SCD Series

SPECIFICATIONS

Input Voltage . . . . .24 Vac, 20 to 36 Vdc Class 2
Analog Output . . . . . . .4-20mA (clipped & capped)/
0-5VDC/0-10VDC (selectable)
Sensor Current Draw . . . . . .20-36VDC 40mA avg.,
105mA max.
24VAC 50mA avg., 150mA max.
Operating Temperature Range . . . . .0° to 50°C
(32° to 122°F)
Operating Humidity Range 0-95%
(noncondensing)
Housing Material . . . . High impact ABS plastic

CO2 Transmitter

Sensor Type . . . . . Non-dispersive infrared (NDIR),
diffusion sampling
Output Range . . . . 0-2000 ppm
Accuracy . . . . ±1.5% of measurement range
±2% of measured value*
Repeatability . . ±20 ppm ±1% of measured value
Response Time . . . . <60 seconds for 90%
step change

RH Transmitter

HS Sensor . . . Digitally profiled thin-film capacitive
(32-bit mathematics); U.S. Patent 5,844,138
Accuracy . . . . . . ±2% from 10 to 80% RH @ 25°C;
Hysteresis . . . . 1.5% typical
Linearity . . . . Included in Accuracy spec.
Stability ±1% @ 20°C (68°F) annually, for two years
Output Range . . . . 0 to 100% RH
Temperature Coefficient . . . ±0.1% RH/°C above or
below 25°C (typical)

Schneider Electric's SCD series of duct mount sensors measure the levels of CO2, RH (if equipped) and temperature of air inside a duct. The CO2 sensor employs the Automatic Baseline Calibration (ABC) feature which enables the sensor to operate within accuracy specifications for the calibration interval of 5 years. The temperature element is warranted to meet accuracy specifications for a period of 5 years. RH equipped models of the SCD feature a replaceable humidity element that is warranted to meet accuracy specifications for a period of 1 year. HS2NX and HS2XX replaceable humidity elements are available through Schneider Electric. To maintain accurate functionality, keep all vents clear and free of dust, debris, etc.

Temperature

Sensor Type . . . . Thermistor
Accuracy . . . . ±0.5°C (±1°F) typical

Relay Contacts:

1 Form C . . . . . . 1A@30VDC, resistive; 30W max.

Specified accuracy with 24VDC supplied power with rising humidity.

EMC Conformance:

. . . . EN 6100-6-3: 2007 Class B
. . . . EN 61326-1: 2006 Class B
. EN61000-6-2: 2005

* Accuracy is specified at NTP (20°C at 101.3 kPa).

In the event that validation gas is required, the accuracy of validation gas mixture must be added to the sensor specified accuracy for absolute measurements.

DIMENSIONS

6.7"
(170 mm)

10.2"
(259 mm)

3.1"
78 mm

2.4"
(61 mm)

7.8"
(198 mm)

Schneider Electric
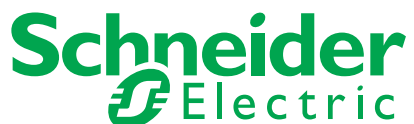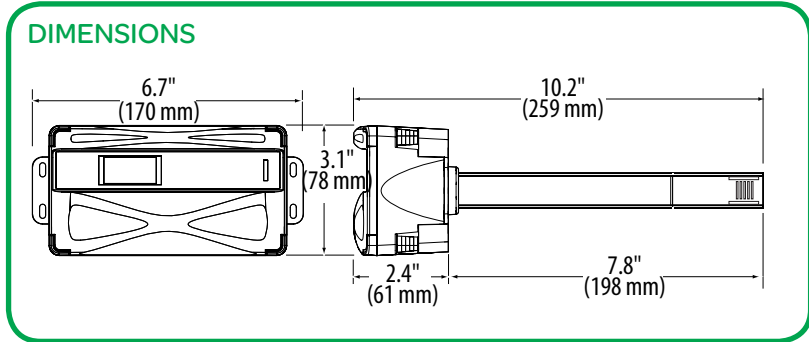
INSTALLATION

1. Choose a location to mount the sensor. The centerline of the housing must be parallel to the direction of air flow in the duct.
2. Use the mounting diagram to drill four holes in the duct for securing the sensor.
3. Insert the probe into the hole. Rotate the housing so that the widest surface is perpendicular to the air flow.
4. Attach the sensor to the duct using sheet metal screws. Make sure that the gasket on the back of the housing is compressed between the housing and the duct for a secure fit.
5. Wire the device. See Wiring section.
6. Configure the system using configuration section.

