



Control unit for on-site electronics LW-/VE9

AS9* aquasant®



- Monitoring of electro-optical AF*- fluid sensors or LS*-Conductance detector
- Connection to LW-/VE9 on-site electronics
- Wall installation
- 2-core technology

Location

The aquasant® AS9 control unit is used in combination with a liquid sensor type AF* or a conductivity sensor type LS*. If the fluid sensor or the probe are selected appropriately, almost any fluid can be monitored with the control unit. The sensor / sensor circuit can be used in hazardous areas. Liquid levels of gasoline, mineral oils, acids, alkalis, solvents and other chemicals can be safely monitored for full message. It is also easy to use with most liquids in the food industry.

Applications: Containers, tanks, tankers, manholes, wastewater treatment plants, sewage treatment plants, basins, weighing tanks, pipelines, filling equipment, water supply systems, water overflows, oil separators, catch tray leak monitoring, room monitoring, dry run protection for pumps, etc.



Overview

- Overfill protection with liquid sensor
- Conductance monitoring with LS*
- Monitored measurement processing
- Wall mounted housing
- Power supply 115/230VAC 50/60 Hz
- Alarm limit switch Relais output
- With one or up to three measuring inputs for AF* sensor connection with VE9 electronic
- 2-core technology

Ex application:

SEV 18 ATEX 0118 Ex II (1) G [Ex ia Ga] IIC

Basic function

The AS9 is a self-monitoring control unit with two-core technology and VE9 or LW9 on-site electronics, as well as intrinsically safe sensor wiring circuit. A potential-free changeover switch is available as an output. With the appropriate liquid sensor, the levels of any liquid can be detected, controlled and monitored. By pressing the test button, the control unit can be functionally checked.

Measuring inputs

The measuring system consists of a liquid sensor (with on-site VE9 measuring electronics) or conductivity sensor (with on-site LW9 measuring electronics) in the probe head by means of a 2-core cable connected to the AS9 * control unit in the non-Ex zone. The AS9.2 carries two measuring inputs and the AS9.3 therefore three measuring inputs. Between the equipment and switch room earth, equipotential bonding must be installed.

Measuring principle

Electro-optical liquid sensor AF*: In the case of gaseous media at the glass cone, the IR light beam is totally reflected in the 90° glass cone, in accordance with the law of refraction (incidence angle = refraction angle). Double total reflection returns the IR light beam to the receiver and the signal is therefore evaluated as “good condition”.

If the sensor tip is immersed in liquid, the IR light beam is broken at the boundary layer and enters the liquid. As a

result, the IR light beam is interrupted; a high-level indication is thus displayed.

Wiring

2-core cable 0.75 mm² EIG the cable length for Ex ia application up to max. 1000 m

Connection

The following aquasant® IR liquid sensors can be used for Ex applications with the interposition of VE9 on-site electronics. AF1S, AF21, AF22, AF23, AF33, AF35, AF42. In order to detect the conductance, the LW9 on-site electronics is used with the conductance probes LS11, LS12, LS13 and LS21.

Technical data

Design type

Electronics in plastic surface-mounted housing PA66, IP 54

Assembly

Wall-mounted housing with two holes and 6 cable glands

Function

bei Erreichen des Grenzwertes, leuchtet 1 rote LED, das Relais fällt ab
when the limit value is reached, 1 red LED lights up, the relay drops out

Operation/Display

Front panel with red (alarm) and green (mains on) LEDs, push buttons for function control

Dimensions

height x width x depth 132 x 71 x 137 mm

Weight

450 g

Mains supply

115/230 VAC ± 10% 50/60 Hz

Inrush current

Current consumption
AS9.1 min 155 mA, AS9.2 min 155 mA, AS9.3 min 155 mA

Performance recording

AS9.1 P = 2.5 VA, AS9.2 P = 2.5 VA, AS9.3 P = 2.5 VA

Fuses

Miniature fuse 8.5 mm, time-lag T 250VAC, 63VDC, 63 mA

Hazardous area supply and signal transmission

[Ex ia] IIC, Pulse modulated supply signal
open circuit voltage $U_0 \leq 7.2$ V
short circuit current $I_0 \leq 89$ mA
Power $P_0 \leq 231$ mW output characteristic linear



Signal wiring circuit Ex

	IIC	IIB
Max. external inductance		$L_0 \leq 1.6$ mH
	$L_0 \leq 5$ mH	
Max outer capacity	$C_0 \leq 1.5$ uF	$C_0 \leq 9.2$ uF

Signal transmission

1 measuring circuit, modulated pulse supply signal

Signal line short circuit

max. current draw 160 mA

Ambient temperature

-20 °C ... +40 °C

Storage temperature

-20 °C ... +70 °C, ideally +20 °C

Response delay

1 second ± 50%

Connection

Terminals 2.5 mm²

Relay outputs

1 relay with one potential-free switchover contact for alarm status level high.

