

Quickstart Guide



Innovative Measurement and Data Technology

CSMcalibrate - Copyright

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Product disposal/recycling

If this symbol (crossed-out wheeled bin) appears on the device, this means that the European Directive 2012/19/EU applies to this device.

The correct disposal of old equipment will protect the environment and people from possible negative consequences.

Become familiar with local regulations for separate collection of electrical and electronic equipment.

Follow local regulations and do not dispose of old equipment with household waste.



Contact information

CSM offers support for its products over the entire product life cycle. Updates for the individual components (e.g. documentation, configuration software and firmware) are made available on the CSM website. To keep up to date, it is therefore recommended that you check the download area of the CSM website for updates at least once a month.

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1 Introduction

1.1 About this quickstart guide

This quickstart guide contains important information for using the product. Please read the entire document carefully before installation and initial operation.

1.2 Symbols and writing conventions

Symbol/note	Meaning	Example of application		
(³)	User instruction	Conter the Test equipment number for the new test equipment.		
⇒	Result of an action \Rightarrow The New department dialog oper			
÷	Cross reference to external information source(s)	→ Chapter 2.4 "Account"		
*	A field marked with an asterisk * is a mandatory field that needs to be completed.	Customization Person in charge *		
i	This pictogram refers to important notes or additional information on a specific topic.	 Calibration points marked with the CSM logo 3 are standard calibration points. These can be deactivated but not deleted. User-defined calibration points can be deleted or deactivated. 		

Tab. 1-1: Symbols and writing conventions

1.3 Directive

A directive contains important information about the product described in the guide. Failure to observe a directive may result in malfunction and/or damage to property and material. A directive is indicated by the blue symbol () and the signal word **NOTE**.

Example

	NOTE!
i	To avoid any potential loss of data, we recommend always making a backup copy of the current database. By default, the database file *.db is located in the directory C:\Users\Public\Documents\CSM GmbH\ CSMcalibrate\Database.

CSMcalibrate – Introduction



1.4 Legal disclaimer

This guide and other documents are part of the product and contain important information for its safe and efficient use. To maintain the high quality level the product is continuously being developed, which may result in the product's technical details changing at short notice. As a result, the contents of this documentation may differ from the technical specifications of the product. No claims against the manufacturer can therefore be derived from the contents of the product documentation.

The Computer-Systeme-Messtechnik GmbH (hereafter referred to as "CSM") is not liable for technical or editorial errors or missing information.

CSM assumes no liability for damage resulting from improper use of the product and/or non-observance of the product documentation, in particular the safety instructions.

2 Calibrating CSM Measurement Modules

CSMcalibrate is a calibration software for the automated handling of calibration processes for CSM measurement modules. The software also provides the option of documenting calibration processes and organizing calibration and device data.

This quick start guide refers to CSMcalibrate, version 02.0.0.

2.1 Which measurement modules can be calibrated?

Low-voltage measurement modules	High-voltage measurement modules
AD CAN MM Series ¹	HV AD CAN MM Series
	HV AD CAN TBM Series
AD ECAT MM Series ¹	HV AD ECAT MM Series
	HV AD XCP MM Series
CNT CAN MM Series ¹	
PT CAN MM Series ¹	HV PT2 MM
	► HV PT8 TBM
► TH CAN MM Series (Type K, Type T and Type J) ¹	► HV TH CAN MM Series
	► HV TH CAN TBM Series

Tab. 2-1: CSM measurement modules which can be calibrated

2.2 Which calibrators are supported?

- Burster Digistant 4462
- Burster Digistant 4463
- Burster RTD Simulator 4530
- Fluke 5500A
- ▶ Fluke 5502E
- Fluke 5522A
- ► Fluke 5540A
- Tektronix AFG 3021 C

¹ With the appropriate firmware, these measurement modules are also available as CANopen versions. A special license is required to calibrate these measurement modules. See also section "CANopen and special protocols".

CSMcalibrate - Calibrating CSM Measurement Modules

2.3 Components for setting up a calibration station

A calibration station for the calibration of the CAN and ECAT measurement modules listed in Tab. 2-1 consists of the following components:

- a PC on which CSMcalibrate (plus license dongle) and the drivers for the interface in use are installed
- a power supply unit for providing the CSM measurement module to be calibrated (DUT) with power
- a calibrator (\rightarrow chapter 2.2)
- a Calib Adapter² (AD CAN/ECAT, HV AD CAN/ECAT, CNT CAN, PT CAN and HV PT CAN) or a cable whip (TH modules and HV AD XW modules)
- a USB-C cable for connecting the Calib adapter to the PC (AD, CNT and PT modules)
- ▶ a serial data cable for connecting the calibrator to the PC
- a CAN interface or an XCP-Gateway plus ECAT connecting cable to connect the DUT to the PC and the power supply
- ▶ a CAN or ECAT interface cable (e.g. K176 (CAN) or K420 (ECAT))
- a CAN termination resistor (if required)

2 A Calib Adapter is a module for distributing the test signals from the calibrator to the measurement inputs of the DUT. The Calib Adapter is available in two versions: "Calib Adapter AD/CNT" and "Calib Adapter PT".

2.4 Calibration setups for CSM CAN and ECAT measurement modules

The calibration setups described in the following chapters are example setups. Components such as the CAN interface cable K176 with integrated termination resistor or the CAN interface VN 1610 are used as examples. There are alternative CSM interface cables and CAN interfaces that can be used instead for the calibration setups.

2.4.1 Calibration setup for AD CAN measurement modules



Fig. 2-1: Example setup for the calibration of CSM AD CAN measurement modules

- ▶ Connect the interface cable K176 ③ with the DUT ④.
- ▶ Connect the opposite end of the interface cable K176 ③ to the CAN interface ②.
- ▶ Connect the CAN Interface ② to the PC ①.
- Connect the signal cables (Calib Signal Cable) 6 for the transmission of the calibration signals.
 - ▶ Insert the signal cables ⑥ into the measurement inputs of the DUT ④.
 - Then connect the opposite ends of the signal cables 6 to the corresponding signal outputs of the Calib Adapter AD/CNT 7.
- Connect the Calib Adapter AD/CNT (7) to the PC (1) using the Calib Connection Cable Adapter (5).
- ► Connect the signal input of the Calib Adapter AD/CNT ⑦ to the calibrator ⑨ using the Calib Connection Cable AD ⑧.
- ▶ Connect the calibrator ⑨ to the PC ① using a serial data cable ⑪.
- ▶ Connect the banana plugs of the interface cable K176 ③ to the power supply ⑩.

CSMcalibrate – Calibrating CSM Measurement Modules

2.4.2 Calibration setup for AD ECAT measurement modules

The calibration setup for AD ECAT measurement modules is very similar to the setup for calibrating AD CAN measurement modules. The layout for AD ECAT measurement modules differs in the following details:

- ▶ The CAN interface is replaced by an XCP-Gateway ③.
- ► The interface cable K176 is replaced by the following cables:
 - ▶ a K400 connection cable ④ for connecting the DUT ⑤ to the XCP-Gateway ③
 - ▶ a K420 interface cable ② for connecting the XCP-Gateway ③ to the PC ① and the power supply ⑫



Fig. 2-2: Example setup for the calibration of CSM AD ECAT measurement modules

- ▶ Connect the interface cable K400 ④ with the DUT ⑤.
- ▶ Connect the opposite end of the K400 connection cable ④ to the XCP-Gateway ③.
- ▶ Connect the XCP-Gateway ③ to the PC ① using the K420 interface cable ②.
- Connect the signal cables (Calib Signal Cable) ⑦ for the transmission of the calibration signals.
 - ▶ Insert the signal cables ⑦ into the measurement inputs of the DUT ⑤.
 - Then connect the opposite ends of the signal cables ⑦ to the corresponding signal outputs of the Calib Adapter AD/CNT ⑧.
- Connect the Calib Adapter AD/CNT (8) to the PC (1) using the Calib Connection Cable Adapter (6).
- Connect the signal input of the Calib Adapter AD/CNT (8) to the calibrator (10) using the Calib Connection Cable AD (9).
- ▶ Connect the calibrator ⑩ to the PC ① using a serial data cable ⑪.
- ▶ Connect the banana plugs of the interface cable K420 ③ to the power supply ⑫.

