

SIEMENS

SIMATIC

PLC S7-300,

CPU 312 IFM
CPU 318-2 DP

	1
CPU 31x-2 DP /	2
	3
CPU STEP 7	4
	5
	A
	B
	C

6ES7398-8FA10-8BA0

10/2001
A5E00111190-01



! _____





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Siemens.

SIMATIC®, SIMATIC HMI® SIMATIC NET® –
SIEMENS.

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Siemens AG
Bereich Automatisierungs- und Antriebstechnik
Geschäftsgebiet
Industrie-Automatisierungssysteme
Postfach 4848, D- 90327 Nuernberg

Siemens, 2001 .



318-2 CPUS

S7-300.

312 IFM ...

CPU.

STEP 7,

"

STEP 7 V 5.1".

CPU

/

:

CPU 312 IFM	6ES7 312-5AC02-0AB0 6ES7 312-5AC82-0AB0	1.1.0	01
CPU 313	6ES7 313-1AD03-0AB0	1.1.0	01
CPU 314	6ES7 314-1AE04-0AB0 6ES7 314-1AE84-0AB0	1.1.0	01
CPU 314 IFM	6ES7 314-5AE03-0AB0 6ES7 314-5AE83-0AB0	1.1.0	01
CPU 314 IFM	6ES7 314-5AE10-0AB0	1.1.0	01
CPU 315	6ES7 315-1AF03-0AB0	1.1.0	01
CPU 315-2 DP	6ES7 315-2AF03-0AB0 6ES7 315-2AF83-0AB0	1.1.0	01
CPU 316-2 DP	6ES7 316-2AG00-0AB0	1.1.0	01
CPU 318-2	6ES7 318-2AJ00-0AB0	V3.0.0	03














" 8AA03-8BA0, . 2: CPU", 6ES7398-
• CPU. S7-300
• CPU 318-2 DP V3.0.0
DP
PROFIBUS DPV1.

CPU 314IFM

CPU 314IFM 2 :
• (6ES7314-5EA10-0AB0)
• (6ES7314-5EA0x-0AB0)
CPU 314IFM,



-
- '
 - SIMATIC S7-300 :
 - IEC 61131, 2
 - CE
 - EC 73/23/EEC
 - EC 89/336/EEC
 - ()
 - : CSA C22.2 142,
 - ()
 - Underwriters Laboratories: UL 508
 - ()
 - Underwriters Laboratories: UL 508
 - ()
 - :
 - 3611
 - C-Tick,

S7-300:

CPU"	CPU '
 CPU 312 IFM ... 318-2 DP	
 CPU 312C ... 314C-2 PtP/DP	
 	• • • •
	S7-300
	
"CPU 312 IFM, 314 IFM, 313, 315, 315-2 DP, 316-2 DP, 318-2 DP" " CPU 312C ... 314C-2 PtP/DP"	(OB/SFC/SFB)
 "CPU 31xC:  "CPU 31xC:  "CPU 31xC:  "CPU 31xC:  "CPU 31xC:  "CPU 31xC:  "S7-300"	

. 1-1 S7-300 -

:

<p>“ 312 IFM/314 IFM”  : 6ES7398-8CA00-8BA0 CPU</p>	<p>CPU 312 IFM/314 IFM.</p>
<p>“ S7-300/400”  : 6ES7810-4CA05-8BR0 STEP 7, 6ES7810-4CA05-8BR0</p>	<p>SFC, SFB OB STEP 7.</p>

. 1-2

<http://www.ad.siemens.de/partner>

Siemens.

() SIMATIC S7

: D-90327 Nuremberg, Germany.

.: +49 (911) 895-3200.
<http://www.sitrain.com>



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- Knowledge Manager

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- "Service" (" ") ,

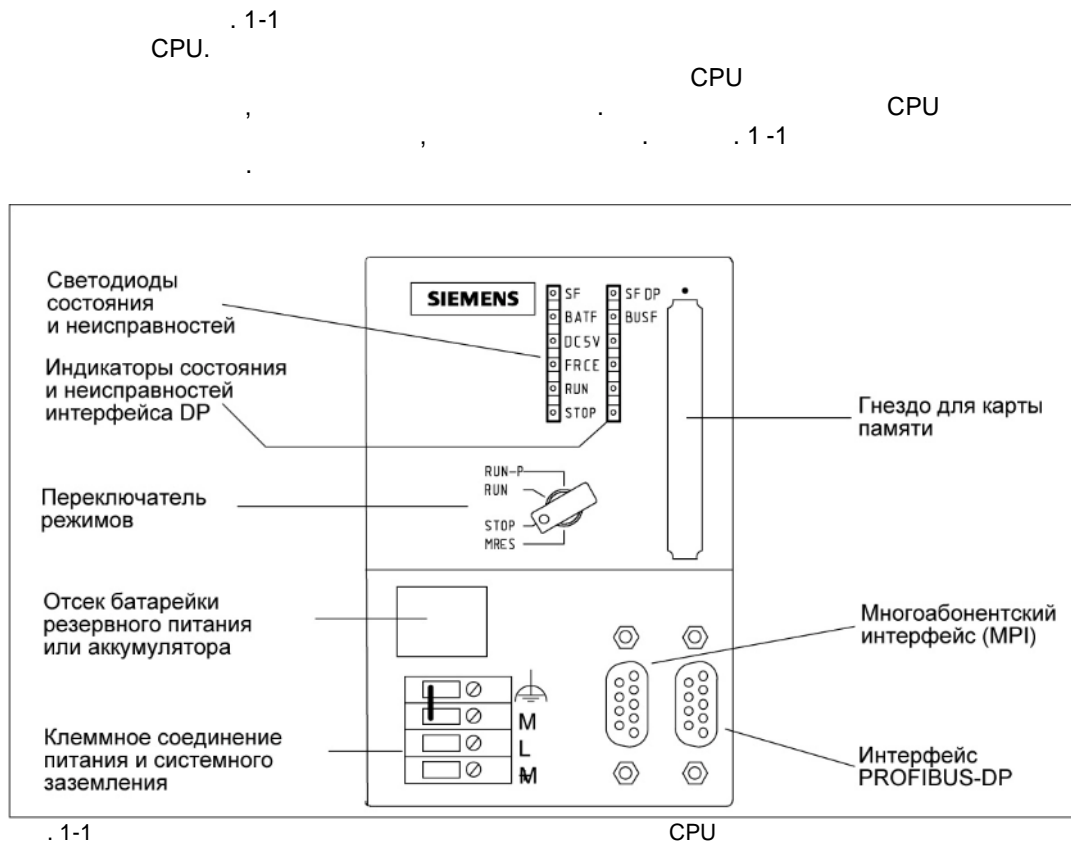
	1	1-1
1.1		1-2
1.1.1		1-3
1.1.2		1-4
1.1.3		/	1-5
1.1.4		1-6
1.1.5	MPI PROFIBUS-DP	1-7
1.1.6		1-10
1.2		1-11
1.3		.....	1-19
1.3.1		.....	1-19
1.3.2		.....	1-22
1.3.3	STEP 7	.....	1-22
1.4	CPU -	.....	1-24
1.4.1	CPU 312 IFM	.....	1-25
1.4.2	CPU 313	.....	1-37
1.4.3	CPU 314	.....	1-40
1.4.4	CPU 314IFM	.....	1-43
1.4.5	CPU 315	.....	1-60
1.4.6	CPU 315-2 DP	.....	1-63
1.4.7	CPU 316-2 DP	.....	1-66
1.4.8	CPU 318-2	.....	1-69
CPU 31x-2	DP / DP	.....	2-1
2.1		DPV1	2-2
2.2	DP	CPU 31x-2	2-4
2.3		CPU 31x-2 DP	2-5
2.4		CPU 31x-2 DP	2-6
2.5		CPU 31x-2 DP	2-13
2.6		CPU 31x-2, DP	2-18
2.6.1		.....	2-19
2.6.2		STEP 5 STEP 7	2-19
2.6.4		.....	2-24
2.6.5		1 - 3	2-25
2.6.6		PROFIBUS	2-27
2.6.7		.....	2-27
2.6.8		.....	2-28
2.6.9		.....	2-29
2.6.10		.....	2-31
2.7		.....	2-32
2.8		.....	2-33
		.....	3-1
3.1		.....	3-2
3.2		.....	3-3
3.3		.....	3-10
3.4		.....	3-14
3.5		.....	3-16
3.6		.....	3-16
	CPU,	.....	4-1
4.1	STEP 7	3182 312 IFM ... 3162 DP	4-2
4.2		312 IFM ... 318	4-6
		.....	5-1
		A	A-1

B	B-1
C	-1
.....	-1
.....	-1

. 1-1	s7-300 -	.....	1-2
. 1-2		.....	1-3
. 1-3		cpu 318-2	1-15
. 1-4			
. 1-5	s7-300 (cpu 312ifm ... 316-2dp)	.....	1-21
. 1-6		cpu 312 ifm	1-26
. 1-7		CPU 312 IFM	1-27
. 1-8		cpu 312 ifm	1-34
. 1-9		cpu 312 ifm.....	1-36
. 1-10		CPU 314 IFM	1-45
. 1-11		cpu 314 ifm.....	1-46
. 1-12		cpu 314 ifm	1-56
. 1-13		CPU 314 IFM (
		/)	1-57
. 1-14	(	CPU 314 IFM	
	2- / )	.....	1-58
. 1-15	4-		
		CPU 314 IFM	1-59
. 2-1		CPU 314 IFM	1-59
. 2-2		CPU 315 -2DP < 315-2AF03	2-8
. 2-3		31x-2 (315-2DP – 315-2AF03).....	2-9
. 2-4		DP	2-10
		CPU 31x -2,	
	DP	.....	2-14
. 2-5		DP	2-22
. 2-6		.....	2-24
. 2-7		CPU 31x -2.....	2-28
. 2-8		.....	2-29
. 2-9	x +4 - x +7	.....	2-30
. 2-10		CPU 31x -2	2-32
. 2-11		.....	2-33
. 3-1		.....	3-2
. 3-2		.....	3-4
. 3-3		.....	3-5
. 3-4		PROFIBUS -DP	
	1,5 / 12 /	.....	3-9
. 4-1		.....	4-4
. B-1		CPU 312IFM	-1
. B-2		CPU 313/314/315/315 -2 DP/316-2DP	-2
. B-3		CPU 318-2.....	-3
. B-4		CPU 314IFM,	-4
. B-5		CPU 314 IFM,	-5

. 1-1	.....	1-2
. 1-2	.....	1-5
. 1-3	.....	1-6
. 1-4	.....	1-7
. 1-5	.....	1-10
. 1-6	.....	1-12
. 1-7	312 ifm ... 316 -2 dp	1-14
. 1-8	cpu 318-2	1-15
. 1-9	.....	1-22
.1-10	OB 40	
. 1-11	/	1-26
	/	1-44
. 1-12	cpu 314 ifm	1-50
. 2-1	BUSF CPU 31x -	
2	DP	2-6
. 2-2	STEP	2-7
. 2-3	CPU 31x-2	
. 2-4	DP	2-11
	RUN-STOP DP	
. 2-5	DP	2-12
. 2-6	.....	2-15
. 2-7	BUSF CPU 31x-2 DP	2-19
	STEP 5 STEP 7	
. 2-8	CPU 31x-2	2-20
	DP-2-23.....	
. 2-9	RUN-STOP	2-23
	DP/ DP	
. 2-10	1 (0)	2-23
. 2-11	2 (1)	2-25
. 2-12	3 (2)	2-26
. 2-13	PROFIBUS (3)	2-26
. 2-14	(4 5)	2-27
. 2-15	CPU 31x-2,	2-27
	.....	2-33
. 2-16	-	2-34
. 3-1	.....	3-6
. 3-2	.....	3-7
. 3-3	.....	3-7
. 3-4	S7	3-7
. 3-5	SFB	3-8
. 3-6	.....	3-10
. 3-7	.....	3-14
. 3-8	.....	3-15
. 3-9	.....	3-17

1.1



. 1-1

	312 IFM	313	314	314 IFM		315	315-2 DP	316-2 DP	318-2
				-5AE0x	-5AE10				
				-	-				
DP									
/									
	:								
PROFIBUS-DP									

1.1.1

Индикаторы процессора CPU

- SF ... (красный) ...аппаратная/программная ошибка
- BATF ... (красный) ...ошибка батарейки (не относится к CPU 312 IFM)
- DC5V ... (зеленый) ... питание 5 В= для процессора и шина S7-300 исправны.
- FRCE ... (желтый) ...активно принудительное задание
- RUN ... (зеленый) ... процессор в режиме работы RUN; светодиод мигает при пуске с частотой 1 Гц; в режиме паузы HALT – с частотой 0,5 Гц
- STOP ... (желтый) ... процессор в режиме останова или паузы STOP/HALT или в режиме пуска STARTUP; светодиод мигает во время запроса сброса памяти

Индикаторы шины PROFIBUS

CPU 315-2 DP/
CPU 316-2 DP



BUSF ... (красный) ... аппаратный/программный сбой интерфейса PROFIBUS

CPU 318-2



BUS1F ... (красный) ... аппаратный или программный сбой интерфейса 1

BUS2F ... (красный) ... аппаратный или программный сбой интерфейса 2

. 1-2

1.1.2

STEP 7.

RUN-P		
RUN	RUN	
MRES		(318-2).

312IFM 313

312IFM

?

. 1-2

. 1-2

...	...		
		CPU.	120 (25°C) 60 (60°C) ... 1
		CPU314IFM 314 (5AE0x) -	
	• (•) •	CPU	1

1.1.4

312 IFM 314 IFM (5AE 0x).

CPU 318 -2.






. 1-3

16	5 , -	<ul style="list-style-type: none"> •
32		
64		
256		
128		
512		
2		
2		
4		
128	5 ,	CPU318-3182) (
256		
512		
1		
2		
		CPU 318-2

1.1.5

MPI PROFIBUS-DP

. 1-4

CPU 312 IFM CPU 313 CPU 314IFM CPU 314	CPU 315-2DP CPU 316-2DP		CPU 318-2	
MPI	MPI	PROFIBUS-DP	MPI/DP	PROFIBUS-DP
 <p>MPI</p>	 <p>MPI</p>	 <p>DP</p>	 <p>MPI/ DP</p>	 <p>DP</p>
-	-	-	PROFIBUS-DP	

MPI

MPI /OP MPI. 187,5
 / (CPU 318-2: 12 (/).
 S7-200 19,2 / .
 (, /)
 MPI. , , MPI.

PROFIBUS-DP

² PROFIBUS-DP. 12 / .
 (, /)
 PROFIBUS-DP. , ,
 PROFIBUS. Step 7

MPI	PROFIBUS-DP
<ul style="list-style-type: none"> • / OP • S7 • MPI (S7-300, M7-300, S7-400, M7-400, C7-6xx) • S7-200 (19,2 /) 	<ul style="list-style-type: none"> • / OP • S7 • PROFIBUS-DP (S7-200, S7-300, M7-300, S7-400, M7-400, C7-6xx) • DP DP

19,2 / S7-200 MPI

S7-200	19,2 /	
-	8	(CPU, PD/OP, FM/CP
-	MPI)	.

S7200.

MPI

MPI - S7 -300 (SM, FM, CP).



MPI - S7-300 (SM, FM, CP),

MPI - S7 -300 (SM, FM, CP)!

GD

MPI



MPI:

MPI

GD

:

1.

2.

3.

MPI.

1.1.6

. 1-5

CPU STEP 7

STEP 7).

. 1-5

	312 IFM	313	314	314 IFM	315	315-2 DP	316-2DP	318-2
	()							
	DT#1994-01-01-00:00:00							
	<ul style="list-style-type: none"> • • 							
	-	1					8	
		0					0 7	
		0 32767					0 32767	
<ul style="list-style-type: none"> • • 	... : ±9 0 60°C 0°C 25°C 40°C 60°C							
		+2 ... -5 ±2 +2 ... -3 +2 ... -7						

:

	CPU 314 ... 318-2	CPU 312 IFM 313
	.	,
	,	,
	.	,
	,	.
	,	.
	,	.
	,	.
	.	.

1.2

:

. 1-6

	MPI	DP	
PG/OP	x	x	DP PD/OP PROFIBUS".
S7	x	x	MPI/DP S7-300 (S7.
	x	-	MPI (XI c S7.
			SFC I/X STEP 7
PG	x	x	5/0 CPU 31x-2 PG/PC STEP 7 S7 V DP " / ...". STEP 7.
S7	x	-	S7 S7-300 S7-400 S7-400 S7-300.
	x	-	S7-300/400 ().



S7,

S7

(PD/OP, S7

S7).

312

IFM .. 316-2 DP (. . 3-6) CPU 318-2 (. . 1-8):

312IFM ... 316-2 DP

315-2 DP

316-2 DP. . . PG

MPI DP.

. 1-7

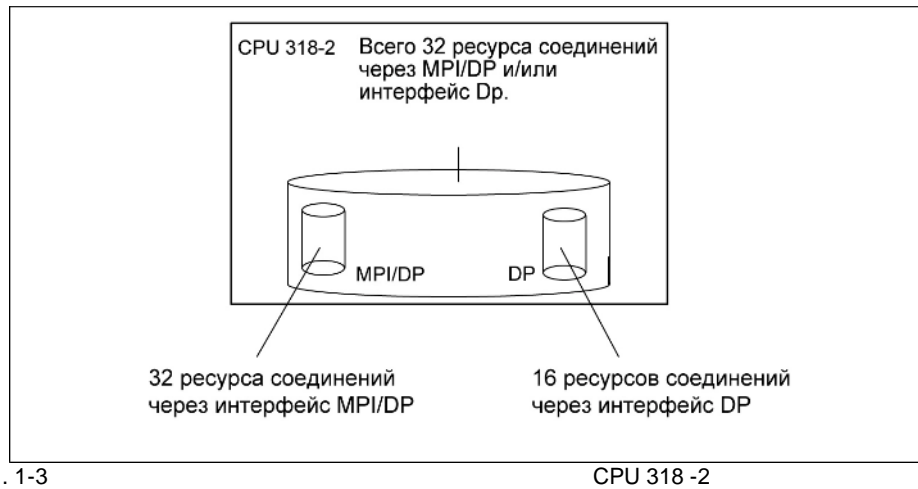
312 IFM ... 316-2 DP

<p>PD / OP</p>	<p>S7,</p> <ul style="list-style-type: none"> • PD OP • S7 <p>PD/OP</p> <p>STEP 7</p>
<p>S7</p>	<p>PUT/GET, S7</p> <p>12 CPU 314,</p> <p>- 2 PD</p> <p>- 6 OP</p> <p>- 1</p> <p>S7.</p> <p>→ S7, PG/OP S7.</p> <p>OP: OP</p> <p>131 4". : "44" #13" "#368 S7</p> <p>PROTOCOL</p> <p>("System Messages" →→ "Display time").</p>
<p>PG (CPU 31x-2 DP)</p>	
<p>343-1 CP >240 /</p>	<p>CP PD/OP/ S7.</p>

CPU 318-2

. 1-8	CPU 318-2
PD/OP	CPU 318-2 (CPU 32)
S7	32
PD	<ul style="list-style-type: none"> • - 32 MPI/DP • - DP-SS: 16
S7	CPU FM 2) (1 . 1-3 "LEERER MERKER".

CPU 318 -2



CPU 318-2 –

1.

- 2 :
- 2 MP I/DP;
- 4 DP;
;

2. 4 S7 PG/OP
MPI/DP

- 4 :
- 4 MPI/DP;
;

- 26 :
- 14 MPI/DP;
- 24 DP;

SEND/ X-RCV, , X -
"BUSY". ,

S7, CPU 31x (,)
PUT/GET /
OP, ,

CPU 312IFM ... 316-2 DP CPU 318-2:

CPU 312 IFM ... 316-2 DP				CPU 318-2			
	PUT/GET	S7	OP		PUT/GET	S7	OP
	/				/		
			.				CPU
				318-2.			
32	(		:		(	Byte/Word/Double Word),	
	8)					
	.				.		
	,				,		
			8	32			SFC81
					"UBLKMOV",		
	SFC 81 "UBLKMOV",				/		
					.		

...
STEP 7

SIMATIC.

... SFC/SFB
STEP 7

S7-300

S7-

300.

/

GD

:

GD

:

•

X

60

(CPU 318-2: 10

GD

:

•

X

<

X

GD.

:

•

GD

•

GD,

STEP 7.

:

!

-

STEP 7 (3.0)

"

' "

(< 60):

GD,

GD,

STEP 7.

1.3

•
•
:

STEP 7.

1.3.1

•
•
•
•
•
•

:

) (

STEP 7.

Status FB!

STEP 7 "Status FB"
!
STEP 7
STEP 7 (CPU 318 -2).

S7 -300

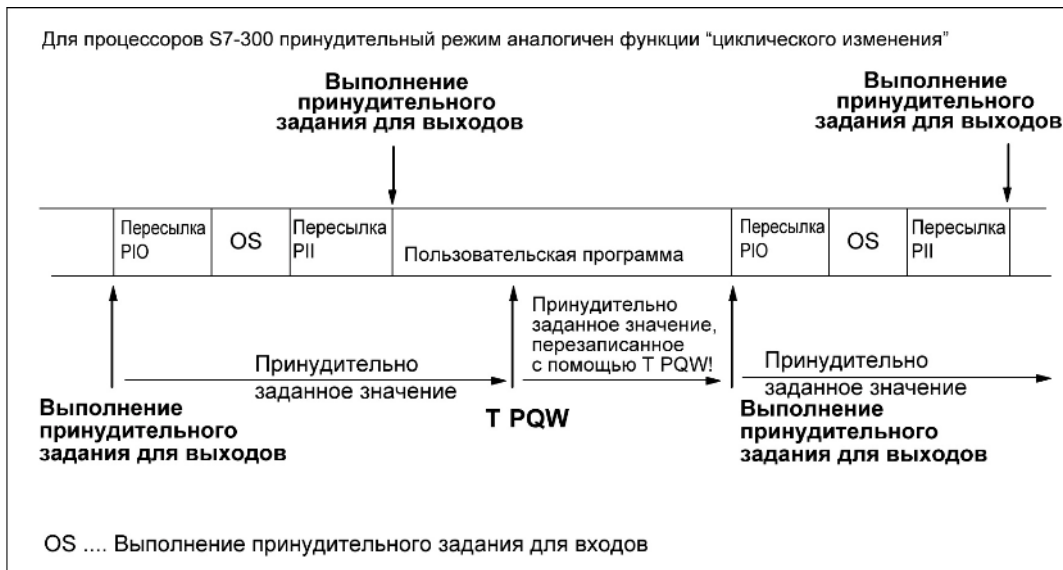
:

CPU 318-2	CPU 312IFM ... 316-2DP
)	(
/	/
256	10

CPU 312 IFM ... 316-2 DP:



! (, T EB x, = E x. y, SFC . .) (, L PEW x) PG/OP! (- , TPQB x), PG/OP! PG/OP!



