

ASTAS[®] 2

Software

Original
Operation Manual

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1. Introduction

The ASTAS software **ASTAS**®2 is the universal tool for configuration and evaluation for measuring instruments with USB port from A.S.T. Angewandte System Technik GmbH.

The software currently supports the following devices:

- DI 1000
- LS 1000
- KAx-CANopen - Kraftaufnehmer mit CANopen

You can find the software **ASTAS**®2 on our website www.ast.de, or CD-ROM „**Product Information**“



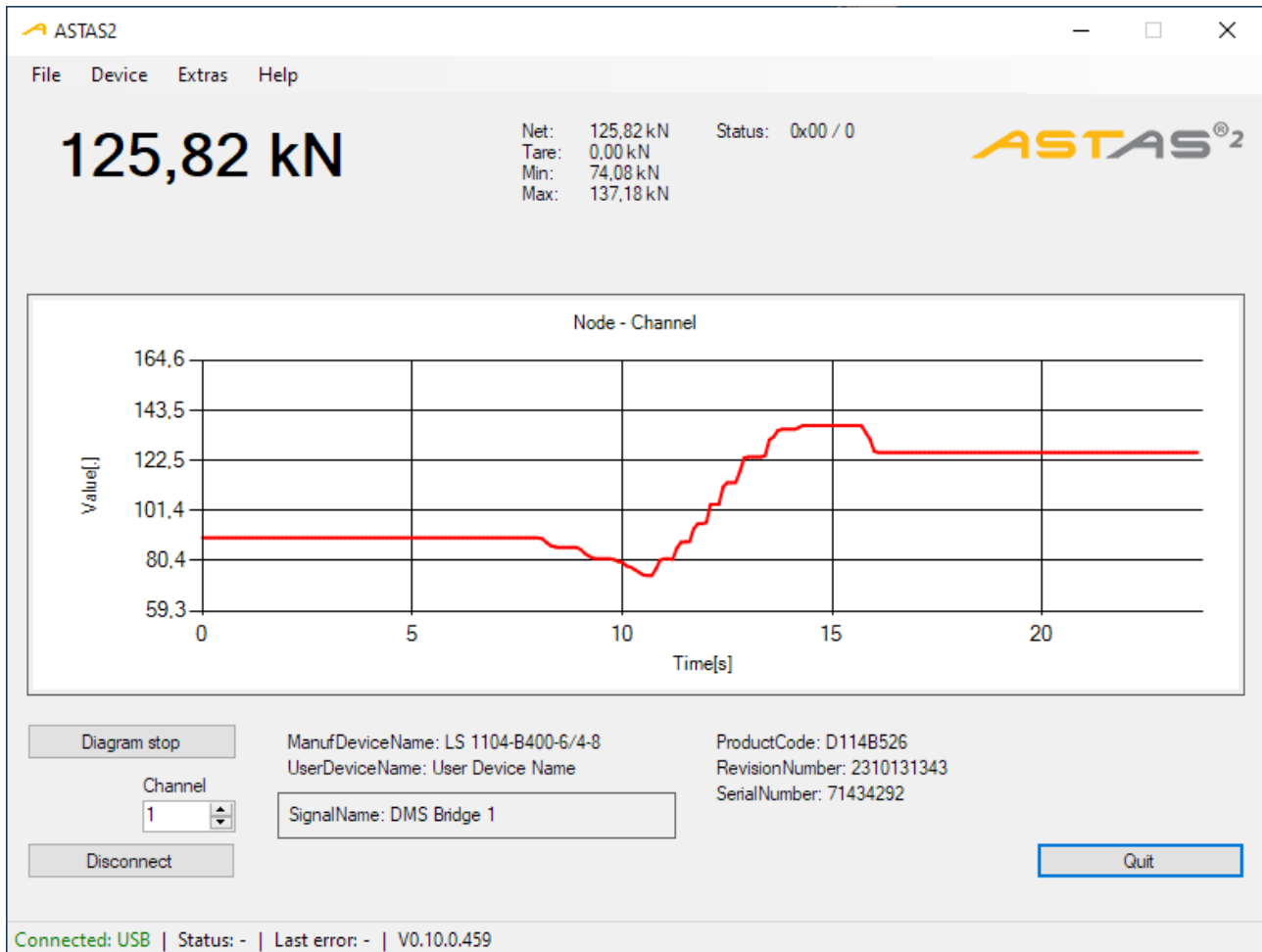
NOTE! Certain functions and settings depend on the firmware status of the device and thus may be unavailable!

