



Christer Helenelund,
M.Sc. (Eng.)
Product Manager
Sensor Systems Division
Vaisala Helsinki
Finland

Accurate transmitters for harsh and humid environments

Measuring CO₂ Safely

Vaisala's brand new GMT221 and GMT222 are the first CARBOCAP[®] transmitters available for a wide range of industrial CO₂ applications including greenhouses, fruit storage, safety alerts and demand-controlled ventilation in road tunnels, parking garages, mushroom farms and live-stock husbandry.

Designed for harsh environments

The GMT221 and GMT222 have been designed to measure CO₂ in harsh and humid environments. The housing is watertight (IP65/NEMA4) and corrosion-free. The materials used in the transmitters have been chosen for extended corrosion resistance. The GMT220 has also undergone and survived a demanding qualification testing program.

Flexible, compact design

The transmitters can be ordered in a number of configurations. Since the probes are truly interchangeable, they can be removed and reinstalled or replaced at any time – without need for calibration and adjustment. This means that the measuring range of a transmitter can be changed just by changing the probe (see Table 1 for available probes and measurement ranges).

The interchangeable probes can be installed directly in the transmitter body or used remotely by exploiting the available cable options. Attachment gear is available for installing remote probes in ducts or chambers or on walls.

Other optional features include a display, LonWorks and RS485 interface units.

Easy to use

The installation of GMT220 series transmitters is simple and straightforward. The mounting plate can be installed separately on a wall, and the protective plastic film covering the electronics inside the housing includes instructions on how to make the electrical connections.

The interchangeable probes allow easy field maintenance, since the probes can be replaced by newly calibrated ones or separate probes can be used as references for calibration checking. Field maintenance can thus

be done by the end user, without any need for heavy, expensive calibration gas bottles.

Superior measurement technology

The GMT220 series incorporates Vaisala's revolutionary silicon-based CARBOCAP[®] sensor described in detail in Vaisala News No. 141/1996, pp.18–19. The new feature of this nondispersive infrared (NDIR), Single-Beam Dual-Wavelength sensor is the use of a micro-machined, electrically tunable, Fabry-Perot interferometer as an optical filter, which gives excellent stability in both time and temperature. Performance like this has earlier been available only in expensive NDIR analyzers with rotating filter wheels.

Long calibration interval

The critical parts of the CARBOCAP sensor are made of silicon, which, together with the unique reference measurement capabilities, results in excellent stability in both time and temperature. Depending on the environment, the calibration interval can be extended up to five years. ■

Measurement range	GMT221	GMT222
0...2000 ppm		X
0...3000 ppm		X
0...5000 ppm		X
0...7000 ppm		X
0...1%		X
0...2%	X	
0...3%	X	
0...5%	X	
0...10%	X	
0...20%	X	

Table 1. Measurement ranges of the interchangeable probes available for the GMT220 and previously launched GMM220 series.



The GMT221 transmitter has been designed to measure carbon dioxide in harsh and humid environments.

