Ⓓ Ⓖⓑ Ⓕ Ⓡⓤ 6000-3440-000-1XX **34400-2019 V105** 01/2019

AERASGARD® KLQ-W
AERASGARD® KLQ-SD

S+S REGELTECHNIK

KLQ-W
(IP65)

KLQ-SD
(IP43)

Ⓓ Bedienungs- und Montageanleitung

Kanal-Luftqualitätsfühler (VOC) bzw. Messumformer, incl. Montageflansch, selbstkalibrierend, mit Mehrbereichsumschaltung und aktivem/schaltendem Ausgang

Ⓖⓑ Operating Instructions, Mounting & Installation

Duct air quality sensors (VOC) and measuring transducers, including installation flange, self-calibrating, with multi-range switching and active/switching output

Ⓕ Notice d'instruction

Sonde de qualité de l'air pour montage en gaine (COV) resp. convertisseur de mesure,y compris bride de montage, auto-calibrant, avec commutation multi-gamme et sortie active/tout ou rien

Ⓡⓤ Руководство по монтажу и обслуживанию

Канальный датчик/измерительный преобразователь качества воздуха (VOC), вкл. присоединительный фланец, самокалибрующийся, с переключением между несколькими диапазонами и активным/релейным выходом

S+S REGELTECHNIK

S+S REGELTECHNIK GMBH
PIRNAER STRASSE 20
90411 NÜRNBERG/GERMANY

FON +49 (0) 911/519 47-0
FAX +49 (0) 911/519 47-70

mail@SplusS.de
www.SplusS.de

MADE IN GERMANY

Herzlichen Glückwunsch!
Sie haben ein deutsches Qualitätsprodukt erworben.

Congratulations!
You have bought a German quality product.

Félicitations!
Vous avez fait l'acquisition d'un produit allemand de qualité.

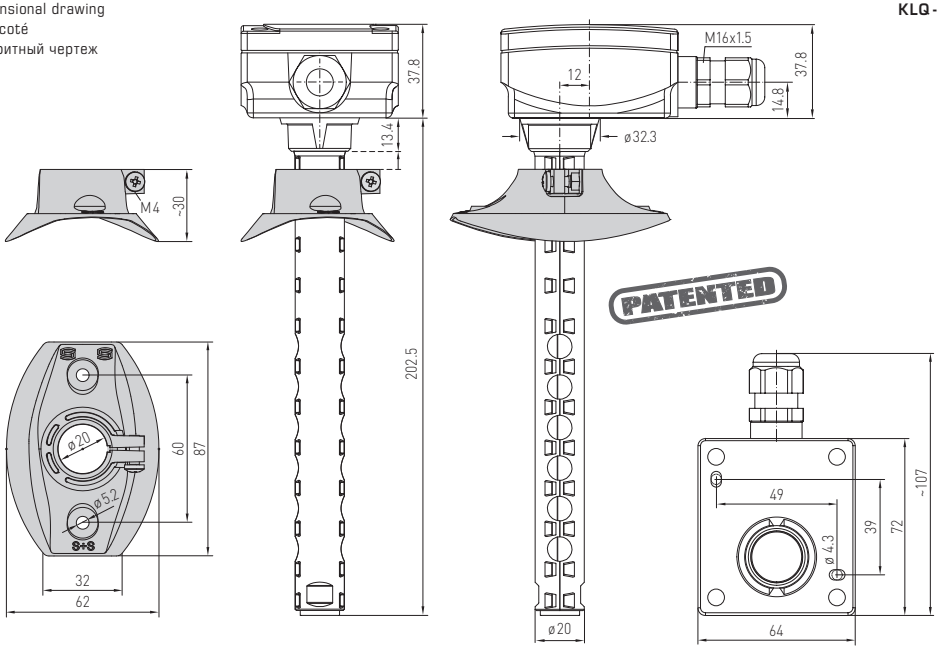
Примите наши поздравления!
Вы приобрели качественный продукт, изготовленный в Германии.

