Step7中有关时间和定时器的使用和例程 About Time AND Timer sample in STEP7

Getting Started

Edition (2007-9)





摘要

本文档主要介绍以下相关问题: 西门子S5TIMER和IEC TIMER的使用方法 西门子有关时间的OB块的使用方法

西门子有关时间的系统功能块的使用方法

关键词

定时器; IEC定时器;组织块;系统功能块

Key Words

S5Timer;Timer;OB Block; SFCs/SFBs



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前言:

在Step7中提供了比较丰富的与时间有关的元素例如定时器、系统时钟以及相关的组 织块和系统功能块等,非常方便。但因为大家对其缺乏必要的了解,所以在使用中总会出现 这样那样的问题。为了帮助大家比较系统的了解这个有关时间的主题我们在这个文档中分别 做以介绍和提供一简单例程。

重要提示:

• 由于所附例程是免费的,任何用户可以免费复制或传播此程序例子。程序的作者对此程序 不承担任何功能性或兼容性的责任,使用者风险自负

• 西门子不提供此程序例子的错误更改或者热线支持。

• 注意所附例程只注重功能的实现,即非唯一的方法也没有考虑限制范围,仅做参考。

1. 定时器

西门子 PLC 定时器最小时间单元为 10ms,可用的定时器指令列表如下:

S_PULSE	脉冲定时器
S_PEXT	扩展脉冲定时器
S_ODT	接通延迟定时器
S_ODTS	保持接通延迟定时器
S_OFFDT	断开延迟定时器
(SP)	脉冲定时器线圈
(SE)	扩展脉冲定时器线圈
(SD)	接通延迟定时器线圈
(SS)	保持接通延迟定时器线圈
(SF)	断开延迟定时器线圈

西门子 PLC 定时器有数量限制,如果定时器不够用,可以使用 IEC 定时器,具体 描述参见下面有关 IEC 定时器的描述。不同型号的 CPU 定时器的数量是不同的,可以在 线从 CPU 的属性中查看,点击 CPU,然后选择 PLC -> Module Information…,画面如 下:





点击完成后,选择 Performance Data 按钮,查看 Timers 数量,画面如下:

GeneralD	iagnostic Buffer		Me	emory	Scan Cycle Tim	э
Time System	Performance Da	ata		Communication	n 📔 Stack	.s
Organization Blocks:			System B	locks:		
No. Function 0B1 Free scan cycle 0B10 Time-of-day interrup 0B11 Time-of-day interrup 0B12 Time-of-day interrup 0B13 Time-of-day interrup 0B14 Time-of-day interrup 0B15 Time-of-day interrup 0B16 Time-of-day interrup	start event: sta t - start eve t - start eve t - start eve t - start eve t - start eve - start eve	~	No. SFB0 SFB1 SFB2 SFB3 SFB4 SFB5 SFB8 SFB9	Name CTU CTD CTUD TP TON TOF USEND URCV	Symbol Comment Count Up Count Down Count Up/Down Generate a Pulse Generate an On Generate an Off Uncoordinated S Uncoordinated S	
Address Areas:						
Address type	Quantity		Area fro	om	to / max. length	^
Process Image Inputs	8192 (Bits)		10.0		11023.7	
Process Image Outputs	8192 (Bits)		Q0.0		Q1023.7	
Bit Memory 131072 (Bit			M0.0		M16383.7	
Timers	512		TO		T511	
Counters	512		CÓ		C511	
Local Data	32768 (Bytes)					~

对于不同定时器的编程使用可参见该指令的在线帮助,打开任一程序块,选中 Timers 中的指令,以 SODT 为例,然后按键盘的 F1 键,即为该指令的在线帮助,画面如 下:

C	Excellence in Automation & Drives: Siemens	>						SIEMENS
	🗮 LAD/STL/FBD - [🤣 Help on La	dder Logic					
	🖬 File Edit Insert	File Edit Book	mark Options	Help				
		<u>C</u> ontents	Index	<u>B</u> ack	Prin	.t <u><</u> <		
	HKO New petwork	S_ODT	On-Delay	/ S5 Time	r			
	Rew Retwork Retwork	Symbol		0				
	G Jumps Jumps Jumps Ji Integer functio Ji Floating-point f A Move Move Move Sintr/Rotate M Status bits M Timers	English T no. S_ODT S (TV E R BCC		Gem s T R	T-Nr. S_EVERZ Q W DUAL DEZ			
		<u>Parameter</u> English	<u>Parameter</u> <u>German</u>	<u>Data Type</u>	Memory Area	Description		
		T no.	T-Nr.	TIMER	Т	Timer identificatio number; range de on CPU	n pends	
	(SE)	s	S	BOOL	I, Q, M, L, D	Start input		
	(SD)	TV	TW	S5TIME	I, Q, M, L, D	Preset time value		
	(SS)	R	R	BOOL	I, Q, M, L, D	Reset input		
		BI	DUAL	WORD	I, Q, M, L, D	Remaining time v integer format	alue,	

在该在线帮助中找到 Example 部分的例程和描述,可以参考,画面如下:



2. IEC 定时器 (SFB3 、SFB4 、SFB5)

IEC 定时器没有数量限制,IEC 定时器通过系统功能块 SFB3(TP),SFB4(TON),SFB5(TOF)来实现,分别对应定时器指令的脉冲定时器,接通延迟定时器和断开延迟定时器,具体功能块的参数和使用方法可参考在线帮助。



2. 1 SFB3 (TP)

简单的程序如下:



DB1为SFB3的背景数据块,当M0.0从0变为1定时器启动,10秒钟内M0.1输出为1,时间到后M0.1为0,产生一个10秒的脉冲。如果在10秒钟内M0.0从1变为

0,则 M0.1 的输出不变,从 MD2 可以读出定时器已运行的时间。

2. 2 SFB4 (TON)

简单的程序如下:



DB1为SFB4的背景数据块,当M0.0从0变为1定时器启动,定时时间到(10秒钟)M0.1输出为1。如果定时时间未到M0.0从1变为0,则定时器复位,从MD2可以读出定时器已运行的时间。

2. 3 SFB5 (TOF)

简单的程序如下:



DB1为SFB5的背景数据块,当M0.0为1,则M0.1输出为1,当M0.0从1变为0定时器启动,定时时间到(10秒钟)M0.1输出为0。如果定时时间未到M0.0从0变为1,则定时器复位,从MD2可以读出定时器已运行的时间。



3. 系统时钟 (SFC0 、SFC1 、0B1)

3.1 设置系统时钟的两种办法

直接使用 STEP7 软件中的相关指令在联机的情况下直接设定系统时钟。如下图所示,选中项目中的站,使用 SIMATIC Manager->Diagnostic/setting->Set Time of Day 指令设置系统时钟:

SIMATIC Manager - timersample								
File Edit Insert (PLC View Options Window Help							
🗋 🗅 🚅 🖁 🛲	Access Rights	•	🔁 🛛 < No Filter >	1	- 19 9	🖁 🗐 📆	1 🔁 🗖 🗂	N?
timersample b timersample t gr S7 Progra	Download Configure Compile and Download Objects Upload Station to PG Copy RAM to ROM Download User Program to Memory Card Save to Memory Card Retrieve from Memory Card Manage M7 System Drive Display Accessible Nodes Change Module Identification CPU Messages Display Force Values Monitor/Modify Variables	Ctrl+L Ctrl+K	e <mark>rsam</mark>					
	Diagnostic/Setting PROFIBUS Edit Ethernet Node Assign PG/PC Cancel PG/PC Assignment Update Firmware Update the Operating System Save Service Data		Hardware Diagnostics Module Information Operating Mode Clear/Reset Set Time of Day Node Flashing Test	Ctrl+D Ctrl+I		_	_	

也可打开程序块或硬件组态,使用 PLC->Set Time of Day 指令来在线设置系统时钟,画面如下:

🗱 LAD/STL/FBD - [OB1 timersample\S7 Program(1)]						
🖬 File Edit Insert	PLC Debug View Options Window	Help				
D 📽 🖫 📕 🔮	Download Select Online CPU Establish Connection to Configured CPL	Ctrl+L >i				
FB blocks	CPU Messages Display Force Values Monitor/Modify Variables	〕Interf ⊕-t⊒+ TEM Ctrl+Alt+F				
GENERAL SFB blocks GENERAL SFC blocks GENERAL MUltiple instan GENERAL SECTION	Module Information Operating Mode Clear/Reset	Ctrl+D Ctrl+I				
	Set Time of Day					

Au	Excellence in utomation & Drives: Siemens					
	Set Time of Day					
	Path: test\SIMATIC 300(1)					
	Online: Order No.: 6ES7 315-2AG10-04 Name:	кB0				
	Date: Time	e of Day:				
	PG/PC time: 2007-08-16 09:	27:38				
	Module time: 2007-08-16 09:	27:38				
	Take from PG/PC 1					
		More >>				
	Apply 2 Close	Help				

勾选"Take from PG/PC",使用计算机时钟同步PLC时钟,然后点击"Apply"按钮完成。

2) 使用 SFC0 来设置系统时钟

创建一个 DB 块 DB1



SIEMENS



打开 DB1 块定义一个 DATE _AND_TIME 的变量如图所示:

Image: Constraint of the second se	🙀 LAD/STL/FBD - [DB1 TIMERSAMPLE1\SIMATIC 300(1)\CPU 315-2 DP]						
	File	Edit Insert	Pl	LC Debug Vie	ew Options Window Helj	P	
D	🗅 🖆 🔐 🛃 🎒 🐰 🖻 💼 🗠 🖂 🕅 🏙 🔽 🏪 🎯 🛛 🗶 💓 🛄 🔯						
		×		Address	Nane	Туре	Initial value
				0.0		STRUCT	
+	- <mark>I</mark> I L	ibraries.		+0.0	settime	DATE_AND_TIME	DT#90-1-1-0:0:0.000
				=8.0		END_STRUCT	
			Ш				

打开符号表定义 DB1 的符号名:

di 🖓 S	🔽 Symbol Editor - S7 Program(1) (Symbols)												
Sym	symbol Table Edit Insert View Options Window Help												
2		🚭 🞖	Х 🖻	R	KO CM	All Sym	bols			- 70	▶?		
	🖨 S7	Progra	um(1) ((<mark>Sym</mark> b	ols) 1	TIMERSAN	MPLE	1 \ SIM/	TIC 3	900(1)\CP	U 31	5-2 DP)
		Statu	ı Syml	hol /	<u></u>	Addre	88	Data	typ	Comment			
	1		DB_t	ime		DB	1	DB	1				
	2												

这里先介绍一下 DATE_AND_TIME 变量的格式,其由八个字节组成分别代表年、月、 日、时、分、秒、毫秒,最后一个字节 0-3 位代表星期 4-7 位表示毫秒,是以 BCD 码 表示的。



Development of the Programmable Controlle Delaying a Program Status Time-of-Day Interrupt Debugging STL Source Files Declaration View of Data Blocks Declaring Local Variables Declaring Local Variables Declaring Local Variables Declaring Local Variables Declaring Local Variables Declaring Local Variables Declaring Local Variables Default Settings for the LAD/STL/FBD Program E Default Settings for Modifying Variables the Trigger for Modifying Variables the Trigger for Modifying Variables The Trigger for Modifying Variables Delaying Start Events Deleting a Display Device Deleting a Project Deleting Project Deleting Project Deleting Project Deleting Project Deleting Programmable Controlle Deleting Programmable Controller Deleting Programmable Controller Deleting Programmable Controller Part of a Library Objects on the Programmable Controller Part of a Library ST Blocks on the Programmable Controller Symbol Rows Describing the Individual Functional Areas Describing the Required Deparator Displays and Cc Detarbale Erros Determining the Cause of a STOP Determining the Communication Capabilities from t		
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S / Blocks on the Programmable Controller Symbol Rows Describing the Individual Functional Areas Describing the Operator Console Example of Industrial Blending Process Describing the Required Operator Displays and Cc Detailed Comparison Detectable Errors Determining the Cause of a STOP Determining the Communication Capabilities from t	Part of a Library	
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Example or Industrial biending Process Describing the Required Operator Displays and Co Detailed Comparison Detectable Errors Determining the Cause of a STOP Determining the Communication Capabilities from t	Describing the Operator Console	
Detailed Comparison Detectable Errors Determining the Cause of a STOP Determining the Communication Capabilities from t	Example of Industrial Blending Process	
Detectable Errors Detectable Errors Determining the Cause of a STOP Determining the Communication Capabilities from t	Describing the nequired operator Displays and Co Detailed Comparison	
Determining the Cause of a STOP Determining the Communication Capabilities from t	Detectable Errore	
Determining the Communication Capabilities from t	Determining the Cause of a STOP	
	Determining the Communication Canabilities from t	

The following table shows the contents of the bytes that contain the date and time information for the example Thursday, December 25, 1993, at 8:12 and 34,567 seconds in the morning.

