WinAC

Shutdown FB

User documentation

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## SIEMENS

SIMATIC

WinAC Shutdown FB

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## Foreword

#### Problem:

By using one uninterruptible power supply (UPS) for sundry computers, the UPS has to trigger all PC's to shut down in case of a larger power failure. With a serial port each computer has to give the statement to the following one before shutting down itself.

#### Solution:

With the ODK it is possible, to deliver statements from the Step7-Program to the computer on which the WinAC is installed. In that way shutting down such a computer can be realized from Step7.

Using the Profibus, all computers can be networked in parallel and the shutdown-command can be sent directly to all of them.

## 1 Basic information and data

#### 1.1 Reference System

The described application in this user documentation is based on the following reference system:

WinAC RTX-F 2009

STEP7 V5.4 SP5

Windows XP / Windows XPE SP3 with delivery Image for SIMATIC IPC427C

#### 1.2 Installation

To install the program, run the setup.

The setup copies the example program (shutdown\_S7\_example.zip) into a destination folder, which can be selected during the setup. The example has to be retrieved by the Simatic-manager and to be included as a program into the WinAC.

## 2 Quickstart

- Install Setup
- Transfer the SHUTDOWN FB from the demo to the user project
- Initialise the connection (s. OB100)
- Use the functions of the SHUTDOWN FB (s. demo)

## 3 Mode of operation of the SHUTDOWN function block

The SHUTDOWN function block includes the system function blocks SFB 65001 and 65002, which are necessary to communicate with the ODK.

By a synchronous ODK statement an DLL-data (.dll) is triggered. This DLL manages the PC-shutdown. In the first step an initialising and consecutively the shutdown itself will be progressed. To guaranty a save shutdown it is not proceeded directly by the ODK but by calling a Windows-Routines.

### 4 Configuration

The following page shows an example configuration:

#### 4.1 **Program contents:**

The figure below (fig.1) shows the program contents of the example program:

Image: Specific system    Image: Specific system	🕽 Datei Bearbeiten Einfügen Z	ielsystem Ansicht Ext	ras Fenster Hilfe			
• PC2        • Systemdaten        • · · · · · · · · · · · · · · ·	D 🗃 🔡 🛲 🗴 🖻 🖻		🗄 📰 💼 < Kein Filte	er > 💌	y 20 Elei	1 k?
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		VAT_1	VAT_1			Variablentabelle
		🚰 SFB65001	CREA_COM	AWL		Systemfunktionsbau.
AWL Systemfunkt Systemfunkt		5FB65002	EXEC_COM	AWL		Systemfunktionsbau.
➡ SFC46 STP AWL Systemfunkt		SFC46	STP	AWL		Systemfunktion

Fig. 1

The example includes the SHUTDOWN-FB, its instance-data block and the system function blocks SFB 65001 and 65002, which are necessary to communicate with the ODK. The OB1 and OB100 are programmed as an example. The SFC 46 is used to stop the CPU (s. OB1/OB100: "CALL STP").

## 4.2 OB 100 –Call the SHUTDOWN FB to create the connection S7/PC

The marker M0.0 has to be reset at the program start, to avoid a shut down. After executing the shutdown, the M0.0 stays on true at the program start. If this is the case, at a system restart, the program will be shutting down immediately.

This is followed by calling the FB4711 and creating the connection to the PC.

If an error occurs, the connection cannot be generated and the CPU is goes into stop by calling the SFC46. (fig.2)

