

Jungheinrich WMT 210/215

User Guide

52393100



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1. Comments

1.1 General Comments

This manual is about administration and usage of the Jungheinrich truck terminals WMT 210 and 215, referred to in the following as device. You can find further information for mounting, cabling and safety-relevant aspects in the separate available operation instructions.

The original version of this manual is in German. Every non-german version is a translation.

1.2 Manufacturer

The manufacturer of this product is the Jungheinrich AG, referred to in the following as Jungheinrich.

1.3 Data, Images, Changes

All data, images and changes have been created to the best of one's knowledge and belief. There is no assurance for any specification. There is no guarantee for integrity and topicality. Subject to change without prior notice.

1.4 Trademark

All mentioned (soft-/hardware, brands) descriptions are protected by the general trademark right. Other used foreign brand names are acknowledged. Jungheinrich reserves the right to assert all rights in the event of a breach of trademark rights.

1.5 Copyright

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Jungheinrich Aktiengesellschaft

Friedrich-Ebert-Damm 129 - 22047 Hamburg - Deutschland

Phone: +49 (0) 40/6948-0 - www.jungheinrich.com

2. General Description

2.1 Intended Use

The Jungheinrich vehicle terminals WMT (hereinafter referred to as "terminal") are designed for use on industrial trucks in logistics environments and are intended for running warehouse management applications.

Any use outside of this scope, particularly in potentially explosive atmospheres or for safety-critical applications, is not permitted.

For information on local compliance and commissioning, please refer to the safety information included with the device or the vehicle operator's manual.

The operator alone shall be responsible for ensuring that all operator obligations are observed and for complying with any technical or statutory amendments that may arise.

Installation, commissioning and operation may only be performed by qualified and trained personnel. Intervention by the user is required only for performing the actions described in this document.

Should any further modifications be required, it is necessary to consult either with the manufacturer directly or with service personnel authorized by the manufacturer.

The device must be de-energized during service work. Appropriate measures must be taken to prevent electrostatic discharges on components.

The device is only to be assembled, installed and operated within permissible specifications.

Use in non-specified environments is prohibited.

2.2 Improper use

Operation other than or beyond that described for the device shall be deemed improper use. The device is not allowed to be used to control vehicles or for applications for which further approvals beyond the manufacturer's declaration are necessary, e.g. applications with explosion hazard, medical technology and shipping industry. The device must not be put into operation in the case of transport damage or nonconformity with the specifications and must be taken out of operation in the case of changing conditions. In the case of improper use, ADS-TEC shall not accept responsibility or liability for injury or damage that is directly or indirectly attributable to the handling of the device. If the device is opened by an unauthorized person, the user may be subject to hazards and the warranty is invalidated. Should the device have evident signs of damage caused, e.g., by improper operation or storage conditions or due to improper use or handling, it must be shut down immediately. Ensure that it is secured against being started up accidentally. The device can be damaged because of unauthorized mechanical modifications. Make sure that the device is not drilled, chiseled or perforated and its exterior shape and design is not modified in any way!

2.3 Environmental Conditions

The device can be operated under the environmental conditions specified in the technical data. Failure to observe any one of these conditions will invalidate the warranty of the device. Jungheinrich cannot be held liable for any damages arising from improper use and handling.

NOTE - condensation

If the temperature of the device is different to that of the environment in which it is located, condensation can form.

Switch on the device only after it has acclimated to the ambient temperature.

NOTE - Heat

If the device is exposed to sunlight or any other light or heat source, it can overheat and suffer damage.

If the device is installed in a panel, casing or similar, heat accumulation can occur.

Make sure that heat can be dissipated from the device and do not expose the device to direct radiation by sunlight or any other light or heat source.

2.4 Conformity

Regarding conformity, please observe the information in the operating instructions enclosed with the device.

The complete text of the EU declaration of conformity is available at the following Internet address:
www.jungheinrich.com/declaration-of-conformity

2.5 Warranty / repairs

During the device warranty period, repairs must only be performed by the manufacturer or by service personnel that has been authorized by the manufacturer.

NOTE

If possible, back up and delete all confidential data and reset any passwords before handing over or sending the device to the manufacturer or authorized service partners for repair.

2.6 Treatment and disposal of lithium batteries

The device contains a lithium battery to power the system clock and an optionally available uninterruptible power supply - UPS. The batteries have a service life of approx. 5 years under normal load.

The used lithium battery should be disposed of in accordance with local legal regulations.

2.7 Technical Data - Power supply

Power Supply	
Nominal voltage	12 - 48 V DC
Range of tolerance	9 – 72 V DC
Power consumption	
Typical	25 W
Maximum	58 W, 64 W with UPS battery
Closed current	max. 10mA at 9 V

2.8 Technical data – UPS

Uninterruptible power supply	
Operating temperature	Charging: 0...50 °C) The batteries cannot be charged at cell temperatures below 0 °C. Discharging: 0...60 °C)
Storage temperature	-20 – 45 °C
Backup power time (typical)	Depending on the load, at least 15 minutes
Max. power	40 W
Weight	0,42 kg

2.9 Radio Equipment Directive (2014/53/EU)

The device uses the following radio technologies:

Wi-Fi: 2400–2483.5 MHz, max. 100 mW EIRP

Wi-Fi: 5150–5350 MHz & 5470–5725 MHz, max. 200 mW EIRP

Bluetooth: 2400–2483.5 MHz, max. 10 mW EIRP

Operation complies with Directive 2014/53/EU.

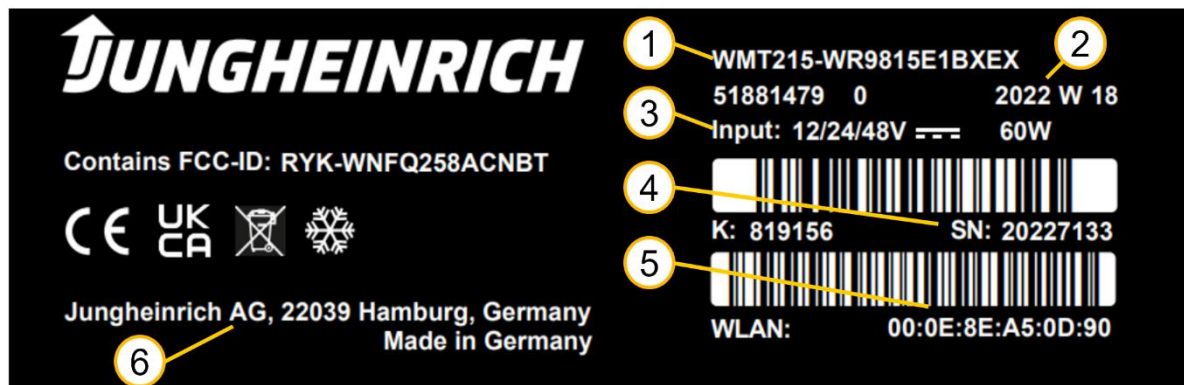
2.10 Type plate

2.10.1 WMT 210



No.	Description
1	Feature number
2	Production year and calendar week
3	Serial number (also as barcode above)
4	WLAN MAC address (also as barcode above)
5	Input voltage and maximum power consumption
6	Manufacturer

