Signal Conditioner HR-1681

- **signal conditioner for continuous level measurement systems**
- **2-wire-safety-technique with pulse length modulated current signals**
- **approval for Ex-area zone 0**
- **approval as part of an overspill prevention according to VbF and WHG**

PLM signal conditioner, WHG and VbF

HR-168103
0...20mA

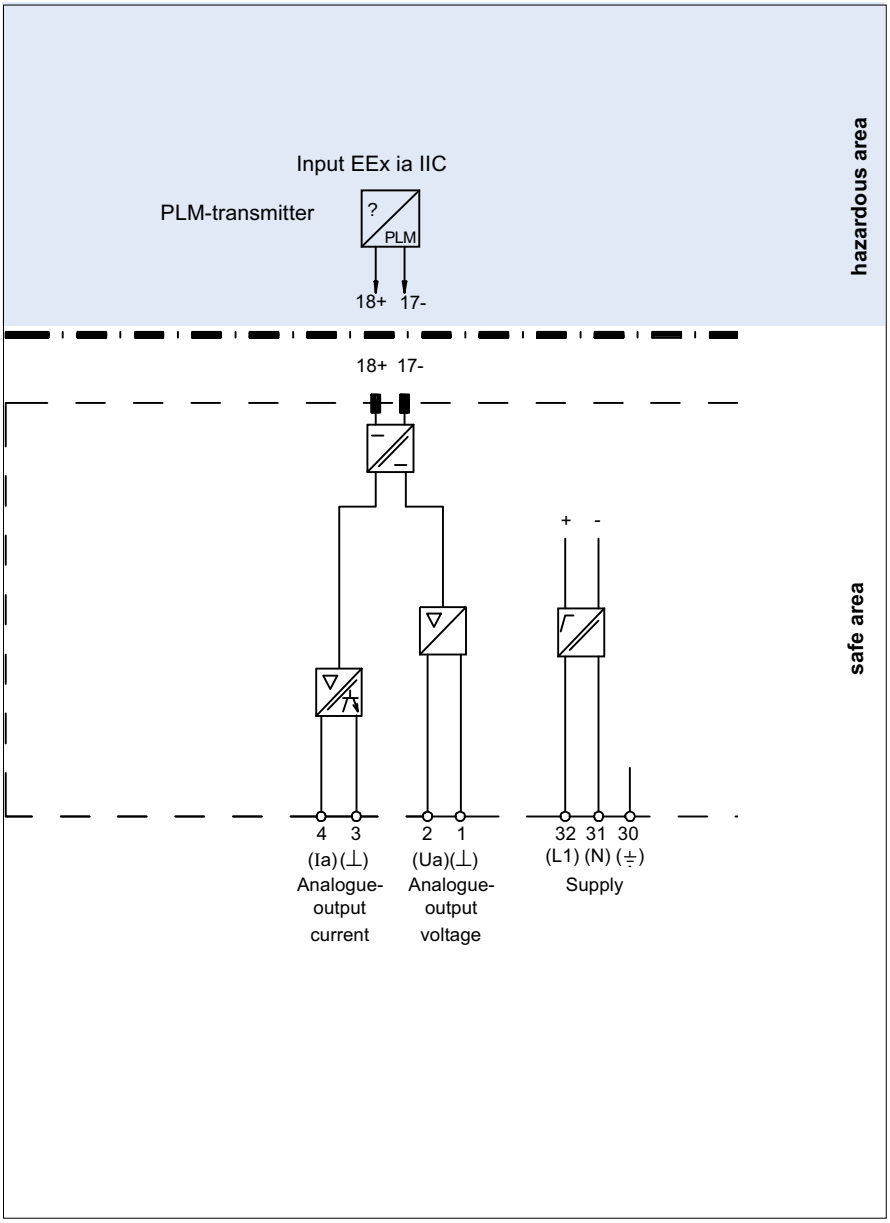
HR-168104
4...20mA

Function principle

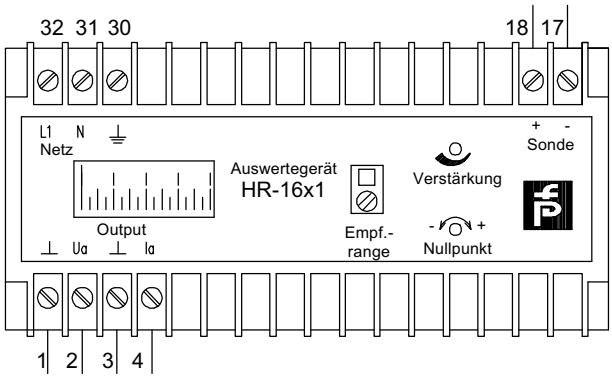
The signal conditioner provides the power supply of the converter of roughly DC 8 V. The converter converts the level information of the level sensor from values like C,R or p to pulse length modulated signal and provides this PLM-signal on the 2-wire-lead to the signal conditioner. The voltage and temperature stabilized circuit converts this PLM-signal into an analogue voltage or current signal proportional to the level.
Input and output circuits are galvanically separated. Therefore other non-ex-area-devices may be connected on the non-hazardous side without additional transformer isolated barrier.

Self control

Changing level influence the frequency of the current pulses on the 2-wire-lead between converter and signal conditioner. The safety circuit in the signal conditioner checks the current pulses and therefore the function of the converter as well as lead breakage, short circuit, insulation faults, etc. Each fault causes a display of > 100% and maximum output signals. This may be used to initiate an alarm and stop filling the vessel.



Front



Date of issue 26.06.97

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Technical data	
Approvals / Certifications	**01/PTB Nr. Ex - 80/2173**
Power supply Nominal voltage Power consumption	Terminals 32(L1), 31(N), 30(⏚) AC 230 V (48 ... 62 Hz) ca. 7 VA
Input Input signal	Terminals 18+, 17- PLM (intrinsically safe)
Certificate of Conformity Peak Values Voltage U_o Current I_o	 9.6 V 85 mH
Allowable circuit values **Ignition protection class, category** Explosion group max. external capacitance max. external inductance	 **[EEx ia]** IIC 370 nF 1 mH
Output Voltage Voltage signal Current HR-168103 Current signal HR-168104 Current signal	 Terminals 2 (U_a), 1 (⊥) 0 ... DC 5 V / Load ≥ 1 kOhm Terminals 4 (U_a), 3 (⊥) 0 ... 20 mA / Load ≤ 250 Ohm Terminals 4 (U_a), 3 (⊥) 4 ... 20 mA / Load ≤ 250 Ω
Indicator Function indicator	 Monitor 0% ... 100%
Adjustment / Compensation	The calibration is done by tuning the switches "Empf.-Bereich" (switches 1 ... 9) and the potentiometers "Nullpunkt" and "Verstärkung".
Mechanics Housing Mounting	 B / H / T - 150 / 73 / 112 mm 2x screws M4 resp. M5 or standard mounting rail according to DIN EN 50 022
Protection class acc. to DIN 40 050	Housing: IP 50, terminals: IP 10
Ambient temperature Temperature	 -20 °C ... + 60 °C (253 K ... 333 K)

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