Manual

Remote HMI V7

Industrial-Grade Thin-Client Firmware

Version **01.00.00**

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Contents

1 About this documentation

This documentation describes the set-up and operation of the Remote HMI V7 Firmware, henceforth referred to as "firmware".
The Remote Device Manager, henceforth referred to as Device Manager, is available for the configuration of the firmware and the administration of licences.

1.1 Registered trademarks

The products and services referred to in this documentation are registered trademarks and as such the property of their manufacturers.

1.2 Target group

This documentation is intended for administrators and production engineers who are authorised to parametrise HMI systems and set up remote connections.

1.3 Layout features

This documentation uses the following symbols, highlights and notes:

NOTICE
Notes on system security and how to avoid data loss

	Important information on workflow and its optimisation

Pro	Notes on Pro licence functions

- List

Heading of an instruction

1. Work step
   Interim result
2. Work step

▶ Result of action

Apply	indicates a button on the user interface
Dashboard	indicates a register, menu or a function of the user interface
[F8]	indicates a key of the keyboard

1.4 Contact details

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2 Description

2.1 Function

The Remote HMI V7 firmware is a Thin Client software developed for the process industry which is supplied together with R. STAHL SERIES 500 operating devices. It is used to establish and secure remote connections to one or more workstations or application servers. This makes remote access from one operating station to one or more workstations or servers possible.

System functions

Function	Description
Access authority	3-tiered access authority management System settings and installation of applications by administrator only
Auto Connect	Automatic connection to the host after start-up
Diagnosis function	Detection of network or host failure
Teaming (Backup)	Redundancy based on automatic switch to a different network adapter
Network test	Integrated ping function to monitor the remote connection
Clean touchscreen	Disables touchscreen function for cleaning purposes
Touchscreen adjustment	Adjustment of the touchscreen by the user (brightness, right mouse button, calibration)
Pro The following functions are only available with a Pro licence:	
Multi-session operation	Parallel remote connections enabling users to switch fast between connections, or allowing for the simultaneous display on a split screen
App management	Fast access to applications and application programs
Camera connection	Setting up a camera connection on the HMI
Keyboard and pointing device sharing	Joint use of keyboard and pointing device with other HMIs

Suitable for device platforms:

- GETAC Tablet F110 G6
  ORCA xxA
  SHARK i5 Siemens
  MANTA mITX Apollo Lake

The devices are connected to the Ethernet via the Ethernet interface. The number of available Ethernet adapters varies depending on the device platform.

Supported pointing devices

Various pointing devices such as trackball, joystick or touchpad are available as accessories. These are supported by the firmware, also in combination with industrial keyboards. Should you require further information, please contact: R. STAHL HMI Systems GmbH.

2.2 Licencing models

The following licence models of the firmware are available for the Thin Clients:

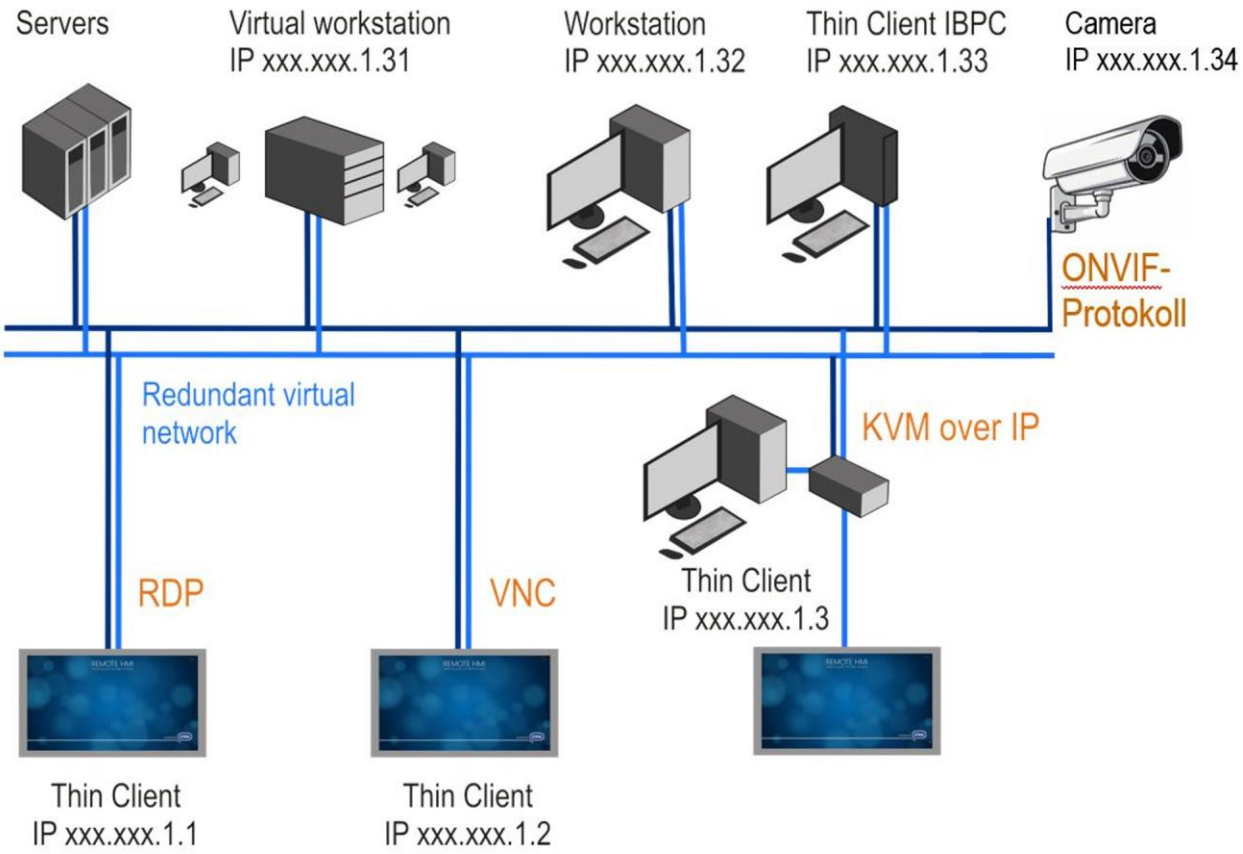
- Basic
  Basic licence for establishing remote connections, configuring the firmware and for importing and exporting settings.
- Pro
  Licence extension for using and managing applications, using multiple parallel remote connections, keyboard sharing, camera connections as well as importing and exporting settings.

2.3 Configuration file

The configuration file contains the device parameters and the settings of the Thin Client. They can only be opened at the Thin Client.
The "RemoteHMI.config" configuration file can be exported to the root file of a USB mass storage device or a network directory. The exported file is encrypted and can be imported after a reset or into another device, for example (see 8.11 Import and Export).

2.4 Supported remote protocols

The HMI operating stations and the Industrial Box PCs are integrated as Thin Clients and use the available network resources. Depending on the network architecture and access authority level, a remote connection can be established via the IP address to any Ethernet station. The firmware supports the Remote Desktop Protocol (RDP), Virtual Network Computing (VNC) and Keyboard Video Mouse over Internet Protocol (KVM over IP). The Thin Client can use the firmware to call up applications installed on the connected workstations or installed on virtual servers.



The illustration shows a redundant virtual network. It connects Thin Clients via an RDP, VNC or KVM-over-IP connection with workstations and servers. In such a network, every Thin Client can access connected systems and call up applications from there.

2.4.1 RDP

The Remote Desktop Protocol (RDP) is a protocol for remote access. It can be used to display and control screen content of a remote workstation. RDP is an integral part of all Windows operating systems.
A special session is started on the server for the RDP access, and only the connected client can access this session.
The size of the displayed screen content is determined by the Thin Client's display size. If the screen content is only displayed on one half of the Thin Client it will be scaled accordingly.
A Windows server is required for several RDP connections to access one server. A client access licence is required for each client to access and connect to the Windows server. Licencing depends on the operating system of the server.
Either the computer name or the server IP address can be used for addressing.
If you want the option of redundant connections we recommend you use the DNS naming system.

2.4.2 VNC

Virtual Network Computing (VNC) is a platform-independent server system. VNC operates according to the Client-Server model.
The VNC service displays the screen content of a remote PC (server) on a local computer (client). The client sends the keyboard and mouse actions to the remote server. This way, the client can use the resources, applications and programs of the server.
The server's display size determines the size of the displayed screen content. If the server display screen ratio is different to that of the Thin Client, the screen content will be compressed or displayed with black edges.
VNC allows multiple access to the server. The display of the clients is then synchronised.
The VNC service must be installed on the remotely controlled PC (host). The Thin Client accesses the VNC server via a VNC viewer application. The installation and configuration of the VNC system on the server and the client requires administrator access authority. The VNC communication between server and client does not require this level of access authority.
VNC services are available from various providers. Depending on the VNC server, these systems have different functionalities.

	For detailed information and a description of the VNC service, please refer to the documentation of the provider.

In order to be able to establish a VNC connection, the VNC server system must be activated on the host. The VNC service acquires the IP address needed for this connection from the settings of the PC's network connection. Depending on the configuration, the IP address is specified manually or allocated by a DHCP server. In the firmware's address book, this IP address is defined as the server IP of the VNC connection.

The way this connection is established depends on the settings of the VNC server and can either be:

- a direct connection that is not password-protected
- a connection with VNC password
- a connection with Windows password

2.4.3 KVM over IP

KVM over IP provides remote access to keyboard-video-mouse systems (KVM). With these systems, a workstation is connected with keyboard, mouse and screen via an external KVM-over-IP box. The KVM-over-IP box is integrated into the network via an Ethernet interface. Data transmission is via the VNC protocol. A VNC service has been installed to establish the connection. The workstation that is part of the KVM system does not require a network connection or a software installation.

2.4.4 Camera and web

Use the camera option to select a camera by entering the IP address. This option is only available with the PRO licence. After you have entered a web address, a browser window will pop up across the entire screen. Only one active connection can be established at a time.

2.5 Security concept

2.5.1 System security

The Thin Client has been designed as a closed system based on Windows® 10 IoT Enterprise LTSC 2021.
As a standard, the Thin Client comes equipped with the Windows 10 IoT Enterprise operating system and activated Windows 10 LTSC.
If Windows 10 LTSC is not activated (after a reset, for example), it can be activated under menu item **Maintain** (see 8.3.9 Activating Windows).

We recommend you activate the firewall and virus protection and permit all necessary security updates.
Any further measures to protect the process network are the responsibility of the operator of the facility.

Overview of security functions

Function	Description
Operating system	Based on Microsoft 10 IoT Enterprise LTSC 2019 / 2021
Remote Desktop Protocol	Microsoft RDP 10 with security functions
Firewall	Active Windows firewall as protection against network attacks
Unified Write Filter (UWF)	Protection of the directory against integration of malware or corruption of system files
HORM	Fast restart of a system image
USB lockdown	Individual lockdown or release of USB ports for USB terminals and sticks
Virus protection	Active Microsoft Defender for virus protection; further virus protection programs can also be installed
Access authority	Available remote connections and applications can be specified via user roles

2.5.2 User roles

The access authority system of the Remote firmware is based on three user roles. These are tiered in a hierarchy.

User role	Description
Operator (standard user)	The operator can switch between the displays of the connected systems and operate these systems remotely. The operator has access to the basic settings. He or she cannot make any changes to the firmware.
Engineer	The production engineer can set up, parametrise and delete remote connections. With the Pro licence, the engineer can add existing applications in the firmware. He or she cannot access the Windows user interface of the Thin Client. The engineer can adjust the following settings: • Displays • User Interface • Connections • Keyboard Wedge
Admin	The administrator has full access authority to the Windows user interface of the Thin Client. In addition to the options available to the production engineer, the administrator can install third-party applications and drivers on the Thin Client. He or she can configure the network, make system settings via the Remote HMI menu user interface and log into the regular Windows user interface as Admin. The following adjustments in the **Settings** register can only be made by the administrator: • Maintenance • System & Proxy menu • Protection • Access Control • Import & Export • Update

The Admin and Engineer user roles can be password-protected in the **Access Control** menu. When the firmware is started up for the first time, the user roles are de-activated and the firmware starts with the Admin user role. Password protection is not active.

NOTICE

Access control via the "Admin" and "Engineer" user roles

The Admin and Engineer user roles should only be given to staff familiar with Thin Client administration.

2.6 Display resolutions

The Thin Client supports the display of non-native display resolutions for all types of connection. Non-native resolutions are those where the video output of the server does not correspond to the actual physical resolution of the Thin Client display. Resolutions from 640x480 (VGA) up to 2560x2048 (QSXGA) can be selected. The display and scaling behaviour varies according to the connection type and display resolution.
The supported HMI platforms correctly display every regular server display resolution from VGA to QSXGA. The aspect ratio is maintained with the maximum possible display resolution. Thus, the Thin Client can continue to be operated via the touchscreen even if there are black edges.

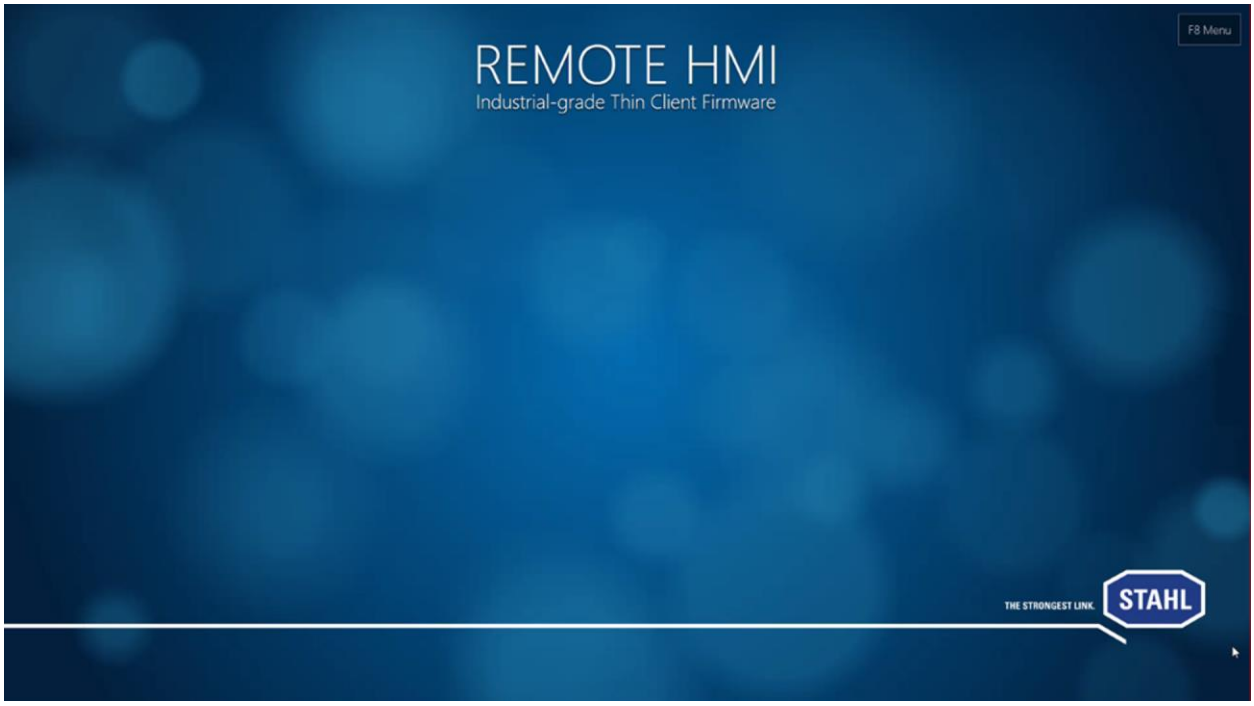
Display of an RDP connection
As a standard, the video output of the server is started with the native resolution of the Thin Client.

Display of a VNC connection
The video output of the server is displayed in the maximum possible size whilst maintaining the correct aspect ratio. Hardware or software are used to scale to achieve the maximum possible image quality.
Server resolutions higher than the native Thin Client display resolution are fully displayed. If the server resolution differs greatly from the native Thin Client resolution, the display of small structures may be restricted. Scaling may be adjusted as required to use the Thin Client display fully. This might result in a distorted display.

Display of a KVM-over-IP connection
The video output of the server is fully displayed in the maximum possible size whilst retaining the correct aspect ratio, provided the server resolution is equal to or less than the native Thin Client display resolution. Non-native resolutions might result in black horizontal and/or vertical edges.
For server resolutions greater than the native Thin Client display resolution the Thin Client switches to panning mode. Here, only part of the server image output is visible. This section can be moved when the cursor stops at a screen edge.

2.7 User interface

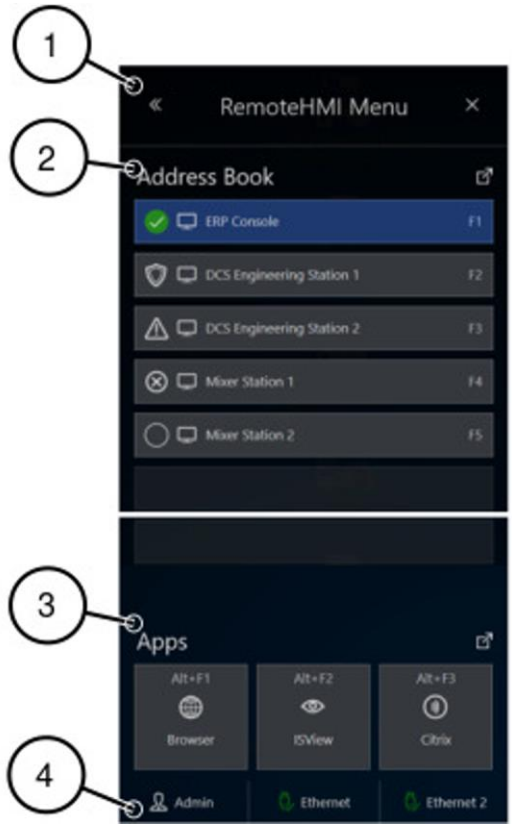
The system will start with the following screen.



You have the following options for opening the dashboard:

- via the *F8 Menu*
- by pressing the [F8/Fn] function key for the ORCA / [P2] function key for the Getac tablet
- by pressing of the keyboard icon for a couple of seconds

The [F8] function key can be changed in the **User Interface** menu.



Minimised dashboard

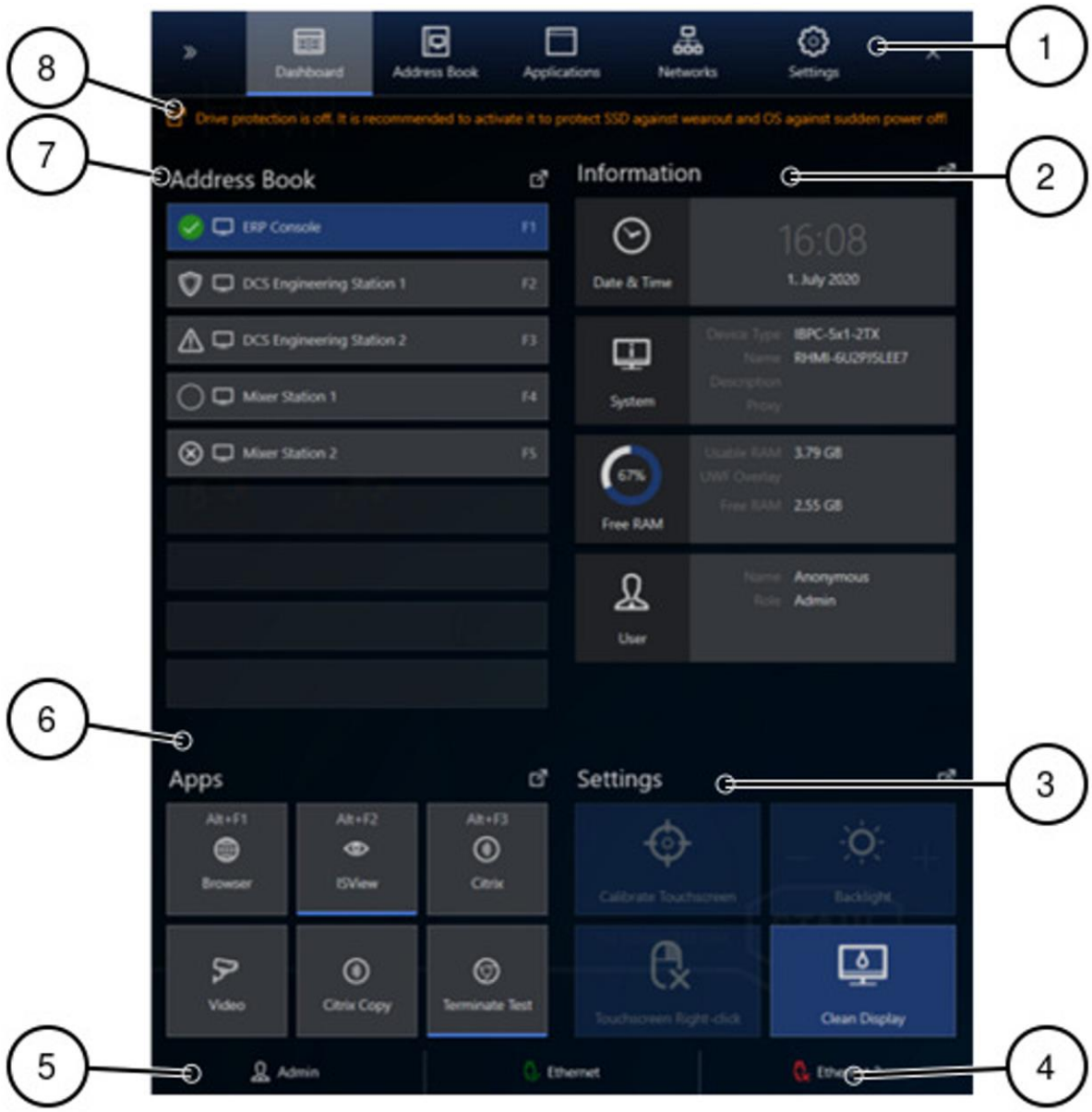
1 Navigation element leading to expanded dashboard

2 Fast access to available remote connections

3 Fast access to applications (available for Pro licence if applications have been installed and released)

4 User role, click button to open the log-on dialogue

The contents of the expanded dashboard depend on the system configuration.



