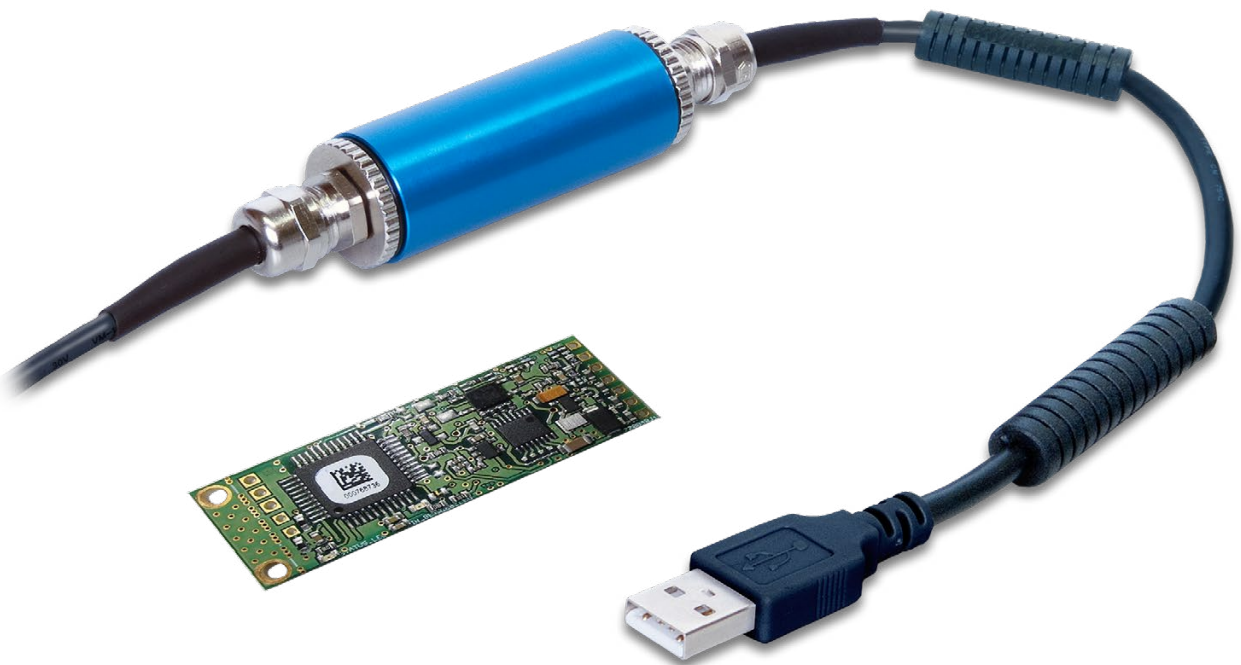


interface

FORCE MEASUREMENT SOLUTIONS.

Installation & User Manual

INF-USB3



INF-USB3 Installation & User Manual

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1 Important Notes

Before installing and commissioning the device, these operating instructions, and in particular the corresponding safety instructions, must be read. The device may only be used as described in this manual to prevent injury or damage.

1.1 General Information

These operating instructions are intended for technically qualified personnel who have appropriate knowledge in the field of measurement and control technology. Qualified personnel are persons who are familiar with the installation, operation, maintenance and repair of the device and have the appropriate qualifications. The personnel must have knowledge of the legal and safety regulations and be able to apply them.

The device may only be used by qualified personnel in accordance with the technical data in connection with the safety regulations and rules set out below. During operation, the legal and safety regulations required for the respective application must also be observed. This also applies analogously to the use of accessories.

The exact information about all safety instructions and warnings contained in these operating instructions as well as their correct technical implementation are prerequisites for the safe installation, commissioning, safe operation and maintenance of Interface devices. All measures must only be carried out by qualified personnel. All persons involved in the project planning, installation and operation of Interface devices must be familiar with the safety concepts in automation technology and be qualified in the above-mentioned sense.