Special features:

- Display and logging of data series in the force-time curve
- Setup and calibration functions
- Storage of setup files

2. Operation

2.1. Program start



The main windows shows

- Current measured value per channel
- Chart with scrolling plot and averaging display
- Status bar
 - USB-status
 - Status Node of CANopen
 - last Error message
 - Software version

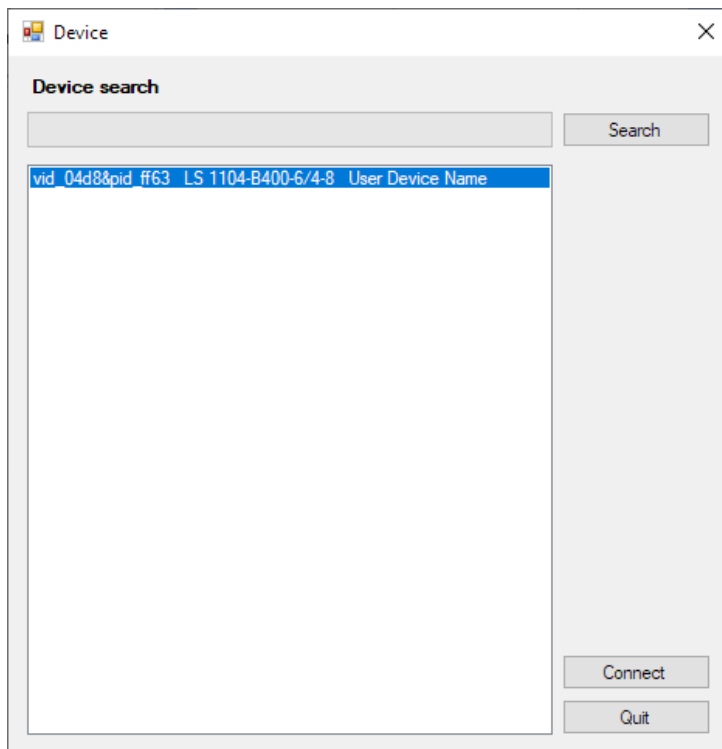
2.2. Connecting with device

Connect the device with USB cable to your PC and start the software **ASTAS^{®2}**. Start the connection with button "Connect". Select the right channel. After completing all the settings, "Disconnect" and close the software with "Quit".

3. Device

3.1. Summery

Menu  Device  Summery



This list contains all devices plugged in as detected by the software, inclusive of basic information. Highlight a device from the list and press Connect to establish the connection to the selected device. The window opens automatically if more than one device is connected.

This program will automatically connect when only one device is connected.



NOTE It is possible to start several instances of **ASTAS®²** to be able to control several devices plugged.

3.2. Setup

Menu → Device → Setup

Read setup from file Read out a local file.

Write setup to file Save the setup in a file.

3.2.1. Node/Device

Menu → Device → Setup → "Node/ Device"

The screenshot shows a software window titled "Setup" with a close button (X) in the top right corner. The window has a tabbed interface with the following tabs: "Node/Device" (selected), "Analogue inputs", "Analogue outputs", "Digital inputs", "Digital outputs", and "Load spectrum recorder".

The "Node/Device" tab contains several configuration sections:

- Identification:** Fields for Vendor ID (937), Product code (D114B526), Revision number (2310131343), and Serial number (71434292).
- Manufacturer:** Fields for Manufacturer HW (BDAS01.03) and Manufacturer SW (4.6).
- Device Name:** Fields for Manuf. device name (LS 1104-B400-6/4-8) and User device name (User Device Name), with a "Write" button below.
- NodeID:** Field for NodeID (127) with a "Write" button below.
- Baudrate:** Field for Baudrate (125) with a dropdown arrow and "[kbit/s]" label, with a "Write" button below.
- Heartbeat:** Field for Node heartbeat (1000) with "[ms]" label, with a "Write" button below.
- Default:** A "Restore" button.

At the bottom of the window, there are three buttons: "Read setup from file", "Write setup to file", and "Quit".

User Device Name Input field for your own device name

Node ID Node ID or device address in CANOpen-network

Baudrate CAN-Baud rate of device

Node Heartbeat Heartbeat-Time for CANopen

Default Resetting to factory settings

3.2.2. Analogue inputs

Menu → Device → Setup → "Analogue output"

Channel	Selection of the measurement channel
Settings	<input checked="" type="checkbox"/> Input channel active / <input type="checkbox"/> Input channel inactive
Signal name	Name of channel
Scaling /Nominal value	Inputs of the values are used for the theoretical adjustment of the channel.
Scaling	Nominal value of theoretical adjustment
Decimal digits	Number of decimal places
Unit	Selection of unit
ADC-conversion rate	ADC-conversion rate of device
Overload	Overload message
Underload	Underload message
Shutdown limit Top	max. Overload
Shutdown limit Bottom	min. Underload
Filter type and Filter constant	Selection of Filter type and constant

3.2.3. Analogue outputs

Menu → Device → Setup → "Analogue outputs"

The screenshot shows the 'Setup' window with the 'Analogue outputs' tab selected. The 'Output' dropdown is set to '1'. The 'Settings' section includes a text field for 'Signal name' (Analog Output Signal 1) and a checked 'Activated' checkbox. The 'Scaling' section has a 'Channel' dropdown (Out 1), a 'Link output' text field (25000D20), an 'Output type' dropdown (0..24 mA), and two pairs of scaling fields: 'Scaling 1' (-12.5 [.] and 0 [mA]) and 'Scaling 2' (62.5 [.] and 24 [mA]). The 'Output channel' section is a table with columns Ch1 (kN), Ch2 (kN), Ch3 (kN), and Ch4 (N). The 'Out 1' row has a green '+' in the Ch1 column and 'o' in the others. Below the table are 'Output read' and 'Output write' buttons. At the bottom right are 'Read setup from file', 'Write setup to file', and 'Quit' buttons.

