2025

Operating instructions measuring amplifier A150U

12.12.2025

Table of contents

General information

The DMS A150U measuring amplifier with USB interface can be used to wirelessly measure and monitor various sensors.

The measuring amplifier can be scaled using an 11-point scale or a polynomial function with 4 constants.

Up to 8 output channels and 8 limit value pairs can be freely selected and activated:

Gross [user-scaled]	scaled gross value with specified unit
Net [user-scaled]	scaled net value with specified unit
Tare [user-scaled]	scaled tare value with specified unit
Measured value [mV/V]	absolute measured value in [mV/V]
+ Peak value [user-scaled]	Positive peak value with specified unit
AD converter raw count	Negative peak value with specified unit
AD converter raw count	24-bit converter raw count
Device temperature in °C	Device temperature
	Only measurable when sensor is connected

Operation and introduction

To switch on the device, connect the plug-in power supply to the device socket and press the 'I/O' button on the front of the device until the device name appears on the TFT display.

To switch off the device, press the 'I/O' button for approx. 2 seconds. The message 'Hold the Key to Power down' will appear on the LCD display.

If the 'I/O' button is now deactivated, the device will continue to operate. If the screen saver is active, the brightness of the backlight will be reset to the target value.

If the 'I/O' button is now deactivated, the device will continue to operate. If the screen saver is active, the brightness of the backlight will be reset to the target value.

Instructions for handling the device that must be followed:

- The device has protection class IP54; suitable moisture protection must be provided for outdoor measurements.
- Clean the device, and in particular the TFT display, only with a damp cloth and, if necessary, a little soap. Never use methylated spirits, thinners, acetone or similar cleaning agents.
- Please handle the TFT display with care as it is sensitive to sharp objects and impacts.
- Before opening the device, the mains plug must be disconnected to ensure that the device is de-energised.

Important steps before installing on a computer

Before connecting the measuring amplifier to your computer for the first time, the setup programme must first be installed on the computer with administrator rights.

This will provide the operating system with the drivers/information required for operation.

If the measurement amplifier is connected to the computer before the drivers are installed, problems may arise later and the measurement amplifier will not be found by the setup programme. Please read the next chapter for more information.

Install device driver

The files required to operate the device are installed during installation by the corresponding setup programme. You can find them under:

C:\Windows\inf\Trachsler Electronics GmbH\

TE_Amplifier.cat is the catalogue file and the **usb_driver.inf** the corresponding information file.

The actual driver "Usbser.sys" is provided by Microsoft and should have been installed with Windows.

ⓘ   **If Windows is unable to install the device drivers or the device cannot be found, open Device Manager and search for the virtual COM port in the adapter settings. Select Reinstall driver and navigate to the path listed above. Confirm your entry and wait until Windows has entered the data**.

3.5" TFT display with touch function
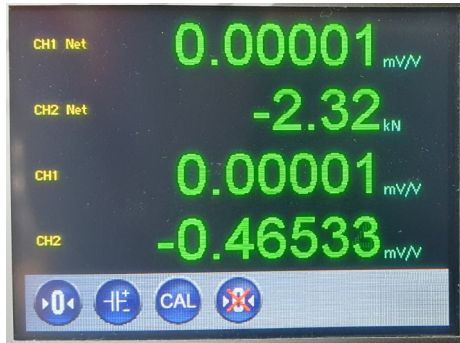
ⓘ In the setup programme, the number of output channels (max. 8) is activated and filled with the desired measured values. Up to 8 measured values are then displayed on the screen. (see under General Information)

Meaning of the buttons below the display (touch function):

