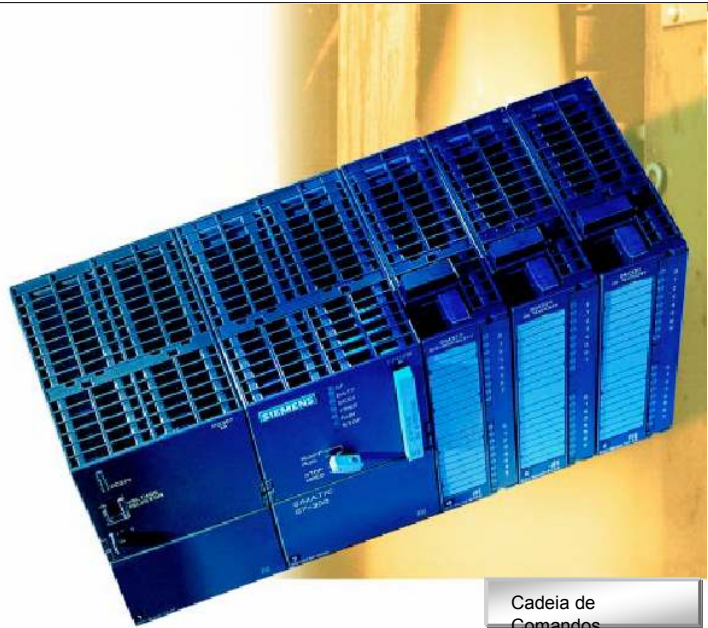


Elemento de Processamento de Sinais - PLC

FESTO

- Instalação
- Componentes
- Software



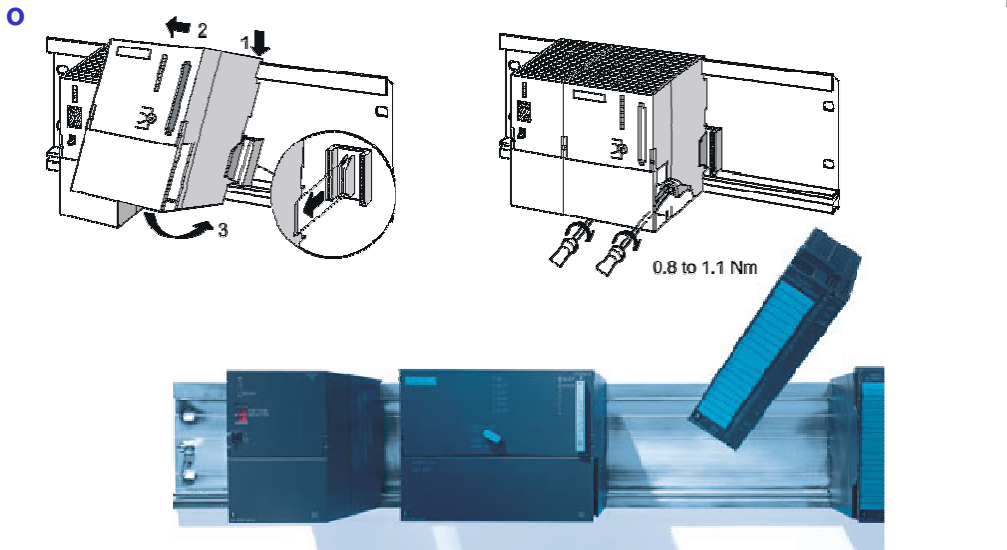
Cadeia de Comandos

Didactic

24

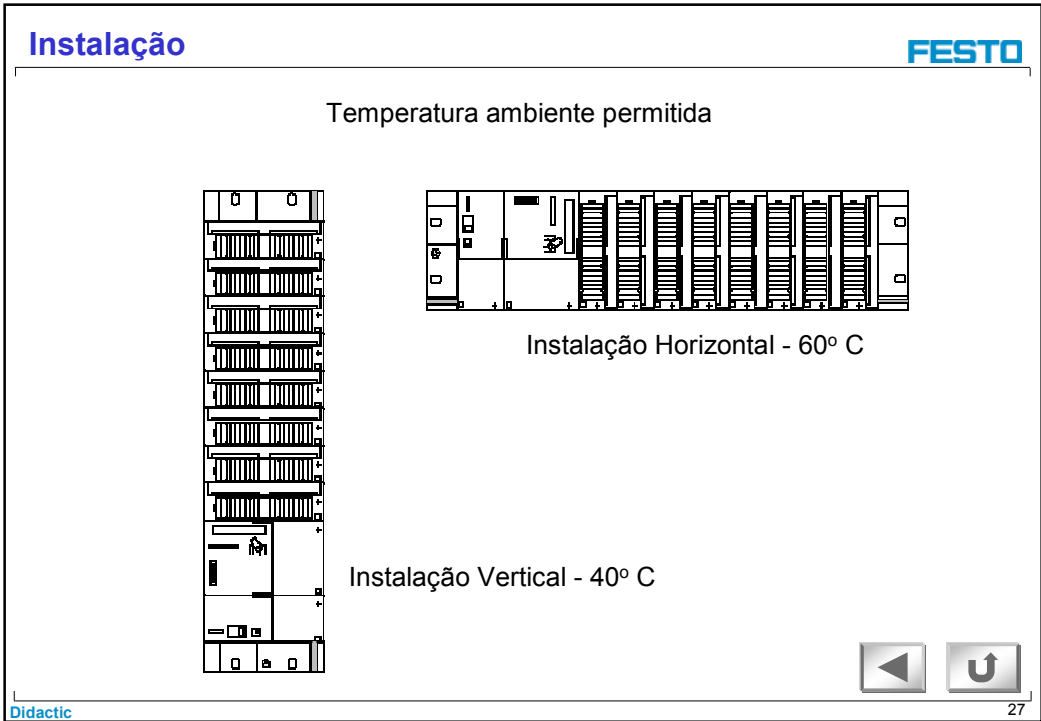
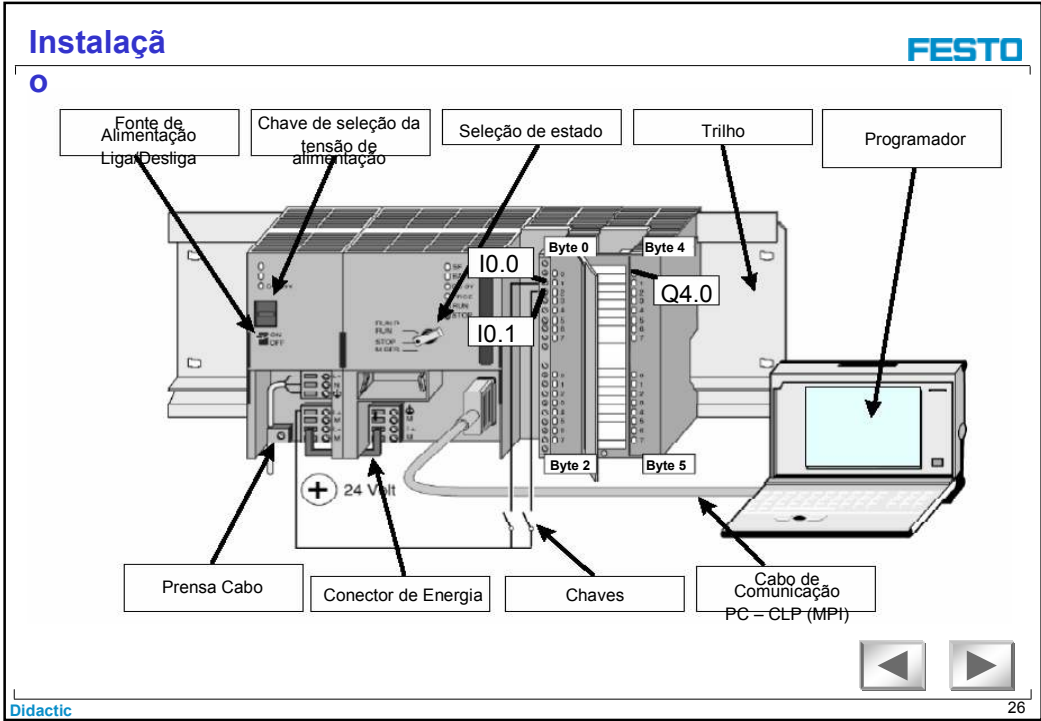
Instalação

