Sontay®

2023

Product Catalogue

INNOVATION • QUALITY • COMMITMENT • SUPPORT

Sontay®

ABOUT SONTAY

Sontay is a market leader, providing sensing and peripheral devices that are vital in any building controls application to provide essential data. Our team are experts in their field and know everything there is about how to implement our devices into your application.

50 YEARS

For almost 50 years, we have led the way with innovation and technical advancements by investing in research and development.

***We pride ourselves** in offering the ultimate service experience and love nothing better than to be able to help and support our customers in their projects.*

confidence · quality
5 Year WARRANTY
made in the UK

THE SONTAY DIFFERENCE

Sontay is your **reliable** partner for **quality** and **accurate** sensing products. We manufacture our range in house so have the **flexibility** to make bespoke items to suit **your individual project** needs.

HERE'S WHAT OUR CUSTOMERS SAY...

> Genuine professionalism is instilled into the Sontay culture and DNA. There are few suppliers, we can be as **open**, **honest** and **have trust** with as Sontay, a genuine partner.
>
> **JAMES ELLIS,** WESTERN AUTOMATION

> **The people!** Range of products, stock, ability to customise, compatibility and value all make the difference.
>
> **CONTROLSTORE,** AUSTRALIA

> **For me it is the customer service.** To have someone on the end of the phone who is **willing to help** and honest in their answers, be it good or bad news, is the key to me always putting Sontay first on my list.
>
> **PATRICK MURPHY,** OPEN SYSTEMS SOLUTIONS

> **Excellent** tech, sales, product range and after sales support.
>
> **DELTA CONTROLS,** POLAND

> **Quick response** and **delivery date** as committed to on order acknowledgment.
>
> **PROTECH,** INDIA

> **Tony and Jo are excellent with super quick feedback on quality products.**
>
> **QUALITY SYSTEMS,** SAUDI ARABIA

The Sontay® difference

Sontay®

WHAT OUR PRODUCTS BRING TO BUILDINGS

HEALTH

Monitoring and controlling indoor conditions can have a considerable effect on the occupants wellbeing.

COMFORT

Occupancy comfort is important in any indoor environment. In the workplace, productivity is improved if the ambient conditions are controlled at optimum levels.

RELIABILITY

Reliability is key to our customers. You can trust in our product reliability in the field and also our team in doing what they say they are going to do.

SAFETY

Our devices are installed behind the scenes in the buildings plant area to provide early warning of system problems or initiate safety shut off of zones.

EFFICIENCY

Installation of our devices can support building efficiency by only utilising heating, ventilation and lighting when it is needed.

ENVIRONMENT

By monitoring the ambient environment in a building and controlling efficiently, you can improve not only the environment of the building occupants but the planet too.

Sontay®

WORLDWIDE

We are proud of where Sontay products have been able to make a difference in the performance of buildings around the globe. Our vast network of customers and distributors around the world ensure that the sensing data in buildings around the globe is in safe hands with Sontay devices.

- Battersea Power Station, London
- DAERA Building, Ireland
- Burj Khalifa Tower, Dubai
- University of Technology, Sydney, Australia
- Museum of the Future, Dubai
- Data Centre, Netherlands
- Kings College Hospital, London
- Bishopsgate, London

Assured by worldwide recognised accreditation for Quality & Environmental Management Systems

ISO 9001 Quality Management

bsi ISO 9001 Quality Management Systems CERTIFIED

ISO 14001 Environmental Management System

bsi ISO 14001 Environmental Management CERTIFIED

Sontay® Academy

sontay-academy.com

SONTAY ACADEMY

Through over 45 years in the industry, Sontay has gained great knowledge in products and applications. This offers a fantastic opportunity to pass this information on to the industry through training via the Sontay Academy!

bcia training partner

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

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

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

e LEARNING

- Understanding BeMS Basics Level 1
- Understanding BeMS Cooling Level 1
- Understanding BeMS Heating Level 1
- Health & Safety, Soft Skills, Human Resourses

SONTAY

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

CIBSE CPD

Engineers Ireland cpd REGISTERED TRAINING PROVIDER 2016

Health and safety courses.
Over 130 Courses to choose from.

- Health & Safety
- Business Compliance
- HR (Human Resourses)
- Soft Skills

Sontay®

SORA

Sontay® for sensing

LoRaWAN® for wireless connectivity.

Sontay Open Range Application

Cost Efficient

Time Efficient

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

SORA Ideal Applications


Offices

Hotels



Schools

Data Centres



Shopping Centres


Superstores


Manufacturing

What makes it different to other wireless protocols?


Reliability

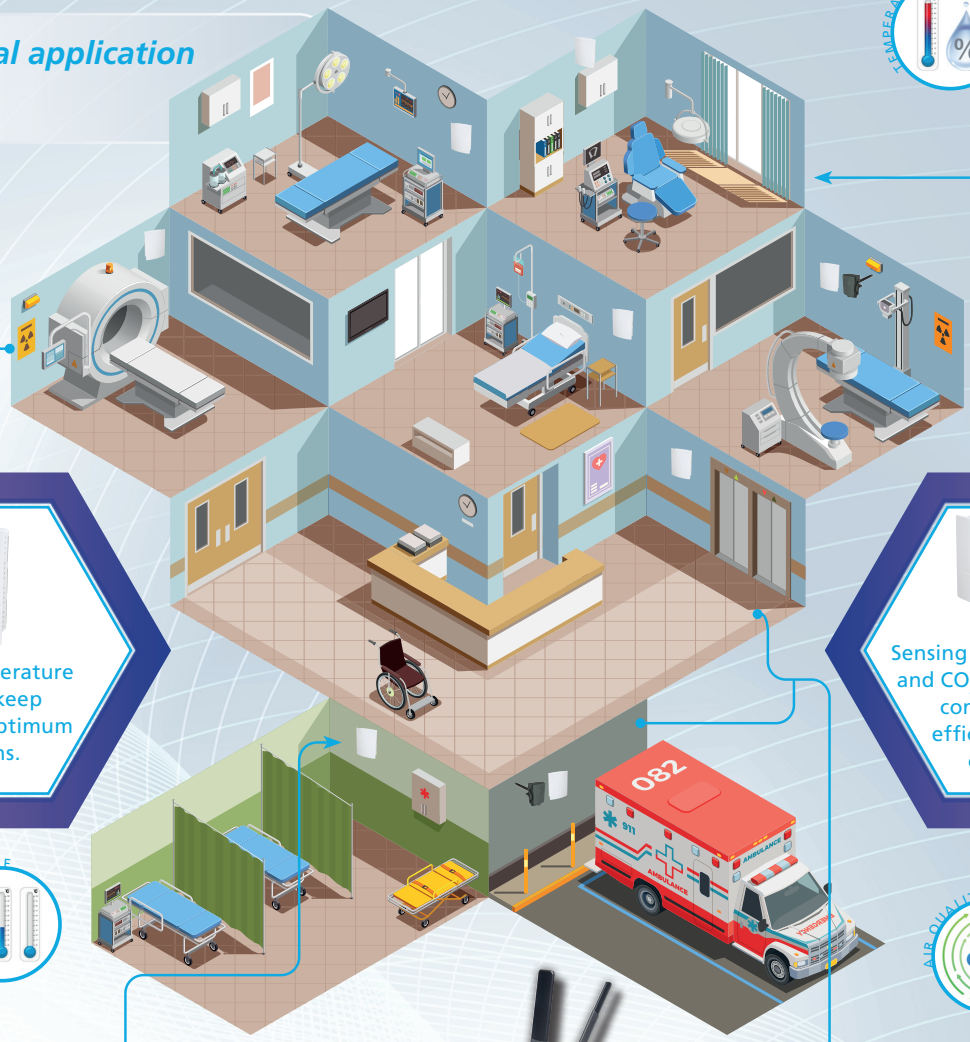

Interoperability


Security


Accuracy


Range

Typical hospital application using SORA.



Monitor Temperature and RH to keep machines in optimum conditions.

Sensing of Temperature, RH and CO_2 assures occupancy comfort as well as efficient control for cost savings.

Wireless flexibility allows for change of layout in areas where modifications are often made.

CO_2 monitoring ensures air quality levels are healthy in communal and carpark areas.

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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Air & Water Flow

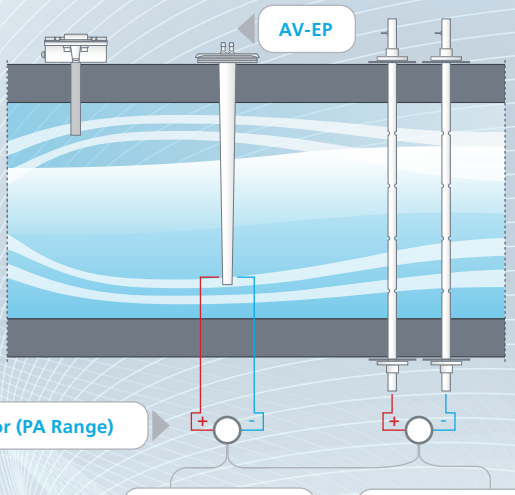
Air Velocity Sensors & Probes

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.

AV-D

Air velocity can be measured simply with a single point sensor

AIR FLOW



AV-MPS

By using multi-point air velocity probes, such as the **AV-EP** and AV-MPS ranges when utilized with differential pressure sensors **(PA Range)**

Air Differential Pressure Sensor (PA Range)

PA-DPT

PA-699

Air & Liquid Flow Switches

Fan Systems

Pump Systems

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

Low Level Alarm

High Level Alarm

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

hydrostatic

LS-712

capacitive

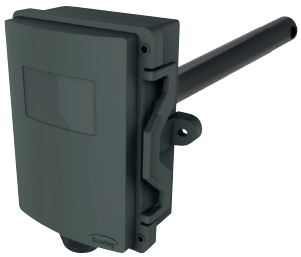
LS-CAP

ultrasonic

LS-UT

Data sheets online: www.sontay.com

AV-D Single-point Air Velocity Sensor



The AV-D is a single-point, multi-range Air Velocity Transmitter with user selectable 0-10Vdc or 4-20mA outputs and four 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
- Built-in self-test feature
- Built-in manual override facility for 0%, 50% or 100% of output range
- Durability and resistance to chemical reagent

SPECIFICATION

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

Part code	*Description*
AV-D	Single Point Air Velocity Sensor
Accessory	
DPA	Duct probe adjustment flange

AV-W Wind Speed and Direction Sensors

The AV-W series measures wind speed and direction providing outputs 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. A mounting kit is included

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

SPECIFICATION – AV-W-S

Output	1 contact closure per 1.493 metre (zero bounce)	
Min. start speed	0.5 m/s	
Accuracy	±2%	
Contact rating	Power:	50W max. (DC resistive)
	Voltage:	100Vdc max.
	Current:	1A max.
Weight	1.32kg	

COMMON SPECIFICATION

Electrical conns	Flying lead (3m long)
Ambient range	-20 to +70°C
Dimensions	Height 280mm (max. arc 120mm)
Protection	IP65

SPECIFICATION – AV-W-AD

Mechanical travel	360° endless travel
Electrical travel	357° (±2°)
Output	0 to 1kΩ for 0 to 357° @ 80Vdc max.
Weight	1.45kg

AV Multi-point Air Velocity Probes

The AV-EP and the AV-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-65x, PA-699 or PA-267 Air Differential Pressure Sensor of an appropriate range (please refer to data sheet on Sontay's website for 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

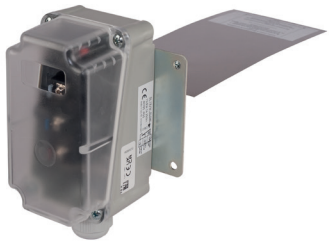
- Mounting plates included
- Double gasket seals the probe to the duct
- Push on connectors to suit PA-TUBE range of PVC tubing

SPECIFICATION

Probe Material	AV-EP: ABS Flame retardant (VO)
	AV-MPS: 304 Stainless steel
Connectors	Nickel plated brass to suit 6mm ID PVC tubing

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 of	600-700mm
AV-MPS-800	To suit duct size of	700-800mm
AV-MPS-1000	To suit duct size of	750-1000mm
AV-MPS-1250	To suit duct size of	1000-1250mm
AV-MPS-1500	To suit duct size of	1250-1500mm
AV-MPS-1750	To suit duct size of	1500-1750mm
AV-MPS-2000	To suit duct size of	1750-2000mm

FS-A Air Flow 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.

FEATURES

- Adjustable switching point
- Lid-mounting screws provide tamper proofing

SPECIFICATION

Operating temp	Ambient:	-20 to +70°C max.
	Media:	-40 to +85°C max.
Materials	Paddle:	Stainless steel
	Rod:	Brass
	Enclosure:	ABS base, transparent PC cover
Switch rating	15(8)A SPDT @ 24... 250Vac	
Dimensions	Paddle:	80 x 175mm
	Housing:	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.

FEATURES

- Screws directly into a 1" BSPT boss.

SPECIFICATION

Operating temperature	-40 to +120°C max.	
Materials	Paddle:	Stainless steel
	Rod:	Brass
	Enclosure:	ABS base, transparent PC cover
Switch rating	15(8)A SPDT @ 24 ... 250Vac	
Pipe suitability	1" to 8"	
Dimensions	Housing:	113.5 x 65 x 62mm
	Paddles:	28.5, 54.5, 83.5 and 161.5mm
Protection	IP65	
Weight	700g	

Part code	*Description*
FS-W	1" BSPT Flow Switch

LS-712 Hydrostatic Level Transmitter

Sontay's LS-712 provides continuous hydrostatic level measurement up to 10.2m water column. They are suitable for many applications such as water tanks, wells, sumps and ponds. Transmitters have a vented cable which provides an atmospheric reference for the sensor, which is necessary for ensuring repeatable, precision depth measurements under the most adverse conditions.

FEATURES

- Compact design
- Simple installation
- Stainless steel construction

SPECIFICATION

Supply voltage	4-20mA	10 to 30Vdc
	0-10Vdc	12 to 30Vdc
Measurement ranges	LS-712-A	300mbar / 3.06m
	LS-712-B	Smbar / 10.2m
	Enclosure:	ABS flame retardant
Response time	< 2ms	
Materials	Case:	Stainless steel / 1.4404 / AISI 316L
	Cable:	PE-HD
	Seal:	EPDM
Temperature	-40 to +80°C	
Dimensions	Sensor:	116 x 23.4mm
	Cable:	5 or 15m
Protection	IP68	
Weight	400g	

Part code	*Description*
LS-712-A	0-300mbar, 5 meter cable, 4-20mA output
LS-712-A-V	0-300mbar, 5 meter cable, 0-10Vdc output
LS-712-B	0-Smbar, 15 meter cable, 4-20mA output
LS-712-B-V	0-Smbar, 15 meter cable, 0-10Vdc output

LS-CAP Capacitance Level Sensors

These sensors are designed for level measurement in tanks or sumps providing a 4-20mA output relating to the level of fluid in the tank. The LS-CAP-1 is suitable for conducting liquids such as water whilst the LS-CAP-2 is designed for use with clean, low viscosity non-conducting liquids, such as oil.

FEATURES

- Suitable for a wide range of media
- Easy in-situ range adjustment
- 4-20mA output
- No moving parts

SPECIFICATION

Output	4-20mA
Supply	20 to 38Vdc
Insertion length	0.5 to 3m variants
Process connection	1" BSP
Process temperature	100°C max.
Ambient temperature	-20 to +60°C
Max. pressure	20 bar @ 20°C
Electrode insulation	Polypropylene
Termination housing	ABS
Protection	IP65
Weight	6.4kg max.

Part code	*Description*	*Part code*	*Description*
Conducting Liquids		**Non-conducting Liquids**	
LS-CAP-1-0.5	0.5m Probe	**LS-CAP-2-0.5**	0.5m Probe
LS-CAP-1-1.0	1.0m Probe	**LS-CAP-2-1.0**	1.0m Probe
LS-CAP-1-1.5	1.5m Probe	**LS-CAP-2-1.5**	1.5m Probe
LS-CAP-1-2.0	2.0m Probe	**LS-CAP-2-2.0**	2.0m Probe
LS-CAP-1-2.5	2.5m Probe	**LS-CAP-2-2.5**	2.5m Probe
LS-CAP-1-3.0	3.0m Probe	**LS-CAP-2-3.0**	3.0m Probe

LS-UT Ultrasonic Level Transmitter

The LS-UT provides accurate level measurement where non-contact level monitoring is the preferred option. The output represents the distance between the surface of the liquid being detected and the transmitter. It has a user programmable measuring range of up to 8 meters.