AERASGARD® KLQ-W
AERASGARD® KLQ-SD

S+S REGELTECHNIK

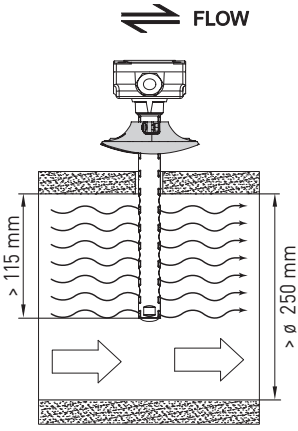
Maßzeichnung
Dimensional drawing
Plan coté
Габаритный чертеж

KLQ-W
KLQ-SD



Montageschema
Mounting diagram
Schéma de montage
Схема монтажа

KLQ-W
KLQ-SD



MFT-20-K
Montageflansch aus Kunststoff
Mounting flange, plastic
Bride de montage en matière plastique
Присоединительный фланец из пластика

Patented quality product (patent no. DE 10 2014 010 719.1)

The maintenance-free microprocessor-controlled duct sensor **AER**ASGARD® **KLQ-SD** with automatic calibration (fixed), enclosure with snap-on lid, is used for determining the air quality based on a mixed gas sensor/VOC sensor. The measurement value is converted into standard signal of 0-10 V.

The maintenance-free microprocessor-controlled duct sensor **AER**ASGARD® **KLQ-W** with automatic calibration (can be deactivated via DIP switches) , enclosure with quick-locking screws, is used for determining the air quality or based on a mixed gas sensor/VOC sensor. The measurement value is converted into standard signal of 0-10 V or 4...20 mA.

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 depends on the type of burden and gas concentration and is more than 60 months under normal load conditions. The new design allows you to choose between three sensitivity ranges that are adjusted using DIP switches, giving you three measuring ranges: LOW for low, MEDIUM (default) for medium, and HIGH for high VOC sensitivity. 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. Examples of VOCs include compounds of the substance groups alkanes / alkenes, aromatic compounds, terpenes, halogenated hydrocarbons, esters, aldehydes, and ketones. There is a large number of naturally occurring VOCs, some of which are also released into the atmosphere in substantial quantities, e.g. terpenes and isoprene from forests.

TECHNICAL DATA

Power supply:	24 V AC / DC (± 10 %)
Power consumption:	< 1.5 W / 24 V DC typical; < 2.9 VA / 24 V AC typical; peak current 200 mA
Sensor:	VOC sensor (metal oxide) (VOC = Volatile Organic Compounds), with manual calibration (via zero button), **KLQ-SD** with automatic calibration (fixed) **KLQ-W** with automatic calibration (can be deactivated via DIP switches)
Measuring range:	0...100 % air quality; referred to calibrating gas; **multi-range switching** (selectable via DIP switches) VOC sensibility low, medium, high
Output:	(0 V = clean air, 10 V = polluted air) **KLQ-SD** 0-10 V (fixed) **KLQ-W** 0-10 V **or** 4...20 mA, working resistance < 800 Ω (selectable via DIP switches) with offset potentiometer (± 10 % of the measuring range)
Relay output:	**KLQ-SD** without changeover contact **KLQ-W** with potential-free **changeover contact** (24 V / 1 A) switchpoint adjustable
Measuring accuracy:	± 20 % of final value (referred to calibrating gas)
Service life:	> 60 months
Gas exchange:	by diffusion
Warm-up time:	approx. 1 hour
Response time:	approx. 1 minute, minimum flow rate 0.3 m/s (air)
Ambient temperature:	–10...+60 °C
Electrical connection:	0.14 - 1.5 mm^2, via terminals
Enclosure:	plastic, UV-stabilised, material polyamide, 30 % glass-globe-reinforced, colour traffic white (similar to RAL 9016), **KLQ-SD** **with snap-on lid,** **KLQ-W** **with quick-locking screws** (slotted / Phillips head combination)
Enclosure dimensions:	72 x 64 x 37.8 mm (Tyr 1/Tyr 01 without display) 72 x 64 x 43.3 mm (Tyr 1 with display)
Cable gland:	M 16 x 1.5, including strain relief, exchangeable, max. inner diameter 10.4 mm
Protective tube:	**PLEUROFORM**™, material polyamide (PA6), with torsion protection, Ø 20 mm, NL = 202.5 mm, v_{max} = 30 m/s (air)
Process connection:	by mounting flange, plastic (included in the scope of delivery)
Protection class:	III (according to EN 60 730)
Protection type:	**KLQ-SD** **IP 43** (according to EN 60 529) enclosure only! **KLQ-W** **IP 65** (according to EN 60 529) enclosure only!
Standards:	CE conformity, electromagnetic compatibility according to EN 61 326, EMC Directive 2014 / 30 / EU

ATTENTION!

There is no universally uniform standard, which could be applied to a **VOC sensor** (Volatile Organic Compounds). The monitored air contains a large number of substances to which the sensor responds, and gas mixtures are adjusted. Therefore this sensor does not act selectively, but rather reflects the overall air quality. In principle, one also cannot state precisely what is "bad air" or what is "good air" because this is a purely subjective sensation.

