

Datenblatt | Data sheet

压力变送器 PrimAtü10



通过 PrimAtü 10 压力变送器，根据所选测量范围，可检测并显示正负压差，直至最小压力范围。压力测量通过压阻式硅传感器实现，该传感器将检测到的压差转换为与压力成比例的输出信号。输出选项可选择光学显示的显示屏或数字接口。根据型号不同，变送器可采用 24 VDC/VAC 或 230 VAC 电源供电。显示和通过接口输出的压力单位可在 hPa、Pa、mbar 和 psi 之间选择。压力变送器可通过两个按钮进行校准：一个按钮用于零点校准，另一个用于幅度校准。

Pressure transducer PrimAtü 10 can detect and display differential, both positive and negative pressure variations to lowest pressures, depending on the selected Measurement range. The pressure is measured by means of a piezoresistive silicon sensor, which converts the detected differential pressure into a pressure-proportional output signal. As an output, one can optionally choose between a display for visual indication and a digital interface. The transducer can either be operated with a 24 VDC/VAC or a 230VAC supply voltage, depending on the model.

It is possible to select the pressure unit between hPa, Pa, mbar, psi that is displayed and output via the interface. The pressure transducer can be adjusted using two buttons. A button is used to adjust the zero point, and another to adjust the amplitude.

应用领域

PrimAtü 10 型压差变送器适用于检测非腐蚀性气体的过压、负压和压差，典型应用包括：暖通空调技术、洁净室技术、微压技术、物位测量、过滤技术、流量测量

Applications

PrimAtü 10 differential pressure transducers are suitable for detecting over-, negative and differential pressure variations of non-aggressive gases. The pressure transducer is typically used in the following applications:

Heating, ventilation and air-conditioning technology, Clean room technology, Draft pressure technology, Fill level measurement, Filter technology, Flow measurement.

技术参数 | Technical Data

常规参数 General			
测量原理 Measurement principle	压阻式测量系统 Piezoresistive Measurement system		
测量介质 Measured medium	非腐蚀性气体 Non-aggressive gasses		
接触介质材料 Medium-affected substances	Si, Al, Au, Cu, Ni, Pd, EP, PC, ABS		
测量数据 Measurement data			
测量范围 Measurement range	0 ... 0,3 - 1000 hPa 单向 / 双向unidirectional /bidirectional (订购时需指定 specify when ordering) **		
整体精度 Overall accuracy	1,0 % 满量程 FS * 0,5 % 满量程 FS* 可选 0,2 % 满量程 FS* 可选(测量范围≥ 10 hPa for ranges ≥ 10 hPa)		
长期稳定性 Long-term stability	≤ 0,5 % (满量程/年 (FS/year)		
温度漂移 Temperature drift	≤ 0,03 % (满量程/ K) (FS/K)		
过载限制 Overload limits	最大测量范围 Max. measurement range	过载限制 Overload limit	爆破压力 Burst pressure
	≥ 0,3 hPa bis ≤ 2,5 hPa	70 hPa	200 hPa
	> 2,5 hPa bis ≤ 10 hPa	100 hPa	200 hPa
	> 10 hPa bis ≤ 25 hPa	300 hPa	400 hPa
	> 25 hPa bis ≤ 100 hPa	800 hPa	1000 hPa
	> 100 hPa bis ≤ 466 hPa	1500 hPa	3000 hPa
	> 466 hPa bis ≤ 1000 hPa	3000 hPa	5000 hPa
电气参数 Electrical data			
电源 Power supply	24 VDC (± 10 %) 24 VAC (± 20 %) 230 VAC (± 10 %) 可选 optional Versorgungseinfluss Supply influence < 500 ppm v. EW/of EV		
输出信号 Output signal	订购时指定: specify when ordering: ** 0 - 20 mA (负载 ≤ 500 Ω) (Load resistor ≤ 500 Ω) 4 - 20 mA (负载 ≤ 500 Ω) (Load resistor ≤ 500 Ω) 0 - 10 V (负载≥ 2 kΩ) (Load resistor ≥ 2 kΩ) 负载影响≤ 0,3 % Influence of load resistor ≤ 0.3 %		
时间常数 Time constant	50 - 4000 ms (订购时指定 specify when ordering) **		
数字接口 Digital interface	RS485 Modbus		
功耗 Power consumption	4,00 VA		
防护等级 Protection class	II		

