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4 Channel USB-Sensor-Interface with Configuration- and Evaluation Software VS3

SI-USB3

- Competitive “Plug & Measure” Concept
- Easy Connection via PC USB-Port
- Fast Measurement of up to 5000 Measurements/s per Channel
- Full Synchronicity of all Measuring Channels
- Up to 16 Bit Resolution
- Input Ranges for mV/V, V and mA
- Input Ranges for Linear Potentiometer and Temperature Probe PT100
- Input Ranges combinable with one another
- Adjustment and Control Signal Activation via Software
- Convenient Configuration- and Evaluation Software VS3 included in the Scope of Delivery
- Free LabVIEW- and DLL-Drivers enable Integration in own Software



Description

In practice, it often becomes necessary to quickly and easily measure the sensor measuring signals in the immediate vicinity and to transmit them directly to a PC without additional amplifiers or converters.
This can be realized very well with the USB-Sensor-Interface SI-USB3 through its “Plug & Measure” concept. The USB connection allows very easy installation.
The sensor interface SI-USB3 is connected between sensor and PC. By this, analog sensor signals with up to 16 bit resolution are digitized.
By the measuring rate of 5000 measurements/s per measuring channel, high-dynamic measurements can be achieved.
The measured values are transferred to a PC via the USB interface and visualized by means of software. If a control signal is integrated in the sensor, an automatic adjustment can be carried out and checked at any time (measuring chain monitoring).

Typical Applications:

- Mobile Test Measurements by Laptop
- Experimental Setups in Test Laboratories
- Measurement- and Control Facilities
- Diagnosis Measurements in Chemical Industries
- PC-based Recordings of Strain Characteristics in Biotechnology

Following sensor output signals can be digitally converted and conveniently displayed and evaluated via the free evaluation software:

USB/SG	Bridge Resistance (Full Bridge) 350 Ω ... 5 kΩ Connection Technology 4-Wire Sensor Supply 5V ≤20 mA Input Range ±3 mV/V
USB/U5/U10	Sensor Supply 12V ≤200 mA Input Range ±5V/±10V Measurement Deviation 0.05% f. s.
USB/I20	Connection Technology 2- or 3-Wire Sensor Supply 12V ≤200 mA Input Range 0/4 .. 20 mA (Optional 10±10 mA/12±8 mA)
USB/Linear Potentiometer	Connection Technology 3-Wire Sensor Supply 5V ≤200 mA Input Range 1 kΩ **..** 5 kΩ
USB/Temperature Sensor PT100	Input Range - 200°C **..** 850°C

Many standard sensors, such as force-, torque-, displacement- and pressure sensors, linear potentiometers, temperature sensors PT100 etc., can be used with the SI-USB3. The sensor parameters can be stored in the SI-USB3. After a single parameterization, each sensor is automatically recognized by the software.

The voltage supply of the SI-USB3 is provided by an external mains adapter, or by a polarity-protected mains connector. The connected sensors are directly supplied with voltage through the measuring amplifier which eliminates the need for separate sensor supply voltage.

The low-pass filter of second order allows filtration of unwanted frequencies; hereby a distinction can be made between four cut-off frequencies.
The connection to LabVIEW, or integration into own programs is feasible with the freely available driver package.

Technical Data

	Art.-No.	Sensor 1	Sensor 2	Sensor 3	Sensor 4
SI-USB3	**116610**				
Input Range Sensors 1 - 4					
±3 mV/V	116611				
±5V	116612				
±10V	116613				
0 .. 20 mA	116614				
4 .. 20 mA	116615				
10±10 mA	116616				
12±8 mA	116617				
LP	116618				
PT100	116619				

Order Example:
SI-USB3 with 2 USB-Sensor-Interfaces for SG-Sensors and 2 USB-Sensor-Interfaces for Pt100-Sensors, incl. Configuration and Evaluation Software VS3.

