

Application example for using an RCCA-A with HMI

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Preconditions

To understand this example, the following components are required: RCCA-A with current firmware (V1.0.30 or newer) GSMDL file for the TST RCCA, Siemens S7-1200 PLC, Siemens TIA Portal development environment not older than version V15. TST FUF2/FU3F with activated RCCA functionality and activated parameter P.804 = 1.

To simplify the interaction between PG, PLC and RCCA, the use of an Ethernet switch is recommended. The address range of the adapter used in the PG must be set to 192.168.0.xxx/24.

Hardware configuration

Create a new project and add your control unit to the project. In the example, a Siemens S7-1211C DC/DC/DC is used. ProfiNet® support is a prerequisite for communication via an RCCA-A.

If you have already integrated the GSMDL into your project, select the hardware variant "TST-RCCA-A" from the hardware catalogue under "Other field devices" -> "PROFINET IO" -> "I/O" -> "FEIG ELECTRONIC GmbH" -> "Door control" and add it to your project.

Add a display device to the project, in the example KTP400 Basic PN. Make sure that they are compatible with each other. The example device also communicates via ProfiNet®.

Establish the ProfiNet connection between the control unit, RCCA and HMI under "Network view". To simplify subsequent interaction with the control unit, wire the network as shown in Fig. 1. Operation according to Fig. 2 in productive mode would also be possible but would make it more difficult to change and monitor the control programme.

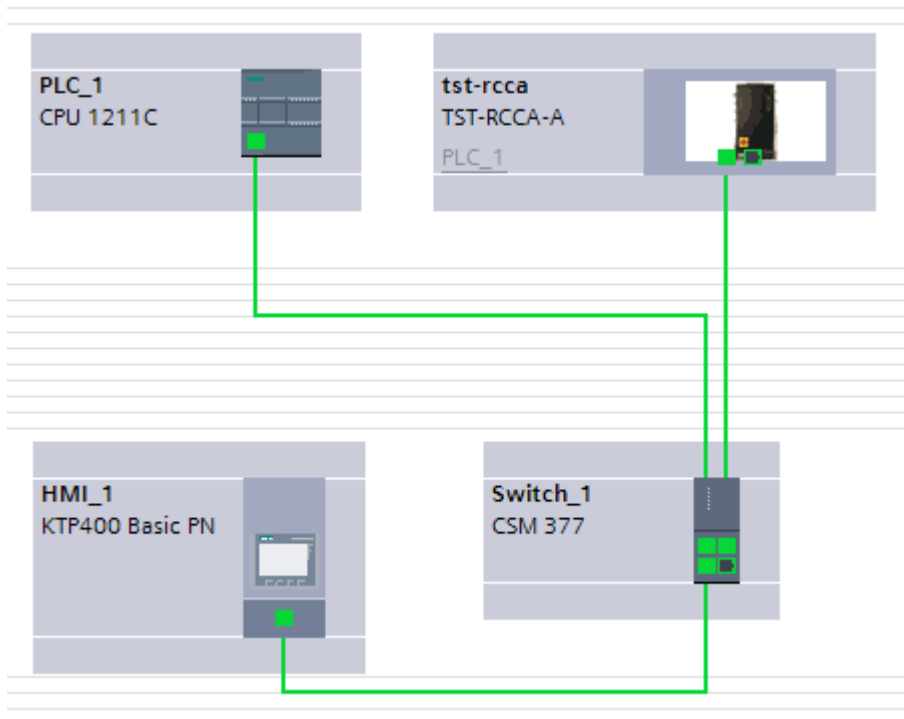


Figure 1: Wiring with switch

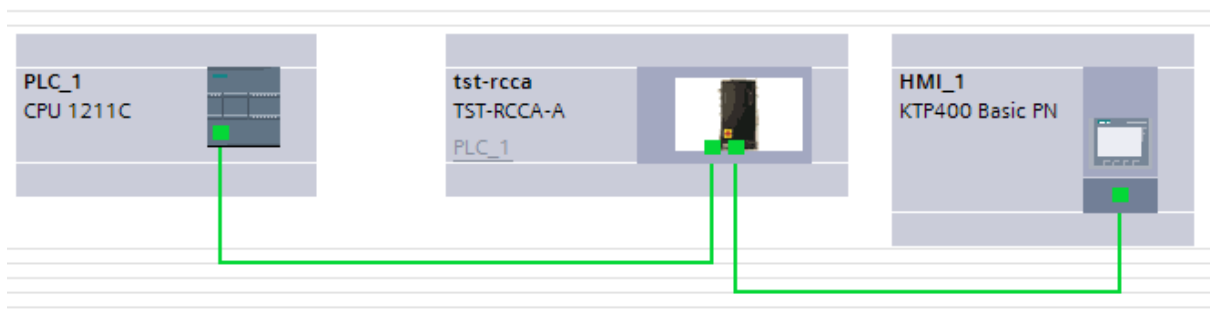


Figure 2: Wiring without switch

Program blocks

Tags

The example project contains all the variables necessary to demonstrate functionality. Further variables can be created and evaluated as required.

Example library

All function modules used are also contained in the "Feig RCCA incl. HMI V1.1" library and are used in the project. Other image modules used come from the Siemens standard library provided during software installation.

Program sequence

The programme is processed cyclically in OB1 of the control programme. Create a sequence according to the scheme: Read data, edit commands, write data.

