

Features

- Used to determine the air quality, based on a mixed gas sensor (VOC sensor)
- To measure the air quality in offices, hotels, meeting rooms, convention centres, schools, airports, apartments, stores, restaurants etc.
- 0-10 Vdc or 4-20 mA or 0-20 mA output (selectable)
0-10 Vdc: 0 Vdc = clean air, 10 Vdc = polluted air
4-20 mA: 4 mA = clean air, 20 mA = polluted air
- Potential free changeover contact as a switch output
- 3 types
QRT 24 standard type
QRT 24 L same as QRT 24 and with "traffic light" 5 coloured LED's indication of air quality (VOC)
QRT 24 SS same as QRT 24 but with stainless steel enclosure

Detectable gases

- Cigarette smoke
- Automobile exhaust
- Breath air
- Carbon dioxide (CO₂)
- Carbon monoxide (CO)
- Solvent fumes
- Alcohol fumes
- Acetone
- Acrylonitrile
- Ammonia
- Benzene
- Chlorine
- Dimethyl amine
- Ethane
- Ethylene
- Ethylene oxide
- Formaldehyde
- Hydrogen
- Hydrogen sulfide
- Isobutane
- Methane
- Methanol
- Methyl chloride
- Methylene chloride
- Methyl ether
- Methyl acetate
- Methyl ethyl ketone
- n-Hexane 2
- n-Petane
- Propane
- R-11
- R-12
- R-502
- R-123
- Sulfur dioxide
- Vinyl chloride

Ordering

Type no.	Description
Air Quality transmitter (VOC) for Room Mounting	
QRT 24	Air Quality Transmitter for Room Mounting 0-10 Vdc or 4-20 mA output with change over contact
QRT 24L	Same as QRT 24 and with "traffic light" 5 coloured LED's indication of air quality (VOC)
QRT 24 SS	Same as standard version QRT 24 but with stainless steel enclosure

Technical data

Sensor	VOC sensor (metal oxide) with automatic self-calibration
Measuring range	0-100% air quality referred to calibration gas multi-range switching (selectable via DP-switches) VOC sensibility: Low-Medium-High
Measuring accuracy	+/- 20% of final value (referred to calibration gas)
Power supply	24 Vac/dc (+/- 10%)
Output	0-10 Vdc or 4-20 mA (selectable)
Relay output (change over contact)	potential-free changeover contact (24V) switch point adjustable from 0-100% of output signal.
Ambient temp.range	0 to +50°C
Gas exchange	by diffusion
Service life	> 60 months (under normal load conditions)
Warm-up period	1 hour
Response time	< 60 sec.
Enclosure	plastic, material ABS, colour pure white, similar to RAL 9010, QRT 24 stainless steel enclosure, QRT 24 SS
Dimensions	85 x 85 x 27 mm (QRT 24) 100 x 100 x 25 mm (QRT 24 SS)
Installation	wall mounting or on in-wall flush box, Ø 55 mm, base with 4-hole for mounting on vertically or horizontally installed in-wall flush boxes for cable entry from the back, with predetermined breaking point for on-wall cable entry from top / bottom in case of plain on-wall installation
Protection class	III (according to EN 60 730)
Protection type	IP 30 (according to EN 60 529)
Standards	CE conformity, electromagnetic compatibility according to EN 61 326, EMC Directive 2014 / 30 / EU, Low Voltage Directive 2014 / 35 / EU

Applications

- For air quality measurement in offices, hotels, meeting rooms and convention centres, apartments, stores, restaurants, etc.
- For quantitative evaluation of room air pollution with contaminating gases (cigarette smoke, body perspiration, exhaled breathing air, solvent vapours, emissions from building members and cleaning agents)
- For adjustable sensitivity regarding the maximum air contamination to be expected.
- For room ventilation as-needed, enabled by air changes only taking place when air is polluted while conserving energy at the same time..

Description

The self-calibrating microprocessor-controlled room air quality transmitter QRT 24-series used to determine the room air quality on basis of a mixed gas sensor / VOC sensor (VOC = Volatile Organic Compounds).

Room air quality is understood as subjective air quality, felt by human beings with their olfactory organs.

As perception varies from person to person and therefore, air quality is assessed differently, a general definition of criteria for room air quality is not possible.

By linearising and high operating temperatures, the air quality transmitter achieves marginal drift and good stability.

The sensor is automatically self-calibrating.