For reasons of clarity, these operating instructions cannot cover all details and information for all applications or conceivable types of installation, operation and maintenance that must be taken into account.

If further information is desired or required, or if special problems occur which are not described in detail in these operating instructions, please contact Interface.

Interface devices may only be operated in accordance with the applications described in these operating instructions. Built-in devices may only be operated if they are properly installed.

By connecting and commissioning the device, the purchaser accepts the General Terms and Conditions of Sale and Delivery of Interface. Furthermore, the buyer accepts the possible incompleteness of this operating manual and that the information contained therein may not be complete and information is provided without guarantee. Errors, misprints and changes excepted.

What is Intended Use, What is not intended Use

A device from Interface is used for display, processing and control of processes. It must not be used as the sole means of averting dangerous conditions on machines and systems. Machines and systems must be designed in such a way that faulty states cannot lead to a dangerous situation for the operating personnel (e. g. through independent limit value-switches or mechanical interlocks). In particular, it must be ensured that a the malfunction or failure of the device does not lead to damage to property or loss that could endanger people. It is also important to ensure that safety precautions are not being circumvented for the safety of a plant. Emergency stop devices must remain effective at all times.

Installation Instructions

Devices from Interface must be installed and connected in compliance with the relevant DIN and VDE standards. They must be installed in such a way that unintentional operation is sufficiently excluded. To prevent an interruption of the supply and signal lines from leading to an undefined or dangerous state, appropriate hardware and software safety precautions must be observed. Supply and signal lines must be installed in such a way that they do not interfere with the function of the Interface device (such as inductive or capacitive interferences).

Notes on Malfunctions, Maintenance and Repair

The device does not contain any parts that can be serviced by the user. Repairs may only be carried out by Interface. If it can be assumed that safe operation of the device is no longer possible, it must be put out of operation immediately and secured against unintentional operation. This applies in particular if:

- The device is visibly damaged
- The device is no longer functional
- Parts of the appliance are loose
- The connecting lines are visibly damaged

In addition, we would like to point out that all obligations of Interface arise exclusively from the respective purchase contract in which the warranty is conclusively stated.

1.2 Intended Use

Devices from Interface are to be used exclusively for measuring tasks and the directly associated control tasks. Any use beyond this is considered to be improper. Legal and safety regulations must be observed during measurement. The instrument is not a safety component in the sense of its intended use and must be transported and stored properly. Installation and commissioning, as well as operation and disassembly must be carried out professionally.

1.3 General Hazards in the Event of non-compliance with the Safety Instructions

The device is in compliance with current safety requirements. Residual dangers can emanate from the device if it is improperly used and operated by untrained personnel. Any person entrusted with the installation, operation, maintenance and repair of the device must read and understand the operating instructions and, in particular, the safety instructions.

Incorrect use (e. g. by untrained personnel) may result in residual hazards. The operating instructions must be read and understood by all persons involved in the installation, commissioning, maintenance, repair, operation and dismantling of the device. The device must not be used if damage is visible.

1.4 Residual Hazards

The system planner, equipment supplier and operator must plan, implement and be responsible for the safety of the equipment. Other hazards must be minimized. The residual dangers of measurement technology must be pointed out and human error must be taken into account. The design of the system must be suitable for avoiding hazards - a hazard analysis must be carried out for the system.

2 Safety and Warning Notices

2.1 Symbols



Warning: There is a risk of injury to persons. Damage to the machine is possible. The accident prevention regulations of the employer's liability insurance association must be observed.



Note: Important points to be observed. A note that indicates a possible danger of damage to the product, process, person or the environment.



Additional information or reference to other important detailed information.

2.2 Health Protection and Safety

To ensure that our products are safe and do not pose a health hazard, the following points must be observed:

1. Read all relevant sections of this manual carefully before starting work.
2. All warning signs on containers and packaging must be observed.
3. Installation, operation, maintenance and repair work may only be carried out by suitably trained personnel and in accordance with the instructions given. If one of these instructions is not followed, the user of the product bears full responsibility for any consequences that may occur.
4. Disconnect the appliance from any power supply before opening it.
5. The safety instructions must be strictly observed in order to avoid damage to property and bodily injury - possibly even fatal ones.