. 1-4
316-2DP)

S7 -300 (CPU 312IFM ...

1.3.2

. 1-9

S7-300.

2.

PROFIBUS -DP

. 1-9

SF	/) / (
BATF	.
Stop	

1.3.3

STEP 7

STOP,

OB.

STEP 7

STEP 7.

- OB

- OB

OB

OB,

:

STOP		...	RUN	
OB 80	(	)	OB 81	(
OB 85	())
OB 86	(	PROFIBUS-DP)
)		
OB 87	()		
OB 121	()		
OB 122	()		

OB

OB,

:

STOP		...	RUN	
OB 10/11	(	TOD)	OB 32/35	(
))
OB 20/21	()		
OB 40/41	()		
OB 55	(	TOD)		
OB 56	()		
OB 57	()		
OB 82	()		
OB 83	(/)

OB35 (

CPU 318 -2:

OB32)

OB 35/32

1 .

1.4

CPU -

-
- / CPU 312 IFM 314 IFM.
- CPU 31x-2 DP, “ DP/ DP”. . 2.

		.
1.4.1	CPU 312 IFM	1-25
1.4.2	CPU 313	1-37
1.4.3	CPU 314	1-40
1.4.4	CPU 314 IFM	1-43
1.4.5	CPU 315	1-60
1.4.6	CPU 315-2 DP	1-63
1.4.7	CPU 316-2 DP	1-66
1.4.8	CPU 318-2	1-69

1.4.1

CPU 312 IFM

- 20- /) (
- ,
- S7-300 CPU 312 IFM

CPU 312 IFM

	STEP 7. 124.6 - 125.1
	CPU 312 IFM 124.6 - 125.1.
	"Counter" (" ") "Frequency meter" (" ")

"

"

CPU 312 IFM

- 125.1 124.6 -
- STEP 7.
- 10
- - 50
- 50
- LPIB " "
- 3

OB40

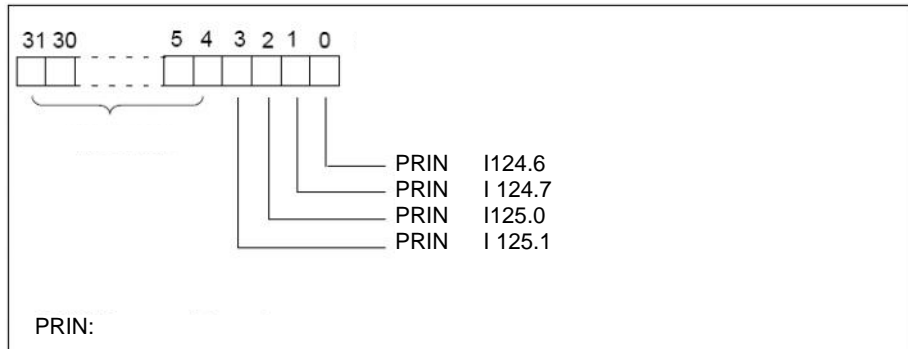
“ . 1-10 ” (TEMP) OB40,
CPU 312 IFM.
OB .

. 1-10 / OB 40

6/7	OB40_MDL_ADDR	WORD	B#16#7C	(CPU)
8	OB40_POINT_ADDR	DWORD	. . 1-5	

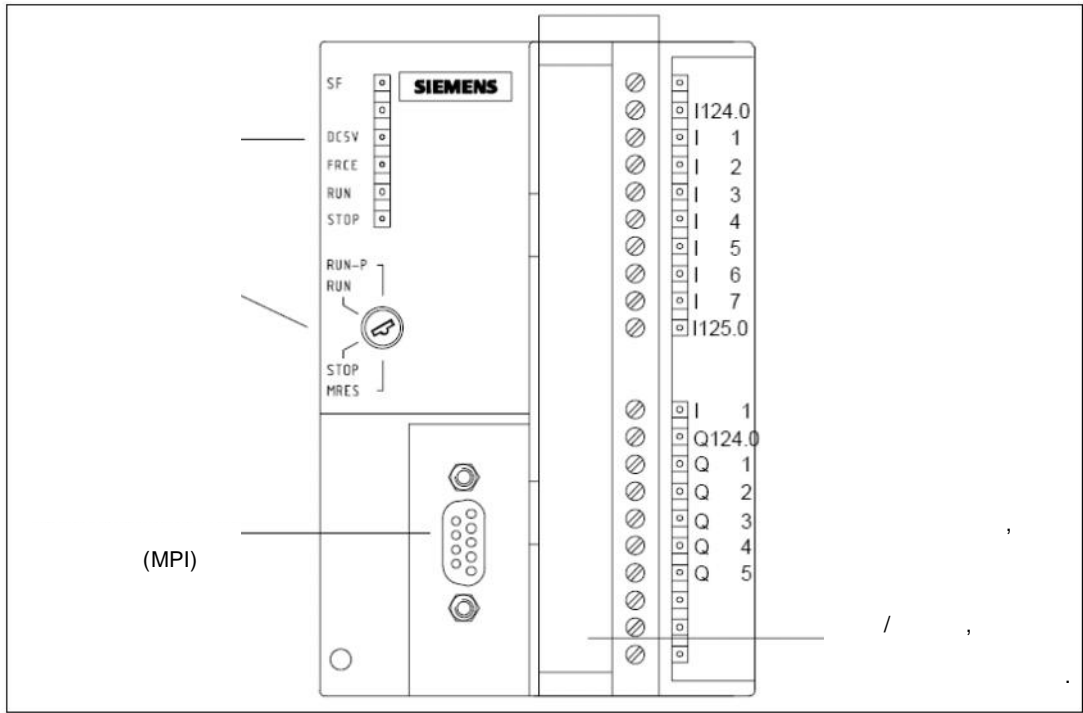
OB40_POINT_ADDR

. . 1-5
(< 100),
. . . . OB



. 1-5

CPU 312 IFM



. 1-6

CPU 312 IFM

CPU 312 IFM

CPU	
MLFB • • •	6ES7 312-5AC02-0AB0 01 . 1.1.0 STEP 7, . 5.0; 03
• • • • • • • •	6 20 20 72 (, ,)
• • •	0.6 2 3 60
/	
• S7 • • IEC • S7 • • IEC •	32 C 0 C 31 C 0 C 7 1 999 SFB 64 10 9990 SFB

(, ;) • • • • () •	. 1 DB, 72 1024 MB 0 - MB 71 MB 0 - MB 15 8 (1) . 63 (DB 0) . 6 . 1 DB, 72 . 512 256
OB • • • FB • 6 FC •	. 6 8 OB . 32; 6 . 32; 6
(/)	
• - • ()	0 - 31/0 - 31 124,125 E/124 A 256 - 383/256 - 383 32 + 4 ./ 32 + 4 . 256 + 10 ./256 + 6 64/32

		1	.8
•	DP		
•	CP		
S7			
•			
•			1.1.6
•	MPI	/	
•	/		
•		DB,	' , ' , '
-			.30
-			.14
•			
•			.10
		2	
•			100
	()

PD/OP			
•		GD	
-			1
-			1
•		GD	.22
-			8
		S7	
•			.76
			32 X/I_PUT/_GET;
			76
			X_SEND/_RCV
		S7	()
•			.160
-			32
S7-			
			6 PD/OP/
			S7/ S7
•			
-		PD	.5
			1 - 5
-		OP	
			1
			.5
			1 - 5
-		S7	
			1
			.2
			0 - 2
			2
1.			
•	MPI		
•		DP	
•			
•		DP	
•			

MPI	
•	PD/OP
-	
-	S7
•	S7 () 19,2; 187,5 /
BxHxT () 80x125x130	
	0,45
STEP 7	
	8
	(SFC)
(SFB)	

•	24 =	20,4	28,8
•	(		0,7 A
•	.)		8 A
$I^2 t$		0,4 A ² s	
(	PG MPI (15 - 30 ⇒)	B C	; 10 A,
		200	
			9
/			
E 124.0 - E 127.7			
A 124.0 - A 124.7			
1 (.)			
. 10 (.)			
)			

CPU 312IFM

•	4 I 124.6 - 125.1 (.) 100
	, ,
•	4 () 60°C
•	4 () 40°C
	, ;
	1
•	

•	24 =	
•	"1"	
I 125.0	I 125.1 15 30	
I 124.6	I 124.7 15 30	
•	"0" -3 5	
•	"1"	
I 125.0	I 125.1 .2	
I 124.6	I 124.7 .6,5	
•	"0" -> "1" .50	
•	"1" -> "0" .50	
E 125.0	E 125.1 IEC 1131, 1	
		IEC 1131, 1
E 124.6	124.7	
2-		
BERO		
•		
I 125.0	I 125.1 .0,5	
I 124.6	. I 124.7. .2	
	,	
•	. 1,5	
	≤ 10	

CPU 312IFM

I 124.6 I 124.7
 , - , I 124.6 I
 124.7.

	8
•	. 600
•	. 1000
	, ,
	8
• ()	8
60°C	
• ()	8
40°C	

	; ,
	1
•	24 =
• "1"	11 30
• "0"	-3 5
• "1"	7
• "0" -> "1"	1,2 - 4,8
• "1" -> "0"	1,2 - 4,8
	IEC 1131, 2
2- BERO	
•	. 2

CPU 312IFM

• •	6 . 600 . 1000
, ,	
() • () 40°C) 60°C) • () 40°C)	. 3 . 3 . 3
, ;	
	1

•	"1"	. L+ (-0,8)
•	"1"	0,5 A 5 0,6
•	"0"	. 0,5 48 - 4 . 5
2-		
•		
•		
•		. 100
•		. 0,5
•	1, DC 13 IEC947-5-	. 100 . 30
•		, 1 A

CPU 312 IFM

. 1-7

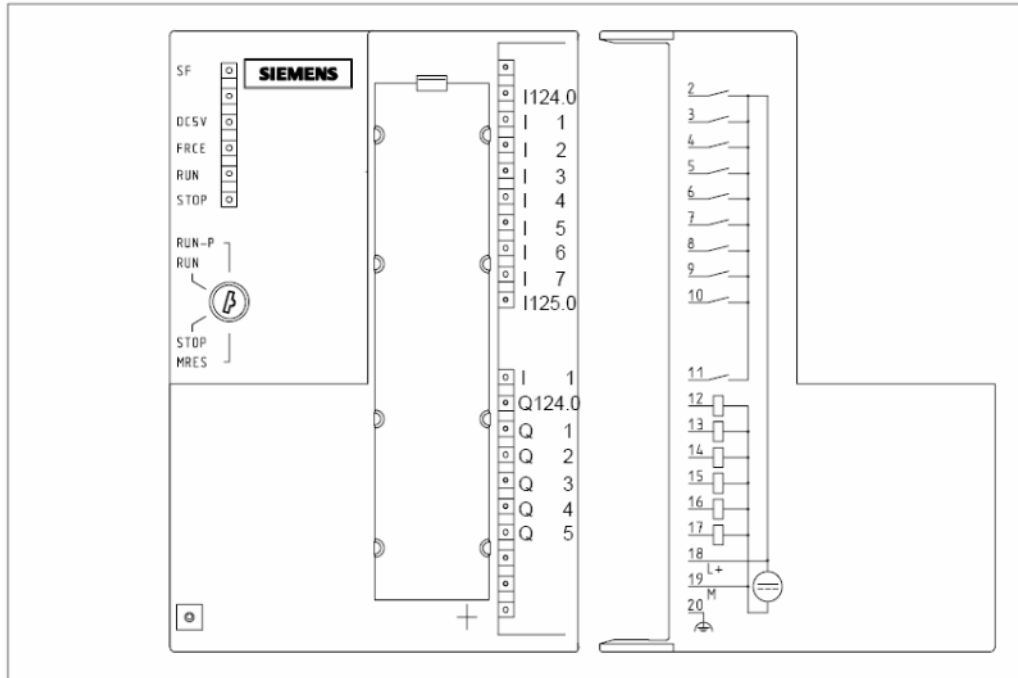
CPU 312 IFM.

20-



! CPU 312 IFM

STOP,



. 1-7

CPU 312 IFM

CPU 312 IFM

CPU 312 IGFM

(M) (. . 1-8 . 1-36).

-
- CPU 312 IFM

- / 18 19 (. . 1-7).

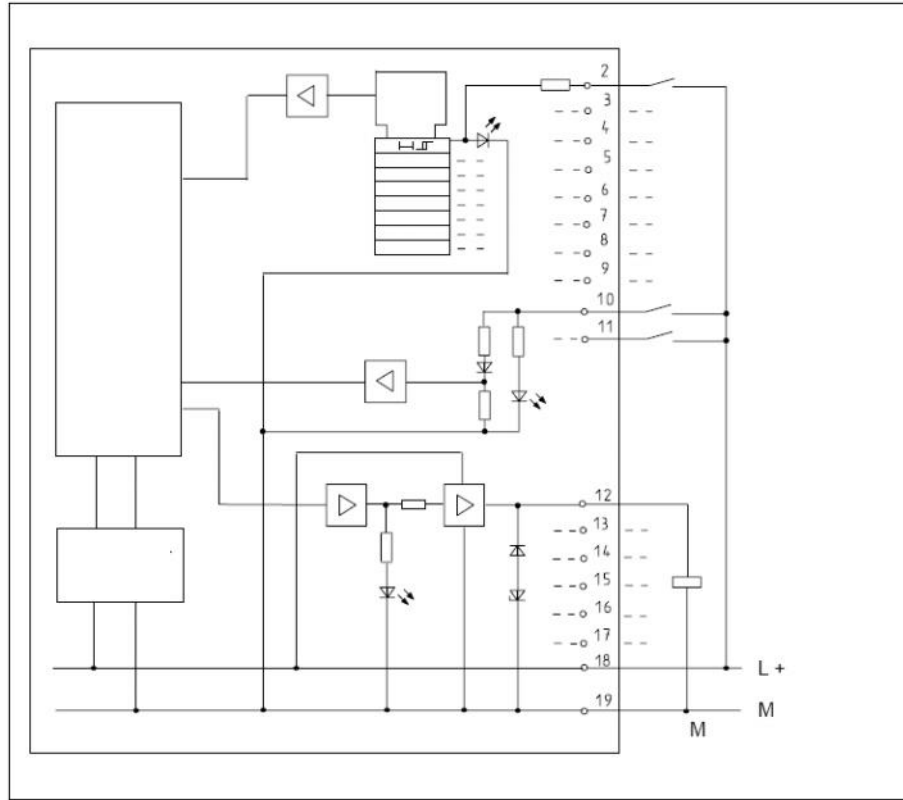
1. CPU 312 IFM : CPU 312 IFM STOP
- 2.
3. CPU 312 IFM RUN

CPU 312 IFM

. 1-8

-

CPU 312 IFM.



. 1-8

CPU 312 IFM

1.4.2

CPU 313

CPU	
MLFB	6ES7 313-1AD03-0AB0
•	01
•	. 1.1.0
•	STEP 7, . 5.0;
•	03
-	
•	12
•	20
•	4
•	72
•	(,)
•	0.6
•	2
•	2
•	60
/	
S7	64
•	C 0 C 63
•	C 0 C 7
•	1 999
IEC	SFB
S7	128
•	T 0 T 31
•	
•	10 9990
IEC	SFB

	. 1 DB, 72
() , ,	
•	2048
•	MB 0 - MB 71
•	8 (1)
15	MB 0 - MB
	. 127 (DB 0)
•	8
•	1 DB, 72
•	
	. 1536
()	
•	256
OB	
•	. 8
•	8
•	4
FB 128	OB 128
•	. 8
FC	128
•	. 8
(/)	
•	0 - 31/0 - 31
•	256 - 383/256 - 383
	32 /32
()	
	. 256/256
	. 64/32

		1	.8	
•	DP			
•	CP	1		
S7				
•				
•			1.1.6	
•		1		
•		0		
•		0	32767	
•		1		
•				
•	MPI		/	
•	/			
•		DB,		
•	-		.30	
•	-		.14	
•				
•			.10	
•		2		
•		100		
•	()		

PD/OP				
•		GD		
-			1	
-			1	
•		GD	.22	
-			8	
•		S7		
			.76	
-			32	
			X/I_PUT/_GET; 76	
			X_SEND/_RCV	
•	S7		()	
			160	
-			32	
S7-				
			8	
		PD/OP/		
		S7/		S7
•				
-	PD		.7	
			1 - 7	
-	OP		1	
			.7	
			1 - 7	
-		S7	1	
			.4	
			0 - 4	
			4	
1.				
•	MPI			
•		DP		
•				
•		DP		

MPI	
•	- PD/OP
•	- S7 () 19,2; 187,5 /
80x125x130	
BxHxT ()	0,53
STEP 7	
	8
(SFC)	.
(SFB)	.

•	24 =	20,4	28,8
			0,7 A
(.)			8 A
I ² t		0,4 A ² s	
()			,2
(15 - 30 =)	PD MPI	B .200	C
			8
•	25° C	.1	
			5
•	25° C		

1.4.3

CPU 314

CPU	
MLFB • • •	6ES7 314-1AE04-0AB0 01 . 1.1.0 STEP 7, . 5.0; 03
/	
• • • • • •	24 40 4 4736
/	
• • • •	0.3 1 2 50
/	
• S7 • • IEC • S7 • • • IEC •	64 C 0 C 63 C 0 C 7 0 999 SFB 128 T 0 T 127 10 9990 SFB

CPU 314

()	4736
• • • • • • •	2048 MB 0 - MB 255 MB 0 - MB 15 8 (1) . 127 (DB 0) . 8) . 8 DB, 4096
()	. 1536
•	256
OB • • • • FB • FC •	. 8 8 4 OB . 128 . 8 . 128 . 8
(/)	
• • • •	0 - 127/0 - 127 256 - 767/256 - 767 128 /128
()	. 1024/1024 . 256/128

.4
.8
DP 1
CP
S7
.40
1.1.6
1
0
0 32767
1
MPI /
/
DB, , , , ,
.30
.14
.10
2
100
()

PD/OP
GD 1
GD .22
8
S7 .76
32 X/I_PUT/_GET;
76 X_SEND/_RCV
S7 () .160
32
S7- (CP FC) CP
CP
(CP FC) CP
CP
12 PD/OP/ S7/ S7
PD .11
1 - 11
OP .11
1 - 11
1
S7 .8
0 - 8
8
1.
MPI
DP
DP

MPI	
•	PD/OP
-	
-	S7
•	S7 () 19,2; 187,5 / 80x125x130 0,53
BxHxT	
()	
STEP 7	
	8
(SFC)	
(SFB)	

•	24 =	20,4	28,8
(.)		0,7 A	
I ² t		8 A	
		0,4 A ² s	
(PD MPI)		B C	,2
(15 - 30 =)		.200	
		8	
•	25°C	.1	
•	25°C	5	
•			
-	25°C	0	4
-	40°		3
-	60°C		1
•			1

1.4.4

CPU 314IFM

- /) (40-
- / .1-14 1-15 .1-59
- CPU 314 IFM 2 :
- 5AE10-0AB0 : 6ES7 314-
- 5AE0x-0AB0 : 6ES7 314-

CPU 314 IFM

	126.0 - 126.3 STEP 7. L PEW, 200 !
	CPU 314 IFM
A/B	126.0 - 126.3.
CONT_C	
CONT_S	CPU 314 IFM.
PULSEGEN	

CPU 314 IFM

126.0 - 126.4,

STEP 7.

