



DP 500/510 - Mobile dew point meters with data logger

Applications:

- Compressed air: Examination of refrigeration, membrane, adsorption dryers
- Technical gases: Residual moisture measurement in gases such as N₂, O₂ etc.
- Plastic industry: Examination of granulate dryers

Special features:

- Precise dew point measurement down to -80°Ctd
- Quick response time
- 3.5" graphic display / easy operation via touch screen
- Integrated data logger for storage of the measured values
- USB interface for reading out via USB stick
- Calculates all necessary moisture parameters like g/m³, mg/m³, ppm V/V, g/kg, °Ctdatm
- 2nd freely assignable sensor input for third-party sensors (only DP 510)
- International: Up to 8 languages selectable



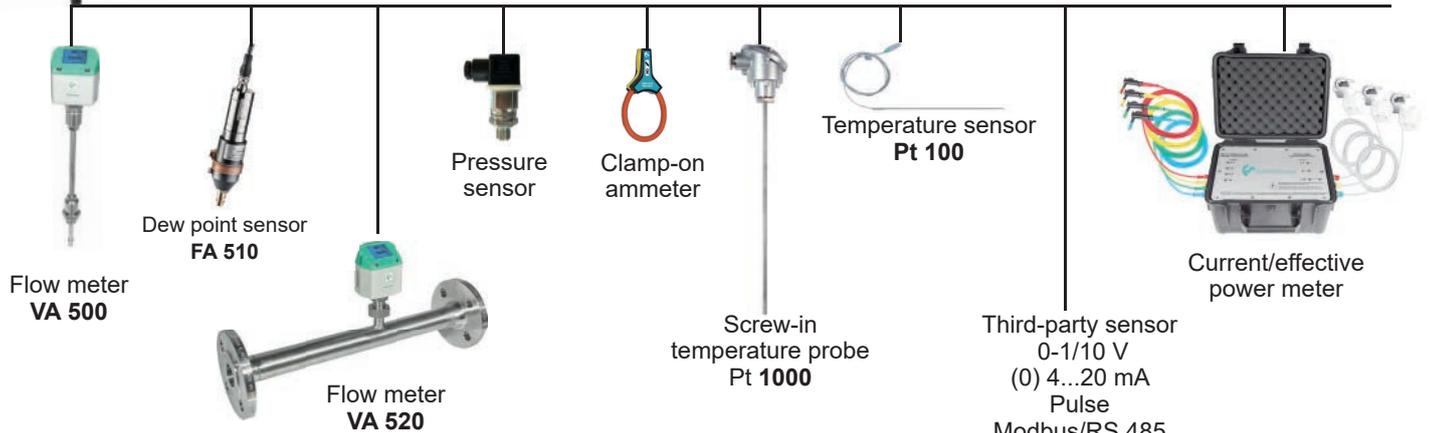
Quick installation by means of measuring chamber and quick connector



Ideal for service technicians - everything in one case

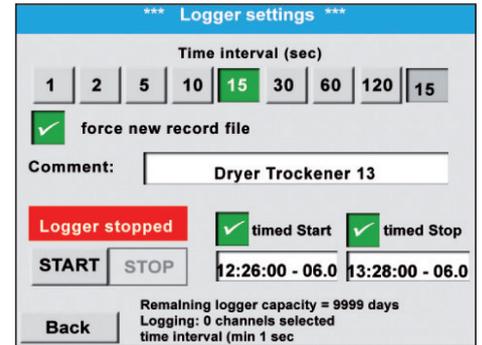
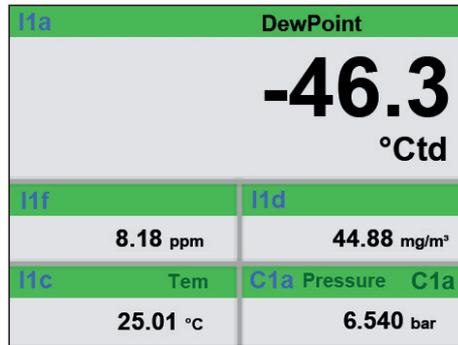


Dry container - for sensor protection and quick adaptation time



The whole range of suitable sensors can be found on pages 30 to 33

Everything a glance



Gradients are displayed graphically, so the operator sees at a glance the behavior of the dryer since the start of the measurement.

All physical parameters of the humidity measurement are calculated automatically. The DP 510 also displays the measured values of the external sensor.

Up to 100 million readings can be stored. Each measurement may be accompanied by a comment, e. g. location name. The time interval can be determined freely.

DESCRIPTION	ORDER-NO.
Set DP 500 in a case - consisting of:	0600 0500
- Portable dew point meter DP 500 for compressed air and gases	0560 0500
- Mobile measuring chamber up to 16 bar	0699 4490
- Diffusion-tight PTFE hose with quick connector, length 1 m	0554 0003
- Power supply for DP 500/510	0554 0009
- Control and calibration set 11.3 % RH	0554 0002
- Quick-lock coupling	0530 1101
- Dry container for CS dew point sensors	0699 2500
- Transportation case (small) for DP 500	0554 6500
Set DP 510 in a case - consisting of:	0600 0510
- Mobile dew point meter DP 510 with one additional input external sensors	0560 0510
- Mobile measuring chamber up to 16 bar	0699 4490
- Diffusion-tight PTFE hose with quick connector, length 1 m	0554 0003
- Power supply for DP 500/510	0554 0009
- Control and calibration set 11.3 % RH	0554 0002
- Quick-lock coupling	0530 1101
- Dry container for CS dew point sensors	0699 2500
- Transportation case (large) for DP 510 as well as other sensors	0554 6510
Further options, not included in the set:	
Option: „Mathematics calculation function“ for 4 freely selectable channels, (virtual channels): addition, subtraction, division, multiplication	Z500 5107
Option: „Totalizer function for analogue signals“	Z500 5106
CS Basic – data evaluation graphically and in tabular form - reading of the measured data via USB or Ethernet, license for 2 workstations	0554 8040
Precision calibration at -40°Ctd or 3°Ctd with ISO certificate	0699 3396
Additional calibration point freely selectable in the range between -80...+20°Ctd	0700 7710
High pressure measuring chamber up to 350 bar	0699 3590
Measuring chamber for atmospheric dew point	0699 3690
Measuring chamber for granulate driers with minimum overpressure	0699 3490
Portable dew point meter DP 510 for compressed air and gases (high pressure version up to 350 bar)	0560 0512
Portable dew point meter DP 500 for compressed air and gases (high pressure version up to 350 bar)	0560 0501



Photo key saves current screen as an image file. No additional software necessary.