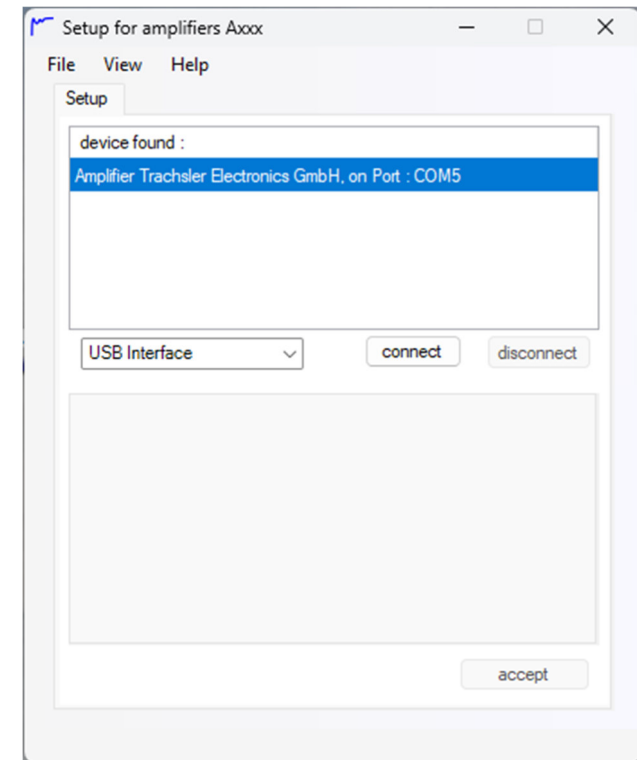Tare / zero the measured value

Reset peak values

Perform auto-calibration once

Taring / Zeroing Undo

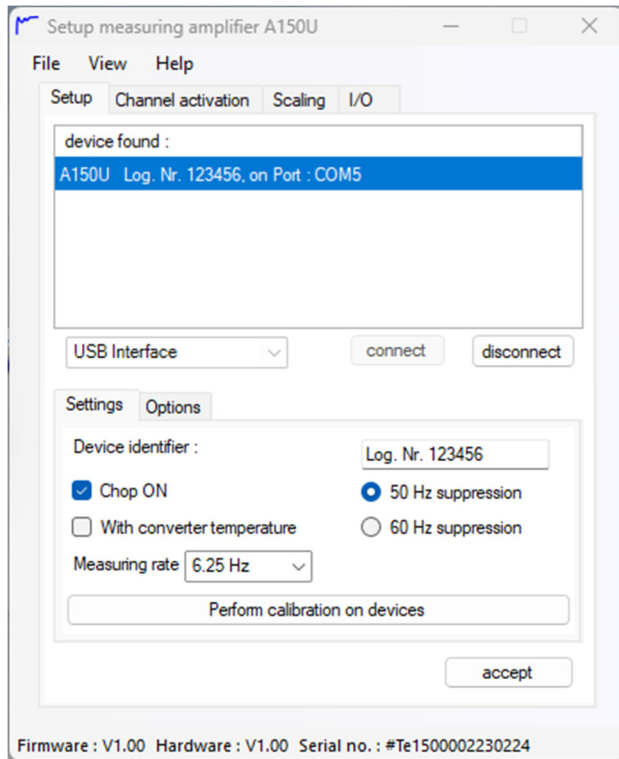## Connect to the device via the setup programme

Select the «USB interface» from the list of interfaces:

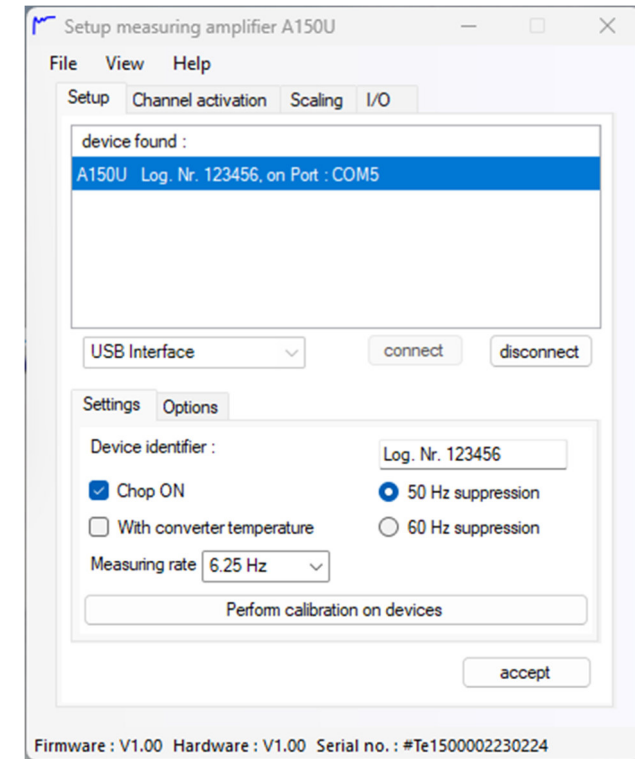The USB 2.0 interface is provided as a COM port. Multiple connected devices are listed.

Select «Connect» to start communication with the measurement amplifier.

Select device identifier

⭐ *You can assign an identifier to the device. This will be displayed in the list of found devices, among other places.*

Measurement amplifier settings

ℹ️ Chop ON: This setting is used to minimise offset drift when the measurement rate is less than 300 Hz.

If required, the transducer temperature of Channel 1 can be displayed in the setup programme.

Noise reduction (filter) can be set to the currently active mains frequency.

The measurement rate is usually set in the measurement programme used.

