



Software

Original Operation Manual

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1. Introduction

The ASTAS software 75775[®]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

ASTAS2			- 🗆 X
File Device Extras Help			
125,82 kN	Net: 125,82 k Tare: 0,00 kN Min: 74,08 k Max: 137,18 k	:N Status: 0x00/0 N :N	
	Node - Ch	annel	
164.6 143.5 122.5 101.4 80.4 59.3 0	5 10	15 Time[s]	20
Diagram stop Manuf Channel 1 3 Disconnect Connected: USB L Status: - L Last err	DeviceName: LS 1104-B400-6/4-8 eviceName: User Device Name Name: DMS Bridge 1	ProductCode: D114B526 RevisionNumber: 231013134 SerialNumber: 71434292	43 Quit

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 \cancel{S}^{\otimes_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	
🔛 Device	×
Device search	
	Search
vid_04d8&pid_ff63 LS 1104-B400-6/4-8 User Device Name	
	Connect
	Quit

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 $\cancel{357}$ to be able to control several devices plugged.

3.2. Setup						
Menu 🗪 Dev	rice 🗪 Setup					
Read setup from	1 file Read out a lo	cal file.				
Write setup to fi	le Save the setu	ıp in a file.				
3.2.1. Noo	de/Device					
Menu 🗪 Dev	rice 🗪 Setup 💳	🗼 "Node/ De	evice"			
	· · ·		_			
🔛 Setup						×
Node/Device Analogue in	puts Analogue outputs Digital input	s Digital outputs Load s	spectrum recorder			
Identification		NodeID		Default		
Vendor ID	937	NodeID	127	Default	Restore	
Product code	D114B526		Write			
Revision number	2310131343	Baudrate				
Serial number	71434292	Baudrate	125 ~ [kbit/s]			
			Write			
		Heartbeat				
Manufactor HW	BDAS01.03	Node heartbeat	1000 [ms]			
Manufactor SW	4.6		Write			
Manuf. device name	LS 1104-B400-6/4-8					
User device name	User Device Name					
	Write					
				_		
					Read setup from file	Write setup to file
						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

