DS2228en	Data Sheet	GRUNER
COW5-Series (CO_2&H&T)	Outdoor Air Quality CO_2, Humidity and Temperature Sensor with Active Outputs	

The COW5-Series (CO_2&H&T) is designed to measure air quality (CO_2), Humidity and Temperature in outdoor areas of heating, ventilation and air conditioning systems

In accordance with RESET® and WELL Building Standard™

Reading/parameter settings via NFC technology

With Operation LED, optional with ePaper display available

The sensor outputs are active

Use

Compatible to all common HVAC DDC and Analog Controls systems, with/without Building Automation System

Used in all common HVAC applications

Used in Commercial and Industrial Buildings

Sensor outputs 0–10 V or 4–20 mA

Optional with ePaper display available

Reading/parameter settings via NFC technology

Selectable Humidity Units (rel. Humidity / abs. Humidity / Dew Point / Enthalpy)

Cover/bottom housing connected with magnets and 2 screws

Immersion Pockets in Stainless Steel

Firmware updates via service connector

Easy to use, install and maintain.

Product Range

Order Codes	General Parameters					Temperature Parameters			Humidity Parameters				Air Quality (CO_2)
	Immersion Length	Display	LED	Power Supply	Active Outputs	IP Rating	Range	Accuracy	Accuracy	Measuring Range / Unit			Parameters
COW5G.AB	50 mm	N/A	LED	AC/DC 24 V (±10 %)	0–10 V	IP65	−40 °C to +60 °C (default) −40 °C to +135 °C via NFC adjustable	±0.2 °C between 0 °C to +50 °C	±2 %, Full scale	rel. humidity (default)	0 to 100 %	selectable via NFC	Accuracy ±(50 ppm +3 % of reading) Measuring Range 0 ppm to 2000 ppm Repeatability ±10 ppm Response time t63 = 60 s
COW5G.AF					4–20 mA					absolute humidity	0 to 50 g/m³		
COW5G.BB		ePaper display 31 mm × 60 mm			0–10 V					dew point	−20 to +80 °C		
COW5G.BF					4–20 mA					enthalpy	0 to 85 kJ/kg		

Sensor Specification	**Sensor Specification**	Measured	Air Quality CO_2 / Humidity / Temperature
		Sensor Characteristics	Active
		Sensor Output (s)	0–10 V or 4–20 mA
	Output Load	0–10 V output	Min. load 5 kΩ @ AC/DC 24 V
		4–20 mA output	Max. load 700 Ω @ DC 24 V
	Temperature (active)	Accuracy	±0.2 °C between 0 to +50 °C
		Response Time	t_{63} = 2 s
		Long Term Drift	<0.03 °C per year
		Default Measuring Range	0 °C to +50 °C
		Optional Measuring Range	Free selectable via NFC -40 °C to +135 °C
	Humidity	Accuracy	Typically ±2 % RH
		Repeatability	Average 0.15 % RH
		Long Term Drift	<0.25 % RH per year
		Measuring Value (default)	Relative Humidity, 0 % to 100%
		Optional Measuring Value	absolute humidity, 0 g/m³ to 50 g/m³
			Dew Point, −20 °C to +80 °C
			Enthalpy, 0 kJ/kg to 85 kJ/kg
	Air Quality (CO_2)	Accuracy	±(50 ppm +3 % of reading)
		Repeatability	± 10 ppm
		Response Time	t_{63} = 60 s
		Measuring Range	0 ppm to 2000 ppm
Technical Information	**Electrical Information**	Power Supply	AC/DC 24 V (±10 %)
		Frequency	50/60 Hz at AC 24 V
		Terminal Clamp	Screw terminal, max. 1.5 mm²
		Power Consumption	
		0–10 V output	≤1 W
		4–20 mA output	≤1 W
	Mechanical Information	Cable Entry	M16 / SW19
		PIN Bar	Bootloader for software updates
		Display	ePaper 31 mm × 60 mm
		Immersion Pocket	Ø19.5 mm × 50 mm
	Materials and Colours	Housing Cover	ABS, white / transparent (display)
		Housing Bottom	ABS, white
		Sensor Pipe COW5-Series (CO2&H&T) V26.1	ABS, white with SS304 cover
		Flammability Standard	UL 94 class HB; IEC 60707; ISO 9770
	Environmental Conditions	Operation Temperature	−25 °C to +70 °C (permanent)
		Operation Humidity	100 % RH, with condensation
		Transport Temperature	−35 °C to +70 °C
		Transport Humidity	<90 % RH
		Storage Humidity	<85 % RH, no condensation
	Norms and Directives	IP-Rating	IP65 to IEC60529
		REACH Regulation	Regulation (EC) No. 1907/2006
		Product Safety	Safety class III, in accordance. with EN IEC 60730-1
		Product Standard	Automatic electrical controls for household and similar use in accordance with EN IEC 60730-1:2022
		CE marking in accordance with Directive	2014/30/EU Electromagnetic Compatibility (EMC)
		EMC Emissions, in accordance with	EN IEC 60730-1:2022
		EMC Immunity, in accordance with	EN IEC 60730-1:2022
		RoHS Compliance, in accordance with	Directive 2011/65/EU, as amended by (EU) 2015/863
		Operation Climatic Condition	IEC 60 721-3-3
		Operation Mechanical Condition	IEC 60 721-3-2 to class2M2
		Transport to Climatic Condition	IEC 60 721-3-2
		Transport Mechanical Condition	IEC 60 721-3-2 to class2M2
		Storage Climatic Condition	IEC 60 721-3-1
		Storage Mechanical Condition	IEC 60 721-3-1 to class2M2
Miscellaneous	**Accessories**	N/A	
	Shipping & Handling	Minimum Order	1 box with 1 piece
		Packaging	Rigid cardboard packaging
	Order Notes	Order Code	See product range, page 1, e.g. COW5G.AB

