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House Control with Touch Panel

LOGO! 8, KTP700
Set 10

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Table of Contents

1 Task

Note	This LOGO! Set expands LOGO! Set 9 "House Control with Master-Slave Communication" by an HMI operator station. The example on hand can also be simulated and operated without an HMI, but on a PC with WinCC. Further information on the functionalities of LOGO! Set 9 and the documentation for the download is available in entry ID 64143308. This documentation is based on the documentation of Set 9.

| ⚠ **WARNING**	**Risk of property damage or personal injury** LOGO! Set 10 is based on LOGO! Set 9. **In order to avoid property damage and personal injury it is absolutely necessary to observe the precautions and warnings from LOGO! Set 9 for the hardware installation, the handling of the blinds and how to operate the application.**

Introduction

In a residential home, the following functions shall be controlled and displayed manually or automatically, using an HMI panel:

Blinds and Roof hatch (up/down)

Interior and exterior lighting (on/off)

Heating

Figure 1-1
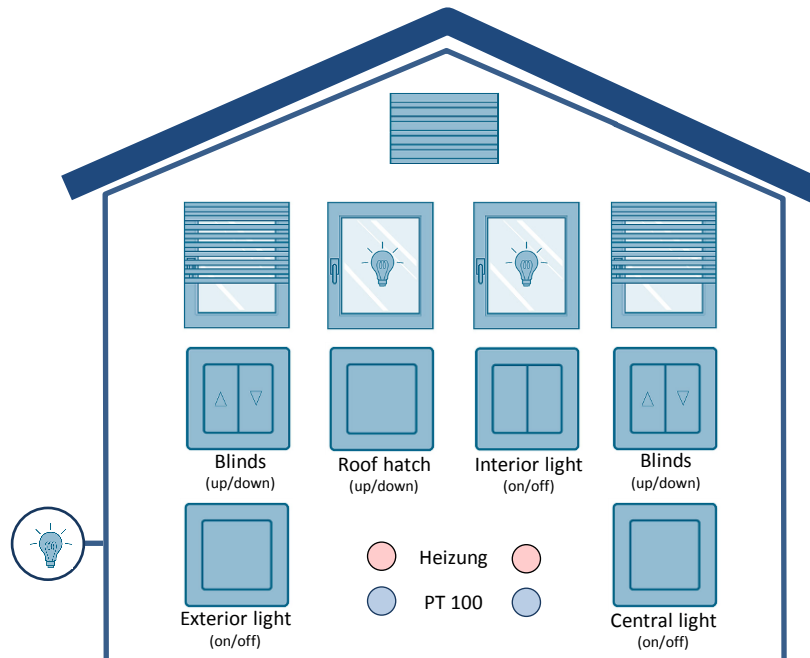
Manual or automatic mode for blinds and lights can be activated via buttons.
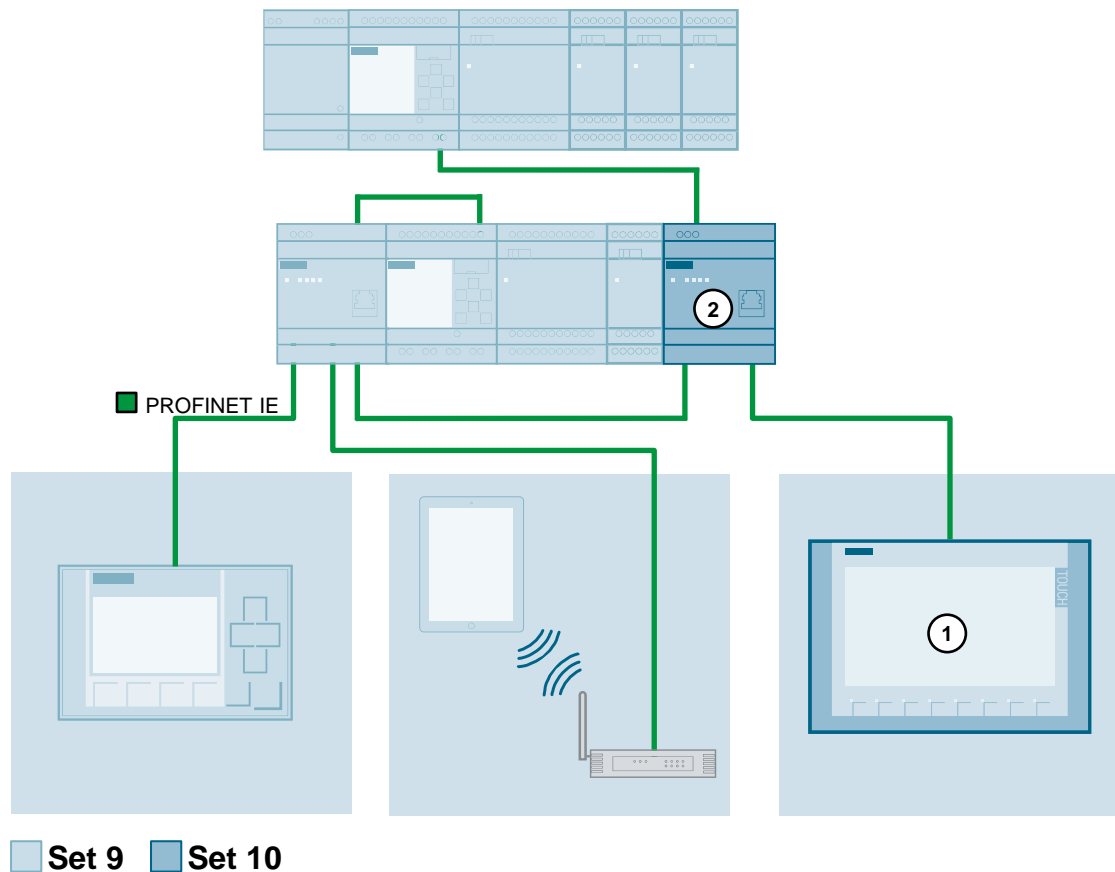
If the maintenance mode is set for the blinds via a button, manual or automatic shutting is blocked.