Operation Manual ASTAS^{®2}

3.2.2. Analogue inputs

de / Device [Analogue mouts] Analogue outputs Digital inputs Digital outputs Load spectrum recorder Charmel lestings Support Scaling/Unit/Digits Sanaro type: 71 / Docomount of the last input	etup					
Channel settings Scaling/Unit/Digits Signal name Scaling factor Signal name Scaling factor Scaling / Nominal value Scaling factor Scaling / Nominal value Decimal digits Scaling / Nominal value Int Scaling / Nominal value Int Scaling / Nominal value Filter type Scaling / Nominal value Filter type Int write Decimal digits Zoo.00 R-M] Nominal value Red Channel read Channel write	de/Device Analogue inputs Analog	ue outputs Digital inputs	Digital outputs Load spect	rum recorder		
Signal name Scaling factor 68,70 DMS Bridge 1 Scaling factor 68,70 Activated Scaling offset 0.00 Sensor type: 71 / 0x.0000047 Decimal digts 2 Scaling - Zero 0.0 kNI Scaling - Scaling - End Unit kN 1,455677 (mV/V) Subtom limit Bottom -100,00 Nominal value kNI Subtom limit Bottom -100,00 200.00 kNI KNI Filter type Cho filter Verticed Channel med Channel wate Met setup from file Witte setup to file	Channel settings	Scaling/Unit/Digits		ADC conversion rate/limit	s/Relais/Filter	
DMS Bridge 1 Scaling offset 0.00 21859 [µ8] Machine Activated Sensor type: 71 / 0x0000047 Decimal digits 2 Overload 200.00 RNI Scaling - Zero [mV/V] Decimal digits 2 Overload 40.00 RNI Scaling - Zero [mV/V] Decimal digits 2 Overload 40.00 RNI Scaling - End [hts567] [mV/V] Decimal digits 2 Int Shutdown limit Top 300.00 RNI Scaling - End [hts567] [mV/V] Shutdown limit Bottom 100.00 RNI Nominal value [200.00] [kN] Filter type Overload 0 200.00 [kN] Int Int Int Int Int Int Vominal value [200.00] [kN] Inter constant 0 Inter constant 0 Channel read Channel wate Inter constant 0 Inter constant 0 Inter constant 0 Read setup from file Vitte setup to file Inter constant Interconstant Inter constant In	Signal name	Scaling factor	68.70	ADC conversion rate	45.8 V [1/s]	
Scaling Advised Second Joine Out Image: Channel wate Scaling - Zero Decimal digits 2 Image: Channel wate Overload 40,00 [k,N] Scaling - Zero Unit kN Shutdown limit Top 300,00 [k,N] Scaling - End Unit kN Shutdown limit Top 300,00 [k,N] Scaling - End Image: Channel wate Filter type O-No filter Image: Channel wate 200,00 [k,N] Image: Channel wate Image: Channel wate Image: Channel wate Channel read Channel wate Image: Channel wate Image: Channel wate Image: Channel wate	DMS Bridge 1	Cooling effect	0.00		21858 [µs]	
Sensor type: 71 / 0x00000047 Scaling - Zero 0.0 [mV/V] 1.45567 [mV/V] 0.00 [kN] Nominal value 200.00 200.00 [kN] Nominal value [mV/V] 200.00 [kN] Status [mV/V] 0 [mV/V] 0 [mV/V] 0 [mV/V] 0 [mV/V] 0 [mV/V] 0 [mV/V]	Activated	Scaling onset	0,00			
Scaling (Nominal value Decimal digits 2 Underload 40.00 [k,N] Scaling - Zero [n/V/J] Unit kN Shutdown limit Top 300.00 [k,N] Scaling - End [145567] [m/V/J] Shutdown limit Bottom 100.00 [k,N] Nominal value [20.00] [k,N] Filter type Devine filter Image: Channel write	Separature: 71 / 0x00000047			Overload	200.00 [kN]	
Scaling · Zero [NV/V] [0,0] [mV/V] [0,0] [mV/V] Scaling · Zero [mV/V] [0,0] [mV/V] Scaling · Zero [mV/V] [0,0] [mV/V] Scaling · Zero [mV/V] Scaling · Zero [mV/V] [0,0] [mV/V] Scaling · End [mV/V] [1,45567] [mV/V] [100,00] [kN] Nominal value [200,00] [200,00] [kN] Channel read Channel write Channel read Channel write	Sensor type: /1/ 0x000004/			Underload	-40.00	
Oding ' Esto (0,0) [nV/V] Unit kN Shutdown limit Top 300.00 [kN] Scaling - End (1.45567 [mV/V] Filter type O-No filter Filter type Nominal value 200.00 [kN] Filter constant 0 Channel read Channel write	Scaling/Nominal value	Decimal digits	2	Chachoda	(KN)	
0.00 [kN] Scaling - End 1.45567 [mV/V] 100.00 [kN] Nominal value 200.00 [kN] Filter type O-No filter> Filter constant 0 Channel read Channel write Read setup from file Write setup to file	0.0 [mV/V]	Unit	kN ~	Shutdown limit Top	300,00 [kN]	
Scaling - End ImV/V] 1.45567 ImV/V] 100.00 Ik N] Nominal value Riter type 200.00 Ik N] Filter type 0-No filter Filter type 0-No filter Pilter type 0-No filter Filter constant 0 Channel read Channel write Read setup from file Write setup to file	0.00 kN1	U.M.		Shutdown limit Bottom	-100,00 [kN]	
1,45567 [m//V] 100.00 [kN] Nominal value 0 200.00 [kN] Filter type 0 Filter constant 0 Channel read Channel write Read setup from file Write setup to file	Scaling - End					
100.00 [kN] Nominal value 0 200.00 [kN] Filter constant 0	1,45567 [mV/V]					
Nominal value 0 200.00 [k N] Channel read Channel write Read setup from file Write setup to file	100,00 [kN]			Filter type	0-No filter 🗸 🗸	
200.00 [kN] Channel read Channel write Read setup from file Write setup to file	Nominal value			Filter constant	0	
Channel read Channel write Read setup from file Write setup to file	200,00 [kN]					
Channel read Channel write Read setup from file Write setup to file						
Read setup from file Write setup to file	Channel read Cha	annel write				
Read setup from file Write setup to file						
					Read setup from file	Write setup to file