2.3 Conversions and Changes

The device may not be modified in terms of design or safety without the express consent of Interface. Any modification excludes any liability on our part for damages resulting therefrom. Repairs and modifications are prohibited.

3 Preamble

3.1 Product Description

The INF-USB3 is a measurement amplifier for conversion of analog signals into digital measured values. This measured data can be requested through the Computer via the USB-interface. The INF-USB3 is supplied from the USB-interface. No external mains adapter is needed. The INF-USB3 is designed for four types of sensor signals (for specifications see data sheet):

Strain gauge signals:	± 4.5 mV/V	(corresponds ± 30000 digits)
Active signals with voltage input:	± 5 V	(corresponds ± 25000 digits)
Active signals with voltage input:	± 10 V	(corresponds ± 25000 digits)
Active signals with current input:	0 ... 20 mA	(corresponds 0 ... 20000 digits)
Active signals with current input:	4 ... 20 mA	(corresponds 0 ... 20000 digits)

The amplifier type and the resolution are declared on the type label, a type modification is only authorized by the manufacturer. Therefore only the corresponding sensor type may be connected.



Warning: Please pay attention to the signal type. Connecting the wrong type of signal may cause damage.

The measuring data are signed in integer format (see above in brackets).

If the INF-USB3 is calibrated together with the sensor, you can take the output values from the test certificate.

If the INF-USB3 is calibrated without a sensor, you can take the output values as described above. In this case, they are pre-calibrated with a high precision source.

The Interface USB drivers are required on the PC to operate the INF-USB3. These can be downloaded from our website.

This VS3 Software supports the following functions:

- Configuration possibilities for the VS3
- Storage of sensor-related scaling and adjustment data
- Display for the presentation of measured data (actual value, tare value, minimal value and maximal value)
- Presentation of the measured data in a diagram
- Storage of measured data in CSV-format (output configurable)
- Storage of the diagram in BMP-format (output size adjustable)
- Print-out of the diagram with date and definable superscription
- Presentation of the sensor information

3.2 Safe and Correct Use



Warning: Observe the correct sensor adjustment.



Consider the correct VS3 configuration.

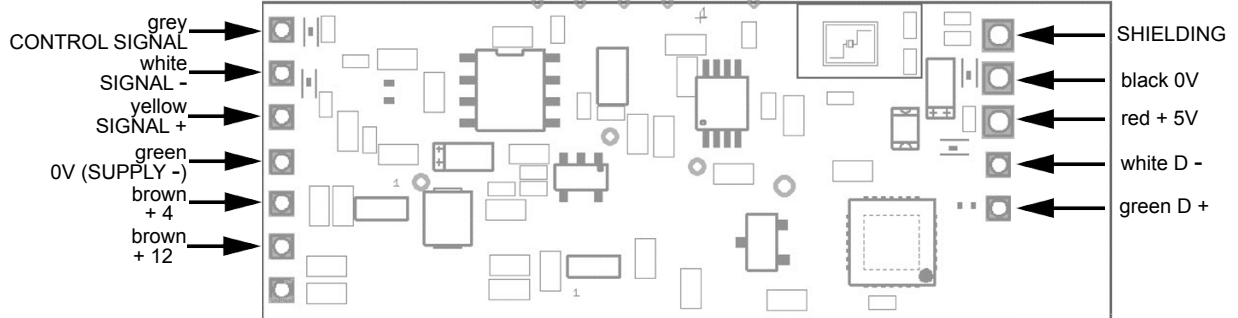


Choose a significant file identification/prefix when storing measured data.