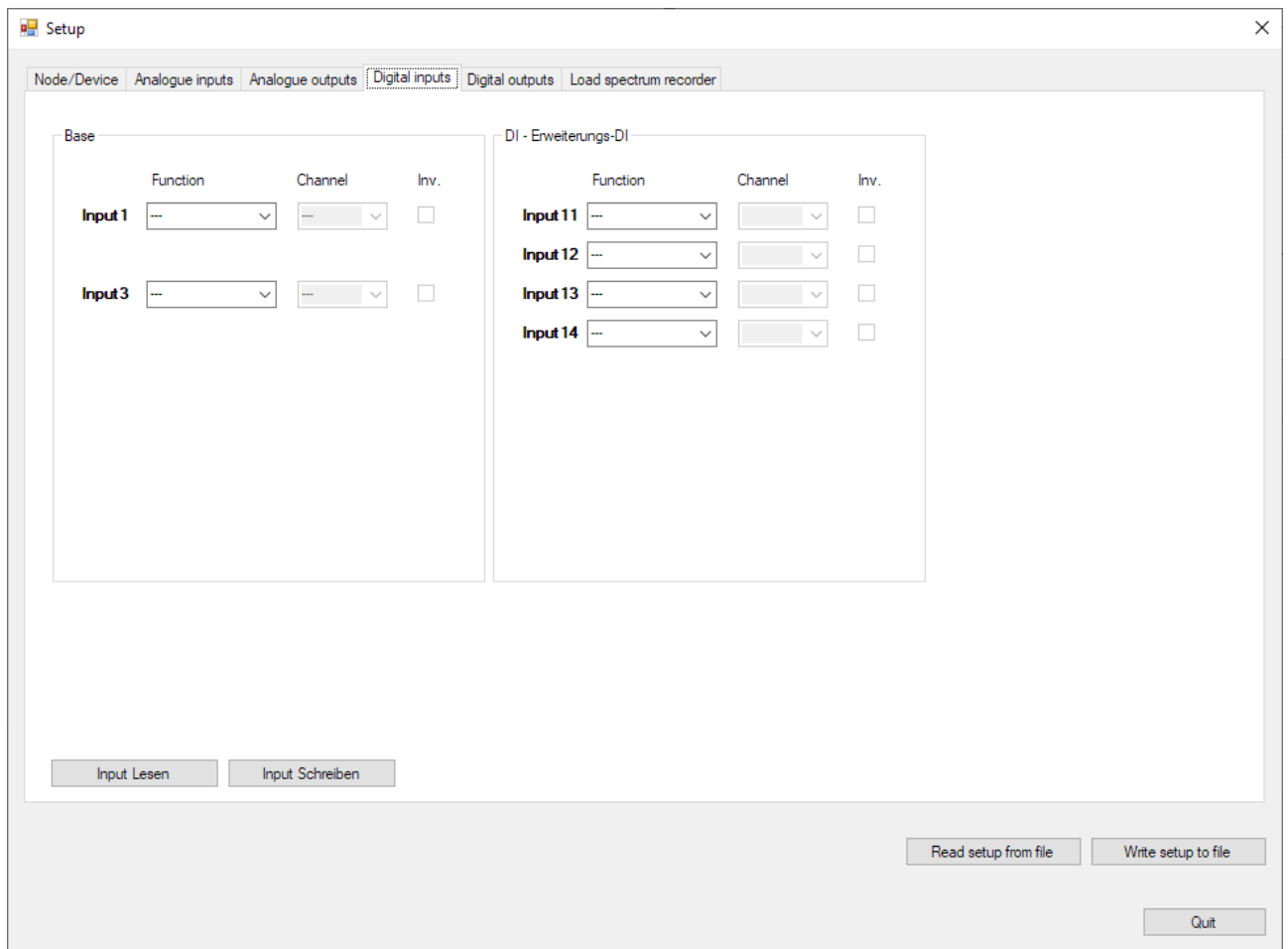
- Output** Selection of analogue output
- Settings** Output active / Output inactive
- Output channel** Combo field of analogue inputs for the respective analogue output (Outx)
- Output type** Selection of current or voltage output
- Scaling 1** adjustment point 1
- Scaling 2** adjustment point 2



NOTE! Input fields without selection are marked with an "o".

3.2.4. Digital Inputs

Menu → Device → Setup → "Digital inputs"



- Function** Selection of function: Tara / Clear Min/Max / Load spectrum recorder (LSR)
- Channel** Selection of channel (Ch1...Chx)
- Inv.** Inversion of the respective digital input (Inputx)

3.2.5. Digital Outputs (Switch Points und Relay)

Menu → Device → Setup → "Digital outputs"

The screenshot shows the 'Setup' window with the 'Digital outputs' tab selected. The window title is 'Setup'. At the top, there are tabs for 'Node/Device', 'Analogue inputs', 'Analogue outputs', 'Digital inputs', 'Digital outputs', and 'Load spectrum recorder'. The main area is titled 'Switch points' and contains a table with columns for 'Analogue inputs' (Ch1, Ch2, Ch3, Ch4) and 'Relay' (K1, K2, K3, K4, K11, K12, K13, K14). The rows represent switch points SP1 through SP12. Each row has dropdown menus for the analogue inputs and input fields for Type, Value, Hyst., and Delay. Checkboxes are used for selecting relays. At the bottom, there are buttons for 'SP read', 'SP write', 'Read setup from file', 'Write setup to file', and 'Quit'.