Dashboard

1 Register bar

2 System information

3 Basic settings for the HMI operator interface

4 Status of Ethernet connection

5 User role, click button to open the log-on dialogue

6 Fast access to applications (available for Pro licence, if applications have been installed and set up)

7 Fast access to available remote connections

8 Notes on system security

2.7.1 Register

The register bar contains the following functions:

Register	Description
Dashboard	Overview of address book, system and connection information, basic functions and activated apps
Address Book	Diagnosis and management of remote connections
Applications	Display and management of applications
Networks	Display and set-up of the network adapters
Settings	Menus for display and set-up of system, security and network parameters

2.7.2 Information

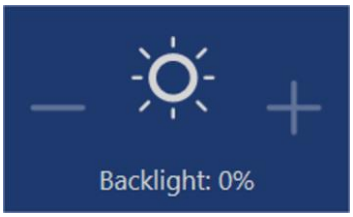
The system information contains the following data:

- **Date & Time** Date and time
- **System.** Thin Client data
- **Free RAM** available memory
- **User** current user role
- **Network 1** Status, IP address and speed for network adapter 1
- **Network 2** Status, IP address and speed for network adapter 2

2.7.3 Basic settings

The basic settings contain buttons for operating the touchscreen. If no touchscreen is connected, the functions are greyed out.

Button to start touchscreen calibration. If two touchscreens are connected you can calibrate them separately.



Button to adjust the display backlight.

Button to deactivate the display touch function for 30 seconds Buttons can then not be inadvertently activated during cleaning.

Button to simulate a right mouse click on the touchscreen, for example to call up the context menu of applications.

2.7.4 Status of Ethernet connection

This display indicates the status of the Ethernet connection.

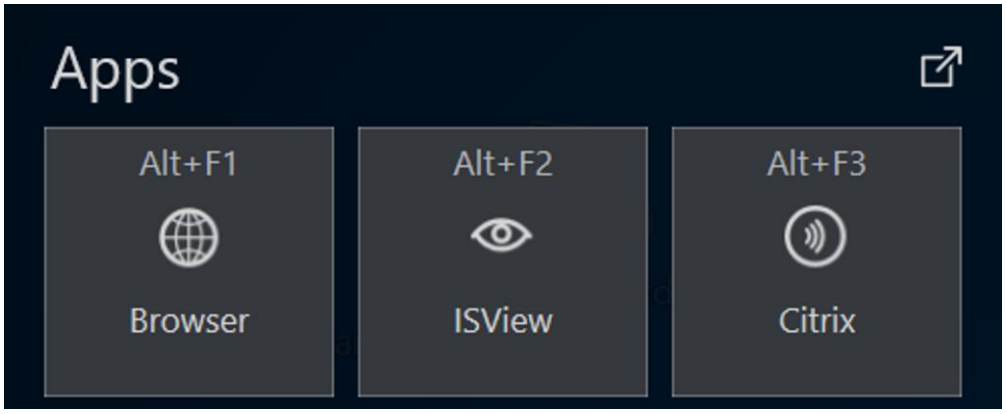
Ethernet adapter is ready

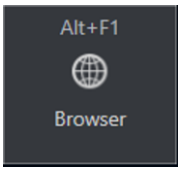
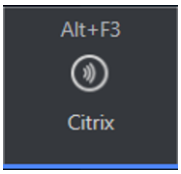
Ethernet adapter is not ready

Conflict of addresses, Ethernet adapter is not ready

2.7.5 Applications

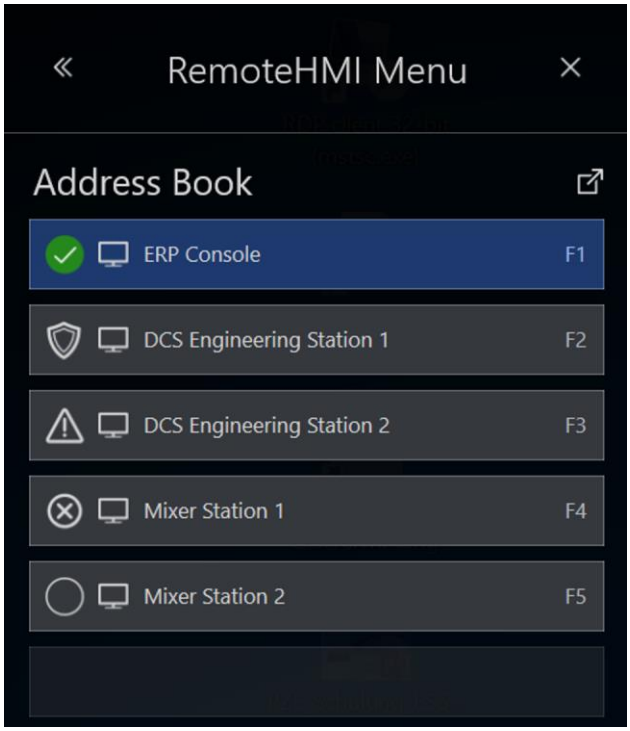
Applications can only be used with a firmware Pro licence.
Once applications (apps) have been set up, they are shown as buttons. More than one app can be started. The status of the app is shown.



Indicator	Meaning
	inactive app
	active app
	app running in the background

2.7.6 Address book

Remote connections can be selected from the address book.



Status of the remote connection

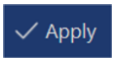
Symbol	Meaning
	connected
	not connected
	connection not possible
	Default, will be connected automatically during start-up
	connected, parallel remote connection, active in the background (multi-session connections require a Pro licence)
	Auto-Reconnect

2.7.7 Operating elements

Navigation elements

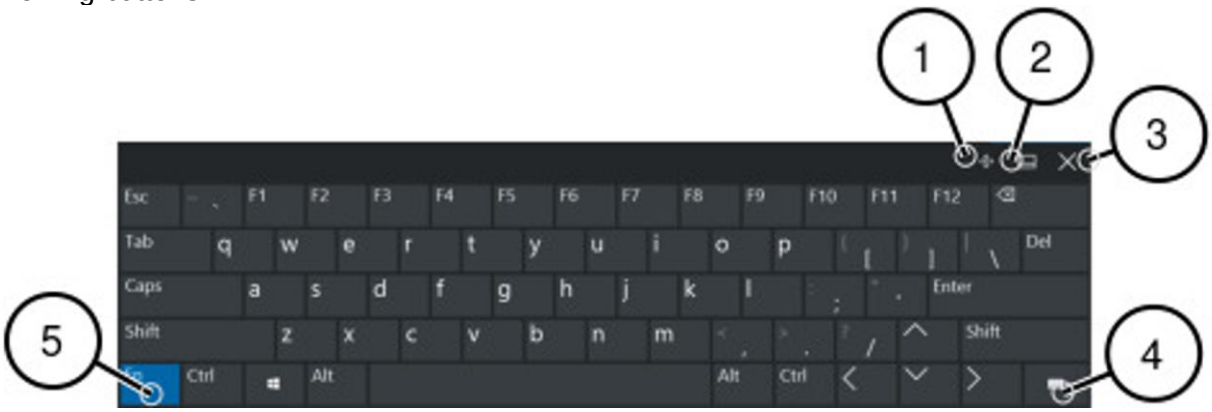
	opens the expanded dashboard
	minimises the dashboard
	navigates to register or menu

Operating elements
Operating elements vary depending on the menu.

Element	Meaning
	Button activated
	Button deactivated
	Button A greyed-out button is unavailable
	Input field
	Scroll bar
	Check box activated
	Check box deactivated

2.7.7.1 Virtual keyboard

The Thin Client has a virtual keyboard and can be operated without any additional input devices.
The virtual keyboard consists of several keyboard sections. These can be displayed or hidden as required. The size of the keyboard can also be changed. This functionality is managed via the KEYBOARD control section. The keyboard can be positioned and adjusted with the following buttons:



Total view of virtual keyboard (US keyboard layout)

1 Free positioning of the keyboard
2 Positions keyboard at the bottom edge
3 Closes keyboard
4 Opens keyboard settings
5 Shows function keys

The virtual keyboard is automatically started when the Thin Client boots. The icon of the virtual keyboard will appear at the top edge of the display.
During an active remote connection the icon of the virtual keyboard can be moved to any position. The keyboard should then only cover less important parts of the application. This

position will be resumed whenever the remote connection is re-established at some later date. The virtual keyboard does not have to be positioned again.

Hotkeys
The Ctrl, Alt, Shift, Caps and Windows control keys on the touchscreen are used as follows:

- Key has been touched, colour changes 

- Key function has been executed, colour changes back 

Without a remote connection the control key combinations have no function.
Use the Windows key in combination with another key to use a function of the Windows operating system. A double-click of the Windows key will open the start menu.
The Caps key on the virtual keyboard also has a LED.

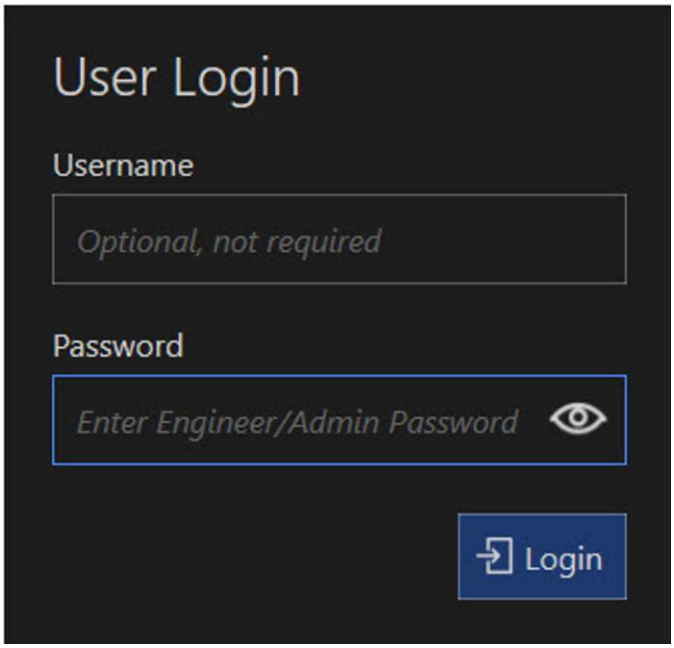
Cursor
For KVM-over-IP and VNC connections, the Thin Client displays two different cursors showing the mouse position on the Thin Client and the host.

- Thin Client cursor: dot
- Host cursor: arrow

The cursors move asynchronously. Depending on the VNC server's performance there may be time-lags with the remote pointer lagging behind.

2.7.8 Login

Login is only required when the user roles have been activated. Operators have access to the system without login.



By clicking on the eye symbol, the password can be entered invisibly. To make the password visible, the user must delete and then re-enter the password.

	In the factory state, the user roles are deactivated and the *Admin* role is the standard user. When the user roles have been activated, a password is required for the *Engineer* and *Admin* roles. A user name is not required.

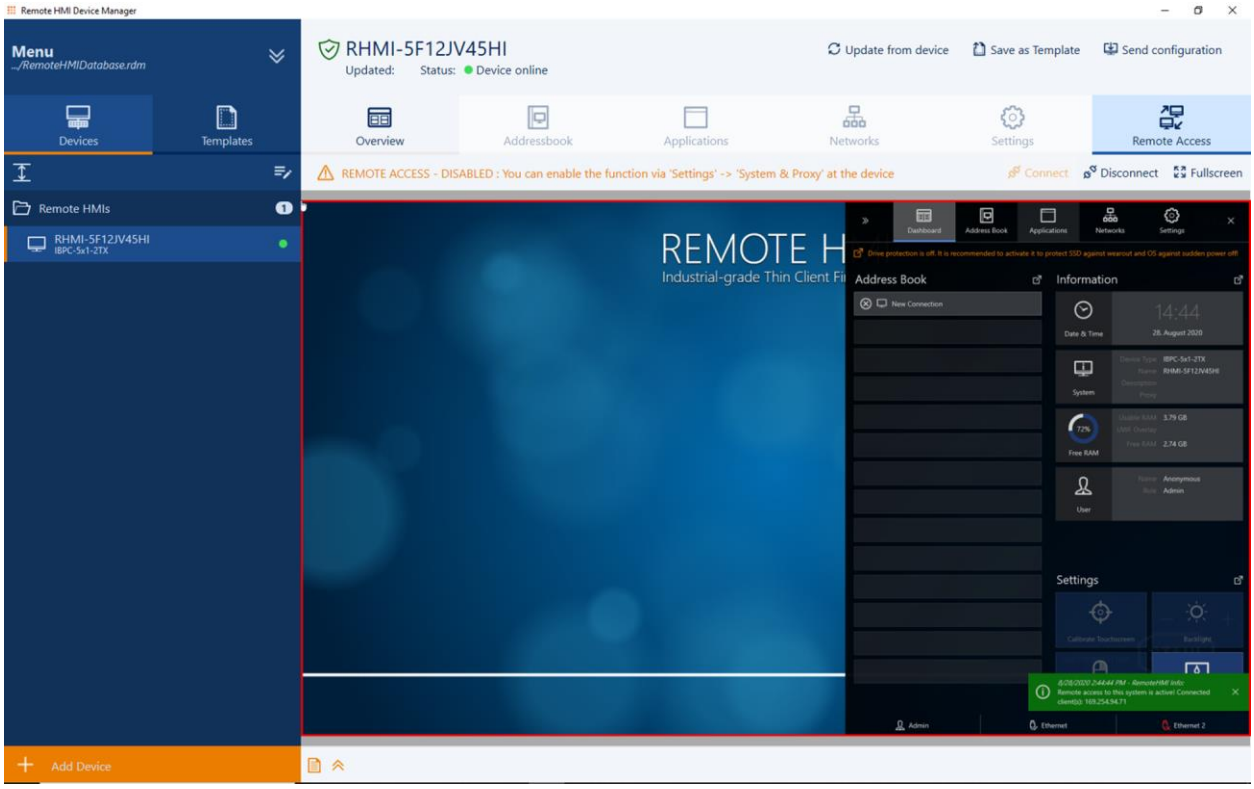
Changing users

1. Open the **User Login**.
2. Enter the password.
3. Confirm with [Login].

▶ The RemoteHMI menu will open.

2.8 Remote HMI Device Manager

The Remote HMI Device Manager is a supplement to the firmware. It is used for central parametrisation of the firmware and for licence management. Device Manager access must be granted in the firmware under the **System & Proxy menu** menu item. Once access has been granted, several Thin Clients can be configured and parameterised via templates with the same settings.
Also, the Device Manager can access the Thin Client via the **Remote Access** function. This remote access via VNC must be permitted under the **System & Proxy menu** menu item.



Remote HMI Device Manager accessing the firmware of an IBPC.

During parametrisation of the firmware, changed settings are not transferred 'live'. The local user can decline every change or postpone it to a different time.

3 Quick start

	Notes on first start-up The firmware starts with the Admin user role. User roles and password protection are not active. Once you have completed the configuration, activate the user roles.

You have the following options for opening the dashboard:

- via the *F8 Menu*
- by pressing the [F8/Fn] / [P2] function key
- by pressing of the keyboard icon for a couple of seconds

The [F8] function key can be changed in the **User Interface** menu.

Opening the dashboard

1. On the start screen, open the Remote HMI menu.
2. Navigate via directly to the address book.
3. Or use the double arrow to open the expanded dashboard.

3.1 Set-up of the network adapter

As a factory setting, the automatic address allocation **Auto config via DHCP** is activated.

Automatic set-up of the network address

1. Open the **Networks** register.
2. Check whether **Auto config via DHCP** is activated.
3. Click on *Apply* to start the automatic allocation by the DHCP server.

▶ IP address, gateway and subnet mask are configured.

Manual set-up of network address

1. Open the **Networks** register.
2. Deactivate **Auto config via DHCP** to set up the address manually.
3. Enter the IP address of the network adapter under **Local IP address** .
4. Specify the subnet mask under **Subnet Mask** .
5. If you want the Thin Client to access a different network, enter the IP address of the gateway under **Gateway.**
6. Click on *Apply* to accept the changes.

▶ IP address, gateway and subnet mask are configured.

Automatic configuration of the DNS server

1. Open the **Networks** register.
2. Activate **Auto DNS Server Addresses** to activate the automatic address allocation.
3. Click on *Apply* to accept the settings.

▶ The IP addresses of the DNS servers that were found are registered.

Manual configuration of the DNS server

1. Open the **Networks** register.
2. Enter the IP address of the first DNS server under **Primary DNS Server** .
3. Enter the IP address of the second DNS server under **Secondary DNS Server** .
4. Click on *Apply* to accept the settings.

3.2 Set-up of remote connections

3.2.1 Setting up remote connections

Automatic logon at the server

The automatic logon at the server can be configured in the settings of the remote connection. For this you need the user ID and the password for the server.

	Only users with authority for remote access to the server can log on to the server. Check the user authority at the server or the KVM box.

Display position of the remote connection

The following display options are available:

Symbol	Designation	Meaning
	Full display	shows the full screen
	Left display half	Scales the remote screen content and displays it on the left hand side
	Right display half	Scales the remote screen content and displays it on the right hand side
	Upper display half	Scales the remote screen content and displays it at the top half.
	Lower display half	Scales the remote screen content and displays it at the bottom half.
	Bottom left corner	Scales the remote screen content and displays it in the bottom left corner.
	Bottom right corner	Scales the remote screen content and displays it in the bottom right corner.
	Top left corner	Scales the remote screen content and displays it in the top left corner.
	Top right corner	Scales the remote screen content and displays it in the top right corner.
	Picture in picture	Scales the screen content of a camera and displays it always in the foreground at a free position. This option is only available for camera images.

Behaviour of firmware when connection is lost

You can configure how the remote connection behaves during a system startup or when it is lost, as follows:

Auto connect on system startup	On	Automatically establishes a connection during system startup, is represented by the ☆ symbol in the address book entry
	Off	During a system startup the dial-up must be started manually
Auto reconnect on connection loss	On	Automatically reconnects after the connection has been lost. Is represented by the symbol in the address book entry
	Off	After the connection has been lost, the dial-up must be started automatically

For Pro licence users

Pro	The system allows parallel use of several active remote connections (multi-session connections). Whilst one remote connection is displayed on the screen, the other connection stays active in the background. These connections are marked as follows in the address book: connection active in the foreground connection active in the background

Activate the parallel use of several remote connections in the **Settings** menu under **Connections** . See also:

- 8.10.1 Allowing multiple simultaneous connections

3.2.2 Set-up of RDP connections

You will need the IP address or the name of the server for the configuration. These are stored in the system properties of the server.

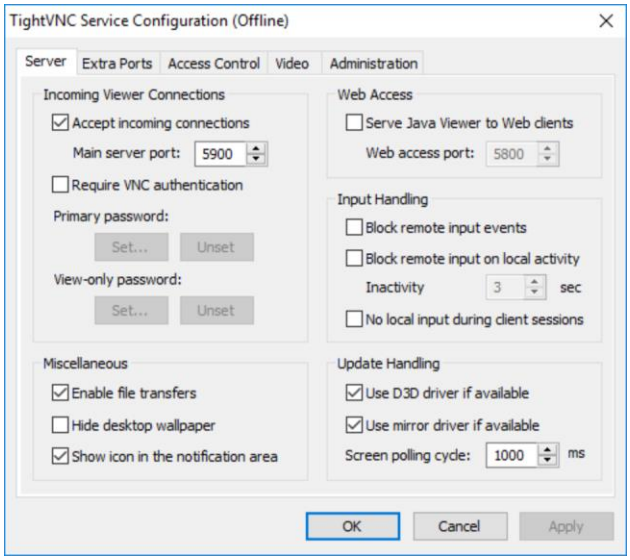
	For RDP connections, remote access must be explicitly permitted in the server's system properties. The remote access must be configured for the user.

1. Open the **Address Book** register.
2. Click on + *Add*.
   A new address book entry is created.
3. Click on *Edit*.
4. In the **Connection Settings** select "RDP" from the **Type** drop-down field.
5. Enter the name of the connection in the **Name** field.
6. Enter the IP address of the server in the **Server Address** field.
   - NOTE:
     To ensure automatic access to the connected server you have to enter the correct logon data. Please note that a domain name may have to be used together with the user name.
7. Enter the logon data of the server under **User Name** and **Password**.
8. If you want to be able to call up the remote connection via the keyboard, use **Hotkey** to specify a hotkey.
9. Go to **Show on** to select the display option.
10. Specify the minimum user role required for the manual set-up of the connection.
    - NOTE:
      If a user does not have the required authority to set up the connection, this connection is greyed out in the address book.
11. Click on *Apply* to set up the connection.