CSMcalibrate - Calibrating CSM Measurement Modules



2.4.3 Calibration station setup for CNT CAN measurement modules

Fig. 2-3: Example setup for the calibration of CSM CNT CAN measurement modules

- ▶ Connect the interface cable K176 ③ with the DUT ④.
- ▶ Connect the opposite end of the interface cable K176 ③ to the CAN interface ②.
- Connect the CAN Interface 2 to the PC 1.
- Connect the signal cables (Calib Signal Cable) 6 for the transmission of the calibration signals.
 - ▶ Insert the signal cables ⑥ into the measurement inputs of the DUT ④.
 - Then connect the opposite ends of the signal cables 6 to the corresponding signal outputs of the Calib Adapter AD/CNT 7.
- Connect the Calib Adapter AD/CNT (7) to the PC (1) using the Calib Connection Cable Adapter (5).
- ► Connect the signal input of the Calib Adapter AD/CNT ⑦ to the calibrator ⑨ using the Calib Connection Cable AD ⑧.
- ▶ Connect the calibrator ⑨ to the PC ① using a serial data cable ⑪.
- ▶ Connect the banana plugs of the interface cable K176 ③ to the power supply ⑩.

CSMcalibrate - Calibrating CSM Measurement Modules



2.4.4 Calibration setup for PT CAN measurement modules

Fig. 2-4: Example setup for the calibration of CSM PT CAN measurement modules

- ▶ Connect the interface cable K176 ③ with the DUT ④.
- ▶ Connect the opposite end of the interface cable K176 ③ to the CAN interface ②.
- ▶ Connect the CAN Interface ② to the PC ①.
- Connect the signal cables (Calib Signal Cable) 6 for the transmission of the calibration signals.
 - ▶ Insert the signal cables ⑥ into the measurement inputs of the DUT ④.
 - Then connect the opposite ends of the signal cables 6 to the corresponding signal outputs of the Calib Adapter PT 7.
- ▶ Connect the Calib Adapter PT ⑦ to the PC ① using the Calib Connection Cable Adapter ⑤.
- Connect the signal input of the Calib Adapter PT 7 to the calibrator 9 using the Calib Connection Cable PT 8.
- ▶ Connect the calibrator ⑨ to the PC ① using a serial data cable ⑪.
- ▶ Connect the banana plugs of the interface cable K176 ③ to the power supply ⑩.



2.4.5 Calibration setup for TH CAN measurement modules

Fig. 2-5: Example setup for the calibration of CSM TH CAN measurement modules

- ▶ Connect the interface cable K176 ③ with the DUT ④.
- ▶ Connect the opposite end of the interface cable K176 ③ to the CAN interface ②.
- Connect the CAN Interface (2) to the PC (1).
- Connect the cable whip (5) for the transmission of the calibration signals.
 - ▶ Insert the signal cables of the cable whip ⑤ into the measurement inputs of the DUT ④.
 - ▶ Connect the opposite end of the cable whip (5) to the calibrator (6).
- ▶ Connect the calibrator ⑥ to the PC ① using a serial data cable ⑧.
- ▶ Connect the banana plugs of the interface cable K176 ③ to the power supply ⑦.

NOTE!



For TH CAN measurement modules, there are only cable whips for eight measurement channels. Therefore, the calibration of a TH CAN measurement module with 16 channels is divided into two steps. After the calibration of channels 1 to 8 has been successfully completed, the signal cables of the cable whip have to be plugged into the measurement inputs of channels 9 to 16. CSMcalibrate guides the user through the necessary steps.



NOTE!

For some calibrators, such as the **Burster Digistant 4462**, a reference junction (adapter) for thermocouples is required in order to connect a cable whip.

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2.5 Calibrating an AD CAN measurement module

This chapter describes the calibration of an AD CAN measurement module, including a check of the sensor supply.

Some AD and HV AD (LV) measurement modules provide a sensor supply. For these modules, the sensor supply can also be checked during the calibration process. To check the sensor supply for these measurement modules, the corresponding option has to be enabled in the Calibration setup menu. → Chapter 3.3.2.4 "Calibration setup"

🖙 Start CSMcalibrate.

 \Rightarrow The start screen opens.

CSMcalibrate	
= (()))	
Calibration	
► Start	
Account	

Fig. 2-6: CSMcalibrate start screen



Fig. 2-7: New Calibration button

- Solution Sew calibration.
 - \Rightarrow The window **Article number** opens.

🧪 Article nun	nber
	(i) Please specify the article number of the device.
	Article number ART0200800
	✓ Ok



☞ Enter the article number of the DUT in the Article number field and confirm with OK.³
⇒ The Workflow overview window opens.

³ If the DUT has been calibrated before, the article number will be displayed automatically and only needs to be confirmed by clicking **OK**.

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	CSMcalibrate				- 0 ×
			Licensed to CSM Products, Inc.	LINN WANK (Used)	🗰 English 🛛 🗘
=		Workflow overview			
ę	Calibration ^	32851-ADMM tardware revision firmware Last calibration Calibration Balanethory G00 V7.16 2021/012 CM GeneticAlianethor			
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			A Description of the American		

Fig. 2-9: Workflow overview window

i	If there is more than one measurement module available, the Select module is displayed, listing all the measurement modules integrated in the calibration setup. The device to be tested has to be selected from this list.
i	To check the sensor supply, the test option has to be enabled in the Options section (switch set to Check sensor supply). This option is only available if the Sensor supply option has been enabled in the Calibration setup section. → Chapter 3.3.2.4 "Calibration setup"

Check the details displayed in the sections Workflow overview, then click Next (Fig. 2-9).

- \Rightarrow The start screen for the calibration process opens.
- \Rightarrow The calibration process will be started.

- Concarbrate		Licensed to CSM Products, Inc. 💄 🛯 🛄 (User) 🗰 English 🗘
=	Device under Test	Calibration info Environment
Calibration Start Munage Test Equipment	32861-ADMM Horibara miniatri (201 Finance (201) Last addination 2011-10-12	Generated calibration number U.3 2.2 C Mis. Max. Don't U.2 Max. Don't U.2 353 2024-111 U.400 0 U.400 0
	Overview Details: Calibration Details: Sensor supply	Testing device
	Calibration 32861-ADMM 0% Channel 1 2 3 4 Mesourement range 0/6 0/6 0/6 0 Calibration point 0/18 0/18 0/18 0/18 Result 0 0 0 0	Fluke SSOUA S/N DEMOSSOUA
	Sensor supply 32861-ADMM 0%	
	Channel 1 2 3 4 December 2012 December 2012 <thdecember 2012<="" th=""> <thdecember 2012<="" th=""> De</thdecember></thdecember>	
✿ Settings ✓		Accept Accepts the results and creates a protocol
The Help		Cancel Cancels the active workflow
1. Close	The calibration of the device 'AD4 pro MC10' with the serial number'	122831-ADMM 'was started: User 'Admin User' logged in 🐜 🔒 23.0 °C 🌢 26.0%

Fig. 2-10: Start screen for the calibration with subsequent test of the sensor supply

- The **DUT** section provides the details on the device under test (HW revision, FW revision and the date of the last calibration).
- Section Calibration info displays the number that was automatically assigned to the calibration process. This number will also be used for the calibration protocol.
- The calibrator used for the calibration process and any other test equipment is displayed in section Test equipment.⁴
- The green process bar in the Overview | Calibration section indicates the progress of the calibration process.

