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Potravinářský průmysl
Farmaceutický průmysl
Biotechnologie
Petrochemie
Chemický průmysl
Energetika
Úprava vody
Papírenství a zpracování celulózy
Plynárenský průmysl
Keramický průmysl
Zpracovatelský průmysl

Firma s tradicí od r. 1990 se při svém vzniku zaměřila na dodávky základních komponent, přístrojové a měřící techniky a dodávky technologií pro farmaceutický a potravinářský průmysl. Cílem bylo zajistit kompletní dodavatelsko - inženýrské služby, včetně servisu. V roce 1998, který byl pro firmu velmi významným mezníkem, proběhla transformace společnosti do nynější formy. V dalších letech činnosti společnosti dochází k rozšíření portfolia a je navazována spolupráce s partnery v oblasti armatur, komponent, ventilů, procesní měřící techniky a čerpadel.

Oblastí působnosti je potravinářský, farmaceutický průmysl, biotechnologie, chemický průmysl, petrochemie, úprava vody, papírenství a celulóza, energetika, keramický průmysl a zpracovatelský průmysl.

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Product Information DAC-341 **FOOD**

Ceramic Pressure Sensor

CLEANadapt

Application / Specified Usage

· Precise pressure measurement in pipes

Application Examples

· Hygienic pressure monitoring in breweries, dairies and beverage industry

Hygienic Design / Process Connection

· Hygienic process connection with CLEANadapt
· All wetted materials are FDA-conform
· Sensor made of stainless steel, measurement cell of ultrapure ceramics Al_2O_3
· Complete overview of process connections: see order code
· The Anderson-Negele CLEANadapt system offers a flow-optimized, hygienic and easily sterilizable installation solution for sensors.

Features

· CIP-cleanable up to 100 °C max.
· High accuracy and reproducibility
· Dry and capacitive sensor without separating diaphragm or oil filling
· High overload stability and vacuum-proof
· Easy to operate and fast adjustment with pushbuttons
· Selectively as relative- or absolute measuring sensor available
· Integrated two-wire measurement transmitter 4...20 mA

Options / Accessories

· Special pressure ranges, customized adjustment ex works
· Integrated display (AZM) incl. window in lid
· Electrical connection with M12 plug-in connector
· Preassembled cable for M12 plug-in connector

Measuring Principle of the Capacitive Pressure Sensor

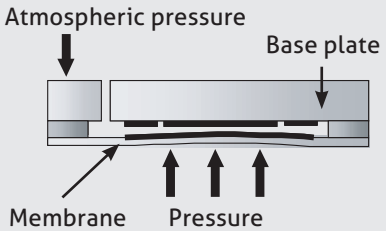
The measurement cell works like a plate capacitor whose membrane will be deformed in case of changing the pressure. This deformation causes a change of the capacity which is a measuring value for the change of pressure.
With relative (gauge) pressure sensors, the back of the diaphragm is vented, i.e. this sensor measures the gauge pressure relative to the atmospheric pressure.
With absolute pressure sensors, the vacuum created in the productionprocess between the diaphragm and the body of the cell remains permanently. This permits pressure measurements related to the vacuum.

