

TT 1564

Multi-touch Operating Panel

Instruction Manual

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Translation of the Original Instructions

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Multi-touch Operating Panel

TT 1564

The TT 1564 is an intelligent panel for visualizing, operating and monitoring automated processes. Process diagnostics are thereby simplified.

A projective capacitive touch screen serves as the input medium for process data and parameters. The output is shown on a 15.6" TFT color display.

The available interfaces can be used to exchange process data or configure the multi-touch terminal. An 8-Gbyte eMMC serves as the storage medium for operating system, application and application data.



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1 Introduction

1.1 Target Group/Purpose of this Operating Manual

This operating manual contains all information required for the operation of the product.

This operating manual is intended for:

- Project planners
- Technicians
- Commissioning engineers
- Machine operators
- Maintenance/test technicians

General knowledge of automation technology is required.

Further help and training information, as well as the appropriate accessories can be found on our website www.sigmatek-automation.com.

Our support team is happily available to answer your questions.
Please see our website for our hotline number and business hours.

1.2 Important Reference Documentation

- HW IP Address Settings

This and additional documents can be downloaded from our website or obtained through support.

1.3 Contents of Delivery

1x TT 1564

2 Basic Safety Directives

2.1 Symbols Used

The following symbols are used in the operator documentation for warning and danger messages, as well as informational notes.



DANGER

Danger indicates that death or serious injury **will occur**, if the specified measures are not taken.

→ To avoid death or serious injuries, observe all guidelines.

Danger indique une situation dangereuse qui, faute de prendre les mesures adéquates, **entraînera** des blessures graves, voire mortelles.

→ Respectez toutes les consignes pour éviter des blessures graves, voire mortelles.



WARNING

Warning indicates that death or serious injury **can** occur, if the specified measures are not taken.

→ To avoid death or serious injuries, observe all guidelines.

Avertissement d'une situation dangereuse qui, faute de prendre les mesures adéquates, **entraînera** des blessures graves, voire mortelles.

→ Respectez toutes les consignes pour éviter des blessures graves, voire mortelles.

CAUTION

Caution indicates that moderate to slight injury **can** occur, if the specified measures are not taken.

→ To avoid moderate to slight injuries, observe all guidelines.

Attention indique une situation dangereuse qui, faute de prendre les mesures adéquates, **peut** entraîner des blessures assez graves ou légères.

→ Respectez toutes les consignes pour éviter des blessures graves, voire mortelles.

CAUTION

Danger for ESD-sensitive components.

Les signes de danger pour les composants sensibles aux décharges électrostatiques.

INFORMATION**INFORMATION**

→ Provides important information on the product, handling or relevant sections of the documentation, which require particular attention.

2.2 Disclaimer

INFORMATION



The contents of this operating manual were prepared with the greatest care. However, deviations cannot be ruled out. This operating manual is regularly checked and required corrections are included in the subsequent versions. The machine manufacturer is responsible for the proper assembly, as well as device configuration. The machine operator is responsible for safe handling, as well as proper operation.

The current operating manual can be found on our website. If necessary, contact our support.

Subject to technical changes, which improve the performance of the devices. The following operating manual is purely a product description. It does not guarantee properties under the warranty.

Please thoroughly read the corresponding documents and this operating manual before handling a product.

SIGMATEK GmbH & Co KG is not liable for damages caused through, non-compliance with these instructions or applicable regulations.

2.3 General Safety Directives

The Safety Directives in the other sections of this operating manual must be observed. These instructions are visually emphasized by symbols.

INFORMATION



According to EU Directives, the operating manual is a component of a product.

This operating manual must therefore be accessible in the vicinity of the machine since it contains important instructions.

This operating manual should be included in the sale, rental or transfer of the product, or its online availability indicated.

Regarding the requirements for Safety and health connected to the use of machines, the manufacturer must perform a risk assessment in accordance with machine directives 2006/42/EG before introducing a machine to the market.

Operate the unit with devices and accessories approved by SIGMATEK only.

CAUTION

Handle the device with care and do not drop or let fall.
Prevent foreign bodies and fluids from entering the device.
The device must not be opened!

Manipulez l'appareil avec précaution et ne le laissez pas tomber.
Empêchez les corps étrangers et les liquides de pénétrer dans l'appareil.
L'appareil ne doit pas être ouvert!

If the device does not function as intended or has damage that could pose a danger, it must be replaced!

En cas de fonctionnement non conforme ou de dommages pouvant entraîner des risques, l'appareil doit être remplacé !

The module complies with EN 61131-2.
In combination with a facility, the system integrator must comply with EN 60204-1 standards.
For your own safety and that of others, compliance with the environmental conditions is essential.

Le module est conforme à la norme EN 61131-2.
En combinaison avec une équipement, l'intégrateur de système doit respecter la norme EN 60204-1.
Pour votre propre sécurité et celle des autres, le respect des conditions environnementales est essentiel.

2.4 Software/Training

The application is created with the software LASAL CLASS 2 and LASAL SCREEN Editor / VISUDesigner (HTML5).

Training for the LASAL development environment, with which the product can be configured, is provided. Information on our training schedule can be found on our website.

3 Standards and Directives

3.1 Directives

The product was constructed in compliance with the following European Union directives and tested for conformity.

3.1.1 EU Conformity Declaration



EU Declaration of Conformity

The product TT 1564 conforms to the following European directives:

- **2014/35/EU** Low-voltage Directive
- **2014/30/EU** Electromagnetic Compatibility (EMC Directive)
- **2011/65/EU** "Restricted use of certain hazardous substances in electrical and electronic equipment" (RoHS Directive)

The EU Declaration of Conformity will be provided on request by support or the respective sales partner.

4 Type Plate

	HW: X.XX
	SW: XX.XX.XXX
	Safety Version: SXX.XX.XX
Serial No.	SIGMATEK GMBH & CO KG Sigmatekstrasse 1 A-5112 LAMPRECHTSHAUSEN
Article Number	Product Name Short Name

Exemplary nameplate (symbol image)

	HW: 1.00
	SW: 01.00.000
	Safety Version: S01.00.00
12345678	SIGMATEK GMBH & CO KG Sigmatekstrasse 1 A-5112 LAMPRECHTSHAUSEN
12-246-133-3	Handbediengerät Wireless HGW 1033-3

HW: Hardware version

SW: Software version

5 Technical Data

5.1 Performance Data

Processor	EDGE3-Technology
Processor cores	4 ¹⁾
Internal program and data memory (RAM)	2-Gbyte (DDR4)
Internal remnant data memory	128 kByte FRAM
Internal storage device	8-Gbyte eMMC ²⁾
Optional memory expansion	microSD
Graphic	integrated in EDGE processor
Interfaces	1x USB-Host 2.0, Type A, front 2x USB-Host 2.0, Type A, back 2x Ethernet 100 Mbit (RJ45) 1x USB 2.0 Type Mini-B OTG 1x microSD card holder (SD 3.0)
Operating components	no
Signal generator	no
Display Resolution	15.6" TFT color display FullHD 1920 x 1080 pixels
Operating field	Touch screen (multi-touch, projective capacitive)
Status LEDs	yes (1x red, 1x green)
Real-time clock	yes (battery buffered)
Cooling	passive

1) Attention: When programming (with LASAL) on multicore CPUs, particular focus must be placed on thread security!

