

Merlin RS Series

CARBON DIOXIDE, TEMPERATURE & HUMIDITY ROOM SENSORS

Monitor and measure carbon dioxide (CO₂), temperature and relative humidity. Designed for all areas being directly connected to low or mains voltage supply, e.g., residential, public, commercial, and light industrial environments, which support the following outputs:

- ✓ Analog: 3x 0-10V signals for CO₂ (PPM), Temperature (°C or °F) and Humidity (% Relative).
- ✓ Digital RS-485: Modbus RTU or BACnet MS/TP communication protocols.
- ✓ VFC Relay (CO₂): 1x SPST 70mA Max.
- ✓ Thermistor output for 3rd party temperature monitoring.

Excellent stability and strong anti-interference, long-life sensors. Fully calibrated. Our standard 3 year manufacturers warranty. Designed in the USA.



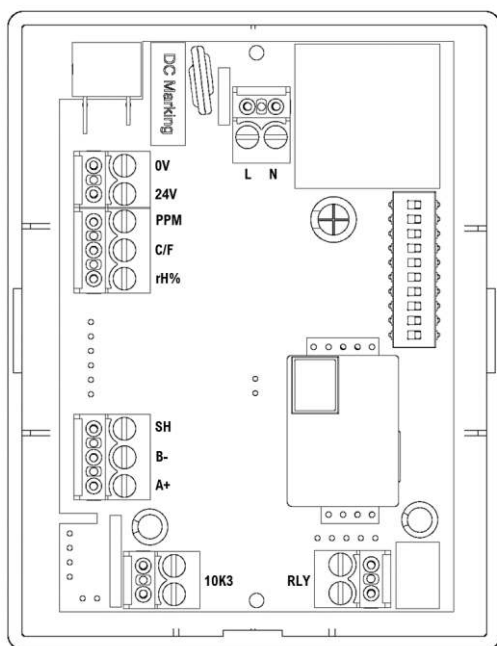
Blank Version
Monitored by BMS



LED Version (Green/Amber/Red)
Visual Display & Monitored by BMS



Display Screen Version
Visual Display & Monitored by BMS



NOTE: Connections depend on Model.

CONNECTION	LABEL	TERMINATION
110V AC IN	POWER LINE IN	L (Line)
		N (Neutral)
24V AC/DC INPUT	24V IN	+24V
		0V (Common GND)
		PPM (CO ₂ Sensor O/P)
ANALOG OUT/P	+10V OUT	°C/F (Temperature O/P)
		%RH (Humidity O/P)
		A+
DIGITAL OUT/P	RS-485	B-
		SH (Shield)
		(No Polarity)
THERMISTOR	10K3	(No Polarity)
CO ₂ VFC RELAY	RLY 70mA	(Open/Close Circuit)

Technical Specification

Mechanical	Mounting	Wall Mounted
	Entry	1/2" DIA Rear Entry and snap offs for side trunking
	Size (W x H x D)	3.38 x 4.48 x 1.3" (Low Profile RS 3.38 x 4.48 x 0.98")
	Weight	36oz Max
Electrical	Enclosure	ABS UL Flame retardant – IP40
	24V AC/DC Power Rating	12-24VDC (11-32 VDC) / 24VAC, (20-27 VAC) 50-60Hz
	120VAC Power Rating	Nominal 110VAC, (90-250V AC), 50-60Hz
	Internal Fuse	Resettable PPTC 110VAC, 400mA
	Communication	127 units max
Environmental	Power Consumption	5W Max
	Operating Temperature	14 to 122°F
	Storage	32-86°F
	Room Humidity	0 to 95% RH (continuous) non-condensing.
	Atmospheric Pressure	80 to 110Pa
	Altitude	<6562ft
	Installation Cat (110V Voltage)	II (Class 2) Pollution Degree 2
I/Os	Installation Cat (24V Voltage)	III (Class 3) Pollution Degree 2
	Analog Outputs	3x Linear 0-10V/2-10V CO ₂ , Temperature & Humidity. Thermistor (10K3)
	Digital Networks	BACnet MS/TP / MODBUS RTU (Parity: None Data bit: 8bit Stop bit: 1)
Cable Spec	Relay Outputs	1x SPST 70mA
	Power	Betatherm 10K3A1B
	Analog Output	For alternative Thermistors, contact your supplier. 18 – 14 AWG
	Digital Output	18 – 14 AWG
	Relays	18 – 14 AWG twisted pair + ground, shielded cable with 120 Ω characteristic impedance.
User Interface	Language	18 – 14 AWG
	Optional Display	English
	Optional LED/TFT Indication	2.8" TFT
Conformance	Safety	Green: Power (OK) Yellow: Warning (Pre-Alarm) Red: Danger (Alarm)
	Electromagnetic Compatibility	IEC 61010-1
	Other (Applied or Considered)	BS 50270
Sensing		
CO ₂ (ppm)	Temperature (°C or °F)	Humidity (%RH)
Sampling: Diffusion Type NDIR Indication Range: 400 – 5000ppm Response: t90 <120s Calibration: ABC Logic Self Calibration Warm Up Time: ~1 Minute Accuracy: 5% FS @ 77°F Lifespan: > 5 Years Resolution: 1ppm	Fully Calibrated Normal Indication Range: 32-122°F Response: t63% @ 77°F ~20s Typical Excellent long term stability Strong anti-interference Warm Up Time: 1 minute Accuracy: $\pm 0.5^\circ$ @ 50-113°F Resolution: 0.1°	Fully Calibrated Indication Range: 0-100% RH Quick Response: t63% @ 77°F ~8s Excellent long term stability Strong anti-interference Warm Up Time: 1 minute Accuracy: $\pm 2\%$ @ 59-86°F (20-90%RH) Resolution: 0.1%



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