Byte_	<u>Contents</u>	<u>Example</u>
0	Year	B#16#93
1	Month	B#16#12
2	Day	B#16#25
3	Hour	B#16#08
4	Minute	B#16#12
5	Second	B#16#34
6	Two most significant digits of MSEC	B#16#56
7 (4MSB)	Two least significant digits of MSEC	B#16#7
7 (4LSB)	Day of week 1 = Sunday 2 = Monday 7 = Saturday	B#16#_5

The permitted range for the data type DATE_AND_TIME is:

- min.: DT#1990-1-1-0:0:0.0
- max.: DT#2089-12-31-23:59:59.999

-	Possible Value Range	BCD Code
Year	1990 - 1999 2000 - 2089	90 - 99 00 - 89
Month	1 - 12	01 - 12
Day	1 - 31	01 - 31
Hour	00 - 23	00 - 23
Minute	00 - 59	00 - 59
Second	00 - 59	00 - 59
Millisecond	0 - 999	000 - 999
Day of week	Sunday - Saturday	1 - 7

然后打开 OB1, 首先将需要设定的时间以 16 进制 BCD 码的形式赋值给定义的 DATE-__AND_TIME 变量的各个字节,最后一个字节不需设定系统会自己计算并赋值,例如设定的时间为 07 年 8 月 15 日 13 点 20 分 10 秒。



OB1 : "Main Program Sweep (Cycle)"							
Comment:							
Mettork I): litle:							
传达十月							
MOVE							
EN ENO							
W#16#708 - IN OUT - DB1.DBWO							
Network 2: Title:							
传送日期和小时							
**10#1013 - <u>110 001 -001 -001</u>							
Petroph 9, Title:							
Retwork 3: 11tle:							

传达分和秒	
MOVE	
EN ENO	
W#16#2010 - IN OUT - DB1.DBW4	

在程序运行后打开监视和修改变量表即可观察到最后一个字节 DB1. DBB7 的低 4 位已经被 系统自动计算为 4 即星期三。



	📓 Var - VAT_1								
Ta	able	Edit Insert	PLC	Variable	e View Options	Window Help			
H	Ħ	0 🖻 🖬	6	<u>%</u>		× - 1	?	MA CON MA	
K	🕍 VAT_1 @profinet\SIMATIC 300(1)\CPU 313C\S7 Program(11) 0) 📰 🗖 🔀								
	1	Address		Symbol	Display format	Status value	Modify value		
1		DB1.DBB	0		HEX	B#16#07	B#16#07		
2	:	DB1.DBB	1		HEX	B#16#08	B#16#08		
3	•	DB1.DBB	2		HEX	B#16#15	B#16#15		
4	·	DB1.DBB	3		HEX	B#16#13	B#16#13		
5		DB1.DBB	4		HEX	B#16#20	B#16#20		
6	•	DB1.DBB	5		HEX	B#16#10	B#16#10		
7	r	DB1.DBB	6		HEX	B#16#00			
8	-	DB1.DBB	7		HEX	B#16#04			
9	I I								

在程序中调用 SFC0,将存放设定时间的 DATE_AND_TIME 变量以符号名的方式赋给 SFC0 的 PDT 形参,返回变量赋值给 MW100,这样当 M0.0 由 0 到 1 时 SFC0 被执行。

職 LAD/STL/FBD - [OB1 -	- TIMERSAMPLE1\SIMATIC 300(1)\CPU 315-2 DP]
🖬 File Edit Insert PLC I	Debug View Options Window Help
🗅 📂 🔓 📕 🎒 🐰	🖺 💼 🗠 🖂 [해 🏜] 전] 🏪 60] !<< >>! 🔲 🛄 11 14 10 12 다 그 도 🕅
HO New network	Contents Of: 'Environment\Interface' Contents Of: 'Environment\Interface' Mame TEMP
Comparator	Metwork 4: Title: Comment: MO.0 MO.1 From the second seco

为了观察系统时间是否被正确设定,我们在 DB1 中再定义一个 DATE _AND_TIME 的 变量如图所示:

1 1 1	CAD/STL/FBD - [DB1 "DB_time" TIMERSAMPLE1\SIMATIC 300(1)\CPU 315-2 DP\\DB1]										
C	🚍 File Edit Insert PLC Debug View Options Window Help										
	▷ 😂 🐂 🛃 🥌 👗 🛍 💼 🗠 ↔ 04 🏙 🔁 🎥 64 ! ≤ ≫! 🔲 🛄 ㎏										
E	<u>× ات</u> :		Address	Nane	Туре	Initial value	Connent				
							0.0		STRUCT		
	🛨 – ᢔ Libraries		+0.0	settime	DATE_AND_TIME	DT#90-1-1-0:0:0.000	存放想设定的系统时间				
			+8.0	readtime	DATE_AND_TIME	DT#90-1-1-0:0:0.000	存放读取的系统时间				
			=16.0		END_STRUCT						



在 OB1 中调用 SFC1 读取系统时钟并将系统时间传送给" DB_time". readtime 变量:

🔣 LAD/STL/FBD - [OB1	TIMERSAMPLE1\SIMATIC 300(1)\CPU 315-2 DP]
🖬 File Edit Insert PLC	Debug View Options Window Help
🗅 📂 🔓 📕 🎒 👗	_ 📴 💼 🗠 ♀ 073 🎪 🗢 🐾 &/ ! ≪ ≫! 🗖 🖾 Ё -// -/) 🕾 ∟
	Contents Of: 'Environment\Interface'
New network In Bit logic In Comparator	
⊕	Network 5: Title: Comment:
 Integer fantasin Integer fantasin	
	SFC1 EN ENO
 Timers Word logic 	RET_VAL -MW102
	DB_time".
E SFC blocks I SFC blocks III Multiple instances	
🗄 📲 🗰 Libraries	

打开 Monitor/Modify Variables 表:

🔣 LAD/STL/FBD 🛛 -	OB1 TIMERSAMPLE1\SI	MATIC 300(1)\CPU 31	5-2 DP]
🖬 File Edit Insert	PLC Debug View Options	Window Help	_
D ☞ ≌~ 🖬 / ∉	Download Select Online CPU Establish Connection to Conf	Ctrl+L Figured CPU	>! [Of: 'E
Hill New network I III Bit logic III Comparator	CPU Messages Display Force Values Monitor/Modify Variables	Ctrl+Alt+F	
Converter For Counter B DB call OB Jumps	Module Information Operating Mode Clear/Reset	Ctrl+D Ctrl+I	
 ⊕ : Integer function ⊕ : Integer function ⊕ : Integer function 	Set Time of Day		



添加变量,通过 將 MO.0 的状态改为 true,然后通过 观察变量状态

82 (Var - @Variable table1								
Tab	able Edit Insert PLC Variable View Options Window Help								
-12	▱▯◙▨◨◙▯▧▫▫◣▯◾ਃװਲ਼ ◍®∞∞°°°™∞								
53	🔐 @Variable table1 ONLINE								
	1	Address	Symbol	Display format	Status value	Modify value			
1		M 0.0		BOOL	true	true			
2	Γ	DB1.DBB 0		HEX	B#16#07		\searrow		
3		DB1.DBB 1		HEX	B#16#08				
4		DB1.DBB 2		HEX	B#16#15				
5		DB1.DBB 3		HEX	B#16#13		- L	设定的时间,其中DB1-DBB7	
6		DB1.DBB 4		HEX	B#16#20			没有设定,系统自动计算出。	
7		DB1.DBB 5		HEX	B#16#10			定生期二	
8		DB1.DBB 6		HEX	B#16#00				
9		DB1.DBB 7		BIN	2#0000_0100		/		
10	Ē	DB1.DBB 8		HEX	B#16#07		\sim		
11		DB1.DBB 9		HEX	B#16#08				
12		DB1.DBB 10		HEX	B#16#15				
13		DB1.DBB 11		HEX	B#16#13			通过SFC1读出的系统时间	
14		DB1.DBB 12		HEX	B#16#20				
15		DB1.DBB 13		HEX	B#16#21				
16		DB1.DBB 14		HEX	B#16#70				
17		DB1.DBB 15		BIN	2#0001_0100		/		
18									

程序见所附例程 TIMERSAMPLE1

3.2 读取系统时钟

我们可以通过使用 SFC1 或 OB1 中的临时变量 OB1_DATE_TIME 来读取系统时钟。

1) 使用 SFC1 的方法前面已经介绍不再重复。

2) 使用 OB1 中的临时变量 OB1_DATE_TIME 来读取系统时钟

OB1 的每个循环周期都读取系统时钟并存放在 OB1_DATE_TIME 临时变量中,如下图所示 我们将 LB12 开始的 8 个字节赋值给 MB12 开始的 8 个字节。

B OB1 MIN CYCL	DBI_PKEV_CICLE	Int	b.U	Cycle time of previous UBI
DB1 MAX CYCL	<pre>DB1_MIN_CYCLE</pre>	Int	8.0	Minimum cycle time of OB1 (
OB1_DATE_TIM	<pre>DB1_MAX_CYCLE</pre>	Int	10.0	Maximum cycle time of OB1 (
	OB1_DATE_TIME	Date_And_Time	12.0	Date and time OB1 started
	<u> </u>			L
OB1 : "Main Program Swee	en (Cvcle)″			
Comment:				
Retwork 1: Title:				
Comment:				
<u> </u>				
MOVE		MOVE		
EN ENO		EN ENO		
LD12 IN OUT	-MD12 LD16-			



通过监视变量表即可看到实时的系统时钟。

	Var - @Variable table1									
Tab	Table Edit Insert PLC Variable View Options Window Help									
-12	▰▯◪▤▤▯▫▫ヽ×▫▯▯๙๛๛									
¥	📸 @Variable table1 ONLINE									
		Add	lress	Symbol	Display format	Status value	Modify value			
1	ſ	MB	12		HEX	B#16#07				
2		MB	13		HEX	B#16#08				
3		MB	14		HEX	B#16#15				
4		MB	15		HEX	B#16#14				
5		MB	16		HEX	B#16#30				
6		MB	17		HEX	B#16#05				
7		MB	18		HEX	B#16#94				
8		MB	19		BIN	2#0100_0100				
9										

程序见所附例程 TIMERSAMPLE1

4. 循环中断(OB35)、延迟中断(OB20)、时间日期中断(OB10)

4.1循环中断(OB35)

具体步骤如下:

1) 创建一个项目并插入一个 300 站





2) 双击打开 300 站, 再双击 Hardware



3) 配置 300 站并双击 300CPU 打开 Properties 窗口.

NW Config - [SIMATIC 300(1) (Configuration) TIMERSAMPLE1]							
D Station Edit Insert PLC	View Options Window	N Help					
D 🚅 🔓 🖩 🖷 🎒	🖻 🖻 🕍 🏙 🗍) 🗖 🔡 👷					
1							
= (0) UR	roperties - CPU 315-	2 DP - (R0/S2)					
1 ^ 2 CPU 3	Time-of-Day Interrupts	Cyclic Interrupts Diagnostics/Clock Protection Communication					
<u>X2</u> D P = -	General Startup	Cycle/Clock Memory Retentive Memory Interrupts					
4	Short Description:	CPU 315-2 DP					
5 6 •		Work memory 128KB; 0.1ms/1000 instructions; MPI+ DP connection (DP master or DP slave); multi-tier configuration up to 32 modules; Send and receive capability for direct data exchange, constant bus cycle time, routing, S7 Communikation (loadable FBs/FCs), Firmware V2.0; also					
us الس	Order No./ firmware	6ES7 315-2AG10-0AB0 / V2.0					
	Name:	CPU 315-2 DP					
	- Interface						
2 CPU 315-2 DP	Type: MPI						
3	Address: 2						
4	Networked: No	Properties					
6	Comment:						
7		~					
9							
10		×					
	04						
		Lancei Help					



4) 选择Cycle interrupts.

