



FA 510 / FA 515

New dew point sensors with sophisticated service concept

In addition to the previously common 4...20 mA analogue output the new generation of dew point sensors have a digital RS 485 interface (Modbus-RTU). All values like e. g. dew point, temperature, absolute humidity ... which are measured and calculated by the dew point sensor can be retrieved via the Modbus protocol.

Compared with the previous models the sensorics and evaluation electronics have been improved once again, especially the integrated temperature compensation. This means: Increased accuracy at different ambient temperatures and an improved resolution of the sensor signal. Like the previous models the new dew point sensors have an excellent long-term stability and show reliable measured values. The sensor element is insensitive against condensation and due to the serial sintered cap made of stainless steel it is protected against direct contact with soiled particles.

The service concept:

One-point-calibration on site

FA 510/515 can be calibrated on site, i. e. during the measuring process, by means of the hand-held instrument DP 510 (reference instrument).



Sensor diagnosis on site

A sensor diagnosis can be carried out on site, i. e. during the measuring process, via the digital RS 485 interface (Modbus-RTU). The measured data can be read out either by means of the portable instruments DP 510, PI 500, DS 400 mobile, DS 500 mobile or by means of a laptop with CS Service Software. The status of the residual humidity sensor element is read-out as well as the status of the temperature sensor element and the date of the last calibration.



Changing the sensor settings on site

In addition to the sensor diagnosis also the following sensor settings can be done on site by means of a laptop or portable instrument:

- Scaling of the 4...20 mA analogue output
- Allocation of the parameter to the analogue output (e. g. 4...20 mA = 0...10 g/m³)



FA 510/515 - Dew point sensor

Example order code FA 51x:

0699 0510_B1_C1_D1_E1_F1_G1_I1_Y1

FA 510

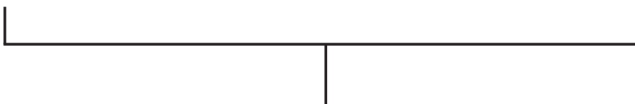
Signal output

B1	RS 485 (Modbus RTU), 4...20 mA (3-wire)
B2	2...10 V, RS 485 (Modbus RTU)
B3	I/O Link, RS 485 (Modbus RTU)

FA 515

Signal output

B1	4...20 mA (2-wire)
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Scaling analogue output

C1	Standard scaling
C2	Special scaling 4...20 mA = 0...x °Ctd, g/m3, ppm, g/kg...

Sensor protection cap

D1	Stainless steel sintered cap (~ 50 µm)
D2	perforated stainless steel cap

Connection thread

E1	G1/2"
E2	UNF 5/8"
E3	NPT 1/2"
E4	NPT 3/8"

Maximum pressure

F1	50 bar
F2	350 bar
F3	500 bar
F4	30 bar (only with Y2)

Surface conditon

G1	standard version
G2	special cleaning - oil and grease free (e.g. for oxygen applications and so on)
G3	Silicone-free version including special cleaning oil- and grease-free

Connector

I1	M12 plug (straight)
I2	M12 plug 90° angled
I3	Adapter plug Michell Easidew valve plug DIN 43650 Form C 8 mm (only for FA 515)

Pressure measurement

Y1	without pressure sensor
Y2	with integrated pressure sensor 0...30 bar (g), Output only via digital interfaces (only with F4, not with E2 and E4), usable for compressed air, nitrogen and argon

FA 510/515 - Dew point sensor 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 such as oxygen, nitrogen, argon...
- Residual moisture/dew point measurement after granulate dryers in the plastics industry
- Easy integration of dew point measurement in front of machines and systems through IO-Link interface

Special features:

- Extremely stable in the long term
- Condensation-resistant
- Quick adaption time
- Optional with integrated pressure sensor

Recommendation:

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

Advantage: Easy installation via quick coupling increases service life and accelerates response time.

DESCRIPTION	ORDER NO.
FA 510 dew point sensor for adsorption dryers -80...20 °Ctd incl. factory certificate, 4...20 mA analogue output (3-wire connection) and Modbus-RTU interface	0699 0510
FA 515 dew point sensor for adsorption dryers -80...20 °Ctd incl. factory certificate, 4...20 mA analogue output (2-wire connection)	0699 0515
FA 510 dew point sensor for refrigeration dryer -20...50 °Ctd incl. factory certificate, 4...20 mA analogue output (3-wire connection) and Modbus-RTU interface	0699 0512
FA 515 dew point sensor for refrigeration dryer -20...50 °Ctd incl. factory certificate, 4...20 mA analogue output (2-wire connection)	0699 0517
Connection cables:	
Connection cable for VA/FA series, 5 m	0553 0104
Connection cable for VA/FA sensors, 10 m	0553 0105
Further accessories:	
Standard measuring chamber up to 16 bar	0699 3390
Standard measuring chamber up to 16 bar, 1/2" NPT male thread	0699 3393
High pressure measuring chamber up to 350 bar	0699 3590
Stainless steel bypass measuring chamber for dew point measurement in gases under pressure	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 incl. ISO certificate	0699 3396
Additional calibration point freely selectable	0700 7710

TECHNICAL DATA FA 510/515

Measuring range:	see order code
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 500 bar
Power supply:	24 VDC (10...36 VDC)
Protection class:	IP 66
EMC:	In acc. with DIN EN 61326-1
Operating temperature:	-20...70 °C
Connection:	M12, 5-pin
Interface:	Modbus-RTU, (RS 485), 4...20 mA, 2...10 V, IO-Link
Readable via Modbus:	<ul style="list-style-type: none"> - Pressure dew point [°Ctd] - Temperature [°C] - rel. humidity [%rF] - abs. humidity [g/m³] - Degree of humidity [g/kg] - Moisture content V/V [ppmV/V] - Partial vapor pressure [hPa] - Atmospheric dew point [°Ctd.atm]
	Optional: System pressure [bar(g)]
Burden for analogue output:	< 500 Ω
Screw-in thread:	G 1/2" Stainless steel Optional: UNF 5/8", NPT 1/2", NPT 3/8"
Dimensions:	Ø 30 mm, length approx. 130 mm