Switch point	Analogue inputs				Type	Value	Hyst.	Delay	Relay								
	Ch1 kN	Ch2 kN	Ch3 kN	Ch4 N					K1	K2	K3	K4	K11	K12	K13	K14	
SP1	+	o	o	o	Ovl	120.0	0.0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SP2	o	+	o	o	Unl	-24.0	0.0	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SP3	+	+	+	o	Ovl	250.0	0.0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SP4	+	-	o	+	Unl	110.0	0.0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SP5	o	o	o	o	o	0.0	0.0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SP6	o	o	o	o	o	0.0	0.0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SP7	o	o	o	o	o	0.0	0.0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SP8	o	o	o	o	o	0.0	0.0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SP9	o	o	o	o	o	0.0	0.0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SP10	o	o	o	o	o	0.0	0.0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SP11	o	o	o	o	o	0.0	0.0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SP12	o	o	o	o	o	0.0	0.0	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

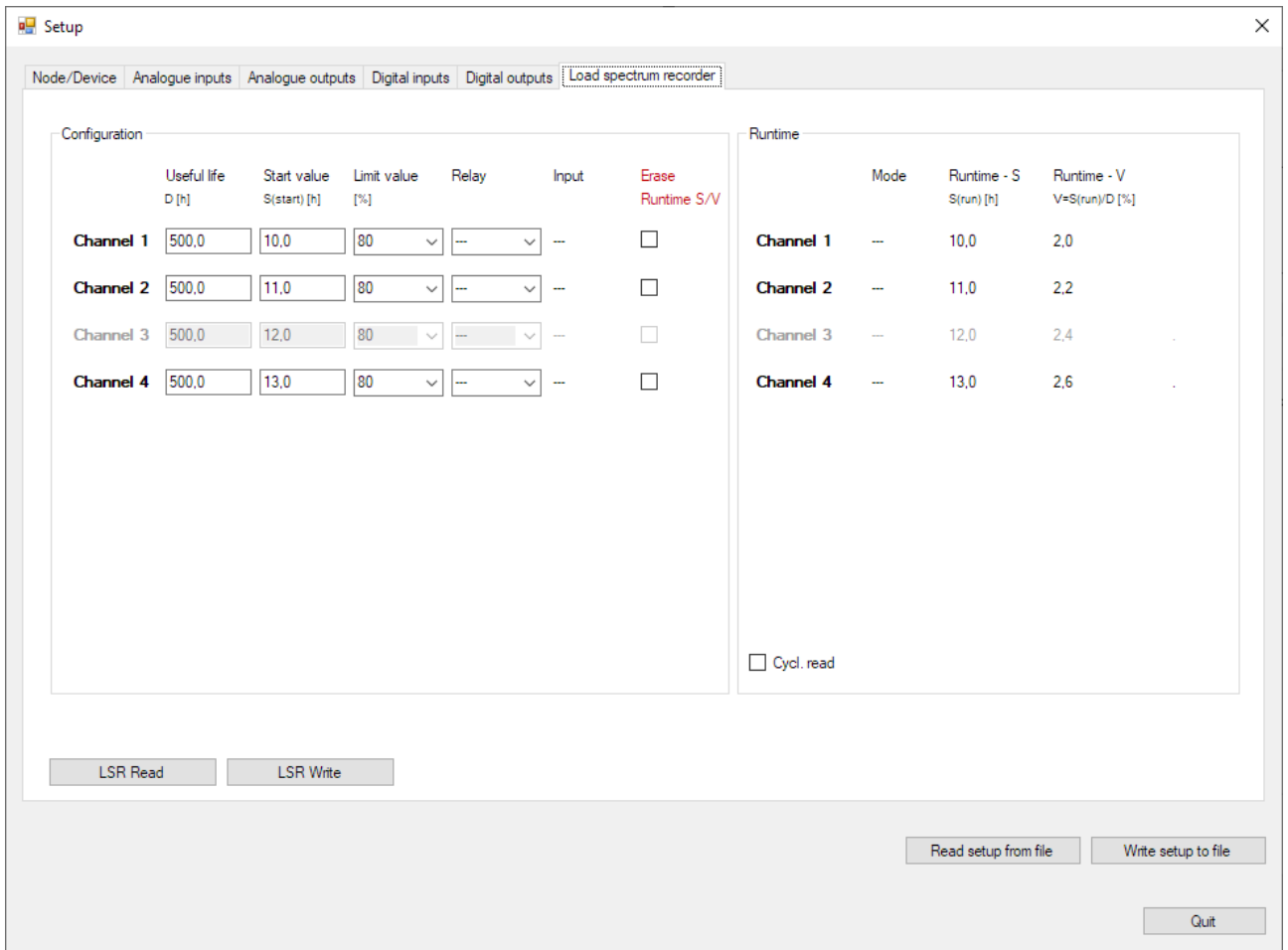
- Switch point SPx** Assignment of analog inputs (Ch1...Chx) to the switching point SP1...SPx
- Type** switch on at overload (Ovl) / underload (Unl)
- Value** Switch value
- Hyst.** Hysterese value (absolute)
- Delay** Delay time 0...5000 ms with 1 ms steps
- Relay** Selection of relay (or relais)



NOTE! Input fields without selection are marked with an "o".