The air quality sensor does not trace the concentrations of individual gases, but assesses the mixed gas as such, i.e. gas concentrations are not measured selectively.

Therefore, it is not possible to specify gas concentrations by the unit ppm.

Detectable gases: mixed gas, vapours of alcohols, cigarette smoke, automobile exhaust gases, exhaled breathing air, combustion smoke (from wood, paper, plastics).

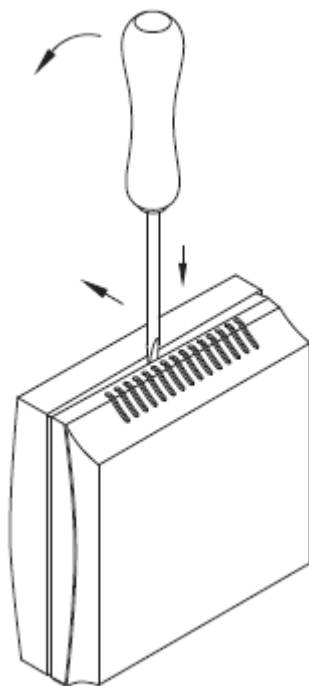
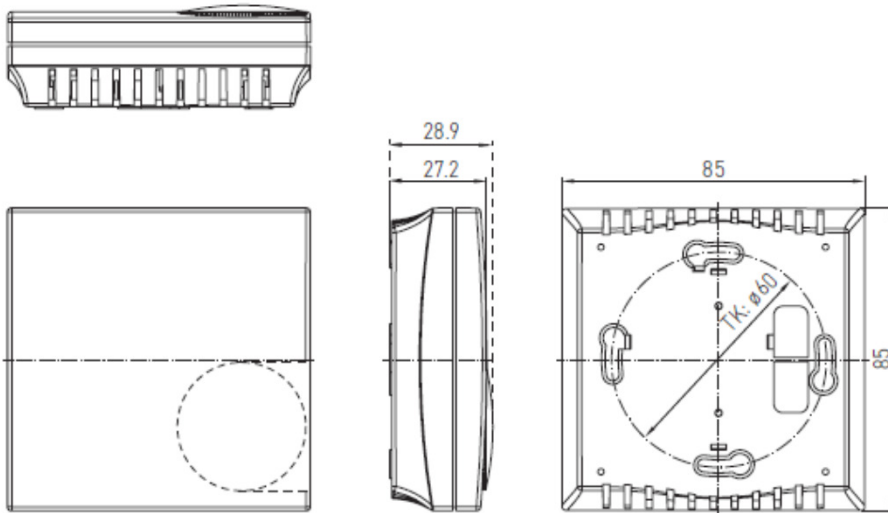
In addition, compounds of alkanes, alkenes, aromats, terpenes, halogenated hydrocarbons, esters, aldehydes and ketones as well as native VOCs such as terpenes and isoprene are ranking among volatile organic compounds VOC.

VOCs also evaporate from chemical products used in construction such as coating compounds, adhesives, or sealing compounds, furnishing objects, cleaning and care products, office chemicals and floor carpeting.

The sensor's service life is depending on the type of burden and gas concentration and is more than 60 months under normal load conditions.

The new design implies the alternative to choose between three sensibility ranges by means of DIP switches, comparable to three measuring ranges: LOW for low, MEDIUM (default, equivalent to the hitherto existing type of this device) for medium, and HIGH for high noxious gas contaminations.

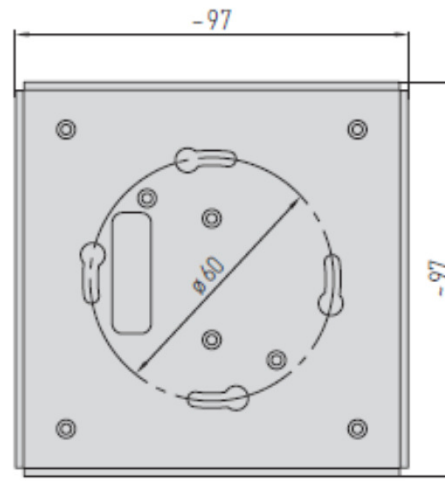
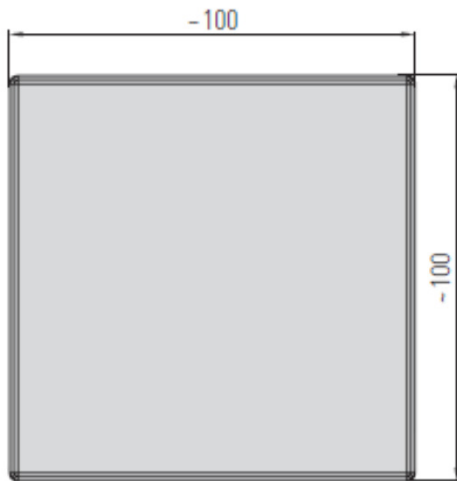
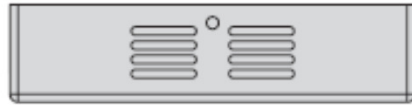
Dimensions in mm for ABS plastic housing QRT 24 and QRT 24 L