FESTO



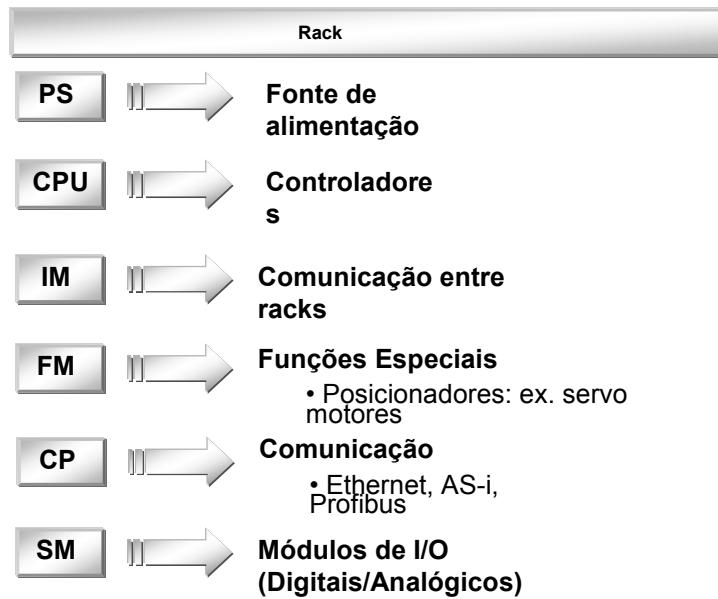
Didactic

25



Componentes

FESTO



Didactic

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Controladores

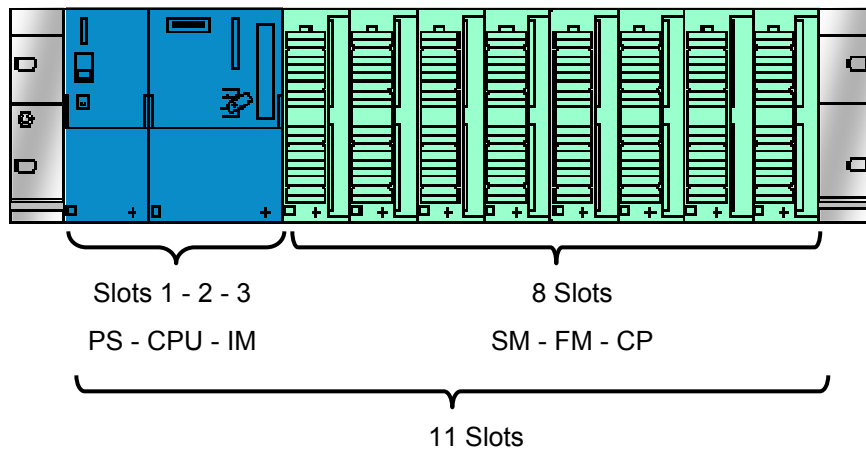
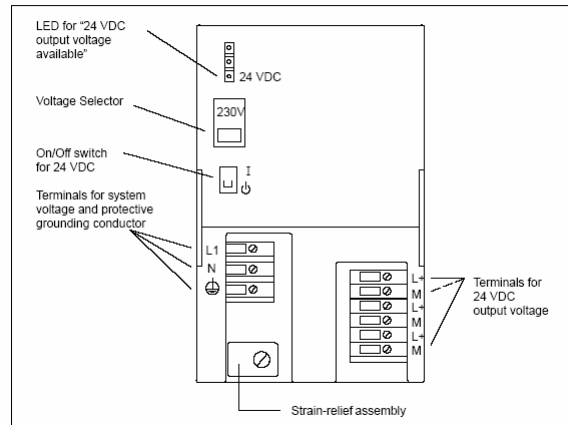
FESTO

