

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
Issue:	1.7.2004



NEW
preliminary data sheet

- For force-, pressure- or torque measurement with strain gage sensors, potentiometric displacement and angle sensors or standard signals $\pm 10\text{ V}$
- Resolution 14 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 possible
- DPV1-mode for parameterizing and backup via Profibus

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 14 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.

The DIN rail mounting allows quick and simple mounting in switchboard cabinets.

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 / 5V / 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 VA
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

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 ² (AWG 16), fine wire

Signal process

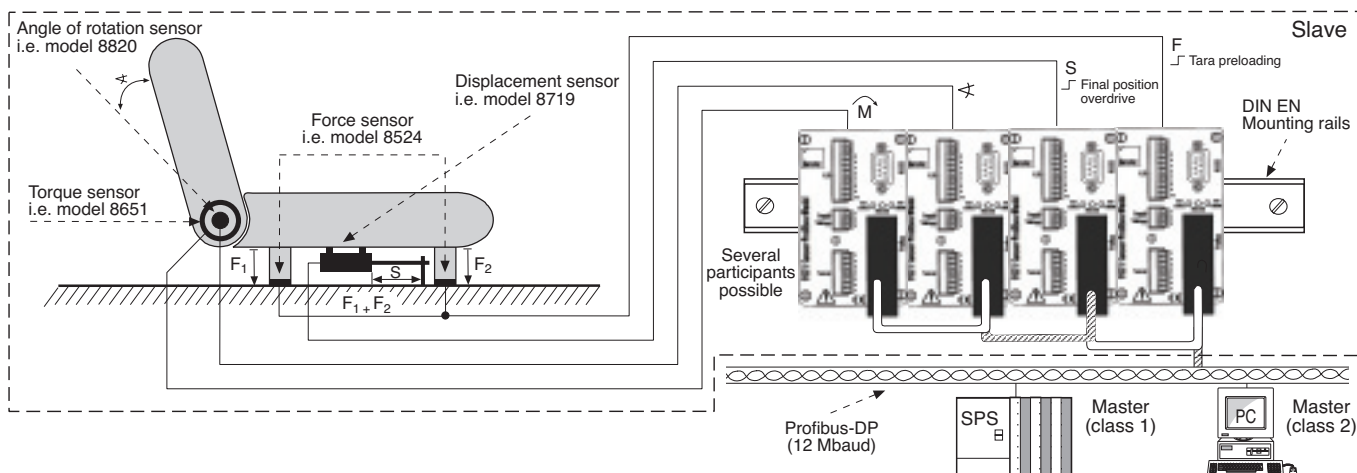
A/D transformation:	14 bit
Measuring rate:	>1 kHz

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

Applications

Measurement of relevant mechanical sizes at a fully automated car seat test with data collection over Profibus-DP



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 _{max} = 200 mA
	A1 >
	A2 >
	A3 =

Digital inputs

Input:	2 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

Connections

Supply voltage:	Plugged in screw clamps
Sensor connection:	Plugged in screw clamps
Input / Output:	Plugged in screw clamps
Configuration by serial interface:	Sub-Min-D 9 pol.
Profibus:	Sub-Min-D 9 pol.

Order Information

Sensor Profibus module Model 9221

Sensor Profibus module 9221 in IP-65 protection class Model 9221-IP65

A riser package consisting of Model 9221-V0001
 - Sensor Profibus module
 - Configuration software (connection over RS232) incl. GSD-File, Profibus connector Sub-Min-D and data cable model 9900-K333
 This compilation represents a particularly favorable price and complete unit, which is necessary to configure the first measuring system.

Calibration of entire measuring chain Model 9221-ABG
 Consisting of sensor and sensor Profibus module 9221

Accessories

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

Rail mounting transformer 230 VAC / 24 VDC 250 mA Model 9244-Z001

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