3.2.6. Load Spectrum Recorder (LSR)

Menu → Device → Setup → "Load spectrum recorder"



Useful life D [h]	theoretical useful service life
Start value S [h]	Start value S [h] of theoretical useful service life
Limit value [%]	pre-warning value [%] for theoretical useful service life
Relay	Assignment of a relay when the limit value is exceeded
Input	Selection of digital input see menu "Digital input"
Erase Runtime S/V	Reset all settings
Mode	Display LSR-Mode: --- / RUN
Runtime S(run) [h]	Display actual useful service life
Runtime V [%]	Display relative useful service life in % [V=S(run)/D]

Calculation of useful service life

Load values are calculated second-by-second: 1/3600 h.

The LKZ 701.01 evaluates a ≤ 4 mA load signal applying 0% and a current signal 4mA...I_{100%} from 0...100%. The LKZ 701.02 evaluates a ≤ 0 V DC load signal applying 0% and a voltage signal 0V DC...U_{100%} from 0...100%.

Evaluation and totalizing in respect of actual usage S_i is carried out according to equation (1).

$$S = S_i = S_{i-1} + (I_{N_i} / I_{N_{100\%}})^3 / 3600 \quad (1)$$

- S_i Useful service life in h after i-th measuring interval
- S_{i-1} Previous useful service life in h
- I_{N_i} Input value to i-th measurement interval
- I_{N_{100%}} Input value at 100% hoist-unit load

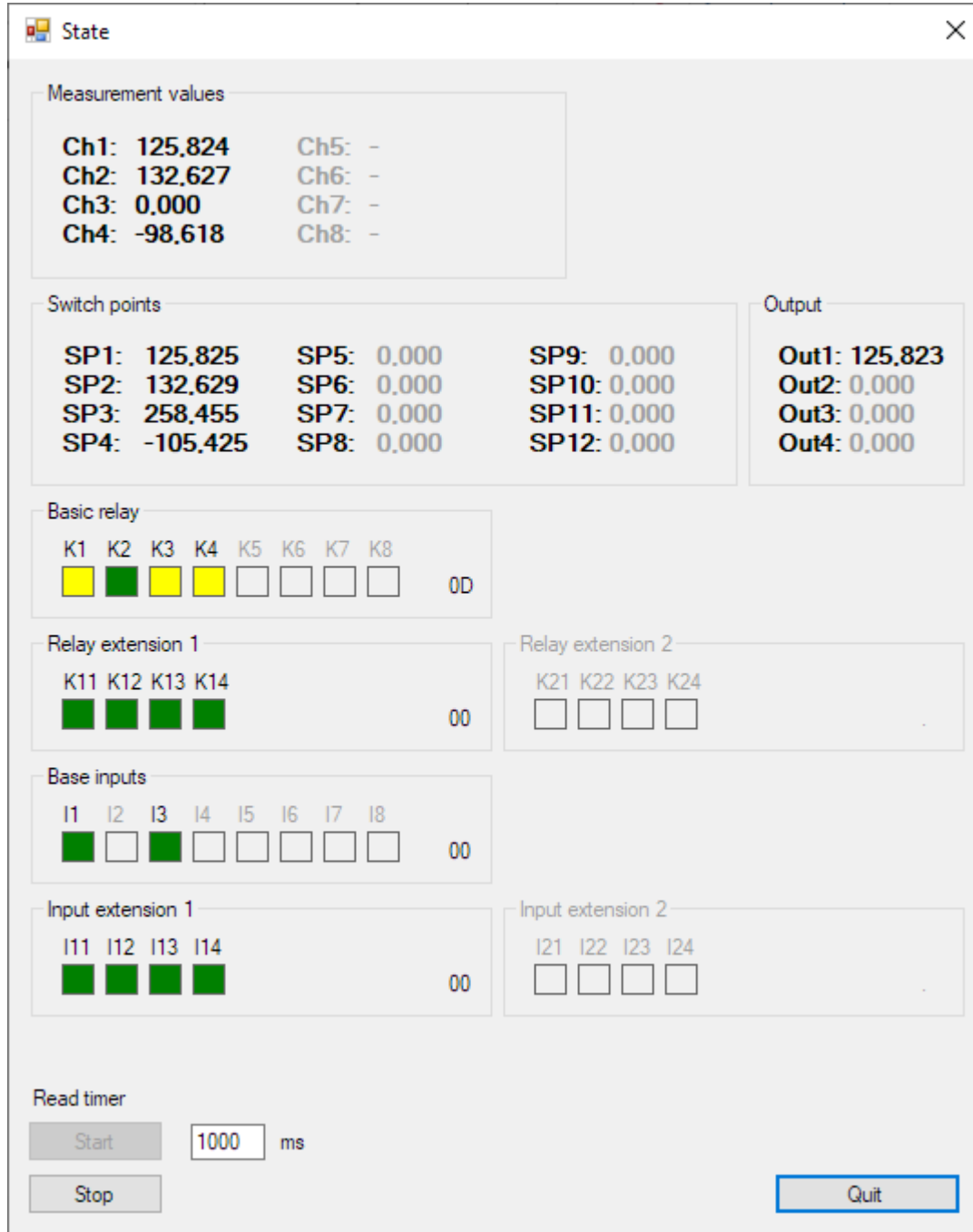
The „consumed“ useful service life V_i is calculated according to equation (2).

