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OPERATING MANUAL

Liquid Level Control System

AS88-6-2010

- 230 V BOSCH Version
- Compact unit
- Use on self
- Level switch with Relais

- AS6.2
- AF26 R / GF26
- SQV 83/15
- Technical Information
- Operating
- Commissioning
- Installation / Mounting

Pressureless liquid feed for ampulla and bottle filling machine
Compact unit in table top housing with level control, and integrated valve control

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Dear Customer

Congratulations! With this system you have chosen a high performance unit of the serie **AS** line from **Aquasant-mt Switzerland**.

Reading and carefully following the operating instructions, assures a perfect functioning of your **AS 88-6-2010** system.

There's something else which is imortant for you to know:
If any trouble should appear (in spite of our expectations), then our **Aquasant-mt Switzerland** service department will assist you even long time after you purchased your **AS 88-6-2010 Compact Device.**

Conformity

Conformity assessment procedure acc. to module A category I

CE conformity acc. to EN 62061 category: 1 / EN ISO 13849 PL: a

ISO 9001:2008 CE1254

1. Compact unit type AS 88-6-2010

Pressureless liquid feed for ampulla filling machine

2. Electrical and Pneumatic Connection

Operating voltage 230 V ± 10 % 50 Hz 10 VA
Connections: Phase: brown; Neutral: blue; Ground: Yellow-green.
The 7-wire cable must be wired into the Bosch controller.
Compressed air for control 4 - 6 bar (oil free)
Connect compressed air hose ∅ 4/6,
at COMPRESSED AIR inlet

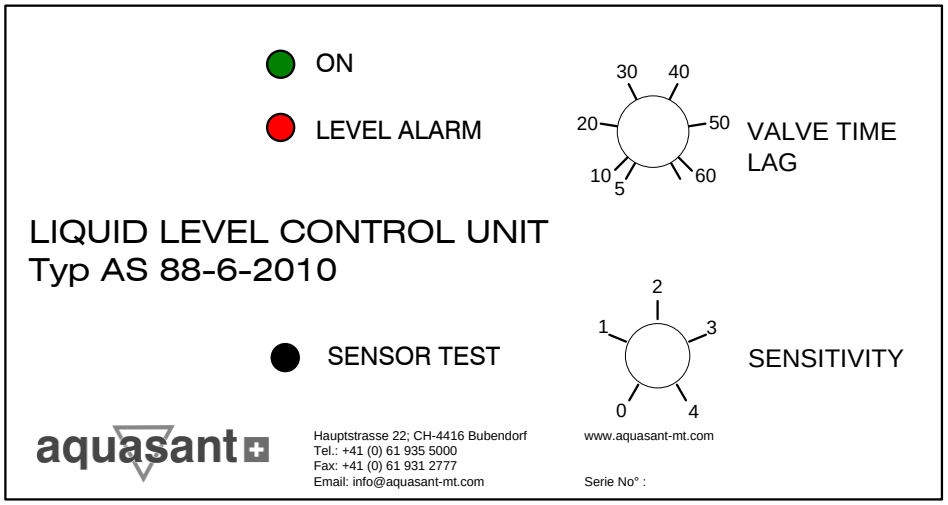
The control exhaust air is drawn off through the EXHAUST AIR outlet
(Product valve closed in pressureless condition)

3. Function control without liquid

Green indication ON

Red indication
Full signalization

Sensor Test



Sens. adjustment
according to chart

Valve Time Lag
5 – 60 s

1. Connect operating voltage and pressure
   - Indication ON/OFF (green) lights up, LEVEL INDICATION (red) lights up when IR-detector is not place on the glass sensor.

2. Slide IR-detector onto the glass sensor and fix with slight rotary motion (clamping screw)
   - LEVEL INDICATION (red) switched off (empty signalization)
   - Product valve (Hose squeezing valve) opens.