Depending on the entered setpoint and the room temperature, the heating can be switched on and off.

2 Solution

2.1 Overview

Figure 2-1

Set 9 **Set 10**

In the automation solution, the HMI KTP700 (1) is connected to the LOGO! Set 9 hardware setup via a Compact Switch module (2).

Advantages/benefits

Simple execution and clear operation and monitoring of a building automation with LOGO! 8

Excellent energy efficiency by monitoring the heating depending on the room temperature and the given setpoint

Central house control via Touch Panel KTP700

Additional option to control the functionalities of the application on the PC via the WinCC HMI panel simulation function

2.2 Hardware and software components

Note	Please note that in this LOGO! Set, the hardware setup of LOGO! Set 9 is expanded by an HMI KTP700.
	Detailed information on the LOGO! Set 9 hardware setup can be found in the LOGO! Set 9 documentation under entry ID 64143308.

2.2.1 Components used

The application example was created with the following components:

Hardware components

Table 2-1

No.	Component	Qty	Article number	Note
1.	SIMATIC HMI KTP700 BASIC	1	6AV2123-2GB03-0AX0	
2.	LOGO! CSM12/24 COMPACT SWITCH MODULE	1	6GK7177-1MA20-0AA0	For the connection of the application example to LOGO! Set 9 or LOGO! Set 11.

Software components

Table 2-2

Component	Qty	Article number	Note
LOGO! Soft Comfort V8	1	6ED1058-0BA08-0YA1	Update V8.2 (Download)
SIMATIC WinCC Basic V15	1	6AV2100-0AA05-0AA5	

Example files and projects

The following list includes all files and projects that are used in this example.

Table 2-3

Component	Note
68585344_LOGO_Set10_HMI_CODE_v21.ZIP	This zip-file contains • the enhanced LOGO! Soft Comfort V8 project for the master LOGO! • a WinCC V15 project for the HMI KTP700 from LOGO! • A LOGO! Web project for the user defined webserver **Note:** Please note that for this, the LOGO! program from LOGO! Set 9 for controlling and monitoring house functions was expanded by an HMI panel. **The LOGO! program from Set 10 replaces the LOGO program from Set 9.**
68585344_LOGO_Set10_HMI_DOC_v21_en.pdf	This document.

3 Installation and Commissioning

3.1 Installing the hardware

3.1.1 HMI KTP700

Note Observe the setup guidelines for HMI KTP700. Further information can be found in the HMI KTP700 Basic Panel Manuale"

IP address and subnet mask

Make sure that the HMI KTP700, your PC and the hardware setup from LOGO! Set 9 are in the same IP address range, as shown in the following table.

Table 3-1

No.	Device	IP address	Subnet mask
1.	HMI KTP700	192.168.1.20	255.255.255.0
2.	Master LOGO!	192.168.1.10	255.255.255.0
3.	Slave LOGO!	192.168.1.11	255.255.255.0
4.	LOGO! TDE	192.168.1.14	255.255.255.0
5.	Network card or USB Ethernet Adapter for network connection to PC	192.168.1.12	255.255.255.0

3.2 Software installation (download)

Note It is assumed that the required software LOGO! Soft Comfort V8 and WinCC V15 SP1 have been installed on your PC. No previous experience with the software is required.

3.3 Commissioning

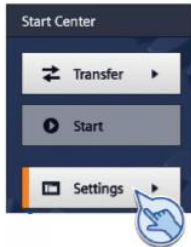| Note	For the following points you find information in LOGO! Set 9:
	• Download LOGO! program in LOGO! Controller
	• Settings for webserver access
	For LOGO! Set 9 refer to the following entry:
	Building Automation Systems: House control with LOGO! and Master-Slave communication (LOGO! Set 9) https://support.industry.siemens.com/cs/ww/en/view/64143308

