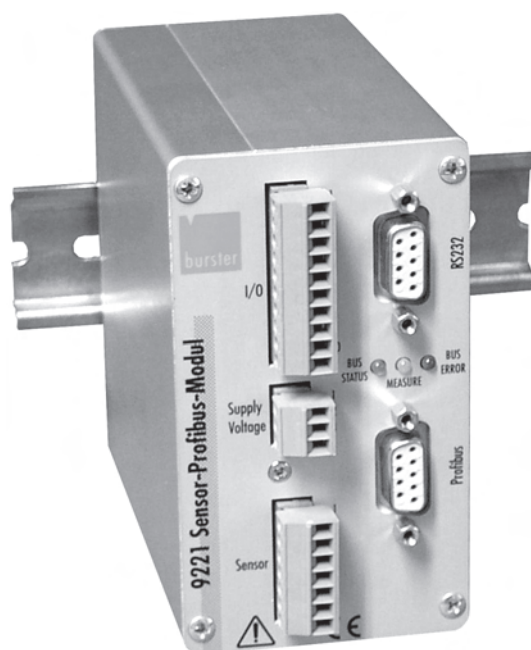


# Sensor Profibus Module for strain gauge and potentiometric sensors and analog standard signals

Model 9221

|               |           |
|---------------|-----------|
| Code:         | 9221 E    |
| Manufacturer: | burster   |
| Delivery:     | ex stock  |
| Warranty:     | 24 months |



- For force-, pressure- or torque measurement with strain gage sensors, potentiometric displacement and angle sensors or standard signals  $\pm 10\text{ V}$
- Resolution 16 bit, sample rate up to 1 kHz
- 2 freely configurable inputs e.g. reset, tare, etc.
- Simple configuration via RS232 interface
- Mean value, min/max-memory, setpoint values, zeroing via Profibus
- Networking via Profibus DP up to 12 Mbaud
- DPV1-mode for parameterizing and backup via Profibus
- Potentialfreier Eingang über Differenzverstärker

## Application

The newly developed sensor Profibus module model 9221 is predestined for integration of various analog sensor output signals into complex, networked and peripheral automation structures. This module finds its fields of application in the industrial automation technology as well as the test stand technology based on its secure and reliable transfer mode, the fast transfer speed and its simple construction.

The inputs (e.g. PLC signal gage) and outputs in addition to the external control allow a zeroing by trigger via proximity switch or fast alerting on passing of setpoint values.

Industrial type connection and mounting techniques enable the user the adaption and integration in the existing mechanical and electrical environment.

The excellent quality of measurement together with the high grade capture of mean values also enable the application in research and development.

The use of standardized Profibus protocols makes the connection an easy task for the programmer.

Specific applications are found e.g. in:

- Complex gear and engine test stands
- Weight definition in high-rack facilities
- Automotive industry
- Special machinery engineering
- Packing industry
- Manufacturing technology
- Capture of various mechanical and physical values in test stands

## Description

The universal sensor Profibus module is well-suited for measuring mechanical values such as e.g. force, torque, pressure, acceleration, displacement and angle. Strain gage, potentiometric and standard signals may be captured and processed without problems. A powerful 16 bit A/D converter ensures a precise and fast processing of analog sensor signals.

The module itself features a stable and precise sensor supply voltage. The calibration and configuration data are memorized on an EEPROM, protected against zero voltage.

The user friendly configuration software makes a simple conditioning of input signals and the setup of parameters on the module in regards to the PLC and Profibus parameters possible. The version DPV1 enables the parameterization and backup function via Profibus. Functions such as the arithmetical calculation of mean values, input signal filtering, zero adjustment, min/max-memory and setpoint values can be realized with a speed up to 12 Mbaud via Profibus.

Two potential-free and freely configurable digital inputs are available for the external PLC-control (e.g. erase min/max-memory, tare function). Two digital outputs can be defined as local setpoint value switches for alerting functions, for example.

The bus-sided control of the sensor lines on fractures or short-circuits and the galvanic separation between the Profibus-ASIC and the Profibus connector belong to the standard features.

The visualization of operating conditions such as bus connection, sensor-sided errors or active state of module are realized by three LEDs.