The gas inter-exchange in the sensor element happens by diffusion. Depending on the changes to the concentration and the flow velocity of the air surrounding the sensor, the reaction of the device to the change of concentration may take place with a delay. It is essential to choose an installation location for the device in which the air stream flows around the sensor. Otherwise the gas exchange may be considerably delayed or prevented.

Automatic calibration of air quality (default)

The automatic background logic is a self-calibrating mechanism that is suitable for use in applications in which the air quality regularly drops to fresh air level. This should typically occur during times in which the rooms are unoccupied.

The sensor reaches its normal accuracy after 24 hours of continuous operation in an environment that has been subjected to a fresh air supply.
The deviation errors remain minimal if the sensor is exposed to fresh air at least 4 times within 28 days. The ABC logic needs continuous operating cycles of more than 24 hours to operate correctly.

Manual calibration of air quality

After connecting the device, ensure continuous operation for at least 2 hours using air defined as "normal" air quality.
Manual calibration can be started by pressing the button position, irrespective of the DIP 3-switch.

The calibration procedure is started by pressing the "ZERO" button (for approx. five seconds). This is signalled via the flashing LED.

Then calibration takes place. During this phase, the LED is continuously active and a 600 second countdown runs.

Putting in operation

After switching on the device, a self-test and tempering period follows.
This process takes around 30-50 minutes, depending on the ambient conditions.

It is imperative to perform manual calibration once this process is completed.
The ABC logic can then be optionally activated.

Switching point setting

A switching point between 10 % and 95 % of the measuring range can be selected using the SET potentiometer.
A potential-free changeover contact is available as a switch output.

Offset

The VOC measured value can be adjusted subsequently using the offset potentiometer. The adjusting range is ± 10 % of the measuring range.

DIP switches	KLQ-W	
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**

DIP switches	KLQ-SD	
VOC sensitivity	**DIP 1**	**DIP 2**
LOW	OFF	OFF
MEDIUM (default)	**ON**	OFF
HIGH	OFF	**ON**

AERASGARD® **KLQ-SD** Duct air quality sensor and measuring transducer, *Standard*
AERASGARD® **KLQ-W** Duct air quality sensor and measuring transducer, *Premium*

Type / WG02	Measuring Range VOC	Output VOC	Equipment	Item No.
KLQ-SD		(fixed)		**IP 43**
KLQ-SD-U	0...100 %	0-10 V	–	1501-3170-1001-200
KLQ-W		(switchable)		**IP 65**
KLQ-W	0...100 %	0-10 V / 4...20 mA	changeover contact	1501-3150-7301-200
Note:	This unit **must not** be used as safety-relevant device!			

(GB) General notes

- This device may only be used in non-precipitating air without above-atmospheric or below-atmospheric pressure at the sensor element.
- The voltage output is short-circuit proof.
- Applying overvoltage will destroy the device.
- In case of pollution, we recommend cleaning and recalibration in the factory.
- The device operating range covers 10...95 % relative humidity respectively 0...+50 °C. Outside of that range, mismeasurements or increased deviations will occur.
- If this device is operated beyond the specified range, all warranty claims are forfeited.

Our "General Terms and Conditions for Business" together with the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry" (ZVEI conditions) including supplementary clause "Extended Retention of Title" apply as the exclusive terms and conditions.

In additionIn addition, the following points are to be observed:

- These instructions must be read before installation and putting in operation and all notes provided therein are to be regarded!
- Devices must only be connected to safety extra-low voltage and under dead-voltage condition. To avoid damages and errors the device (e.g. by voltage induction) shielded cables are to be used, laying parallel with current-carrying lines is to be avoided, and EMC directives are to be observed.
- This device shall only be used for its intended purpose. Respective safety regulations issued by the VDE, the states, their control authorities, the TÜV and the local energy supply company must be observed. The purchaser has to adhere to the building and safety regulations and has to prevent perils of any kind.
- No warranties or liabilities will be assumed for defects and damages arising from improper use of this device.
- Consequential damages caused by a fault in this device are excluded from warranty or liability.
- These devices must be installed and commissioned by authorised specialists.
- The technical data and connecting conditions of the mounting and operating instructions delivered together with the device are exclusively valid. Deviations from the catalogue representation are not explicitly mentioned and are possible in terms of technical progress and continuous improvement of our products.
- In case of any modifications made by the user, all warranty claims are forfeited.
- This device must not be installed close to heat sources (e.g. radiators) or be exposed to their heat flow. Direct sun irradiation or heat irradiation by similar sources (powerful lamps, halogen spotlights) must absolutely be avoided.
- Operating this device close to other devices that do not comply with EMC directives may influence functionality.
- This device must not be used for monitoring applications, which serve the purpose of protecting persons against hazards or injury, or as an EMERGENCY STOP switch for systems or machinery, or for any other similar safety-relevant purposes.
- Dimensions of enclosures or enclosure accessories may show slight tolerances on the specifications provided in these instructions.
- Modifications of these records are not permitted.
- In case of a complaint, only complete devices returned in original packing will be accepted.

