Operating manual

Identification

Safety Liquid Switch type AS2.2 D24, 1-channel limit switch for connection to electro-optical liquid sensors, conductivity detectors and Namur sensors.

Device designation:	AS2.2 D24
ATEX licence:	Ex II (1) G [Ex ia Ga] IIC CE 2813
(Group, category, ignition protection type, temp. class)	
EU type examination certificate:	SEV 21 ATEX 0523
ATEX:	RL 2014/35/EU / EN IEC 60079-0
RoHS:	RL 2011/65/EU / EN 63000:2018
KVU certificate no.:	321.003 / 302.004

Aquasant Messtechnik AG | CH-4416 Bubendorf
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Additional technical documents

The applicable laws, standards and guidelines must be observed for proper use at the intended place of use. Supplementary documents include operating instructions, Ex, EMC, SVTI certificates and technical data.

Target group, application

The responsibility for planning, installation, commissioning, operation, maintenance and dismantling falls on the plant operator. Proper installation, commissioning, operation, maintenance and disassembly of the device may only be carried out by appropriately qualified personnel. The operating instructions must be read and understood ahead of time.

Use

Approved for proper and permissible use according to manufacturer's instructions. The warranty claims and the manufacturer's responsibility are void in cases of improper handling. The device is implemented in instrumentation and control technology as a limit value monitor, e.g. in storage tanks. The following sensors/probes can be operated with the control unit:

- Electro-optical sensors (2- or 3-conductor technology)
- Namur sensors
- Conductivity detectors

The operating and environmental conditions must be observed. The sensor/sensor circuit is intrinsically safe.

Impermissible use

If used improperly, protection of personnel and equipment cannot be guaranteed.

Assembly/Installation

Do not assemble damaged or dirty equipment. The condition must be flawless and assembled outside of the hazardous area in a weather- and shockproof control cabinet. When operating outdoors, avoid direct sunlight. Do not assemble the control unit near a heat source. Heat accumulation must be avoided with good ventilation. The AS2.x control unit is designed with protection class IP20 according to IEC/EN 60529. The assembly is designed for a 35mm cap rail according to EN 60715. Only use the device when stationary. For problem-free operation, installation must be ensured in an environment with contamination degree 2 (or better) according to IEC/EN 60664-1. All circuits connected to the device must comply with overvoltage category II (or better) according to IEC/EN 60664-1. Observe the installation instructions according to IEC/EN 60079-14. The installation and operation in hazardous areas is only permitted if in compliance with the requirements according to IEC/EN 60079-0.

Requirements; cables and connection lines

The following points must be observed when installing cables and connecting lines:

- Permissible wire cross-section of the conductor for the terminals.
- The insulation of the conductors must reach to the terminal. Wire end splices are not required for corded wires.
- The installation must be carried out de-energised

Settings and parameterisation

The standard device configuration and further setting options can be found in the operating instructions.

Commissioning the device

Before commissioning, the sensor/sensor type must be set to the desired application using the rotary switch. Additionally, ensure that the wiring is correct according to the operating instructions.

Operation, maintenance, repairs

During operation, the device status is shown on the LED, further details are explained in the operating instructions*. A defective device may only be repaired by Aquasant Messtechnik AG. The disassembly must be carried out de-energised. The precise disassembly from the 35mm cap rail is described in the operating instructions*.

Maintenance, cleaning

The system must be inspected and checked for functionality in accordance with the regulations of KVU, TTV, SEV etc. by Aquasant Messtechnik AG or a licensed tank inspection company. The device cleaning must be carried out de-energised (if necessary, pull out the mains plug). Under no circumstances is it permitted to penetrate the device with any object or to open the housing. The housing can be cleaned with light compressed air < 2 bar or with a damp cloth (do not use solvents).

Delivery, transport, disposal

Check the packaging and contents for damage. Check the scope of delivery for completeness and correctness. Use the original packaging for storage (dry and clean) or transport. Observe national laws and regulations for the disposal of defective devices, packaging and any batteries included.

