



如何在操作面板上设定定时器时间，同时如何输出定时器的剩余时间？

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6AV6611-0AA01-1CA5	WINCC FLEXIBLE 2005 COMPACT
6AV6612-0AA01-0AA0	SIMATIC WinCC flexible 2004 Standard
6AV6612-0AA01-1CA5	WINCC FLEXIBLE 2005 STANDARD
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说明:

下面几个例子演示了如何在面板上设置定时器时间，同时也演示了定时器剩余时间的输出。
本文最后的项目样例里包括下面例子展示的全部功能。

No.	步骤
1	以秒为单位设定定时器时间(example_1 + example_2): 若在操作面板上设定定时器的定时时间，相应的变量需要定义为“Timer”类型。如果面板的项目已经集成到 Step7 中，则变量可以直接引用 Step7 符号表，Step7 项目中的“S5TIME”类型的变量会自动转为面板中“Timer”类型，这种类型的变量，其输入必须以毫秒为单位。一般“Timer”类型的变量需以毫秒为单位输入，为能够以秒为单位输入时间，需要修改变量属性中的“线性标定”。  Fig. 01 如图 1 所示，在线性标定中设定“操作面板，上限值=1，控制器，上限值=1000”意味着面板上输入的 1 会转换为 1000 传输到控制器中，因此面板可以秒为单位直接输入时间值（1000=1000 毫秒=1 秒）
2	将定时器的剩余时间以秒为单位在面板上输出: 介绍: 时间输出值与时基相关，下图是 Step7 关于 S5TIME 定义的在线帮助。  Fig. 02 有关 S5TIME 在 STEP7 的在线帮助中 可以查到更多说明，这里不再展开。 例 1:



在面板项目的第一个例子里，剩余时间直接来自于定时器的 BCD 输出，由于面板中的变量使用“Timer”的数据类型，因此不需要考虑控制器中 S5TIME 的时基就可以正确地在面板上显示剩余时间。（STEP7 项目中调用 FC10,DB10）

例 2:

在第二个例子中，没有在面板上直接显示 S5TIME 定时器的 BCD 输出，而是连接的定时器 BI 输出，即整型输出。这时如果在面板上输出正确的剩余时间，需要在控制器程序中考虑时

基。(STEP7 项目中调用 FC20,DB20)

本例中不同时基下组态了各自的输出域，当时基不同时，输出值的小数点会进行相应的移动，该输出域显示隐藏属性也由时基决定。

这个剩余时间的显示由 4 个输出域配合完成，每个输出域的显示属性由时基决定，在“属性>动画>可见性”下完成组态。

具体见面板项目画面 1 中的 3, 4, 5, 6 层组态的 4 个输出域。

3 以时/分/秒格式在面板上做时间输入/输出:**例 3:**

在第三个例子中，时间可以以时/分/秒的格式设定，当设定时间比较大的时候推荐用这种方法。

（STEP7 项目中调用 FC82; FC200; FB200,DB200）

这个例子中的 FB200 是用户自定义的功能块，其中包括将以秒为单位的整型时间值到 S5TIME 的转换。

注释:

- FB200 调用 FC200
- FC200 调用 FC82

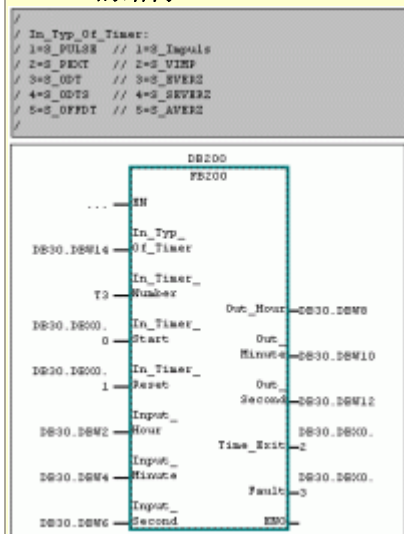
FB200 的结构:

Fig. 03

FB200 的输入参数:

- In_Type_Of_Timer
设定使用的定时器功能块类型.
1=S_PULSE; 2=S_PEXT; 3=S_ODT; 4=S_ODTS; 5=S_OFFDT
- In_Timer_Number
设定使用的定时器编号(最大编号取决于 CPU).
- In_Timer_Start (Bool)
定时器启动
- In_Timer_Reset (Bool)
定时器重置
- Input_Hour (Int)
小时值设定



- Input_Minute (Int)
分钟值设定
- Input_Second (Int)
秒值设定

FB200 的输出参数:

- Out_Hour (Int)
剩余时间的小时值
- Out_Minute (Int)
剩余时间的分钟值
- Out_Second (Int)
剩余时间的秒值
- Time_Exit (Bool)
时间状态
- Fault (Bool)
如果输入的时间超过 2 小时 46 分 30 秒，本例中出错位被置位，或者可以在操作面板中输出一个消息。