Authorizations

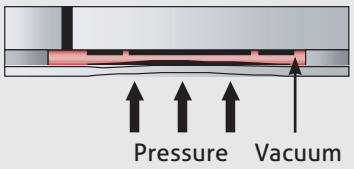
FDA

DAC-341

Relative Pressure Cell



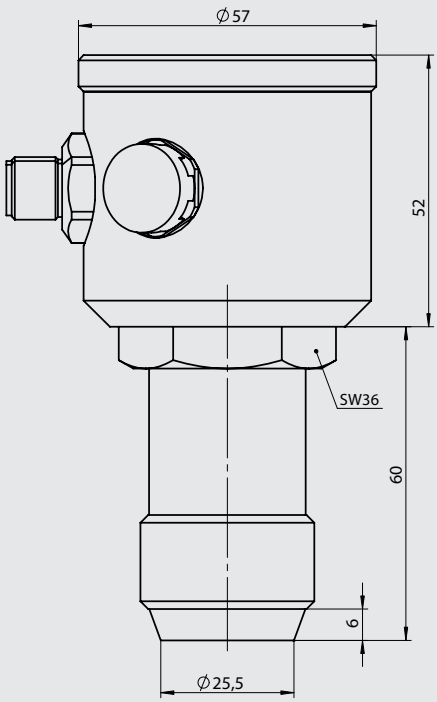
Absolute Pressure Cell



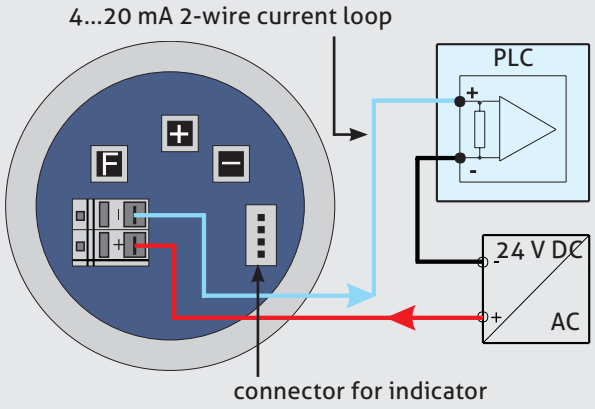
Specification		
Pressure ranges	relative, standard [bar] absolut, standard [bar]	0...0.2 / 0.4 / 1.0 / 2.0 / 4.0 / 10.0 / 20.0 1.0 / 2.0 / 4.0 / 10.0 / 20.0
Overload stability	factor	see table below
Vacuum stability		vacuum-proof
Process	connection torque	thread G1" sensor, combined with Negele-weld-in sleeves, build-in-systems, adapter sleeves maximum 20 Nm
Materials	connector head thread connection measurement cell ≤ 1.0 bar: measurement cell ≤ 20.0 bar: sealing window in lid (optional) pressure compensation element (only with relative pressure cell)	stainless steel 1.4305 (303) stainless steel 1.4404 (316L) 99.6 % Al_2O_3 96.0 % Al_2O_3 EPDM (FDA-number 21 CFR 177.2600) PMMA polyamide
Protection class		IP 69 K (with electrical connection M12 plug-in)
Temperature ranges	ambient process compensated CIP	-20...60 °C 0...100 °C up to 85 °C 100 °C
Humidity **Rise time** **Temperature compensation time**	ambient T_{90} T_{90}	< 80 % relative humidity no condensation in the sensor! ca. 1 second ≤ 91 seconds
Accuracy		≤ 0.25 % of full scale
Temperature drift	zero span	< 0.02 % full scale / K < 0.02 % full scale / K
Electrical connection	cable connection output	M12-plug stainless steel current loop 4...20 mA
Supply		12...36 V DC
Weight		ca. 700 g

Range [bar]	Factor	Overload stability [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

Dimensional Drawing DAC-341



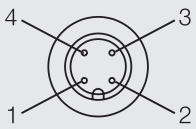
Electrical Connection DAC-341



With M12 plug-in

Configuration M12-plug

1: + power supply
2: - power supply 4...20 mA
3: not connected
4: not connected



Option: Display AZM (suitable for additional installation)

Conventional Usage

- Not suitable for applications in explosive areas.
- Not suitable for applications in security-relevant equipments (SIL).

Resistance

- Please take notice of the general resistance of ceramics Al_2O_3 and EPDM.
- Not for usage with concentrated base and acid as well as oil.
- Not for usage in sterilisation process (SIP).

Mechanical Connection / Installation

- Attention: The maximum torque for mounting is 20 Nm!

- Use Negele CLEANadapt system for safe operation of measuring point.
- Use a welding mandril for correct installation of CLEANadapt weld-in-fittings. Please pay attention to the weld-in and installation details in the CLEANadapt product information.

