

Ceramic Pressure Sensor

Application

- hydrostatic level measurement of vessels and tanks
- precise pressure measurement in pipes

Application Examples

- level measurement with **DAC-341**, linearization and evaluation with **PEM-DD** (6 standard styles, 1 style programmable)
- difference pressure measurement with **2 x DAC-341** and evaluation device **PEM-DD**

Hygienic Design / Process Connection

- by using the Negele weld-in sleeve **EMZ-352** or the build-in system **EHG-.../1"** a front-flush, hygienic and easy cleanable measurement point will be achieved (3A-certificate, EHEDG-registration)
- CIP-/ SIP-cleanable up to 140°C / max. 30min
- front-flush ceramic sensor cell
- sensor materials are FDA conform
- sensor completely made of stainless steel
- protection type IP69K
- available process connections: TriClamp, dairy flange, SMS, DRD, Varivent, BioControl et al.

Features

- high accuracy and overload stability
- **capacitive** measurement cell without fluid
- easy set up function with pushbuttons
- defined PG position
- integrated two-wire measurement transducer 4-20mA

Options / Accessories

- special pressure ranges, absolute pressure cells
- integrated indicator (**AZM**) incl. window in lid
- electrical connection with M12 plug-in
- cable for M12 plug-in ex work

Attention: Use only Negele weld-in systems to ensure a safety function of the measurement point!
Please take notice of the general resistance of ceramics Al₂O₃ (99,6%).

Specification

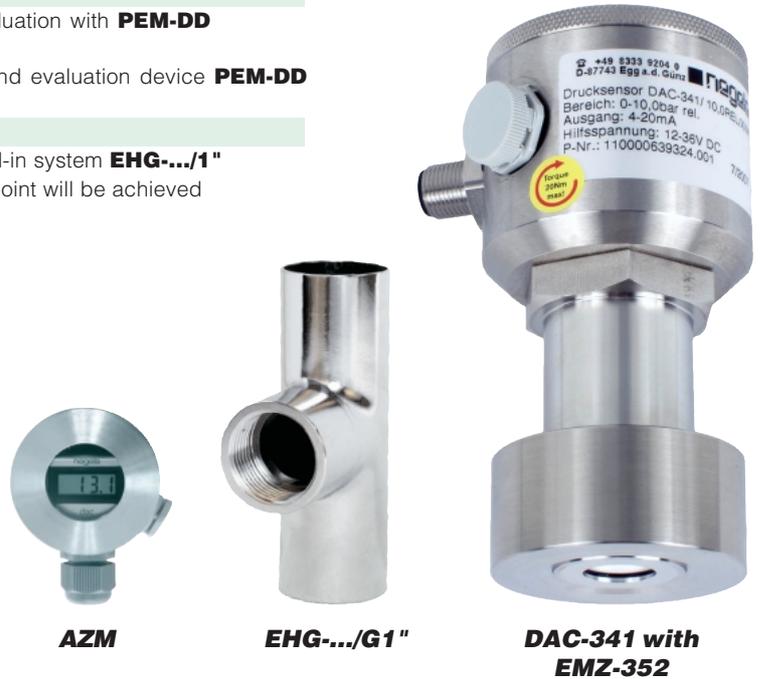
Pressure ranges	standard	0...0,2 / 0,4 / 1,0 / 2,0 / 4,0 / 10,0bar rel. 1,0 / 2,0 / 4,0 / 10,0 / 20,0bar abs.
Overload stability	factor	see backside
Process connection	thread	G1" sensor, comb. with Negele-weld-in sleeve
	torque	max. 20Nm
Materials	connector head	SS 1.4305 Ø55mm
	thread connection	SS 1.4571
	measurement cell	ceramics Al ₂ O ₃
	sealing	EPDM
Type of protection		IP69K

Temperature ranges	ambient	-20...60°C
	process	0...100°C
	compensated	up to 85°C
Humidity	ambient	<80% rel. humidity no condensation in the sensor!
Temperature compensation time T90		≤ 91s
Accuracy		≤ 0,2% of f. s.
Temperature drift	zero	< 0,02% f. s. / K
	span	< 0,02% f. s. / K
Electr. connection	cable entry	PG (M16x1,5) 2pin. 1,5mm ²
	cable connection	M12-plug-in SS
	output	current loop 4-20mA
supply voltage		12...36V DC

