

The background image shows a man in a light blue shirt from the side, looking at a tablet. He is in a factory or industrial setting with various machines and equipment visible in the background. Overlaid on the image are several digital graphics: a large '24/7' icon with a circular arrow, a 'NEWS' section with a person icon, a 'Home' button, and a network diagram with three people icons. The overall theme is industrial digitalization and online support.

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Evaluation of the PLC Status "RUN/STOP" with a SIMATIC S7-1200 or S7-1500 Controller.

WinCC (TIA Portal) / Basic and Comfort Panels

<https://support.industry.siemens.com/cs/ww/en/view/109481628>

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1 Introduction

The aim of this FAQ response is to evaluate the current "RUN / STOP" status of a SIMATIC S7-1200 or S7-1500 controller via a SIMATIC HMI operator panel.

The HMI system function "GetPLCMode" is used to evaluate the PLC status.

To have the querying run cyclically and automatically, the "life bit" of the panel is evaluated via the "Coordination" area pointer. The "life bit" toggles between "0" and "1" in the cycle of 1 second independently of the status of the PLC.

The system function "GetPLCMode" is called each time the value of the "life bit" tag changes. The system function outputs an "integer value" as a result.

- 4 = PLC in STOP
- 8 = PLC in RUN

The PLC status is output via a text list depending on the result.

Sample program

The attached sample program was implemented with the following components. Alternatively you can use all the SIMATIC controllers and operator panels that can be configured in the TIA Portal.

CODE 1:

- WinCC (TIA Portal)
- CPU 1215C
- KTP 1200 Basic

CODE 2:

- WinCC (TIA Portal)
- CPU 1511-1PN
- TP 1200 Comfort Panel.

Note

The following description applies to both sample programs.

2 STEP 7 Program

2.1 OB1 (Main)

In "Network 1" the current time of the PLC is read out via the "RD_LOC_T" block and transferred to an HMI tag.

The HMI tag is updated until the CPU goes into the "STOP" status. In this way it can be determined at what time the CPU went into the "STOP" status.

In the case of the Comfort Panel the tag for the time is integrated in the text list. In the case of the Basic Panel the tag is output in a separate IO field.

2.2 HmiData (DB100)

Data exchange between HMI operator panel and CPU is via the DB100.

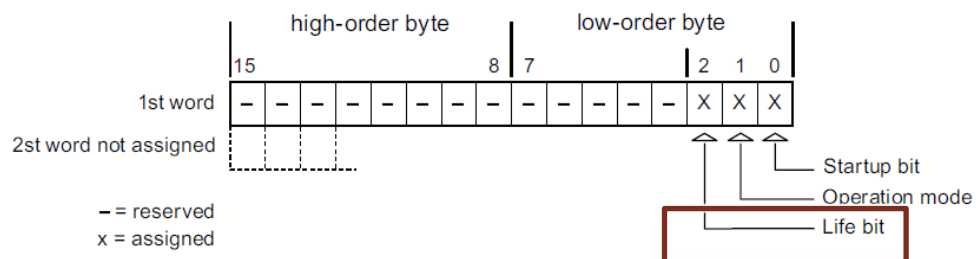
Note

Go to "Properties > General > Attributes" and disable the "Optimized block access" option.

"Coordination" tag

The "Coordination" area pointer is used for implementing the task. Evaluation of the life bit is via the 2nd bit. Detailed information about this area pointer is available in the system manual "WinCC Engineering - Communication" in Entry ID: [109755215](#) or at this [direct link](#).

Figure 2-1



"plcTime" tag

The current time of the CPU is read out via this tag.

"getPlcMode" tag

This tag is for the return value of the "GetPLCMode" HMI system function that is used.

3 HMI Configuration

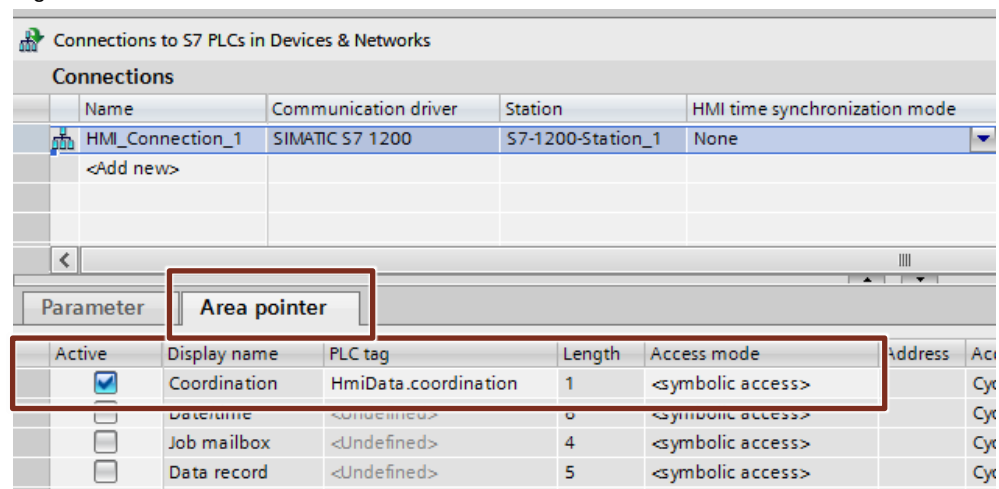
All the project-relevant tags are located in the folder "Project tree > HMI tags > "PLC_Status" folder.

