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House control with Touch Panel

LOGO! 0BA7 Set 10

http://support.automation.siemens.com/WW/view/en/68585344

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1 Task

Note This LOGO! set expands LOGO! Set 9 by an HMI operator station. The example on hand can also be operated without hardware on the PC using the HMI panel Simulation of WinCC.

Further information on the functionalities of LOGO! Set 9 and the documentation for the download is available in entry ID <u>64143308</u>.

Introduction

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

- Blinds
- Roof windows
- Interior and exterior lighting
- Heating

The 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 of the general solution

Figure 2-1



Advantages/Benefits

- Simple execution and clear operation and monitoring of a building automation with LOGO! OBA7
- Excellent energy efficiency by monitoring the heating depending on the room temperature and the given setpoint
- Central building automation via Touch Panel KTP600
- Additional option to control the functionalities of the application on the PC via the HMI panel Simulation of WinCC

2.2 Hardware and software components

This application has been generated using the following components:

Hardware components

Table 2-1

No.	Component	Qty.	Order number	Note
1.	SIMATIC HMI KTP600 BASIC COLOR PN	1	6AV6647-0AD11-3AX0	

Configuration software/tools

Table 2-2

No.	Component	Qty.	Order number	Note
1.	LOGO!Soft Comfort V7	1	6ED1058-0BA02-0YA1	
2.	WinCC Basic V11	1	6AV2100-0AA01-0AA0	

Note

The HMI project is also compatible with WinCC Basic V12 and can be migrated.

Sample files and projects

Table 2-3

No.	Component	Note
1.	68585344_LOGO!_Set10_HMI_en.lsc	LOGO!Soft Comfort configuration for LOGO! 0BA7
2.	68585344_LOGO!_Set10_HMI_WinCC.ap11	WinCC Basic V11 configuration for HMI KTP600

3 Installation

3.1 Software installation

Note It is assumed that the necessary software LOGO! Soft Comfort V7 and WinCC Basic V11 has been installed on your PC and that you are familiar with the basic handling of LOGO!Soft Comfort V7.

IP addresses and subnet masks

Table 3-1

No.	Device	IP address	Subnet mask	Gateway
1.	Master LOGO!	192.168.1.10	255.255.255.0	0.0.0.0
2.	Slave LOGO!	192.168.1.11	255.255.255.0	0.0.0.0
3.	Network card or USB Ethernet Adapter for network connection to PC	192.168.1.12	255.255.255.0	0.0.0.0
4.	HMI KTP600	192.168.1.20	255.255.255.0	0.0.0.0

Note The IP addresses and subnet masks of the master and slave LOGO!, of the HMI panel and of the network card or USB Ethernet Adapter for the network connection to the PC, must always be set so all devices are located in the same subnet (see Table 3-1).

3.2 Configuration of the project for controlling the application via PC

3.2.1 Settings in the operating system

Note Please ensure that the HMI panel is not connected with the subnet via the Ethernet cable, since the PC is already to be simulated as an HMI panel in WinCC and a LOGO! Basic device can communicate with at maximum one HMI panel.

Table	3-2
-------	-----

No.	Action	PC screen
1.	In the operating system you navigate 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 USB Ethernet Adapter (without the yellow warning sign) for the Ethernet communication to the LOGO!. in this example: TCP/IP(Auto)->Intel(R) 82577LM Gigabinetwork card Ensure, that "STONLINE (STEP7) -> TCP/IP(Auto) -> Name of your network card or USB Ethernet Adapter has been selected in the "Access Point of the Application:" drop-down menu. Click on OK, to confirm the selection and to close the window. 	Set PG/PC Interface Access Path LLDP / DCP PNIO Adapter Access Point of the Application: Standard of STEP 7) -> TCP/IP(Auto) > Intel(R) 82577LM Git (Standard for STEP 7) Interface Parameter Assignment Used Properties Diagnostics ITCP/IP(Auto) > Atheros AB3287 V: Diagnostics INT TCP/IP(Auto) > Atheros AB3287 V: Diagnostics INT TCP/IP(Auto) > Intel(R) 82577LM (Git (R) 8