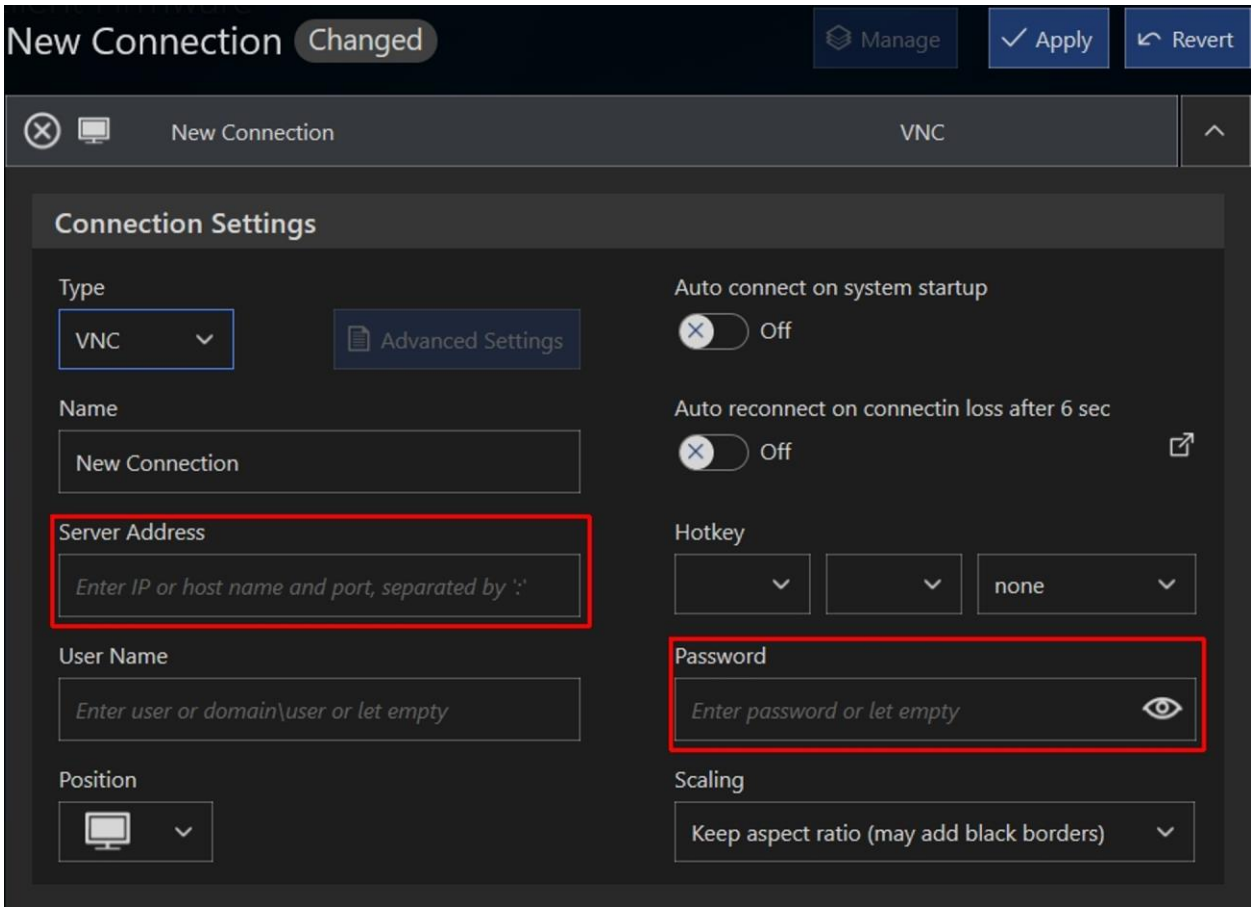
▶ The connection is shown in the address book.

3.2.3 Set-up of the VNC connection

A VNC client is pre-installed on the Thin Client. The VNC service must also be installed on the server.



To set up the connection you require the IP address of the VNC server and, depending on the configuration, the VNC password.



3.2.3.1 Preparation of host for VNC connection

The process varies according to which VNC service is used. For more information, please refer to the documentation provided by the VNC service manufacturer.

NOTICE
This process requires Administrator authorisation.

1. Make sure that the Thin Client can contact the host. If both are part of the same network, this will be the case.
2. Make sure the VNC service is installed and activated on the host (see 9.2 Activating VNC server system on the host).
3. If the network connection is protected via a firewall you need to configure this firewall. Permit network communication via the port where the VNC service is ready to receive (5900 as a standard).
4. If the network connection is protected via a router, you need to configure this router. For the transfer of network communication, specify every configured port where the VNC service is ready to receive (5900 as a standard).
5. Check whether the VNC service is working properly and whether it accepts incoming connections.

▶ The host is ready.

3.2.3.2 Preparation of Thin Client

The process varies according to which VNC service is used. For more information, please refer to the documentation provided by the VNC service manufacturer.

NOTICE
This process requires Administrator authorisation.

1. Make sure that the Thin Client can contact the host. If both are part of the same network, this will be the case.
2. If the VNC connection of the Thin Client is protected via a proxy server you have to specify the proxy server in the VNC viewer.

▶ The Thin Client is ready.

3.2.4 Set-up of the Thin Client

	If the port number of the VNC server is different from the standard port, the IP address needs to be extended to include the port number, for example: 192.168.1.23:5901

1. Open the **Address Book** register.
2. Click on *+Add*.
   A new address book entry is created.
3. Click on *Edit*.
4. In the **Connection Settings** select "VNC" from the **Type** drop-down field.
5. Enter the name of the connection in the **Name** field.
6. Enter the IP address of the server in the **Server Address** field.
   - NOTE:
     To ensure automatic access to the connected server you have to enter the correct logon data.
7. Enter the logon data of the server.
8. If you want to be able to call up the remote connection via the keyboard, use **Hotkey** to specify a hotkey.
9. Go to **Show on** to select the display option.
10. Specify the minimum user role required for the manual set-up of the connection.
    - NOTE:
      If a user does not have the required authority to set up the connection, this connection is greyed out in the address book.
11. Click on *Apply* to set up the connection.

▶ The connection is shown in the address book.

3.2.5 Set-up of KVM-over-IP connection

To establish a connection you require a VNC server service which runs on the KVM box.
To set up the connection you require the IP address of the VNC server and, depending on the configuration, the VNC password.

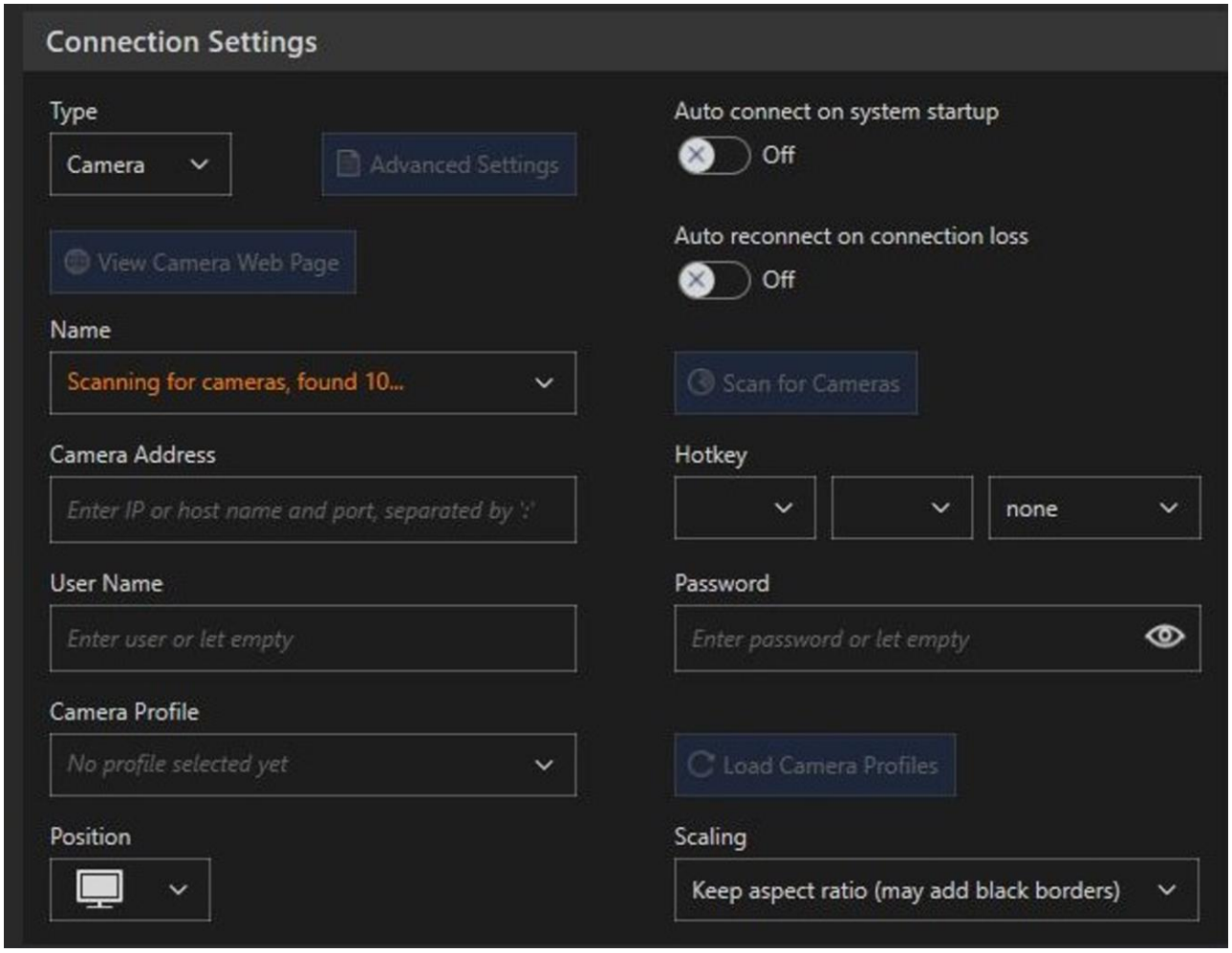
1. Open the **Address Book** menu.
2. Click on *+Add*.
   A new address book entry is created.
3. Open the address book entry.
4. In the **Connection Settings** select "KVM" from the **Type** drop-down field.
5. Enter the name of the connection in the **Name** field.
6. Enter the IP address of the KVM box in the **Server Address** field.
7. Enter logon data of the KVM box in the **User Name** and **Password** fields.
8. If you want to be able to call up the remote connection via the keyboard, use **Hotkey** to specify a hotkey.
9. Go to **Show on** to select the display option.
10. Specify the minimum user role required for the manual set-up of the connection.

- NOTE:
  If a user does not have the required authority to set up the connection, this connection is greyed out in the address book.

11. Click on *Apply* to set up the connection.

▶ The connection is shown in the address book.

3.2.6 Setting up a camera connection

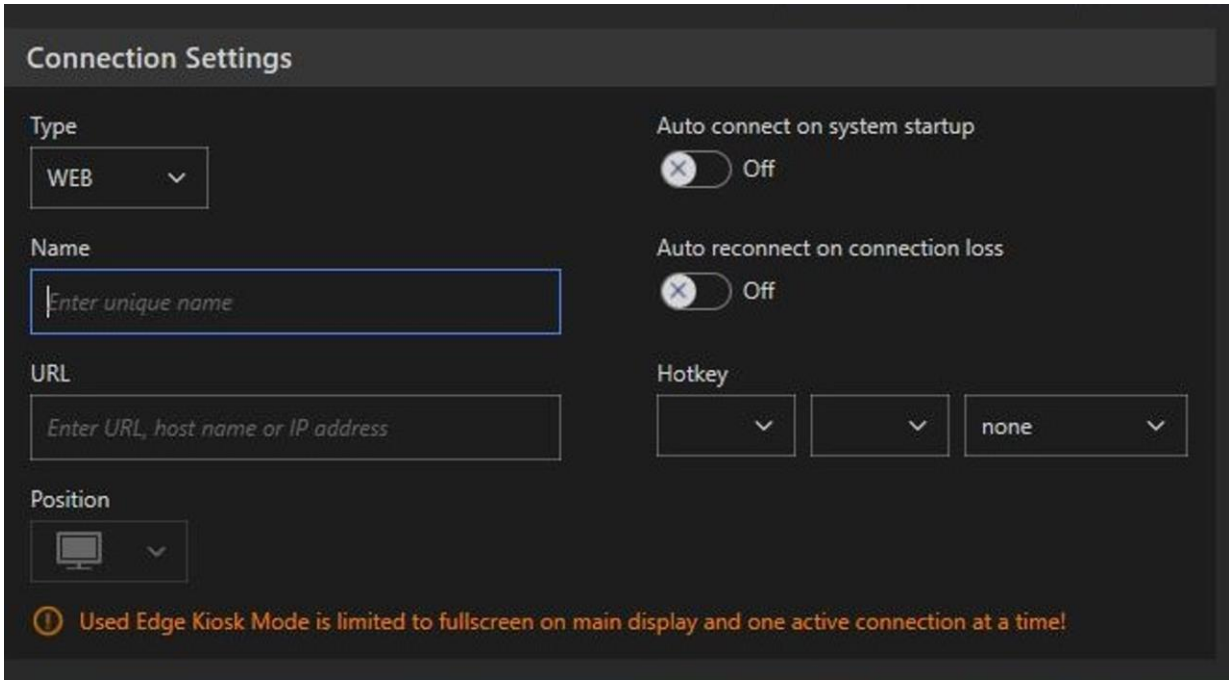


The image displays a connection settings page for the remote HMI software. The following options are available:

- **Name**: This tab allows users to assign a specific name to the camera for easy identification within the software.
- **Camera Address**: Here, the users can input the IP address or URL or port of the camera, which is necessary for establishing a connection.
- **Username**: This tab is for entering the username required to access camera, enhancing security.
- **Camera Profile**: Users can select or define a camera profile, which may include settings related to resolution, frame rate, or specific features of the camera.
- **Position**: This tab allows users to set the physical position or orientation of the camera, which can be important for monitoring specific areas.
- **Hotkey**: Users can configure a hotkey for quick access to the camera feed or specific functions, improving efficiency during use.

- **Password**: This tab is for entering the password associated with the camera, ensuring that only authorized users can access the stream.
- **Scaling**: This tab allows users to adjust the scaling settings for the camera feed, ensuring that the image displays correctly within the HMI interface.

3.2.7 Opening the web browser in kiosk mode



This option can be used to open the web browser in kiosk mode. By entering an internet address, a browser window will pop up across the entire screen. The connection can be established by entering the connection name or the URL. Only one connection can be used at a time.

3.3 Test of remote connection

You can test the remote connection in the address book.

Starting a remote connection

- Close the settings window of the remote connection.
- In the list, click on the remote connection you want to test.
- If you have configured a hotkey, check whether the remote connection also starts via the hotkey.

  Once a connection has been established, the symbol changes to .

Remote connection does not start

If no connection has been established, the symbol changes to . The system will issue an error message.

- Check whether the settings are correct.

If the host is available, try to narrow down the source of the problem with the following checks:

Check RDP connection

1. Check in the server's system settings whether a RDP connection is permitted.
2. Check whether the Thin Client is listed at the server as a user with the necessary access authorisation.

Check VNC connection

1. Check whether the VNC service is configured correctly.
2. Check whether the port number has been entered correctly.

Check KVM-over-IP connection

1. Check the configuration of the KVM box.
2. Check whether the port number has been entered correctly.

3.4 Activating user roles

Activating user roles

1. Open the **Access Control** menu.
2. Activate the 3-tier access management under **Main** .
3. Activate **Limit Operator access to Dashboard** to hide the dashboard's register bar from the operator.
   Operators can only see the dashboard data.
4. Enter different passwords for the "Engineer" and "Admin" user roles under **Login Passwords** .
5. Repeat the passwords. If the passwords are incorrect, the system will issue an error message.
6. Click on *Apply* to accept the settings.

▶ Users with roles "Engineer" and "Admin" have to logon with their passwords.

3.5 Further configuration options

Protection

Use this menu to activate the firewall, the virus protection and the UWF filter and to block the use of USB devices. See also:

- 8.5.1 Activating firewall and virus protection
- 8.5.2 Activating write protection for the SSD.
- 8.5.3 Activating the USB lockdown
- 8.5.4 Configuration of system behaviour during restart

Display

Use this menu to adjust the display on the screen or to activate a screen saver. See also:

- 8.6.1 Adjusting display settings
- 8.6.2 Adjusting multi-display settings when two displays are connected to the Thin Client.

For Pro licence users

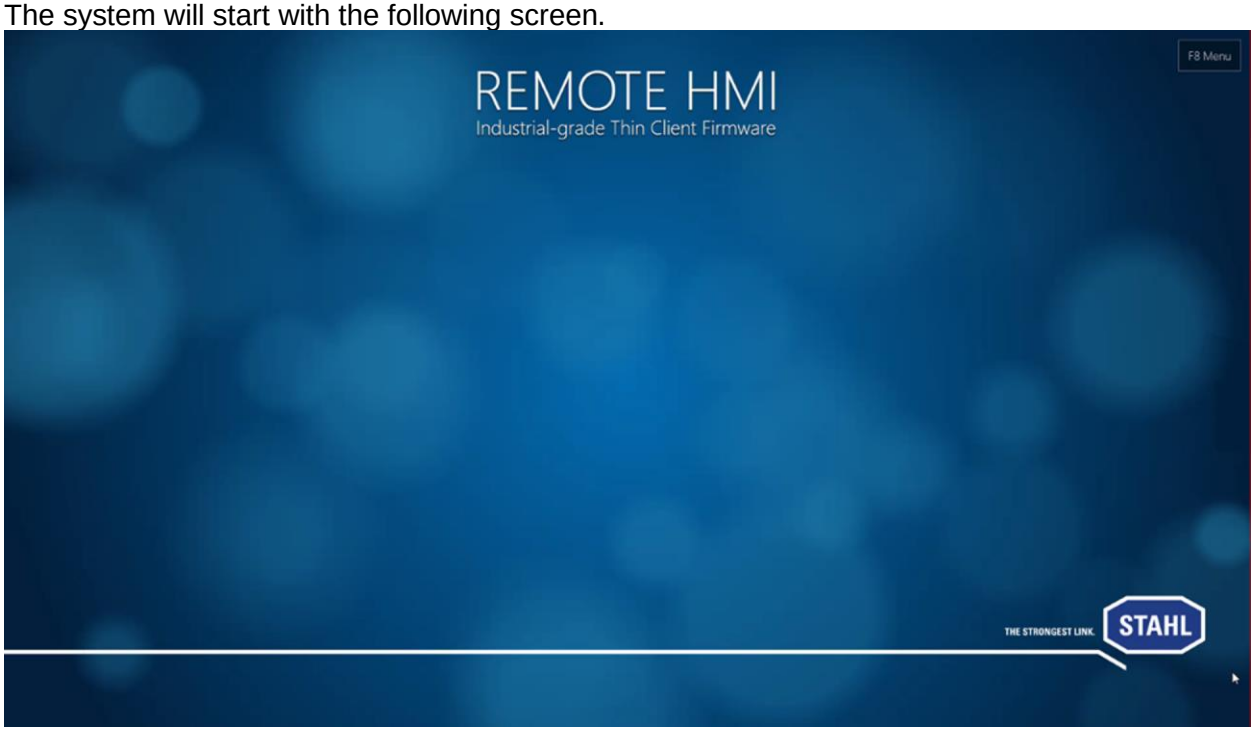
To enable users to access the applications on the Thin Client, you have to install the applications and add a link in the **Applications** register. See also:

- 6.2 Adding apps

4 First steps for the operator

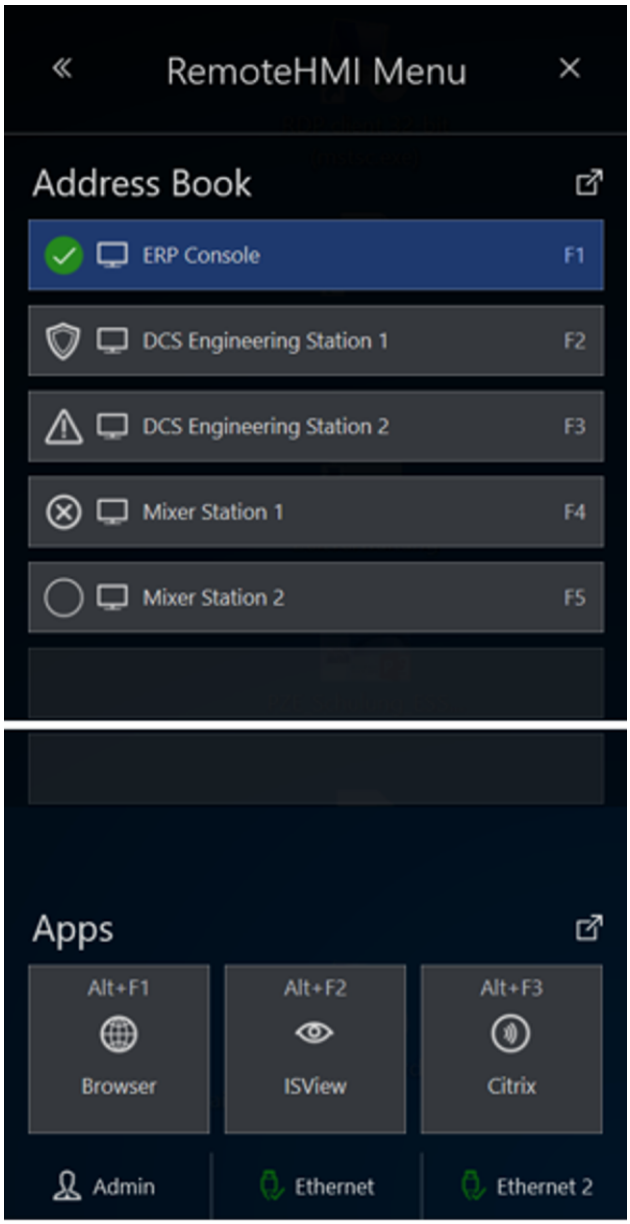
4.1 Start menu

The system will start with the following screen.



Opening the dashboard

1. On the start screen, click on the *F8 Menu* and press the [F8/Fn] / [P2] function key or keep the keyboard icon pressed for several seconds.
   The minimised dashboard will pop up.