2) The internal storage device (eMMC) is only available from later operating system versions and is currently mapped via an 8 Gbyte microSD card. The microSD card is no longer part of the scope of delivery once this functionality is implemented in the operating system.

5.2 Electrical Requirements

Supply voltage	+24 V DC $\pm 20\%$ (SELV/PELV) UL: NEC Class 2	
Protection class	III	
Current consumption of power supply (+24 V)	typically 800 mA (with no external devices connected)	maximum 1000 mA (with external devices connected)
Inrush current without current-limiting supply	15 A for max. 40 μ s	
Inrush current with 24 V/10 A fixed voltage supply	0.8 mA for max. 500 ms	

INFORMATION



For USA and Canada:

The supply must be limited to:

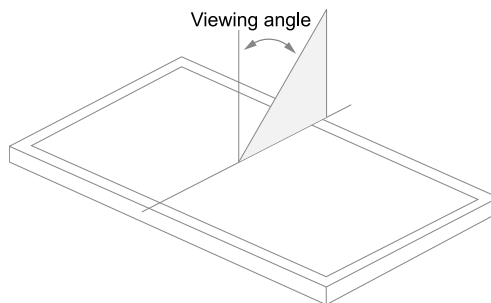
- a) max. 5 A at voltages from 0-20 V DC, or
- b) 100 W at voltages from 20-60 V DC

The limiting component (e.g. transformer, power supply or fuse) must be certified by an NRTL (Nationally Recognized Testing Laboratory).

5.3 Display

Type	15.6" TFT color display
Resolution	FullHD 1920 x 1080 pixels
Color depth	24 Bit RGB
LCD mode	normally black ¹⁾
LCD Polarizer	transmissive ²⁾
Pixel size	0.17925 x 0.17925 mm
Active range	344.16 x 193.59 mm
Backlighting	LED
Contrast ratio	typically 1000:1
Brightness	typically 450 cd/m ²
Angle CR ≥ 10	left, right, top, bottom typically 89° ³⁾
Life span	By compliance with the ambient conditions, the brightness of the display sinks after 50,000 operating hours to 50 % of the original brightness.

Due to the manufacturing process, individual pixel errors cannot be excluded to 100 % and therefore do not constitute a reduction in quality.



1) If there is no display data, the display remains black when the backlighting is on.

2) Display technology, with which display backlighting is used.

3) The viewing angle is measured from the normal to the display surface.

5.4 Control Unit

Operating field	Touch screen (multi-touch, projective capacitive)
Maximum number of fingers	5
The operation with thin gloves	yes
SIGMATEK Touch pen (passive)	yes
Handwriting recognition	no
Ball of the thumb recognition	yes
Water spray recognition ¹⁾	no
Water detection ²⁾	no
Cleaning	see chapter 14.1 Cleaning and Disinfecting the Touch Screen

INFORMATION



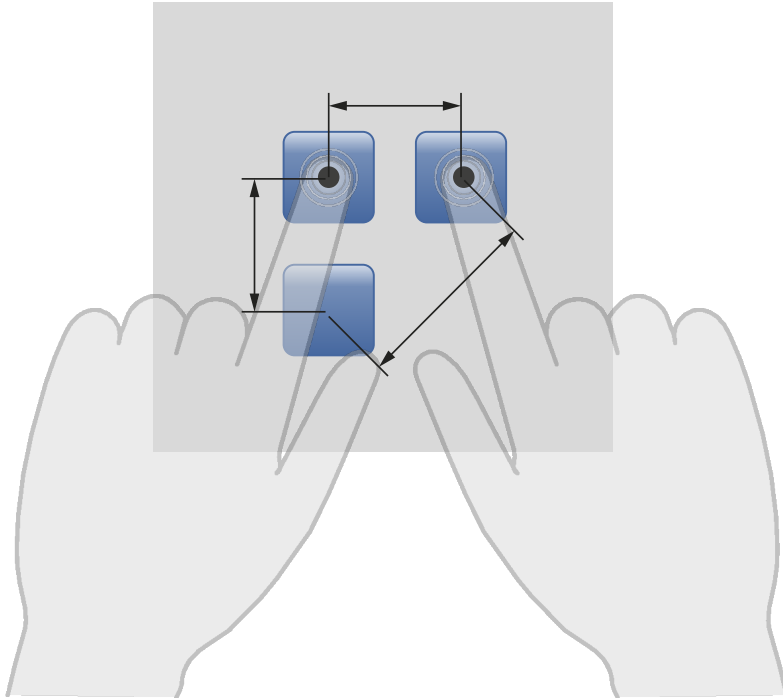
The device must always be grounded or with cable-connected devices, the mass must be connected correctly to ensure stable function of the touch screen. The touch function may still have to be individually adapted to the respective environmental conditions.

¹⁾ Detects individual water droplets on the touch screen and remains operable.

²⁾ Detects a large amount of water on the touch screen and deactivates it.

5.5 Minimum Distance between Operating Elements for Multi-touch Applications

To guarantee smooth operation with multi-touch applications, buttons and control elements that should be operated at the same time must have a realistic minimum clearance.



INFORMATION



The size of the buttons and operating elements directly affect the operability of the application. Small operating elements should therefore be avoided.

5.6 Input

Input	Multi-touch screen (PCAP)
-------	---------------------------

5.7 Environmental Conditions

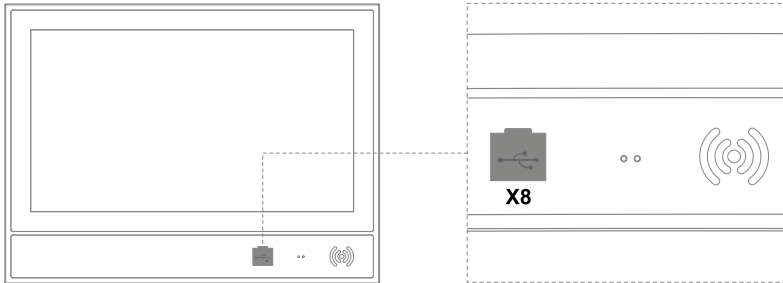
Storage temperature	-10 ... +70 °C	
Environmental temperature	0 ... +50 °C	
Humidity	10-95 %, non-condensing	
Installation altitude above sea level	0-2000 m without derating > 2000 m up to a maximum of 5000 m with derating of the maximum environmental temperature by 0.5 °C per 100 m	
Operating conditions	pollution degree 2	
Noise emissions	≤ 70 dB	
EMC resistance	according to EN 61000-6-2 (industrial area)	
EMC noise generation	according to EN 61000-6-4 (industrial area)	
Vibration resistance	EN 60068-2-6	3.5 mm from 5-8.4 Hz 1 g from 8.4-150 Hz
Shock resistance	EN 60068-2-27	15 g (147.15 m/s ²)
Protection type	EN 60529/NEMA 250 protection through housing	front: IP65/Type4 cover: IP54/Type12

