

Assembly instructions & operation manual SWG-1



**IFM CR1074 LED display programmed as
Forklift truck with 3 load storage units**

Edition: V1.0 (08.2022)

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Hints

General remark

This document is part of the system provided by KST Engineering GmbH.
The documentation includes information for the CR1074 control console

Product identifications

Product type:	IFM CR1074 console
Software product name:	KST Engineering GmbH SWG-1 display
Firmware system:	Codesys 3.5.16.5 Package FW21015

Document identifier

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production

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introduction

About this manual

This document is a component of the devices provided by KST Engineering GmbH. systems. Keep this manual in a safe place and ensure that it is freely accessible to all users.

Disclaimer

The contents of this manual are subject to change. KST Engineering GmbH provides no warranties for this material, including any warranties of merchantability or fitness for a particular purpose. KST Engineering GmbH assumes no liability for errors contained in this manual or for direct or indirect damages in connection with the provision or use of these materials.

Copyright notices This manual is protected by copyright. All rights reserved. The manual may not be copied, reproduced or translated into another language without the prior written consent of KST Engineering GmbH.

Use for the intended purpose

This device/system may only be used for the purpose specified in this manual. Any other use will be considered inappropriate. The manufacturer assumes no liability for damage caused by inappropriate or unauthorized use.

This device/system may only be used in a technically perfect condition.

Qualifications of operating personnel This device/system may only be operated by appropriately qualified personnel, ie persons who:

1. are familiar with the operation or installation and commissioning
2. know the applicable legal regulations to prevent accidents
3. have read and understood the documentation or have received appropriate training or instruction have received.

Safety information

Warning information and symbols

Information of particular importance is marked within the user manual using the following names and symbols:



This symbol refers to hazards associated with the activity described that could result in injury.



This symbol indicates hazards that could cause property damage, e.g. B. Damage to the equipment or the environment.



The hand icon points to sections where you can find more information or tips.



This symbol informs you that the warranty may be void. Make sure you have read all safety instructions in this document and follow them when operating the system.

Make sure you have read all safety information in this documentation and observe it when using the system.

Always keep these instructions in a safe place. Provide a copy of the instructions to each operator.

The control system may only be operated with your hands. Never use sharp objects to press the buttons.

If the device is damaged, the system may no longer be used.

Disconnect it from the power supply. The limiter must be protected from steam, liquid and dust, especially if the display window is damaged.

Only clean the device with mild cleaning agents. Never use cleaning agents containing solvents or aggressive or abrasive agents.



When disposing of the limiter, the electronic components must be disposed of as hazardous waste in accordance with local regulations.

Purpose of use



This system was developed in accordance with recognized safety standards. However, improper use of the device can result in injury or death to the operator and others, as well as damage to equipment and other property.

The system may only be used for its intended purpose and must be in perfect technical condition. There should be no doubt that this system contains both electronic and mechanical components and therefore the risk of errors cannot be completely ruled out.

Errors that lead to a possible security risk must be corrected immediately.

This system is designed exclusively for the tasks described in this documentation. It may not be used for any other purposes.

Caution: This system is not intended to replace the operator's lack of practical experience or common sense in the use of the equipment. Responsibility for the entire operating process and all resulting consequences lies solely with the operator.

The manufacturer assumes no liability for any damage or injury resulting from inappropriate or unauthorized use of the system. The risk lies solely with the user.

General information

The SWG-1 system must be calibrated upon completion of system installation, after machine changes, or any time an inaccuracy is detected. During calibration, the sensors installed in the machine are tuned.

Before starting calibration, you should read the procedure completely. The purpose of this manual is to provide necessary calibration information prior to operating the system. For a description of the system and console controls, see the Operator's Manual.

Warnings

Always follow the crane manufacturer's operating instructions and load tables for specific information on operating the crane and load limits.

However, the SWG-1 is not, and should not be construed as, a substitute for operator common sense, experience, and application of proper operating procedures.

The operator is responsible for operating the truck in accordance with the manufacturer's specified parameters.

The machine operator must ensure that all warnings and instructions provided by the manufacturer are fully understood, observed and retained with the machine.

Before operating the truck, the operator must carefully read and understand the information contained in the Operator's Manual to ensure they are familiar with the operation and limitations of the SWG-1.



BEFORE STARTING THE MACHINE, THE SYSTEM MUST BE CALIBRATED. ALL STEPS MUST BE PERFORMED AND COMPLETED. TO AVOID MATERIAL DAMAGE AND SERIOUS OR EVEN FATAL ACCIDENTS, PROPER ADJUSTMENT OF THE SYSTEM MUST BE ENSURE BEFORE OPERATION OF THE MACHINE.

MAKE SURE ALL SETTINGS/DATA HAVE BEEN ENTERED CORRECTLY!

Commissioning



Before using the device, ensure that you have read all relevant instructions provided by the device manufacturer regarding the updating and use of the device.



This manual and the device manufacturer's manuals must be read carefully and fully understood before starting work.



All entries must be made in accordance with the actual conditions of the device. If incorrect entries are made, the device cannot function properly and will not provide the necessary information in dangerous situations necessary protection for the operator or equipment.

Before making any changes to the system, always check the sensor and power cable.

The system may only be adjusted by KST Engineering GmbH customer service or an authorized KST representative. Incorrect adjustment may result in inaccurate data or device malfunction. In this case all guarantees expire.

Assembly

Assembly instructions

The following applies to the display mounting types: Compliance with the requirements for device mounting in the application with regard to shock, vibration, acceleration and weight is the responsibility of the commissioning engineer. The front of the device can withstand impact loads up to IK07 without damage.



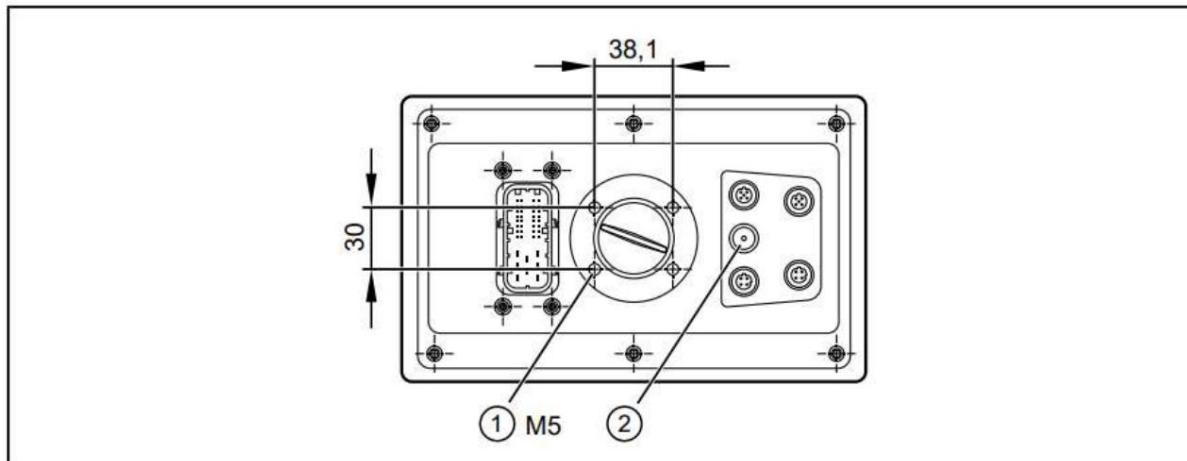
Higher impact load > IK07 Damage possible Protection class and electrical safety. Depending on the requirements of the area of application, the commissioning engineer may have to protect the device using external measures. Damaged devices must be replaced, otherwise the technical data will be damaged and safety will be compromised.



