# Digital Display

## For strain gauge units, potentiometers, DC/DC sensors and standard signals

## Model 9180

| | |
|---|---|
| Code: | 9180 EN |
| Delivery: | ex stock / 4 weeks |
| Warranty: | 24 months |


Panel-mounted version


Desktop version

**New !**
**Evaluation optional via Ethernet**

- **Up to 8 sensor parameters can be saved (optional)**
- **For force, pressure or torque measurements using strain gauge sensors**
- **For distance or angle measurements with potentiometer or DC/DC sensors**
- **Processing of standard signals ± 1 V/ 10 V/ 0 ... 1 mA, 0 (4) ... 20 mA**
- **Min. or max. peak values via an additional display**
- **TARE and HOLD function**
- **Generation of up to 4 limit signals (optional)**
- **RS232 or RS485 (optional)**
- **Analog output (optional)**
- **Measurement accuracy < 0.1 %**
- **Scaling possible using teach-in procedure or by entering sensor data directly**
- **Convenient configuration and evaluation software DigiVision**

### Application

Model 9180 supports force, pressure and torque sensors operating on the strain gauge principle, as well as the connection of position and angle sensors in potentiometer or DC/DC configuration. It also allows the measurement of process signals ± 1 V/ 5 V/ 10 V or 0 ...1 mA, 0(4) ... 20 mA. The current measured value is indicated on the 14 mm high LED main display, while a second display located directly below provides a reading of the peak value.
The display is particularly suitable for highly accurate measurements due to the high accuracy of 0.1%. It is also possible to monitor up to 4 limit values and provide the results via relay or transistor outputs. Thus the process value display can be used for classification, process and control tasks. The current measured value is frozen on the display by activating an external HOLD signal. The TARE function is useful for balancing out previous loads for example. The optional serial interface can be used to transfer measured values and perform device settings. Powerful PC software is available for this on request.

### Description

State-of-the-art microprocessor technology has allowed the realization of numerous special functions for practical use. Menu guidance of device setup is standard. Self-explanatory abbreviations greatly facilitate this process so that even inexperienced users can manage without operating instructions. First, the user specifies the type of input signal or sensor. Strain gauge, potentiometer or process signals 0 ...1 mA, 4 ...20 mA or ± 1 V, ± 10 V as well as DC/DC sensors can be selected. Then the calibration process is selected. Users can choose between teach-in or calibration depending on the sensor protocol. The decimal point can be moved as required. The sensor excitation stated in the technical specifications is set automatically upon selection of the sensor type except with process signals. A choice of three excitations is available for process signals. Complete electrical isolation of the measurement channel prevents measurement values from being falsified by ground loops.

9180 EN



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# Technical Data

## Connectable sensors

### Strain gauge

| | | |
|---|---|---|
| Connection system: | | 4 wire |
| Bridge resistance: | | 120 ... 1000 Ω |
| Bridge voltage: | 15/ 30/ 60/ 300 mV, | selection via menu |
| Sensor excitation: | 10 V/ 120 mA,<br>5 V/ 120 mA* | automatic |

### Potentiometer

| | | |
|---|---|---|
| Track resistance: | | 500 Ω ... 10 kΩ |
| Sensor excitation: | 10 V/ 120 mA,<br>5 V/ 120 mA* | automatic |

### Standard signals, DC/DC sensors and transmitters

| | |
|---|---|
| Voltage input: | ± 1 V/ ±10 V |
| Resolution: | 0.1 mV respectively 1 mV |
| Input resistance: | 1 MΩ |
| Current input: | 0 ... 1 mA, 0 (4) ... 20 mA |
| Resolution: | 1 µA |
| Load: | 15 Ω |
| Transmitters and DC/DC sensors: | 10 V/ 120 mA |
| Excitation: | 24 V/ 30 mA<br>5 V/ 120 mA* |

Transmitters can be connected in 2, 3 or 4 wire configuration.

*) if the jumper is set (default setting)

## Standard functions

### Peak-value memory

Minimum or maximum value on an auxiliary display, cancellation with RESET via keyboard or digital control input.