HW Config - [SIMATIC 300(1) (Configuration) TIMERSAMPLE1]								
				1 .11				
😑 (0) UR	Properties - CPU 3	15-2 DP - (RO/S	2)					
1 2 N CPU 3	General St	artup Cycle/	Clock Memory	Retentive Memory	Interrupts			
<u>X2</u> DP = -	Time-of-Day Interrupt	s Cyclic Interrup	its Diagnostics/Clo	ck Protection (Communication			
4					PA			
5	Priority	Execution	Phase offset	Unit Process	image partition			
	0830: 7	5000	0	ms 💌 🕂				
	0831: 8	2000	0	ms 💌 🕂				
(0) UR	OB32: 9	1000	0	ms 💌 🕂				
Slot Module	OB33: 10	500	0	ms 💌 🕂	<u> </u>			
1 2 3 CPU 315-2 DP	OB34: 11	200	0	ms 💌	<u> </u>			
X2 DP	OB35: 12	100	0	ms 💌 🕂	<u> </u>			
$\frac{3}{4}$	OB36: 13	50	0	ms 💌 🚥	<u>_</u>			
5	OB37: 14	20	0	ms 💌 🚥	<u> </u>			
<u>6</u> 7	OB38: 15	10	0	ms 💌 🕂	<u>v</u>			
8								
10								
11								
	OK			Cancel	Help			

5) 将 0B35 对应的时间修改为需要的时间并点击 0K 确认.

Station Edit Tosert PLC	300(1) (C	Configuratio	on) TIMERSAI	MPLE1]		
	B R	📩 🖄 🗍		•		
(0) UR 2 CPU 3 2 DP 3 4	Genera Genera Time-of-D	s - CPU 315 I Startu ay Interrupts	i <mark>-2 DP - (R0/S2</mark> up Cycle/C Cyclic Interrupts) lock Memory Rel : Diagnostics/Clock	tentive Memory Protection 1	Interrupts Communication
5		Priority	Execution	Phase offset	Unit Process	image partition
<	0830	J/	5000	0	ms 💌 🖳	<u> </u>
LIB	0832	Jo 19	1000	0	ms v ···	
Slot Modulo	0833:	10	500	0	ms v ···	
	0834:	11	200	0	ms v	-
2 CPU 315-2 DP	OB35:	12	200	0	ms 💌 🗔	
3	OB36;	13	50	0	ms 💌	+
5	OB37;	14	20	0	ms 💌 🖳	÷
6	OB38:	15	10	0	ms 💌	· ·
8 9 10 11						
	οκ				Cancel	Help



6) 编译保存

HW Config - [SIMATIC 300(1) (Configuration) TIMERSAMPLE1]
III Station Edit Insert PLC View Options Window	v Help
D 😂 🐎 🗳 📢 🚭 🗈 🏜 🏟 😭]
I PROFIBUS(1): X2 DP 3	DP master system (1) Find: Profile: Standar PROFIBUS
	PROFIBUS PROFINET BIMATIC 30 BIMATIC 40 C BIMATIC 40 C C BIMATIC H
(0) UR	Compile 🔀
Slot Module O Fi M I I 1 -	Station: SIMATIC 300(1) Module: [0/2/0] CPU 315-2 DP
5 -	Cancel

7) 通过 BLOCKS->Insert New Object->Organization Block 插入 OB35



Excellence in utomation & Drives: Siemens			SIEMENS
SIMATIC Manager - [TIMERS	AMPLE1 C:\Program	Files\Siemens\Step7\s7pr	oj\Timers_1]
🞒 File Edit Insert PLC View	Options Window Help		
D 🚅 🖁 🛲 👗 🖻 🛍		🗄 🏢 🔁 🛛 < No Filter >	💽 🏹 🔡 📾 🔣 🦉
	🖄 System data 🛛 🔂)B1	
E CPU 315-2 DP	Properties - Organiza	tion Block	<u> </u>
Simaria Simar	General - Part 1 Genera Name: Symbolic Name: Symbol Comment: Created in Language: Project path:	I-Part 2 Calls Attributes	
Blocks	Storage location of project: Date created: Last modified: Comment:	, C:\Program Files\Siemens\Step Code 08/17/2007 03:31:05 AM 08/17/2007 03:31:05 AM	p7\s7proj\Timers_1 Interface 08/17/2007 03:31:05 AM
	ОК	<u></u>	Cancel Help
3 LAD/STL/FBD - [OB35 "(■ File Edit Insert PLC Debut □ ☞ 읍~ ■ ● ★ ■ ■ <u>×</u> ×	CYC_INT5" TIMERSA g View Options Window ि ∽ ∝ 078 🏙	MPLE1\SIMATIC 300(2)\C Help 전 목률 하이 !< >! [] Contents Of: 'Env	PU 315-2 DP\\OB35] [편] 바이 카는 카는 -() 1111 vironment\Interface'
Image: Second	⊕ Interface ⊕⊲⊕ TEMP	∎ Name I TEMP	
Converter Converter Counter	B35 : ″Cyclic Inte	rrunt″	
B Call Generation	Comment:		
ADD_I 	letwork 1 : Title: Comment:		
ADD_DI SUB_DI DIV_DI DIV_DI MOD_DI Hoating-point fct. Move Move Move Program control	MW120 - IN1 1 - IN2	D_I ENO OUT MW120	
	行一次,MW120 值;	切 1。	



4.2 延迟中断(OB20)

1) 通过 BLOCKS->Insert New Object->Organization Block 插入 OB20,双击打开 OB20 并进行编程.

etwork 1. Title:		
omment:		
ADD_I EN ENO		
MW110-IN1 OUT -MW110		
1 - IN2		

2) 打开 OB1, 调用 SFC32.

K LAD/STL/FBD - [0B1 TIMERSAMPLE1\SIMATIC 300(2)\CPU 315-2 DP]						
File Edit Insert PLC Debug View	Options Window Help					
D 🖻 🔓 🖶 🚭 👗 🖻 💼 💌	? ~ [68 🎪 🔽 🍣 & [!≪ ≫!] 🗖 🔯 🔛 11- 14- 40 점 ┗ ┏ ┏ ᅚ [😥					
	Contents Of: 'Environment\Interface'					
	- D Interface Name					
New network	TEMP TEMP					
🖻 💼 Bit logic						
🗄 💽 Comparator						
🛨 🛶 Converter						
	OB1 · "Main Program Sween (Cycle)"					
H OB DB Call						
E G Jumps	Comment:					
Electing-point fct						
	The second state of the se					
+ I Program control	metwork I. Hitle:					
🗄 🧰 Shift/Rotate	Comment:					
🕀 🔐 Status bits						
🗄 🔞 Timers						
😟 🤮 Word logic						
🗄 🔁 FB blocks	MO.O MO.1 "SRT_DINT"					
E FC blocks	ENO ENO					
F SFB blocks						
SFC DIOCKS	20 OB_NR RET_VAL MW44					
	THE C DITING					
	1#03 - UTTUE					
- Standard Library	MV40 - STGN					
E System Function Blo						
SFB0 CTU IEC						
SFB1 CTD IEC						
SFB2 CTUD IE						
SFB3 TP IEC_						



如图所示每当 MO.0 由 0 变 1 时, 经过 5S 后 OB20 被执行, MW110 执行了加 1 操作。

5	🕍 (Var - @Variable table1 📄 🚺 🔲 🖾									
Ta	Table Edit Insert PLC Variable View Options Window Help									
₽	▱▯▻◾▤▤◣▫▫◣ਞ₌ਃ№ ў๙∽									
H	📽 @Variable table1 ONLINE									
		Address	Symbol	Display format	Status value	Modify value				
1		М 0.0		BOOL	true	true				
2		M 0.1		BOOL	true					
3		MW 44		HEX	W#16#0000					
4		MW 110		HEX	W#16#0002					
5										
L										
time	ersar	mple\SIMATIC 30)0(1)		۲	🔹 🔶 <mark>RU</mark> N 💋				

程序见所附例程 TIMERSAMPLE1

4.3时间日期中断(0B10)

0B10的执行可由3种办法来设定:

1) 方法一:如下图所示在 HW CONFIG 窗口下双击 300 的 CPU 打开 Properties,设定开始 执行的时间和执行频率,然后选中 Active 下的复选框,点击 OK.

10) UR 2 1 CPU 3 2 1 D ^p	PROFIBUS Propertie Gener Time-of-	(1): DP master es - CPU 31 al Star Day Interrupts	system (5-2 DP tup	1) - (R0/S2) Cycle/Clock ic Interrupts	Memo Diagn	y Reter ostics/Clock	Eind:	Interrupts Communication	02-0AB0 03-0AB0 82-0AB0 83-0AB0 83-0AB0
		Priority	Active	Execution		Start date	Time of day	PIP	10-0AB0
(0) UR	OB10:	2		Every minute	•	01/01/1994	00:00]
ot 🚺 Module 🛛 Orc	OB11:	2	Г	None	Ψ.	01/01/1994	00:00] P
CPU 315-2 DP 6ES	OB12	2		None	7	01/01/1994	00:00	···· · · · · · · · · · · · · · · · · ·]
2 DP	0B13.	2	Г	None	v	01/01/1994	00:00		
	0B14:	2		None	÷	01/01/1994	00:00		
	0B15:	2	E -	None	~	01/01/1994	00:00		
	OB16:	2		None	~	01/01/1994	00:00		
	OB17:	2	L	None	<u></u>	01/01/1994	100:00		
1									



通过 BLOCKS->Insert New Object->Organization Block 插入 OB10,双击打开 OB10 并进行

编程.

OB10 "TOD_INTO" time	ersample\SIMATIC_300(1)\CPU_315 [🔲 隆						
	Contents Of: 'Environment\Interface'						
E- Interface							
trant							
OB10 : "Time of Day Int	errupt"						
Comment:	Comment:						
Network 1: Title:							
Comment:	Comment:						
ADD	-						
EN ENO							
MW112-IN1 OUT	-MW112						
1 - IN2							

当程序下载到 PLC 中后 OB10 将按设定执行,通过监视变量表可观察 OB10 的执行情况。

醫	🕍 🔽 - @Variable table1 💦 🗌 🔀										
Tab	Table Edit Insert PLC Variable View Options Window Help										
-P	▰▯▰◼▤◣▫▫◣◾ਃ№ ᅇ๙∽										
R	📽 @Variable table1 ONLINE										
		Add	ress	Symbol	Display format	Status value	Modify value				
1		M	0.0		BOOL	false	false				
2		M	0.1		BOOL	false	false				
3		M₩	112		DEC	3					
4											

2) 方法二:如下图所示在 HW CONFIG 窗口下双击 CPU300 打开 Properties,设定开始执行的时间和执行频率,不选中 Active 下的复选框,点击 OK.



Station Edit Insert PLC View	Options Win	dow Help	₩ N ?						
(0) UR	Propertie Gener Time-of-	PROFIBUS(<mark> es - CPU :</mark> al S Day Interrup	1): DP mast 3 15-2 DP tartup ts Cyc	er system (1) - (RO/S2) Cycle/Clock ic Interrupts	Memo Diagr	ry Reter	Eind:	 Co	Interrupts mmunication
6		Priority	Active	Execution		Start date	Time of day		PIP
🗲 🔿 (0) UR	OB10:	2		Every minute	•	01/01/1994	00:00	[[Ψ
Slot 🚺 Module 🛛 🛛 🖓	linc OB11:	2	Г	None	Y	01/01/1994	00:00		Ŧ
1 2 📓 CPU 315-2 DP 61	OB12	2	Г	None	~	01/01/1994	00:00		Ŧ
X2 DP	0813;	2	Г	None	-	01/01/1994	00:00		*
3	0814:	2	Г	None	-	01/01/1994	00:00		*
5	0815:	2		None	v	01/01/1994	00:00		*
7	OB16:	2	Г	None	v	01/01/1994	00:00		Ŧ
8	OB17:	2	Г	None	v	01/01/1994	00:00		Ŧ
9 10 11									
	ОК						Cancel	1	Help

在程序中调用 SFC30.