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				Inhalt	von: '	Ungeb	ung\S	chn	itts	stell	le'			
		28	7783											
0B100	: "0	omplete	e Resta	art"										
Konne	ntar:													
Netzw	erk 1	Titel												
Komme	ntar:													
	SET													
	SET	м	0.0											
//80	R		0.0	to evoi	d chutt	ina d	orm t	he	DC a	+ +1		veto	m stay	-
//MO.	R			to avoi	id shutt	ing d	own t	he	PC a	at th	ne s	yster	m stan	rt
//MO.	R			to avoi	id shutt	ing d	own t	he	PC a	at tl	ie s	yster	m stan	rt
//MO.	R			to avoi	id shutt	ing d	own t	he	PC a	at tl	ne s	yster	n stan	rt
//MO.	R O has	to be i	reset,			_		he:	PC a	at tl	ne s	yster	m stai	rt
//MO.	R O has	to be i	reset,	to avoi , "INST}		_		he:	PC a	at tl	ie s	yster	m stai	rt
//MO.	R O has CALL	to be i	reset, DOWN"			_		he:	PC a	at tl	ie s	ystei	m stai	rt
//MO.	R 0 has CALL STAP	to be n "SHUTI	COWN"			_		he	PC a	at tl	ie s	ystei	m stai	rt
//MO.	R 0 has CALL STAI SHUI	"SHUTI TUP := 1 DOWN:= 1	reset, DOWN" IRUE FALSE			_		he	PC a	at ti	ne s	yster	m stai	rt
//MO.	R 0 has CALL STAI SHUI	"SHUTI TUP := ?	reset, DOWN" IRUE FALSE			_		he	PC a	at th	ne s	yster	m sta)	rt.
//MO.	R O has CALL STAI SHUI ERRO	"SHUTI TUP :=' DOWN:=1 R :=1	reset, DOWN" IRUE FALSE WW2			_		he	PC a	at t}	ie s	yster	m sta)	rt
//MO.	R O has CALL STAH SHUI BRRC L	"SHUTI TUP := " DOWN:= ] R := ] MW	DOWN" TRUE FALSE WW2 2			_		he	PC a	at tł	ie s	yster	m stan	rt
//MO.	R O has CALL STAI SHUI ERRC L	"SHUTI TUP :=' DOWN:=1 R :=1	DOWN" TRUE FALSE WW2 2			_		he	PC a	at tł	ie s	yster	m stan	rt
	R O has CALL STAF SHUT ERRC L L >=D	"SHUTI TUP := ? DOWN:=1 R :=1 NW W#16#(	reset, DOWN" IRUE FALSE WW2 2 D	, "INST}	anz_db_s	HUTDO	WN "		PC a	at th	ne s	yster	m stan	rt
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	R O has CALL STAN SHUT ERRC L L >=D	"SHUTI TUP := ? DOWN:=1 R :=1 NW W#16#(	reset, DOWN" IRUE FALSE WW2 2 D	, "INST}	anz_db_s	HUTDO	WN "		PC a	at tł	ne s	yster	m stax	rt
	R O has CALL STAI SHUT ERRO L L L >=D this BEB	"SHUTI TUP :=' DOWN:=] R :=] MW W#16#( condit:	reset, DOWN" IRUE FALSE WW2 2 D	, "INST}	ANZ_DB_S	HUTDO	wN"	5						
	R O has CALL STAI SHUT ERRO L L L >=D this BEB	"SHUTI TUP := ? DOWN:=1 R :=1 NW W#16#(	reset, DOWN" IRUE FALSE WW2 2 D	, "INST}	ANZ_DB_S	HUTDO	wN"	5					to sta	

Fig.2

# 4.3 OB 1 – Create time delay and call the SHUTDOWN FB to trigger the shutdown

After calling the FB4711 and triggering the shutdown DLL from S7, the error handle (MW2) is checked. If an error occurs, the shutdown cannot be executed and the CPU goes to stop by calling the SFC46. (fig.3)

盟	🖁 K	KOP//	WL/FUP	- [OB1	"CYCL	.E" Sh	ut_down	VPC2\W	inLC RT	X110	31]				
1	3	Datei	Bearbeiten	Einfügen	Zielsys	stem Tes	t Ansicht	Extras	Fenster	Hilfe					
-	D	<b> </b> 2		3 <u>x</u> E	6	5	<b>6</b> % 🏫		2 <b></b>  60°	!« »!		5	ню <b>н</b>	++-+/	H-0 🕾
×						Inhalt	von: 'U	Jngebun	g\Schn:	ittstel	le'				
		0B	1 : "Mai	n Progr	am Swe	ep (Cyc	:le)"								
		Ko	mmentar:												
			tzwerk 1												_
		Ze	itverzöge	erung de	es Shut	cdown-Vo	organgs								
			υ	м	0.0			// st	art shu	atdown					
			L SE	S5T#3S T	ı			11 + 1	ma dal	ay till	shutd	lorm			
			U	Т	1										
			=	M	0.1			// ex	ecuting	g shutd	own				
			tzwerk 2	: Titel:											_
		Ko	mmentar:												
			SHUT Erro	TUP :=F. DOWN:=M R :=M	ALSE 0.1 W2	. "INSTA	NZ_DB_SP	HUTDOWN							
			L L	MW W#16#0	2										
			==I BEB					// if	MW2=0,	, no Er	ror oc	cur	ed		
			CALL	"STP"				// el	se if t	he CPU:	is se	t t	o Sta	qo	

Fig.3

#### 4.4 Force variable table:

The shutdown command is triggered by forcing the trigger bit M 0.0 from false to true after running down the time delay. (fig.4)

In case of fault the error code is shown at MW2.

		-			TX\S7-Programm] able Ansicht Extras Fens	ter Hilfe
-		1	🖬 🚳 👗		× = : R? 9	66° 🛷 66° 🖓 🚜
	C Op	erand	Symbol	Anzeigeformat	Statuswert	Steuerwert
1	M	0.0		BOOL		true
2	Т	1		SIMATIC_ZEIT		
3	M	0.1		BOOL		
4						
5	MVA	12		HEX		
5						
7						

Fig. 4

## 5 Examples of use

The Shutdown-FB can be used in example in conjunction with an UPS (uninterruptible power supply): After a given time the PC/PC's can be shut down in a controlled way to avoid data loss in case of exceeding the UPS capacity and following power failure.

## 6 History

Version	Datum	
V 1.5	11-02-09	Current release