover, Delta Controls
TT-555-C	20K6A1, Honeywell
TT-555-D	PT100A, Serck
TT-555-E	PT1000A, Cylon
TT-555-F	Ni1000A, Sauter
TT-555-G	Ni1000A/TCR (LAN1), Siemens
TT-555-H	SAT1, Satchwell
TT-555-K	STA1, Landis & Staefa
TT-555-L	TAC1, TAC
TT-555-M	2.2K3A1, Johnson Controls
TT-555-N	3K3A1, Alerton

SPECIFICATION

Current Output	4 to 20mA
Environmental Housing	-10 to +60°C, 0 to 95% RH non-condensing
Environmental Media	-10 to +60°C
Passive output types	Resistive
Probe Dimensions	25 x 6mm dia.
Probe Material	Stainless steel
Protection	IP40 (with-R option at IP68)
Voltage output types	0 to 10Vdc
Weight	80g

Part code	Description
Passive Output	
TT-555-P	30K6A1, Drayton
TT-555-Q	50K6A1
TT-555-R	100K6A1, York >40°C
TT-555-S	SAT2, Satchwell
TT-555-T	SAT3, Satchwell
TT-555-W	SIE1, Siebe
TT-555-Y	STA2, Landis & Staefa
TT-555-Z	10K NTC, Carel
Active Output	
TT-555-CVO	Selectable: 4-20mA/0-10Vdc * Output ranges: -10 to +40°C or -10 to +110°C (selectable)
TT-555-CVO-C	Selectable: 4-20mA/0-10Vdc (custom temp. scaling) *, Calibration to customer specification in the range of -10 to +60°C
Suffixes (add to part code)	
-5M	5m cable length
-LSZH	Low Smoke Zero Halogen option
-R	Cap potted (waterproof)

TT-CD Direct Clamp-On Temperature Sensors



The TT-CD clamp-on sensor is used for direct connection to measure pipe temperature. The sensing element is enclosed in a moulded nickel contact bar on the underside of the main housing. Units contain either a high quality thermistor, Nickel or Platinum sensing element.

Part code	Description
Passive Output	
TT-CD-A	10K3A1, Trend, Cylon, Distech
TT-CD-B	10K4A1, Andover, Delta Control
TT-CD-C	20K6A1, Honeywell
TT-CD-D	PT100A, Serck
TT-CD-E	PT1000A, Cylon
TT-CD-F	Ni1000A, Sauter
TT-CD-G	Ni1000A/TCR (LAN1), Siemens
TT-CD-H	SAT1, Satchwell
TT-CD-L	TAC1, TAC
TT-CD-M	2.2K3A1, Johnson Controls

SPECIFICATION	
Current Output	4 to 20mA
Environmental Housing	-30 to +70°C, 0 to 95% RH non-condensing
Environmental Media	-30 to +100°C
Housing Dimensions	80 x 79 x 44mm
Housing Material	PC/GF (Halogen Free Flame Retardant, UV Stabilized)
Passive output types	Resistive
Protection	IP65
Voltage output types	0 to 10Vdc
Weight	180g

Note: A calibration certificate is available on CVO Types see page 79.

Part code	Description
Passive Output	
TT-CD-N	3K3A1, Alerton
TT-CD-P	30K6A1, Drayton
TT-CD-Q	50K6A1
TT-CD-R	100K6A1, York >40°C
TT-CD-S	SAT2, Satchwell
TT-CD-T	SAT3, Satchwell
TT-CD-W	SIE1, Siebe
TT-CD-Y	STA2, Landis & Staefa
TT-CD-Z	10K NTC, Carel
Active Output	
TT-CD-CVO	Selectable: 4-20mA/0-10Vdc Output ranges: -10 to +40°C or -10 to +110°C (selectable)
TT-CD-CVO-C	Selectable: 4-20mA/0-10Vdc (custom temp. scaling), Calibration to customer specification in the range of -10 to +100°C
Accessory	
BAND	Additional Metal Band

TT-EBB External Black Bulb Sensor



The TT-EBB sensor is used for radiant heat in outdoor spaces. Black bulb temperature sensors are used to calculate comfort temperature which is specified as the average of the conductive temperature and the radiant temperature. Units contain either a high quality thermistor, platinum or nickel sensing element.

Part code	Description
Passive Output	
TT-EBB-A	10K3A1, Trend, Cylon, Distech
TT-EBB-B	10K4A1, Andover, Delta Control
TT-EBB-C	20K6A1, Honeywell
TT-EBB-D	PT100A, Serck
TT-EBB-E	PT1000A, Cylon
TT-EBB-F	Ni1000A, Sauter
TT-EBB-G	Ni1000A/TCR (LAN1), Siemens
TT-EBB-H	SAT1, Satchwell
TT-EBB-K	STA1, Landis & Staefa

SPECIFICATION	
Resistive output type	Resistive
Housing Material	PC/GF (Halogen Free Flame Retardant, UV Stabilized)
Black bulb material	Anodised Aluminium
Housing Dimensions	125 x 105 x 85mm
Black bulb dimensions	17.5 x 37mm dia.
Environmental Housing	-30 to +70°C, 0 to 95% RH non-condensing
Protection	IP65
Weight	160g

$$T_{\text{comfort}} = \frac{(T_{\text{radiant}} + T_{\text{conductive}})}{2}$$

Part code	Description
Passive Output	
TT-EBB-L	TAC1, TAC
TT-EBB-M	2.2K3A1, Johnson Controls
TT-EBB-N	3K3A1, Alerton
TT-EBB-P	30K6A1, Drayton
TT-EBB-Q	50K6A1
TT-EBB-S	SAT2, Satchwell
TT-EBB-T	SAT3, Satchwell
TT-EBB-W	SIE1, Siebe
TT-EBB-Y	STA2, Landis & Staefa
TT-EBB-Z	10K NTC, Carel



TT-S

Space Temperature Sensors

This range of innovative space sensors is designed to meet the exacting standards of today's architects, specifiers and building owners. Its unique low profile, curved style allows it to blend seamlessly into the architecture of modern and older buildings alike. The TT-S can be supplied with a wide range of user interface options such as set point adjustment and momentary switches etc. To give the customer additional functionality. Sontay also offers a complete range of customised user interfaces for every requirement.

FEATURES

- Designed to be aesthetically pleasing
- Blends into the fabric of any building
- Meets exacting standards of today's specifiers
- LCD display options on -ACT models

TT-S



Setpoint



Setpoint and LCD Display



SPECIFICATION

Current Output	4 to 20mA (2- or 3-wire)
Environmental Housing	0 to 50°C, 0 to 95% RH non-condensing
Housing colour	Polished White finish
Housing Material	ABS (Flame Retardant)
Momentary switch	N/O push button
Passive output types	Resistive
Protection	IP30
Set-point	2-wire 11-1kΩ/0-10Ω linear
Voltage output types	0 to 10Vdc
Weight	120g

Part code	Description
Passive Output	
TT-S-A	10K3A1, Trend, Cylon, Distech
TT-S-B	10K4A1, Andover, Delta Controls
TT-S-C	20K6A1, Honeywell
TT-S-D	PT100A, Serck
TT-S-E	PT1000A, Cylon
TT-S-F	Ni1000A, Sauter
TT-S-G	Ni1000A/TCR (LAN1), Siemens
TT-S-H	SAT1, Satchwell
TT-S-K	STA1, Landis & Staefa
TT-S-L	TAC1, TAC
TT-S-M	2.2K3A1, Johnson Controls
TT-S-N	3K3A1, Alerton
TT-S-P	30K6A1, Drayton
TT-S-Q	50K6A1
TT-S-S	SAT2, Satchwell
TT-S-T	SAT3, Satchwell
TT-S-W	SIE1, Siebe
TT-S-Y	STA2, Landis & Staefa
TT-S-Z	10K NTC, Carel
Active Output	
TT-S-ACT	Selectable: 4-20mA/0-10Vdc, output range 0 to 40°C
TT-S-ACT-TR	Selectable: 4-20mA/0-10Vdc, (customer temp. scaling), between -10 to +50°C
Accessories	
-SP	2-wire, 11-1kΩ/0-10Ω set point
-MS	Momentary Switch
-LCD*	Integral Display
-LEDG**	24V Green LED
-BLK***	Black Housing

Notes:

A calibration certificate is available on -ACT Types see page 79.

* Only available on -ACT types

** Not available on -ACT types

*** Plain front, no user interface options available (SP/MS/LCD/LEDG)

TT-x-UN
Active Sensors 3-wire 4-20mA/0-10Vdc

A range of active temperatures gives a 3-wire 0-10Vdc or 4-20mA output based on a 10K3A1 thermistor. They offer advantages over the traditional PT100a-based active output sensors in the speed of reaction, physical robustness, and absence of self-heating. The sensors are available with an output of -10 to +40°C.

FEATURES

- Duct
- Outside
- Outside with Radiation Shield
- Immersion
- Clamp-on
- Flying Lead

SPECIFICATION

Accuracy	±0.4°C @ 25°C
Environmental Housing	-30 to 70°C, 0 to 95% non-condensing
Housing Dimensions	80 x 79 x 44mm
Housing Material	PC/GF (Halogen free, flame retardant & UV stabilized)
Media	-10 to +60°C (TT-555), -30 to +100°C (others)
Output range	-10 to +40°C
Power Supply	24Vac/dc
Probe	TT-D & TT-I S/S 65, 100, 150, 250mm x 6mm dia, TT-OR PTFE 40 x 16mm dia, TT-C Die-cast zinc, 2 meter lead, TT-555 S/S 30 X 6mm dia.
Protection	IP65
Weight	200g max

Duct

Outside

Outside with Radiation Shield

Immersion

Clamp-on

Flying Lead


Part code	Description
Passive Output	
TT-D-UN	Active Duct Sensor
TT-O-UN	Active Outside Air Sensor
TT-OR-UN	Active Outside Air Sensor with Rad. Shield
TT-I-UN	Active Immersion Sensor
TT-C-UN	Active Clamp-on Sensor
TT-555-UN	Active Flying Lead Sensor
Suffixes (add to part code TT-D & TT-I only)	
-65	Active Duct Sensor
-100	Active Duct Sensor
-250	Active Duct Sensor



For Smart Communicating
Versions visit page 66-71.

TT-BB

Black Bulb Temperature Sensors



The TT-BB range of black bulb temperature sensors are used for radiant heat in indoor spaces. They are used to calculate comfort temperature which is specified as the average of the conductive and the radiant temperature. Units contain either a high quality thermistor, Nickel or Platinum sensing element.