Advices

Installation Notes

Observe the following general regulation for engineering and installation:

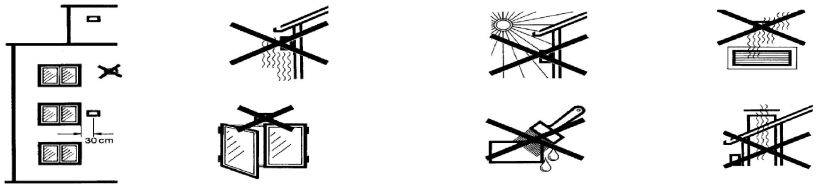
All relevant national and local electrical installation codes

Other country-specific regulations

Comply with all local safety regulations, schematics, cable listings, dispositions, specifications, and arrangements from the engineering office in charge

Third-party specifications, e.g., general contractors' or constructors' notes

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 comply with local currently applying laws and regulations

NFC Setting

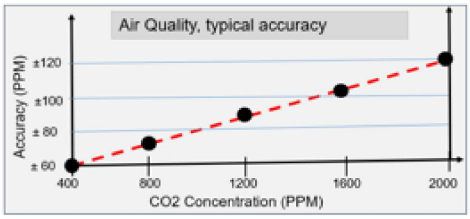
All devices marked with the NFC Logo can be parameterized via the Gruner AP NFC APP

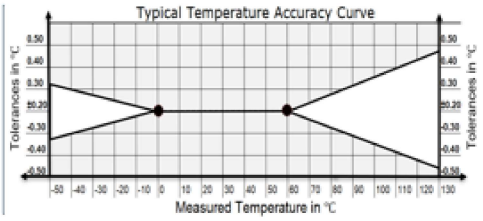
The NFC APP is available on the Gruner AP Website, https://www.grunerasiapacific.com/

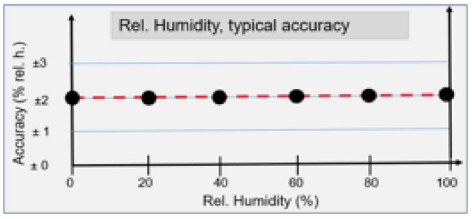
Hold your NFC-capable Android phone to the NFC Logo, the installed APP will start automatically

Commissioning Note: The sensor will reach its specified accuracy after 1 hour of being powered up

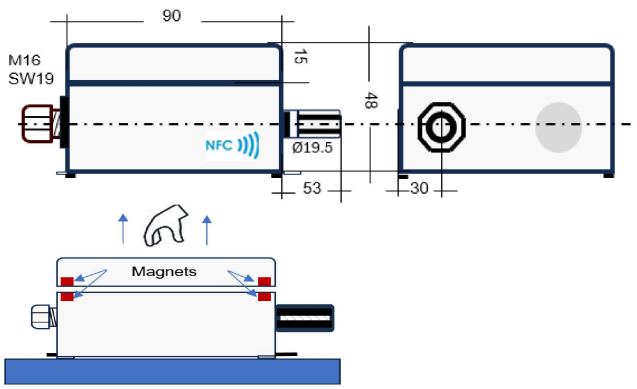
Accuracy Curves

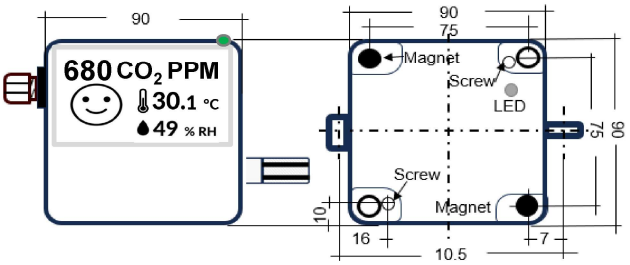






Dimensional Drawing / Mounting





Connections & Settings

Terminal Connections						
S1	S2	S3	S4	S5	S6	S7
Temperature	Humidity	Air Quality (CO_2)	GND	UB+	24V AC/DC	N/A	N/A