3.3.1 Basic settings for the HMI KTP700
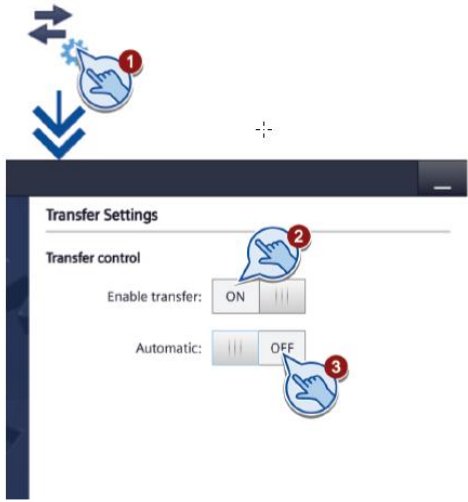
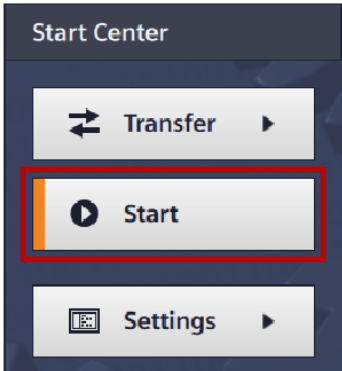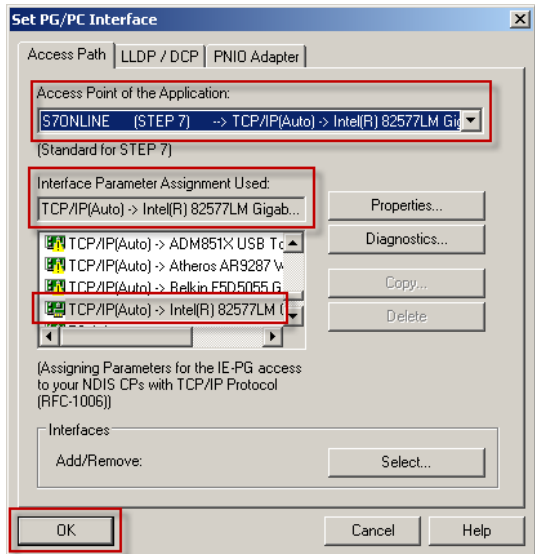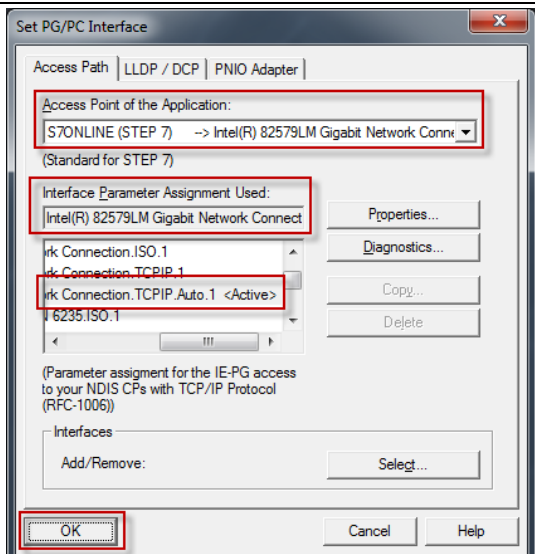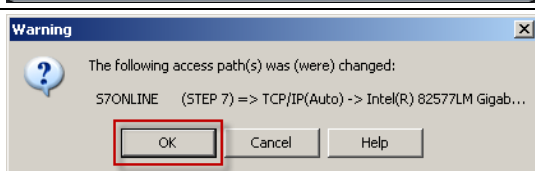| Note	The IP address of the HMI panel can only be changed if Runtime has "stopped".

Table 3-2

No.	Action/response	KTP700 display
1.	Switch on the HMI panel.	
2.	Press "Settings" to open the panel settings.	

No.	Action/response	KTP700 display
3.	1. Press "Network interface" to open the dialog for changing the network settings. 2. Make your choice between automatic IP address assignment via "DHCP" and manual IP address assignment. 3. Touch the respective input fields and enter the IP address and the subnet mask with the screen keyboard, here: • IP address: 192.168.1.20 • Subnet mask: 255.255.255.0 4. Under "Ethernet parameters" in the "Mode and speed" selection field, tick "Auto Negotiation"; this automatically detects and sets the connection type and the transmission rate in the PROFINET network. 5. Activate the "LLDP" (ON) switch to enable the operator panel to exchange information with other operator panels. In this example, "LLDP" can be activated or deactivated. 6. Under "Profinet" in the "Device name" field, enter a network name for your operator panel. The name must meet the following requirements: • Max. four blocks with max. 63 characters each. Example: "Press1.Fender.Bodywork.Hall3" • Characters from "a" to "z", numbers "0" to "9"; special characters: "-" and "."	
4.	Press "Settings" on the left side of the dialog window for changing the network settings to return to the panel settings window.	