alibration 32861-AD	MM				22%	
Channel	1	2	3	4		
Measurement range	1/6	1/6	1/6	1/6		
Calibration point	4/18	4/18	4/18	4/18		
Result	0	0	0	0		

Fig. 2-11: Calibration process

⇒ If the green process bar indicates "100%", the calibration process has been completed. If all calibration points are within the tolerance range, the calibration process has been successfully completed. In the **Result** line, this is indicated by a green symbol

	Licemed to CSM Produ
Device under Test	Calibration info
Sabathanian Signa Sabathaninan Signa Sabathanian Signa Sabathanian Signa Sabathanian	Generated calibration number 353 2024-11
Overview Details: Calibration Details: Sensor supply	Testing device
Calibration 32861-ADMM Non- Channel 1 2 3 4 Measurement range 6/6 6/6 6/6 6/6 6/6 Calibration point 18/18 18/18 18/18 18/18 18/18 Result 1 2 3 4 0	
tings v	
ount	
tép 🗸	×

Fig. 2-12: Calibration process successfully completed

 \Rightarrow After a successful completion of the calibration process, the sensor supply check will start automatically. $^{\rm 5}$

⁴ Changes to the setup of the calibration or the selection of the test equipment can be made in section **Settings | Workspace |** Calibration setup or Test equipment. Administrator rights are required to access these settings. See chapter 2.3 "Account".

⁵ An automatic sensor supply check requires that the device under test features a sensor supply. Also, the sensor supply will only be checked if the calibration was successfully completed beforehand.

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CSMcalibrate			- 0 ×
		Licensed to CSM Produc	cts, Inc. 💄 🗰 🖬 🖬 (User) 🗰 English 🗛
= (()))	Device under Test	Calibration info	Environment
Calibration Calibration Start Test equipment V	32851-ADMM Hardeaux revolans G01 Finneaux V2.15 Last calibration 2021-0-12	Generated calibration number 353 2024-11	U: 25 C Min. Max. Drift L: 22 23.3 0.1 Last updated 005400 U: 40.0 U: 40.0 Drift Last updated 005400 U: 40.0 29.5 Min. Max. Drift L: 22 23.3 0.1 Drift Drift
	Overview Details Calibration Details Sensor supply	Testing device	
	Calibration 32661-ADMM		Fluke 5500A S/N: DEMOSS00A
	Cualment Massurement range 6/6 6/6 6/6 6/6 Calibration point 18/18 18/18 18/18 Result ● ● ● ●	<u></u>	Calib Adapter AD S/N: 104-CAAD
	Sensor supply 32861-ADMM 4%		
	Channel 1 2 3 4 Measurement range 0/2 0/2 0/2 0/2		
	Reference point 1/12 1/12 1/12 1/12 Test point 0/12 0/12 0/12 0/12 Revult © © ©		
🛱 Settings 🗸 🗸		6	Accept Accepts the results and creates a protocol
 Belp Help Close 		×	Cancel Cancels the active workflow

Fig. 2-13: Checking the sensor supply

⇒ If the green process bar in section **Overview | Sensor supply** shows "100%", the verification process has been completed. If the test was successfully completed, this is indicated in the **Result** line with a green symbol **●** for each channel tested (Fig. 2-13).

CSMcalibrate			- 0 X
		Licensed to CSM Products, Inc. 💄	(User) 🗰 English 🗘
= (())	Device under Test	Calibration info Environment	
	32861-ADMM	U: 25	in Max Drift
Calibration ^	Hardware revision G401	Generated * 23.2 °C 23	1.2 23.3 0.1
► Start	Last calibration 2021-10-12	calibration number	Last updated: 08:54:09
🖬 Test equipment 🗸		2024 11 U: 40.0	
		© 29.5 % M	in. Max. Drift 1.4 29.5 0.1
		1: 10.0	
	Overview Details: Calibration Details: Sensor supply	Testing device	
	Calibration 23951 ADMM		
	Calibration 32001-ADMINI	Fluke 5500A	S/N: DEMOS500A
	Channel 1 2 3 4		
	Measurement range 6/6 6/6 6/6 6/6 6/6 Calibration point 18/18 18/18 18/18	Calib Adapter AD	5/N: 104-CAAD
	Result O O O	1	
	Sensor supply 32861-ADMM 100%		
	Channel 1 2 3 4		
	Measurement range 2/2 2/2 2/2 2/2		
	Reterence point 12/12 12/12 12/12 12/12 Text point 12/12 12/12 12/12		
	Result O O O		
et Cathone V		Accept	
Account		Accepts the results and cre	ates a protocol
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lt Com		Cancels the active workflow	v
, cove	The se	msor supply test is complete. User 'Admin User' logged in	ia 🔒 23.0 °C 💧 26.0%

Fig. 2-14: Sensor supply check completed

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2.5.1 Information on calibration process and sensor supply test

The **Details: Calibration** tab contains detailed information on the calibration process.

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Control Call Callanda Callanda Control Control Callanda Control Control Callanda Control Callanda Control C	2851-ADMM Hardware revision G01 Permane V136 Last calibration 2021-10-12 2												Generated libration number 257 2024-11	Lenvironment (k 25) * 23.2 °C Min. Max. Drift L: 22 Last updated 00 U: 400 Vir. 400 U: 400 29.5 % Min. Max. Drift L 100	
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2001-1-0.000 1 0.0 0.000 mV 0.0		3	2861-ADMM	1	-50 50 mV	DC voltage	0.0000 mV	0.0000 mV	0.0 μV	14.0 µV	0.0 %	0			
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1 2281-10040 1 -00100 mV 0C stage 60.0000 mV 60.9V 100.9V 0.5% 0 2 2 -00100 mV 0C stage 60.0000 mV 60.9V 100.5% 0 - </td <td></td> <td>A -1</td> <td>100 100 m¹</td> <td>v</td> <td></td>		A -1	100 100 m ¹	v											
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Jakes-Lauke 1 -0006 mV Custupe B0.000 mV B0.0		3	2861-ADMM	1	-100 100 mV	DC voltage	0.0000 mV	0.0000 mV	0.0 μV	100.0 µV	0.0 %	0			
• -580 _ 500 eV -		3	2861-ADMM	1	-100 100 mV	DC voltage	80.0000 mV	80.0000 mV	0.0 μV	140.0 µV	0.0 %	0			
1 20261-ADMR 1 000.500 mV 0C veltage 40000 mV 0gV 200 V 0.5% 0 20261-ADMR 1 000.500 mV 0C veltage 0000 mV 0gV 100 V 0.5% 0 20261-ADMR 1 000.500 mV 0C veltage 0000 mV 0gV 100 V 0.5% 0 - Ho-TEV -		A -5	500 500 m'	v											
1 2261-JADAN 1 300.500 mV 0C vitage 0000 mV 0g/m 0g/m 0.5 0 2361-JADAN 1 300.500 mV 0C vitage 0000 mV 0g/m 00g/m 0.5 0 1 2361-JADAN 1 300.500 mV 0C vitage 0000 mV 0g/m 00g/m 0.5 0 1 2361-JADAN 1 10.10V 0C vitage 40000 V 0.00 mV 0.00 mV 0.5 0 1 2361-JADAN 1 10.10V 0C vitage 40000 V 0.00 mV 0.00 mV 0.5 0 1 1 1 1 1 1 0 0 1 0 1 0 1 0 1 0 1 0 1 0 0 1 0 1 0 1 0 0 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0<		3	2861-ADMM	1	-500 500 mV	DC voltage	~400.000 mV	-400.000 mV	0 µV	300 µV	0.0 %	0			
3266-ADMA 1 -50 50 <		3	2861-ADMM	1	-500 500 mV	DC voltage	Vm 000.0	Vm 000.0	0 µV	100 µV	0.0 %	0			
		3	2861-ADMM	1	-500 500 mV	DC voltage	400.000 mV	400.000 mV	0 μV	300 µV	0.0 %	0			
2281.4 JOANN 1 4-0-10 V CC-indige 0.0000 V 0.00 mV 6.00 mV 0.0 mV 6.0 mV 0.0 mV C Indige 3785.4 JOANN 1 40-10 V CC-indige 0.0000 V 0.00 mV 6.0 mV 0.0 mV 0.		A -1	10 10 V											l lo	Accept Accepts the results and creates a protocol
Street model to all the ability of t		3	2861-ADMM	1	-10 10 V	DC voltage	-8.00000 V	-8.00000 V	0.00 mV	6.00 mV	0.0 %	0			
Serell mode Manual Cancels the active workflow			3064 ADMA		10 1014	DC units on	0.00000.1/	0.00000.1/	0.00 mM	2.00 mM	0.0.9			×	Cancel
											sere	a mode	Manual		Cances one active worknow

