ModulSensor System

Temperature, Pressure, Level, Flow and Humidity

Quality by tradition

ModulSensors

The measurement of temperature, pressure, humidity, flow or fill level is a core element in numerous industrial applications for process monitoring and control. Strict requirements regarding the quality of the manufactured products, e.g., in the pharmaceutical, foodstuffs or automotive industry, determines the specification of the sensors. To deliver consistant results at all times, they must remain reliable, precise, robust, but also intelligent under the most varied operation conditions.

To meet these strict requirements, we present our new ModulSensor System. Reliable and rugged thanks to stainless steel connections and a housing made of glass-fibre-reinforced plastic; precise and intelligent with equipment features that can be adapted to customer needs.

As a result, it is possible to use a module to assemble cost-effective limit switches, transmitters with HART signals, wireless transmitters, or fully-equipped sensors with a display and HART signals. In addition, all sensors can be supplied with industry-standard electrical plug connectors.

Equipped in this way, our ModulSensors are the optimum solution for all your measuring tasks.

Four ModulSensor Variants

1. Transmitter version
2. Display version
3. Limit switches
4. Wireless transmitter

Overview of Variants

❶ Transmitter Version

The transmitter version can be used as a cost effective measuring device by ensuring the raw signals are converted to an analogue signal and HART protocol. This allows precise measurements where a process display is not required.

- Signal transmission not susceptible to noise or interference
- Input: RTD, 0...1000 mV, resistance
- Output: 4...20 mA, 2-wire HART
- HART-programmable
- Wide supply voltage range

❷ Display Version

The loop powered LED display head is versatile and user friendly and can be used in all areas where a display is necessary. Easily configured via the three capacitive buttons and 4-digit 7-segment display, it also has the ability to rotate up to 300 ° and adjust the orientation by 180 ° for overhead installations.

- 4-digit, 7-segment digital display
- Output: 4...20 mA, 2-wire HART
- 2 switching outputs PNP, 30 VDC, 200 mA
- HART-programmable
- Peak value memory min/max
- Can be linearised
- Menu navigation according to VDMA 245741-4

❸ Limit Switch

Limit switch variants are cost-effective basic equipment which have simple on-site switch point adjustment, high switching accuracy, rapid response time and easy assembly. Now available for several physical measurements covering a wide range of industrial applications.

- High switching accuracy with swift response times
- Output: 4 or 20 mA, 2-wire, open collector
- Switching output NPN, 30 VDC, 200 mA
- Output signal to PLC
- Switching point adjustment with modem or digital switch on the device
- Visual indication of switching status by LED

❹ Wireless Transmitter

With help of lithium-ion technology, wireless transmitters are able to operate as fundamentally self-sufficient systems in battery mode. Their internal antenna gives them a range of up to 50 m.

As an option, the equipment can be adapted on a modular basis: an external power supply charges the internal batteries or guarantees extended operating times. The transmission range can be increased to a maximum of 200 m by adding the optional connection and external antenna.

- 200 m Range (with optional external antenna)
- Repeater for greater ranges
- Output: 4...20 mA, 0...10V, RS232, RS485

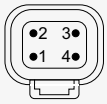
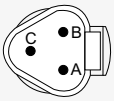
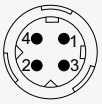
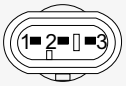
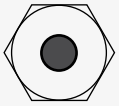
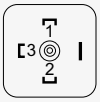
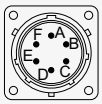
	Temperature	Pressure	Level	Flow	Humidity
❶ Transmitter Version	✓	✓	✓		
❷ Display Version	✓	✓	✓	✓	✓
❸ Limit Switch	✓	✓			
❹ Wireless Transmitter	✓	✓	✓		

Level

Type MSLUD / MSLSW

Version	Transmitter Version	Display Version		Wireless Transmitter
Type	MSLST	MSLSD	MSLUD	MSLSW
Description	Standard	Standard	Ultrasonic	Standard
Input	Level of non-aggressive fluids		Level of fluids and solids	Level of non-aggressive fluids
Output	4...20 mA, 2-wire, HART configuration via HART interface/software	4...20 mA, 2-wire, HART configuration via HART interface/software, Limit contacts: 2 x switching output PNP, 30 VDC, 200 mA		Radio transceiver (868/915 MHz)
Measuring range	100...1000 mm	100...1000 mm	150...3500 mm	
Power supply	12...40 VDC	12...40 VDC		Rechargeable Lithium-Ion battery 3.6 V / 2600 mAh
Display	---	Display 4-digit, adjustable via 3 keys		LED green/red for status signal
Process connection	G¾, G1		M12 x 1, M18 x 1.5, M30 x 1.5	G¾, G1
Electrical connection	See options on page 10			M12 x 1 only for recharge / supply
Material	Housing and cover PBT GF30, Process connection stainless steel 1.4571	Display unit polycarbonate, housing PBT GF30, Process connection stainless steel 1.4571		Housing PA6.6 GF30, lens PMMA, Process connection stainless steel 1.4571
Degree of protection	Minimum of IP65, electronic completely encapsulated			

Options

Electrical connections*	
Plug M12 x 1, 8-pole (optional 5- or 4-pole)	
Plug Deutsch DT04-4P, 4-pole	
Plug Deutsch DT04-3P, 3-pole	
Plug DIN Bajonett, 4-pole	
Plug Super Seal 1.5, 3-pole	
Cable direct outlet, x-pole	
Valve plug DIN EN175301-803, 4-pole	
MIL plug Amphenol PT 028-10, 6-pole	

* some plugs are not suitable for all ModulSensors

Accessories

HART Modem / Wireless Transmitter

Technical data			
Type	MSUSBM	MSUSBW	MSMUTW
Description	HART Modem	USB Transceiver	Rail Transceiver
Input	USB 2.0 (plug type A)	HF	HF
Output	HART (alligator clip)	USB	0(4)...20 mA, 0...10 V, RS 232
Frequency range	---	868/915 MHz ISM band	868/915 MHz ISM band
Function	---	Transceiver	Transceiver
Transmission power	---	3.5 mW	3.5 mW
Range of transmission	---	500 m	500 m
Housing (Degree of protection)	ABS, 105 x 66 x 20 mm (IP20)	Plastic housing ABS, black	Plastic housing PA66 GF30, DIN rail 22.5 mm
Power supply	5 V via USB-Port		24 VDC
Electrical connection	USB-Plug Type A	---	---
Features	USB interface for PC configuration and calibration of HART devices	MS software up to 64 channels	Optional antenna with 2 m cable for external installation