Notes on commissioning:

This device was calibrated, adjusted and tested under standardised conditions. When operating under deviating conditions, we recommend performing an initial manual adjustment on-site during commissioning and subsequently at regular intervals.
Commissioning is mandatory and may only be performed by qualified personnel!

These instructions must be read before installation and commissioning and all notes provided therein are to be regarded!

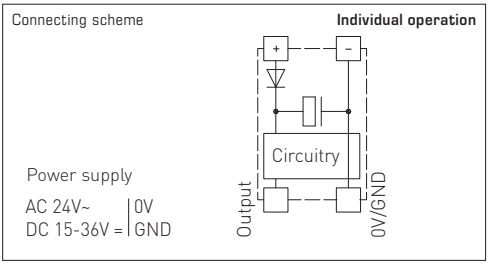
SUPPLY VOLTAGE:

For operating voltage reverse polarity protection, a one-way rectifier or reverse polarity protection diode is integrated in this device variant. This internal one-way rectifier also allows operating 0-10 V devices on AC supply voltage.

The output signal is to be tapped by a measuring instrument. Output voltage is measured her against zero potential (0 V) of the input voltage!

When this device is operated on **DC supply voltage**, the operating voltage input UB+ is to be used for 15...36 V DC supply and UB– or GND for ground wire!

Connecting scheme **Individual operation**

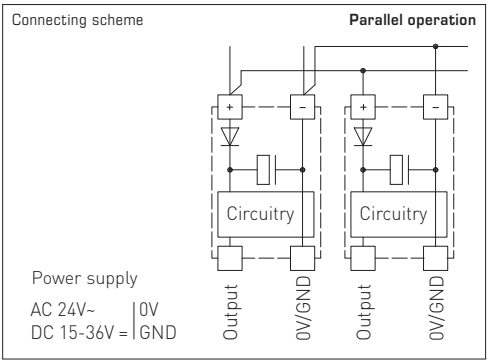


When several devices are supplied by one 24 V **AC voltage supply**, it is to be ensured that all "positive" operating voltage input terminals (+) of the field devices are connected with each other and all "negative" operating voltage input terminals (–) (= reference potential) are connected together (in-phase connection of field devices). All outputs of field devices must be referenced to the same potential!

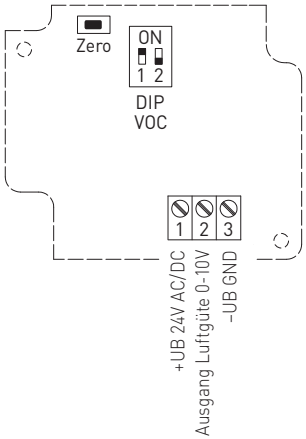
In case of reversed polarity at one field device, a supply voltage short-circuit would be caused by that device. The consequential short-circuit current flowing through this field device may cause damage to it.

Therefore, pay attention to correct wiring!

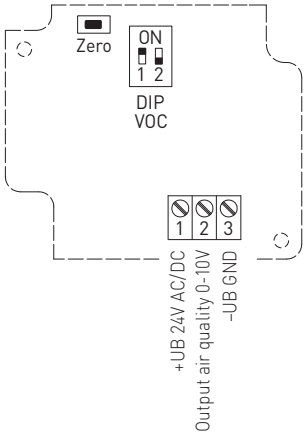
Connecting scheme **Parallel operation**