Note on CE

- Applicable directives:
  Electromagnetic Compatibility Directive 2014/30/EU
- Compliance with the applicable EU directives is identified by the CE label on the product.
- The operating company is responsible for complying with the guidelines applicable to the entire installation.

Handling / Operation

- Connect the sensor with power supply (12...36 V DC) -> see chapter "Electrical Connection DAC".
- If the display AZM is plugged it indicates the messages "dAC", the program version, "AbS" or "rEL" and the factory setted measurement end value in quick succession.
  After this, the sensor is ready for use immediately. The pressure will be displayed in the unit wich was set at last.
- The pressure will be displayed in % or in bar. The units can be set at the device. -> See chapter "Switching the Indicator".
- Note at indication in %: 0...100 % is always equivalent to 4...20 mA. If the pressure is indicated in bar, the indicator always shows the pressure measured directly at the measurement cell.

Status message (only with display AZM)

current output low (I_{out} ≤ 3.6 mA)

current output high (I_{out} ≥ 21 mA)

Cause: False setting of measurement range.
-> Reset the sensor to default standard settings and conduct a new full- / empty adjustment.

Status message (only with display AZM)

Pressure is under the permitted measurement range! (I_{out} ≤ 3.7 mA)

Pressure is over the permitted measurement range! (I_{out} ≥ 21 mA)

Cause: Pressure overload.
-> Reset the sensor to default standard settings and conduct a new full- / empty adjustment. If the message is displayed further on, the measurement cell is damaged.

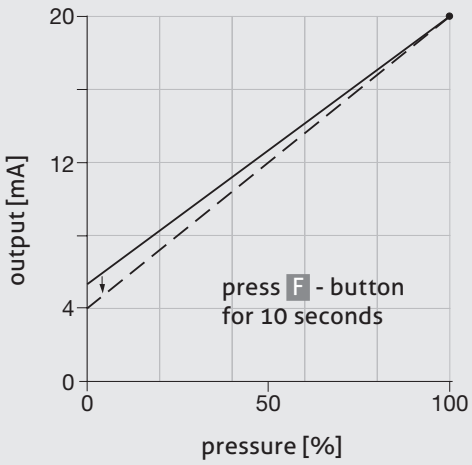
Advice for parametrization of the pressure sensor

The standard setting of the DAC-341 is: 0...100.0 % of the measurement range (e.g. 0...400 mbar) are equivalent to 4...20 mA of the current output. If it is necessary to change these settings for special measurement tasks, perform the following steps:

1. Empty adjustment

- Set the pressure to the desired value at 4.0 mA.
- Connect ammeter into the current loop. The ammeter displays 4.0 mA. In this case no adjustment is necessary.
- In other case make the adjustment in the following way:
- Press button F 10 seconds.
  The indicator shows shortly "Stor", the setting is done.
- Ammeter displays 4.0 mA.
- If ammeter displays a significant deviation after empty adjustment, an offset adjustment has to be done.
  -> See chapter "Offset adjustment".

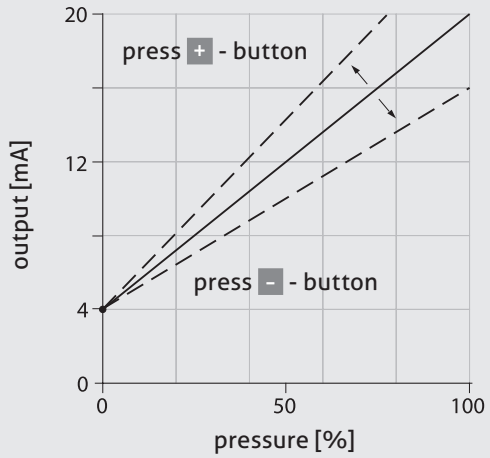
Empty adjustment



2. Full adjustment

- Set the pressure to high-value (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 indicator AZM displays the measured pressure in bar.
- Press buttons + or - until ammeter displays 20 mA.
- After about 10 seconds the settings will be stored, the display indicates "Stor" shortly.