Navigation elements

	opens the expanded dashboard
	minimises the dashboard
	navigates to register or menu

4.2 Using the virtual keyboard

- Touch the keyboard icon to open the keyboard.
  When the configuration menu is active, the keyboard icon is located above the menu bar.
  If a remote connection is active, the keyboard icon is located at the top right edge of the screen.

Moving the virtual keyboard icon

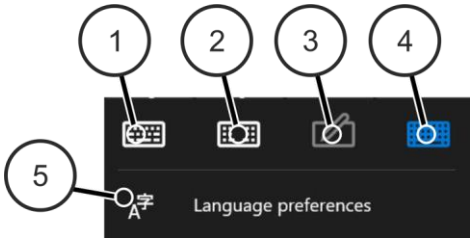
- Move the cursor to the keyboard icon.
- With the left mouse key, click on the keyboard icon and hold for a few seconds until the cursor changes to the symbol for object moving.

The keyboard icon in "object moving" mode

- Move the keyboard icon to the desired position.
  - ▶ The keyboard position is saved. When the remote connection is next started up, the keyboard will be positioned there.

Editing keyboard properties

- Touch the keyboard icon to open the keyboard.
- Tap on the key.
  The keyboard settings will pop up. You have the following options:



1 Displays keyboard without control keys

2 Displays keyboard for cursor control and positioning, as well as special keys

3 Opens handwriting recognition

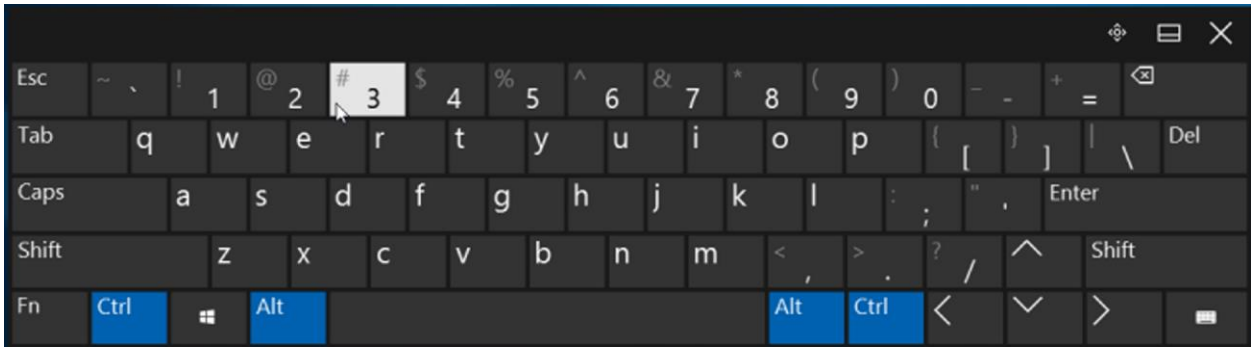
4 Displays keyboard with all control keys

5 Opens keyboard language settings

	Use the Windows key in combination with another key to use a function of the Windows operating system. A double-click of the Windows key will open the start menu.

Using the Shift, Ctrl, Alt und Windows control keys

- First tap on the control key.
  The key changes colour.
- Tap on the next key of the key combination.

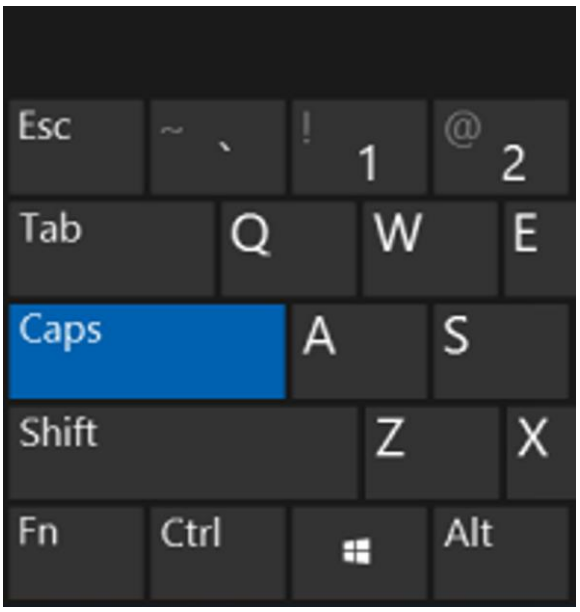


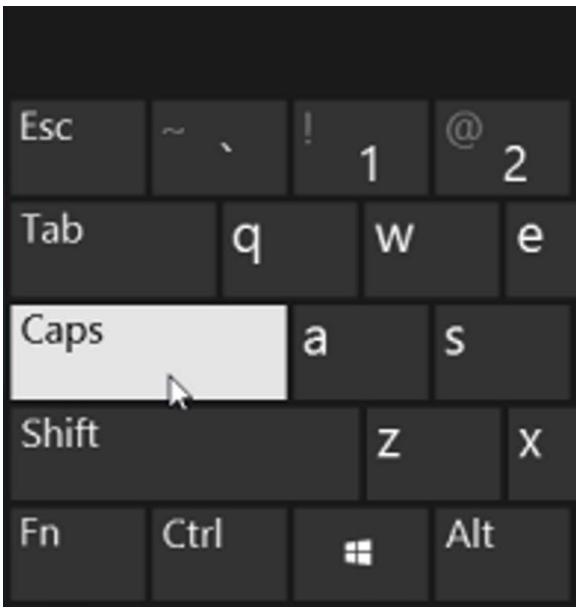
▶ Once the key combination is complete, the function is executed and the colour changes back.

Using the Caps Lock key (Caps)

1. First tap on the Caps Lock key.
   The key changes colour and stays that way.
2. Tap on the next key of the key combination.
3. Tap on the Caps Lock key again to deactivate it.

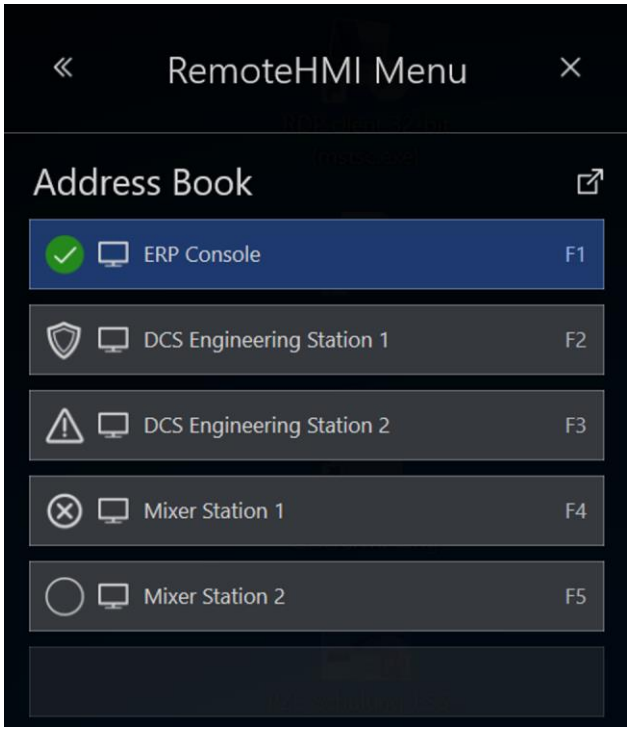
▶ The colour of the key reverts to its original.


Esc
~ `
! 1
@ 2
Tab
Q
W
E
Caps
A
S
Shift
Z
X
Fn
Ctrl
Alt


Esc
~ `
! 1
@ 2
Tab
q
w
e
Caps
a
s
Shift
z
x
Fn
Ctrl
Alt

4.3 Starting a remote connection

Remote connections can be selected from the address book.



Status of the remote connection

Symbol	Meaning
	connected
	not connected
	connection not possible
	Default, will be connected automatically during start-up
	connected, parallel remote connection, active in the background (multi-session connections require a Pro licence)
	Auto-Reconnect

Starting / changing a remote connection

1. In the **Dashboard** click on the remote connection you want to activate.
2. If a hotkey or a function key has been specified in the **Address Book** you can also start the remote connection via the keyboard.

   Once a connection has been established, the symbol changes to . The remote connection that was previously active will be deactivated.

	If an input window pops up requesting user name and password you need to enter both to be able to access the server. Contact your network administrator for the user name and password.

Pro	If the parallel use of several remote connections has been activated you can switch between the connected PCs. Both connections remain active.

Using multiple remote connections simultaneously

Pro	Requires a Pro licence.

1. In the **Dashboard** click on the remote connection which you also want to activate.
2. If a hotkey or a function key has been specified in the **Address Book** you can also start the remote connection via the keyboard.
   Once the connection to the other PC has been established, the connections are displayed as follows:
   connection active in the foreground
   connection active in the background

3. Click on the connection you want in order to change the display.

▶ Both connections remain active.

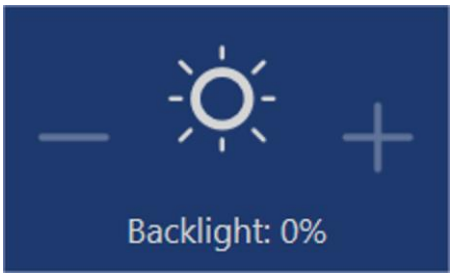
Remote connection does not start

If no connection has been established, the symbol changes to ⊗. The system will issue an error message. Make a note of its contents as they will be needed to fix the problem.

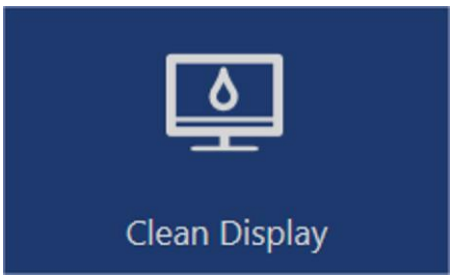
- Get in touch with an Admin or an Engineer to have the problem fixed.
- Inform them of the contents of the error message.

4.4 Using the dashboard settings

Button to start touchscreen calibration. If two touchscreens are connected you can calibrate them separately.



Button to adjust the display backlight.



Button to deactivate the display touch function for 30 seconds Buttons can then not be inadvertently activated during cleaning.

Button to simulate a right mouse click on the touchscreen, for example to call up the context menu of applications.

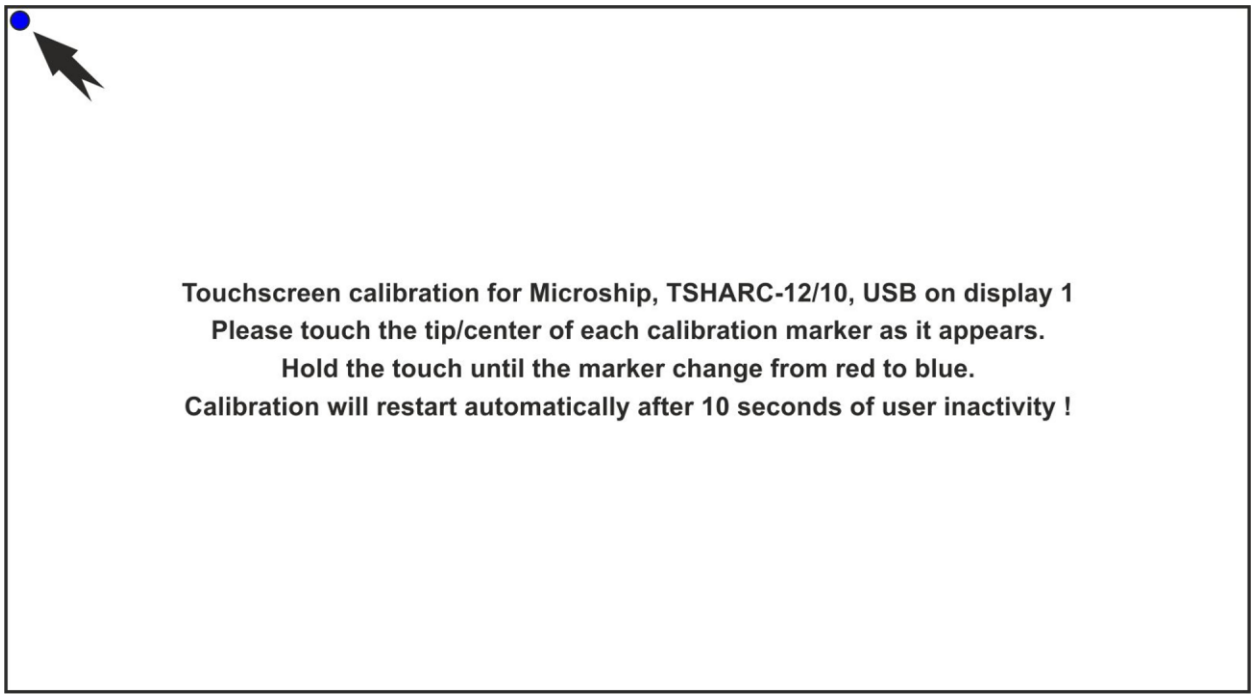
Use this button to establish a network connection via a wireless router.

4.4.1 Calibrate the touchscreen

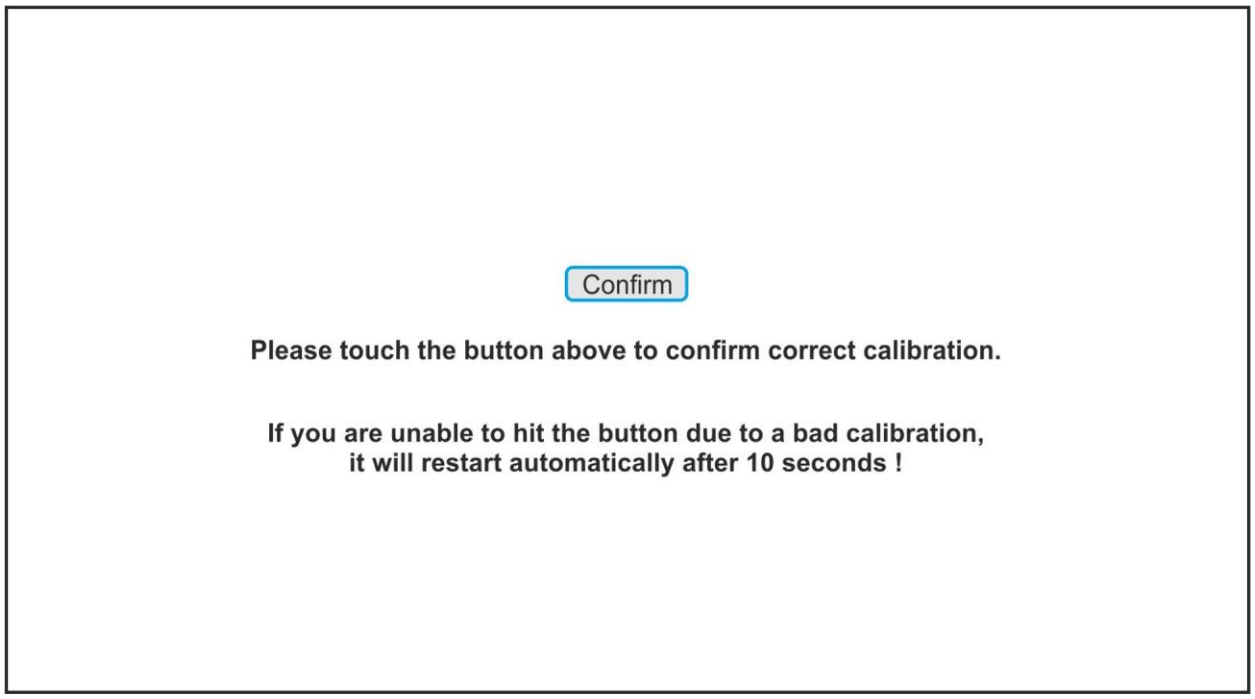
The touchscreen is calibrated via specific calibration points (top left, centre left, bottom left, top centre, centre centre, bottom centre, top right, centre right, bottom right). These are shown one after the other during calibration.

Calibrating a touchscreen

1. Tap on **Calibrate Touchscreen** to start the calibration process.
   The display becomes monochrome and the first calibration point pops up.



1. Tap on this calibration point and keep it pressed until its colour turns from blue to red and back to blue again (visual feedback).
   The next calibration point pops up.
2. Repeat step one for every calibration point. Make sure you hit the points exactly.
   After the last calibration point has been dealt with, the following message will pop up:
   Please touch the button above to confirm correct calibration.



1. Confirm the calibration by tapping on **Confirm**.

▶ Once the touchscreen has been calibrated, the display returns to the RemoteHMI menu.

	If the calibration has not been performed correctly it cannot be confirmed. The calibration process will re-start automatically after 10 seconds.

If two touchscreens are connected, the button is split. You can calibrate each touchscreen separately.

1. The left hand side of the **Calibrate Touchscreen 1** button starts the calibration of the first touchscreen.
2. The right hand side of the **Calibrate Touchscreen 2** button starts the calibration of the second touchscreen.

4.4.2 Adjusting display brightness

	To increase the service life of the backlight we recommend you activate the **Backlight Auto Dimming.** function (see 8.6 Display settings).

- Tap on **+** to increase display brightness.
- Tap on **-** to reduce display brightness.

4.4.3 Opening the context menu at the touchscreen

Tapping on the touchscreen simulates a click with the left mouse key. If you want to open the context menu of applications you have to simulate a right mouse key click.

Right mouse click deactivated

Right mouse click activated

Calling up the context menu of an application

1. Tap on **Touchscreen Rightclick** to activate the functions of the right mouse key.
2. Place your finger or pen on the position where you want to click with the right mouse key. A circle appears around the point of touch.
3. Keep your finger or pen on the screen until the circle is complete.
4. Remove your finger or pen once the circle is closed.

▶ The context menu pops up.

If no context menu pops up, no context menu is available for the position you clicked on.
If you remove your finger or pen before the circle has closed the right mouse key click is aborted.

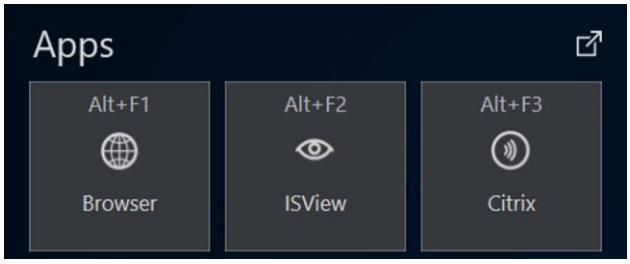
4.4.4 Cleaning the touchscreen

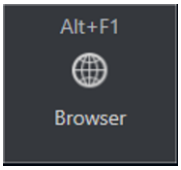
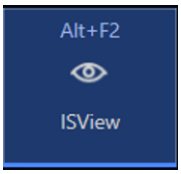
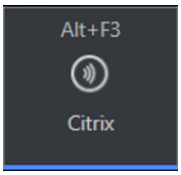
- Tap on **Clean Display** to deactivate the touch functions for 30 seconds.
- Clean the touchscreen.

4.5 Starting applications

Pro	Requires a Pro licence.

Applications can only be used with a firmware Pro licence.
Once applications (apps) have been set up, they are shown as buttons. More than one app can be started. The status of the app is shown.



Indicator	Meaning
	inactive app
	active app
	app running in the background

Using an app

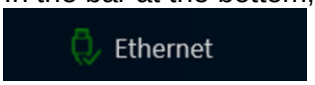
1. In the **Dashboard** click on the app you want to use.
2. If a hotkey or function key has been allocated to the button you can also start the app via the keyboard.

▶ The app is started.

	If you lack the required access authority for the app, contact your administrator.

4.6 Accessing information on the status of the Ethernet connection

Accessing information on the status of the Ethernet connection

1. Open the **Dashboard**.
2. In the bar at the bottom, click on the button for the Ethernet connection.
   

   The status information will be displayed.
3. Alternatively, use » to open the **expanded dashboard**.
   All system information will be displayed on the right hand side.

4.7 Using the multi-display mode

If two displays are connected to the Thin Client, the following types of display are possible:

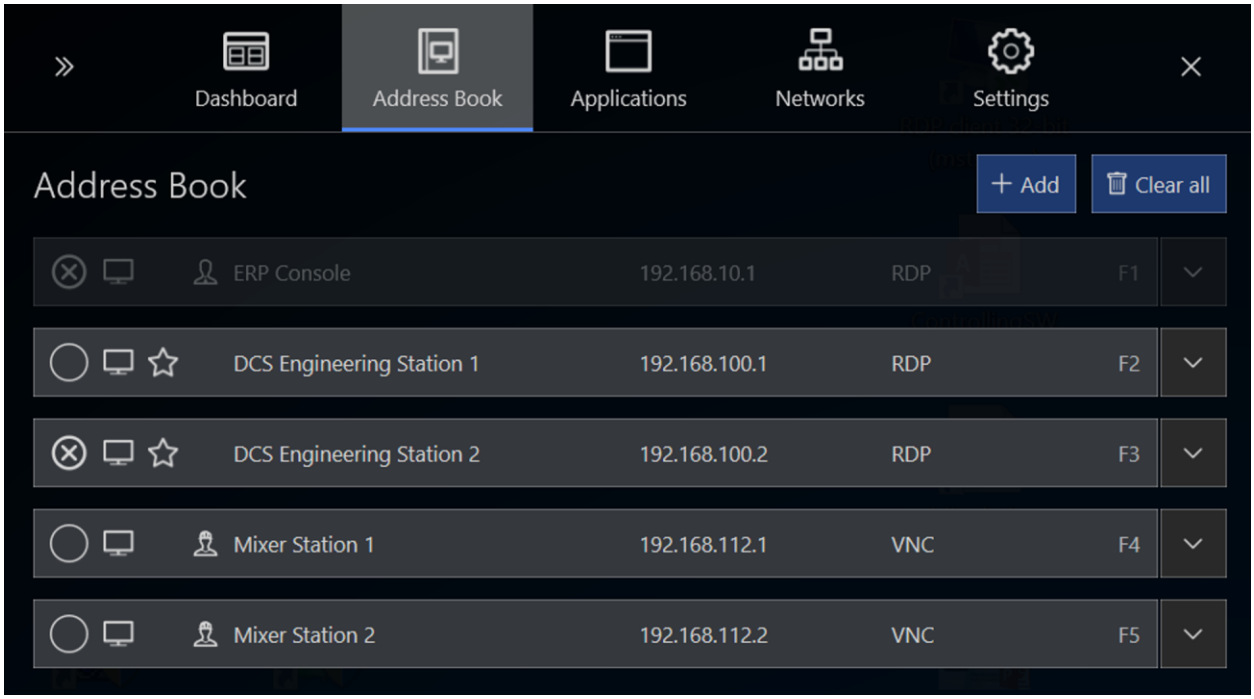
- Both displays show the same content.
- The two displays show different content. What is shown on the main display is expanded by the second display.

