Digital Display for Two-Wire Current Loop

General Function

With digital display qualified for industry **doh-VA** it is possible to display any 4-20mA-signals as measured variables. The display works without power supply. Hence it is possible to install it into a 4-20mA-signal loop at any place, even at a later time.

Display **doh-VA** has been integrated into a sturdy housing made of stainless steel with a screw cap thus even resisting rough conditions.

With **doh-VA** it is also possible to display important process variables directly next to the measuring point - the process flow becomes more transparent.

The display is also available with an integrated 2-wire measuring transducer for Pt100-connection (optional). Both the measured variable's unit and the scaling range of the 3 1/2 digit LCD-display can also easily be adapted on-site.

Features

- no supply voltage
- display range and decimal point freely adjustable
- units of symbols interchangeable e.g. bar, m^3
- low wiring expenditure
- sturdy housing made of stainless steel

Options

- integrated 2-wire measuring transducer for Pt100 **doh-VA-pt**
- connection with M12 plug-ins

Digital display **doh-VA**

Specification

Housing	Stainless steel	Ø89mm, Height approx. 50mm
Mounting	fixing strap	Hole spacing 110mm, 2x boring 8,4mm
Connection	2x cable entry	PG9 (optional: M12 plug-in)
		4-pole Snap-on clip 0...1,5mm²
Type of protection		IP69K
Ambient temp.	Working temp.	0...+70°C
	Storing temp.	-20...+80°C
	Humidity	0...95% no condensate
Input	Current loop	4-20mA, two-wire
	or Pt100-sensor	3-wire connect. (Compens. up to 100Ω)
Output	Current loop	4-20mA, Voltage drop approx. 4.5V
Accuracy	Display	±0,1% ±1Digit of full scale
	Temperature drift	<±0,01%/K
Display	7-segment	0...+1999, 12mm height
Range of calibration	Zero point	-1600...+1400 Digit
	Gain	0...2100 Digit

Drawing doh-VA

Product Type and Designation

Type	Input 4-20mA	Input Pt100
Cable connection 2x PG9	doh-VA	doh-VA-pt
Plug-in connection 2x M12	doh-VA/M12	doh-VA-pt/M12
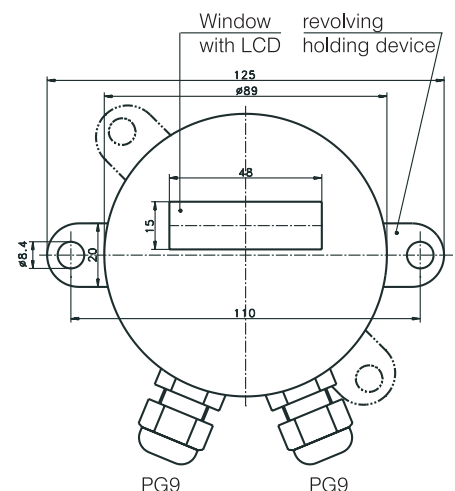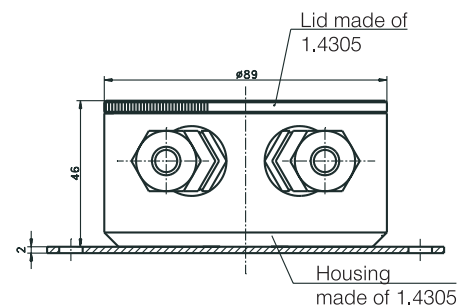
DIP-Switch Functions Decimal Point

Design.	Function	Display
DP1	Decimal point 3 fractional parts	1.000
DP2	Decimal point 2 fractional parts	10.00
DP3	Decimal point 1 fractional part	100.0
DP4	°-Symbol at the last digit	1000°

DIP-Switch Functions for the Display

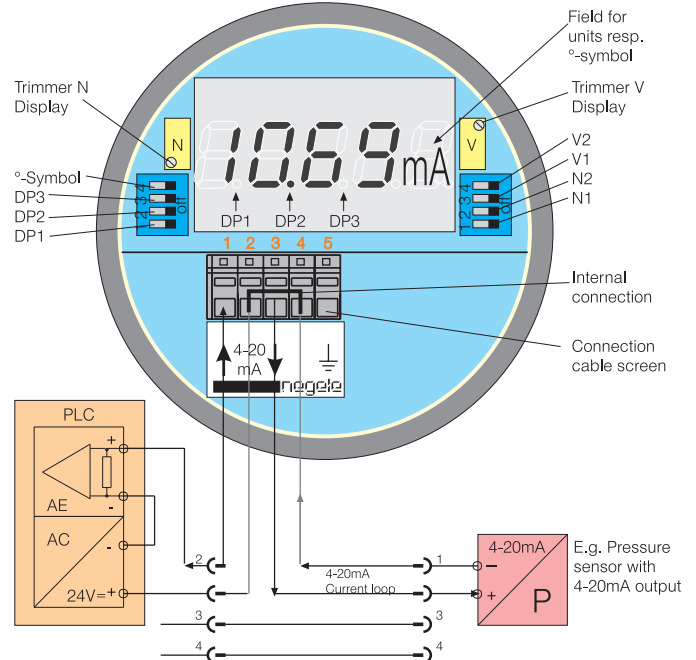| Gain ranges			Zero Point Ranges		
Digit / 16mA	V1	V2	Display with 4mA	N1	N2
0 ... 800	ON	OFF	–1600 ... –500	OFF	ON
800 ... 1250	OFF	OFF	–500 ... +400	OFF	OFF
1250 ... 2100	OFF	ON	+400 ... +1400	ON	OFF

