Room air quality sensors/controllers (VOC) with multi-range switching and active/switching output, series Frija I

S+S REGELTECHNIK

The self-calibrating microprocessor-controlled room air quality sensor AERASGARD® RLQ is used to determine the room air quality on basis of a mixed gas sensor/VOC sensor (VOC = volatile organic compounds).

It is used:
- For air quality measurement in offices, hotels, meeting rooms and convention centres, apartments, stores, and 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.

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 VOC sensibility.

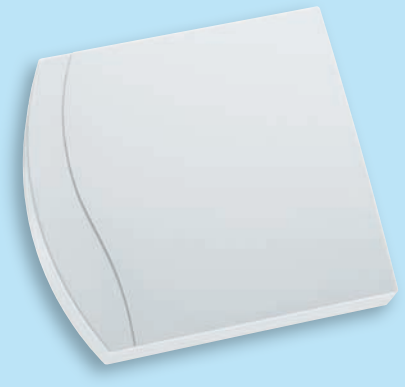
VOC is the abbreviation for volatile organic compounds. According to the definition by the World Health Organization WHO, VOC are organic substances with a boiling range from 60 to 250 °C. Ranking among VOC are for example compounds of the substance groups alkanes/alkenes, aromatic compounds, terpenes, halogenated hydrocarbons, esters, aldehydes, and ketones. There is a large number of native VOC, which in part are released into the atmosphere also in substantial quantities, e.g. terpenes and isoprene from forests.
For more information please refer to beginning of this chapter.

TECHNICAL DATA:

Power supply: ..... 24 V AC/DC, current consumption ca. 70 mA at 24 V
Sensor: ..... VOC sensor (metal oxide), **with automatic self-calibration**
Measuring range: ..... 0 ...100% air quality; referred to calibrating gas;
multi-range switching (selectable via DIP switches)
VOC sensibility low, medium, high
Output: ..... 0-10 V (0 V = clean air, 10 V = polluted air) or
4...20 mA (selectable via jumper) or
with potential-free changeover contact (24 V),
switchpoint adjustable from 0...100% of output signal
Measuring accuracy: ..... ±20% of final value (referred to calibrating gas)
Ambient temperature: ..... 0...+50 °C
Detection of gases: ..... not selective
Electrical connection: ..... 0.14 - 1.5 mm² via terminals on circuit board
Long-term stability: ..... <10% per year
Warm-up time: ..... 1 hour
Response time: ..... <60 s
Enclosure: ..... plastic, material ABS, colour pure white (similar RAL 9010),
stainless steel enclosure optional
Dimensions: ..... 85 x 91 x 27 mm (Frija I)
75 x 75 x 25 mm (stainless steel enclosure)
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 60730)
Protection type: ..... IP 30 (according to EN 60529)
Standards: ..... CE-conformity, electromagnetic compatibility
according to EN 61 326 + A1 + A2, EMC directive 2004/108/EC
Optional: ..... traffic light indicator indicating actual air quality

VOC (sensitivity adjustable)	**DIP 1**	**DIP 2**	**DIP 3**
VOC LOW	**ON**	**OFF**	**OFF**
VOC MEDIUM (default)	**OFF**	**ON**	**OFF**
VOC HIGH	**OFF**	**OFF**	**ON**
VOC Calibration mode			**DIP 4**
Automatic self-calibration			**OFF**
Manual calibration			**ON**
Selection output (I)			**DIP 5**
Output 0...20 mA			**OFF**
Output 4...20 mA			**ON**

RLQ



Connecting diagram **RLQ** **RLQ-A**

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

Connecting diagram **RLQ-xx-W**

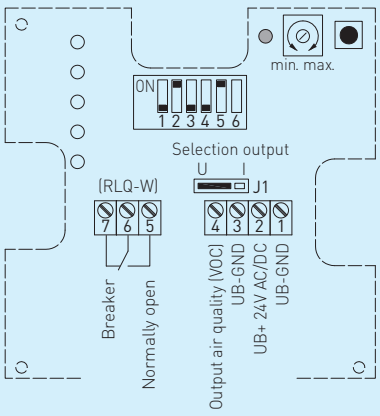
1 UB- GND
2 UB+ supply voltage 24V AC/DC
3 GND
4 Output air quality 0-10V / 4-20mA