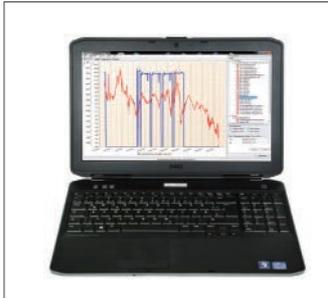
TECHNICAL DATA DP 500/510	
Display:	3.5" Touch screen
Measuring range:	-80...+50°Ctd -20...+70°C 0...100 %rF
Accuracy:	± 0,5°Ctd bei -10...+50°Ctd Typ. ± 2°Ctd (remain. range)
Moisture parameters:	g/m³, mg/m³, ppm V/V, g/kg, °Ctdatm, %rF
Pressure range:	-1...50 bar standard -1...350 bar special version
Interface:	USB interface
Data logger:	8 GB SD memory card (100 millions values)
Power supply for sensors:	Output voltage: 24 VDC ± 10% Output current: 120 mA continuous operation
Power supply:	Internal rechargeable Li-Ion batteries, approx 12 h continuous operation, 4 h charging time
Screw-in thread:	G 1/2" stainless steel
Ambient temperature:	0...+50°C
EMV:	DIN EN 61326-1



DP 400 mobile - with integrated dew point and pressure measurement

For measurement of all humidity parameters under pressure up to 16 bar.

The portable dew point meter with integrated, rechargeable battery has been developed especially for the field use. Besides a highly precise dew point sensor the device also contains a precise pressure sensor up to 16 bar. So in addition to the dew point in °Ctd, the temperature in °C and the line pressure in bar also further moisture parameters (% RH, mg/m³, g/m³) as well as pressure-dependent measuring values (g/kg, ppm v/v, atm. dew point °C) can be calculated.



SPECIAL FEATURES:

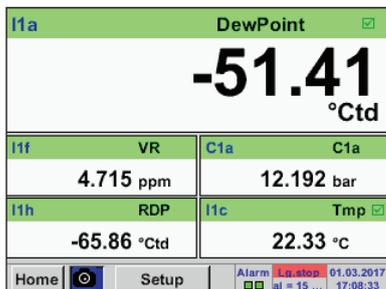
- Precise dew point measurement down to -80°Ctd
- Robust case for field use
- Integrated pressure measurement up to 16 bar
- Integrated measuring chamber with integrated dry container protects the dew point sensor during transport and grants a quick adaptation time
- Long-time stable humidity sensor: precise, insensitive against dewing, quick adaptation time
- Optionally available: 2 further sensor inputs for external sensors
- Optionally available: Integrated data logger



6 mm plug connection for measuring gas/compressed air feed

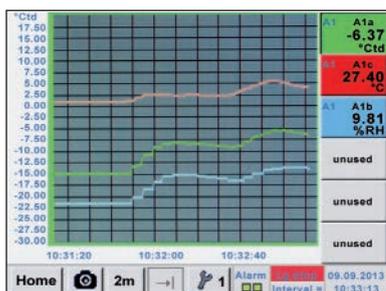
Option:
2 further sensor inputs (for flow, pressure, dew point, 4...20 mA, Modbus RTU...)

Easy operation via touchscreen



Actual measured values

All measured values are visible at a glance. Exceed of limit value is indicated in red. Due to the integrated pressure sensor DP 400 mobile is able to calculate the atmospheric dew point.



Graphic view

In the graphic view all measured values are indicated as curves. It is possible to browse back on the time axis by a slide of the finger (without data logger maximum 24 h, with data logger back to the start of the measurement).



Data logger

Measured values are stored in DP 400 by means of the option „integrated data logger“. The time interval can be freely set. Furthermore there is the possibility to fix the starting time and the end time of the data recording. Read-out of the measured data via USB interface or via the optional Ethernet interface.

DESCRIPTION	ORDER-NO.	TECHNICAL DATA DP 400 MOBIL
DP 400 mobile - Portable dew point meter with integrated pressure measurement, incl. transportation bag for teflon hose and power supply	0500 4505	Display: 3.5" Touch screen
Option: Integrated data logger for 100 million measured values	Z500 4002	Measuring range: -80...+50°Ctd -20...+70°C 0...100 % rF 0...16 bar ± 0,5 %
Option: Integrated Ethernet and RS 485 interface	Z500 4004	Accuracy: ± 1°C bei 50...-20°Ctd ± 2°C bei -20...-50°Ctd ± 3°C bei -50...-80°Ctd
Option: Integrated webserver	Z500 4005	Humidity parameters: g/m ³ , mg/m ³ , ppm V/V, g/kg, °Ctdatm, % rF
Option: „Mathematics calculation function“ for 4 freely selectable channels, (virtual channels): addition, subtraction, division, multiplication	Z500 4007	Interface: USB interface
Option: 2 additional sensor inputs for external sensors (1 x digital sensor Modbus, 1 x analog sensor)	Z500 4001	Option Data logger: 8 GB SD memory card (100 millions values)
CS Basic – data evaluation graphically and in tabular form - reading of the measured data via USB or Ethernet, license for 2 workstations	0554 8040	Voltage supply for external sensors: Output voltage: 24 VDC ± 10% Output current: 120 mA in long-term use
Connection cable for VA/FA series on mobile instruments, ODU/M12, 5m	0553 1503	Current supply: Internally loadable Li-Ion batteries approx. 12 h continuous operation, 4 h charging time
Connection cable for pressure, temperature or external sensors on mobile instruments, 5 m	0553 0501	Connection: 6 mm plug connections
Connection cable for pressure, temperature or external sensors on mobile instruments, 10 m	0553 0502	Ambient temperature: 0...+50°C
Extension cable for mobile instruments ODU/ODU, 10m	0553 0504	EMV: DIN EN 61326-1



FA 510/515 - Dew point sensor

FA 510/515 for residual moisture measurement in compressed air and gases



Typical applications:

- Dew point measurement in the compressed air after adsorption dryer, membrane dryer, refrigeration dryer
- Residual moisture/ dew point measurement in gases like oxygen, nitrogen, argon ...
- Residual moisture/ dew point measurement after granulate dryers in plastics industry

Recommendation:

Mounting with standard measuring chamber for compressed air up to 16 bar

Advantage: Easy installation via quick coupling

Special features:

- Extremely long-term stable
- Analog output 4 ... 20 mA for dew point
- Condensation insensitive
- Fast adjustment time
- Pressure resistant up to 350 bar (special version)
- **NEW:** Modbus RTU interface
- **NEW:** Higher resolution of the sensor signal due to improved evaluation electronics
- **NEW:** Sensor diagnosis on site with mobile device or CS service software
- Readable via Modbus:
 - Pressure dew point [° Ctd.]
 - Temperature [° C]
 - Rel. humidity [% RH]
 - Abs. humidity [g / m³]
 - Moisture content [g / m³]
 - Moisture content V / V [ppmV / V]
 - Partial vapor pressure [hPa]
 - Atmospheric dew point [° Ctd.atm]

DESCRIPTION	ORDER-NO.
FA 510 dew point sensor for desiccant driers -80°...20°Ctd incl. inspection certificate, 4...20 mA output signal (3-wire connection) and Modbus-RTU interface	0699 0510
FA 515 dew point sensor for desiccant driers -80°...20°Ctd incl. inspection certificate, 4...20 mA output signal (2-wire connection) or Modbus-RTU interface	0699 0515
FA 510 dew point sensor for desiccant driers -20...50°Ctd incl. inspection certificate, 4...20 mA output signal (3-wire connection) and Modbus-RTU interface	0699 0512
FA 510 dew point sensor for desiccant driers -20...50°Ctd incl. inspection certificate, 4...20 mA output signal (2-wire connection) and Modbus-RTU interface	0699 0517
Connection cables:	
Connection cable for VA/FA sensors, 5 m	0553 0104
Connection cable for VA/FA sensors, 10 m	0553 0105
Option for FA 510:	
Option: analogue output FA510, Special version 2...10 Volt	Z699 0510
Options for FA 510/515:	
Option: max. pressure FA5xx 350 bar	Z699 0515
Option: special scaling FA5xx 4...20 mA=___ ... ___ g/m ³ , ppm etc.	Z699 0514
Option: connection thread FA5xx, 5/8" UNF	Z699 0511
Option: connection thread FA5xx, 1/2" NPT	Z699 0512
Option: surface condition FA5xx, free of oil & grease	Z699 0517
Additional accessories:	
Standard measuring chamber up to 16 bar	0699 3390
High pressure measuring chamber up to 350 bar	0699 3590
Measuring chamber, stainless steel 1.4305	0699 3290
CS Service Software for dew point sensors incl. PC connection set (Modbus to USB Interface)	0554 2007
Calibration and adjustment:	
Precision calibration at -40°Ctd or 3° Ctd including ISO certificate	0699 3396
Additional calibration point freely selectable	0700 7710

TECHNICAL DATA FA 510/515	
Measure range:	-80...20°Ctd, -20...50°Ctd
Accuracy:	± 1°C to 50...-20°Ctd ± 2°C to -20...-50°Ctd ± 3°C to -50...-80°Ctd
Pressure range:	-1...50 bar special version up to 350 bar
Power supply:	24 VDC (16...30 VDC)
Protection class:	IP 65
EMV:	according to DIN EN 61326-1
Operating temp.:	-20...70 °C
Connection:	M12, 5-pole
PC connection	Modbus-RTU interface (RS 485)
Analog output	4...20 mA = -80...20°Ctd 4...20 mA = -20...50°Ctd FA 510: 4...20 mA (3-wire) FA 515: 4...20 mA (2-wire)
Burden for analog output:	< 500 Ω
Screw-in thread:	G 1/2" optional: UNF 5/8", NPT 1/2"
Dimensions:	Ø 30 mm, length approx. 130 mm
Via service software:	
Choose units	% RH, °Ctd, g/m ³ , mg/m ³ , ppm V/V
Scaling	change 4...20 mA

DS 52 - Dew point monitoring

The dew-point set is wired ready to plug in at the factory. The alarm values can be set freely. The dew point sensor FA 510 is extremely long-term stable and can be quickly and easily installed and removed under pressure via the screw-on measuring chamber incl. Quick coupling.

Option:
Alarm unit
(Buzzer and continuous red light)

Consisting of:
Digital process meter DS 52

Special features:

- System ready for plug-in: Everything completely wired
- No time-consuming studying of the instruction manual
- 2 alarm contacts (230 VAC, 3 A) pre- and main alarm freely adjustable
- 4...20 mA analogue output
- Option alarm unit: Buzzer and continuous red light