10 - 50

50

OB40

. 1-10

(TEMP) OB40,
CPU 314 IFM.
OB

. 1-11

OB 40

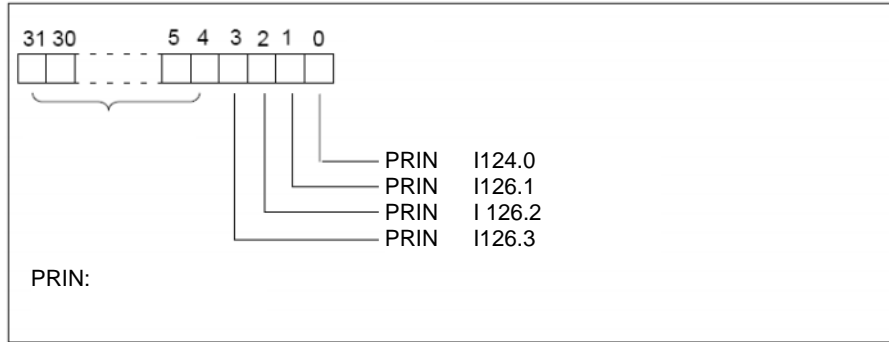
6/7	OB40_MDL_ADDR	WORD	B#16#7C	(CPU)
8	OB40_POINT_ADDR	DWORD	. . 1-9	

OB40_POINT_ADDR

. 1-9

(< 100),

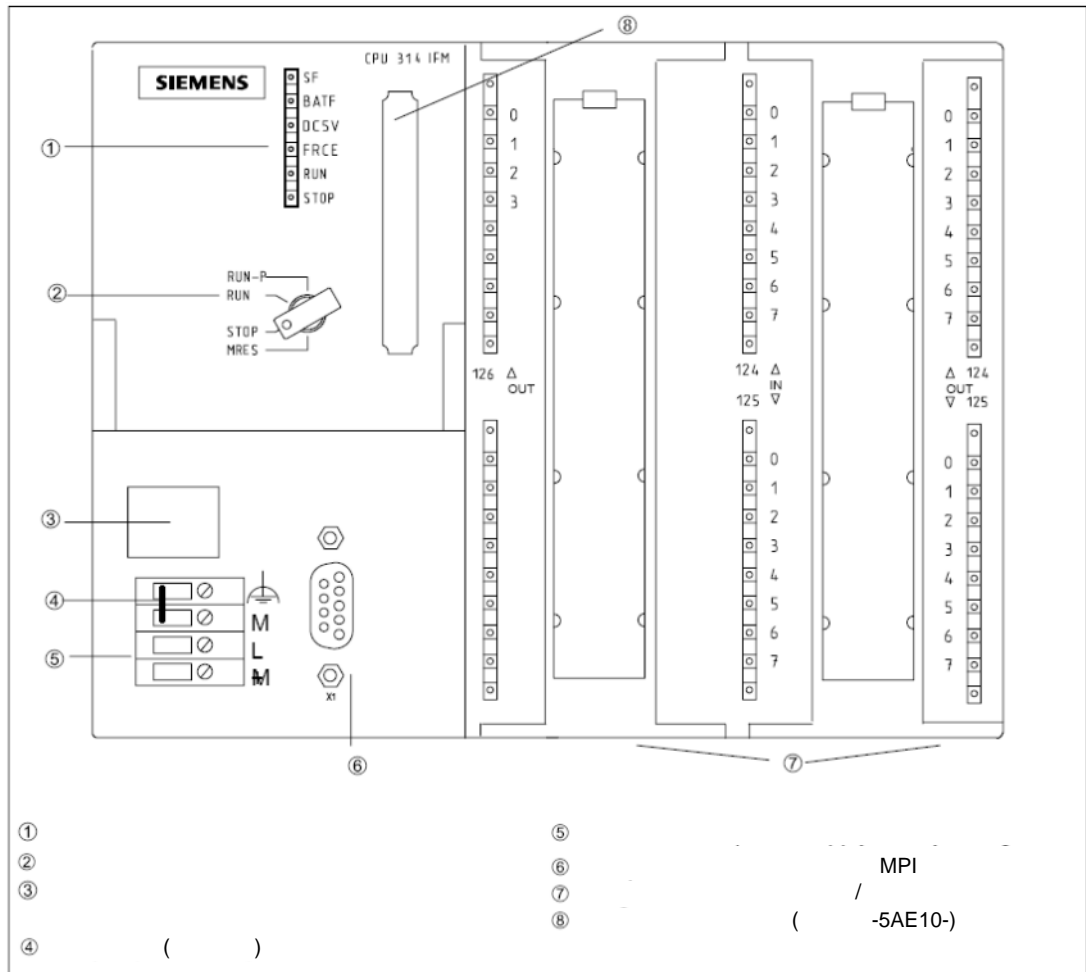
. . . .OB



. 1-9

CPU 314 IFM

CPU 314 IFM



. 1-10

CPU 314 IFM

CPU 314 IFM

CPU		
MLFB 6ES7 314-...-0AB0	-5AE03-	-5AE10-
•	01	01
•	- . 1.1.0	. 1.1.0
•	STEP 7,	. 5.0; 3
•	32	32
•	48	48
•	48	-
•	-	4
•	-	-
•	-	-
•	144	-
•	0,3	-
•	1	-
•	2	-
•	50	-
/		
S7 64		
•	C 0	C 63
•	C 0	C 7
•	0	999
•	IEC	-
•	S7	SFB 128
•	-	T 0 T 7
•	-	-
•	10	9990
•	IEC	-
•	SFB	-

()	. 2 DB, 144
•	2048 MB 0 - MB 143
•	MB 0 - MB 15
•	8 (1) . 127 (DB 0)
•	. 8
•	. 2 DB, 144
•	1536
•	256
OB	. 8
•	8
•	4
•	OB
FB	128
•	. 8
FC	128
•	. 8
(/)	
•	0 - 123/0 - 123
•	124 - 127/124, 125
•	256 - 751/256 - 751
•	128 - 135/128, 129
•	128 /128
•	()
•	. 992 + 20 /
•	. 992 + 16 .
•	. 248 + 4 /
•	. 124 + 1 .

		.4	
		.8;	.7
			3
•	DP		
•	CP	1	
S7			
		.40	
•			
•			1.1.6
•		1	
•		0	
•		0	32767
•		1	
•			
•	MPI		/
•	/	DB,	,
•			
-		.30	
-		.14	
•			,
•		.10	
		2	
•		100	
	()

PD/OP			
•	GD	1	
-		1	
•	GD	8	.22
-			
	S7		.76
		32	X/I_PUT/_GET;
		76	X_SEND/_RCV
•	S7	()
			.160
-		32	
S7-		(	CP
			FC)
•			CP
-			CP
		(	FC
			FC)
•			CP
-			CP
		12	PD/OP/
			S7/
•			S7
-	PD	.11	
		1 - 11	
		1	
-	OP	.11	
		1 - 11	
		1	
-	S7	8	
		0 - 8	
		8	
1.			
•	MPI		
•		DP	
•			DP
•			

MPI	
•	
-	PD/OP
-	
-	S7
-	S7 ()
•	19,2; 187,5 /
160x125x130	
BxHxT ()	0,9
STEP 7	
(SFC)	8
(SFB)	
24 =	
•	20,4 28,8
()	1,0 A
I ² t	8 A
()	0,4 A ² s
()	B C ,2

PD MPI (15 - 30 =)	.200
	16
•	.1
25°C	
•	5
25°C	
•	
-	0 25°C 4
-	40°C 3
-	60° 1
•	1
/	
•	E 124,0 - E 127,7
•	A 124,0 - A 127,7
•	PIW 128 - PIW 134
•	PQW 128
1 2, 2	
(.)
(.	10 .
(.)
(.	1
(.)

CPU 314 IFM

. 1-12
IFM

CPU 314

/		
	<ul style="list-style-type: none"> • ± 10 • ± 20 • 11 + • 	<ul style="list-style-type: none"> • , •
	<ul style="list-style-type: none"> • ± 10 • ± 20 • 11 + • 	/
	(E 126.0 - E 126.3)	" "
	<ul style="list-style-type: none"> • 10 • 	•
	<ul style="list-style-type: none"> • 24 • 2- • (BERO) 	
	<ul style="list-style-type: none"> • 0,5 • • • 	24 =

CPU 314IFM

		4
•		. 100
•		
•	M_{ANA}	1,0 = 75 =
•	(U_{CM})	
•	M_{ANA} $M_{internal}$	60 =
•	(U_{ISO})	500 =
		()
()	/	
•		
•	()	100 μ 11 +
		> 40
•		
	$(UCM < 1,0)$	> 60
(
•		$\pm 1,0 \%$
•		$\pm 1,0 \%$

()	
(	25°C,
•	
•	$\pm 0,9 \%$ $\pm 0,8 \%$ $\pm \pm 0,01 \%/K$
(
(	$\pm 0,06 \%$
(
(	$\pm 0,06 \%$
(	25°C,
)	
(
)	
•	$\pm \pm 10 /50 k$
•	$\pm \pm 20 /105,5$. 30
	;
(	38 . 1
(	1:20)
	34
(
)	
•	
•	
2-	
4-	

CPU 314IFM

1	
•	. 100
,	,
•	75 =
•	60 =
$M_{\text{internal}} (U_{\text{ISO}})$	M_{ANA}
	500 =
)	11 +
	40
•	0,6
•	1,0
•	0,5
,	
(	± 1.0 %
)	± 1.0 %
•	
•	
(	± 0,8 %
25°C	± 0,9 %
)	± ±0,01 %/K
•	
•	
(	± 0.06 %
)	± 0.05 %
(
25°C,	
)	

	; ± 0.05 %
0 50	
()
,	;
(
)	
•	± 10
•	± 20
•	. 2,0
	. 0,1
•	. 300
	. 0,1
•	
•	. 40
•	. 16
•	
/	. ± ±15 ,
	M_{ANA}
	± 15 ; . 1
	(. 1:20)
•	. 30
•	
•	
2-	
4-	
•	2-

CPU 314IFM

4 I 126.0 - 126.3
• . 100
4
• () 60°C 4 • () 40°C 4
1
•

• 24 =
• "1" 11 30 18 30
• "0" -3 5
• "1" 6,5
• "0" -> "1" < 50 (17)
• "1" -> "0" < 50 (20)
IEC 1131, 2
2- BERO
• . 2
• . 1,2
≤ 10

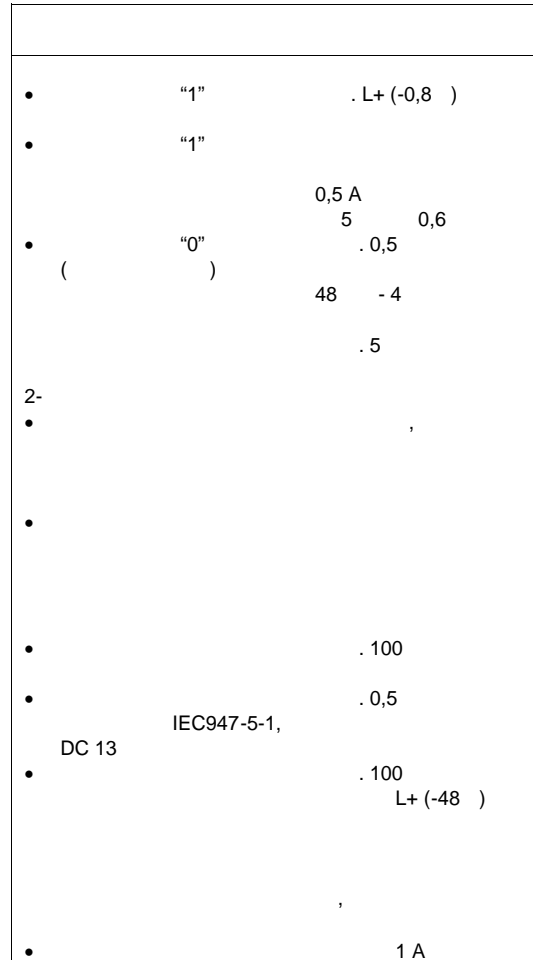
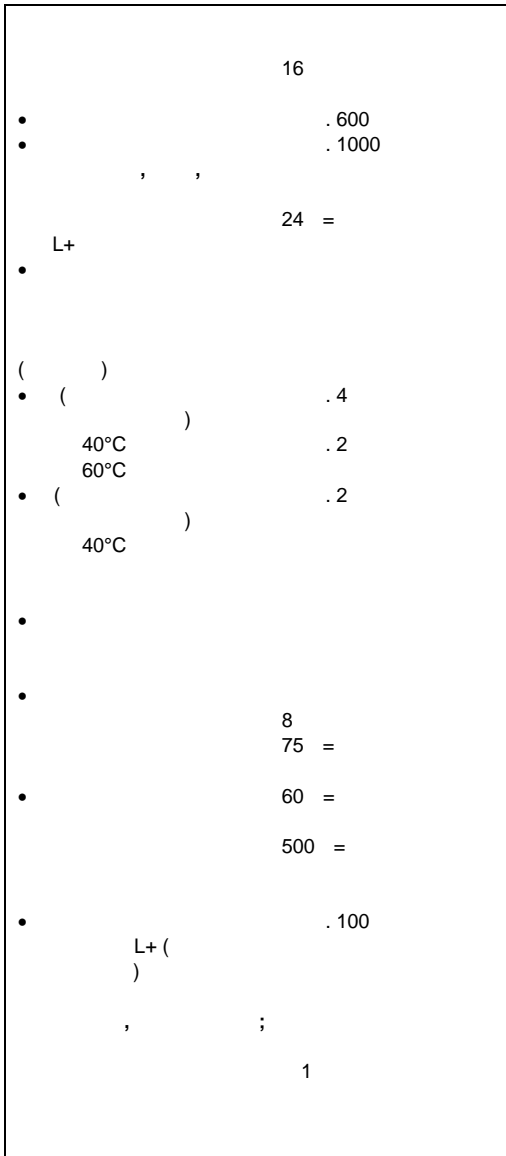
	16	
•	. 600	
•	. 1000	
	,	,
	24 =	
•	L+	
		16
•	()	16
	60°C	
•	()	16
	40°C	
•		
		75 =
•		60 =
		500 =
•		. 40
	L+	

	,	;
		1
•		24 =
		11 30
•	"1"	-3 5
•	"0"	
		7
•	"1"	
		1,2 - 4,8
•	"0" -> "1"	1,2 - 4,8
•	"1" -> "0"	
		IEC 1131, 2
2-		
BERO		
•		. 2

CPU 314IFM

!

50 .



CPU 314 IFM

. 1-11

CPU 314 IFM.

40-

(: 6ES7392-1AM00-0AA0).

126.0 - 126.3



!

/

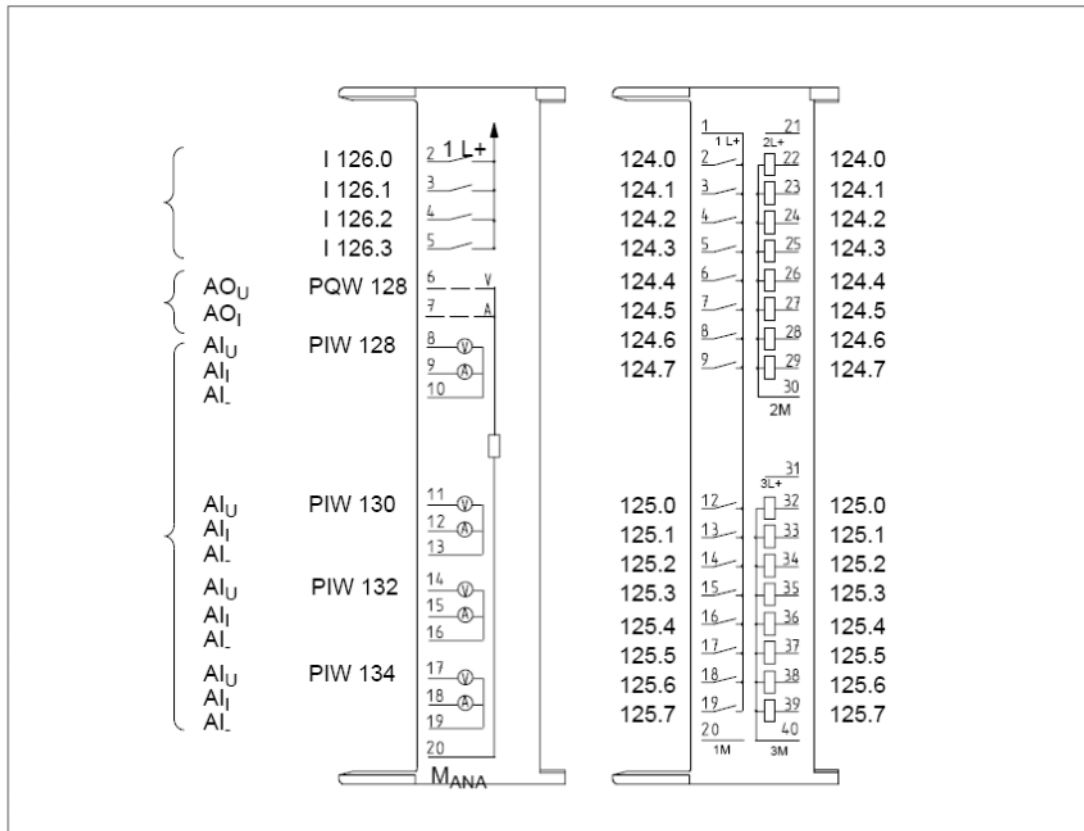
!(

,

).

15 (

MANA).



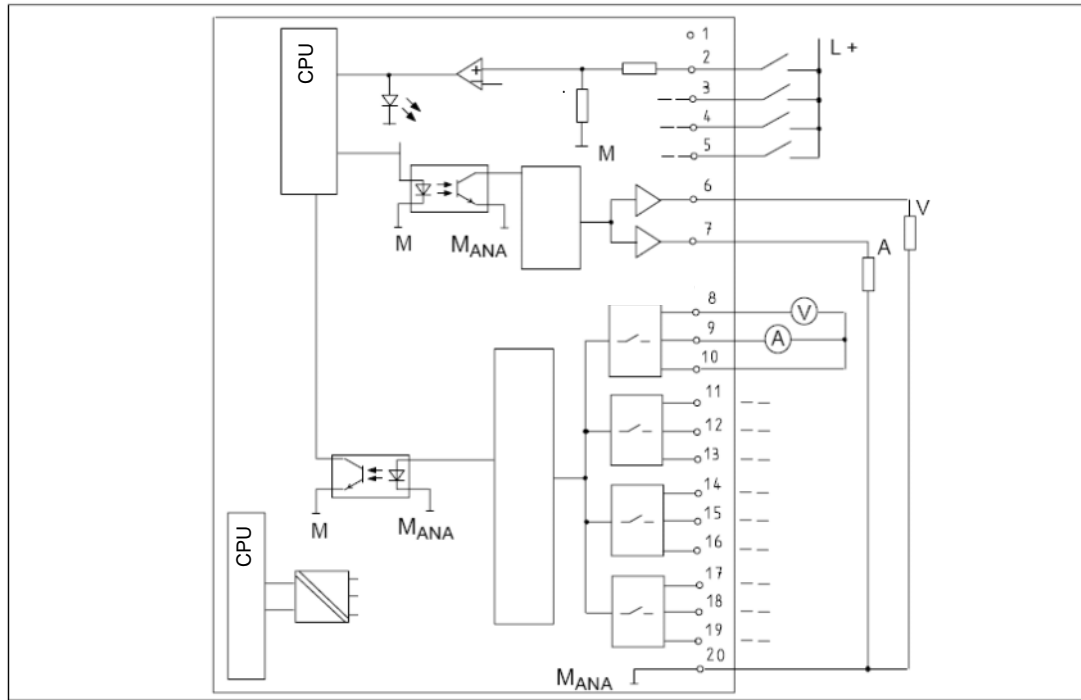
. 1-11

CPU 314 IFM

CPU 314 IFM

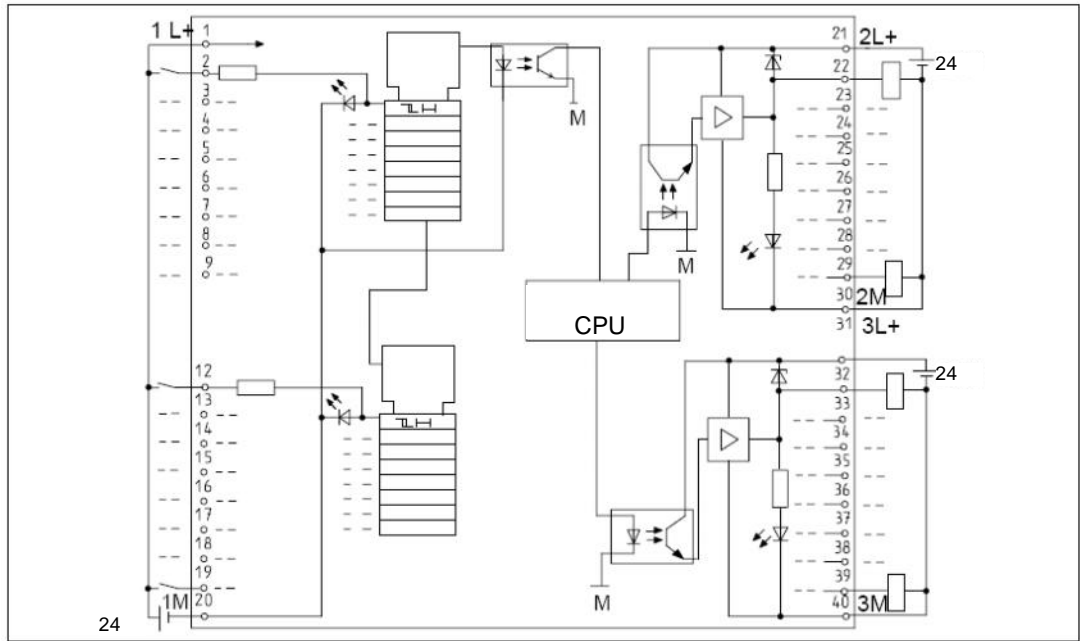
. 1-12 1-13
/

CPU 314 IFM.



