SEIKOM ELECTRONIC

Operating instructions

RLSW®4A (M8)

24 V AC/DC, 230 V AC

Version 1

+49 2058 916 900 0 - info@seikom-electronic.com - www.seikom-electronic.com

Contents

1. SAFETY INSTRUCTIONS

Read the product description before using the device. Make sure that the product is fully suitable for your application.

Incorrect or improper use can lead to malfunctions of the device or to undesirable effects on your application.

For this reason, installation, electrical connection, commissioning, operation and maintenance of the appliance may only be carried out by trained personnel.

2. GENERAL INFORMATION

The RLSW®4A and RLSW®4A M8 calorimetric flow monitors are an economical alternative to conventional pressure transmitters. Installation is quick and easy via a flange mounting (for duct installation) or via a PG7 threaded connection. The switching point can be selected via the integrated potentiometer. The switching output is conductive during flow (yellow LED on the device lights up).

2.1 Proper use

The flow monitors of the RLSW®4A series are designed for monitoring gaseous media within the specified technical data. The main areas of application are heating, ventilation and air conditioning in the field of building automation.

2.2 Functional principle

Flow monitors in the RLSW®4A series operate according to the calorimetric principle. The relay of a device switches when the flow velocity reaches a preselected threshold value. The calorimetric measuring principle is based on a heated, temperature-sensitive resistor. Heat is extracted from the precision resistor by the flow in the medium, the temperature of the resistor changes and thus its resistance value. This change is evaluated by the device. However, since not only the flow velocity of the medium has an influence on the amount of heat dissipated, but also its temperature, a correlation between flow and temperature must be established. This is achieved by a second, temperature-dependent precision resistor in addition to the first. The second precision resistor (temperature compensation) is not heated and is only used to measure the temperature.

Flow rate ≥ threshold value	Relay output activated	Yellow "Air flow" LED lights up
Flow rate < threshold value	Relay output not activated	Yellow "Airflow" LED goes out

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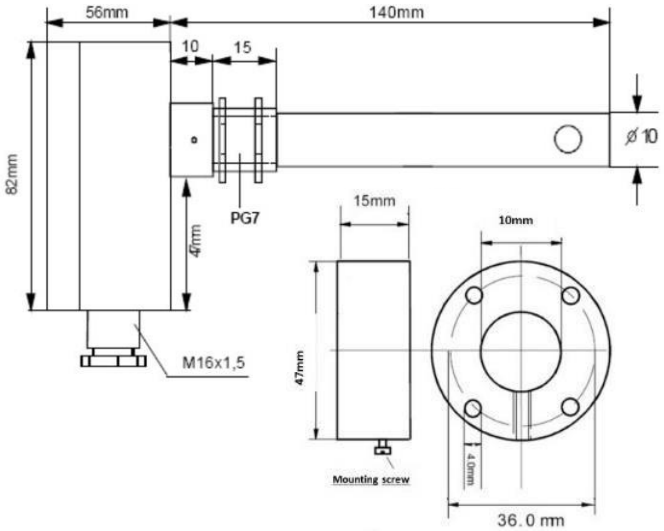
3. TECHNICAL DATA

Type	RLSW®4A	RLSW®4A M8
Article no.	74825A (24 V AC/DC)	74825AM8 (24 V AC/DC)
Operating voltage	24 V AC/DC	
Voltage tolerance	± 5%	
Overvoltage category	II	
Signal display, voltage	Green LED	
Power consumption max.	3 VA	
Ambient temperature Device	-20 ... 60°C	
Signal output flow	Relay, 1 changeover contact	
Switching function with flow	Relay picks up	
Relay output	250 V AC, 6 A, 1.5 kVA	
Minimum switching capacity	10 mA, 5 V DC	
Signal display with flow	Yellow LED	
Start-up delay	60 s (jumper can be activated)	
Start-up delay display	Yellow LED	
Media temperature range	-10 ... 80°C	-20 ... 90°C
Temperature gradient	15 K/min	30 K/min
Switching point adjustment	Adjustable via potentiometer	
Air flow range	0.1 ... 30.0 m/s	
Measuring sensor	Permanently installed	Weaned
Immersion depth approx.	50 mm, 130 mm, 165 mm, 300 mm, 400 mm, 500 mm	
Process connection	PG7, mounting flange	
Sensor material	MS58, nickel-plated, optionally made of stainless steel	
Compressive strength	10 bar	
Electrical connection	5 terminals, 2.5 mm²	
Enclosure protection class	IP54 (IP65)	
Protection class Terminals	IP67	
Housing dimensions (L x W x H)	56 mm x 84 mm x 80 mm	
Test mark	Type tested TÜV Nord according to DIN EN 61010-1:2011-07	

3.1 Dimensions RLSW®4A (permanently installed sensor)



4. INSTALLATION AND COMMISSIONING

Installation and commissioning must be carried out by authorized and qualified personnel.

The connection to the main supply (L, N) must be made via a protected circuit breaker with standard fuses. The general VDE regulations must always be observed (VDE 0100, VDE 0113, VDE 0160). If the potential-free contact is connected to a safety extra-low voltage, the connecting cables must be sufficiently insulated up to the terminal, as otherwise the double insulation to the mains voltage side may be impaired. The current carrying capacity of the potential-free contact is limited to 6 A. Therefore, the circuit of the potential-free contact must be protected with a 6.3 A fuse.