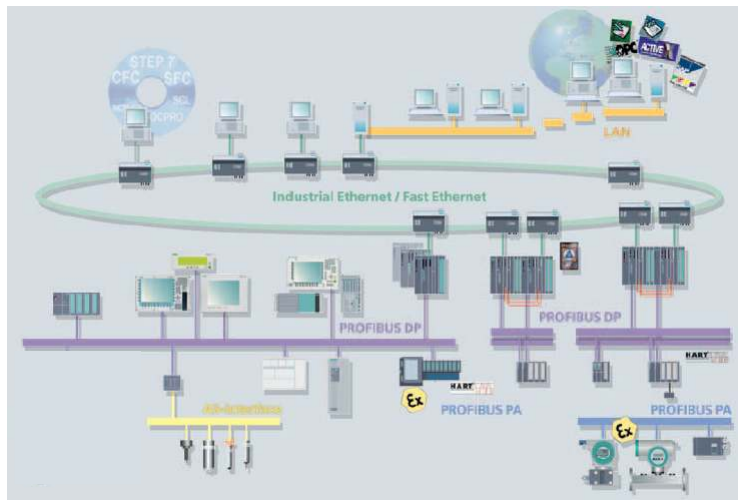
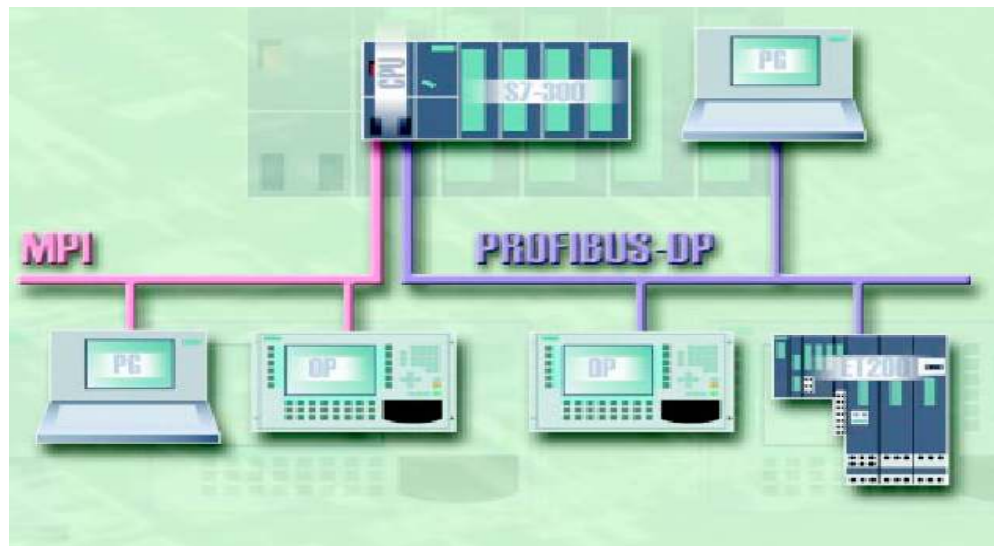
SIMATIC S7-300	CPU 312C	CPU 313C	CPU 314	CPU 315-2 DP	CPU 315F-2 DP
Main memory Charge memory via MMC	16 Kbyte 64 Kbyte to 4 Mbyte	32 Kbyte 64 Kbyte to 4 Mbyte	48 Kbyte 64 Kbyte to 8 Mbyte	128 Kbyte 64 Kbyte to 8 Mbyte	170 Kbyte ¹⁾ 64 Kbyte to 4 Mbyte
Processing times (µs) Bit/word/fixed-/floating-point	0.2/1.5/30	0.1/0.5/3.5/15	0.1/0.5/3.5/15	0.1/0.5/3.5/15	≥ 0.1 ms
Timers/Counters	128/128	256/256	256/256	256/256	256/256
Address range Digital Channels Analog Channels	266 64	1016 253	1024 256	1024 256	2000 372
Interfaces MPI PROFIBUS DP P/P Communication	■ — —	■ — —	■ — —	■ ■ —	■ ■ —
Integral inputs/outputs DI/DO AI/AO	10/6 —	24/16 4/2	— —	— —	— —
Integral functions Counters/frequency meters Pulse outputs Control/positioning	2 (10 kHz) 2 (2.5 kHz) —/—	3 (30 kHz) 3 (2.5 kHz) ■/—	— — —/—	— — —/—	— — —/—
Mounting dimensions W x H x D (mm)	80 x 125 x 130	120 x 125 x 130	40 x 125 x 130	40 x 125 x 130	120 x 125 x 130
■ = Usable/present — = Not usable/present				1) Depends on the programming; approx. 34 Kbyte fail-safe instructions possible.	

Didactic

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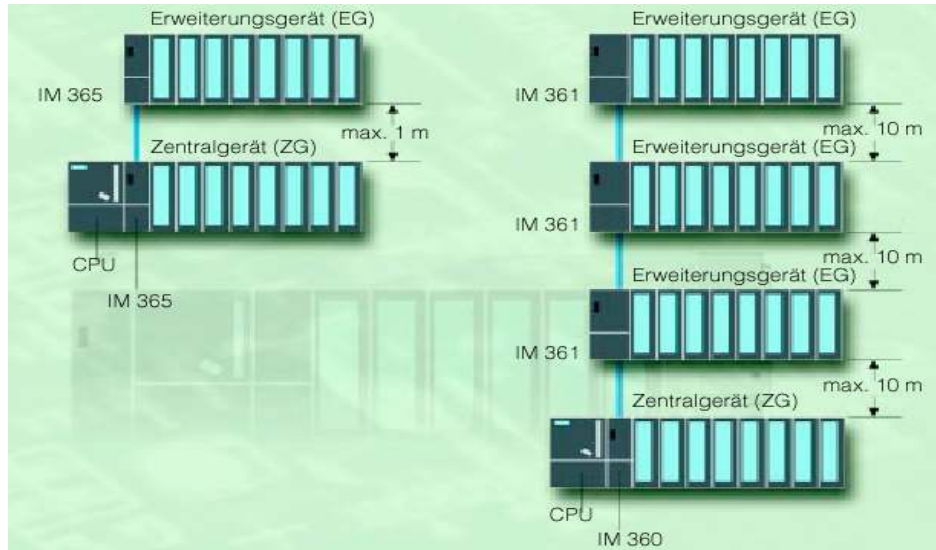
Wiring schematic of the PS 307; 5 A