🔣 LAD/STL/FBD - [OB1 ob10\use	esfc30\CPU 315-2 DP]
🖬 File Edit Insert PLC Debug View	Options Window Help
D 🗲 🔓 🖶 🍯 X 🖻 🛍 💌	ㅋ ~ 6월 🏙 📼 º▃ 64 !≪ ≫! 🔲 🛄 🔛 카 카 -() 앱 ∟ 그 느 👀
	Contents Of: 'Environment\Interface'
主 💼 Bit logic 🔥	
🕂 💽 Comparator 🕀 🚋 Converter	
E En Counter	·
E Jumps	OB1 : "Main Program Sweep (Cycle)"
Integer function Integer functin Integer function Integer function	Comment:
Move	
	(Network 1): Title:
🗄 🔐 Status bits	Comment:
FB blocks	
E E blocks	MO.O MO.1 "ACT_TINT"
Multiple instances	10-0B_NR RET_VAL -MW46
E System Function Blo	
SFB0 CTU IEC	



编程 OB10:

OB10 "TOD_INTO" time	ersample\SIMATIC 300(1)\CPU 315 📑 🗖 🖻						
	Contents Of: 'Environment\Interface'						
E- Interface							
trange ikme							
OB10 : "Time of Day Int	errupt"						
Comment:	Comment:						
Network 1: Title:							
Comment:							
ADD_I EN ENO							
MW112 IN1 OUT	⊢M₩112						
1 — IN2							

编译下载即可。

注意:SFC30只需执行一次,即 CPU 停机后再启动不需要再次调用 SFC30。

3) 方法三: 在 HW Config 中不作配置, 调用 SFC28 和 SFC30

在 DB1 中定义一个 DATE AND TIME 的变量

4H-0 4H-0 4H-0	LAD/	STL/	FBD	- [DB1 -	- "db_	_ob10"	' ob1	0\usesfc	28/30\0	CPU 315	2 DP\	.\DB1]				
٠	File	Edit	Inse	ert	PLC	Debug	View	Options	Window	Help							
Ľ) 🖻	0 ∎~		8	8	Þ (10	⊂× 0	# 🚵 🛛		%' ! ≪)	>!	I				
					Åddr	ess	Name			Туре			Initia	l val	ue		Сов
			_			0.0				STRUC	Т						
E E] <mark>.][]</mark>	Librari	es			+0.0	sta	rttime I		DATE_	DATE_AND_TIME		DT#07-8	-15-8:	:0:0.00)0	
						=8.0				END_S	TRUCT						1
				Ľ													



初始化数据块,将初值作为设定值:

🔣 LAD/	STL/FBD - [DB1 "db_	ob10" ob10)\usesfc28/30\CPU 315-2 DP\.	VDB1]	
🖬 File	Edit Insert PLC Debug	View Options	Window Help		
🗅 😅	Undo	Ctrl+Z	🏙 🖂 🗣 😚 🛛 !« »! 🚺] ⊑ , № ?	
	Redo	Ctrl+Y	Type	Initial value	Actual walue
	Cut	Ctrl+X	DATE AND TIME	DT#07-8-15-8:0:0.000	DT#07-8-15-8:0:0.000
() س	Сору	Ctrl+C			
	Paste	Ctrl+V	_		
	Delete	Del			
	Find/Replace	Ctrl+F	-		
	Go To	•			
	Object Properties	Alt+Return	-		
	Special Object Properties	E E			
	Connections				
	Open Block	Ctrl+Alt+O	-		
	Update Declarations				
	Initialize Data Block				
	Create network template				
			-		

调用 SFC28 和 SFC30





当 M0.0 由 0 变 1 时 SFC28 被调用, M0.2 由 0 变 1 时 SFC30 被调用, OB10 将按设定方 式执行。

55	👪 🖓 Var - @Variable table1 💦 🗖 🔀										
Tab	Table Edit Insert PLC Variable View Options Window Help										
-124	▰▯▰◼◓▯◾▫▫××▫₌ਃ№ ᅇᢦ~∽										
E	📽 @Variable table1 ONLINE										
	^	Addı	ress	Symbol	Display	format	Status value	Modify value			
1		M	0.0		BOOL		false	false			
2		M	0.1		BOOL		false	false			
3	••••••	M	0.2		BOOL		false	false			
4		M	0.3		BOOL		false				
5		MW	112		DEC		1				
6	 										
time	rsar	nple\S	IMATIC 30	0(1)				🕕 🔶 RUN			

同样 SFC28 也只需执行一次即可。参见所附例程 ob10。

5. 时钟寄存器 (Clock Memory)

西门子 300 和 400 的 PLC 提供一个 Clock memory 的字节,每一位以不同的频率执行 0 到 1 的变化,用户可根据需要使用,对于具体描述可通过 HELP 菜单打开如下图所示的帮助 界面。





设定方法如下:

打开 HW CONFIG 界面,双击 CPU300 打开 Properties 窗口选择 Cycle/Clock memory 选项

HW Config - [longtime(1) (Configuration) ob10]	
DI Station Edit Insert PLC	View Options Window Help	
D 🚅 🔓 🖩 🖏 🎒 (B 🖻 🖄 🏜 🚯 🗖 🔡 😽	
Image: CPU 3 Image: CPU 3	Image: Image of the process image Image of the process image Image: Image of the process image Image of the process image Image: Image of the process image Image of the process image Image: Image of the process image Image of the process image Image: Image: Image of the process image Image of the process image Image: Image: Image: Image of the process image Image of the process image Image: Image: Image: Image: Image of the process image Image of the process image Image: Image: Image: Image: Image: Image Image: Image of the process image Image: I	/Clock Protection Communication Retentive Memory Interrupts
1 2 CPU 315-2 DP X2 DP 3 4 -	OB85 - call up at I/O access error: No OB85 ca	ill up
5 6 7 8 9 10 11	Clock Memory Clock memory Memory Byte: 0	
	OK	Cancel Help

选中如下图所示 Clock memory 的复选框

HW Config - [longtime(1) (Configuration) ob10]	
D Station Edit Insert PLC	View Options Window Help	
D 🗃 🔓 🖷 🖷 🎒	🖻 🕄 🏙 🏙 🕕 🗖 🔡 🍋	
P 1 X2 1 X2 1 X2 1 DP 3 4 5 5 6 (0) UR Slot Module 1 2 CPU 315-2 DP X2 DP 3 4 4 5 5 6 4 4 5 5 6 4 4 5 5 6 6 4 4 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6	roperties - CPU 315-2 DP - (R0/S2) Time-of-Day Interrupts Cyclic Interrupts General Startup Cycle/Cloc Cycle Image: Cycle Object Image: Cycle Object Scan cycle monitoring time [ms]: Scan cycle load from communication [%]: Size of the process image: OB85 - call up at I/O access error: Object Size of the process image:	Diagnostics/Clock Protection Communication k Memory Retentive Memory Interrupts
5 6 7 7 8 9 10 11	Clock Memory Clock memory Memory Byte:	
	UN	Help
a a constant		

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在 Memory byte 后对话框中输入需要使用的 Memory byte 号,如输入 100 则 MB100 被设定为

Memory byte.

🖳 HW Config - [longtime(1) (Configuration) ob10]
D Station Edit Insert PLC	View Options Window Help
Image: CPU 3 Pr 2 CPU 3 3 4 5 6 6 0 Value 1 2 CPU 315-2 DP X2 DP 3 4 5 6 7 8	operties - CPU 315-2 DP - (R0/S2) Time-of-Day Interrupts Cyclic Interrupts Diagnostics/Clock Protection Communication General Startup Cycle/Clock Memory Retentive Memory Interrupts Cycle Image: Update OB1 process image cyclically Scan cycle monitoring time [ms]: 150 Minimum scan cycle time [ms]: 0 Scan cycle load from communication [%]: 20 Size of the process image: Image: Image
	OK Cancel Help

Each bit of the clock memory byte is assigned a frequency. The following table shows the assignment:

Bit of the Clock Memory Byte	7	6	5	4	3	2	1	0
Period Duration (s)	2.0	1.6	1.0	0.8	0.5	0.4	0.2	0.1
Frequency (Hz)	0.5	0.625	1	1.25	2	2.5	5	10

Note

Clock memory bytes are not synchronous with the CPU cycle, in other words, in long cycles, the state of the clock memory byte may change several times.

M100.0-M100.7 将按不同的频率变化



6. FAQ:

6.1 如何从上位机或者触摸屏设定 Time 或 S5Time 值?

首先必须在上位机上安装 WINCC 或 wincc flexible, 然后打开软件如 wincc flexible 利用向 导或手动创建一个项目:





选择设备:

WinCC flexible 2005 Advanced								
Project Edit View Insert Format Faceplat	es <u>O</u> ptions <u>Wi</u> ndow <u>H</u> elp							
	D 🖙 🗏 🕫 - X X 🦌 🛍 - 🔗 😤 🎝 -							
🕮 Device selection								
	Device type							
	 Micro Panels Mobile Panels Panels Multi Panels 270 370 MP 370 12" Key MP 370 15" Touch MP 370 15" Touch SIMATIC C7 Sinumerik PC Simotion PC Panel PC PC MinCC flexible Buntime 							
	Further devices	Version of device 7,1,1,0						
		OK Cancel						

双击 connections, 在打开的页面中定义连接并定义相关的通讯参数。

🕼 WinCC flexible 2005 Advanced	WinCC flexible 2005 Advanced - Project.hmi									
Project <u>E</u> dit <u>Vi</u> ew Insert <u>F</u> ormat F <u>a</u>	ceplates Options <u>Wi</u> ndov	w <u>H</u> elp								
New 🔸 🗁 📕 🖍 + 😋 - 🗙	X 5 6 . 2 5	3 🙃 🐛 . 💷 . 🖬	. # 5	V 🗸 🤌 ?	1 A.					
English (United States) 🛛 👻 🖕			-							
Project 💡 🗙	Screen_1 Screen_1	ections								
Project				C	ONNECTION					
Device_T(MP 370 12" Touch)					OUNECTON.					
Add Screen	Name	Communication driver	Online	Comment						
Template	Connection 1	SIMATIC S7 300/400	i On							
Communication				<u></u>						
Cycles										
- 🥁 Discrete Alarms										
E C Settings										
Historical Data										
🕢 🔽 Scripts										
Reports Tout and Graphics Lists	Parameters Area pointer									
E 🦉 Runtime User Administration										
🗉 🚈 Device Settings	MP 370 12"	Touch			Station					
Language Settings	[[]	Interface			9999525259					
 Project Languages 		IF1 B 🗸								
Graphics										
Project Texts Dictionaries										
		HMI dev	ice	Network	PLC device					
🗄 🛵 Version Management	Туре В	Baud rate		Profile MPT	Address 2					
	O TTY	187500 🗸								
	O R5232	Address 1		Hignest station address (HSA)	Expansion slot					
	O R5422		1	31 🗸	Rack 0					
	O Circutia	Oply master on the bus]	Number of masters						
	 Simatic 	e ony master on the bus			Cyclic operation					

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双击 Tags, 在打开的页面中定义 Tag:

WinCC flexible 2005 Advance	WinCC flexible 2005 Advanced - Project.hmi							
<u>Project Edit View Insert Format</u> F	= <u>a</u> cepla	ates <u>O</u> ptions <u>Wi</u> r	ndow <u>H</u> elp					
🔲 New 🔹 🗁 📕 🖍 🔹 🔿	κ χ	🐚 🛍 🗸 💞	' ᡖ 🚗 🐅 .		🖍 🚬 🕅 😔 🕅	💺 MD 30	💌 🗸 🤣 ?= 🏡 -	
English (United States) 🛛 👻 🖕								
Project 💡 🗙		Screen_1	Connections 🔫	Tags				🗨 🕨 👟
Project								TAGS
Add Screen		Name 🔶	Connection	Data ty	pe	Address	Array count	Acquisition cycle Comn
Template		Tag_1	Connection_1	▼ DWord	-	MD 30	• 1	100 ms 🔻
Screen_1 Communication								
Tags								
Connections								
🖃 😓 Alarm Management								
Analog Alarms								
🖃 🐙 Settings								

打开画面,插入一个 INPUT/OUTPUT 域并选择对应格式。最后插入文本输入域。



完善项目并下载。此处是以毫秒为例,客户当然可以定义自己的时基,然后在 PLC 程序中换 算即可,例如此处定义为秒则在 PLC 程序中可对对应变量乘以 1000 转化成毫秒再送给 TIME 变量即可

在 PLC 侧:

设定对应的系统参数(MPI 地址和波特率等),然后可创建 TIME 变量。

插入DB块并定义变量:



0711- 0011- 011-	LAD/STL/FBD - [DB3 timersample\SIMATIC 300(1)\CPU 315-2 DP]													
₽	File	Edit	Inse	ert	PLC D	ebug	View	Options	Window	Help				
C) 🎓 🖫 📕 🎒 X 🗈 🖻 🗠 🖂 (H 🏜 🖂 🗣 60' K >>! 🔲 🖪 📢													
					Addre	ss :	Name			Туре		Initial	value	Conne
			_			0.0				STRUCT				_
E] <mark>.)()</mark>	Librari	es		н	ю.о	timer	r1		TIME		T#OMS		
					=	=4.0				END_STRUC	Т			_
				E										

打开 OB1 输入如下指令,MD30 为上位机写入的数据,DB3.DBD0 为 PLC 中定义的数据,也可以不经过转换直接用 MD30 作为 Time 变量的输入值,也就是说 FB41 的 TI 和 TD 可以用 MD30,也可以用 DB3.DBD0。

🔣 LAD/STL/FBD 🗉	- [OB1 timersample\SIMATIC 300(1)\CPU 315-2 DP]
🕞 File Edit Insert	t PLC Debug View Options Window Help
Image: Second	Contents Of: 'Environment\Interface Contents Of: 'Environment\Interface Mame Metwork 6: Title: Comment: MD30 - IN OUT - DB3. DBD0
🛨 🔁 SFB bloc	





