Explosion protection

Marking	**ATEX**: II 2G Ex h IIC T4 Gb X **IECEx**: Ex IIC T4 Gb **NEC 500**: Class I, Division 2, Group B,C and D **NEC 505**: Class I, Zone 1, AEx db eb ib pxb IIC T3 resp. T4 **CEC Sec. 18**: Ex db eb ib pxb IIC T3 resp. T4 **TR CU**: II Gb T4 X

Technical data

Technology	expansion with piston
Method Triple Expansion Method	**compliant:** ASTM D5191, DIN EN 13016-1 ASTM D6378: Determination of Vapor Pressure (VPX) of Petroleum products, Hydrocarbons, and Hydrocarbon-Oxygenate Mixtures (Triple Expansion Method) ASTM D6377 (VPCR4)
	correlates: ASTM D4953*, ASTM D323, ASTM D5482, ASTM D1267, ASTM D6897
Measuring range	fuel up to 1.6 bar (23 psi) LPG up to 16 bar (232 psi)
Repeatability	≤ DIN EN/ASTM fuel typ. 1.5 mbar (0.02 psi) LPG typ. 50 mbar (0.73 psi)
Reproducibility	≤ DIN EN/ASTM
Measuring cycle	discontinuous, cycle time 7 min typically, depends on sample composition
Product streams	2 x sample, 1 x validation (additional hardware required)
Measuring temperature	37.8 °C (100 °F), up to 60 °C (140 °F) optional
– Electrical data	
Nominal voltage	230 V AC ± 10 %, 1 phase; 50 Hz; other ratings on request
Maximum power consumption	approx. 600 W
– Protection class	IP 54 (comparable with NEMA 13)
– Ambient conditions	
Ambient temperature	operation 5 to 40 °C (41 to 104 °F) storage 0 to 60 °C (32 to 140 °F)
Ambient humidity	operation 5 to 80 % relative humidity, storage 5 to 85 % relative humidity, – both are non-corrosive
Sample	
Quality	filtered 10 µm, moisture content max. 500 ppm, ≤ 200 cSt at inlet temperature
Properties	pour point 15 K below measuring temperature or cloud point temperature, for crude oil applications WAT needed
Consumption	approx. 2 to 10 l/h (depends on product) approx. 30 l/h for re-cooling of peltier device (not required if suitable coolant is available)
Pressure at inlet	min. 2 bar (29 psi) above measuring range standard: up to 8 bar (116 psi) optional: up to 18 bar (261 psi)
Temperature at inlet	Standard: T_M**< 45 °C: T_M**-40 K< T_{INLET} ***< max. 45 °C(113 °F) Optional: T_M**> 45 °C: T_M**-30 K< T_{INLET} ***< T_M**+5K variation of temperature should not exceed 0.2 K/min
Quality	humidity class 2 or better acc. to ISO 8573.1
– Coolant	controlled and supplied by chiller
Consumption	sample as coolant: 20 to 40 l/h or plant cooling water: 10 to 30 l/h for re-cooling of peltier device
Temperature	5 to 50 °C (41 to 122 °F), variation of coolant should not exceed 1.0 K/min
Pressure at inlet	2 to 7 bar (29 to 101.5 psi)
Quality	filtered 50 µm
Signal outputs and inputs	
Analog outputs	vapor pressure (others on request)
Digital outputs	Alarm, Ready/Valid
Digital inputs	Stream Selection, Validation Request, Reset
Electrical data of signal outputs and inputs	
Analog outputs	max. 8 (4 to 20 mA; 1000 Ω) active isolated on request
Analog inputs	4 to 20 mA; 160 Ω
Digital outputs	24 V DC; max. 0.5 A
Digital inputs	high: 15 to 28 V DC/low: 0 to 4 V DC
Auxiliary power supply output	24 V DC; max. 0.8 A
Control unit	
Central control unit	Industrial PC
Operating system	Windows 10 Enterprise LTSB
Control software	PACS
User interfaces	
Display	TFT display with touch function 1366 x 768 pixel
Keyboard	virtual keyboard, controlled via TFT display with touch function
Connections	
Tube fittings	Swagelok® 6 mm/12 mm/18 mm other fittings on request
Vent/Drain	open to atmosphere backpressure on request
Weight and dimensions	
Weight	approx. 250 kg
Dimensions (W x H x D)	approx. 1191 x 1930 x 710 mm
Space requirements	right: 150 mm/left: 100 mm
Optional interfaces	
Analog outputs	on request
MODBUS interface	MODBUS/RTU via RS485 or RS422 or FOC is, MODBUS/TCP via FOC is
Remote access	via Ethernet (VDSL or FOC is)