Fig. 2-15: Details on the calibration process

The Details: Sensor supply tab contains detailed information on the sensor supply test.

															Licensed t	o CSM Proc	Aucts, Inc. 💄 🏭 🔛 🔛 (User) 🗰 (inglish
Devi	ce und	ler '	Test											Cali	bration info		Environment
3286	0 0 0	мм э' з	Hardwar Firmwar Last calil	e revision G e V aration 21	5401 77.16 021-10-12									cal	Generated ibration nur 257 2024-1	nber 1	U: 25 * 23.2 °C Min. Max. Drift U: 22 Let updated 0 U: 40.0 U: 40.0 V: 40.0 U:
Over	view	Det	tails: Calibration	Details: Se	insor supply										Testing de	evice	
			S/N T	Channel T	Measurement range T	Measurand T	Reference value T	Measured value T	Deviation T	Tolerance T	Utilization T	Result T		^	1000	-	
	 3280 	61-4	DMM												01		Fluke 5500A S/N: DEMOS500.
	*	1															
		•	-10 10 V												0000	0000	Calib Adapter AD S/N: 104-CAAD
>			32861-ADMM	1	-10 10 V	DC voltage	0.00000 V	0.00000 V	0.00 mV	10.00 mV	0.0 %	•			1		
			32861-ADMM	1	-10 10 V	DC voltage	5.00000 V	5.00000 V	0.00 mV	15.00 mV	0.0 %	0					
			32861-ADMM	1	-10 10 V	DC voltage	8.00000 V	8.00000 V	0.00 mV	24.00 mV	0.0 %	0					
			32861-ADMM	1	-10 10 V	DC voltage	-5.00000 V	-5.00000 V	0.00 mV	15.00 mV	0.0 %	0					
			32861-ADMM	1	-10 10 V	DC voltage	-8.00000 V	-8.00000 V	0.00 mV	24.00 mV	0.0 %	•					
		*	-20 20 V														
			32861-ADMM	1	-20 20 V	DC voltage	10.00000 V	10.00000 V	0.00 mV	30.00 mV	0.0 %	۲					
			32861-ADMM	1	-20 20 V	DC voltage	12.00000 V	12.00000 V	0.00 mV	36.00 mV	0.0 %	۲					
			32861-ADMM	1	-20 20 V	DC voltage	15.00000 V	15.00000 V	0.00 mV	450.00 mV	0.0 %	۲					
			32861-ADMM	1	-20 20 V	DC voltage	-10.00000 V	-10.00000 V	0.00 mV	30.00 mV	0.0 %	0					
			32861-ADMM	1	-20 20 V	DC voltage	-12.00000 V	-12.00000 V	0.00 mV	36.00 mV	0.0 %	۲					
			32861-ADMM	1	-20 20 V	DC voltage	-15.00000 V	-15.00000 V	0.00 mV	450.00 mV	0.0 %	۲			(1)	0	Accept Accepts the results and creates a protocol
			32861-ADMM	1	-20 20 V	DC voltage	0.00000 V	0.00000 V	0.00 mV	10.00 mV	0.0 %	0			_		
		•									Scro	ill mode	Mar	• Iual		×	Cancel Cancels the active workflow



CSMcalibrate - Calibrating CSM Measurement Modules

2.5.2 Finalize the calibration and testing process and create the calibration certificate

To complete the process, click on Accept (Fig. 2-16, ①) in the Testing device section to create the calibration protocol.

 \Rightarrow The **Customization** form opens.

📝 Customizati	on
Person in charge *	
Testing device no.	N/A
	✓ Confirm

Fig. 2-17: Customization form

- Enter the name of the person responsible for the calibration in the Person in charge field. An entry in the Test device no. field is optional.
- 🖙 Click on **Confirm**.
 - \Rightarrow The calibration certificate will be processed.

	1M				2000 C
	1			4	
					Creating a calibration certificate
	15/15			15/15	
	۲	0	0	0	

Fig. 2-18: Progress bar calibration certificate

⇒ By default, the completed calibration protocol automatically opens in a separate window.⁶

⁶ Calibration protocols are created by default as PDF files. To be able to open calibration protocols, a program such as the Adobe Acrobat Reader is required on the PC.

CSMcalibrate – Calibrating CSM Measurement Modules

)						-		×
AI	DMM_4159_2	2024	4-1(90-C	3_14	0.pdf		
	CSM Gmb	н						
	Kalibriers	sch	nein	1		Dokumentennummer 140		
	Calibration	cert	tifica	ate		Document number 2024-10		
	Gegenstand		Mehr Multi-	kanal	mess	erät für elektrische Spannung rement device for electrical voltage		
	Hersteller Manufacturer		CSM	Comp	uter-S	ysteme-Messtechnik GmbH		
	Typ Type		ADMI	M 4 pr	0	Hardware-Revision D000 Hardware revision		
	Seriennummer Serial number		4159-	ADMM	4	Firmware-Version V4.11 Firmware version		
	Prüfmittel-Nr. Testing device no.		N/A					
	Umgebungsbedir Environmental condit	ngun	gen					
	Lufttemperatur Air temperature		(25,5	± 4,5)	°C	Relative Luftfeuchte (45 ± 25) % Relative humidity		
	Datum der Kalibrierung Date of calibration		2025-	03-06		Anzahl der Seiten - 3 - Number of pages		
	Zusammenfas Summary by cha	sun nnel	g je k over d	Canal all med	übe asure	alle Messwerte values		
	Kanal Channel	1	2	3	4			
	Messung Measurement	~	~	*				
	Verwendete B	0711	deno	rmal				
	. er wenndete b		53110		-	_		
						× .	OK	

Fig. 2-19: Calibration protocol (sample)

☞ Click on **OK** to close the calibration protocol.

The CSMcalibrate start screen (Fig. 2-6) opens again.

3 Program Menu

3.1 Calibration



Fig. 3-1: Calibration menu

Start calls up the **New Calibration** button. The **New Calibration** button is automatically displayed after launching the program (Fig. 1-3).

i	 Example of application for the Start option Use the Start option to go directly to the New Calibration button from any menu (e.g. Workspace Test Equipment or Workspace Calibration setup).
	Calibration setup).

3.2 Manage Test Equipment





Fig. 3-2: Manage Test Equipment menu (Admin mode)

3.2.1 Create

The table in the **Create** menu provides a list of the currently available test equipment (calibrators). The table also contains various information on the status of the test equipment (calibration date, next calibration date, etc.).

