

GMW80 Series Carbon Dioxide, Humidity and Temperature Transmitters for DCV



Features/Benefits

- Cost-efficient, affordable
- Reliable and maintenance-free operation up to 15 years
- Superior stability due to 2nd-gen proprietary CARBOCAP® technology
- Improved accuracy due to low self-heating of microglow light source
- Easy to install, easy to use
- Versatile – works well in buildings occupied 24/7
- Ideal for demand-controlled ventilation

GMW80 series transmitters.

The Vaisala CARBOCAP® Carbon Dioxide, Humidity and Temperature Transmitter Series GMW80 is based on a second-generation technology for improved reliability and stability. The transmitters are designed to fulfill the needs for CO₂ measurements in standard demand-controlled ventilation applications. Temperature measurement is always included in the GMW80 series transmitters. The optional temperature set-point potentiometer, humidity measurement, relay and LED CO₂ level indication give you the flexibility needed for a variety of projects.

The CARBOCAP® sensors measure CO₂ accurately immediately when powered on. As they have a built-in reference measurement they do not need a lengthy learning phase before the measured values are correct. Proper operation can be verified immediately after snapping on the device cover.

Easy Installation

With modern buildings often having hundreds of sensors, the installation time per unit can be a significant cost factor. Returning to the building site to check sensor operation adds further costs.

The GMW80 series transmitters include a number of subtle design features that have been introduced to make installation and commissioning quick and easy. The pull-out tab makes opening the transmitter faster than before, while also doubling as a quality check slip and holder for the anti-tamper screw. The backplate can be twisted onto pre-mounted screws, and the wiring can be done easily on the clearly marked backplate. The electronics can be snapped on later when the building automation system is commissioned.

Reliable Operation

The GMW80 series transmitters are optimized for low maintenance. The second-generation, low-power CARBOCAP® technology enables a longer lifetime and superior stability than ever before. As the power consumption is low, the heat generated by the electronics does not distort the temperature inside the sensor. The internal reference in the CO₂ sensor guarantees the best stability and operation even in constantly occupied buildings without frequent readjustments.

The reliable operation and accurate measurement values of the GMW80 series transmitters contribute to the significant cost savings brought by demand-controlled ventilation.

Technical Data

Models

GMW86P	CO ₂	CO ₂ current and voltage output, Pt1000
GMW86PT	CO ₂	CO ₂ current and voltage output, Pt1000, Temp setpoint
GMW83RP*	CO ₂ +RH+T	Voltage outputs, Pt1000
GMW83DRP*	CO ₂ +RH+T	Voltage outputs, Pt1000, Display
GMW83	CO ₂ +T	Voltage outputs
GMW83T	CO ₂ +T	Voltage outputs, Temp setpoint
GMW83A	CO ₂ +T	Voltage outputs, CO ₂ indicator LED:s
GMW83D	CO ₂ +T	Voltage outputs, Display
GMW84	CO ₂ +T	CO ₂ current output
GMW84S	CO ₂ +T	CO ₂ current output, Relay

*models with calibration certificate available

Performance

CARBON DIOXIDE

Measurement range 0 ... 2000 ppm

Accuracy

+20 ... +30 °C	±(30 ppm +3 % of reading)
+10 ... +20 °C, +30 ... +40 °C	±(35 ppm +3.7 % of reading)
+0 ... +10 °C, +40 ... 50 °C	±(40 ppm +4.8 % of reading)

Stability in typical HVAC conditions ±(15 ppm + 2 % of reading) over 5 years

Warm-up time 1 min; 10 min for full specification

Response time (63 %) 60s

Carbon dioxide sensor Vaisala CARBOCAP®GM10

TEMPERATURE

Measurement range 0 ... 50 °C

Sensor (on P models) Pt1000 RTD Class F0.15 IEC 60751

Sensor (for analog outputs) Digital temperature sensor

Accuracy (GMW83, GMW84)

+10 ... +30 °C	±0.5 °C
+0 ... +10 °C, +30 ... 50 °C	±1 °C

HUMIDITY

Measurement range 0 ... 95 %RH

Temperature range +10 ... +30 °C

0 ... 80 %RH ±3 %RH

80 ... 95 %RH ±5 %RH

Temperature range 0 ... +10 °C, +30 ... +50 °C

0 ... 95 %RH ±7 %RH

Stability in typical HVAC applications ±2 %RH over 2 years

Product lifetime >15 years

Operating Environment

Operating temperature range	0 ... +50 °C (+32 ... 122 °F)
Operating humidity range	0 ... 95 %RH
	Dew point <30 °C (+86 °F)
Storage temperature range	-40 ... +70 °C (-40 ... 158 °F)
Display models	-30 ... +70 °C (-22 ... 158 °F)
Electromagnetic compliance	EN61326-1, Industrial Environment

Mechanics

IP class	IP30
Housing material	ABS/PC UL-V0 approved
Housing color	White (RAL9003)
Output connector	Screw terminal
	max. wire size 2mm ² (AWG14)
Weight	114 g (Plain and LED version)
	120 g (Setpoint version)
	124 g (Display version)