5 Address book

The **Address Book** register can be used to call up or manage configured remote connections or create new remote connections.

5.1 Address book options

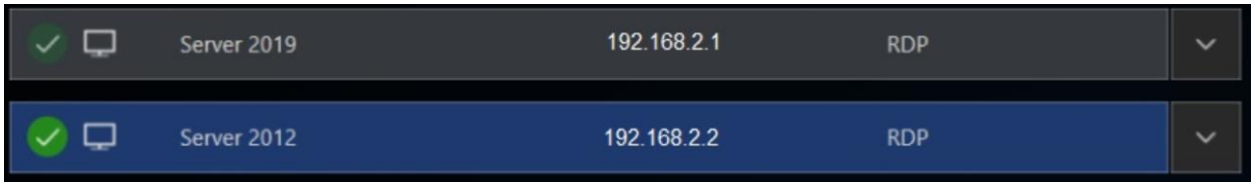
The **Address Book** register lists all configured remote connections.



	If a connection in the address book is greyed out, the user's authority level is too low to access it.

Pro	The simultaneous use of multiple remote connections (multi-session connection) requires the Pro licence and must be activated in the **Connections** menu.

If the parallel use of several remote connections has been activated, the connections will be displayed as follows:



Status of the remote connection

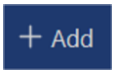
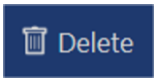
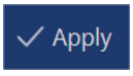
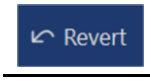
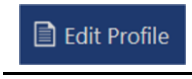
Symbol	Meaning
	connected
	not connected
	connection not possible
	Default, will be connected automatically during start-up
	connected, parallel remote connection, active in the background (multi-session connections require a Pro licence)
	Auto-Reconnect

Navigation elements

	opens an item in the list
	closes an item in the list

Address book functions

Which edit functions or buttons are available depends on the sub-menu.

	Add	Adds a new entry.
	Clear all	Deletes all entries in the list
	Edit	Opens the highlighted entry for editing
	Copy	Copies the highlighted entry and opens the copy for editing
	Delete	Deletes the highlighted entry
	Manage	Navigates back to the list level
	Apply	Applies input
	Undo	Discards input
	Up	Moves the highlighted entry one place up in the list
	Downwards	Moves the highlighted entry one place down in the list
	Edit profile	Opens the dialogue for editing the remote profile

Hotkey for calling up remote connections
You can call up the remote connection via the keyboard if you have specified a hotkey under the **Hotkey** menu item. Three keys can be used.

First key	Second key	Third key
[Shift]	[Ctrl]	none
[Ctrl]	[Alt]	[F1] ... [F12]

The Ctrl key must not be selected twice.

5.2 Set-up of remote connections

Automatic logon at the server
The automatic logon at the server can be configured in the settings of the remote connection. For this you need the user ID and the password for the server.

Only users with authority for remote access to the server can log on to the server. Check the user authority at the server or the KVM box.

Display position of the remote connection
The following display options are available:

Symbol	Designation	Meaning
	Full display	shows the full screen
	Left display half	Scales the remote screen content and displays it on the left hand side
	Right display half	Scales the remote screen content and displays it on the right hand side
	Upper display half	Scales the remote screen content and displays it at the top half
	Lower display half	Scales the remote screen content and displays it at the bottom half
	Bottom left corner	Scales the remote screen content and displays it in the bottom left corner
	Bottom right corner	Scales the remote screen content and displays it in the bottom right corner
	Top left corner	Scales the remote screen content and displays it in the top left corner
	Top right corner	Scales the remote screen content and displays it in the top right corner

	Picture in picture	Scales the screen content of a camera and displays it always in the foreground at a free position. This option is only available for camera images.

Behaviour of firmware when connection is lost

You can configure how the remote connection behaves during a system startup or when it is lost, as follows:

Auto connect on system startup	 On	Automatically establishes a connection during system startup, is represented by the  symbol in the address book entry
	 Off	During a system startup the dial-up must be started manually
Auto reconnect on connection loss	 On	Automatically reconnects after the connection has been lost. Is represented by the  symbol in the address book
	 Off	After the connection has been lost, the dial-up must be started automatically

For Pro licence users

Pro	The system allows parallel use of several active remote connections (multi-session connections). Whilst one remote connection is displayed on the screen, the other connection stays active in the background. These connections are marked as follows in the address book:  connection active in the foreground  connection active in the background

Activate the parallel use of several remote connections in the **Settings** menu, under **Connections**. See also:

- 8.10.1 Allowing multiple simultaneous connections

5.2.1 Set-up of RDP connections

You will need the IP address or the name of the server for the configuration. These are stored in the system properties of the server.

	For RDP connections, remote access must be explicitly permitted in the server's system properties. The remote access must be configured for the user.

1. Open the **Address Book** register.
2. Click on + *Add*.
   A new address book entry is created.
3. Click on *Edit*.
4. In the **Connection Settings** select "VNC" from the **Type** drop-down field.
5. Enter the name of the connection in the **Name** field.

6. Enter the IP address of the server in the **Server Address** field.
    - NOTE:
      To ensure automatic access to the connected server you have to enter the correct logon data. Please note that a domain name may have to be used together with the user name.
7. Enter the logon data of the server in the **User Name** and **Password** fields.
8. If you want to be able to call up the remote connection via the keyboard, use **Hotkey** to specify a hotkey.
9. Go to **Show on** to select the display option.
10. Specify the minimum user role required for the manual set-up of the connection.
    - NOTE:
      If a user does not have the required authority to set up the connection, this connection is greyed out in the address book.
11. Click on *Apply* to set up the connection.

▶ The connection is shown in the address book.

5.2.2 Set-up of the VNC connection

A VNC client is pre-installed on the Thin Client. The VNC service must also be installed on the server. Administrator authority is required on the host PC and the server for the installation.
To set up the connection you require the IP address of the VNC server and, depending on the configuration, the VNC password.

If the port number of the VNC server is different from the standard port, the IP address needs to be extended to include the port number, for example: 192.168.1.23:5901

1. Open the **Address Book** register.
2. Click on *+Add*.
   A new address book entry is created.
3. Click on *Edit*.
4. In the **Connection Settings** select "VNC" from the **Type** drop-down field.
5. Enter the name of the connection in the **Name** field.
6. Enter the IP address of the server in the **Server Address** field.
    - NOTE:
      To ensure automatic access to the connected server you have to enter the correct logon data.
7. Enter the logon data of the server.
8. If you want to be able to call up the remote connection via the keyboard, use **Hotkey** to specify a hotkey.
9. Go to **Show on** to select the display option.
10. Specify the minimum user role required for the manual set-up of the connection.
    - NOTE:
      If a user does not have the required authority to set up the connection, this connection is greyed out in the address book.

11. Click on *Apply* to set up the connection.

▶ The connection is shown in the address book.

5.2.3 Preparation of host for VNC connection

The process varies according to which VNC service is used. For more information, please refer to the documentation provided by the VNC service manufacturer.

NOTICE
This process requires Administrator authorisation.

1. Make sure that the Thin Client can contact the host. If both are part of the same network, this will be the case.
2. Make sure the VNC service is installed and activated on the host (see 9.2 Activating VNC server system on the host).
3. If the network connection is protected via a firewall you need to configure this firewall. Permit network communication via the port where the VNC service is ready to receive (5900 as a standard).
4. If the network connection is protected via a router, you need to configure this router. For the transfer of network communication, specify every configured port where the VNC service is ready to receive (5900 as a standard).
5. Check whether the VNC service is working properly and whether it accepts incoming connections.

▶ The host is ready.

5.2.4 Preparation of Thin Client for the VNC connection

The process varies according to which VNC service is used. For more information, please refer to the documentation provided by the VNC service manufacturer.

NOTICE
This process requires Administrator authorisation.

1. Make sure that the Thin Client can contact the host. If both are part of the same network, this will be the case.
2. If the VNC connection of the Thin Client is protected via a proxy server you have to specify the proxy server in the VNC viewer.

▶ The Thin Client is ready.

5.3 Test of remote connection

Remote connection does not start

If no connection has been established, the symbol changes to ⊗. The system will issue an error message.

- Check whether the settings are correct.

If the host is available, try to narrow down the source of the problem with the following checks:

Check RDP connection

1. Check in the server's system settings whether a RDP connection is permitted.
2. Check whether the Thin Client is listed at the server as a user with the necessary access authorisation.

Check VNC connection

1. Check whether the VNC service is configured correctly.
2. Check whether the port number has been entered correctly.

Check KVM-over-IP connection

1. Check the configuration of the KVM box.
2. Check whether the port number has been entered correctly.

5.4 Managing remote connections

Navigation elements

⌄	opens an item in the list
⌃	closes an item in the list

	In order to edit the settings, the connection must be inactive.

Moving connections in the list

1. Open the entry in the **Address Book** register with ⌄.
2. Click on ↑ to move the entry up one place in the list.
3. Click on ↓ to move the entry down one place in the list.

▶ The connection is moved in the list.

Editing connection settings

1. Deactivate the connection in the **Address Book** register.
2. Open the entry.
3. Click on *Edit* to edit the settings.
4. Change the settings as required.

5. Click on *Apply* to accept the changes.
   Click on *Revert* to discard the changes.
6. Click on *Manage* to edit the list.
   Click on [^] to close the entry and return to the list.

Deleting a connection

1. Deactivate the connection in the **Address Book** register.
2. Open the connection.
3. Click on *Delete* to delete the connection.
4. Confirm the security message.

▶ The connection is deleted.

Copying a connection

1. Deactivate the connection in the **Address Book** register.
2. Open the entry.
3. Click on *Copy* to copy the settings.
   A new entry is created.
4. Open the entry and edit the settings as required.
5. Click on *Apply* to accept the changes.
   Click on *Revert* to discard the changes.
6. Click on *Manage* to edit the list.
   Click on [^] to close the entry and return to the list.

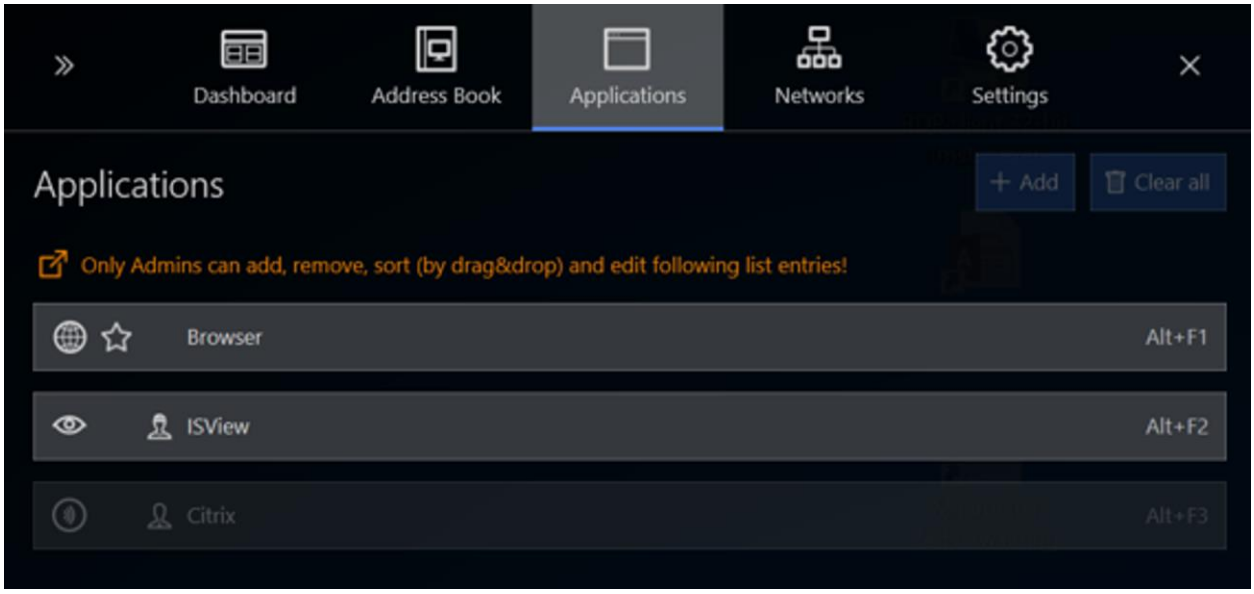
6 App management

Pro	Requires a Pro licence.

The **Applications** register can be used to add and manage links to Windows tools and applications, virus protection software or EXE applications such as the Citrix Receiver. You can configure the display and behaviour of an app with various settings, and manage access via the user roles.
Before you can add an app you need to install it on the Thin Client. The Thin Client has to meet the system requirements of the app.

6.1 Options in the Applications register

The **Applications** register lists all available apps.



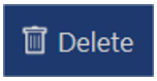
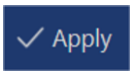
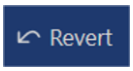
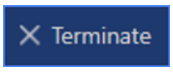
	If a user does not have the required authority to use the app, this app is greyed out in the list.

Symbols in the list of apps
You can freely chose the icons representing the apps in the list. In the interest of user-friendliness we recommend you use commonly used symbols.

Symbols
A selection of icons standing for different types of app.
Engineer, Admin: Defines who is authorised to start the app. If no symbol is shown all user roles are authorised to start the app.
Default, will be connected automatically during start-up

Functions in the Applications register

Which edit functions or buttons are available depends on the sub-menu.

	Add	Adds a new entry.
	Clear all	Deletes all entries in the list
	Edit	Opens the highlighted entry for editing
	Copy	Copies the highlighted entry and opens the copy for editing
	Delete	Deletes the highlighted entry
	Manage	Navigates back to the list level
	Apply	Applies input
	Undo	Discards input
	Up	Moves the highlighted entry one place up in the list
	Downwards	Moves the highlighted entry one place down in the list
	Terminate	Forces the shut-down of an open application with possible loss of data
	Select file	Opens the selection window for executable files

Navigation elements

 opens an item in the list

 closes an item in the list

Hotkey for starting applications

An application can be selected via the keyboard if a hotkey has been created under the **Hotkey** menu item. Three keys can be used.

First key	Second key	Third key
[Shift]	[Ctrl]	none
[Ctrl]	[Alt]	[F1] ... [F12]

The Ctrl key must not be selected twice.

Each hotkey can only be allocated once.

Command line parameters
You can define a command line parameter for each app that allocate application-specific parameters.
Example:
The parameter entry -k www.stahl.de in the browser opens the www.stahl.de website in the kiosk mode.

	Please refer to the description of each application for information on permitted command line parameters.

Application privilege level

Level	Meaning
Run as standard user	Starts the application with standard user authority
Run as administrator user	Starts the application with Administrator authority You can define name and password for the Admin account in the **System & Proxy menu** menu.
Run elevated	Starts the application with extended Administrator authority You can define name and password for the Admin account in the **System & Proxy menu** menu.

6.2 Adding apps

Pro	Requires a Pro licence.

NOTICE

Compatibility with third-party software

The firmware is qualified for software that is included in the delivery of the supported HMI devices. R. STAHL HMI Systems GmbH does not accept any liability for the functionality of third-party software. Before installing software of other providers make sure it is compatible.

Checking system requirements and operability of the application

1. Make sure that the application is compatible.
2. Check whether the system requirements are met.
3. Check wether the application can be installed on the Thin Client. This is done in the Admin role.
4. Check whether the application works smoothly.

▶ If all conditions have been met, the application is compatible and operable.

Adding an app

1. Open the **Applications** register.
2. Click on *+Add*.
   A new entry is created.
3. Open the entry.
4. Go to **Icon** and select a suitable symbol from the drop-down field.
5. Activate **Autostart** if you want the application to start automatically.
6. Enter the name of the application in the **Name** field.
7. If you want to be able to call up the remote connection via the keyboard, use **Hotkey** to specify a hotkey.
8. Enter the file path in the **Path** field or use the *Select File* button to open the Windows Explorer to find the program. Select the program file and confirm the dialogue by clicking on *Open*.
9. If you want to define application-specific parameters, click on **Parameters** to enter a command line parameter. For information on possible parameters please refer to the manual of the application.
10. Click on **Application privilege level** to specify how the application should be started.
11. Activate **Close RemoteHMI menu on app start** if you wish to close the firmware when starting the application.
    - NOTE:
      If the application requires Administrator or extended authority, you can store the login data for the Administrator account under **Use predefined admin login credentials**. You then no longer need to enter the login data when starting the app.
12. Activate **Use predefined admin login credentials** if you want to start the application via the login data of the Thin Client. Enter the user name and the password.
13. Click on **Min user role required to start app manually** to define the lowest required user authority level for starting the application.
    - NOTE:
      If the user is not authorised to start the application manually, it will be greyed out in the Applications register.
14. Click on *Apply* to accept the input.
    The application will be displayed on the dashboard and in the Applications register.
15. Click on *Manage* to move the app in the list.
    Click on [^] to close the entry and return to the list.
16. Check whether the app opens correctly when clicking on the entry.

6.3 Managing apps

Navigation elements

 opens an item in the list

 closes an item in the list

Moving an application in the list

1. Open the entry you want in the **Applications** register by clicking on [].
2. Click on ↑ to move the entry up one place in the list.
3. Click on ↓ to move the entry down one place in the list.

Changing application settings

1. Open the entry you want in the **Applications** register.
2. Click on *Edit* to edit the settings.
3. Make the required changes.
4. Click on *Apply* to accept the changes.
   Click on *Revert* to discard the changes.
5. Click on *Manage* to edit the list.

Copying an application

1. Check the compatibility and ability to run of the application before creating a link to a new application (see 6.2 Adding apps).
2. Open the **Applications** register.
3. Open the entry you want to copy.
4. Click on *Copy* to copy the application's settings.
   A new entry is created.
5. Click on *Select File* and select the program in Windows Explorer.
6. Open the entry and change its settings as described under "Adding apps".
7. Click on *Apply* to apply the changes.
   Click on *Revert* to discard the changes.
8. Click on *Manage* to move the app in the list.
   Click on [] to close the entry and return to the list.

Closing an application

	In general, you should shut down applications properly to prevent any data loss. If you cannot shut down an application in the normal way you can force its termination.

1. Open the entry you want in the **Applications** register.
2. Click on *Terminate* to force the termination of the application.
3. Confirm the security message.

▶ The application is shut down.

Deleting the link to the application

	The *Delete* button only deletes the link to the application and does not de-install the application. You can only de-install the program in the Windows user interface.

1. Open the entry you want in the **Applications** register.
2. Click on *Delete* to delete the link.
3. Confirm the security message.

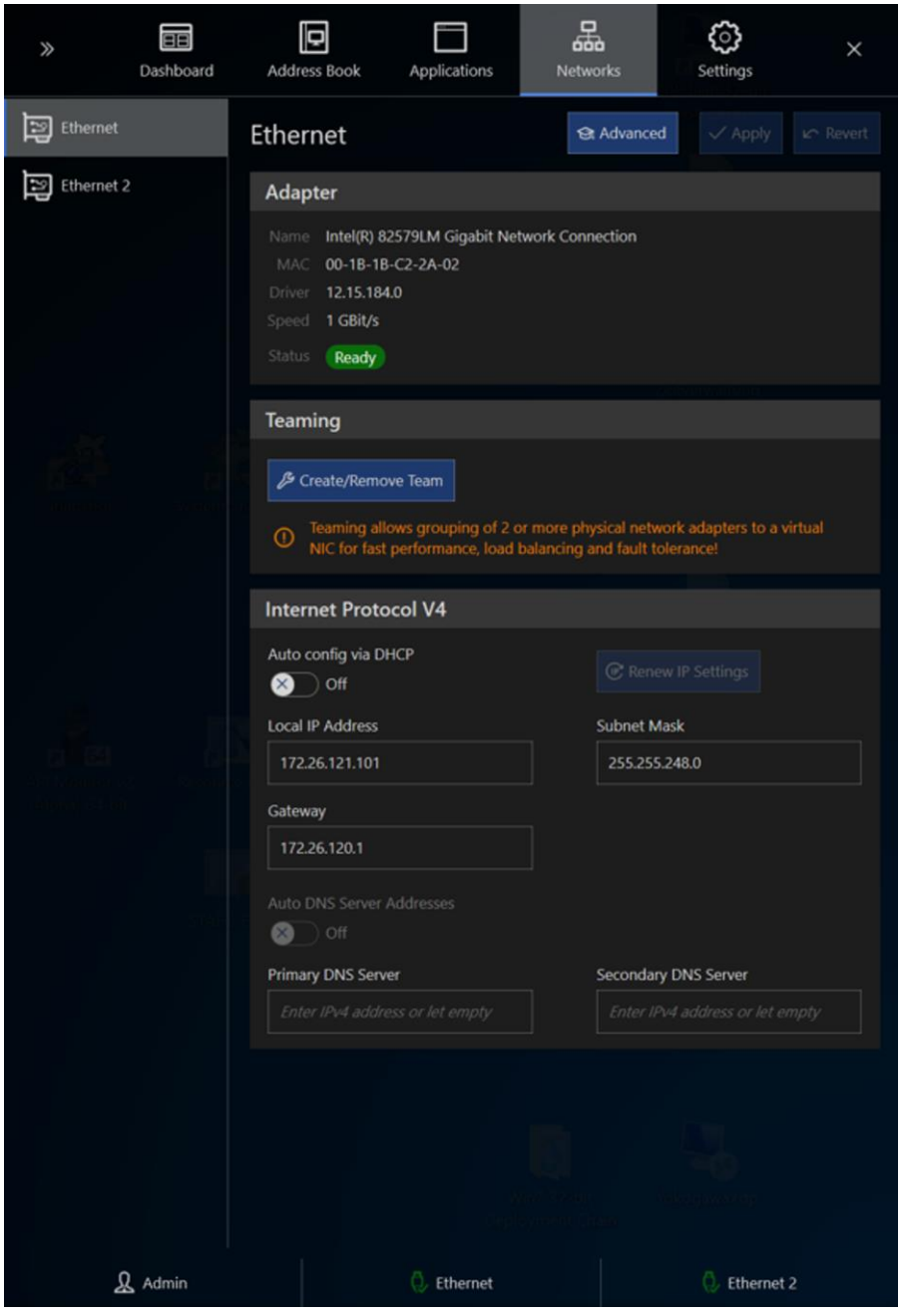
▶ The link to the app is deleted.