5.8 Miscellaneous

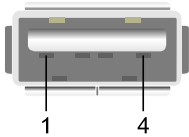
Article number	01-270-1564
Operating system	Gecko
Default IP address	10.10.150.1
Standard	designed according to UL
Approvals	CE

6 Interfaces

6.1 Front Connectors



6.1.1 X8: USB 2.0 Host (Type A)



Pin	Function
1	+5 V, $I_{out,max} = 500 \text{ mA}$
2	D-
3	D+
4	GND

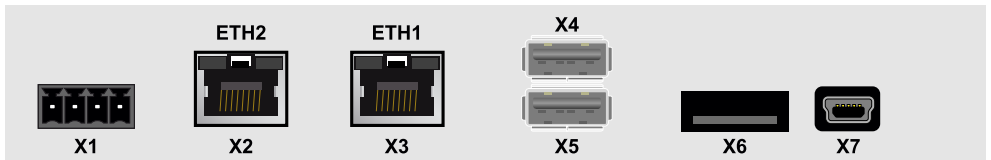
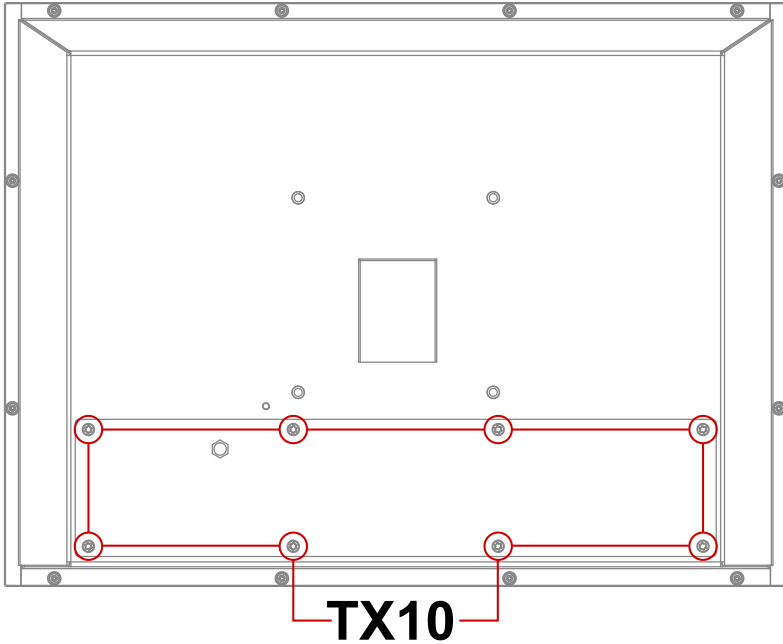


INFORMATION

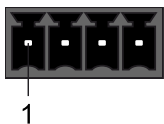
It should be noted that many of the USB devices on the market do not comply with USB specifications; this can lead to device malfunctions. This may cause the device to malfunction. It is also possible that these devices will not be detected at the USB port or function correctly. It is therefore recommended that every USB stick or USB supply be tested before actual use.

6.2 Internal Connectors

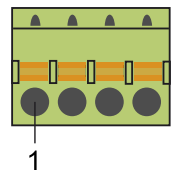
To access the interfaces, the cover must first be removed.



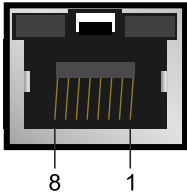
6.2.1 X1: Supply (4-pol. Phoenix RM 3,5)



Pin	Function
1	+24 V DC
2	+24 V DC
3	GND
4	GND



6.2.2 X2, X3: Ethernet 1, 2 (10/100 Mbit/s) (RJ45)



Pin	Function
1	Tx+
2	Tx-
3	Rx+
4	n.c.
5	n.c.
6	Rx-
7	n.c.
8	n.c.

INFORMATION



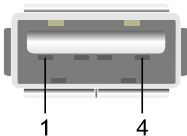
Only for use in LAN, not for connection to telecommunication circuits.

INFORMATION



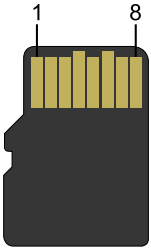
Problems can arise if a control is connected to an IP network, which contains modules that are not running with a SIGMATEK operating system. With such devices, Ethernet packets could be sent to the control with such a high frequency (i.e. broadcasts), that the high interrupt load could cause a real-time runtime error or runtime error. By configuring the packet filter (Firewall or Router) accordingly however, it is possible to connect a network with SIGMATEK hardware to a third party network without triggering the error mentioned above.

6.2.3 X4, X5: USB 2.0 Host (Type A)



Pin	Function
1	+5 V, $I_{out,max} = 500 \text{ mA}$
2	D-
3	D+
4	GND

6.2.4 X6: microSD



Pin	Function
1	DAT2
2	CD/DAT3
3	CMD
4	+3V3
5	CLK
6	GND
7	DAT0
8	DAT1

INFORMATION

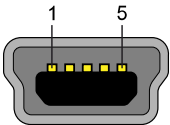


It is recommended that only storage media provided by SIGMATEK be used.

The number of read and write actions have a significant influence on the lifespan of the storage media.

The microSD card is not intended as an exchangeable medium and should therefore be removed from the card holder for maintenance purposed only.

6.2.5 X7: USB-Online OTG 2.0 (Type Mini-B)



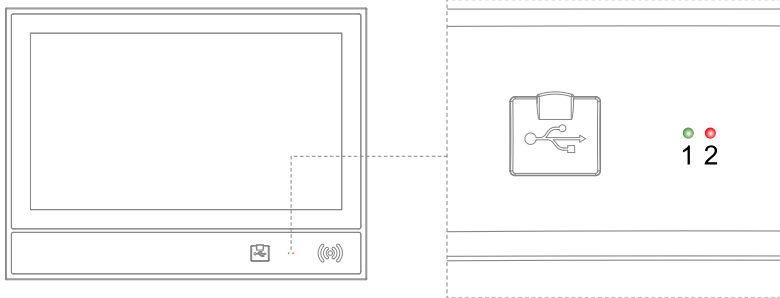
Pin	Function
1	+5 V, $I_{out,max} = 500 \text{ mA}$
2	D-
3	D+
4	ID
5	GND

6.3 Applicable Connectors

- X1:** 4-pin Phoenix plug with spring terminal FK-MCP 1.5/ 4-ST-3.5 (included with delivery)
- X2, X3:** 8-pin RJ45 (not included with delivery)
- X4, X5:** USB 4-pin, Type A (downstream connector) (not included with delivery)
- X7:** USB Type Mini-B to USB Type A cable (device) (not included with delivery)
- X8:** USB 4-pin, Type A (downstream connector) (not included with delivery)

6.4 Status Display LEDs

Two status LEDs for diagnostics are located on the front.