Comunicação entre RACKs

FESTO



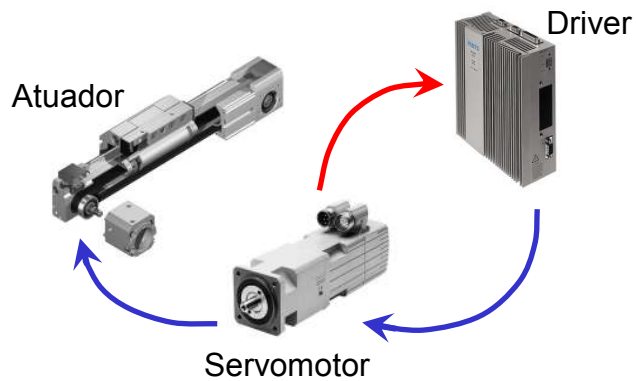
Didactic

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Funções Especiais

FESTO

Servo posicionamento Elétrico



Didactic

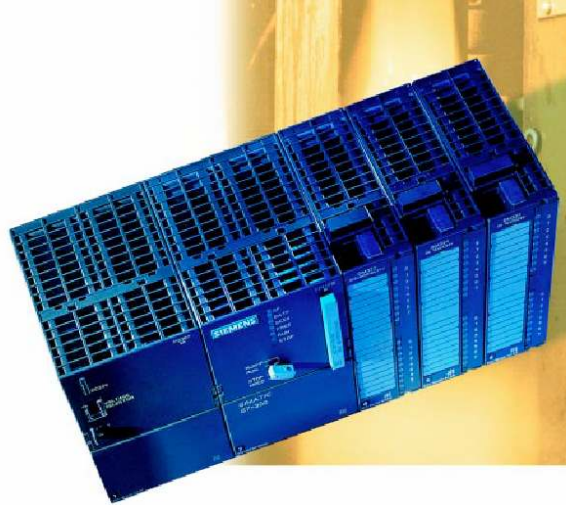
35

Módulos de I/Os

FESTO

Entradas/Saídas

Endereçamento



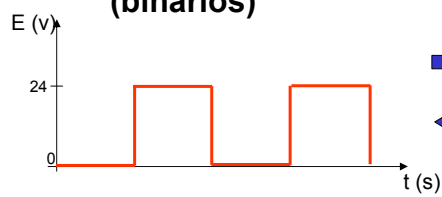
Didactic

36

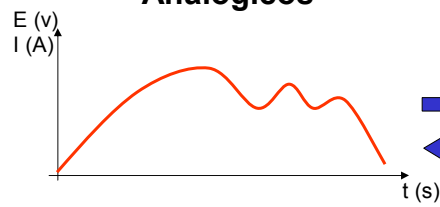
Entradas e Saídas

FESTO

Digitais
(binários)



Analógicos



Didactic

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Endereçamento

FESTO

Operandos	Absoluto	Simbólico
Entrada digital	IB.b	Botão
Saída digital	QB.b	Lâmpada
Entrada analógica	PIW	Pressão
Saída analógica	PQW	Volume
Flag/bit Memory	MB.b	Rele
Temporizador	TW	Temporizador1
Contador	CW	Contador1

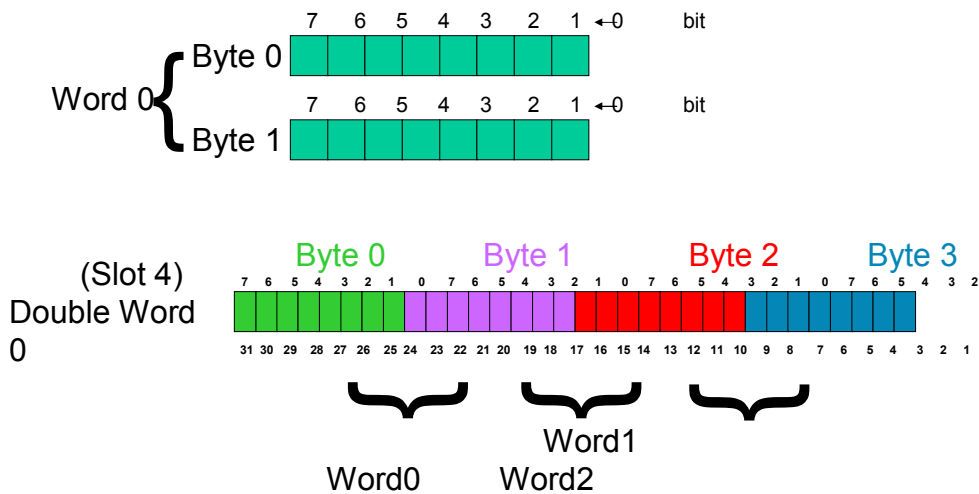


Didactic

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Endereçamento Digital

FESTO



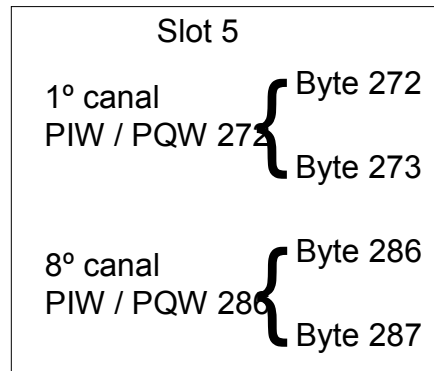
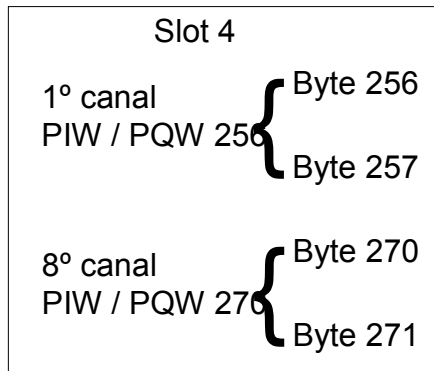
Didactic