然后我们即可将 DB3. DBD0 赋给相应的 IEC 定时器或功能块的 Time 变量作为设定值,

如 FB41 的 TI 和 TD。

OB35 : "Cyclic Interrupt"	
Comment:	
Network 1: Title:	
Comment:	
CALL "CONT_C", DB41	
COM_RST :=	
MAN_ON :=	
PVPER_ON:=	
P_SEL :=	
I_SEL :=	
INT_HOLD:=	
I_ITL_ON:=	
D_SEL :=	
CYCLE :=DB3.DBD0	
SP_INT :=	
PV_IN :=	
PV_PER :=	
MAN :=	
GAIN :=	
TI :=	
TD :=	
TM_LAG :=	
DEADB_W :=	
LMN_HLM :=	
LMN_LLM :=	
PV_FAC :=	
PV_UFF :=	
LMN_FAC :=	
LMN_UFF :=	
I_IILVAL:-	
D13V :-	
QLINU_ILM	

如需将其上位机的设定赋值给 S5TIME 变量时我们需要将设定值进行转换。首先我们先 介绍一下 S5TIME 的数据格式,在 STEP7 的 Help 下拉菜单中点击 Contents,然后利用索引 Index 搜索关于相应的数据类型我们能找到如下解释:



Contents Index Search								
Type in the keyword to find:	Upper Limits for Entering Timers							
Timers	Note the following upper limits for entering timers:							
Theo	Example: W#16#3999 (maximum value in BCD format)							
TIMER parameter type Timers T	Examples:							
Memory Area:Retentive Upper Limits for Entering	<u>Address</u>	<u>Monitor Format</u>	<u>Enter</u>	<u>Modify Value</u> <u>Display</u>	Explanation			
Assignment List Tips and Tricks	Т 1	SIMATIC_TIME	137	S5TIME#130MS	Conversion to milliseconds			
Tips for Editing Messages Tips for Editing Station Configurations Tips for Editing the Network Configuration	MVV4	SIMATIC_TIME	137	S5TIME#890MS	Representation in BCD format possible			
Tips for Entering Text Tips for Working with GD Tables Title Bar	MVV4	HEX	137	VV#16#0089	Representation in BCD format possible			
Titles for Blocks for Networks To	MVV6	HEX	157	W#16#009D	Representation in BCD format not possible, therefore the monitor format SIMATIC_TIME cannot be selected			
TOD Status TOD Status TOD Synchronization Toggling between Programming Languages Toggling the Status Bar Dn/Dff Togling the Status Bar Dn/Dff ToolCalling Interface (TCI) Toolbar Buttons Positioning Topology Data Topology Data Topology Settings Topology View Transferring Configuration Data to the Opera Transferring Configuration Data to the Progr- Transferring Configuration Data to the Progr- Transferring Configuration Data to the Progr- Transferring Parameters Saving the Transferred Values Transferring the Data Transferring the Configuration Data Transferring the Data Transferring the Data Transferring Text Libraies Translating and Editing Translating and Editing Translating Text Libraies Translating Text Librai	Note • You u the ti enter • The r conv If the type HEX, values O values Values of va The 16 bits 0 0 x x h Bits 15 and Bits 13 and 00 => mult 10 => mult 11 => mult	can enter timers i me frame. The si ed (137 becomes nodify values for a enter to BCD form entry cannot be WORD, the appli see Select Moni entered can be c at for Variables irriables in the SIM have the following h h h t t t t u u 14 are always ze 12 (marked with piler 10 milliseco iplier 1 nolliseco iplier 1 second shundreds (hhhh) ens (tttt) units (uuuu)	n millised ze of the 130 ms; addresser at. Not e represent cation rev tor Forma isplayed. in the SI 4ATIC_TII g significa u u significa u u ro. xx) set th nds onds	cond steps but the w time frame depends the 7 ms were roun s of the data type W very bit pattern is a ed as SIMATIC_TIM erts automatically to at, Default Command ME format are enterd ince:	alue entered is adapted to on the size of the time value ded down). 'ORD, for example, IW1, are valid BCD number, however. E for an address of the data o the default format (here: d (View Menu)) so that the at at at d in BCD format.			

参照上面的方法我们在上位机定义一个 WORD(或 INT)类型的变量(例如 MW34)

🔛 WinCC flexible 2005 Advance	ed - F	Project123.hmi							
Project Edit View Insert Format	F <u>a</u> cep	lates <u>O</u> ptions <u>Wi</u> r	ndow <u>H</u> elp						
🛛 📲 New 🔹 📂 📕 🖍 🔹 🔿 🔹	<	(h ƙ. 🖓	' 🚡 🖨 🐐 .		↓. N. N.90	🐧 Cyclic continuous	. 🧶 1	R R .	
English (United States) 🛛 👻 🖕									
Project 💡 🗴		Screen_1	lags 🛛						۲ کا ک
Project									TAGS
E Creens		Name 🔶	Connection		Data type	Address		Array count	Acquisition cycle Com
- Template		Tag_1	Connection_1	1	DWord	MD 30		1	100 ms
Communication		Tag_2	Connection_1	• 1	Word 🚽	MW 34		· 1	100 ms 🔻
Connections									



在 STEP7 中我们首先定义一个 DB 块并定义一个 S5TIME 数据类型的变量:

11	LAD/	STL/	FBD	- []	B1	timersam	ple\SIMATIC 300(2)\CP	U 315-2 DP]		
	File	Edit	Inse	ert F	٩LC	Debug View	Options Window Help			
[ጋ 🖻	_ ∎~		5	X) 🖻 🛍 🗠) (~ C# 🏜 🔁 º_a	&r !« »! 🗖 🖪	k ?	
				i zi e	1	Address	Nane	Туре	Initial value	Connent
						0.0		STRUCT		
Ľ	+ <mark>.()</mark>	Librari	ies			+0.0	sets5time	S5TIME	S5T#OMS	
L						=2.0		END_STRUCT		
L									·	
L										
L										
L										

打开符号表编辑符号:

😼 Sym	bol Edi	tor - S7 P	rogra	m(4) (Symbols)					
Symbol T	able Ed	lit Insert	View	Option	s Windov	N	Help				
🖻 🖬	6	አ 🖻	1	s o	4 🗌 All Sy	rmt	ools		•	🕖 💦	
🖨 S7 P	rogran	1(4) (Sym	bols)	tim	ersample	e\{	SIMATIC 30	0(2)	ICPU 3	15-2 DP	
	Statu	Symbol	Δ		Address		Data typ	Cor	nment		
1		DB_s5ti	ne])B	1	DB 1				
2											

打开 OB1,用 I_BCD 指令将整数转换为 BCD 格式,需要注意写入的整数最大值为 999,否则 I_BCD 会出错,然后将其与时基做或运算(例程中 W#16#3000 表示时基位 10 秒, 时间值为 0,因为最高 4 位为 0011,如果是 W#16#2000 表示时基位 1 秒,时间值为 0,因为 最高 4 位为 0010),并通过 MOVE 指令送入定义的 S5TIME 数据类型的变量中

OB1 : "Main Program Sweep (Cycle)"	
Comment:	
Network 1: Title:	
Comment:	
MO.0 NO.0 EN ENO NW34 - IN OUT - NW36 W#16#3000 - IN1 OUT - NW38 W#16#3000 - IN2 制定10s的时基	MOVE EN ENO MW38 - IN ^{"DB_} s5time". OUT - sets5time



编辑调用指令:



打开变量表观察,当 MO.0 为1 时 MW34 中的值已经转化为 S5TIME 的格式并存储到定义的 DB1.DBW0 中:

	V	ar -	(@Variabl	e table:	LONLINE]			
F	T.	able	Edit Insert	PLC V	ariable View Opt	ions Window Help	-	9 ×
E	Ħ		2 1 4	3 %	🖹 🛍 🗠 🖂	× 📲 🖁 🕅	⊘∕ 60° ч≯	66' <mark>1</mark> 4
	^	Add	ress	Symbol	Display format	Status value	Modify value	
1		M	0.0		BOOL	true	true	
2		MW	34		DEC	200	200	
3		DB1.	DBW O	″DB_s5	SIMATIC_TIME	S5T#33m2OsOms		
4		M	0.1		BOOL	false	false	
5		T	0		SIMATIC_TIME	S5T#Oms		
6								

当 MO.1 从 0 变为 1, TO 按设定值运行:

	Var - [@Variable table1 ONLINE]							
	T	able	Edit Insert	PLC V	ariable View Opt	ions Window Help	-	a ×
Н	Ħ	D	2 6	3 %	🖹 🛍 🗠 🖂	× 📲 🕯 🕅	∭ 60° м⊅	60° i K
		Add	ress	Symbol	Display format	Status value	Modify value	
1		M	0.0		BOOL	true 📘	true	
2		MW	34		DEC	200	200	
3		DB1.	DBW 0	″DB_s5	SIMATIC_TIME	S5T#33m20s0ms		
4	ſ	M	0.1		BOOL	true	true	
5		Т	0		SIMATIC_TIME	S5T#33m10s0ms		
6								



也可通过在线的方法来观察程序



程序见例程 TIMERSAMPLE1

6.2 定时器时间太短不够用怎么办?

首先 S5Timer 的定时时间最大为: 2H_46M_30S, 而 IEC 定时器的定时时间最大为: 24D_20H_31M_23S_648MS。如果需要更大时间的定时设置可通过编程来实现。

1) 如果有规律的可使用 0B35 或 0B10 编程来实现,例如某车间需计算 8 小时的班产量和 日产量,我们可以如下操作:

首先在 cpu 属性中定义 OB10 为每小时中断一次;

Image: Service Service Image: Service Service Service Image: Service Service Service Image: Service Service Service Image: Service Service Service Service Image: Service Se	Image: Service in a servic			opdons wi	indow	Help				
OUBR Properties - CPU 315-2 DP - (R0/S2) 1 General Startup Cycle/Clock Memory Retentive Memory Interrupt 2 DP Time-of-Day Interrupts Cycle/Clock Memory Retentive Memory Interrupt 3 Priority Active Execution Start date Time of day PIP 0B10: Priority Active Every hour 08/14/2007 08:00	UR Properties - CPU 315-2 DP - (RO/S2) General Startup Cycle/Clock Memory Retentive Memory Interrupts UP DP General Startup Cycle/Clock Memory Retentive Memory Interrupts UP DP OB 10: 2 V Every hour 08/14/2007 08:00 ··· ··· 00 UR 0812: 2 None 01/01/1994 00:00 ··· ··· Module 0813: 2 None 01/01/1994 00:00 ··· ··· DP 0815: 2 None 01/01/1994 00:00 ··· ···) 🚅 🔓 🖩 🖏 🧉				∃ 🔡 №?				15
1 General Startup Cycle/Clock Memory Retentive Memory Interrupt 2 1 DP Time-of-Day Interrupts Cyclic Interrupts Diagnostics/Clock Protection Communical 3 4	General Startup Cycle/Clock Memory Retentive Memory Interrupts DP DP Time-of-Day Interrupts Cyclic Interrupts Diagnostics/Clock Protection Communication Priority Active Execution Start date Time of day PIP 0B10: 2 ✓ Every hour 08/14/2007 08:00 ···· ✓ 0B11: 2 ✓ None 01/01/1994 00:00 ···· ✓ Module 0813: 2 ✓ None 01/01/1994 00:00 ···· ✓ DP 0814: 2 ✓ None 01/01/1994 00:00 ···· ✓ 0B13: 2 ✓ None 01/01/11994 00:00 ···· ✓ DP 0815: 2 None 01/01/11994 00:00 ···· ✓	🗃 (0) UR	Propertie	s - CPU 3'	15-2 D	P - (R0/S2)				
X2 Ime-or-Day Interrupts Cyclic Interrupts Diagnostics/Clock Protection Communical 3 4	DP Imme-of-Day Interrupts Cyclic Interrupts Diagnostics/Clock Protection Communication Priority Active Execution Start date Time of day PIP 0B10: 2 Imme 08/14/2007 08:00	1 ^ 2 CPU 3	Genera	al Sta	artup	Cycle/Clock	Memo	ry Reten	tive Memory	Interrupts
4 5	Priority Active Execution Start date Time of day PIP 0B10: 2 Image: Start date	<u>X2</u> 1 DP 3	I ime-ot-L	Jay Interrupt:	s Cy	clic Interrupts	Diagr	iostics/Clock	Protection	Communication
6 ✓ 0B10: 2 Every hour ✓ 08/14/2007 08:00 ····	OB10: 2 Image: Every hour 08/14/2007 08:00 OB11: 2 Image: None 01/01/1994 00:00 (0) UR 0B12: 2 Image: None 01/01/1994 00:00 Module 0B13: 2 Image: None 01/01/11994 00:00 CPU 315-2 DF 0B15: 2 Image: None 01/01/11994 00:00	<u>4</u> 5		Priority	Activ	e Execution		Start date	Time of day	PIP
0B11: 2 None 01/01/1994 00:00 0 Image: COLUMN C	0B11: 2 None 01/01/1994 00:00 (0) UR 0B12: 2 None 01/01/1994 00:00 Module 0B13: 2 None 01/01/1994 00:00 CPU 315-2 DF 0B14: 2 None 01/01/1994 00:00 DP 0B15: 2 None 01/01/1994 00:00	6	OB10:	2		Every hour	•	08/14/2007	08:00	··· •
(0) UR 0B12: 2 None 01/01/1994 00:00	(0) UR 0B12: 2 I None 01/01/1994 00:00 Module 0B13: 2 I None 01/01/1994 00:00 CPU 315-2 DF 0B14: 2 I None 01/01/1994 00:00 DP 0B15: 2 I None 01/01/1994 00:00		OB11:	2	Г	None	+	01/01/1994	00:00	
	Module OB13: 2 None 01/01/1994 00:00 y CPU 315-2 DF OB14: 2 None 01/01/1994 00:00 y DP OB15: 2 None 01/01/1994 00:00 y	🖿 📄 (0) UR	OB12:	2	Г	None	Ŧ	01/01/1994	00:00	
None 01/01/1334 00:00 +	CPU 315-2 DF OB14: 2 None 01/01/1994: 00:00 V DP 0B15: 2 None 01/01/1994: 00:00 V	Slot 🚺 Module	OB13:	2	Г	None	*	01/01/1994	00:00	
2 CPU 315-2 DF 0B14: 2 None 9 01/01/1994 00:00	DP 0815: 2 None V 01/01/1994 00:00 V	1 2 📓 CPU 315-2 DI	OB14:	2	Г	None	v	01/01/1994	00:00	
2 DP 0815: 2 None 🖌 01/01/1994 00:00 🛶		X2 DP	OB15:	2	Γ	None	÷	01/01/1994	00:00	
0B16: 2 None 💽 01/01/1994 00:00	0B16: 2 None y 01/01/1994 00:00 y	4	OB16:	2		None	Ŧ	01/01/1994	00:00	
		5	OB17:	2		None	Ŧ	01/01/1994	00:00	
0B17: 2 None 01/01/1994 00:00	0B17: 2 🔽 None y 01/01/1994 00:00 + 👽									
CPU 315-2 DF OB14: 2 None 01/01/1994 00:00 2 DP 0B15: 2 None 01/01/1994 00:00 0B16: 2 None 01/01/1994 00:00	0B16: 2 None - 01/01/1994 00:00	1 2 3 CPU 315-2 DI X2 3 4 5	0814: 0815: 0816: 0817:	2 2 2 2		None None None None	+ + +	01/01/1994 01/01/1994 01/01/1994 01/01/1994	00:00	
		i	OB17:	2		None	÷	01/01/1994	00:00	