Full adjustment



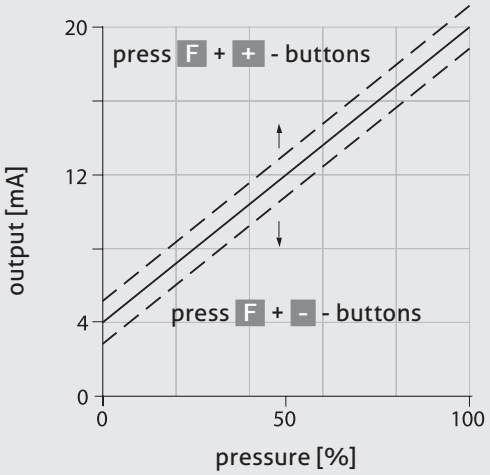
3. Offset adjustment

The offset adjustment is independent of empty- / full adjustment!

- Hold button F pressed and modify with buttons + or - the standard characteristic parallel to compensate offset.
- Adjustment range is limited to +/- 0.5 mA. The setting will be stored about 10 seconds after the last adjustment, the display shows "Stor".

This function is needed only in execptional cases!

Offset adjustment



4. Switching the indicator (%, bar)

- By double-pressing the button F you can switch between relative measurement indication in % and pressure measurement indication in bar.

Reset to factory settings

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

- All your settings will be deleted with this function. The pressure sensor will be reset to the standard factory settings.

Cleaning and Maintenance

- Please note: some materials can cause adhesions to the ceramic membrane of the measurement cell. For safe and reliable operation of the sensor with critical media please clean the membrane at regular intervals.
- Don't use sharp items or aggressive detergents for cleaning.
- In case of using pressure washers, dont't point nozzle directly to electrical connection!

Transport

- Sensors shall be clean and must not be contaminated with dangerous media!
- Use suitable transport packaging only to avoid damage of the equipment!

Storage

- No outdoor storage
- Dry and dust free
- Not exposed to corrosive media
- Protected against solar radiation
- Avoiding mechanical shock and vibration
- Storage temperature 0...40 °C
- Relaltive humidity max. 80 %

Disposal

- Electrical devices should not be disposed of with household trash. They must be recycled in accordance with national laws and regulations.
- Take the device directly to a specialized recycling company and do not use municipal collection points.

Compact Pressure Transmitter DAN-HH

Specified Usage

- Pressure measurement in pipes and vessels
- High Temperature applications up to 150 °C permanent

Features

- Extremly durable in high temperature applications up to 150°C permanent
- Fast response time 200 microseconds
- Vacuum-proof
- Easy to operate
- Electrical connection with M12 plug-in connector
- Selectively as relative or absolute measuring sensor available
- Integrated two-wire measurement transmitter 4...20 mA

DAN-HH | Compact pressure sensor

Climatic Independent Level Sensor LAR

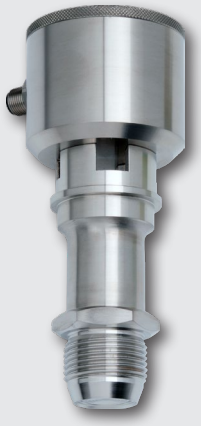
Specified Usage

- Hydrostatic level measurement in humid ambiance
- Special applicable for exterior storage vessels

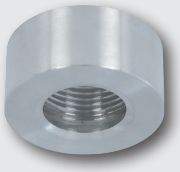
Features

- **Measurement cell without any contact to atmosphere, fully closed measurement system**
- No drift problems caused by condensation
- Very high accuracy and long term stability
- Measurement up to 130 °C (265 °F) medium temperature
- Oil fi lling, FDA approved
- Factory or field calibration
- Integrated two-wire measurement trancducer 4...20 mA
- **3 years warranty**

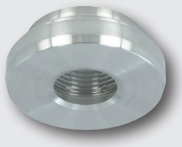
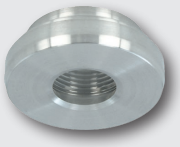
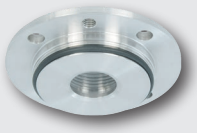
LAR | Level sensor