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Endereçamento Analógico

FESTO

8 canais por slot → 16 bit's/ canal (2 Bytes)



Didactic

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Endereçamento Digital/ Analógico

FESTO

Rack	Module Start Addresses	Slot number										
		1	2	3	4	5	6	7	8	9	10	11
0	Digital			IM	0	4	8	12	16	20	24	28
	Analog	PS	CPU		256	272	288	304	320	336	352	368
1 ¹	Digital	-		IM	32	36	40	44	48	52	56	60
	Analog	-			384	400	416	432	448	464	480	496
2 ¹	Digital	-		IM	64	68	72	76	80	84	88	92
	Analog	-			512	528	544	560	576	592	608	624
3 ¹	Digital	-		IM	96	100	104	108	112	116	120	124 ²
	Analog	-			640	656	672	688	704	720	736	752 ²


1 Not with the CPU 312 IFM/313
2 Not with the CPU 314 IFM




Didactic


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Software FESTO

e  O Software STEP 7



STEP 7

Didactic 42

Software FESTO

e **Iniciando o STEP 7**

Para Iniciar...  double-click 



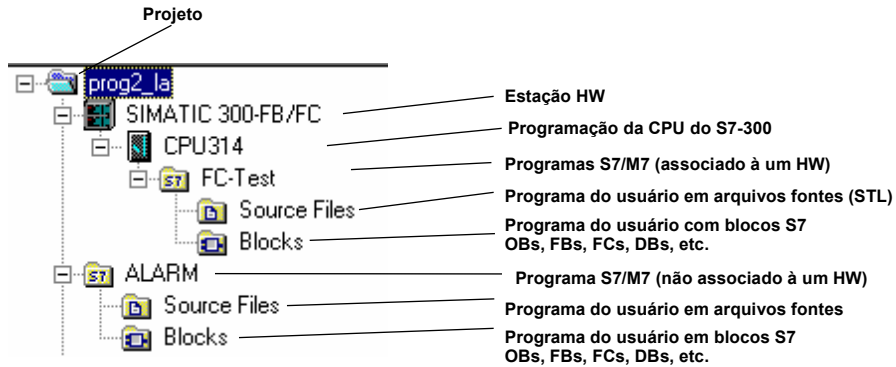


Didactic 43

e

Estrutura de Projeto no SIMATIC Manager



e

Objetos do STEP 7

SÍMBOLO	OBJETO	DESCRIÇÃO	SUBORDINADO A
	Projeto	Representa o ícone Principal: Projeto de Automação	Arquivo
	Estação	Representa um HW configurado, ao qual está subordinado o programa	Projeto
	Módulo Programável (CPU, CP ou FM)	Representa módulo que contém programa ou parametrização	Estação
	Programa S7 (offline)	Contém todos os elementos referentes à programação: blocos, arq. fontes, simbólicos.	Módulo Programável ou Projeto
	Blocos de Programa (Blocks)	Representa o diretório que contém os blocos de programa: OBs, FBs, DBs	Programa S7 (online ou offline)
	Programa S7 (online)	Contém os elementos referentes ao programa on-line.	Módulo Programável ou Projeto
	Bloco	Representa o bloco de programa: OB1, FB10, FC34, ...	Blocos de Programa (online ou offline)
	Tabela de Simbólicos	Representa o editor dos simbólicos	Programa S7 (offline)
	Conexão	Representa o Editor de Conexões de Comunicação	Programa S7 (offline)



e

STEP 7 Wizard: New Project

Which CPU are you using in your project? 2(4)

CPU:	CPU Type	Order No
	CPU312 IFM	6ES7 312-5AC01-0AB0
	CPU313	6ES7 313-1AD01-0AB0
	CPU314	6ES7 314-1AE02-0AB0
	CPU314 IFM	6ES7 314-5AE01-0AB0
	CPU315	6ES7 315-1AF01-0AB0
	CPU614	6ES7 614-1AH01-0AB3

CPU Name: CPU312 IFM(1)

MPI Address: 2

Work Memory 6KB; 0.6ms/kAW; 128DI/0; 10DI/6DO integrated

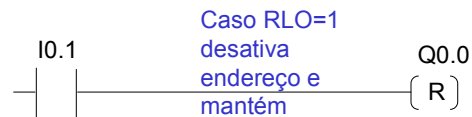
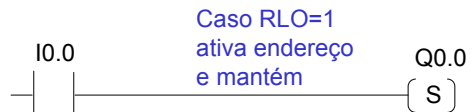
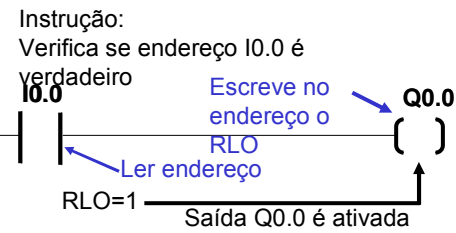
Preview <<