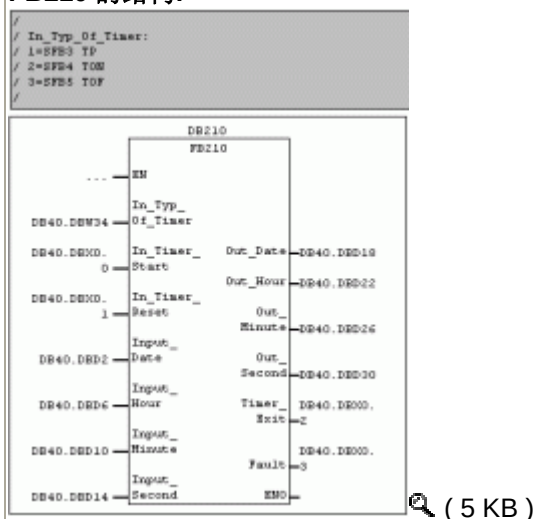
"example_3"的操作注释:

例三中可以选用不同的定时器功能块作测试，一旦选定某一个，将会有对应的数值作为参数提供给 FB200。

4 以时/分/秒格式在操作面板上输入/输出定时器时间:**例 4:**

第四个例子中，时间可以以日/时/分/秒的方式设定。与前几个例子不同的是，本例中调用了系统功能块 SFB3 "TP"; SFB4 "TON" 和 SFB5 "TOF"。标准块中时间的最大值是 2 小时 46 分 30 秒，而系统块可以设定的最大值是 24 天 20 小时 31 分钟 23 秒（STEP7 项目中调用 FC40; DB40; FB210, DB210）

这个例子中的 FB210 是用户自定义的功能块，其中包括将以秒为单位的整型时间值到 S5TIME 的转换。

FB210 的结构:**Fig. 04****FB210:**

- In_Type_Of_Timer
设定使用的定时器功能块类型。
1=SFB3 (TP); 2=SFB4 (TON); 3=SFB5 (TOF)
- In_Timer_Start (Bool)



- 定时器启动
- In_Timer_Reset (Bool)
定时器重置
 - Input_Date (DINT)
日期设定
 - Input_Hour (DInt)
小时值设定
 - Input_Minute (DInt)
分钟值设定
 - Input_Second (DInt)
秒值设定

Output parameters for the FB210:

- Out_Date (DInt)
剩余时间的日期值
- Out_Hour (DInt)
剩余时间的小时值
- Out_Minute (DInt)
剩余时间的分钟值
- Out_Second (DInt)
剩余时间的秒值
- Time_Exit (Bool)
时间状态
- Fault (Bool)
如果输入的时间超过 24 天 20 小时 31 分钟 23 秒，本例中出错位被置位，或者可以在操作面板中输出一个消息。

"example_4"的操作:

例三中可以选择不同的定时器功能块作测试，一旦选定某一个，将会有对应的数值作为参数提供给 FB210。

例子项目中的画面:

(116 KB)

Fig. 05

运行和测试环境:

这个例子适用于所有 SIMATIC S7-300/400 系列的 CPU。

另外,这个例子适用于所有操作系统基于 Windows CE 的操作面板。

下表是项目例子中使用的硬件和软件，经测试能够实现上述功能。

Component	Product and version designation
PC 操作系统	Microsoft Windows XP SP2
标准工具	STEP 7 V5.3 SP3
组态工具	-



HMI 软件	WinCC flexible 2005 SP1 Advanced
HMI 设备	MP370 Touch 12"
控制器	S7 CPU 315 2DP (315-2AG10-0AB0)

The attached download contains the archived STEP 7 project and integrated WinCC flexible project, along with the function blocks described above.

下载附件包括压缩的 STEP7 项目和集成在项目中的 WinCC flexible 项目，其中包括上述的功能块。



附件 1: [WinCC flexible Timer](#) (2547 KB)

注意:

样例项目是免费提供的，任何用户可以免费地使用，拷贝和发送。程序的作者和所有者对此项目的功能和应用程序的兼容性不负任何责任。使用程序的风险由用户自身承担。因为程序是免费的，因此没有热线支持或错误修改。

关键词:

定时器, 面板

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How do you specify the runtime for a timer via an operator panel, or how do you output the remaining runtime?