Calibration doh-VA
(Example 4-20mA = –10.0...+80.0)

1. Connection of display to set-point adjuster (e.g. **hsg-2**) (see connection diagram calibration).
2. Preset 16mA (20mA – 4mA) by means of set-point adjuster.
3. Adjust desired decimal point by means of switch DP1...DP3 (e.g. DP3 ON).
4. Adjust switch V1 to ON and turn trimmer V to left-hand limit stop (until the display no longer changes).
5. Using trimmer „N" set display to lower value (-10.0).
6. Using trimmer V set display to upper value (e.g. 80.0) (if necessary alter switch V1 or V2).
7. Preset set-point to 4mA and re-adjust display to the desired lower value (e.g. –10.0) by means of trimmer N.
8. Check intermediate values.

DIP-Switch Functions for Output (doh-VA-pt)

Gain ranges			Zero Point Ranges		
4-20mA 20mA	-1	-2	Current 4mA	-1	-2
30 ... 80K	ON	ON	–60 ... –20°C	ON	ON
80 ... 140K	ON	OFF	–20 ... +20°C	ON	OFF
140 ... 200K	OFF	ON	+20 ... +60°C	OFF	ON
200 ... 250K	OFF	OFF	+60 ... +100°C	OFF	OFF

Calibration doh-VA-pt (e.g. –10...+80°C = 4-20mA)

Remark: When delivered, the device displays exactly the current in the 4-20mA-loop (4.00...20.00mA).

1. Replace Pt100-sensor by simulator (e.g. **hsm-p**)
2. Set Pt100-simulator to the lowest temperature to be measured (e.g. -10°C). Set trimmer 4mA to 4.00mA (if necessary use switch 4mA-1 or 4mA-2, see table above).
3. Set Pt100-simulator for the highest temperature to be measured (e.g. +80°C). Set trimmer 20mA for 20.00mA (if necessary use switch 20mA-1 or 20mA-2, see table above).
4. Check intermediate values, if necessary repeat step 2 and 3.
5. If temperature is to be indicated directly the display module has to be calibrated as indicated under „Calibration doh-VA". However, the relevant set-points still have to be preset by means of the Pt100-simulator.

Connection Diagram Calibration doh-VA

Connection Diagram doh-VA

Connection M12-plug-in of doh-VA/M12

Connection Diagram doh-VA-pt
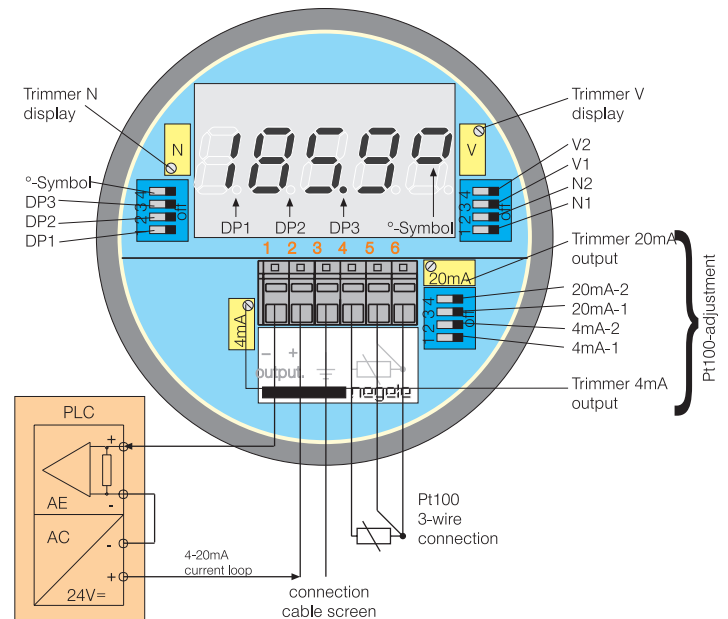
Connection M12-plug (front view)