Order Code

Type	Process connection	Range [bar]	Indicator*	Electr. connection	*indicator module (AZM), with indicator and window lid, separate order possible.
DAC-341	G1"	0...0,2 / 0,4 / 1,0 / 2,0 / 4,0 / 10,0REL 1,0 / 2,0 / 4,0 / 10,0 / 20,0ABS	X without AZM*	PG (M16x1,5) M12 (M12-plug-in)	

Order example: **DAC-341 / 4,0ABS / AZM / M12**



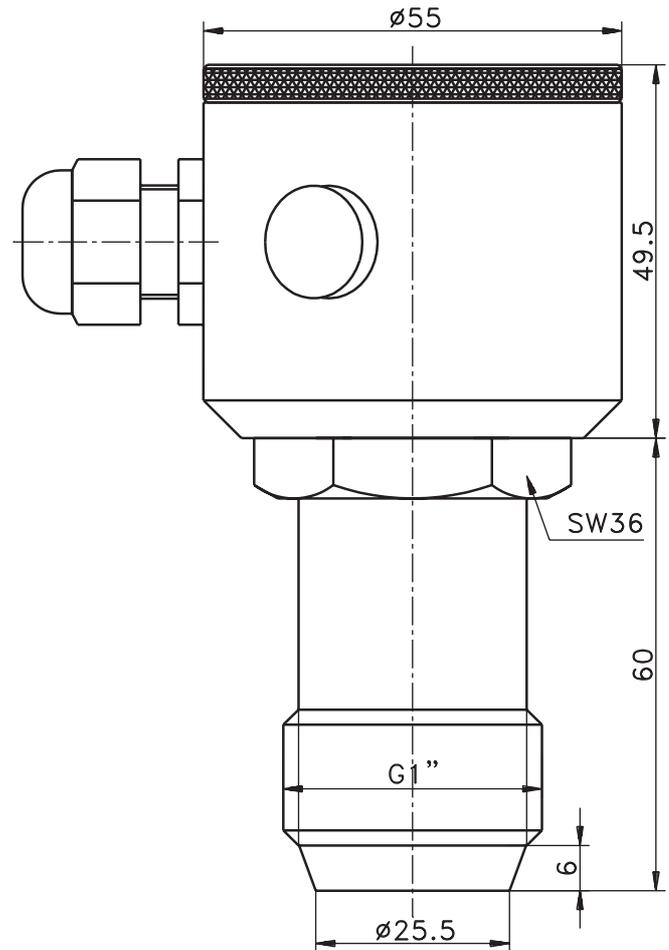
Installation

Attention: The maximum torque for installation is **20Nm!**

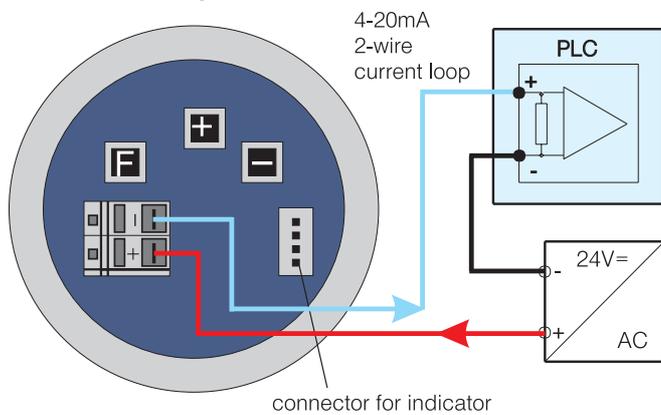
Table Overload Stability

range [bar]	factor	[bar]
0,2	25	5,0
0,4	15	6,0
1,0	10	10,0
2,0	7,5	15,0
4,0	6,25	25,0
10,0	4	40,0
20,0	2	40,0

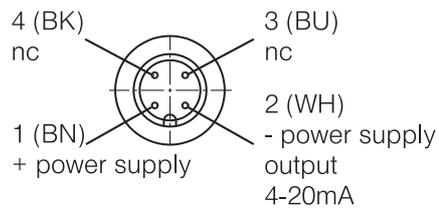
Dimensioned Drawing DAC-341



Electrical Connection DAC-341 with cable entry



with M12 Plug-in



N-TOOLS

Additional Products (for more informations: please see separate product informations)



**Simulator
HSG-3**



**Alarm Relay
VGW-DC**



**Digital Display
DOH-VA**



**Processor Digital Display
PEM-DD**

Connection

- plug in the optional indicator module **AZM** (helpful for setting)
- apply supply voltage (12...36V DC), see terminal label
- after a short segment test the indicator shows shortly 'dac', the program-version, 'abs' or 'rel' and the presetted range
- level in % (one digit after decimal point) or pressure in bar (two digits after decimal point) is indicated
- note at level measurement: 0-100% means 4-20mA; this range can be adjusted by the user. If the pressure is indicated in bar, the indicator always shows the pressure measured at the measurement cell. In this kind the range of the indicator can't be adjusted!