Part code	Description
TT-BB-A	10K3A1, Trend, Cylon, Distech
TT-BB-B	10K4A1, Andover, Delta Controls
TT-BB-C	20K6A1, Honeywell
TT-BB-D	PT100A, Serck
TT-BB-E	PT1000A, Cylon
TT-BB-F	Ni1000A, Sauter
TT-BB-G	Ni1000A/TCR (LAN1), Siemens
TT-BB-H	SAT1, Satchwell
TT-BB-K	STA1, Landis & Staefa
TT-BB-L	TAC1, TAC
TT-BB-M	2.2K3A1, Johnson Controls
TT-BB-N	3K3A1, Alerton
TT-BB-P	30K6A1, Drayton
TT-BB-Q	50K6A1
TT-BB-S	SAT2, Satchwell

SPECIFICATION

Black bulb material	Anodised aluminium
Bulb dimensions	17.5 x 37mm dia.
Environmental Housing	0 to 50°C, 0 to 95% RH non-condensing
Housing colour	Polished white finish
Housing Dimensions	115 x 85 x 30mm
Housing Material	ABS (Flame Retardant)
Output Type	Resistive
Protection	IP30
Weight	120g



$$T_{\text{comfort}} = \frac{(T_{\text{radiant}} + T_{\text{conductive}})}{2}$$

Part code	Description
TT-BB-T	SAT3, Satchwell
TT-BB-W	SIE1, Siebe
TT-BB-Y	STA2, Landis & Staefa
TT-BB-Z	10K NTC, Carel

Interface Options

-SP	2-wire, 11-1kΩ/0-10Ω set point
-MS	Momentary switch
-LEDG	24V Green LED
-BLK *	Black housing

Accessory

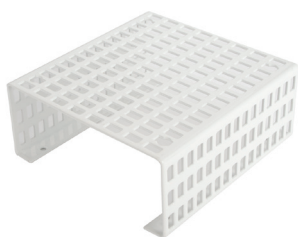
DECOR	Decorators trim plate
GASKET	Insulating gasket (pack of 10)

Note: A Sensor Guard (TT-GD) is available – see below.

* Plain front, no user interface available (SP/MS/LEDG)

TT-GD

Space Sensor Guard



The TT-GD is designed to protect TT-S and TT-BB temperature sensors from accidental damage.

FEATURES

- Robust construction
- Easy fixing

SPECIFICATION

Material	Powder coated mild steel
Weight	180g



Part code	Description
TT-GD	Space Sensor Guard

TT-CAL



Calibration is available for Sontay's TT range of sensors. Sontay can provide test certificates for 3-point calibration, with additional points if required -CVO & -ACT types ONLY.



Part code	Description
TT-CAL	3-Point Temp Calibration at 15, 25 & 35°C

TT-PO

Immersion Sensor Pockets



POCKETS THAT CAN WITHSTAND HIGHER PRESSURES AND FLOW RATES

TT-PO-521 and TT-PO-HP range of stainless steel pockets are for use with immersion sensors TT-I and TT-IH. The two part welded TT-PO-521 pockets are intended for low flow applications. They may be used in applications such as sumps or storage tanks or low flowing water in pipes. For applications requiring installation in high flowing water, the TT-PO-HP should be used. Pockets are designed to accept Sontay TT-I and TT-IH sensors. These pockets can be installed in any system that is constructed from compatible materials whose operating pressures and flow rates are within the specified ranges.

For applications requiring installation in high flowing water, the TT-PO-HP should be used. Pockets are designed to accept Sontay TT-I and TT-IH sensors. These pockets can be installed in any system that is constructed from compatible materials whose operating pressures and flow rates are within the specified ranges. For applications requiring installation in high flowing water, the TT-PO-HP should be used. Pockets are designed to accept Sontay TT-I and TT-IH sensors. These pockets can be installed in any system that is constructed from compatible materials whose operating pressures and flow rates are within the specified ranges.

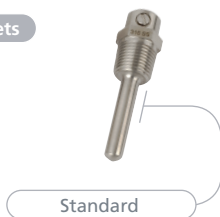
TT-PO - 250mm Pockets



TT-PO - 150mm Pockets



TT-PO - 65mm Pockets



SPECIFICATION

Material	Stainless Steel 316
Temperature ranges	-20 to +400°C
Max. pressure (out to in)	16 bar
Water velocity max. (0 to 100°C)	TT-PO-521: 3.7m/s TT-PO-521-65: 18m/s TT-PO-521-100: 6m/s TT-PO-521-250: 1.7m/s TT-PO-HP: 17.0m/s TT-PO-HP-250: 6.5m/s
Weights	TT-PO-521: 140g TT-PO-HP: 220g

Part code	Description
65mm Pockets	
TT-PO-521-65	Stainless Steel Immersion Pocket
100mm Pockets	
TT-PO-521-100	Stainless Steel Immersion Pocket
150mm Pockets	
TT-PO-521	Stainless Steel Immersion Pocket
TT-PO-HP	High Performance Stainless Steel Immersion Pocket
250mm Pockets	
TT-PO-521-250	Stainless Steel Immersion Pocket
TT-PO-HP-250	High Performance Stainless Steel Immersion Pocket

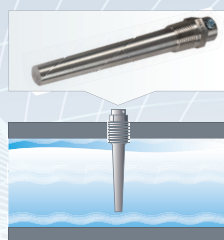
Relative Humidity & Temperature Sensors

Industry requirements, recently introduced, are for pockets that can withstand higher pressures and flow rates.

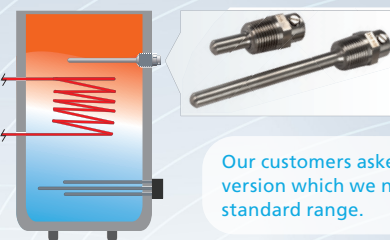
To ensure these standards are met we have worked hard to supply a robust stainless steel pocket at a similar price to the brass version.

Our new range of stainless steel pockets offer the robustness and reliability you would expect, with an exceptionally competitive price.

High Performance Pocket



Fast Flowing Water Pipes



High Pressure Tanks

Our customers asked us for a 65mm version which we now supply in our standard range.

A high performance version is available for those projects that require that extra strength, such as for fast flowing water.

UI-500

Interface Options



INDIVIDUAL SOLUTIONS

In addition to our standard range of sensors we are able to manufacture user interface equipment to your specifications. Typically this would be a single or twin gang plate styled to match other equipment on a project. We can fit a large range of devices to UI-500 products including sensors, set point adjustments and LCDs.

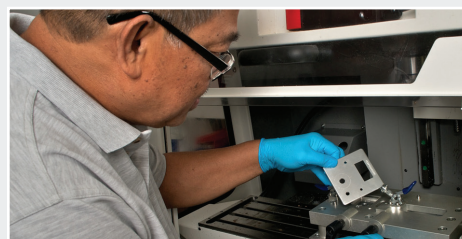
The examples on this page are just a few of the types, designs and options we can supply. Please contact the Sales Support Team for more information or to discuss your requirements.



CUSTOMISED INTERFACE SOLUTIONS

All of our user interface products are designed and built to your exact requirements. From custom engraving to LCD displays, switches and set points, we can supply a solution that fits your needs.

If you have a requirement, please call our technical support on +44 (0) 1732 861218 or email support@sontay.com.



Relative Humidity & Temperature Sensors

UI-AA-I-F

Alarm Annunciators



The UI-AA-I-F is used in conjunction with one analogue or VFC signals to provide local audible and visual alarm facilities. The units can accept voltage, current and VFC switched inputs. Adjustment of alarm threshold and the time delay before an alarm is standard. A mute button silences the audible alarm, whilst the visual alarm will not reset until the monitored parameter returns to within its desired range.

FEATURES

- LEDs for OK/alarm indication
- Audible alarm mute button
- Alarm output relay

SPECIFICATION

Input signals	0-10Vdc, 4-20mA. relay or 24Vac
Alarm delay time (sec)	5 to 45 secs
Relay output	SPCO. 6A @ 240Vac
Buzzer output	85dB @ 1 metre
LED indication	Green = OK, flashing red = alarm
Power supply	24Vac/dc ±15%
Housing	Panel mounting or UK standard single gang box
Ambient range	-10 to +40°C
Protection	IP32
Dimensions	85 x 85 x 37mm
Weight	140g

Part code	Description
UI-AA-1-F	1-channel Interface Panel

Data sheets online: www.sontay.com



Valves & Actuators

Valves and Actuators are "first fix" devices, and it is vital to select the correct types and sizes.

Sizing should not be based on physical pipe size, flow co-efficient data must be used to select the correct valve.



VR-F
ROTARY SHOE



VR-G
ROTARY SHOE



VZ
ZONE

Suitable actuators are available in various power (24V and 230V supply) and control (modulating, ON/OFF and Raise/lower) types.

VA RANGE



DAMPER ACTUATORS

VA RANGE are also available with auxiliary end switches and fail-safe types, in torque ratings from 5Nm to 30Nm.



Sontay's range of damper actuators are suitable for many applications including motorised control of dampers in ventilation systems. They are available with either on/off, floating (raise/lower) or modulating control signal input and various torque ratings. A failsafe (spring return) damper actuator is also available in a 20Nm torque rating. All units can have optional auxiliary switch(es) fitted and the direction of rotation can be reversed and the angle of mechanical travel can be limited.

FEATURES

- Position indication
- Maintenance-free
- Mechanical set rotation limits
- Reversible rotation

5Nm Types



8Nm, 10Nm & 15Nm Types



20Nm & 30Nm & Fail Safe Types



Part code	Description
5Nm Actuators	
VA-05A-24	24V On/off, raise/lower
VA-05A-24S	24V On/off, raise/lower with auxillary switch
VA-05A-230	230V On/off, raise/lower
VA-05A-230S	230V On/off, raise/lower with auxillary switches
VA-05M-24	24V Modulating

Part code	Description
8Nm Actuators	
VA-08A-24	24V On/off, raise/lower
VA-08A-24S	24V On/off, raise/lower with auxillary switch
VA-08A-230	230V On/off, raise/lower
VA-08A-230S	230V On/off, raise/lower with auxillary switch
10Nm Actuators	
VA-10M-24	24V Modulating
VA-10M-24S	24V Modulating with auxillart switch
15Nm Actuators	
VA-15A-24	24V On/off, raise/lower
VA-15A-24S	24V On/off, raise/lower with auxillary switch
VA-15A-230	230V On/off, raise/lower
VA-15A-230S	230V On/off, raise/lower with auxillary switch
VA-15M-24	24V Modulating
VA-15M-24S	24V Modulating with auxillart switch

Part code	Description
20Nm Actuators	
VA-20A-24S	24V On/off, raise/lower with auxillary switch
VA-20A-230S	230V On/off, raise/lower with auxillary switch
VA-20M-24S	24V On/off, raise/lower with auxillary switch
30Nm Actuators	
VA-30A-24	24V On/off, raise/lower
VA-30A-24S	24V On/off, raise/lower with auxillary switch
VA-30A-230S	230V On/off, raise/lower with auxillary switch
VA-30M-24S	24V Modulating with auxillart switch
Failsafe (Spring Return) Actuators	
VA-FA-24-N	24V On/off, raise/lower
VA-FA-24S-N	24V On/off, raise/lower with auxillary switch
VA-FA-230-N	230V On/off, raise/lower
VA-FA-230S-N	230V On/off, raise/lower with auxillary switch

General Note for Torque Requirement

For air dampers the following rule of thumb can be used in the absence of damper manufacturers' guidelines.

Torque	Duct area
5Nm	Up to 1m ²
8Nm	Up to 1.6m ²
10Nm	Up to 2m ²
15Nm	Up to 3m ²
20Nm	Up to 4m ²
30Nm	Up to 6m ²

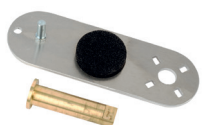
SPECIFICATION

Ambient relative humidity	5 to 95 RH
Ambient Temperature Range	-20 to +50°C
Angle of rotation	95° (mechanically limitable)
Aux. switch rating	240V @ 5(2.5)A
Control signals	On/off, raise/lower and modulating (0-10Vdc)
Power Supply	24Vac @ 50/60Hz or 24Vdc ±20%, 80 to 265Vac @ 50/60Hz

VR-G 3-Port Screwed Brass Rotary Shoe Valves



VR-G-LKN-1



These brass rotary shoe valves are made of a special brass alloy (DZR) allowing use in heating and cooling systems, for both mixing and diverting applications. Valves are available from 1/2" to 2" sizes with internal threads. Note: These are not tight shut-off valves.