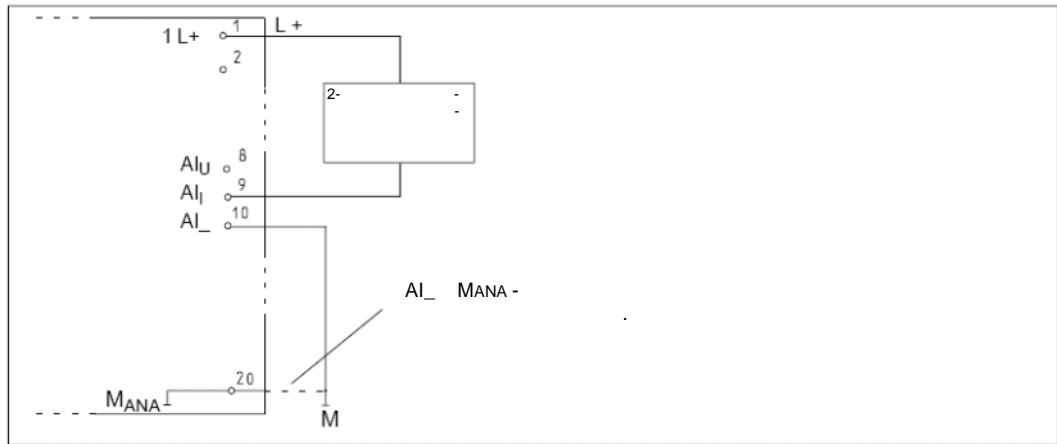
. 1-12
/)

CPU 314 IFM (



. 1-13

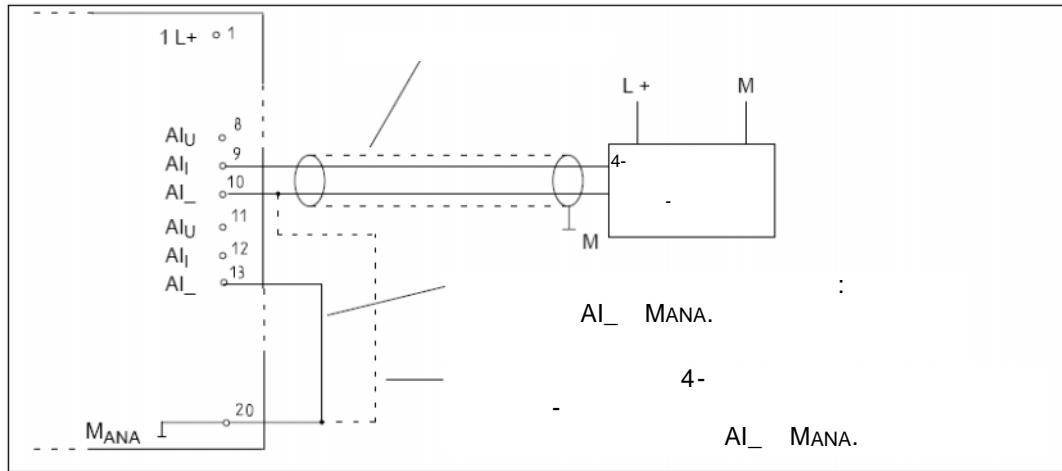
CPU 314 IFM (/)



. 1-14

2-

CPU 314 IFM



. 1-15

4-

CPU 314 IFM

1.4.5

CPU 315

CPU 315

CPU		CPU 315	
MLFB	6ES7 315-5AF03-0AB0		4736
•	01	(,)	
•	. 1.1.0		2048
•	STEP 7, . 5.0;		MB 0 - MB 255
			MB 0 - MB 15
	03		8 (1)
			. 255 (DB 0)
•	48	•	. 16
•		•	. 8 DB, 4096
•	80		. 1536
•	- 4	()	
•		•	256
•			
•		OB	. 16
•	4736	•	8
	(,)	•	4
			OB
		FB	. 192
•	0,3 μ	•	. 16
•	1 μ	FC	. 192
•	2 μ	•	. 16
•	50 μ		(/)
/			
S7	64	/	1 /1
•	C 0 C 63	()
•	C 0 C 7		128 /128
•			. 1024/1024
•	0 999		. 256/128
IEC	SFB		
•	128		
•	T 0 T 127		
•			
•	10 9990		
IEC	SFB		

MPI	
•	
-	PD/OP
-	
-	S7
-	S7 ()
•	19,2; 187,5 /
80x125x130	
BxHxT ()	0,53
STEP 7	
	8
	(SFC)
(SFB)	

•	24 =
	20,4 28,8
	7,0 A
()	8 A
I ² t	0,4 A ² s
()	B C ,2
PD MPI	.200
(15 - 30 =)	8
•	.1
	25°C
•	5
	25°C
-	0
25°C	4
-	40°
-	60°
•	1
	1

1.4.6

CPU 315-2 DP

DP (CPU 315-2 DP PROFIBUS-DP): DP 2- DP PROFIBUS -DP CPU 315-2 DP 2.

CPU 315-2 DP

CPU	
MLFB	6ES7 315-2AF03-0AB0
•	01
•	. 1.1.0
•	STEP 7, . 5.0;
	03
•	64
•	
•	96
•	- 4
•	
•	
•	4736
•	0,3
•	1
•	2
•	50
/	
S7	64
•	C 0 C 63
•	C 0 C 7
•	0 999
IEC	SFB

•	S7	128	T 0 T 127
•			
•		10	9990
•	IEC		SFB
4736			
(			1-63
•		2048	MB 0 - MB 255

(/)	
•	1 /1 (1 /1 128/128) .8192 (1 DP)/8192 .1024/1024 .512 (1 DP)/512 .256/128
•	.4 .8
•	DP 1
•	CP 1
S7	
•	.50
•	1.1.6
•	1
•	0
•	0 32767
•	1
•	CP MPI /
•	/
•	, DB, ,
•	.30
•	.14
•	.10

•	2
•	() 100
PD/OP	
•	GD 1
-	1
•	GD .22
-	8
•	S7 () .76
-	32 X/I_PUT/_GET; 76 X_SEND/_RCV
•	S7 .160
-	32
S7-	(CP FC) CP
•	CP
-	CP
•	(CP FC) CP
-	CP
•	12 PD/OP/ S7/ S7
-	PD .11 1 - 11
-	PD 1 .11 1 - 11
-	S7 1 .8 0 - 8 8 .4

1.
<ul style="list-style-type: none"> MPI DP DP
MPI
<ul style="list-style-type: none"> PD/OP S7 () 19,2; 187,5
2.
<ul style="list-style-type: none"> DP DP / ; , ;
DP
<ul style="list-style-type: none"> DP 12 / .64 .1 I/1 O .244 I 244 O

DP
<ul style="list-style-type: none"> - / ; ,
PROFIBUS
<ul style="list-style-type: none"> Sie3802f.gsg ... 12 / 244 I/244 O .32 32
BxHxT ()
80x125x130
0,53
STEP 7
8
(SFC)
(SFB)
24 =
20,4 28,8
0,9 A
8 A
l ² t 0,4 A ² s
()
B C ,2
PD MPI .200
(15 - 30 =)
10
25°C .1
25°C 5
0 25°C 4
40°C 3
60°C 1
1

1.4.7

CPU 316-2 DP

DP

DP

(CPU 316-2 DP
PROFIBUS-DP):
PROFIBUS-DP.

2-
DP

DP

PROFIBUS-DP

CPU 316-2 DP . 2.

CPU 316-2 DP

CPU	
MLFB	6ES7 316-2AG00-0AB0
•	01
•	. 1.1.0
•	STEP 7, . 5.0;
	03
•	128
–	
•	192
•	4
•	
•	
•	4736
•	0,3
•	1
•	2
•	50
/	
S7	64
•	C 0 C 63
•	C 0 C 7
•	0 999
•	IEC
•	SFB

S7	128
•	T 0 T 127
•	
•	10 9990
•	IEC
	SFB
	4736
()
•	2048
	MB 0 - MB 255
•	MB 0 - MB 17
	8 (1)
	511 (DB 0)
•	. 16
•	. 8 DB, 4096
•	
	. 1536
()
•	256
OB	
•	. 16
•	
•	8
•	4
FB	OB
	. 256
•	. 16
FC	. 256
•	. 16

	(/)	
	2 /2	
	(
•	2 /2	
	128/128	
()	
	. 16384 (
	1	
	DP)/16384	
•	. 1024/1024	
	. 1024 (1	
	DP)/1024	
•	. 256/128	
	. 4	
	. 8	
•	DP	1
•	CP	1
	S7	
		. 50
•		1.1.6
•	1	
•	0	
•	0	32767
•	1	
•		
•	MPI	/ -
	/	
•		, DB,
		,
•		. 30
-		. 14
•		,
•		. 10

		2
•		100
()	
	PD/OP	
•	GD	1
-		1
•	GD	. 22
-		8
	S7	
•		. 76
		32
-		X/_PUT/_GET;
		76
		X_SEND/_RCV
		()
•	S7	. 160
-		32
S7-	(CP	FC)
		CP
•		
-		CP
	(CP	FC)
•		CP
-		CP
		12
	PD/OP/	
•	S7/	S7
-	PD	. 11
		1 - 11
		1
-	OP	. 11
		1 - 11
		1
-	S7	. 8
		0 - 8
		8
		. 4

1.
• MPI • DP • DP •
MPI
• - PD/OP - - S7 - S7 () • 19,2; 187,5 /
2.
• DP • DP / ; , - / ; • • •
DP
• - / - / DP • DP 12 / • .125 • .2 • I/2 O • .244 I 244 DP O

DP
• - / ; , ; Siem806f.gsg • 12 / • 244 I/244 • O .32 . - .32 . 32
BxHxT () 80x125x130 0,53
STEP 7 8 (SFC) (SFB)
24 = • 20,4 28,8 (I ² t) 0,9 A A ² s 8 A 0,4 ; 2 A, (PD MPI (15 - 30 =) B C .200 10 • 25°C .1 • 25°C 5 • - . 0 25°C 4 - 40°C 3 - 60°C 1 • 1

1.4.8

CPU 318-2

- 4
- PROFIBUS DP (DP). MPI : MPI
- (,) CPU 318 -2 4.1.

DP

DP

CPU 318-2 DP DP
 DP PROFIBUS-DP.
 DP. CPU 318-2 DP . 2. PROFIBUS-DP

CPU 318-2 /

- 12 : 1 PII
 12 : 1 PIO
 :
 256 PII 3072 ,
 2047 PIO 24564 .

- 1 1
 256 1
 14 , 3584 .
 4608 , 8192 .

DP.
DP

DP
DP.

MPI

PG/OP,

CPU 318-2

FM 353/354,

353 CPU 318 -2 DP, FM
6ES7 353-1AH01-0AE0
3.4/03, FM 354 – 6ES7 354-1AH01-
0AE0 3.4/03
ET 200M.

S7-300,

CPU 318-2

FM 357 6ES7 357-4_H02-3AE_
2.1;
FM NC 6FC5 250-3AX00-7AH0
3.7 + 6F C5 252-3AX2Z-6AB0,
3.6;
SM 338 6ES7 338-7UH00-0AC0 07;
SIXWAREX M 7MH4 553-1AA41
0119;
SINAUT ST7 TIM, 6NH7 800-A0 (: TIM
)

CPU 318-2

T PAW

CPU 318-2

CPU	
MLFB	6ES7 318-2AJ00-0AB0 03
•	. 3.0
•	<i>STEP 7</i> , .
•	5.1+
•	02
•	256
•	/ 256
•	64
•	4
•	2
•	. 11
•	0,1 μ
•	0,1 μ
•	0,1 μ
•	0,6 μ
/	
S7	512
•	C 0 C 511
•	C 0 C 7
•	0 999
IEC	SFB
S7	512
•	T 0 T 511
•	
•	10
•	9990
IEC	SFB
•	

() ,	. 11
•	8192
•	MB 0 - MB 1023
•	MB 0 - MB 15
•	8 (1)
•	2047 (DB 0)
•	. 64
•	. 8 DB,
•	. 8192
•	() . 8192
•	3584
•	256
•	() 8192
•	. 64
•	16
•	3
OB	. 1024
•	. 64
FC	. 1024
•	. 64
(/)	
/	. 8 /8
()	
•	MPI/DP . 2 /2
•	DP . 8 /8
•	2048/2048
()	
•	256/256
•	. 65536 (1
•	DP)/65536
•	. 1024/1024
•	. 4096/4096
•	. 256/128

		.4	
		.8	
•	DP		
•	CP	2	
		2	
S7			
	S		.100
		D	
•			
•			
		1.1.6	
		8	
•		0 7	
•		0 32767	
•			
•		1	
•			/
•	MPI		/
•	DP		/
		/	
•			,
			, DB,
			,
•		.70	
•			,
			,
			,
•		.256	
		4	
•		()	100
PD/OP			
•		GD	
-			1
-			2
•		GD	54

-			32	
	S7			.76
•			76	()
•	S7			.160
-				,
S7-			(	CP
				FC)
•				CP
-				CP
			(	CP
				FC)
•				CP
-				CP
1.				
•	MPI			
•		DP		
•			DP	
•				
•			MPI	
•				.32;
-			1	PD
	:		1	OP
MPI				
•			PD/OP	
-				
-				
-		S7		
-		S7	()	
•			12	/

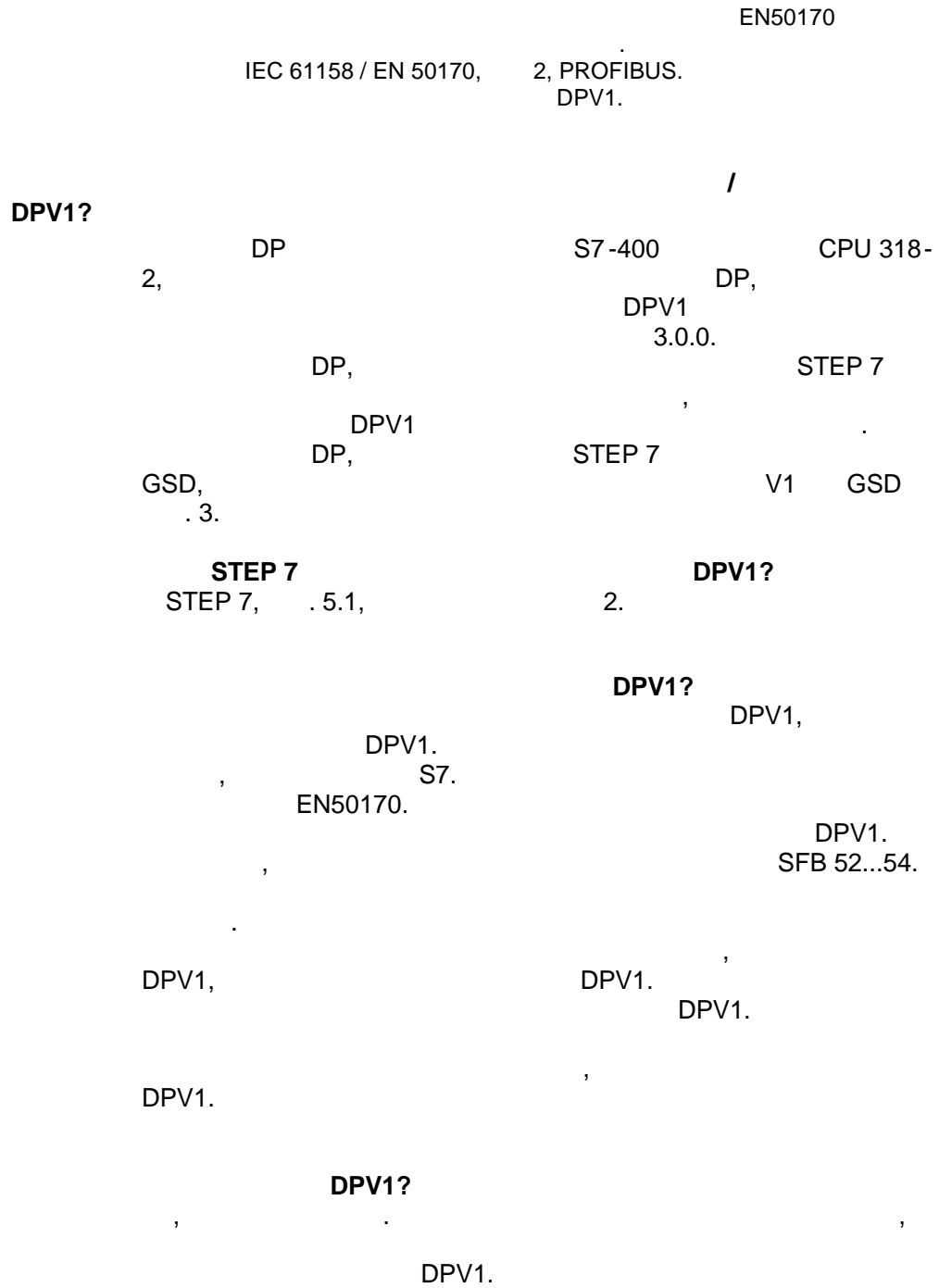
DP	
• - / ; ,	
• - / ; ,	
• DP	12 /
•	.2
• I/2 O	.244
• -	I 244
DP	O
DP	
• - / ; ,	
•	siem807f.gsg
•	12 /
•	244 I/244
	O
2.	
• DP	
• DP	
• - / ; ,	
•	
• PtP	
•	
•	.16
• -	1
	PD
	1
	OP
DP	
• - PD/OP	
• - /	
• - /	
• DP	12 /
• DP	.125
•	.8
• I/8 O	.244
• -	I 244
DP	O

DP	
• - / ; ,	
• GSD	siem807f.gsg
•	12 /
•	244 I/244
	O
BxHxT ()	160x125x130
	0,93
	STEP 7
(SFC)	16
(SFB)	
•	24 =
•	20,4 28,8
•	1,2 A
• I ² t	8 A 0,4 A ² s
•	; 2 A,
• ()	B C
• PD MPI (15 - 30 =>)	.200
	12
•	.1
• 25°C	
•	5
• 25°C	
•	
• - 0 25°C	4
• - 40°C	3
• - 60°C	1
•	1



2.1

DPV1

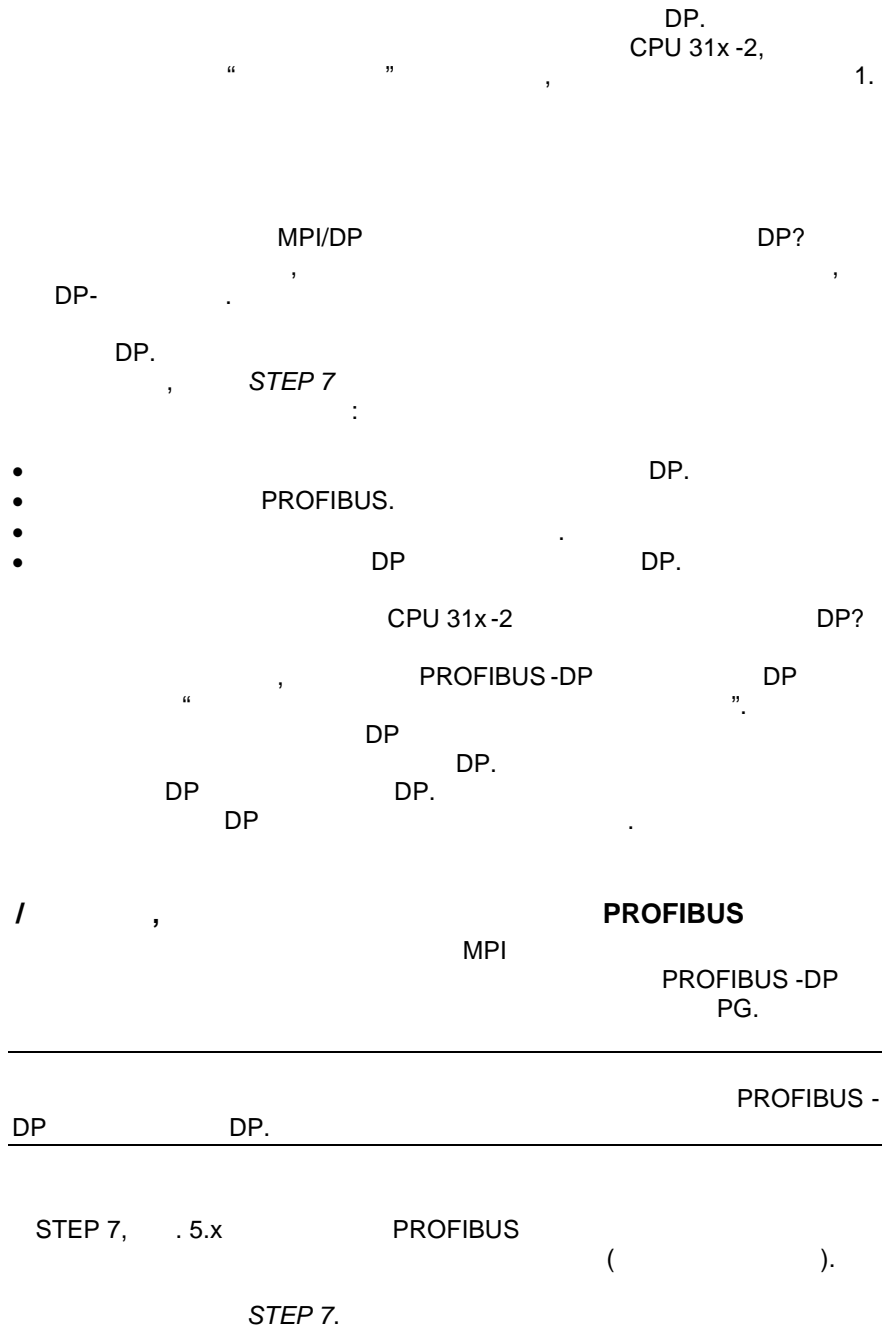


CPU 31x-2	DP /	DP
	DPV1	? DPV1
	DPV1 SIEMENS S7.	DPV1 GSD- EN50170
DPV1 –		3.
	DPV1. STEP 7	DPV1,
	(DP).	
		DPV1
“	”,	: 7027576

2.3

CPU 31 x-2

DP



DP

CPU 31x-2		CPU 318-2
2DP	DP	DP
" DP "	" "	" , "
		DP.
	DP	(
DP).		

PROFIBUS

DP

126

PROFIBUS

CPU 31x-2.

2.4

CPU 31x-2

DP

.2-1
BUSF.
.2-1
DP

BUSF

PROFIBUS-DP

BUSF

CPU 31x-2

BUSF		
	;	-
	• () • DP. • DP	• •
	• • •	• CPU31x-312 • CPU 31x-2. DP DP.

