

常问问题 • 03/2015

精致屏的时间同步到 SIMOTION

Simotion Comfort Panel Time Synchronization

<https://support.industry.siemens.com/cs/cn/zh/view/109477883>

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1 概述

工厂中的 HMI 操作员面板与 SIMOTION 控制器交换数据的同时，可以和控制器 SIMOTION 进行时钟同步。

时钟同步分为两种任务：

1. HMI 操作员面板将作为主时钟。
(HMI 操作员面板的时钟传递到 SIMOTION 控制器)
2. SIMOTION 控制器将作为主时钟。
(SIMOTION 组件的时钟传递到 HMI 操作员面板)

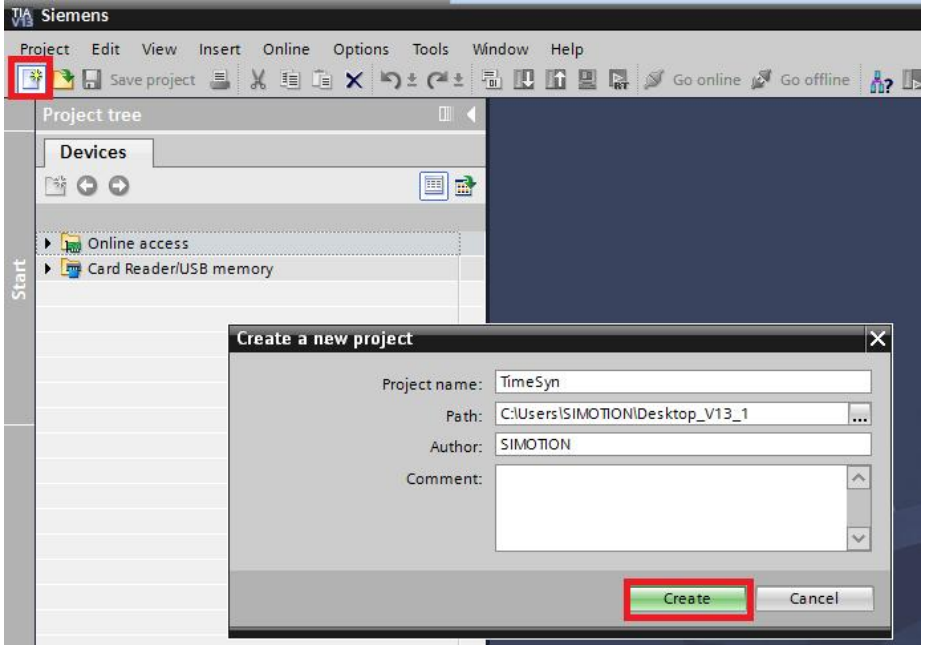
本文介绍了如何通过 SCOUT TIA 及 WinCC V13 实现时钟同步任务 1 的设置及其在程序中的实现步骤。