FEATURES

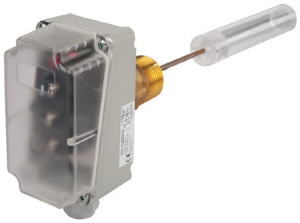
- Simple set up procedure
- Locking nut supplied

SPECIFICATION

Measurement range	0.4 to 8m
Output	4-20mA loop powered
Loop voltage	20 to 38Vdc
Resolution	1mm
Accuracy	0.25% of measuring range
Connections	5 meter 2-core screened cable
Temperature range	-10 to +60°C
Dimensions	131 x 94 dia.
Protection	IP68 (2m for 24 hours)
Weight	1kg

Part code	*Description*
LS-UT	Ultrasonic Level Transmitter

LS-541 Float Switch



The LS-541 is intended to monitor the liquid level in a tank or vessel and provides a switched output for 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

Mounting	1" BSPT boss	
Media	Non-aggressive fluids	
Operating temp	Ambient:	-40 to +85°C, media 85°C max.
Operating pressure	11 bar max.	
Materials	Float:	Acrylic
	Rod / boss:	Brass
	Enclosure:	ABS Base, PC Cover
Switch rating	15(8)A SPDT @ 24...250Vac, VFC	
Protection	IP65	
Dimensions	Housing:	140 x 65 x 62mm
	Float & rod:	205 x 25mm dia. max.
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

Switch rating	6A @ 240Vac
Std. cable length	5m
Materials of construction	Polypropylene & PVC
Min. fluid S.G.	0.7
Ambient temperature	0 to 55°C
Max. ext. pressure	200kPa
Protection	IP68
Dimensions	170 x 155mm
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 Compact Liquid Level Switches

LS-S Types

A range of level switches designed for high and low liquid level detection. 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+3 switches mount from the outside into a tapered boss.

SPECIFICATION

Switch rating	LS-SN	230Vac/200Vdc @ 0.5A max.
	LS-SS	300Vac/350Vdc @1A max.
Material	LS-SN	Polypropylene
	LS-SS	Stainless steel 316
Operating range	LS-SN	-20 to +80°C
	LS-SS	-20 to +120°C
Weight	120g max.	

Part code	*Description*
Polypropylene Float Switches	
LS-SN-1	Internal fixing to M16 back nut
LS-SN-2	½" NPT external fixing
Stainless Steel Float Switches	
LS-SS-1	Internal fixing to M8 back nut
LS-SS-3	½" BSPT external fixing

LS-TM Types

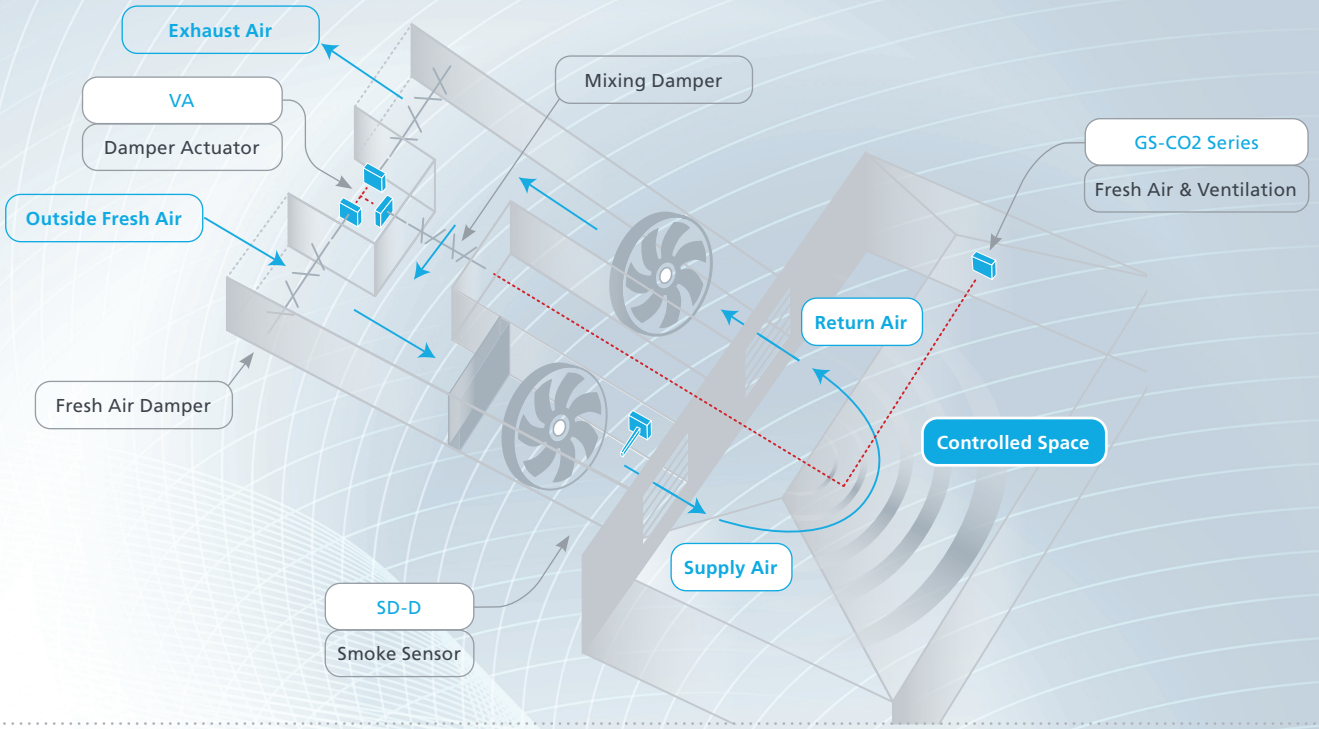
The LS-TM is an easy to install Top Mounting Level Switch, and has a reversible float so that it can be used for either high or low level alarms. The float is suspended from a 5 metre PVC weighted cable.

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*
Top Mounting Reversible Float Switch	
LS-TM	Top Mounting Level Switch

Air Quality & Gas Sensing



Variety of Options: MS, SP, LED, RH&T

ModBus RTU / BACnet MS/TP over RS-485 bus communications

GS-CO2 Sensor Range

Duct Housing

Space Housing

- Fresh Air & Ventilation
- Control
- Energy Efficiency

GS-AQ Range

- Indoor Air Quality (IAQ) Monitoring
- Volatile Organic Compounds (VOCs) Monitoring
- Alarm Purposes

GS-S Range

For Car Park Ventilation Control

Monitoring for 3 common gases

Health & Safety via Fault Detection

SD-D

Duct Mounting Smoke Detector

GS-AQ | Indoor Air Quality and Temperature Sensor

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
- LCD display option
- Easy installation: 2-part, push-in spring terminals

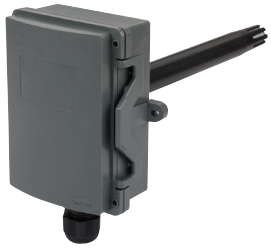
SPACE SENSORS

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

SPECIFICATION

Active Outputs	0-10Vdc or 4-20mA (3-wire) self-detecting	
Optional Passive Outputs	Setpoint:	11-1kΩ/0-10kΩ linear
	Override:	VFC
	PTC/NTC Element	Any Sontay resistive type*
Output ranges	Air Quality:	0 to 1,000ppb TVOC
	Temperature:	0 to 40°C
Power Supply	24Vac/dc ±10%	
Housing	Dimensions:	115 x 85 x 30mm
	Material:	ABS (flame retardant)
Environemental	Housing:	0 to 50°C
		0 to 95% RH non-condensing
Protection	IP30	
Weight	180g	

DUCT SENSORS



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

SPECIFICATION

Active Outputs	0-10Vdc or 4-20mA (3-wire) self-detecting	
Optional Passive Output	PTC/NTC Element	Any Sontay resistive type*
Output Ranges	Air Quality:	0 to 1,000ppb TVOC
	Temperature:	-20 to +20°C
Power Supply	24Vac/dc ±10%	
Housing	Dimensions:	125 x 105 x 85mm
	Probe:	215 x 20mm dia.
	Material:	PC/GF (Halogen Free Flame
		Retardant, UV stabilized)
Environmental	Housing:	-30 to +60°C
		0 to 95% RH non-condensing
	Media:	-10 to +50°C
Protection	IP65	
Weight	250g	

Part code	*Suffixes (add to part code)*
-T *	Direct resistive temperature output
-SP *	11-1kΩ/0-10kΩ setpoint
-MS *	Momentary switch
-LCD	LCD display
-TR	Custom temperature 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 availiable on Space Sensor Types.

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

BACnet Modbus *For Smart Communicating Versions visit page 54-61.*

GS-AQ-x-UN Single Output Indoor Air Quality Sensors

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 a passive resistive output for temperature, along with other passive outputs.

FEATURES

- Auto-detection 0-10Vdc or 4-20mA output, 3-wire only
- Direct thermistor option
- LCD option

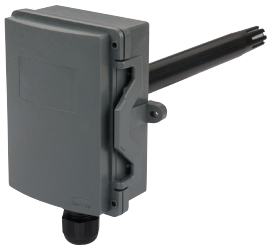
SPACE SENSORS

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

SPECIFICATION

Active Outputs	0-10Vdc or 4-20mA (3-wire) self-detecting	
Optional Passive Outputs	Setpoint	1-11kΩ
	Override	VFC
	PTC/NTC Element	Any Sontay resistive type*
Power Supply	24Vac/dc ±10%	
Output Range	0 to 10 (0 = good / 10 = poor)	
Housing	Dimensions:	115 x 85 x 30mm
	Material:	ABS (flame retardant)
Environemental	Housing:	0 to 50°C
		0 to 95% RH non-condensing
Protection	IP30	
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	
Optional Passive Output	PTC/NTC Element	Any Sontay resistive type*
Power Supply	24Vac/dc ±10%	
Output Range	0 to 10 (0 = good / 10 = poor)	
Housing	Dimensions:	125 x 105 x 85mm
	Probe:	215 x 19mm dia.
	Material:	PC/GF (Halogen Free Flame Retardant, UV stabilized)
Environmental	Housing:	-30 to +60°C
		0 to 95% RH non-condensing
	Media:	-10 to +50°C
Protection	IP65	
Weight	250g	

Part code	*Suffix (add to part code)*
-T *	Direct resistive temperature output
-SP *	1-11kΩ setpoint
-MS *	Momentary switch
-LCD	LCD display
-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 availiable on Space Sensor Types.
** Plain front, no user interface option available (SP/MS/LCD)

GS-CO2 Carbon Dioxide, Temperature and optional RH & IAQ Sensors

Using a NDIR sensor for measuring CO_2 concentrations and utilizing ABC (Automatic Baseline Correction) algorithm, they offer excellent long term stability & accuracy. Available with active temperature and RH outputs, as well as other passive outputs and user interfaces. A unique feature of this sensor 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, LCD and user interface options
- Automatic baseline correction algorithm
- Traffic Light LED indication option
- Easy installation: 2-part, push-in spring terminal blocks

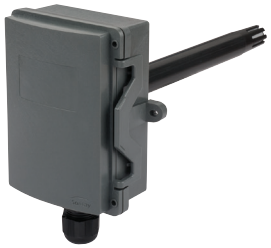
SPACE SENSORS

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

SPECIFICATION

Active Outputs	0-10Vdc or 4-20mA (3-wire) self-detecting	
Optional Passive Outputs	Setpoint:	11-1kΩ/0-10kΩ linear
	Override:	VFC
	PTC/NTC Element	Any Sontay resistive type*
Power Supply	24Vac/dc ±10%	
Output ranges	CO_2:	0-2000ppm
	Temperature:	0 to 40°C
CO_2 Accuracy	400-2000ppm	±70ppm ±3%
Optional	-RHT	0 to 100%RH
	-AQ	0 to 1000ppb TVOC
	-HR	0 to 5000ppm
Housing	Dimensions:	115 x 85 x 30mm
	Material:	ABS (flame retardant)
Environemental	Housing:	0 to 50°C
		0 to 95% RH non-condensing
Protection	IP30	
Weight	200g	

DUCT SENSORS



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

SPECIFICATION

Active Outputs	0-10Vdc or 4-20mA (3-wire) self-detecting	
Optional Passive Output	PTC/NTC Element	Any Sontay resistive type*
Power Supply	24Vac/dc ±10%	
Output ranges	CO_2:	0-2000ppm
	Temperature:	0 to 40°C
CO_2 Accuracy	400-2000ppm	±70ppm ±3%
Optional	-RHT	0 to 100%RH
	-AQ	0 to 1000ppb TVOC
	-HR	0 to 5000ppm
Housing	Dimensions:	125 x 105 x 85mm
	Probe:	215 x 20mm dia.
	Material:	PC/GF (Halogen Free Flame Retardant, UV stabilized)
Environmental	Housing:	-30 to +60°C
		0 to 95% RH non-condensing
	Media:	-10 to +50°C
Protection	IP65	
Weight	250g	

Part code	*Suffixes (add to part code)*
-T*	Direct resistive temperature output
-SP*	11-1kΩ/0-10kΩ setpoint
-MS*	Momentary switch
-LCD	LCD Display
-LED	3-Colour LED indication for CO_2
-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 availiable on Space Sensor Types.
** Plain front, no user interface option available (SP/MS/LCD)

Data sheets online: www.sontay.com

BACnet Modbus *For Smart Communicating Versions visit page 54-61.*

GS-CO2-x-UN Single Output Carbon Dioxide Sensors

A unique 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. PCB LED indication of which output type is in operation is provided. Also available with a passive resistive output for temperature, along with other passive outputs.

FEATURES

- Auto-detection 0-10Vdc or 4-20mA output, 3-wire only
- Direct thermistor option
- LCD option
- Traffic Light LED indication option

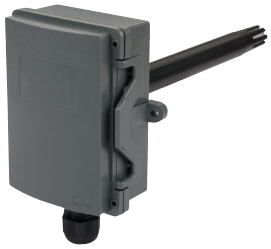
SPACE SENSORS

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	
Optional Passive Outputs	Setpoint:	1-11kΩ
	Override:	VFC
	PTC/NTC Element	Any Sontay resistive type*
Power Supply	24Vac/dc ±10%	
Output Range	0 to 2000ppm	
CO_2 Accuracy	400 to 2000ppm	±25ppm ±3% of CO_2
Housing	115 x 85 x 30mm	
Material	Dimensions:	115 x 85 x 30mm
	Material:	ABS (flame retardant)
Environmental	Housing:	0 to 50°C
		0 to 95% RH non-condensing
Protection	IP30	
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	
Optional Passive Outputs	PTC/NTC Element	Any Sontay resistive type*
Power Supply	24Vac/dc ±10%	
Output Range	0-2000ppm	
CO_2 Accuracy	400 to 2000ppm	±25ppm ±3% of CO_2
Housing	Dimensions:	125 x 105 x 85mm
	Probe:	215 x 20mm dia.
	Material:	PC/GF (Halogen Free Flame Retardant, UV stabilized)
Environmental	Housing:	-30 to +60°C
		0 to 95% RH non-condensing
	Media	-10 to +50°C
Protection	IP65	
Weight	250g	

Part code	Suffix (add to part code)
-T *	Direct resistive temperature output
-SP *	1-11kΩ setpoint
-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 availiable on Space Sensor Types.
** Plain front, no user interface option available (SP/MS/LCD)

GS-CO Carbon Monoxide Sensors

Sontay's range of CO sensors offer real time detection for Carbon Monoxide measurement. A valuable feature of this sensor is when in 3-wire mode it automatically detects what the controller input is set to, 4-20mA or 0-10Vdc. 2-wire loop powering selectable via DIP switch. The long life electrochemical Carbon Monoxide sensor makes it ideal for many applications including underground parking, loading bays and warehouses.