LED green (1)	LED red (2)	Status
Lights	Off	- Supply voltage OK - During operating system start - Application running
Off	Lights	- Supply voltage NOT OK
Lights	Lights	- Supply voltage OK - Operating system not started or still in Start mode
Off	Blinks	- Application error or reset

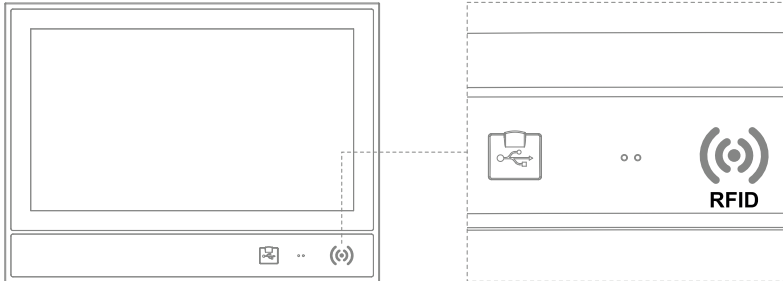
INFORMATION



Within the application, the LEDs (red/green) can be controlled as desired.

6.5 RFID Reader

An RFID reader (13.56 MHz) is built into the unit. To read, as well as write to an RFID card, it must be held closely to the unit at the location provided on the front as shown in the following image.



The RFID reader is certified or released in compliance with the following standards:

EMC resistance	EN 61000-6-2 (industrial area)
EMC noise generation	EN 61000-6-4 (industrial area)
Radio frequency conformity CE	ETSI EN 302 291-1/EN 300 330 Class 1
Radio frequency conformity FCC	FCC CFR 47 Part 15
Product safety	EN 60950-1:2006

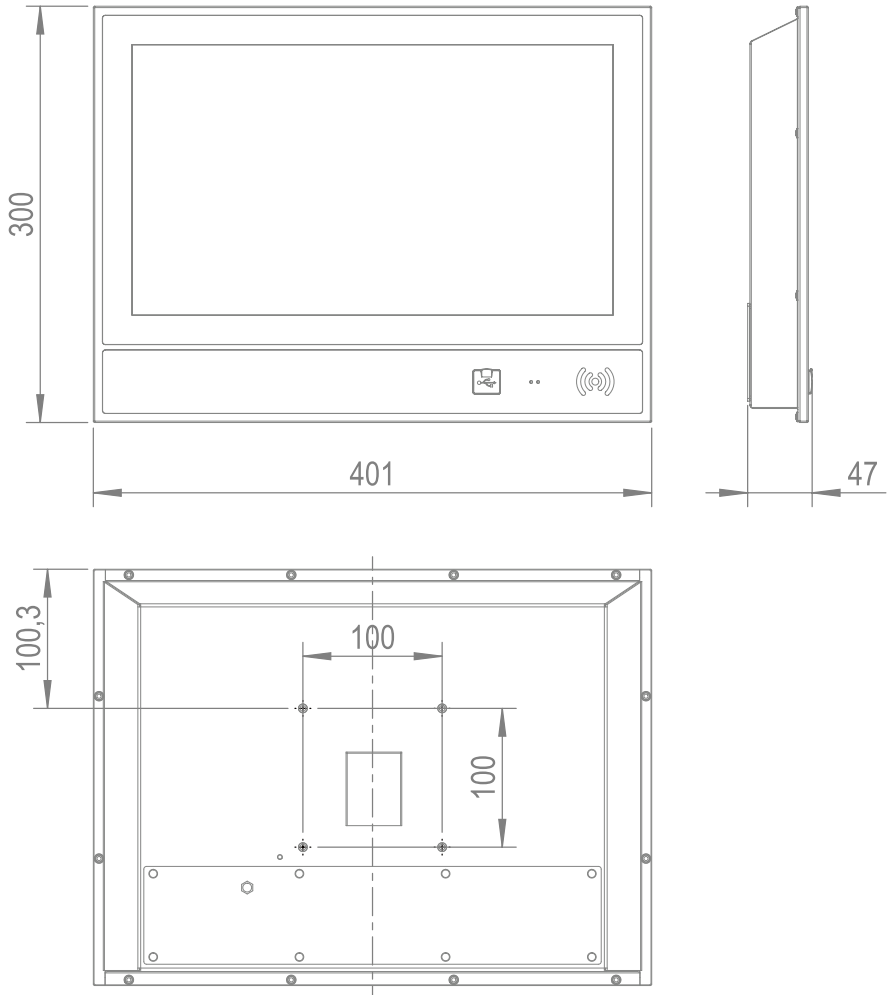
Further information on the use, as well technical data can be found in the separate manual: HF-RFID Reader module.

INFORMATION



Technical changes to the device, as well as improper use can lead to the loss of the FCC license and generate interference, which can affect the function of nearby devices. Please note the national standardization when operating the wireless device.

7 Mechanical Dimensions



Dimensions	401 x 300 x 47 mm (W x H x D)
Material	Front: glass 1.8 mm Housing: anodized aluminum frame/steel sheet powder coated Color: black/anthracite
Weight	4 kg

8 Assembly/Installation

8.1 Check Contents of Delivery

Ensure that the contents of the delivery are complete and intact. See chapter 1.3 Contents of Delivery.

INFORMATION



On receipt and before initial use, check the device for damage. If the device is damaged, contact our customer service and do not install the device in your system.

Damaged components can disrupt or damage the system.

8.2 Mounting Instructions

The device is designed for a swing arm mount. It can be mounted on a swing arm using a VESA bracket.

- Locking screws: M5, minimum screw depth 4 mm
- Maximum screw depth: 7 mm
- Tightening torque: max. 4-4.2 Nm
- Secure screws against loosening (e.g. screw-lock lacquer)

8.3 Installing Operating Elements

To retrofit operating elements, six installation options are provided in the TT 1564. These are covered by the foil and dummy covers.