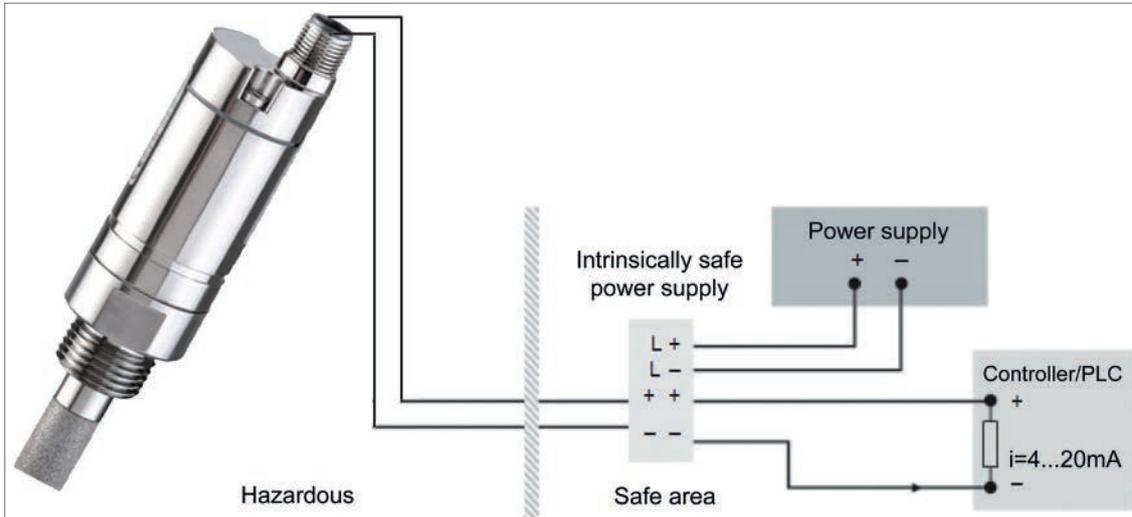


DESCRIPTION	ORDER-NO.
Dew point monitoring DS 52 for desiccant driers consisting of:	0600 5100
DS 52 LED display in wall housing	0500 0009
FA 510 dew point sensor for desiccant driers -80°...20°Ctd incl. inspection certificate, 4...20 mA output signal (3-wire connection) and Modbus-RTU interface	0699 0510
Standard measuring chamber up to 16 bar	0699 3390
Connection cable for VA/FA sensors, 5 m	0553 0104
Dew point monitoring DS 52 for refrigeration dryers, consisting of:	0600 5120
DS 52 LED display in wall housing	0500 0009
FA 510 dew point sensor for refrigeration dryer -20...50°Ctd incl. inspection certificate, 4...20 mA output signal (3-wire connection) and Modbus-RTU interface	0699 0512
Standard measuring chamber up to 16 bar	0699 3390
Connection cable for VA/FA sensors, 5 m	0553 0104
Options:	
Power supply 24 VDC (instead of 230 VAC)	Z500 0001
Power supply 110 VAC (instead of 230 VAC)	Z500 0002
Alarm unit mounted at wall housing	Z500 0003
Alarm unit for external mounting with 5 m cable	Z500 0004
Calibration and adjustment:	
Precision calibration at -40°Ctd including ISO certificate	0699 3396
Additional calibration point freely selectable	0700 7710

TECHNICAL DATA DISPLAY DS 52	
Dimension:	118 x 92 x 93 mm
Display:	LED red, 7 segments, height: 13 mm, 5 digits, 2 LED for alarm relay
Keypad:	4 keys
Input:	4...20 mA
Power supply:	230 VAC, 50/60 Hz; Option: 24 VDC or 110 VAC 50/60 Hz
Alarm outputs:	2 x relay output, changeover contact, 250 VAC, max. 3 A
Operating temperature:	-10...+60 °C (storage temperature -20°C...+80°C)
Alarm thresholds:	freely adjustable
Hysteresis:	2 °Ctd
Analog output:	4...20 mA = -80...20 Ctd or -20...50°Ctd.



FA 515 Ex Dew point sensor - for residual moisture measurement in potentially explosive areas



The FA 515 Ex measures dew point resp. pressure dew point in potentially explosive atmospheres and can be used in many non-aggressive gases.

Typical applications:

- Air / Compressed air
- Argon
- Nitrogen
- Biogas
- Natural gas
- Hydrogen
- etc...

Special features:

- Robust design
- Pressure-tight up to 500 bar
- Long-term stable humidity sensor, approved for years
- 4...20 mA analogue output in 2-wire technology
- Further parameters adjustable via software: % RH, g/m³, mg/m³, ppm V/V, g/kg
- **NEW:** Higher resolution of the sensor signal due to improved evaluation electronics

Approvals:

- II 2 G Ex ib IIC T4 Gb Zone 1, gas, intrinsically, temp. 135 °C
- II 2 D Ex ib IIIC T80°C Db Zone 21, dust, intrinsically, temp. 80 °C

FA 515 Ex may only be used in connection with approved Ex-rated power supplies or safety barriers or galvanic separating elements with max.:

U2 = 28 V max.
I2 = 93 mA max.
P2 = 0,65 W max.

TECHNICAL DATA FA 515 EX	
Measuring range:	-80...+20 °Ctd = 4...20 mA
Pressure range:	-1...500 bar
Power supply::	24 VDC (10...30 VDC)
Accuracy:	± 1 °C to -20...+20 °Ctd ± 2 °C to -50...-20 °Ctd ± 3 °C to -80...-50 °Ctd
Output:	4...20 mA in 2-wire technology
Protection class:	IP 65
EMV:	according to DIN EN 61326-1
Operating temp.:	-20...+70 °C
Storage temp.:	-40...+80 °C
Burden for analogue output:	< 500 Ω to 24 V
Screw-in thread:	G 1/2" stainless steel, optional 5/8" UNF
Connection:	M12 4-pin
Sensor protection:	Sintered filter 50 µm stainless steel

DESCRIPTION	ORDER-NO.
FA 515 Ex pressure dew point meter	0699 5515
Measuring chamber up to 350 bar	0699 3590
Measuring chamber made of stainless steel	0699 3290
Special scaling, analogue output to other humidity parameters: %RH, g/m ³ , mg/m ³ , ppm V/V, g/kg	Z699 0514
Intrinsically safe power supply, safety barriers	0554 3071



FA 550 dew point sensor - in robust die-cast aluminum housing

The FA 550 is ideal for outdoor dew point measurements or rougher industrial environment



Special features:

- Robust, waterproof die-cast aluminum housing, IP 67
- Alarm relay - limit value adjustable via buttons (max 60VDC, 0.5 A)
- 4 ... 20 mA analog output
- Optional: 2 pieces 4 ... 20 mA analog output e.g. for dew point and temperature
- Extremely long-term stable
- Fast adjustment time
- Pressure resistant up to 500 bar (optional)
- **NEW:** Modbus RTU interface
- **NEW:** Ethernet interface (optional)
- **NEW:** Higher resolution of the sensor signal due to improved evaluation electronics
- **NEW:** Sensor diagnosis on-site with handheld device or CS Service Software
- Readable via Modbus: pressure dew point [° Ctd.], temperature [° C], rel. humidity [% RH], abs. humidity [g / m³], degree of humidity [g / m³], moisture content V / V [ppmV / V], Partial vapor pressure [hPa], atmospheric dew point [° Ctd.atm]

APPLICATION:

- Dew point measurement in the compressed air after adsorption dryers/ membran dryers/refrigeration dryer
- Residual moisture measurement / dew point measurement in gases such as: oxygen, nitrogen, argon, hydrogen, natural gas, biogas ...

Easy operation via the keys on the display

The screenshots show the following screens:

- Screen 1/3:** Main display showing dew point: **-47.8 °Ctd**. HW: 1.02 SW:1.00 MBID:1
- Screen 2/3:** Humidity parameters: 22.10 °C, 0.1940 %rH, 0.0378 g/m³. HW: 1.02 SW:1.00 MBID:1
- Screen 3/3:** Additional humidity parameters: 0.0321 g/kg, 50.88 ppm, 0.0522 hPa, -47.80 °Ctd. HW: 1.02 SW:1.00 MBID:1
- FA500 Alarm:** Alarm status: Alarm. Unit: °Ctd, Value: -60.00, Hysteresis: 2.00, overrun: [button], back: [button]
- FA500 4 - 20mA Channel 1:** State: on, Unit: °Ctd, Scale 4mA: -80.00°Ctd, Scale 20mA: 20.00°Ctd, back: [button]
- FA500 4 - 20mA Channel 1:** State: on, Unit: g/m³, Scale 4mA: 0g/m³, Scale 20mA: 10g/m³, Save: [button], Cancel: [button]
- FA500 Pressure Setting:** Ref.Pressure: 1013.00 hpa, Sys.Pressure: 7500.00 hpa, back: [button]

The integrated display shows the dew point in big figures as well as further humidity parameters on two more display pages. The arrow key can be used to scroll between the display pages.

