Dewpoint Based Condensation Detector

Technical Overview

The HS-CB101/105 chilled beam sensor has been specifically designed to prevent the formation of condensation in critical applications. These devices are comprised of a micro controller with built-in dew point calculating software, surface humidity and temperature sensing elements. This permits the accurate calculation of surface conditions which lead to formation of condensation. VFC (Volt Free Contact) or mA output will provide early indication of condensation. 3˚C (4.5˚F) ± set point deviation adjustment via screwdriver slot in the units cover will allow fine tuning for the most effective use of cooling.

It can be used as a high limit by directly controlling a cooling control valve or by sending ON/OFF or a current signal to the BAS system.

The sensor is housed in a small enclosure which can be either screwed or strapped to the surface that requires monitoring.

Applications include chilled beam ceiling systems where control safe guards are required to avoid indoor rain.

Features

- Screw or strap-on mounting
- VFC (Volt Free Contact) or current output
- Plenum cable • Diagnostic LED
- 2˚C (3˚F) ± set point offset range

Specification

Output:
  Current mode: dry <5mA, wet >18mA
  VFC mode: 24Vac/dc @ 1A resistive SPDT
Supply voltage: 24Vdc ±5% or 24Vac ±10%
Supply current: 20mA max.
Response time: <5 sec.
Measurement Accuracies: Temp: ±0.2˚C; RH: ±5%
Flying lead: Low Smoke Zero Halogen (LSZH)
Dimensions: W73 x H48 x D30 mm
Mounting plate: 1mm thick stainless steel
EMC Compliance:
  Emissions EN61000-6-3
  Immunity EN61000-6-2
Complies to ROHS and CE

Connections

Current mode	VFC mode	
	Power Supply	Free Contact
		Green Wire: Common
Red Wire: +24Vdc	Red Wire:+24Vac/dc	White Wire: N/C*
Blue Wire: 4-20mA	Blue Wire: 0V	Yellow Wire: N/O*

* Below the dew point set point

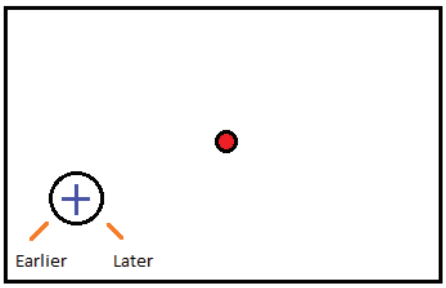
Product Codes to Order

HS-CB101
Chilled beam condensation detector - 2m (6.5') cable

HS-CB105
Chilled beam condensation detector - 5m (16.5') cable

Operation

The WD-CPS operates on dew point temperature rather than a fixed value of relative humidity. The dew point is calculated from a temperature compensated RH element and a high accuracy thermistor which are thermally bonded to the metal plate of the WD-CPS. The switching set point is determined as 3°C ± the pot offset above the current dew point. The relay is activated when the dew point temperature is below the offset set point.



Turn counter-clockwise for earlier detection, or clockwise for later detection.

LED Indication

The red LED, visible through the top of the housing, has 4 functions;

1. Short blink once every 15 seconds to show the device is working properly.
2. Rapid continuous blinking to show the dew point switching set point is close.
3. Continuously ON when the output is switched on.
4. One long flash followed by 2 short flashes to show the temperature element is faulty