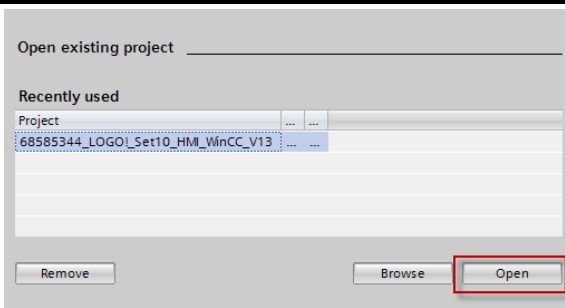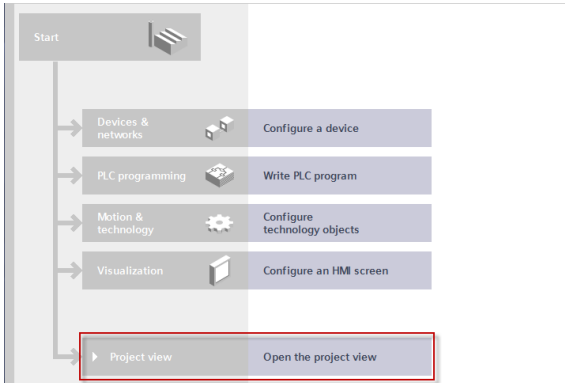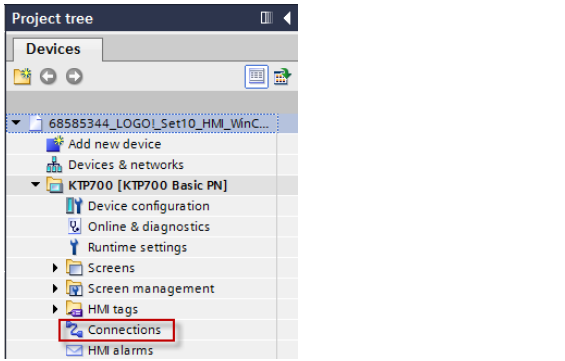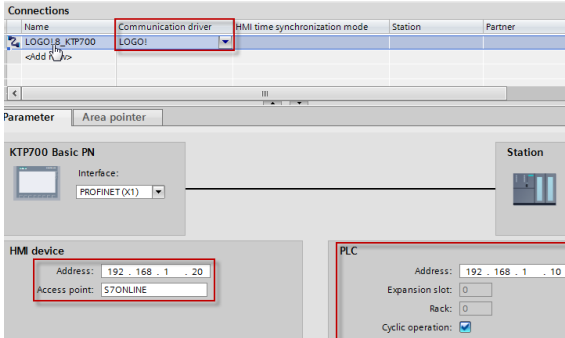| No.	Action/response	KTP700 display
5.	To load a project onto the HMI panel, a data channel must be enabled: 1. Click the "Transfer Settings" button to open the "Transfer Settings" dialog box. 2. Activate "Enable transfer". 3. Activate "Automatic" to enable automatic transfer. When automatic transfer is enabled, a transfer from the configuration PC can be started while the project is running. In this case, the current project is stopped and the transfer of the new project is carried out. After the transfer, the new project is started.	
6.	To return to the start center, press on the symbol for minimizing the window on the right side of the "Transfer Settings" dialog.	
7.	In the Start Center, you can start your project any time by pressing "Start".	

3.3.2 Settings in the operating system
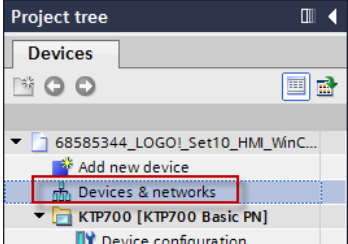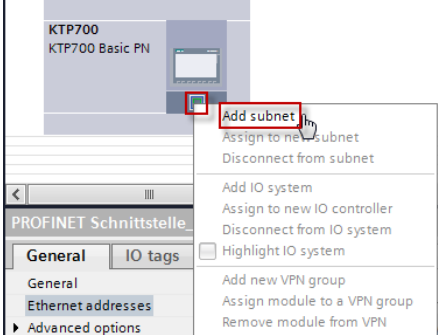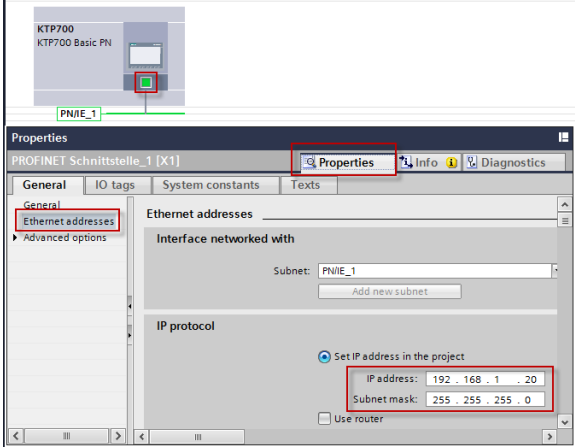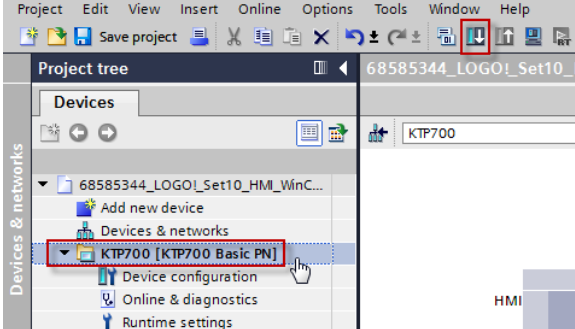
Table 3-3

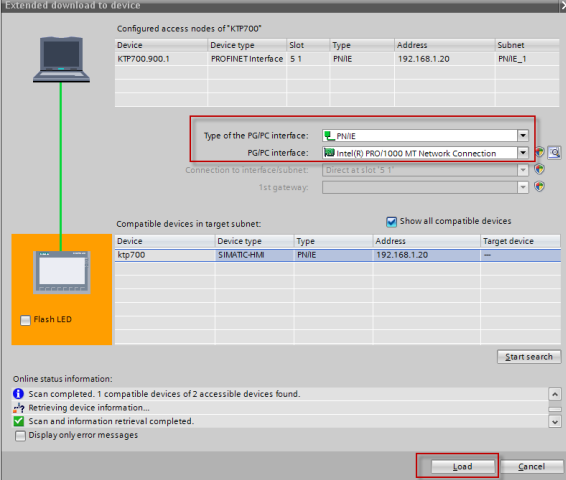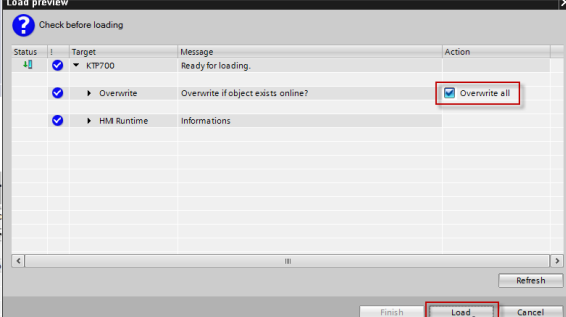| No.	Action/response	PC screen
1.	In the operating system, go to "Start > Settings > Control Panel > Set PG/PC Interface".	
2.	In "Interface Parameter Assignment Used", select "TCP/IP(Auto) -> Name of your network card or your USB Ethernet adapter" (without the yellow warning sign) for the Ethernet communication with LOGO!. • In this example: TCP/IP(Auto)->Intel(R) 82577LM Gigab. network card Make sure that in the dropdown menu "Access Point of the Application" "S7ONLINE (STEP7) -> TCP/IP(Auto) -> Name of your network card or your USB Ethernet adapter" has been selected. Click on OK to confirm the selection.	
3.	Alternatively the "Interface Parameter Assignment Used" is displayed at "Control Panel -> Set PG/PC Interface" for certain operating systems. As in the previous step 2, also select the interface here and make sure that "Access Point of the Application" "S7ONLINE (STEP7) -> TCP/IP(Auto) -> Name of your network card or your USB Ethernet adapter" has been selected in the drop-down list. Click on OK to confirm the selection.	
4.	Acknowledge the warning prompt that appears in certain operating systems with OK to complete the selection.	
5.	The settings in the operating system required for controlling the application example with the HMI panel or with the PC screen are now complete.	