$$V = V_i = S_i / D \quad (2)$$

- V_i Consumed useful service life after i-th measurement interval, displayed as %
- S_i Useful service life in h after i-th measurement interval
- D Theoretical usage to be entered in h

3.3. State

Menu  Device  State



The screenshot shows the 'State' window with the following data:

Measurement values	
Ch1: 125,824	Ch5: -
Ch2: 132,627	Ch6: -
Ch3: 0,000	Ch7: -
Ch4: -98,618	Ch8: -

Switch points			Output
SP1: 125,825	SP5: 0,000	SP9: 0,000	Out1: 125,823
SP2: 132,629	SP6: 0,000	SP10: 0,000	Out2: 0,000
SP3: 258,455	SP7: 0,000	SP11: 0,000	Out3: 0,000
SP4: -105,425	SP8: 0,000	SP12: 0,000	Out4: 0,000

Basic relay

K1	K2	K3	K4	K5	K6	K7	K8
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

0D

Relay extension 1

K11	K12	K13	K14
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

00

Relay extension 2

K21	K22	K23	K24
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Base inputs

I1	I2	I3	I4	I5	I6	I7	I8
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

00

Input extension 1

I11	I12	I13	I14
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

00

Input extension 2

I21	I22	I23	I24
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Read timer

Start ms

Stop Quit



NOTE! The Status displays for measured values / switching points / relays / inputs are depend from device!

3.4. Load Calibration

Menu → Device → Load calibration

Channel 1

Apply zero load 0,0 [kN]

Store zero load OK

Apply load

Set measured value 200 [kN]

Store load OK

Zero load 0,0 [kN]

Move zero OK

Cancel Save and Quit

- Zero load** Adjustment of zero point.
→ Recalibration change increase of curve!
- Measured value** Adjustment of second point.
- Move zero** Adjustment of zero point (Tare).
→ Recalibration don't change increase of curve!

3.5. Reset

Menu → Device → Reset

4. Extras

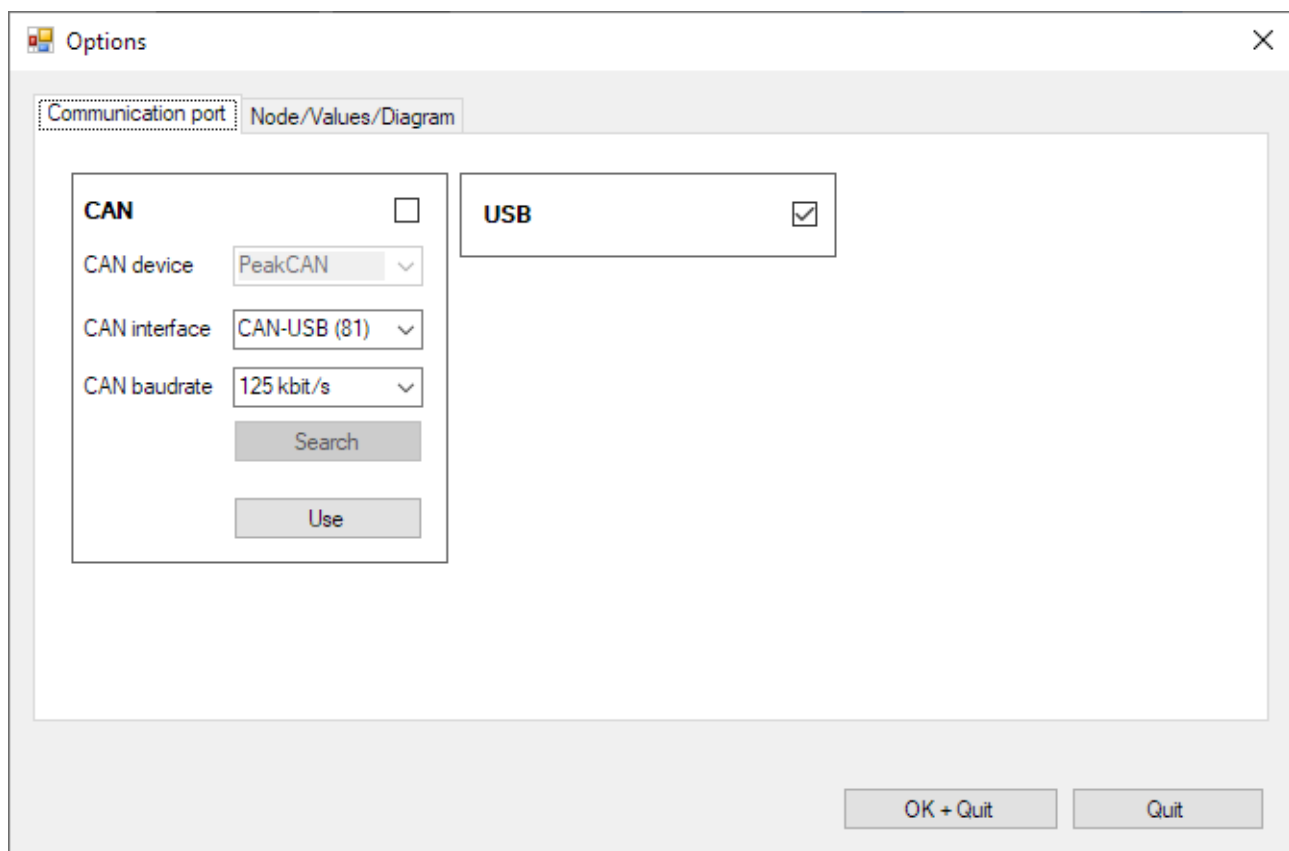
4.1. Language

Menu → Extras → Language
- German or English

4.2. Options

4.2.1. Interfaces

Menu → Extras → Options → "Communication port"