The alarm threshold value for the integrated relay can be entered via the keys. In addition to the alarm threshold, the hysteresis can also be freely entered.

The 4...20 mA analogue output can be scaled freely resp. also allocated to one further parameter, e. g. g/m³.

After entering the system pressure of the compressed air system and the reference pressure (atmospheric pressure), the sensor can also calculate back to the atmospheric dew point from the measured pressure dew point if desired.

Example order code FA 550:

0699 0550_A1_B1_C1_D1_E1_F1_G1_H1_I1

Measuring range	
A1	-80...+20 °Ctd. (-112 to 68 °F)
A2	-20...+50 °Ctd. (-4 to 122 °F)
A3	-40...+30 °Ctd. (-40 to 86 °F)
A4	-60...+30 °Ctd. (-76 to 86 °F)
A5	-80...+20 °Ctd. (-112 to 68 °F) (scaling 4...20 mA = -100...+20 °Ctd.)
A6	-80...+20 °Ctd. (-112 to 68 °F) (scaling 4...20 mA = -110...+20 °Ctd.)

Option Display	
B1	with integrated display
B2	without display

Option Signal output / Bus connection	
C1	2 x 4 ... 20 mA analog output (galv. isolated), alarm relay, RS 485 (Modbus RTU)
C4	1 x 4 ... 20 mA analog output (not electrically isolated), alarm relay, RS 485 (Modbus RTU)
C5	Ethernet interface (Modbus / TCP), 1 x 4 ... 20 mA analog output (not galv. isolated), alarm relay, RS 485 (Modbus RTU)
C8	M-Bus
C9	Ethernet interface PoE (Power over Ethernet) Modbus / TCP, 1 x 4 ... 20 mA analog output (not electrically isolated), alarm relay, RS 485 (Modbus RTU)

Special version analog output	
D1	No special version
D2	Special version 2...10 V

Scaling analog output	
E1	Standard scaling
E2	Special scaling 4 ... 20 mA = 0 ... x g / m ³ , ppm, g / kg etc.

Sensor protection cap	
F1	Stainless steel sintered cap (~ 50 µm)
F2	perforated stainless steel cap

Connecting thread	
G1	G 1/2"
G2	UNF 5/8"

Maximum pressure	
H1	50 bar
H2	350 bar
H3	500 bar

Surface condition	
I1	Standard design
I2	Special cleaning oil and grease-free (e. g. for oxygen application etc.)
I3	Silicone-free version including special cleaning oil and grease-free

DESCRIPTION	ORDER-NO.
FA 550 Dew point sensor in robust die-cast aluminum housing	0699 0550
Additional accessories:	
Standard measuring chamber up to 16 bar	0699 3390
High pressure measuring chamber up to 350 bar	0699 3590
Bypass measuring chamber made of stainless steel (1.4305)	0699 3290
Connection cables:	
Connection cable for probes 5 m with open ends	0553 0108
Connection cable for probes 10 m with open ends	0553 0109
Ethernet connection cable length 5 m, M12 plug x coded (8 pin) to RJ 45 plug	0553 2503
Ethernet connection cable length 10 m, M12 plug x coded (8 pin) to RJ 45 plug	0553 2504
Power supply in wall housing for max. 2 sensors VA / FA series 5xx, 100-240 VAC, 23 VA, 50-60 Hz / 24 VDC, 0.35 A	0554 0110
CS service software VA 550 incl. Interface cable to PC (USB) and plug-in power supply - for configuration / parameterization of the VA 550/570	0554 2007
PNG cable gland - for FA 550, VA 550/570	0553 0552
Calibration and adjustment:	
Precision adjustment at -40 ° Ctd or 3 ° Ctd incl. ISO certificate	0699 3396
Additional calibration point freely selectable	0700 7710

TECHNICAL DATA FA 550	
Measuring range:	-80...20 °Ctd, -60...30 °Ctd, -20...50 °Ctd, bzw. 0...100% RH
Accuracy:	± 1°C to +50...-20°Ctd ± 2°C to -20...-50°Ctd ± 3°C to -50...-80°Ctd
Pressure range:	-1 ... 50 bar, Special version up to 350 bar or 500 bar
Power supply:	24 VDC (18...30 VDC)
Protection class:	IP 67
EMC:	According to DIN EN 61326-1
Operating temp.:	-20...50 °C
Outputs:	Standard: Modbus RTU, 4 ... 20 mA active (not electrically isolated), alarm relay (max 48 VDC, 0.5 A) Options: See order code
Burden:	< 500 Ω
Material:	Housing die-cast aluminum, Sensor tube stainless steel 1.4571
Screw:	G 1/2", optional 5/8" UNF



FA 500 - Dew point sensor from -80 to 20 °Ctd

FA 500 is the ideal dew point measuring instrument with integrated display and alarm relay for refrigeration, membrane and desiccant driers.



Special features:

- Integrated display
 - Threshold value adjustable via keypad alarm relay (max. 60 VDC, 0.5 A)
 - Pressure-tight up to 350 bar (special version)
 - Extreme long-term stability
 - Quick response time
 - 4...20 mA analog output
 - 2 versions: Refrigeration dryers and desiccant dryers
 - **NEW:** Modbus-RTU interface
 - **NEW:** Higher resolution of sensor signal caused by the improved evaluation electronics
 - **NEW:** Sensor diagnosis on site with a portable device or CS Service Software
-
- Readable via Modbus:
 - Pressure dew point [° Ctd.]
 - Temperature [° C]
 - Rel. humidity [% rh]
 - Abs. humidity [g / m³]
 - Moisture content [g / m³]
 - Moisture content V / V [ppmV / V]
 - Water vapor particle pressure [hPa]
 - Atmospheric dew point [° Ctd.atm]



The integrated keys enable an easy menu-driven operation



Upper connection:

Power supply, 4...20 mA output, Modbus-RTU output

Lower connection:

Alarm relay

Easy operation via keys on the display



The integrated display shows the dew point in big figures as well as further humidity parameters on two more display pages. The arrow key can be used to scroll between the display pages.