Order-Code: 116610-2*116611-2*116619

Evaluation Side

Supply Mains Adapter[1] Output Mains Adapter Supply Voltage SI-USB3	Voltage	100 .. 240VAC 24VDC, 1.25 A 10 .. 30VDC ≤880 mA
Sensor Supply	SG/Potentiometer/ PT100 U5/U10/I20	5V ≤20 mA 12V ≤200 mA
Measured Values	SG/PT100 U5/U10 I20 Potentiometer	±3 mV/V = ±30000 Digits ±5V/±10V = ±25000 Digits 0/4 .. 20 mA = 0/4000 .. 20000 Digits 5V/10V = 25000 Digits
Resolution	SG/PT100 U5/Potentiometer U10/Potentiometer I20	1 mV/V = 10000 Digits 1V = 5000 Digits 1V = 2500 Digits 1 mA = 1000 Digits
Zero Point	SG/U5/U10/I20/ Potentiometer/ PT100	0 Digits
Output Format		16 Bit signed Int.
Input Resistance	SG/U5/U10/ Potentiometer/PT100 I20 app. ohmic resist.	>1 MΩ 62 Ω
Low-Pass Filter of second Order	Hz	30/300/1000/3000
Measuring Rate		max. 5000 Meas./s
Temperature Drift		4 Bit/10 K
Linearity Error		±32 Digits
Accuracy		±32 Digits

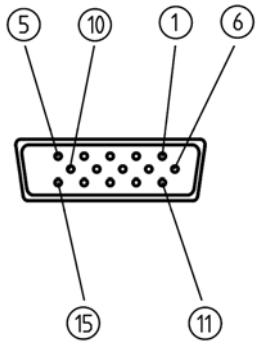
[1] Mains adapter included in scope of delivery at first order.

Miscellaneous

Cable Length SI-USB3 - Sensor		3 m (max. 5 m)
Nominal Temperature Range		10 .. 40°C
Service Temperature Range		0 .. 50°C
Storage Temperature Range		-10 .. 70°C
Dimensions (L x W x H)		130 x 187 x 55 mm
Weight		1200 g
Material		Aluminum
Level of Protection		IP40
Electr. Connection	SG/U5/U10/I20/ Potentiometer/ PT100	D-SUB-Socket, 15-pin
	USB[2]	USB-B-Connector

Pin Assignment

15-pin	SG, U5, U10, I20, Potentiometer, PT100	
Pin 1	Supply/Excitation (GND/-), active/passive	0V
Pin 2	Supply (+), active	12VDC
Pin 3	NC	-
Pin 4	reserved	reserved
Pin 5	reserved	reserved
Pin 6	NC	-
Pin 7	NC	-
Pin 8	Excitation (+), passive	5VDC
Pin 9	NC	-
Pin 10	Control Signal	L <2.0V; H >3.5V
Pin 11	Signal (+)	mV/V; ±5V; ±10V; 0/4 .. 20 mA
Pin 12	Signal (GND/-), active/passive	0V
Pin 13	Shield	-
Pin 14	NC	-
Pin 15	+5V Reference voltage	5VDC



Top View

Options/Accessories

Article-No.	Type	Designation
115134	mV/V/±10V/0/4...20mA	Adjustment Measuring Amplifier with Simulator
113591	LCV-USB2/-USB3/SI-USB/-USB3/-RS485/-ETH/4.5mV/V	Sensitivity ±4.5 mV/V per Channel
116620	SI-USB3/WB	Wall Mounting
116621	SI-USB3/TF	Tower Foot
113273	USB-A-Connector/USB-B-Connector, 1.8 m/PVC	USB Interface Cable
10293	KSSH15	D-SUB-Connector, 15-pin
10477	KDM5/A-KSSH15/A-3m/PVC	Connection cable for passive sensors, 3 m, with 5-pin female cable connector and 15-pin D-SUB- male cable connector
10365	KDM7/A-KSSH15/A-3 m/PVC	Connection cable for passive sensors, 3 m, with 7-pin female cable connector and 15-pin D-SUB- male cable connector
10269	KD6/A-KSSH15/A-3 m/PVC	Connection cable for passive sensors, 3 m, with 6-pin female cable connector and 15-pin D-SUB- male cable connector
10312	KD12/A-KSSH15/A-3 m/PVC	Connection cable for passive sensors, 3 m, with 12-pin female cable connector and 15-pin D-SUB- male cable connector
103075	KDM8/A-KSSH15/A-3 m/PVC	Connection cable for active sensors, 3 m, with 8-pin female cable connector and 15-pin D-SUB- male cable connector
10268	KD12/B-KSSH15/A-3 m/PVC	Connection cable for active sensors, 3 m, with 12-pin female cable connector and 15-pin D-SUB- male cable connector