Rotate the duct probe so the channeled side is perpendicular to the air flow of the duct
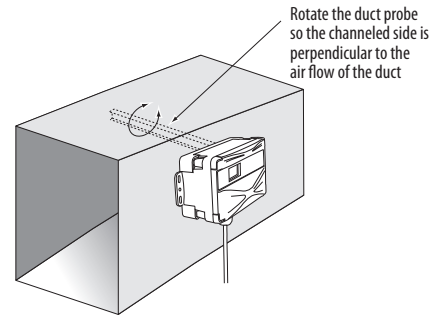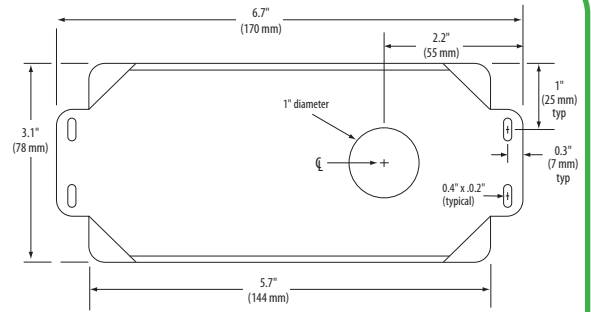
WIRING, RELAY, AND DIP SWITCH SETTINGS

1. Feed control wire through grommeted compression fitting on the bottom of the housing.
2. Remove terminal blocks by pulling the assemblies away from the main board.
3. Connect wires as shown and push terminal blocks back in to black receptacles.
4. Tighten compression fitting around control wire until sealed.
5. Refer to specifications for power requirements and relay rating.
6. Select mA or Volt output using selector switch.
7. If Volt output is selected, select 5V (0-5VDC) or 10V (0-10VDC) using switch 1 on the 4 throw dipswitch.
8. Select a relay setpoint of 800, 1000 or 1200PPM of CO2 using switch 2 and 3 on the 4 throw dipswitch (see setpoint diagram for dipswitch settings).
9. Select deadband of 50PPM or 100PPM using switch 4 on the 4 throw dipswitch. This setting allows for additional flexibility when using the relay setpoint. The actual relay trip point is the setpoint PPM ± the deadband PPM. Example: If the relay setpoint is set for 1000PPM and the deadband is set for 50PPM, with dropping CO_2 levels the relay will trip at 950PPM (1000PPM – 50PPM), with rising CO_2 levels the relay will trip at 1050 ppm (1000PPM + 50PPM).
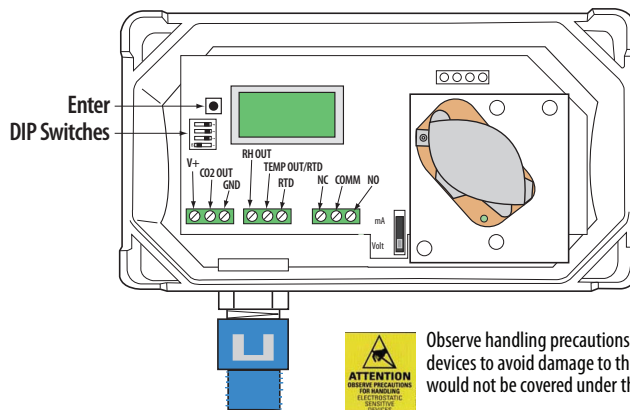

Observe handling precautions for static sensitive devices to avoid damage to the circuitry which would not be covered under the factory warranty.

