
 TI8200en	Product Information	
GUW9- Series (CO2)	Universal Room Air Quality (CO2) Sensor with BACnet MSTP / Modbus RTU communication and analog output	

The GUW9- Series (CO2) is designed to measure air quality in rooms or spaces

The air quality is measured based on CO2 levels (CO2 = Carbon dioxide).

The sensor operates with low power supply

The sensor output is via BACnet MSTP or Modbus RTU communication / 0...10V or 4...20mA



Use	<p>Compatible with all common HVAC DDC and Analog Controls systems, with/without Building Automation System</p> <p>Air quality (CO2) measurement in room or spaces</p> <p>Used in all common HVAC applications</p> <p>Used in Commercial and Industrial Buildings</p> <p>Professional and practical product design, withstands rough environmental conditions</p>
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Features	<p>Sensor with BACnet MSTP or Modbus RTU communication</p> <p>Sensor output 0...10V or 4...20mA, field selectable</p> <p>Dual channel system with automatic calibration</p> <p>Can be used 24h / 365d applications such as call center, hospital, etc.</p> <p>Professional and practical product design, withstands rough environmental conditions</p> <p>Easy to use, install and maintain</p>
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Product Range	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th data-bbox="151 1556 295 1724">Order Codes</th> <th data-bbox="295 1556 391 1724">BUS-system</th> <th data-bbox="391 1556 502 1724">Power Supply</th> <th data-bbox="502 1556 606 1724">Measured</th> <th data-bbox="606 1556 710 1724">Accuracy</th> <th data-bbox="710 1556 821 1724">Analog Output</th> <th data-bbox="821 1556 933 1724">Measuring Range</th> <th data-bbox="933 1556 1037 1724">Protection</th> </tr> </thead> <tbody> <tr> <td data-bbox="151 1724 295 1892">GUW9.AA</td> <td data-bbox="295 1724 391 1892">BACnet MSTP</td> <td data-bbox="391 1724 502 2072" rowspan="2" style="text-align: center; vertical-align: middle;">AC/DC 24V (±10%)</td> <td data-bbox="502 1724 606 2072" rowspan="2" style="text-align: center; vertical-align: middle;">Air Quality (PPM)</td> <td data-bbox="606 1724 710 2072" rowspan="2" style="text-align: center; vertical-align: middle;">±30ppm + 3% (of reading) at 21°C</td> <td data-bbox="710 1724 821 2072" rowspan="2" style="text-align: center; vertical-align: middle;">0...10V or 4...20mA</td> <td data-bbox="821 1724 933 2072" rowspan="2" style="text-align: center; vertical-align: middle;">0...2000PPM</td> <td data-bbox="933 1724 1037 2072" rowspan="2" style="text-align: center; vertical-align: middle;">IP54 according to EN 60529, IP65 with bolted cover</td> </tr> <tr> <td data-bbox="151 1892 295 2072">GUW9.AG</td> <td data-bbox="295 1892 391 2072">Modbus RTU</td> </tr> </tbody> </table>	Order Codes	BUS-system	Power Supply	Measured	Accuracy	Analog Output	Measuring Range	Protection	GUW9.AA	BACnet MSTP	AC/DC 24V (±10%)	Air Quality (PPM)	±30ppm + 3% (of reading) at 21°C	0...10V or 4...20mA	0...2000PPM	IP54 according to EN 60529, IP65 with bolted cover	GUW9.AG	Modbus RTU
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GUW9.AG	Modbus RTU																		

Sensor Specifications	Sensor Specification	Measured	CO2
		Sensor Characteristics	Active
		Sensor Output	BACnet MSTP or Modbus RTU communication, RS485
		Sensor Output	0..10V or 4...20mA
		Accuracy	Max. $\pm 30\text{ppm} +3\%$
		Pressure Dependency	1% of reading / kPa
		Warm up time	<6 min. (Operational); ~15 min. (max. accuracy)
		Calibration	Self calibration dual channel
		Sensor Element	NDIR (Non Dispersive InfraRed)
		Measuring Interval	2 sec.
	Measuring Range (Full Scale)	0...2000ppm	
Technical Information	Electrical Information	Power Supply	AC/DC 24V ($\pm 10\%$)
		Frequency	50 / 60 Hz @ AC 24V
		Output Load	Min. load 10k Ω @ AC/DC 24V
		Measuring Current	<1mA
		Power Consumption	Max. 3.0W
	Mechanical Information	Air Inlet	M19
		Sensing Element Position	Inside the housing
	User Interface		None
	Color and Material	Housing Cover	PA6, pure white
		Housing Bottom	PA6, pure white
		Cable Gland	PA6, pure white
		Gland Rubber Seal	ENSOF50, RAL9016 (Traffic White)
		Sensor Pipe	PA6, RAL 9017 (Traffic Black)
	Environmental Condition	Operation Temperature	0°C...+50°C
		Operation Humidity	<85% r.h., no condensation
		Transport Temperature	-35°C...+70°C
		Transport Humidity	< 90% r.h.
		Storage Temperature	-20°C...+70°C
	Norms and Directives	Storage Humidity	< 85% r.h., no condensation
		Sensor Outputs	IP54 according to EN 60529, IP65 with bolted cover
		Safety Class	III to EN 60 730
		Product Standard 1	Automatic Electric. Controls for household and similar use
		Product Standard 2	2009/EN 60 730-1
		Emitted Interference	2000/EN60730-1 Emitted Interference
		CE Conformities	2004/108/EG Electromagnetic Compatibility EMV
		Emitted Interference	2000/EN60730-1 Emitted Interference
		Interference Resistance	2000/EN60730-1 Interference Resistance
RoHS Compatibility		RoHS 3 EU 2015/863	
Operation Climatic Condition		IEC 60721-3-3	
Operation Mechanical Condition		IEC 60721-3-2 to class 2M2	
Transport to Climatic Condition		IEC 60721-3-2	
Transport Mechanical Condition		IEC 60721-3-2 to class 2M2	
Storage Climatic Condition	IEC 60721-3-1		
Storage Mechanical Condition	IEC 60721-3-1 to class 2M2		
Miscellaneous	Accessories	Mounting Kit, Included in delivery	Duct Mounting Kit (UDA0.A)
	Shipping & Handling	Minimum Order	1 box with 2 pieces
		Packaging Material	Rigits Cardboard
	Order Notes	Order Code	G UW9.AA