FEATURES

- PN10
- Internal threaded connections
- Compact size

Actuator Selection

Valve Body	24V R/L On/Off	230V R/L On/Off	24V Mod.	Linkage
All VR-G	VA-05A-24	VA-05A-230x	VA-05M-24	VR-G-LKN-1

SPECIFICATION

Body material	Brass DZR, CW 602N
Diverting leak rate	<0.02% of flow
Flow type	Mixing or diverting
Fluid temperature	-10 to +110°C
Mixing leak rate	<0.05% of flow
Nominal pressure	PN10
O-ring material	EPDM
Rangeability	100:1
Required Motor torque	5Nm
Shaft & bushing material	PPS
Weight	2.05kg max.

Part code	Description
3-port. Screwed Valves	
VR-G-01	1/2" BSP, 0.4 Kvs
VR-G-02	1/2" BSP, 0.63 Kvs
VR-G-03	1/2" BSP, 1.00 Kvs
VR-G-04	1/2" BSP, 1.63 Kvs
VR-G-05	1/2" BSP, 2.5 Kvs
VR-G-06	1/2" BSP, 4.0 Kvs
VR-G-07	3/4" BSP, 2.5 Kvs
VR-G-08	3/4" BSP, 4.0 Kvs
VR-G-09	3/4" BSP, 6.3 Kvs
VR-G-10	1" BSP, 6.3 Kvs
VR-G-11	1" BSP, 10 Kvs
VR-G-12	1 1/4" BSP, 16 Kvs
VR-G-13	1 1/2" BSP, 25 Kvs
VR-G-14	2" BSP, 40 Kvs
Linkage Kit	
VR-G-LKN-1	For VA 5Nm actuators

VR-F 3-Port Flanged Iron Rotary Shoe Valves



These cast iron rotary shoe valves are used in heating systems for mixing or diverting applications. Valves sizes from 50 to 150mm and PN6. Note: These are not tight shut-off valves.

Actuator Selection

Valve Body	24V R/L On/Off	230V R/L On/Off	24V Mod.	Linkage
VR-F-P3-F50	VA-05A-24x	VA-05A-230x	VA-05M-24	VR-LKN-2
Others	VA-15A-24x	VA-15A-230x	VA-15M-24x	VR-LKN-2

SPECIFICATION

Body material	Cast Iron
Flow type	Mixing or diverting
Fluid temperature	-10 to +110°C
Max. pressure drop	DN50: 50kPa. DN65 to DN150: 30kPa
O-ring material	EPDM
Pressure class	PN6
Rangeability	100:1
Required Motor torque	10Nm
Spindle & slipper material	Brass DZR, CW 602N
Weight	37kg max.

Part code	Description
3-port. Flanged Valves	
VR-F-P3-F50-K60	50mm, 60 Kvs
VR-F-P3-F65-K90	65mm, 90 Kvs
VR-F-P3-F80-K150	80mm, 150 Kvs
VR-F-P3-F100-K225	100mm, 225 Kvs
VR-F-P3-F125-K280	125mm, 280 Kvs
VR-F-P3-F150-K400	150mm, 400 Kvs
Linkage Kit	
VR-LKN-2	For VA Actuators from 5 to 15Nm

VZ

Zone Valves and Actuators



This series of zone valves are designed for on/off control of fluid flow in a variety of heating and cooling applications, including AHUs and FCUs. They feature a reliable synchronous motor and a spring return mechanism to provide power failsafe position and fitted with an auxiliary switch as standard.

SPECIFICATION

Body rating	2.5Mpa
Close running time	5 seconds
Fluid temperature	0 to 94°C
Housing cover	Flame retardant ABS
Housing plate	Casting aluminium alloy
Max. electrical load	Aux. switch 3A, 125 to 250Vac
Open running time	10 seconds
Operation	Normally closed, spring return
Power Consumption	6W
Supply	230Vac and 24Vac options
Valve body material	Forged Brass
Voltage tolerance	±10%
Working Humidity	non-condensing
Working Temp	0 to 60°C

Part code	Description
2-port Valves	
VZ-2N-15	½" BSP Zone Valve
VZ-2N-20	¼" BSP Zone Valve
VZ-2N-25	1" BSP Zone Valve
3-port Valves	
VZ-3-15	½" BSP Zone Valve
VZ-3-20	¼" BSP Zone Valve
VZ-3-25	1" BSP Zone Valve

Part code	Description
Actuators	
VZ-SM24	24Vac Actuator with Auxillary switch
VZ-SM230	230Vac Actuator with Auxillary switch



Water Detection & Emergency Products

USE WATER LEAK DETECTION PRODUCTS FOR:

Leaks from pipes

Rain detection

AHU tray leaks

Underfloor heating leaks

Core coolant leaks in data centres

A number of sensor element types are available for these applications, and are all compatible with the WD-AMX alarm unit.

WD-RS



Rain Sensor

Control



WD-AMX-1



WD-AMX-2



FEATURES

- Relay output for integration into BMS systems and a mutable audible sounder.
- Sensitivity adjustment for long lengths of sensor cable is another useful feature.
- The WD-AMX "excites" the sensor element with a sinusoidal waveform to prevent ionic corrosion of the element.

WD-PS

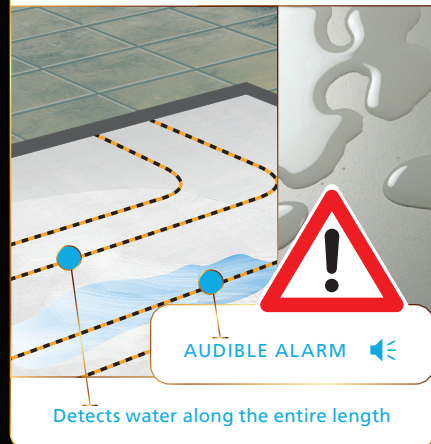


Water Point Sensor

SONTAY'S WATER LEAK DETECTION SYSTEM

Protect buildings and equipment from water damage with early indication of leak presence by using

Sontay's water leak detection system.



AUDIBLE ALARM

Detects water along the entire length

THE EP SERIES OF EMERGENCY SWITCHES

Providing local override for instant power off to machinery or alarm activation for fire. The EP-SW-72 is a fusible link for power supply switch-off to gas safety valves or to the GL series of gas leak alarms.

It is designed to be placed above a gas appliance, and the conducting element will melt at 72°C (for example, in the event of fire).

EP-SW

Emergency Stop Buttons

EP-KL



EP-SW-11



SPECIFICATION

Switch rating	EP-KL: 15 to 415Vac, 4A, 13 to 110Vdc, 0.5A EP-SW-11: 6A @ 240Vac
Reset type	EP-KL: Key EP-SW-11: Twist
Dimension	65 x 65 x 90mm
Weight	220g

Part code	Description
EP-KL	Stop Button - Key lock
EP-SW-11	Stop Button - Twist Knob

EP-SW-72

Fusible Thermal Link



SPECIFICATION

Housing	High temperature flame retardant glass filled resin
Entry	M20 thread of standard conduit
Melting Point	72°C
Rating	250Vac @ 5A
Protection	IP20
Dimensions	85 x 28 x 65mm
Weight	60g

The EP-SW-72 is for use in gas safety circuits. Units consist of a ventilated high temperature glass filled resin case, with electrical connection terminals and a thermal fuse. The fuse is manufactured to fail at 72°C thus causing an open circuit between the two terminals. Replacement fuses are available.

FEATURES

- Fast acting thermal fuse @ 72°C
- Easy access to terminals and thermal fuse

Part code	Description
EP-SW-72	Electro-Thermal Link
EP-SW-72-F	Electro-Thermal Link-spare fuse

EP-FS

Fireman's Switches



SPECIFICATION

Switch rating	2A @ 250Vac
Dimensions (mm)	86 x 86 x 50
Keys	2 supplied (removable in all positions)
Connections	4x 100mm flying Leads
Installation Category	IEC 664 Category II
Pollution Degree	IEC 664 degree 1
Operating Range	-20 to +55°C
Country of origin	UK
Conformity	LVD, CE & UKCA Marked

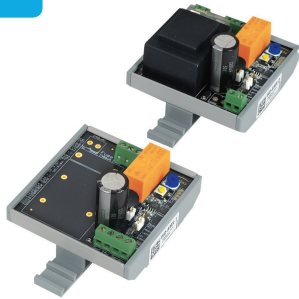
The EP-FS are a range of safety switches for use in the event of fire or other emergency. Usually they are located at exits to gas plant rooms. Units are key operated with a 2 or 3-position switches. The key is removable in all switch positions.

Part code	Description
EP-FS-1	Firemans Switch Red 2 Position
EP-FS-2	Firemans Switch Red 3 Position

WD Water Leak Detection

The WD-x range are designed to detect water leaks either at localised points using the WD-PS point sensor or larger areas with the WD-CS cable sensor. The surface of the WD-RS rain sensor can be heated to avoid false detection alarms resulting from dew forming, the detector can be swivelled on the mounting bracket and is held in place by a wing nut. All these sensors must be used with the WD-AMX range of modules and should not be directly connected to a BMS controller. As the cable excitation used is an isolated AC signal which ensures the detector cable will not be subject to oxidation or erosion over time, avoiding the degradation problems associated with DC systems.

WD-AMX



WD-CS



WD-PS



WD-RS



FEATURES

- WD-CS is easy to lay and detects along its entire length
- More than one WD-CS or WD-PS can be connected to a WD-AMX
- Self-contained heater to avoid nuisance alarms of WD-RS
- Detects water leaks under floors or isolated plant rooms
- Rain detector to automatically close windows

SPECIFICATION

Ambient relative humidity	0 to 80% RH non-condensing
Ambient Temperature Range	0 to 40°C
Audible alarm	85db @ 2.3kHz at 10cm
Maximum cable run	200m - including detection cable
Output	SPDT relay 12A @ 230Vac
Power Supply	24Vac/dc ±10%
Protection	IP30
Supply Current	50mA max
Weight	100g

Part code	Description
WD-AMX-1	24Vac/dc Controller with buzzer
WD-AMX-2	230Vac/dc Controller with buzzer

SPECIFICATION

Cable Dimensions	2m, 5m, 10m, 15m, 20m, 25m
Protection	IP65
Weight	520g max

Part code	Description
WD-CS-2M	Water Cable Sensor 2m cable, 3m leader
WD-CS-5M	Water Cable Sensor 5m cable, 3m leader
WD-CS-10M	Water Cable Sensor, 10m cable, 3m leader
WD-CS-15M	Water Cable Sensor, 15m cable, 3m leader
WD-CS-20M	Water Cable Sensor, 20m cable, 3m leader
WD-CS-25M	Water Cable Sensor, 25m cable, 3m leader

Accessory

WD-FC	Pack of 20 fixing clips for WD-CS
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Note: Other WD-CS lengths available.