2.10.2 WMT 215



No.	Description
1	Feature number
2	Production year and calendar week
3	Input voltage and maximum power consumption
4	Serial number (also as barcode above)
5	WLAN MAC address (also as barcode above)
6	Manufacturer

2.11 Feature Number

The feature number on the nameplate indicates the device's equipment based on the following matrix:

Position	1	2	3	4	5	6	7	8	9	10	11	12	Meaning
WMT210-	W	R	9	8	1	6	E	2	B	X	E	X	WMT210-WR9816E2BXEX
WMT210-													Warehouse Management Terminal 10 "
WMT215-													Warehouse Management Terminal 15 "
	W												W 12 - 48V (Tolerance -25% +50%) <u>W</u> ide-range power supply
		R											R <u>R</u> esistive
			C										C <u>C</u> apacitive
				9									9 Intel E3950 (4 x 1.6 GHz)
					6								6 Intel x6413E (4x1,5-3,0GHz)
						8						8 <u>8</u> GB RAM	
							1					1 64 GB SSD (Standard)	
								2				2 192 GB SSD (64 + 128 GB SSD)	
									6			6 WLAN <u>6</u> - 802.11ax Intel (includes Bluetooth)	
										E			E <u>e</u> xternal antenna connection
											1		1 <u>one</u> RS232 (only WMT 215)
												2	2 <u>two</u> RS232
													B <u>B</u> luetooth
													X No additional interfaces
												X	X No operating system
												E	E Windows 10 IoT <u>E</u> nterprise 64 Bit 2019
												2	2 Windows 10 IoT Enterprise 64 Bit 2021
												4	4 Windows 11 IoT Enterprise 64 Bit 2024
												A	A Customer-specific customization – Customer <u>A</u>
													X Reserved for future options

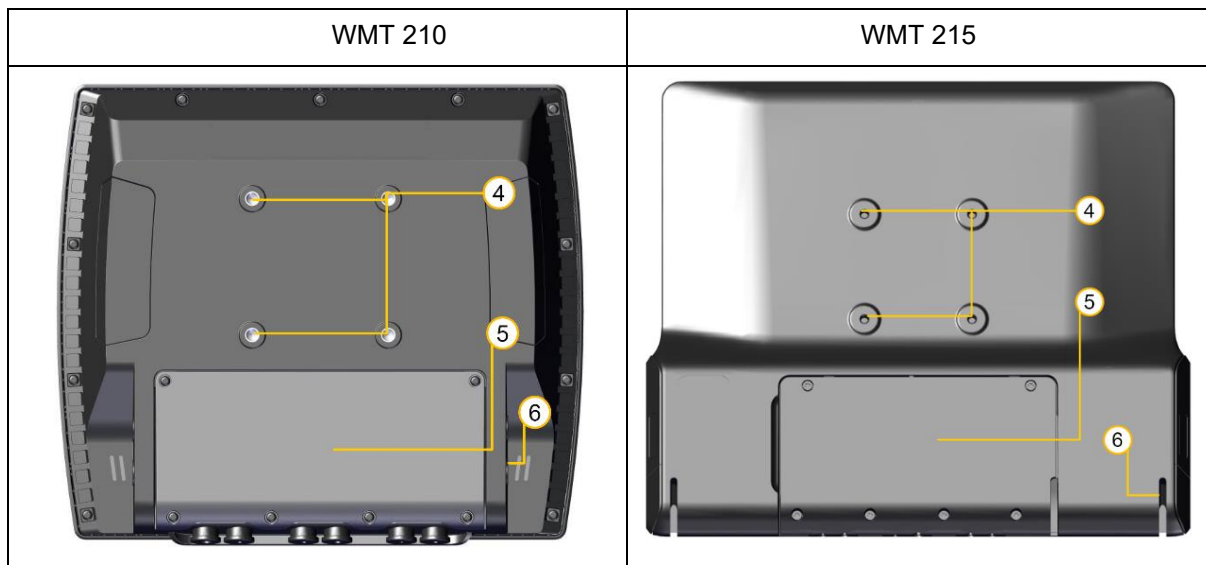
3. Scope of delivery

Check that the contents of the packaging are intact: If you find any damage, the device must not be put into operation. Please contact the manufacturer immediately.

Check the contents of the packaging for completeness regarding your order:

- 1 x device
- 1 x 4-pin plug for power supply in the service duct
- Safety Information (Optional: incl. individual UEFI password)
- Accessories according to order/delivery note

4. Mounting and Handling



4.1 VESA75 Interface

VESA75 hole pattern according to illustration, position 4.

- Horizontal and vertical distance between the screw holes: 75 mm
- Thread: M6, torque: 8 Nm (recommended)
- Screw-in depth in the threaded bushings: max. 6 mm

4.2 U-Mount Interface

Mount the retaining bracket (see illustration, position 6) on the device using the screws supplied in the following order from the inside to the outside:

Nord-Lock washer -> bracket -> Nord-Lock washer -> Allen screw (SW 6 mm) -> cover cap.

