BELFORT INSTRUMENT

Model 45002

Belfort Dual Humidity/Temperature/Dew-point Detector

Fully Calibrated Digital output (RS485) ready to plug into your system or PC (through USB converter) up to one mile away.

Dual Sensor redundancy to provide high confidence level of measurement accuracy with programmable differential error detection

All solid-state sensors provides high reliability and fast response time.

Plug and play feature permits use of multiple polled sensors on a single RS485 data line.

Field Selectable Temperature output: Celsius, Fahrenheit or Kelvin.

Meets specifications for FAA Non- Federal AWOS

Lightning and Transient Protected.

The Belfort Model 45002 Dual Humidity/Temperature/Dew-point detector provides a fully calibrated digital output that is the average output from two solid state (CMOS) sensors to provide improved accuracy and continuous error detection alerting users of any degradation in measurement accuracy due to contamination or damage. Should either sensor differ from the other sensor by a predetermined limit, the detector output will indicate degraded accuracy thereby significantly reducing the possibility of user decisions based on inaccurate information.

Packaged in a standard 5/8 inch (15.87mm) OD and 6 3/4 inch (171.5 mm) nylon cylinder with a stainless steel wire mesh dust protector covering the two sensors. The dust protectors are made with 200X600 grid 0.0026/0.0018 inch 300 series stainless steel sintered wire mesh screen significantly minimizing sensor contamination. These stainless steel screens snap in place with magnetic retainers allowing them to be easily removed for cleaning or replacement.

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SPECIFICATIONS:

TEMPERATURE:

Operating Range:	-35 to +55^{0}C (-30^0 to 130^{0}F)
Resolution:	0.01^{0}C
Accuracy:	0.6^{0}C RMSE, Max 1.2^0 C (1^{0}F RMSE, Max 2^{0}F)
Repeatability:	+/- 0.1^{0}C
Response Time:	5 -30 s (tau 63%)
Long Term Drift:	<0.04^{0}C per year

Humidity:

Operating Range:	10-90% RH (Extended Range Available on Request, 0-100%)
Resolution:	0.5% RH
Accuracy:	+/- 1.8%RH
Repeatability:	+/- 0.1% RH
Hysteresis:	+/- 1%
Nonlinearity:	<<1%RH
Response Time:	8 s (tau 63%)
Long Term Drift:	<0.5% RH/yr

Dew Point:

Operating Range:	-29^0 to 52^{0}C (-20 to 125^{0}F)
Resolution:	< 1^0
Accuracy:	-1^0 to 32^{0}C (+30^{0}F to +90^{0}F), 80-100% RH, 1.5^{0}F RMS
	-1^0 to 52^0 C (+30^{0}F to +120^{0}F), 15-75% RH, 3^{0}F RMS
	-29^0 to 7^{0}C (-20^{0}F to +20^{0}F), 25-95% RH, 1.5^{0}F RMS
Response Time:	5-30s (tau 63%)

Input:

Voltage:	5-24 volts DC
Current:	20 ma

Digital outputs: (selectable)

RS 485 Serial Output: 8 bits, no parity, 1 stop bit, Baud rates adjustable at 100,1200,2400,4800 or 9600 bits/ second

Serial Output: Selectable to either Belfort RS485 format or Rotronic Hygroclip TTL format

User Programmable options:

Celsius, Fahrenheit, or Kelvin Temperature
Sample Rates of 2 to 60 seconds
Selectable error signal trigger level based on differences between two sensor outputs (3-15%)