SPECIFICATION

Cable Dimensions	2 meters
Mounting Plate	Stainless steel
Output	VFC 24ac/dc @1A resistive SPDT
Power Supply	24Vdc ±5% or 24Vac ±10%, 20mA max. current draw
Weight	100g

Part code	Description
WD-PS	Water Point Sensor, 2m

SPECIFICATION

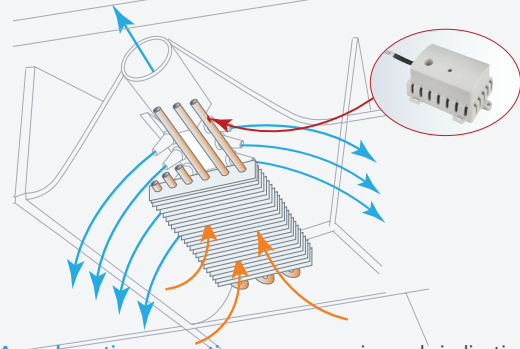
Mounting Plate	Stainless steel
Output	VFC 24ac/dc @1A resistive SPDT
Power Supply	24Vdc ±5% or 24Vac ±10%, 20mA max. current draw
Dimensions	70 x 30 x 45mm
Protection	IP65
Weight	125g

Part code	Description
WD-PS	Water Point Sensor, 2m
WD-RS	Rain Sensor with internal heater, 2m leader
WD-RS-5M	Rain Sensor with internal heater, 5m leader

WD-CPS

Condensation Prevention Sensor

Sontay's range of condensation prevention and detection devices are designed to provide a switched output signal to detect or even prevent the onset of condensation on chilled surfaces such as chilled beams. All devices come with 2m cable length and are mounted to chilled surfaces using screws or heavy-duty nylon straps. The WD-CPS Condensation Prevention Sensor provides the closest safeguard of condensation as it calculates the actual dewpoint based on the ambient relative humidity and the temperature of the surface. The user can even adjust the switching point within a range of $\pm 3^{\circ}\text{C}$ of the dewpoint. It also outputs the measured level condensation using a 4-20mA control signal and gives additional LED indication on its status.



A condensation prevention sensor can give early indication of the onset of condensation so that preventative action can be taken.

WD-CPS

Condensation Prevention Sensor



Sontay's range of condensation prevention and detection devices are designed to provide a switched output signal to detect or even prevent the onset of condensation on chilled surfaces such as chilled beams. All devices come with 2m cable length and are mounted to chilled surfaces using screws or heavy-duty nylon straps. The WD-CPS Condensation Prevention Sensor provides the closest safeguard of condensation as it calculates the actual dewpoint based on the ambient relative humidity and the temperature of the surface. The user can even adjust the switching point within a range of $\pm 3^{\circ}\text{C}$ of the dewpoint. It also outputs the measured level condensation using a 4-20mA control signal and gives additional LED indication on its status.

SPECIFICATION

VFC Output	24Vac/dc @ 1A resistive SPDT
Current Output	Dry<3mA, wet>12mA
Power Supply	24Vdc $\pm 5\%$ or 24Vac $\pm 10\%$, 20mA max. current draw
Cable Dimensions	2 meters
Mounting Plate	Stainless steel
Dimensions	73 x 48 x 30mm
Weight	80g

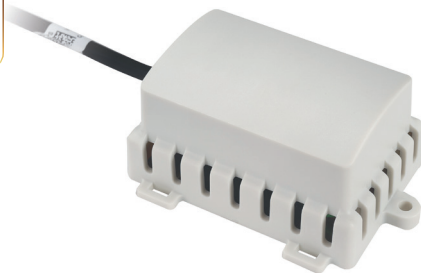
FEATURES

- Microcontroller based for reliable condensation prevention control
- Switches its output at the actual dewpoint
- Adjustable switching point
- LED indication

Part code	Description
WD-CPS	Condensation Prevention Sensor - 2m Lead
WD-CPS-5M	Condensation Prevention Sensor - 5m Lead

WD-CPS-UN

Condensation Prevention Switch



The WD-CPS-UN Condensation Prevention Switch monitors the relative humidity and changes the state of the VFC to prevent "indoor rain" at a fixed set point and before it causes any damage to the building structure. It is a very cost effective solution to protect buildings and assets from any condensation.

SPECIFICATION

Output	VFC 24ac/dc @1A resistive SPDT
Power Supply	24Vdc $\pm 5\%$ or 24Vac $\pm 10\%$, 20mA max. current draw
Cable Dimensions	2 meters
Mounting Plate	Stainless steel
Dimensions	73 x 48 x 30mm
Weight	80g

FEATURES

- Microcontroller based for reliable condensation prevention control
- Switches its output at the actual dewpoint
- Adjustable switching point
- LED indication

Part code	Description
WD-CPS-UN	Condensation Prevention Switch - 2m lead

Thermistor Types and Compatibility Chart

Element Code	Element Type	Manufacturer	Room	Outside	Duct	Immersion	Flying Lead
A	10K3A1	Aquatrol	✓	✓	✓	✓	✓
		Honeywell	T8120B	T7416A, T7043E	✓	T7106A, T7043F	T7076D
		Johnson	✓	✓	TE-6361V TE-636GV-1	✓	✓
		Satchwell	✓	DOT10K2, DOS10K2	DDT10K1	DWT10K1, DST10K1	✓
		Seachange	SEN/PTR/ROM	SEN/PR/OAT	SEN/PR/DCT	SEN/PR/IMM	SEN/FL
		Trend	TB-TS	TB-TO	TB-TD	TB-TI	✓
		Cylon	✓	✓	✓	✓	✓
		Distech Controls	✓	✓	✓	✓	✓
		Heatmiser	✓	✓	✓	✓	✓
		Ambiflex				ITN0120 (Hot water)	
		Phoenix Contact	✓	✓	✓	✓	✓
		Tridium	✓	✓	✓	✓	✓
		Easy IO	✓	✓	✓	✓	✓
B	10K4A1	Andover	TTS-S Series	✓	TT-O Series	TT-I Series	✓
		Siebe	✓	✓	✓	✓	✓
		York <40°C	✓	✓	✓	✓	✓
		Delta Controls	✓	✓	✓	✓	✓
		Phoenix Contact	✓	✓	✓	✓	✓
		Tridium	✓	✓	✓	✓	✓
C	20K6A1	Honeywell	T7460H, T7470A AF20, DRF20-S RF20	AF20 DAF20 T7416A1022	LF20	VF20T, VF20NT VF20L, VF20LN WPF20, T7425A	KFT20, KFT20B DKF20
D	PT100A	Sauter	EGT430/F011	✓	EGT466/F011 EGT447/F011	✓	EGT456/F011
		Serck	✓	✓	✓	✓	
		Siemens/Landis & Staefa	QAA100, QAA2010	QAC2010	FK-TP/200, QAM2110	QAE2110	QAP2010
		Phoenix Contact	✓	✓	✓	✓	✓
E	PT1000A	Honeywell	T7412A1018	T7416A1014	T7411A1001	T7413A1009	
		Sauter	EGT430/F101	EGT401/F101	EGT446/F101 EGT446/F101		EGT456/F101
		Serck	✓	✓	✓	✓	✓
		Siebe	TS-5811	✓	✓	✓	✓
		Cylon	✓	✓	✓	✓	✓
		Phoenix Contact	✓	✓	✓	✓	✓
F	Ni1000A	Sauter	EGT330/F101	EGT301/F101	EGT346/F101 EGT347/F101 EGT348/F101	EGT346/F101 EGT347/F101 EGT348/F101	EGT354/F101 EGT356/F101
G	Ni1000A/TCR (LAN1)	Siemens	QAA24/25/26/27 QAA64	QAC22	QAM2120	QAE2120	QAP21, QAP22 QAZ21
H	SAT1	Satchwell	DRT, DU, DUS, DUSF	DOT0002, DOS0002	DDT0001	DWT0001, DST0001	DDU
		Drayton DC1400	✓	✓	✓	✓	✓
K	STA1	Landis & Staefa	QAA2040 FR-T1	FW-T1	QAM2140 FK-T1	QAE2140	✓
L	TAC1	TAC	✓	✓	✓	✓	✓
M	2.2K3A1	Ambiflex	RTN3060	ETN3060	DTN3060	ITN3060 (Chilled water)	✓
		Johnson	TE-6344P	TE-6343P	TE-61P, TE-61V TE-634GV-1	TE-61HP	✓
N	3K3A1	Alerton	MS-S Series, TS-1050	✓	✓	✓	✓
P	30K6A1	Drayton DC1100	A701	A702	✓	A703	✓
Q	50K6A1						
R	100K6A1	York >40°C	✓	✓	✓	✓	✓
S	SAT2	Satchwell	DR	✓	DD	DW1202, DWS1301	✓
T	SAT3	Satchwell	✓	✓	✓	DW1204, DWS1202	✓
V	SAT4	Satchwell	✓	DO2202	✓	✓	✓
W	SIE1	Barber Colman	✓	✓	✓	✓	✓
		Siebe	✓	✓	✓	✓	✓
Y	STA2	Landis & Staefa	FR-T30	FO-T30	FK-T30	FT-T305	✓
Z	10K	Carel	✓	✓	✓	✓	✓

Thermistor Temperature Range

A - 10K3A1

Sensor type:
Thermistor, temp
coef. negative

°C	Ω
-50	667828
-40	335671
-30	176683
-20	96974
-15	72895
-10	55298
-5	42314
0	32650
1	31030
2	29500
3	28054
4	26688
5	25396
6	24173
7	23016
8	21921
9	20885
10	19904
11	18974
12	18092
13	17257
14	16465
15	15714
16	15001
17	14325
18	13623
19	13053
20	12494
21	11943
22	11420
23	10923
24	10450
25	10000
26	9572
27	9165
28	8777
29	8408
30	8056
35	6530
40	5325
45	4367
50	3601
55	2985
60	2487
65	2082
70	1751
75	1480
80	1256
85	1070
90	916.1
95	787.0
100	678.6
105	587.3
110	510.1
115	444.5
120	388.6
125	340.8
130	300.0
140	234.1
150	184.8
160	-
170	-
180	-
190	-
200	-

B - 10K4A1

Sensor type:
Thermistor, temp
coef. negative

°C	Ω
-50	441667
-40	239831
-30	135233
-20	78930
-15	61030
-10	47549
-5	37316
0	29490
1	28157
2	26891
3	25689
4	24547
5	23462
6	22430
7	21450
8	20517
9	19631
10	18787
11	17983
12	17219
13	16490
14	15797
15	15136
16	14507
17	13906
18	13334
19	12788
20	12268
21	11771
22	11297
23	10845
24	10413
25	10000
26	9606
27	9229
28	8869
29	8525
30	8197
35	6754
40	5594
45	4656
50	3893
55	3271
60	2760
65	2339
70	1990
75	1700
80	1458
85	1255
90	1084
95	939.6
100	817.2
105	713.0
110	624.1
115	547.9
120	482.5
125	426.0
130	377.2
140	298.1
150	238.0
160	-
170	-
180	-
190	-
200	-

C - 20K6A1

Sensor type:
Thermistor, temp
coef. negative

°C	Ω
0	70204
1	66525
2	63059
3	59793
4	56713
5	53809
6	51070
7	48484
8	46044
9	43739
10	41563
11	39506
12	37562
13	35724
14	33986
15	32342
16	30786
17	29313
18	27918
19	26598
20	25346
21	24160
22	23036
23	21970
24	20959
25	20000
26	19090
27	18226
28	17405
29	16626
30	15886
31	15182
32	14513
33	13877
34	13273
35	12697
36	12150
37	11629
38	11133
39	10661
40	10211
41	9783
42	9374
43	8985
44	8614
45	8260
46	7922
47	7600
48	7293
49	6999
50	6719
51	6452
52	6196
53	5952
54	5719
55	5496
56	5282
57	5078
58	4883
59	4697
60	4518
61	-
62	-
63	-
64	-