4 Pin Assignment

Pin assignment sensor

Pin assignment USB



4.1 Pin Assignment for Strain Gauge Sensors with mV/V Signal

Description	Pin (6 pin socket)	Color	Remark
0V / GND	1	Green	Ground of supply voltage 4V
4V	2	Brown	Supply for strain gauge sensors 4V
Shield	3	Shielding	Connect shield with sensor housing
Signal +	4	Yellow	Positive signal input
Signal -	5	White	Negative signal input
Control signal	6	Grey	If available in sensor

4.2 Pin Assignment for Active Sensors with $\pm 5V$ or $\pm 10V$ Signal

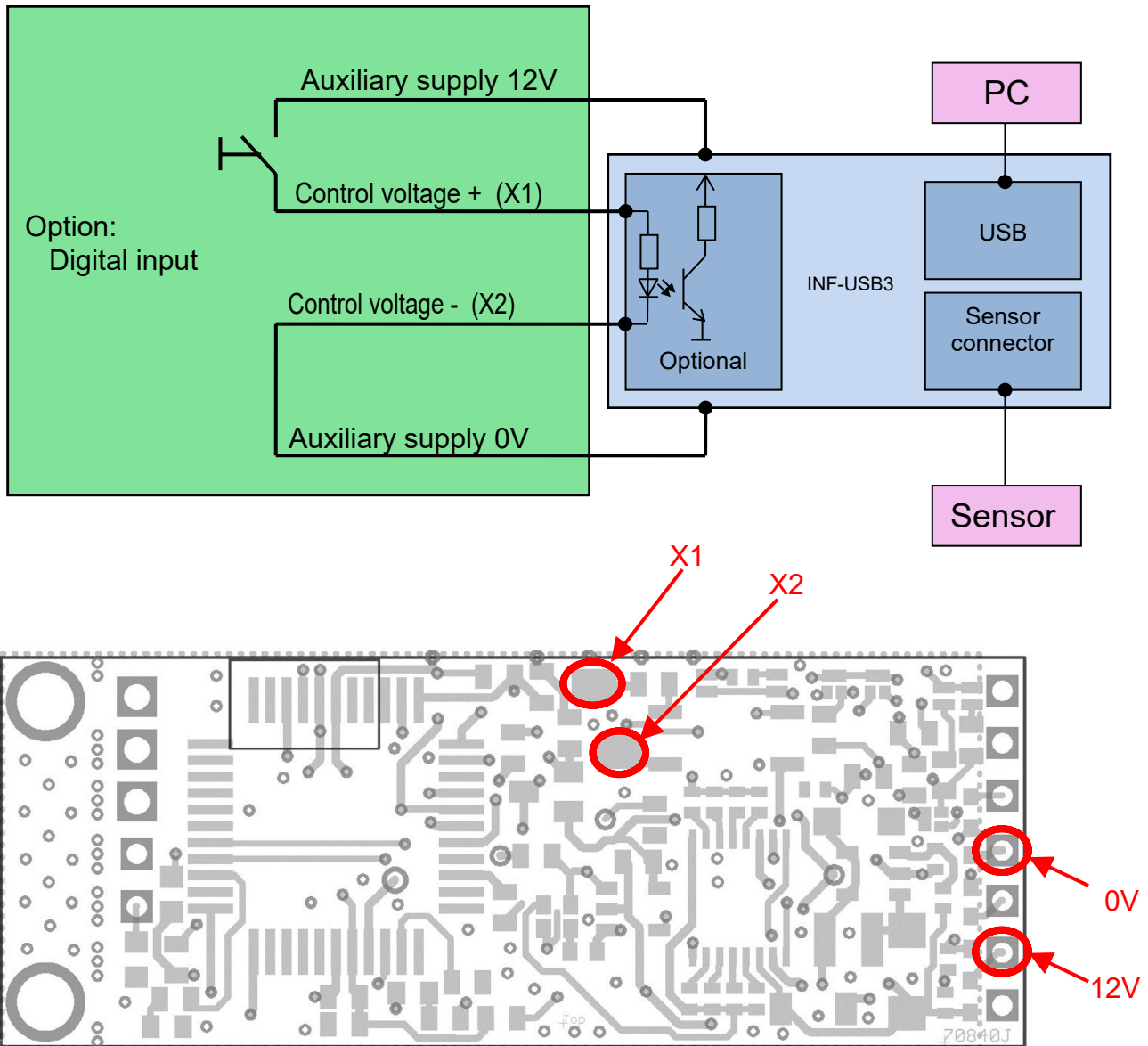
Description	Pin (12 pin socket)	Color	Remark
0V / GND	E	Green	Ground of supply voltage 12V
12V	F	Brown	Supply for active sensors 12V
Signal +	C	Yellow	Signal input
Signal -	D	White	Relating to signal input (internal to 0V / GND)
Control signal	K	Grey	If available in sensor
Shield	M	Shielding	Connect shield with sensor housing