4.3 Opening the service slot

NOTE

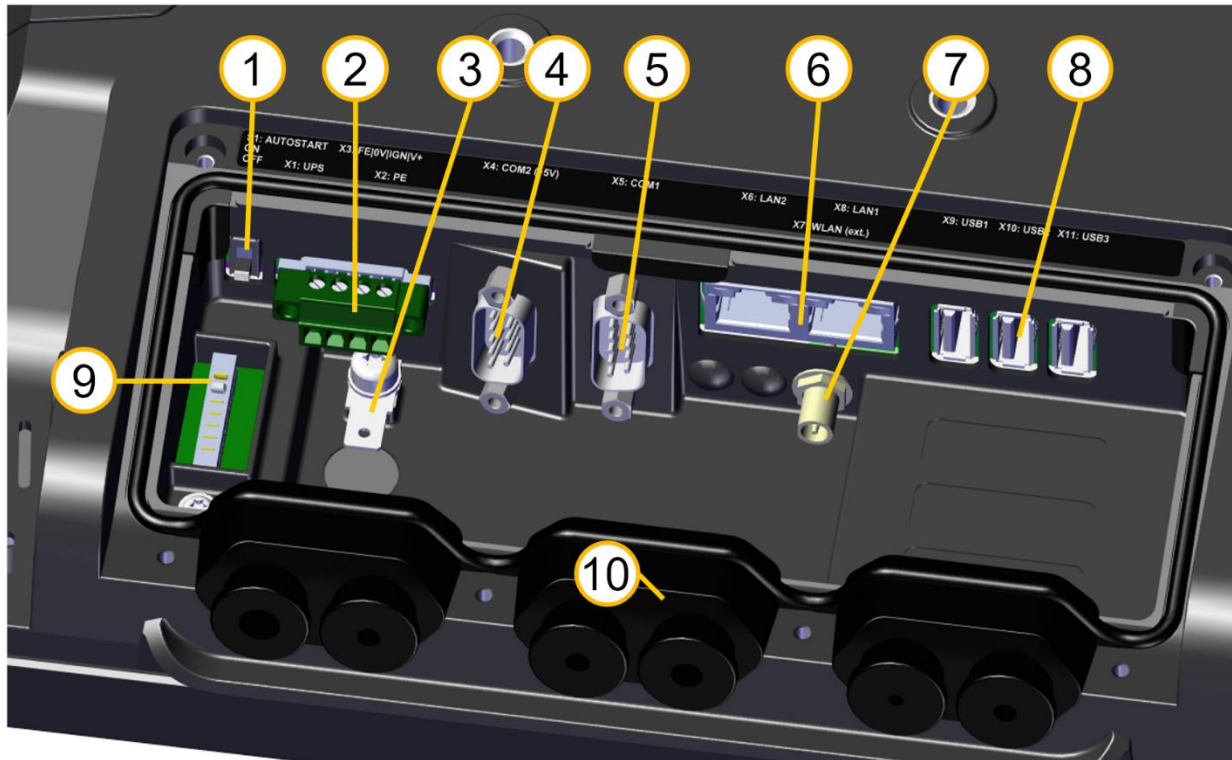
The relevant safety measures must always be observed when handling electrostatically hazardous components. (DIN EN61340-5-1 / DIN EN 61340-5-2).

Remove the 6 screws of the service slot cover (see illustration, position 5) with a Torx Tx10 screwdriver.

Remove the service slot cover from the device.

4.4 Interface Overview

4.4.1 WMT 210

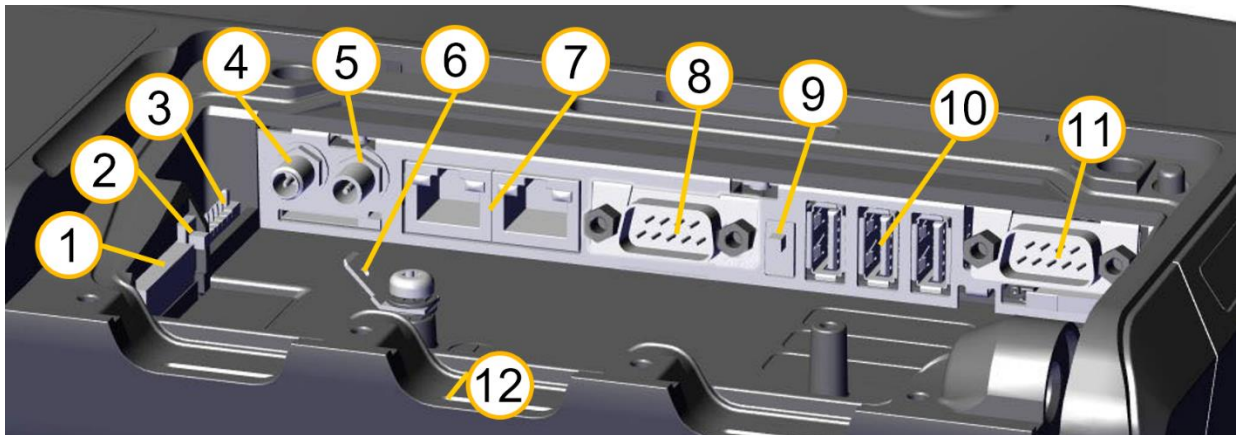


No.	Description
1	Switch for autostart (OFF:ON) – standard: off
2	Power supply (PE – 0 VDC – Ignition - +12 to +48 VDC)
3	Grounding (PE) – 1,5mm ² flat plug contact
4	COM2 (RS232)
5	COM1 (RS232) with optional 5V power supply on pin 9
6	2 x Ethernet 10/100/1000 Mbit RJ45
7	Connection socket (RP-SMA male) for external WLAN antenna (activated via configuration center)
8	3 x Type A USB 3.0
9	Connection for UPS (uninterruptible power supply)
10	Use grommets to ensure IP65 protection. The grommets have a slot on the side for inserting the cables. For strain relief, an additional cable tie can be attached over the corresponding opening on the outside.



4.4.2

WMT 215



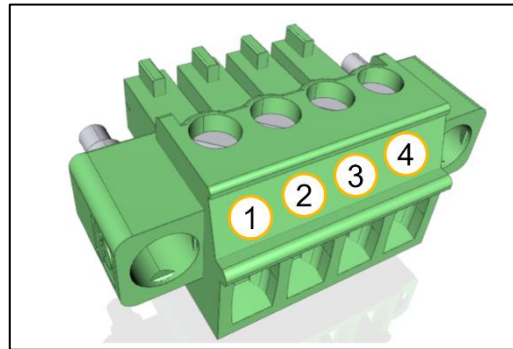
Nr.	Description
1	Power supply (PE – 0 VDC – Ignition - +12 to +48 VDC)
2	Switch for autostart (OFF:ON) – standard: off
3	Connection for UPS (uninterruptible power supply)
4	Optional: Connection socket (SMA female) for external GPS antenna
5	Connection socket (RP-SMA male) for external WLAN antenna (activated via configuration center)
6	Grounding (PE) – 1,5mm ² flat plug contact
7	2 x Ethernet 10/100/1000 Mbit RJ45
8	COM1 (RS232) with optional 5V power supply on pin 9
9	Optional: Switch for power supply 5V on COM1 Can be adjusted via configuration center software.
10	WMT 215 till 2025-03: 3 x Type A USB 3.0 WMT 215 from 2025-04: 2 x USB 3.2 Gen1 (blue) & 1 x USB 2.0 (white)
11	COM2 (RS232)
12	Use grommets to ensure IP65 protection. The grommets have a slot on the side for inserting the cables. For strain relief, an additional cable tie can be attached over the corresponding opening on the outside.



4.4.3 Power supply connector

The device is supplied with 12 V to 48 V DC via a 4-pole plug (Phoenix Contact MC 1.5/ 4-STF-3.81), depending on the version.