Notes to Setting the Pressure Sensor

The standard setting of the **DAC-341** is following: 0...100,0% of the measurement range (e.g. 0...400mbar) are corresponding to 4-20mA of the current output. If it is necessary to change these settings for special measurement tasks, you have to do following:

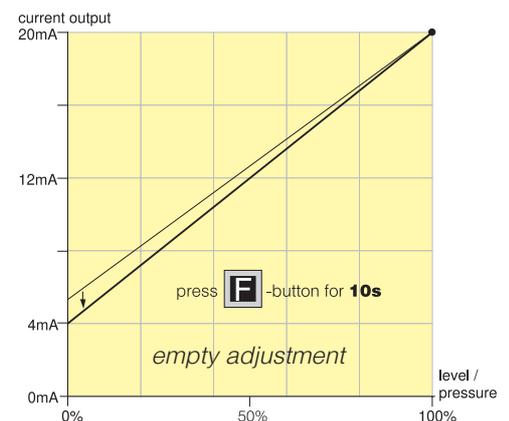
1. Empty Adjustment

1.1 Level Measuring

- empty vessel completely
- connect ammeter into the current output loop
- the ammeter displays 4,0mA, the internal indicator, **AZM** displays 0,0%
- In this case no adjustment is necessary
- in other case make the adjustment in the following way:
- press button "F" for at least 10 seconds, the indicator shows shortly "Stor", the setting is done
- ammeter displays 4,0mA, the internal indicator **AZM** displays 0,0%

1.2 Process Pressure Measuring (relative / absolute)

- set the pressure to the wished value at 4mA
- connect ammeter into the current output loop
- the ammeter displays 4,0mA
- in this case no adjustment is necessary
- in other case make the adjustment in the following way:
- press button "F" for at least 10 seconds. The indicator shows shortly "Stor", the setting is done
- ammeter displays 4,0mA



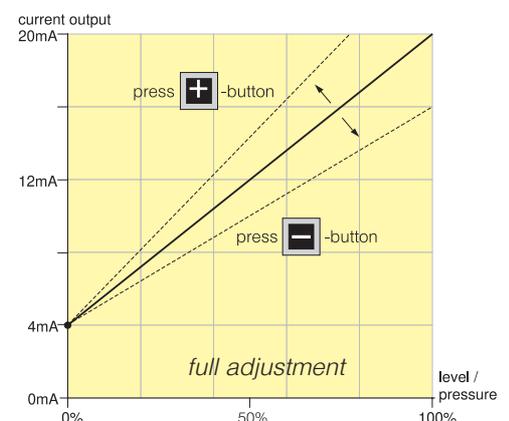
2. Full Adjustment

2.1 Level Measuring

- fill vessel completely (height of vessel at least 25% of full range)
- connect ammeter into the current output loop
- the ammeter displays a value lower than 20 mA, e.g. 14 mA, the internal display **AZM** displays a value lower than 100,0
- press button "+" or "-", until the ammeter displays 20mA and the internal indicator shows 100%
- after about 20 seconds the settings are stored, "Stor" shortly appears in the display

2.2 Process Pressure Measuring (relativ / absolute)

- set the pressure to high-value (at least 25% of full range)
- connect ammeter into the current output loop
- the ammeter displays 20,0mA, the internal indicator **AZM** displays the measured pressure in bar. In this case no adjustment is necessary
- in other case make the adjustment in the following way:
- press button "+" or "-", until the ammeter displays 20mA
- after about 20 seconds the settings are stored, "Stor" shortly appears in the display



3. Offset adjustment

- hold "F" pressed and modify with "+" or "-" the standard characteristic parallelly, in this way offsets are compensated
- the settings are stored after 20s of the last adjustment, the indicator shows "Stor"

This function is needed very rarely.