Block Name	Symbolic Name
OB1	Cycle Execution

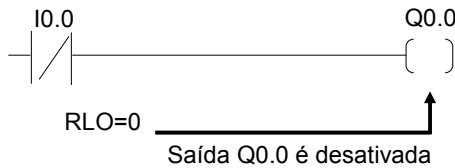
< Back Continue > Make Cancel Help

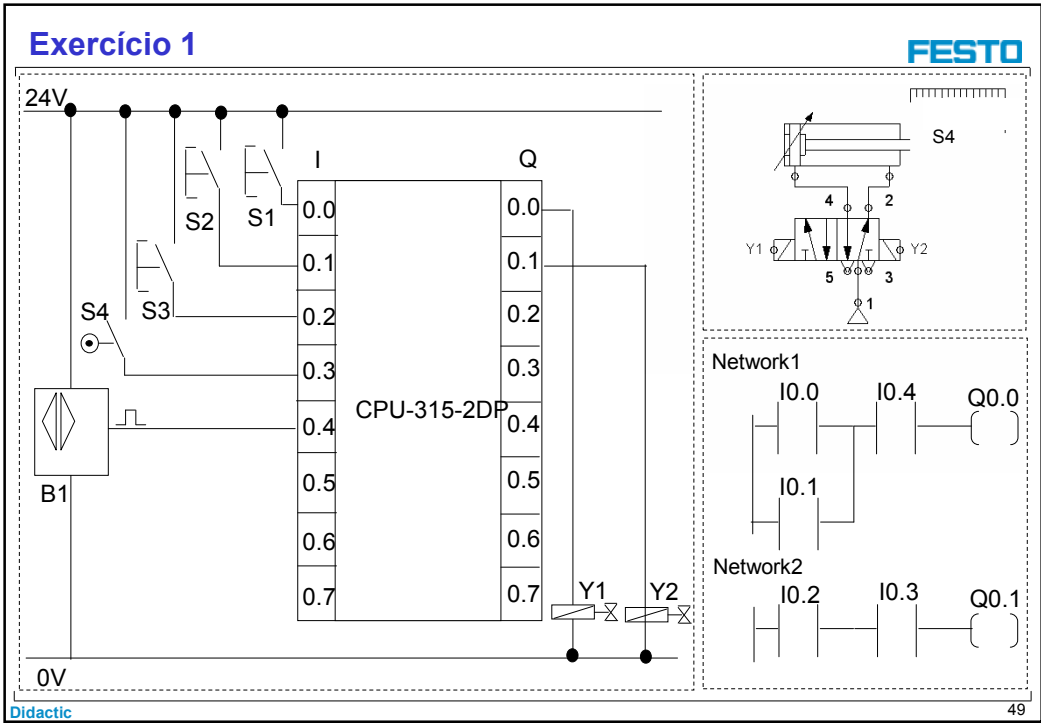
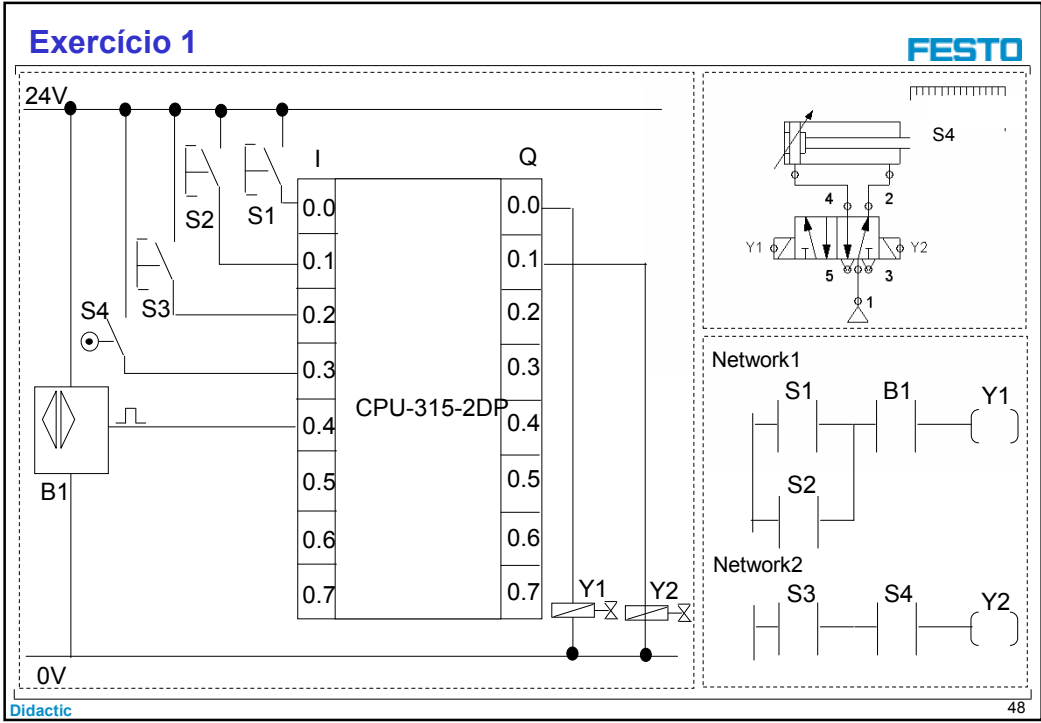
Instruções Diagrama Ladder