1. PE
2. 0 V DC
3. Ignition (+12 bis 48 V DC)
4. +12 bis 48 V DC



NOTE – PE Protective earth and fuse

The protective earth conductor must always be attached.

Without a protective earth conductor, there is a risk of overvoltage on the device.

The power supply must be provided with a fuse:

7 A at 12 V DC; 4 A at 24 V DC; 2 A at 48 V DC.

4.4.4 Ignition (IGN)

The device starts automatically when the voltage is applied to the Ignition input.

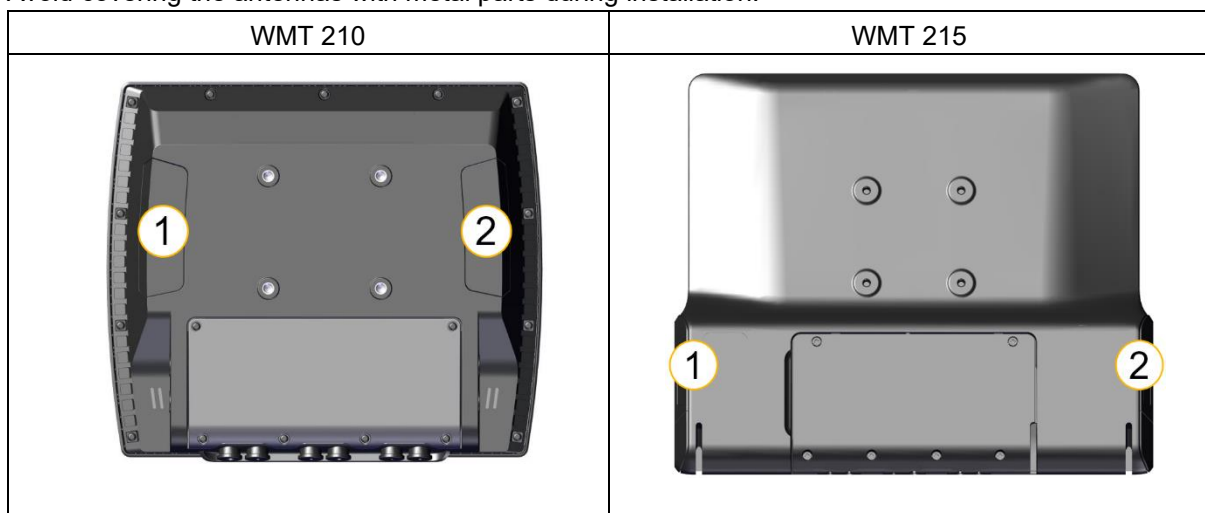
The supply voltage must be constant. The permissible voltage at the IGN input corresponds to the supply voltage of the device.

Further reactions to state changes at the Ignition input can be defined in the corresponding module of the **Configuration Center**, see section 6.2.

4.5 Antennas WLAN and Bluetooth

The two antennas for 2.4 and 5 GHz WLAN and Bluetooth are protected behind the two plastic covers on the back of the device.

Avoid covering the antennas with metal parts during installation.



The option "external antenna" deactivates the internal antenna at the rear right (2) and offers it externally in the service slot via an R-SMA connector.

5. Start-up





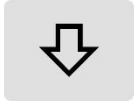

After the device has been connected to the voltage source and the service slot has been closed again, the device can be put into operation.

When the device is switched on for the first time, it automatically starts the start-up wizard of the operating system.

To do this, press the power-on button on the front for approx. 1 second.

5.1 Front Keys

The front keys can be individually configured in the Configuration Center. They have the following functions ex-factory:

	<p>Power button. To avoid unintentional actuation, press the button for at least 1 second.</p>
	<p>Shift key (Function) for the second keyboard level. The key is pressed, then the corresponding function key can be pressed.</p>
	<p>Standard: Cancellation of the respective action (ESC) FN: Decrease screen brightness</p>
	<p>Standard: Navigation up (arrow up) FN: Increase screen brightness</p>
	<p>Standard: Navigation down (arrow down) FN: Decrease volume</p>
	<p>Standard: Confirmation of the respective action (Enter) FN: Increase volume</p>

Except for the FN key and the power button, all keys can be individually configured via the Configuration Center.

NOTE

The assignment of the front keys in the UEFI differs from that in the operating system. See chapter **Error! Reference source not found..**

5.2 Users

5.2.1 From Image Version 5.2 of Windows 11 IoT Enterprise 2021 LTSC (from 2025-08)

Starting with image version 5.2 of Windows 11 IoT Enterprise 2021 LTSC, no preconfigured Windows user accounts are created.

During the Windows Setup Wizard, a local user account with administrator rights must be created. As part of this process, a custom password must be set.

A secure password is essential for IT security and helps protect against unauthorized access.

Requirements for a secure password:

- At least 10 characters long
- Combination of uppercase and lowercase letters, numbers, and special characters
- No relation to easily guessable information (e.g. company name, location, or simple key patterns like "123456" or "qwertz")

General password handling guidelines:

- Never share your password with others.
- Do not store passwords in unencrypted form (e.g. in text files or on paper notes).
- Use different passwords for different services.
- Change your password regularly or if you suspect it has been compromised.

For daily use of the device, it is recommended to create a standard user account with limited privileges in addition to the administrator account. This improves system security and reduces the risk of unintended changes or malware installations.

The standard user account can be created via the Windows settings under "Accounts" > "Other users".

5.2.2 Up to image version 5.1 of Windows 11 IoT Enterprise 2021 LTSC (until 2025-07)

There are 2 Users preset in the Windows operating system:

Login name: User
User group: Users
Password: user

Login Name: Admin
User Group: Administrators
Password: jhwmt



An autologon is activated for the user "User":

NOTE

Change Autologon:

To change the autologon user, e.g. after an Active Directory domain integration, the Autologon settings can be changed in the registry as follows:

Registry-Path	[HKLM\Software\Microsoft\Windows NT\CurrentVersion\winlogon]			
Name	Type	Value	Default	Description
AutoAdminLogon	REG_SZ	0 (off) / 1 (on)	1	Enable/disable automatic login
DefaultUserName	REG_SZ	<string>	user	Username for autologon
DefaultPassword	REG_SZ	<string>	user	password for autologon
DefaultDomainName	REG_SZ	<string>	<<leer>>	Domain name (if domain member)

5.3 Windows Setup Wizard

The Windows Setup Wizard is used for initial setup and is automatically executed when the device is started for the first time.