Deadband
50 PPM / 100 PPM

Voltage Range
10 V / 5 V

Setpoint
800 PPM / 1000 PPM / 1200 PPM
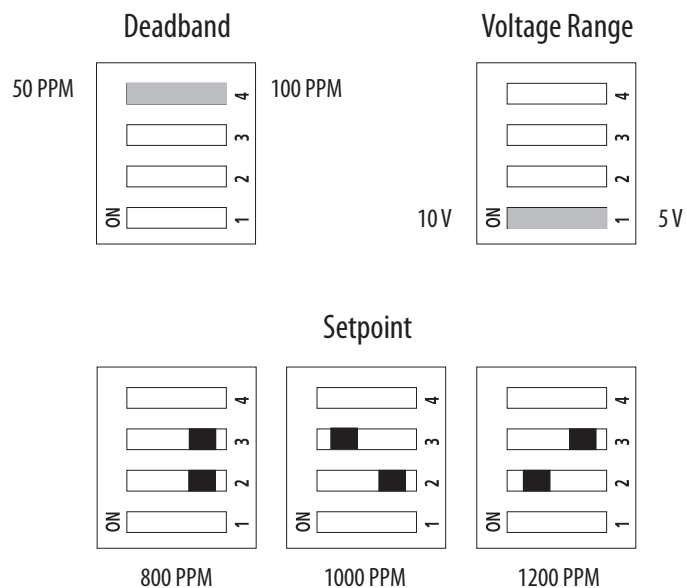
CALIBRATION PROCESS

1. Remove cover and connect gas cylinder hose to the plastic port located on sensing module. Note: only connect one sensor to the calibration gas cylinder at a time.
2. Set DIP switches 2 and 3 to the ON position to enable calibration.
3. Start flowing nitrogen gas (0 ppm CO_2). Use a flow rate of 0.3 to 0.5 liter/minute.
4. Push and hold Enter button until red LED lights up.
5. Calibrate until red LED turns off (approximately 5 min). Unit will return to normal operation when finished. Return DIP switches to Setpoint position (see Wiring, Relay, and DIP Switch Settings section) when calibration is complete.

Calibration Enable
DIP switch setting

Connect hose here

Regulator Valve

NITROGEN GAS

Push and hold button until red LED lights up.

Red LED
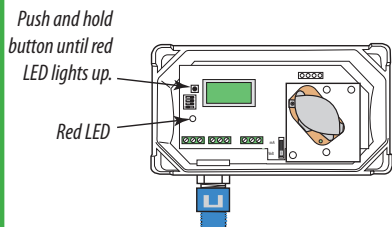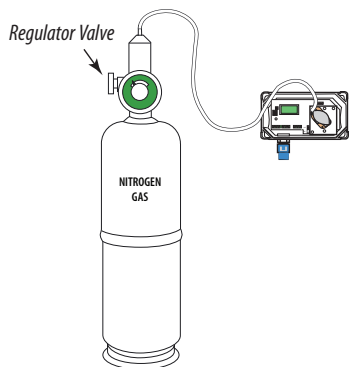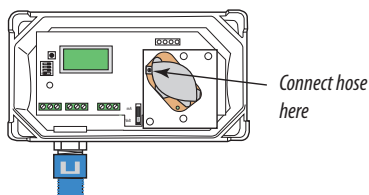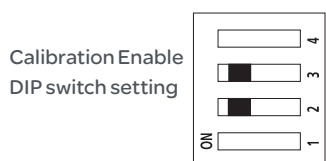
ABC CALIBRATION ALGORITHM:

ABC (Automatic Baseline Calibration) is a patented self-calibration feature that automatically adjusts the CO2 sensor to compensate for drift. When ABC is enabled, the sensor records the lowest reading within every 24-hour interval and compares these values over a running 7-day or 28-day period. If a statistically significant amount of drift is detected, the ABC applies an automatic correction factor. This enables the sensor to operate within specifications for the 5-year calibration interval.

ABC Settings

ON | LOW | OFF
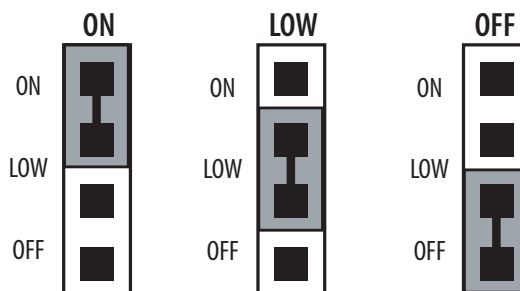
ON POSITION. Recommended Setting. Use the ON setting for applications where the building is unoccupied within a 24-hour timeframe.

LOW POSITION. Use the LOW setting for buildings occupied 24 hours a day.

OFF POSITION. Not Recommended.

NOTE: After changing the ABC settings, power cycle the unit for changes to take effect.

HUMIDITY SENSOR REPLACEMENT

SCD models with optional RH have replaceable humidity sensors.