All Information and technical data are subject to alteration

Modbus Parameters	Address Number	Register Description	
	0...3	Serial Number	actual version
	4	Software Version	actual version
	6	Modbus Address	Default 254, selectable 1...254
	8	Hardware Version	actual version
	11	Baud Rate autodetection	0= OFF ; 1= On
	15	Baud Rate, (if autodetection is OFF)	0= 9600 ; 1= 19.200 ; 2= 38.400 ; 3= 57.600 ; 4= 115.200
	34	Air Quality, CO2	actual value (0...2000PPM)

BACnet Parameters	Supported BACnet Objects Types	
	analog-value	
	device	
	Supported BACnet Services	
	who-is	
i-am		

object-identifier, object-name, object-type, present-value, units, object-list, vendor-id, vendor-name, system-status, confirmed-service, unconfirmed-services

BACnet Parameters	MSTP Objects		
	analog-value		
		BACnet Address	Default 127, selectable 0...127
	AV0	Baud rate autodetection	default 0, 0= OFF ; 1= ON
	AV1	Baud Rate, (if autodetection is OFF)	0= 9600 ; 1= 19.200 ; 2= 38.400 ; 3= 57.600 ; 4= 115.200
	AV2	Humidity Mode	0= Dew Point ; 1= Enthalpy ; 2= Absolute Humidity ; 3= relative humidity
	AV3	Protocol	0= Modbus ; 1= BACnet
	AV4	Air Quality, CO2	actual value (0...2000PPM)
	Device		
		device-identifier	
		device-name	

The function "Baud Rate autodetection" can only be used during the product is been setup. When the product is working with the BAS, the "Baud Rate autodetection" has to be set to 0= OFF and the actual Baud Rate has to be set.

Installation Notes

Observe the following general regulation for engineering and implementation:



All relevant national and heavy power regulation

Other country specific regulations

Country-specific regulations

Local electrical supply authority regulation

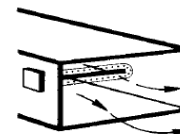
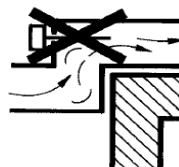
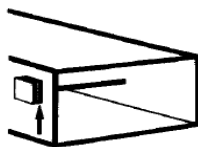
Schematics, cable listings, dispositions, specification and arrangements from the customer

or engineering office in charge

Third party specifications, e.g. general contractors or constructors

Advices

Mounting Advices



Disposal Notes

The device is considered an electronic device for disposal in terms of the



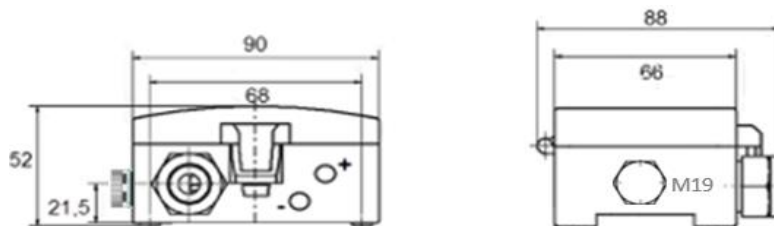
EUROPEAN DIRECTIVE 2012/19/EU.

The device may not be disposed as domestic garbage.

The device must be disposed through channels provided for this purpose.

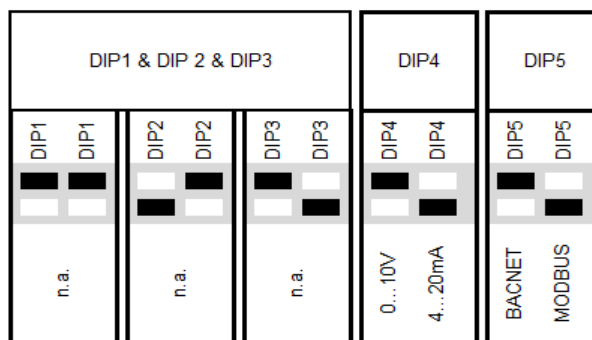
It is mandatory to complying with local currently applying laws and regulations.

Dimensional Drawing



Connections

Connection Terminals				
T1	T2	T3	T3	T4
UB+ (24V AC/DC)	GND	Analog Out	RS485 - C-	RS485 - C+



Accuracy