Perform device calibration

Channel activation, user designation, user unit

The measuring amplifier does not require sporadic auto-calibration, but internal device calibration can be performed manually.

Assign the desired measured values to the output channels. The names of the user parameter sets [CH1...5] can be changed if desired. The display shows, for example, S1 Net. The units are assigned to the parameter set and must be entered accordingly. They are used for user scaling.

The user unit is also displayed in the measured value display and is used in X-Link Ready for automatic layer summarisation.

Some measured values, such as the device temperature, the AD converter raw values, or the bridge detuning in [mV/V], are not scalable. User scaling is performed via the AD converter raw value with corresponding bridge detuning using a 2..11-point scaling or a polynomial scaling.

Perform user scaling

User scaling can be performed in two different ways, either multipoint scaling or polynomial scaling.

Multi-point scaling

Where the points are assigned manually (e.g. according to the data sheet) or via load steps of a sensor using a testing machine. In the latter case, it is possible to read in the measured value [mV/V] at the corresponding load and enter the user-scaled value.

The decimal point of the user-scaled value is set at the first decimal place. Specify how many decimal places you require and enter the first decimal place accordingly. In the following example, three decimal places are required for user scaling.

You could also perform scaling in [mV/V] to obtain user scaling in [mV/V], with the advantages of multi-point scaling/polynomial scaling. (Linearisation)

To release further points, tick the checkbox next to the corresponding points.

The multi-point scaling of the corresponding hardware channel is active if the check mark in point 1 is set. (Otherwise, the polynomial function is active)

The decimal point of the input variable [mV/V] cannot be changed, as it was set during device calibration.

Perform the scaling for hardware channels 1...4 according to your specifications. To do this, select the corresponding «Channel x [user scaling]»

Polynomial scaling

For example, use EXCEL to calculate a polynomial function with 4 constants and enter the values accordingly.

⭐ ***To insert the values into the respective constants, you must do this with the mouse (right-click Insert).***

Decimal and scientific entries are permitted, as shown in the example above.

Activate and set limit values

The measuring amplifier has 8 limit value pairs. These are visually displayed in the respective measured value display. In the measuring programme, a sound file can be assigned to the limit values, which is played when active.

The current output channels correspond to the settings you have made in the channel activation and serve only as an overview of the limit value settings, as does the check mark that indicates which output channel(s) are currently active. (Top)

To activate a limit value pair, click the checkbox for the limit value pair you want to activate. The assignment is displayed in grey.

ℹ️ The decimal points of the respective limit value pairs are adopted from the scaling performed. In this case, from the measured value in [mV/V] with 5 decimal places.

To enter the limit values, e.g. in Limit 1, double-click in the Limit 1 field (e.g. Limit 1 > of the measured value in [mV/V]) and enter -1.

To change the switching direction, double-click in the respective field under Active and select between Low / High. (e.g. active HIGH means that in our example, the limit value of the 'measured value [mV/V]' is triggered when it is greater than -1mV/V.

Proceed in the same way with Limit 2.

In our example, Limit 2 is triggered by deactivating the limit value when the measured value is greater than 1mV/V.

⭐ *Hysteresis is not supported by the measuring amplifier*
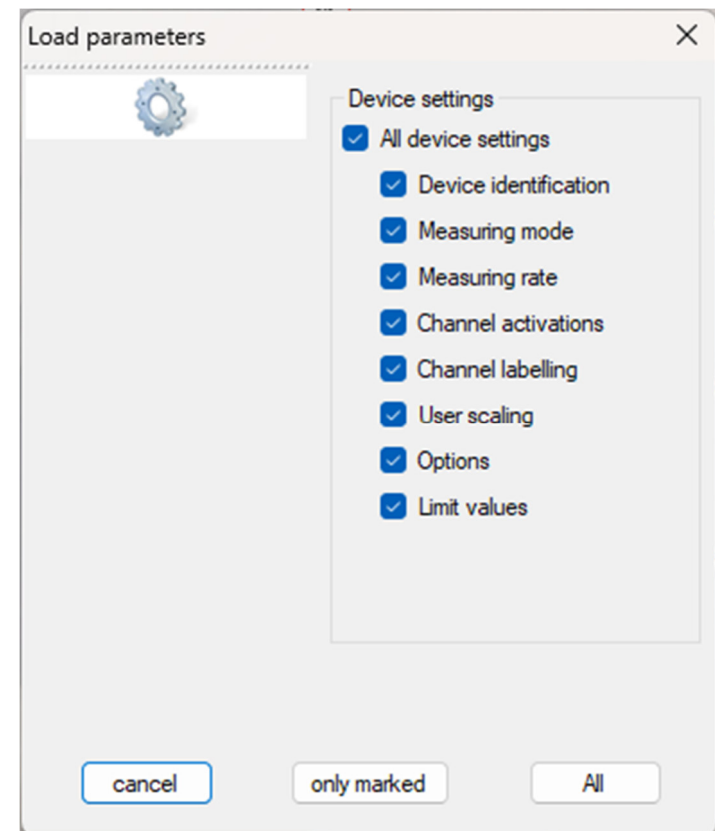
Load / save settings

All settings made on the device can be saved and loaded. Select «File» in the menu to save/load settings

ℹ️ Load settings:

You can choose exactly what you want to load. Select the appropriate option.