Option Calibration mV/V

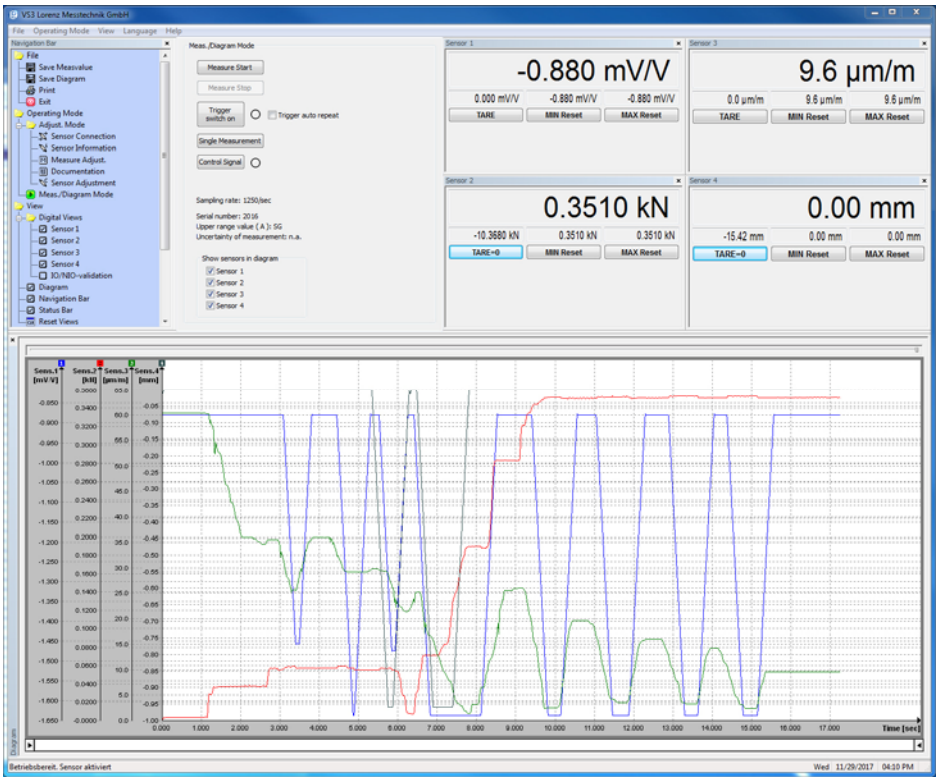
Article-No.	Designation	Steps	Norm
401010	Proprietary Calibration	10	ISO 10012
401011	Proprietary Calibration	20	

[2] Interface cable SI-USB3 for evaluation, cable length 1,8 m included in scope of delivery at first order.

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Configuration and Evaluation Software **VS3**

- Comfortable Configuration and Evaluation Software
- Graphical Display of up to 4 Input Channels
- Automatic Scaling of Y-Axis
- Simultaneous Storage of up to 4 Input Channels
- Automatic Storage Function of the Measured Values as CSV- and BMP-File



Description

Configuration and evaluation software for analysis and graphical presentation on a PC.

The software allows direct read-in of measured data into a text file in CSV-Format through the USB-Port of a PC. This enables further analyses with a commercially available spreadsheet program at any time.

Technical Data

Type	**VS3**[3]
Interface	USB
Protocol	Lorenz standard protocol
System requirements	Windows® '03/ '08/ '10/ Vista/ 7/ 8 32/64 Bit[4] Dual-Core ab 1.8 GHz (with Diagram)

Conversion in physical Variables	✓
Simultaneous Measurement	Up to 4 Input Channels
Graphical Display of the measured Variables	✓
Automated or manual storage in a CSV- and BMP-file	✓
Print-out of the Diagram with Date and definable Superscription	✓
Scaling Function of the Input variable to any Display Value with Unit	✓
Resettable min. Value Memory for any measured Variable	✓
Resettable max. Value Memory for any measured Variable	✓
Floating Averaging	✓
Tara for each measured Size	✓

[3] Software/driver download: www.lorenz-sensors.com.

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