4.3 Pin Assignment for Active Current Sensors with mA Signal

Description	Pin (12 pin socket)	Color	Remark
0V / GND	E	Green	Ground of supply voltage 12V
12V	F	Brown	Supply for active sensors 12V
Signal +	C	Yellow	Signal input
Signal -	D	White	Relating to signal input (internal to 0V / GND)
Control signal	K	Grey	If available in sensor
Shield	M	Shielding	Connect shield with sensor housing

5 Option Digital Input at Channel B

Scheme



5.1 Pin Assignment for Auxiliary Supply and Digital Input

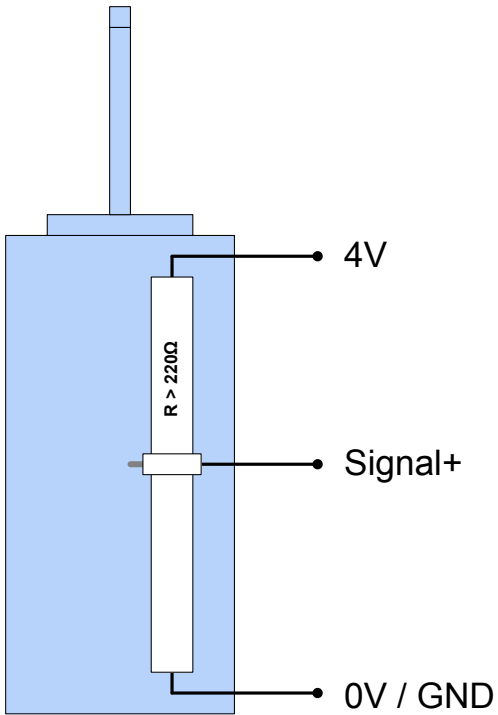
Description

Auxiliary supply:	12V
Auxiliary supply:	0V
Control voltage:	+
Control voltage:	-

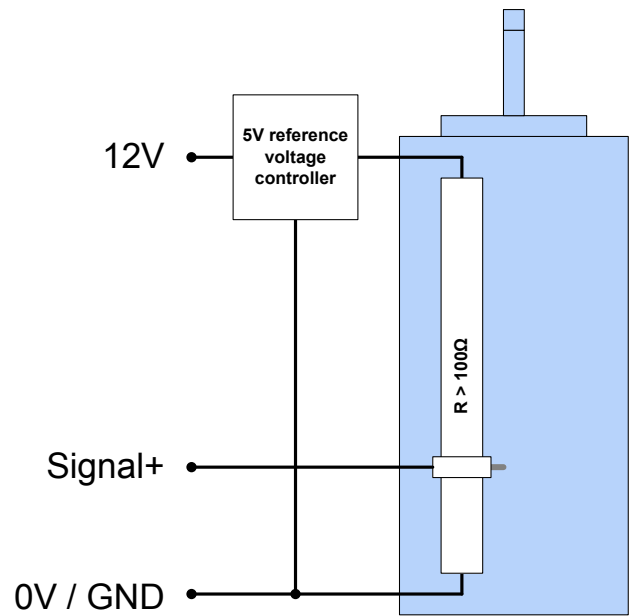
6 Application Example

6.1 Displacement Sensor Potentiometric (supplied by INF-USB3)

- With “active sensors”
- Accuracy is depending on the quality of the reference voltage



Output 0 ... 20000 digits



Output 0 ... 25000 digits

7 Debugging

This chart helps to find frequent errors and methods for debugging.