3. Set VALVE TIME LAG to 2 (approx. 6 sec.)

4. Press SENSOR TEST button for short time.
   - LEVEL INDICATION lights up temporary (Full signal simulation)
   - Product valve closes and re-opens after time set

Sens. adjustment (sensitivity) for liquid sensor AF 26

Produkteigenschaften	**Sens.-Einstellung**
Clear liquid Liquid products, solvent, dilution	0
Clear liquid with gas bubbles formation at elec. opt. sensor (vacuum) gass liquid	1 – 3
Emulsions / Suspensions (product-related test must be carried out)	2 – 4

- Safety full/empty switch adjusting warranted by max. 4
- For clear liquids the device must work properly independent of the sensor adjustment
- The device does not switch to step 4 to empty anymore, the sensor AF 26 R or the glass vessel GF 26 must be replaced.

AF 26 IR-Detector in the holder

Carefully slide AF 26 IR detector onto the glass sensor and tighten the compression fitting slightly

Caution! Safety Circuit Feature

Product valve remains closed when:

- Main or compressed air does not switched on
- IR-detector not correctly connected or mounted
- Infrared radiation too intensive on glass vessel
  (e.g. insolation too intensive)
- Measuring electronics defective
- Sensor covered with liquid (full signalization)

4. Operating Sequence

- Vessel empty - LEVEL INDICATION (red) dark.

- Product valve open, the glass vessel is filled.

- When the liquid level reaches up to the sensor, “red“ LEVEL INDICATION lights up. The product valve closes.

- When the liquid level drops under the glass sensor, the red LEVEL INDICATION (empty signal) switches off and the product valve re-opens after the time lag set.

- The valve time is set so that the apparatus carries out max. 6 switching cycles per minute, provided there is an appropriate liquid flow rate.

5. Commissioning

Glass vessel in holder – height adjustable

1 Inflow via product valve SQV 83/15

2 Drain

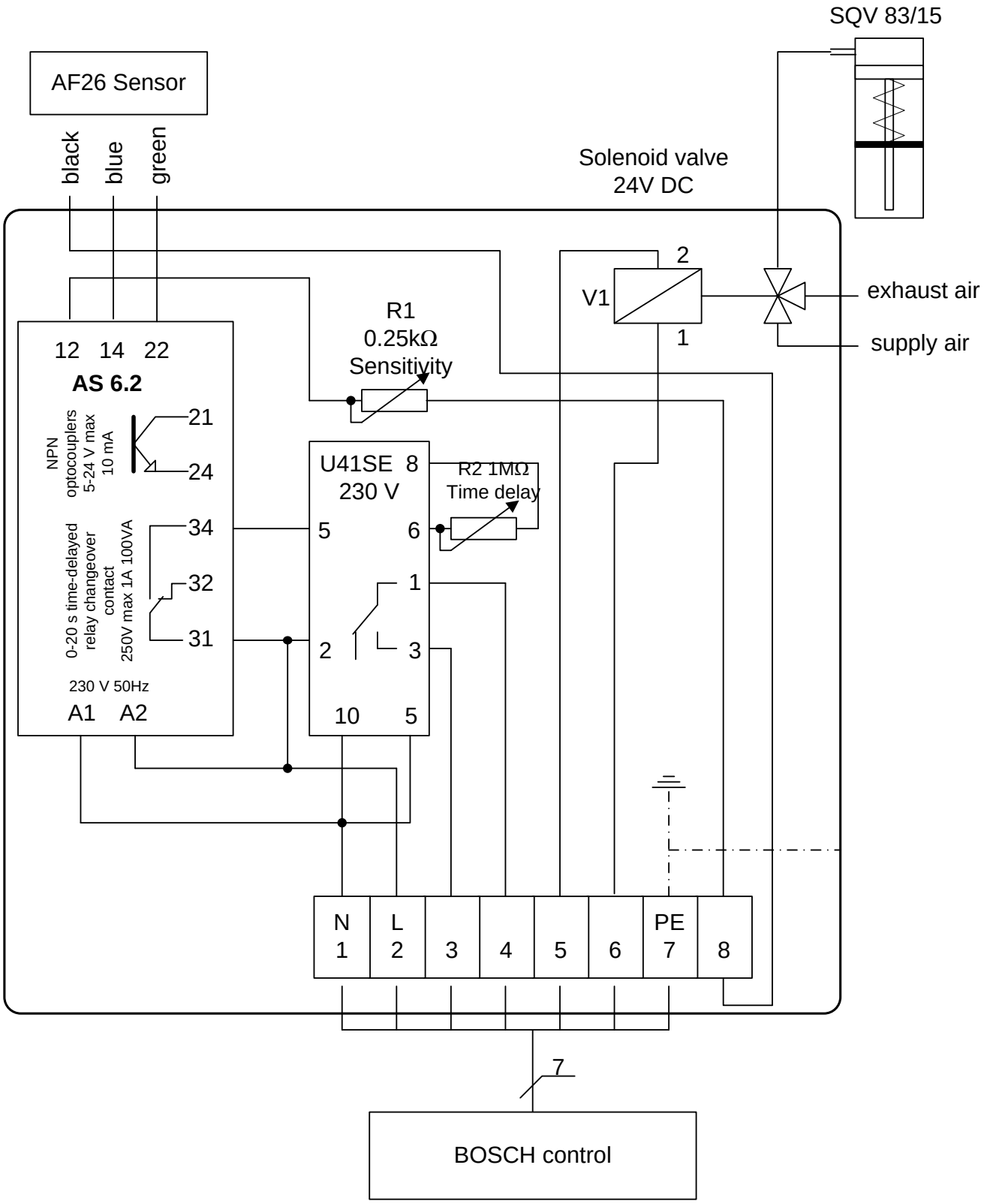
3 Barb union connection for protective gassing