STEP 7

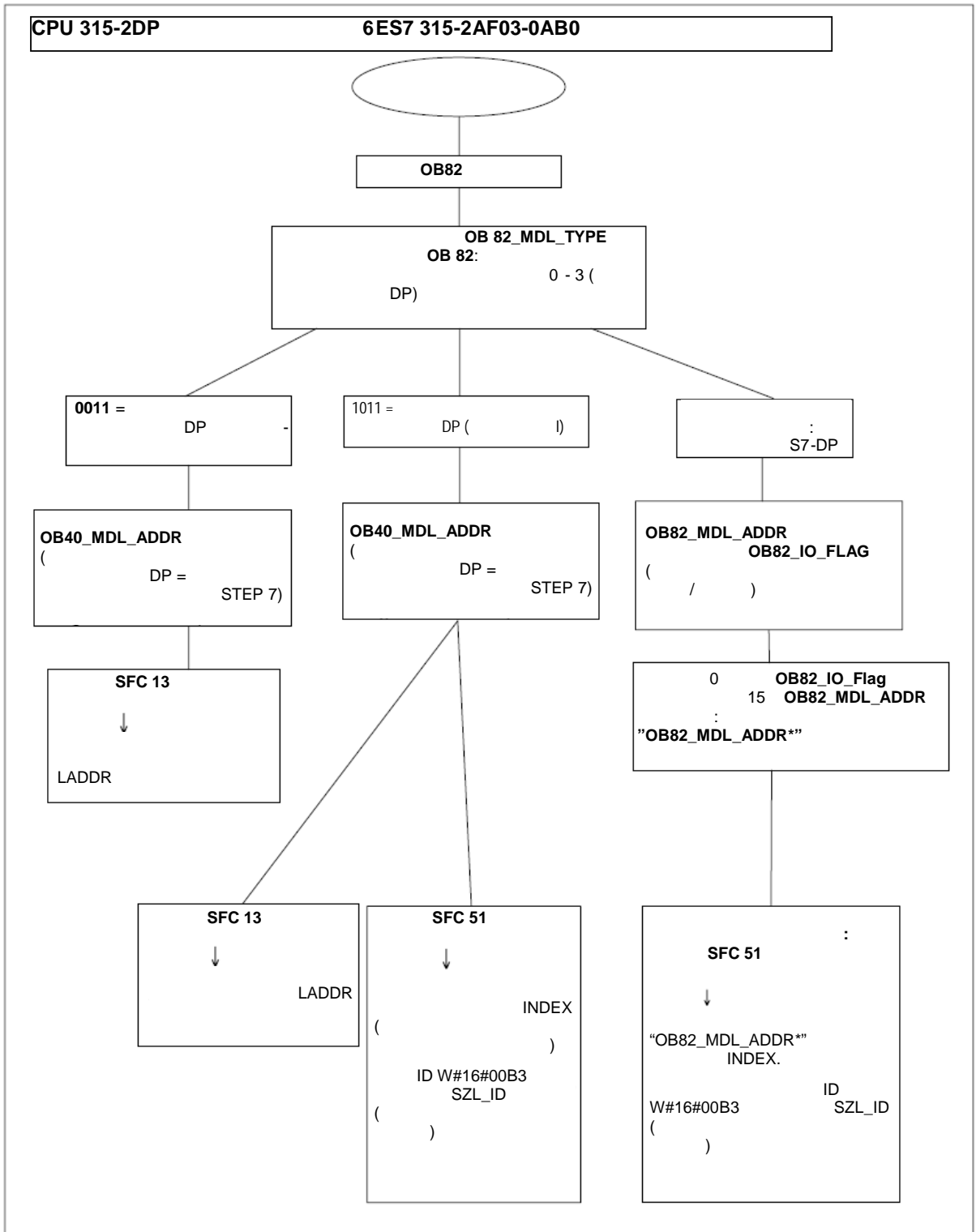
. 2-2

STEP 7

DP	STEP 7		...
CPU 31x-2	"DP slave diagnostics" (" DP")	STEP 7	STEP 7.
	SFC 13 "DPNRM_DG"	()	CPU 31x-2 2.6.4; SFC
	SFC 59 "RD_REC"	(S7)	
	SFC 51 "RDSYSST"	SSL ID W#16#00B4 SFC51 SSL ()	
	SFB 52 "RDREC" (318-2)	(S7)	DPV1:
	SFB 54 "RALRM" (318-2)	()	DPV1: OB

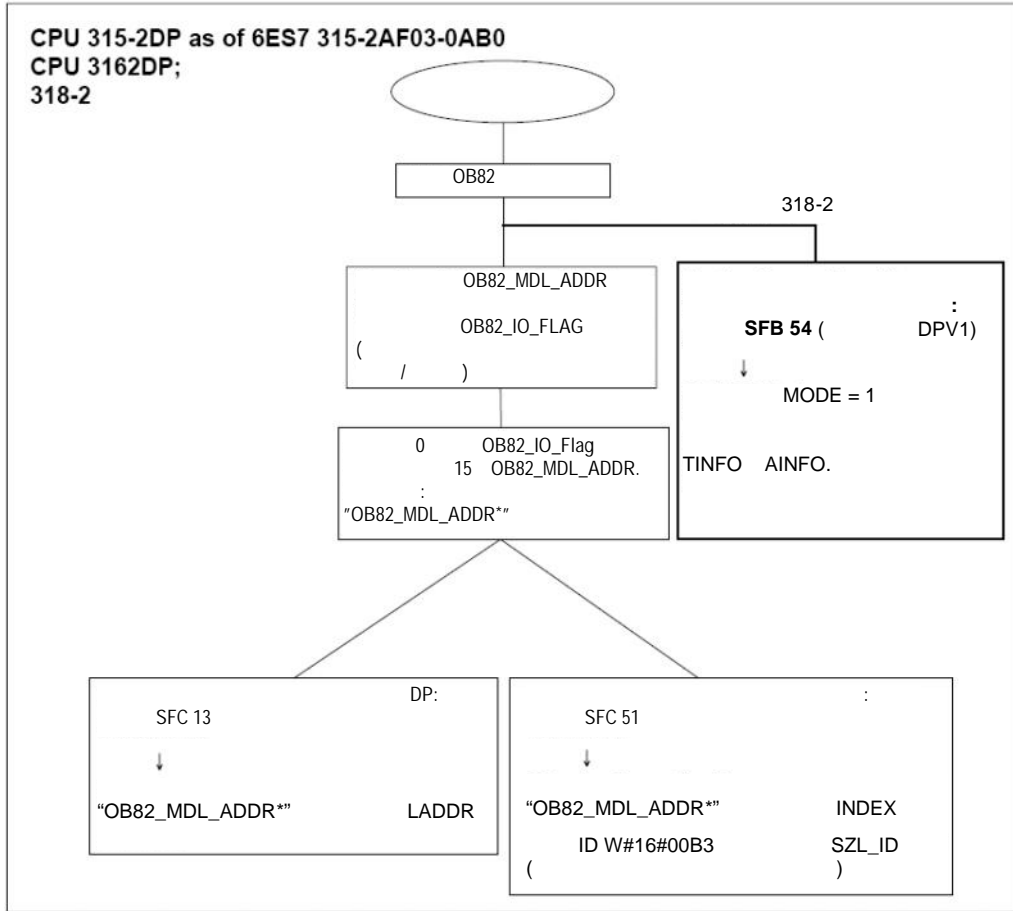
CPU 315-2DP:

CPU 315-2DP < 6ES7 315-2AF03-0AB0	CPU 315-2DP – 6ES7315-2AF03-0AB0 CPU 316-2DP – 6ES7316-2AG00-0AB0 CPU 316-2 – 6ES7318-2AJ00-0AB0
... . 2-1 . 2-8	... . 2-2 . 2-9



. 2-1

CPU 315-2DP < 315-2AF03



. 2-2

31x-2 (315-2DP – 315-2AF03)

. 2-3

DP CPU 31x-2

DP

. 2-3

CPU 31x-2

DP

	DP
(,)	<ul style="list-style-type: none"> • OB 86 (; DP, DP) : OB 122 ()
RUN STOP DP	<ul style="list-style-type: none"> • OB 82 (; DP, DP; OB82_MDL_STOP=1)
STOP RUN DP	<ul style="list-style-type: none"> • OB82 "Module OK" (" "); (; DP, OB82_MDL_STOP=0) DP;

. 2-4
 RUN-STOP , DP , DP (. . 2-3).

. 2-4 RUN-STOP DP DP

DP	DP (CPU 31x-2DP)
: =1023 =1022	: = 422 =
<p>OB 82 ← : RUN STOP</p> <ul style="list-style-type: none"> • OB 82_MDL_ADDR:=1022 • OB82_EV_CLASS:=B#16#39 () • OB82_MDL_DEFECT:= <p>SFC13 "DPNRM_DG"</p> <p>DP. DPV1 SFB54.</p>	

2.5

CPU 31x-2

DP

DP.

1.

MPI/DP

DP?

DP-

DP.

STEP 7

:

-
-
-
-

"

"

PROFIBUS.

DP.

DP

CPU 31x-2

DP
COM PROFIBUS

DP
4.0

GSD-

: http://www.ad.siemens.de/csi_e/gsd

SSC Fuerth,

0911/911/737972.

STEP 7

CPU 31x-2.

<http://www.ad.siemens.de/simatic-cs>,

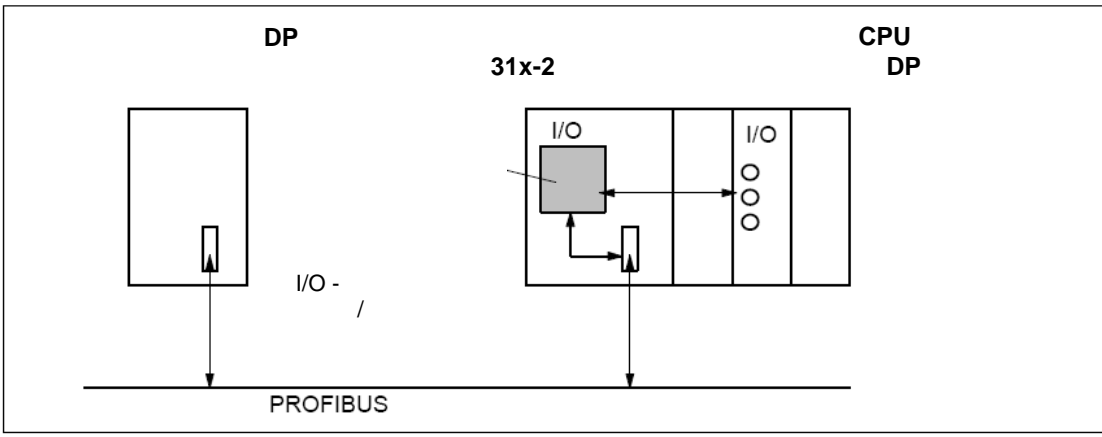
1452338.

URL

/ , **PROFIBUS**
 MPI
 PROFIBUS-DP
 PG.
 STEP 7
 DP.

 DP DP. PROFIBUS-

CPU 31x-2, PROFIBUS DP.
 DP,
 DP, DP
 32-
 DP



. 2-4

CPU 31x-2,

DP

DP S5

IM 308 C IM 308 C DP, DP,
CPU 31x-2 DP,
IM 308 C FB 192, :
FB192 DP DP.
2 / CPU 31x -
!

S5-95
AG S5-95

DP
DP,
CPU 31x -2,
DP.

, DP . 2-5. DP. ,

DP				DP			
L	2		Data				
T	MB	6	pre-processing				
L	EB	0	in DP slave				
T	MB	7					
L	MW	6	Forward data to				
T	PAW	310	DP master				
				L	PEB	222	Further
				T	MB	50	processing of
				L	PEB	223	received data in
				L	B#16#3		the DP master
				+	I		
				T	MB	51	
				L	10		Data Processing
				+	3		in DP master
				T	MB	60	
				CALL	SFC	15	Send data to DP
					LADDR:= W#16#0		slave
					RECORD:= P#M60.0 Byte		
					20		
					RET_VAL:= 22 MW		
CALL	SFC	14	Receive data				
			from DP master				
L	MB	30	Further				
L	MB	7	processing of				
+	I		received data				
T	MW	100					

STOP

DP STOP: DP
 "0", .. DP
 DP STOP:

PROFIBUS

CPU 31x-2. 126 PROFIBUS

2.6**DP****CPU 31x-2,**

		.
2.6.1		2-19
2.6.2	STEP 5 STEP 7	2-19
2.6.3		2-20
2.6.4		2-24
2.6.5	1 - 3	2-25
2.6.6	PROFIBUS	2-27
2.6.7		2-27
2.6.8		2-28
2.6.9		2-29
2.6.10		2-31

2.6.1

- CPU 31x-2

. 2-6
BUSF.

BUSF,
PROFIBUS-DP

. 2-6

DP

BUSF

CPU 31x -2

BUSF		
		-
	CPU 31x-2 DP CPU 31x-2 PROFIBUS PROFIBUS. .	CPU 31x-2. DP. .

2.6.2

STEP 5

STEP 7

EN 50170, 2, PROFIBUS.
 DP
 DP,
 STEP 5 STEP 7.

S7

S7
SIMATIC S7/M7

S7

1

0

4

0 1

2.6.3

. 2-7

STEP 5 STEP 7

DP	STEP 7		...
SIMATIC S7/M7	"DP Slave Diagnostics" (DP")	STEP 7	STEP STEP 7. 2.6.4; SFC:
	SFC 13 "DP NRM_DG"	()	
	SFC 51 "RDSYSST"	SSL ID W#16#00B4 SFC51 SSL ()	
	SFB 54 "RDREC" (318-2)	DPV1. OB	
SIMATIC S5 IM 308-C DP	FB 192 "IM308C"	()	2.6.4; FB
SIMATIC S5 S5- 95U DP	FB 230 "S_DIAG"	()	/ ET200

FB192 "IM 308C"

FB192
DP
192 STEP 5.

- STEP 5.
- IM 308-C, DP, 0 ...
15 (0 IM 308-C).
 - DP 3.3 PROFIBUS
 - DB20.
 - 26

STEP 5

STL	Description
:A DB 30	
:SPA FB 192	
Name :IM308C	
DPAD :	KH F800 Default address area of IM 308-C
IMST :	KY 0, 3 IM no. = 0, PROFIBUS address of the DP slave = 3
FCT :	KC SD Function: Read Slave diagnostic data
GCGR :	KM 0 Not evaluated
TYPE :	KY 0, 20 S5 Data area: DB 20
STAD :	KF +1 Diagnostic data, starting at Data Word 1
LENG :	KF 26 Length of diagnostic data = 26 bytes
ERR :	DW 0 Error code area in DW 0 of DB30

"RD_REC" **S7** **SFC59**

STEP 7.
SFC13

S7
SFC59
DP

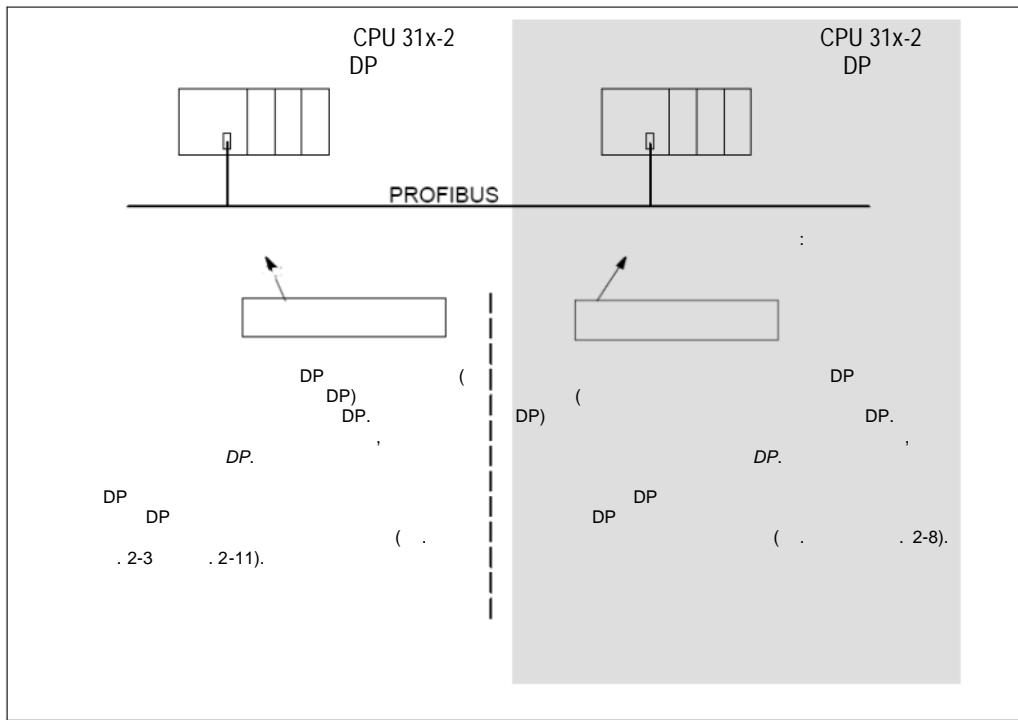
- STEP 7.
- 200H.
 - 1. DB 10.
 - 1

STEP 7

STL	Description
CALL SFC 59	
REQ :=TRUE	Request to Read
IOID :=B#16#54	Identifier of the Address Area, here the I/O input
LADDR :=W#16#200	Logical address of the module
RECNUM :=B#16#1	Data record 1 is to be read out
RET_VAL :=	Errors result in the output of an error code
BUSY :=TRUE	Reading process is not finished
RECORD :=DB 10	Destination area for the read data record 1 is data block 10

CPU 31x-2
PROFIBUS-DP.

DP.



. 2-5

DP

. 2-8

DP CPU 31x-2

DP

DP . 2-8

CPU 31x-2

	DP
(,)	<ul style="list-style-type: none"> • OB 86 (DP, ; DP) • : OB 122 ()
RUN DP: STOP	<ul style="list-style-type: none"> • OB 82 (; DP, DP) OB82_MDL_STOP=1)
STOP DP: RUN	<ul style="list-style-type: none"> • OB82 "Module OK" (" "). (; DP, DP) OB82_MDL_STOP=0)

. 2-9

RUN-STOP

DP

DP (. 2-8).

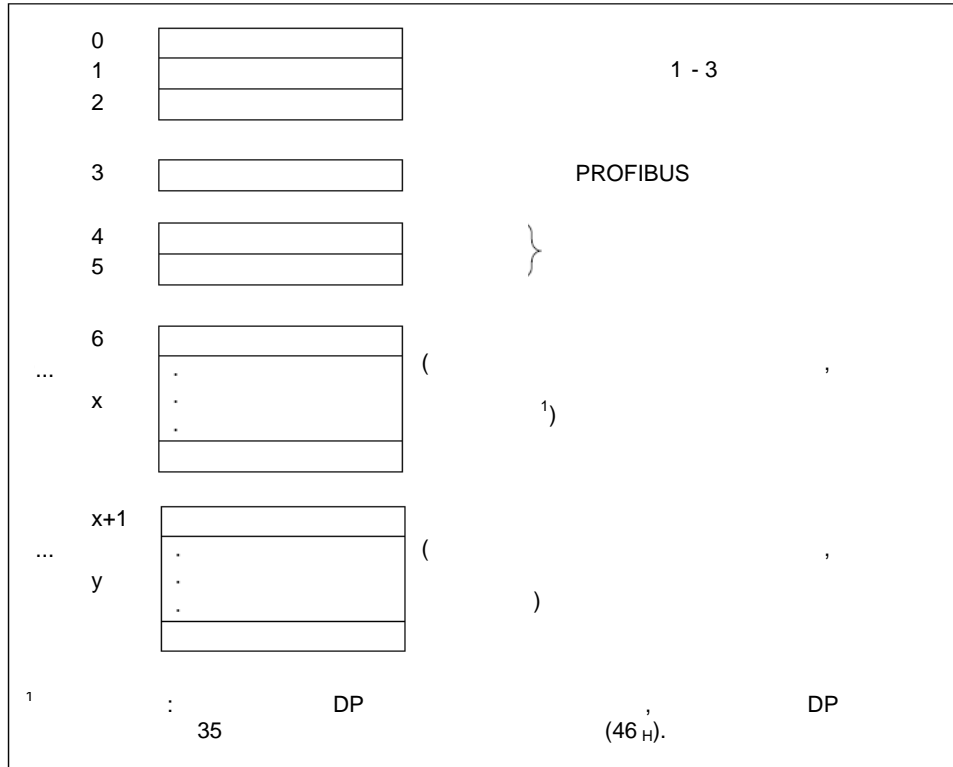
DP . 2-9

RUN-STOP

DP/

DP	DP
: =1023	: = 422 =
: RUN STOP = 1022	OB 82 : → • OB 82_MDL_ADDR:=422 • OB82_EV_CLASS:=B#16#39 () • OB82_MDL_DEFECT:= :

2.6.4



. 2-6

2.6.5

1 - 3

DP. 1 - 3

1

. 2-10 1 (0)

0	1: DP DP.	• DP? • ? • DP? • RS 485? • DP.
1	1: DP .	• ; DP.
2	1: DP DP DP.	• ? DP?
3	1: RUN/STOP CPU 0: STOP/RUN CPU	• .
4	1: DP	• .
5	0: "0".	-
6	1: DP	• ? ()
7	1: DP DP, ,	• "1", , , DP PG DP. DP , "Master PROFIBUS address" (" PROFIBUS").