**Technical data**

**Strain gauge DMS**

Bridge resistance: 120 Ω - 5 kΩ  
 Connection system: 6-wire  
 Sensitivity: < 1 mV/V ... 3 mV/V  
 Semiconductor strain gauge sensitivity: 1 mV/V ... 4 000 mV/V  
 Excitation voltage: 2.5 V / 5 V / 10 V  
 Excitation current: max. 50 mA  
 Input impedance: > approx. 1 GΩ

**Transmitter**

Standard signal: 0 V ... ± 10 V  
 Input impedance: > approx. 1 GΩ

**Potentiometer**

Resistance: 100 Ω - 100 kΩ  
 Excitation voltage: 2.5 V / 5 V / 10 V  
 Excitation current: max. 50 mA

**General amplifier data**

Power supply: 20 - 36 VDC oder 14 - 26 VAC  
 Accuracy: < 0.03 % F.S.  
 Temperature coefficient: < 50 ppm/K  
 Capacity: max. 6 V  
 Frequency response: approx. 2 kHz (- 3 dB)  
 Internal fuse: Integrate reversible overcurrent-, overvoltage- and pole-protection

Galvanic separation to profibus: 500 V  
 Operating temperature: 0 ... + 60 °C  
 Stocking temperature: - 30 ... + 85 °C  
 Electromagnetic compatibility: like EMV guideline 89/336/EWG

**Housing (IP20)**

Material: aluminium  
 Dimensions (WxHxD): 60 x105 x120 mm  
 Weight: approx. 0.5 kg  
 Protection class (EN 60529): IP 20, optional IP 65  
 Mounting method: Snatch attachment  
 Mount rails: 35 mm on DIN EN 50022  
 Cable diameter: max. 1.5 mm<sup>2</sup> (AWG 16), fine wire

**Connections (IP20)**

A/D transformation: plugged screw clamps  
 Sensor connection: plugged screw clamps  
 Input / Output: plugged screw clamps  
 Configuration by serial interface: Sub-Min-D 9 pin  
 Profibus: Sub-Min-D 9 pin

**Housing (IP65)**

Material: cast aluminium  
 Dimensions (WxHxD): 160 x120 x80 mm  
 Weight: approx. 1 kg  
 Protection class: IP 65  
 Mounting method: screw mounting

**Signal process**

Supply voltage: plugged  
 Measuring rate: >1 kHz

**Connections (IP65)**

Supply voltage: PG 7 connection  
 Sensor connection: PG 7 connection

Input / Output PG 7-/ PG 9 connection  
 Configuration by serial: Sun-Min-D 9 pin  
 Profibus: M 12-connector 5 pin

**Profibus-DP**

Baudrate: automatic selection 9.6 kBaud ... 12 MBaud  
 Number of devices at the profibus: up to 32 participants without repeater  
 up to 127 participants with repeater

Potential: potential-free  
 Functions: average value, filtering, tara, min/max-memory, limit values, evaluation status, sensor test

**Checking of the electrical measuring system by shunt calibration:**

59, 80, 100 kΩ - calibration

**Analog output**

Function: process status  
 Monitor output: approx. ± 8 V

**Digital output**

Setpoint: 2 outputs, Open-E.p. switched, 24 VDC potential-free, output up to I<sub>max</sub> = 200 mA  
 A1 >  
 A2 >  
 A3 =

**Digital inputs**

Input: 3 free configurable inputs, potential-free  
 Logic: SPS level DIN EN 61131-2, n-switched, p-switched

**Filter adjustments**

Adjustable frequency response: 0; 5; 10; 25; 50; 100; 200; 400 Hz

**Visualize**

LED green: BUS connection correctly  
 LED yellow signaling: sensor Profibus module active  
 LED red / red signaling: Bus error / sensor-line-break indicate

**Order Information**

**Sensor Profibus module** Model 9221  
**Sensor Profibus module 9221** Model 9221-IP65  
 in IP-65 protection class  
**Calibration of entire measuring chain** Model 9221-ABG  
 Consisting of sensor and sensor Profibus module 9221

**Accessories**

**Connecting plug** Sub-Min-D 9 pin Model 9900-V181  
**Connector plug** M12, 5 pin Model 9900-V225  
**Mount rail fixing kit for IP65** Model 9221-Z001  
**Configuration software** Model 9221-P001  
 (in scope of delivery contained)  
**DMS simulator** (see data sheet 76-9405) Model 9405  
**Rail mounting transformer** Model 9244-Z001  
 230 VAC / 24 VDC 250 mA  
**Data cable** for the connection of sensor Profibus module 9221 and PC Model 9900-K333