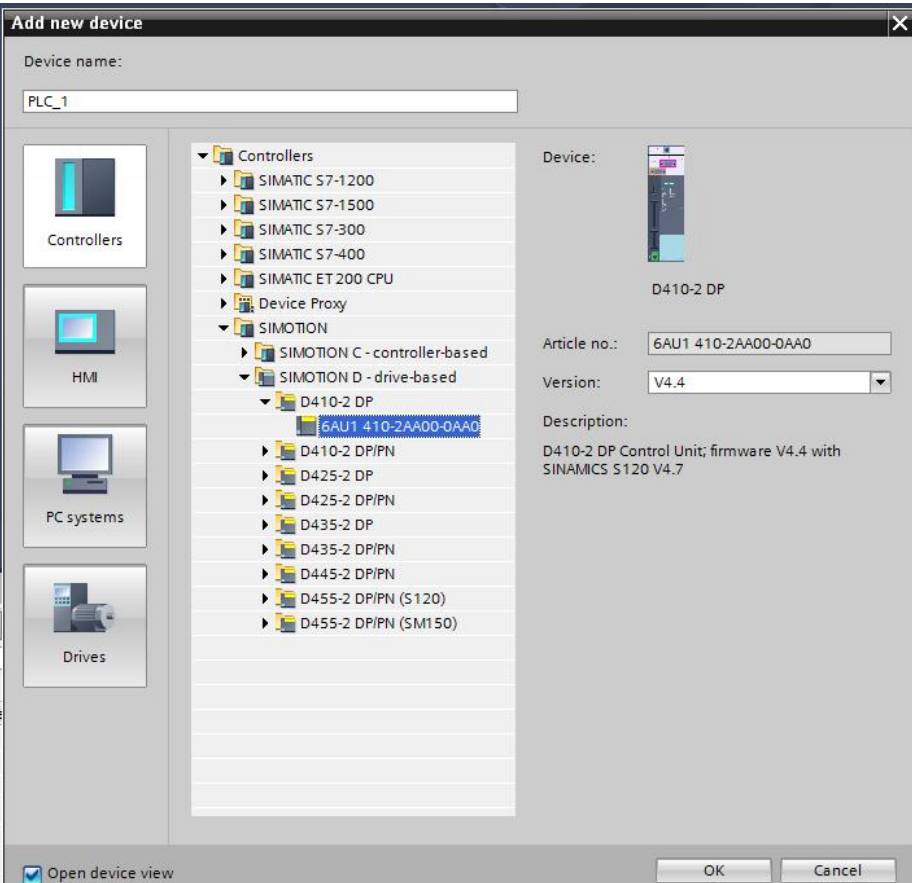
2 配置

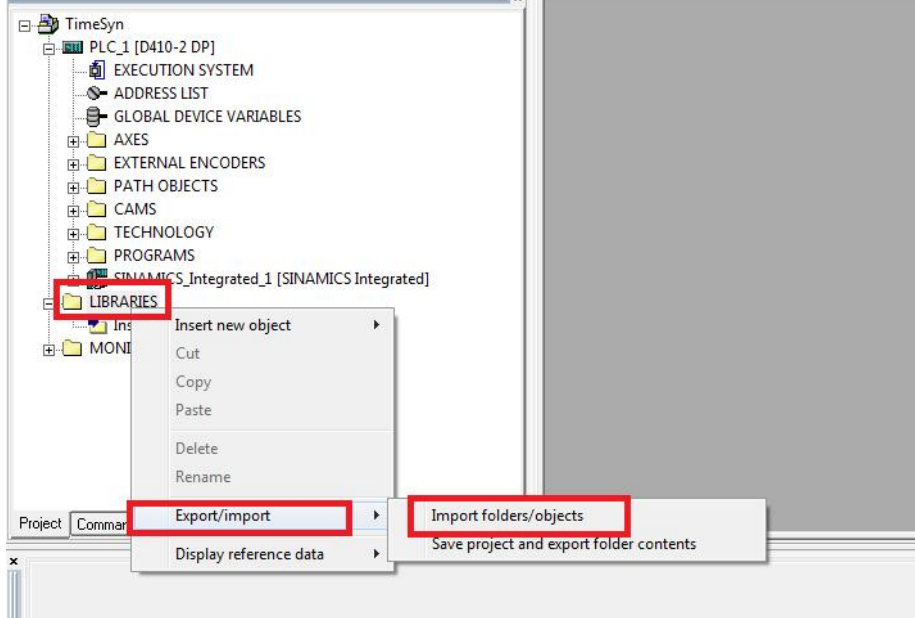
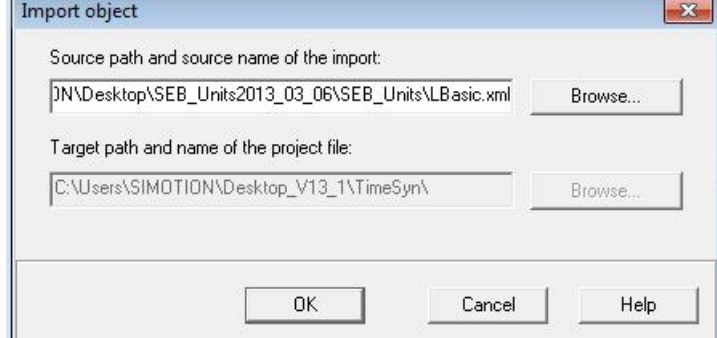
软硬件要求：