D - PT100A

Sensor type:
Platinum, temp
coef. positive

°C	Ω
-50	80.3
-40	84.3
-30	88.2
-20	92.2
-15	
-10	96.1
-5	
0	100.0
5	
10	103.9
15	
20	107.8
25	109.8
30	111.7
35	
40	115.5
45	
50	119.4
55	
60	123.2
65	
70	127.1
75	
80	130.9
85	
90	134.7
95	
100	138.5
105	
110	142.3
115	
120	146.1
125	
130	149.8
140	153.6
150	157.3
160	161.0
170	164.8
180	168.5
190	172.2
200	175.8
210	179.5
220	183.2
230	186.8
240	190.5
250	194.1
260	197.7
270	201.3
280	204.9
290	208.5
300	212.0
310	215.6
320	219.1
330	222.7
340	226.2
350	229.7
360	233.2
370	236.7
380	240.1
390	243.6
400	247.0
401	-
402	-
403	-

E - PT1000A

Sensor type:
Platinum, temp
coef. positive

°C	Ω
-50	803
-40	843
-30	882
-20	921
-15	
-10	961
-5	
0	1000
5	
10	1039
15	
20	1078
25	
30	1117
35	
40	1155
45	
50	1194
55	
60	1232
65	
70	1271
75	
80	1309
85	
90	1347
95	
100	1385
105	
110	1423
115	
120	1461
125	
130	1498
140	1536
150	1573
160	1611
170	1648
180	1685
190	1722
200	1758
210	1795
220	1832
230	1868
240	1905
250	1941
260	1977
270	2013
280	2049
290	2085
300	2121
310	2156
320	2191
330	2227
340	2262
350	2297
360	2OR
370	2367
380	2401
390	2436
400	2470
401	-
402	-
403	-

F - NI1000A

Sensor type:
Nickel, temp
coef. positive

°C	Ω
-50	743
-40	791
-30	842
-20	893
-15	
-10	946
-5	
0	1000
5	
10	1056
15	
20	1112
25	
30	1171
35	
40	1230
45	
50	1291
55	
60	1353
65	
70	1417
75	
80	1483
85	
90	1549
95	
100	1618
105	
110	1688
115	
120	1760
125	
130	1833
140	1909
150	1987
160	2066
170	2148
180	2232
190	-
200	-
201	-
202	-
203	-
204	-
205	-

Thermistor Temperature Range

G - LAN 1

(Ni1000A/TCR)

Sensor type:

Nickel, temp coef. positive

°C	Ω
-50	790.8
-40	826.8
-30	871.7
-20	913.4
-15	934.7
-10	956.2
-5	978.0
0	1000.0
1	1004.4
2	1008.9
3	1013.3
4	1017.8
5	1022.3
6	1026.7
7	1031.2
8	1035.8
9	1040.3
10	1044.8
11	1049.3
12	1053.9
13	1058.4
14	1063.0
15	1067.6
16	1072.2
17	1076.8
18	1081.4
19	1086.0
20	1090.7
21	1095.3
22	1100.0
23	1104.6
24	1109.3
25	1114.0
26	1120.0
27	1123.4
28	1128.1
29	1132.9
30	1137.6
35	1161.5
40	1185.7
45	1210.2
50	1235.0
55	1260.1
60	1285.4
65	1311.1
70	1337.1
75	1363.5
80	1390.1
85	1417.1
90	1444.4
95	1472.0
100	1500.0
105	1528.3
110	1557.0
115	1586.0
120	1625.4
125	-
130	-
135	-
140	-
150	-
170	-
180	-
190	-
200	-

H - SAT1

Sensor type:

Thermistor, temp coef. negative

°C	Ω
-50	9719
-40	9584
-30	9349
-20	8968
-15	8708
-10	8396
-5	8031
0	7614
1	7525
2	7434
3	7341
4	7246
5	7150
6	7053
7	6954
8	6853
9	6752
10	6649
11	6545
12	6440
13	6334
14	6228
15	6121
16	6013
17	5905
18	5786
19	5684
20	5580
21	5471
22	5362
23	5254
24	5147
25	5039
26	4933
27	4827
28	4721
29	4617
30	4513
35	4012
40	3545
45	3117
50	2730
55	2386
60	2082
65	1816
70	1585
75	1385
80	1213
85	1064
90	937
95	828
100	734
105	654
110	585
115	525
120	474
125	429
130	391
140	329
150	281
160	-
170	-
180	-
190	-
200	-

K - STA1

Sensor type:

Thermistor, temp coef. positive

°C	Ω
0	2226
1	2236
2	2246
3	2256
4	2266
5	2276
6	2286
7	2298
8	2306
9	2316
10	2326
11	2337
12	2347
13	2357
14	2367
15	2377
16	2388
17	2398
18	2408
19	2418
20	2429
21	2439
22	2449
23	2460
24	2470
25	2480
26	2491
27	2501
28	2512
29	2522
30	2532
31	2543
32	2553
33	2564
34	2574
35	2585
36	2596
37	2606
38	2617
39	2627
40	2638
41	-

L - TAC1

Sensor type:

Thermistor, temp coef. negative

°C	Ω
0	5085
5	4078
10	3294
15	2676
20	2188
25	1800
30	1488
35	1237
40	1034
50	740
60	540
70	400
80	300
90	230
100	180
110	-

M - 2.2K3A1

Sensor type:

Thermistor, temp coef. negative

°C	Ω
-50	150395
-40	75593
-30	39789
-20	21839
-15	16416
-10	12453
-5	9529
0	7353
1	6988
2	6643
3	6318
4	6010
5	5719
6	5444
7	5183
8	4937
9	4703
10	4482
11	4273
12	4075
13	3886
14	3708
15	3539
16	3378
17	3226
18	3081
19	2940
20	2814
21	2690
22	2572
23	2460
24	2353
25	2252
26	2156
27	2064
28	1977
29	1893
30	1814
35	1471
40	1199
45	983.4
50	810.9
55	672.2
60	560.1
65	468.9
70	394.5
75	333.3
80	282.9
85	241.1
90	206.3
95	177.2
100	152.8
105	132.3
110	114.9
115	100.1
120	87.51
125	76.75
130	67.52
140	52.72
150	41.61
160	-
170	-
180	-
190	-
200	-

N - 3K3A1

Sensor type:

Thermistor, temp coef. negative

°C	Ω
-50	200348
-40	100701
-30	53005
-20	29092
-15	21868
-10	16589
-5	12694
0	9795
1	9309
2	8850
3	8416
4	8006
5	7619
6	7252
7	6905
8	6577
9	6266
10	5971
11	5692
12	5428
13	5177
14	4940
15	4714
16	4500
17	4297
18	4105
19	3916
20	3748
21	3583
22	3426
23	3277
24	3135
25	3000
26	2871
27	2749
28	2633
29	2522
30	2417
35	1959
40	1598
45	1310
50	1080
55	895.5
60	746.2
65	624.7
70	525.5
75	444.0
80	376.9
85	321.2
90	274.8
95	236.1
100	203.6
105	176.2
110	153.0
115	133.3
120	116.6
125	102.2
130	89.95
140	70.23
150	55.44
160	-
170	-
180	-
190	-
200	-

P - 30K6A1

Sensor type:

Thermistor, temp coef. negative

°C	Ω
-50	2497K
-40	1219K
-30	622911
-20	331876
-15	245785
-10	183697
-5	138502
0	105305
1	99787
2	94588
3	89689
4	85069
5	80713
6	76604
7	72726
8	69064
9	65608
10	62347
11	59257
12	56346
13	53585
14	50978
15	48511
16	46178
17	43969
18	41877
19	39895
20	38019
21	36240
22	34554
23	32955
24	31438
25	30000
26	28635
27	27339
28	26108
29	24939
30	23828
35	19046
40	15317
45	12390
50	10079
55	8243
60	6777
65	5600
70	4650
75	3879
80	3251
85	2737
90	2313
95	1963
100	1672
105	1430
110	1228
115	1058
120	914.6
125	793.2
130	690.2
140	527.4
150	407.7
160	-
170	-
180	-
190	-
200	-

Thermistor Temperature Range

Q - 50K6A1

Sensor type:
Thermistor, temp
coef. negative

°C	Ω
-50	4168K
-40	2033K
-30	1038K
-20	553243
-15	409689
-10	306183
-5	230842
0	175508
1	166310
2	157644
3	149480
4	141779
5	134521
6	127669
7	121207
8	115105
9	109344
10	103903
11	98761
12	93901
13	89307
14	84962
15	80851
16	76961
17	73280
18	69794
19	66492
20	63364
21	60400
22	57589
23	54925
24	52398
25	50000
26	47724
27	45564
28	43513
29	41565
30	39714
35	31744
40	25529
45	20650
50	16799
55	13740
60	11297
65	9334
70	7751
75	6466
80	5419
85	4560
90	3855
95	3271
100	2787
105	2384
110	2046
115	1762
120	1523
125	1321
130	1149
140	878.2
150	678.8
160	-
170	-
180	-
190	-
200	-

R - 100K6A1

Sensor type:
Thermistor, temp
coef. negative

°C	Ω
-50	8337K
-40	4067K
-30	2077K
-20	1106K
-15	819378
-10	612366
-5	461683
0	351017
1	332619
2	315288
3	298959
4	283558
5	269041
6	255337
7	242414
8	230210
9	218688
10	207807
11	197521
12	187803
13	178613
14	169924
15	161702
16	153923
17	146560
18	139588
19	132984
20	126729
21	120799
22	115179
23	109850
24	104796
25	100000
26	95449
27	91128
28	87026
29	83129
30	79428
35	63489
40	51058
45	41301
50	33598
55	27479
60	22593
65	18669
70	15502
75	12932
80	10837
85	9121
90	7710
95	6543
100	5574
105	4767
110	4092
115	3525
120	3047
125	2642
130	2299
140	1756
150	1357
160	-
170	-
180	-
190	-
200	-

S - SAT2

Sensor type:
Thermistor, temp
coef. negative

°C	Ω
-50	-
-40	-
-30	-
-20	-
-15	-
-10	-
-5	-
0	2094
1	2079
2	2061
3	2046
4	2027
5	2010
6	1992
7	1973
8	1951
9	1934
10	1911
11	1897
12	1872
13	1851
14	1810
15	1809
16	1787
17	1764
18	1740
19	1716
20	1690
21	1667
22	1644
23	1621
24	1598
25	1574
26	1549
27	1524
28	1500
29	1476
30	1452
35	1336
40	1219
45	1113
50	1011
55	-
60	-
65	-
70	-
75	-
80	-
85	-
90	-
95	-
100	-
105	-
110	-
115	-
120	-
125	-
130	-
140	-
150	-
160	-
170	-
180	-
190	-
200	-

T - SAT3

Sensor type:
Thermistor, temp
coef. negative

°C	Ω
20	2708
21	2681
22	2659
23	2618
24	2616
25	2592
26	2567
27	2544
28	2520
29	2496
30	2474
31	2447
32	2423
33	2398
34	2372
35	2346
36	2322
37	2296
38	2269
39	2243
40	2216
45	2086
50	1950
55	1818
60	1694
65	1758
70	1461
75	1353
80	1258
85	1171
90	1089
95	1020
100	950