Settings for the connection interface of **ASTAS^{®2}**.

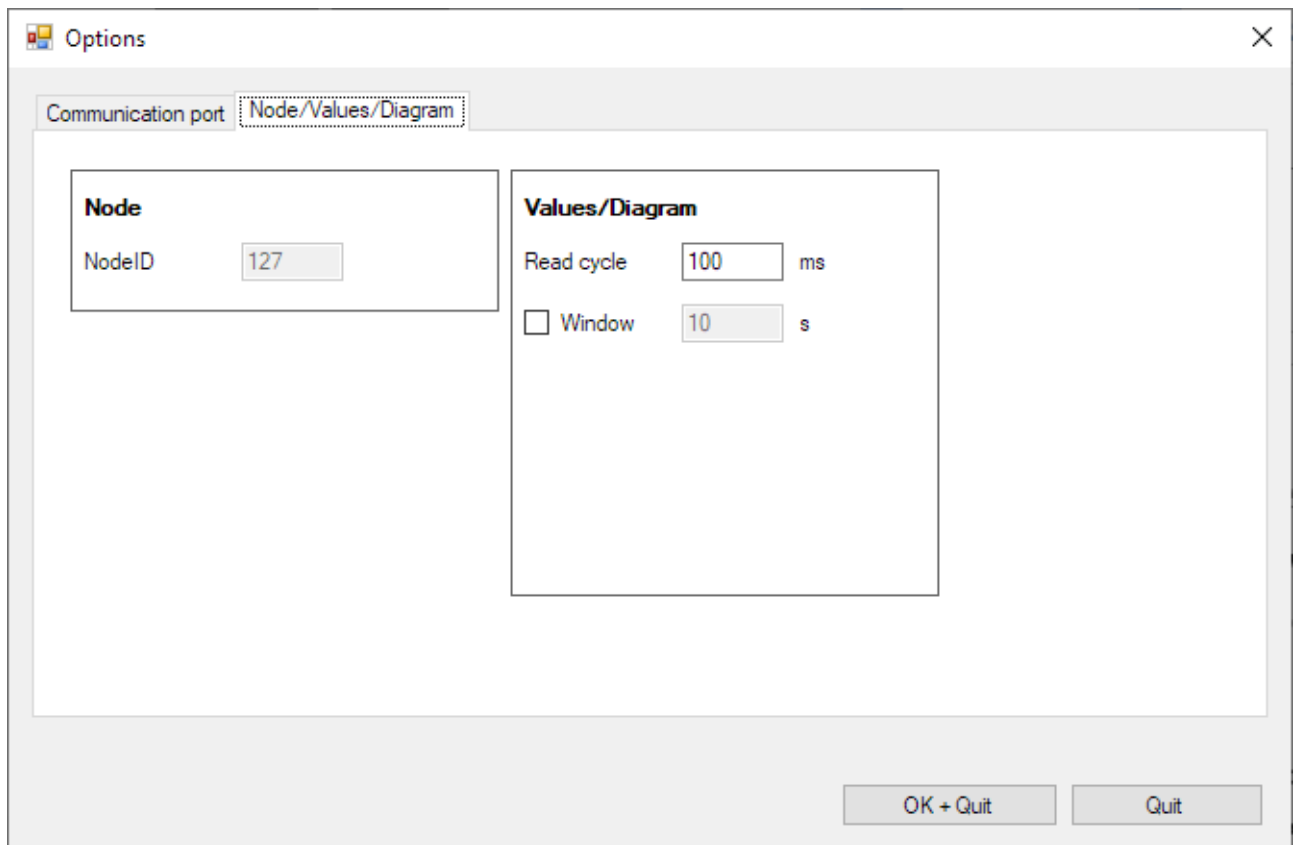
It is possible to connect via CAN device – usually only Peak USB-CAN adapter – or USB.