3.3.3 Loading the program in HMI KTP700

Table 3-4

No.	Action/response	WinCC Basic V15
1.	1. Start WinCC Basic V15 2. Select your unzipped project with "Browse". 3. Then click "Open".	
2.	Click on "Open the project view" to open the project view.	
3.	In the project tree under "KTP700 [KTP700 Basic PN]", go to "Connections" and select it with a double-click.	
4.	In "HMI device", enter the IP address of your HMI panel (here: 192.168.1.20) and press Enter to confirm. Make sure that • "S7ONLINE" is specified under "Access point". • the master LOGO! IP address (here: 192.168.1.10) is specified under "PLC". • the check box "Cyclic operation" is ticked.	

No.	Action/response	WinCC Basic V15
5.	In the project tree, go to "Devices & networks" and select it with a double-click.	
6.	Make sure a subnet has been added to the network. To create a subnet in the network, open the context menu with a right click on the Ethernet interface and click on "Add subnet". **Note:** In this application example, the subnet has already been added in the HMI project.	
7.	Click on the Ethernet interface and go to the "Properties" tab. Enter IP address and subnet mask of the HMI panel, here: • IP address: 192.168.1.20 • Subnet mask: 255.255.255.0	
8.	In the project tree, select the folder "KTP700 [KTP700 Basic PN]" and click on "Load" in the toolbar.	

No.	Action/response	WinCC Basic V15
9.	Select the Ethernet interface of your network card or your USB-Ethernet adapter with which you will connect your PC to the HMI panel. Then click on "Load".	
10.	Then confirm the dialog and then click on "Load".	
11.	As soon as the project download has been completed, the project will automatically start on the HMI panel and you can now operate the application.	

3.4 Adjust the displaying of the blinds on HMI panel

We recommend the following parameter settings for an optimized control and for display on KTP 700:

Note	The following settings are based on the settings of Chapter 3.6 in LOGO! Set 9

Table 3-5

No.	Action/response	KTP700 display
1.	1. In the project tree under "KTP700 [KTP700 Basic PN]", go to "Text and graphic lists". 2. Click on the "Graphic lists" tab. There you will find 5 graphics for the left blind ("Rollo/blind_left") and right blind ("Rollo/blind_right"). 3. When the blinds move up, the Up/Down Counter for the left blind (function block B023) and for the right blind (function block B068) in the program is incremented. Divide in each case the value (see LOGO! Set 9, Chapter 3-6, Table 3-5, Step 5), which was counted, until the blinds moved up, into 5 value ranges. Assign the respective value ranges to the individual graphics of the left and the right blind. 4. For the biggest range, however, do not enter the value noted down, but a bigger value. This ensures the blind will be displayed if the value noted down is exceeded by another runtime.	
2.	3. Compile the configuration. 4. Save the project. 5. Load the configuration into the KTP700.	

4 Operating the Application Example

Hinweis	Operating via integrated and user defined webserver, the LOGO! display and the LOGO! TDE is described in LOGO! Set 9: House control with LOGO! and Master-Slave communication (LOGO! Set 9) https://support.industry.siemens.com/cs/ww/en/view/64143308

4.1 Overview of the operating functions

4.1.1 Start screen

Use the buttons on the right to go to the various panel screens. The following screens are available:

Start

Blinds/Lights

Heater room 1

Warning messages

System (calibrate screen, clean screen, activate transfer)