Page view Printer selection Print settings

To do this, select «File» > «Page view» from the menu.

The device settings can also be printed out so that a log can be filed after calibration.

Example page view:

Select a printer under Printer Selection and print the page(s)

Settings from amplifier A150U :

Serial number : #Te1500002230224
Firmware version : 1.00
Hardware version : 1.00

Amplifier settings :

Device identifier :	Log. Nr. 123456
CHOP :	On, Without converter temperature, 50 Hz suppression, Sample rate : 6.25 Hz
Options :	Tare values will not be saved power down protected
	Measurement values in mV/V will be set to zero

Channel activation (active output channels) :

active	Output Channel 1 : Measured value [mV/V]
active	Output Channel 2 : Net [user scaling]
active	Output Channel 3 : + Peak value [user scaling]
active	Output Channel 4 : - Peak value [user scaling]
inactive	Output Channel 5 : Measured value [mV/V]
inactive	Output Channel 6 : Gross [user scaling]
inactive	Output Channel 7 : Gross [user scaling]
inactive	Output Channel 8 : Gross [user scaling]

Parameter set :	P1	P2	P3	P4	P5
User :	S1	S2	S3	S4	S5
Unit :	kN	kN	kN	kN	kN

Parameter set 1 : (multipoint scale)

1 .Point	active	0.000kN	equals	0.00000mV/V
2 .Point		10.000kN	equals	2.00000mV/V
3 .Point	inactive	0.000kN	equals	0.00000mV/V
4 .Point	inactive	0.000kN	equals	0.00000mV/V
5 .Point	inactive	0.000kN	equals	0.00000mV/V
6 .Point	inactive	0.000kN	equals	0.00000mV/V
7 .Point	inactive	0.000kN	equals	0.00000mV/V
8 .Point	inactive	0.000kN	equals	0.00000mV/V
9 .Point	inactive	0.000kN	equals	0.00000mV/V
10 .Point	inactive	0.000kN	equals	0.00000mV/V
11 .Point	inactive	0.000kN	equals	0.00000mV/V

Parameter set 2 : (multipoint scale)

1 .Point	active	0.000kN	equals	0.00000mV/V
2 .Point		10.000kN	equals	2.00000mV/V
3 .Point	inactive	0.000kN	equals	0.00000mV/V
4 .Point	inactive	0.000kN	equals	0.00000mV/V
5 .Point	inactive	0.000kN	equals	0.00000mV/V
6 .Point	inactive	0.000kN	equals	0.00000mV/V
7 .Point	inactive	0.000kN	equals	0.00000mV/V
8 .Point	inactive	0.000kN	equals	0.00000mV/V
9 .Point	inactive	0.000kN	equals	0.00000mV/V
10 .Point	inactive	0.000kN	equals	0.00000mV/V
11 .Point	inactive	0.000kN	equals	0.00000mV/V

Sonntag , 14.12.2025 11:56:56   Seite 1

Parameter set 3 : (multipoint scale)

1 .Point	active	0.000kN	equals	0.00000mV/V
2 .Point		10.000kN	equals	2.00000mV/V
3 .Point	inactive	0.000kN	equals	0.00000mV/V
4 .Point	inactive	0.000kN	equals	0.00000mV/V
5 .Point	inactive	0.000kN	equals	0.00000mV/V
6 .Point	inactive	0.000kN	equals	0.00000mV/V
7 .Point	inactive	0.000kN	equals	0.00000mV/V
8 .Point	inactive	0.000kN	equals	0.00000mV/V
9 .Point	inactive	0.000kN	equals	0.00000mV/V
10 .Point	inactive	0.000kN	equals	0.00000mV/V
11 .Point	inactive	0.000kN	equals	0.00000mV/V

Parameter set 4 : (multipoint scale)