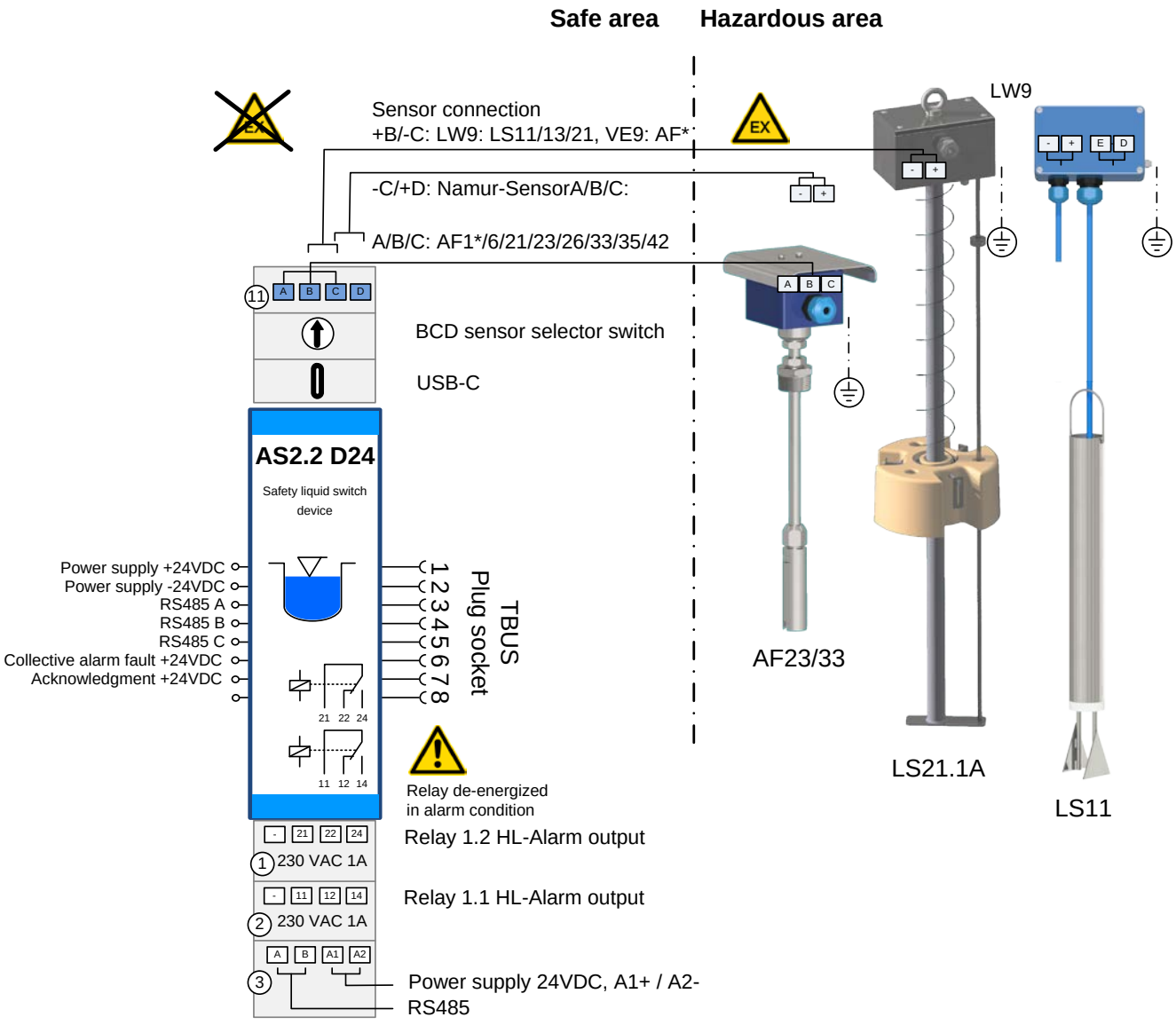
Technical specifications

Power supply	12 - 28V, typically 24V DC
Power consumption	≤ 2.5 VA
Max. operating power	0.3 A
Sensor circuits socket	intrinsically safe, blue connector
WC* Wire colours	A (blue) / B (black) / C (green)
Cable type	min. 3x0.75 mm² / max. 300 Ω
Switch function	liquid high alarm
Relay circuit	250 VAC / 220 VDC / 3 A
Switching capacity	60 VA
Switching delay	≤ 100 ms
On-delay	< 10 sec.
	The on-delay (sensor release) is dependent on the sensor type.
RS485 Bus	shielded cable max <30 m
Weight	160 g
Protection class	IP20
Storage & operation ambient temperature	-20 … +60 °C
Relative humidity	80 %, non-condensing