Channel	Selection of the measurement channel
Settings	$oxdot$ Input channel active / \Box 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

etup					
de/Device Analogue inputs Ar	alogue outputs Digital inp	outs Digital outputs Load spectrum recorder	r		
Dutput 1 📫					
Settings	Scaling				
Signal name	Channel	Out 1			
Analog Output Signal 1	Link output	25000D20			
Activated	Enk output	23000020			
	Output type	024 mA 🗸			
	Scaling 1	-12,5 [.]			
	Scaling 1	0 [mA]			
	Sealing 2	625			
	Scaling 2				
	Scaling 2	24 [mA]			
Output channel Channel					
Ch1 Ch2	Ch3 Ch4				
kN kN	kN N				
Out1 + ~ 0 ~ 0	· · ·				
Out2 0 ~ 0 ~ 0					
	✓ 0 ✓				
Ortextored	Outer to write				
Output read	Output white				
				Read setup from file	Write setup to file
					0.12

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"	
🖳 Setup		×
Node/Device Analogue inputs Analogue outputs Digital inputs	igital outputs Load spectrum recorder	
Base	DI - Erweiterungs-DI	
Function Channel Inv.	Function Channel Inv.	
Input 1	Input 11 ~	
	Input 12 ~	
Input3 v v	Input 13	
	Input 14 v	
Input Lesen Input Schreiben		
		Read setup from file Write setup to file
		Quit

FunctionSelection of function: Tara / Clear Min/Max / Load spectrum recorder (LSR)ChannelSelection of channel (Ch1...Chx)Inv.Invertion of the respective digital input (Inputx)

3.2.5. Digital Outputs (Switch Points und Relay)

Menu Device Setup "Digital outputs" 🖳 Setup × Node/Device Analogue inputs Analogue outputs Digital inputs Digital outputs Load spectrum recorder Switch points Analogue inputs Relay Ch1 Ch2 Ch3 Ch4 K1 K2 K3 K4 K11 K12 K13 K14 Туре Value Hyst. Delay kN kN kN Ν + ~ 0 ~ 0 ~ 0 ~ Ovl 120.0 0,0 0 SP1 ~ SP2 Unl \sim -24,0 0,0 0 0 \sim + ~ 0 ~ 0 \sim \sim 250,0 0,0 0 SP3 + ~ + ~ + ~ 0 \sim Ovl Unl \sim 110,0 0,0 0 SP4 - ~ 0 + ~ 0 0 ✓ 0 ∨ 0,0 0,0 SP5 \sim 0 0 \sim lo ✓ 0 ✓ 0,0 0,0 0 SP6 ~ 0 0 \sim 0 × 0 SP7 0 ~ 0 ✓ ○ ✓ ○ \sim 0 \sim 0,0 0,0 0 ✓ 0 ∨ ~ o \sim \sim 0,0 0,0 0 SP8 0 0 0 SP9 \sim 0 ✓ 0 ∨ 0 0 \sim 0,0 0,0 0 \sim 0,0 0,0 0 SP10 0 \sim 0 \sim 0 0 \sim 0 ~ \sim SP11 0 ~ 0 ~ o ~ 0 \sim 0 \sim 0,0 0,0 0 0,0 0,0 0 SP12 0 \sim ~ 0 \sim 0 0 0 SP read SP write Read setup from file Write setup to file Quit