3.1 Area Pointers

The requirement is that a connection is established to a SIMATIC controller.

- Open the Connections via the Project tree.
- Then select the "Area pointer" tab.
- Enable the "Coordination" option and assign the "**Coordination**" tag from "DB100".

Figure 3-1

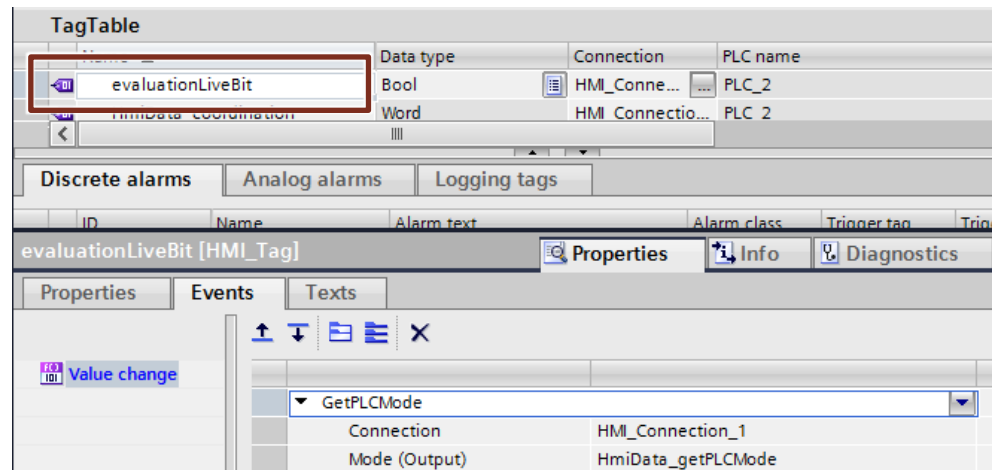


Evaluate life bit

To evaluate the life bit you use the "evaluationLifeBit" tag with the absolute address "%DB100.DBX1.2" (corresponds to the 2nd bit from the "Coordination" tag).

The HMI system function "GetPLCMode" is configured at the "evaluationLifeBit" tag ("Properties > Events > Change in Value").

Figure 3-2



3.2 System Function "GetPLCMode"

The "getPLCMode" tag is used as parameter for the HMI system function "GetPLCMode".

The system function returns an integer value as event.

- 4 = PLC in STOP
- 8 = PLC in RUN

The tag is then assigned to a symbolic IO field.

3.3 Text List

The PLC status is output via the text list.

Depending on the value "4" or "8" the text

- PLC in STOP
or
- PLC in RUN

is output.

The text list in the "Topic_001.0" screen is assigned to a symbolic IO field.

Note

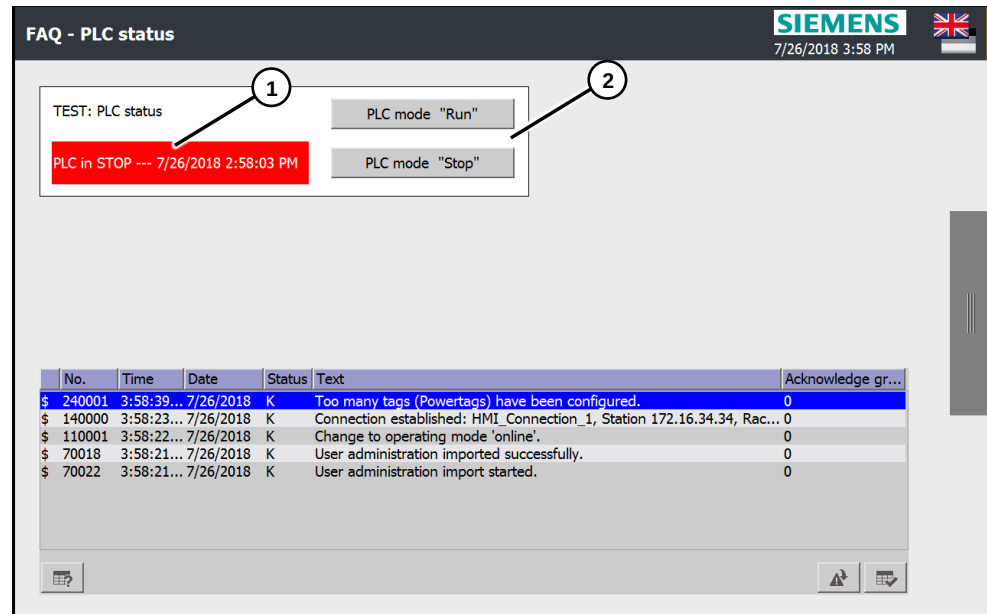
In the case of a Comfort Panel a text list can be inserted directly in a tag. In this example it is the "plcTime" tag via which the current PLC time is output.

3.4 HMI Screen "Topic_001.0"

Depending on the evaluation of the system function "GetPLCMode", via the symbolic IO field the PLC mode is output via the text list (1).

You use the two buttons to switch between the PLC statuses "RUN" and "STOP" (2).

Figure 3-3



3.5 HMI Screen "Topic_002.0"

The screen includes a diagnostics display via which the PLC status can be queried.