On the back of the display are the pressure compensation element, service cover and connector areas. If necessary, the commissioning operator must be protected by external measures.

Mounting base

The back of the device is prepared for screwing mounting accessories.



1. 4 x M5 threaded hole for RAM® mount system / for retaining profile of the installation set
2. Pressure compensation element



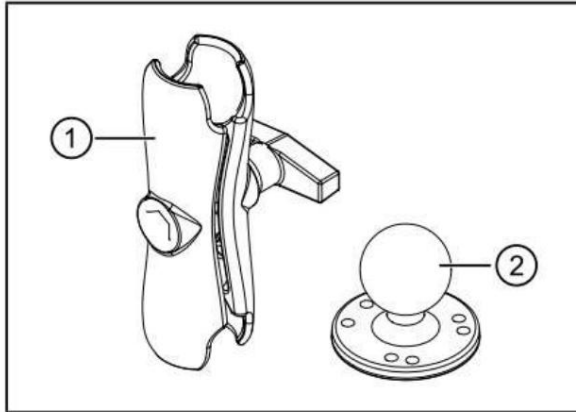
The device is equipped with a pressure compensation element. If the associated ventilation channels are sealed or closed with elastic materials, this can cause damage of the device.

Do not use sealing materials in the area of the pressure compensation element.

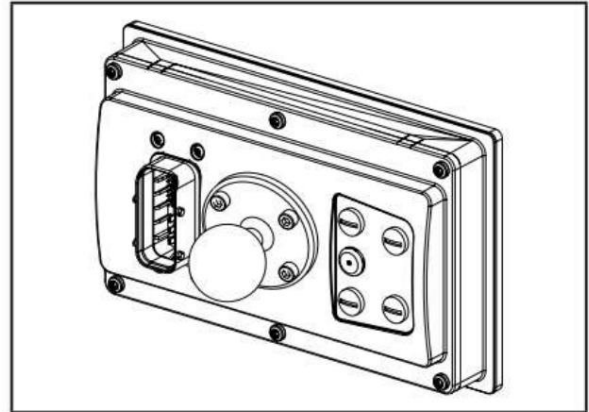
Surface mounting with RAM® mount system

With the included RAM® mount, the dialogue device can be used as a permanently mounted stand-alone device.

Two ball heads enable variable alignment of the device.



RAM® mount components



Dialogue device with installed RAM® mount system

1: Mounting arm with tension screw

2: Mounting plate with ball head

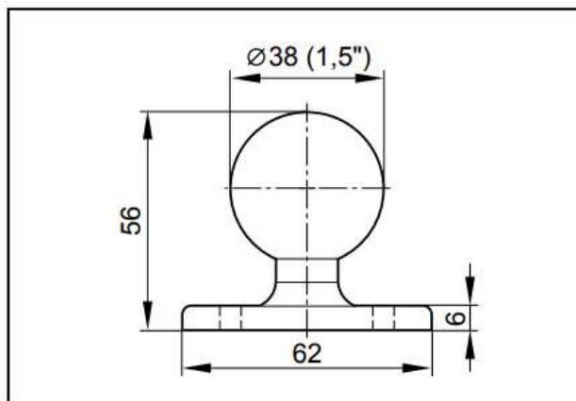
Assembly steps

Screw the mounting plate to the back of the device.

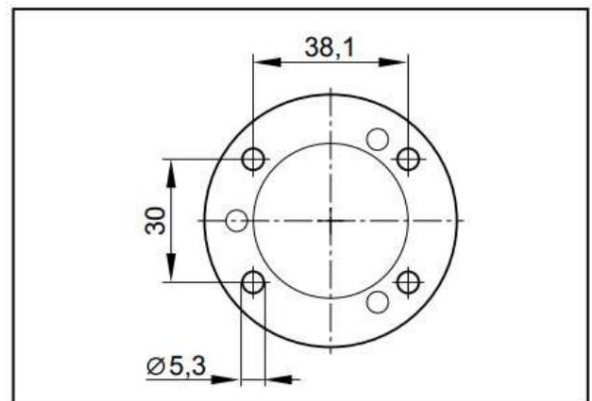
- Usable M5, thread depth: ≥ 8 mm -

Tightening torque M5: 5 ± 0.5 Nm

Screw the second mounting plate / ball head of the selected RAM®-Mount component onto a suitable surface according to the RAM®-Mount information



Mounting plate with ball head

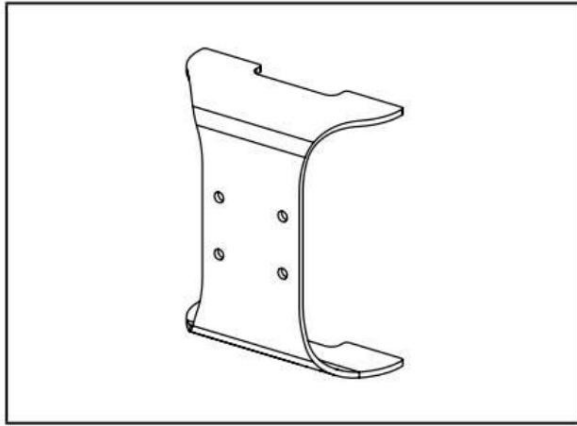


Drilling dimensions

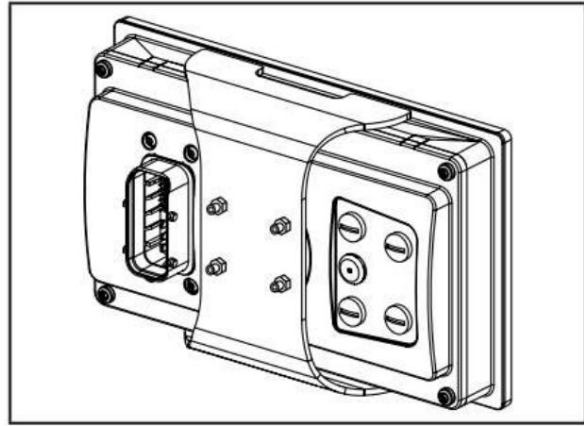
Slightly loosen the clamping screw of the mounting arm. Place the mounting arm on the ball heads and tighten the clamping screw.