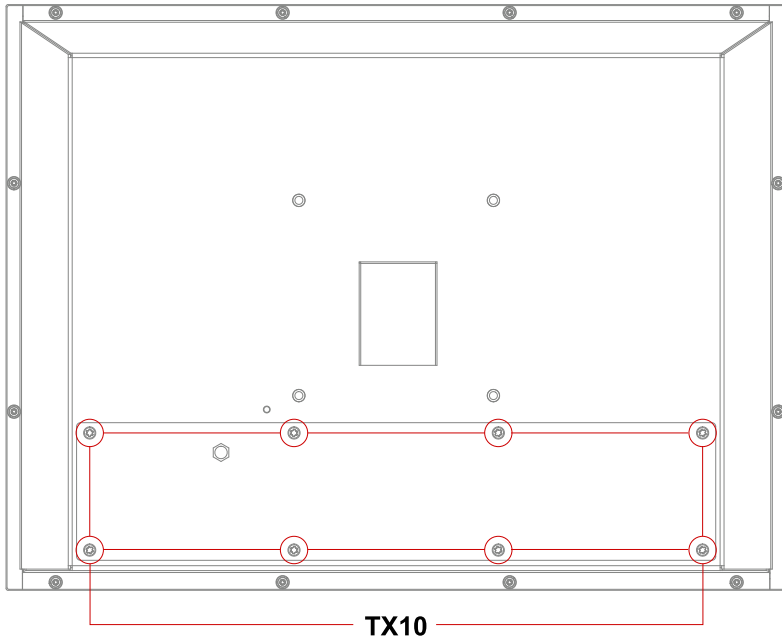
CAUTION



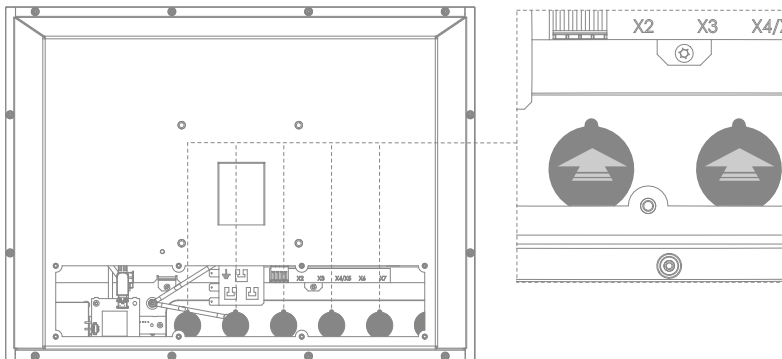
This product is a sensitive electronic device. When mounting, as well as dismantling, note that you come into contact with ESD-sensitive areas of the device.

→ The applicable ESD measures must be taken!

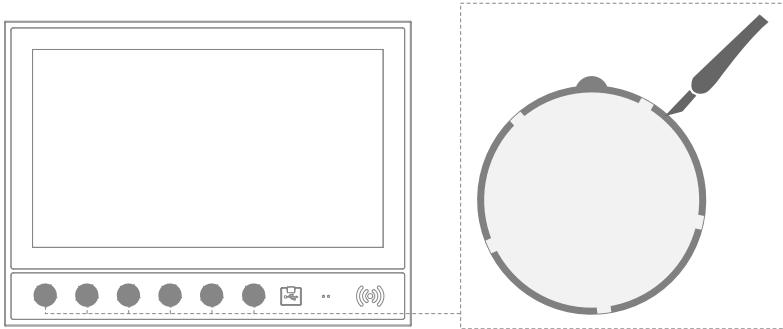
1. Disconnect the device from the supply and place it on a clean surface. Remove the cover from the back.



2. Press the dummy cover as shown in the graphic. A “guide line” then appears on the front.



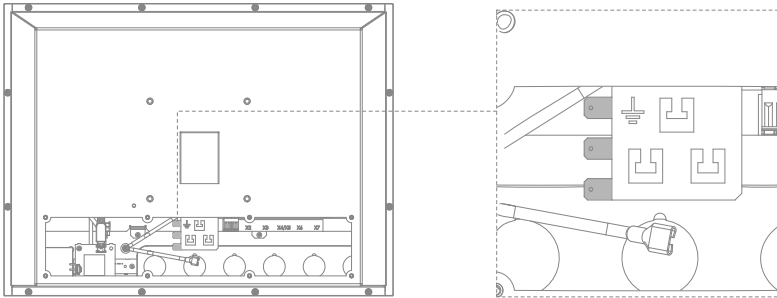
3. Using a scalpel, cut along the guide line (darker area in the graphic). On the end, cut through the last points. The dummy cover can now be removed. Install the element from the front and wire them.



9 Wiring

9.1 Grounding

The device must be grounded to protective earth (PE) via the blade terminal provided. It is important to establish a low-Ohm connection to ground to ensure error-free function. The ground connection must be made with the maximum wire cross-section and largest (electrical) surface possible. The cable length of the ground connection must also be kept as short as possible.



9.2 Shielding

For Ethernet, CAT5e (STP - Shielded Twisted Pair) cables are recommended. The cable shielding is connected to ground via the connector. Noise signals can then be prevented from reaching the electronics and affecting the function.

9.3 ESD Protection

CAUTION



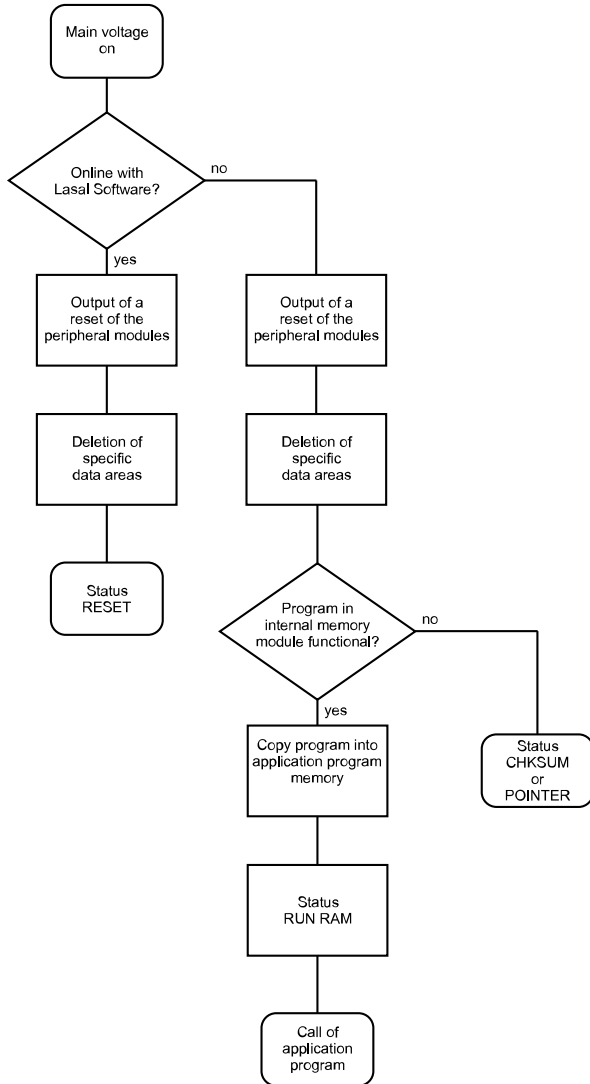
The operator must ensure that no ESD interference affects the product.

L'opérateur doit s'assurer qu'aucune interférence due à des décharges électrostatiques n'affecte le produit.