FEATURES

- Pre-calibrated Electro-Chemical sensing elements
- Auto detection 0-10Vdc or 4-20mA outputs, loop powering via DIP
- Direct thermistor options
- Easy installation: 2-part, push-in spring terminal blocks

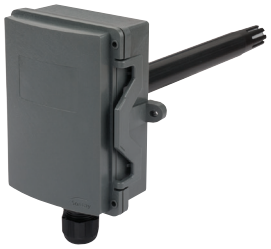
SPACE SENSORS

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

SPECIFICATION

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

DUCT SENSORS



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

SPECIFICATION

Active Outputs	0-10Vdc or 4-20mA (3-wire) self-detecting	
	4-20mA (2-wire) via DIP	
Power Supply	24Vac/dc ±10%	
Output range	Carbon Monoxide	0 to 500ppm
	Temperature	0 to 40°C
Optional Passive Outputs	PTC/NTC Element	Any Sontay resistive type*
Housing	Dimensions:	125 x 105 x 85mm
	Probe:	215 x 20mm dia.
	Material:	PC/GF (Halogen Free Flame Retardant, UV stabilized)
Environmental	Housing:	-30 to +60°C
		0 to 95% RH non-condensing
	Media:	-10 to +50°C
Protection	IP65	
Weight	250g	

Part code	Suffixes (add to part code)
-T *	Direct resistive temperature output
-SP *	11-1kΩ/0-10kΩ setpoint
-MS *	Momentary switch
-TR	Custom temperature 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. This range of Carbon Monoxide Sensors is designed for monitoring purposes and should not be used in safety applications.
* Only availiable on Space Sensor Types.
** Plain front, no user interface option available (SP/MS/LCD)

BACnet Modbus *For Smart Communicating Versions* ***visit page 54-61.***

GL-CO Gas Leak Alarm Systems

Stand-alone gas leak alarm systems to provide safety alarm and shutdown facilities on detection of gas leakage.

FEATURES

- Audio and visual alarms
- Adjustable alarm sensitivity
- Relay output for remote alarms
- Auto or manual reset selectable
- Self-diagnosis fault system

SENSOR TYPES

Natural Gas Sensor	GL-CO-SRS-150
Propane Sensor	GL-CO-SRS-250
Carbon Monoxide Sensor	GL-CO-SRS-350

SPECIFICATION

Power Supply	230Vac ±10% @ 50/60Hz or 12V ±10%	
Relay Outputs	GL-CO-RGF-631	SPDT 250V @ 5(1)A
	GL-CO-RGF-65x	2 x SPDT 250V @ 5(1)A
Materials	Base:	Nylon
	Cover:	ABS
Ambient	Temperature:	0 to 50°C
	RH:	0 to 95% RH non-condensing
Protection	IP30	
Weight	GL-CO-RGF-631	250g
	GL-CO-RGF-631	600g

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:

- Carbon Monoxide (CO)
- Nitrogen dioxide (NO_2)
- Oxygen (O_2)
- Sulphur dioxide (SO_2)

FEATURES

- 4-20mA output
- Excellent long term stability

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

SPECIFICATION

Output	4-20mA	
Supply	7.5 to 35Vdc	
Housing material	ABS (flame retardant) only for internal mounting	
Dimensions	95 x 90mm dia.	
Environmental	Housing:	-30 to +50°C
		15 to 90% RH non-condensing
Protection	IP65	
Weight	160g	

Part code	*Range*	*Resolution*
CO – Carbon Monoxide		
GS-S-CM-100	0 to 100ppm	0-5ppm
GS-S-CM-1000	0 to 1000ppm	0-5ppm
NO_2 – Nitrogen Dioxide Sensors		
GS-S-ND10	0 to 10ppm	0.1ppm
O_2 – Oxygen Sensor		
GS-S-OX25	15 to 25%	0.1%
SO_2 – Sulphur Dioxide Sensor		
GS-S-SD20	0 to 20ppm	0.5ppm

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

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

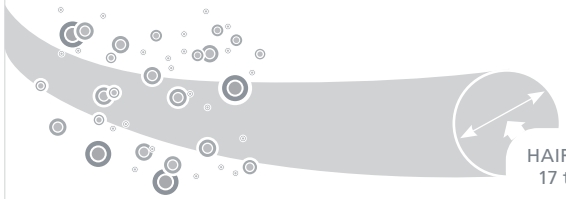
Part code	*Description*
SD-D	Duct Smoke Detector

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 dfficulties. 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 in levels.

HOW CAN WE REDUCE OVERALL PARTICULATE MATTER?

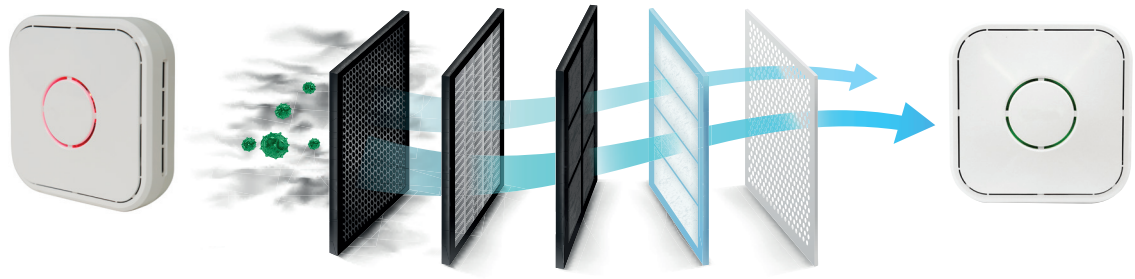
This is down to us and the way we live our lives. We can all make small changes in things that we do that when multiplied amongst all of us can help to make a big difference.

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/

bcia the building controls industry association

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 to us all when breathed in over a 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.



MONITORING PARTICULATE MATTER

- Temperature (T)
- Humidity (RH)
- Particle Matter (PM)
- Total Volatile Organic Compounds (TVOC)
- Formaldehyde (HCHO)
- Carbon dioxide (CO_2)

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
	Offices	Air purifying and ventilation to reduce fatique and tiredness, resulting in higher productivity and better business results.
	Schools	Filtering viruses and harmful matter to enhance health and wellbeing of pupils, resulting in improved academic results.
	Hospitals	Controlling temperature and filtering viruses in air pollution, creates a break in cycle of secondary infections leading to increased recovery results.
	Public buildings	Real time measurements of hazarous gases and filtering of harmful air polutants to avoid mass outbreaks of illnesses.
	Transport	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.

GS-PM-S Particulate Matter Sensor

The GS-PM-S 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-S measurements accuracy in different environments.

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 38400 baud rate	
Power Supply	24Vac/dc ±10%	
Current consumption	1.2W (1200mA)	
Warm up time	60 seconds	
Output ranges	PM2.5	0 to 600µg/m³
	Humidity	0 to 100%RH
	Temperature	-20 to +50°C
Accuracy	PM2.5	±10µg/m + 10% of reading
		@ 15-35°C, 20-80%RH
	Humidity	<±3%RH (20-80%RH)
	Temperature	<±0.5°C @ 25°C
Operational life PM2.5	>5 years (Avoid dust and bright lights)	
Environmental	Temperature	0 to 60°C
	Humidity	5 to 95% non-condensing
Housing:	Material	PC/ABS
	Dimensions	85 x 130 x 36.5mm
Protection	IP30	

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

GS-PM-D Duct Mounted Particular Matter Sensor

The GS-PM-D is real time monitoring parameter for PM2.5/10, CO2, TVOC, humidity and temperature measurement, monitored via the Modbus RTU output. Particulate matter 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.

FEATURES

- Real time indoor air quality
- Temperature & RH compensation
- Built in regulated controlled fan to guarantee constant air volume, improving stability and lifetime
- Easy to clean filter mesh
- Modbus RTU output

SPECIFICATION

Outputs	Modbus RTU 9600 8Nl (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/m³
	CO_2	0 to 2000ppm
	TVOC	0.01 to 4.00mg/m³
	Humidity	0 to 99%RH
	Temperature	-20 to +60°C
Accuracy	PM2.5	±5µg/m + 10% of reading
		{Oto 300µg/m³ 10-30°C, 10-60%RH)
	CO_2	±50ppm + 3% reading
	TVOC	<±0.05 mg/m³ + 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 sensors types for all-round indoor air quality. Sensor types include is for PM2.5, PM10, TVOC, HCHO, CO_2, 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 much higher and long-term operation stability and life, and of course more accuracy.

FEATURES AND BENEFITS

- Real time indoor air quality monitoring
- Multiple sensors:

  PM2.5, PM10, TVOC, HCHO, CO_2, humidity & temperature
- Three colour light ring indicating indoor air quality levels
- The colour light ring can be switch off
- Ceiling or wall mounted
- Modbus RTU output

SENSOR DEFINITIONS

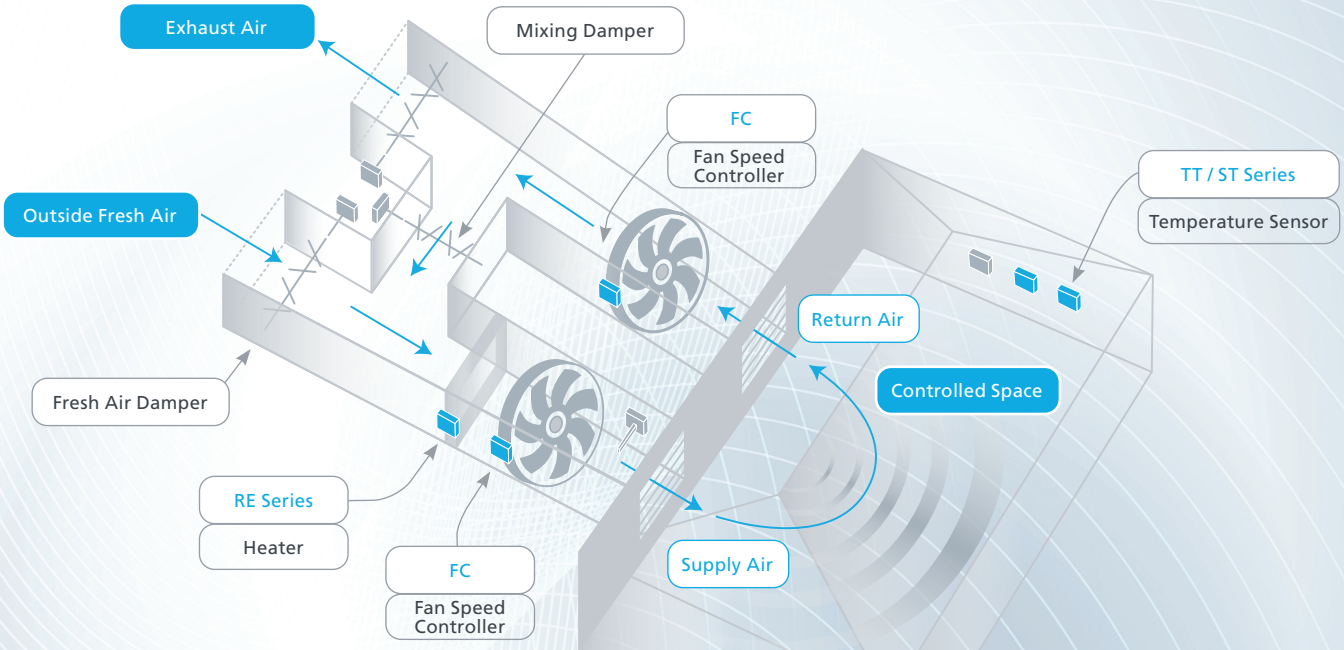
PM2.5	Pollutants less than 2.5 microns
PM10	Pollutants less that 10 microns
TVOC	Total Volatile Organic Compounds
HCHO	Formaldehyde (CH20)
CO_2	Carbon dioxide
Humidity	Relative humidity
Temperature	Dry bulb temperature

SPECIFICATION

Outputs	Modbus RTU	
Power Supply	12-28Vdc or 18-27Vac	
Current consumption	1.9W (1900mA)	
Electrical connections	Rising cage to suit 0.2 to 1.5mm²	
Output ranges	PM2.5	0 to 500µg/m³
	PM10	0 to 800µg/m³
	TVOC	0 to 3.5mg/m³
	HCHO	0 to 0.6mg/m³
	CO_2	0 to 5000ppm
	Humidity	0 to 99%RH
	Temperature	-20 to +60°C
Accuracy	PM2.5	10% of reading, 0-300µg/m³
@ 25°C, 10 to 60%RH	TVOC	±0.5 µg/m³ +10% of reading
	HCHO	±0.005 µg/m³ +5% of reading
	CO_2	±50 ppm +3% of reading
	Humidity	<±4% RH (20-80% RH)
	Temperature	<±0.6°C @ 25°C
Environmental	Temperature	0 to 50°C
	Humidity	5 to 90% non-condensing
Housing:	Material	PC/ABS
	Dimensions	130 x 130 x 45mm
Protection	IP20	
Certification	CE Marked	
	RESET, Grade B	
	WELL	

Part code	*Description*
GS-IAQ-S	PM2.5/10, TVOC, HCHO, CO_2, RH & Temp. Monitor

Controllers



FC Fan Speed Controller Range

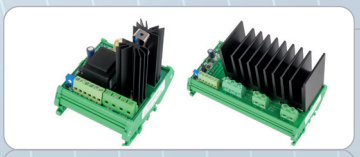
For fans and suitable single-phase AC electric motors.

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

Data sheets online: www.sontay.com

FC-SDY Manual Speed Controllers for small motors

Manual control for small, single-phase motors up to 3 amps. Suitable for wall and/or flush mounting.

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

SPECIFICATION

Nominal supply	230Vac, 1-phase, 50/60Hz	
Control type	Manual via potentiometer	
On/off switch	Inbuilt with pot.	
Pot. action	Clockwise = min. to max. speed	
Minimum speed	Adjustable via trim pot	
Current ratings	FC-SDY-1.5	0.1 to 1.5A
	FC-SDY-3	0.2 to 3.0A
Mounting style	Wall and flush mount	
Protection	Flush	IP44
	Surface	IP54
Dimensions	Wall mount:	82 x 87 x 63.5mm
	Flush mount:	82 x 87 x 23.5mm
Weight	360g max.	

FC-ITR Manual Speed Controllers

This range of manual speed controllers provide single-phase voltage control for AC motors, by varying the supplied voltage through phase-angle control.

Part code	*Description*
FC-ITR-3D	3A, 1-phase Controller
FC-ITR-5D	5A, 1-phase Controller
FC-ITR-10D	10A, 1-phase Controller

SPECIFICATION

Nominal supply	110 to 230Vac, 1-phase, 50/60Hz	
Control type	Separate to potentiometer, mounted on side	
On/off switch	Full speed for 8 to 10 secs	
Pot. action	Clockwise = min. to max. speed	
Minimum speed	Adjustable via trim pot	
Current ratings	FC-ITR-3D	0.1 to 3.0A
	FC-ITR-5D	0.2 to 5.0A
	FC-ITR-10D	0.5 to 10.0A
Fuse ratings	FC-ITR-3D	F5.0AH 250Vac (5x20mm)
	FC-ITR-5D	F8.0AH 250Vac (5x20mm)
	FC-ITR-10D	F16AH 250Vac (6.3x32mm)
Mounting style	Wall mount	
Protection	IP54	
Dimensions	FC-ITR-3D	162 x 96 x 75mm
(including cable gland)	FC-ITR-5D	162 x 96 x 93mm
	FC-ITR-10D	205 x 124 x 97mm
Weight	740g max.	

FC-EVS Fan Speed Controllers

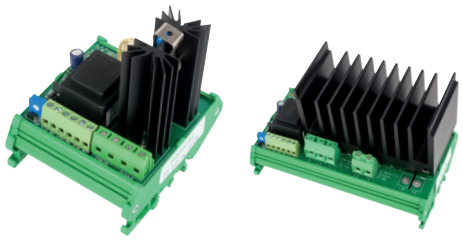
The FC-EVS can control the speed of single-phase voltage controllable electric motors, with a 0-10Vdc or 4-20mA control signal. Centrifugal fans, axial fans, propeller fans and centrifugal pumps are prime candidates for electronic speed control.