Installation with installation set

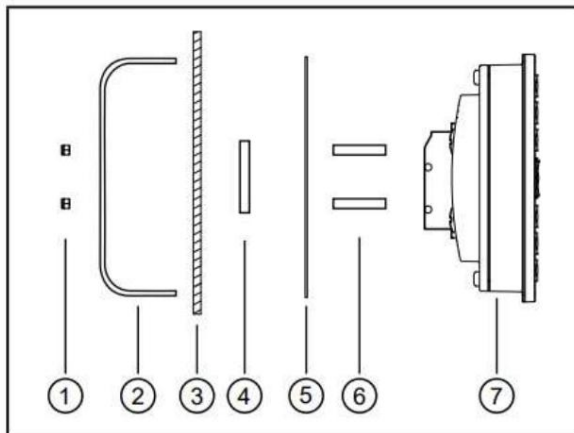
The installation set enables the device to be installed horizontally, vertically or overhead in a control panel cutout. This type of installation is suitable for material thicknesses of 1 to 10 mm. The retaining profile, spacer plates, M5 hexagon nuts, washers, M5 grub screws and damping strips required for installation are included in the installation set.



Retaining profile of the installation set

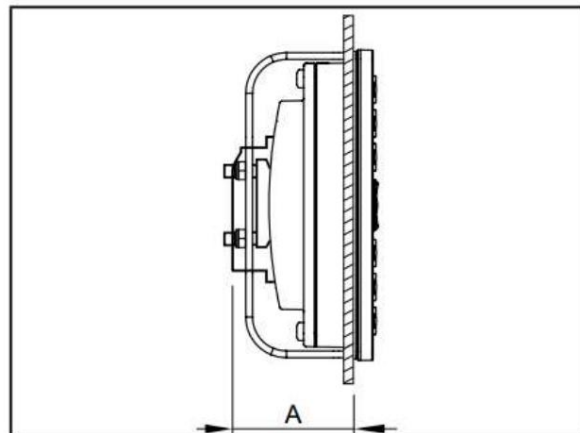


Dialogue device with installed installation set



Assembly principle

- 1: M5 hex nuts
- 2: Holding profile
- 3: Panel cutout
- 4: Spacer plate
- 5: Damping strips
- 6: Set screws
- 7: Dialog device

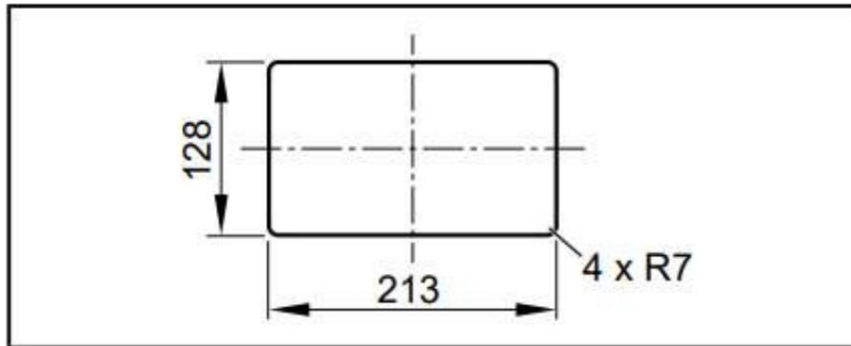


Installation depth A = device depth (approx. 53 mm)

Installation depth with plug attached: approx. 77 mm

Panel cutout

Create a section.



Other types of installation

Permitted types of installation: Panel installation / control cabinet installation.

Surface mounting with RAM® mount system.

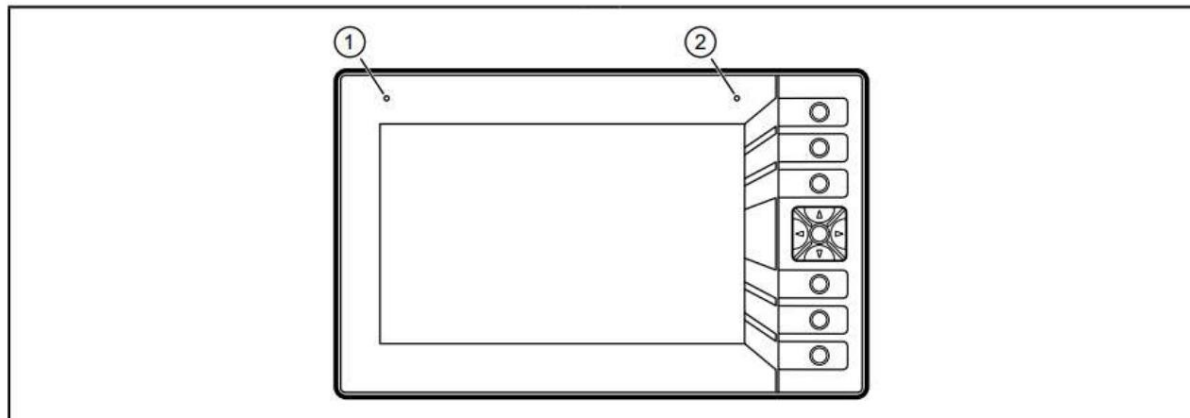
All other types of installation are entirely the responsibility of the commissioning engineer.

Light sensor & status LED

Do not cover the light sensor with structural measures.

The status LED shows the operating states of the device.

Red/green flashing means there is a system error.



1. Light sensor
2. Status LED

Electrical connection

Pin assignment

For connection assignment, see circuit diagram SWG-1.