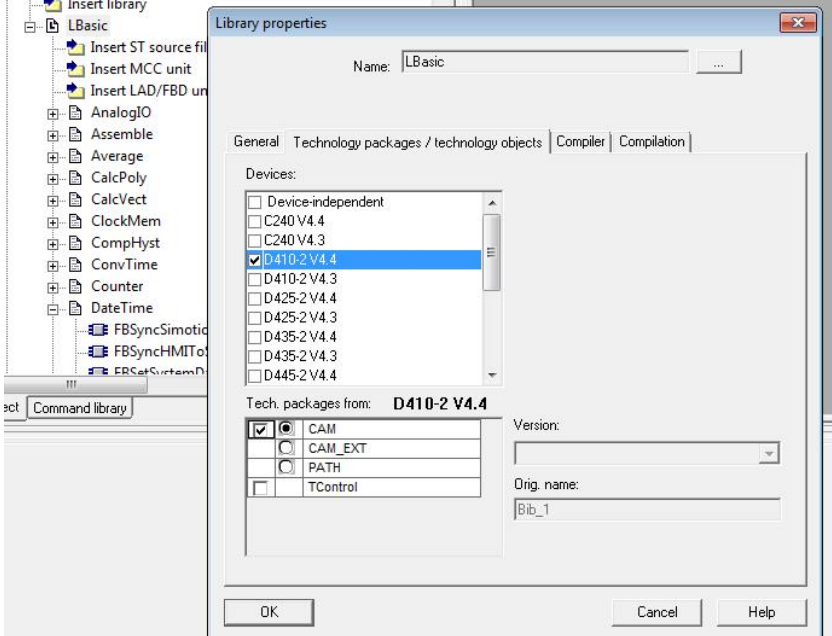
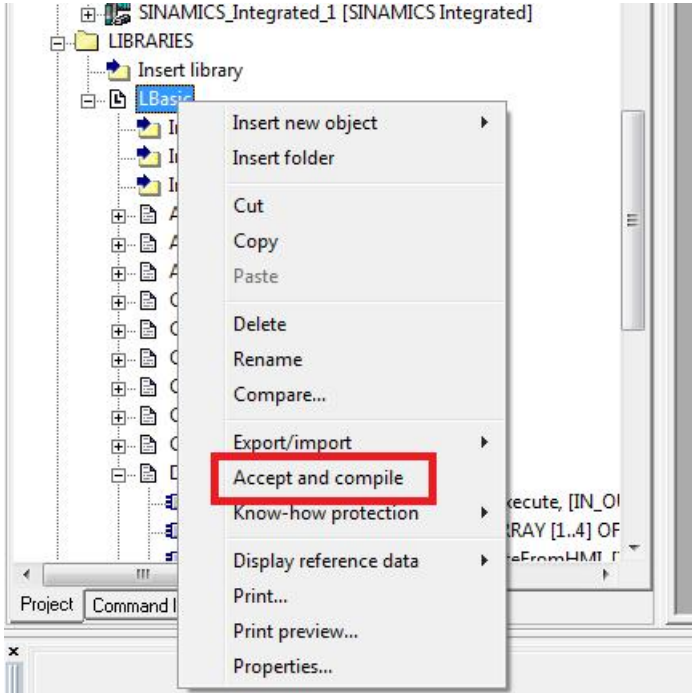
- TIA Portal V13 Update2 以上版本、SIMOTION SCOUT TIA V4.4 选件包
- SIMOTION SCOUT V4.4 以上版本
- SIMATIC STEP 7 V5.5 SP4
- 使用 SIMOTION 控制器 Fw V4.3 以上
- WinCC Comfort, WinCC Advanced 或 WinCC Professional V13 以上版本