1 .Point	active	0.000kN	equals	0.00000mV/V
2 .Point		10.000kN	equals	2.00000mV/V
3 .Point	inactive	0.000kN	equals	0.00000mV/V
4 .Point	inactive	0.000kN	equals	0.00000mV/V
5 .Point	inactive	0.000kN	equals	0.00000mV/V
6 .Point	inactive	0.000kN	equals	0.00000mV/V
7 .Point	inactive	0.000kN	equals	0.00000mV/V
8 .Point	inactive	0.000kN	equals	0.00000mV/V
9 .Point	inactive	0.000kN	equals	0.00000mV/V
10 .Point	inactive	0.000kN	equals	0.00000mV/V
11 .Point	inactive	0.000kN	equals	0.00000mV/V

Parameter set 5 : (multipoint scale)

1 .Point	active	0.000kN	equals	0.00000mV/V
2 .Point		10.000kN	equals	2.00000mV/V
3 .Point	inactive	0.000kN	equals	0.00000mV/V
4 .Point	inactive	0.000kN	equals	0.00000mV/V
5 .Point	inactive	0.000kN	equals	0.00000mV/V
6 .Point	inactive	0.000kN	equals	0.00000mV/V
7 .Point	inactive	0.000kN	equals	0.00000mV/V
8 .Point	inactive	0.000kN	equals	0.00000mV/V
9 .Point	inactive	0.000kN	equals	0.00000mV/V
10 .Point	inactive	0.000kN	equals	0.00000mV/V
11 .Point	inactive	0.000kN	equals	0.00000mV/V

Limit switch settings :

1. Pair of limit values	Source	Threshold	active
inactive : Limit switch 1 >	Measured value [mV/V]	0.00000mV/V	HIGH
inactive : Limit switch 2 >	Measured value [mV/V]	0.00000mV/V	HIGH

Limit switch settings :

2. Pair of limit values	Source	Threshold	active
inactive : Limit switch 1 >	Net [user scaling]	0.000kN	HIGH
inactive : Limit switch 2 >	Net [user scaling]	0.000kN	HIGH

Limit switch settings :

3. Pair of limit values	Source	Threshold	active
inactive : Limit switch 1 >	+ Peak value [user scaling]	0.000kN	HIGH
inactive : Limit switch 2 >	+ Peak value [user scaling]	0.000kN	HIGH

Limit switch settings :

4. Pair of limit values	Source	Threshold	active
inactive : Limit switch 1 >	- Peak value [user scaling]	0.000kN	HIGH
inactive : Limit switch 2 >	- Peak value [user scaling]	0.000kN	HIGH

Limit switch settings :

5. Pair of limit values	Source	Threshold	active
inactive : Limit switch 1 >	Measured value [mV/V]	0.00000mV/V	HIGH
inactive : Limit switch 2 >	Measured value [mV/V]	0.00000mV/V	HIGH

Limit switch settings :

6. Pair of limit values	Source	Threshold	active
inactive : Limit switch 1 >	Gross [user scaling]	0.000kN	HIGH
inactive : Limit switch 2 >	Gross [user scaling]	0.000kN	HIGH

Limit switch settings :

7. Pair of limit values	Source	Threshold	active
inactive : Limit switch 1 >	Gross [user scaling]	0.000kN	HIGH
inactive : Limit switch 2 >	Gross [user scaling]	0.000kN	HIGH

Limit switch settings :

8. Pair of limit values	Source	Threshold	active
inactive : Limit switch 1 >	Gross [user scaling]	0.000kN	HIGH
inactive : Limit switch 2 >	Gross [user scaling]	0.000kN	HIGH

Save tare and zero values in a power failure-proof manner

The tare and zero values can be stored in the device EEPROM in a power failure-proof manner so that they are not lost in the event of a power failure.

To do this, select the «Options» tab.
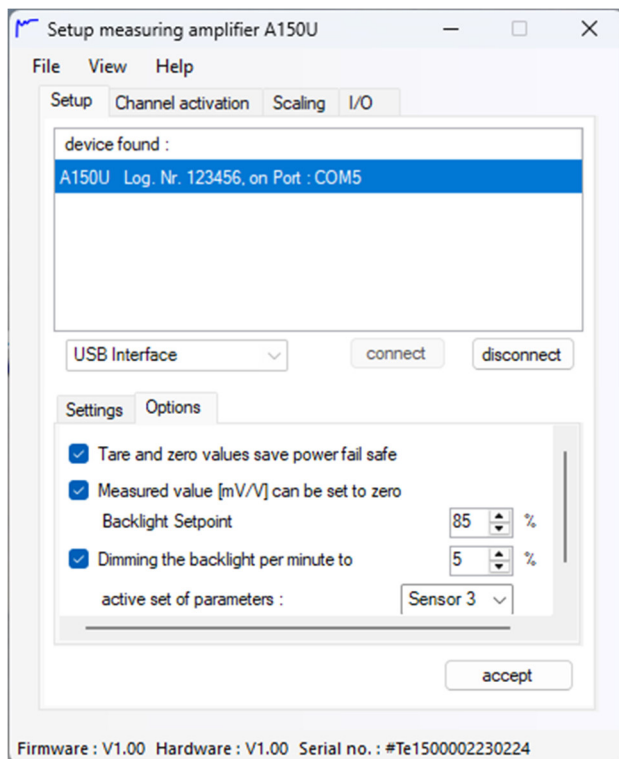
Activate tare and zero values, save them as fail-safe and apply the setting.