9.4 USB Interface

The product has a USB interface. This interface can be used to connect various USB devices (keyboard, mouse, storage media, hubs, etc.). Several USB devices can be connected using a hub, which are then fully functional.

10 Process Diagram



11 Status and Error Messages

Status and error messages are shown in the status test of the LASAL CLASS software. POINTER or CHKSUM messages can also be shown on the screen.

Number	Message	Definition	Cause/Solution
00	RUN RAM	The user program is currently running in RAM. The display is not affected.	Info
01	RUN ROM	The user program stored in the program memory module was loaded into the RAM and is currently running. The display is not affected.	Info
02	RUNTIME	The total time for all cyclic objects exceeds the maximum time; the time can be configured using 2 system variables: <ul style="list-style-type: none"> ▪ Runtime: Remaining time ▪ SWRuntime: Preset value for runtime counter 	Optimize the application's cyclic task. Use higher capacity CPU. Configure preset value
03	POINTER	Incorrect program pointers were detected before running the user program	Possible Causes: <ul style="list-style-type: none"> ▪ The program memory module is missing, not programmed or defective. ▪ The program in the user program memory (RAM) is not executable. ▪ The buffer battery has failed. ▪ The user program has overwritten a software error. Solution: <ul style="list-style-type: none"> ▪ Reprogram the memory module, if the error reoccurs exchange the module. ▪ Exchange the buffering battery ▪ Correct programming error

Number	Message	Definition	Cause/Solution
04	CHKSUM	An invalid checksum was detected before running the user program.	Cause/Solution: s. POINTER
05	WATCHDOG	The program was interrupted via the watchdog logic.	<p>Possible Causes:</p> <ul style="list-style-type: none"> ■ User program interrupts blocked over a longer period of time (STI command forgotten). ■ Programming error in a hardware interrupt. ■ INB, OUTB, INW, OUTW instructions used incorrectly. ■ The processor is defective. <p>Solution:</p> <ul style="list-style-type: none"> ■ Correct programming error. ■ Exchange CPU
06	GENERAL ERROR	General error An error has occurred while stopping the application via the online interface.	This error occurs only during the development of the operating system.
07	PROM DEFECT	An error has occurred while programming the memory module.	<p>Causes:</p> <ul style="list-style-type: none"> ■ The program memory module is defective. ■ The user program is too large. ■ The program memory module is missing. <p>Solution:</p> <ul style="list-style-type: none"> ■ Exchange the program memory module
08	RESET	The CPU has received the reset signal and is waiting for further instructions. The user program is not processed.	Info

Number	Message	Definition	Cause/Solution
09	WD DEFECT	The hardware monitoring circuit (watchdog logic) is defective. After power-up, the CPU checks the watchdog logic function. If an error occurs during this test, the CPU deliberately enters an infinite loop from which no further instructions are accepted.	Solution: <ul style="list-style-type: none"> ■ Exchange CPU
10	STOP	The program was stopped by the programming system.	
11	PROG BUSY	Reserved	
12	PROGRAM LENGTH	Reserved	
13	PROG END	A memory module was successfully programmed.	Info
14	PROG MEMO	The CPU is currently programming the memory module.	Info
15	STOP BRKPT	The CPU was stopped by a breakpoint in the program.	Info
16	CPU STOP	The CPU was stopped by the programming software.	Info
17	INT ERROR	The CPU has triggered a false interrupt and stopped the user program or has encountered an unknown instruction while running the program.	Causes: <ul style="list-style-type: none"> ■ A nonexistent operating system was used. ■ Stack error (uneven number of PUSH and POP instructions). ■ The user program was interrupted by a software error. Solution: <ul style="list-style-type: none"> ■ Correct programming error.

Number	Message	Definition	Cause/Solution
18	SINGLE STEP	The CPU is in single step mode and is waiting for further instructions.	Info
19	READY:	A module or project has been sent to the CPU and it is ready to run the program.	Info
20	LOAD	The program is stopped and the CPU is currently receiving a new module or project.	Info
21	INVALID MODULE	The CPU has received a module that does not belong to the project.	Solution: <ul style="list-style-type: none"> ■ Recompile and download the entire project
22	MEMORY FULL	The operating system memory (heap) is too small. No memory could be reserved while calling an internal function or an interface function is called from the application.	Causes: <ul style="list-style-type: none"> ■ Memory is only allocated but not released. Solution: <ul style="list-style-type: none"> ■ Clear memory
23	NOT LINKED	When starting the CPU, a missing module or a module that does not belong to the project was detected.	Solution: <ul style="list-style-type: none"> ■ Recompile and download the entire project
24	DIV BY 0	A division error has occurred.	Possible Causes: <ul style="list-style-type: none"> ■ Division by 0. ■ The result of a division does not fit in the result register. Solution: <ul style="list-style-type: none"> ■ Correct programming error.
25	DIV BY 0	A division error has occurred.	Possible Causes: <ul style="list-style-type: none"> ■ Division by 0. ■ The result of a division does not fit in the result register. Solution: Correct programming error.

Number	Message	Definition	Cause/Solution
25	DIAS ERROR	While accessing a DIAS module, an error has occurred.	Hardware problem
26	WAIT	The CPU is busy.	Info
27	OP PROG	The operating system is currently being reprogrammed.	Info
28	OP INSTALLED	The operating system has been reinstalled.	Info
29	OS TOO LONG	The operating system cannot be loaded; too little memory.	Restart, report error to SIGMATEK.
30	NO OPERATING SYSTEM	Boot loader message, no operating system found in RAM.	Restart, report error to SIGMATEK.
31	SEARCH FOR OS	The boot loader is searching for the operating system in RAM.	Restart, report error to SIGMATEK.
32	NO DEVICE	Reserved	
33	UNUSED CODE	Reserved	
34	MEM ERROR	The operating system loaded does not match the hardware configuration.	Solution: <ul style="list-style-type: none"> ■ Use the correct operating system version
35	MAX IO	Reserved	
36	MODULE LOAD ERROR	The LASAL Module or project cannot be loaded.	Solution: <ul style="list-style-type: none"> ■ Recompile and download the entire project
37	BOOTIMAGE FAILURE	A general error has occurred while loading the operating system.	Contact SIGMATEK
38	APPLMEM ERROR	An error has occurred in the application memory (user heap).	Solution: <ul style="list-style-type: none"> ■ Correct allocated memory access error