Stop Runtime

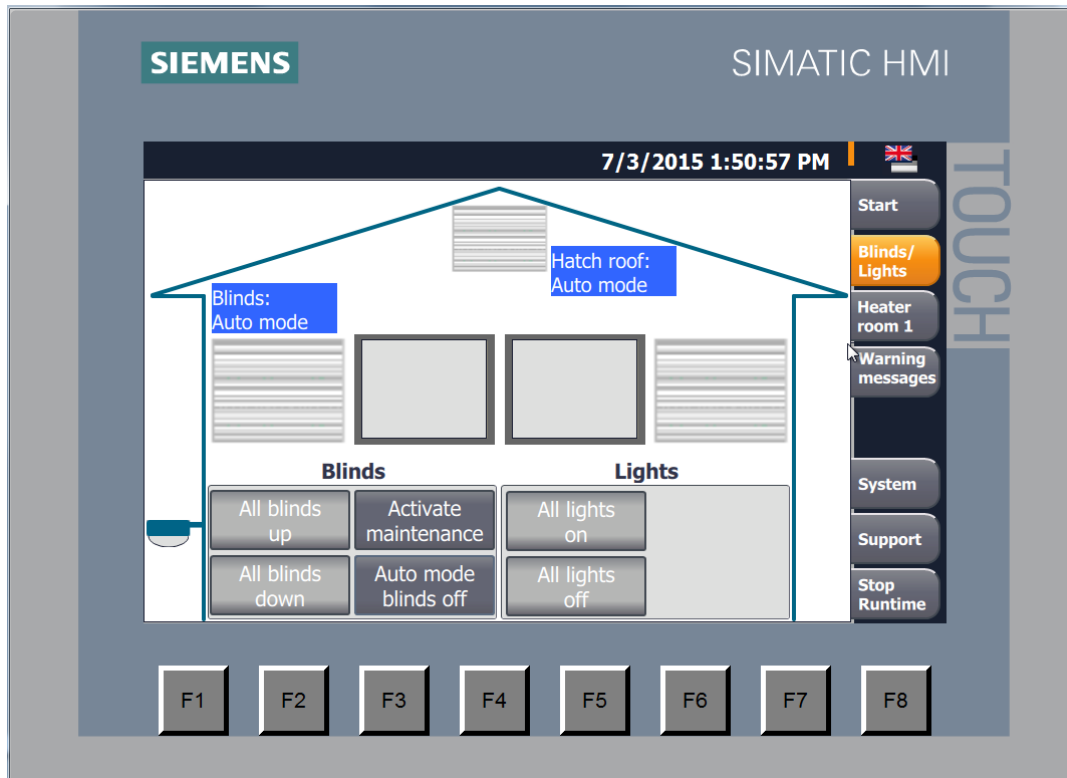Each screen provides the option to change between languages (German or English).

Note	**Synchronized language change from HMI panel to LOGO! 8:** If the HMI KTP700 is used to change the language with the button (German or English), the display language on the LOGO! display and LOGO! TDE will also change.

4.1.2 Screen for the operation of house functions

4.1.3 Screen for temperature control (heater) in room 1
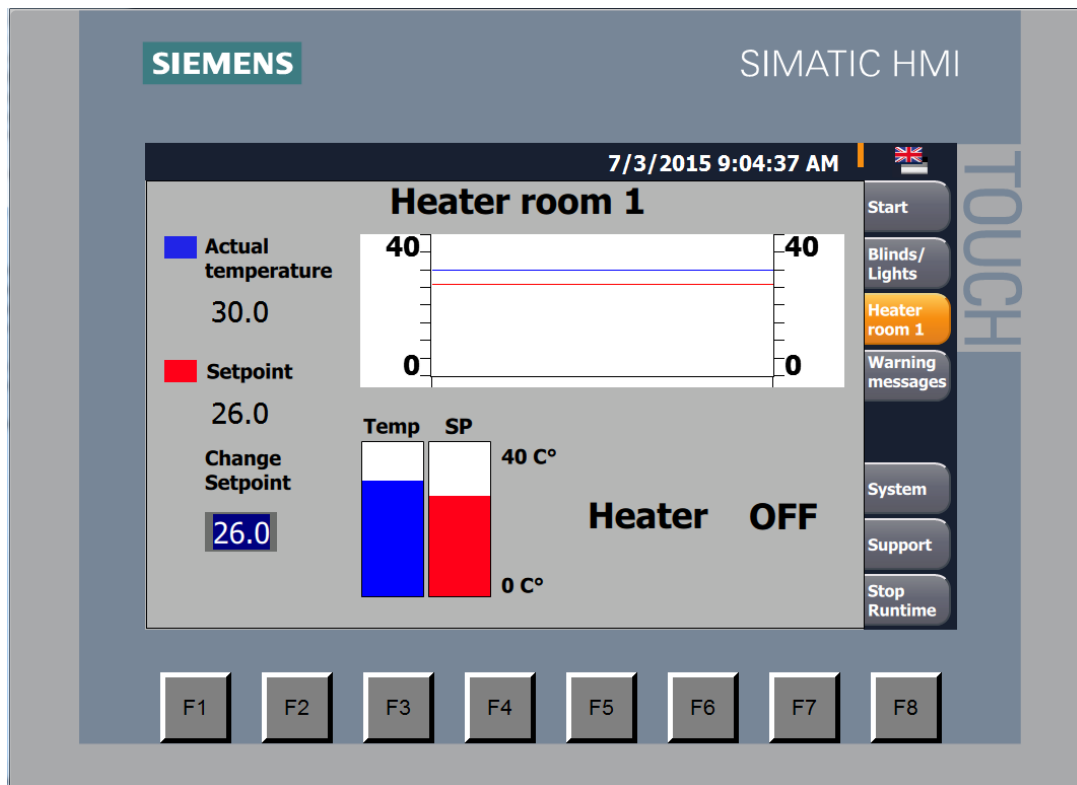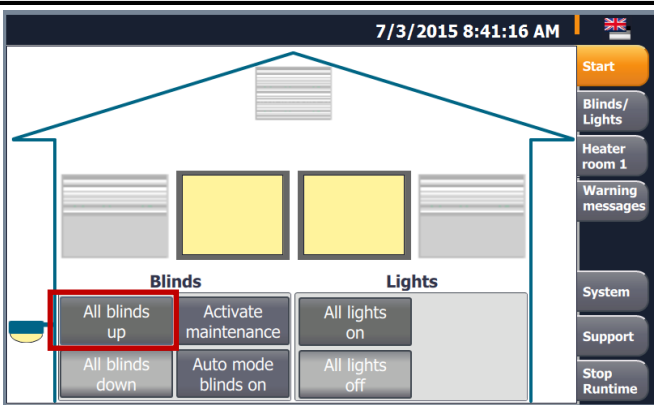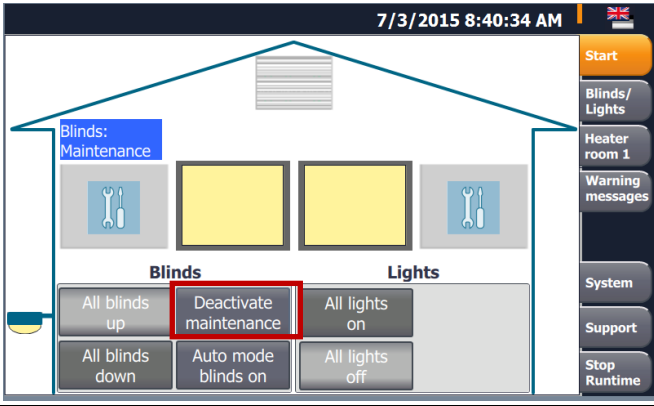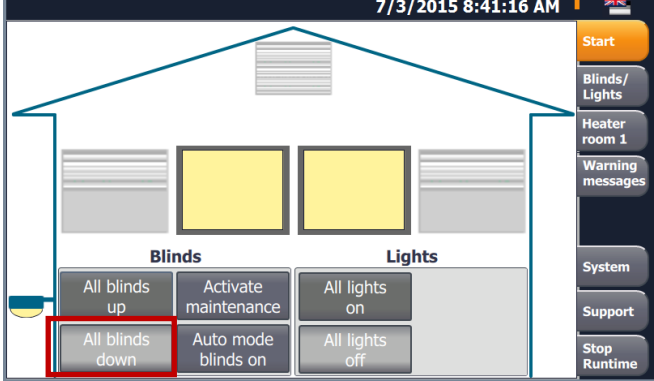
4.1.4 Screen for system functions