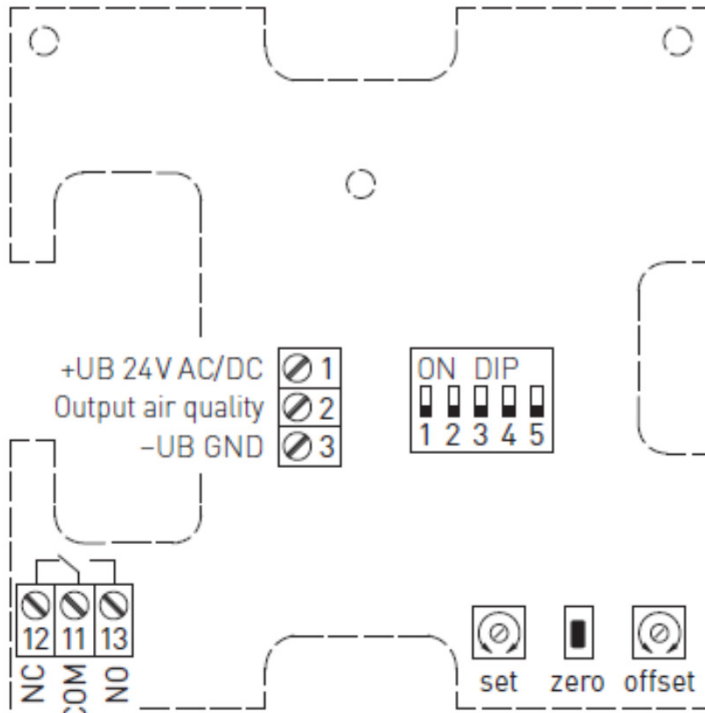
To open the enclosure, set a screwdriver (2.0) in the groove at centre, press down, and lift up the bottom frame slightly.

Pull top cover forward and hold it.

Dimensions in mm for stainless steel housing QRT 24 SS



Electrical connections



NC = Normally Closed
COM = Common
NO = Normally Open

- 1 UB+ 24V AC/DC
- 2 Output air quality 0-10V / 4...20mA
- 3 UB- GND

- 12 Breaker
 - 11 Normally open contact
 - 13 open contact
- changeover
24V/1A

DIP switches

VOC sensitivity	DIP 1	DIP 2
LOW	OFF	OFF
MEDIUM (default)	ON	OFF
HIGH	OFF	ON
VOC automatic zero point		DIP 3
deactivated		OFF
activated (default)		ON
Output		DIP 4
Voltage 0-10 V (default)		OFF
Current 4...20 mA		ON
Traffic light (5x LEDs)		DIP 5
deactivated		OFF
activated		ON

Traffic light indication

LED colour	VOC fractions	Output (U) approx.	Output (I) approx.
Green 1	OK	0... 1.9 V	4.0... 7.1 mA
Green 2	OK	2... 3.9 V	7.2...10.4 mA
Yellow 1	Increased	4... 5.9 V	10.5...16.6 mA
Yellow 2	Significantly increased	6... 7.9 V	16.7...16.8 mA
Red	Too high	8...10.0 V	16.9...20.0 mA



株式会社 **クローネ**

本社：〒124-0023 東京都葛飾区東新小岩3丁目9番6号 TEL: (03) 3695-5431 / FAX: (03) 3695-5698
 大阪支店：〒530-0054 大阪市北区南森町2-2-9(南森町八千代ビル7F) TEL: (06) 6361-4831 / FAX: (06) 6361-9360
 e-mail: sales-tokyo@krone.co.jp URL: https://www.krone.co.jp

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