

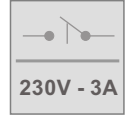
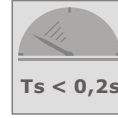
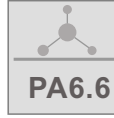
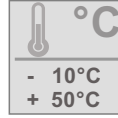


**APPLICATION AREA**



Level transmitter for the food industry.  
(4x input, 4x output, 24-260V AC/DC)

**CHARACTERISTICS**



**TECHNICAL DATA**

Design	35mm top-hat rail housing
Dimensions	H99 x B22,5 x T114,5mm
Operating voltage	24-260V (AC/DC)
Protection category	IP 20 ; safe from contact
Operating temp.	-10°C to +50°C
Storage temperature	-20°C to +70°C
Humidity	0 to 75% (without condensation)
Inputs	4 independent electrodes ; 1 earth electrode resp. tank
Sensitivity	0,2KΩ ; 10KΩ ; 9,9KΩ ... 999KΩ Arbitrary at each electrode
Output	2x electronic output 22...24V DC ; PNP invertible; max. 35mA short circuit proof 2x relay output (3A/230V) (NO ; or on NC)
Time delay	0,0 to 99,9sec ; Arbitrary for every output

**Connection**

Connection	Description
1	Probeinput 1
2	Probeinput 1
3	Probeinput 3
4	Probeinput 4
5	Earth DC
6	NC
7	Electronic output 1 (24V ; 35mA ; PNP)
8	Electronic output 2 (24V ; 35mA ; PNP)
9	Relay output 1 (NO) ; IN  OUT
10	Relay output 1 ; OUT
11	NC
12	NC
13	Relay output 2 (NO) ; IN  OUT
14	Relay output 2 ; OUT
15	Supply 24-260V (AC/DC) ; +24VDC
16	Supply 24-260V (AC/DC) ; GND 24VDC

**Applicable probes**

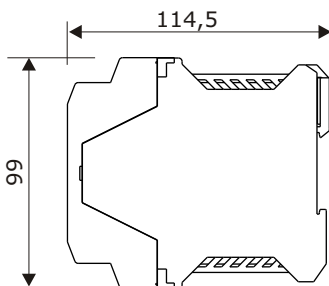
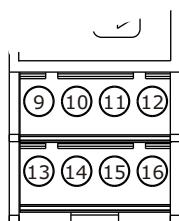
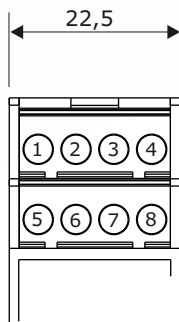
Conductive level probes up to 4 slats + earth

**Remarks**

On the side of the device the identification plate including the order reference is to be found. The connected power supply has to be identical to the voltage that is indicated on the identification plate.

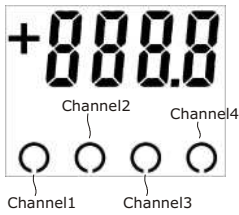
All necessary adjustments are specified in the present instruction manual. If there are difficulties during the start-up anyway, please do not manipulate the device in any incorrect way. Otherwise your warranty claim expires.

Please consult the instruction manual before you start up the device. Keep it in a safe place where it is available for every user. Please support us in improving this instruction manual.



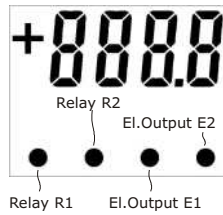
**Display DESCRIPTION**

**Active channel:**



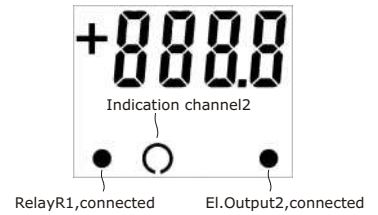
With the 'up' button the information on the display is changed.

**Output display:**



The status of the outputs is monitored by points.