No.	Action	PC screen
3.	 With some operating systems under "system control->set PG/PC interface" the "Interface Parameter Assignment Used" is displayed in the following order: Name of your network card or USB Ethernet Adapter TCPIP.Auto.1 (without the yellow warning sign). Choose this point here, as in the previous step 2, and ensure that "STONLINE (STEP7) -> Name of your network card or USB Ethernet Adapter.TCPIP has been selected in the "Access Point of the Application:" drop-down menu: Click on OK, to confirm the selection. 	Set PG/PC Interface Access Path LLDP / DCP PNIO Adapter Access Point of the Application: S7ONLINE (STEP 7) > Intel(R) 82579LM Gigabit Network Connx v (Standard for STEP 7) Interface Parameter Assignment Used: Intel(R) 82579LM Gigabit Network Connect Properties Victorian ISO.1 Victorian CPIP.1 Victorian CPIP.2 Victorian CPIP.2 Victorian CPIP.2 Victorian CPIP.2 </td
4.	When a warning message appears with some operating systems, confirm with OK to complete the selection.	Warning X The following access path(s) was (were) changed: S7ONLINE (STEP 7) => TCP/IP(Auto) -> Intel(R) 82577LM Gigab OK Cancel
5.	Navigate to the program WinCC Basic V11 to make the necessary settings as described in the following table 3-3.	

3.2.2 Settings in WinCC Basic V11

Table 3-3

No.	Action	WinCC Basic V11 project view
1.	Start WinCC Basic V11, select your project with "browse" and click on "open".	Totally Integrated Automation PORTAL TA\64143308_LOGOL_Applik Browse Open
2.	Click on "project view" to open the project view.	Start Devices & Configure a device Devices & PLC programming Image: Start PLC programming Image: Start Visualization Image: Start Visualization Image: Start Project view Open the project view

No.	Action	WinCC Basic V11 project view
3.	In the project tree in "HMI_1[KTP600 Basic PN]" you navigate to "Connections" and	Project tree
	select it with a double-click.	 G4143308_LOGOL_Set10_HML_V3_de Add new device Devices & networks HML_1 [KTP600 Basic PN] Device configuration Online & diagnostics Runtime settings Screens Screens Screens Screens Screens Screens HMI tags Connections HMI alarms Recipes
4.	In "HMI device" you enter the IP address of your PC (here: 192.168.1.12) as no HMI panel is connected to the LOGO! device and the PC is to be simulated as an HMI panel. Press the Enter key for acknowledgement. Make sure that "STONLINE" is set as the "Access point:", your IP address of the Master LOGO! (here: 192.168.1.10) has been entered in "PLC", and the "Cyclic operation" checkbox is activated.	Connections to 57 PLCs in Devices & Networks Parameter Area pointer KTF600 Basic PN Station Wherface PLC Interface For any station Hill device For any station Kaddress 192 Kores point 570HLIE **When controlling the application via HMI panel you have to enter here in "HMI device" the IP address 192.168.1.20 of KTP600.
5.	In the project navigation you navigate to "Devices & networks" and select it with a double-click.	Project tree ■ Devices ■ ● ● ● ● ● ● ● ●

No.	Action	WinCC Basic V11 project view
6.	Click on the Ethernet interface, navigate to the "Properties" tab, ensure that "Use IP protocol" has been check-marked, and enter the IP address and subnet mask of your PC, here: IP address (PC):192.168.1.12. Subnet mask: 255.255.255.0	c4143308_LOGOL Set10_HMLV3_de > Devices & networks @ Topology view Network If Connections If Connections <
7.	In the project tree, select the "HMI_1[KTP600 Basic PN]" folder and in the toolbar you click on the "Start simulation" button.	Siemens - 64143308_LOGO!_Set10_HMI_V3_de Project Edit View Insert Online Options Tools Window Help Image: Save project Image: S
8.	Alternatively, you can also select the "Online > Simulation > Start" command from the menu.	Project Edit View Insert Online Options Tools Window Help Image: Save project Image: Source Sourc

No.	Action	WinCC Basic V11 project view
9.	As soon as the automatic compilation is terminated, the Runtime Simulator starts the project. Now you can operate the application with mouse and keyboard (for entering the setpoint) via your PC.	SIMATIC BASIC PARE SIMATIC BASIC PARE SIMATIC BASIC PARE I All up All on All off Maintenance All down All off Maintenance F1 F2 F3 F4 F5 F6

3.3 Configuration of the project for controlling the application via HMI KTP600

3.3.1 Settings on the HMI panel

Note The respective setup guidelines for HMI KTP600 must generally be followed. The IP address of the HMI panel can only be changed if Runtime has "stopped".