Select active parameter set

An active parameter set can be selected in the Options menu. Change the active parameter set if you want to scale a different parameter set.

To do this, select the «Options» tab.

Measured values [mV/V] Zero-adjustable

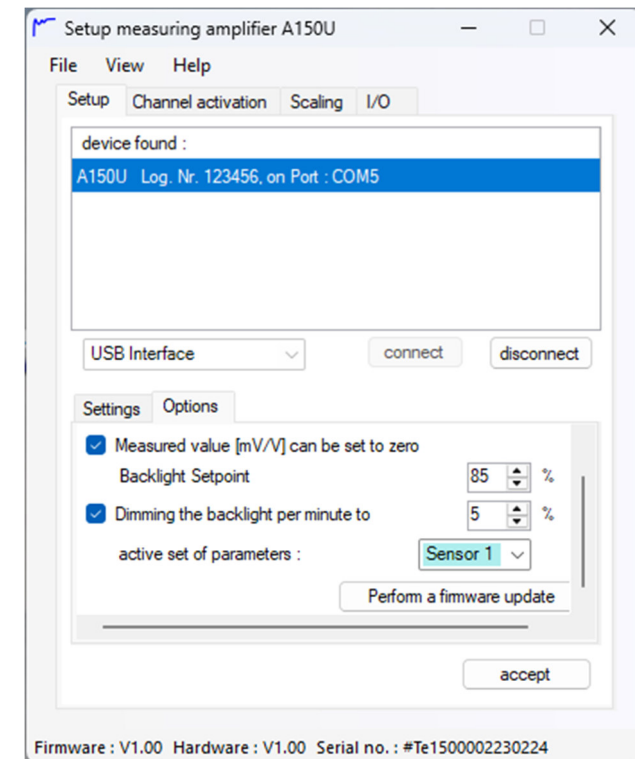The measured value «bridge offset» in [mV/V] is an absolute value. This option was introduced to keep it resettable to zero.

To do this, select the «Options» tab
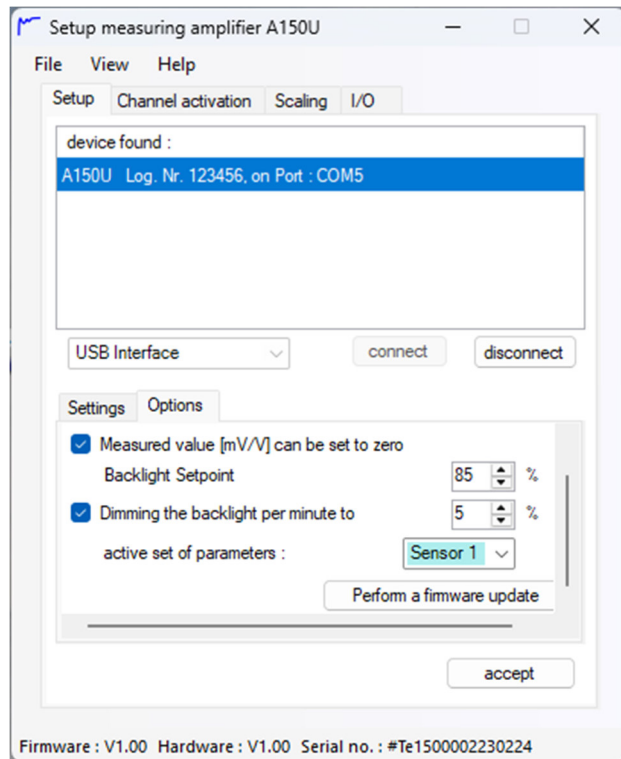
Dimming the TFT backlight and setting the screensaver
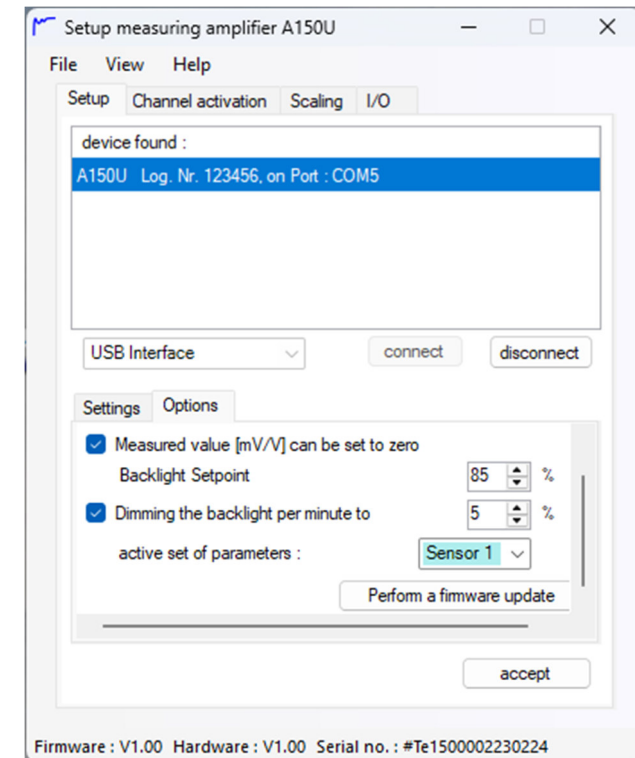
The TFT backlight can be dimmed to a fixed percentage. To do this, select the «Options» tab and change the setpoint.