V - SAT4

Sensor type:
Thermistor, temp
coef. negative

°C	Ω
-10	1733
-5	1617
0	1504
5	1397
10	1298
15	1208
20	1128

W - SEI1

Sensor type:
Thermistor, temp
coef. negative

°C	Ω
-50	10732
-40	10517
-30	10172
-20	9654
-15	9320
-10	8933
-5	8496
0	8044
1	7910
2	7807
3	7702
4	7596
5	7489
6	7381
7	7271
8	7161
9	7050
10	6938
11	6825
12	6712
13	6598
14	6485
15	6370
16	6256
17	6141
18	6028
19	5913
20	5798
21	5686
22	5573
23	5461
24	5349
25	5238
26	5128
27	5019
28	4910
29	4803
30	4696
35	4185
40	3707
45	3271
50	2875
55	2521
60	2206
65	1929
70	1685
75	1472
80	1287
85	1127
90	986
95	866
100	760
105	670
110	590
115	522
120	462
125	410
130	365
140	290
150	233
160	-
170	-
180	-
190	-
200	-

Y - STA2

Sensor type:
Thermistor, temp
coef. negative

°C	Ω
0	7490
5	6340
10	5360
15	4540
20	3840
25	3250
30	2750
35	2320

Z - 10K NTC

Sensor type:
Thermistor, temp
coef. negative

°C	Ω
-10	42218
-5	33784
0	27197
5	22023
10	17933
15	14684
20	12087
25	10000
30	8315
35	6947
40	5831
45	4916
50	4163
55	3540
60	3023
65	2591
70	2230
75	1926
80	1669
85	1451
90	1266
95	1109
100	973

General Information

Your Sontay Account

Setting up an account:

- Complete and return an account application form to apply for credit facilities
- Pay for your order up front by bank transfer or credit-debit card on a proforma account

Placing orders:

Phone **+44 (0) 1732 861200**
 Email **sales@sontay.com**
 Website **www.sontay.com**

Mail
Sontay Ltd.
Four Elms Road · Edenbridge
TN8 6AB · UK

Setting up an account:

Companies wishing to purchase on credit account should complete and return the 'Application for credit account' form included in this catalogue or on our website at www.sontay.com. Please note that references will not be accepted from companies that are immediate competitors of Sontay.

Companies and individuals placing orders without an account will be invoiced on a proforma basis. Goods will not be despatched until the payment has cleared into our bank account, or for a faster response we are able to accept payment by Mastercard, Visa, and most types of debit/purchase cards.

Credit and payment terms:

All accounts will be subject to a trading credit limit. Accounts trading beyond these terms will be notified and asked to correct their account. Our standard credit terms are nett monthly account unless agreed otherwise in writing.

Accounts not settled within their terms will be notified and placed on stop. Accounts trading beyond agreed credit terms may invalidate their product warranty. (See warranty section).

Sontay reserve the right to charge interest on overdue balances. Sontay reserve the right to withdraw credit facilities should payment performance be outside of agreed terms.

Please note that we are no longer able to accept payment by cheque. Non proforma credit and debit card payments will be subject to a 5% handling fee to cover bank charges.

Minimum order values:

In order that we may maintain our competitive pricing it is necessary for us to insist on minimum order values per shipment as follows:

UK and Republic of Ireland:	£30
International:	£50
France & Germany:	€45

Orders supported by a bank Letter of Credit will only be accepted if over £5,000 in value. In each case, an administration charge of 5% minimum will be applied to cover set-up of payment arrangements and any bank charges will be recovered at cost.

Discount structure:

Customers may be allocated sales discounts, any discount given will be determined and reviewed on the basis of actual turnover. Standard discounts only apply to the specific products in this catalogue, special products and custom variants are excluded and are net priced. Your company discount entitlement can be confirmed at any time by calling Sales Support.

Custom products:

Sontay is always willing to discuss OEM manufacturing and special build contracts. Please contact Sales Support or your account manager for more information.

Placing orders:

Orders can be placed by phone, mail, e-mail or by our website.

The following information is required:

- Order number
- Invoice address
- Delivery address
- Delivery date required
- Part shipment acceptance (Y/N)
- Customer contact
- Items detailed with Sontay part numbers

Delivery periods:

Many items are available for immediate delivery. In all cases where delivery is critical consult the Sales Support who will try to fulfil your needs.

Warranty:

All Sontay branded products purchased after the 1st January 2017 and paid for in full compliance with Sontay's Terms and Conditions of Sale are covered by a 5 year warranty from the date the goods were despatched (excluding general fair wear & tear and gas sensing elements natural life span). The product warranty is void if the bar code label attached to the product has been removed or tampered with in anyway.

UKCA and CE marking:

Compliance to the essential requirements of relevant EC Directives and British Standards is detailed on the datasheet for each product, and products are UKCA and CE marked where appropriate. All data sheets are provided on our website and copies of which can be obtained from the Sales Support Team.

WEEE and RoHS Directive Compliance:

Waste Electrical and Electronic Equipment (WEEE) Directive The WEEE Directive requires producers to pay for electronic and electrical equipment recycling and it covers a broad range of electronic and electrical products. The WEEE Directive aims to divert waste electronics from going into landfills and to encourage eco-design, reuse and recycling through producer responsibility. The WEEE Directive applies to standalone products. These are products that can function entirely on their own and are not part of another system or piece of equipment. Sontay do not supply any products that fit into this category.

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RESTRICTION OF HAZARDOUS SUBSTANCES (ROHS) DIRECTIVE

A sister directive to WEEE, the RoHS Directive bans the presence of specified hazardous substances in certain electronic and electrical equipment placed on the EU market after 1st July 2006. The RoHS Directive ensures that any such new electronic and electrical equipment does not contain Lead, Mercury, Cadmium, Hexavalent Chromium, Polybrominated Biphenyls (PBB) and Polybrominated Diphenyl Ethers (PBDE) that are often used as flame retardants in some plastics, unless derogation is provided for via an exemption. It should be noted that not all products that Sontay supply are subject to the RoHS Directive. For those that are subject to the Directive we are fully compliant.

PROGRESSING AN ORDER

To progress an order, please call our Sales Support Team and provide the following information:

- Your company name
- Your purchase order number
- The Sontay sales order number as stated on the order confirmation, if at all possible.

If the order has been dispatched but not received, then a 'Proof of Delivery' can be requested. It usually takes between 15 minutes and two hours to provide verbal delivery status or delivery time, location and signature, as applicable. A hard copy can be requested from the couriers, but can take some days to produce.

DELIVERY AND PACKAGING CHARGES

The following prices are for shipping and packing of parcels up to 30Kg within the UK. Heavier parcels are priced individually on request.

Service (UK only)	Price
Next Day (up to 20Kg) before 12.00am*	£11.00
Before 9.00am (up to 20Kg)	£26.00
France & Germany	€22.50

* Please note – before 12.00am delivery is not available in all areas.

For prices on international and heavier items please contact the Sales Support Team. Should you choose to nominate your own freight forwarder a £25 handling charge will be applied to your account to cover our handling and admin.

CANCELLATION OF AN ORDER

Sontay employ the latest lean manufacturing techniques and often manufacture and source products to suit customer's instructions. In the event of a cancelled order, the customer will be liable for any costs incurred by Sontay during the fulfilment of your order up to the point of cancellation. Please note we will only accept written cancellation of an order. You will receive a confirmation of cancellation from us advising that we have been able to cancel your order. We regret that we cannot accept cancellation of confirmed orders for any special products and custom variants.

CUSTOMER COLLECTION

The office is open for collections from 09.00 and 17.00 hours. Please call Sales Support to arrange a suitable collection time.

DELIVERY TERMS

DAP Edenbridge or EXW: The buyer pays all transportation costs and also bears the risks for bringing the goods to their final destination. This term requires that the buyer is responsible for all duties and taxes applicable when goods are shipped internationally.

Loss, shortfall or damage (UK only): Dispatches will only be delivered if the destination address is attended and the receiver will sign for receipt of the goods.

Our carrier will make all reasonable attempt to deliver the package, it is the customer's responsibility to have a representative available to receive the package. Please allow a 30 minute leeway on delivery times.

If there is nobody available to receive the goods, the carrier will leave a calling card and return the delivery to their local depot. Simply call the number on the card to rearrange the delivery. Neither Sontay nor the carrier will advise further of any failure to deliver. Any loss, shortfall or damage discovered by the receiver/customer must be reported to Sontay within 7 days of despatch. Sontay will not accept any liability for claims made after this period and the customer will be liable to pay for the whole delivery.

Loss, shortfall or damage (Export): All export orders are accepted terms, DAP. Sontay accept no responsibility for either lost or damaged goods, we strongly advise customers to ensure that you have insurance in place to cover any such losses.

PRODUCT RETURNS

Please refer to the relevant information below for our procedures and guidelines on our product returns process. All goods that are to be returned to us must have a RMA number and documentation stating the reason for return, please contact the Sales Support Team to obtain your RMA number should you need to return goods. Any goods received without a valid RMA number or documented reason for return will not be processed and will be returned to the originator at their cost.

WARRANTY FAILURES

All goods received and accepted with the correct documentation will undergo inspection to determine their condition, goods that are determined to have failed within the defined warranty period will be credited or replaced as requested. Goods that are deemed by inspection and test to have been damaged by the user will be referred back to the customer for a decision on either return or disposal, after notification we will automatically return the goods to the originator after a period of 30 days without reply. Should you require advance replacements to items being returned we will require you to place a new purchase order, then after inspection should any credit be due it will be placed against the original order.

PRODUCT EXCHANGE

We offer to exchange products that have been ordered in error providing they are standard catalogue items, and have been returned within 60 days of purchase. These products will be inspected on return and if found to be in good condition for resale will be restocked for a 25% charge. Should you require exchange of items in advance we will require you to place a new purchase order, then after inspection should any credit be due it will be placed against the original order less the 25% restock charge. Please note that all customised "special products" and non-catalogue items are excluded from the product exchange programme.

SONTAY, EASIER TO DO BUSINESS

Sontay provide a range of services for customers to enable greater and easier access to key information and personnel.

CUSTOMER SERVICES

UK:	Tel: 01732 861200
International:	Tel: +44 1732 861225
Email:	sales@sontay.com

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TECHNICAL SUPPORT

UK:	Tel: 01732 861218
International:	Tel: +44 1732 861218
Email:	support@sontay.com

ACCOUNTS

UK:	Tel: 01732 861202
International:	Tel: +44 1732 861202
Email:	accounts@sontay.com

You will find the latest news, information on any product updates as well access to all technical datasheets for our range of catalogue products. Visit often as we are constantly evolving the site!

ISO9001 & ISO14001:



Sontay Limited is committed to serving the environment and supplying products that meet or exceed our customers' expectations of quality and service, and to this end we have an Environmental & Quality Management System that complies with the requirements of BS-EN ISO14001 and ISO9001, the scope of which covers:

'The design, manufacture, distribution, technical and after-sales support of electro and electro-mechanical temperature and relative humidity sensors and their associated peripheral equipment for building management, measurement and control applications. The provision of training service related to the products provided, and their relative applications.' **Copies of the certificates of registration are available on request.**

DEFINITIONS:

- "Acceptance" means confirmation in writing by the Company upon receipt of the Customer's order.
- "Company" means Sontay Limited.
- "Contract" means the contract for the purchase and sale of Goods.
- "Customer" means the person, firm or company [described overleaf] and who purchases the Goods or any services from the Company.
- "Goods" means the goods or services which the Company is to supply in accordance with these Terms and Conditions.
- "Terms and Conditions" means the terms and conditions of sale set out below, the Company's "Your Sontay Account" document and any specific terms and/or conditions agreed in writing between the Customer and the Company. In the event of conflict, the terms in this document shall take precedence.
- "Writing" includes communication by post, e-mail and by personal delivery of documents.