7 Network

The **Networks** register can be used to configure the Thin Client for incorporation in the network.
The number and designation of available Ethernet adapters depend on the Thin Client's hardware.

7.1 Options in the Networks register

NOTICE
Requires IT network expertise Settings on the Windows network level can have an impact on the entire network. Only click on the **Advanced** button if you know your way around Windows network settings. If not, ask your network administrator for help.



Buttons in the Networks register

Advanced	Advanced functions	Opens the Windows network settings
Apply	Apply	Applies input
Revert	Undo	Discards input
Create/Remove Team	Create/remove team	Opens the teaming function dialogue
Renew IP Settings	Renew IP settings	Requests renewed IP configuration from the DHCP server

7.2 Adapter information

The **Adaptor** section lists information on the chosen Ethernet adapter.

Name	Name of the Ethernet adapter
MAC	MAC address of the Ethernet adapter
Driver	Version of the adapter driver
Speed	Speed of the Ethernet connection
Status	Status of Ethernet connection

7.3 About DHCP

Dynamic Host Configuration Protocol - DHCP
Address allocation with DHCP works according to the client-server principle. The client requests the IP address configuration from a DHCP server which looks up the requested data in its database.

The DHCP server can allocate the following settings to the Thin Client:
- IP address
- Sub-net mask
- Standard gateway
- DNS server address

Auto config via DHCP
In the case of automatic allocation, the client sends its address request to all network participants. The DHCP server responds with a data package that contains, in addition to a possible free IP address and the client's MAC address, the sub-net mask and the IP address and ID of the server. The client takes the required data from the response and informs the DHCP server. The server confirms the TCP/IP parameters and sends additional information such as the DNS server back to the client. The DHCP server stores the automatically allocated address together with the MAC address in the database. This allocation is permanent.

Further reading:
- 7.5 Set-up of the network adapter

7.4 About DNS

Domain Name System - DNS
DNS is a service that converts domain names into numeric addresses. The basis of the DNS is a system of directories which manages the domain name space. When a new domain is created on the internet for example, a DNS server will store the domain name and the associated IP address. It will use this database to respond to any incoming queries concerning the domain name space.
Two DNS servers can be addressed with the firmware.

Auto DNS Server Addresses
Use this function to automatically address a DNS server, for example if the IP address of the DNS server is not known.

Further reading:
- 7.5 Set-up of the network adapter

7.5 Set-up of the network adapter

As a factory setting, the automatic address allocation **Auto config via DHCP** is activated.

Automatic set-up of the network address
1. Open the **Networks** register.
2. Check whether **Auto config via DHCP** is activated.
3. Click on *Apply* to start the automatic allocation by the DHCP server.

▶ IP address, gateway and subnet mask are configured.

Manual set-up of network address
1. Open the **Networks** register.
2. Deactivate **Auto config via DHCP** to set up the address manually.
3. Enter the IP address of the network adapter under **Local IP address.**
4. Specify the subnet mask under **Subnet Mask.**
5. If you want the Thin Client to access a different network, enter the IP address of the gateway under **Gateway.**
6. Click on *Apply* to accept the changes.

▶ IP address, gateway and subnet mask are configured.

Manual configuration of the DNS server
1. Open the **Networks** register.
2. Enter the IP address of the first DNS server under **Primary DNS Server**.
3. Enter the IP address of the second DNS server under **Secondary DNS Server**.
4. Click on *Apply* to accept the settings.

7.6 Teaming function

The teaming function allows you to:

- use the Ethernet adapter in the team as stand-by adapters to create a redundancy and make the system more fail-safe.
- bundle the speed of the Ethernet adapters in order to increase performance.

The teaming function combines several physical network connections to create one virtual "Network Interface Controller" (NIC).

NOTICE

"Teaming" function

Teaming is an advanced function for the server environment. You can use Teaming to bundle many physical adapters into one team with functions for load sharing and increased reliability.

NOTICE

Requires IT network expertise

This is set up at system level via the "Realtek - Ethernet Diagnostic Utility". Do not execute this function unless:

- You know about virtual network cards
- Both adapters work smoothly

Creating a team

1. Open the **Networks** register.
2. Click on + *Create/Remove Team*.
   The Teaming window will pop up, listing all necessary steps.
3. Wait until the "Realtek Diagnostic Utility" window opens. This may take up to 30 seconds.
4. Highlight the required "PCIe Controller" in the left section.
5. Select "Teaming" in the central section.
6. Select "Create Team" in the right section.
   The "Create Team" window will pop up.
7. Enter a name for the team which will later appear in the list of Ethernet adapters.
   - NOTE:
     You can only activate one of the following functions:
     "Fast/Giga EtherChannel"
     "Link Aggregation / LACP"
8. Activate "Fast/Giga EtherChannel" to switch to the second adapter if the first one fails.
9. Activate "Link Aggregation / LACP" to increase bandwidth by using both adapters simultaneously.
10. Select the physical network adapters which you want to combine as a team.
11. Confirm the selection with "OK".
    The new virtual adapter is shown in the "Realtek Diagnostic Utility" window in the left section.

12. Highlight the team and check the settings in the right section.
13. Close the "Realtek Diagnostic Utility" window.
14. Return to the firmware and restart the system.

▶ The virtual adapter will be shown in the **Networks** register.

Remove Team

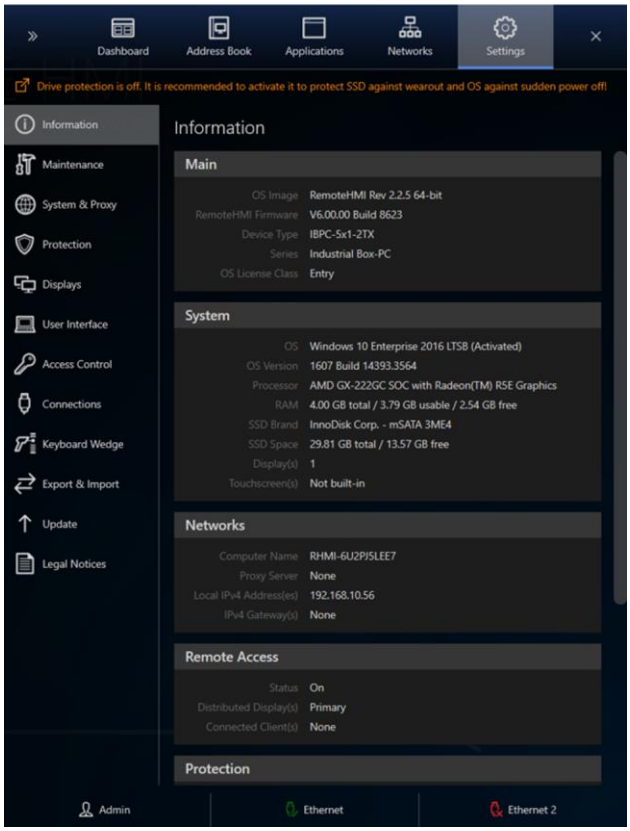
1. Open the **Networks** register.
2. Click on + *Create/Remove Team*.
   The Teaming window will pop up, listing all necessary steps.
3. Wait until the "Realtek Diagnostic Utility" window opens. This may take up to 30 seconds.
4. Highlight the virtual adapter in the left section.
5. Open the context menu and select "Remove".
6. Confirm the warning with "OK".
   The virtual adapter is removed.
7. Return to the firmware and restart the system.

▶ The virtual adapter is removed from the **Networks** register.

8 Settings

The **Settings** register contains many functions with which the Engineer or Admin can configure the firmware.

8.1 Options in the Settings register



The **Settings** register contains the following menus:

Menu	Contents	Authorised user
Information	Current system data, settings and configurations The menu contents vary depending on the device platform.	
Maintenance	Functions required for the maintenance of the Thin Client. Allows addition of third-party software and drivers. Activation of Pro licence and Windows LTSB	Admin
System & Proxy menu	Settings concerning device name (in the network) and proxy server	Engineer / Admin
Protection	Settings concerning system security	Engineer / Admin
Displays	Settings for up to 6 displays	Engineer / Admin
User Interface	Behaviour of RemoteHMI menu	Admin
Access Control	Setting up of protected user roles	Admin
Connections	Settings of connection options	Engineer / Admin

Keyboard Wedge	Setting up the COM interfaces for external scanners or readers	Engineer / Admin
Import & Export	Functions for the export and import of the device configuration	Engineer / Admin
Updates	Firmware updates	Admin
Legal Notice	Information on licence terms and conditions for the software used on the Thin Client	

Accept or discard settings

1. Click on *Apply* to accept the settings.
2. Click on *Revert* to discard the changes.

8.2 Display of system information

The **Information** menu lists the current system data, settings and configurations. The menu contents vary depending on the device platform.

Menu	Contents
Main	Essential system information, OS image and firmware version
System	Information on hardware and operating system This varies depending on the device type.
Network	Information on computer name and addresses of the proxy server, the device and the gateway
Remote Access	Information on the status of the remote connections
Protection	Up-to-date information on system security
Components	List of components
Serial Numbers	Serial numbers of the HMI, Electronic Box and Display Box.

8.3 Maintenance

Use the **Maintenance** menu to carry out operations at the Windows system level.

- 8.3.1 Change to Admin account of Windows user interface
- 8.3.2 System restart
- 8.3.3 System shutdown
- 8.3.4 Advanced Startup
- 8.3.5 Settings reset
- 8.3.6 Pairing or adding a peripheral device
- 8.3.7 Calling up the event log
- 8.3.8 Activating the Pro Licence
- 8.3.9 Activating Windows (via Internet or telephone)

Functions in the Maintenance menu

Main		
Maintain System	System maintenance	Permits log-in to the Administrator account via the regular Windows user interface
Restart System	System restart	Restarts the system
Shutdown System	System shutdown	Shuts down the system
Reset all Settings	Reset all settings	Reverts device to factory settings
Device		
Add/Pair Device	Adding / pairing a device	Opens Windows system control to add peripheral devices or to pair Bluetooth devices with the Thin Client
Edit pointing device	Edit mouse	Opens the mouse system properties at the Thin Client
Event log		
View Event Log	Open event log	Opens the event log Viewer of the Thin Client
Pro Edition License Activation		
Activate Pro License	Activates Pro Licence	Activates Pro Licence online (requires Thin Client with internet access)
Apply Pro License	Applies Pro Licence	Activates single Pro Licence offline (requires PC/terminal device with internet access)
Windows Activation (only shown if Windows LTSB not activated)		
Activate over Internet	Activate via internet	Activates Windows LTSB (requires Thin Client with internet access)
Activate by phone	Activate via phone	Opens telephone dialogue for activation of Windows LTSB

8.3.1 Change to Admin account of Windows user interface

Enables you to perform system maintenance in the Administrator account and install applications on the Thin Client, for example.

NOTICE

Requires IT network expertise

Settings at system level may cause the device to malfunction. Only change to the system level if you are familiar with advanced settings. If not, ask your network administrator for help.

1. Open the **Maintenance** menu.
2. In the **Main** window, click on *Maintain System*.
   A safety check will pop up.
3. Confirm with *Yes*.
   The system changes to the login window, allowing you to log in to the Administrator account of the regular Windows user interface.
4. Make the required system changes.

▶ Usually, a system restart is required to apply the changes.

8.3.2 System restart

1. Open the **Maintenance** menu.
2. In the **Main** window, click on *Restart System*.
   A safety check will pop up.
3. Confirm with *Yes*.

▶ The system restarts.

8.3.3 System shutdown

Certain changes to the firmware require a Thin Client restart.

1. Open the **Maintenance** menu.
2. In the **Main** window, click on *Shutdown System*.
   A safety check will pop up.
3. Confirm with *Yes*.

▶ The system shuts down.

8.3.4 Advanced Startup

"Advanced Startup" is a special menu containing additional options for error fixing and maintenance of the operating system. It features various tools and modes for troubleshooting, carrying out diagnostics or configuring the system. Below is a list of the main functions and options available with "Advanced Startup":

1. **Access to advanced repair and restore options**
- **Restoring system**: restores system to a previous status without deleting personal data.
- **Restore system image**: restores system from a previous image (backup).

2. **Troubleshooting**
- **Settings reset**: use to reset Windows to factory settings, with optional retaining of personal data
- **Input request**: opens a command line for advanced diagnostics and repairs
- **Start repair**: fixes common problems that prevent the start of Windows
- **Change start settings**: lets you boot in secure mode or deactivate advanced driver options.

3. **Boot options**
- **Show boot manager**: choose between different installed operating systems
- **Start from a different device**: lets you boot from a CD/DVD, a USB stick or from the network.

4. **Adjust driver and settings**
- **Deactivate driver signature check**: useful for installing non-signature drivers
- **Deactivate forced new starts in case of errors**: lets you display bluescreen errors (BSOD).

5. **UEFI/BIOS options**
- **UEFI firmware settings**: allows access to BIOS / UEFI settings, for example to activate secure boot or change the boot sequence

8.3.5 Settings reset

You can reset the firmware settings to their factory state.

A reset means:
- Address book entries are deleted
- The application list is deleted
- Network configuration is reset to "automatic"

The following settings will not be reset:
- Keyboard layout
- Windows text and element size
- Computer Name

You can use the Export function to save the address book entries, the application list and network settings separately. Then use the Import function to restore the intact settings (see 8.11 Import and Export).

NOTICE

Requires IT network expertise

Only carry out a reset if you are familiar with the configuration of the Thin Client.

1. Open the **Maintenance** menu.
2. In the **Main** window, click on *Reset all Settings*.
   A safety check will pop up.
3. Confirm with *Yes*.

▶ The system is reset to its factory state.

8.3.6 Pairing or adding a peripheral device

Use this dialogue to pair or add peripheral devices such as USB or Bluetooth devices.

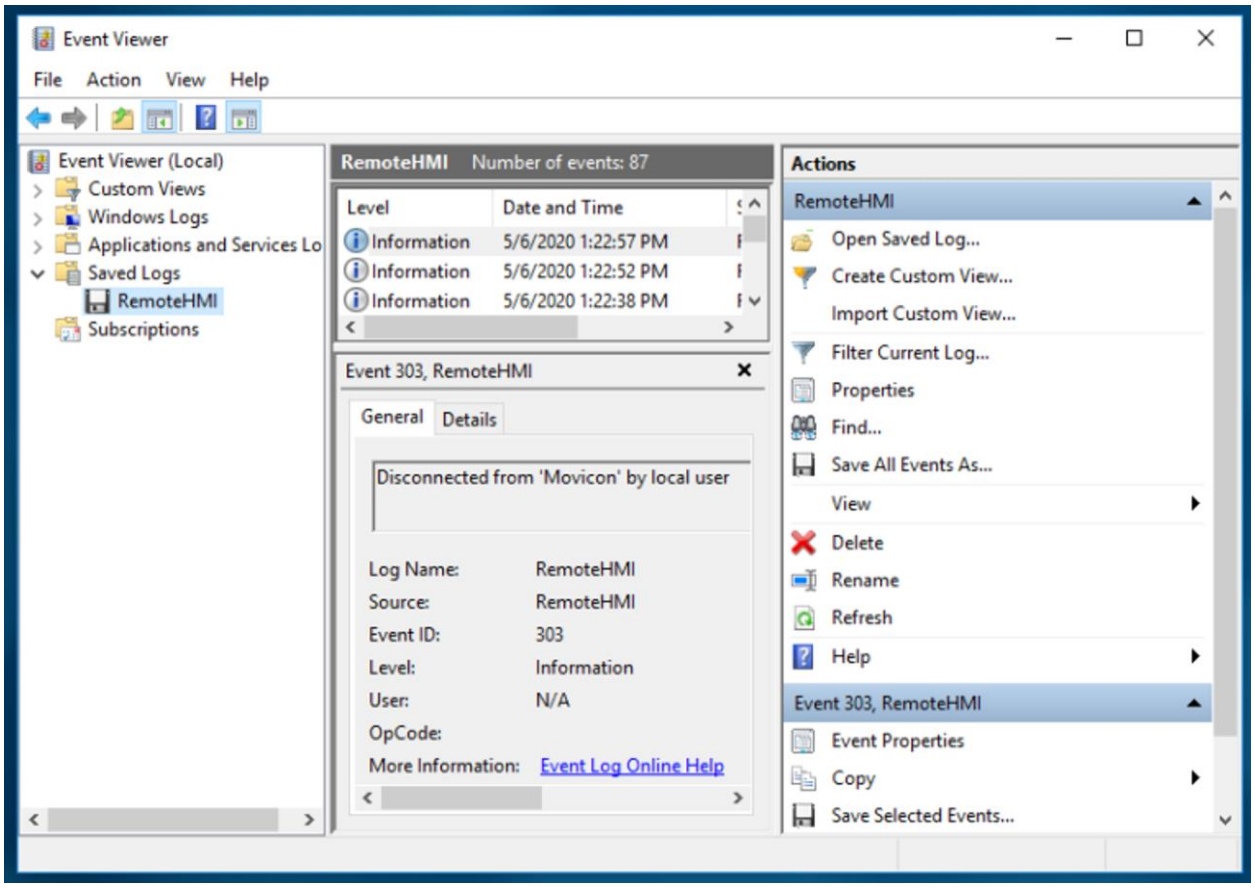
1. Open the **Maintenance** menu.
2. Connect the new device to the Thin Client
3. In the **Device** window, click on *Add/Pair Device*.
   The system will change to the **Control Panel/Hardware and Sound/Devices and Printers** window.
4. Add a new device with *Add a device* .
5. The system dialogue for adding a device will start.
6. Choose the device type.
7. Follow the instructions of the system dialogue.
8. The device is ready to be used once the device drivers have been installed and the device has been configured.
9. Test whether the device is working properly.

8.3.7 Calling up the event log

Opening the event log

1. Open the **Maintenance** menu.
2. In the **Event log** window, click on *View Event Log*.
   The system will change to the "Event Viewer" at the system level.

	It may take a while for all of the recent events to be listed. Wait until the list is complete.



- ▶ You can find all events on the list.

8.3.8 Activating the Pro Licence

	The UWF filter must be deactivated before you can carry out this process.

Pro	If the Thin Client has internet access, you can activate the Pro Licence online via the firmware. If not, you need to request the activation code from remotehmi-licensing.stahl.de.

Activating the licence online via internet access

1. Open the **Maintenance** menu.
2. Make sure the Thin Client has internet access.
3. In the **Pro Edition License Activation** menu, activate the **Online** function.
4. Enter the licence key you received in the **Product key** field.
5. Enter the company name in the **Company Name** field.
6. Enter the licence holder name in the **Name** field.
7. Enter the e-mail address of the licence holder in the **Email Address** field.
8. Click on *Activate Pro License*.
   The system will issue a message.
   If the activation has been successful, the **Pro Edition License Activation** section will be hidden.

Activating the licence offline

Pro	In order to activate the licence you will need the device's installation ID and the product key (licence key). You will also need a device with internet access.

1. Open the **Maintenance** menu.
2. In the **Pro Edition License Activation** menu, activate the **Offline** function
3. In the browser, go to the following website: remotehmi-licensing.stahl.de.
4. Go to page **License Activation**.

5. Fill in the form and request the activation code.

   - NOTE:
     You will receive an e-mail with the activation code to the e-mail address specified in the form. This may take up to five minutes. If you receive no such e-mail, please check your spam folder.

6. In the **Maintenance** menu, enter the product key in the **Product key** and the activation code in the **Activation Code** field.
7. Click on *Apply Pro License*.
   The system will issue a message.
   If the activation has been successful, the **Pro Edition License Activation** section will be hidden.

8.3.9 Activating Windows

	The UWF filter must be deactivated before you can carry out this process.