Те	st	equipment > Cre	eate new tes	t equipment											
Tes	st equipment overview														
		Model T	Serial number T	Test equipment number 🔻	Test equipment status 🏾 🔻	Calibration status T	Person in charge of test equipment 🔻	Location T	Creation date 🔻	Calibration interval	Next calibration (scheduled)				
		Fluke 5500A													
>		Fluke 5500A	DEMO5500A	DEMO5500A	Active	calibrated and ready for use		DemoDepartment	2024-03-19	3 Years	2027-03-18				
		Burster Digistant 4462													
		Burster Digistant 4462 DEMO4462 DEMO4462 Active calibrated and ready for use DemoDepartment 2024-03-20 3 Years 2027-03-19													
	Burster RID Simulator 4330														
		Burster RTD Simulator 4530	DEMO4530	DEMO4530	Active	calibrated and ready for use		DemoDepartment	2024-03-20	3 Years	2027-03-19				
		Burster Digistant 4422													
		Burster Digistant 4422	DEMO4422	DEMO4422	Active	calibrated and ready for use		DemoDepartment	2024-03-20	3 Years	2027-03-19				
		Fluke 5522A													
		Fluke 5522A	DEMO5522A	DEMO5522A	Active	calibrated and ready for use		DemoDepartment	2024-03-20	3 Years	2027-03-19				
		Burster Digistant 4463													
		Burster Digistant 4463	DEMO4463	DEMO4463	Active	calibrated and ready for use		DemoDepartment	2024-03-20	3 Years	2027-03-19				
		Tektronix AFG 3021C													
		Tektronix AFG 3021C	DEMOAFG3021	DEMOAFG3021	Active	calibrated and ready for use		DemoDepartment	2024-06-20	3 Years	2027-03-19				
		Fluke 5502E													
		Fluke 5502E	DEMO5502E	DEMO5502E	Active	calibrated and ready for use		DemoDepartment	2024-09-04	3 Years	2027-03-19				

Fig. 3-3: Table Test equipment overview

It is also possible to add additional test equipment to the table and to edit existing test equipment entries.

3.2.1.1 Adding new test equipment

☞ Go to the header of the **Test equipment overview** table (Fig. 3-3) and click on **○**.

 \Rightarrow The **New test equipment** form opens.

New test equipment				
Test equipment model *			~	
Serial number				
Test equipment number *				
Date of purchase	3/31/2025			
Inspection interval			~	
Department *			~	•
Description (optional)				8
		ОК	8	Cancel

Fig. 3-4: New test equipment form

- Select the required test equipment from the **Test Equipment modell** selection menu.
- CF Enter the Test equipment number for the new test equipment.
- Click on the obstruction to the right of the Department selection menu in order to enter the department name.

☞ The **New department** dialog opens.

lew department	
Name	
Description (optional)	

Fig. 3-5: New department dialog

☞ Enter the name of the department into the **Name** field.

Click OK to close the New Department dialog.

Check the entries in the **New test equipment** form and confirm your entries with **OK**.

3.2.1.2 Editing entries of existing test equipment

 $rac{1}{rac{2}{
m S}}$ Mark the row of the test equipment in the table to be edited (e.g. Fluke 5500A ightarrow Fig. 3-3).

- ⇐ Click on the 🗾 symbol in the header.
 - ⇒ The **Edit test equipment** form opens.

☞ Edit the form and confirm changes by clicking **OK**.

3.2.2 Manage

The table provides an overview on the status of the test equipment which is currently available (validity of the calibration of the test equipment, due dates for calibration, etc.).

т	est	equip	ment > Mar	nage													
Т	otal			Calib	ration valid	Calibration p	ending	Calibr	ation o	verdue	Cal	ibration	ongoing				
	•	8	9	6	≥ 8 ⊂	- 0	٩	8	0	٩		₩ 0	٩				
Т	est e	quipm	ent overview														
		Details	Model	٣	Test equipment number	Location T	Calibration statu	s T	Next cali	bration (sched	iled) 🔻	Actions	Person in charge o	f test equipment 🔻	Serial number 🔻	Test equipment status 🔻	
		Fluke 55	00A														
>		+	Fluke 5500A		DEMO5500A	DemoDepartment	calibrated and rea	idy for use	2027-03	-18 (2027-03	19)				DEMO5500A	Active	
		Burster	Digistant 4462														
		+	Burster Digistant 446	62	DEMO4462	DemoDepartment	calibrated and rea	dy for use	2027-03	-19 (2027-03	20)	Ð			DEMO4462	Active	
		Burster	RTD Simulator 4530														
		+	Burster RTD Simulate	or 4530	DEMO4530	DemoDepartment	calibrated and rea	idy for use	2027-03	-19 (2027-03	20)				DEMO4530	Active	
	-	Burster	Digistant 4422														
		+	Burster Digistant 442	22	DEMO4422	DemoDepartment	calibrated and rea	idy for use	2027-03	-19 (2027-03	20)				DEMO4422	Active	
		Fluke 55	22A														
		+	Fluke 5522A		DEMO5522A	DemoDepartment	calibrated and rea	dy for use	2027-03	-19 (2027-03	20)				DEMO5522A	Active	
		Burster	Digistant 4463														
		+	Burster Digistant 446	63	DEMO4463	DemoDepartment	calibrated and rea	idy for use	2027-03	-19 (2027-03	20)				DEMO4463	Active	
	-	Tektroni	x AFG 3021C														
		+	Tektronix AFG 30210	0	DEMOAFG3021	DemoDepartment	calibrated and rea	idy for use	2027-03	-19 (2027-06	20)				DEMOAFG3021	Active	
		Fluke 55	02E														
		+	Fluke 5502E		DEMO5502E	DemoDepartment	calibrated and rea	dy for use	2027-03	-19 (2027-09	04)				DEMO5502E	Active	

Fig. 3-6: Test equipment overview table

This table also provides the option to assign new calibration certificates to the calibrators and to call up current calibration certificates.

3.2.2.1 Entering calibration certificate data for a calibrator

- Go to the table row of the calibrator (e.g. Fluke 5500A) to which you need to assign a calibration certificate and click on
 - $\Rightarrow\,$ The Calibration certificate page opens.
 - > The **Test equipment** section provides details on the test equipment (calibrator).
 - Details on the test equipment's calibration status can be found in the Information section.
 - The data for the new calibration certificate is entered in the **Calibration certificate** section.

C 🔝	SMcalibrate					- 0	×
				Lie	ensed to 📃 💄 (Adm	nin) Ħ English	ф.
=			Test equipment managemen	t > Calibration certificate			
						_	
			Test equipment		Information	Options	
	Calibration	^	9 DOEBNE ARD.	Test equipment numDEMO4463	Test equipment status Active		
	 Start 			Manufacturer burster präzisionsmesst	Calibration status		
	Manage Test Equipment	~	100 1000	Model Burster Digistant 4463	calibrated and ready for use		
C	Create			Serial number DEMO4463	Last calibration 3/20/2024 12:00:00 AM		
E							-
			Calibration certificate number				
			Extern				
			Calibration type				
			accredited calibration				
			1/1/0001	-			
•	Settings	~	Coverage factor				
2	Account		2				
0	Help	~					~
l+	Close				🛞 Canc	el 🥥 Sa	ive
					User 'Admin User' logged in 🛛 😽	8 22.6 °C .▲	36.4%

Fig. 3-7: Calibration certificate menu

☞ Enter the required data:

- Enter the number of the new calibration certificate into the field **Calibration certificate number**.
- Indicate in the Issuer section whether the calibrator was calibrated internally or externally.
- Select the type of calibration (e.g. "Accredited calibration") from the Calibration type selection menu.
- Enter the date of issue shown on the calibration certificate in the **Calibration date** field.
- Finally, click on **Save** in the lower right section of the window (Fig. 3-7).

3.2.2.2 View calibration certificate

 $rac{}$ Open the table section of the required calibrator by clicking on +.

 \Rightarrow The table is expanded and the **Calibration certificates** submenu is displayed.