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

SPECIFICATION

Nominal supply	230Vac, 1-phase, 50/60Hz	
Control type	Automatic from remote signal	
On/off switch	Mounted on side	
Pot. action	Two wire 4-20mA, 0-10Vdc or Modbus	
Minimum speed	According to signal value	
Current ratings	FC-EVS-1.5	0.1 to 1.5A
	FC-EVS-3	0.1 to 3.0A
	FC-EVS-6	0.5 to 6.0A
	FC-EVS-10	0.5 to 10.0A
Fuse	20mm 'FF' type	
Fuse ratings	FC-EVS-1.5	FF 3.15A
	FC-EVS-3	FF 5A
	FC-EVS-6	FF 10A
	FC-EVS-10	FF 16A
Mounting style	Wall mount	
Protection	IP54	
Dimensions	178 x 113 x 92mm (including cable gland)	
Weight	810g max.	

RE-1P Single-phase Controllers



The single phase DIN-Rail mounting controllers 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 items are provided with an alarm output for over temperature protection and LED Indication of Output ON, and are designed to mount on DIN-rail.

FEATURES

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

SPECIFICATION

Input signal	Selectable; 0-5V, 0-10V, 2-10V or 4-20mA	
Supply (load)	220-255Vac 50/60Hz	
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-1P-2	75 x 94 x 80mm
	RE-1P-4N	95 x 94 x 80mm
	RE-1P-7	165 x 105 x 80mm
Weight	RE-1P-2	200g
	RE-1P-4N	400g
	RE-1P-7	800g

Part code	*Description*	*Current rating*
RE-1P-2	2kW Controller	9A
RE-1P-4N	4kW Controller	18A
RE-1P-7	7kW Controller	30A

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

FEATURES

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

SPECIFICATION

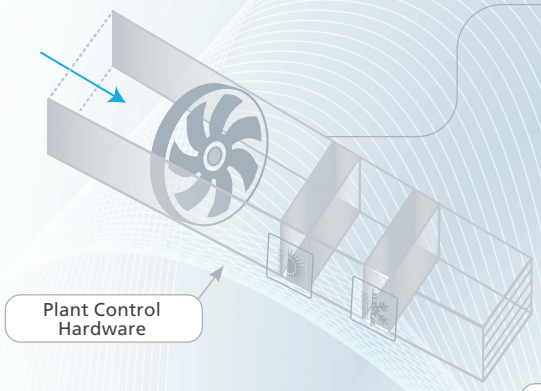
Input signal	Selectable; 0-5V, 0-10V, 2-10V or 4-20mA	
Supply (load)	220-255Vac 50/60Hz	
Supply (control)	DIN-Rail:	24Vac/dc
	Panel Mount:	230Vac
LED indication	ON when output is on	
Alarm output	(as power supply),	
	0V when over temp alarm is active*	
Ambient temperature	0-45°C without de-rating	
Dimensions (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*	*Current rating*
RE-3P-12	Din-rail 12kW Controller	16A per phase
RE-3P-18	Din-rail 18kW Controller	25A per phase
RE-3P-27	Panel mount 27kW Controller	37A per phase
RE-3P-36	Panel mount 36kW Controller	50A per phase
RE-3P-57	Panel mount 57kW Controller	80A per phase
RE-3P-86	Panel mount 86kW Controller	120A per phase
RE-3P-105*	Panel mount 105kW Controller	146A per phase

*No Alarm Output available on 105kW.

IO Modules

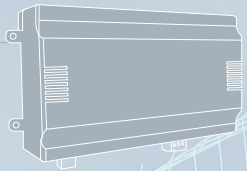
IO Input / Output Modules



IO Modules

IN OUT

BMS Controller



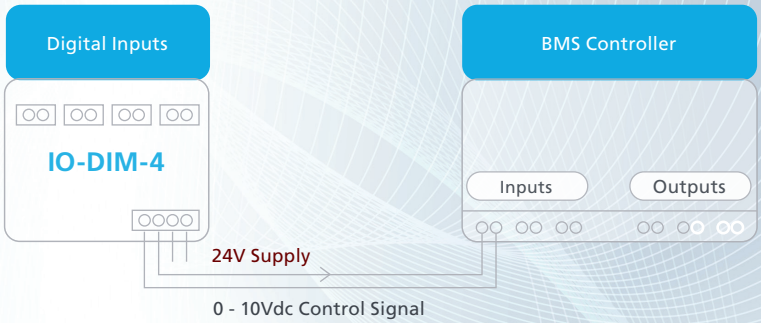
Convert | Rescale

To the desired format suitable for the wide range of control formats.

- Raise / Lower — sometimes called: 3-point or floating control
- Linear Modulating
- ON / OFF

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.

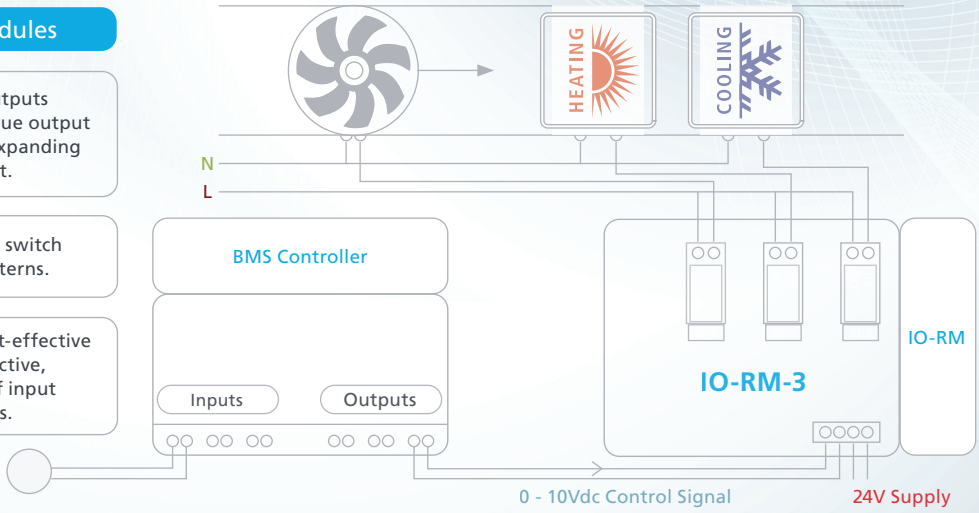


IO-RM Relay Output Modules

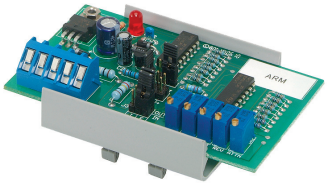
Allows up to 8 digital relay outputs to be connected to a single analogue output on a BMS controller, effectively expanding the available output count.

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

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



IO-A-RM Analogue Rescaling Module



This module can accept either a voltage or current input which can be rescaled to either a voltage or current output and also can reverse an input signal.

FEATURES

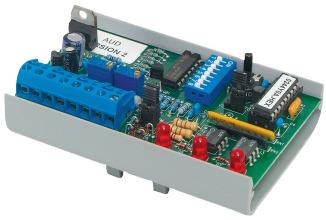
- Reverse or normal output
- Voltage to current, current to voltage conversion
- LED indication

SPECIFICATION

Input signal	Voltage:	0 to 35Vdc max.
	Current:	0 to 44mA max.
Output signals	Voltage:	0.25 to 20Vdc max.
	Current:	1 to 44mA max.
Power supply	24Vac/dc ±10%, 200mA max.	
Ambient range	Temperature:	-10 to +50°C
	RH:	10 to 95% RH non-condensing
Dimensions	93 x 60 x 40mm	
Weight	60g	

Part code	*Description*
IO-A-RM	Analogue Rescaling Module

IO-A-UD Raise/Lower to Analogue Module



The IO-A-UD accepts a raise/lower relay (pulsed relay contact inputs or pulsed DC or AC voltage inputs) signal and provides a 0-10Vdc output.

FEATURES

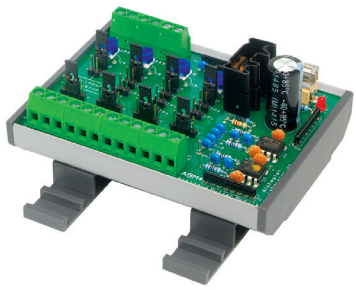
- Manual override potentiometer
- Selectable rate of change
- Current or voltage output
- Relay, transistor or triac input

SPECIFICATION

Input signal	Relay contact, transistor, triac, 24Vac	
Input ranges	45, 60 or 240 seconds, selectable	
Output signals	Voltage:	0-10Vdc 3.3KΩ min.
	Current:	4-20mA 750Ω max.
Resolution	255 steps	
Power supply	21.6 to 28Vdc or 24 to 35Vdc, 208mA max.	
Ambient range	Temperature:	-10 to +50°C
	RH:	10 to 95% RH non-condensing
Dimensions	96 x 58 x 30mm	
Weight	60g	

Part code	*Description*
IO-A-UD	R/L to Analogue Module

IO-ABM4 Analogue Override Module



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. Useful for commissioning or temporary control of plant prior to controller installation.

FEATURES

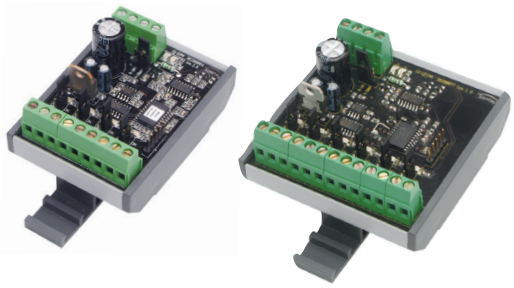
- 4 x 0-10Vdc channels & 24Vac/dc powered
- Hand/off/auto link selectable
- Up to four outputs to be controlled from one input

SPECIFICATION

Input signals	0-10Vdc
Output signals	0-10Vdc direct or buffered
Max. output current	20mA per channel in buffered mode
Power supply	24Vac/dc ±15%
Max. supply current	AC supply 260mA | DC supply 115mA
Fused output	24Vac @ 8A
Fuse	8A max.
Ambient range	-10 to +50°C
Dimensions	104 x 106 x 70mm
Weight	110g

Part code	*Description*
IO-ABM4	4-channel Module

IO-DIM Digital Input Multiplexers



These modules are to expand a BMS controllers 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

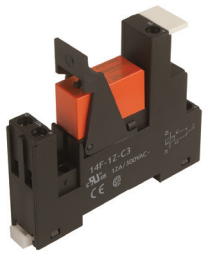
- Fault finding LED indication
- Input status indication & simulation
- Expands controller input capacity

SPECIFICATION

Inputs	VFC, 24Vac or 24Vdc	
Outputs	0-10Vdc into 2kΩ impedance	
	4-20mA into 500Ω max.	
Power supply	24Vac ±15% @ 50Hz or	
	24Vdc +15% -6%	
Current	35mA max. voltage output mode	
	55mA max. current output mode	
LED indication	Supply OK, supply voltage low, supply voltage high, current output (4-20mA output only)	
Ambient range	Temperature:	-10 to +50°C
	RH:	0 to 80% RH non-condensing
Dimensions	IO-DIM-4	75 x 55 x 42mm
	IO-DIM-6	75 x 75 x 42mm
Weight	IO-DIM-4	80g
	IO-DIM-6	100g

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.

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 are 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.

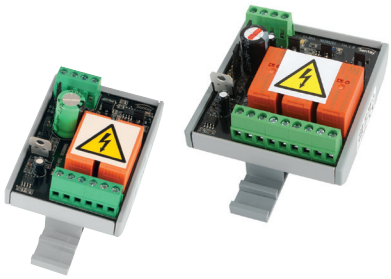
FEATURES

- 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

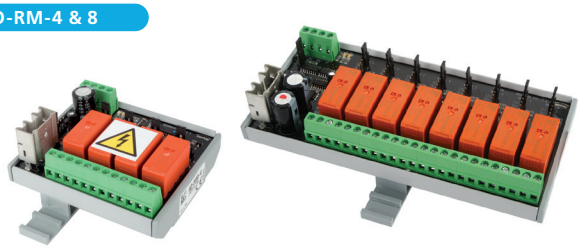


Part code	Description
IO-RM-2	2-stage Relay Module
IO-RM-3	3-stage Relay Module

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 squenced
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	I72 x 49.5 x 55mm	
Weight	82g	

Energy Saving through Lighting Control

40% of all energy

is consumed by light

in commercial buildings

LL Series

OC Series

Energy & Cost Savings

LL Series · Light Level Sensors

Lux level (light level)

Light and Heat Detection

OC Series · PIR & Microwave Sensors

Passive Infra-red (body heat) detection

Switching Light ON only when:

The ambient light is too low — AND — The controlled space is occupied

Can result in significant energy and cost savings.
This cost-effective approach has a good return on investment.

LL-C-M Lighting Controller

A complete lighting controller in a robust ceiling mount housing

with

- Adjustable Light Level
- Off Delay Adjustments

LL-P-V Light Level Sensor

Can be used to control exterior lighting such as car parks

to

Automatically switches lighting ON and OFF at appropriate times

BACnet Modbus For Smart Communicating Versions visit page 54-61.

LL Light Level Sensors

Our range of light level sensors output a linear 0-10Vdc signal representing the lux level at the sensor element. This is typically used in lighting strategies to optimise energy efficiency through dimming and/or disabling of lights as required.

The LL-P-V has two selectable ranges of 10 to 2000 and 10 to 10,000. The LL-C-V has a fixed range of 10 to 2000 lux.

FEATURES

- 0-10Vdc output
- 24Vac/dc powered
- Link selectable output range on LL-P-V

LL-P-V

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

SPECIFICATION

Sensor reference	Photo-diode	
Accuracy	±5% across range	
Ranges (selectable)	10 to 2000 Lux	
	10 to 10,000 Lux	
Output	0-10Vdc	
Supply	24Vac/dc	
Environmental	Housing:	-30 to +60°C
		0 to 90% RH non-condensing
Housing material	PC/GF	
	(Halogen Free Flame Retardant, UV stabilized)	
Dimensions	125 x 105 x 85mm	
Protection	IP65	
Weight	140g	

LL-C-V

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

SPECIFICATION

Sensor reference	Photo-diode	
Accuracy	±5% across range	
Range	10 to 2000 Lux	
Output	0-10Vdc	
Supply	24Vac/dc	
Ambient range	Temperature:	-10 to +40°C
	RH:	0 to 90% RH non-condensing
Housing material	Flame retardant ABS, polypropylene	
Dimensions	76mm (dia.) x 95mm (H)	
Protection	IP30	
Weight	140g	

LL-C-M Lighting and Occupancy Controller

Designed to give savings over uncontrolled lighting. 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 conditions.

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

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

- Energy saving & Simple to install
- Adjustable light level and off delay time

BACnet Modbus *For Smart Communicating Versions **visit page 54-61.***

OC Occupancy Detectors

Using passive infra-red detection, the OC-x-LV range of occupancy detectors monitors occupation through moving body heat which activates the internal SPDT relay.

FEATURES

- Wall mounting or ceiling versions
- Low voltage loads can be switched directly without the need for interposing relays

OC-C-LVN

The OC-C-LVN is for flush mounting through a false ceiling using the clips provide. An LED indicates detection, this flashes every 2 seconds on detection. The LED wil be off when no occupancy is detected.

SPECIFICATION

Supply	24Vac/dc
Sensor type	Passive infra-red detector
Field of View	360°
Coverage	6 meters max.
Off delay timer	10 seconds to 30 minutes
Switching capacity	6(2)A @24V
Ambient range	Temperature: -10 to 40°C
	RH: 0 to 90% RH. non-condensing
Dimensions	76mm (dia.) x 98mm (H)
Protection	IP30
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

Supply	24Vac/dc
Sensor type	Passive infra-red detector
Field of View	90°
Coverage	18 meters
Off delay timer	10 seconds to 30 minutes
Switching capacity	6(2)A @24V
Ambient range	Temperature: -10 to 40°C
	RH: 0 to 90% RH. non-condensing
Dimensions	100 x 43 x 75mm
Protection	IP30
Weight	70g

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

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 setpoint'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 setpoint	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, 0-10Vdc & 0-5Vdc output signals. 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.