The following steps/settings are required during the Windows Setup Wizard:

- Language
- Region
- Keyboard layout
- Alternate keyboard layout
- [Automatic restart]
- Accept the Windows license agreement
- From Windows 11 IoT Enterprise LTSC 2021, Image V5.2: Username (local account – Administrator)
- From Windows 11 IoT Enterprise LTSC 2021, Image V5.2: Enter password
- From Windows 11 IoT Enterprise LTSC 2021, Image V5.2: Confirm password
- From Windows 11 IoT Enterprise LTSC 2021, Image V5.2: Password hint
- [Automatic restart and final configuration scripts]

5.4 Partitioning

The devices are always equipped with 64GB eMMC mass storage and optionally with an additional 128GB SSD.

In the basic version, the 64 GB eMMC is partitioned as follows:

1. 37 GB - WINDOWS (C:)
2. 10 GB – DATA (D:)
3. 12 GB – Recovery partition
4. 0,25 GB – EFI system partition

In the version with an additional 128GB SSD, the following partitioning is carried out:

1. [eMMC] 59 GB – WINDOWS (C:)
2. [SSD] 96 GB – DATA (D:)
3. [SSD] 32 GB - Recovery partition
4. [eMMC] 0,25 GB – EFI system partition

5.5 Touch calibration

The touchscreen is managed and configured using the driver integrated into Windows, accessible through the "Tablet PC Settings." Calibration can be performed via the Control Panel by selecting "Calibrate screen for pen and touch input." If this option is not available in the settings, you can manually run the command `tabcal.exe`.

UPS - Uninterruptible Power Supply (optional)

On request, the devices can be supplied with a buffer battery integrated into the service shaft cover. This buffer battery ensures the operability of the system in the event of short-term power failures. In the event of longer power failures, the system can be shut down automatically after saving the data.

Due to its limited capacity, the UPS battery is only suitable for bridging short-term power failures. Therefore, care should always be taken to keep the energy requirement low during battery operation.

NOTE

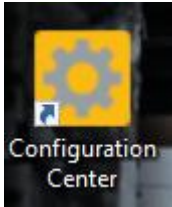
Power failures during system updates can damage the operating system.

We strongly advise installing program updates or even system updates on battery power. Even if the system shuts down when battery capacity is critical, it cannot be guaranteed that updates have already been completely installed at this time.

Configuration of the battery operation is done via the power settings of Windows.

6. Configuration Center

The **Configuration Center** is used to configure device-specific settings. It can be started via the **Configuration Center** desktop icon.



Administrative rights are required to edit the settings.



The following chapters describe the individual menu items of the **Configuration Center**.

All settings must always be saved via the diskette symbol at the top right before they become active.

6.1 System Information

Displays detailed system-specific information, among other things:

- System overview
- UEFI version
- Serial number
- Model number
- Image version
- Network information
- Hardware information

6.2 Ignition Key

The device has the option of being started or locked by means of an additional signal input. The function serves to secure the system against unauthorized access and at the same time saves energy when used in battery-operated vehicles or mobile locations.

Applying a voltage to the ignition contact when the vehicle is switched off causes the device to switch on automatically.

Ignition key signal

Restart automatically Off
When shutting down, the computer is automatically restarted if the ignition key signal is present.

Enable On
Activate control by ignition key signal in operating system.

Invert ignition key signal Off
The set action is initiated as soon as the signal is removed.

Edge triggering On
The initial state of the signal is ignored; the action is initiated by edge changes.

Ignition key action

Action Configuration ...
Selected action "Shut down computer": Shut down the computer after the timeout is expired.

Follow-up time [min] 2
Time delay in minutes until the action is initiated. Meanwhile, the screen is locked and an information is output.

Alternative screen text

Enter action text here.

Font ...

Use background image Off

NOTE

If no ignition voltage is applied to the device, activating the ignition function may render the device unusable until appropriate wiring has been established.

6.3 Wireless Connections

Configuration of the WLAN and Bluetooth radio modules.

Wireless LAN

Qualcomm Atheros QCA61x4A Wireless Network Adapter

Enable external antenna Off
The external antenna can be activated by software only on WMT200 series.

Enable Wi-Fi On
The WiFi module can be enabled or disabled at the hardware level.

Connection status Connected to "*(^_^)*"

Roaming Aggressiveness Medium

Preferred Band No Preference (default)

Wireless Mode Dual Band 802.11 a/b/g/n/ac

Bluetooth

Qualcomm Atheros QCA61x4 Bluetooth

Enable On
The Bluetooth module can be activated or deactivated at hardware level.

6.4 Backup and Restore

Tools for backing up and restoring the operating system.

Create bootable USB Stick

Create a "WMT200 Backup_Restore System" USB stick. With the prepared USB stick, an existing image can be loaded onto the terminal. Important: The contents of the USB stick will be overwritten.

USB Stick drive letter :

Restore

System Restore installs the backed up image from the recovery partition. During this process, all settings, software installations and changed files are removed. The device is reset.

Image name : WMT2XX Master - Version 4.10
Creation date : 4/25/2023

Backup

Backup of the current operating system including current settings, installations and files. The image is always backed up to the internal recovery partition first. Additionally, a boot USB stick can be created, which can be used for the installation of identical terminals.

Backup name : WMT200-W10-

Set unique file name for the Backup Image. The name cannot include control characters, or any of the following characters: " * ? / : |

USB Stick drive letter :

USB flash drive with at least 12 GB is required. USB flash drives with a less capacity than 12 GB are not listed.

Backup type :

In a system backup, all device specific settings and drivers are saved. The image may only be installed on the same device.

In a clone, device-specific settings such as computer name, network profiles, etc. are removed. The image can also be used for installation on other terminals.

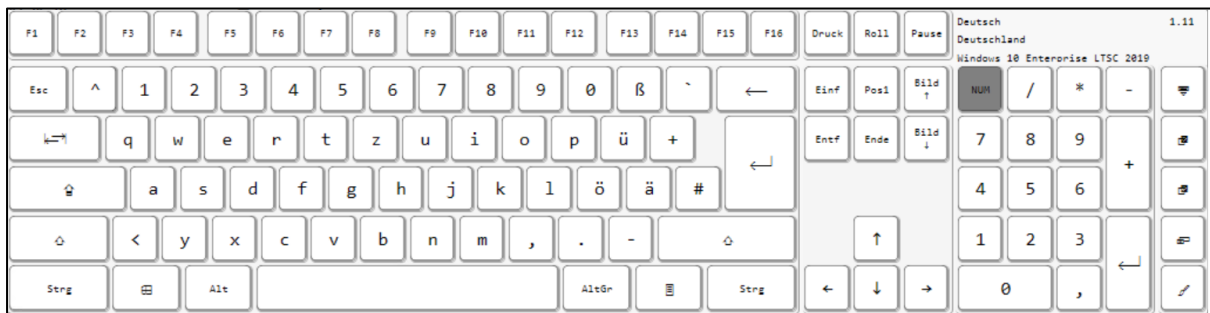
Further information and details in chapter 9. Installation, Backup and Restore.