The pin assignment can be found in the technical data

Reverse polarity protection

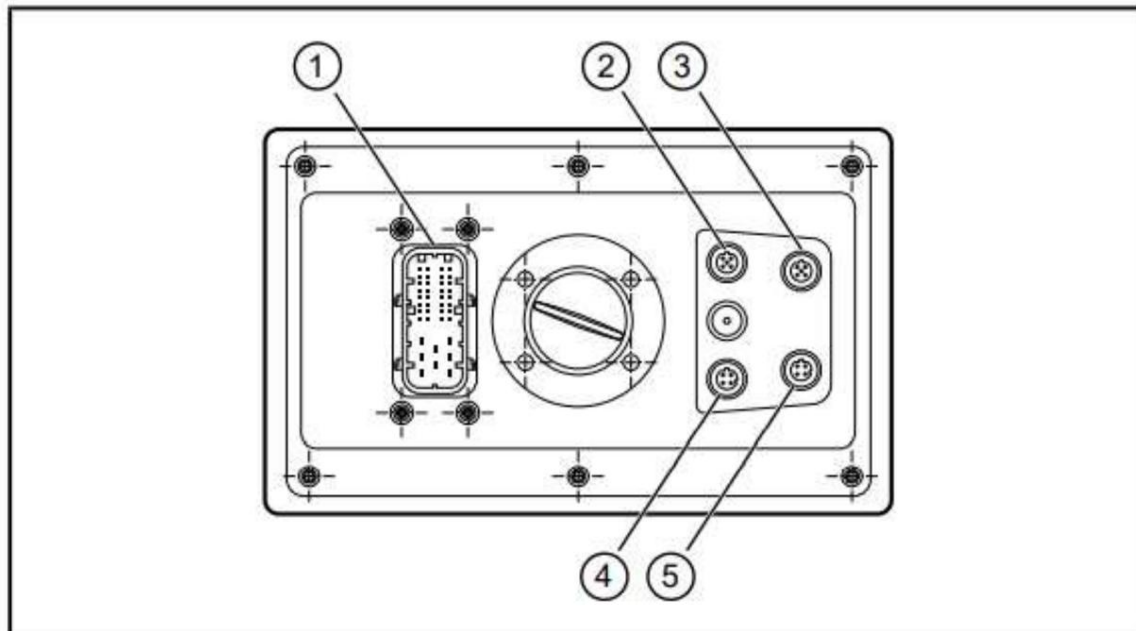
Reverse polarity protection not ensured when supplied from power supply SELV/PELV on VBB30 and VBB0)

Reverse polarity protection only exists when supplied by the vehicle electrical system (with battery) if this supply is completely reversed (battery connected incorrectly). Reverse polarity protection is based on the fact that in the event of reverse polarity, the upstream fuses are quickly switched off due to overcurrent.



Reverse polarity protection is not guaranteed when supplied by SELV/PELV. Damage to the device possible. Make sure the cable ends are correctly connected to the plug before installing it on the device. even with on-board network operation.

General connection instructions



- 1: Supply, inputs/outputs,
- 2: USB0
- 3: USB1
- 4: ETH0
- 5: ETH1 (CR1076, CR1077 only)

Operating voltage and fuses

To protect the entire system, protect the individual circuits. Automotive blade fuses are recommended.

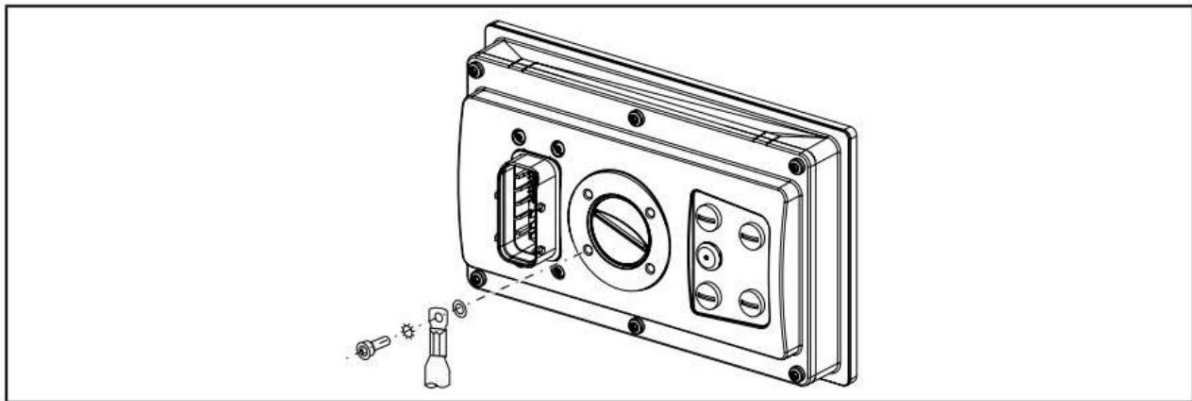
Bezeichnung	Stecker 1	Betriebsspannung	Sicherung Nennwert	erforderliche Auslösecharakteristik
VBB ₁₅	Pin 119	8...16 V DC und 16...32 V DC Zündstartschalter	3 A	$T_{\text{fuse}} \leq 120 \text{ s}$ bei max. 6,25 A
VBB ₃₀	Pin 121	8...16 V DC	5 A	$T_{\text{fuse}} \leq 120 \text{ s}$ bei max. 10 A
		16...32 V DC	3 A	$T_{\text{fuse}} \leq 120 \text{ s}$ bei max. 6,25 A
VBB ₀	Pin 114	8...16 V DC und 16...32 V DC	15 A	-
Digitaleingänge	Pin 115, 116, 89, 97, 110	8...16 V DC und 16...32 V DC	3 A	$T_{\text{fuse}} \leq 120 \text{ s}$ bei max. 6,25 A

Klemmenbezeichnungen gemäß DIN 72552

Supply lines for the inputs can be protected together with the fuse for VBB15.

Shield connection In

order to ensure electrical interference protection, the intended function and the safe operation of the device, the housing should be connected to the body / GND of the supply in the shortest possible way. Establish a connection between the device and vehicle ground using the screw provided for RAM® mount installation. If possible, use threads adjacent to the 40-pin AMP connector