操作步骤见表 2-1。

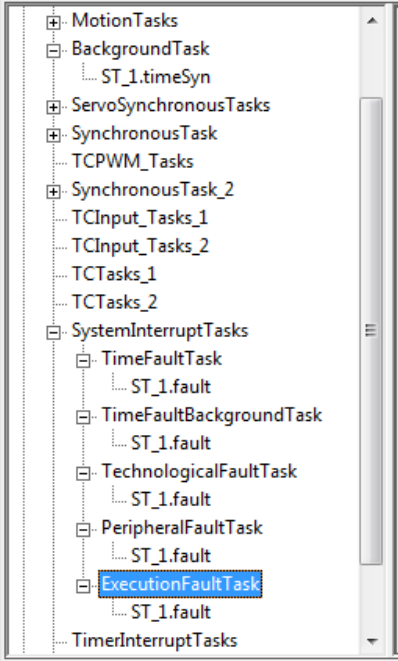
序号	图示与说明
1.	<p>打开 TIA 博途软件，创建一个新项目：</p>  <p>The screenshot shows the Siemens TIA Portal interface. The 'Project tree' on the left contains 'Devices', 'Online access', and 'Card Reader/USB memory'. A 'Create a new project' dialog box is open in the foreground, with the following fields: Project name: TimeSyn, Path: C:\Users\SIMOTION\Desktop_V13_1, Author: SIMOTION, and Comment: (empty). The 'Create' button is highlighted with a red box.</p>

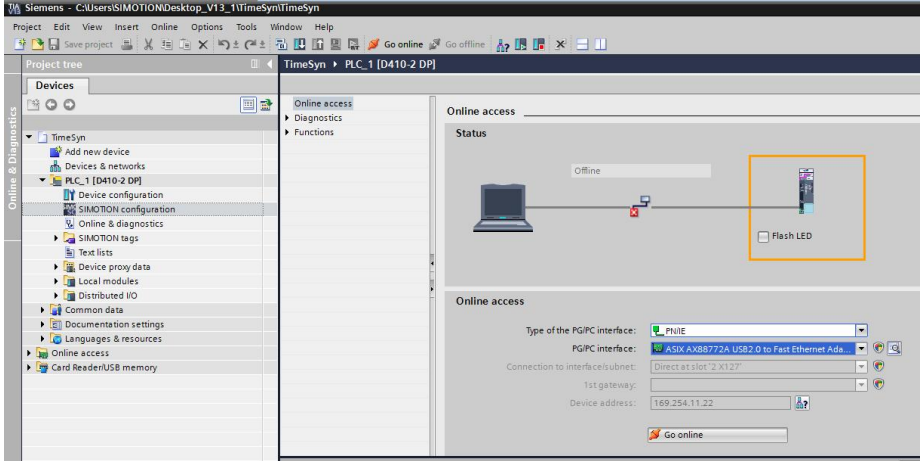
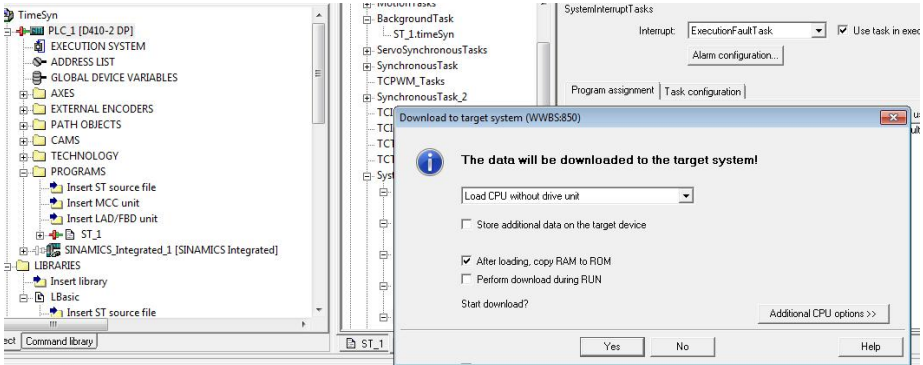

序号	图示与说明
2.	<p>添加 SIMOTION 硬件:</p>  <p>The screenshot shows the 'Add new device' dialog box. The 'Device name' field contains 'PLC_1'. The tree view is expanded to 'SIMOTION D - drive-based' > 'D410-2 DP', with the specific device '6AU1 410-2AA00-0AA0' selected. The right panel shows the device icon, article number '6AU1 410-2AA00-0AA0', version 'V4.4', and description: 'D410-2 DP Control Unit; firmware V4.4 with SINAMICS S120 V4.7'. The 'Open device view' checkbox is checked. 'OK' and 'Cancel' buttons are at the bottom right.</p>