Inputs and Outputs

Supply voltage	18 ... 35 VDC, 24 VAC ±20 % 50/60 Hz
Max. current consumption at 18 VDC	
GMW83/86	45 mA
GMW84	70 mA
Max power consumption at 30 VAC	
GMW83	0.7 W
GMW84	1.2 W
GMW86	1 W
Relay (GMW84S)	1 pc (max 50 VDC, 500 mA)
Outputs (see model table)	4 ... 20 mA and/or 0 ... 10V
CO ₂ output scale	0 ... 2000 ppm
Temperature output scale	0 ... 50 °C
Humidity output scale	0 ... 100 %RH
Passive temperature sensor (P models)	Pt1000 RTD
Temperature setpoint (T models)	10 KΩ potentiometer
LED CO ₂ indicator levels (A model)	
flashing red	>2000 ppm
red	1200 ... 2000 ppm
yellow	800 ... 1200 ppm
green	<800 ppm

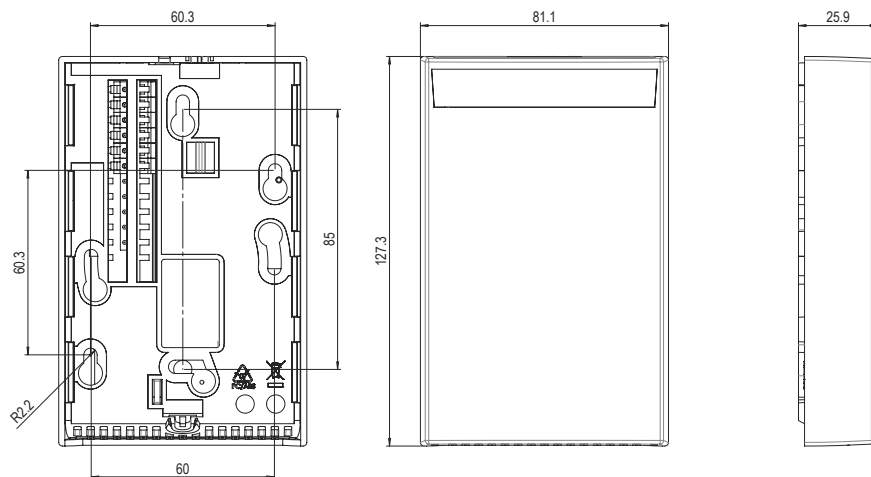
Spare Parts and Accessories

CO ₂ module	GM10SP80
INTERCAP® sensor	15778HM

GMW83, GMW83A, GMW83RP, GMW84, GMW84S and GMW86P dimensions

CO₂ 4 ... 20mA/0 ... 10V output

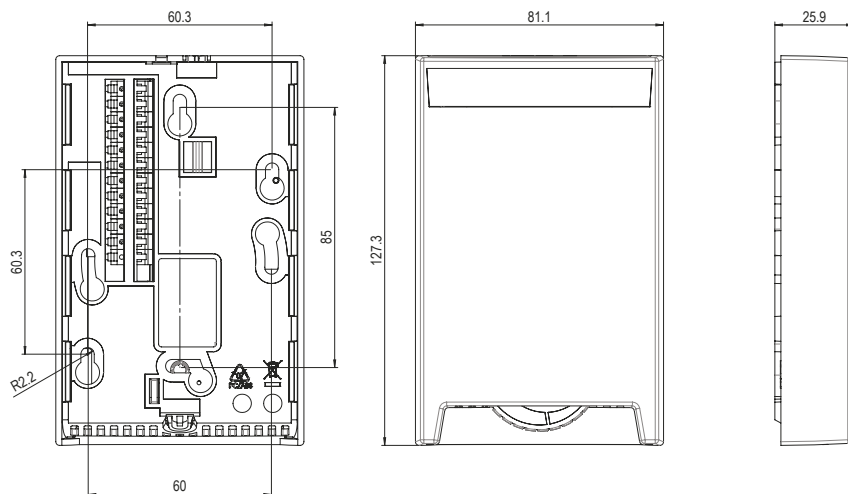
T Pt1000 RTD



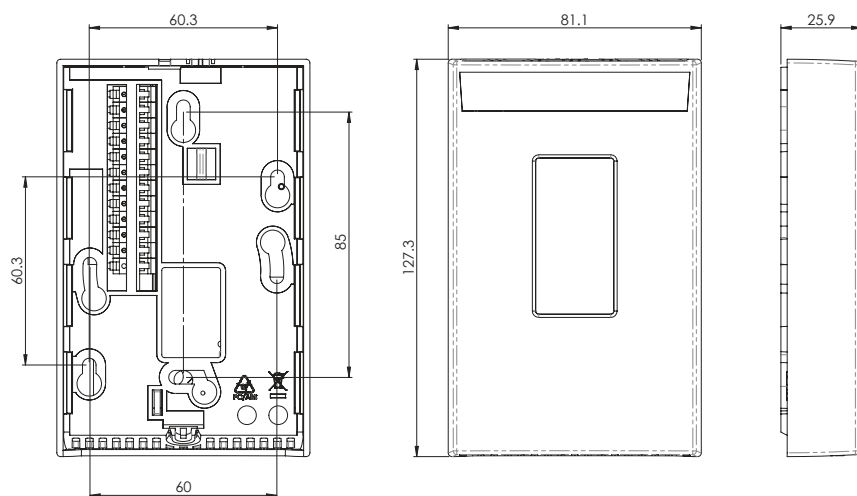
GMW83T and GMW86PT dimensions

CO₂ 4 ... 20mA/0 ... 10V output

T Pt1000 RTD



GMW83D and GMW83DRP dimensions



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