3-in-1 Atmospheric Sensor Accurate, Reliable and Rugged

Overview

The **BS330-21** is high precision **3-in-1 sensor** that measures temperature, humidity, and barometric pressure in one compact device—eliminating the need for multiple instruments and simplifying installation and maintenance.

Its rugged, waterproof, UV-resistant housing ensures long-term reliability in demanding settings such as weather stations, agriculture, forestry, renewable-energy sites, and industrial facilities. An optional BS95-02B radiation shield protects against solar heating and precipitation for maximum accuracy.

A pre-calibrated, field-replaceable element allows quick on-site servicing, while digital RS-485 or SDI-12 output provides easy data-logger integration and long cable runs without signal loss. With high sensitivity, fast response, and ultra-low power use, the BS330-21 delivers dependable, high-resolution data for forecasting, agriculture, and critical aviation or transportation applications.

Features

✔ **True 3-in-1 Measurement:** Simultaneously measures temperature, relative humidity, and barometric pressure in a single compact sensor—eliminating the need for multiple instruments.

✔ **Rugged, Weather-Ready Design:** Waterproof and UV-resistant housing ensures long-term reliability in harsh outdoor or industrial environments.

✔ **Easy Maintenance & Calibration:** Pre-calibrated, field-replaceable sensing element allows quick on-site servicing and user calibration.

✔ **Flexible Connectivity:** Supports SDI-12 and RS-485 digital outputs for simple data-logger programming, long cable runs, and seamless system integration.

✔ **High Accuracy & Fast Response:** Exceptional sensitivity and stable, long-term precision provide high-resolution data for critical applications.

✔ **Low Power Consumption:** Optimized for remote or solar-powered installations where energy efficiency is essential.

✔ **Strong Environmental Adaptability:** Performs reliably across wide temperature ranges and demanding field conditions.

Applications

- ✓ **Meteorological and climate-research stations:** Provides accurate, continuous temperature, humidity, and pressure data for weather forecasting and climate analysis.
- ✓ **Precision agriculture and greenhouse climate control:** Enables real-time monitoring to optimize irrigation, crop growth, and greenhouse environmental conditions.
- ✓ **Renewable-energy sites (solar and wind farms):** Supplies reliable atmospheric measurements to improve power forecasting and system efficiency.
- ✓ **Airports, transportation hubs, and roadway safety systems:** Delivers critical weather information for aviation operations, traffic management, and safety alerts.
- ✓ **Industrial facilities, warehouses, and cold-storage monitoring:** Maintains precise environmental control to protect equipment, inventory, and sensitive goods.
- ✓ **Forestry, ecology, and environmental studies:** Supports ecosystem research and conservation through accurate micro-climate and long-term environmental monitoring.

Technical Specifications

Item	Technical Specification		
	Temperature	**Humidity**	**Pressure**
Measurement Range	-40°C ~ 80°C	0 ~ 100%RH	300 ~ 1100hPa
Resolution	0.1°C	0.1%RH	0.1hPa
Accuracy	±0.2°C	±2%RH	±0.5hPa
Stability	± 0.1°C/2years	±2%RH/2years	±0.16hPa/year
Operating Voltage	12 ~ 24VDC		
Output Signal	0 ~ 2.5V, RS-485(MODBUS), SDI-12		
Current Consumption	<10mA (Without Display)		
Operating Temperature	-40°C ~ 80°C		
Ingress Protection	IP65 (With Radiation Shield or Stevenson Screen)		
Storage Conditions	10°C ~ 60°C @ 20% ~ 90%RH		
Display (Optional)	LCD		
Probe Material	ABS		
Radiation Shield (Optional)	BS95-02B		

Mounting

- ✓ This sensor can be installed in a solar radiation shield, a Stevenson screen, or mounted directly on a wall.
- ✓ For outdoor use, it is standard practice to place the sensor inside a radiation shield. The shield prevents solar heating, which can distort measurements, and provides protection against adverse weather such as rain or hail. A naturally ventilated shield is recommended because it requires no power and minimal maintenance. The sensor's dimensions are optimized to fit common radiation shields.
- ✓ For indoor installations, mount the sensor in a stable environment away from direct sunlight, windows, air-conditioning vents, heaters, or other heat sources to avoid measurement inaccuracies.

Dimensions

Unit:mm
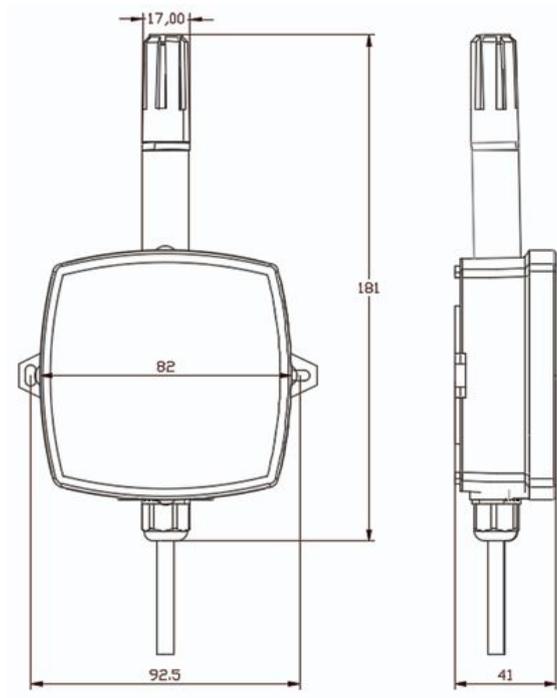
Parameter Selection Table

Remark	Series	Type	Parameter	Output	Accessory	Cable Length	
BS							
	330						
		21					
			A				Temperature & Humidity
			B				Temperature, Humidity, Pressure
				A			RS-485
				B			SDI-12
				C			0 ~ 2.5V
				X			Other
					A		With Display
					B		Without Display
						3000	Units:mm（typ）
						...	Units:mm

Example: BS330-21AAA3000 Parameter: Temperature and Humidity, Output: RS-485, With Display, Cable Length: 3m.

For comprehensive details, visit: www.buraq.com/BS330-21