Mobile Precision
Smart Sensor Interface

For Load Cells, Torque and Displacement Sensors

Series 7160

Code:	7160 EN
Delivery:	ex stock
Warranty:	24 months

burster

Accuracy 0.02 % of reading

Connection via USB port

SCALING DATA
Interface : 7160   PO no: 580654
Serial no. : 9891018   Release:
Sensor : 8523-100   CalDate: 15-MAR-2011
Serial no : 348704   FORCE
Range : 100 N   T E A C H - I N
Range_Hi : 110 N   Inp1 : 2403.0
Sensitivity : 1.4993 mV/V   dSP1 : 0.000
Display : 100.000 N   Inp2 : 2415844,7
Date : 15.03.11   dSP2 : 100.00
Inspector: ws

Typ 7160 S/N: 9891018
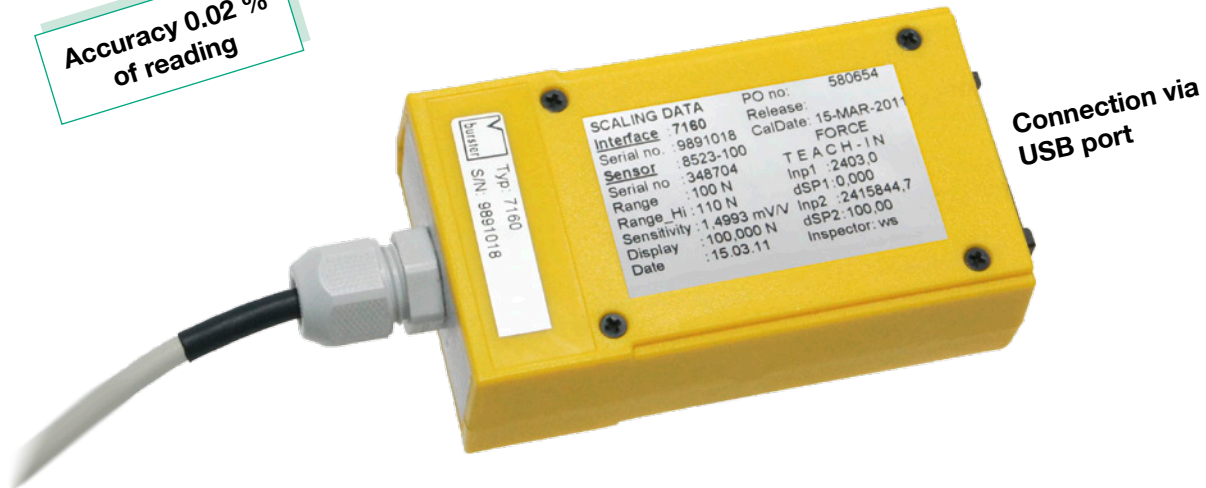
- ■ **Interface for strain gauge and potentiometric sensors with "Plug & Measure" connection**
- ■ **Connection system 6 wire**
- ■ **User-friendly configuration and data logging software DigiCal**
- ■ **DLL, LabView driver for integration into own industrial environment**
- ■ **Universal reference measurement chain with DKD/DAkkS (Calibration according to German Accreditation Body) or factory calibration certificate (option)**

Application

In practice it is often necessary, to acquire a sensor´s measurement results nearby fast and simple. With interface model 7160 and USB adapter model 7131 the measured values of a sensor can be transmitted directly to a PC. In addition Smart Sensor Interface model 7160 can be used along with DIGISTANT® model 4423 for on-site calibration.

Application / examples:
- ▶ Calibration of testing machines
- ▶ On-site calibration of high-precision measurement equipment
- ▶ Testing hydraulic presses
- ▶ Reference measurements on/in assembly lines
- ▶ Testing robot pressing forces
- ▶ Testing compressive force on pneumatic units

Description

Smart Sensor Interface model 7160 prepares the sensor signal for the PC or for DIGISTANT® model 4423. Force, torque and displacement sensors can be connected to model 7160. Using the adapter model 7130, the measurement values can be displayed directly on model DIGISTANT® 4423. Adapter model 7131 USB transfers the measurement values directly to a PC. The entry of the sensor data is done by burster company setting and via Plug & Measure connection the sensor data are detected automatically. For each measurement the customer can chose between two operating modes. A static measuring rate and average mode reach a very high measurement accuracy. When measuring up to 1000/s the accuracy is reduced.

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burster praezisionsmesstechnik gmbh & co kg · Tel. +49-7224-6450 · Fax 64588
Talstr. 1-5 · DE-76593 Gernsbach · **www.burster.com** · **info@burster.com**

Application

Construction of a Force Measurement Chain Directly to a USB Port

Smart Sensor Interface model 7160 is powered via the USB port of the connected PC which also generates the supply voltage of 4.5 V for the load cell. Via Plug & Measure connection, the data of the connected load cell can be detected. Continuous measurements can be recorded automatically with the Configuration and Data Logging Software DigiCal, so that without considerable effort a test sample can be evaluated for compliance with the technical data.