### HOLD function

Freezing of the measured value on the main display.
Active: via ext. HOLD signal

### TARE function

Balancing out an offset.
The balanced-out value can also be shown on the auxiliary display.
Active: via button or ext. TARE signal

### Digital control inputs

RESET, HOLD, TARE, MIN/MAX (opto-electrically)

| | |
|---|---|
| Active: | 24 V |
| Resonse time | ≤ 10 ms |

## General specifications

### Accuracy

| | |
|---|---|
| Resolution: | 15 Bit |
| Measurement error: | 0.1 % v. E. ± 3 digits |
| Temperature coefficient: | 50 ppm/K |
| Warm-up period: | 10 minutes |

### LED display

| | | |
|---|---|---|
| Main display: | - 99999 ... + 99999, | height 14 mm |
| Auxiliary display: | - 99999 ... + 99999, | height 8 mm |
| Decimal point: | | programmable |

**Measurement rate** 16/sec.

### Environmental conditions

| | |
|---|---|
| Operating temperature: | 0 ... 50 °C |
| Relative humidity: | < 95 % |
| Protection class: | Front panel IP65 |

### Dimensions/weight

Panel-mounted version:

| | |
|---|---|
| Dimensions (W x H x D): | 96 x 48 x 120 mm |
| Installation depth incl. connector: | approx. 150 mm |
| Cut-out in front panel: | 92 x 44 mm |
| Weight: | 600 g |
| Housing material: | plastic |

Desktop version:

| | |
|---|---|
| Dimensions (W x H x D): | 155 x 90 x 210 mm |
| Weight: | 1.2 kg |
| Housing material: | metal/plastic |

### Electrical connection

| | |
|---|---|
| Panel-mounted version: | snap-in plug connection |
| Desktop version: | 12 pole jacks for plug 9941 |

### Power supply

| | |
|---|---|
| Desktop version: | 115/230[1)] V AC, 50/60 Hz |
| Panel-mounted version: | 115/230[1)] V AC, 50/60 Hz |
| | or 24/48[1)] V AC, 50/60 Hz |

| | | |
|---|---|---|
| Power consumption: | 5 VA | without options |
| | 10 VA | with all options |

[1)]Switch over by means of a jumper

## Options

### Digital set point alarm outputs

| | |
|---|---|
| 2 relay contacts | 250 VAC/ 150 VDC/ 8 A, for 2 limiting values or |
| 4 relay contacts | 50 VAC/ DC/ 0.2 A, for 4 limiting values or |
| 4 transistors | open C. switching n or open E. switching P,<br>50 V/ 50 mA for 4 limits each,<br>opto-decoupled |
| Response time: | 250 ... 750 ms, depending on the filter setting |

### Analog output

| | | | |
|---|---|---|---|
| Ranges: | | Voltage | 0 ... 10 V |
| | | Load | > 50 Ω |
| | | Drift | 0,2 mV/K |
| | or | Current | 4 ... 20 mA |
| | | Load | < 800 Ω |
| | | Drift | 0,5 µA/K |

(Selection between 0 ... 10 V and 4 ... 20 mA via the menu)

| | |
|---|---|
| Resolution: | 12 Bit |
| Potential separation to signal input | |
| Accuracy: | 0.1 % F.S. |
| Signal response time: | 60 ms |

### Serial interface

RS232 (V.24) or RS485 (half duplex)

| | |
|---|---|
| Baud rate: | 1200 ... 19200 |
| Data transmission rate: | 10 values/sec. at 19200 baud |

Networking via RS485 by means of a converter (model 9180-Z001)

### BCD interface

Level: 24 V/ TTL

The BCD option excludes all other options.

The options analog output; RS232 or RS485 (only one) and 2 relays, 4 relays or 4 O.C. (only one); can be used simultaneously.

## Calibration

Two basic procedures are possible; in both cases, one display value is allocated to two input variables each (two-point calibration):

1. In the teach-in mode, the two input variables are applied physically as measurement signals to the input. These are assigned to the corresponding display values by pressing an enter key.

2. During calibration in accordance with the sensor protocol, the two signals are not applied physically, but read off from the sensor protocol and entered via the keyboard.