Switch point SPx	Assignment of analog inputs (Ch1Chx) to the switching point SP1SPx
Туре	switch on at overload (OvI) / underload (UnI)
Value	Switch value
Hyst.	Hysterese value (absolute)
Delay	Delay time 05000 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)

le/Device Ana	alogue inputs	Analogue outpu	uts Digital inpu	ts Digital ou	tputs Load s	pectrum recorder					
Configuration							Runtime				
	Useful life D [h]	Start value S(start) [h]	Limit value [%]	Relay	Input	Erase Runtime S/V		Mode	Runtime - S S(run) [h]	Runtime - V V=S(run)/D [%]	
Channel 1	500,0	10,0	80 ~		~		Channel 1		10,0	2,0	
Channel 2	500,0	11.0	80 ~		~		Channel 2		11.0	2,2	
Channel 3	500,0	12,0	80 ~		~ -		Channel 3		12,0	2,4	
Channel 4	500.0	13,0	80 ~		~		Channel 4		13,0	2,6	
							Cycl. read				
LSR Rea	ad	LSR Write									

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 \leq 4 mA load signal applying 0% and a current signal 4mA...I_{100%} from 0...100%. The LKZ 701.02 evaluates a \leq 0V 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).

 $S = S_i = S_{i-1} + (IN_i / IN_{100\%})^3 / 3600$ (1)

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

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

$$\mathbf{V} = \mathbf{V}_i = \mathbf{S}_i / \mathbf{D}_{(2)}$$

- 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





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

3.4. Load Calibration

Menu Device Load calibration

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 \implies Extras \implies Language - German or English

4.2. Options

4.2.1. Interfaces

)ptions mmunication port	Node/Values/Diagram	1	
CAN CAN device	PeakCAN ~	USB	
CAN interface CAN baudrate	CAN-USB (81) ~ 125 kbit/s ~ Search Use		

Settings for the connection interface of $\cancel{}$

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

CAN device only Peak USB-CAN-Converter or Systec 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"	
🖳 Options		×
Communication port Node/Values/Diagram		
NodeID 127	Values/Diagram Read cycle 100 ms Window 10 s	
	OK + Quit	Quit

Read cycleCyclic read timer for measured value of the current channelWindowWindow time for chart display

4.3. Firmware-Update

Menu 🗪 Extras 🗪 Firmware-Update	
🖳 Firmware update	×
Firmware file Load	
Current firmware in node: .	
New firmware to node: .	
Download	
[Beenden

5. Help

	Menu		Help		About
--	------	--	------	--	-------



6. Error message

6.1. No connection to USB device

ERROR	HINT	ERROR
No USB devices found!	ASTAS2 not connected with device!	Device not connected or connection problem!
ОК	ОК	ОК

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 Summery*

6.2. Different units of measurement analogue output or relay

le/Device Analogue inputs Analogue outputs Digital inputs Digital outputs Load spectrum recorder	Node/Device Analogue inputs Analogue output	ts Digital inputs Digital outputs Load spe	strum recorde				
kulput 1 🖶	Switch points						
Setings Scaling Sgrafname Channel Quitt	Analogue inputs Ch1 Ch2 IN bg	Туре	Value	Hyst. Del	Relay y K1 K	2 K11 K12 K13 K14	
V Activated		Dvi 👻	80.0	10.0 0			
Output type 0.10 V -	SP2 0 • 0 • SP3 0 • 0 •	• •	0,0	0.0 0			
Scaling 1 0 []	SP4 0 • 0 •	0 -	0.0	0.0 0			
Scaling 1 0 [11] Scaling 2 100 [1] Scaling 2 10 M	SP5 0 • 0 • SP6 0 • 0 •	0 • 0 •	0.0	0.0 0 0.0 0			
occurry z. 10 [1]	SP7 • • •	0 -	0,0	0,0 0			
Ogard demol Ogard O1 O2 W1 O2 W2 W1 W2 W1 W2 W1	578 5 4 5 579 5 4 5 571 5 4 6 5 571 2 7 5 4 5 571 2 7 5 5 571 2 7 5 5 571 571 5 571 5 571 5 571 5 571 5 571 5 571 5 571 5 57	0 0 0 0 0	0.0 0.0 20,0 80,0	0.0 0 0.0 0 0.0 0 0.0 0			
Output read Output write Oramid configuration Linits of measurement) do not match? Pesse convid.	SP mad SP wite	Channel configuration (units of mean	urement) do r	iot match/ Please	correct.		
Protocol Read set	from file Write setup to file	L	Protoco	si i		Read setup from file	Write setup to f
							Que

Assistance:

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