2

. 2-11

2 (1)

0	1: DP.
1	1: DP (,).
2	1: DP "1", DP
3	1: DP.
4	0: "0".
5	0: "0".
6	0: "0".
7	1: DP ,

3

. 2-12

3 (2)

0 ... 6	0: "0".
7	1: <ul style="list-style-type: none"> • DP , • DP DP

2.6.6

PROFIBUS

DP DP "Master
 PROFIBUS address" (" PROFIBUS"): DP
 • ,
 • ,
 DP

PROFIBUS

. 2-13 PROFIBUS (3)

0	DP	DP	DP,
7	DP		/ .
	FFH:	DP	DP.

2.6.7

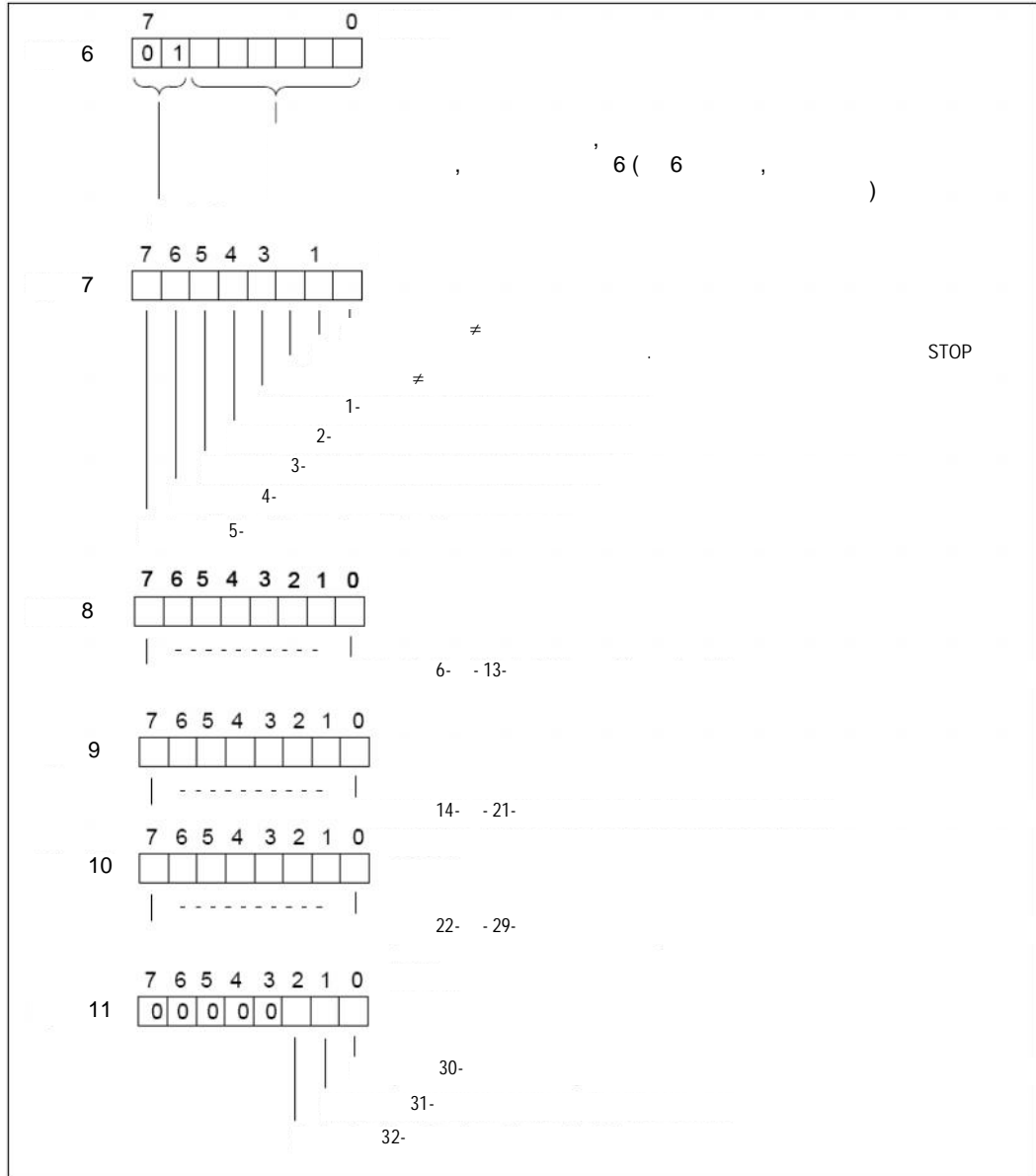
DP. ,

. 2-14 (4 5)

4	5	
80H	2FH	CPU 315-2 DP
80H	6FH	CPU 316-2 DP
80H	7FH	CPU 318-2

2.6.8

ID,



. 2-7

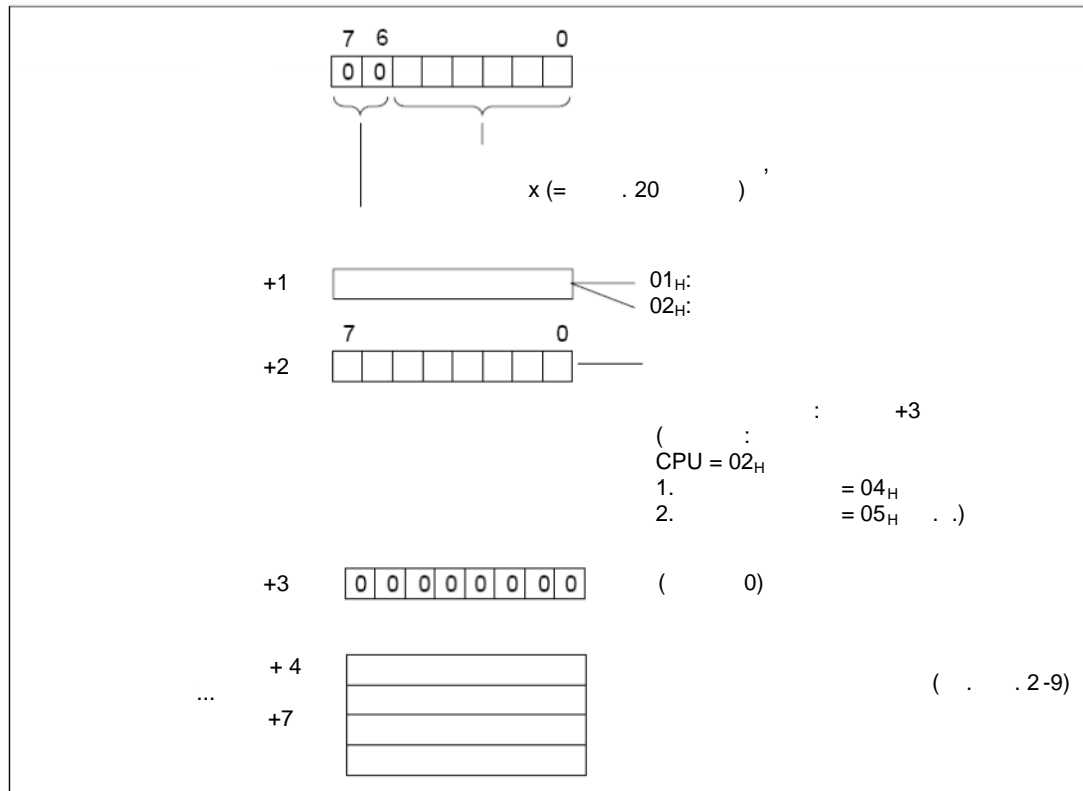
CPU 31x-2

2.6.9

DP.

20

"x"



. 2-8

, + 4
 (. . 2-8). , x+4, x+1

x+1		...
(01H)		(02H)
	16	4
	2-9	STEP 7 SFC
0.	12	7 "DP_PRAL" DP (. 2.6.10).

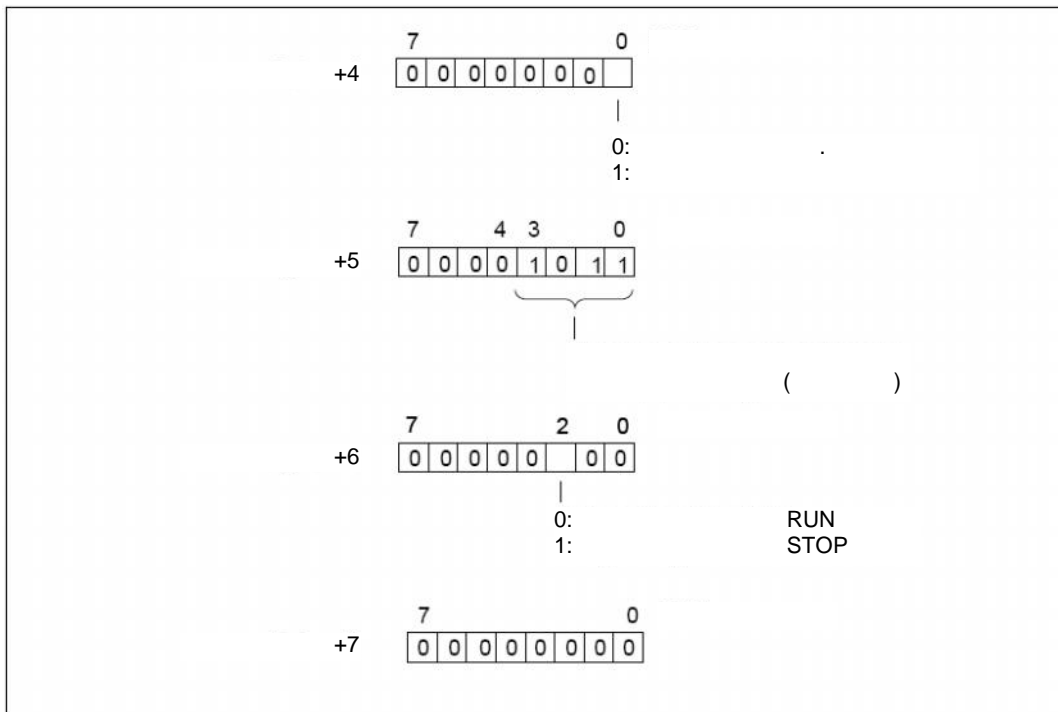
x+4 - x+7

. 2-9

0 .
)

x +4 - x +7

STEP 7 (



. 2-9 x +4 - x +7

2.6.10

DP S7/M7

DP. CPU 31x-2, DP
 SFC 7 "DP_PRAL" OB40
 DP. SFC 7
 DWORD DP;
 OB 40 OB40_POINT_ADDR.
 SFC 7 "DP_PRAL"
 S7-300/400 -

DP

DP, CPU 31x-2. CPU 31x-2
 DP.

-
- DP /
 - DP :
 - DP , DP , DP ,
 - PROFIBUS-DP,
 - IM 308-C, DP,
-

2.7

STEP 7 V 5.x

PROFIBUS

“Direct Data Exchange”.

CPU 31x-2

PROFIBUS-DP.

“ ” –

PROFIBUS-DP “ ”

DP

DP.
()

DP.

STEP 7

CPU 31x-2

DP
DP

DP,
2-10).

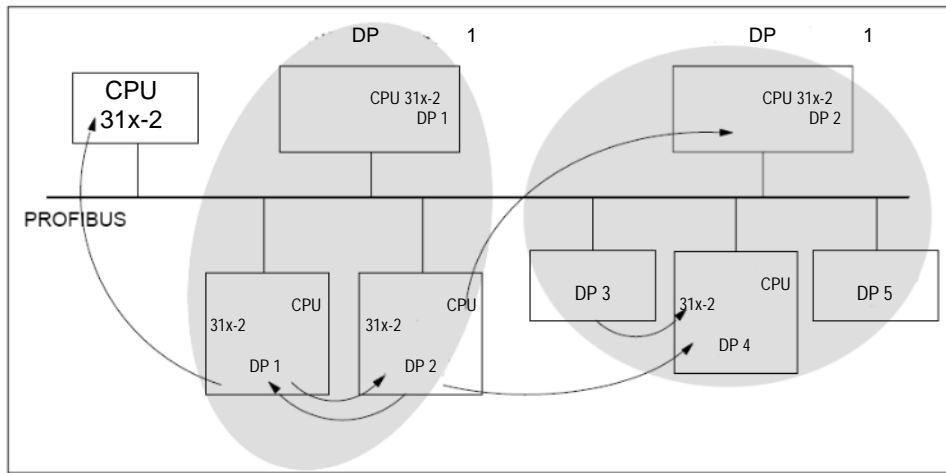
:

. 2-10

DP

DP

CPU 31x-2.
DP (ET 200M, ET 200X, ET 200S)

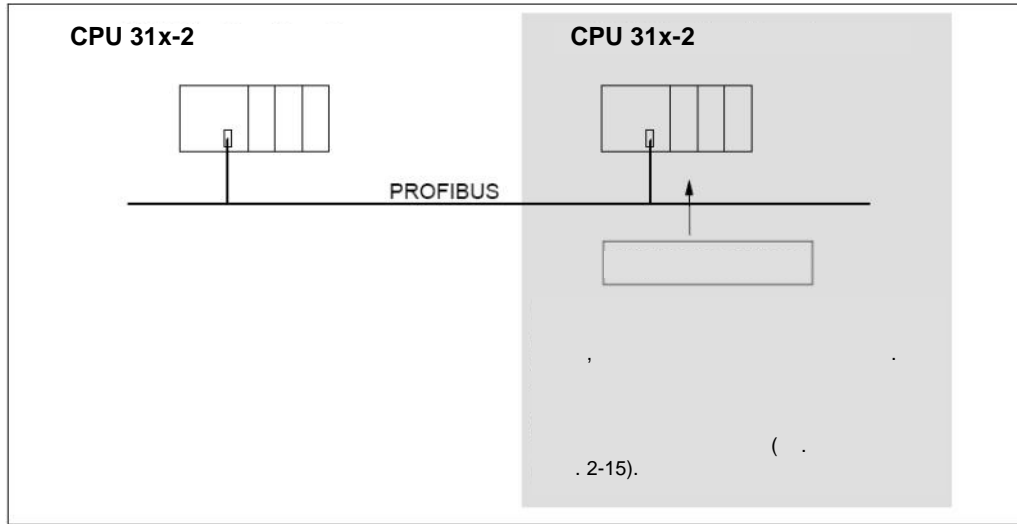


. 2-10

CPU 31x-2

2.8

:



. 2-11

. 2-15

CPU 31x-2

. 2-15

CPU 31x-2,

(	<ul style="list-style-type: none"> • OB 86 (;) • (:) OB 122
)	

. 2-16 , , , (. . 2-15).

. 2-16 -

: = 1023	:(= 444)
= 1022	
→	OB 86 : • OB 86_MDL_ADDR:=444 • OB86_EV_CLASS:=B#16#38 () • OB86_FLT_ID:=B#16#C4 (DP) :

3

S7-300.

(STEP 7).

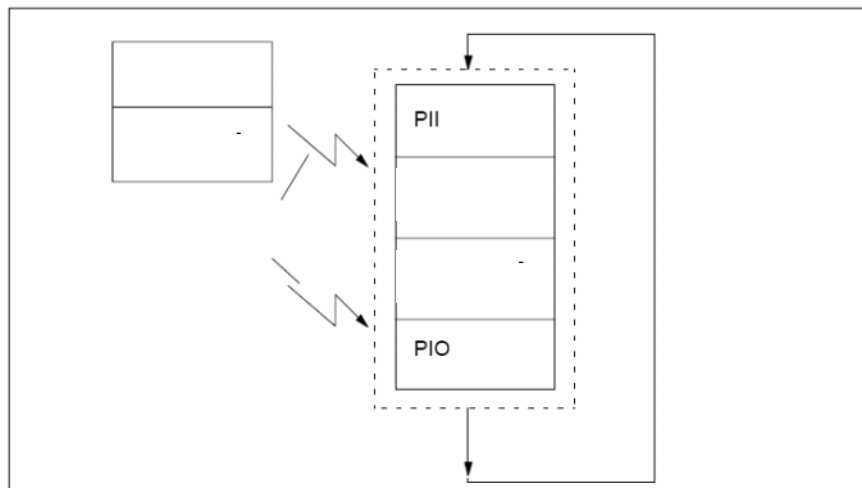
		.
3.1		3-2
3.2		3-3
3.3		3-10
3.4		3-14
3.5		3-16
3.6		3-16

- STEP 7,
 - SFC/SFB,
 - IEC, STEP 7
- S7300.

3.1

(PII PIO)	3.2
S7 (CPU318-2)	(S7-300) (. 3-3)
PROFIBUS DP	3.2
MPI	STEP 7
	3.4 3.5

. 3-1



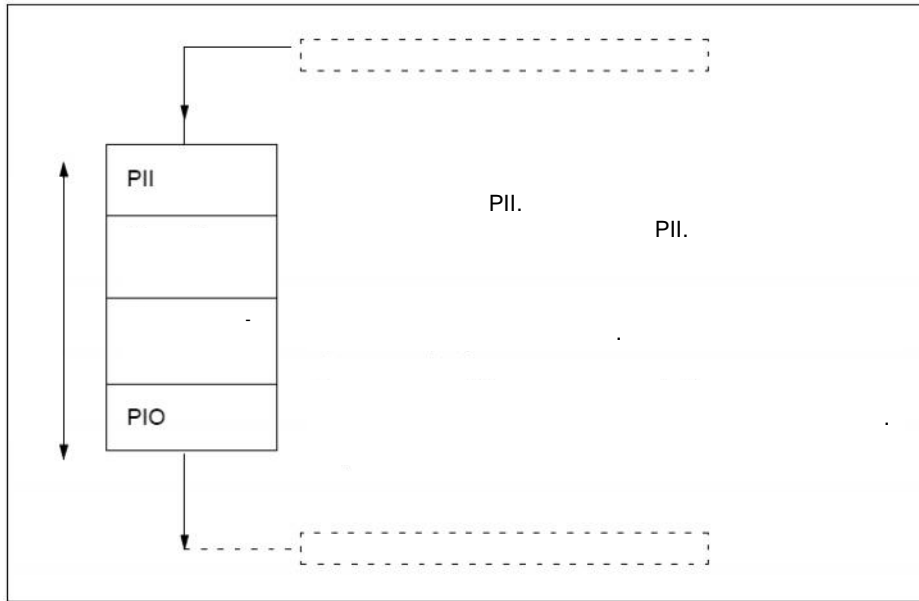
. 3-1

-
- (. 3.4)
- (. 3.4)
- MPI

3.2

	<ul style="list-style-type: none"> • • 1.4.1 CPU 312 IFM. • / 1.4.4 CPU 314 IFM.
PROFIBUS	CPU 31x-2 DP

. 3-2

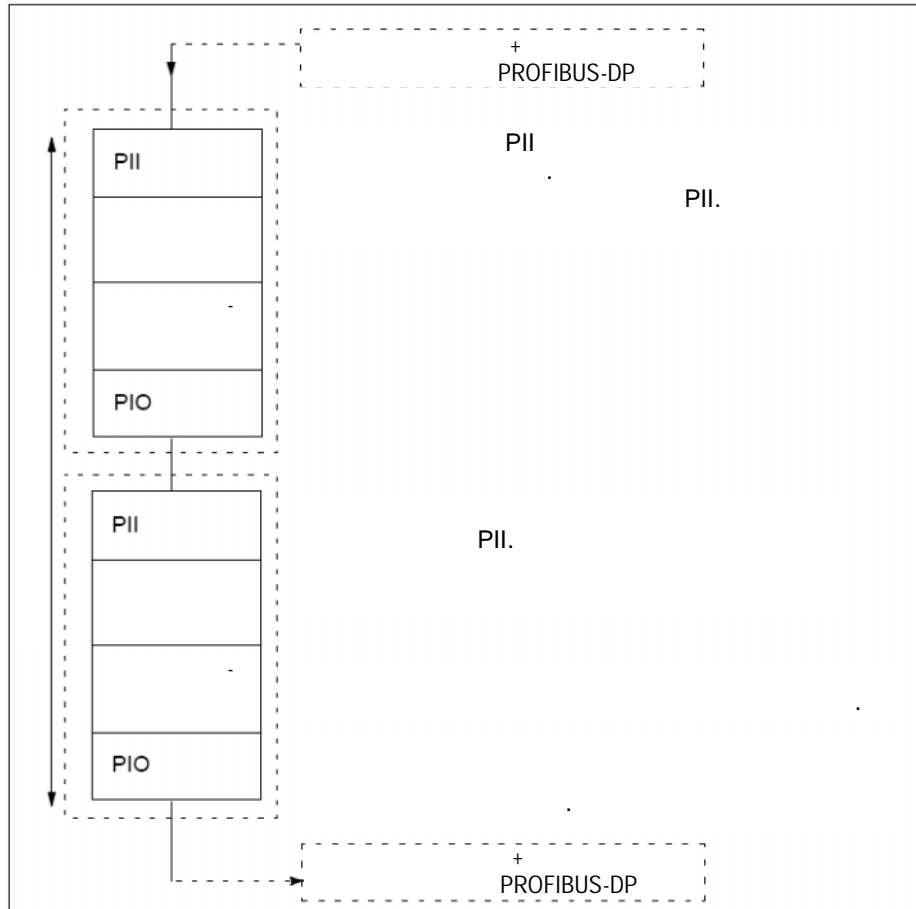


. 3-2

() :

- 1 +
- 1 +
- 1 +
- 1 +
-
- S7
-

. 3-3



. 3-3

- ()
- :
- 2 +
- 2 +
- 2 +
- 2 +
- 2 CPU 31x-2 DP + PROFIBUS -
- DP (CPU 31x-2 DP)
- S7 +
-

. 3-1

- , , ,
- : , ,
-

. 3-1

	CPU 312 IFM	CPU 313	CPU 314	CPU 314 IFM	CPU 315	CPU 315-2 DP	CPU 316-2 DP	CPU 318-2
	600 1200	540 1040	540 1040	770 1340	390 820	500 1030	500 1030	200

. 3-2

(“ ”).

(= PI)

K + PI “0”_A
 + PI “1 - 3”_B
 + PI DP_D
 =

. 3-2

		CPU 312 IFM	CPU 313	CPU 314	CPU 314 IFM	CPU 315	CPU 315-2 DP	CPU 316-2 DP	CPU 318-2
K		162	142	142	147	109	10	10	20
A	"0"	14,5	13,3	13,3	13,6	10,6	20 ()	20 ()	6
B	"1" - "3"	16,5	15,3	15,3	15,6	12,6	22 ()	22 ()	12,4
D	DP DP	-	-	-	-	-	12 ()	12 ()	1

:

SFB/SFC.