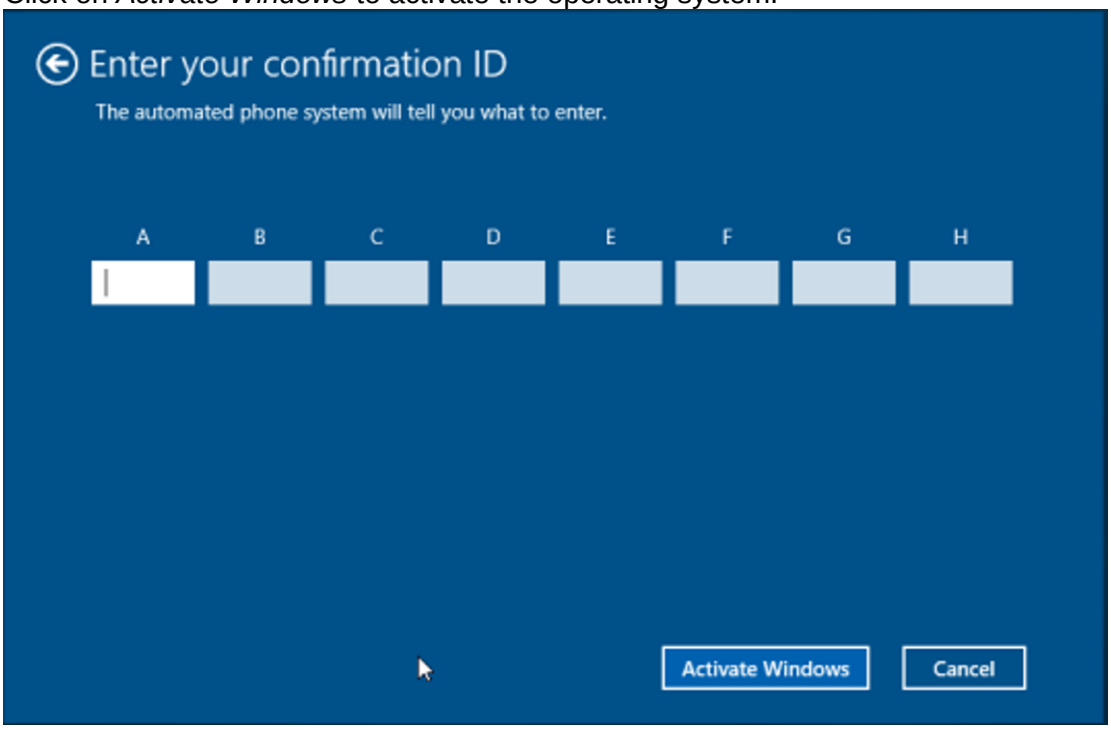
The Windows 10 IoT Enterprise LTSC operating system is pre-installed on delivery. If Windows 10 IoT Enterprise LTSC is deactivated after a system reset for example, you can re-activate it via telephone or internet access. A system dialogue will guide you through the re-activation via telephone.

Activating the operating system via telephone

	Activation is carried out via Microsoft's telephone service.

1. Open the **Maintenance** menu.
2. In the **Windows Activation** window, click on *Activate by phone*.
   The Windows activation system dialogue will start.
3. Select your country or region in the **Select your country or region** window.
4. Click on *Next* to navigate to the **Call and provide your installation ID** window.
5. Dial the telephone number given and follow the instructions given in the telephone dialogue.
6. Click on *Next* to navigate to the **Enter your confirmation ID** window.

7. Enter your confirmation ID.
8. Click on *Activate Windows* to activate the operating system.



The system will issue a message.
If the activation has been successful, the **Windows Activation** section will be hidden.

- The **Information** menu lists the activated operating system under **System.**

Activating the operating system via an internet connection

	The Thin Client needs to have internet access.

1. Open the **Maintenance** menu.
2. In the **Windows Activation** window, click on *Activate over Internet*.
   This process may take up to one minute.
3. Wait until the system issues a message.
   If the activation has been successful, the **Windows Activation** section will be hidden.

- The **Information** menu lists the activated operating system under **System.**

8.4 System and proxy settings

The **System & Proxy menu** has the following options:

- 8.4.1 Change computer name
- 8.4.4 Change the proxy server settings for VNC und Remote HMI Device Manager (RDM)
- 8.4.5 Configuration of the remote access
- 8.4.6 Save login data for the Admin account

Accept or discard settings

1. Click on *Apply* to accept the settings.
2. Click on *Revert* to discard the changes.

8.4.1 Change computer name

The Thin Client can be addressed via the IP address or the computer name in the network. The computer name can be used for remote access to the Thin Client via VNC, for example. The computer name should therefore be unique in the network.

1. Enter the name in the **Computer Name** field.
    - NOTE:
      It might make sense in large networks to enter a description too, in order to be able to identify the device faster.
2. Enter an informative description of the device in the **Description** field.

8.4.2 Changing date, time and number format

Use this option to change the formats of date and time.

8.4.3 Power consumption

The operating system can manage power consumption on a system-wide basis. The system will shut down and resume quickly, and wake up when required.

8.4.4 Change the proxy server settings

Use the proxy server to control and limit access to internet resources, for example. The client request is forwarded to the target server with the IP address of the proxy server.

Using a proxy server

1. Identify the IP address or the network name of the proxy server.
2. Activate the **Use a Proxy Server** function.
3. Enter the IP address or the network name of the proxy server.

Don't use a proxy server

1. Deactivate the **Use a Proxy Server** function.

8.4.5 Configuration of the remote access

Configuration of remote access to the Thin Client via VNC and RDM

1. Activate **Allow configuration export/import via RemoteHMI Device Manager** to allow the export and import of the Thin Client configuration via the RemoteHMI Device Manager.
2. Activate **Allow remote access via VNC** to allow the VNC remote access to the Thin Client.
3. Specify a password for remote access.
4. As an option, specify a password for read-only remote access.
5. Click on *Advanced VNC Server Config* if you need to change the VNC settings.
6. Click on **Input blocking during remote access** to define access behaviour during a remote connection.
7. Activate **Off** to allow local and remote operation during remote access.
8. Activate **Local** to block local operation of the Thin Client during remote access.
9. Activate **Remote on local activity, inactivity timeout = 3 sec** to block the remote operation via local operation during remote access.
   This block is removed if no local operation occurs during a specified idle period. The factory setting for this idle period is 3 seconds. This can be adjusted.
10. To adjust the idle period, click on *Advanced VNC Server Config*.

8.4.6 Saving login data for the Admin account

You can save login data for access to the Windows Administrator account under **Windows Admin Account Login Credentials.** The login data is needed to start applications via the firmware that require Administrator or other elevated rights.

If you save the login data,
- you no longer need to enter the data every time you start the app
- users who do not know the login data can start the app

1. Enter the login data of the Windows admin account in the **Name** and **Password** fields.

8.5 Protection

Use the **Protection** menu for the following options:

Accept or discard settings

1. Click on *Apply* to accept the settings.
2. Click on *Revert* to discard the changes.

8.5.1 Activating firewall and virus protection

We recommend you activate the Windows firewall and the virus protection and allow all necessary security updates. In its factory state, these functions are activated.

Activating Windows security

	The Thin Client must be connected to the internet for the automatic download of security updates. If this function is deactivated, you have to manually keep up with, acquire and implement updates at the system level.

1. Activate the **Windows Firewall**.
2. Activate the **Windows Defender**
3. Activate the **Windows Security Updates** to allow the installation of security updates.

8.5.2 Activating write protection for the SSD

The Unified Write Filter (UWF) is a write protection for the SSD and can be activated in the **Protection** menu. Use the UWF to protect the SSD from accidental writing. It transfers all write access to an overlay buffer in the RAM.
This prevents premature wear of the SSD and a corruption of system files after a sudden network failure. Also, viruses and Trojans are not permanently stored in the system, since all changes stored in the overlay buffer are deleted when the device is switched off.

NOTICE
Requires system re-start For the memory protection (UWF) to be activated the system needs to be restarted.

Activating the data memory protection

1. In the **Protection** menu, activate the **Drive Protection (UWF)**.
2. Confirm the request for a restart.

▶ After the restart, the data memory protection is activated.

8.5.3 Activating the USB lockdown

Depending on your security concept, you can block the use of USB devices or permit the use of connected USB devices in the **Protection** menu. You can allow the use of other devices can via the Teach-In function.

Blocking the use of USB mass storage devices

1. Under USB Lockdown, activate the **Block USB mass storage devices only**.
2. Confirm your selection with *Apply*.
   All USB storage devices are blocked.

Blocking the use of new USB devices

Use this function to block all USB devices that are not or have never been connected to the Thin Client.

1. Open the **Protection** menu.
2. Under USB Lockdown, activate the **Block access to USB devices**.
3. Activate **Block new USB devices only**.
4. Confirm your selection with *Apply*.
   The specifications of the connected USB devices will be saved.

▶ New USB devices are blocked.

Allowing the use of connected USB devices

1. Under USB Lockdown, activate the **Block access to USB devices**.
2. Connect the USB devices you want to permit.
3. Activate **Block all USB devices except connected**.
4. Confirm your selection with *Apply*.
   The specifications of the connected USB devices will be saved.

▶ All registered USB devices are cleared for use.

Clearing further USB devices for use (Teach-In)

1. Under USB Lockdown, activate the **Block all USB devices except connected**.
2. Deactivate **Block access to USB devices**.
3. If applicable, remove already connected USB devices and connect the new ones.
4. Activate **Block new USB devices only**.
5. Repeat steps 2 to 4 to add more devices.
6. When you have added all devices, click on *Apply*.

▶ All registered USB devices are cleared for use.

8.5.4 Configuration of system behaviour during restart

The HORM function (Hibernate Once Resume Many) allows for a fast start of the Thin Client from a fixed system image (snapshot). After the start, the system is in exactly the same state as when the last HORM snapshot was taken. This means that applications running in the Pro version do not have to be restarted, but are available right away.

NOTICE
Requires backup of device configuration Taking a snapshot (image of main memory) requires a system restart. • Back up your device configuration so you won't lose any data (see 8.11 Import and Export).

Taking a snapshot of the main memory

1. Activate memory protection under **Drive Protection (UWF)**.
2. Activate the **Resume System from same snapshot on every device startup** function.
3. Confirm your selection with *Apply*.
4. Confirm the request for a restart.
5. Click on *Snapshot*to create an image of the main memory.
6. Confirm the request for a restart to create the snapshot and restart the system.

	The restart may take some time. If the system does not start properly, you can use the "Recovery Stick" to return it to its factory state. The stick is part of the delivery. Depending on the recovery stick you can also save the device configuration as a backup.

8.6 Display settings

Use the **Display** menu for the following options:

- 8.6.1 Adjusting display settings
- 8.6.2 Adjusting multi-display settings

The following parameters are available to adjust the screen display:

- **Resolution**: resolution and orientation
- **Multi Display**: order (topology) and main display (if more than one display is connected)
- **Scaling**: scaling
- **Windows Text and Items**: size of text and image elements for Windows applications
- **Screen Saver**: screen saver
- **Backlight Auto Dimming**: automatic dimming of backlight (for a touchscreen)

Accept or discard settings

1. Click on *Apply* to accept the settings.
2. Click on *Revert* to discard the changes.

8.6.1 Adjusting display settings

Adjusting resolution

1. Go to **Resolution** and select the resolution of connected displays (6 max.)
2. Activate **Portrait Mode** to display screen content in portrait mode.

Adjusting scaling

1. Activate **Always stretch to fullscreen** to always display screen content in full screen mode.
   This function may result in a distorted display.
2. Activate **Maintain aspect ratio** to maintain the aspect ratio of the screen content.

Changing Windows text and element size

	The settings are only valid for local applications and RDP connections with Windows 10/Server 2012. A greater size makes the touch screen easier to operate. Values of over 100% may result in a faulty display of local apps and apps executed via RDP.

- Select the desired size of Windows elements. We recommend 125%.
- If local apps and those executed via RDP are displayed incorrectly, reduce the value to 100%.

Activating the screen saver

1. Activate the screen saver under **Screen Saver**.
2. Click on **After user inactivity of** and specify the period of inactivity after which the screen saver should be activated (1 to 60 minutes)
3. Click on *Advanced* to open the screen saver settings.
4. Select a screen saver and confirm your selection.
5. Open the **Display** menu.

▶ The screen saver starts after a period of inactivity greater than the one specified.

Automatic dimming of backlight

	To increase the service life of the backlight we recommend you activate the **Backlight Auto Dimming** function.

1. Activate the automatic backlight dimming under **Backlight Auto Dimming**.
2. Click on **After user inactivity of** and specify the period of inactivity after which the dimming function should be activated (1 to 60 minutes)
3. Click on **to brightness level** and specify the level to which the backlight should be dimmed (1% to 80%).

▶ The backlight is dimmed to this level after a period of inactivity greater than the one specified.

8.6.2 Adjusting multi-display settings

You can adjust the resolution and orientation for each display. You can also specify the order (topology) and the main screen.

	The name of the displays used in the firmware is that of the port at which the display is connected.

Adjusting the display order

1. Select the resolution of each display in the **Topology** field.
2. Activate the **Clone** function if you want to display the screen contents on both displays.
3. Activate the **Extend** function for the second display to be an extension of the main display.
4. Select the main display under **Primary Display Position** (**left**, **right**).

8.7 User Interface

Use the **User Interface** menu for the following options:

- 8.7.1 Changing the size of the menu and the virtual keyboard
- 8.7.2 Changing the keyboard layout
- 8.7.3 Configuring user interface functions

Accept or discard settings

1. Click on *Apply* to accept the settings.
2. Click on *Revert* to discard the changes.

8.7.1 Changing the size of the menu and the virtual keyboard

	It is not possible to change the keyboard via the firmware on Shark devices with Intel i7 CPU.

Adjusting the size of the menu and the keyboard

1. Open the **User Interface** menu.
2. Click on **RemoteHMI** and use the scroll bar to adjust the size of the menu.
3. Click on **Virtual Keyboard** and use the scroll bar to adjust the size of the keyboard.

Restoring device-specific factory settings

1. Open the **User Interface** menu.
2. In the **RemoteHMI** window, click on *Default* to restore the device-specific factory settings for the menu size.
3. In the **Virtual Keyboard** window, click on *Default* to restore the device-specific factory settings for the keyboard size.

8.7.2 Changing the keyboard layout

The factory setting for the keyboard layout is the US layout (QUERTY). This applies to the virtual and external keyboards (optional). The language layout is independent of the design, coding, position and number of keys on the physical keyboard.

The language of the Thin Client system console is set to English, and this can **NOT** be changed.

The firmware supports various language layouts for the virtual and external keyboards. The country codes for the language layouts are those listed in ISO 3166-1, subsection ALPHA-2.

Country code	Name of country
BE	Belgium
WC	Brazil
CH	Switzerland
CZ	Czech Republic
DE	Germany
DK	Denmark
ES	Spain
FI	Finland
FR	France
GR	Greece
HU	Hungary
IT	Italy
NL	Netherlands
NO	Norway
PL	Poland
PT	Portugal
RU	Russian Federation
SE	Sweden
SI	Slovenia
TR	Turkey
US	United States of America

Changing the keyboard layout

1. Open the **User Interface** menu.
2. Go to **Keyboard Layout** and select the keyboard layout you want.
3. If the keyboard layout you want is not listed, use *Add/Remove* to add a layout.

8.7.3 Configuring user interface functions

Hotkey for opening the firmware
You can specify how to open the firmware as follows:

- The hotkey toggles the dashboard between closed and minimised state (standard)
- The hotkey toggles the dashboard between closed, minimised and expanded state (**Hotkey toggles all 3 menu states**)

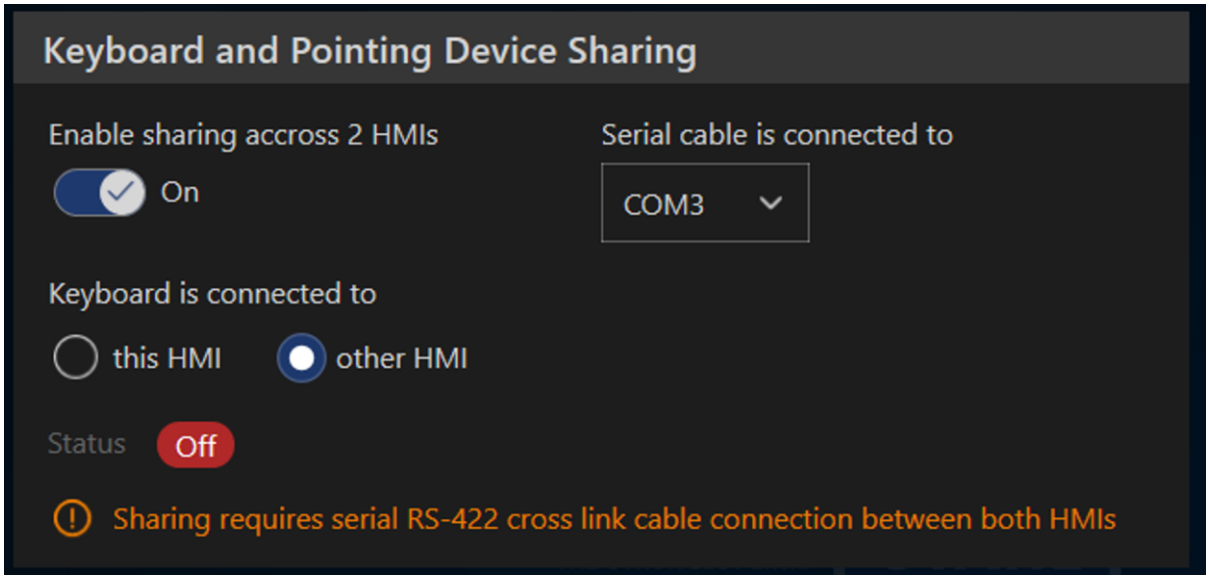
Go to **Ignore hotkeys if RemoteHMI menu is closed** to specify whether the hotkeys for calling up remote connections and applications should be ignored when the dashboard is closed. The defined hotkeys are only effective if the dashboard is open. Use this function to use the same hotkeys for different purposes.
If you have defined a hotkey for opening the dashboard, this hotkey will always be active. It is not affected by this function.

Configuring the user interface

1. Open the **User Interface** menu.
2. Activate **Show computer name in title** to show the computer name in the minimised dashboard.
3. Activate **Auto hide after connect** to hide the dashboard after the connection has been successfully established.
4. Activate **Hotkey toggles all 3 menu states** to toggle between all three dashboard states via the hotkey.
5. Define the hotkey for opening the dashboard.
6. Activate **Ignore hotkeys if RemoteHMI menu is closed** if the hotkeys should be ignored when the RemoteHMI menu is closed.

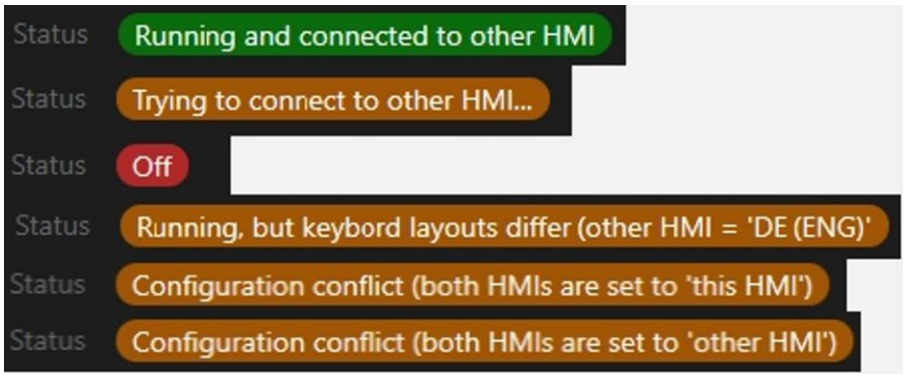
8.7.4 Keyboard and pointing device sharing

This function lets you share the keyboard and pointing device with other HMIs. To use this function both the HMIs should be connected with an RS-422 cross link cable.



	The keyboard / mouse sharing is not compatible with the sleep mode.

Once the sharing option is enabled, this window will pop up, showing the status of keyboard sharing.



Once the connection has been established, the keyboard icons on both HMIs will light up permanently.

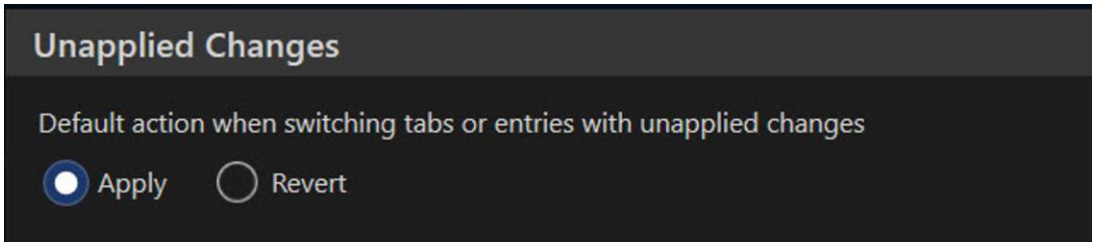
The keyboard icon of the currently active HMI will light up green , while the keyboard icon of the HMI in standby mode will light up orange . If the connection is interrupted, both icons will start flashing, but will retain their colour.

8.7.5 Configuring how changes are applied

1. Open the **User Interface** menu.
2. Activate **Apply** if you wish to apply the changes after leaving the register.

▶ The changes are applied once you change to a different register.

3. Activate **Revert** if you wish to apply the changes via the *Apply* button.



If you don't click on *Apply* the changes will be discarded.

8.8 Keyboard Wedge

Use the **Keyboard Wedge** function to send ASCII-based data from a serial interface as keyboard-generated characters to the host. The transmitted data is interpreted by the target application as real keyboard input. Use this function to transform scans from readers such as barcode scanners or RFID readers into keyboard input.

NOTICE
This process requires Administrator authorisation.

Use the **Keyboard Wedge** menu for the following options:

- 8.8.1 Adding a device
- 8.8.2 Parameterising the COM interface

Accept or discard settings

1. Click on *Apply* to accept the settings.
2. Click on *Revert* to discard the changes.

8.8.1 Adding a device

Installing a driver from a USB mass storage device

	Deactivate the UWF filter to install the device driver.