* 精度描述了传感器输出信号与施加压力值之间的最大允许测量偏差。该精度包括由线性误差、滞后误差和重复性误差引起的测量误差。FSM 的压力变送器经过零点校准和幅度调整，从而补偿了这两种误差¹。因此，规定的精度包括室温下的最大误差。

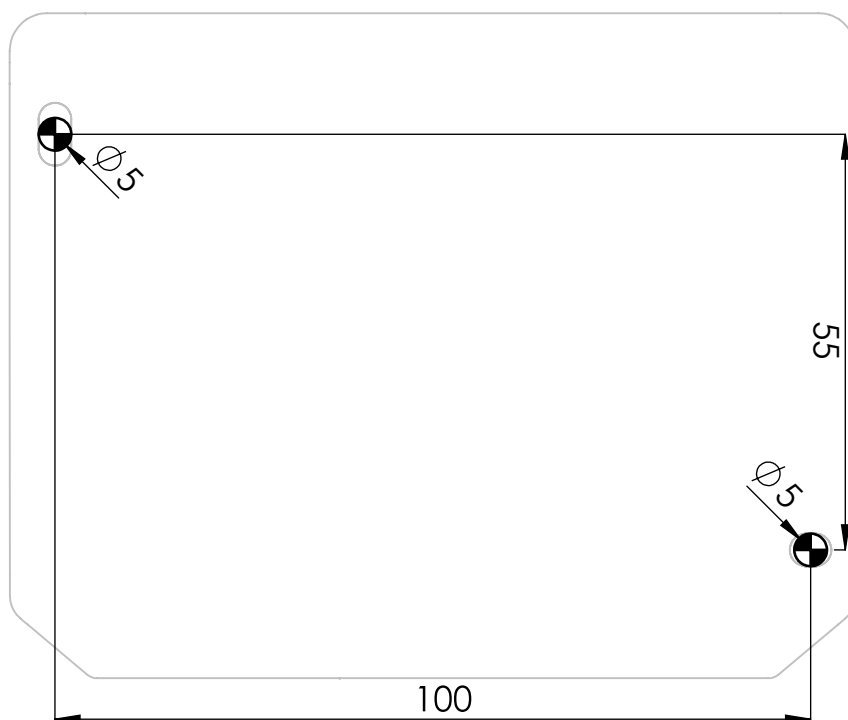
** 配置不能由用户更改，而只能由 FSM AG 进行更改。

* The accuracy describes the maximum permissible measurement deviation of the sensor output signal from an applied pressure value. The accuracy includes measurement errors due to linearity errors, hysteresis errors and repeatability error. Pressure transducers from FSM are being subjected to a zero point calibration and an amplitude adjustment. Both errors are thereby compensated. The specified accuracy therefore includes the maximum error at room temperature.