- CAN** Connection to ASTAS2 with CAN / CAN active / CAN inactive
- CAN device** only Peak USB-CAN-Converter or Systemc USB-CAN Dongle
- CAN interface** Selection of USB-CAN-converter (more than one)
- CAN baudrate** Selection of CAN-baudrate

USB Connection to ASTAS2 with USB active / USB inactive

4.2.2. Node//Values/Diagram

Menu → Extras → Options → "Node/Values/Diagram"

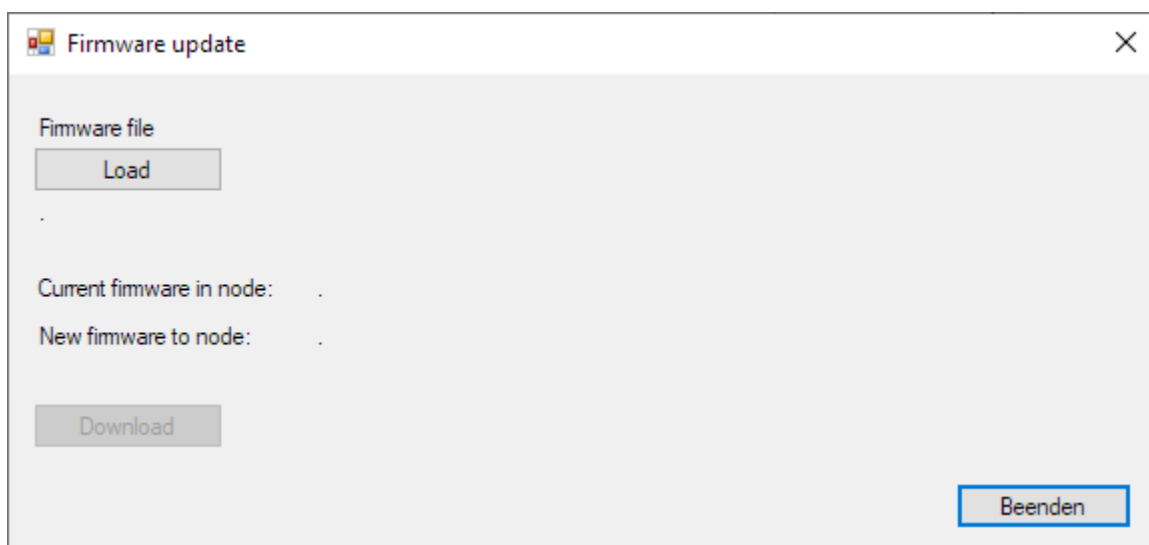


Read cycle Cyclic read timer for measured value of the current channel

Window Window time for chart display

4.3. Firmware-Update

Menu → Extras → Firmware-Update



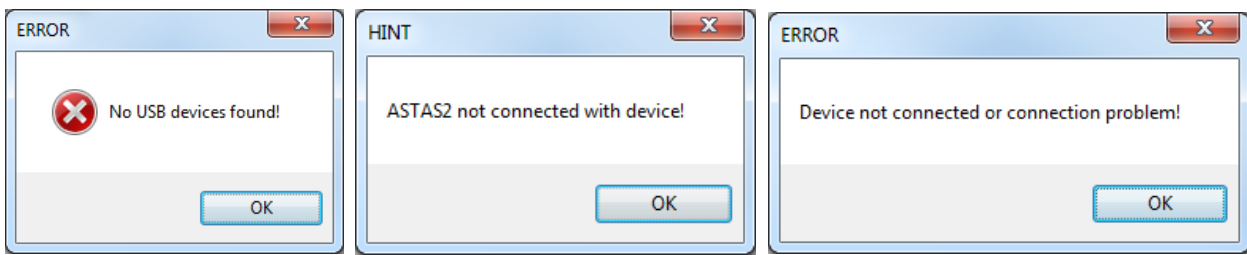
5. Help

Menu  Help  About



6. Error message

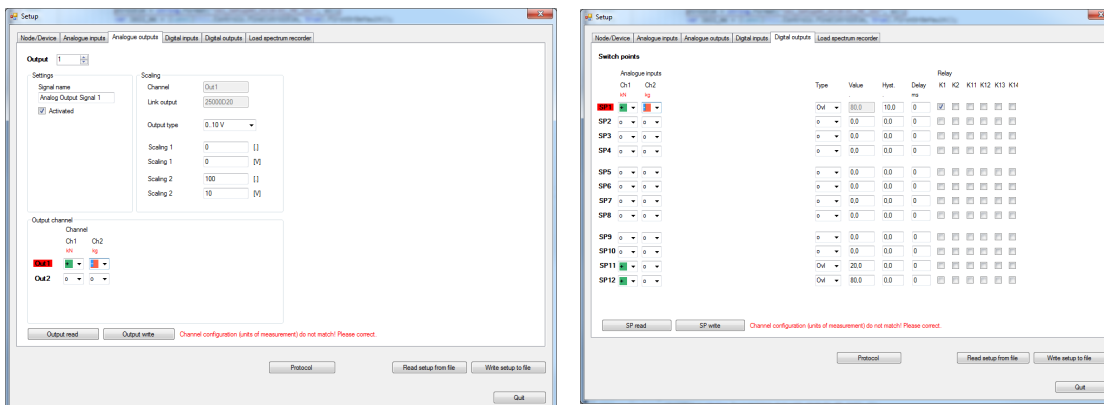
6.1. No connection to USB device



Assistance:

- Check the connection from the USB device.
- Check USB connection or cable.
- If connected to notebook use USB hub with power supply.
- If you have a problem with USB3 port, use the USB2 port.
- Connect the device via USB and start the connection in the Software ASTAS2.
see **2.2 Connecting with device** or **3.1 Summary**

6.2. Different units of measurement analogue output or relay



Assistance:

- Only combinations of channels with the same units of measurement are possible!
see **3.2.2 Analogue inputs**