Switching voltage relay output

250 V AC / (30VDC)

Continuous current relay output

5 A

Switching capacity relay output

1250 W / (150W)

Monitoring

Self-monitoring measuring system: defective probe; short-circuit/interrupted Ex supply (wire break protection), power breakdown and AS* malfunctions

Testing



Gas II (1) G [Ex ia Ga] IIC
RL 2014/34/EU

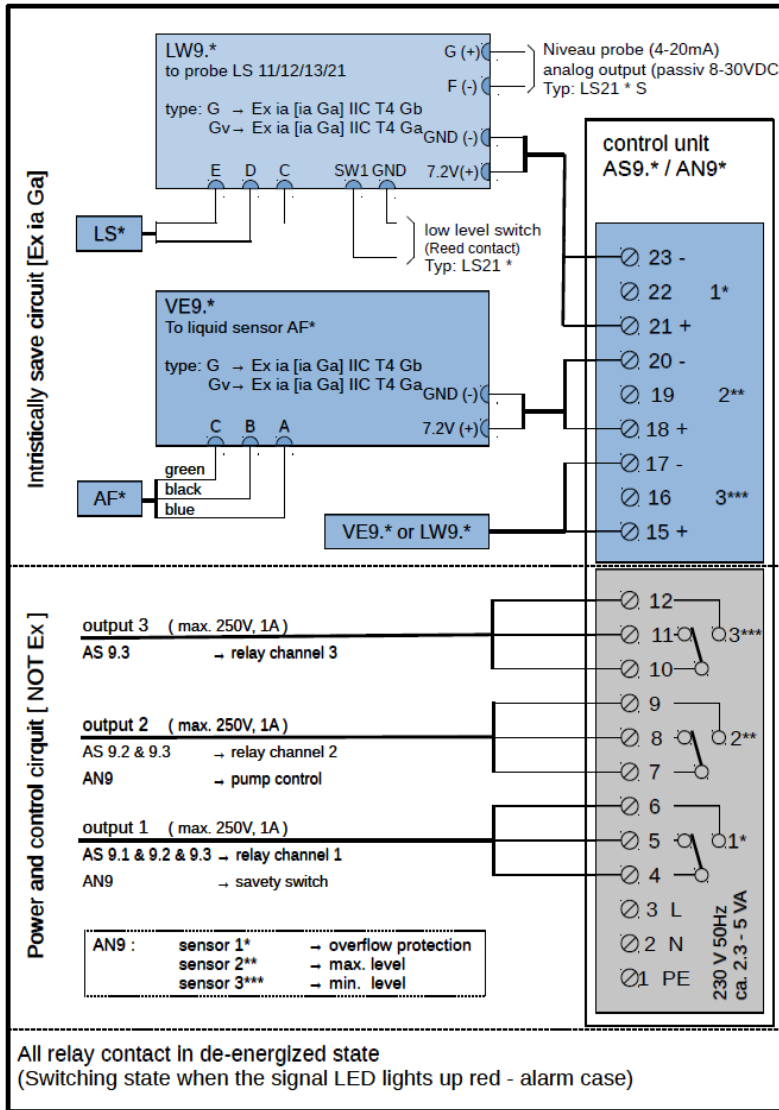
Inspection report no.: 17-Ex-0016.01

The control unit must be installed outside the hazardous area.

Fail-safe hazardous area connection:

AF* liquid sensor
EN 61000-6-2 2005 EN 6100-6-4 : 2007
EN 60079-0:12 + A11:13 EN 60079-11:12





Socket mounting

1. Remove fixing screws from control unit.
 2. Carefully withdraw unit from socket.
 3. Mount socket (wall or rail mounting).
 4. Connect socket as per wiring diagram.
 5. Carefully place the control unit on the socket.
 6. Secure control unit with fixing screws.
- A = Mounting hole \varnothing 4 mm.
B = Breakaway cable gland \varnothing 21 mm.
C = Guidance for rail mounting.