**Example:**



**Main menu**

Buttons	Description	Display
	Press 'ENTER' for 5 sec.  Main menu	symbol flashes
	'UP'  select parameter	symbol flashes
	'ENTER'  parameter setting	number flashes
	'UP'  change parameter	number flashes
	'ENTER'  approve variation	symbol flashes
	'UP'  possible selection of the next parameter	symbol flashes
	'ENTER'  parameter setting	number flashes
	'UP'  change parameter	number flashes
	Etc..	

If there is no entry for more than 15 sec. or if the 'up' button is pressed longer than 1 sec. the device automatically switches over to the measuring mode.

Parameter	Description	Value range
[	Activate channel (1= measurement range 10KΩ ; 2= measurement range 1000KΩ)	1=0,2...9,9KΩ 2=10...999KΩ
o	Logic of the output (1= inverted; 2= detection of broken wire  with parallel resistance <= 470KΩ)	<b>br</b> =50...470KΩ
L	Start-up value in KΩ	0,2...9,9KΩ 10...999KΩ
H	Cut-off value in KΩ	0,2...9,9KΩ 10...999KΩ
d	Start-up delay in sec.	0,0...99,9sec
t	Cut-off delay in sec.	0,0...99,9sec
,	Output option 1	r1 r2 e1 e2
''	Output option 2	r1 r2 e1 e2
f	(Logic function) level control (0=inactive; 1=level control to channel1; 2=level control to channel2; 3=level control to channel3; 4=level control to channel4; 5=Parameter switchover channel1; 6=Parameter switchover channel2; 7=Parameter switchover channel3; 8=Parameter switchover channel4) The functions level control and parameter switchover cannot refer to the active channel and thus will not be indicated for it. Example: Main menu channel 1 ; Indication of the values 0, 2, 3, 4, 6, 7, 8	

**Quick adjustment**



















Buttons	Description	Display
	Press 'ENTER' quickly  quick adjustment	symbol flashes
	'UP'  select parameters	symbol flashes
	'ENTER'  parameter setting	number flashes
	'UP'  change parameter	number flashes
	'ENTER'  approve variation	symbol flashes
	'UP'  possible selection of the next parameter	symbol flashes
	'ENTER'  parameter setting	number flashes
	'UP'  change parameter	number flashes
	Etc...	




If there is no entry for more than 15 sec. Or if the 'up' button is pressed longer than 1 sec. the device automatically switches over to the measuring mode.

Parameter	Description	Value range
$L$	Start-up value in $K\Omega$ ; the switching hysteresis between $L$ und $H$ is set in the main menu and will be kept in case of an entry for the new value for $L$	0,2...9,9K $\Omega$ 10...999K $\Omega$
$d$	Start-up delay in sec.	0,0...99,9sec
$t$	Cut-off delay in sec.	0,0...99,9sec

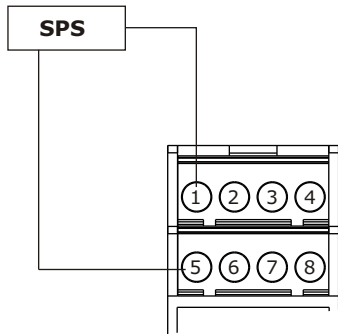
**Factory setting**

Buttons	Description	Display
	Press 'UP' for 10 sec.  Quick adjustment	
	'UP'  select parameter setting	
	'UP'  parameter setting	
	'UP'  change parameter	
	'UP'  approve variation	
	'ENTER'  possible selection of the next parameter	
	Etc..	

**Parameter Description**

	Without factory settings.
	4x level detection
	1x level control (counter electrode channel 4) 3x level detection
	2x level control (counter electrode channel 4) 2x level detection
	3x level control (counteraction channel 4) 3x level detection

**External switchover of the parameters: connection and function**



The switchover of the parameters enables a sensitivity - and delay switchover that is controlled externally. Typical applications in this context are e.g. Froth detection in the milk industry.

The switchover can be caused by a galvanically isolated switching contact, or by a galvanically isolated electronic contact from earth to the selected channel.