4 AF 26 R IR detector mounted on the glass sensor tip

Product pinch valve SQV opened
silicone tubing ø =10x15 mm, s = 2.5 mm, 60° ±5 Sho A is inserted

System ready for function

6. AS88-6-2010 NEx 230V-Version diagram



7. AS 6 unit

Design of the Control System

The control system is entirely transistorized and is equipped with an independent output circuit having an active connection with the liquid detector.
The main indicator LED (green), the alarm indicator LED (red) and the test button are located in the front of the control system.

The housing is made of two parts, namely an 11-pin connector panel and an upper part including the electronics and the display plus operating elements. The upper part is made of shock-resistant Makrolon and the 11-pin connector panel of glass fibre reinforced synthetic material (Noryl modified PPO). The housing offers a IP54 degree of protection.

Thanks to the characteristics mentioned above, the control system can be plugged into an 11-pin relay connecting socket.

The relay outputs of the control system are electrically separated and represented without current. The no-current state is identical with the alarm state (relay open). When the system is operating and in the absence of any alarm, the relay is in the attracted state (self-monitoring).

Operation

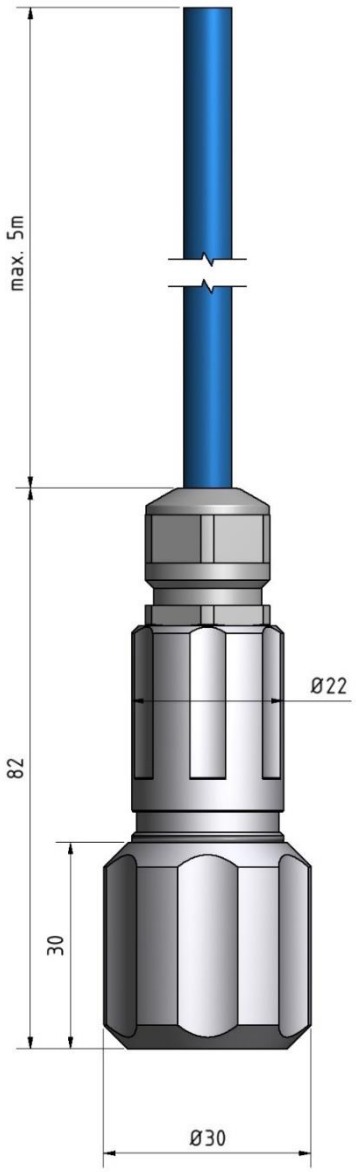
The infrared detector AF6 is based on the electro-optical measurement principle. The control system detects the contact of the detector with a liquid and issues a switching command. This signal triggers optical and acoustic warnings through an independent output circuit and switches off feed pumps or closes shut-off devices if necessary.
Every impairment of the operational state triggers an alarm.