Γa	ab	le	3-4	
•••	~~		• •	

No.	Action	KTP600 Display
1.	Select the "Control Panel" button of the Loader to open the properties of the HMI panel.	Invester Vel di di 00,00,000 Treaster Start Start Basice Pandis PN Control Theorem Protect Frantier Frantier Scene Start Frantier Scene Start Scene Start Frantier Scene Start Scene Start S
2.	 Use the "Profinet" button and double-click on it to open the "Profinet Settings" (1) dialog and select "Specify an IP address" (2) for the assignment of an IP address. Touch the respective input fields and enter the IP address, the subnet mask and the gateway via screen keyboard, here: IP address: 192.168.1.20 Subnet Mask: 255.255.255.0 Gateway: 0.0.0.0 	Profet Status Profet Status P Address Mode Device NTP Address Mode Device NTP O Othmin an P address NEPCP Subnet Nume 122 182 1 Def. Geleway: 0 0 0 0

No.	Action	KTP600 Display
3.	Go to the "Mode" tab. Set the checkmark at "Auto Negotiation"; this automatically detects and sets the connection type and the transmission rate in the PROFINET network. Ensure that the "Deactivate LLDP" checkbox (information exchange with other operator panels) is deactivated.	Profinet Settings IP Address Mode Device NTP Configure transmissi Speed: 10 Mbrs/s Communication Link Communication Link
4.	 Go to the "Device" tab. Enter a network name for your HMI panel. The name must meet the following requirements: Maximum length: 240 characters Character "a" to "z", numbers "0" to "9" permitted special characters: "-" and"." Forbidden syntax: "n.n.n.n" (n=0 to 999) and "port-yxz" (x, y, z =0 to 9) Press "OK" to accept all entries. 	Profinet Settings OK X IP Address Mode Dev NTP Enter Station Name (not more characters) Station Name: IP Address: 0.0.0.0 IP Address: 0.0.0.0 IP Address: 0.0.18-8B-1B-EA-DF
5.	Press the "Transfer" button to open the "Transfer Settings" dialog. To load a project onto the HMI panel, at least one data channel must be enabled. Activate the "Enable Channel" checkbox. Check the "Remote Control" checkbox to activate the automatic transfer. Press "OK" to accept the entries.	Control Panel
6.	Close the window to return to the start picture of the Loader.	Control Panel
7.	Press the "Transfer" button of the Loader to enable loading the project into the HMI panel. The dialog window that opens displays the message "Connecting to host" .	Loader Transfer Start Control Panel

No.	Action	KTP600 Display
8.	Navigate to the program WinCC Basic V11 to open the project and follow the steps in table 3-5 to load the project into the HMI panel.	

3.3.2 Settings in WinCC Basic V11

Table 3-5

No.	Action	WinCC Basic V11 project view
1.	Repeat steps 1 to 6 in Table 3-3 with the difference here that in step 4 and in step 6 you enter the IP address 192.168.20 of the HMI panel KTP600	
2.	In the project tree, select the "HMI_1[KTP600 Basic PN]" folder and in the toolbar you click on the "Compile" button.	
3.	Wait until the compile is complete and in the pallet "Info" appears the message "Compiling completed (errors:0 ; warnings:0).	Compiling completed (errors: 0, warnings: 0) Profection Compiling completed (errors: 0, warnings: 0) Profection Profection Profection Compiling completed (errors: 0, warnings: 0) Compiling completed (errors: 0, warnings: 0)
4.	In the project tree, select the "HMI_1[KTP600 Basic PN]" folder and in the toolbar you click on the "Download to device" button.	Image: Second Sector Sector HML V3_de Project Edit View Insert Online Options Tools Window Help Image: Seve project Image: Seve

No.	Action	WinCC Basic V11 project view
5.	Alternatively, you can also select the "Online > Download to device" command from the menu.	Project Edit View Insert Online Options Tools Window Help Image: Save project Go online Ctrl+K Project tree Go online Ctrl+K Devices Simulation > Image: Save project Simulation > Start runtime Start runtime Stop runtime Image: Save project Image: Save project Start runtime Image: Save project Image: Save project Save project Image: Save projec
6.	As soon as the project download has been terminated, the configuration automatically starts on the KTP600 and you can now operate the application.	SIMMUS SIMATIC BASIC PANEL AUTO AUTO AUTO AUTO AUTO AUTO AUTO AUTO
7.	If the project does not start automatically after loading, click the "Start" button of the Loader.	Loader Transfer Start Control Panel

4 Operating the Application

The application is operated via buttons and the F-keys on the HMI KTP600

4.1 Overview of functions

4.1.1 Start screen

Figure 4-1		
SIEMENS		
	AUTO AUTO All up All on All off All down All off Auto mode on	JCH
L	F1: F2: F3: F5: F6; Room 1: A Image: Constraint of the second se	