Te	st e	qui	ome	ent overview												
		Det	ails	Model	۲	Test equipment nur	nber 🔻	Location T	Calibration statu	s T	Next calibr	ation (scheduled)	T Actions	Person in charge of test equipment 🔻	Serial number 🔻	Test equipment status 🔻
	A Fluke 5500A															
	- Fluke 5500A DEMOS500A DemoDepartment calibrated and ready for use 2027-03-18 DemoDepartment DEMOS500A Active															
		(Cali	bration certific	ates											
`	Calibration date T Calibration laboratory T Approval status T Actions Incorrect T															
		3	• 3	/19/2024	2024-0	03-19-0001	HAZET-W	VERK, Hermann Zen	ver GmbH & Co. KG	Approve	d	0				
ma	and.	n	ورر		ردرد	در ودمندو بر در متر در بر مور .	section and	ومدوس مردو مردور	متو بيندوسو و بو مرد و		· ·····	and the second and	وجواحمدموس	در بر دور کردن و در او اون کردکرون کرو و دو و ایک و و ایک کرد و ایک کرد.		وسولا حاصره الاق المجدى الانتو للدوال الاتو و المنا

Fig. 3-8: Test equipment overview table, Calibration certificates submenu

⇐ Click on the osymbol in the **Actions** column.

⇒ The **Calibration certificates** page with the data of the currently stored calibration certificate opens.

3.3 Settings





Fig. 3-9: Settings menu (Admin mode)

Saving changes



On each page of the **Settings** menu, there are three buttons in the footer area at the lower right, designed to store or discard changes made, or to restore the default settings.

The **Store** and **Discard** buttons will be enabled as soon as any changes are made on the page.



3.3.1 Customization

In the **Customization** menu, user-defined changes and additions can be made to be included in the calibration certificate. The menu is divided into the sections **Output**, **Header**, **Title page** and **Remarks**.

3.3.1.1 Output

Output	Output directory*
	C:\Users\Public\Documents Q C
	Store OK/FAIL in the same folder ③
	Filename [S/N-Extension]_[S/N]_[Date]_[Document-ID].pdf
	Result ③ DUT ③ Custom text ③
	Custom text
	Protocol preview Display protocol after calibration

Fig. 3-11: Calibration certificate options | Output

- Output directory: a customizable storage location for the calibration protocols. Clicking on the button opens the folder specified under Output directory. The "active/inactive" switch has the following functions:
 - switch position "inactive": All calibration records ("OK" and "FAIL") will be stored in the folder specified under **Output directory**.
 - switch position "active": Calibration records with the status "FAIL" will be stored in a separate subfolder.
- File name: options for naming the calibration protocols. The switches have the following functions:
 - Result (switch position "active"): The calibration status ("OK"/"FAIL") is added to the file name.
 - DUT (switch position "active"): The test equipment number of the DUT is added to the file name.
 - Custom text: see input field Custom text
- Custom text: This option can be used to add further information to the file name of the calibration certificate. The Custom text switch in the File name section has to be in the "active position" to use this option.
- Protocol preview: After a calibration process has been successfully completed, the corresponding calibration protocol opens automatically. Switch of the Protocol preview to disable the automatic display of the calibration certificate.

3.3.1.2 Header

Header	Logo*
	Sample GmbH
	C:\Users\Public\Documents\CSM GmbH\CSMcalibr
	Company *
	Sample GmbH
	Department
	Custom lines
	1:
	2:
	3:

Fig. 3-12: Calibration certificate options | Header

- Logo: This is where you can specify the path for the logo (company logo) to be displayed in the calibration protocol. Image data in the formats *.jpeg, *.jpg and *.svg can be used.
- **Company**: Name/designation of the company issuing the calibration protocols
- **Department**: Name of the department responsible for the calibrations
- **Custom lines**: Additional comments (e.g. company address)

3.3.1.3	Title	page

e page	Protocol title	Minor Janguage*	↔ Swap fields
	Kalibrierschein	Calibration certificate	
	Properties		
	Major language	Minor language	
	1.		
	Major language	Minor language	
	2:		
	Major Janguage	Minor Janguage	
	3:		
	Approval Major Janguage	Minor Janguage	
	Prüfer 1	Tester 1	
			_

Fig. 3-13: Calibration certificate options | Title page

- Protocol title: Title of the document (calibration protocol) in the main and secondary languages (e.g. German and English); the standard texts are "Kalibrierschein" and "Calibration certificate".
- Properties: This is where customer-specific properties can be entered that have to be included in the calibration certificate.
- **Approval:** This is where the name of the person can be entered who will release the calibration certificates.



Click the **Swap fields** button to swap the entries for the main and secondary languages in the sections **Title Page** and **Remarks** (\rightarrow Chapter 3.3.1.4 "Remarks").

3.3.1.4 Remarks

Remarks	Major language	Minor language	

Fig. 3-14: Calibration certificate options | Remarks

> Notes on the calibration protocol in the main and secondary language

3.3.1.5 Sample document

A template of a calibration certificate is shown in the **Sample document** section. Content that may vary depending on user-defined information is highlighted in color (Fig. 3-15, left). The colors correspond to the colors of the input fields for user-defined information in the chapters 3.2.1.2 to 3.3.1.4.

Sample GmbH	CSM GmbH
Durantmet: Sample and Illustration (seen source dour of and used (seen source) of the second second second second second second second set (seen source) second sec	Sample Gmb
Calibration certificate Kalibrierschein Document number Dolumerscheinare	Calibration certificate Document number Kalibrierschein Dokumentennummer
Object: Multi-channel measurement device for electrical voltage dependent of the statistic spreading o	Object Multi-channel measurement device for electrical votage Gagetander Steinkeinsteinagenit devikelinde Spermeng Kanufacturier CSM Computer System Measureschnik GmbH
Type AD4 pro MC10 Hardware revision 6401	Type AD4 pro MC10 Hardware revision 6401
Serial number 32348-ADMM Firmware vision V7.15	Serial number 32348-ADMM Firmware version V7.15
Testing device no. N/A Property 1 Wert 1 / Value 1 Professional Arriver Arrive	Testing device no. N/A
Property 2 Wert 2 / Value 2 Property 3 Wert 3 / Value 3 Uperscheft 3	
Environmental conditions (https://apibedingungen	Environmental conditions
Air temperature N/A Relative humidity N/A Lottorports	Air temperature N/A Relative humidity N/A
Date of calibration 2024-03-05 Number of pages -2 - Denam der Koldhrierung Assahl der Seiter	Date of calibration 2024-03-05 Number of pages - 2 - Anachi der Seiten
Summary by channel over all measured values Zusammenfassung je Kanol über olle Messwerte	Summary by channel over all measured values Zusammenforssung je Konol über olle Messwerte
Channel 1 2 3 4	Channel 1 2 3 4
Measurement V V V	Measurement / / / /
Used reference standards Verwindete Bezugsnormale	Used reference standards Verwendete Bezugsnormole
Description Testing device no. Serial number Traceability Calibration Academany Professional Seriessammer Alcofeliness date Recordshares Seriessammer Records and Record Series	Description Testing device no. Serial number Traceability Calibration Beteiddwag Prijskitelik. Serianswarer Biolyfikowy date
Burster Digistant 4442 55-90.01K 253989 29517 D-K-15141-01-02 222-08 2022-08	Burster Digistant 4442 55-90.01K 253989 29537 D-K-15141-01-00 2322-08 2022-08
This document was generated electronically and is walld even without a signature. Divers Dohument worke reaschived erzeugt und ist ouch ohne Unterschild gillig.	This document was generated electronically and is valid own without a signature. Disease Dohument wurde moschinell erzeagt und ist auch ehne Unterschrift gültig.
Progate Becister	Tester 1 Persee in charge Philfer 1 Bescheiter
Jare Doe john Doe	

Fig. 3-15: Sample document (left), Live preview (right)

Clicking the **Live preview** button opens the preview version of the calibration certificate (Fig. 3-15, right), which may contain user-defined changes made according to the options described in the chapters 3.2.1.2 to 3.3.1.4. Clicking the **Sample** button displays the template of the calibration certificate again (Fig. 3-15, left).