序号	图示与说明
3.	<p data-bbox="446 347 1364 448">打开 SCOUT TIA 软件，导入 SEB 库程序（库程序位于 SCOUT 光盘目录： \\Utilities_Applications\src\Applications\InterbranchSolutions_Si motionEasyBasics 中的 SEB_Units 中）：</p>  <p data-bbox="446 1086 662 1120">选择 LBasic.xml :</p> 

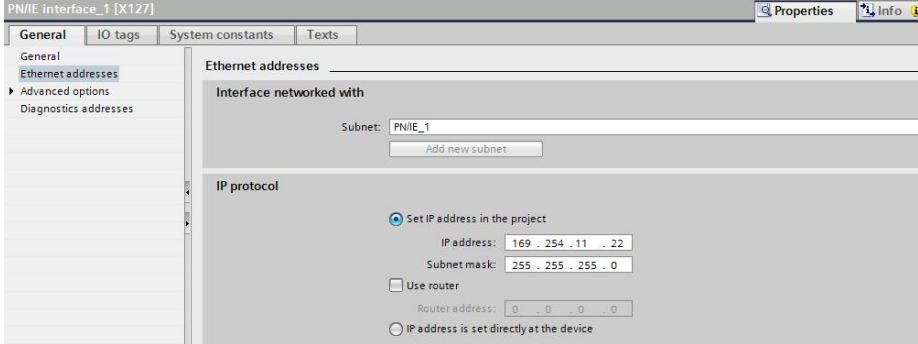
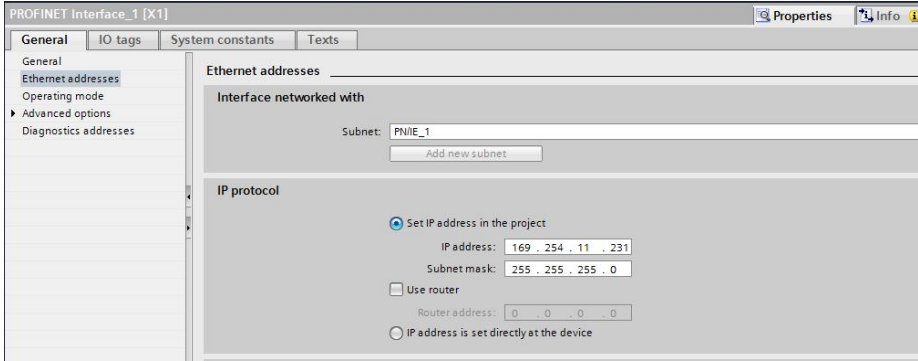
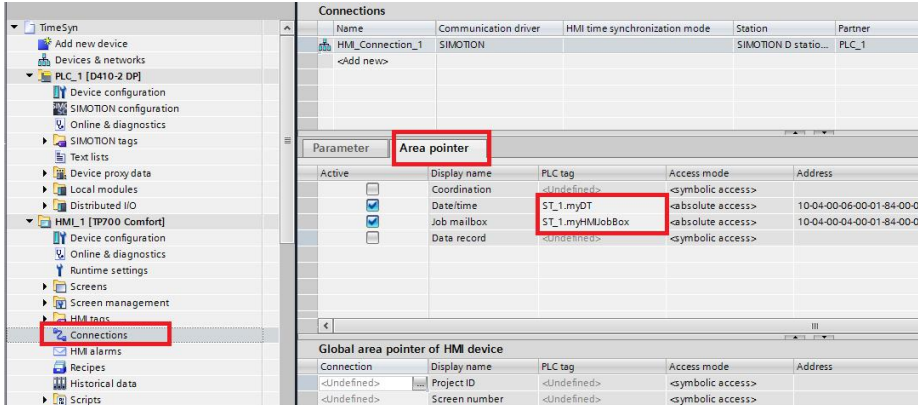
序号	图示与说明
4.	<p>右键选择 LBasic 的库应用的硬件设备对象，需注意使用的版本，并且进行编译：</p>  <p>编译：</p> 