Overview of further possible process connections (adapter must be ordered separately!)
The complete overview of all available adapters you will find at product information **CLEANadapt.**

DAC-341					
Process Connection	**Build-in system EHG** (DIN 11850 series 2)	**Negele weld-in sleeve**	**Negele weld-in sleeve**	**Negele weld-in sleeve**	**Tri-Clamp**
DN25	-	**EMZ-352** suitable forinstallation in vessels	**EMZ-351** suitable for vessels with leackage detection	**EMS-352** suitable for installation in pulled-out pipes	**AMC-352/1"-1,5"**
DN40	**EHG-40/1"**				**AMC-352/1"-1,5"**
DN50	**EHG-50/1"**				**AMC-352/2"**
DN65	**EHG-65/1"**				**AMC-352/3"**
DN80	**EHG-80/1"**				**AMC-352/80**
DN100	**EHG-100/1"**				**AMC-352/100**

Overview of further possible process connections (adapter must be ordered separately!)

DAC-341					
Process Connection	**Diary flange** (DIN 11851)	**Varient**	**APV-Inline**	**Adapter G1½" to G1"**	**Dummy flange**
DN25	**AMK-352/25**	-	-	**AMG-352** suitable for existing G1½" connection	**BST-350** to close existing measurement points
DN40	**AMK-352/40**	**AMV-352**	**AMA-352**		
DN50	**AMK-352/50**	**AMV-352**	**AMA-352**		
DN65	**AMK-352/65**	**AMV-352**	**AMA-352**		
DN80	**AMK-352/80**	**AMV-352**	**AMA-352**		
DN100	**AMK-352/100**	-	**AMA-352**		

Order Code

DAC-341 (process connection CLEANadapt G1" hygienic)

Measuring Range

0.2REL	(relative pressure cell 0...0.2 bar)
0.4REL	(relative pressure cell 0...0.4 bar)
1.0REL	(relative pressure cell 0...1.0 bar)
2.0REL	(relative pressure cell 0...2.0 bar)
4.0REL	(relative pressure cell 0...4.0 bar)
10.0REL	(relative pressure cell 0...10.0 bar)
20.0REL	(relative pressure cell 0...20.0 bar)
1.0ABS	(absolute pressure cell 0...1.0 bar)
2.0ABS	(absolute pressure cell 0...2.0 bar)
4.0ABS	(absolute pressure cell 0...4.0 bar)
10.0ABS	(absolute pressure cell 0...10.0 bar)
20.0ABS	(absolute pressure cell 0...20.0 bar)
[end value] REL:	other relative pressure range, specify required in "bar" with "REL"
[end value] ABS:	other absolute pressure range, specify required range in "bar" with "ABS"

Display

X	(without)
AZM	(with display and viewing window)

Electrical Connection

M12	(M12-plug 1.4305)

DAC-341 / 0,4REL / AZM / M12

Accessories

PVC-cable with M12-connection, 1.4305 (303), IP 69 K, unshielded

M12-PVC / 4-5 m	PVC-cable 4-pin, length 5 m
M12-PVC / 4-10 m	PVC-cable 4-pin, length 10 m
M12-PVC / 4-25 m	PVC-cable 4-pin, length 25 m

PVC-cable with M12-connection, brass nickel-plated, IP 67, shielded

M12-PVC / 4G-5 m	PVC-cable 4-pin, length 5 m
M12-PVC / 4G-10 m	PVC-cable 4-pin, length 10 m
M12-PVC / 4G-25 m	PVC-cable 4-pin, length 25 m

M12-K/4	M12 coupling 4-pin, IDC technique, with plastic knurled screw
AZM-55	plug-in display, without cap
AZM-55-SF	plug-in display, incl. cap with viewing window
CERT / 2.2	factory certificate 2.2 acc. to EN10204 (only product contacting surface)

PVC-cable with M12-connection

Display AZM-55

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