. 3-3

. 3-3

	CPU 312 IFM	CPU 313	CPU 314	CPU 314 IFM	CPU 315	CPU 315-2DP	CPU 316-2 DP	CPU 318-2
	1,23	1,19	1,15	1,15	1,15	1,19	1,19	1,0

S7

CPU 318-2

S7

S7
3.3

10

S7

. 3-4

S7

	312 IFM	313	314	314 IFM	315	315-2DP	316-2DP
S7 (10)	x 10	S7 x 8					

PROFIBUS-DP

PROFIBUS-DP CPU 315-2 DP/316-2DP 5%.
 DP CPU 318-2 PROFIBUS-

CPU 312-IFM 314-IFM 10%.
 DB

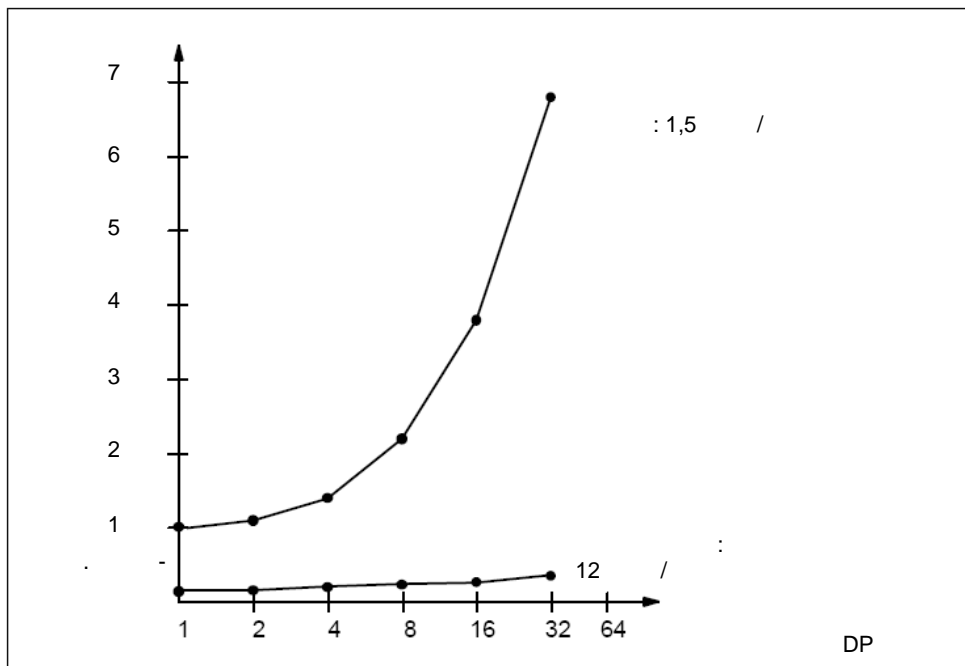
DB . 3-5 SFB.
 . 3-5 SFB

CPU 312 IFM/314 IFM	DB	SFB
(SFB 30) IF	100	220
IF (SFB 29)	150	300
IF - (SFB 38)	100	230
(SFB 39) IF	100	150

• :
 • :
 • : 10
 20 . :
 • :
 • :

PROFIBUS

PROFIBUS, STEP 7
 STEP 7
 PG
 (.
 STEP 7).
 DP . 3-4.
 4 ,



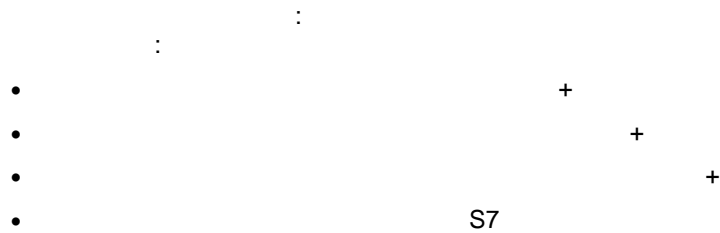
. 3-4
 1,5 / 12 /
 PROFIBUS -DP
 PROFIBUS
 =

. 3-6

. 3-6

	312 IFM	313	314	314 IFM	315	315-2 DP	316- 2DP	318-2
	840	700	700	730	480	590	590	340
	...	880	880	1000	700	860	860	450
...	680	700	460	560	560	350
	550	560	370	450	450	260
	360	380	280	220	220	260
/ /	...	740	740	760	560	490	490	130/ 155/ 285

3.3



1

S7-300

- 1 CPU 314
- 2 SM 321 DI 32DC 24 (4 PI)
- 2 SM 322 DO 32_DC 24 /0,5 A (4 PI)

1,5

- $$\frac{147}{147} + 8 - 13,6 = 0,26$$
- $$\frac{147}{147} + 8 - 13,6 = 0,26$$

- $$1,5 \cdot 1 = 1,5$$
- $$1,5 = 1,8$$

- $$30 \cdot 8 = 240$$
- $$0,26 + 0,26 + 1 + 1,8 = 3,32$$
- $$\frac{3,32}{240} = 0,0138$$
- $$0,0138 \cdot 10 = 0,138$$
- $$0,138 \cdot 10 = 1,38$$
- $$1,38 + 0,24 = 1,62$$

- $$+0,24 = 3,56$$
- $$= 0,26 + 0,26 + 1 + 1,8 +$$

- 2 x +
- 2 x +
- 2 x +
- 2 x +
- S7 +
-

x 2 +

: 3,34 x 2 +

2

S7-300

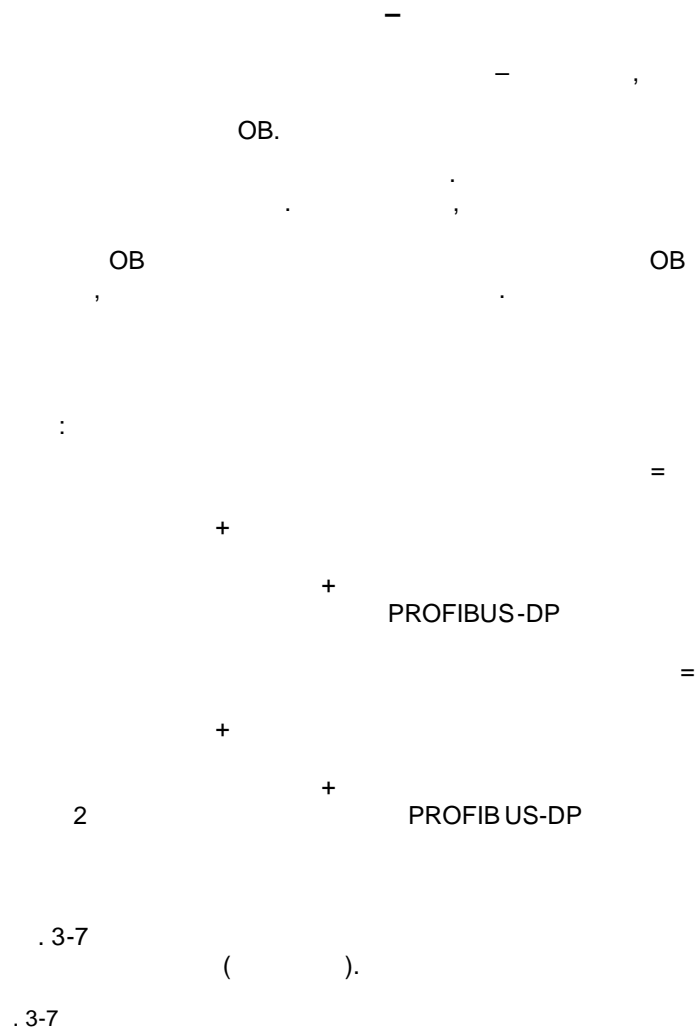
- 1 CPU 314
- 4 SM 321 DI 32DC 24 (4 PI)
- 3 SM 322 DO 16_DC 24 /0,5 A (2 PI)
- 2 SM 331 AI 8_12 ()
- 2 SM 332 AI 4_12 ()

2 . 1,15,
2,3 . .56 -

S7.

-
- : 147 + 16 13,6 = **0,36**
- : 147 + 6 13,6 = **0.23**
-
- : **1**
-
- : **2,3**

3.4



CPU	.	.
312 IFM	0,6	1,5
313	0,5	1,1
314	0,5	1,1
314 IFM	0,5	1,1
315	0,3	1,1
315-2 DP	0,4	1,1
316-2DP	0,4	1,1
318-2	0,23	0,27

. 3-8 ().

. 3-8

CPU	.	.
312 IFM	...	...
313	0,6	1,3
314	0,6	1,3
314 IFM	0,7	1,3
315	0,5	1,3
315-2 DP	0,6	1,3
316-2DP	0,6	1,3
318-2	0,32	0,38

:

▪ + =

▪ + =

- ,

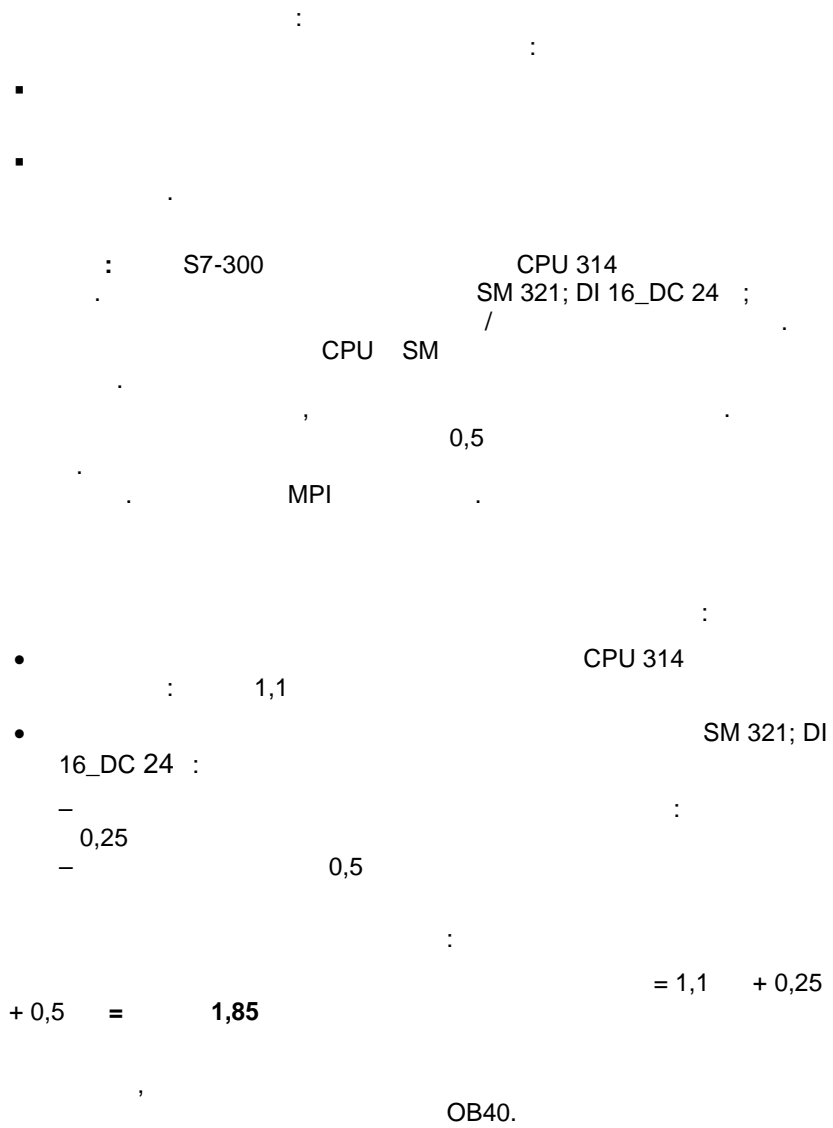
OB40.

/

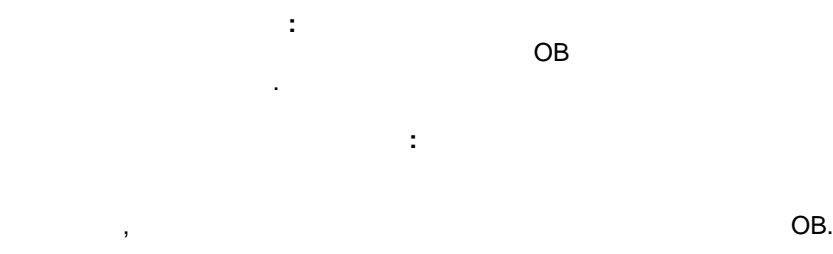
-/

OB.

3.5



3.6



. 3-9

().

. 3-9

CPU		
314	...1/+0,4	±0,2
314 IFM	...1/+0,4	±0,2
315	...1/+0,4	±0,2
315-2 DP	...1/+0,4	±0,2
316-2DP	...1/+0,4	±0,2
318-2	...0,8/+0,38	±0,04

CPU, STEP 7

4

- CPU 318-2) (
- ,

4.1	DP	318-2 312 IFM ... 316-2	4-2
4.2		312 IFM ... 318	4-6

(

CPU 318 -2)

"General" (" ")

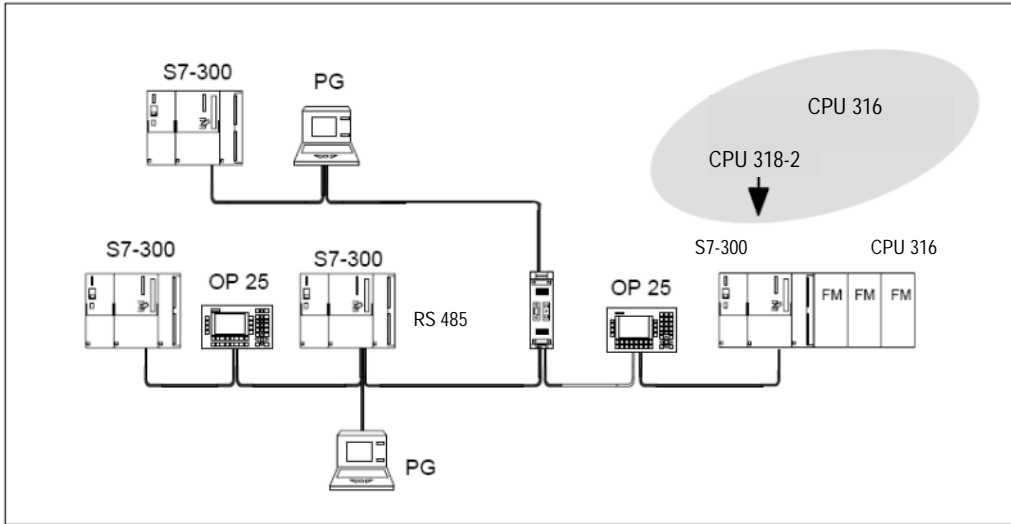
(" ")

("General"
STEP 7).

MPI

CPU 318-2	CPU 312IFM ... 316-2DP
<p>(FM/CP) MPI</p> <p>FM/CP</p> <p>S7...300 CPU</p> <p>) FM/CP</p> <p>MPI FM/CP</p> <p>FM/CP</p> <p>MPI</p>	<p>MPI</p> <p>MPI.</p> <p>FM/CP</p> <p>S7...300</p> <p>MPI, FM/CP MPI</p>

MPI. S7-300 FM/CP CPU 312 IFM ...
 316 CPU 318-2. . 4-1, . 4-4.



. 4-1

- STEP 7. CPU 316 CPU 318-2
- /
- CPU 318-2 (= MPI FM) FM/CP,
- FM/CP /
- (-)
- (:

CPU 318-2	CPU 312IFM ... 316-2DP
CPU 318-2 STOP	, . . RUN STOP.

CPU 318-2	CPU 312IFM ... 316-2DP
<p>CPU 318-2 32 32</p> <p>MPI/DP 16</p> <p>DP</p> <ul style="list-style-type: none"> • PD/OP • S7 • S7 • PD 	<ul style="list-style-type: none"> • PD • OP • S7. <p>PD/OP/ S7</p> <p>S7.</p> <p>315-/316-2</p>

4.2

312 IFM ... 318

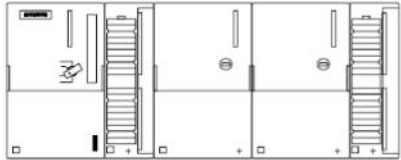
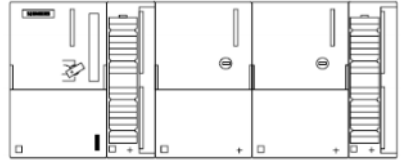
:

CPU			
CPU 313	6ES7 313-1AD03-0AB0	1.0.0	01
CPU 314	6ES7 314-1AE04-0AB0	1.0.0	01
CPU 315	6ES7 315-1AF03-0AB0	1.0.0	01
CPU 315-2	6ES7 315-2AF03-0AB0	1.0.0	01
CPU 316-2	6ES7 316-1AG00-0AB0	1.0.0	01

:

- 16 :
- 256 - 6ES7 951-1KH00-0AA0
- 1 - 6ES7 951-1KK00-0AA0
- 2 - 6ES7 951-1KL00-0AA0
- 4 - 6ES7 951-1KM00-0AA0
-

MPI

:	:
6ES7312-5AC01-0AB0,	01
6ES7313-1AD02-0AB0,	01
6ES7314-1AE03-0AB0,	01
6ES7314-5AE02-0AB0,	01
6ES7315-1AF02-0AB0,	01
6ES7315-2AF02-0AB0,	01
6ES7316-1AG00-0AB0,	01
6ES7316-1AG00-0AB0,	01
STEP 7 V4.02	STEP 7 < V4.02
<p style="text-align: center;">MPI, CP/FM S7300 STEP 7</p> <p style="text-align: center;">MPI CP/FM</p> <p>S7-300 MPI CPU; MPI + 1 MPI + 2</p> <p style="text-align: center;">CPU CP CP</p>  <p style="text-align: center;">MPI MPI "x" M5PI "z"</p>	<p style="text-align: center;">S7...300 CP/FM + 1 MPI CPU; MPI</p> <p style="text-align: center;">MPI + 2 . . .</p> <p style="text-align: center;">CPU CP CP</p>  <p style="text-align: center;">MPI MPI + 1 MPI + 2</p>

MPI

19,2 /

STEP 7 V4.02
MPI 19,2 / .

19,2 / :

6ES7312-5AC01-0AB0,	01
6ES7313-1AD02-0AB0,	01
6ES7314-1AE03-0AB0,	01
6ES7314-5AE02-0AB0,	01
6ES7315-1AF02-0AB0,	01
6ES7315-2AF02-0AB0,	01

CPU 315-2 DP

CPU 315-2 DP	≤ 6ES7 315-2AF03-0AB0 STEP 7 < V 5.x	6ES7 315-2AF03-0AB0 STEP 7 V 5.x
/ DP		
	. 2-1 . 2-8	. 2-2 . 2-9

CPU 312 IFM	6ES7 312-5AC02-0AB0	1.1.0	01
CPU 313	6ES7 313-1AD03-0AB0	1.1.0	01
CPU 314	6ES7 314-1AE04-0AB0	1.1.0	01
CPU 314 IFM	6ES7 314-5AE03-0AB0	1.1.0	01
CPU 314 IFM	6ES7 314-5AE10-0AB0	1.1.0	01
CPU 315	6ES7 315-1AF03-0AB0	1.1.0	01
CPU 315-2 DP	6ES7 315-2AF03-0AB0	1.1.0	01
CPU 316-2 DP	6ES7 316-2AG00-0AB0	1.1.0	01

... PD, OP
S7.

PD/OP/ S7 S7 (. 1.2).

SFB SFC

CPU 318-2

			...
SFB 52			221
	DP		111
SFB 53			158
	DP		284
			110
			110
SFB 54			90
	(
	OB, /		
	1, OB1)		170
			176
	DP,		
	(1, OB 40,		140
	83, 86)		
	(OB 55 ... OB 57, OB		
	82)		
	(
	,		
	1, OB 40,		
	OB 82)		

			...
SFC 100*	TOD	1 274	STEP 7
		2 84	
	TOD	3 275	
SFC 105*		0 117-1832	
		1 138-2098	
		2 139-1483	
		3 140-2128	
SFC 106		1 123-1376	
		2 126-1334	
		3 125-1407	
SFC 107		257	
		101	
		271	
SFC 108		115	

* 0:

SYS_INST

1 2:

).

3:

)

(

(

CMP_ID.

SFB

BUSY ()

```

:
BUSY 0 1.
:
BUSY 1.
:
BUSY 1 0.

```

SFC

SFC.

STEP 7.

DP, (/)

<p>CPU 315...2 DP CPU 316...2 DP CPU 318...2 DP</p> <p>(< 3.0)</p>	<p>CPU 318...2 DP</p> <p>(> 3.0)</p>
<p>SFC14 SFC15</p> <p>/</p>	<p>SFC14 SFC15</p> <p>(, L</p> <p>PEW... T PAW...).</p>

...) STEP 7 "Monitoring time for ..." ("

:
 ■ "
 ■ "
 S7-300. ' ,

CPU 31x-2DP CPU 318-2	DP DP
DP "Transfer of parameters to modules" (" "). , DP).	DP 2 . (

FM

ET 200M (CPU 31x -2
DP)

FM 353/354/355 ET 200M IM 153-2
 , FM ET 200M,
 () ET
 200M.
 : FM, ET200 M

:

	312IFM/314IFM	
DB , . DB, SFC 22 "CREAT_DB",	DB ()	DB, ,
	<ul style="list-style-type: none"> • SFC22 "CREAT_DB", • 	

: > 5

> 5 .

-
-
-

OB35

/

0, 4.