The alarm threshold value for the integrated relay can be entered via the keys. In addition to the alarm threshold, the hysteresis can also be freely entered.

The 4...20 mA analogue output can be scaled freely resp. also allocated to one further parameter, e. g. g/m³.

After entering the system pressure of the compressed air system and the reference pressure (atmospheric pressure), the sensor can also calculate back to the atmospheric dew point from the measured pressure dew point if desired.

DESCRIPTION	ORDER-NO.
FA 500 dew point sensor for refrigeration driers, -20...50 °Ctd	0699 0501
FA 500 dew point sensor for desiccant driers, -80...20 °Ctd	0699 0502
FA 500 dew point sensor for desiccant driers, -60...30 °Ctd	0699 0503
Connection cables:	
Connection cable for VA/FA series, 5 m	0553 0104
Connection cable for VA/FA series, 10 m	0553 0105
Cable for alarm/pulse output, with M12 plug, length 5 m	0553 0106
Cable for alarm/pulse output, with M12 plug, length 10 m	0553 0107
Ethernet connection cable length 5 m, M12 plug x-coded (8 pin) to RJ 45 plug	0553 2503
Ethernet connection cable length 10 m, M12 plug x coded (8 pin) to RJ 45 plug	0553 2504
Options for FA 500:	
Option: max. pressure FA5xx 350 bar	Z699 0515
Option: max. pressure FA5xx 500 bar	Z699 0516
Option: special scaling FA5xx 4...20 mA=___ ... __g/m³, ppm etc.	Z699 0514
Option: connection thread FA5xx, 5/8" UNF	Z699 0511
Option: connection thread FA5xx, 1/2" NPT	Z699 0512
Option: surface condition FA5xx, free of oil & grease	Z699 0517
Ethernet-Interface for VA500/520 and FA 500	Z695 5006
Ethernet-Interface PoE for VA500/520 and FA500	Z695 5007
M-Bus board for VA500/520 and FA500	Z695 5004
Additional accessories:	
Standard measuring chamber up to 16 bar	0699 3390
High pressure measuring chamber up to 350 bar	0699 3590
CS Service Software for FA/VA sensors incl. PC connection set, USB connection and interface adapter to the sensor	0554 2007
Mains unit in wall housing for maximum 2 sensors of the series VA/FA 5xx, 100-240 V, 23 VA, 50-60 Hz / 24 VDC, 0.35 A	0554 0110
AC adapter plug 100-240 V AC/ 24 V for VA/FA 500/520	0554 0109
Calibration and adjustment:	
Precision calibration at -40°Ctd or +3°Ctd including ISO certificate	0699 3396

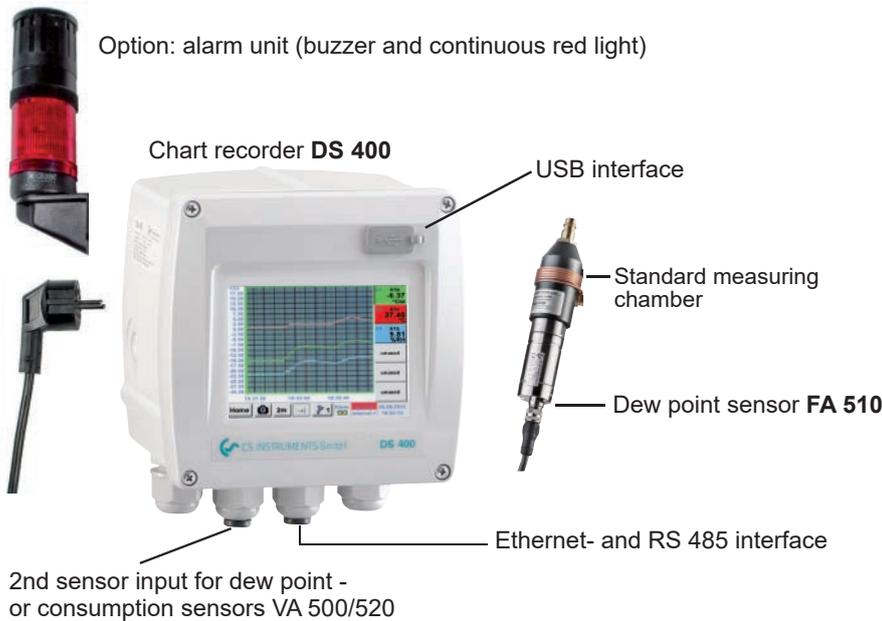
TECHNICAL DATA FA 500

Measuring range:	-80...20 °Ctd, -60...30 °Ctd, -20...50 °Ctd, resp. 0...100% RH
Accuracy:	± 1°C to +50...-20°Ctd ± 2°C to -20...-50°Ctd ± 3°C to -50...-80°Ctd
Pressure range:	-1...50 bar special version up to 500 bar
Power supply:	24 VDC (18...30 VDC)
Protection class:	IP 65
EMC:	According to DIN EN 61326-1
Operation temp.:	-20...50 °C
Connection:	2 x M12, 5-pole for analog output, Modbus-RTU and alarm output, M-Bus (optional) Ethernet (PoE) (optional)
PC connection	Modbus-RTU interface (RS 485)
Output: (3-wire)	4...20 mA = -80...20°Ctd 4...20 mA = -60...30°Ctd 4...20 mA = -20...50°Ctd
Burden for analog output:	< 500 Ω
Alarm relay:	NC, max.60 VDC, 0,5 A
Screw-in thread:	G 1/2"
Dimensions of housing:	76,5 x 85 x 75 (BxHxT)



DS 400 Dew point monitoring

For stationary dew point monitoring of refrigeration or desiccant dryers. The touch screen graphic display enables an intuitive operation and shows the progress of the measured values. 2 alarm relays are available for monitoring of threshold values. Available either with a classic analogue output 4...20 mA or optionally with digital interfaces like Ethernet and RS 485 (Modbus protocol). As a stand-alone solution the measured data stored in the optional data logger can be read-out via USB stick and evaluated by means of the software CS Soft Basic.



