Level electronics ETS/ENR for control of liquid levels

Level electronics in combination with float switches or level rod probes permit the control and monitoring of the liquid level.

The ETS/ENR level electronics are based on the principle of conductive level measurement and have been developed specifically for process liquids in the general metal finishing industry and for electroplating.

The sensitivity can be set in stages according to the conductivity of the process liquid. All level electronics have been tested in accordance with EN 61326 for electromagnetic compatibility and offer functional safety according to SIL 2 in line with EN 61508.

Level monitoring

For monitoring the liquid level as a MIN or MAX switching contact, the device **ETS 100** is used. On exceeding the set maximum level or undershooting the defined minimum level, the contact switches. If the level of the process liquid returns to the “permitted” range, the contact is switched back.

The **ETS 200** device can be used to monitor two separate liquid levels in one tank independently.

Level control

The **ENR 300** level controller is equipped with a switching relay output for the MIN/MAX control. For monitoring a further minimum or maximum level, there is another switching contact available.

The **ETS 410** level electronics have four separate signal inputs and four relay outputs. This means that four independent levels can be detected in one tank and evaluated, for in-stance via a PLC.

The dielectric strength of the signal inputs is 50 V DC. If a higher dielectric strength is required (e.g. in pulseplating processes), the electronic ballast device EVG 200 can be used with an dielectric strength of 200 V DC and has to be connected to each signal inputs of the corresponding level electronics.

The level electronics and the electronic ballast device are designed for control cabinets with top-hat rail mounting for close mounting.

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Controlling and monitoring of liquid levels

Technical data

	ETS 100	ETS 200	ETS 410	ENR 300
No. of level switching points	1	2	4	3
Contacts (potential-free)	1 Changeover switch	2 Changeover switches	4 Changeover switches	2 Changeover switches
Switching status display	1 LED	2 LED	4 LED	2 LED
Voltage	20...230 V AC / DC	20...230 V AC / DC	20...230 V AC / DC	20...230 V AC / DC
Switching voltage	< 250 V AC	< 250 V AC	< 60 V DC	< 250 V DC
Switching current	≤ 5 A	≤ 5 A	≤ 2 A	≤ 5 A
Test function	yes	yes	yes	yes

Input	
Switching delay	3s
Output voltage / current	0,1...6 V~ / < 5 mA~
Trigger sensitivity	0,05...100 kΩ (10 µS ... 2 x 10^4 µS) adjustable with 16 stages
Dielectric strength	50 V DC

Mechanical construction	
Casing material	Polyamid PA 6.6
Flammability class housing	V0 (UL94)
Mounting	on 35 mm mounting rail (acc. to EN 50022)
Dimensions	w = 22,5 mm, h = 111 mm, d = 115 mm
Index of protection	IP 20 (acc. to EN 60529)

Climatic stress	
Ambient temperature	-20...60°C
Transport and storage temp.	-40...70°C
Max. humidity	< 75 % (no dew)

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