FEATURES

- Power the sensor and receive the signal with only two wires
- Split core versions for fast retrofit installation without removing the conductor
- Dip-switch selectable ranges on 0-10Vdc version

APPLICATIONS

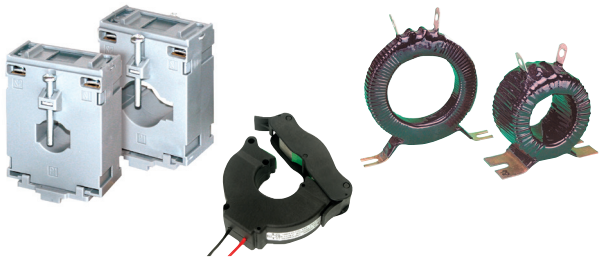
- Load trending
- Motor control

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*
4-20mA Output	
PM-CTR-01	0 to 20A, split core Current Transducer
PM-CTR-02	0 to 50A, split core Current Transducer
PM-CTR-03	0 to 100A, split core Current Transducer
PM-CTR-04	0 to 20A, solid core Current Transducer
PM-CTR-05	0 to 50A, solid core Current Transducer
PM-CTR-06	0 to 100A, solid core Current Transducer
0-5Vdc Output	
PM-CTR-07	0 to 10A, solid core Current Transducer
PM-CTR-08	0 to 20A, solid core Current Transducer
PM-CTR-09	0 to 50A, solid core Current Transducer
PM-CTR-10	0 to 100A, solid core Current Transducer
0-10Vdc Output	
PM-CTR-11	20/50/100A, split core Current Transducer

PM-CT Current Transformers



The Sontay range of current transformers are available in moulded, split core and ring types. They are all suitable for use with the PM-EM range of kWh meters. The split core Current transformers are useful for retrofits, upgrades and temporary installations, as they can be fitted without any disruption to the existing installation.

FEATURES

- Ratings from 50 to 800A
- 5A secondary current

SPECIFICATION

Overload	1.2 x rated current (continuous)	
Frequency	50/60Hz	
Insulation level	3kV (50Hz) for 1 minute (not PM-CT-M)	
Connections	PM-CT-M	Screw terminals
	PM-CT-xSC	1m tails
	PM-CT-R	M6 lug terminals
Conformity	PM-CT-xSC	IEC185, BS7DTA, BSEB 60044-1
	PM-CT-R	IEC44-1, IEC185., BS7DTA
Ambient	Humidity:	up to 95% RH non-condensing
	Temperature:	-20 to +85°C (PM-CT-M)
		-30 to +85°C (others)
Weight	750g max.	

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)

The PM-EM210 compact energy meter 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.
Standard meters are non-MID. For billing use, add annex -B+D option. If extra system information is required please contact Sontay Support.

FEATURES

- Pulsed or Modbus output options
- Self powered
- 5A CT secondary current
- Multi-use housing for both DIN-rail and panel mounting applications

APPLICATIONS

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

CHARACTERISTICS

Measurements	System	W, var, PF, Hz, Phase-sequence
	Single-phase	VLL, VLN, A, PF, kWh, kvarh

SPECIFICATION

Frequency	45 to 65Hz	
Display	2 lines	
Housing	Nylon PA66, self-extinguishing UL 94 V-0	
Mounting	DIN-rail or panel	
Output types	Pulse:	Open collector
	Modbus:	RS485
RS 485	Address:	Programmable, 1 to 247
Refresh time	1/s	
Ambient	Humidity:	0 to 90% RH non-condensing
	Temperature:	-25 to +55°C
Protection	IP50 (front)	
Dimensions	72 x 72 x 65mm	
Weight	260g	

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

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. Standard meters are non-MID. For billing use, add annex -D option. If extra system information is required please contact Sontay Support.

FEATURES

- Gas and water measurements and multi-tariff management in one unit
- Pulsed or ModBus output options
- 5A CT secondary current
- Two digital outputs (alarms or/and pulses) or RS485 communication port

APPLICATIONS

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

SPECIFICATION

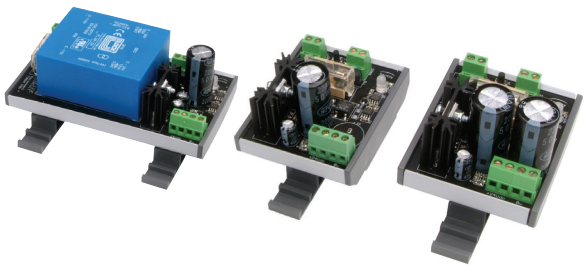
Frequency	45 to 65Hz	
Display	3 lines (1 x 8 digit. 2 x 4 digit)	
Housing	Nylon PA66, self-extinguishing UL 94 V-0	
Mounting	DIN-rail or panel (optional PM-PMK)	
Output types	Pulse:	Open collector
	Modbus:	RS485
	Address:	Programmable, 1 to 247
	Baud-rate:	Programmable, 4800. 9600 bit/s
Sampling rate	1600 samples /s @ 50Hz	
	1900 samples /s @ 60Hz	
Display refresh time	750m/s	
Ambient	Humidity:	0 to 90% RH non-condensing
	Temperature:	-25 to +55°C
Protection	IP50 (front)	
Dimensions	90 x 71 x 65mm	
Weight	360g	

CHARACTERISTICS

Measurements	System	VLL, VLN, Admd max, var, VA, W, Wdmd, Wdmd max, VAdmd, VAdmd max, PF, Hz
	Single-phase	VLL, VLN, A, W, var, VA, PF, Admd, kWh, kvarh, hour counter

Part code	*Description*
PM-EM24-P	Energy Analyser - Pulsed Output
PM-EM24-M	Energy Analyser - Modbus Output
Option (add to part code above)	
-D	Annex -D Certification
Accessory	
PM-PMK	Panel door mounting kit

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
- ON-PCB self-test function
- Polarity independent output

SPECIFICATION

Supply	240Vac and 24Vac	
Output	24Vdc @ 1A	
LED indication	Power ON, low output voltage, high output voltage, output voltage within limits, reset button pressed, self-test in progress	
Ambient	Humidity:	0 to 95% RH non-condensing
	Temperature:	-10 to +50°C
Dimensions	PS-230-24DC-1A	104 x 118 x 88mm
	PS-24-24DC-1A	104 x 74 x 65mm
	PS-24-24DC-E	104 x 74 x 70mm
Weights	PS-230-24DC-1A	620g
	PS-24-24DC-1A	120g
	PS-24-24DC-E	120g

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.

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

Pressure

MEASURING

Static Pressure → Control & Efficiency ← Differential Pressure

PA Series · Air and Gas Pressure

PL Series · Liquid Pressure

Sensors

Measure an applied pressure and produce a linear output (0-10Vdc or 4-20mA) which represents a specific pressure range, such as 0 –25 Pa, or 0 –1 bar.

AND

Switches

Measure pressure, but switch a contact at a pre-set pressure level within the operating range of the switch.

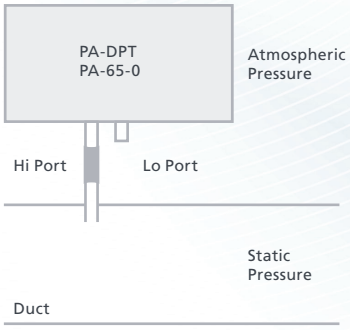
A Range of Accessories are available:

- Duct Fixing Kits
- Pig-Tails (to reduce temperature and shock loading)

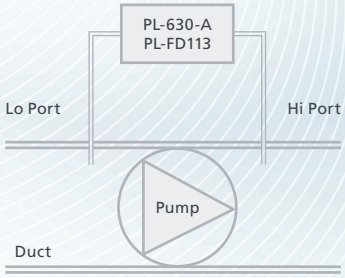
APPLICATIONS

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

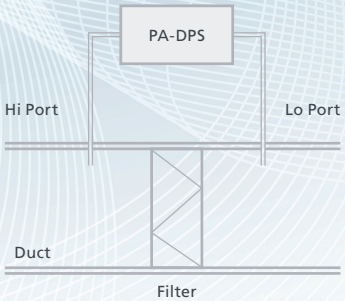
Static Air Pressure Control



Pump Flow Proving



Dirty Filter Indication



PA-699 Multi-range Air DP Sensor

Sontay's range of field selectable multi-range differential pressure transmitters, incorporate a proven ceramic fulcrum lever technology for pressure measurement. The PA-699 has three field selectable ranges in one unit, providing versatility for a multitude of applications.

FEATURES

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

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

SPECIFICATION

Power Supply	Current:	11 to 33Vdc	
	Voltage:	13.5 to 33Vdc or 24Vac ±15%	
Accuracy	PA-699-01 to 04 ±1.0 max.		
	Others:	±0.6	
Thermal effect		*TC zero point*	*TC sensitivity*
	PA-699-01/02:	±0.02	±0.03
	Others:	±0.01	±0.01
Rupture pressure	2 x overload at ambient temp.		
Diaphragm	Silicone		
Housing	Polycarbonate PC		
Ambient range	0 to 70°C		
Protection	IP65		
Dimensions	92 x 75 x 47.9mm		
Weight	92g		

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

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.

Part code	*Description*
Accessories	
DFK	Duct fixing kit
TEE	Tee piece air pressure (pack of 10)
PITOT	Aluminum Pitot Tubes (Pair)
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

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, laboratory's 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

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 0.2-1.5mm² (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 though	
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

Modbus *For Smart Communicating Versions* ***visit page 54-61.***

PA-DPT 2-wire — Multi-Range Air Differential Pressure Transmitter, 2-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, laboratory's 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

SPECIFICATION

Power supply	24Vc ±10% (2-wire)	
Output Accuracy (mA)	±0.04mA typical, at 25°C, load 1000	
Electrical Connections	Terminals to suit 0.2-l.5mm2 cables	
Accuracy	1.5% AP+ ±2Pa	
	Ap = Applied Pressure	
Long term stability	0 ... ±8Pa (typical 1 year)	
Over pressure	Proof pressure:	25kPa
	Burst pressure:	30kPa
Response time	4.0 or 0.8s selectable	
Measuring element	MEMS, no flow though	
Pressure connections	5mm ID tubing	
Housing Material	C/GF (Halogen free, flame retardant	
	& UV stabilized)	
Dimensions	125 x 105 x 85mm	
Environmental	Operating temp.:	0 to +50°C
	Storage:	-20 to +60°C
	Humidity:	0 to 95% RH non-condensing
Protection	IP65	
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.

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-267 — Air DP Sensors

These highly accurate sensors are designed for differential pressure measurements of air and other neutral gases. The unit is especially suited for measurement and control in HVAC applications.

FEATURES

- Available in ranges as low as 0-25Pa
- Integral LCD option
- Duct fixing kit included

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

Accuracy	Standard	±0.1% fsd
	High accuracy	±0.40% fsd
Over pressure	68 kPa	
Pressure connections	Push fit for 6mm i/d tube	
Output	Current	4-20mA, load: 100 to 800Ω
	Voltage	0-10Vdc (o/p impedance <100kΩ)
Power supply	Current Min.	9Vdc + (0.02 x load resistance)
	Current Max.	30Vdc + (0.004 x load resistance)
	Voltage	9-30Vac or 12-40Vdc
Diaphragm	Stainless steel 304 S/S	
Housing	Glass-filled polycarbonate to UL94V-0	
Protection	IP65	
Operating temp	–18 to +65°C	
Dimensions	158 x 80 x 60mm	
Weight	340g	

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	
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-267-CAL *	Calibration certificate

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.

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 setpoint is adjusted 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

SPECIFICATION

Operating ranges	*Type:*	*Adjustment range:*
	PA-DPS-88	20 to 300Pa
	PA-DPS-83	50 to 500Pa
	PA-DPS-85	200 to SPa
	PA-DPS-90W	20 to 300Pa
	PA-DPS-91W	50 to 500Pa
	PA-DPS-92W	100 to 1000Pa
	PA-DPS-94W	500 to 2000Pa
Max. operating pressure	5000Pa	
Pressure connections	6mm i/d push-on tubing	
Electrical rating (IP54)	1.5A (0.4)/250Vac AgCdO contacts	
Electrical rating (IP65)	5A (0.4)/250Vac AgCdO contacts	
Housing material	Plastic moulding	
Dimensions	IP54:	85mm dia. x 59mm
	IP65:	81mm dia. x 58mm
Protection	IP54 or IP65	
Ambient range	Temperature:	-20 to +85°C
	RH:	0 to 95% RH non-condensing
Weight	250g	

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

Part code	*Description*
IP54 Housing	
PA-DPS-88	20 to 300Pa DP Switch
PA-DPS-83	50 to 500Pa DP Switch
PA-DPS-85	200 to 1000Pa 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
Accessories	
PA-DPS-B	Right angled mount bracket (PA-DPS-8x only)

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	
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

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 setpoint 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

Liquid differential pressure switch suitable for monitoring flow status across pumps, chillers, valves etc. The switch has an adjustable set point from 0.3 to 4.5 bar with a fixed differential of 0.2 bar.

FEATURES

- SPDT switch
- Single unit covers a wide pressure range
- Simple to configure

SPECIFICATION

Range	0.3 to 4.5 bar
Switching differential	0.2 bar
Pipe connections	¼" BSP female
Ambient temperature	-10 to +70°C
Liquid temperature	70°C max.
Switch rating	3A @ 230Vac
Protection	IP30
Dimensions	128 x 175 x 48mm
Weight	800g

Note: A mounting bracket is supplied with the switch.

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

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

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 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.

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

SPECIFICATION

Supply voltage	PL-525-x	10Vdc to 30Vdc
	PL-525-x-V	12Vdc to 33Vdc
	PL-520-x	7Vdc to 33Vdc
	PL-520-x-V	12Vdc to 33Vdc or 24Vac ±15%
Output	PL-52x	4-20mA
	PL-52x-V	0-10Vdc
Response time	<2ms. 1ms typical	
Materials	**PL-525** Pressure connection: S/S 1.4305/AISI 303	
	Sensor:	Ceramic Al2O3 (96%)
	Sealing material	FPM (Viton)
	PL-520 Pressure connection: S/S 1.4404/AISI 3/6	
Pressure connection	½" BSP male	
Temperature	Media: PL-525-x	-15 to +125°C
	PL-520-x	-40 to +135°C
	Ambient:	-30 to +85°C
Protection	IP65	
Dimensions	105 x 65mm	
Weight	105g	

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.

Part code	*Description*		*Part code*	*Description*	
4-20mA Output (2-wire loop powered)			**0-10Vdc Output**		
PL-525-0.1	0 to 100 mbar	Low Pressure	**PL-525-0.1-V**	0 to 100 mbar	Low Pressure
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

Features optimised polymer diaphragm technology to give long term stability and excellent repeatability of switching points and housed within a rugged industrial case.

FEATURES

- Suitable for liquids and gases
- High vibration resilience
- Adjustable switching differential
- Spade connectors and gland supplied

SPECIFICATION

Max. test pressure	10 bar
Max. operating pressure	1½ x range
Pressure connection	¼" BSP male
Media	Water. air and steam (with pigtail siphon)
Electrical rating	6A(3A) @ 250Vac
Contact system	Changeover contact
Operating range	-10 to +80°C
Protection	IP54
Dimensions	98 x 65mm
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-630-A Differential Pressure Switch

Ideal for flow monitoring and proving applications in heating, ventilating and air-conditioning systems.

FEATURES

- Over-pressure safety capability to 10 bar / 20 bar
- Mechanically isolated switching chamber for safety and reliability
- Medium temperatures to 80°C
- Rugged construction
- Adjustable setting and differential

SPECIFICATION

Max. operating pressure and overload on one side (P1>P2)	With range ≤ 200 mbar:	10 bar
	With range 0.15 to 5.5 bar:	20 bar
Pressure connection	$^1/_8$" BSP female	
Media	Water, air and steam (with pigtail siphon)	
Electrical rating	1A(0.5A) @ 250Vac	
Contact system	Changeover contact	
Operating range	-10 to +80°C	
Protection	IP65	
Dimensions	110 x 65mm	
Weight	1.08 kg	

Note: A mounting bracket is supplied with the switch.