4.2 Operation with HMI panel

4.2.1 Operation of blinds of room 1 and room 2
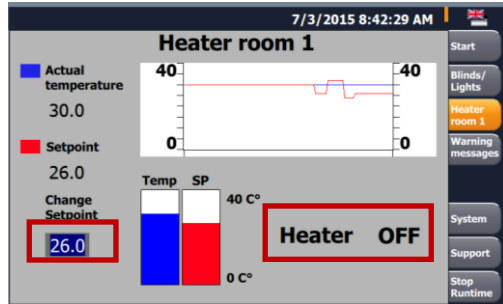
Note	In this application example, the roof hatch (sunblind) is monitored in the HMI project with the HMI panel (hatch open or closed), but it is not controlled with it. The roof hatch can be controlled with the LOGO! TDE, the LOGO! display, the web server and the buttons in the house in this application example.

Table 4-1

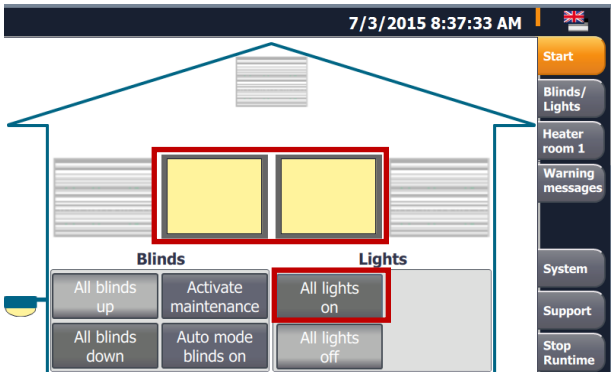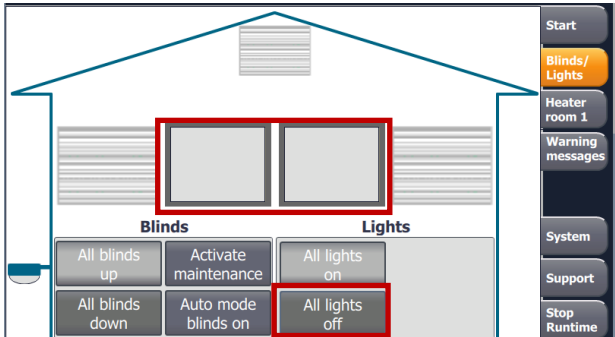| No.	Action/response	KTP700 display
1.	Press the "All blinds up" button for at least 0.25 seconds.	
2.	All blinds move up into the final position.	
3.	When pressing the "Activate Maintenance" button the blinds cannot move down. If you want all blinds to move down, first deactivate maintenance mode with a click on "Deactivate maintenance".	
4.	Press the "All blinds down" button. If during travel in one direction, the button for the opposite direction is pressed (here: "All blinds up"), the motion stops. When pressing the button for the reverse direction longer (0.25 seconds), the travel in opposite direction is activated.	