Shield-Anschluss

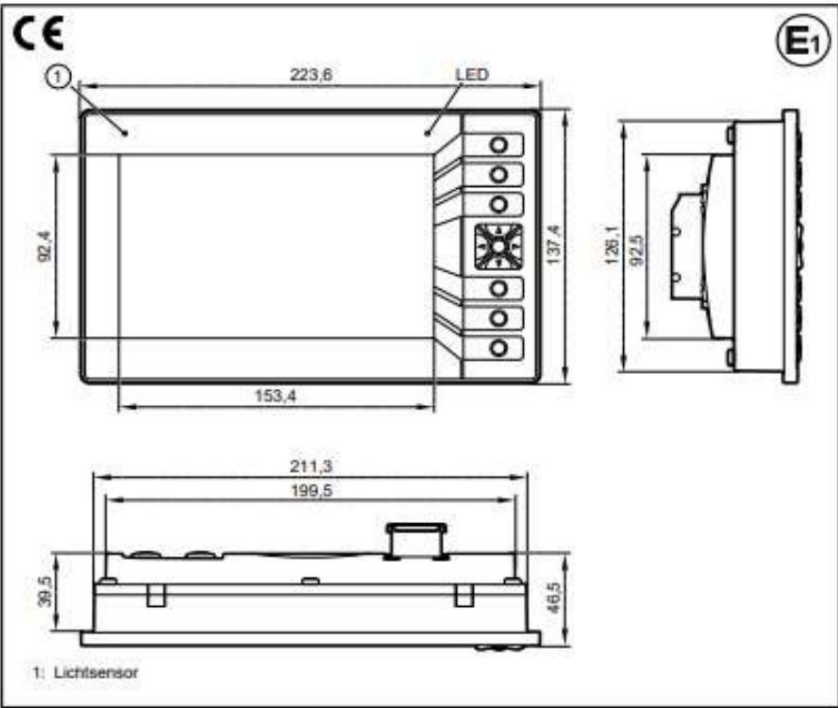


In highly corrosive environments, such as extremely salty air, use screws with a zinc/nickel-based surface finish with thick-film passivation and sealing.

Technical data

CR1074

- Prozess- und Dialoggerät
- ecomatDisplay
- 7" Farb-Display
- 6 frei programmierbare hinterleuchtete Funktionstasten
- Kreuzwippe mit Taster
- 2 CAN-Schnittstellen
- 1 Ethernet-Schnittstelle
- 1 USB-Schnittstelle
- 1 Stereo-Audio-Schnittstelle
- CODESYS 3.5
- 64 Bit Dual-Core-Prozessor
- 8...16 V DC oder 16...32 V DC



Technische Daten	
Anzeige	
Display	
Format	
Auflösung	
Ausrichtung	
Oberfläche	
Farben	
Hintergrundbeleuchtung	
Helligkeit	
Kontrastverhältnis	
Zeichensätze	
Mechanische Daten	
Montagevarianten	
Abmessungen (B x H x T)	
Ausschnitt für Einbaumontage (B x H)	
Gehäusematerial	
Tasten	
Kreuzwippe	
Hinterleuchtung Bedienelemente	

Programmierbares Grafikdisplay zur Steuerung, Parametrierung und Bedienung von mobilen Maschinen und Anlagen	
	TFT LCD Farb-Display
	16:10, 153,4 x 92,4 mm, 7" diagonal
	800 x 480 Pixel
	horizontal / vertikal
	Glas, chemisch entspiegelt und gehärtet
	262144 (18 Bit)
	LED (Lebensdauer ≥ 70.000 h)
	≥ 800 cd/m²
	(einstellbar 0...100%, Schrittweite 1%)
	typisch 1000:1
	frei ladbar und skalierbar
	vorinstalliert: ifm ISO Fonts mit Kfz-spezifischen Symbolen, Arial, Courier
	Einbaumontage (Schalttafel-/Schaltschrankeinbau) mit Montagebügel
	Aufbaumontage mit RAM®-Mount-System
	(Montagezubehör nicht im Lieferumfang enthalten)
	223,6 x 137,4 x 46,5 mm
	213 ± 0,5 x 128 ± 0,5 mm
	Aludruckguss, pulverbeschichtet (RAL 9005)
	6 Funktionstasten (Silikontastatur) mit taktiler Rückmeldung
	frei programmierbar (Softkey-Funktion)
	Lebensdauer ≥ 1.000.000 Betätigungen
	Cursorfunktion (Auf, Ab, Links, Rechts) mit taktiler Rückmeldung und mit
	zentralem, mechanischem Drucktaster
	Lebensdauer ≥ 1.000.000 Betätigungen
	RGB-LED, Farben und Zustände mittels Applikationssoftware programmierbar

CR1074	Technische Daten
Schutzart	IP 65 / IP 67 (bei gesteckten Steckern mit Einzeladerabdichtung und gesteckten M12 Anschlusssteckern/Dichtkappen)
Umgebungstemperatur	-35...65° C (bis 2000 m über NN) -35...60° C (bis 3000 m über NN)
Lagertemperatur	-35...85° C
max. zulässige relative Luftfeuchtigkeit	90 % (nicht kondensierend)
Höhe über NN	max. 3000 m
Verschmutzungsgrad	2 (vor Montage und bei Gerätetausch)
Gewicht	ca. 1,3 kg
Elektrische Daten	
Betriebsspannung	8...16 V DC oder 16...32 V DC
Verpolungsschutz	ja, bei Versorgung durch Bordnetz (Batterie)
Leistungsaufnahme VBB ₂₀	27 W
Stromaufnahme VBB ₅	5 A
Prozessor	ARM Dual Core, 64 Bit, 800 MHz mit GPU
Speicher (gesamt)	1 GByte RAM / 2 GByte Flash, permanenter Speicher: 16 kB
Schnittstellen	
CAN0...1	CAN Interface 2.0 A/B, ISO 11898 20 kBit/s...1 MBit/s (Default 250 kBit/s) CANopen, CiA DS 301 Version 4.2, CiA DS 401 Version 1.4 oder SAE J1939 oder freies Protokoll (Raw CAN)
ETH0	Datenrate 10/100 Mbit/s Protokolle: TCP/IP, UDP, Modbus TCP, OPC UA Micro Embedded Device Server, EtherNet/IP Scanner / Adapter
USB0	USB 2.0 High Speed, Datenrate bis 480 Mbit/s USB Master-Betrieb Ausgangsstrom je Schnittstelle ≤ 500 mA
Software/Programmierung	
Betriebssystem	Embedded Linux 4.14
Programmiersystem	CODESYS 3.5 (IEC 61131-3)
Grafische Funktionen	durch integrierte Target-Visualisierung