▼ [Display part number](#)

6AV6610-0AA01-0AA0	SIMATIC WinCC flexible 2004 Micro
6AV6610-0AA01-1CA8	WINCC FLEXIBLE 2005 MICRO
6AV6611-0AA01-0AA0	SIMATIC WinCC flexible 2004 Compact
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6AV6613-0AA01-0AA0	SIMATIC WinCC flexible 2004 Advanced
6AV6613-0AA01-1CA5	WINCC FLEXIBLE 2005 ADVANCED
6AV6613-0AA11-0AA0	SIMATIC WinCC flexible 2004 ASIA Advanced
6AV6613-0AA11-1CA5	WINCC FLEXIBLE 2005 ASIA ADVANCED

Instructions:

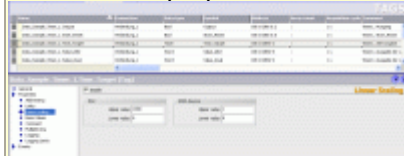
Several examples are described below to illustrate how to specify the runtime for a timer via an operator panel. It also describes how to output the remaining runtime for a timer on an operator panel.

At the end of this entry there is a sample program in which the functions described below are implemented.

No.	Procedure
1	Specifying/Inputting the timer runtime in seconds (example 1 + example 2): In order to specify the runtime for a timer via an operator panel, the corresponding variable must be declared as a "Timer" type in the operator panel (in the S5TIME controller). If you are working with the symbolic connection, the "Timer" type of variable is automatically specified on the operator panel when you select "S5TIME"-type variables. The value is entered in milliseconds ! To save the operator having to enter the time in milliseconds, linear scaling can be defined in



the variables properties under "Properties > Linear Scaling".



(49 KB)

Fig. 01

The value entered is converted automatically before being passed on to the controller. "Operator panel, end value =1 and controller, end value =1000" scaling means that a "1" entered in the controller is transferred as "1000", for example.
=> The operator can specify the time in "seconds" (1000 = 1000ms = 1s).

2 Outputting the timer runtime in seconds:

Introduction:

The time is output on the basis of the "time base". This depends upon the default time. The figure below shows a description from the STEP 7 online help on the topic of "Evaluation of the time value".



(51 KB)

Fig. 02

The online help in STEP 7 contains further information on the topic. It will not be explored any further in this FAQ.

Example 1:

In example_1, the remaining runtime is output directly from the "BCD" output on the timer to a variable on the operator panel. In order to display the remaining runtime "correctly" **without** taking due account of the time base, the "Time" data type has been selected on the operator panel for the "remaining runtime" variable (STEP 7 program: blocks FC10; DB10).

Example 2:

In example_2, the remaining runtime is **not** output directly from the output on the timer to a variable on the operator panel. The current time value is derived from the timer's "BI" output. In order to display the remaining runtime "correctly", the time base must also be taken into consideration (STEP 7 program: blocks FC20; DB20).

A separate "output field" has been created for each "time base" for the purposes of outputting the remaining runtime on the operator panel - the decimal point has been moved in each case. The output field is displayed via the properties of the variables, "Properties > Animations > Visibility", depending upon the time base.

For greater clarity, the output fields can be shown or hidden in the configuration view via levels 3, 4, 5 and 6.

3 Inputting / Outputting the timer runtime in hours/minutes/seconds:

Example 3:

In example_3 the runtime can be input/specified in hours/minutes/seconds. This is particularly advisable where larger time values have to be specified (STEP 7 program: blocks FC30; DB30; FC82; FC200; FB200, DB200).

The sample project contains an FB (FB200) which can be parameterized. The time base is implemented and the remaining runtime output via this FB.

Notes:

- FB200 contains the call for the FC200.
- FC200 contains the call for the FC82.

Structure of the FB200:

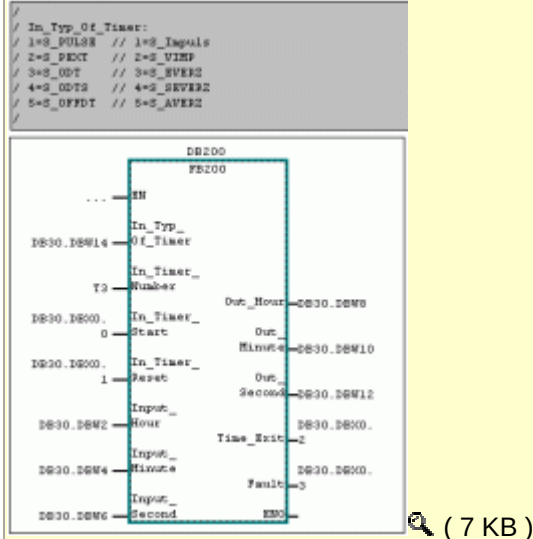


Fig. 03

Input parameters for the FB200:

- In_Type_Of_Timer
Specification of the time operations.
1=S_PULSE; 2=S_PEXT; 3=S_ODT; 4=S_ODTS; 5=S_OFFDT
- In_Timer_Number
Number of the time, e.g. T2 (max. range depends upon the CPU).
- In_Timer_Start (Bool)
Start input
- In_Timer_Reset (Bool)
Reset input
- Input_Hour (Int)
Specification of the hours
- Input_Minute (Int)
Specification of the minutes
- Input_Second (Int)
Specification of the seconds

Output parameters for the FB200:

- Out_Hour (Int)
Remaining runtime in hours
- Out_Minute (Int)
Remaining runtime in minutes
- Out_Second (Int)
Remaining runtime in seconds
- Time_Exit (Bool)
Status of the time
- Fault (Bool)
Input fault if the time base is more than 2h:46min:30sec.
As in this example, a message can be output on the operator panel.