1. APPLICATION

- Unless otherwise specifically agreed in writing, these Terms and Conditions shall be incorporated into every offer, quotation, acceptance and contract for the sale or supply of Goods by the Company and, together with the order to which they relate, constitute the entire contract between the Company and the Customer. Any conditions proposed by the Customer which are inconsistent with these Terms and Conditions are hereby excluded (including any terms or conditions which the Customer purports to apply under purchase order, confirmation of order, specification or other document).
- These Terms and Conditions apply to all the Company's sales of Goods and any variation to these Terms and Conditions and any representation about the Goods or services shall have no effect unless expressly agreed in writing by a director of the Company. The Customer acknowledges that it has not relied on any statement, promise, assurance, warranty or representation made or given

by, or on behalf of, the Company which is not set out in the Contract. Nothing in this clause 1 shall exclude or limit the Company's liability for fraudulent misrepresentation.

- The Customer shall ensure that the terms of its order and any applicable specification are complete and accurate.

2. ACCEPTANCE

- All quotations are given subject to confirmation in writing by the Company upon receipt of the Customer's order, and no contract shall be concluded until such confirmation is given or the Customer's order is otherwise accepted. Unless otherwise stated in writing by the Company, each order when accepted constitutes a separate contract.
- The quality and description of the Goods shall be as set out in the Company's quotation or acknowledgement of order.
- All samples, drawings, descriptive matter, specifications and advertising issued by the Company, and any descriptions or illustrations contained in the Company's catalogues or brochures, are issued or published for the sole purpose of giving an approximate idea of the Goods described in them. They shall not form part of the Contract and this is not a sale by sample.

3. PRICES

- Prices quoted are exclusive of Value Added Tax from time to time ("VAT") (unless otherwise stated) and are those in force at the date of quotation. Unless otherwise stated in the quotation (if any) given by the Company, prices quoted may be varied at any time before delivery of the Goods or before performance of any services, provided that the prices may be varied after a Contract has become binding only by reason of an increase in the cost to the Company of raw materials or labour, or by reason of a fluctuation in exchange rates.
- If prices are varied after a Contract has become binding, the Company shall give the Customer written notice of such variation, and on receipt of such notice the Customer may cancel his order. In a case where Goods are to be delivered or services are to be supplied in instalments, the Customer may cancel payments only for the undelivered Goods or the unperformed part of the services. If the order is not cancelled, the Customer shall be bound to pay the increased or varied price in respect of the Goods delivered or services performed after such notice is received. To be effective, cancellations must be in writing and must be received by the Company either within 14 (fourteen) days of the date on which such notice was sent, or at least 28 (twenty-eight) days before delivery is due, whichever is the sooner.
- Unless otherwise expressly agreed, prices quoted are ex works and exclude all cost of packaging and delivery from the Company's premises, but these may be charged as extras.
- Any variation or amendment requested by the Customer will only be valid and binding on the Company when it is subject to a change order relating to the order duly placed with, and accepted by, the Company in writing and signed by a duly authorised representative of the Company, and subject to appropriate adjustment in price, delivery dates and other matters.
- Unless otherwise expressly agreed, in the case of export sales, prices quoted also exclude all overseas taxes and tariffs, and all costs of delivery which will be the responsibility of the Customer.

4. DELIVERY

- Delivery dates or periods are only best estimates, and the Company is not liable for the consequences of any delay. Accordingly, time shall not be of the essence in making deliveries.
- Unless otherwise agreed in writing by the Company, delivery of the Goods shall take place at the Company's place of business.
- Any delivery or performance period begins on the date of the Company's acceptance of the Customer's order, or (if later) when the Company receives from the Customer any further information which it may require to proceed

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- with the Contract. The Customer agrees to supply such information to the Company promptly, and to accept the Goods within the delivery or performance schedule or timetable specified in the Contract, and to give any necessary instructions for delivery or performance accordingly.
- (d) Where the Company has agreed to deliver the Goods to a place other than the Company's place of business, the Customer shall, in all cases other than export sales, provide the labour necessary to the Company to unload and stack the Goods free of charge to the Company. The Customer shall ensure that the delivery vehicle is unloaded within a reasonable time, and shall indemnify the Company against any loss or damage arising during unloading.
- (e) If for any reason the Customer fails to accept delivery of any of the Goods when they are notified to the Customers as being ready for delivery, or the Company is unable to deliver the Goods on time because the Customer has not provided appropriate instructions, documents, licences or authorisations:
- (i) risk in the Goods shall pass to the Customer (including for loss or damage caused by the Company's negligence);
- (ii) the Goods shall be deemed to have been delivered to the Customer; and
- (iii) the Company may store the Goods until actual delivery to the Customer, whereupon the Customer shall be liable for all related costs and expenses (including, without limitation, storage and insurance).
- (f) If the Company delivers to the Customer a quantity of Goods of up to 5% more or less than the quantity ordered and accepted by the Company, the Customer shall not be entitled to object to or reject the Goods or any of them by reason of the surplus or shortfall, and shall pay for such goods at the pro rata Contract rate.
- (g) Any typographical, clerical error or other omission in documents issued by the Company shall be subject to correction by the Company without liability on the part of the Company.
- (h) The Customer must examine the Goods immediately upon delivery, and within 7 (seven) days thereafter notify the Company in writing of any defects, and return any allegedly defective part or parts of the Goods to the Company or as the Company shall direct at the Customer's expense within 18 (eighteen) days of delivery. The Customer must pay to the Company the costs of any tests carried out to such allegedly defective part or parts of the Goods (such cost to be certified by the Company) together with the costs of return thereof to the Company, in the event that no liability attaches to the Company in respect of any defects of any Goods. Where damage occurs, not apparent on reasonable inspection, the Customer must notify the Company within 7 (seven) days of discovery of any such damage. In default, the Customer will be deemed to have examined and accepted the Goods.
- (i) The Company shall not be liable for any loss or damage caused by, or resulting from, any variation (for whatever reason) in the specifications or technical data of any outside manufacturer or, for any loss or damage arising out of curtailment or cessation of supply following such variation.
- (j) The Company will repair or, at its option, replace free of charge any part of the Goods lost or damaged in transit provided that (if the Company appoints the carrier) the Company and the carrier are given written notice of such loss or damage within the time required by the carrier's Conditions of Carriage. Alternatively, where delivery is made by the Company's own transport, the Company should be given written notice within 3 (three) days of the arrival of the Goods or, in the case of non-delivery, within 14 (fourteen) days of dispatch. This clause shall not apply to export sales.
- (k) The quantity of any consignment of Goods as recorded by the Company on dispatch from the Company's place of business shall be conclusive evidence of the quantity received by the Customer on delivery, unless the Customer can provide conclusive evidence proving the contrary.
- 5. RISK / TITLE**
- (a) The Goods are at the risk of the Customer from the time of delivery.
- (b) Ownership of the Goods shall not pass to the Customer until the Company has received in full (in cash or cleared funds) all sums due to it in respect of:
- (i) the Goods supplied to the Customer; and
- (ii) all other sums which are, or which become, due to the Company from the Customer on any account.
- (c) Until ownership of the Goods has passed to the Customer, the Customer shall:
- (i) hold the Goods on a fiduciary basis as the Company's bailee;
- (ii) store the Goods (at no cost to the Company) separately from all other goods of the Customer or any third party in such a way that they remain readily identifiable as the Company's property;
- (iii) not remove, destroy, deface or obscure any identifying mark or packaging on or relating to the Goods;
- (iv) maintain the Goods in satisfactory condition and keep them insured on the Company's behalf for their full price against all risks, to the reasonable satisfaction of the Company. On request the Customer shall produce the policy of insurance to the Company; and
- (v) give to the Company information relating to the Goods as the Company may require from time to time.
- (d) The Customer may resell the Goods before ownership has passed to it, solely on the following provisions:
- (i) any sale shall be effected in the ordinary course of the Customer's business at full market value; and
- (ii) any such sale shall be a sale of the Company's property on the Customer's own behalf, and the Customer shall deal as principal when making such a sale.
- (e) The Customer's right to possession of the Goods shall terminate immediately if:
- (i) the Customer (being an individual) has a petition, receiving order in bankruptcy or bankruptcy order presented or made against him, or commits an act of bankruptcy, or makes or offers to make an arrangement or composition with his creditors, or otherwise takes the benefit of any statutory provision for the time being in force for the relief of insolvent debtors, or (being a body corporate) convenes a meeting of creditors (whether formal or informal), or enters into liquidation (whether voluntary or compulsory) except a solvent voluntary liquidation for the purpose only of reconstruction or amalgamation, or has a receiver and/or manager, administrator or administrative receiver is appointed of its undertaking or assets or any part thereof, or documents are filed with the court for the appointment of an administrator of the Customer or notice of intention to appoint an administrator is given by the Customer or its directors or by a qualifying floating charge holder (as defined in paragraph 14 of Schedule B1 to the Insolvency Act 1986), or a resolution is passed or a petition presented to any court for the winding-up of the Customer or for the granting of an administration order in respect of the Customer (other than for the purpose of amalgamation or reconstruction), or any proceedings are commenced relating to the insolvency or possible insolvency of the Customer; or
- (ii) the Customer suffers or allows any distress, execution, whether legal or equitable, to be levied on his/its property or obtained against him/it, or fails to observe or perform any of his/its obligations under the Contract or any other contract between the Company and the Customer, or is unable to pay its debts within the meaning of section 123 of the Insolvency Act 1986 or the Customer ceases to trade; or
- (iii) the Customer encumbers or in any way charges any of the Goods.
- (f) The Company shall be entitled to recover payment for the Goods notwithstanding that ownership of any of the Goods has not passed from the Company.
- (g) The Customer grants the Company, its agents and employees an irrevocable licence at any time to enter any premises where the Goods are or may be stored in order to inspect them, or, where the Customer's right to possession has terminated, to recover them.
- (h) Where the Company is unable to determine whether any Goods are the goods in respect of which the Customer's right to possession has terminated, the Customer shall be deemed to have sold all goods of the kind sold by the Company to the Customer in the order in which they were invoiced to the Customer.
- (i) On termination of the Contract, howsoever caused, the Company's (but not the Customer's) rights contained in this clause 5 shall remain in effect.

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6. LAW

The validity construction and performance of any contract to which these Terms and Conditions apply shall be governed by the law of England and any disputes or claims arising out of or in connection with this Contract or its subject matter, shall be submitted to the English Courts.

