

## TDS controller with limiting function

### FARB2

#### Application and function

The TDS controller with limiting function FARB2 is used for continuous monitoring of the TDS of liquids.

The TDS is measured using a measuring cell. This consists of a special TDS probe and a vessel wall (protective tube / boiler shell).

The output of the conductivity is done by a 4\*7 segment display and an active 4..20mA output interface. A relay (SPDT) is provided for limiter or switching functions.

The product complies with EU directive: 2014/68/EU.

Applied regulations: EN61010-1; EN61326-1; EN13445; EN 12952-11;  
EN 12953-9

The FARB2 constantly performs self-monitoring.

#### Function of FARB2

FARB2 works in connection with IGEMA TDS probes. The measuring current flowing between the measuring electrode and the vessel wall (boiler shell / protective tube) is proportional to the conductivity of the liquid.

After setting the working point by entering the actual liquid temperature and the conductivity measured by sampling (reference temperature 25°C), the FARB2 sets the 4..20mA output current and changes it when the measuring current changes due to conductivity changes of the liquid.

The FARB2 can be operated in two ways (relay output).

- TDS limiter
- Switch for TDS valve

Independently of the use/programming of the relay output, the 4..20mA output, with the conductivity proportional current, is available for control tasks (PLC, PID controller, valve with positioner).

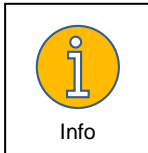
The connection of the relay output defines the function of the device.

- If the output is integrated into a shutdown/safety circuit, then the functionality of FARB2 is based on the limiter function. The relay is active/energized at normal operation condition.
- If the output is connected to a valve controller (open – closed), the functionality is based on the controller function. The relay is energized when the valve is to be activated.

The switching points for exceeding TDS (conductivity) (upper switching point) and the return point to normal operation (lower switching point) can be freely selected. The respective LED lights up and the change output is switched. If a device error is detected, the change-over contact goes into a de-energized state and the corresponding LED flashes. The current output goes back to <2.1mA.

Measuring range and limit values can be freely programmed.





The TDS Controller with limiting function, FARB2, is used for monitoring the TDS as stated in EN 12953-6. The TDS of the boiler water has to be monitored continuously to ensure that the TDS stays within the given limits.

The relevant standard for safety accessories, EN 12953-9, does not give specific requirements for TDS limiters. Thus a type approval is not feasible.

It goes without saying that the general requirements for safety accessories set out in EN 12953-9 were met during the development of the FARB2.

## Probes

Name	PS	TS	Connection	Feature
Type EL18	32 bar	239°C	G 1/2"	Piping-with flange mounting
EL22	32 bar	239°C	G 1/2"	possibly fitted with T-piece
EL23	80 bar	296°C	G 1/2"	Protective tube installation

## Standard technical equipment

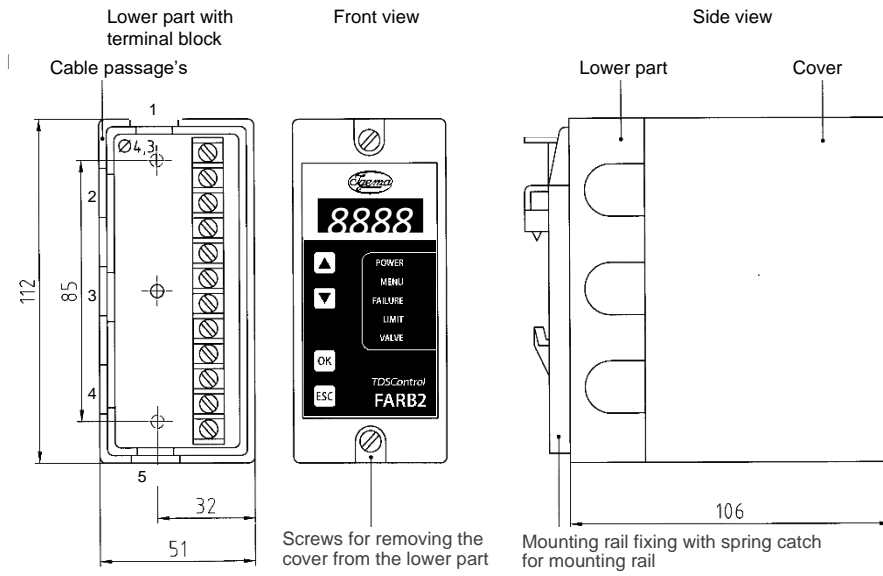
- FARB2 in plastic racks for installation in switch cabinets
- Mounting rail fixing with spring catch on standard 35 mm rail, according to DIN EN 50022; or, screw fastening on mounting rail

## Technical data

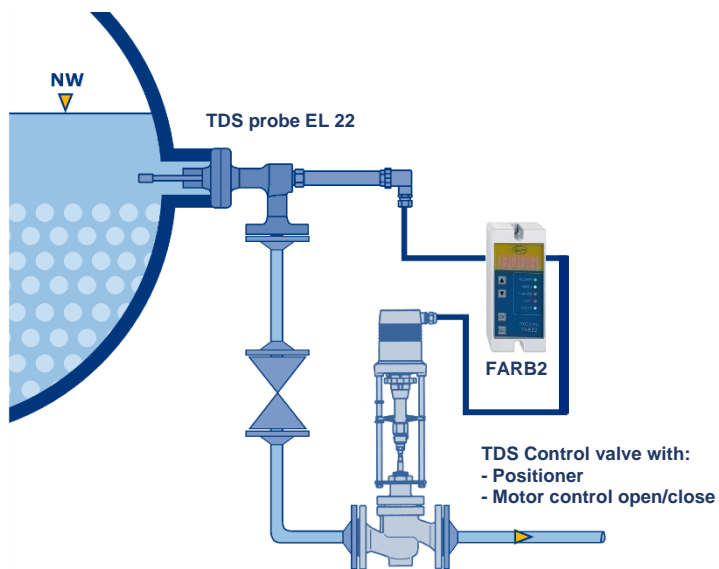
Mains connection	24V DC	Art. no.: 20-10031
	110 - 240V AC / 50-60 Hz	Art. no.: 20-10027
Power consumption	3,0 W	3,0 VA
Device fuse	Relay fused with 4A	
Protection class according to DIN EN 60529	IP40 <sup>1)</sup>	
Allowed ambient temperature	0 – 55°C	

<sup>1)</sup> According to EN 12953-9 // EN 12952-11, protection class IP54 must be ensured in the boiler area. Use switching cabinet.

Power interface (not galv. separately)	Output current	4-mA ... 20-mA	
	Load	max. 500 Ω	
Limit and auxiliary relays	Switching voltage (max.)	250V AC	25V DC
	Switching current (max.)	4 A resistive	4 A
		inductive/larger loads: use contactor	



Installation example:



Digital documentation