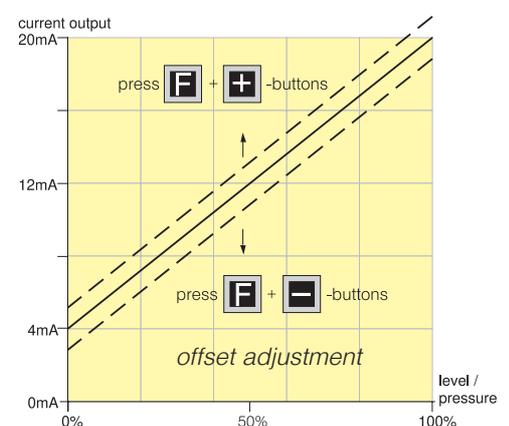
4. Reset to standard settings

- press buttons "F", "+" and "-" together about 10 seconds. When the indicator displays "rES", the standard settings are stored immediately.

Attention: All your settings will be deleted with this function. The pressure sensor is set to the standard settings.

5. Switching the indicator (% , bar)

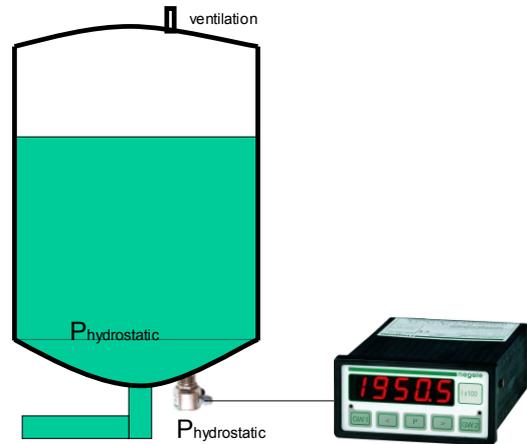
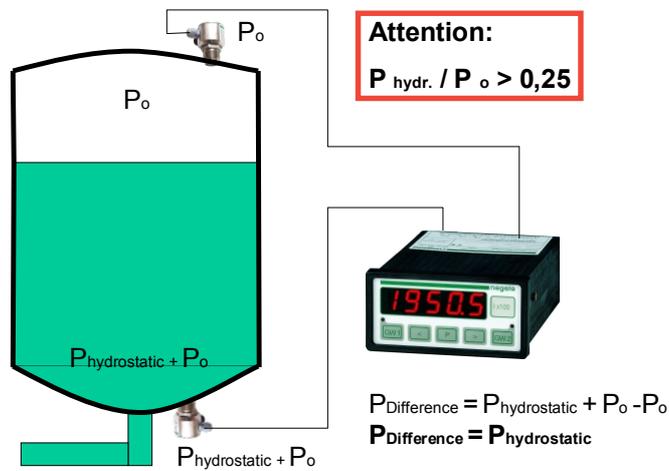
- by double-pressing the button "F" you can switch between the indication in bar and %



Application Examples

electrical pressure difference
with **2 x DAC-341** and **PEM-DD**

tank linearisation with **DAC-341** and **PEM-DD**



Overview of Deliverable Process Connections (Basic device and adapters must be ordered separately!)

Further Process Connections: on request.

Process Connection	build-in system EHG (DIN 11850 series 2)	Negele weld-in sleeve	TriClamp	Diary flange (DIN 11851)	DRD (press ring optional deliverable)	Varivent	APV-Inline	Adapter G1 1/2" to G1"
size								
DN25	-		AMC-352/1"-1,5"	AMK-352/25	-	-	-	AMG-352 suitable for existing G1 1/2" connection
DN40	EHG-40/1"	EMZ-352 suitable for installation in vessels	AMC-352/1"-1,5"	AMK-352/40	-	AMV-352	AMA-352	
DN50	EHG-50/1"		AMC-352/2"	AMK-352/50	AMK-352/50	AMV-352	AMA-352	
DN65	EHG-65/1"	EMS-352 suitable for installation in pipes	AMC-352/3"	AMK-352/65	AMK-352/50	AMV-352	AMA-352	
DN80	EHG-80/1"		AMC-352/80	AMK-352/80	AMK-352/50	AMV-352	AMA-352	
DN100	EHG-100/1"		AMC-352/4"	AMK-352/100	AMK-352/50	-	AMA-352	

Order example: **TriClamp for DN100: AMC-352 / 4"**