Number	Message	Definition	Cause/Solution
39	OFFLINE	This error does not occur in the control.	This error code is used in the programming system to show that there is no connection to the control.
40	APPL LOAD	Reserved	
41	APPL SAVE	Reserved	
44	VARAN MANAGER ERROR	An error number was entered in the VARAN manager and stopped the program.	Solution: <ul style="list-style-type: none"> Read LogFile
45	VARAN ERROR	A required VARAN client was disconnected or a communication error has occurred.	Solution: <ul style="list-style-type: none"> Read LogFile error tree
46	APPL-LOAD-ERROR	An error has occurred while loading the application.	Cause: <ul style="list-style-type: none"> Application was deleted. Solution: <ul style="list-style-type: none"> Reload the application into the control.
47	APPL-SAVE-ERROR	An error has occurred while attempting to save the application.	
50	ACCESS-EXCEPTION-ERROR	Read or write access of a restricted memory area. (I.e. writing to the NULL pointer).	Solution: <ul style="list-style-type: none"> Correct application errors
51	BOUND EXCEEDED	An exception error has occurred while accessing arrays. The memory area was overwritten by accessing an invalid element.	Solution: <ul style="list-style-type: none"> Correct application errors
52	PRIVILEGED INSTRUCTION	An unauthorized instruction for the current CPU level was given. For example, setting the segment register.	Cause: <ul style="list-style-type: none"> The application has overwritten the application program code. Solution: <ul style="list-style-type: none"> Correct application errors

Number	Message	Definition	Cause/Solution
53	FLOATING POINT ERROR	An error has occurred during a floating-point operation.	
60	DIAS-RISC-ERROR	Error from the Intelligent DIAS Master.	Restart, report error to SIGMATEK.
64	INTERNAL ERROR	An internal error has occurred, all applications are stopped.	Restart, report error to SIGMATEK.
65	FILE ERROR	An error has occurred during a file operation.	
66	DEBUG ASSERTION FAILED	Internal error	Restart, report error to SIGMATEK.
67	REALTIME RUNTIME	The total duration of all real-time objects exceeds the maximum time; the time cannot be configured. 2 ms for 386 CPUs, 1 ms for all other CPUs	Solution: <ul style="list-style-type: none"> ■ Optimize the application's real-time task (RtWork). ■ Reduce the clock time for the real-time task of all objects. ■ Correct application errors ■ CPU is overloaded in real-time => use a higher capacity CPU.
68	BACKGROUND RUNTIME	The total time for all background objects exceeds the maximum time; the time can be configured using 2 system variables: - BTRuntime: - SWBTRuntime: pre-selected value for the runtime counter	Solution: <ul style="list-style-type: none"> ■ Optimize the application's background task (background) ■ Use higher capacity CPU ■ Set SWBTRuntime correctly
70	C-DIAS ERROR	A connection error with a C-DIAS module has occurred.	Cause: <ul style="list-style-type: none"> ■ The cause of the error is documented in the log file Solution: <ul style="list-style-type: none"> ■ This depends on the cause

Number	Message	Definition	Cause/Solution
72	S-DIAS ERROR	A connection error with an S-DIAS module has occurred.	Possible Causes: <ul style="list-style-type: none"> ■ Real network does not match the project, S-DIAS client is defective Solution: <ul style="list-style-type: none"> ■ Analyze log file
75	SRAM ERROR	An error occurred while initializing, reading or writing SRAM data.	Possible Causes: <ul style="list-style-type: none"> ■ SRAM configured incorrectly ■ Battery for powering the internal program memory is empty Solution: <ul style="list-style-type: none"> ■ Analyze log file (Event00.log, Event19.log) ■ Check configuration ■ Exchange battery for powering the internal program memory
95	USER DEFINED 0	User-definable code.	
96	USER DEFINED 1	User-definable code.	
97	USER DEFINED 2	User-definable code.	
98	USER DEFINED 3	User-definable code.	
99	USER DEFINED 4	User-definable code.	
100	C_INIT	Initialization start; the configuration is run.	
101	C_RUNRAM	The LASAL project was successfully started from RAM.	
102	C_RUNROM	The LASAL project was successfully started from ROM.	
103	C_RUNTIME		
104	C_READY	The CPU is ready for operation.	
105	C_OK	The CPU is ready for operation.	

Number	Message	Definition	Cause/Solution
106	C_UNKNOWN_CID	An unknown object from a stand-alone or embedded object, or an unknown base class was detected.	
107	C_UNKNOWN_CONSTR	The operating system class cannot be created; the operating system is probably wrong.	
108	C_UNKNOWN_OBJECT	Indicates an unknown object in an interpreter program; more the one DCC080 object.	
109	C_UNKNOWN_CHNL	The hardware module number is greater than 60.	
110	C_WRONG_CONNECT	No connection to the required channels.	
111	C_WRONG_ATTR	Wrong server attributes.	
112	C_SYNTAX_ERROR	Non-specific error. Recompile and download all project sections.	
113	C_NO_FILE_OPEN	An attempt was made to open an unknown table.	
114	C_OUTOF_NEAR	Memory allocation failed	
115	C_OUT OF_FAR	Memory allocation failed	
116	C_INCOMAPTIBLE	An object with the same name already exists but has a different class.	
117	C_COMPATIBLE	An object with the same name and class exists but must be updated.	
224	LINKING	The application is currently linking.	
225	LINKING ERROR	An error has occurred while linking.	

Number	Message	Definition	Cause/Solution
226	LINKING DONE	Linking is complete.	
230	OP BURN	The operating system is currently being burned into the Flash memory.	
231	OP BURN FAIL	An error has occurred while burning the operating system.	
232	OP INSTALL	The operating system is currently being installed.	
240	USV-WAIT	The power supply was disconnected; the UPS is active. The system is shutdown.	
241	REBOOT	The operating system is restarted.	
242	LSL SAVE		
243	LSL LOAD		
252	CONTINUE		
253	PRERUN	The application is started.	
254	PRERESET	The application is ended.	
255	CONNECTION BREAK		

12 Transport/Storage

INFORMATION



This device contains sensitive electronics. During transport and storage, high mechanical stress must therefore be avoided.

For storage and transport, the same values for humidity and vibration as for operation must be maintained!

Temperature and humidity fluctuations may occur during transport. Ensure that no moisture condenses in or on the device, by allowing the device to acclimate to the room temperature while turned off.

When sent, the device should be transported in the original packaging if possible. Otherwise, packaging should be selected that sufficiently protects the product from external mechanical influences. Such as cardboard filled with air cushioning.

13 Storage

INFORMATION



When not in use, store the device according to the storage conditions. See chapter 12 Transport/Storage.

During storage, ensure that all protective covers (if available) are placed correctly, so that no contamination, foreign bodies or fluids enter the device.

The existing battery in the device must be replaced after approx. 10 year/s. If the device is to be stored longer, the battery must be removed to prevent leakage.

14 Maintenance

INFORMATION



During maintenance as well as servicing, observe the safety instructions from chapter 2 Basic Safety Directives.

Lors de l'entretien et de la maintenance, respectez les consignes de sécurité du chapitre 2 Basic Safety Directives.

14.1 Cleaning and Disinfecting the Touch Screen

CAUTION



Before cleaning and disinfecting the touch screen, it must first be deactivated; either by turning off the terminal or by disabling the touch screen via the application to avoid unintentionally activating functions or commands!