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

Note: The PL-630-PIG consist at 2m of 6mm copper tubing and 4 x commpression fittings (2x$^1/_8$" + 2x¼")

PL-652 Low Range Differential Pressure Sensor

A sensor for liquids and gases which uses the 'Hall Effect' sensing technology. The high over pressure resilience and rugged mechanical construction make this product suitable for a wide range of HVAC applications.

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

SPECIFICATION

Supply voltage	20 to 30Vdc
Max. operating pressure overload on one side	10 bar (P1>P2)
Pressure connection	1/8" BSP female
Media	Water, air and steam (with pigtail siphon)
Operating range	-10 to +80°C
Protection	IP65
Dimensions	110 x 65mm
Weight	940g

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.

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 mbar Liquid DP Sensor
Accessory	
PL-652-CAL *	Calibration certificate

PL-692 Differential Pressure Sensor

For high accuracy and close control applications, the PL-692 features ceramic sensing technology for exceptional accuracy and reliability. The amplified sensing technologies allow high temperature stability and no creepage associated with mechanical systems.

FEATURES

- Current and voltage output models
- Supplied with 6mm o/d fittings
- Easy installation and wiring
- Complete with 1.5m cable, ready connected
- High temperature stability

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	

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.

Part code	*Description*
4-20mA Output (2-wire loop powered)	
PL-692-0.1	0 to 100 mbar Liquid DP Sensor
PL-692-0.2	0 to 200 mbar Liquid DP Sensor
PL-692-0.4	0 to 400 mbar 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 100 mbar Liquid DP Sensor
PL-692-0.2-V	0 to 200 mbar Liquid DP Sensor
PL-692-0.4-V	0 to 400 mbar 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
Accessory	
PL-692-CAL *	Calibration certificate

SORA - Sontay Open Range Application

Introduction to SORA

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

Sontay® for sensing

LoRaWAN® for wireless connectivity.

SORA

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.

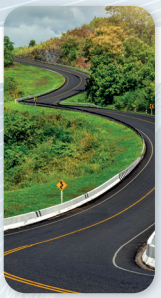
Cost Efficient

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.

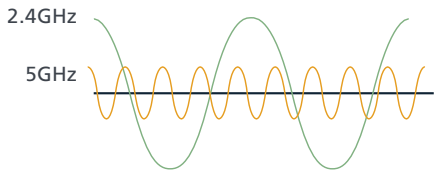
This leads to extraordinary battery longevity in the field.

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?

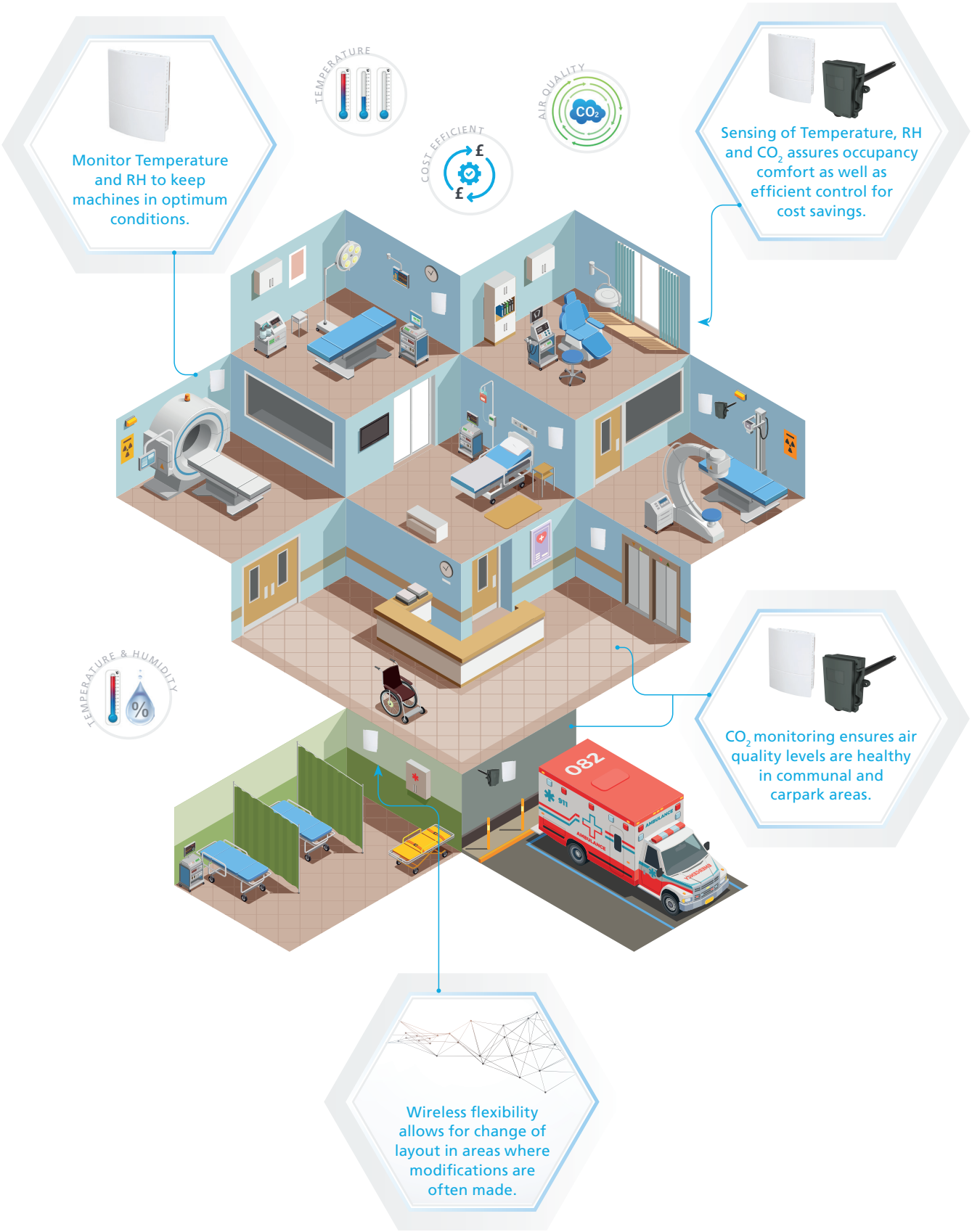
- SORA's sensing pedigree is based on Sontay's trusted sensing devices with the wireless technology of LoRaWAN. LoRaWAN is different to any other wireless sensing networks out there due to it being an open-protocol technology. This enables total interoperability with other devices. Compared to legacy 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 controls applications.

SORA Application in a building

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



Gateway

Part code	Description
RF-LW-HUB-EU868-100	SORA Hub 100 Points European
RF-LW-HUB-EU868-250	SORA Hub 250 Points European
RF-LW-HUB-EU868-1000	SORA Hub 1000 Points European
RF-LW-HUB-EU868-5000	SORA Hub 5000 Points European

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

CO_2 only

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

Temperature, Humidity & CO_2

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

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

Temperature & CO_2

Part code	Description
RF-LW-CO2-T-S	Space mounted temp and CO_2 sensor

What makes it different to other wireless protocols?


Reliability


Interoperability


Security


Accuracy

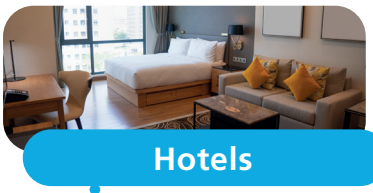

Range

SORA Ideal Applications

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


Offices


Schools


Hotels


Shopping Centres

SORA


Superstores


Manufacturing


Data Centres

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

How far can SORA go?

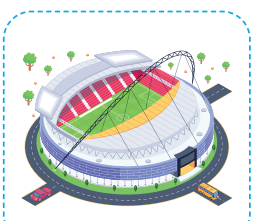

Big Ben x 31


Burj Khalifa x 4


Leaning Tower of Pisa x 54


Colosseum x 63


Eiffel Tower x 10


Wembley Football Pitch x 29

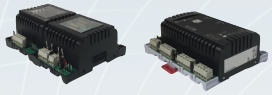
SMART Sensing

... 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

BACnet · Modbus · M-Bus · KNX

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.

Data sheets online: www.sontay.com

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, CO2 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, CO2 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 -	x	x	x	x	x	x	**Space Temperature**
							Configuration Sensing Options RH/CO_2
	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 -	x	x	x	0	x	x	**Duct Temperature and RH**
							Configuration Sensing Options CO_2
	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 -	0	0	x	0	x	x	**Immersion/Duct Temperature**
							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 -	x	0	x	0	x	x	**Plant Temperature**
							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 -	x	0	x	0	x	x	**Outside Temperature (Radiation Shield)**
							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-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 schedular (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	

Note: Optional relay interface board available on request. 120Vac or 240Vac options @ 7A

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

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, laboratory's and clean rooms (air and non-corrosive gases).

FEATURES

- Duct fixing kit included
- Snap-fit cover

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.

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 Gateway

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)

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/alarms 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

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 webbrowser 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

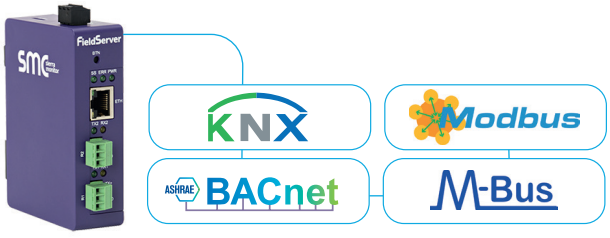
- **M-Bus:** M-Bus Explorer and Device Profiles App allow each M-Bus device to be auto-discovered, templatised and presented to quickly configure new M-Bus devices. This makes each corresponding M-Bus device into a virtual BACnet device within the EZ Gateway, thereby providing granular visibility and 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 webinterface 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



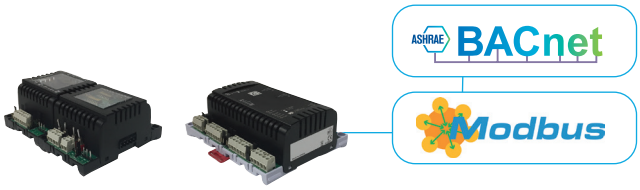
- **The Quickserver** is a high performance, fully configurable, cost effective Building and Industrial Automation gateway for integrators to easily interface devices to networks.
- **The Quickserver FS-QS-2XX0-F series:** is available at four different point capacities. Each Quickserver is preloaded 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

SC-IO-10x — Smart Remote IO Modules



Sontays new range of mini Smart IO Modules offer extension 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:

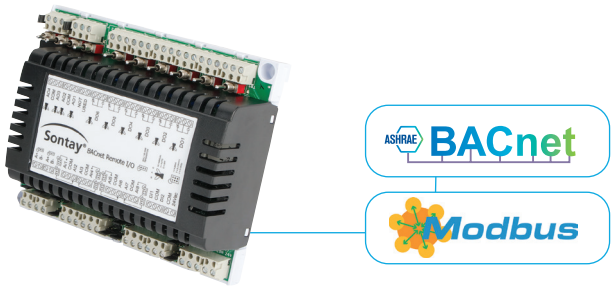
- Selectable BACnet or Modbus communication
- MAC address set via DIP switch or network
- Copy & broadcast configuration to other SC-IO-10x modules (BACnet only)

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	
	Odd 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 supEVSised 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:

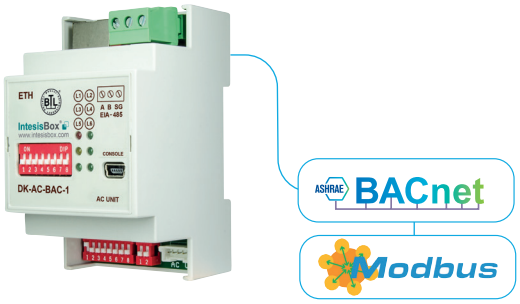
- **Selectable communication protocol via Dip switch:** BACnet MS/TP or Modbus RTU
- Copy & broadcast configuration to other Sontay SC-IO-24 via BACnet
- Selectable MAC address via DIP switches or via network

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



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	

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, setpoint, ambient temperature, fan speed, vanes, errors
- Integration of many extra points like number of hours, window status, remote lock, outside temperature

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

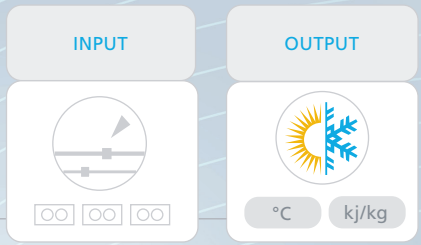
Relative Humidity & Temperature Sensors

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 with temperature and dew point shown in either °C or °F, and a range of passive options include setpoint and override switch, with a third active output for either IAQ, CO or CO_2 (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.

RH & T Sensors

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 setpoint and override switch are available.

For Smart Communicating Versions visit page 54-61.

RH-S Space Relative Humidity and Temperature Sensor

A valuable feature of this sensor is when in 3-wire mode 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. 2-wire loop powering selectable via DIP switch. It also provides on board LED indication for power status and fault find.

FEATURES

- 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 ±3%

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

SPACE SENSORS ±2%

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

SPECIFICATION

Active Outputs	0-10Vdc or 4-20mA (3-wire) self-detecting	
	4-20mA (2-wire) via DIP	
Optional Passive Outputs		
	Setpoint:	11-1kΩ/0-10kΩ. linear
	Override:	VFC
Other Options	PTC/NTC Element:	Any Sontay resistive type*
Power Supply	24Vac/dc ±10%	
Output Ranges	RH:	0 to 100%
	Temperature:	0 to 40°C as standard
		Others available on request
		Range of 0 to +50°C
	Enthalpy:	-20 to +250 kj/kg
	Dewpoint:	-50 to +50°C
Accuracy (typical)	-AH:	±2% (20 to 60% RH)
	Others:	±3% (20 to 60% RH)
	Temperature:	±0.5°C (20 to 40°C)
Environmental	Housing:	0 to 50°C
		0 to 95% RH, non-condensing
Dimensions	115 x 85 x 30mm	
Material	ABS (Flame retardant)	
Protection	IP30	
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	11-1kΩ/0-10kΩ setpoint
-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 its 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 a passive resistive output for temperature, along with other passive outputs.

FEATURES

- High stability and reliability
- Self-detecting 0-10Vdc or 4-20mA (3-wire) output
- Direct thermistor option available
- LCD display option

SPECIFICATION

Active Outputs	0-10Vdc or 4-20mA (3-wire) self-detecting	
Optional Passive Outputs		
	Setpoint:	1-11kΩ
	Override:	VFC
	Fan speed:	Resistive
	PTC/NTC Element:	Any Sontay resistive type*
Power Supply	24Vac/dc ±10%	
Output Range	0 to 100% Relative Humidity	
Accuracy (typical	±3% (20 to 80% RH)	
Housing	Dimensions:	115 x 85 x 30mm
	Material:	ABS (Flame retardant)
Environmental	Hosuing:	0 to 50°C
		0 to 95% RH, non-condensing
Protection		IP30
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.

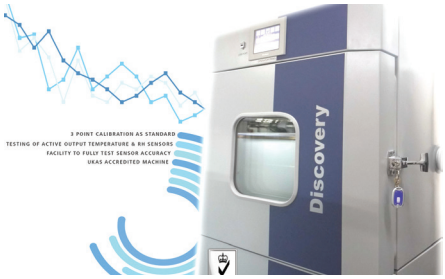
5. **Plain Front, no user interface options available (SP/MS/LCD)

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

Part code	*Description*
Suffixes (add to part code)	
-T *	Direct resistive temperature output
-SP	1-11kΩ setpoint
-MS	Momentary switch
-LCD	Integral LCD display
-BLK**	Black space housing

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

RH-CAL Calibration



In house calibration is available for Sontay's RH range of sensors using our state of the art environmental chamber.

Sontay can provide test certificates for 3-point calibration, with additional points if required.