3.3.2 Workspace

3.3.2.1 Environment



Fig. 3-16: Environment menu

The **Environment** menu provides the option to specify the ambient temperature (**Temperature**) and relative humidity (**rel. air humidity**) for the calibration site. The **Polling interval** specifies the interval at which the values for temperature and relative humidity are retrieved.



3.3.2.2 Test equipment

The **Test equipment** submenu provides the means to verify the connections of calibrators and other test equipment to the PC on which the calibration software is installed. It is also possible to specify the connection parameters for the calibrators.

CSMcalibrate		- 🗆 X
= <i>(7</i> 117	Connections @ Store @ Decard "D Reset	eel to 💄 (Admin) 🗮 English 🗘
	Calibrator	A.
Calibration Start Manage Test Equipment	Burster Digistant 4462 COM 101 • 19200 Baud • COM Port Detection ③ Test connection	n 🛞 S/N: DEMO4462
	Burster Digistant 4463 COM 102 V 19200 Baud V COM Port Detection 🕥 Test connection	n 🛞 S/N: DEMO4463
	Fluke 5500A COM 100 V 95600 Baud V COM Port Detection 🕥 Test connection	n S/N: DEMO5500A
Settings	Fluke 5502E COM 100 V 9500 Baud V COM Port Detection ③ Test connection	n S/N: DEMO5502E
 Customization Workspace 	Fluke 5522A COM 100 V 9600 Baud V COM Port Detection ③ Test connection	n S/N: DEMO5522A
Environment Test equipment	Equipment	
器 Interfaces 汉 Calibration setup	Calib Adapter AD Test connection	n 🛞
Assessment Assessment Tolerances	Calib Adapter PT Test connection	n 🛞
Account Help	Omega iBTHX-W 192.168.72.214 2000 Test connection	n 🛞
		User 'Admin User' logged in 🛛 🤟 🔱 23.0 °C 💧 26.0%

Fig. 3-17: Test Equipment menu

3.3.2.3 Interfaces

The interfaces connected to the PC in the calibration setup are listed in the **Interfaces** section.

SMcalibrate	
=	Interfaces 🔁 Store 📋 Discard 🏷 Reset
	C' Reload interfaces
Calibration ^	
► Start	Kvaser: Leaf Light HS (Channel: 0) S/N: 26641 Default Settings
🖬 Manage Test Equipment 🗸	CAN Default Settings
🗢 Settings 🔨	CAN interface library CSM interface library
📮 Customization	Bitrate 500.000 bits/s 🔻
🖵 Workspace 🔨	Sample Point 66 % 🔹
Environment	Module selection
Test equipment	Skin module selection for single device
器 Interfaces	
and a strange second and a straight a second se	م میر میرون از ایر میرود میرود میرود میران میرود از میرون ایر میرود ایر میرود ایر میرون میرود میرود میرود ایر میرون میرود میرود و میرود میرود میرود میرود ایر میرو میرود ایر میرو میرود میرود ایر میرو میرود میرود ایر میرو میرود ایر میرو

Fig. 3-18: Interfaces menu

If further interfaces are added to an existing calibration setup, the list of connected interfaces can be updated by clicking on the **Reload interfaces** button (Fig. 3-18).

C Reload interfaces		
Advancing connectivity	Kvaser: Leaf Light HS (Channel: 0) S/N: 19974	Default Settings
VECTOR >	Vector: VN1610 (Channel: 0) S/N: 57748	Default Settings
VECTOR	Vector: VN1610 (Channel: 1) S/N: 57748	Default Settings
	463-XCPG Rev. C002	

Fig. 3-19: Detected interfaces

Fig. 3-19 shows a selection of interfaces integrated into a calibration setup:

- Kvaser Leaf Light HS (CAN, 1 channel)
- Vector VN1610 (CAN, 2 channels)
- XCP-Gateway

If two or more CAN interfaces or CAN interfaces with more than one channel are available in the **Interfaces** section, it is possible to specify individual settings for each interface/interface channel. To do so, the position of the switch of the relevant CAN interface (Fig. 3-19, ①) has to be changed from **Default settings** to **Individual settings**. Fig. 3-20 shows the switch in position **Individual settings** with the interface- and channel-specific setting options.



Fig. 3-20: Switch position Individual settings

An XCP-Gateway does not provide any customization options.

The interface settings used for the calibration process are specified in section **CAN Default Settings** (Fig. 3-18). This drop-down menu **CAN interface library** provides the options "CSM interface library" and "BOA (INCA 7.x)". The interface libraries are identical to those available in CSMconfig. The change of the CAN interface library only takes effect after the program is restarted.

3.3.2.4 Calibration setup

The test equipment that is used for calibrating the devices is specified in the **Calibration setup** menu.

CSMcalibrate						- 🗆 ×
					Licensed to	💄 (Admin) 🗰 English 🗘
≡ < <∭∑>	Calibration setup					
						<u>^</u>
Calibration ~	AD					
📾 Manage Test Equipment \land	Calibrator to be used	Automatic selection				
Create	2 Connection type	CSM Calib Adapter	3 Sensor supply	Do not test		
🐼 Manage	Ŭ	Cable whip	<u> </u>			
	HV AD (LV)					
		Automatic solution				
	Calibrator to be used	Automatic selection				
	Connection type	CSM Calib Adapter	Sensor supply	Do not test		
		Cable whip				
	HV AD (HV)					
	Calibrator to be used	Automatic selection				
	Connection type	Cable ushin				
		Cable wrip				
	тн					
					-	
Settings ^	Calibrator to be used	Automatic selection				
Customization	Connection type	Cable whip				
💭 Workspace 🔨	HV TH					
8 Environment	Calibrator to be used	Automatic selection				
Test equipment	Connection tons					
금급 Interfaces	connection type	Cable whip				
Calibration setup	DT					
Calibration Points						
Account	Calibrator to be used	Automatic selection				
Account						
I+ Close						🗈 Store 📋 Discard 🍤 Reset
					User 7	dmin User' logged in 🛛 🏀 🌡 22.9 °C 💧 29.1%

Fig. 3-21: Calibration setup menu

If more than one calibrator is available, the required calibrator can be selected directly from the selection menu **Calibrator to be used** (Fig. 3-21, ①). Alternatively, the option "Automatic selection" can be chosen.

Depending on the type of module, which has to be calibrated, the **Connection type** (Fig. 3-21, ②) menu provides the following options:

- ► AD/HV AD (LV): CSM Calib Adapter AD/CNT or cable whip
- ► HV AD (HV): cable whip
- CNTMM: CSM Calib Adapter AD/CNT
- PT/HV PT: CSM Calib Adapter PT
- ▶ TH/HV TH: cable whip

For the measurement module types AD/HV AD (LV), it is also possible to test the sensor supply of the test object after the calibration process has been completed. To do so, the option **Sensor supply** (Fig. 3-21, ③) has to be enabled.

3.3.2.5 Calibration points

The calibration points menu provides the following options:

- In the calibration point table, standard calibration points (marked with the CSM logo () can be deactivated if required.
- New/user-defined calibration points can be added to the table.
 - Calibration points marked with the CSM logo (32) are standard calibration points. These can be deactivated but not deleted.
 - User-defined calibration points can be deleted or deactivated.



Fig. 3-22: Calibration Points menu

Open the calibration point table

The article number of the measurement module to be calibrated has to be entered into the **Article Number** field.