If desired, a screensaver can also be activated, which continuously dims the display to a defined value every minute.

To interrupt the screensaver during operation, briefly press the I/O button. The device will not switch off unless the I/O button is pressed for approx. 2-3 seconds.

Perform firmware update

To do this, select the «Options» tab and scroll down.

The device's operating system (firmware) can be updated. Follow the instructions displayed on the screen.

⭐ *Only activate this function if you have the appropriate update and an update is required.*
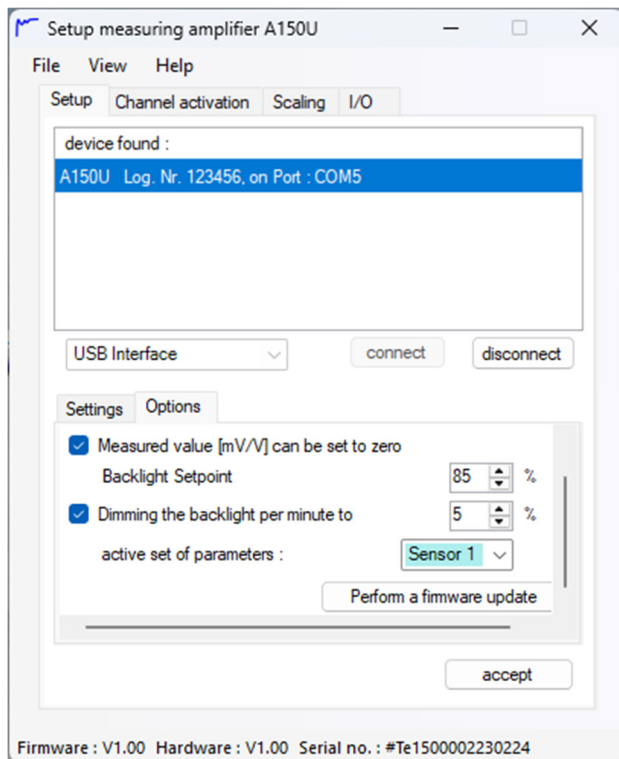
Once the firmware update has started, communication must not be interrupted!

⭐ *If an error occurs (timeout, firmware not for this device, or not available), the device can be restored to operational status with the current firmware as follows, provided that the flash memory has not yet been deleted:*

Disconnect the power cable and wait until the device is de-energised (support capacitors in the power supply unit discharged). The power cord can then be reconnected and the device switched on using the I/O button on the front of the device.

The LED display will show 'Load...' again. Repeat the procedure 5 times. The device will then be ready for operation again with the active firmware version.

If the procedure does not restart the device in the event of an error, the device's flash memory has been deleted. In this case, firmware MUST be loaded.

In the event of an error, send the device to the manufacturer with a description of the error.

ℹ During an active firmware update, the update status is shown on the LED display.

Measured value display

(i) The measured value display in the setup programme shows 8 measured values, depending on the activated output channels.

Meaning of the buttons below the display:

 Tare / zero the measured value

 Reset peak values

 Perform auto-calibration once

 Taring / Zeroing Undo

Switching the device on/off

To switch on the device, connect the power cable to the mains voltage socket and press the «I/O» button on the front of the device until the device name appears on the TFT display.