CR1074	Technische Daten																					
Sonstige Ausstattung																						
Akustischer Signalausgang	integrierter Audio Stereo Output Stereo Class D Lautsprecher-Ausgang mit 1W pro Kanal, 8 Ω, BTL																					
Temperaturüberwachung	1 integrierter Fühler zur Messung der Mainboard-Temperatur Die Mainboard-Temperatur darf 85 °C nicht überschreiten.																					
Helligkeitsanpassung	Lichtsensor in Gerätefrontseite zur Helligkeitsanpassung des Displays und der Bedienelemente																					
Uhr / Batterie	Echtzeituhr (RTC), batteriegepuffert / CR1225 (3 V, 48 mAh)																					
Status-LED	RGB-LED, Farben und Zustände mittels Applikationssoftware programmierbar																					
Betriebszustände (Werkseinstellung)	<table><tr><th>Farbe</th><th>Zustand</th><th>Beschreibung</th></tr><tr><td>-</td><td>Aus</td><td>keine Betriebsspannung</td></tr><tr><td>grün</td><td>5 Hz</td><td>Laden Betriebssystem</td></tr><tr><td>grün</td><td>Ein</td><td>Ausführen Betriebssystem</td></tr><tr><td>grün</td><td>1 Hz</td><td>Herunterfahren Betriebssystem</td></tr><tr><td>orange</td><td>5 Hz</td><td>Laden Recovery System</td></tr><tr><td>orange</td><td>Ein</td><td>Ausführen Recovery System</td></tr></table>	Farbe	Zustand	Beschreibung	-	Aus	keine Betriebsspannung	grün	5 Hz	Laden Betriebssystem	grün	Ein	Ausführen Betriebssystem	grün	1 Hz	Herunterfahren Betriebssystem	orange	5 Hz	Laden Recovery System	orange	Ein	Ausführen Recovery System
Farbe	Zustand	Beschreibung																				
-	Aus	keine Betriebsspannung																				
grün	5 Hz	Laden Betriebssystem																				
grün	Ein	Ausführen Betriebssystem																				
grün	1 Hz	Herunterfahren Betriebssystem																				
orange	5 Hz	Laden Recovery System																				
orange	Ein	Ausführen Recovery System																				
Service-Eingänge beim Einschalten	<table><tr><th>SERVICE0</th><th>SERVICE1</th><th>Beschreibung</th></tr><tr><td>0</td><td>0</td><td>normaler Start</td></tr><tr><td>1</td><td>0</td><td>Setup</td></tr><tr><td>0</td><td>1</td><td>Recovery App</td></tr></table> 0 = GND 1 = VBB	SERVICE0	SERVICE1	Beschreibung	0	0	normaler Start	1	0	Setup	0	1	Recovery App									
SERVICE0	SERVICE1	Beschreibung																				
0	0	normaler Start																				
1	0	Setup																				
0	1	Recovery App																				

CR1074	Technische Daten	
Prüfnormen und Bestimmungen		
CE-Zeichen	EN 61000-6-2	Elektromagnetische Verträglichkeit (EMV) Störfestigkeit
	EN 61000-6-4	Elektromagnetische Verträglichkeit (EMV) Störaussendung
E1-Zeichen	UN/ECE-R10	Störaussendung Störfestigkeit mit 45 V/m
	ISO 7637-2	Impuls 1, Schärfegrad: IV; Funktionszustand C Impuls 2a, Schärfegrad: IV; Funktionszustand A Impuls 2b, Schärfegrad: IV; Funktionszustand C Impuls 3a, Schärfegrad: IV; Funktionszustand A Impuls 3b, Schärfegrad: IV; Funktionszustand A Impuls 4, Schärfegrad: IV; Funktionszustand A Impuls 5, Schärfegrad: III; Funktionszustand C Angaben gelten für 24V System Impuls 4, Schärfegrad: IV; Funktionszustand A (Angabe gilt für 12 V System)
zusätzliche Kfz-Prüfungen	ISO 10605 DIN EN ISO 13766-1	ESD (330 pF / 2000 Ω) ± 4 kV Kontaktentladung; Funktionszustand A ± 6 kV Kontaktentladung; Funktionszustand C ± 8 kV Luftentladung; Funktionszustand C
Klimatische Prüfungen	EN 60068-2-30	Feuchte Wärme zyklisch obere Temperatur 55°C, Anzahl Zyklen: 6
	EN 60068-2-78	Feuchte Wärme konstant Prüftemperatur 40°C / 93% RH, Prüfdauer: 21 Tage
	EN 60068-2-52	Salznebel Sprühtest Schärfegrad 3 (Kraftfahrzeug)
Mechanische Prüfungen	ISO 16750-3	Test VII; Vibration, random Anbauort Karosserie
	EN 60068-2-6	Vibration, sinus 10...500 Hz; 0,72 mm/10 g; 10 Zyklen/Achse
	ISO 16750-3	Dauerschocken 30 g/6 ms; 24.000 Schocks
Prüfungen für Bahnanwendungen	EN 50155 Pkt 12.2	mechanisch-klimatische Prüfungen
	EN 50121-3-2	EMV-Störaussendung und Störfestigkeit
		ergänzende Informationen und Einschränkungen auf Anfrage
Chemische Beständigkeit	ISO 16750-5	AA, BA, BD, CC, DB, DC, DD, ED immer nur eine Chemikalie gleichzeitig zulässig

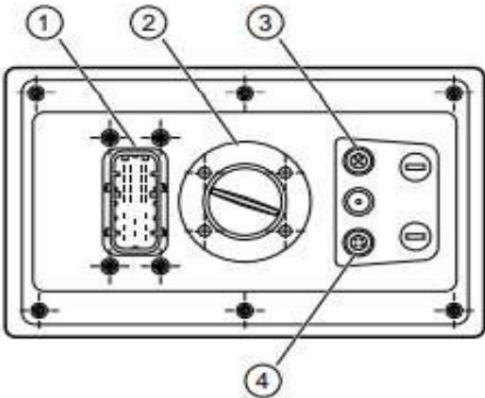
CR1074

Geräte-Rückansicht

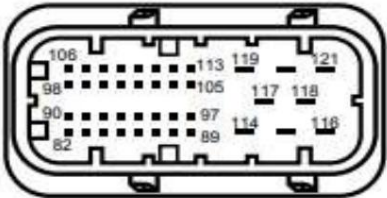
AMP-Steckverbinder 40-polig

M12-Steckverbinder

Technische Daten



- 1: AMP-Steckverbinder, 40-polig
- 2: Aufnahme für RAM®-Mount-System und Montagerahmen
- 3: M12-Steckverbinder, 5-polig
- 4: M12-Steckverbinder, 4-polig



3	4
Buchse B-codiert, 5-polig	Buchse D-codiert, 4-polig

CR1074

Technische Daten

Anschlussbelegung

(1) Versorgung, Audio, CAN, Service

82	nicht belegt	98	nicht belegt
83	nicht belegt	99	nicht belegt
84	CAN0_L	100	nicht belegt
85	CAN1_L	101	nicht belegt
86	nicht belegt	102	nicht belegt
87	nicht belegt	103	nicht belegt
88	nicht belegt	104	AUDIO_OUT_R-
89	SERVICE1	105	AUDIO_OUT_L-
90	nicht belegt	106	nicht belegt
91	nicht belegt	107	nicht belegt
92	CAN0_H	108	nicht belegt
93	CAN1_H	109	nicht belegt
94	nicht belegt	110	nicht belegt
95	nicht belegt	111	nicht belegt
96	nicht belegt	112	AUDIO_OUT_R+
97	SERVICE0	113	AUDIO_OUT_L+
114	VBB0	118	nicht belegt
115	nicht belegt	119	VBB15
116	nicht belegt	120	GND
117	nicht belegt	121	VBB30