Special features:

- 3.5" Graphic display – easy to use with touch-screen
- Plug-in system: everything wired and ready
- 2 alarm contacts (230 VAC, 3 A) Pre-alarm and main alarm freely adjustable
- An alarm delay can be set for each alarm relay
- 4...20 mA Analog output
- Option: Ethernet and RS 485 interface (Modbus protocols)
- Option: Webserver

Transfer the data via USB stick to the PC



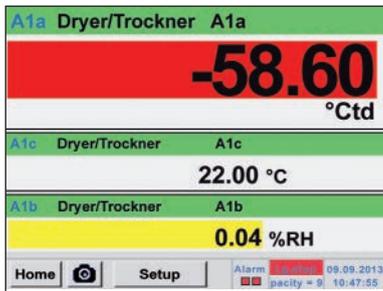
- **Option:** Integrated data logger
- Record dew point curve up to 100 million readings
- CS Basic for graphical and tabular evaluation. Read out data either via USB stick or Ethernet

DESCRIPTION	ORDER-NO.
Dew point monitoring DS400 for desiccant driers (-80...+20° Ctd.)	0601 0510
Dew point monitoring DS400 for refrigeration driers (-20...+50°Ctd)	0601 0512
Options	
Option: Integrated data logger for 100 million measured values	Z500 4002
Option: Integrated Ethernet and RS 485 interface	Z500 4004
Option: Integrated webserver	Z500 4005
Option: 2 additional sensor inputs for analogue sensors (pressure sensor, temperature sensor and so on)	Z500 4001
Additional accessories	
CS Basic – data evaluation graphically and in tabular form - reading of the measured data via USB or Ethernet, license for 2 workstations	0554 8040
Alarm unit mounted at wall housing	Z500 0003
Alarm unit for external mounting with 5 m cable	Z500 0004
Calibration and adjustment	
Precision calibration at -40 °Ctd or +3 °Ctd including ISO certificate	0699 3396

TECHNICAL DATA DS 400	
Dimensions:	118 x 115 x 98 mm IP 54 (wall housing) 92 x 92 x 75 mm (panel mounting)
Inputs:	2 digital inputs for FA 510 resp. VA 500/520
Interface:	USB interface
Power supply:	100...240 VAC, 50-60 Hz
Accuracy:	please see FA 510
Alarm outputs:	2 relays, (pot. - free)
Options	
Data logger:	100 million measuring values start/stop time, measuring rate freely adjustable
2 additional sensor inputs:	for connection of pressure sensors, temperature sensors, clamp-on ammeters, third-party sensors with 4...20 mA 0 to 10 V, Pt 100, Pt 1000

TECHNICAL DATA FA 510	
Measuring range:	-80...20 °Ctd resp. -20...50 °Ctd
Accuracy:	± 1 °C at 50...-20 °Ctd ± 2 °C at -20...-50 °Ctd ± 3 °C at -50...-80 °Ctd
Pressure range:	-1...50 bar, special version up to 350 bar

Easy operation via Touch screen



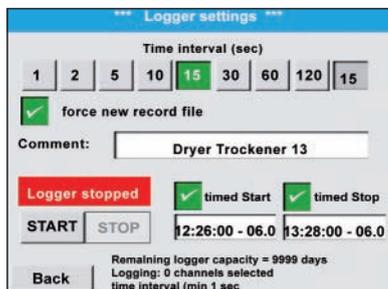
Actual measured values

All measured values can be seen at a glance. Threshold exceeding are indicated in red color. A „measuring site name“ can be allocated to each sensor.



Graphic view

In the graphic view all measured values are indicated as curves. It is possible to brows back on the time axis by a slide of the finger (without data logger maximum 24 h, with data logger back to the start of the measurement).

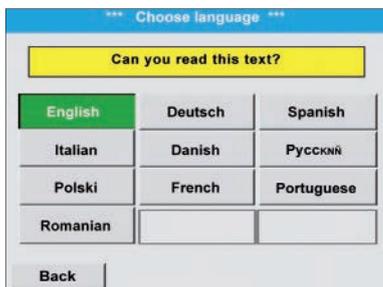


Data logger

Measured values are stored in DS 400 by means of the option „integrated data logger“.

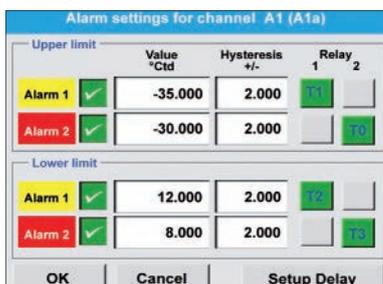
The time interval can be freely set. Furthermore there is the possibility to fix the starting time and the end time of the data recording.

Read-out of the measured data via USB interface or via the optional Ethernet interface.



Selection of the language

DS 400 „speaks“ several languages. The required language can be selected by means of the select button.



Adjustment of the alarm relays

Each one of the 2 alarm relays can be allocated individually to a connected sensor. The alarm thresholds and the hysteresis can be freely adjusted.

New: It is possible to set an alarm delay for each alarm relay so that the relay is just triggered after that period of time.



Accessories FA 500/510/515

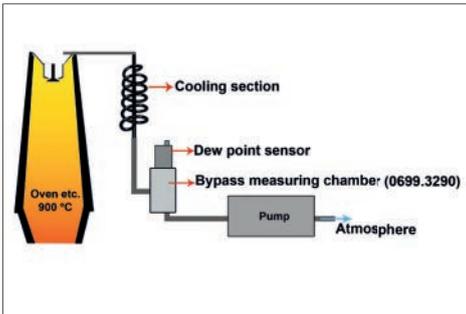


DESCRIPTION	ORDER-NO.
Diffusion-tight PTFE hose 6 mm with quick-release coupling length 1m	0554 0003
Diffusion-tight PTFE hose 6 mm, length 1m	0554 0008



DESCRIPTION	ORDER-NO.
Cooling section made of stainless steel	0699 3291

- 6 mm stainless steel tube wound as a spiral.
- With the cooling section, process gases from ovens etc. can be cooled from high temperatures (about 900°C) to a sensor-compatible temperature of about 50°C. Condensation of the dew point to be avoided.