7. PAYMENT

- (a) Subject to the establishment of an approved credit account with the Company, payment by the Customer is due within 30 (thirty) days of the date of the invoice.
- (b) If the Customer fails to pay the Company by the due date for payment, the Company may either suspend all further deliveries of Goods or performance of services until payment is made in full, or cancel the order and any subsequently ordered Goods insofar as any such Goods remain to be delivered or services remain to be performed thereunder.
- (c) The Company reserves the right to charge interest on any amounts outstanding when payment has not been made on the due date for payment at the rate (both before and after judgment) of 2 (two) per cent above HSBC base rate for the time being, calculated on the outstanding balance from the due date for payment up to and including receipt by the Company of payment.
- (d) Any sums paid by deposit, retainer or prepayment are not refundable in the event of a Customer cancelling an order. The Company reserves the right at any time, and at its sole discretion, to demand security for payment before continuing with or delivering any order.
- (e) Payment of the price for the Goods is due in pounds sterling.
- (f) No payment shall be deemed to have been received until the Company has received cleared funds.
- (g) All payments payable to the Company under the Contract shall become due immediately on its termination despite any other provision.
- (h) The Customer shall make all payments due under the Contract in full without any deduction whether by way of set-off, counterclaim, discount, deduction, withholding, abatement or otherwise, unless the Customer has a valid court order requiring an amount equal to such deduction to be paid by the Company to the Customer.

8. GUARANTEE OF QUALITY

- (a) The Company shall have the right, whether before or after the date of the order, to alter the specification of the Goods, or any part thereof, provided that such alterations shall not adversely affect the performance of the Goods.
- (b) Where the Company is not the manufacturer of the Goods, the Company shall endeavour to transfer to the Customer the benefit of any warranty or guarantee given to the Company.
- (c) The Company warrants that (subject to the other provisions of these Terms and Conditions) on delivery, and for a period of 36 (thirty six) months from the date of delivery, the Goods shall be of satisfactory quality within the meaning of the Sale of Goods Act 1979.
- (d) The Company shall not be liable for a breach of the warranty in clause 8(c) unless the Company receives notice in writing from the Customer within the warranty period referred to in clause 8(c) of a breach of that warranty, is given a reasonable opportunity, after receiving the notice, of examining such Goods, and provided also that the Customer (if asked to do so by the Company) returns such Goods to the Company's place of business at the Customer's cost for the examination to take place there.
- (e) The Company shall not be liable for a breach of the warranty in clause 8(c) if:
 - (i) the Customer makes any further use of such Goods after giving notice to the Company in accordance with clause 8(d); or
 - (ii) the defect arises because the Customer failed to follow the Company's oral or written instructions as to the storage, installation, commissioning, use or maintenance of the Goods or (if there are none) good trade practice; or
 - (iii) the Customer alters or repairs such Goods without the written consent of the

- Company; or
- (iv) the defect arises as a result of fair wear and tear, wilful damage, negligence, or abnormal working conditions.
- (f) Subject to clause 8(d) and clause 8(e), if any of the Goods do not conform with the warranty in clause 8(c), the Company shall, at its option, repair or replace such Goods (or the defective part) or refund the price of such Goods at the pro rata Contract rate provided that, if the Company so requests, the Customer shall, at the Company's expense, return the Goods or the part of such Goods which is defective to the Company.
- (g) If the Company complies with clause 8(f) it shall have no further liability for a breach of the warranty in clause 8(c) in respect of such Goods.

9. USE OF THE GOODS

Where the Goods are plant for use or operation at work (or are components for such plant), it is the Customer's responsibility to ensure that proper standards of safety are maintained in using the Goods and (without limitation) to pass on all instructions regarding such use to personnel and to arrange for their training in such use where appropriate. This obligation shall extend to taking all reasonable steps to ensure compliance with the Health and Safety at Work etc. Act 1974 in the event of sale on or other supply by the Customer.

10. INTELLECTUAL PROPERTY

- (a) The Company will indemnify the Customer against any claim for infringement of Letters Patent, Registered Design, Trade Mark or Copyright ("Intellectual Property Rights") arising by the use or sale of any of the Goods, against all costs and damages which the Customer may incur in any action for such infringement, or for which the Customer may become liable in any such action. Provided always that this indemnity shall not apply to any infringement which is due to the Company having followed any instructions furnished or given by the Customer, or to the use of such Goods in a manner, or for a purpose, or in a foreign country, not specified by, or disclosed to the Company, or to any infringement which is due to the use of the Goods in association or combination with any other goods not supplied by the Company. And provided also that this indemnity is conditional upon the Customer giving to the Company notice in writing within 7 (seven) days of any claim being made, or action threatened, or brought against the Customer, and on the Customer permitting the Company at the Company's own expense, to conduct any litigation that may ensue and all negotiations of the claim. The Customer warrants that any instruction furnished or given by it to the Company in respect of the Goods, shall not be such as will cause the Company to infringe any intellectual Property Rights.
- (b) The Customer shall indemnify the Company for any loss, damage, expense or liability in any suit or proceedings based upon any claim for the infringement of Intellectual Property Rights brought against the Company resulting from the Company's compliance with the Customer's designs or specifications, and for any such infringement involving any marking or branding applied by the Company at the request of the Customer.

11. LIABILITY

- (a) Subject to these Terms and Conditions, the following provisions set out the entire financial liability of the Company (including any liability for the acts or omissions of its employees, agents and sub-contractors) to the Customer in respect of:
 - (i) any breach of these Terms and Conditions;
 - (ii) any use made or resale by the Customer of any of the Goods, or of any product incorporating any of the Goods; and
 - (iii) any representation, statement or tortious act or omission, including negligence, arising under or in connection with the Contract.
- (b) All warranties, conditions and other terms implied by statute or common law (save for the conditions implied by section 12 of the Sale of Goods Act 1979) are, to the fullest extent permitted by law, excluded from the Contract.
- (c) Nothing in these Terms and Conditions excludes or limits the liability of the Company:

General Information

Terms and Conditions of Sale

- (i) for death or personal injury caused by the Company's negligence; or
- (ii) for any matter which it would be illegal for the Company to exclude or attempt to exclude its liability; or
- (iii) for fraud or fraudulent misrepresentation.
- (d) Subject to clauses 9(b) and 9(c):
- (i) the Company's total liability in contract, tort (including negligence or breach of statutory duty), misrepresentation, restitution or otherwise, arising in connection with the performance or contemplated performance of the Contract, shall be limited to the Contract price; and
- (ii) the Company shall not be liable to the Customer for loss of profit, loss of business, or depletion of goodwill, in each case, whether direct, indirect or consequential, or any claims for consequential compensation whatsoever (howsoever caused) which arise out of or in connection with the Contract.
- (e) This clause 11 shall survive termination of the Contract.
- (d) Failure or delay by the Company in enforcing, or partially enforcing, any provision of the Contract shall not be construed as a waiver of any of its rights under the Contract.
- (e) Any waiver by the Company of any breach of, or any default under, any provision of the Contract by the Customer shall not be deemed a waiver of any subsequent breach or default and shall in no way affect the other terms of the Contract.
- (f) The parties to the Contract do not intend that any term of the Contract shall be enforceable by virtue of the Contracts (Rights of Third Parties) Act 1999 by any person that is not a party to it.

12. FORCE MAJEURE

- (a) The Company shall not be liable to the Customer to the extent that fulfilment of its obligations to the Customer under the Contract has been prevented, hindered or delayed by force majeure, as herein defined.
- (b) For the purpose of this clause 12, "force majeure" shall mean any circumstance beyond the control of the Company and shall include (without limitation):
 - (i) riot, civil, commotion, war, rebellion, national or international emergency, strikes, lockouts or other labour disputes;
 - (ii) restriction or damage due to natural cause, floods, fires, storms, explosions or breakdown of machinery;
 - (iii) any order of a local national or international authority;
 - (iv) shortage of labour equipment, materials or supplies; or
 - (v) transportation embargoes, or failure or delays in transport or utility services.

13. REGULATIONS

The Customer warrants that it has complied with every applicable lawful requirement or instruction and (without limitation) that it has obtained every necessary licence, permit or authority that may be required in connection with the supply of Goods and services to be carried out under the Contract.

14. DEFAULT INSOLVENCY

Without prejudice to any other right or remedy which the Company may lawfully enforce or exercise, if the Customer shall commit a breach of any of its obligations to the Company under this Contract, or any other contract, or if the any of the events referred to in clause 5 (e) occur in respect of the Customer, then the Company may, without notice:

- (a) suspend or determine the Contract or any unfulfilled part thereof or any other contract between the Company and the Customer: and/or
- (b) stop any Goods in transit; and/or
- (c) recover any Goods from the Customer's premises for which payment has not been made in full. Any cost incurred by the Company during the process of recovering Goods from the Customer's premises for which payment has not been made in full, would be regarded as the debt of the Customer to the Company.

15. GENERAL

- (a) The Customer shall not assign, transfer, mortgage, charge, subcontract or deal in any other manner with all or any of its rights or its interest in the Contract without the written consent of the Company.
- (b) Each right or remedy of the Company under the Contract is without prejudice to any other right or remedy of the Company whether under the Contract or not.
- (c) If any provision of the Contract is found by any court, tribunal or administrative body of competent jurisdiction to be wholly or partly illegal, invalid, void, voidable, unenforceable or unreasonable it shall, to the extent of such illegality, invalidity, voidness, voidability, unenforceability or unreasonableness be deemed severable and deleted, and the remaining provisions of the Contract and the remainder of such provision shall continue in full force and effect.

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Education and Support in HVAC and Indoor Climate Control

**BCM00 Introduction to Building Controls and HVAC**Difficulty level:
GREEN

This course gives an overview of the systems and technologies used in the HVAC industry and includes the use of building controls and building management systems. It is designed for those already involved in building controls that require a knowledge and understanding of the terminology, technologies and systems used.

BCM01 Fundamentals of HVAC & Building ControlsDifficulty level:
GREEN

This course gives an overview of the systems and technologies used in the HVAC industry and includes the use of building controls and building management systems. It is designed for those already involved in building controls that require a knowledge and understanding of the terminology, technologies and systems used.

BCM04 Control Function of Heating PlantsDifficulty level:
AMBER

This course provides a detailed overview of all types of heating plant and systems together with the associated control applications. This is an course for those who have a good level of knowledge and a recommended minimum of two years' experience within the industry.

BCM02 Measuring & Control TechnologyDifficulty level:
RED

This assessed course gives an overview of the systems and technologies used in the heating, ventilating and air conditioning industry. Building control and building management systems are also covered. This course is designed for engineers and technicians who have some knowledge and field experience with a minimum period of one year within the industry. It is also necessary that candidates complete Fundamentals of HVAC & Building Technology (BCM01) first.

BCM05 Control of Ventilation and Air ConditioningDifficulty level:
AMBER

This course details the requirements of air conditioning plants and how they can be controlled effectively for energy efficiency. It is designed for those responsible for the design, installation and commissioning of building control technologies & systems for ventilation and air conditioning. This course builds on the knowledge gained in the BCM01-BCM04 courses.

BCM03 Hydraulics in Building ServicesDifficulty level:
AMBER

BCM03 covers the main water circuits & systems and includes the necessary mechanical knowledge needed to understand applications, valve sizing and control. The course is designed for those who have some knowledge and a recommended minimum of one year field experience within the industry.

BCM06 Control of Cooling SystemsDifficulty level:
RED

BCM06 is a detailed, theory-based course relating to refrigeration and psychometrics, focusing on how the refrigeration process operates. This is a course for those who have a good level of knowledge and a recommended minimum of two years' experience within the industry.



When attendees successfully complete BCM01-BCM03, they will be awarded with a Technical Certificate and with completion of BCM04-BCM06, they will be awarded with an Advanced Technical Certificate.

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