Part code	*Description*
RH-CAL	3-Point calibration at 30, 50 & 75% RH at 20°C
RH-CAL-ADP	Additional calibration point, select between 20 & 80%RH

BACnet Modbus *For Smart Communicating Versions* ***visit page 54-61.***

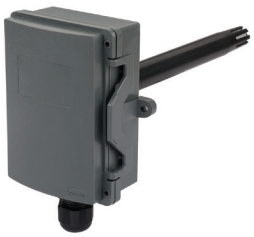
RH — Duct, wall, outside and remote probe Relative Humidity and Temperature Sensor

A valuable feature of this sensor is when in 3-wire mode 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. 2-wire loop powering selectable via DIP switch. It also provides on board LED indication for power status and fault find. provided.

FEATURES

- High stability and reliability
- Auto detection 0-10Vdc or 4-20mA outputs, loop powering via DIP
- LCD Display option
- Easy installation: 2-part, push-in spring terminal blocks

DUCT SENSORS



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

WALL SENSORS

Part code	*Description*
RH-W	Wall Mounted T and RH Sensor ±3%
RH-W-AH	Wall Mounted T and RH Sensor ±2%
RH-W-EN	Wall Mounted Enthalpy and Dewpoint Sensor

OUTSIDE

Part code	*Description*
RH-O	Outside Mounted T and RH Sensor ±3%
RH-O-AH	Outside Mounted T and RH Sensor ±2%
RH-O-EN	Outside Mounted Enthalpy & Dewpoint Sensor

REMOTE

Part code	*Description*
RH-R	Remote probe T and RH Sensor ±3%
RH-R-AH	Remote probe T and RH Sensor ±2%
RH-R-EN	Remote probe Enthalpy & Drewpoint Sensor

SPECIFICATION

Active Outputs	0-10Vdc or 4-20mA (3-wire) self-detecting	
	4-20mA (2-wire) via DIP	
Passive Temp. Output	PTC/NTC Element:	Any Sontay resistive type*
Power Supply	24Vac/dc ±10%	
Output Ranges	RH:	0 to 100%
	Temperature:	-20 to 50°C as standard
		Others available on request
	Enthalpy:	-20 to +250 kj/kg
	Dewpoint:	-50 to +50°C
Accuracy (typical)	-AH:	±2% (20 to 80% RH)
	Others:	±3% (20 to 80% RH)
	Temperature:	±0.5°C (20 to 40°C)
Material	PC/GF	
	(Halogen Free Flame Retardant, UV stabilized)	
Dimensions	Housing:	125 x 105 x 85mm
	Duct probe:	210 x 20mm dia,
	Wall probe:	90 x 20mm dia.
	Remote probe:	120 x 20mm dia.
Shield dimensions	200 x 118mm dia.	
Environmental	Housing:	-30 to 60°C
		0 to 95% RH, non-condensing
	Media:	-10 to 50°C
Protection	Wall:	IP54
	Others:	IP65
Weights	Duct:	240g
	Wall:	220g
	Outside:	1.16kg
	Remote probe:	230g

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)

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.

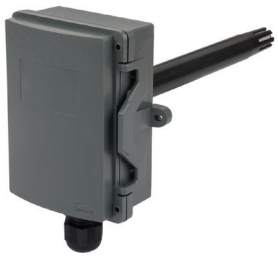
RH-x-UN — Single Output Duct, wall and outside Relative Humidity Sensor

A valuable feature of this sensor is its ability to automatically detect what the controller input its 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 a passive resistive output for temperature, along with other passive outputs.

FEATURES

- High stability and reliability
- Auto-detection 0-10Vdc or 4-20mA output, 3-wire only
- Direct thermistor option available
- LCD display option

DUCT SENSORS



Part code	*Description*
RH-D-UN	Duct Mounted RH Sensor ±3%

WALL SENSORS

Part code	*Description*
RH-W-UN	Wall Mounted RH Sensor ±3%

OUTSIDE

Part code	*Description*
RH-O-UN	Outside Mounted RH Sensor ±3%

SPECIFICATION

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

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)

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.

RH-SH Humidistats

RH-SH humidistats are designed for the on/off control of humidification and dehumidification equipment, or the initiation of alarms or override controls.

FEATURES

- Concealed or exposed adjustment
- Suitable for swimming pool environments

SPECIFICATION

Case construction	ABS	
Operating range	30-100% RH	
Differential	4% RH	
Switch rating	Duct:	15(2)A @ 24 to 250Vac
	Room:	2A @ 250Vac
Protection	RH-SH-xR	IP20
	RH-SH-xD	IP65
	RH-SH-1DE	IP20
Dimensions	RH-SH-xR	Housing 115 x 35 x 70mm
	RH-SH-xD	Housing 108 x 72 x 72mm
	Probe:	225 x 19mm dia.
Weight	300g max.	

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

ST General Purpose Thermostats

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

THEY ARE AVAILABLE IN TWO TYPES

Control thermostats (auto reset)
With an adjustable set point, adjustable differential and auto rest, which provides a switched output to a heater or controller.

Safety thermostats (manual reset)
With an adjustable set-point, fixed differential and manual reset, which provides high limit cut-out on boilers etc.

SPECIFICATION

Switch rating	24 to 250Vac @ 16(4)A	
Sensing element	Liquid filled copper element	
Housing material	Material:	ABS (flame resistant)
Dimensions	ST-S-02A	86.5 x 38 x 53mm
	Others:	108 x 70 x 72mm
Capillary length (ST-C)	1.5m	
Duct probe (ST-D)	280 x 16mm dia.	
Immersion pocket (ST-I)	Dimensions:	130mm, thread ½" BSP
	Material:	Stainless steel
Ambient	Temperature:	-35 to +65°C
	RH:	0 to 95% RH, non-condensing
Protection	ST-D-01A	IP54
	ST-S-02A	IP40
	Others:	IP65 (auto reset types)
		IP43 (manual reset types)
Weights	Capillary:	340g
	Duct:	700g
	Immersion:	580g
	Wall:	480g
	Strap-on:	250g

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 setpoint
- Setting indicator
- IP65 option

Part code	*Description*
IP44 Thermostat	
ST-FRE-1	Auto reset, 6m capillary, Frost Thermostat
ST-FRE-2	Manual reset, 6m capillary, Frost Thermostat
ST-FRE-3	Auto reset, 2m capillary, Frost Thermostat
ST-FRE-4	Manual reset, 2m capillary, Frost Thermostat

SPECIFICATION

Control range	-30 to +10°C	
Differential	ST-FRE-1 & 3	2 to 16°C
	ST-FRE-2 & 4	2.5°C (fixed)
Switch rating	230Vac @ 24(10)A	
	24Vdc @ 3A	
Manual reset	On low temperature (ST-FRE-2 & ST-FRE-4)	
Housing material	ABS	
Housing dimensions	86 x 75 x 44mm	
Capillary	Material:	Copper
	Charge:	Vapour
	Max. temp.:	150°C
Dimensions	6m or 2m x 1.8mm dia.	
Protection	IP44 or IP65	
Weight	476g	

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

Part code	*Description*
IP65 Housing and Thermostat	
ST-FRE-1-IP65	Auto reset, 6m capillary, Frost Thermostat
ST-FRE-2-IP65	Manual reset, 6m capillary, Frost Thermostat
ST-FRE-3-IP65	Auto reset, 2m capillary, Frost Thermostat
ST-FRE-4-IP65	Manual reset, 2m capillary, Frost Thermostat
Accessories	
ST-DFK	Pack of six additional plastic capillary fixing clips
BRK	Mounting bracket for ST-FREx

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

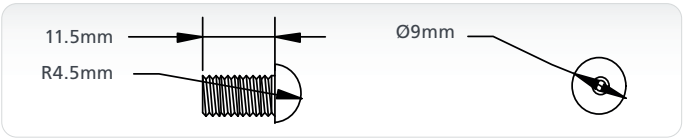
Operating voltage	220/240Vac @ 50/60Hz	
Switching differential	<1°K	
Sensor system	Bi-metalic	
Housing material	ABS V0	
Ambient range	50°C max.	
Protection	IP20	
Dimensions	ST-TY92-C3T	78 x 78 x 36mm max.
	Others:	82 x 82 x 32mm max.
Weights	ST-TY92-C3T	120g
	Others:	220g

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.



SPECIFICATION

Output type	Resistive
Material	White, black plastic or stainless steel
Cable length	2 or 5 meters
Mounting	M6, Nut supplied
Environmental	Housing -10 to +60°C
	0 to 95% RH, non-condensing
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 for direct mounting onto a standard UK back box and used for measuring air temperature in indoor spaces.

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.

SPECIFICATION

Output type	Resistive
Housing	Material: White plastic or stainless steel
	Dimensions: 85 x 85mm
Mounting	Flush, to standard UK wall box
Ambient range	Housing -10 to +60°C
	0 to 95% RH, non-condensing
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

TT-518 Thimble Sensors

Thimble temperature sensors are used for measuring air temperature in indoor spaces. The sensing element is mounted in an attractive 'thimble' enclosure for surface mounting, typically on a backplate or a ceiling tile.

SPECIFICATION

Output types	Passive:	Resistive
	Current:	4 to 20mA
	Voltage:	0-10Vdc
Thread	Plastic:	M16 x 1.5 x 25mm
	All others:	M16 x 1.5 x 12mm
Connections	2m flying lead, screened	
Ambient range	Housing	-10 to +60°C
		0 to 95% RH, non-condensing
Protection	IP30	
Dimensions	Plastic:	45mm overall x 22mm dia.
	Metal:	30mm overall x 19mm dia.
Weight	8g	

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

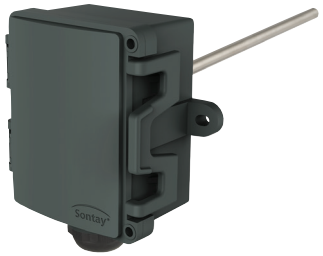
* These units are supplied with the transmitter in the plant housing.

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

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	***Selectable:*** 4-20mA/0-10Vdc * ***Output ranges:*** -10 to +40°C or -10 to +110°C (selectable)
TT-518-CVO-C	***Selectable:*** 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 Thimple
-BR	Brass thimble
-5M	5m cable length
-LSZH	Low Smoke Zero Halogen option

BACnet Modbus *For Smart Communicating Versions* ***visit page 54-61.***

TT-D Duct 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).

SPECIFICATION

Output types	Passive:	Resistive
	Current:	4 to 20mA
	Voltage:	0 to 10Vdc
Probe	Material:	Stainless steel 304
	Dimensions:	65, 150 or 250mm x 6mm 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	160g	

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

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
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 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.

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-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
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 Sensors

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

SPECIFICATION

Output types	PT100B:	Resistive
	Current:	4 to 20mA
	Voltage:	0 to 10Vdc
Probe	Material:	Copper
	Dimensions:	2050mm
		(50mm collar x ¼" dia)
Housing	Material:	PC/GF (Halogen Free Flame
		Retardant, UV stabilized)
	Dimensions:	125 x 165 x 85mm
Environmental	Housing	-30 to +70°C
		0 to 95% RH, non-condensing
	Media	-10 to +100°C
Protection	IP65	
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 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.

SPECIFICATION

Output types	Passive:	Resistive
	Current:	4 to 20mA
	Voltage:	0 to 10Vdc
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	-30 to +100°C
Protection	IP65	
Weight	160g	

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

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-O-N	3K3A1, Alerton
TT-O-P	30K6A1, Drayton
TT-O-Q	50K6A1

Part code	*Description*
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

BACnet Modbus *For Smart Communicating Versions **visit page 54-61.***

TT-OR Outside Air 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

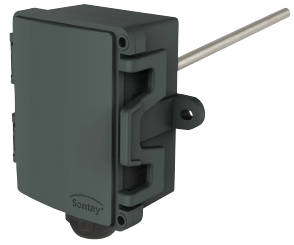
SPECIFICATION

Output types	Passive:	Resistive
	Current:	4 to 20mA
	Voltage:	0 to 10Vdc
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:	-30 to +100°C
Protection	IP65	
Weight	160g	

Note: A calibration certificate is available on CVO Types see page 74.

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 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 (page 73).

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

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

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

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 1m cable to a plant housing where terminations and transmitters are located. The TT-IH is available in two standard probe lengths of 150mm or 250mm, for direct mounting into the TT-PO-521 or TT-PO-HP range of stainless steel pockets (page 73).

SPECIFICATION

Output types	Passive:	Resistive
	Current:	4 to 20mA
	Voltage:	0 to 10Vdc
Housing material		PC/GF (Halogen Free Flame Retardant, UV stabilized)
Dimensions		80 x 79 x 44mm
Probe	Material:	Stainless steel
	Dimensions:	150 or 250mm x 6mm dia.
Environmental	Housing:	-30 to +70°C
		0 to 95% RH, non-condensing
	Probe:	-10 to +400°C
	Media:	-10 to +400°C
Protection		IP65
Weight		340g

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

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

TT-C Clamp-on Sensors

The TT-C is used to measure pipe temperature, 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.

SPECIFICATION

Output types	Passive:	Resistive
	Current:	4 to 20mA
	Voltage:	0 to 10Vdc
Housing material		PC/GF (Halogen Free Flame Retardant, UV stabilized)
Dimensions		80 x 79 x 44mm
Cable length		2 meters
Environmental	Housing:	-30 to +70°C
		0 to 95% RH, non-condensing
	Media:	-30 to +100°C
Protection		IP65
Weight		200g

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

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

For Smart Communicating Versions visit page 54-61.

TT-554 Remote Probe Sensors

The remote probe sensor is perfect for tight locations, hard to access areas or for applications where the usual duct (TT-D) or immersion (TT-I) sensor do not fit. 150mm probe is used with either the TT-PO range of immersion sensor pockets or the TT-DFP duct flange plate.

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

Output types	Passive:	Resistive
	Current:	4 to 20mA
	Voltage:	0 to 10Vdc
Probe	Material:	Stainless steel
	Dimensions:	150 x 6mm
Lead length	2 meters (5 meter option)	
Environmental	Housing:	-10 to +60°C
		0 to 95% RH, non-condensing
	Media:	-30 to +100°C
Protection	IP65	
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.
1. * These units are supplied with the transmitter in the plant housing.
2. A calibration certificate is available on CVO Types see page 79.

TT-555 Flying Lead Sensors

The TT-555 is used to measure air temperature in fan-coil units as well as many other applications. The standard cable length is two metres of 2-core screened cable with a 5 meter option. Longer lengths can be made to order.

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
TT-555-P	30K6A1, Drayton
TT-555-Q	50K6A1

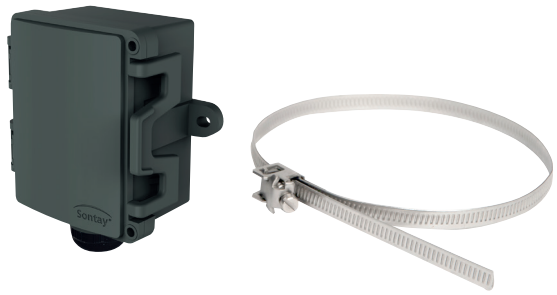
SPECIFICATION

Output types	Passive:	Resistive
	Current:	4 to 20mA
	Voltage:	0 to 10Vdc
Probe	Material:	Stainless steel 304
	Dimensions:	25 x 6mm dia.
Environmental	Housing:	-10 to +60°C
		0 to 95% RH, non-condensing
	Media:	-10 to +60°C
Protection	IP40 (with -R option IP68)	
Weight:	80g	

Notes:
1. A calibration certificate is available on CVO Types see page 79.
2. Custom lengths available.
* These units are supplied with the transmitter in the plant housing.

Part code	*Description*
Passive Output	
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 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.

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

Output types	Passive:	Resistive
	Current:	4 to 20mA
	Voltage:	0 to 10Vdc
Housing material		PC/GF (Halogen Free Flame Retardant, UV stabilized)
Housing dimensions		80 x 79 x 44mm
Environmental	Housing:	-30 to +70°C
		0 to 95% RH, non-condensing
	Media:	-30 to +100°C
Protection		IP65
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-BBE External Black Bulb Sensor

The TT-BBE 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.

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

SPECIFICATION

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

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

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

For Smart Communicating Versions visit page 54-61.