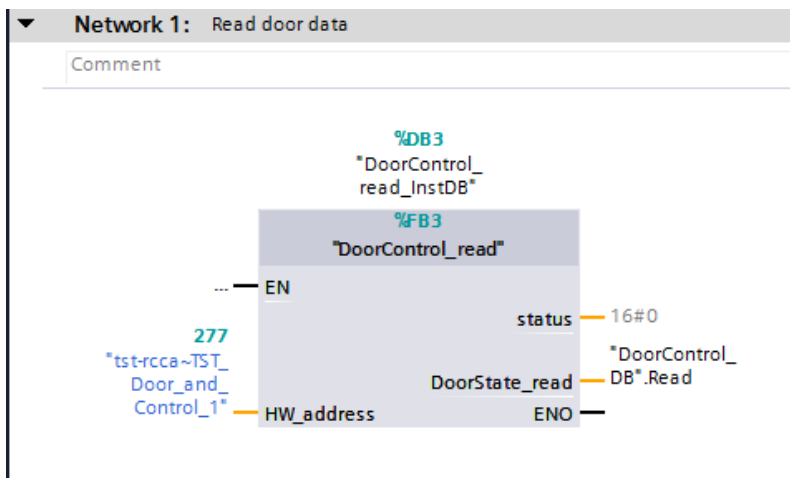


Figure 3: Read TST data

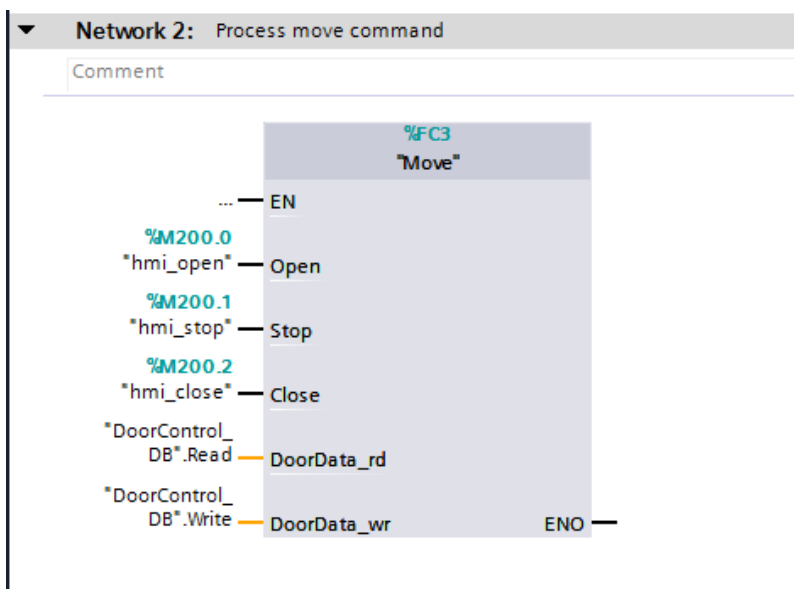


Figure 4: Evaluate movement command from HMI

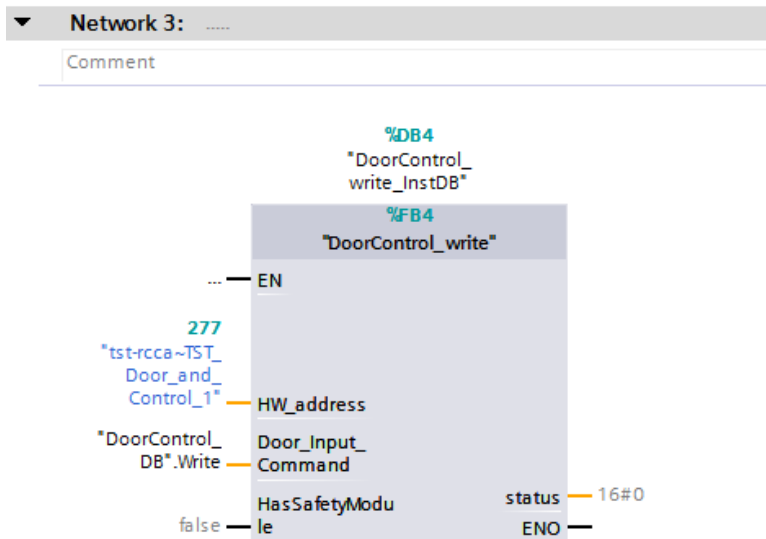


Figure 5: Send data to TST

The hardware address of the module "RCCA_A~TST_Door_and_Control_1" can be found in the PLC variables under "Standard variables".

Display

The visualisation shown in the example can only be an indication of how the control unit can be integrated into an HMI. Due to the large number of display devices and visualisation requirements, this is only a rudimentary demonstration of the possibilities.

Operating and display elements

The "Feig RCCA incl. HMI V1.1" library contains an example page of an HMI with a visualisation element that is modelled on the physical keypad of the door control unit (Fig. 6) and can be used to control the door. However, there are no limits to the user when it comes to implementing the control unit. Interaction with the RCCA works in the same way as with any field device.

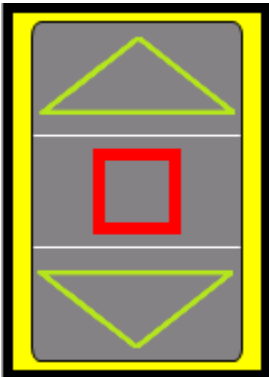


Figure 6: Virtual keyboard

All other image modules come from the Siemens standard library and can be used freely.

Watch and control

Now translate and transfer the hardware configuration and control programme for both the PLC and HMI. Interaction can now take place entirely via the HMI.

When controlling inputs, please note that a function must be assigned to the corresponding input in the door control configuration.

All other available door control information can be called up via the DB "DoorControl_DB".