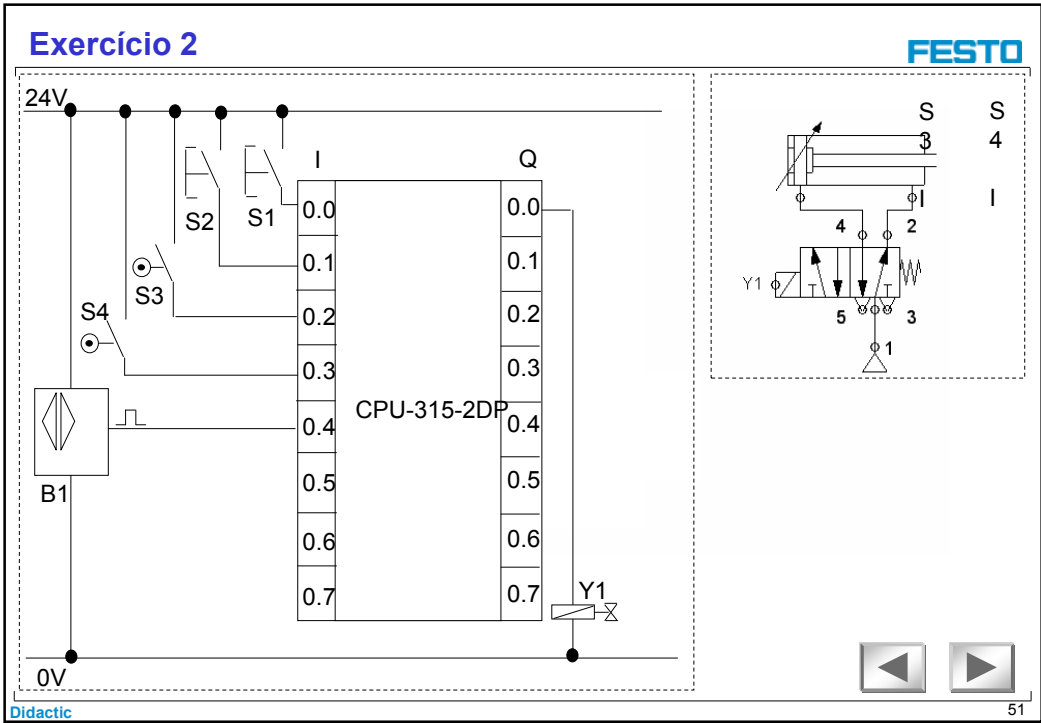
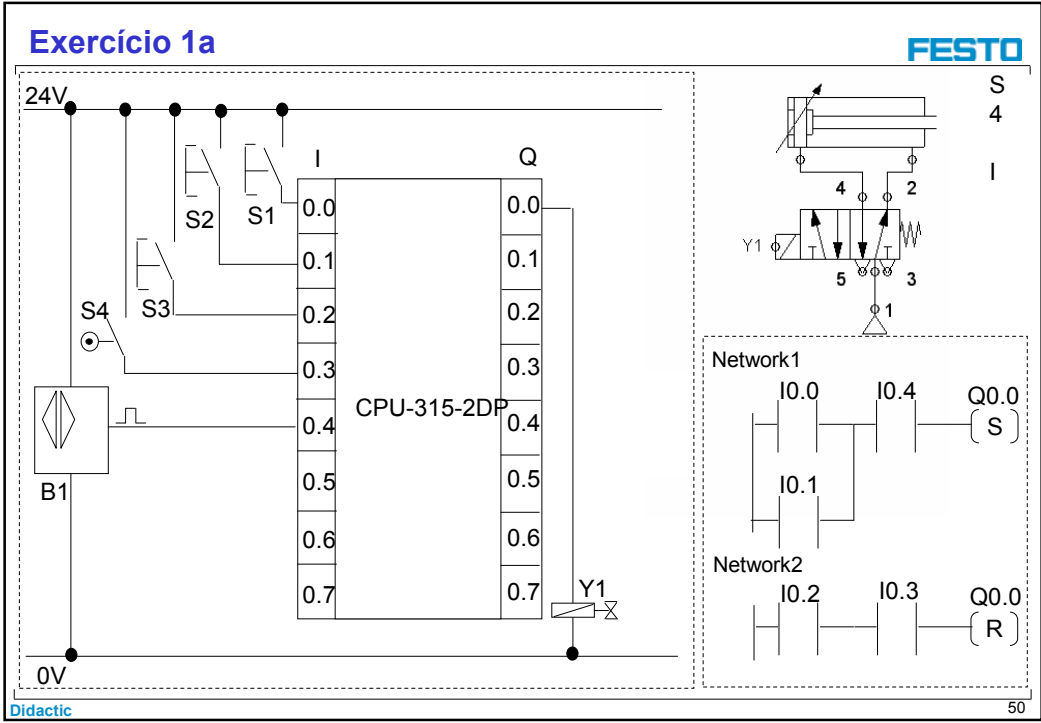
Exemplo: Entrada I0.0 é verdadeira

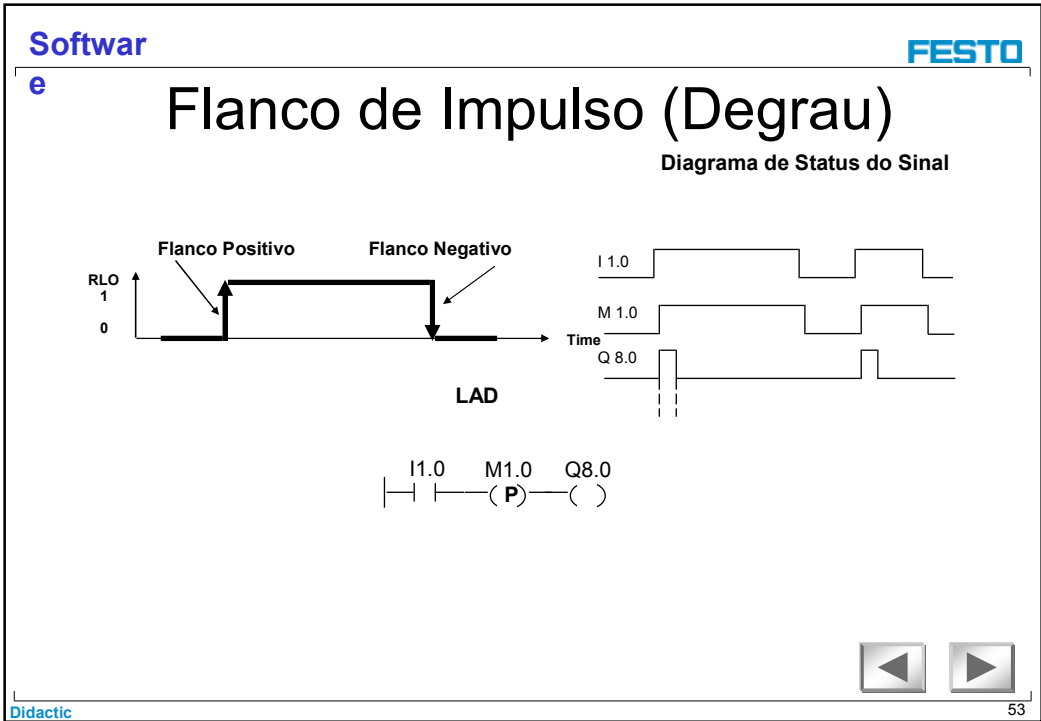
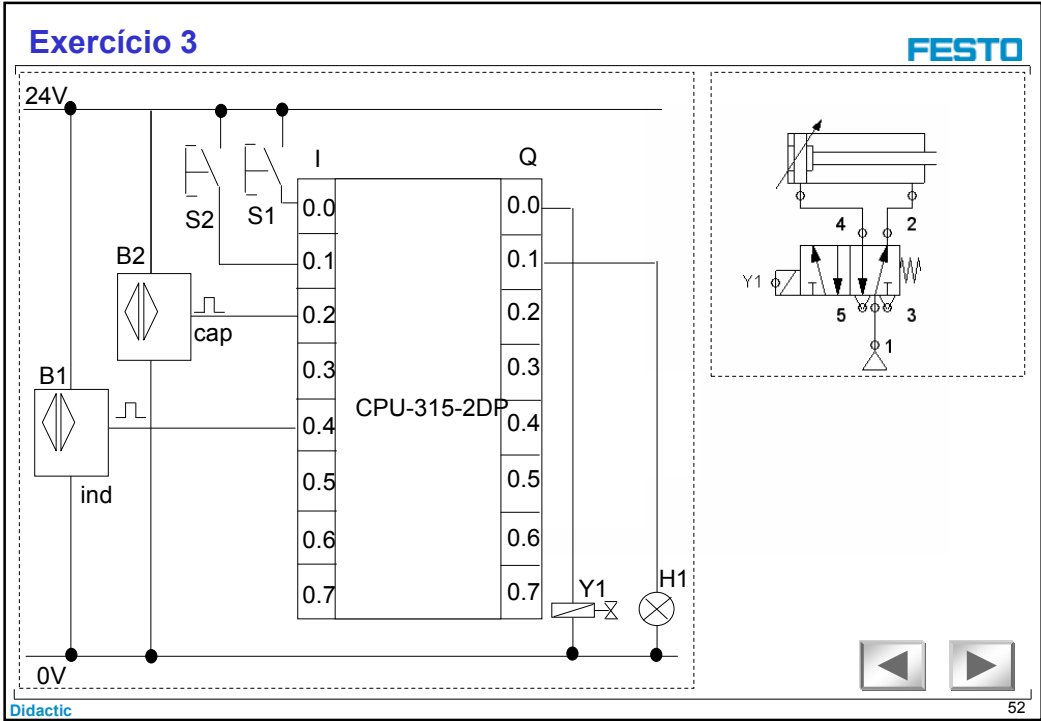