DESCRIPTION	ORDER-NO.
Quick-lock coupling NW 7,2 - G 1/2" male thread	0530 1101



DESCRIPTION	ORDER-NO.
Control and calibration set 11,3 %RH	0554 0002
Control and calibration set 33 %RH	0554 0004
Control and calibration set 75,3 %RH	0554 0005

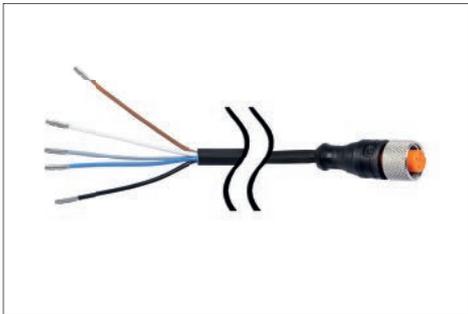
- Control and calibration sets provide a defined humidity over a saturated saline solution
- The control and calibration set is screwed onto the dew point sensor and thus enables a simple and inexpensive control and calibration option down to -20° Ctd dew point on site

Accessories FA 500/510/515



DESCRIPTION	ORDER-NO.
Dry container for CS dew point sensors	0669 2500

- Provides sensor protection and fast equalization time. Recommended for storage of mobile sensors



DESCRIPTION	ORDER-NO.
Connection cable for VA / FA series, 5 m	0553 0104
Connection cable for VA / FA series, 10 m	0553 0105
Connection cable for VA / FA series, 5 m shielded	0553 0129
Connection cable for VA / FA series, 10 m shielded	0553 0130
Cable for alarm/pulse output, with M12 plug, 5 m	0553 0106
Cable for alarm/pulse output, with M12 plug, 10 m	0553 0107



DESCRIPTION	ORDER-NO.
M12 plug for FA 500/510/515	0 2000 0082
M12 plug angled 90°	0219 0060



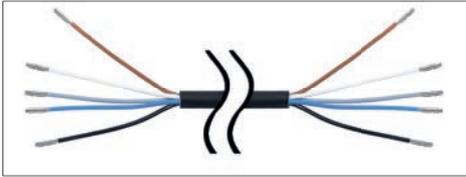
DESCRIPTION	ORDER-NO.
Adapter plug FA 515/Michell easidew valve plug DIN 43650 shape C 8 mm	0 2000 1389



DESCRIPTION	ORDER-NO.
Ethernet connection cable length 5 m, M12 plug x-coded (8 pol.) on RJ 45 plug	0553 2503
Ethernet connection cable length 10 m, M12 plug x-coded (8 pol.) on RJ 45 plug	0553 2504



Accessories FA 550



DESCRIPTION	ORDER-NO.
Connection cable 5 m with open ends	0553 0108
Connection cable 10 m with open ends	0553 0109



DESCRIPTION	ORDER-NO.
PNG screwed cable fitting - for standard	0553 0552

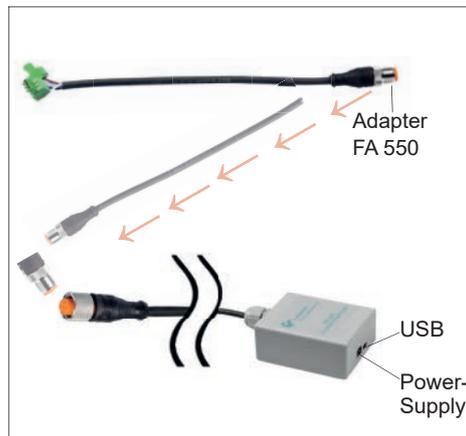
Accessories for all FA 5xx



DESCRIPTION	ORDER-NO.
Mains unit in wall housing for max. 2 sensors of the VA/FA 5xx series 100-240 V, 23 VA, 50-60 Hz / 24 VDC, 0,35 A	0554 0110



DESCRIPTION	ORDER-NO.
Power supply unit 100-240 V AC/24 V for VA/FA 5xx	0554 0109



DESCRIPTION	ORDER-NO.
CS service software incl. PC connection set, USB port and Interface adapter to the sensor	0554 2007

Measuring chambers



DESCRIPTION	ORDER-NO.
Standard measuring chamber for compressed air	0699 3390

- Applicable for 2...16 bar
- Process connection: Plug nipple NW 7.2 (Parker series 26) or G1 / 4 „female thread when used without plug nipple
- Sensor connection: G 1/2“ female thread
- Gives 2-3 liters / min of process air to the environment
- The copper capillary relaxes the compressed air and prevents the backflow of moisture from the ambient air into the measuring chamber



DESCRIPTION	ORDER-NO.
Stainless steel measuring chamber for compressed air up to 50 bar	0699 3292

- Applicable for 2...50 bar
- Process connection: G 1/4" female thread
- Sensor connection: G 1/2" female thread
- Gives 2-3 liters / min of process air to the environment



DESCRIPTION	ORDER-NO.
Stainless steel measuring chamber for compressed air up to 50 bar with NPT thread	0699 3293

- Process connection: G 1/4" female thread
- Sensor connection: 5/8" UNF female thread
- Applicable for 2 ... 50 bar
- Gives 2-3 liters / min of process air to the environment via a fine nozzle



DESCRIPTION	ORDER-NO.
High pressure measuring chamber for compressed air up to 350 bar	0699 3590

- Applicable for 30...350 bar
- Process connection: G 1/4" female thread
- Sensor connection: G 1/2" female thread
- Gives 2-3 liters / min of process air to the environment via a fine nozzle
- Via the high-pressure valve, the amount of air for sampling can be adjusted individually depending on the pressure level. The process air is released to the environment via the sinter filter



DESCRIPTION	ORDER-NO.
Stainless steel bypass measuring chamber for dew point measurement in gases under pressure	0699 3290

- Applicable for -1...350 bar
- Process connection: G 1/4" female thread gas inlet and G 1/4" female thread gas outlet
- Sensor connection: G 1/2" female thread
- The flow of at least 2 liters / min of gas must be ensured by the customer



Measuring chambers



DESCRIPTION	ORDER-NO.
Measuring chamber for atmospheric dew point	0699 3690

- Applicable for 2...16 bar
- Process connection: Plug nipple NW 7.2 (Parker series 26) or G 1/4" female thread when using without plug nipple
- Sensor connection: G 1/2" female thread
- Gives 2-3 liters / min of process air to the environment
- The throttle valve in front of the measuring chamber relaxes the compressed air to atmospheric pressure in the measuring chamber. The manometer integrated in the measuring chamber indicates the overpressure to the atmosphere



DESCRIPTION	ORDER-NO.
Measuring chamber for granulate dryers and gases	0699 3490

- Applicable for -1...16 bar
- Process connection: Plug connection for 6 mm hose at inlet and outlet or G 1/4" female thread when using without plug connections
- Sensor connection G 1/2" female thread
- The flow of at least 2 liters / min of air / gas must be ensured by the customer