To switch off the device, press the «I/O» button for approx. 2 seconds. The message

«Hold the Key to Power down» will appear on the LCD display.

If the «I/O» button is now deactivated, the device will continue to operate. If the screen saver is active, the brightness of the backlight will be reset to the target value.

If the LCD background inverts when the «I/O» button is pressed for a longer period of time, it can be deactivated. The device will then switch off.

Attention!

Before opening the device, the power cable MUST always be disconnected from the device. Since the device is not completely de-energised when switched off using the «I/O» button.

Nameplate

The pin assignment of the full bridge can be found on the type plate on the rear of the device.
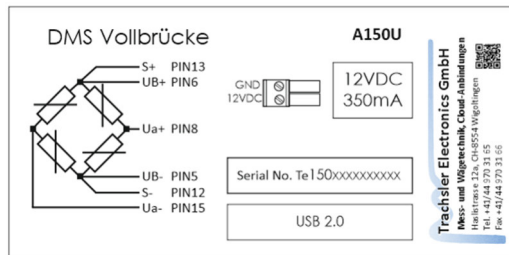
Sensor connection

The sensors are connected via a 15-pin DSUB device socket using 6-wire technology.

DMS Vollbrücke 60...1000Ohm

PIN 8   Positive output voltage Ua+

PIN 6   Positive bridge voltage UB+

PIN 5   negative bridge voltage UB-

PIN 15 negative output voltage Ua-

PIN 13 positive sense line S+

PIN 12 negative sense line S-

Shield is attached to the housing over a large area on the DSUB connector

Check whether an update is available

To do this, select «Help» -> «Info» from the menu.

To make software maintenance easier for you, you have the option of performing a manual update check. This is only done at your request by clicking on the «Check for updates» button. You must have an active connection to the internet. After the check, you will be informed if a newer software version is available. Click on the «More information» hyperlink to find out what changes have been made.
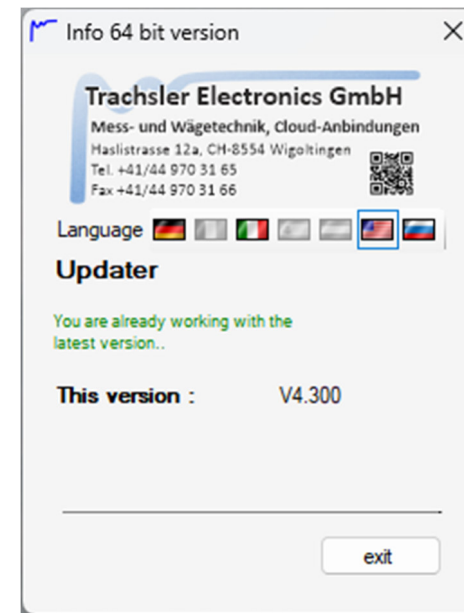
No statistics are kept, no personal data is collected, and no data is sent from your computer to a server. Data transfer is limited solely to reading data and, if necessary, downloading software-related components..

⭐ *A downloaded version of the programme will be saved to your desktop.*

Before the new setup programme can be installed, the old version must be uninstalled. To do this, you must have administrator rights.

Select user language

If you wish to change the user language of the setup programme, select the desired language using the flags. The language will be available after restarting the programme.

Technical specifications

Specifications :

Accuracy class		0.01
Bridge excation voltage DC	V	5
Connectable Sensors		
DMS Fullbridge	Ohm	30 ... 1000
Including sense technology		
Maximum cable length	m	25
Sensor connection		DB15 Pin
Measuring range / Bridge aligment range	mV/V	+/-7mV/V
AD converter type		Sigma-Delta (Σ-Δ)
Internal resolution up to	bit	24
User Scaling		2 ... 11 point, or
		polynomial of degree 3, with 4 coefficients
Available number of parameter sets		5pcs.
Digital filter		Notch - Filter (depended from sample rate)
Internal Sample range	Hz	0.625 ... 4800
Data transmission scaled with an enabled output channel	Hz	0.625 ... 150
* Linearity deviation :	%	<0.004
* Temperature effect per K	%	after 30min operating durations
zero point		<0.005
measuring sensitivity		<0.0025
Operating temp. range	°C	-10 ... +40
Peak value memory		2 pieces per channel (user scaled)
Limit values (in the measured value status)		16 pieces definable
Supply voltage DC	V	6.5 ... 13.5V
max. voltage ripple	V	± 200mV
Current consumption		< 350mA
Interface		USB 2.0
IP Code		IP 54
Dimensions [L * W * H]	mm	135 * 85 * 35
Weight	kg	< 0.5

* 3mV/V calibrated, 2.5Hz sample rate