5 Normally open contact
6
7 Breaker

Schematic diagram **RLQ** **RLQ-A** **RLQ-xx-W**

Pushbutton manual calibration air quality
LED calibration

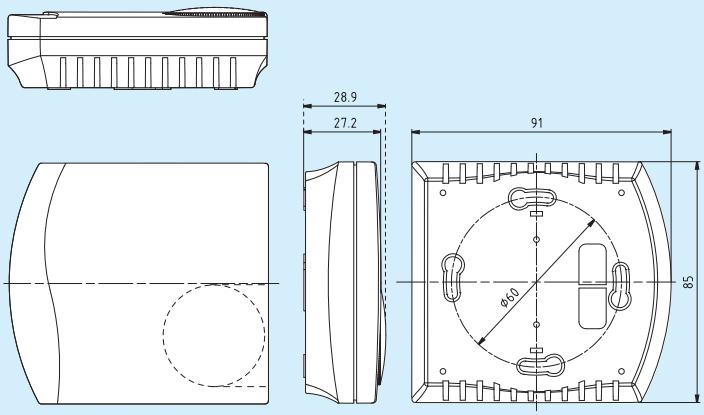
Selection output:
Voltage (V), default
Current (mA)



GND terminals (1) and (3) are connected on the circuit board.
DIP switch (6) is not assigned!

Dimensional drawing

Enclosure **Frija I RLQ**



RLQ-A-W with LED
(traffic light air quality indication)

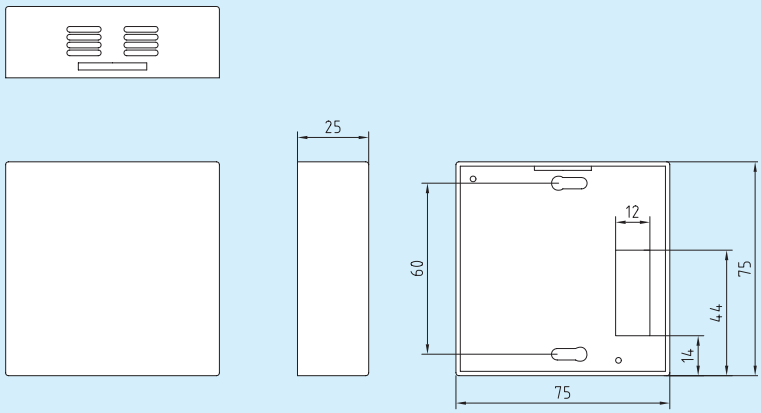
RLQ-AP-W with LED
(traffic light air quality indication)

Traffic light indication **RLQ-A / RLQ-AS**

LED	VOC fractions	Output (U) ca.	Output (I) ca.
Green 1	Alright	0 ... 1.9 V	4.0 ... 7.1 mA
Green 2	Alright	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 V	16.9 ... 20.0 mA

Dimensional drawing

Enclosure **stainless steel RLQ**



RLQ
with stainless steel enclosure

AERASGARD® **RLQ**

Type / WG1	Measuring Range VOC	Output VOC	Features
RLQ	0...100%	0-10V / 4...20mA	–
RLQ-W	0...100%	0-10V / 4...20mA	Changeover contact
RLQ-xx-stainless steel			Stainless steel enclosure
RLQ-A-W	0...100%	0-10V / 4...20mA	LED indicator (traffic light), changeover contact
RLQ-AP-W	0...100%	0-10V / 4...20mA	LED indicator (traffic light), potentiometer, changeover contact
	A = With "traffic light" (five coloured LEDs) indicating air quality (VOC).		
Note:	This unit **must not** be used as safety-relevant device!		

Room air quality sensors (VOC) with active output, in-wall, panel switch programme

S+S REGELTECHNIK

RLQ-UP

The room air quality sensor AERASGARD® RLQ-UP is used to determine the air quality and qualitative estimation of room air pollution by diverse gas fractions (e.g. cigarette smoke, exhaled breathing air, solvent vapours, etc.). Energy conservation is achieved by ventilation of rooms on an as-needed basis.

This in-wall version was developed for users with highest demands in respect of design, as these sensors are available in line with all current panel switch programmes, e.g. Busch-Jaeger, Berker, Feller, Gira, Legrand, Merten, Niko and Jung. 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.

VOC is the abbreviation for volatile organic compounds. According to the definition by the World Health Organization WHO, VOC are organic substances with a boiling range from 60 to 250 °C. Ranking among VOC are for example compounds of the substance groups alkanes/alkenes, aromatic compounds, terpenes, halogenated hydrocarbons, esters, aldehydes, and ketones. There is a large number of native VOC, which in part are released into the atmosphere also in substantial quantities, e.g. terpenes and isoprene from forests.
For more information please refer to beginning of this chapter.