**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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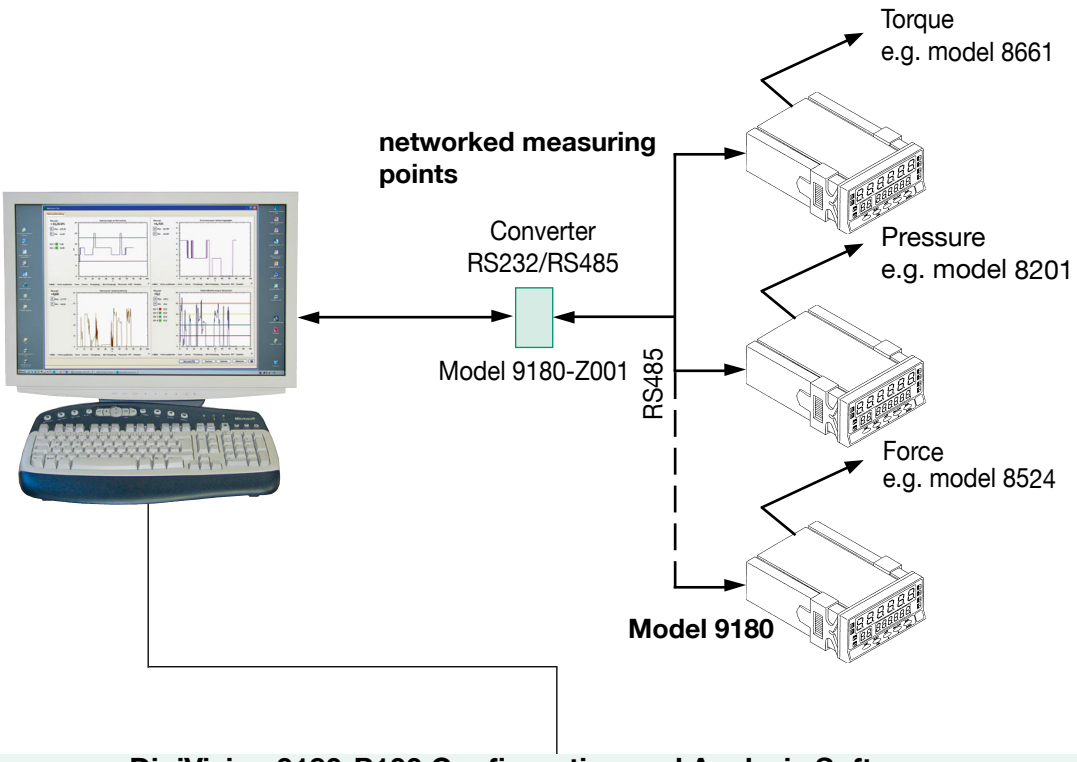
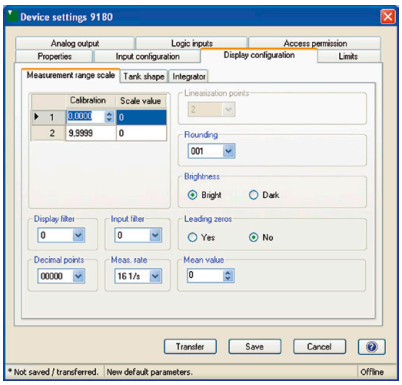
2421-009180EN-5672-081524

## Measuring Data Acquisition and Evaluation



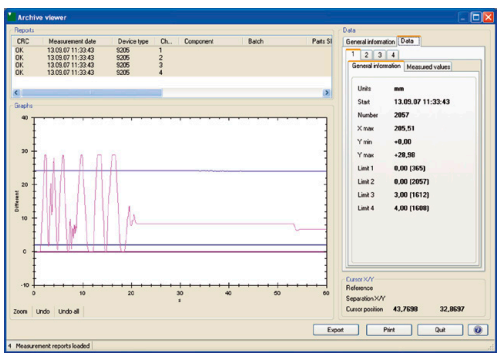

## DigiVision 9180-P100 Configuration and Analysis Software

- Comfortable device finder
- Instrument parameterization
- Instrument data adopted automatically eg. scaling, limit settings
- Back-up function for instrument data
- Simultaneous display of up to 16 measurement channels
- Different measurement rates can be combined
- Different triggers can be set: global or channel-specific
- Creation of instrument groups
- Report finder for location group reports and individual reports
- Documenting individual measurement curves with various options e.g. serial number, batch counter, day counter
- Export function to Excel
- Communication with a controller unit (PLC, etc.) via RS232 or Ethernet



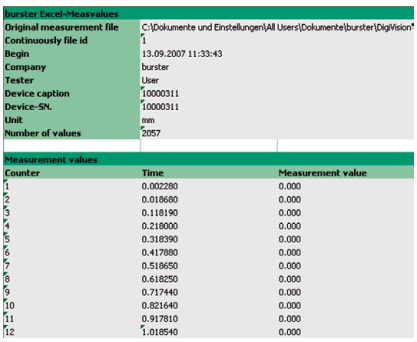

Parameterizing of devices

16 measurement channels




Archive viewer

Excel file



| burster Excel-Measvalues | |
|---|---|
| Original measurement file | C:\Dokumente und Einstellungen\All Users\Dokumente\burster\DigiVision* |
| Continuously file id | 1 |
| Begin | 13.09.2007 11:33:43 |
| Company | burster |
| Tester | User |
| Device caption | 10000311 |
| Device-SN. | 10000311 |
| Unit | mm |
| Number of values | 2057 |

| Measurement values | | |
|---|---|---|
| Counter | Time | Measurement value |
| 1 | 0.002280 | 0.000 |
| 2 | 0.018680 | 0.000 |
| 3 | 0.118190 | 0.000 |
| 4 | 0.218000 | 0.000 |
| 5 | 0.318390 | 0.000 |
| 6 | 0.417880 | 0.000 |
| 7 | 0.518650 | 0.000 |
| 8 | 0.618250 | 0.000 |
| 9 | 0.717440 | 0.000 |
| 10 | 0.821640 | 0.000 |
| 11 | 0.917810 | 0.000 |
| 12 | 1.018540 | 0.000 |