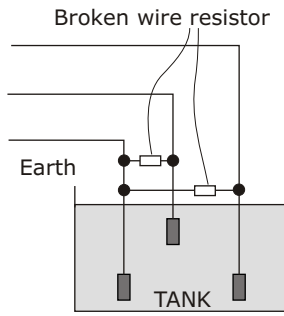
Circuits that are not galvanically isolated shall not be used.

When the input is activated the switchable parameters are transmitted to the target channel. When the input is deactivated again the original values of the target channel are effective again.

The target channel is selected by parameter 'F'.

Parameter	Description	Value range
<b>C</b>	Activate channel (1= measurement range 10KΩ ; 2= measurement range 1000KΩ)	1=0,2...9,9KΩ 2=10...999KΩ
<b>L</b>	Start- up value in KΩ	0,2...9,9KΩ 10...999KΩ
<b>H</b>	Cut-off value in KΩ	0,2...9,9KΩ 10...999KΩ
<b>d</b>	Star-up delay in sec.	0,0...99,9sec
<b>t</b>	Cut-off delay in sec.	0,0...99,9sec

**External switchover of the parameters: connection and function**



With the adjustment 'broken wire detection' the connection of a broken wire resistor with a channel is checked in a measurement cycle shorter than 0,5 sec. The used resistor should be typically 50 ... 470kOhm.

As soon as a channel with broken wire detection is activated the output logic to every channel is inverted, that means switching at ZERO.

If the wire is broken, the checking is unnecessary and all outputs of the device fall off.

The relay R2 is designated for the broken wire detection. Another output cannot be set for this function.

Every channel can be adjusted to broken wire separately but the broken wire signal is always on R2.

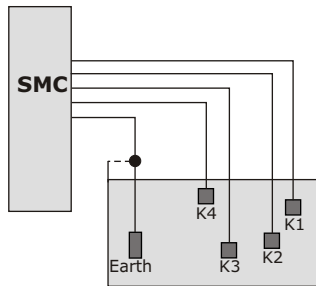
If broken wire is activated once none of the other channels can access to R2.

**Alarm signal**



Broken wire is detected

### External switchover of the parameters: connection and function



#### Level detection

The appropriate output of a channel is switched as soon as the start-up value is achieved and it is switched off when the cut-off value is exceeded.

Every state change with delay "d" or "t".



Even though a channel is used as level control there is still the opportunity to conduct the level detection on another output.

#### Level control

When filling the tank the appropriate output is switched on (e.g. channel1- output option 1), as soon as the electrodes e.g. K3 emerges, and is switched off when the electrodes e.g. K1 immerges. When emptying the tank the output lasts off-state as long as K3 emerges. Then the output is switched on again.

Every state change always according to the time "d" or "t".

To activate this function for a channel the user has to indicate in the menu at parameter F the channel of the "below" electrode. In this example the user should indicate in the channel 1 "F3" for the electrode K3. The channel which is to parameterize cannot be selected as electrode.

Furthermore it is possible to define up to three channels with the level control, that means in this example the user could define in the channels to the electrodes K4,K2,K1 in each case "F3" in the menu.

## Electrical connection

### **Installation advice**

The regulations of VDE 0100 "regulation about the construction of high voltage systems with nominal voltage lower than 1000V" or the respective regulations of the country have to be observed when choosing the conductive material, when installing, fusing or connecting the device.



The electrical connection may only be conducted by qualified personnel.

When installing or using the device it must be protected from electrostatic discharge.

The device is unsuitable for the installation in areas exposed to explosion hazards. The device must be installed in an admissible protective housing (e.g. Switching cabinet).

An incorrect installation or parameters which are adjusted incorrectly can interfere with the correct function of your application or can cause damages. Therefore independent safety equipment should be available at all time. Adjustments may only be conducted by qualified personnel.

The connected load circuit must be fused on the max. relay power to prevent the welding of the output relays in case of a short circuit.

Please do not connect further loads to the clamps for the power supply of the device.

Disconnect 2 poles of the device from the mains if live parts could be touched at work.



The power supply is galvanically isolated from sensor earth.