Application

Torque Wrench Calibration with Torque Sensor and Smart Sensor Interface 7160 and Universal Calibrator 4423

Along with the Smart Sensor Interface model 7160 torque sensors can be directly connected to the DIGISTANT® model 4423. This measuring chain allows a fast and easy measurement of torque of all tools in screw-in technology. Through on-site calibration e.g. torque wrenches can be checked for their compliance with the adjusted scale value respectively trigger accuracy. In order to render the torque measurement chain traceable a DKD/DAkkS/Manufacturer Calibration Certificate can be supplied optionally.

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Checking Press-fit Forces

A force measurement chain, consisting of a load cell and a Smart Sensor Interface model 7160/7131 and USB adapter can be connected directly to the PC. The sensor data are read out by DigiCal software, printed as a protocol and exported to Excel.

For on-site calibration the load cell is placed in line with the force flow of the press-fit measuring device. In order to render the force measurement chain traceable a DKD/DAkkS Manufacturer Calibration Certificate can be supplied optionally.


DigiCal
PC Software

Press

Load cell

Adapter model 7131 USB

Smart Sensor Interface
model 7160
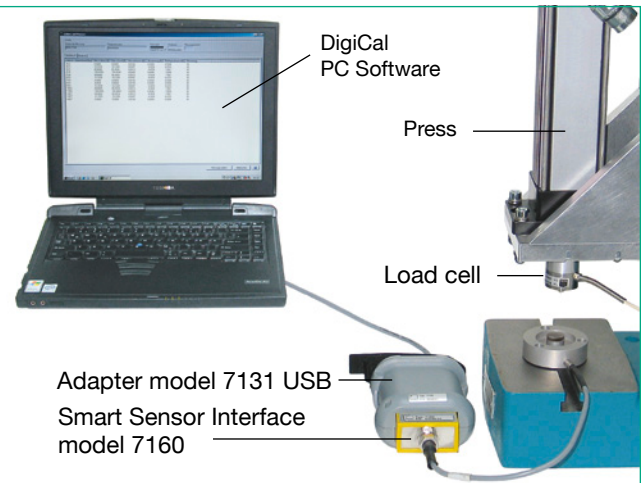
Features of Configuration and Data Logging Software DigiCal for Mechanical Values

Simple and Secure Editing of Measurement Programs and Calibration Routines

► DigiCal allows the configuration of user-friendly calibration routines through selection of physical values and measurement values to be checked. Thus a test sample can be evaluated without considerable effort for its compliance with the required technical data.

► Once created, the measurement program can be used again and again in future measurements.

► Versatile, easily selectable pop-ups allow users rapid access.
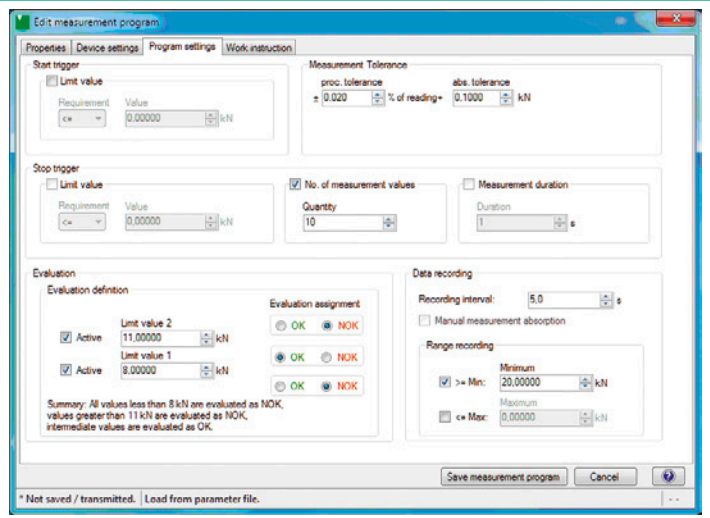
Historical Viewing of Archived Test Certificates

► History viewer allows a quick overview of the tolerance characteristics of test and measurement devices.

