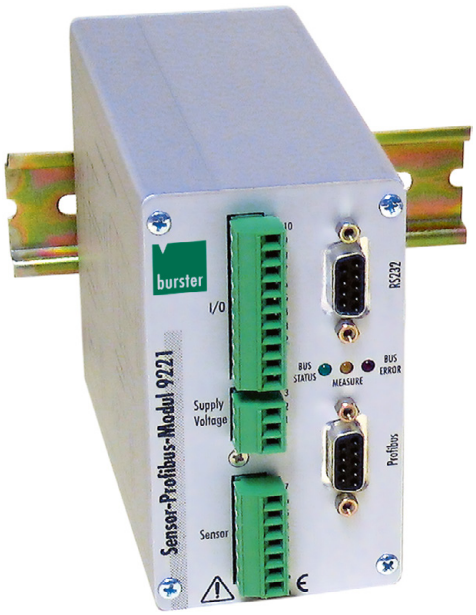
Sensor Profibus Module

For strain gauge and potentiometric sensors and analog standard signals

Model 9221

Code:	9221 EN
Delivery:	on request
Warranty:	24 months



- **For force, pressure or torque measurement with strain gauge sensors, potentiometric displacement and angle sensors or standard signals ± 10 V**
- **Resolution 16 bit, sample rate up to 1 kHz**
- **2 free configurable inputs e.g. reset, tare, etc.**
- **Simple configuration via RS232 interface**
- **Networking via Profibus DP up to 12 MBaud**
- **Mean value, MIN/MAX memory, set point values, zero compensation via Profibus**
- **DPV1 mode for parameterizing and backup via Profibus**
- **Potential-free input via differential amplifier**

Application

The newly developed sensor Profibus module model 9221 is predestined for the integration of various analog sensor output signals into complex, net worked and peripheral automation structures. This module finds its fields of application in the industrial automation technology as well as the test rig technology based on its secure and reliable transfer mode, the fast transfer speed and its simple construction.
The inputs (e.g. PLC signal gauge) and outputs in addition to the external control allow a zero compensation by trigger via proximity switch or fast alerting on passing of set point 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 rigs
- ► Weight definition in high-rack facilities
- ► Automotive industry
- ► Special equipment construction
- ► Packing industry
- ► Manufacturing technology
- ► Capture of various mechanical and physical values in test rigs

Description

The universal sensor Profibus module is well-suited for measurement of mechanical values such as e.g. force, torque, pressure, acceleration, displacement and angle. Strain gauge, 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 excitation 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 with 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 limits setpoint values can be realized with a speed of 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 limits switches for alerting functions.
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.
The DIN standard mounting rail enables an easy installation into the control cabinet.

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Technical Data

Connectable sensors

Strain gauge

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

Voltage metering

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 excitation:	20 - 36 VDC or 14 - 26 VAC
Accuracy:	< 0.03 % F.S.
Temperature coefficient:	< 50 ppm/K
Capacity:	max. 6 VA
Frequency response:	approx. 2 kHz (- 3 dB)
Internal fuses:	Integrated reversible overload, overvoltage and pole protection
Galvanic separation to Profibus:	500 V
Operating temperature:	0 ... + 60 °C
Stocking temperature:	- 30 ... + 85 °C
Electromagnetic compatibility:	acc. to EMV guideline 89/336/EWG

Housing (IP20)

Material:	Aluminium
Dimensions [W x H x D]:	60 x 105 x 120 [mm]
Weight:	approx. 0.5 kg
Protection class:	IP20
Mounting method:	snap-on attachment
Mount rail:	35 mm acc. DIN EN 50022
Cable diameter:	max. 1.5 mm² (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 [W x H x D]:	160 x 120 x 80 [mm]
Weight:	approx. 1 kg
Protection class:	IP65
Mounting method:	screw mounting

Connections (IP65)

Supply voltage:	PG 7 connection
Sensor connection:	PG 7 connection
Input / Output:	PG 7/PG 9 connection
Configuration by serial:	Sub Min D 9 pin
Profibus:	M 12 connector 5 pin