4.1.2 Room 1 screen: Temperature control with PT100

Figure 4-2					
Figure 4-2	Actual temperature 25.8 Setpoint 26.0 Change Setpoint	Heater (PT 40 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	· 100)		BASIC PANEL TOUCH
	26.0 F1: F2 Roor	2 F3 F	Heater F5:	6 F6 F6	

4.1.3 Functions of the F-keys:

- F1: Back to the start screen
- F2: Display warning message
- F3: Go to the Room 1 screen
- F5: Change of language
- F6: Terminate runtime

4.2 Operation

The operation of the application is explained to you using the blinds, the temperature control for room 1 and the lighting.

4.2.1 Operating the blinds

Check that on the HMI panel the "Automatic mode" for the blinds has not been activated.

Table 4-1

No.	Description / Activity	KTP600 Display
1.	Press the "All up" button for at least 0,25 seconds.	
2.	All blinds move up into the final position.	Auro All on All off All down All down A
3.	When pressing the "Activate Maintenance" button the blinds cannot move down. If you wish to let all blinds down, first deactivate the maintenance works with pressing the button "Deactivate Maintenance".	AUTO MAINTENANCE MAINTENANCE MAINTENANCE MAINTENANCE All up All on All off Deactivate All down All off Deactivate Maintenance All down All on All off Deactivate Ht: F2 F3: F5: F6: F1 F2 F3 F4 F5 F6

No.	Description / Activity	KTP600 Display
4.	Press the "All down" button. If during motion the button for the opposite direction is pressed, the motion stops. When pressing the button for the opposite direction longer, the motion in opposite direction is activated.	All on All off All on All off All down Fi: F2: F3: F5: F6: Room 1 A F5 F6 F1 F2 F3 F4 F5 F6

4.2.2 Operating the temperature control for room 1

Table 4-2

No.	Description / Activity	KTP600 Display
1.	Enter a setpoint value into the input field "Change setpoint".	Heater (PT100) $Heater (PT100)$ $f = 1$ $Heater (PT100)$ $f = 1$ f
2.	The current setpoint value is displayed in the field "Setpoint".	
3.	The room temperature measured by the PT100 is below the given setpoint value.	
4.	The heating switches on.	
5.	If the room temperature exceeds the setpoint value again, the heating switches off.	

4.2.3 Operating the lighting

Table 4-3

No.	Description / Activity	KTP600 Display
1.	Press on the "All on" button.	
2.	All lights are now switched on.	AUTO AUTO All up All on All on All off Activate Maintenance All down Auto mode On F1: F2: F3: F5: F5: F6: F1: F2: F3: F4: F5: F6:
3.	When pressing the "All off" button, all lights are switched back off.	

5 Related Literature

5.1 Bibliographic references

The following list is by no means complete and only provides a selection of appropriate information.

Table 5-1

	Торіс	Title
\1\	LOGO!	LOGO! Practical Training
		Authors: Uwe Graune; Mike Thielert; Ludwig Wenzl
		Publisher: Publicis Publishing
		ISBN: 978-3-89578-338-8

5.2 Internet links

The following list is by no means complete and only provides a selection of appropriate sources.

Table 5-2

	Торіс	Link
\1\	LOGO! Information	http://ww.automation.siemens.com/mcms/programmable-logic- controller/en/logic-module-logo/Pages/Default.aspx
\2\	LOGO! Starter Kit	http://www.automation.siemens.com/mcms/programmable-logic- controller/en/logic-module-logo/logo-starter- kit/Pages/Default.aspx
\3\	Link to this document	http://support.automation.siemens.com/WW/view/en/68585344
\4\	Siemens Industry Online Support	http://support.automation.siemens.com
\5\	LOGO! Manuals	http://support.automation.siemens.com/WW/view/en/10805245/1 33300
\6\	LOGO! Forum	http://www.automation.siemens.com/WW/forum/guests/Conferen ces.aspx?Language=en
\7\	LOGO! Software Updates	http://www.automation.siemens.com/mcms/programmable-logic- controller/en/logic-module-logo/demo- software/Pages/Default.aspx
\8\	LOGO! Application Examples	http://www.automation.siemens.com/mcms/programmable-logic- controller/en/logic-module-logo/application- examples/Pages/Default.aspx
\9\	KTP600 Manual	http://support.automation.siemens.com/WW/view/en/31032678

6 History

Table 6-1

Version	Date	Modifications
V1.0	04/2013	First version
V1.1	03/2014	Layout changes and addition of security advice