To Replace Humidity Sensor:

1. Power down unit
2. Remove SCD from duct to access probe tip.
3. Open tip of duct probe
4. Slide old HS sensor off pins
5. Slide new HS sensor onto pins.
6. Re-install SCD in duct and re-secure with screws provided.
7. Power unit back on

Lift to open tip of probe

Pins

HS Sensor
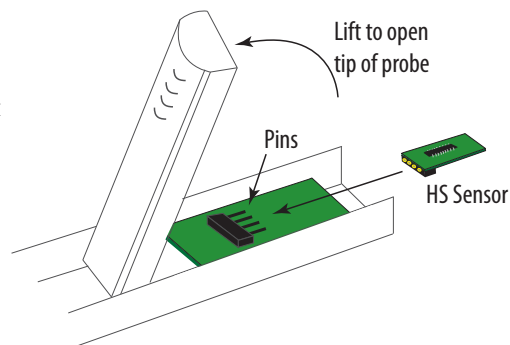
OUTPUT SCALING
Output scaling: 0-2000 ppm

	CO2 ppm	0-5 Volt Output	0-10 Volt Output	mA Output
Outside	300-500	0.75 to 1.25	1.5 to 2.5	6.4 to 8
Over-Ventilated	Under 600	under 1.5	Under 3	Under 8.8

AVAILABLE PRODUCTS

Part Number	Model Number	Temp	2% RH	LCD	System
		Duct Mounted CO2 Sensor with			
5152300000	SCD110	x			Vista 1.8K
5152302000	SCD110-D	x		x	Vista 1.8K
5152304000	SCD110-H	x	x		Vista 1.8K
5152306000	SCD110-D-H	x	x	x	Vista 1.8K
5152308000	SCD210	x			I/NET 10K T2
5152310000	SCD210-D	x		x	I/NET 10K T2
5152312000	SCD210-H	x	x		I/NET 10K T2
5152314000	SCD210-D-H	x	x	x	I/NET 10K T2
5152316000	SCD510	x			Continuum 10K T3
5152318000	SCD510-D	x		x	Continuum 10K T3
5152320000	SCD510-H	x	x		Continuum 10K T3
5152322000	SCD510-D-H	x	x	x	Continuum 10K T3
5152324000	SCD610	x			Satchwell 10K T3 Resistor/Shunt
5152326000	SCD610-D	x		x	Satchwell 10K T3 Resistor/Shunt
5152328000	SCD610-H	x	x		Satchwell 10K T3 Resistor/Shunt
5152330000	SCD610-D-H	x	x	x	Satchwell 10K T3 Resistor/Shunt
5152332000	SCD810	x			I/A 10K T3 w/Shunt
5152334000	SCD810-D	x		x	I/A 10K T3 w/Shunt
5152336000	SCD810-H	x	x		I/A 10K T3 w/Shunt
5152338000	SCD810-D-H	x	x	x	I/A 10K T3 w/Shunt
5152339010	HS2NX	Replaceable RH Element, 2%, NIST.			
5152339000	HS2XX	Replaceable RH Element, 2%.			

THERMISTOR TABLE

°C	°F	Vista 1.8K	I/NET 10K T2	Continuum 10K T3	Satchwell 10K T3 w/Resistor & Shunt	I/A 10K T3 w/Shunt
-50	-58	82,207	692,644	447,497	9,781	10,736
-40	-40	42,848	344,702	242,599	9,604	10,523
-30	-22	23,563	180,148	136,484	9,318	10,180
-20	-4	13,585	98,324	79,472	8,884	9,663
-10	14	8,167	55,786	47,772	8,272	8,941
0	32	5,096	32,773	29,575	7,480	8,018
5	41	4,077	25,456	23,504	7,024	7,493
10	50	3,287	19,931	18,809	6,541	6,941
15	59	2,671	15,725	15,146	6,039	6,372
20	68	2,185	12,497	12,271	5,530	5,800
25	77	1,800	10,000	10,000	5,025	5,238
30	86	1,492	8,055	8,195	4,534	4,696
35	95	1,245	6,528	6,752	4,066	4,184
40	104	1,044	5,323	5,592	3,627	3,707
45	113	881	4,365	4,655	3,222	3,271
50	122	747	3,599	3,893	2,854	2,875

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