Avant de nettoyer et de désinfecter l'écran tactile, il faut d'abord le désactiver; soit en éteignant le terminal, soit en désactivant l'écran tactile via l'application pour éviter d'activer involontairement des fonctions ou des commandes!

The touch screen can only be cleaned with a soft, damp cloth. To dampen the cloth, a mild cleaning solution such as antistatic foam cleaner is recommended. To avoid fluids/cleaning solutions from getting into the housing, the device must not be sprayed directly. To clean, no erosive cleaning solutions, chemicals, abrasive cleansers or hard objects that can scratch or damage the touch screen may be used. The use of steam jets or compressed air is prohibited.

For disinfection, surface disinfectants on alcohol basis, which do not contain re-fattening agents, can be used. The disinfectant used must not leave any residues on the touch screen to ensure proper functioning of the touch screen.

WARNING

If the device is contaminated with toxic or erosive chemicals, it must be carefully cleaned as quickly as possible to prevent personal injury and machine damage!

Si l'appareil est contaminé par des produits chimiques toxiques ou érosifs, il doit être soigneusement nettoyé le plus rapidement possible afin d'éviter des dommages corporels et matériels!

INFORMATION

To ensure the optimal function of the device, the touch screen should be cleaned at regular intervals!

14.2 Service

This product was constructed for low-maintenance operation.

14.2.1 Calibrating the Touch Screen

The touch screen is calibrated at the factory. You should therefore only recalibrate the touch screen when press-point changes are noticed.

This can be achieved via the following command (depending on the operating system) or the application, if the application engineer has provided the option.

```
calib
```

14.3 Repair

INFORMATION



In the event of a defect/repair, send the device with a detailed error description to the address listed at the beginning of this document. For transport conditions, see chapter 12 Transport/Storage.

CAUTION



Danger of injury from damaged components!

- Damage to the device, especially the touch screen, poses a cut hazard. In such a case, use safety gloves.

Risque de blessure par des composants endommagés !

- Les dommages à l'appareil, en particulier à l'écran tactile, présentent un risque de coupure. Dans ce cas, utilisez des gants de sécurité.

15 Buffer Battery

A Lithium battery is installed at the manufacturer.

The battery has enough capacity to preserve data in the absence of a supply voltage for up to circa 10 year/s.

	COMPANY	DATA
Lithium battery	RENATA	3.0 V/235 mAh

INFORMATION



Battery order number: 01-690-055

Use type CR2032 batteries from RENATA only.

Disconnect the device from the supply before changing the battery.

WARNING



Danger of fire and explosion!

- Battery may explode if mistreated. Do not recharge, disassemble or dispose of in fire.
- Replace battery with cat. no. CR2032 manufactured by RENATA only. Use of another battery may present a risk of fire or explosion. See instruction manual for safety instructions.

Danger d'incendie et d'explosion !

- La batterie peut exploser si elle n'est pas manipulée correctement.
- Ne pas la recharger, la démonter ou la jeter au feu. Ne remplacez la pile que par la référence CR2032, fabriquée par RENATA. L'utilisation d'une autre pile présente un risque d'incendie ou d'explosion. Vous trouverez les consignes de sécurité dans le mode d'emploi.

15.1 Data Retention Battery Change

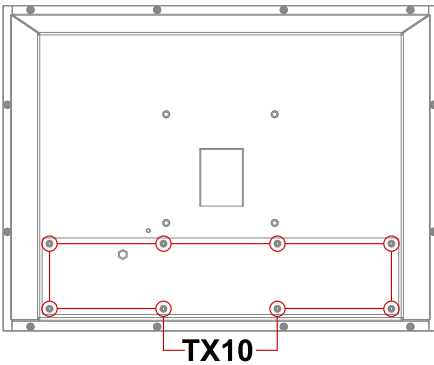
The exchangeable buffer battery ensures that the following data is preserved in the absence of a supply voltage:

- Time

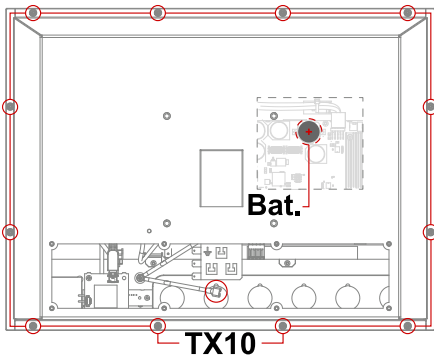
If the battery is empty, the following settings are reset or data is deleted:

- Time (reset to default value)

15.2 Exchanging the Battery



1. Turn off the device supply.
2. Create ESD-compliant conditions.
3. Remove the locking screws with a screwdriver.
4. Remove the cover (note the ground wire).



5. Remove the battery from the holder.
6. Install the new battery with the correct polarity (+ pole facing up, away from the circuit board).
7. Close the cover and tighten the locking screws (0.7 Nm).

16 Display „Burn-In“ Effect

The “Burn-In” effect describes a pattern burned into the display after displaying the same contents over a longer period of time (e.g. a single screen).

This effect is also described mostly as “image sticking”, “memory effect/sticking” or “ghost image”.

Here, a distinction is made between a temporary and permanent effect, while the temporary effect is eliminated by switching off the screen for a longer period of time or by displaying dynamic content, serious cases of burn-in can lead to permanent damage to the display.

This effect can have the following causes:

- Operation without a screen saver
- The same contents displayed over a longer time period (e.g. a single screen)
- Operation at high environmental temperatures
- Operation above specifications

The effect can be avoided/reduced by the following actions:

- Using a screen saver
- Deactivating the display when not in use (e.g. screen display black)
- Continuously changing screen content (e.g. video)

INFORMATION



Deactivating the display backlighting only does not prevent Burn-In!

16.1 Screen Saver

The device has an integrated screen saver, which is activated by default and turns off the screen after 60 minutes of inactivity. The screen can be reactivated with an input via the touch screen or a USB operating device. The wait time for the screen saver can be adjusted in the application via the HW class. This change is only active as long as the device is running the application, in Reset mode, the 60-minute default setting is restored.

17 Disposal



INFORMATION

Should you need to dispose of the device, the national regulations for disposal must be followed.

The device appliance must not be disposed of as household waste.



18 Accessories

18.1 Touch Pen



Description	Order Number
Touch pen with holder V3	01-690-059-3

18.2 Battery



Description	Order Number
Lithium battery RENATA	01-690-055

18.3 microSD Card



Description	Order Number
8 Gbyte	12-630-802

19 FCC Statement

This device contains FCCID: **2ACQNPFR001**

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Section 15.21 Information to user

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Section 15.105 (b)

Note: This equipment has been tested and found to comply with the Limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television Reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The unit complies with the applicable CE requirements and FCC part 15.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and, (2) This device must accept any interference received including interference that may cause undesired operation.

Changes Chart

Change date	Affected page(s)	Chapter	Note
17.04.2024	17	5.7 Environmental Conditions	Cover IP changed