** Configuration can not be changed by the user, but only by FSM AG.

环境条件 Ambient conditions																					
运行条件 Operating conditions		温度 Temperature 10 °C - 50 °C 湿度 Humidity ≤ 85 % RH (无冷凝 non-condensing)																			
存储条件 Storage conditions		温度 Temperature -10 °C - 70 °C 湿度 Humidity ≤ 85 % RH (无冷凝 non-condensing)																			
外壳参数 Housing																					
外壳材料 Housing material		PC-ABS V0																			
尺寸 Dimensions		112 x 88 x 46 mm (宽 x 高 x 深) (W x H x D)																			
电缆接头 Cable glands		<table><tr><td>电 源 Power Supply</td><td>RS485 Modbus</td><td>电缆接头 Cable glands</td></tr><tr><td>24 VAC/VDC</td><td>–</td><td>1 x M16 x 1,5 mm</td></tr><tr><td>24 VAC/VDC</td><td>x</td><td>2 x M12 x 1,5 mm</td></tr><tr><td>230 VAC</td><td>–</td><td>2 x M12 x 1,5 mm</td></tr><tr><td>230 VAC</td><td>x</td><td>3 x M12 x 1,5 mm</td></tr><tr><td colspan="3">Optional: 1 x M16 x 1,5 mm + 1 x M12 x 1,5 mm</td></tr></table>		电 源 Power Supply	RS485 Modbus	电缆接头 Cable glands	24 VAC/VDC	–	1 x M16 x 1,5 mm	24 VAC/VDC	x	2 x M12 x 1,5 mm	230 VAC	–	2 x M12 x 1,5 mm	230 VAC	x	3 x M12 x 1,5 mm	Optional: 1 x M16 x 1,5 mm + 1 x M12 x 1,5 mm		
电 源 Power Supply	RS485 Modbus	电缆接头 Cable glands																			
24 VAC/VDC	–	1 x M16 x 1,5 mm																			
24 VAC/VDC	x	2 x M12 x 1,5 mm																			
230 VAC	–	2 x M12 x 1,5 mm																			
230 VAC	x	3 x M12 x 1,5 mm																			
Optional: 1 x M16 x 1,5 mm + 1 x M12 x 1,5 mm																					
重量 Weight		max. 280 g																			
显示 Display		可选: LCD-Display 50 x 15 mm, 4-digit																			
防护类型 Protection type		IP65																			
压力接口 Pressure connections		Ø 6,6 x 10 mm																			
安装方式 Installation		墙面螺丝固定 Screw fitting EN 50022 导轨安装 Top-hat rail EN 50022																			

钻孔模板 | [Drilling template](#)



型号编码 | Model Code

		Bsp.	U	-1000	-Pa	-1	-1	-2	-1	-1	-50	-1.
测量范围方向 Measuring range direction	单向 unidirectional 双向 bidirectional	U B										
测量范围 Measuring range	所需单位的测量范围，例如 30 hPa 时为 “-30 ”，30 Pa 时也为 “-30 ” Measuring range in the desired unit, e.g. at 30 hPa „-30“ and at 30 Pa also „-30	-XXXX										
单位 Unit	Pa hPa mbar psi	-Pa -hPa -mbar -psi										
电源电压 Supply voltage	22...27 VAC (50 Hz) / 19...31 VDC 207...253 VAC (50 Hz)	-1 -2										
输出信号 Output voltage	0...10 V 4...20 mA 0...20 mA	-1 -2 -3										
数字接口 Digital interface	无 none RS485 (Modbus)	-1 -2										
LC 显示 LC Display	无 none 有 yes	-1 -2										
DIN 导轨支架 DIN rail bracket	无 none 有 yes	-1 -2										
时间常数 Time constant	值在50-4000毫秒之间 Value between 50-4000 ms	-XX										
精确度 Accuracy	0,2% 量程 FS 0,5% 量程 FS 1% 量程 FS	-2 -5 -1.										

示例 | Example

型号编码: U-1000-Pa-1-1-2-1-1-50-1.

配置:

压力测量传感器 PrimAtü 10

测量范围: 0... 1000 Pa

精度: 1 % F.S.

过载极限: 10000 Pa

供电电压: 22...27 VAC (50 Hz) / 19...31 VDC

输出信号: 0... 10 V

可选: RS485 (Modbus)

Model code: U-1000-Pa-1-1-2-1-1-50-1.

Configuration:

Pressure Transmitter PrimAtue 10

Measurement range: 0... 1000 Pa

Accuracy: 1 % F.S.