► Up to 4 equally measured samples of one test object can be compared. The history of the measured values identifies the long-term stability and/or drift.
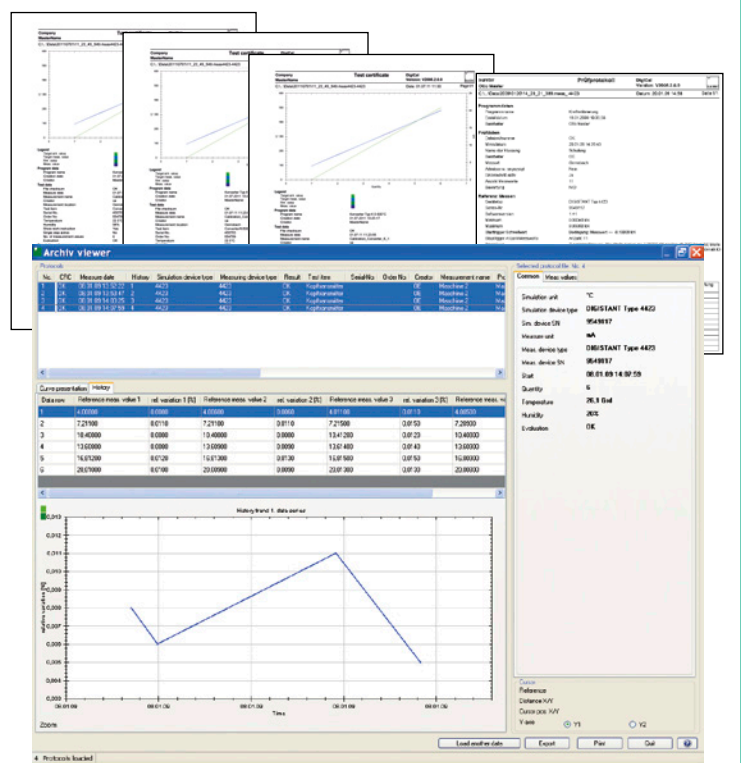
Technical Data

Connectable sensors

Strain gauge

Bridge resistance (full bridge):	350 Ω to 2000 Ω
Connection system:	6 wire
Configurable sensitivity:	± 0.5 up to ±10 mV/V
Bridge excitation:	approx. 4.5 V (is measured)
Excitation current:	max. 35 mA
Accuracy:	0.02 % of reading ± 5 µV (23 °C ± 5 °C)
Input leak current typically:	200 pA
Linearity typically:	0.0015 % F.S.
Temperature coefficient:	25 ppm/K
Noise-free resolution typically:	21 bit

Potentiometric displacement sensors

Connection system:	3 wire
Resistance range:	500 Ω up to 20 kΩ
Excitation:	approx. 4.5 V (is measured)
Excitation current:	max. 35 mA
Input leak current typically:	50 nA
Accuracy:	0.02 % of reading ± 5 µV (23 °C ± 5 °C)
Linearity typically:	0.007 % F.S.
Temperature coefficient:	25 ppm/K
Noise-free resolution typically:	23 bit

General data

Case:	synthetic material
Dimensions (W x H x D):	50 x 26 x 88 mm
Indication:	indication in DIGISTANT® 4423 via adapter 7130 or read out with PC via USB adapter model 7131-USB
Display range:	-200.000 up to 200.000 adjustable
Decimal point:	user programmable
Operating mode:	static mode dynamic maximum dynamic minimum dynamic Peak to Peak dynamic present reading
Measuring rate statically:	3/sec
Measuring rate dynamically:	adjustable from 3/sec to 1000/sec
Averaging:	X/1, X/2, X/4, X/8, X/16 and X/32
Linearization points:	2 to 21 points
Common mode:	120 dB
Limit frequency:	up to 5 KHz
Operating temperature:	0 °C up to 50 °C
Storage temperature:	-30 °C up to 60 °C

Order Information

Smart Sensor Interface for connecting force, displacement or torque sensors	**Model 7160**
Adapter for Smart Sensor Interface / module to DIGISTANT® model 4423	**Model 7130**
Adapter for Smart Sensor Interface / direct to PC via USB	**Model 7131-USB**
Software Configuration and data logging software DigiCal	**Model 4423-P001**

Ordering examples

Version adapter model 7131 USB direct to PC via USB interface with high precision load cell

Tension compression load cell	**Model 8527-6020**
Smart Sensor Interface for connecting force displacement or torque sensors	**Model 7160**
Fitting and alignment of the sensors to the Smart Sensor Interface	**Model 71ABG**
Adapter or Smart Sensor Interface / direct to PC via USB	**Model 7131-USB**
Configuration and data logging software DigiCal	**Model 4423-P001**

Manufacturer calibration for the complete chain, sensors, Smart Sensor Interface 7160 and software, pressure direction, 5 points in 20 % steps, rising and falling **Model 85WKS-85DXM**

Version with adapter model 7130 to DIGISTANT® model 4423 with torque sensor

Torque sensor, static range 25 Nm	**Model 8628-5025**
Smart Sensor Interface for connecting force, displacement and torque sensors	**Model 7160**
Fitting and alignment of the sensors to the Smart Sensor Interface	**Model 71ABG**
Universal Calibrator DIGISTANT® with USB interface	**Model 4423**
Adapter for Smart Sensor Interface / module to DIGISTANT® model 4423	**Model 7130**
Configuration and data logging software DigiCal	**Model 4423-P001**

Manufacturer calibration for torque sensor model 8628 as chain, 20 % steps, right and left moment **Model 86WKS-LRM-5200**

DKD/DAkkS Calibration Certificate

DKD/DAkkS Calibration Certificate for force up to 200 kN, pressure up to 5000 bar and torque up to 5kNm.

Manufacturer Calibration Certificate

Manufacturer Calibration Certificate for force up to 200 kN pressure up to 5000 bar, torque up to 5 kNm and displacement up to 300 mm.

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