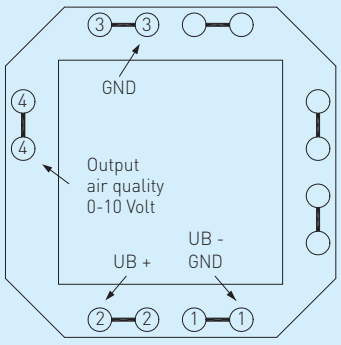
TECHNICAL DATA:

Power supply:	24 V AC/DC current consumption ca. 70 mA at 24 V
Sensor:	VOC sensor (metal oxide), **with automatic self-calibration** (VOC = volatile organic compounds) detection of gases not selective
Measuring range:	0...100 % air quality (mixed gas pollution referred to calibrating gas)
Output signal:	0-10 V (0 V = clean air, 10 V = polluted air) (slight to increased room air contamination), or with potential-free switching output 24 V, switchpoint adjustable from 0...100 % of output signal
Warm-up time:	1 hour
Measuring accuracy:	± 20 % of final value (referred to calibrating gas)
Ambient temperature:	0...+ 50 °C
Enclosure:	plastic
Electrical connection:	0.14 - 2.5 mm² via plug terminals on circuit board
Installation:	in in-wall flush box , Ø 55 mm, in-wall
Protection class:	III (according to EN 60 730)
Protection type:	IP 20 (according to EN 60 529)
Standards:	CE-conformity, electromagnetic compatibility according to EN 61 326 + A1 + A2, EMC directive 2004/108/EC, low-voltage directive 73/23/EEC

SWITCH PROGRAMME:

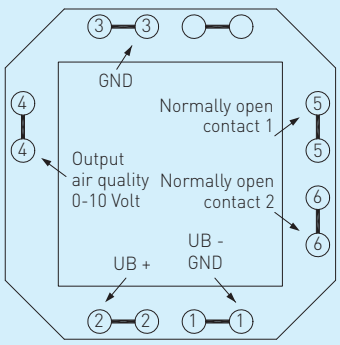
Manufacturer:	Busch-Jaeger Reflex Si (other switch programmes, manufacturers, colours and prices upon request)
Enclosure:	plastic, standard colour alpine white (similar RAL 9010) (other colours are possible on request with colour variants depending on the respective light switch programme)

Schematic diagram **RLQ-UP**



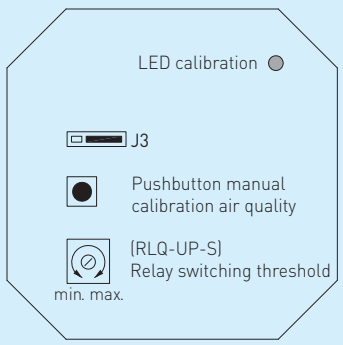
GND terminals (1) and (3)
are connected on the circuit board.

Schematic diagram **RLQ-UP-S**

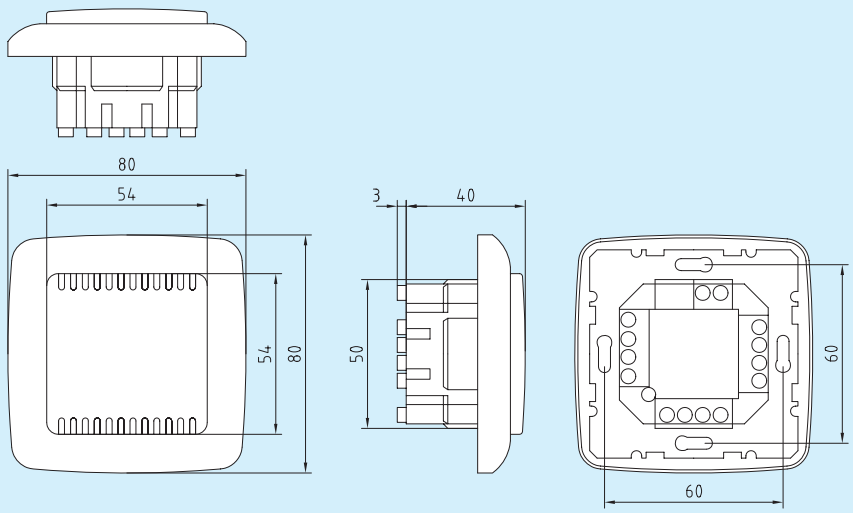


GND terminals (1) and (3)
are connected on the circuit board.

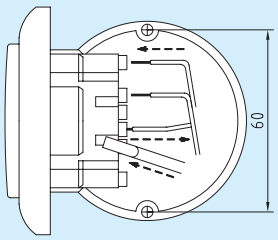
Setting **RLQ-UP-S**
RLQ-UP



Dimensional drawing **RLQ-UP**



Installation scheme **RLQ-UP**



AERASGARD® **RLQ-UP**

Type/WG1	Measuring Range VOC	Output VOC	Features
RLQ-UP	0...100%	0-10V	
RLQ-UP-S	0...100%	0-10V	Normally open contact
Note:	This unit **must not** be used as safety-relevant device!		