



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:

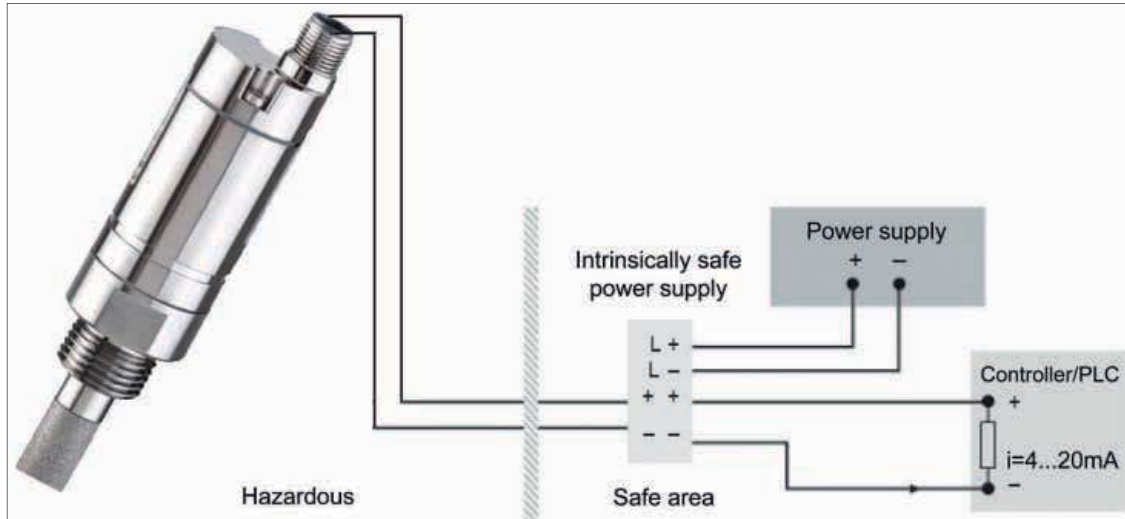
- Extremely long-term stable
- Analog output 4 ... 20 mA for dew point
- Condensation insensitive
- Fast adjustment time
- Pressure resistant up to 350 bar (special version)
- **NEW:** Modbus RTU interface
- **NEW:** Higher resolution of the sensor signal due to improved evaluation electronics
- **NEW:** 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 refrigerated 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 refrigerated 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 FA 510, Special version 2...10 Volt	Z699 0510
Options for FA 510/515:	
Option: max. pressure FA 5xx 350 bar	Z699 0515
Option: special scaling FA 5xx 4...20 mA=___ ... ___ g/m ³ , ppm etc.	Z699 0514
Option: connection thread FA 5xx, 5/8" UNF	Z699 0511
Option: connection thread FA 5xx, 1/2" NPT	Z699 0512
Option: surface condition FA 5xx, free of oil & grease	Z699 0517
Further 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



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 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
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- 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 FA 5xx 350 bar	Z699 0515
Option: max. pressure FA 5xx 500 bar	Z699 0516
Option: special scaling FA 5xx 4...20 mA = ___ ... ___ g/m ³ , ppm etc.	Z699 0514
Option: connection thread FA 5xx, 5/8" UNF	Z699 0511
Option: connection thread FA 5xx, 1/2" NPT	Z699 0512
Option: surface condition FA 5xx, free of oil & grease	Z699 0517
Ethernet-Interface for VA 500/520 and FA 500	Z695 5006
Ethernet-Interface PoE for VA 500/520 and FA 500	Z695 5007
M-Bus board for VA 500/520 and FA 500	Z695 5004
Further 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)