CPU 312 IFM 314 IFM:

1. : Online
 View ▶ Online
 Online nodes
 nodes
 online nodes. Online
 ▶ Show
2. MPI ()
3. Function Block.
4. Edit ▶ Mark all.
5. File ▶ Delete DEL.
6. MPI
7. ▶ Copy RAM to ROM.
 " - "

SFB "DRUM" -

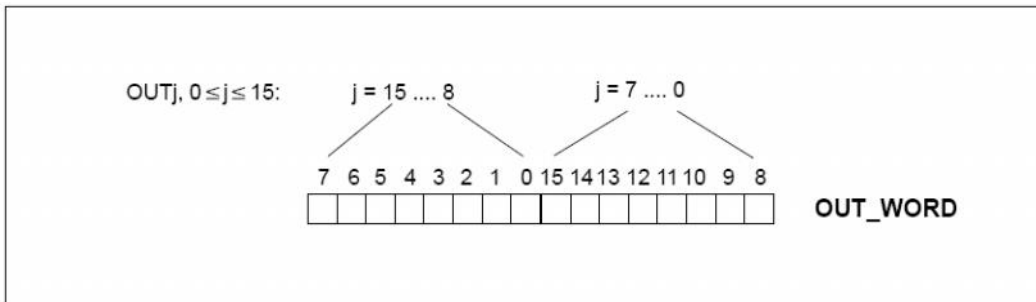
SFB "DRUM"

OUT -WORD

OUT_WORD.

CPU 312 IFM	6ES7312-5ACx2-0AB0,
1.0.0	
CPU 313	6ES7313-1AD03-0AB0,
1.0.0	
CPU 314	6ES7314-1AEx4-0AB0,
1.0.0	
CPU 314 IFM	6ES7314-5AEx3-0AB0,
1.0.0	
CPU 315	6ES7315-1AF03-0AB0,
1.0.0	
CPU 315-2 DP	6ES7315-2AFx2-0AB0,
CPU 316	6ES7316-1AG00-0AB0

OUT_j, 0 ≤ j ≤ 15:



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S7-300:

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S7-300

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S7-300.

IEC 1131

IEC 1131, S7-300
2.

CE

EC

(EN),

“

”:

- 89/336/EEC “
- 73/23/EEC “

” (

)

,

” (

)

,

:

Siemens Aktiengesellschaft
Automation Group
A&D AS RD 4
P.O. Box 1963
D-92209 Amberg Federal Republic of Germany

SIMATIC

		:
	EN 50081-2 : 1993	EN 50082-2 : 1995

S7-300

B

EN 55011.

B

S7-300

UL

UL
Underwriters Laboratories:
508, 116536

CSA

CSA
(CSA)
C22.2 142, LR 48323

FM

FM
3611, I, 2, Factory Mutual Approval Standard,
A, B, C, D.



S7-300.

S7-300.

PNO

CPU	...	
	DP	DP
315-2 DP	Z00349	Z00258
316-2DP	*	*
318-2	*	*

*

B

300.

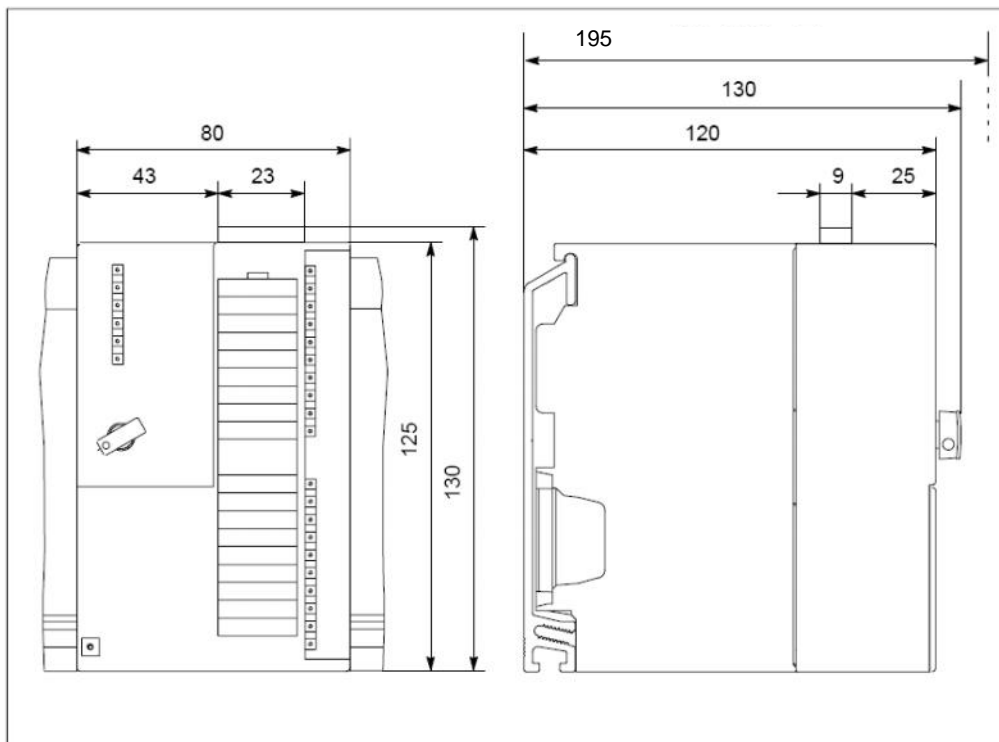
S7 -

S7 -300
S7 -300

CPU 312 IFM

. B-1

CPU 312IFM.



. B-1

CPU 312IFM

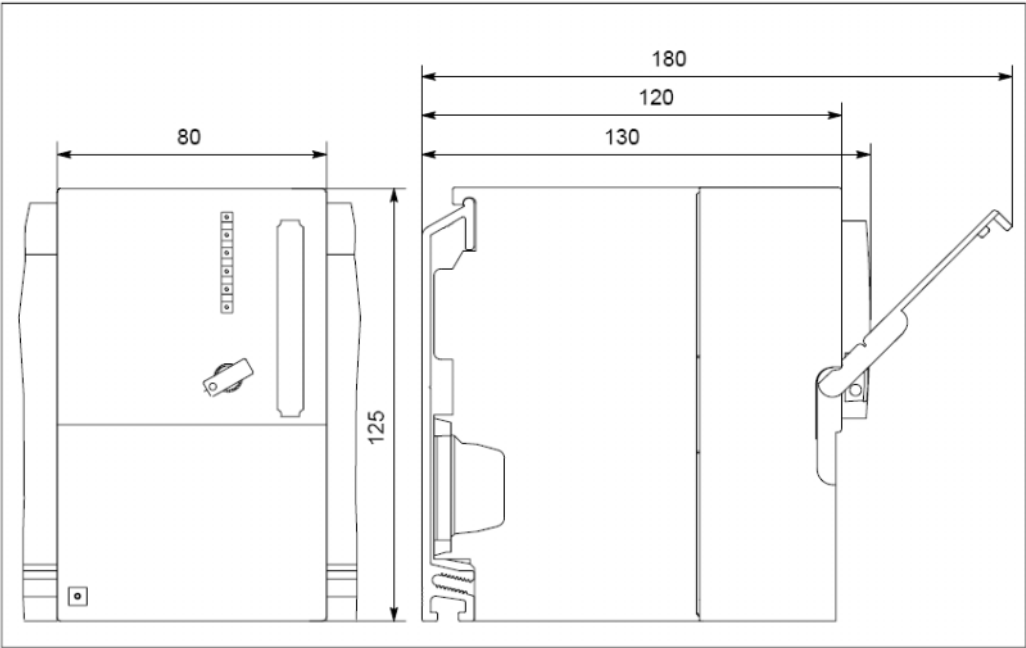
CPU 313/314/315/315-2DP/316-2 DP

. B-2
313/314/315/315-2 DP/316-2 DP.

CPU

(. 1).

CPU 315-2 DP



. B-2

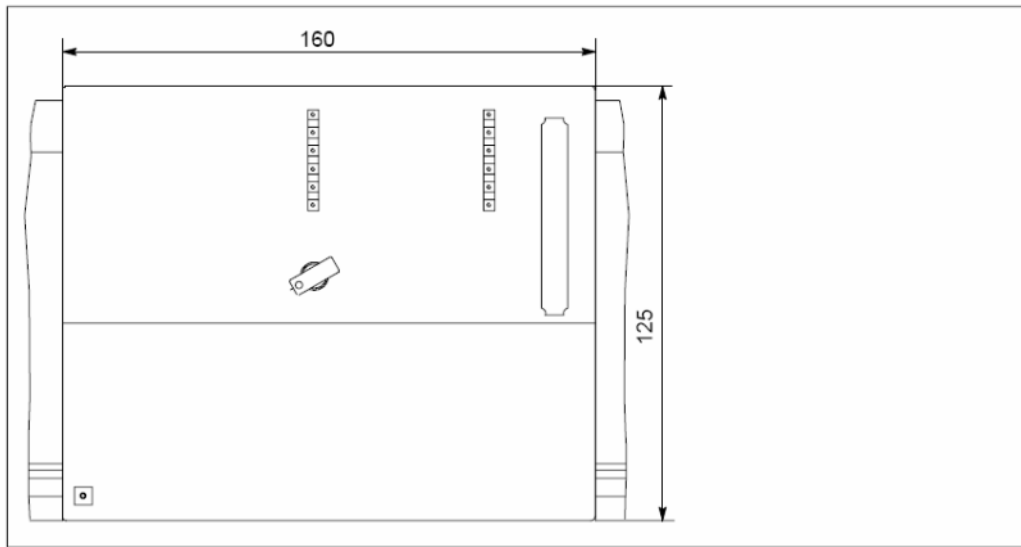
CPU 313/314/315/315 -2 DP/316-2DP

CPU 318-2

. B-3

CPU 318 -2,

. B-2.



. B-3

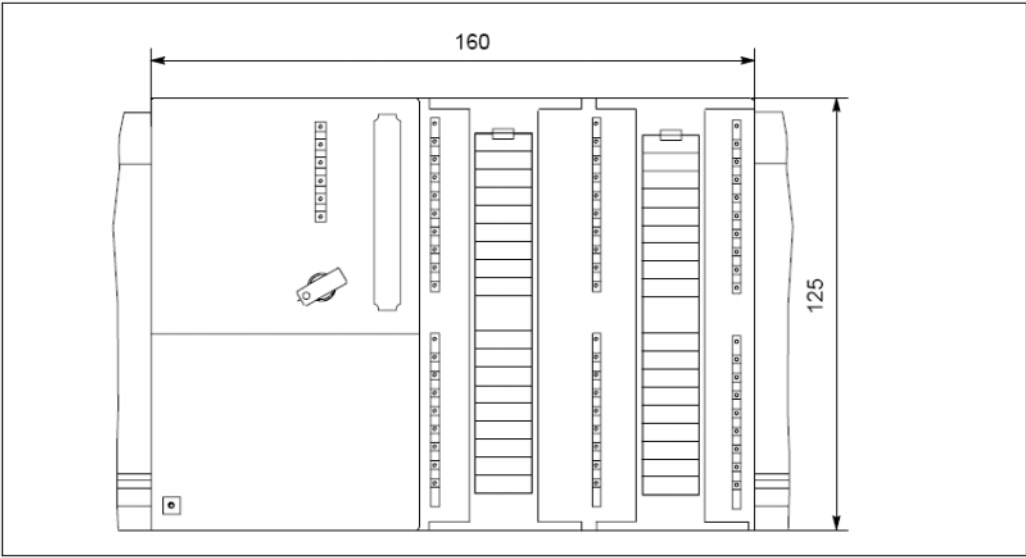
CPU 318 -2

CPU 314 IFM,

. B-4

. B-5.

CPU 314IFM,



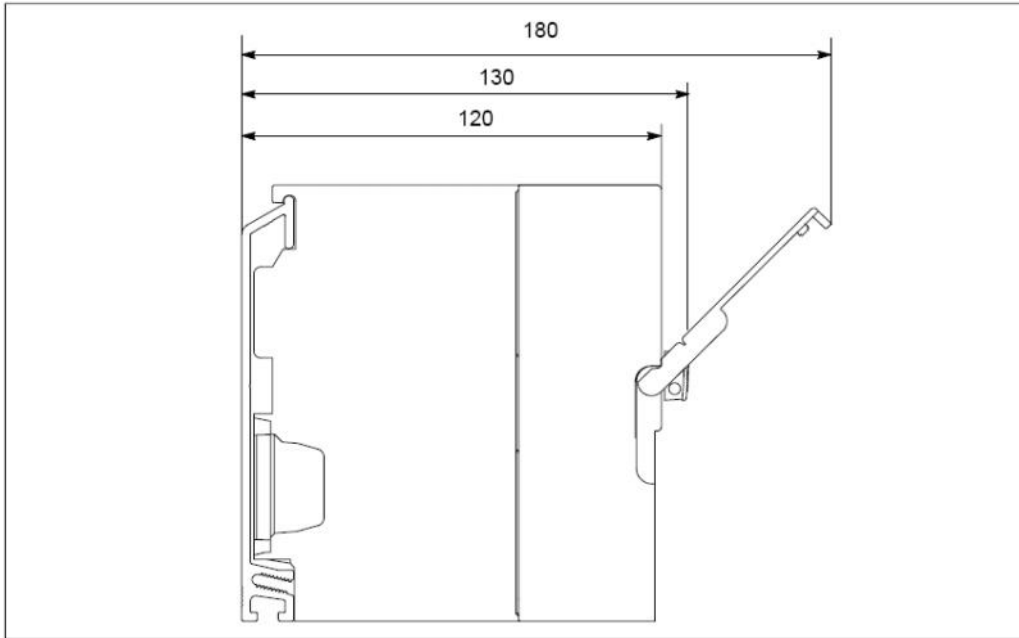
. B-4

CPU 314IFM,

CPU 314 IFM,

. B-5

CPU 314 IFM,



. B-5

CPU 314 IFM,

C

STL	7) (STEP
CP	
CPU	
DB	
FB	
FC	
FM	
GD	
IM	
IP	/
LAD	(STEP 7)
FO	-
M	
MPI	
OB	
OP	
PIO	
PII	
PG	
PS	
SFB	
SFC	
SM	



- : I 12.1; MW 25, DB 3).

) (

SIMATIC S7

→CPU

().

(1).

S7-300

SIMATIC S7
STEP 7 (.)

"Compress" (" ")

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(,
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"
STEP 7 (,
/).

CP

→

CPU

S7

, ,

(DB)

FB.

L

→

(GSD-)

EN 50170,
2, PROFIBUS

GSD.

→

DP

DP,
EN 50170, 3.

DP

DP PROFIBUS
PROFIBUS-DP EN 50170, 3. PROFIBUS

(
)

STOP :

OB

(
(OB ,), STEP 7),

() : STOP, OB,

/ /

FB

→

FC

→

-

-

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“Force” (“ ”)

(, S7.)

(

STEP 7).

“Unforce”

(“ ”),

“Force”

), (

(FC)

IEC 1131 -3

IEC 1131-3
.FB

(FB)

GD

GD

▪

GD-

▪

GD-

GD

GD.

GD

GD

GD ID.

GD

GD

GD,

OB).

I,

Q,

(FC, FB,
M,
(DB).

(CFB).

“ ”

()

(

)

STEP 7.

→MPI

→

10

(, FB).

SIMATIC S7.

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(TOD)
SIMATIC S7.

() (, 9:50,
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CP,

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- 1.
- 2.

STEP 7

(

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STEP 7.

SFC

STEP 7,

PG

→

()

→

S7

26

(”

”),

OB.

OB

OB.

OB,

OB

()

PROFIBUS-DP

EN 50170, 3 (),
23 .

PROFIBUS -DP,

/ .

() - ,

;/ ()

SIMATIC.

(/)

GD-

→

, / .

(STOP , RUN

(OB 1)
).

OB 100 (

OB1.

STEP 7,

STOP

RUN.

STOP

RUN.

▪

:

▪

▪

S7 (CPU 312 IFM)

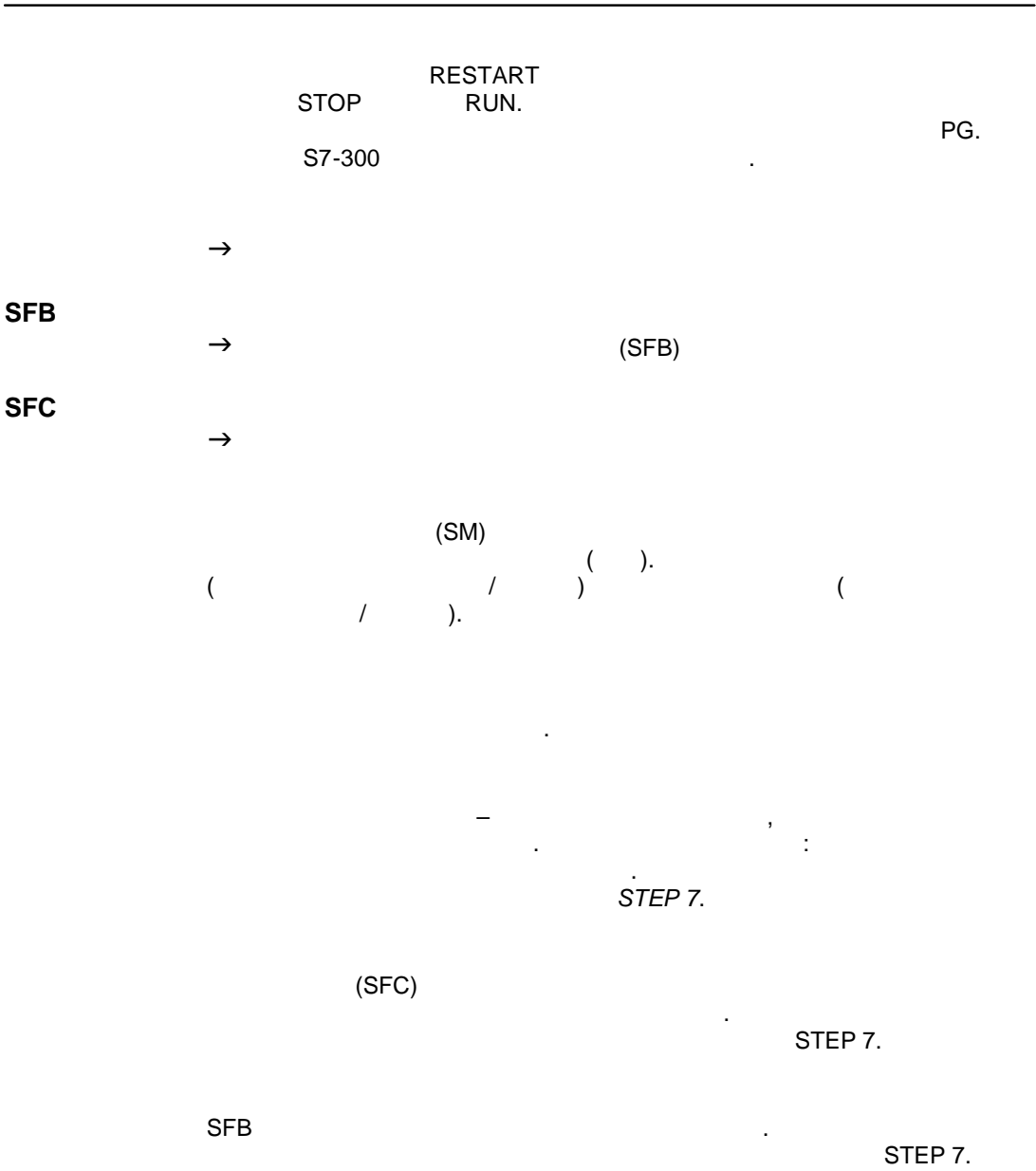
▪

S7

▪

()

, (. .)
).



,) (, ,)

S7-300.

- :
- S7-300
-
-

STEP 7

SIMATIC S7.

STOP.

(SFC 44).

“ ”

STEP 7
(,)
(,).

→



→

(/)

/

SIMATIC

STEP 7

(FUP, STL)

→

3-3					CPU 31x-2,
			-15	2-4	
			-9		, 1-5
	S7				-1
2 DP, 1-66					-1
BATF, 1-22					
BUSF, 2-6, 2-19		S7, 1-12			
CONT_C, CPU 314 IFM, 1-43					1 - 3, 2-25
CONT_S, CPU 314 IFM, 1-43					
CPU 312 IFM, 1-25				-1 -	, 1-5
CPU 312 IFM, 1-25				,	-1
CPU 312 IFM, 1-25				,	-2
CPU 313, 1-37				,	-4
CPU 314 IFM, 1-43				,	-3
CPU 314 IFM, 1-43					CPU 312 IFM, 1-
CPU 314 IFM, 1-43				36	
CPU 314, 1-40					, 1-36
CPU 315, 1-60					
CPU 315-2 DP, 1-63				/	, 3-17
CPU 315-2 DP,					
DP, 2-31				,	-4
CPU 316-2 DP, 1-66					, 3-8
CPU 318-2, 1-69					, 3-8
CPU 31x-2				/	
CPU 31x-2, 2-13					, 1-25
CPU 31x-2, 2-14					, 1-43
CPU 31x-2, 2-5					, CPU 312 IFM, 1-25
CPU 31x-2,					, CPU 314 IFM, 1-43
DP, 2-18				/	, 1-26, 1-44
CPU 31x-2,				/	
DP, 2-30					
GSD-					-4
http://www.ad.siemens.de/simatic-cs					, B-1
http://www.ad.siemens.de/simatic-cs					, B-1
IEC 1131, A-1					-9
MPI,					-9
OB 40,					DP
					DP, 2-5
OB,					DP,
PG-/OP-, 1-12					-5
PG-/OP-, 1-12					PROFIBUS, 2-27
PNO,					, A-3
PROFIBUS-DP,					, 1-12
PULSEGEN, CPU 314 IFM, 1-43					-7
S7-					-3
S7-					, S7
SF, 1-22					-10
SINEC L2-DP.					
UL, A-2					
					CPU 31x-2,
					-1
					, 2-19
					, CPU 31x-2, 2-10, 2-
					, 2-19
22					, 2-6
					, 2-6
					DP, 2-4
					- Siemens,
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