序号	图示与说明
5.	<p>在 SIMOTION 中插入 ST 程序，编写程序如下：</p> <pre>INTERFACE USELIB LBasic ; PROGRAM timeSyn; PROGRAM fault; VAR_GLOBAL myFBSyncSi moti onToHMI : FBSyncSi moti onToHMI ; myHMI JobBox : ARRAY [0..3] OF WORD; myDT: ARRAY [0..5] OF WORD; outputDT: DT; startSYN: BOOL; END_VAR END_INTERFACE IMPLEMENTATION PROGRAM timeSyn myFBSyncSi moti onToHMI (execute := startSYN ,HMI JobBox := myHMI JobBox ,dateAndTime := myDT ,systemDateAndTime => outputDT); END_PROGRAM PROGRAM fault ; END_PROGRAM END_IMPLEMENTATION</pre>

序号	图示与说明
6.	<p>分配执行程序：</p>  <ul style="list-style-type: none">⊕ MotionTasks⊖ BackgroundTask<ul style="list-style-type: none">... ST_1.timeSyn⊕ ServoSynchronousTasks⊕ SynchronousTask<ul style="list-style-type: none">... TCPWM_Tasks⊕ SynchronousTask_2<ul style="list-style-type: none">... TCInput_Tasks_1... TCInput_Tasks_2... TCTasks_1... TCTasks_2⊖ SystemInterruptTasks<ul style="list-style-type: none">⊖ TimeFaultTask<ul style="list-style-type: none">... ST_1.fault⊖ TimeFaultBackgroundTask<ul style="list-style-type: none">... ST_1.fault⊖ TechnologicalFaultTask<ul style="list-style-type: none">... ST_1.fault⊖ PeripheralFaultTask<ul style="list-style-type: none">... ST_1.fault⊖ ExecutionFaultTask... ST_1.fault... TimerInterruptTasks

序号	图示与说明
7.	<p>编译下载程序，并且切换 SIMOTION 到运行状态： 设置通信接口：</p>  <p>在线并下载：</p>  <p>切换 SIMOTION 到运行状态 (Ctrl+i)：</p> 