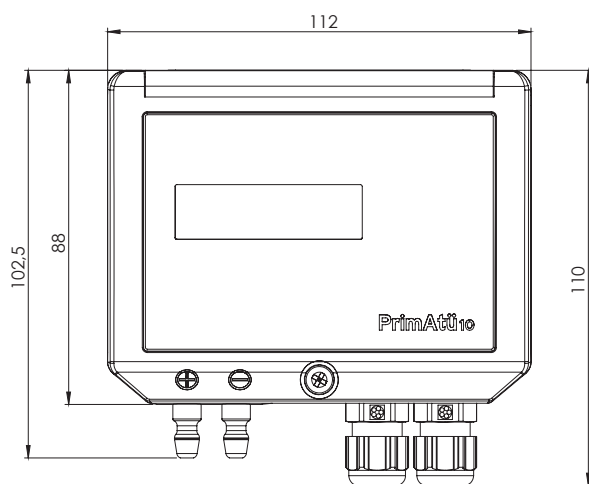
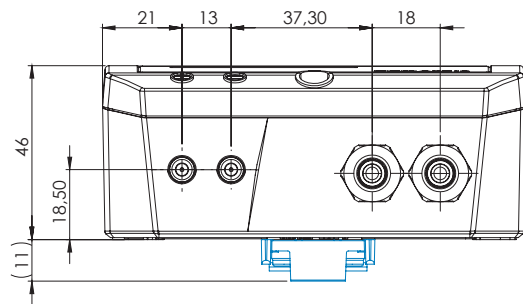
Overload limit: 10000 Pa

Power supply: 22...27 VAC (50 Hz) / 19...31 VDC

Output signal: 0... 10 V

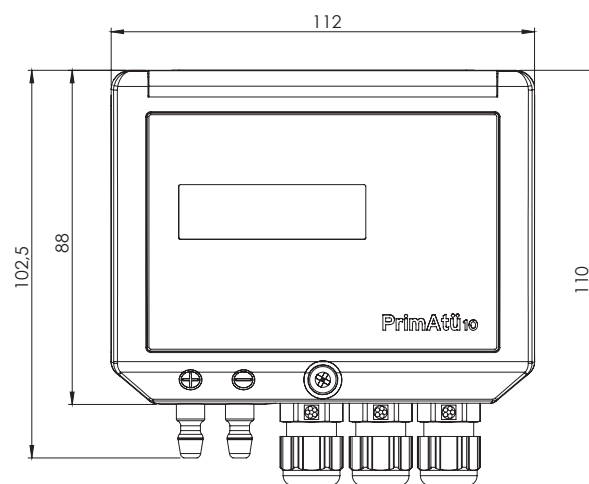
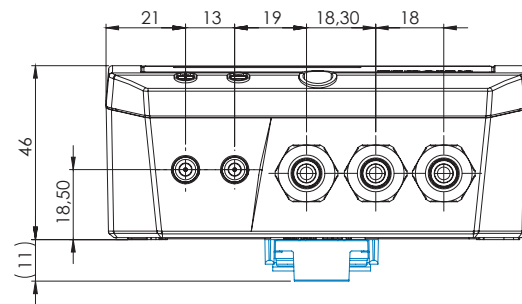
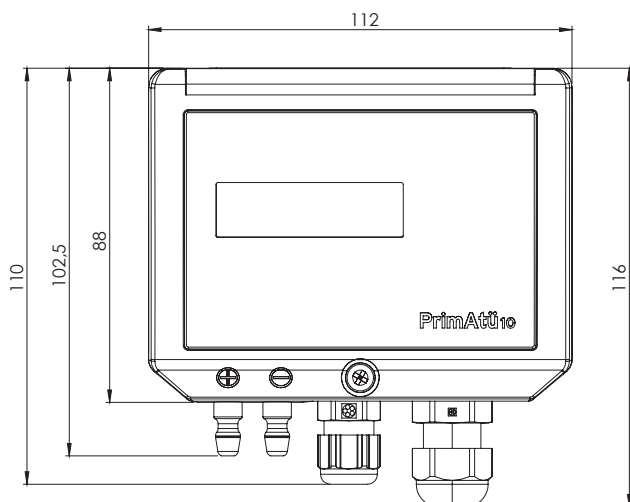
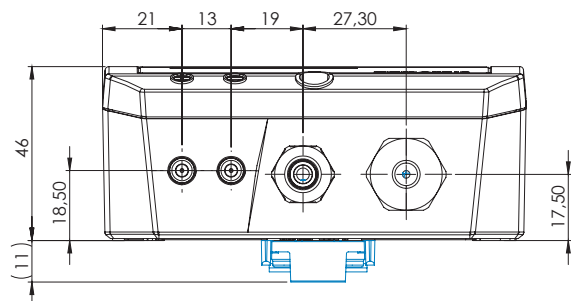
Option: RS485 (Modbus)