(3) USB0

1	+5 V DC
2	-Data
3	+Data
4	ID
5	GND
Gehäuse = Schirm	

(4) ETH0

1	TxD+
2	RxD+
3	TxD-
4	RxD-
Gehäuse = Schirm	

operation manual



service

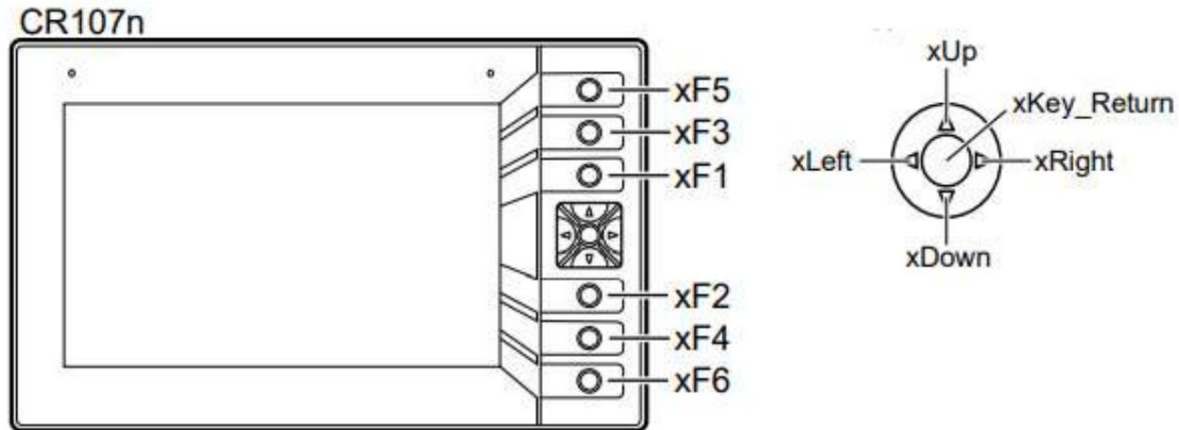
The function keys The display is

controlled with the function keys F1-F6. The exact functions of the function keys are explained in the [Display](#) chapter .

The rocker switch is used in the submenus and settings.

Function keys:

Cross rocker:



Description

The SWG-1 forklift truck is designed for use in forklift trucks. SWG-1 is intended to carry the weight at the Determine and display the fork in a specific measurement period. To do this, the load on the fork must be over a threshold value. If the load is above the threshold value, the load measurement begins for the set measurement period. When the measurement period has expired, the result of the measurement is displayed in a field (measured value).

After determining the load, the operator can decide in which load storage the determined load should be stored. If the measured value is incorrect, the measurement can be reset without saving by placing the load below the threshold value. Lifting it again restarts the measurement.



The operator has stored the wrong measured value in a load memory. He can remove the last measurement from the load memory by pressing the delete button. However, if you press the delete button for longer than 5s, all load memories are set to 0t.



Each time a load is saved, the console logs the load saves into a CSV file. This can be downloaded by inserting a USB stick. Downloading takes place automatically after the USB stick has been inserted. A message indicates when the USB stick can be removed.



In order for the measurement to start, the display must be in the tared state (key >0<)

Show service

Power display

29.08.2022 22:09:39



The operating display shows the load memories 1-3, the current load, the measured value and the tared status of the display. You can also find a time and date at the top left

Trigger the measurement

- process 1. To start a measurement, the load display must be tared by pressing the tare button (>0<).
2. Now lift the load and wait for the measuring time. 3. The measured value is displayed.
4. The determined load is assigned to a load memory by pressing the buttons (1, 2, 3).

Function keys: Use this

- F1  key to delete the last saved load value from the corresponding load memory. However, this only works as long as no new measurement has been started.

You can also delete the load memories individually. No load determination may take place for this. By holding down the deactivated buttons 1, 2 or 3 and additionally pressing the "X" button, the corresponding memory is deleted. If you press the button for longer than 5s, all load memories will be deleted. But only if the fork is free of load and no measurement is active.

- F3  This key tares the display. Pressing it again resets the tare.

- Q5  You can access the menu via F5

main menu

↔ Hauptmenü



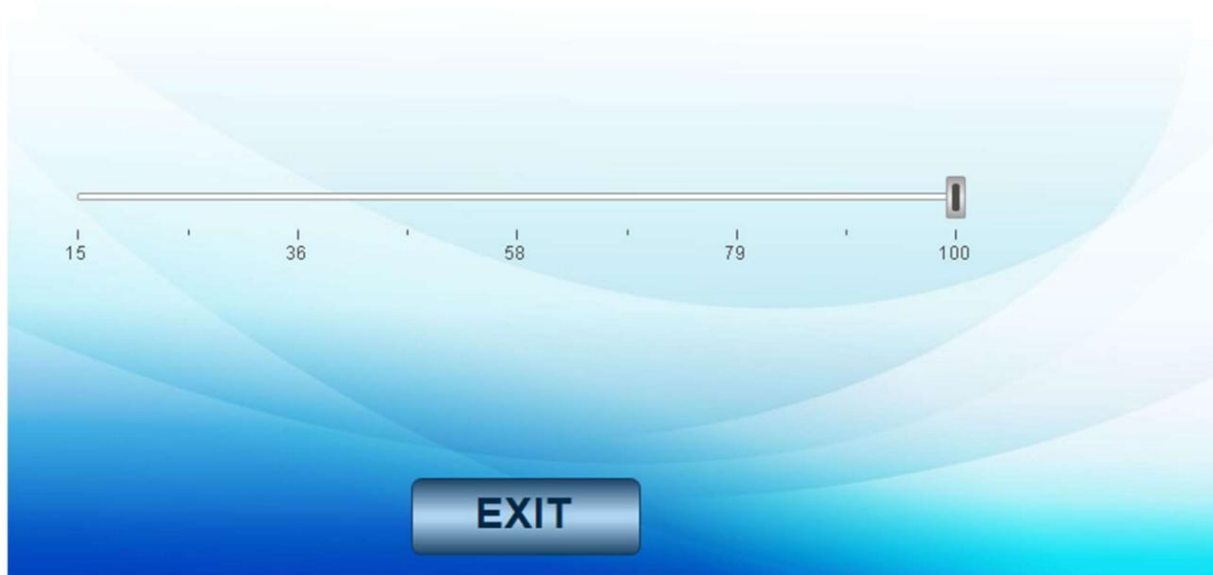
In the main menu you can access a wide range of settings. You can navigate through the menu using the rocker switch.