4.2.2 Operating the temperature control for room 1

Table 4-2

No.	Action/response	KTP700 display
1.	Enter a setpoint value into the "Change setpoint" input field. → The current setpoint value is displayed in the "Setpoint" output field.	
2.	The room temperature measured by the PT100 is below the given setpoint value. → The heater remains deactivated.	
3.	The room temperature measured by the PT100 is below the given setpoint value. → The heater is switched on.	

4.2.3 Operating the lighting (room 1, room 2 and exterior lighting)

Table 4-3

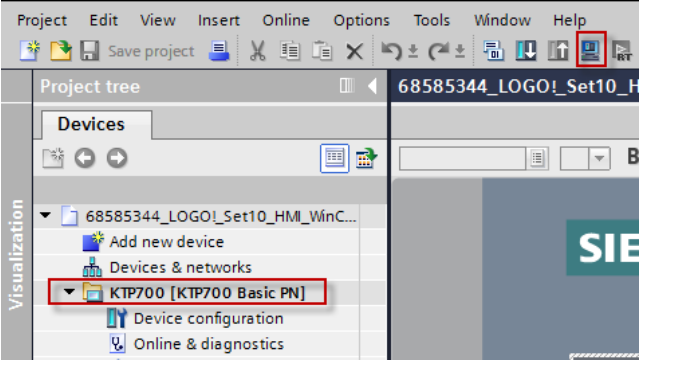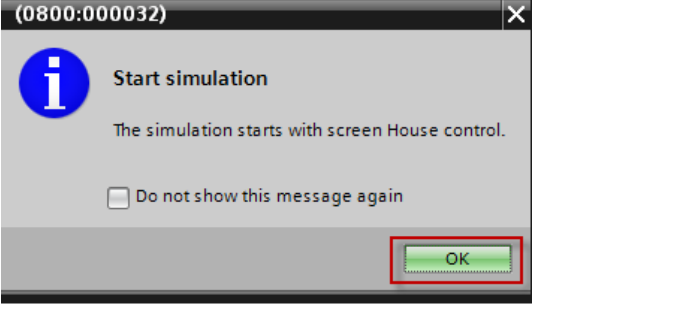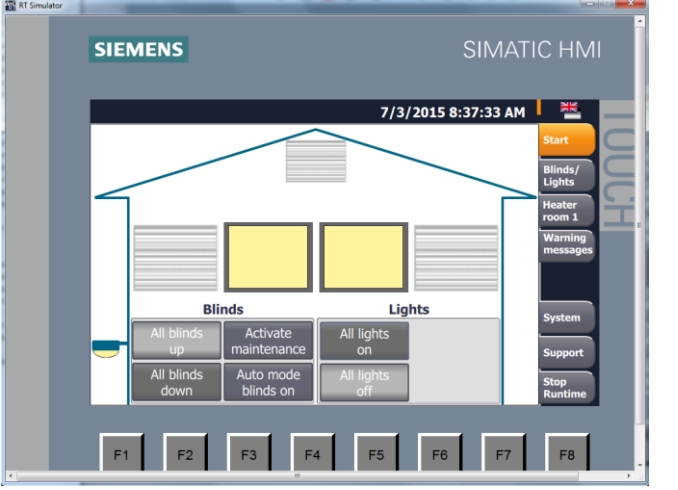| No.	Action	KTP700 display
1.	Press the "All lights on" button. → All lights are switched on.	
2.	Press the "All lights off" button. → All lights are switched off.	

4.3 Operation via PC

Note When using the application example with your PC, please make sure the HMI panel KTP700 is not connected with the other modules of the application example (LOGO! modules, PC, etc.).

For operating the application with the PC, the same basic settings (chapter 3.3.1) in the WinCC project apply as for direct operation with the HMI panel. The only difference is that you **do not press the "Load" button**, but the **"Start simulation" button**.

Table 4-4

No.	Action	KTP700 display
1.	In the project tree, select the folder "KTP700 [KTP700 Basic PN]" and click on "Start simulation" in the toolbar.	
2.	Press "OK" in the displayed message to start the runtime simulator.	
3.	Then, the runtime simulator starts with the project.	
4.	You can now operate the application via your PC with your mouse.	

5 Appendix

5.1 Service and Support

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5.2 Bibliographic references

Table 5-1

	Title
\1\	LOGO! 8 A Practical Introduction, with Circuit Solutions and Example Programs Author: Stefan Kruse Published by: Publicis ISBN: 9783895789267
\2\	LOGO!8 - MiniTrainerSchool Author: Klaus Machalek Product No.: LOGO! MTS

5.3 Internet links

Table 5-2

	Topic	**Link**
\1\	Siemens Industry Online Support	http://support.industry.siemens.com
\2\	Download page of the entry	https://support.industry.siemens.com/cs/ww/en/view/68585344
\3\	LOGO! 8 Manual	https://support.industry.siemens.com/cs/ww/en/view/109741041
\4\	HMI KTP700 Manual	https://support.industry.siemens.com/cs/ww/en/view/90114350
\5\	LOGO! Software updates	http://w3.siemens.com/mcms/programmable-logic-controller/en/logic-module-logo/demo-software/Pages/Default.aspx
\6\	LOGO! Application Examples	http://w3.siemens.com/mcms/programmable-logic-controller/en/logic-module-logo/application-examples/Pages/Default.aspx

5.4 History

Table 5-3

Version	**Date**	**Modifications**
V1.0	04/2013	First version
V1.1	03/2014	Layout modified and security note amended
V2.0	04/2016	Changes in LOGO! 8 and HMI KTP700
V2.1	09/2018	LOGO! 8.2 (user defined webserver / function from set 9)