Signal process

A/D transformation:	16 Bit
Measuring rate:	>1 kHz

Profibus

Baud rate:	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 by shunt calibration:	59, 80, 100 kΩ - calibration

Analog output

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

Digital outputs

Set point:	3 outputs, Open-E.p. switched, 24 VDC, potential-free, output up to I_{max} = 200 mA

Digital inputs

Input:	2 freely 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
No filter:	1 kHz

Display

LED green:	Bus connection correct
LED yellow signaling:	sensor Profibus module active
LED red / red signaling:	Bus error / sensor-line-break indication

Order Information

Sensor Profibus module **Model 9221**
inclusive GSD file and configuration software

Sensor Profibus module **Model 9221-IP65**
in IP65 protection class

Calibration of entire measuring chain **Model 9221-ABG**
This service contains the alignment of the sensor Profibus module to the sensor ordered with the module or to customer sensor data (e.g. characteristic, excitation voltage, or sensor test certificate, Profibus Baud rate).

Accessories

Connecting plug **Model 9900-V181**
for connection to PLC, 9 pin, Min-D

Connecting plug **Model 9900-V225**
for connection to PLC for IP65 version, 5 pin, M 12

Mating connector **Model 9900-V525**
socket for connection of several modules to the PLC for IP65 version, 5 pin, M 12

Mount rail fixing kit for IP65 version **Model 9221-Z001**

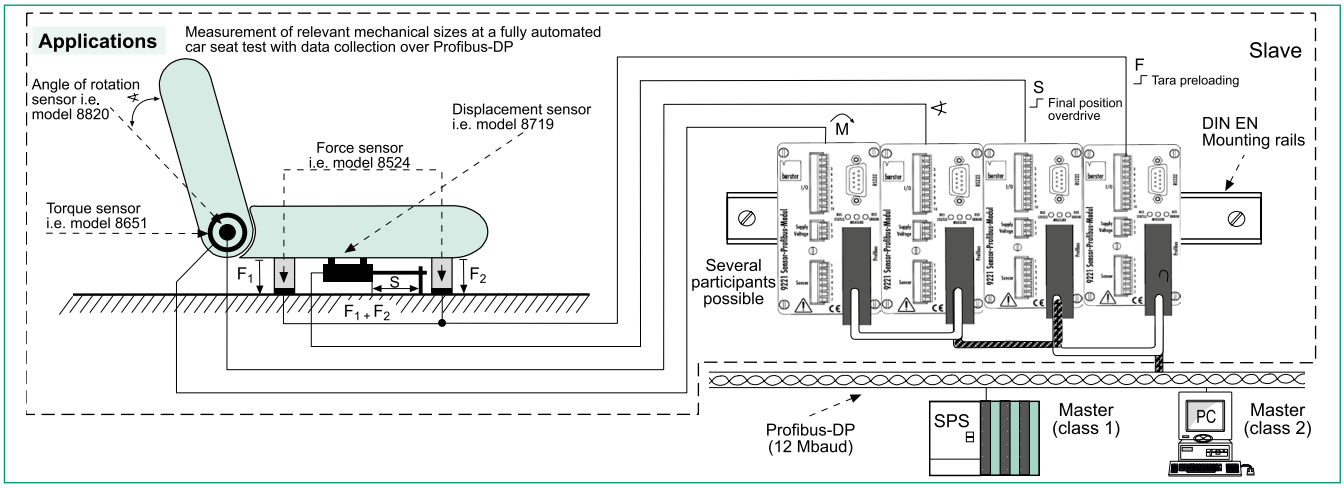
Configurations software **Model 9221-P001**
in scope of delivery contained

DMS simulator (see data sheet 76-9405) **Model 9405**

Module mains adapter **Model 9244-Z001**
230 VAC / 24 VDC 250 mA

Data cable **Model 9900-K333**
for the connection of sensor Profibus module 9221 and PC

The CAD drawing (3D/2D) for this device can be imported online directly into your CAD system.
Download via www.burster.com or directly at www.traceparts.com. For further information about the burster traceparts cooperation refer to data sheet 80-CAD-EN.



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