然后在 0B100 中初始化计数变量如 mw150 为 0



创建 DB 定义变量:

🔣 LAD/STL/F	BD	- [DB2 ti	imersample\SIMATIC 30	0(1)\CPU 315-2 DP]					
🖬 File Edit	Ins	ert PLC Deb	oug View Options Windov	w Help	Help				
🗋 🗃 🔓		😂 👗 🖻	b 🛍 여 여 6% 🎪	🔁 📲 🔐 !« »!					
		Address	Name	Туре	Initial value	Connent			
		0.0		STRUCT					
🕀 🗐 Librai		+0.0	team1	DINT	L#O	一班产量			
		+4.0	team2	DINT	L#O	二班产量			
		+8.0	team3	DINT	L#O	三班产量			
		+12.0	all	DINT	L#O	日三班产量			
		+16.0	temp	DINT	L#O	一班和二班产量和			
		=20.0		END_STRUCT					

打开 OB10 编制程序:

OB10 : "Time of Day Interrupt"						
Comment:						
Network 1: Title:						
每执行一次ob10则MW150执行一次加一操作						
1 – <u>IN2</u>						
Network 2: Title:						
MD100为实际流水,DB2.DBDOteam1产量						
MW150 - IN1 MD100 - IN OUT - DB2. DBD0						
8-IN2						







注意所附例程中没用编写计数程序(MW150)需用户自己编写。

2) 作为无固定规律的定时我们可以利用读取系统时钟并与设定时间来比较完成。

首先创建 DB 块并定义两个 DATE AND TIME 格式的变量

驖	K LAD/STL/FBD - DB1											
File	Edit	Insert	PLC	Debug	, View Optio	ns Window Help						
Ľ	🗅 😂 🏪 🛃 🛃 🛍 🛍 🗠 🛥 🕼 🏜 🔁 🎥 60 ! ! << > ! 🔲 🛄 📢											
_												
□ DB1 ob10\longtime(1)\CPU 315-2 DP												
		ioraries			Address	Name	Туре	Initial value	Connent			
		ioraries			Address 0.	Name 2	Type STRUCT	Initial v alue	Connent			
	3 -144 F	ibraries			Address 0. +0.	Name C C readtime	Type STRUCT DATE_AND_TIME	Initial value DT#90-1-1-0:0:0.000	Connent			
	3 -14	ibraries			Address 0. +0. +8.	Name readtime comparetime	Type STRUCT DATE_AND_TIME DATE_AND_TIME	Initial value DT#90-1-1-0:0:0.000 DT#07-8-15-0:0:0.000	Comment			
	2 	ibraries			Address 0. +0. +8. =16.	Name readtime comparetime	Type STRUCT DATE_AND_TIME DATE_AND_TIME END_STRUCT	Initial value DT#90-1-1-0:0:0.000 DT#07-8-15-0:0:0.000	Comment			

CPU系统时钟的设定可参照前面 3.1 节介绍的方法,此处不再介绍。

打开符号表





编辑符号

Ś	Symbol Editor - S7 Program(4) (Symbols)									
S	iymbol Table Edit Insert View Options Window Help									
0	🛩 🖬 🎒 👗 🖻 🛍 🗠 🖂 🛛 All Symbols 📃 💆 💦									
	🖨 S7 I	Program	n(4) (Symbols) ob	10\longtime	e(1)\CPU 31	5-2 DP				
		Statu	Symbol 🛆	Address	Data typ	Comment				
	1		COMPLETE RESTART	OB 100	OB 100	Complete Restart				
	2		EQ_DT	FC 9	FC 9	Equal DT				
	3		READ_CLK	SFC 1	SFC 1	Read System Clock				
	4		TOD_INTO	OB 10	OB 10	Time of Day Interrupt O				
	5		DB_comparetime	DB 1	DB 1	存放读取的系统时间和用于比较的时间				
	6									

在 OB1 中编程, 首先调用 SFC1

OB1 : "Main Program Sweep	(Cycle)"								
Comment:									
Network 1: Title:	Network 1: Title:								
读取系统时间并赋值给″DB_co	omparetime".readtime变量								
READ_CLK EN ENO									
RET_VAL	-JMW22								
	″DB_								
	comparetim								
CDT	e. —readtime								

在Libraries>Standard Library>IEC Function Blocks 目录下调用 FC9(时间日期比







为方便观察我们定义一个置位操作:



打开监视和修改变量表:

	📓 Var - @Variable table1 👘 👘 👘 👘 👘 👘								
Tat	ole Edit Insert	PLC	Variable	e View Options	Window Help				
÷	0 🚅 🖬	8	X ⊑		K 📲 🖁 🕅	⊙∕ 66 47 6	di 🗤 Ileo		
E2	@Variable ta	able	1 ONLI	NE					
	Address 着		Symbol	Display format	Status value	Modify value			
1	DB1.DBB	0		HEX	B#16#07		\mathbf{N}		
2	DB1.DBB	1		HEX	B#16#08				
3	DB1.DBB	2		HEX	B#16#16			法取的系统时间	
4	DB1.DBB	3		HEX	B#16#09			医球球的示力性外内	
5	DB1.DBB	4		HEX	B#16#07				
6	DB1.DBB	5		HEX	B#16#34				
7	DB1.DBB	6		HEX	B#16#17				
8	DB1.DBB	7		BIN	2#0101_0101		1		
9	DB1.DBB	8		HEX	B#16#07	B#16#07	5		
10	DB1.DBB	9		HEX	B#16#08	B#16#08			
11	DB1.DBB	10		HEX	B#16#16	B#16#16	ιĻ	设定的比较时间	
12	DB1.DBB	11		HEX	B#16#09	B#16#09			
13	DB1.DBB	12		HEX	B#16#04	B#16#04			
14	DB1.DBB	13		HEX	B#16#00	B#16#00			
15	DB1.DBB	14		HEX	B#16#00	B#16#00			
16	DB1.DBB	15		BIN	2#0000_0101	2#0000_0101			
17	M 50.	0		BOOL	false				
18	M 50.	1		BOOL	l true			── 程序运行的结	
19								未	

详见例程 0B10



- 6.3 如何用 Timer 作为变量为 FC/FB 传递参数?
 - 1) 创建一个 FC/FB (如 FC1)

🌄 SIMATIC Mana	ger - [t-transf	er C:\Do	cuments a	and	Setting	gs\don	gh\Desk	top\
🎒 File Edit Inse	rt PLC View (Options Wir	ndow Help					
🗅 🗃 🎛 🐖	👗 🖻 💼	🏙 🖾 S				🗈 [< No Filte	r>
E Dittransfer	ces	🕞 OB1	C	3 FC'	1			
t-iec	Cut		Ctrl+X		1			
	Сору		Ctrl+C					
	Paste		Ctrl+V					
	Delete							
	Insert New Ob	oject		•	Organ	nization	Block	
	PLC			•	Funct	ion Bloc	k	
	Rewire Compare Block Reference Da Check Block C	<s ta onsistency</s 		•	Functi Data I Data ⁻ Variat	ion Block Type ole Table	9	
	Print			•				
	Rename Object Proper	ties	F2 Alt+Return	1				
	Special Object	Properties		•				

2) 双击打开 FC1 定义一个 IN 参数 Name 为 T_No, Data_Type 为 Timer 格式用于传递定时器号,如下图所示:

🔯 LAD/STL/FBD - [FC1 t-transfer\t-fc]									
🖶 File Edit Insert PLC Debug View Options Window Help									
🗅 😅 🔓 🔒 🛃 🚳 🕄	🗠 🗠 📴 🏙 🔽 🗣 😚	!« »! 🗖 🖪	∺⊷ -() 쨉 나 그 거 [🕅					
		Contents Of: '	Environment	\Interface\IN'					
	🖃 🕀 Interface	Name	Data Type	Connent					
New network	E IN	🕲 T_No	Timer						
🗄 🗐 Bit logic	TUO 📭	12							
🗄 💽 Comparator	IN_OUT								
🗄 🥁 Converter	TEMP								
🗄 편 Counter	🕂 = 🖬 RETURN								
🗄 📴 DB call									



3) 再定义一个 IN 参数 Name 为 T_S5T, Data_Type 为 S5Time 格式用于传递定时时间:

	IAD/STL/FBD - [FC1 t-transfer\t-fc]												
C	File	Edit	Insert	PLC	Debug	Vie	w Options Window	Help					
[🗅 🖻	°		6 X	Pa f	3	မှာ က 🖓 🏙 🖂) 9 667 !·	«)	>! 🗖 🖪	HFO -	· -1/() 🕾 🔓
					<u> </u>	×			Cor	ntents Of:	'Enviro	onment \	Interfa
							🖃 🕀 Interface			Name	Data	Туре	Connent
н	HEO	New r	network				🛨 💶 IN		1	T_No	Timer		
	÷ 💼	Bit log	jic				TUO 💶		12	T_S5T	S5Tim	е	
	ŧ 🔇	Comp	arator				IN_OUT		ъ				
	÷	Conv	erter				=⊡- TEMP						
	÷	Coun	ter				主 🖅 RETURN						
	÷ ~ .												