4.1 Installation conditions

To avoid malfunctions, please observe the following points:

- The tip of the sensor should be as close as possible to the center of the pipe. The through-hole in the shaft of the sensor must be located within the filling of the gaseous medium.
- The marking is intended as a mounting aid and should be attached in the direction from which the current is coming.
- For vertical pipes, the direction of flow should be upwards.
- The sensor requires at least 5xD (inner pipe diameter) of the free inlet and 3xD (inner pipe diameter) of the outlet in order to avoid incorrect measurements due to turbulence.

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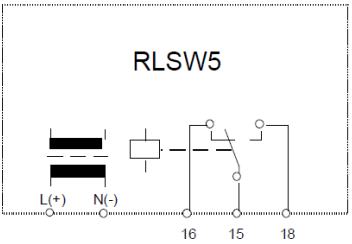
4.2 Electrical connections



4.3 Setting the switching point

The relationship between the air velocity and the change in resistance of the precision resistors is not linear. In the lower range (low flow velocities), the relative change in resistance is large. In the upper range, the change in resistance becomes smaller and smaller with the same deviation in flow velocity. When setting the switching point, it must first be determined which change is to be monitored, as some settings have certain disadvantages. The following requirements must be taken into account:

Slight change in the flow rate in the high flow velocity range: The switching point must be selected very close to the measured value of the normal flow rate, as the change in measured value when the flow rate changes is very small. As the temperature compensation has a certain delay compared to the actual temperature change, such a setting of the switching point is only possible with slow temperature changes.

Slight change in the flow rate in the low flow rate range: The switching point can b e selected at a greater distance from the measured value of the normal flow rate, as the changes in the measured values are greater when the flow rate changes. A change in temperature has no influence on the switching behavior.

Large change in flow rate: In most cases, a simple yes/no statement is required (e.g. fan running or fan stopped). Therefore, a larger safety distance can be selected so that neither temperature changes nor turbulence have an influence on the switching behavior.

4.4 Instructions for commissioning

The following procedure is recommended for commissioning and setting the device:

- Install and connect the flow regulator according to the installation instructions and conditions, inlet (5 x pipe diameter) + outlet zone (3 x pipe diameter). Align the marking with the air flow.
- Set jumper for start-up bypass if necessary.
- Set the "Sensitivity" trimmer to minimum sensitivity (left stop).
- Connect the mains voltage. The green LED lights up. If the jumper is set, the start-up bypass is carried out (approx. 60 seconds).
- Set the nominal flow rate.
- Slowly turn the "Sensitivity" trimmer clockwise until the yellow LED lights up and the signal output switches. Turn the potentiometer slightly beyond the switching point to avoid incorrect switching when the flow rate changes slightly.

- To check the function of the flow regulator, reduce or stop the flow.
- The yellow LED goes out (output relay on the RLSW5 has dropped out)

The device is now ready for operation.

5. MAINTENANCE INSTRUCTIONS

The air flow sensor should be serviced at regular intervals, i.e. the air flow sensor should be cleaned when used in heavily contaminated media. The following procedure is recommended:

- Dismantling the airflow monitor
- Carefully soak the airflow monitor in lukewarm soapy water for approx. 10 minutes (depending on how dirty it is)
- Carefully rinse the airflow monitor with lukewarm water
- Installing the airflow monitor
- Commission the air flow monitor and, if necessary, carry out a new adjustment with the evaluation electronics)

Please do not clean the sensor tip with a screwdriver, wire brush or similar. There is a risk of damage.

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6. ERROR MESSAGES

The following instructions are intended as first aid if your airflow monitor is not working properly.

Problem	Possible cause	Solution
The device does not work.	Missing or incorrect Power supply.	Supply voltage and Check the connection.
The device does not detect air flow.	The sensor is not installed correctly.	Check that the sensor has been installed so that its mark points in the direction of the airflow source and close to the air inlet. in the middle of the canal.
	Flow rate is outside the measuring range	Adjust the diameter of the pipe to increase the flow rate or reduce them.
The device detects an air flow, even if there is no air flow.	Air flow is also present when the unit is at a standstill, e.g. through ventilation flaps, through Air flowing in from outside.	Set the switching point of the sensor.
The device reacts with a delay.	The sensor tip is soiled.	Clean the sensor carefully with water.
Device switches when the media temperature rises rapidly.	The temperature gradient is outside the technical specifications.	Turn the "Sensitivity" potentiometer slightly further clockwise. Switching point in hot Set media environment.

7. EU DECLARATION OF CONFORMITY

SEIKOM Electronic GmbH & Co. KG
Gold-Zack-Straße 7
40822 Mettmann
Telefon: +49 (0) 2058 2044
E-Mail: info@seikom-electronic.com

EU-Declaration of Conformity

The EU declaration of conformity applies to the following unit:

RLSW®4A (M8)

This declaration of conformity is issued under the sole responsibility of the manufacturer.
We confirm the conformity to the essential requirements of the European directives:

2014/30/EU (EMV-Richtlinie)
2014/35/EU (Niederspannungsrichtlinie)
2011/65/EU (Beschränkung gefährlicher Stoffe)
2015/863/EU (Ergänzung RoHS 3)

The following standards were applied:

DIN EN IEC 63000: 2019-05
DIN EN IEC 61000-6-2: 2019-11
DIN EN 61000-6-3: 2021-03

Mettmann, 28th March 2023

Philipp Hein
Managing Director

Growing network of local distributors available online
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Our product portfolio

Flow rate	Temperature	Pressure
Air quality and CO^2	Zener barriers	Universal Transmitter

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info@seikom-electronic.com
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