Ex-connection parameters

A-C	U_0= 7.2 V	I_0= 13.3 mA	P_0= 23.8 mW	C_0/L_0= 1.3 µF / 5 mH
B-C	U_0= 7.2 V	I_0= 41.8 mA	P_0= 75.3 mW	C_0/L_0= 1.5 µF / 1 mH
D-C	U_0= 10.2 V	I_0= 13.3 mA	P_0= 33.8 mW	C_0/L_0= 0.71 µF /2 mH
	U_m= 28.8 VDC			Ci/Li= 0 µF / 0 mH

Connection diagram



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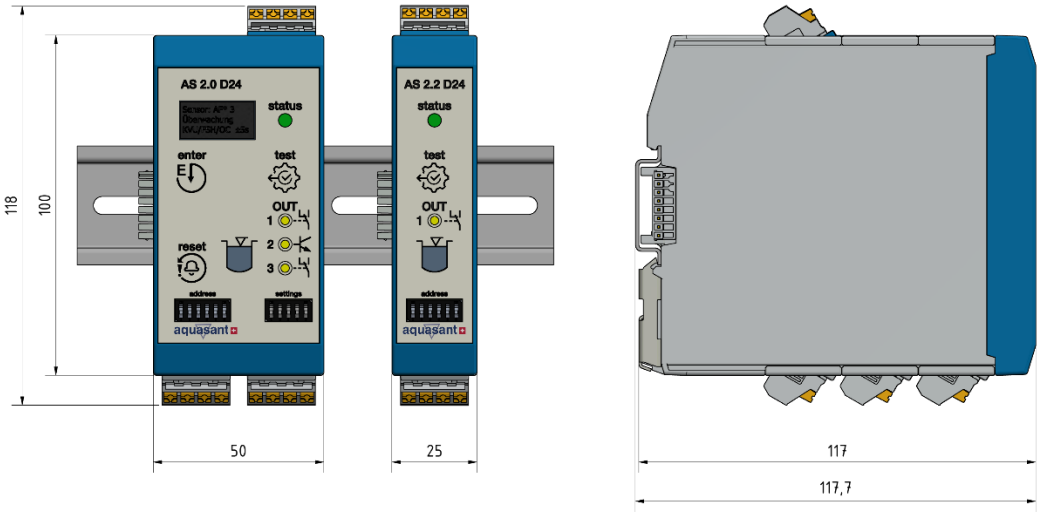
Dimensions



Button	Description	Function
	Test	Carries out internal device test, so long as the button remains pressed. Tests relays, open collector and yellow LEDs, status LED: switches to red

DIL switch, «address»

The configuration can be found in the operating instructions.

Compatibility

The AS2* control units are not compatible with old (before 2016) on-site electronics type LW9/VE9 and must not be used.

Supplementary documentation

Further information on operation can be found in the operating instructions.
https://doc.aquasant.com/manuals/VB-Steuergeraet_AS20D24[Manual].pdf

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EU DECLARATION OF CONFORMITY en

CE

Manufacturer:	Aquasant Messtechnik AG, Hauptstrasse 22, 4416 Bubendorf, Switzerland
Brand:	**aquasant®**
Notified body:	N° 2813, CSA Group Netherlands B.V.
Description:	The safety liquid switch AS2.* 024 is a single channel limit switch. This device is designed to use with electro-optical liquid sensors, conductance detectors and namur sensors.

We hereby declare under our sole responsibility that the products:

Product	Control units **AS2.* D24**
Inspection certificate number	SEV 21 ATEX 0523
Notified body	N° 1258 | Eurofins E&E

comply with the following European guidelines under the harmonised standards or normative documents:

ATEX RL 2014/34/EU	EN IEC 60079-0:2018 EN 60079-11:2012
Low Voltage Directive 2014/35/EU	--
EMV RL 2014/30/EU	EN IEC 61000-6-2:2019 EN IEC 61000-6-4:2019 EN 61000-6-2:2005 EN 61000-6-4:2007+A1:2011
RoHS RL 2011/65/EU	EN IEC 63000:2018

SVTI	KVU 301.001	Filling safety devices
Water protection suitability according to KVU CCE CCA	KVU 302.004	Special filling fuse
	KVU 321.003	Leakage monitoring

The standards listed may deviate from those in the type examination certificate. In this case Aquasant Messtechnik AG declares that the product complies with the updated standards and that the basic safety and health requirements are met.

Bubendorf, ***01.04.2023***

Roger Imauen
Head Manufacturing

VxZ-EU-KONFORMITÄT-CONFORMITY_SEV21_AS2x-D24