- Enter the article number of the measurement module and confirm the entry by pressing the Enter key.
 - ⇒ The module type and hardware revision number are displayed in the Calibration points field.
 - ⇒ The calibration table with the standard calibration points is displayed below this. The "active/inactive" buttons can be used to activate or deactivate entire measurement ranges (Fig. 3-22, ①) or individual calibration points (Fig. 3-22, ②).
 - ⇒ If other measurement modules are affected by changes in the calibration point table, a list opens to the right of the calibration point table (Fig. 3-22, ③), in which the relevant measurement modules will be displayed.

NOTE!



If a measurement module cannot be assigned to a specific set of calibration points, the **Revision** field will be displayed to the right of the **Article Number** field.

Enter the hardware revision number in the **Revision** field to assign the required set of calibration points to the measurement module.

Adding user-defined calibration points

				G
T	Reference Value T	Unit T	Is Active 🔻	
	-45	mV		
	0	mV		
	45	mV		

Fig. 3-23: Table containing standard calibration points

$rac{1}{rac{2}{r}}$ Click on the m e button in the table header.

\Rightarrow A new row will be added to the table.

)
	•	Reference Value T	Unit T	Is Active 🔻	
		-45	mV		
		0	mV		
		45	mV		
>		-22.5	mV		

Fig. 3-24: A user-defined calibration point has been added

A standard value for the user-defined calibration point is displayed in the **Reference Value** column. This value can be changed if necessary.⁷

User-defined calibration points can be deleted again by clicking on the 🔳 symbol.

⁷ The tolerances for user-defined calibration points are calculated on the basis of a linear interpolation.

3.3.2.6 Assessment

CSMcalibrate calibrates the devices under test according to the manufacturer's tolerances. The tolerance values (in percent) refer to the maximum error according to the manufacturer's specifications.

CSMcalibrate		- D X
≡	Tolerances	Licensed to 🙎 (ddmin) 💥 English. 🗘
Calibration	(1) The tolerance limits set here also apply for checking the sensor supply.	
► Start	AD	HV AD (LV)
un manage lest cquipment	Tolerance limits 50%	Tolerance limits 50%
	HV AD (HV)	
	Tolerance limits 50%	
Settings		
Customization		Tolerance limits 50%
Environment		
Test equipment References	РТ	HV PT
🚬 Calibration setup	Tolerance limits 50%	Tolerance limits 50% , , , , , , , , , , , , , , , , , , ,
Calibration Points	Chithea	
I↔I Tolerances	Tolerance limits 50%	
AccountHelp		
License About		
🖒 Update		
I→ Close		Liter \Admin Liter \admin and the liter \admin and

Fig. 3-25: Menu Assessment | Tolerances

In the **Assessment | Tolerances** section, the limits recommended by CSM are set by default for each type of module. Alternatively, it is possible to specify user-specific tolerance ranges for each type of module.

Displaying and changing tolerance values

☞ Left-click on the corresponding black slider and keep the mouse button pressed.

 \Rightarrow The current tolerance value will be displayed.

AD				70%]												
Tolerance limits	50%	'	I	6	ı	'	I	1	•	ı	1	ı	I	ı	ŀ	ľ	1	200%

Fig. 3-26: Display of current tolerance value

To change a tolerance value, press and hold the mouse button, move the black slider to the new position and release the mouse button.

If the left and right sliders are moved up until they overlap, the "conditionally OK" (orange) area is faded out. Only the areas "OK" (green) and "not OK" (red) are displayed.	
---	--

3.4 Account

To make changes in the menus **Manage Test Equipment** and **Settings**, administrator rights are required. The user rights can be changed in the **Account** menu.

CSMcalibrate	
	Licensed to 🙎 2 🛄 🛄 (User) 🗮 English
= (()))	Account
	Name
Calibration ^	User Vser 🔻
► Start	Admin
🖬 Manage Test Equipment 🗸	User
****	$\hat{S}_{0,1}$ is the standard standa
•	والإجرابا الاستانية المحاطرة الأسلالية المالايات ويوكران وكالايت محاطرينا والمتاكرين والمواطية والمحاف المحافية والمتابية والمعالية
- Close	User 'Standard User' logged in
Fig. 3-27: Account m	enu

Click on **Account** in the menu on the left (Fig. 3-27, ①) or in the field in the header on the right (Fig. 3-27, ②), where the name of the currently logged-in user is displayed.

⇒ The **Account** menu is displayed.

Select the "Admin" option in the **User** drop-down menu.



Fig. 3-28: Administrator login

☞ Log-in as administrator.

⇒ The option of the menus Manage Test Equipment (ch. 3.2) and Settings (ch. 3.3) are now fully accessible.



Fig. 3-29: Menus Manage Test Equipment and Settings in Admin mode

3.5 Help

The **Help** menu contains entries with information on the software license, program version and database update.

3.5.1 License

This menu contains information on the currently installed CSMcalibrate license and options for updating the license.

License					
		Software version Maximal U Current 2.	nrestricted (1) 0.0	date 4/30/2025 Warn 28 days before expiry	
Interfaces	Protocols	Device families	Workflows	Test equipment	Additional modules
CAN	C3P	AD	Calibration	Fluke 5500A	Test equipment administration
	Special protocols	✓ HV AD (HV)		✓ Fluke 5522A	
		🗸 тн		V Fluke 5540A	
		✓ НV ТН		Burster Digistant 4462	
		✓ PT		Burster Digistant 4463	
		✓ HV PT		Burster RTD Simulator 4530	
		✓ СNTMM		V Tektronix AFG 3021C	
				đ	Export License Info

Fig. 3-30: License menu

The slider in the info box **Expiry date** (Fig. 3-30, ①) can be used to set the time span in days until the software license expires. At the beginning of the specified time span, a warning message appears after the program start indicating the license expiry date.



Fig. 3-31: Note on the expiry date of the software license

CANopen and special protocols

Calibrating CSM measurement modules running in CANopen mode and CSM measurement modules with special protocols requires a specific license for CSMcalibrate. For further information, please contact your CSM customer advisor.

Buttons for importing and exporting license information/licenses

- **Export License Info** exports details of the currently installed license to a file with the extension *.lif.
- Use **Import License Update** to import a new license file (*.clu) with updated license data.

3.5.2 About

This submenu contains information on the current versions of the program and the database.



Fig. 3-32: Information on the current software version

- > Version: Software version number
- **Format/Version**: Version number of database format/version number of database contents
- Licensed to: Licensee's name
- Release notes: Link to the release notes of the current software version
- > Quickstart Guide: Link to the CSMcalibrate quickstart guide

3.5.3 Update

The Database update menu provides options to import database files (*.dbu) containing updated hardware and firmware information.

Current versions displays the version numbers of the current database design (**Format**) and database version (**Version**).

Database update	
Current versions	
Path to the update package	

Fig. 3-33: Database update

Select the database file (*.dbu).

Then click the **Execute** button to import the database file.

Database backup

When installing a new version of CSMcalibrate, there is a risk that data stored in the existing database (data generated when calibrating measurement modules, as well as customer-specific data) will be overwritten.

	NOTE!
i	To avoid a potential loss of data, we recommend creating a backup copy of the current database. By default, the database file is located in the directory C:\Users\Public\Documents\CSM GmbH\CSMcalibrate\Database.

When installing a new version of CSMcalibrate, the following message will be displayed as the installation process is running.

Confirm
Select action
C:\Users\Public\Documents\CSM GmbH\CSMcalibrate\Database\Demo\CSMdata.db
The file already exists.
\rightarrow Overwrite the existing file
ightarrow Keep the existing file
Do this for the next conflicts

Fig. 3-34: Warning: data will be lost!



NOTE!

If the **existing database file is overwritten**, this will also overwrite any calibration data and customer-specific information that has been saved in the existing database file!

Select **Keep the existing file** to keep the contents of the existing database.

CSMcalibrate – Appendix

4 Appendix

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