序号	图示与说明						
8.	<p>添加触摸屏到博途项目中，本例使用的是 TP700 Comfort:</p>						
9.	<p>选择和 si motion 连接:</p> <table border="1" data-bbox="1066 1727 1366 1917"> <thead> <tr> <th>Name</th> <th>CPU type</th> </tr> </thead> <tbody> <tr> <td>None</td> <td></td> </tr> <tr> <td>PLC_1</td> <td>D410-2 DP</td> </tr> </tbody> </table>	Name	CPU type	None		PLC_1	D410-2 DP
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10.	<p>需要注意检查 SIMOTION 和屏的 IP 设置是否正确： SIMOTION 的 IP 接口：</p>  <p>屏的 IP 接口：</p> 																																																		
11.	<p>连接 SIMOTION 的变量用于时间同步：</p>  <table border="1" data-bbox="746 1205 1369 1339"> <thead> <tr> <th>Name</th> <th>Communication driver</th> <th>HMI time synchronization mode</th> <th>Station</th> <th>Partner</th> </tr> </thead> <tbody> <tr> <td>HMI_Connection_1</td> <td>SIMOTION</td> <td></td> <td>SIMOTION D station...</td> <td>PLC_1</td> </tr> </tbody> </table> <table border="1" data-bbox="746 1339 1369 1541"> <thead> <tr> <th>Active</th> <th>Display name</th> <th>PLC tag</th> <th>Access mode</th> <th>Address</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/></td> <td>Coordination</td> <td><undefined></td> <td><symbolic access></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Date/time</td> <td>ST_1.myDT</td> <td><absolute access></td> <td>10-04-00-06-00-01-84-00-0</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Job mailbox</td> <td>ST_1.myHMIJobBox</td> <td><absolute access></td> <td>10-04-00-04-00-01-84-00-0</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Data record</td> <td><undefined></td> <td><symbolic access></td> <td></td> </tr> </tbody> </table> <table border="1" data-bbox="746 1541 1369 1608"> <thead> <tr> <th>Connection</th> <th>Display name</th> <th>PLC tag</th> <th>Access mode</th> <th>Address</th> </tr> </thead> <tbody> <tr> <td><undefined></td> <td>Project ID</td> <td><undefined></td> <td><symbolic access></td> <td></td> </tr> <tr> <td><undefined></td> <td>Screen number</td> <td><undefined></td> <td><symbolic access></td> <td></td> </tr> </tbody> </table>	Name	Communication driver	HMI time synchronization mode	Station	Partner	HMI_Connection_1	SIMOTION		SIMOTION D station...	PLC_1	Active	Display name	PLC tag	Access mode	Address	<input type="checkbox"/>	Coordination	<undefined>	<symbolic access>		<input checked="" type="checkbox"/>	Date/time	ST_1.myDT	<absolute access>	10-04-00-06-00-01-84-00-0	<input checked="" type="checkbox"/>	Job mailbox	ST_1.myHMIJobBox	<absolute access>	10-04-00-04-00-01-84-00-0	<input type="checkbox"/>	Data record	<undefined>	<symbolic access>		Connection	Display name	PLC tag	Access mode	Address	<undefined>	Project ID	<undefined>	<symbolic access>		<undefined>	Screen number	<undefined>	<symbolic access>	
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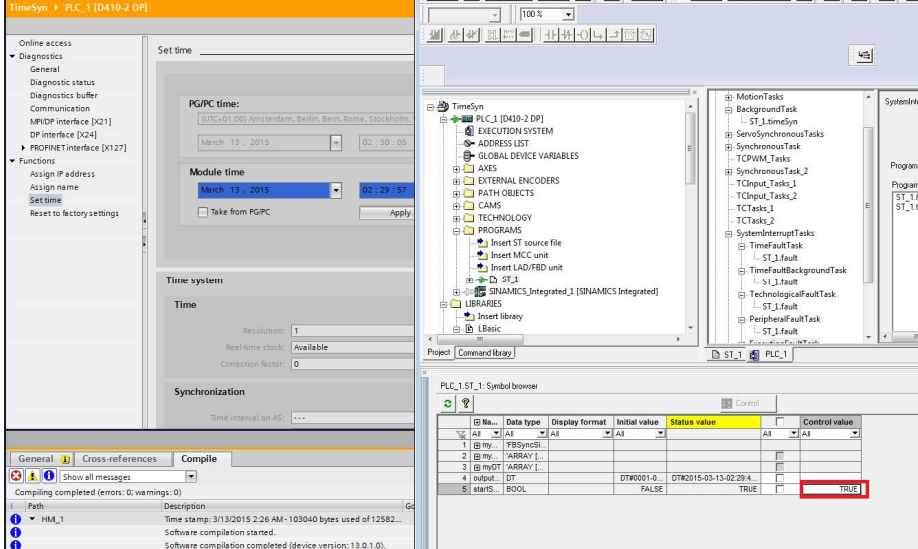
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12.	<p>设定 SIMOTION 的变量 startSYN=true 启动同步，即可以实现屏的时间和 SIMOTION 一致：</p>  <p>The screenshot displays the SIMATIC Manager interface for a SIMOTION system. The 'Set time' dialog is open, showing the 'Module time' set to March 13, 2015, 02:29:57. Below the dialog, the 'Symbol browser' table is visible, showing the variable 'startSYN' with a value of 'TRUE' highlighted in red.</p> <table border="1" data-bbox="877 806 1316 918"> <thead> <tr> <th>No.</th> <th>Data type</th> <th>Display format</th> <th>Initial value</th> <th>Status value</th> <th>Control value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>BOOL</td> <td>All</td> <td>All</td> <td>All</td> <td>All</td> </tr> <tr> <td>2</td> <td>ARRAY [..]</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>ARRAY [..]</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>DT</td> <td></td> <td>D7W001-0..</td> <td>D7W2015-03-13-02:29:4..</td> <td></td> </tr> <tr> <td>5</td> <td>BOOL</td> <td></td> <td>FALSE</td> <td>TRUE</td> <td>TRUE</td> </tr> </tbody> </table>	No.	Data type	Display format	Initial value	Status value	Control value	1	BOOL	All	All	All	All	2	ARRAY [..]					3	ARRAY [..]					4	DT		D7W001-0..	D7W2015-03-13-02:29:4..		5	BOOL		FALSE	TRUE	TRUE
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表 2-1 操作步骤说明