Error	Possible cause	Debugging
A connection to the INF-USB3 is not possible	Driver not or incorrectly installed	<ul style="list-style-type: none"> • Install driver package • The first start-up of the INF-USB3 must be carried out with administrator rights
	Supply voltage is overstrained in such a way that it breaks down	<ul style="list-style-type: none"> • Check whether the connected sensor corresponds to the specifications of the INF-USB3 • If the sensor requires higher current than available for the INF-USB3, this sensor can not be used together with the INF-USB3
	Supply voltage is shortened	<ul style="list-style-type: none"> • Fix the short circuit
Output signal remains at the positive or negative display stop device/dead stop	Active sensor connected to strain gauge input	<ul style="list-style-type: none"> • Check on type label which input type has been configured for the applied sensor connection
	Supply voltage connected to sensor input	<ul style="list-style-type: none"> • Check/correct the pin assignment
Output signal highly fluctuates (strain gauge)	Open sensor input	<ul style="list-style-type: none"> • Connect sensor

8 Technical Data

USB-Sensor-Interface INF-USB3							
Input range	±4.5 mV/V	±5V	±10V	0 ... 20 mA	4 ... 20 mA	10 ±10 mA	12 ±8 mA
Evaluation Side							
Measured values	±30000 digits	±25000 digits		0 ... 20000 digits			
Resolution	1 mV/V ± 10000 digits	1V ± 5000 digits	1V ± 2500 digits	1 mA ± 1000 digits			
Zero point	0 digits						
Output format	16 bit signed Int.						
Input resistance	>1 MΩ			-			
Rated burden	-			62 Ω			
Measuring rate	max. 5000 meas./s						
Temperature drift	4 bit/10 K						
Linearity error	±32 digits						
Accuracy	±32 digits						
Supply from USB	4 ... 6VDC ≤350 mA						
Cable length INF-USB3 - evaluation side	2 m						
Sensor Side							
Sensor supply	4V ≤20 mA	12V ≤80 mA					
Cable length INF-USB3 - sensor	Variable						
Miscellaneous							
Rated temperature range	10 ... 40 °C						
Operating temperature range	0 ... 50 °C						
Storage temperature range	-10 ... 70 °C						
Dimension (Ø x L)	25 x 115 mm (incl. screw joint)						
Level of protection	IP67						
Weight of INF-USB3 in the measuring line	0.3 kg						

9 Warranty

Warranty

All instruments from Interface Inc., ('Interface') are warranted against defective material and workmanship for a period of (1) one year from the date of dispatch. If the 'Interface' product you purchase appears to have a defect in material or workmanship or fails during normal use within the period, please contact your Distributor, who will assist you in resolving the problem. If it is necessary to return the product to 'Interface' please include a note stating name, company, address, phone number and a detailed description of the problem. Also, please indicate if it is a warranty repair. The sender is responsible for shipping charges, freight insurance and proper packaging to prevent breakage in transit. 'Interface' warranty does not apply to defects resulting from action of the buyer such as mishandling, improper interfacing, operation outside of design limits, improper repair or unauthorised modification. No other warranties are expressed or implied. 'Interface' specifically disclaims any implied warranties of merchantability or fitness for a specific purpose. The remedies outlined above are the buyer's only remedies. 'Interface' will not be liable for direct, indirect, special, incidental or consequential damages whether based on the contract, tort or other legal theory. Any corrective maintenance required after the warranty period should be performed by 'Interface' approved personnel only

www.interfaceforce.com