6.5 On-Screen Keyboard

Tool for configuring the soft keyboard.

In addition to the on-screen keyboard integrated in Windows (osk.exe), another configurable on-screen keyboard is available.

Standard layout of the on-screen keyboard:



The following settings, among others, can be made for the on-screen keyboard via the **Configuration Center**:

- Input language / keyboard layout (alphanumeric / numeric)
- Display (colors / transparency)
- Auto-hide after inactivity timeout (in seconds)

6.6 Internal Watchdog

Configuration of the internal watchdog.

Internal watchdog

Watchdog service On
Status of the internal watchdog service. The status can only be changed in BIOS settings

Start automatically at startup Off
Watchdog is automatically started and triggered in the background at system startup.

Interval [s] 1
Watchdog trigger interval in seconds.

Action Nothing
Action to be performed if the internal watchdog fires.

With the help of the watchdog, a "freeze" of the operating system can be detected and the system can react automatically with a restart or shutdown.

6.7 Front buttons

Configuration of the front buttons.

Front buttons

Activate On

If the front buttons are activated, they can be configured with different actions.

Configuration

Configure release separately Off

If desired, buttons can be configured separately for pressing and releasing.

Perform action when releasing the button Off

If desired, the action is carried out when the button is released.

Button		Action	Details
ESC	down	DEFAULT	Cancel
UP	down	DEFAULT	Arrow up
DOWN	down	DEFAULT	Arrow down
OK	down	DEFAULT	OK
FN+ESC	down	DEFAULT	Brightness down
FN+UP	down	DEFAULT	Brightness up
FN+DOWN	down	DEFAULT	Volume down
FN+OK	down	DEFAULT	Volume up

6.8 USB port blocking

USB port blocking

External USB port power supply On

Status of power supply and data lines of all external USB ports. This option can only be changed in Bios Settings.

Enable port blocking On

Enable USB port blocking at operating system level. The blocking is implemented in such a way that the connected devices are disconnected.

USB ports

Please select the appropriate device configuration.

Configuration Jungheinrich WMT210

USB port	Status
USB #1	FREE
USB #2	FREE
USB #3	FREE
Front USB #1	FREE

Excluded USB device classes

The USB device classes to be excluded from blocking.

- Audio Device Off
- Human Interface Device (HID) Off
- Image Device Off
- Printer Device Off
- Mass Storage Device (MSD) Off
- Smart Card Device Off
- Video Device Off
- Media (Audio_Video) Device Off
- Wireless Controller Device Off

NOTE

Only the data connection is blocked. Charging of USB devices is still possible. Complete deactivation of the front USB port is possible via the UEFI.

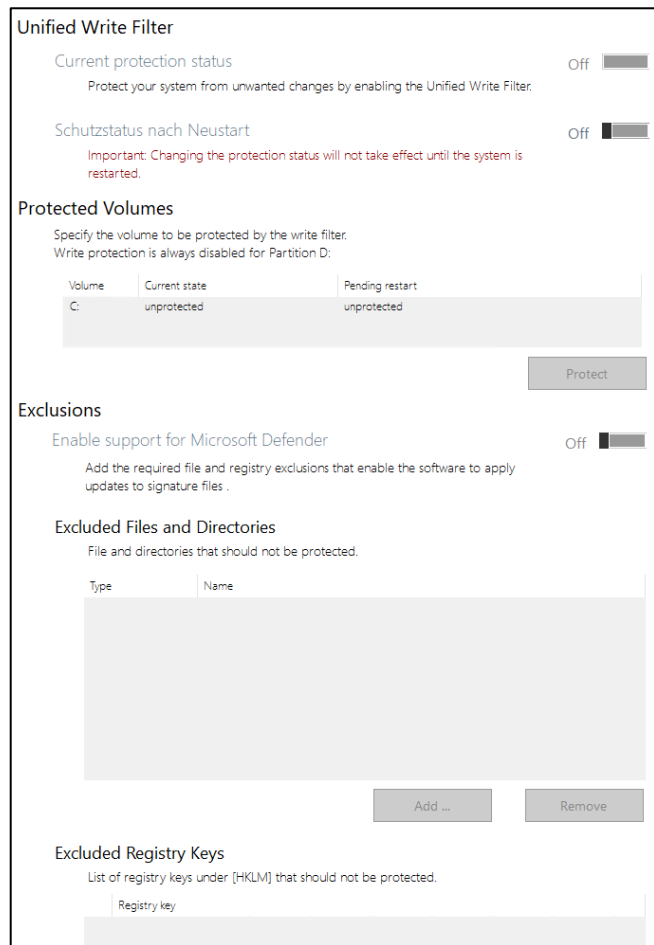
To deactivate a USB port, mark the corresponding USB port and press the "Lock" button.

6.9 Unified Write Filter

UWF (Windows IoT) is a Microsoft driver which, when activated (enabled), redirects all I/O operations on the hard disk and stores them in an intermediate cache in the working memory. If the device is restarted, all changes made in this cache are discarded. To permanently save changes to the device, the UWF must be disabled.

The write protection is only intended for the C:\ partition, the D:\ partition is always excluded from the write protection. It is recommended to operate the device with the UWF enabled after final configuration to avoid unwanted configuration changes.

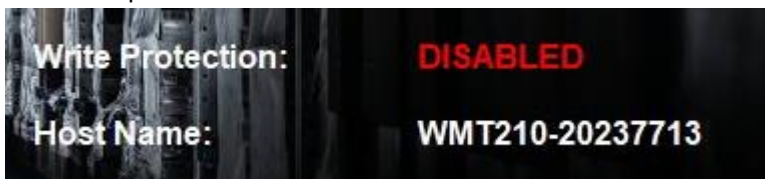
If automatic Windows updates are activated, the write protection must be deactivated accordingly to enable the installation of the updates.



NOTE

The change of the Unified Write Filter status is only applied after a restart.

The current write protection status can be determined via the configuration menu or via the display on the desktop.



6.10 Power On / Power Off

Controls the behavior when the power button is pressed.

Power On

Activate actuation time Off
Enable power on button actuation time.

Duration of actuation [s] 1
Indicates how long the power button must be pressed to start the computer.

Power Off

Activate power off button On
Enable power off button.

Activate actuation time On
Enable power off button actuation time.

Duration of actuation [s] 1
Indicates how long the button must be pressed to initiate the configured action.

Default action when the power off button is pressed. Shut down
Default action when the power off button is pressed.

NOTE

If the power button is pressed for longer than 5 seconds, the device is switched off hard, regardless of the configuration.