Note on operating "example_3":

For the purposes of testing, you can specify various time operations via a symbolic IO field. In "practice", specifying the time operation would be configured/saved as a fixed parameter on the FB200.

4 Inputting / Outputting the timer runtime in hours/minutes/seconds:**Example_4:**

The runtime can be input/specified in days/hours/minutes/seconds in example_4.



The system function blocks SFB3 "TP"; SFB4 "TON" and SFB5 "TOF" were used instead of the standard blocks for the different times.

A maximum time of 2h:46min:30sec can be specified for the "standard blocks". A time of up to 24d:20h:31min:23sec can be specified for the system function blocks (STEP 7 program: blocks FC40; DB40; FB210,DB210).

There is detailed information available about the SFBs in the STEP 7 Online Help.

The sample project contains an FB (FB210) which can be parameterized. The time base is implemented and the remaining runtime output via this FB.

Structure of the FB210:

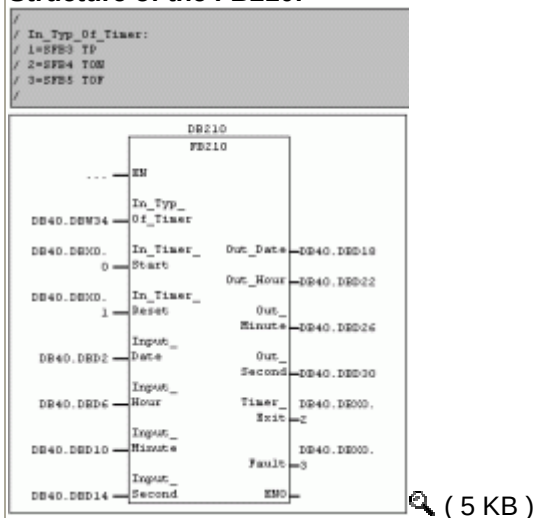


Fig. 04

Input parameters for the FB210:

- In_Type_Of_Timer
Specification of the time operations.
1=SFB3 (TP); 2=SFB4 (TON); 3=SFB5 (TOF)
- In_Timer_Start (Bool)
Start input
- In_Timer_Reset (Bool)
Reset input
- Input_Date (DInt)
Specification of the days
- Input_Hour (DInt)
Specification of the hours
- Input_Minute (DInt)
Specification of the minutes
- Input_Second (DInt)
Specification of the seconds

Output parameters for the FB210:

- Out_Date (DInt)
Remaining runtime in days
- Out_Hour (DInt)
Remaining runtime in hours
- Out_Minute (DInt)
Remaining runtime in minutes
- Out_Second (DInt)
Remaining runtime in seconds
- Time_Exit (Bool)
Status of the time
- Fault (Bool)
Input fault if the time base is more than 24d:20h:31min:23sec.



As in this example, a message can be output on the operator panel.

Note on operating "example_4":

For the purposes of testing, you can specify various time operations via a symbolic IO field. In "practice", specifying the time operation would be configured/saved as a fixed parameter on the FB210.

Overview of the sample configuration:

Fig. 05

Runnability and test environment:

The example can be used on all the CPU types of SIMATIC S7-300/400.

Furthermore, it supports all Windows CE-based operator panels.

The following table lists the components that have been used to create this entry and verify the functions described.

Component	Product and version designation
PC operating system	Microsoft Windows XP SP2
Standard tools	STEP 7 V5.3 SP3
Engineering tools	-
HMI software	WinCC flexible 2005 SP1 Advanced
HMI devices	MP370 Touch 12"
Controllers	S7 CPU 315 2DP (315-2AG10-0AB0)

The attached download contains the archived STEP 7 project and integrated WinCC flexible project, along with the function blocks described above.



Attachment 1: [WinCC flexible_Timer](#) (2547 KB)

Important:

The sample program is freeware. Any user can use, copy and forward this program free of charge. The authors and owners of this program take no responsibility whatsoever for the functionality and compatibility of this software. Use of the software is at the user's own risk. Since this software is free of charge, there is no warranty nor entitlement to error correction and hotline support.

Keywords:

Timer, Panel,

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