

AX-TE-OBB

Black Bulb Outside Air Temperature Sensor

AXIO



Product Overview

The AX-TE-OBB range of black bulb temperature sensors are used to monitor radiant heat in outdoor applications. The sensors interface with a wide variety of HVAC control equipment. Units are available with a high quality thermistor or platinum element.

Black bulb sensors are used to calculate comfort temperature which is specified as the average of the conductive and radiant temperatures. Available with High/Low test switch.

Features

- Large range of sensor options
- Accurate sensing of comfort temperature
- High/Low test switch option
- Direct fixing, no extra brackets required
- Flame retardant ABS enclosure
- IP65 housing

Product Specifications

Output	Passive	Range of two wire thermistor and PTC platinum elements providing variable resistance
Accuracy	Thermistor	$\pm 0.2^{\circ}\text{C}$ between 0°C and 70°C
	Platinum	$\pm 0.35^{\circ}\text{C}$ between 0°C and 100°C (PT100a and PT1000a)
Test Switch		Low $\sim 5^{\circ}\text{C}$, High $\sim 40^{\circ}\text{C}$, Norm sensor
Enclosure		Flame Retardant ABS
Terminals		Rising Clamp for $0.5\text{-}2.5\text{mm}^2$ cable
Ambient Temperature Range		-10°C to 60°C
Dimensions		93 x 105 x 70mm
Protection	Housing	IP65
Country of Origin		United Kingdom

Order Codes

AX-TE-OBB-xx Outside Air Temperature Sensor Black Bulb

xx denotes sensor type, please see table below. (E.g. AX-TE-OBB-T)

-T	10K3A1 NTC Thermistor	-100	PT100a Platinum Element
-A	10K4A1 NTC Thermistor	-1K	PT1000a Platinum Element
-H	20K6A1 NTC Thermistor	-N1K	Ni1000a Nickel (TCR)
-3K	3K3A1 NTC Thermistor	-N1S	Ni1000a/6180 Nickel
-SAT	SAT1 NTC Thermistor	-TAC	1K87A1 NTC Thermistor
-J	2.2K NTC Thermistor	-C	10K8C2 NTC Thermistor

Add -B to the order code for black housing. (E.g. AX-TE-OBB-T-B)

Add -SW to the order code for test switch. (E.g. AX-TE-OBB-T-SW)

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Comfort Temperature

Comfort temperature measurement is 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.

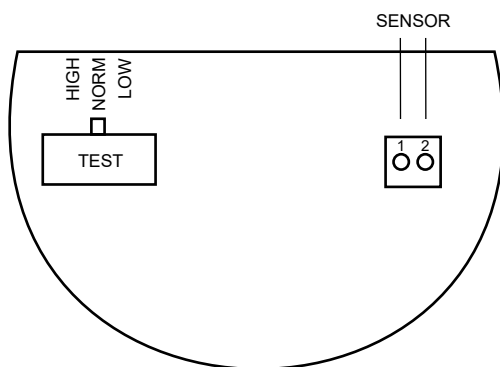
$$T_{\text{comfort}} = (T_{\text{radiant}} + T_{\text{conductive}}) / 2$$

Installation

The AX-TE-OBB sensor should be installed by a suitably qualified technician in conjunction with any guidelines for the equipment which it is to be connected to. Field wiring should be installed to satisfy the requirements set out by the manufacturer of the equipment that the sensor is being connected to. As a general rule, screened cable should be used to connect the sensor to a BMS or other controller. Please note that none of the AX-TE-OBB sensors are suitable for use with mains voltage.

The AX-TE-OBB is designed to be fixed directly to an external wall using the lugs at the base of the housing. The type of fixing used will depend on the material that the sensor is being mounted on.

Connection



Passive Sensors

Passive sensors are polarity independent. Wires should be stripped and screwed into the two way terminal block in the main body of the sensor housing. Do not over-tighten the terminal screws as excessive force can cause damage to the terminal block and housing.

If screened cable is used, the shortest possible section of outer sheath should be removed. As there is no earth connection in the sensor, the screen must be connected to a functional earth elsewhere (often provided at the BMS or HVAC controller) in accordance with the instructions for the equipment that the AX-TE-OBB is to be connected to.

Datasheet Contents

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