8. IR-Reflex-Detector type AF 26R

- **electro optical**
- **no adjustment required**
- **no moving parts**
- **self-control**
- **use with sensor only**

Insensitive to:
- **steam**
- **residual liquid (splashes)**
- **foam**

Independent of:
- **viscosity**
- **electrical conductivity**
- **refraction index and colour**



Use:

Full/empty level switch for solvents, solutions, liquid chemicals
With emulsion or suspensions, product related tests are necessary

Probe structure:

- Connection cable 5m (max. connection distance 20m)
- Material: stainless steel 1.4435
- Clamping jaws system
- Seal VITON IP 65

Temperature range:
- 30 up to +80°C

Connection:
- control unit type:
  AS 1.1, AN 3, AS 8, AS21, AS51 – E24, AS83 - E24, AS88

Article-No.:
- 01.40.10.2601 IR reflection detector, type AF26
- 01.01.08.2602 Electronic application to AF 26
- 04.40.29.011 Glass vessel type: GF 26 sterilisierbar

9. Glass vessel type GF 26

Feed tank for filling machines

Hotspots

– *melted-in sensor for IR detector type AF 26*
– *sterilisable*
– *FDA conform*
– *external absorption surface*

barb union connections:

– *1 outlet ø/Dia. 8/12 mm*
– *1 inlet ø/Dia. 8/12 mm*
– *2 ventilation ø/Dia. 6/10 mm*

Use:
Feed tank for filling systems; filling level control syst. AS 88-6

Material
Schott Duran 50 glass

Temperature range:
–20 up to +80 °C Medium

Volumes:
total volume 1000 ml / working vol. 450 ml / residual vol. 75 ml

Connection:
AF 26R IR-Detector (AS88)

Hose connection:
Silicone tubing LW 10x15 wall thickness 2.5mm; 55 - 60 Shore A
Silicone tubing LW 8x12 wall thickness 2 mm; 55 - 60 Shore A

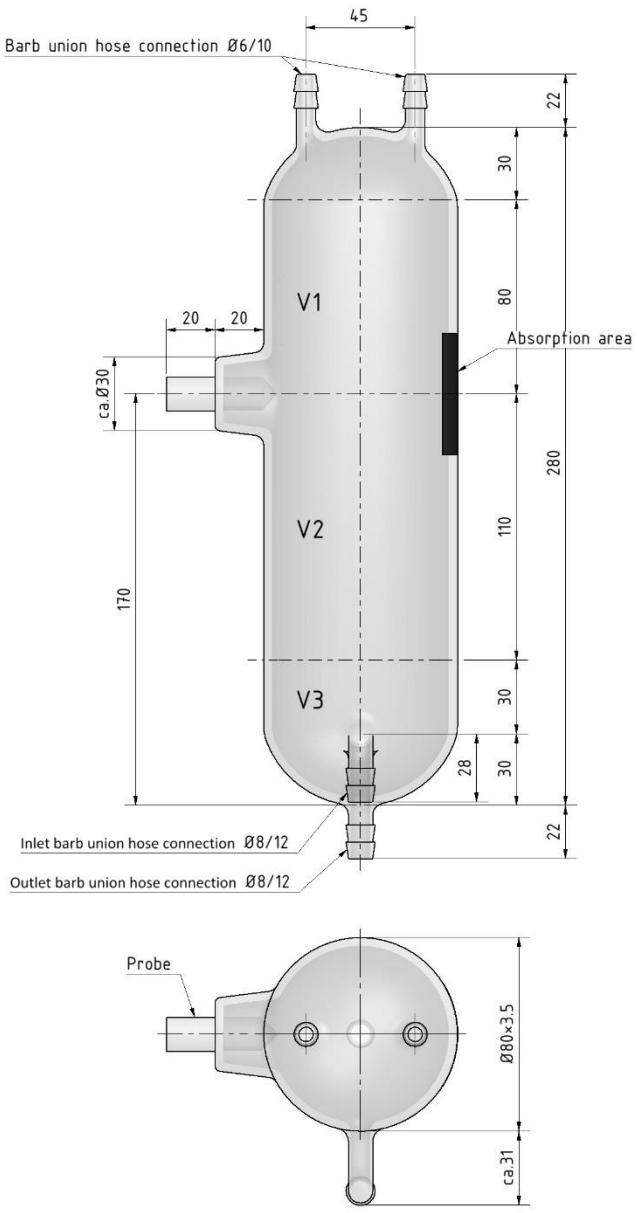
GF 26
Article Nr.: 04.40.29.011

Consistent of:

1. Feed glass vessel GF 26
2. Optical sensor tip cone fixed in
   Art.Nr.: 04.40.29.024
3. Absorption surface, black, outside

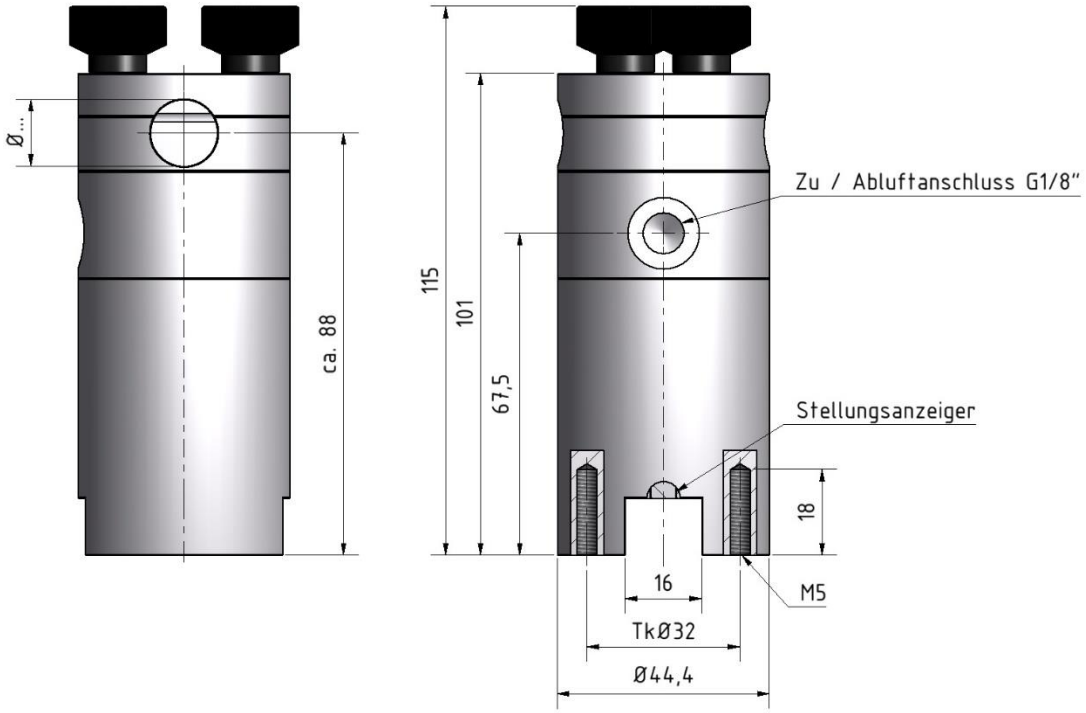
Barb union connections:

4. Inlet ø/Dia. 8/12 mm
5. Outlet ø/Dia. 8/12 mm
6. Ventilation ø/Dia. 6/10 mm



10. Pinch valve type SQV 83/15 for silicone tubing

The Tubing pinch valve was originally developed fort he medicament filling. It simply can be opened by the knurled nut, so that a silicone tubing can be inserted comfortably.
The tubing squeezing valve is equipped with a position indicator. A constant squeezing hose presupposes that the silicone tubing specified by us must be used. Consequently a trouble free function is guaranteed. This new pinch valve can be used universally in laboratory and prodution. Everywhere, where liquids are moved and supplied by silicone tubing, e.g. chemical dosage, sampling in the sewage engineering.



SQV 83/15 : 04.45.30.002

Technical data:

Actuating pressure:	4 – 6 bar
Operating pressure:	up to 1 bar
Silicone tubing outer-ø:	14 - 15 mm, s = 2.5 mm ±0.5, 60° ±5 Shore A peroxide crosslinking
Input/Output air connections:	4/6 mm push in
Switching cycles:	up to 10'000 with the same tubing
Material of housing:	Aluminium
Corrosion protection:	anodized
Surface of the valve:	0.6 - 0.8 RA
Material of seals:	NBR
Material of stamp guidance:	OM
Weight:	410 gr