1. Check whether the Thin Clients meets the system requirements of the input device.
2. Make sure that the USB mass storage device is known or deactivate the USB lockdown.
3. Open the **Maintenance** menu.
4. Click on *Add / Remove Device* to open the Thin Client system settings.
5. Install the device driver on the Thin Client.
6. Connect the input device to a free COM port. The name of the COM port depends on the HMI device platform.
7. Open the **Keyboard Wedge** menu.
8. Activate **Simulate keyboard input via a connected reader/scanner device**.
9. Click on + *Add / Auto Connect* to connect the device.

8.8.2 Parameterising the COM interface

	The configuration of the COM interface has to conform with the reader's specifications to ensure correct data transmission.

Port	Specifies the serial port where the reader's data is received
Baud rate	Specifies the data transmission rate of the COM port, must correspond to that of the reader 2400 / 4800 / 9600 / 19200 / 38400
Data Bits	Specifies the length of the transmitted data bits 7: a character is 7 bits long 8: a character is 8 bits long (usual value)
Stop Bits	Specifies the number of bits signifying the end of a data transmission process 1: stop bit is one bit long (usual value) 2: stop bit is two bits long
Parity	Specifies whether and how the parity test bit should be calculated NONE: no bit testing process EVEN: sum of the bits of a character to be transmitted is an even number ODD: sum of the bits of a character to be transmitted is an odd number

1. Open the **Keyboard Wedge** menu.
2. Go to **Serial Communication** to select the COM port of the connected device.
3. Select a suitable baud rate for the connected device.
4. Specify the following parameters **Data Bits, Stop Bits** and **Parity** for the serial interface. An active connection is shown in the status.

Configuring the handling of control characters

	You can specify whether control characters for a line break sent by the barcode scanner should simulate the pressing of the Enter key. This may be necessary so that a scanned barcode is correctly completed and applied. CR: carriage return LF: line feed

1. Activate **Translate CR to Enter-key** to use "CR" as a control character.
2. Activate **Translate LF to Enter-key** to use "LF" as a control character.

Server keyboard layout settings

	For all scanned characters, particularly control characters, to be processed correctly, the keyboard layouts of both devices must match. If the Thin Client is set to US layout, this layout must also be selected for the connected server. For connections via a KVM box this layout must also be selected in the user interface of the KVM box. The following options are available under **Server Keyboard Layout**: US American keyboard layout: QWERTY DE German keyboard layout: QWERTZ FR French keyboard layout: AZERTY

1. Set **Server Keyboard Layout** to "US" to ensure faultless data transmission

Specifying data transmission delay

	**KVM Keystroke Delay** specifies the delay before the next character is transmitted to a KVM box. This delay ensures that no character is lost during a fast data transmission to the host. The standard value is usually sufficient.

1. Only increase this value if characters are lost in the transmission.
2. Use the scroll bar or the arrows to specify the delay value (from 1 to 50ms).

8.9 Access Control

Use the **Access Control** menu to activate the three-tier user management and to configure the automatic user logout.

Accept or discard settings

1. Click on *Apply* to accept the settings.
2. Click on *Revert* to discard the changes.

8.9.1 Activating user roles

Activating user roles

1. Open the **Access Control** menu.
2. Activate the 3-tier access management under **Main**.
3. Activate **Limit Operator access to Dashboard** to hide the dashboard's register bar from the operator.
   Operators can only see the dashboard data.
4. Enter different passwords for the "Engineer" and "Admin" user roles under **Login Passwords.**
5. Repeat the passwords. If the passwords are incorrect, the system will issue an error message.
6. Click on *Apply* to accept the settings.

▶ Users with roles "Engineer" and "Admin" have to logon with their passwords.

8.9.2 Activating automatic logout

An automatic logout can be specified for the Admin and Engineer user roles. A user is automatically logged off if he or she has been inactive for more than the pre-defined logout time.

1. Open the **Access Control** menu.
2. Activate **Auto Logout** to activate the automatic user logout.
3. Click on **after user not operating RemoteHMI Menu for** to specify the logout period (1 to 60 minutes).

8.10 Connections

Use the **Connections** menu for the following options:

- 8.10.1 Allowing multiple simultaneous connections
- 8.10.2 Auto reconnect
- 8.10.3 Automatic check of host status

Accept or discard settings

1. Click on *Apply* to accept the settings.
2. Click on *Revert* to discard the changes.

8.10.1 Allowing multiple simultaneous connections

Pro	Requires a Pro licence.

Use the **Allow Multiple simultaneous connections** function to allow parallel use of multiple remote connections (multi-session connections). This enables you to:

- Change between remote connections without having to terminate a connection
- Display several remote connections on one split screen
- Display several remote connections on two or more screens

Activating multi-session connection

1. Open the **Connections** menu.
2. Activate **Allow Multiple simultaneous connections** to allow the set-up of several remote connections.

8.10.2 Auto reconnect

Go to **On connection loss, auto reconnect** to specify an interval after which a reconnect is attempted after a connection has been lost.

	This function must be activated separately for each remote connection in the address book entry.

- Open the **Connections** menu.
- Click on **On connection loss, auto reconnect after** to specify after how many seconds a reconnect should be started (1 to 30 seconds).

8.10.3 Automatic check of host status

The **Connection Health Check** function is used by the Thin Client to send cyclical pings (echo requests) to all servers configured in the address book. The result of these requests is shown as the connection status in the address book.
The connection health check only works properly if the servers' firewalls permit answering to an echo request.
You can switch off this function if you do not require an echo request. In this case the status of the connection is not shown in the address book

Activating health check

1. Open the **Connections** menu.
2. If you are using a firewall, check whether the firewall permits echo requests, and activate the echo request.
3. Activate **Ping servers to show reachable state on Address Book buttons** to constantly monitor the remote connections.
4. Click on *Apply*.

▶ The Thin Client monitors the remote connections and shows the status of the active connections.

	If the echo request from the host is not possible or not wanted, deactivate **Ping servers to show reachable state on Address Book buttons**. The remote connections are not monitored. Not connection status is shown.

8.11 Import and Export

The firmware supports the import and export of most settings to the encrypted "RemoteHMI.config" file. This file can be exported to a USB mass storage or a network directory. A filter can be used for the import to specify which settings should not be imported (e.g. network settings).

This function enables you to

- Restore the device configuration after a system reset
- Copy the device configuration to another Thin Client

Use the **Import & Export** menu for the following options:

- 8.11.1 Importing a device file
- 8.11.2 Exporting a device file

NOTICE
This process requires Administrator authorisation.

8.11.1 Importing a device file

	The UWF filter must be deactivated before you can carry out this process.

NOTICE

USB mass storage in hazardous areas

Only use intrinsically safe USB mass storage devices in hazardous areas. A USBi stick is available for operations in hazardous areas.

You can exclude the following settings from the import:

- **Application List** (see 6 App management)
- **Network Settings** (see 7 Network)
- **Access Control Password** (see 8.9 Access Control)

NOTICE

Import known passwords only!

Make sure you know the defined passwords before starting the import.

Importing a configuration file from a USB mass storage device

1. If the USB lockdown is activated, make sure the USB mass storage device is known. Otherwise, deactivate the USB lockdown.
2. Connect the USB mass storage device.
3. Open the **Import & Export** menu.
4. Select the configurations you do not require from the import filter.
5. Activate **USB Flash Drive**.
6. Click on *Import*.
   A progress bar shows how far the import has proceeded.
   If the process has been completed successfully, the firmware will issue a message.
7. If an error message is issued, check whether the USB mass storage device has been inserted correctly and that it is not write-protected.
8. Remove the USB mass storage device before restarting the device.
   - NOTE:
     If you do not remove a bootable Recovery PE Lite USB mass storage, the device will expect the installation of the firmware during the restart.
9. Click on *Apply* to apply the imported settings.
10. Restart the device to activate the changed configuration.

Importing a configuration file from a network directory

1. Save the import file in the network directory.
2. Select the configurations you do not require from the import filter.
3. Activate **Network**.
4. Click on *Select* to select the network directory from the Windows Explorer.
5. Click on *Import*.
   A progress bar shows how far the import has proceeded.
   If the process has been completed successfully, the firmware will issue a message.
6. Click on *Apply* to save the imported settings.
7. Restart the device to activate the changed configuration.

8.11.2 Exporting a device file

Exporting a configuration file to a USB mass storage device

1. If the USB lockdown is activated, make sure the USB mass storage device is known. Otherwise, deactivate the USB lockdown.
2. Connect the USB mass storage device.
3. Activate **USB Flash Drive**.
4. Click on *Export*.
   The USB mass storage device is checked.
   If it contains no configuration file it will be saved immediately.
5. If it already contains a configuration file, you need to confirm that the existing file will be written over.
   If the process has been completed successfully, the firmware will issue a message. The RemoteHMI.config file is saved in the root directory of the USB mass storage device.
6. Remove the USB mass storage device.

	If you do not remove a bootable Recovery PE Lite USB mass storage, the device will expect the installation of the firmware during the restart.

Exporting the configuration file to a network directory

1. Activate **Network**.
2. Click on *Select* to select the network directory from the Windows Explorer.
3. Click on *Export*.
   The network directory is checked.
   If it contains no configuration file it will be saved immediately.
4. If it already contains a configuration file, you need to confirm that the existing file will be written over.
   If the process has been completed successfully, the firmware will issue a message. The RemoteHMI.config file is saved on the network directory.

8.12 Firmware updates

Use the Update menu to carry out an **Update** of the firmware from a USB mass storage device or a network directory.

NOTICE
This process requires Administrator authorisation.

The UWF filter must be deactivated so that the firmware can be saved. The menu will show the following information:

- Installed: revision version of the installed firmware
- Available: available firmware, appears when an update file has been found
- Source: source of the available update, appears when an update file has been found

8.12.1 Firmware update

NOTICE
USB mass storage in hazardous areas Only use intrinsically safe USB mass storage devices in hazardous areas. A USBi stick is available for operations in hazardous areas.

Carrying out a firmware update from a USB mass storage device

NOTICE
Data loss when aborting update installation During this process the firmware will be restarted. Do not interrupt the process and do not switch off the operating terminal.

1. If the USB lockdown is activated, make sure the USB mass storage device is known. Otherwise, deactivate the USB lockdown.
2. Connect the USB mass storage device.
3. Click on *Check for Update*.
   The firmware trawls through the connected USB devices for available updates.
   If an update is available it will be shown under **Available**.
4. Click on *Install Update* to install the update.
   The installation process starts.
   If the update has been installed, the menu will show a change protocol.
5. Remove the USB mass storage device.

Updating the firmware from a network directory

NOTICE

Data loss when aborting update installation

During this process the firmware will be restarted. Do not interrupt the process and do not switch off the operating terminal.

Our Support department will provide you with the update file.

1. Store the update file on the network directory.
2. Click on *Select* to select the network directory from the Windows Explorer.
3. Click on *Check for Update*.
   The firmware trawls the network directory for available updates.
   If an update is available it will be shown under **Available**.
4. Click on *Install Update* to install the update.
   The installation process starts.

▶ Once the update is finished, the system will issue a message.

9 Useful tips

9.1 Error fixing

Touchscreen operation is inaccurate		
Cause	**Action**	**Who**
Touchscreen is dirty	• Clean display	Operator
Incorrect calibration	• Calibrate the touchscreen	Operator
Damaged display front	• Replace (repair) display	Engineer

Base station display is black		
Cause	**Action**	**Who**
Cable connection between base station and HMI device interrupted	• Check cable for damage. • Check connector is inserted properly • Replace defective parts.	Engineer

Screen is black and keyboard is lit		
Cause	**Action**	**Who**
One-off fault due to electrical surge, for example	• Restart Remote HMI.	Engineer

Screen is black and keyboard is not lit		
Cause	**Action**	**Who**
Cable connection between base station and HMI device interrupted	• Check cable for damage. • Check connector is inserted properly • Check fuse. • Check fuse.	Engineer

The network connection is frequently interrupted or is unstable		
Cause	**Action**	**Who**
Cable not correctly connected inside the terminal box	• Check wiring of the HMI device.	Engineer
Cable too long	• Contact Support / CSO	Engineer

System fails to restart after request to do so

Cause	Action	Who
The most recent process has caused a fatal system error.	• Use recovery stick to reset system to factory state.	Engineer

Bluetooth barcode scanner is not working		
Cause	**Action**	**Who**
Battery charge too low	• Recharge battery. • Replace battery.	Engineer
Barcode scanner not paired with base station	• Pair barcode scanner and base station.	Engineer
Cable connection between base station and HMI device interrupted	• Check cable for damage. • Check connector is inserted properly. • Replace defective parts.	Engineer
Wrong passkey for connection was entered	• Enter correct passkey (see barcode scanner documentation).	Engineer
Barcode scanner defective	• Replace or repair defective barcode scanner.	Engineer

Wired barcode scanner is not working		
Cause	**Action**	**Who**
Cable connection between barcode scanner and base station interrupted	• Check cable for damage. • Check connector is inserted properly. • Replace defective parts.	Engineer
Barcode scanner defective	• Replace or repair defective barcode scanner.	Engineer

No connection possible between Remote HMI Device Manager and Thin Client		
Cause	**Action**	**Who**
Incorrect network configuration	• Check network configuration.	Engineer
Access from Device Manager to Thin Client not permitted	• Go to the **User Interface** menu to permit access.	Engineer

9.2 Activating VNC server system on the host

The following explains the procedure for the TightVNC server.
In order to be able to establish a VNC connection, the VNC server system must be activated on

the host. The VNC service acquires the IP address needed for this connection from the settings of the PC's network connection. Depending on the configuration, the IP address is specified manually or allocated by a DHCP server. In the firmware's address book, this IP address is defined as the server IP of the VNC connection.

The way this connection is established depends on the settings of the VNC server and can either be:

- a direct connection that is not password-protected
- a connection with VNC password
- a connection with Windows password

9.2.1 VNC server parameters

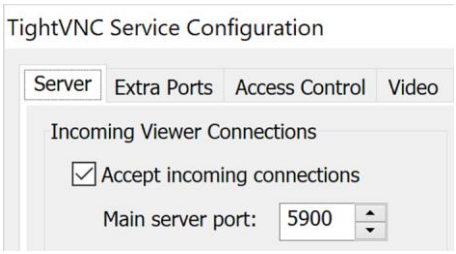
The following parameters are necessary to configure the VNC connection. The actual name may vary depending on the VNC server system used.

VNC server address

The VNC server address is the same as the server IP address or the server name. The VNC server systems usually have several ways to find out the address with which the server can be addressed in the network.
In addition to the IP address, port numbers can be allocated in the settings of the VNC server, with which the server can be addressed in the network.
The target address of the Host PC must be located in the network of the Thin Client or must be contactable from the Thin Client.

Ports

Accept connections on port



Defines the server connection port for data transmission (standard port 5900).
If you are using a different port due to network conflicts you need to configure this port. If there is a firewall, check the settings.

VNC password

VNC server applications authenticate users of a VNC connection via a password. The following password procedures are available:

None	No password is defined. The VNC server on the host allows access to each remote PC (Remote HMI) requesting a VNC connection via its address.
VNC password	Defines one or more passwords (depending on VNC server application) which the VNC server system requests from the Client for authentication purposes.
Windows password	Uses the Windows access authentication. The VNC server system grants the client access to the host if logged on with the valid Windows password.

Single sign on	Uses Windows access authentication and authentication via Windows-based login. The VNC server system grants access to the client if the user has entered a valid Windows login.

Encryption
Most VNC servers use encryption to protect the transmission of image, mouse and keyboard data from unauthorised access.

Always on	Data is always encrypted
Prefer on	Data is always encrypted unless the Thin Client requests no encryption (standard). This setting is necessary if the configuration requests no encryption.
Prefer off	Data is not encrypted unless the Thin Client requests encryption. This setting is necessary if the configuration requests encryption.

Prompt local user to accept connections
Allows the host user to accept or reject a connection request. Since the host is usually used for direct remote access, this setting is not relevant for the Thin Client connection.

Start VNC Server automatically with Windows
Specifies that the VNC server system is automatically activated when Windows is started. If this function is not activated, the remote access must be explicitly started after a system start of the host PC.

9.3 DRDC-Client connection

EMERSON's DeltaV®-Remote-Desktop-Connection-Client (DRDC) allows access to a virtualised operator or engineering workstation within a DeltaV®-virtualisation architecture. This way, applications that run on a distributed control system can be accessed via the Ethernet.

You can add a DRDC connection via an app in the **Applications** register (see 6.2 Adding apps).

Pro	Requires a Pro licence.

10 Digital Signature

10.1 Digital signature of R. STAHL HMI Systems programs

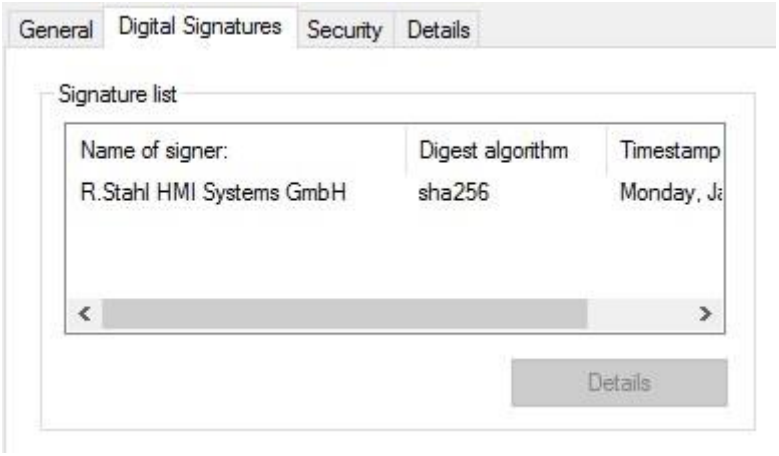
All of R. STAHL HMI Systems' program files that contain executable code (RemoteHMI, DeviceControlPanel etc.) have a digital signature, including the setup. This digital signature is used to ensure that program files, once published, are not changed and that the software is from the manufacturer. It is based on digital certificates issued by an authorised and trustworthy source to a person or company identified by this source.

Two parts must be verified to check a digital signature:

- **Digital Signature:** This is a hash value which has been generated by a hash function for a file and has been encrypted with the private key of the underlying certificate.
- **Certificate:** A software is from a manufacturer if it has been signed with the manufacturer's certificate. It therefore must be ascertained whether the correct certificate has been used, and whether the certificate is valid. In particular, this means that the issuer of the certificate, its owner, the certification path, the serial number and the fingerprint must be checked.

10.2 Checking the digital signature

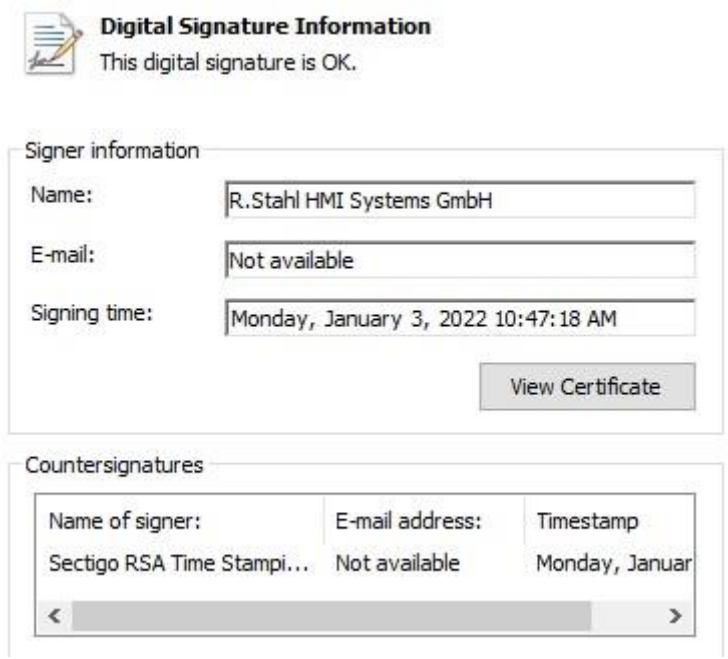
The information needed is found under the Digital Signaturestab: find the file in the Explorer, select it with a right mouse click so that the context menu opens and select Features. If you don't see this tab, the file has no signature or the signature has been removed - the check has failed.



Select, if available, SHA-256 and click on Details.

10.3 Details of the digital signature

A new window with general signature information opens up. The key information on this page is that the digital signature is valid.



The signature is valid if:

- the file, once signed, has not been changed: the calculated hash value based on the selected hash function is the same as the decrypted hash value in the signature.
- the chain of certification is complete, and
- the underlying certificate (which could be fake) is ok.

If this is not the case, an error message marked by an error symbol will pop up, for example:

10.4 Checking the certificate

Click on **Show Certificate** to check the certificate that is used.

A new window will pop up with three tabs that show details of the certificate that was used for the signature of the file. Check that the "issued for" and the "issued by" fields have the following values, otherwise the check has failed:

Issued for:	R.Stahl HMI Systems GmbH
Issued by:	GlobalSign Code Signing CA
or	Sectigo Public Code Signing CA EV R36

Should you wish to check other elements such as finger print or serial number, please get in touch with our Technical Support so we can let you know the relevant check sum. Depending on the product, the signature may have been issued by different sources.

10.5 Source

Texts copied from:
TurboSFV - Validation of digital signatures (Code Signing)

R. STAHL HMI Systems GmbH
Adolf-Grimme-Allee 8
D 50829 Cologne

T:	(Sales Support)	+49 221 768 06 - 1200
	(Technical Support)	+49 221 768 06 - 5000
F:		+49 221 768 06 - 4200
E:	(Sales Support)	sales.dehm@r-stahl.com
	(Technical Support)	support.dehm@r-stahl.com

r-stahl.com