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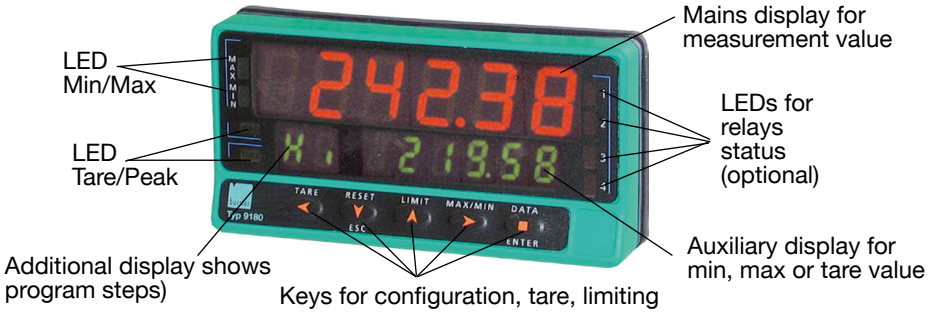
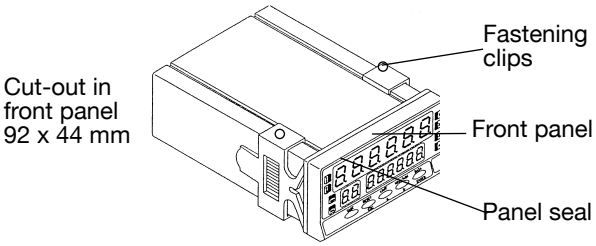
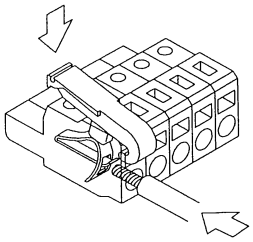
## Displays and Operating Panel




## Dimensions Mounting




## Rear Connection

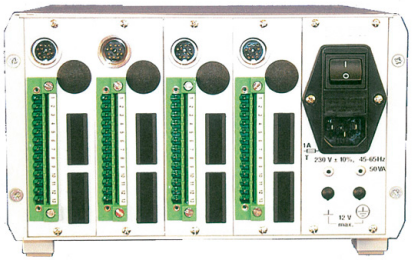


Clamping connection

## Multichannel Measurement Systems for any Numbers of Channels in Desktop Housing (please enquire)

**Front view:**
Up to 16 panel-meters in one common housing possible.


**Back view:**
All sockets for sensors, control signals and serial interfaces are completely installed.



## Order Code

### Digital indicator

| | | |
|---|---|---|
| **Version** | **model 9180 - V** | **0 0 0 0** |
| 8 sensor parameters | | -1 |
| Options on extra charge: | | |
| Housing and power supply | | |
| Panel-mounted version | 115/230V-50/60 Hz | -0 |
| Panel-mounted version | 24/48V-50/60 Hz | -1 |
| Desktop version | 115/230V-50/60 Hz | -3 |
| Desktop version | 24/48V-50/60 Hz | -6 |
| Analog output | | |
| without | | 0 |
| 0 ... 10 V / 4 ... 20 mA | | 1 |
| Interface | | |
| without | | 0 |
| RS232 | | 1 |
| RS485 | | 2 |
| BCD[1)] | | 3 |
| Set point alarm outputs | | |
| without | | 0 |
| 2 relays | | 1 |
| 4 relays | | 2 |
| 4 transistor open C. n-switched | | 3 |
| 4 transistor open E. p-switched | | 4 |

[1)] - Important! The BCD option does not allow any additional options (limiting value or analog output) and is not available as desktop version either.

## Accessories

Instrument calibration for one sensor ordered with the instrument or using sensor data provided by the costumer (e.g. sensitivity, display range of correct reading, excitation voltage or sensor test certificate) (Please specify the calibration data precisely!) **Model 91ABG**

If calibration data not communicated, it will be calibrated as standard sensor-specified.

**Strain gauge simulator** **Model 9405**
See data sheet 76-9405 in section 7 of the Sensors and Process Instruments catalog.

**DigiVision 9180-P100 configuration and analysis software for device series 9180**
Enables an easy storage of device data, graphical visualization, storage and logging of measurement data **Model 9180-P100**

**Converter RS232/RS485**
Cartridge with RS485 applications for maximum 32 participants
mains adapter included **Model 9180-Z001**

**Indicator for angle, pulses or rotation** **on request**

**Data cable**
for connection of desktop version and PC **Model 9900-K333**
for connection of panel version and PC **Model 9180-K001**
Interface adapter USB-RS232 **Model 9900-K361**
Networking via RS232 requires Ethernet **Model 9900-K453**



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