These settings are permanently stored in the system controller of the device. Changing the power settings in the operating system for the power button has no effect on the behavior.

6.11 Serial Port Wedge

The Serial Port Wedge Tool interprets all incoming data as keyboard entries via the selected COM port. Optionally, a pre- or postcode can be configured, which should be transmitted before or after the input. Application example: Barcode scanner with serial port.

Serial data forwarding

5 volt power supply (COM1) Off

Provides +5 V at pin 9 of COM1, e.g. for the supply of serial hand scanners. The power supply can be switched on and off using the hardware switch in the service bay and the device firmware.

Data forwarding On

If [Data Forwarding] is enabled, the data of the serial interface are forwarded to the operating system as keyboard inputs.

Name	Forwarding	Description
COM1	OFF	Serial interface
COM2	OFF	Optional second serial interface
COM3	OFF	Optional built-in RFID reader
COM4	OFF	

NOTE

Note that only one process can access a COM port at a time.

You can find a selection of possible pre- or postcodes in the following table:

Key	Code Syntax
BACKSPACE	{BACKSPACE}, {BS}, or {BKSP}
BREAK	{BREAK}
CAPS LOCK	{CAPSLOCK}
DEL or DELETE	{DELETE} or {DEL}
DOWN ARROW	{DOWN}
END	{END}
ENTER	{ENTER} or ~
ESC	{ESC}
HELP	{HELP}
HOME	{HOME}

INS or INSERT	{INS}
LEFT ARROW	{LEFT}
NUM LOCK	{NUMLOCK}
PAGE DOWN	{PGDN}
PAGE UP	{PGUP}
PRINT SCREEN	{PRTSC} (reserved for future use)
RIGHT ARROW	{RIGHT}
SCROLL LOCK	{SCROLL}
TAB	{TAB}
UP ARROW	{UP}
F1	{F1}
F2	{F2}
{VKEY X}	Sends the VKEY of value X. For example, VKEY 13} is equivalent to VK_RETURN.
{BEEP X Y}	Beeps with a frequency of X and a duration of Y milliseconds.
{DELAY X}	Delays sending the next key of X milliseconds. After the delaying the following key, the subsequent keys will not be further delayed unless there is a default delay value (see DELAY=X). Example: DELAY 1000} <-- delays subsequent key stroke for 1 second.
{DELAY=X}	Sets the default delay value to X milliseconds. This will cause every key to be delayed X ms. If a value is already set and you specify {DELAY Y} you will have your following key delay Y ms, but the subsequent keys will be delayed X ms.
{APPACTIVATE WindowTitle}	Activates an application using WindowTitle. Very useful if you want to send different keys to different applications.

6.12 Adaptive brightness and adjustment

Default values according to illustration.

Screen

Screen brightness [%] 100

Screen brightness in percent if adaptive adjustment is disabled.

Adaptive screen brightness Off

If the adaptive screen brightness is activated, the backlight of the screen is adjusted according to the following table depending on the ambient brightness.

Current ambient brightness [lux] :	14.00	
Characteristic curve of the adaptive brightness	up to [lux]	Brightness [%]
Darkness	16	10 <input type="button" value="▲"/> <input type="button" value="▼"/>
Interior - dimmed	24	60 <input type="button" value="▲"/> <input type="button" value="▼"/>
Interior - normal	50	80 <input type="button" value="▲"/> <input type="button" value="▼"/>
Interior - light	100	90 <input type="button" value="▲"/> <input type="button" value="▼"/>
Very bright environment	1024	100 <input type="button" value="▲"/> <input type="button" value="▼"/>

7. Jungheinrich Image: Windows Standard IoT Enterprise LTSC

The following settings differ from the standard Windows configuration:

- Windows Remote Desktop (RDP) connections are activated for "Admin" and "User" users.
- Automatic Windows updates are deactivated, please deactivate the write protection (UWF) in any case before activating the updates.
- Windows Action Center messages have been deactivated.
- Windows Firewall enabled, but exceptions for ICMP and Remote Desktop enabled.
- AutoPlay options have been deactivated.
- Enabled the display of file extensions.
- Power options were adjusted for continuous operation and UPS operation.
- All symbols and icons are displayed in the info area.
- Desktop background customized and enhanced with individual information on computer name and write protection status via "BgInfo"

7.1 Windows Updates

Automatic Windows updates are deactivated by default. It is recommended (even when used in isolated networks with write protection activated) to install the monthly updates.

To do this, the write protection must be deactivated and then a manual search for updates must be carried out via "Windows Update". The write protection can then be reactivated.

7.2 Pre-installed third-party software

The following software is preinstalled on the machine:

Name	Developer	Function
Sumatra PDF (only W10 2019)	Krzysztof Kowalczyk	Display of PDF files
Intel Wireless Driver	Intel	WLANdriver and configuration
WMT200 Device Tools	Jungheinrich	Configuration Center

8. UEFI (BIOS)

NOTE

The UEFI setup menu, as well as the UEFI one-time boot menu, is secured with the standard UEFI administrator password "jhwmt".






By default, the UEFI Setup Menu and the UEFI One-Time Boot Menu are protected with a UEFI administrator password.

- From image version 5.2 of Windows 11 IoT Enterprise 2021 LTSC (from 2025-08):
You can find the device-specific password on the label included in the terminal's service chamber or safety instructions.
- Up to image version 5.1 of Windows 11 IoT Enterprise 2021 LTSC (until 2025-07):
Password: "jhwmt"

8.1 UEFI Navigation

NOTE

The assignment of the front keys in the UEFI differs from that in the operating system.

	Shift key (Function) for the second keyboard level. The key is pressed, then the corresponding function key can be pressed.
	Standard: Cancellation of the respective action (ESC) FN: No function
	Standard: Navigation up (arrow up) FN: Switching the tab to the left
	Standard: Navigation down (arrow down) FN: Switching the tab to the right
	Standard: Confirmation of the respective action (Enter) FN: Increase volume

8.1.1 Activating/deactivating interfaces

The setup menu allows you to configure performance, hardware and interface properties. The settings are adjusted to the device ex works and should only be changed by experienced users.

The following menu paths can be used to activate / deactivate selected interfaces:

Interface	Menu	Default
PXE-Boot	System Settings → Network Stack Configuration	Disabled
	Boot → Network Stack Driver Support	Disabled
Front USB	System Settings → Front USB	Enabled
3 USB 3.0	System Settings → M.2 Slot 3 USB3	Enabled

9. Installation, Backup and Restore

The WMT 2XX vehicle terminals offer various options for backing up, restoring and reinstalling the Windows operating system.