比例图和接线图 | Scale drawing and wiring diagram



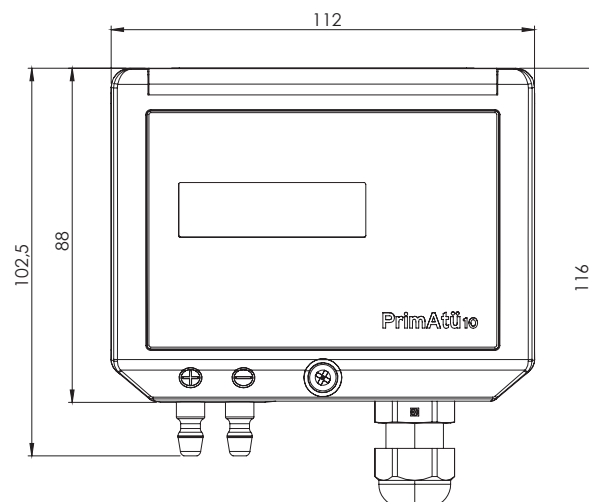
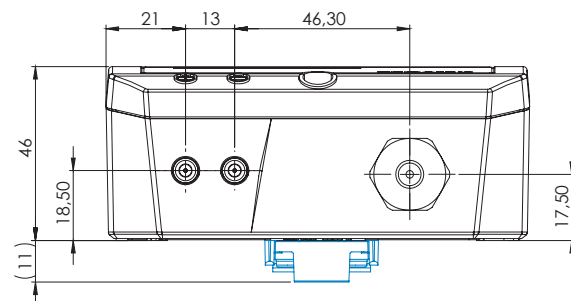
2 x M12 x 1,5 mm

1 x M16 x 1,5 mm + 1 x M12 x 1,5 mm



3 x M12 x 1,5 mm

1 x M16 x 1,5 mm



从EC符合性声明中提取

我们在此以自身名义声明 PrimAtü 10 产品符合以下指令和协调标准的要求，因此也符合相关规定：

2014/35/EU	低电压指令
2014/30/EU	电磁兼容指令
2011/65/EU	RoHS指令
EN 61326-1:2013	用于测量、控制和实验室使用的电气设备-EMC要求-第1部分:一般要求
EN 61000-3-2:2014	电磁兼容 (EMC) -- 第 3 - 2 部分：谐波电流发射限值（设备每相输入电流 $\leq 16\text{A}$ ）
EN 61000-3-3:2013	电磁兼容性(EMC)－第3-3部分:限值－公共低压供电系统中电压变化、电压波动和闪烁的限制，适用于每相额定电流 $\leq 16\text{ A}$ 且不受条件性连接影响的设备。
EN 50581:2012	关于限制有害物质的电气和电子产品的评估技术文件

该设备标有CE标志。

Extract from the EC Declaration of Conformity

We hereby declare under our sole responsibility that the PrimAtü 10 product complies with the requirements of the following Directives and harmonised standards and is therefore in line with the provisions:

2014/35/EU	Low-voltage Directive
2014/30/EU	EMC Directive
2011/65/EU	RoHS Directive
EN 61326-1:2013	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements
EN 61000-3-2:2014	Electromagnetic compatibility (EMC) - Part 3-2: Limits for harmonic current emissions (equipment input current $\leq 16\text{ A}$ per phase)
EN 61000-3-3:2013	Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current $\leq 16\text{ A}$ per phase and not subject to conditional connection
EN 50581:2012	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

The device is labeled by the CE mark.