TT-S Space Sensor

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.

See page 81 for details on Sontay's UI-500 series.

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

Output types	Passive:	Resistive
	Current:	4 to 20mA (2- or 3-wire)
	Voltage:	0 to 10Vdc
Set-point	2-wire 11-1kΩ/0-10Ω linear	
Momentary switch	N/O push button	
Housing	Material	ABS (flame retardant)
	Colour	Polished white finish
Environmental	Housing:	0 to 50°C
		0 to 95% RH, non-condensing
Protection	IP30	
Dimensions	115 x 85 x 30mm	
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, custom temp. scaling between -10 to +50°C
Interface Options	
-SP	2-wire, 11-1kΩ/0-10Ω setpoint
-MS	Momentary switch
-LCD *	Integral display
-LEDG **	24V Green LED
-BLK ***	Black housing
Accessories	
DECOR	Decorators trim plate
GASKET	Insulating gasket (pack of 10)

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.

AVAILABLE SENSOR TYPES:

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

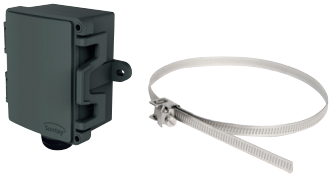
Duct

Outside

Outside with Radiation Shield

Immersion

Clamp-on



Flying Lead

SPECIFICATION

Outputs	3-wire 0-10Vdc or 4-20mA	
Power supply	24Vac/dc	
Output Ranges	-10 to +40°C	
Accuracy	±0.4°C @ 25°C	
Housing	Material:	PC/GF (Halogen free, flame retardant & UV stabilized)
	Dimensions:	80 x 79 x 44mm
Protection	IP65	
Environmental	Housing:	-30 to 70°C
		0 to 95% RH, non-condensing
	Media:	-30 to +100°C
Weight	200g max.	
Country of origin	UK	

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
Suffixs (add to part code TT-D & TT-I only)	
-65	65mm Probe Length
-100	100mm Probe Length
-250	250mm Probe Length

TT-BB Black Bulb Sensor

SPECIFICATION

Output type	Resistive	
Protection	IP30	
Housing	Material:	ABS (flame retardant)
	Colour:	Polished white finish
Black bulb	Anodised aluminium	
Environmental	Housing:	0 to 50°C
		0 to 95% RH, non-condensing
Dimensions	Housing:	115 x 85 x 30mm
	Bulb:	17.5 x 37mm dia.
Weight	120g	

Comfort temperature measurement can be best achieved by taking into account the radiant effect of surfaces within the controlled space. The comfort temperature is specified as the average of the conductive temperature and the radiant temperature.

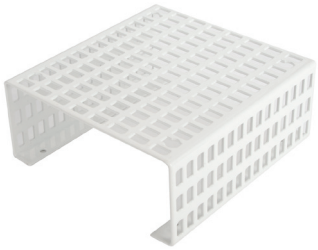
$$T\ comfort = \frac{(T\ radiant + T\ conductive)}{2}$$

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

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 setpoint
-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



FEATURES

- Robust construction
- Easy fixing

SPECIFICATION

Material	Powder coated mild steel
Dimensions	122 x 130 x 55mm
Weight	180g

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

Part code	*Description*
TT-GD	Space Sensor Guard

TT-CAL Calibration

In house calibration is available for Sontay's RH range of sensors using our state of the art environmental chamber. 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 calibration at 15, 25 & 35°C
TT-CAL-ADP	Additional calibration point, select between 0 & 70°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.

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

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, setpoint 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 setpoints, 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.

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

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.

VA Damper Actuators

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

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

8Nm, 10Nm & 15Nm Types

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

20Nm & 30Nm & Fail Safe Types

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

SPECIFICATION

Power supply	24Vac @ 50/60Hz or 24Vdc ±20%	
	80 to 265Vac @ 50/60Hz	
Drive times (seconds)	5 & 8Nm:	60 to 120
	10Nm:	<150
	15Nm:	<150
	20Nm:	150
	30Nm:	150
	FS 20Nm:	75 (spring return <20)
Control signals	On/off, raise/lower and modulating (0-10Vdc)	
Aux. switch rating	250V @ 5(2.5)A	
Angle of rotation	95° (mechanically limitable)	
Ambient	Temperature:	-20 to +50°C
	Humidity:	5 to 95% RH
Protection	5Nm:	IP42
	Others:	IP54 (cable downwards)
Weights	VA-05	0.5kg
	VA-08, 10 & 15	0.53kg
	VA-20 & 30	1.7kg
	VA-F	2.5kg

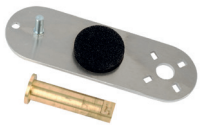
General Note for Torque Requirement

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

Torque	Duct area
5Nm	Up to 1m²
8Nm	Up to 1.6m²
10Nm	Up to 2m²
15Nm	Up to 3m²
20Nm	Up to 4m²
30Nm	Up to 6m²

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 ½" 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

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

Note: Please refer to page 76 for VA actuators.

Part code	*Description*	*Part code*	*Description*
3-port. Screwed Valves		**3-port. Screwed Valves**	
VR-G-01	½" BSP, 0.4 Kvs	**VR-G-09**	¾" BSP, 6.3 Kvs
VR-G-02	½" BSP, 0.63 Kvs	**VR-G-10**	1" BSP, 6.3 Kvs
VR-G-03	½" BSP, 1.00 Kvs	**VR-G-11**	1" BSP, 10 Kvs
VR-G-04	½" BSP, 1.63 Kvs	**VR-G-12**	1¼" BSP, 16 Kvs
VR-G-05	½" BSP, 2.5 Kvs	**VR-G-13**	1½" BSP, 25 Kvs
VR-G-06	½" BSP, 4.0 Kvs	**VR-G-14**	2" BSP, 40 Kvs
VR-G-07	¾" BSP, 2.5 Kvs	**Linkage Kit**	
VR-G-08	¾" BSP, 4.0 Kvs	**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

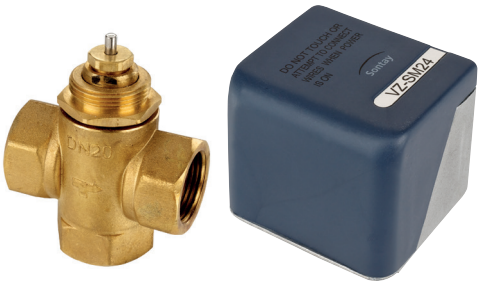
SPECIFICATION

Flow type	Mixing or diverting	
Fluid temperature	-10 to +110°C	
Rangeability	100:1	
Max. pressure drop	DN50:	50kPa
	DN65 to DN150:	30kPa
Materials	Body & cover:	Cast iron
	Spindle & slipper:	Brass
	O-rings:	EPDM
Pressure class	PN6	
Required motor torque	50mm:	5Nm
	65 to 100mm:	10Nm
	125 to 150mm:	15Nm
Weight	37kg max.	

Note: Please refer to page 76 for VA actuators.

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

Operation	2-port:	Normally closed, spring return
	3-port:	Mixing, spring return
Supply	230Vac and 24Vac options	
Voltage tolerance	±10%	
Max. electrical load	Aux. switch 3A, 125 to 250Vac	
Power consumption	6W	
Running time	Open:	10 seconds
	Close:	5 seconds
Working temp	0 to 60°C	
Working humidity	Non-condensing	
Housing	Plate:	Casting aluminium alloy
	Cover:	Flame retardant ABS
Fluid temp	0 to 94°C	
Body rating	2.5 MPa	
Material	Valve body:	Forged brass
	Valve rod:	Stainless steel A151302
	Seal:	NBR
Protection	IP20	
Weight	960g max.	

Part code	*Description*
2-port Valves	
VZ-2N-15	½" BSP Zone Valve
VZ-2N-20	¾" BSP Zone Valve
VZ-2N-25	1" BSP Zone Valve
3-port Valves	
VZ-3-15	½" BSP Zone Valve
VZ-3-20	¾" BSP Zone Valve
VZ-3-25	1" BSP Zone Valve

Part code	*Description*
Actuators	
VZ-SM24	24Vac Actuator with auxiliary switch
VZ-SM230	230Vac Actuator with auxiliary 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 elements types are available for these applications, and are **all compatible with the WD-AMX alarm unit**.

WD-RS

Rain Sensor

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

WD-AMX-1

WD-AMX-2

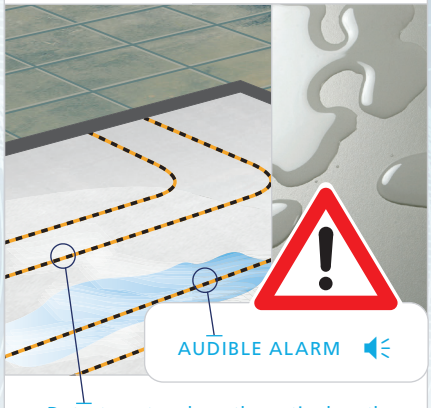
THE EP SERIES OF EMERGENCY SWITCHES

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).

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.**



EP-SW Emergency Stop

EP-KL

EP-SW-11

A range of emergency stop buttons for manual shutdown of systems in the event of fire or other emergency.

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

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. When located above boilers, the fuse activates on detection of over-temperature to close down the gas system. Replacement fuses are available.

SPECIFICATION

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

Part code	*Description*
EP-SW-72	Electro-thermal Link
EP-SW-72-F	Electro-thermal Link – spare fuse

EP-FS Fireman's Switches

This range of safety switches are for use in the event of fire or other emergency. Usually located at exits to gas plant rooms, units are key operated with a 2 or 3-position latching switch.

SPECIFICATION

Switch rating	6A@ 240Vac
Keys	2 supplied (removable in all positions)
Connections	4 x 100mm flying leads
Housing	ABS plastic
Protection	IP20
Dimension	86 x 86 x 50mm
Weight	200g

Part code	*Description*
EP-FS-1	Fireman's Switch - Red 2-position
EP-FS-2	Fireman's Switch - Red 3-position

WD Water Leak Detection

The WD-x range is designed to detect water leaks either at localised points using the WD-PS point sensor or larger areas with the WD-CS cable sensor, a rain sensor is also available.

All these sensors are used with the WD-AMX range of modules that are suitable for DIN-rail mounting inside AHUs, power distribution units or general areas where leak detection is required.

They are fitted as standard with LED indication of the water leak status, and sounder that can be disabled by simply removing a jumper. The WD-AMX relay output can be either configured to be manual or auto reset.

A relay output provides an alarm signal that can be used for connection to a BMS controller or remote alarm annunciation panel such as the UI-AA-1-F (see page 81).

FEATURES

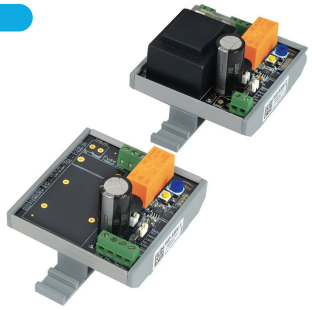
Modules

- AC detector excitation for reliability
- 24Vac/dc or 230Vac versions
- Audible alarm

Sensors

- 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 on WD-RS

WD-AMX



WD-CS

WD-PS

WD-RS

SPECIFICATION

Power Supply	WD-AMX-1	24Vac/dc ±10%
	WD-AMX-2	230Vac @ 50Hz
	WD-RS heater	24Vac/dc
Supply Current (WD-AMX)	50mA max.	
Output	SPDT relay 12A @ 230Vac	
Audible alarm	85dB @ 2.3kHz at 10cm	
Maximum cable run	200m – including detection cable	
Ambient range	Temperature:	0 to 40°C
	RH:	0 to 80% RH non-condensing
Dimensions	WD-AMX	74 x 76 x 50mm
	WD-PS	58 x 58 x 31mm
	WD-RS	70 x 30 x 45mm
Protection	WD-AMX	IP30
	WD-RS	IP65
Weights	WD-AMX-1	100g
	WD-AMX-2	240g
	WD-CS	520g max
	WD-PS	100g
	WD-RS	125g

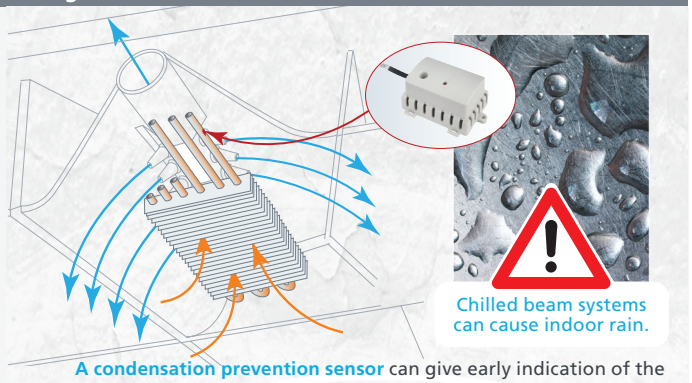
Part code	*Description*
Modules	
WD-AMX-1	24Vac/dc Controller with buzzer
WD-AMX-2	230Vac Controller with buzzer
Sensors	
WD-CS-2M	Water Cable Sensor, 2m cable, 3m leader
WD-CS-5M	Water Cable Sensor, 5m cable, 3m leader
WD-CS-10M	Water Cable Sensor, 10m cable, 3m leader
WD-CS-15M	Water Cable Sensor, 15m cable, 3m leader
WD-CS-20M	Water Cable Sensor, 20m cable, 3m leader
WD-CS-25M	Water Cable Sensor, 25m cable, 3m leader
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
Accessory	
WD-FC	Pack of 20 fixing clips for WD-CS

Note: Other WD-CS lengths available.

WD-CPS Condensation Detection and Prevention Range

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.



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

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 ±3°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

Output	VFC:	24Vac/dc @ 1A resistive SPDT
	Current:	Dry <3mA, wet >12mA
Power supply	24Vdc ±5% or 24Vac ±10%, 20mA max. current draw	
Cable length	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 efficient solution to protect buildings and assets from any condensation.

SPECIFICATION

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

FEATURES

- Our cost efficient entry point into the world of condensation prevention
- Switches its output at 85% RH to prevent any condensation occurring

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-6IP , TE-6IV TE-634GV-1	TE-6IHP	✓
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	60713
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 you 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 SEVSICES

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
Website:	www.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:

(a) "Acceptance" means confirmation in writing by the Company upon receipt of the Customer's order.
(b) "Company" means Sontay Limited.
(c) "Contract" means the contract for the purchase and sale of Goods.
(d) "Customer" means the person, firm or company [described overleaf] and who purchases the Goods or any services from the Company.
(e) "Goods" means the goods or services which the Company is to supply in accordance with these Terms and Conditions.
(f) "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.
(g) "Writing" includes communication by post, e-mail and by personal delivery of documents.

1. APPLICATION

(a) 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).
(b) 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.
(c) The Customer shall ensure that the terms of its order and any applicable specification are complete and accurate.

2. ACCEPTANCE

(a) 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.
(b) The quality and description of the Goods shall be as set out in the Company's quotation or acknowledgement of order.
(c) 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

(a) 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.
(b) 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.
(c) 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.
(d) 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.
(e) 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

(a) 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.
(b) Unless otherwise agreed in writing by the Company, delivery of the Goods shall take place at the Company's place of business.
(c) 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 obsEVSe 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.

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.
(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.

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Education and Support in HVAC and Indoor Climate Control

Sontay® Academy

bcia training partner

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 Controls

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.

BCM02 Measuring & Control Technology

Difficulty 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.

BCM03 Hydraulics in Building Services

Difficulty 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.

BCM04 Control Function of Heating Plants

Difficulty 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.

BCM05 Control of Ventilation and Air Conditioning

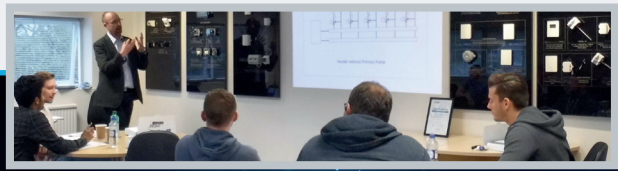
Difficulty level: AMBER

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.

BCM06 Control of Cooling Systems

Difficulty 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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