Menu structure

- | | | |
|---|------------------|--|
| 1 | Advertisement | This will take you back to the operating display |
| 2 | Display lighting | The backlighting can be adjusted here |
| 3 | Language | You can set your national language in this menu item |
| 4 | System status | All system-relevant data can be queried here. |
| 5 | System setting | Here you can access the service area to calibrate and set the load display. Further information about this menu item can be found in the setting instructions. |

Display lighting

 Hauptmenü \ Helligkeit



In this display you can adjust the brightness of your display. Use the rocker switch to navigate to the bar and confirm with OK. Then you can adjust the brightness of the bar using the left and right arrow keys.

If you navigate to EXIT using the rocker switch, you will return to the main menu

language settings

 Hauptmenü \ Sprache



You can select your national language in the language settings. Simply navigate with the rocker switch, select, confirm and you're done. Use EXIT to return to the main menu.

System status

Hauptmenü \ Status

Druck :		183.9 Bar	Sensor: IN_BETRIEB
Temp. CPU	Error: 	49.0 °C	Max. 60°C
Temp. Intern	Error: 	43.0 °C	Max. 50°C
VBB 0	Error: 	0.0 V	Max. 1V
VBB 15	Error: 	23.7 V	VCC 9-30 V
VBB 30	Error: 	23.7 V	VCC 9-30 V
EXIT			

You can read the system voltages in the status. The temperature of the CPU and the system can also be seen. The sensor status can be seen at the top left. Via EXIT you get to the main menu.

structure

Pressure	Indicates how much bar is currently in the cylinder.
sensor	Here you can find the operation status of the sensor. There are 4 types of states: 1. IN_OPERATION There is no error Sensor works normally 2. READY TO OPERATE Sensor found, but waiting for the start command ÿ The status remains ready for operation, system new Start 3. STOPPED Sensor was stopped due to an error ÿ Restart system ÿ If the error persists after restarting the sensor malfunction 4. NOT_FOUND Sensor was not found in the CAN network ÿ Check the plug connection. ÿ Check the final resistance 2xr120 ÿ Are the first two points OK = sensor defective Here you can read the temperature of the CPU. If this is
Temp.CPU	60°C, the display malfunctions.
Temp.Internal	Indicates the internal temperature of the device. If this is above 50°C, the display malfunctions.
VBB0	GND indicates whether there is an external voltage on the ground line.
VBB15	Displays the ignition voltage.
VBB30	Displays the battery voltage.

Reading memory

Required material

To read the contents of the load memory you need the EC2099 cable (see picture) and a USB stick formatted in FAT32. (see formatting)



Connecting the USB cable The cable is mounted on the back of the display. There is an M12 connection called USB. (See chapter: Technical data page 19)

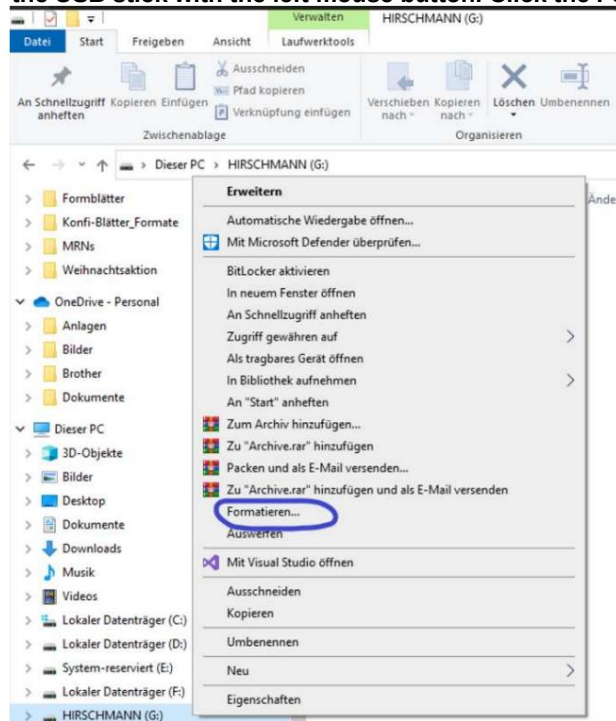
The cable is intended for installation in the dashboard.

formatting

Before you can read the data from the display, you must format the USB stick. Connect the USB stick to a computer. Back up the data on the USB stick as all data will be lost when formatting.



Search for your USB stick in Explorer. Mark it with the right mouse button and call up the submenu of the USB stick with the left mouse button. Click the Format button.

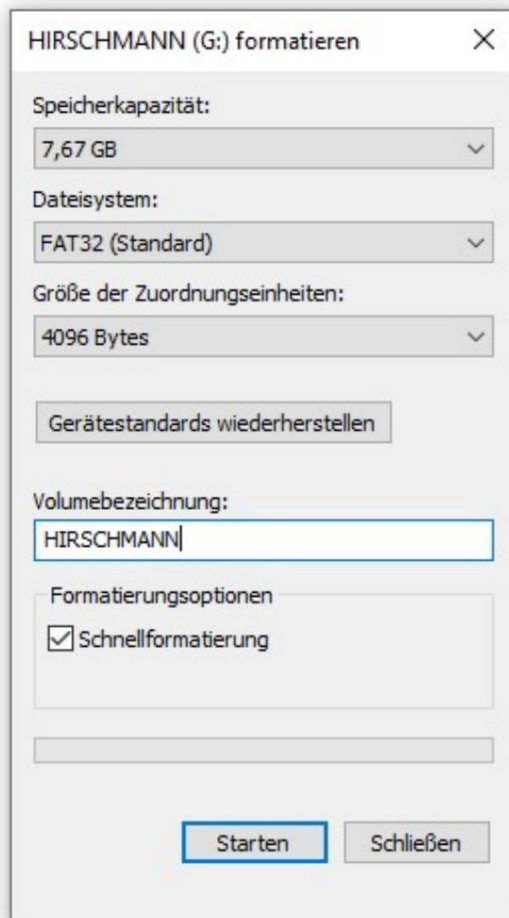


Now a window opens. Go to File System and select “FAT32(Standard)”.

Allocation unit size must be set to 4096 bytes.

Under Volume Name you can assign a new name to your USB stick. After all settings have been changed, press the “Start” button.

The formatting of the USB stick is finished after the bar has expired.



Read data

Insert the USB stick into the USB cable previously connected to the display.

(See chapter: Material required).

After approx. 10s, a message will appear on the display that you can remove the USB stick again.

The data is saved in the file (Storage.csv). A .csv file can be opened and viewed using Excel or an editor.

[illegible]



Blank lined area for notes or calculations.