4) 在 OUT 参数中定义一个 BOOL 输出参数 OUTO:



5) 在 FC1 中编程调用 S_0DT 指令。





6) 在 0B1 中多次调用 FC1 并传递不同的定时器号和定时值。

OB1 : "Main P:	rogram Sweep (Cyc	le)″								
Comment:										
Network 1: Title:										
Comment:										
	FC1		- П							
	EN	ENO								
T1 –	T_No	OUTO	-MO.1							
S5T#5S –	T_S5T									
Network 2:Ti	tle:									
Comment:										
	FC1 EN	ENO								
T2 _	TNo		- 10 2							
12-	1_10	0010								
S5T#15S -	T_S5T									

7) 在变量表中观察可见,当 M1.0 变为 1 时 T1 和 T2 分别以设定的时间运行互不干涉。

定时器运行时间小于 5S 时:

醫	Mar - @Variable table1										
Tab	Fable Edit Insert PLC Variable View Options Window Help										
-2	▰▯▰◼◓▯▯▫▫ヽヽヽਙਃਲ਼! ᅇ๛๛๛๚๚๛										
S		≬Vari	able tab	ole1 ONLINE						×	
	1	Add	ress	Symbol		Display format	Status value	Modify val	ue		
1		M	1.0			BOOL	l true	true			
2		Т	1			SIMATIC_TIME	S5T#3s770ms				
3		M	0.1			BOOL	false				
4		Т	2			SIMATIC_TIME	S5T#13s800ms				
5		M	0.2			BOOL	false				
6											



定时器运行时间大于 5S 并小于 15S 时:

53	🕍 Var - @Variable table1									
Tab	Table Edit Insert PLC Variable View Options Window Help									
4										
E2	10	≬Vari	iable tab	ole1 ONLINE)				×	
	1	Add	ress	Symbol		Display format	Status value	Modify value		
1		M	1.0			BOOL	true	true		
2		Т	1			SIMATIC_TIME	S5T#Oms			
3		M	0.1			BOOL	true			
4		Т	2			SIMATIC_TIME	S5T#9s500ms			
5		M	0.2			BOOL	false			
6										
						<u>.</u>		i		

定时器运行时间大于 15S 时:

		٧á	ar - (@Variab	le ta	able1										
I	Tab	le	Edit	Insert	PLC	Variable	View	Options	Windo	w Help						
	-14	1	D	2	8	<u>%</u>	B	n N	×		?	≫ 667 4 ≁	66° 14	1//42=		
1	S.	(@)Var	iable ta	ble1	ONLIN										
ł			Add	lress	Syr	mbol			Di	splay form	nat St	atus value		Modify v:	alue	
	1		M	1.0					BOO)L		true		true		
	2		Т	1					SIN	MATIC_TIM	Œ	S5T#Oms				
	3		M	0.1					BOO)L		true				
1	4		Т	2					SIM	MATIC_TIM	Œ	S5T#Oms				
1	5		M	0.2					BOO)L		true				
	6														_	
1																

具体程序见例子 t_transfer



- 6. 4 用 IEC 定时器如何使用多重背景
 - 1) 创建一个 FB (如 FB4)

SIMATIC Manage	r - [t-transfer C:\D	ocuments an	d Settings\dongh\Desktop\
🎒 File Edit Insert	PLC View Options W	indow Help	
🗅 🗃 🚟 🚮 .	, 🖻 🕄 🏜 🔍		🗄 🏢 💽 < No Filter >
t-transfer t-transfer Sources Sources Blocks Sources Sources Sources Sources Sources Sources Sources Sources Sources	⊡ 0B1	G, F	B4
C	ut opy aste elete	Ctrl+X Ctrl+C Ctrl+V Del	
	nsert New Object LC	> •	Organization Block Function Block
R	ewire ompare Blocks eference Data heck Block Consistency	•	Data Block Data Type Variable Table
P	rint	•	
R O S	ename bject Properties pecial Object Properties	F2 Alt+Return ►	

2) 打开 FB4 定义输入参数(如 t_time 和 t_time2 为 TIME 格式的输入形参,可根据实际 情况来定义输入/出参数)

職 LAD/STL/FBD - [FB4 t-trans	🔀 LAD/STL/FBD - [FB4 t-transfer\t-iec\CPU 315-2 DP]								
🖬 File Edit Insert PLC Debug Vi	🚍 File Edit Insert PLC Debug View Options Window Help								
D 🛩 🔓 🔒 😹 🛍 💼	n n CH 🏜 🕤 🏪 🚳	!≪≫! [□ [□]	₩0	-0 🕾 🛏	r H(\?				
		Contents Of: '	Environment	\Interface\]	IN'				
	🖃 🕀 Interface	Name	Data Type	Address	Initial Value	Exclusion			
🕂 💾 New network	🖻 💶 IN	🖼 t_time	Time	0.0	T#OMS				
🔁 💼 FB blocks	🔁 t_time	🖼 IN1	Bool	4.0	FALSE				
🗄 💼 FC blocks	- 181 IN1	🖼 t_time2	Time	6.0	T#Oms	i i			
🕀 🔁 SFB blocks	—™⊡ t_time2	🖬 IN2	Bool	10.0	FALSE				
🗄 💼 SFC blocks	1N2								

定义输出参数

LAD/STL/FBD - [FB4 t-transfer\t-iec\CPU 315-2 DP]								
🕞 File Edit Insert PLC Debug View Options Window Help								
🗅 😅 🔓 🔛 🎒 🐰 🖻	💼 🗠 🗠 🕅 🏜 🔽 🗣	667	!« »! 🔲	□ ₩0 	₩-0 🕾 L	, ב ז ⊢נ∣	▶?	
× ×		Cor	ntents Of: '	Environment	\Interface\C	UT'		
	🖃 🕀 Interface		Name	Data Type	Address	Initial	Value Ex	
🛛 💾 New network 🛛 🔼	🕂 🖬 IN	13	OUTO	Bool	12.0	FALSE		
🗉 🗊 FB blocks		12	OUT2	Bool	12.1	FALSE		
FC blocks		ы						
E DEB DIOCKS								



3) 定义两个 IEC 定时器的静态变量(如 iec_timer 和 iec_timer2)

🔀 LAD/STL/FBD - [FB4 t-transfer\t-iec]								
🖬 File Edit Insert PLC D	🖬 File Edit Insert PLC Debug View Options Window Help							
🗅 🗃 🔓 🔒 👗	🖻 💼 🗠 🗠 🕼 🎪 🔽 🕯	.	%r !≪ ≫! [╂╂-11-0 🖾	} ⊢		
		Cor	ntents Of: '	Environment'	\Interface\S	TAT'		
	🖃 🕀 Interface		Name	Data Type	Address	Ini		
New network	🕂 🖬 IN	Ξ	iec_timer	SFB <nr></nr>	6.0			
🕀 💼 FB blocks	🗊 = 💶 OUT	12						
🗄 🔁 FC blocks	IN_OUT			•				
🗄 🔁 SFB blocks	E -= STAT							
🕀 🔁 SFC blocks	TEMP							
Multiple instances								

将 SFB<nr>修改为 SFB4:

🗱 LAD/STL/FBD - [FB4 t-transfer\t-iec]							
🖅 File Edit Insert PLC Debug View Options Window Help							
🗅 🛎 🔓 🖶 🎒 👗 🖻 💼 🗠	으 078 🏙 🛛 🗢 9	en (!« »!		-			
		Contents Of: '	Environment\	Inter			
Image: Second	erface N UT N_OUT TAT EMP	Name iec_timer	Data Type SFB 4	Addre 6.0			
🞇 LAD/STL/FBD - [FB4 t-transfer\t-iec\CPU 315-2 D	P]						
File Edit Insert PLC Debug View Options Window He	elp						
	≗ @ !≪ >! <mark>□</mark> ⊠ ⊭	+ + +-0 ഈ ∟ _	⊣.				
	Contents Of: 'Enviror	nment\Interface\STAT'		,			
	Name Data	Туре	Address	Initia			
	iec_timer2 TON		36.0				
FC blocks				_			

4)选择 STL 的编程方式,以符号名的形式调用 SFB4:

FB4 : Title: Comment:	
Network 1: Title:	
Comment:	
CALL #iec_timer	
PT:=	
Q :=	
EI:-	



FB4 : Title:

Comment:

Network 1: Title:

Comment:

CALL #iec_timer IN:=#IN1 PT:=#t_time Q :=#OUTO ET:=

Network 2: Title:

Comment:

CALL #iec_timer2 IN:=#IN2 PT:=#t_time2 Q :=#OUT2 ET:=

5) 创建需要调用 FB4 的 FC 或 FB 或 0B 块, 在此以 0B1 为例, 在 0B1 中调用 FB4, 并创建 背景数据块 DB4





6) 可打开背景数据块观察, iec_timer 和 iec_timer2(SFB4) 需要的相应参数已经存在其

中。

🔣 DB	🖾 DB Param - [DB4 t-transfer\t-iec\CPU 315-2 DP]							
🔣 Dal	🔣 Data block Edit PLC Debug View Window Help							
🖻 🛱	n 🖬 🎒 🗠 n	· X 🖻 🛍 !«	(»! 📺 🏜 & 🕅 💦					
	Address	Declaration	Name	Туре	Initial value			
1	0.0	in	t_time	TIME	T#OMS			
2	4.0	in	IN1	BOOL	FALSE			
3	6.0	in	t_time2	TIME	T#OMS			
4	10.0	in	IN2	BOOL	FALSE			
5	12.0	out	OUTO	BOOL	FALSE			
6	12.1	out	OUT2	BOOL	FALSE			
7	14.0	stat:in	iec_timer.IN	BOOL	FALSE			
8	16.0	stat:in	iec_timer.PT	TIME	T#OMS			
9	20.0	stat:out	iec_timer.Q	BOOL	FALSE			
10	22.0	stat:out	iec_timer.ET	TIME	T#OMS			
11	26.0	stat	iec_timer.STATE	BYTE	B#16#0			
12	28.0	stat	iec_timer.STIME	TIME	T#OMS			
13	32.0	stat	iec_timer.ATIME	TIME	T#OMS			
14	36.0	stat:in	iec_timer2.IN	BOOL	FALSE			
15	38.0	stat:in	iec_timer2.PT	TIME	T#OMS			
16	42.0	stat:out	iec_timer2.Q	BOOL	FALSE			
17	44.0	stat:out	iec_timer2.ET	TIME	T#OMS			
18	48.0	stat	iec_timer2.STATE	BYTE	B#16#0			
19	50.0	stat	iec_timer2.STIME	TIME	T#OMS			
20	54.0	stat	iec_timer2.ATIME	TIME	T#OMS			

7) 打开监视和修改变量表:

将 MO.0 置 1, SFB4 运行时间小于 7s 时:

K	🔐 var1 @t-transfer\t-iec\CPU 315-2 DP\S7_Program(3)_ONLINE								
		Address	Symbol	Display format	Status value	Modify valu	e		
1		M 0.0		BOOL	true	true			
2		Q 1.0		BOOL	false				
3		DB4.DBD 22		TIME	T#459ms		调用的第一个SFB4的已运行时间		
4		M 0.1		BOOL	true	true			
5		Q 1.1		BOOL	false				
6		DB4.DBD 44		TIME	T#459ms		调用的第二个SFB4的已运行时间		
7									

当 SFB4 运行时间大于 7s 小于 15s 时: Q1.0 变为 1 定时 7s 的定时器已经停止计时,而 定时 15 的定时器依然继续互相并不干扰。

	🕍 (var1 @t-transfer\t-iec\CPU 315-2 DP\S7_Program(3)_ONLINE 📄							
	^	Address	Symbol	Display format	Status value	Modify value		
1		M U.U		ROOL	true	true		
2		Q 1.0		BOOL	l true			
3		DB4.DBD 22		TIME	T#7s			
4		M 0.1		BOOL	📘 true	true		
5		Q 1.1		BOOL	false			
6		DB4.DBD 44		TIME	T#9s823ms			
7								



当 SFB4 运行时间大于 15s 时: Q1.0 和 Q1.1 都变为 1 定时器停止计时。

sk.	🕍 var1 @t-transfer\t-iec\CPU 315-2 DP\S7_Program(3)_ONLINE								
		Address	Symbol	Display format	Status value	Modify value	e		
1		M 0.0		BOOL	true	true			
2		Q 1.0		BOOL	true				
3		DB4.DBD	22	TIME	T#7s				
4		M 0.1		BOOL	true 🚺	true			
5		Q 1.1		BOOL	true				
6		DB4.DBD 🔗	44	TIME	T#15s				
7									

当 MO.0 置 1MO.1 为 0 时, 第一个 SFB4(iec_timer)运行而第二个 SFB4(iec_timer2)不运

行,二者互相并不干扰:

	🕍 var1 @t-transfer\t-iec\CPU 315-2 DP\S7_Program(3)_ONLINE 📄								
		Address	Symbol	Display format	Status value	Modify value			
1		M 0.0		BOOL	true	true			
2		Q 1.0		BOOL	false				
3		DB4.DBD 22		TIME	T#2s689ms				
4		M 0.1		BOOL	false	false			
5		Q 1.1		BOOL	false				
6		DB4.DBD 44		TIME	T#Oms				
7									

具体程序见例子 t_transfer

6. 5 Time to S5Time, S5Time to Time

6. 5. 1 Time to S5Time

使用 FC40 可将 Time 转换为 S5Time 格式:

FC40 的位置在 Libraries>Standard Library>IEC function block 目录下。



在 STEP7 项目中定义数据块 DB1, 并定义三个变量:DB1. DBW0 为 INT 类型,DB1. DBD2 为 DINT 类型,DB1. DBD6 为 TIME 类型,DB1. DBW10 为 S5TIME 类型。

🔣 LAD/STL/FBD - [DB1	LAD/STL/FBD - [DB1 "DB_t to s5t" timertest\time and s5time\\DB1]									
🗈 File Edit Insert PLC Debug View Options Window Help										
🗅 🗃 🔓 🔒 👗	🗅 🖆 🏪 🎒 👗 🛍 💼 🗠 🖂 🕼 🕍 🔁 🗣 60 ! 💷 🛄 🔃									
	Address	Name	Туре	Initial value	Comment					
	0.0		STRUCT							
	+0.0	SET_TV	INT	0	上位机设定的时间					
	+2.0	SET_DITV	DINT	L#O	將上位机设定的时间转换为双整数					
	+6.0	TV_time	TIME	T#OMS	以TIME格式存储设定时间					
	+10.0	TV_S5TIME	S5TIME	S5T#OMS	转换后的S5TIME时间					
	=12.0		END_STRUCT							

打开符号表定义符号:

😪 Symbol Editor - time and s5time (Symbols)								
Symbol Table Edit Insert View Options Window Help								
🖻 🖬	🖆 🖬 🎒 🐁 📭 💼 🔛 斗 🛛 All Symbols 💽 🏹 💦							
🖨 tim	e and s	5time (Symbols) t	imertest					
	Statu	Symbol 🗠	Address	Data typ	Comment			
1		S5TI_TIM	FC 33	FC 33	S5 Time to IEC Time			
2		TIM_S5TI	FC 40	FC 40	IEC Time to S5 Time			
3		var1	VAT 1					
4		var2	VAT 2					
5		DB_t to s5t	DB 1	DB 1				
6								

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打开 OB1 编程:

SIEMENS

调用 FC40

OBI : "Main Program Sweep (Cycle)"									
Comment:									
Network 1: Title:									
当MO.O为1时将^DB_t to s5t [*] .SET_TV先转换为双整数再送入^DB_t to s5t [*] .TV_time 中,FC4O被执行TIME变量 被转换成s5time的格式									
	FC40 IEC Time to S5 Time "TIM_S5TI" EN ENO								
DB1.DBWO DB1.DBD2 DB1.DBD2 DB1.DBD2 DB1.DBD6 DB1. DB1.DBD6 DB1.DBD6 DB1.DBD6 DB1.DBD6 DB1.DBD6 DB1.DBD6 DB1.DBD6 DB1.DB06 DB1.DB06	DBD6 DB1.DBW10 医格式 特换后的55 引 TIME时间 B_t to *DB_t to s5t*. s5t*.								
	TV_time - IN RET_VAL - TV_S5TIME								

调用定时器指令:



打开变量表,为 DB1. DBW0 赋值并分别让 M0.0 和 M0.1 为 TRUE:

She was a state of the state of	📸 Var - var 1 👘									
Ta	Table Edit Insert PLC Variable View Options Window Help									
÷	<u> </u>) 🚅 🛙			° <u>∎</u> 8 № ?	ୁ ଆ ୩ ଅ ଅ	1400			
N.	va	·1 @1	time	ertest\time and s5time_ON	LINE					
	Add	ress		Symbol	Display format	Status value	Modify value			
1	M	0.0)		BOOL	true	true			
2	M	0.1			BOOL	l true	true			
3	DB1.	DB₩	0	"DB_t to s5t".SET_TV	DEC	2450	2450			
4	DB1.	DBD	2	"DB_t to s5t".SET_DITV	DEC	L#2450				
5	DB1.	DBD	6	"DB_t to s5t".TV_time	TIME	T#2s450ms				
6	DB1.	DB₩	10	"DB_t to s5t".TV_S5TIME	SIMATIC_TIME	S5T#2s450ms				
7	Т	1			SIMATIC_TIME	S5T#910ms				
8										

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详见附例程:timertest,注意所附例程只注重功能的实现,即非唯一的方法也没有考虑限制 范围,仅做参考。

6. 5. 2 S5Time to Time

使用 FC33(在 Libraries>Standard Library>IEC function block 目录下)可将 S5Time 转换为 Time 格式。

插入 DB 块,打开并定义两个 S5Time 转换为 Time 格式的变量:

LAD/STL/FBD - [DB1 timertest\s5t to time\CPU 313]									
File Edit Insert PLC Debug View Options Window Help									
🗅 😅 🎥 🛃 🎒 🛍 🗠 🖂 (개 🏜 🖂 🗣 🖉 ! << >>! 🔲 🖪 🕺									
	Address	Name	Туре	Initial value	Connent				
	0.0		STRUCT						
🖃 👭 Libraries	+0.0	set_s5time	S5TIME	S5T#OMS	需转换的S5TIME				
E Standard Library	+2.0	set_time	TIME	T#OMS	转换后的time				
System Function Block	=6.0		END_STRUCT						
E 🔁 S5-S7 Converting Bloc									
🗄 💼 IEC Function Blocks									

打开符号表定义符号:

🚭 Symbol Editor - S7 Program(23) (Symbols)										
Symbol Table Edit Insert View Options Window Help										
2		🗟 🐰	B	KO CH	All Sym	nbols			💽 🎾 🕅	
S7 Program(23) (Symbols) timertest\s5t to time\CPU 313								11 34 3		
	🗐 S7 I	Progran	n(23) (Sym	ibols)	timerte	รณรว		newcP	0.313	
	ම් \$7 	Progran Statu	n(23)(Sym Symbol /	bols)	Addre	stiso ss	Data	typ	Comment	
	57 1	Progran Statu	N(23) (Sym Symbol / S5TI_TIM	ibols)	Addre FC	3155 33	Data FC	typ 33	Comment S5 Time to IEC Time	
	57 1 2	Progran Statu	N(23)(Sym Symbol / S5TI_TIM TP	ibols)	Addre FC SFB	33 33 33	Data FC SFB	typ 33 3	Comment S5 Time to IEC Time Generate a Pulse	
	57 1 1 2 3	Statu	n(23)(Sym Symbol / S5TI_TIM TP var1	1001S)	Addre FC SFB VAT	33 33 3 1	Data FC SFB	typ 33 3	Comment S5 Time to IEC Time Generate a Pulse	
	1 2 3 4	Progran Statu	Symbol / S5TI_TIM TP var1 DB_s5t to	Dols)	Addre FC SFB VAT DB	33 33 3 1 1	Data FC SFB DB	typ 33 3 1	Comment S5 Time to IEC Time Generate a Pulse 存放S5TIME和TIME变量的数据块	
	5 57 57 57 57 57 57 57 57 57 57 57 57 57	Program Statu	N(23) (Sym Symbol / S5TI_TIM TP var1 DB_s5t to) DOIS)	Addre FC SFB VAT DB	33 33 3 1 1	Data FC SFB DB	typ 33 3 1	Comment S5 Time to IEC Time Generate a Pulse 存放S5TIME和TIME变量的数据块	



在 OB1 中调用 FC33:

OB1 : "Main Program Sweep (Cycle)"									
Comment:									
Wetwork 1: Title:									
Comment:									
FC33 S5 Time to IEC Time ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	DB1.DBD2 转换后的ti me ["] DB_s5t to t ["] . -set_time								

举例调用 IEC 定时器 (SFB3 其中 DB3 为其背景数据块):





打开 DB3, 其结构如下:

🛿 DB Param - DB3									
Data block Edit PLC Debug View Window Help									
🖆 🎥 🛃 🎒 🗠 🖓 🐇 🛍 💼 🔢 !« »! 🚵 🏜 🎯 📢									
I DB3 timertest\s5t to time\CPU 313									
	Address	Declarat	Name	Туре	Initial value	Actual value	Co		
1	0.0	in	IN	BOOL	FALSE	FALSE			
2	2.0	in	PT	TIME	T#OMS	T#OMS			
3	6.0	out	Q	BOOL	FALSE	FALSE			
4	8.0	out	ET	TIME	T#OMS	T#OMS			
5	12.0	stat	STATE	BYTE	B#16#0	B#16#0			
6	14.0	stat	STIME	TIME	T#OMS	T#OMS			
7	18.0	stat	ATIME	TIME	T#OMS	T#OMS			

打开变量表,为DB1.DBW0赋值,可见FC33执行后DB1.DBD2和DB3.DBD2中均为正确的TIME数值:

Sk.	👪 (var1 @timertest\s5t to time\CPU 313\S7_Program(23)_ONLINE									
	^	Address	Symbol	Display format	Status value	Modify value				
1		DB1.DBW 0	"DB_s5t to t".set_s5time	SIMATIC_TIME	S5T#3s840ms	S5T#3s840ms				
2		DB1.DBD 2	"DB_s5t to t".set_time	TIME	T#3s840ms					
3		M 0.0		BOOL	false					
4		DB3.DBD 2		TIME	T#Oms					
5		DB3.DBD 8		TIME	T#Oms					
6										

将 MO.0 赋值为 TRUE, SFB3 按设定运行:

S.	Var1 @timertest\s5t to time\CPU 313\S7 Program(23) ONLINE Update Monitor Values								
Γ		Address	Symbol	Display format	Status value	Modify value			
1		DB1.DBW 0	"DB_s5t to t".set_s5time	SIMATIC_TIME	S5T#3s840ms	S5T#3s840ms			
2		DB1.DBD 2	"DB_s5t to t".set_time	TIME	T#3s840ms				
3		M 0.0		BOOL	l true	true			
4		DB3.DBD 2		TIME	T#3s840ms	SFB3的设定运行时间			
5		DB3.DBD 8		TIME	T#2s452ms	SFB3的已运行时间			
6									

详见附例程: timertest,

重要提示:

- 由于所附例程是免费的,任何用户可以免费复制或传播此程序例子。程序的作者对此
 程序不承担任何功能性或兼容性的责任,使用者风险自负
- 西门子不提供此程序例子的错误更改或者热线支持。
- 注意所附例程只注重功能的实现,即非唯一的方法也没有考虑限制范围,仅做参考。

7 附录一推荐网址

7.1 西门子自动化与驱动产品的在线技术支持

建议您访问西门子(中国)有限公司自动化与驱动集团客户服务与支持中心:



网站首页: <u>http://www.ad.siemens.com.cn/Service/</u>您可以在检索窗口中键入STEP7, MMC或

Compatibility等关键字,获取相关信息,或通过点击以下链接下载获取更多信息

专家推荐精品文档: <u>http://www.ad.siemens.com.cn/Service/recommend.asp</u>

AS常问问题: <u>http://support.automation.siemens.com/CN/view/zh/10805055/133000</u>

AS更新信息: <u>http://support.automation.siemens.com/CN/view/zh/10805055/133400</u>

"找答案"AS版区:

http://www.ad.siemens.com.cn/service/answer/category.asp?cid=1027

7.1.1 如何获得西门子自动化与驱动产品的资料

首先,建议您通过Siemens A&D的网站搜索并下载。<u>www.ad.siemens.com.cn</u> 您还可以致电 010-64763726 索取资料。

另外,还有大量的手册可以通过分销商订购,订货方式和其它产品一样。

7.1.2 需要设备选型及订货

如需设备选型及订货,请联系西门子公司销售当地西门子分销商。分销商联系方式 可致电 010-64731919 获得。

7.1.3 西门子技术支持热线

如有无法自行解决的技术问题,请拨打西门子技术支持热线 400-810-4288 或 010-64719990 进行问题登记或在我们的技术支持与服务网站

http://www.ad.siemens.com.cn/service/点击"技术问题提交"进行问题登记,等待西门子 技术支持工程师回复。我们会在周一至周五8:15至17:15(节假日除外)对您的技术问题进行 解答。请注意在登记问题时尽量准确地描述所使用产品的类型,以便尽快得到负责该产品的 工程师的帮助。

技术支持传真: 010-64719991。

技术支持邮箱: <u>adscs.china@siemens.com</u> 或<u>4008104288.cn@siemens.com</u>。

7.1.4 西门子自动化产品的其它网站

<u>http://www.ad.siemens.com.cn/products/as/s7_200/</u>提供S7-200 PLC相关知识及软件下载。
<u>https://mall.automation.siemens.com/CN/guest/</u>查找西门子自动化与驱动的所有产品订货
号、图片、及技术参数,或在技术支持与服务网站<u>http://www.ad.siemens.com.cn/service/</u>
通过点击"A&D Mall" 进入该网站进行查询。