Schaltbild **KLQ-SD-U**



Connecting diagram **KLQ-SD-U**
Schéma de raccordement
Схема подключения



Anschlussbild **KLQ-SD-U**

1	UB+ 24V AC/DC
2	Ausgang Luftgüte 0-10V
3	UB– GND

Schematic diagram **KLQ-SD-U**
Schéma de raccordement
Схема подключения

1	UB+ 24V AC/DC
2	Output air quality 0-10V
3	UB– GND

Irrtümer und technische Änderungen vorbehalten. Alle Angaben entsprechen unserem Kenntnisstand bei Veröffentlichung. Sie dienen nur zur Information über unsere Produkte und deren Anwendungsmöglichkeiten, bieten jedoch keine Gewähr für bestimmte Produkteigenschaften. Da die Geräte unter verschiedensten Bedingungen und Belastungen eingesetzt werden, die sich unserer Kontrolle entziehen, muss ihre spezifische Eignung vom jeweiligen Käufer bzw. Anwender selbst geprüft werden. Bestehende Schutzrechte sind zu berücksichtigen. Einwandfreie Qualität gewährleisten wir im Rahmen unserer Allgemeinen Lieferbedingungen.

Subject to errors and technical changes. All statements and data herein represent our best knowledge at date of publication. They are only meant to inform about our products and their application potential, but do not imply any warranty as to certain product characteristics. Since the devices are used under a wide range of different conditions and loads beyond our control, their particular suitability must be verified by each customer and/or end user themselves. Existing property rights must be observed. We warrant the faultless quality of our products as stated in our General Terms and Conditions.

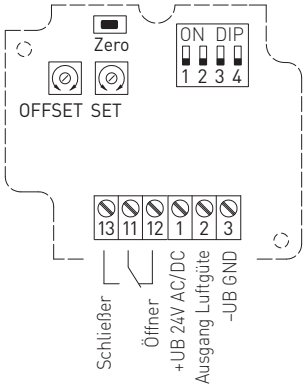
Sous réserve d'erreurs et de modifications techniques. Toutes les informations correspondent à l'état de nos connaissances au moment de la publication. Elles servent uniquement à informer sur nos produits et leurs possibilités d'application, mais n'offrent aucune garantie pour certaines caractéristiques du produit. Etant donné que les appareils sont soumis à des conditions et des sollicitations diverses qui sont hors de notre contrôle, leur adéquation spécifique doit être vérifiée par l'acheteur ou l'utilisateur respectif. Tenir compte des droits de propriété existants. Nous garantissons une qualité parfaite dans le cadre de nos conditions générales de livraison.

Возможны ошибки и технические изменения. Все данные соответствуют нашему уровню знаний на момент издания. Они представляют собой информацию о наших изделиях и их возможностях применения, однако они не гарантируют наличие определенных характеристик. Поскольку устройства используются при самых различных условиях и нагрузках, которые мы не можем контролировать, покупатель или пользователь должен сам проверить их пригодность. Соблюдать действующие права на промышленную собственность. Мы гарантируем безупречное качество в рамках наших «Общих условий поставки».

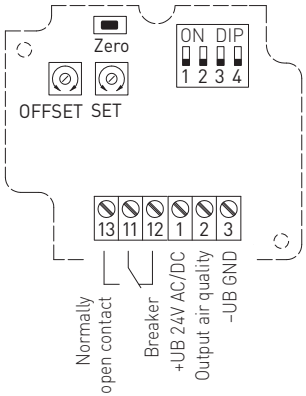
AERASGARD® KLQ-W

S+S REGELTECHNIK

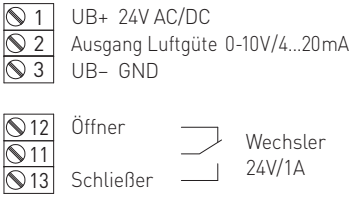
Schaltbild **KLQ-W**



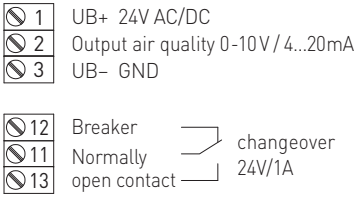
Connecting diagram **KLQ-W**
Schéma de raccordement
Схема подключения



Anschlussbild **KLQ-W**



Schematic diagram **KLQ-W**
Schéma de raccordement
Схема подключения



DIP-Schalter		KLQ-W
VOC-Sensibilität	**DIP 1**	**DIP 2**
LOW	OFF	OFF
MEDIUM (default)	**ON**	OFF
HIGH	OFF	**ON**
VOC-Nullpunktautomatik		**DIP 3**
deaktiviert		OFF
aktiviert (default)		**ON**
Ausgang		**DIP 4**
Spannung 0-10 V (default)		OFF
Strom 4...20 mA		**ON**

DIP switches		KLQ-W
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**