9.1 Backup

In the "Backup and Restore" area of the Configuration Centre, a system backup or clone image can be created via the "Create Backup..." button.

In both cases, a copy of the backup image is first saved on the local restore partition.

Backup

Backup of the current operating system including current settings, installations and files. The image is always backed up to the internal recovery partition first. Additionally, a boot USB stick can be created, which can be used for the installation of identical terminals.

Backup name : WMT200-W10-

Set unique file name for the Backup Image. The name cannot include control characters, or any of the following characters: " * ? / : |

USB Stick drive letter :

USB flash drive with at least 12 GB is required. USB flash drives with a less capacity than 12 GB are not listed.

Backup type :

In a system backup, all device specific settings and drivers are saved. The image may only be installed on the same device.

In a clone, device-specific settings such as computer name, network profiles, etc. are removed. The image can also be used for installation on other terminals.

The image is stored as install*.swm in the folder image/"name of the backup" on the target drive. Please move the selected image to the "image" folder directly before using it to install on another terminal.

9.2 Restore

There are 2 options available to reset the operating system to the factory settings or to a saved backup state (see previous chapter):

9.2.1 Restore from Windows

In the "Backup and Restore" area in the configuration center, the image stored on the recovery partition can be installed via the "Start Restore..." button:

Restore

System Restore installs the backed up image from the recovery partition. During this process, all settings, software installations and changed files are removed. The device is reset.

Image name : WMT2XX Master - Version 4.10

Creation date : 4/25/2023

Start restore ...

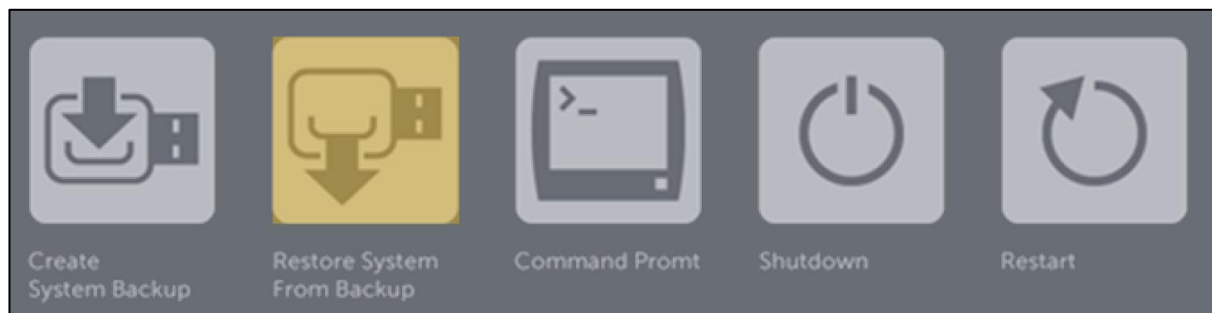
9.2.2 Restore from boot menu (at least Image V4.1)

Connect a keyboard before switching on the device.

To access the boot menu, restart the terminal and immediately begin pressing the Esc key (alternatively front key "X") repeatedly as the device powers on and enter the administrator password (see section 8 UEFI).

In the menu "Please select boot device" that appears, select the option "Backup and Restore System" with the arrow keys and confirm with Enter.

Then select the option "Restore System from Backup" by touching it.



9.3 Installation with USB-Stick

9.3.1 Requirements

- USB stick with 16 or 32 GB storage space.
- Either
 - WMT 2XX with Jungheinrich Configuration Center at least v1.12.127
 - PC with Microsoft Windows 10 (or higher)
- WinPE boot environment for WMT 2XX (please contact LS-Support-Interfaces@jungheinrich.de)

9.3.2 Create the bootable USB-Stick from configuration center

In the "Backup and Restore" area in the Configuration Centre, a bootable USB stick can be created via the "Create USB stick..." button.

Create bootable USB Stick

Create a "WMT200 Backup_Restore System" USB stick. With the prepared USB stick, an existing image can be loaded onto the terminal. Important: The contents of the USB stick will be overwritten.

USB Stick drive letter :

9.3.3 Create the bootable USB-Stick with a PC

- - Format the USB stick (16 or 32 GB) with FAT32 (see illustration on the right for Windows standard tool).
- - Copy the WinPE boot environment to the stick.
- - Copy the image to be installed (install*.swm) into the Image directory on the USB stick.

9.3.4 Save the image on the bootable USB-Stick

The image to be installed must be stored on the boot stick in the directory "image" with the name "install*.swm".

The image is divided into several files because of the FAT32 file system:

- install.swm
- install2.swm
- installx.swm

Format STICK-NAME (D:) ×

Capacity: 14,9 GB

File system: FAT32 (Default)

Allocation unit size: 8192 bytes

Volume label: STICK-NAME

Format options: Quick Format

9.3.5 Installation from USB-Stick

Before switching on the device, connect the boot USB stick and a keyboard. Please note that the rear USB 3.0 ports offer faster data transfer compared to the front USB 2.0 port.

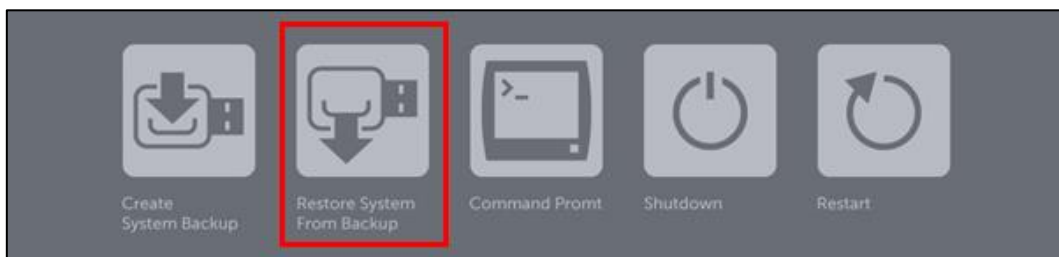
To access the boot menu, restart the terminal and immediately begin pressing the Esc key (alternatively front key "X") repeatedly as the device powers on and enter the admin password "jhwmt".

In the menu "Please select boot device" that appears, select the USB stick using its type identification with the arrow keys and confirm with Enter.

NOTE

At the time of the new installation, only the boot USB stick should be connected to the unit. Do not use a USB hub, but connect the boot USB stick directly to one of the available USB interfaces.

The device loads the setup files of the USB stick and starts the "Backup and Restore System" tool. Continue with the desired installation.



After pressing the button, a command line window opens automatically, which carries out the reinstallation of the unit. The progress is displayed during the installation.

10. Change history

Date	Description	Version
30.05.2022	First Version	1.0
24.05.2023	Update for Image Version 4.1	1.1
28.03.2025	Update for Windows 11	1.2