Instrução:
Verifica se endereço I0.0 é falso

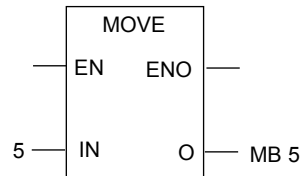








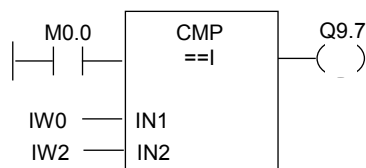
Carregando e Transferindo Dados



EN - Habilita Entrada
 ENO -Habilita Saída
 IN - Valor de Entrada
 (Tamanho de todos os tipos de dados 8, 16, 32 bit)
 O - Target address
 (Tamanho de todos os tipos de dados 8, 16, 32 bit)



Funções de Comparação

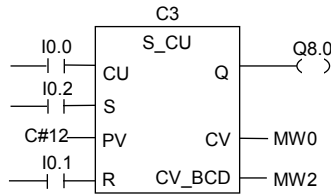


OPÇÕES DE COMPARAÇÃO:

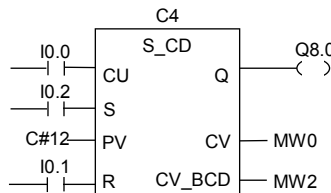
== IGUAL A
 <> NÃO IGUAL A
 > MAIOR QUE
 < MENOR QUE
 >= MAIOR QUE OU IGUAL A
 <= MENOR QUE OU IGUAL A



Contadores



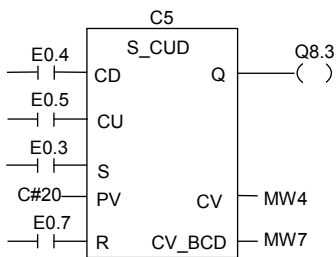
Crescente S_CU valor da entrada SC. Iniciando com 0 ou SC, o contador conta crescentemente a cada vez que existe um flanco de impulso positivo na entrada CU. A saída Q é sempre 1, enquanto o valor de CV não for igual a 0. Se houver um flanco de impulso positivo na entrada R o contador é resetado, isto é, o contador é setado com o valor 0.



Decrescente S_CD valor da entrada SC. Iniciando com 0 ou SC, o contador conta decrescentemente a cada vez que existir um flanco de impulso positivo na entrada CD. A saída Q é sempre 1, enquanto o valor CV não for igual a 0. Se houver um flanco de impulso positivo na entrada R o contador é resetado, isto é, o contador é setado com o valor 0.



Contadores

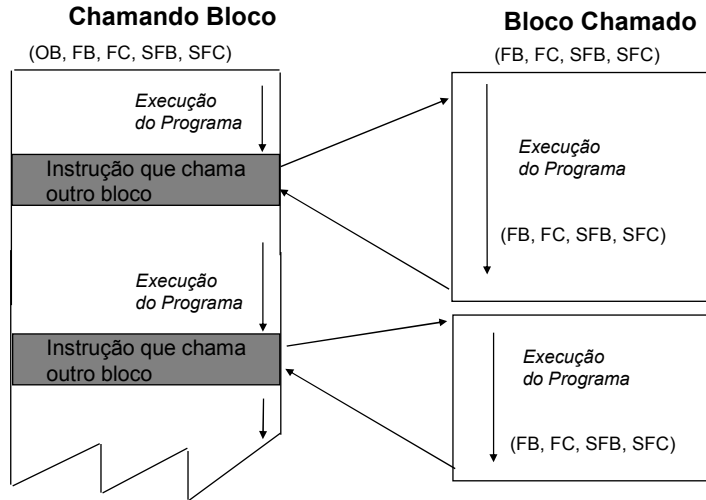


Up / Down Counter S_CUD Combinação de contadores crescente e decrescente.



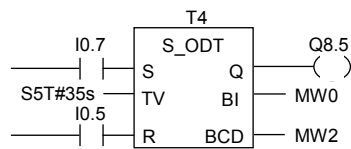
e

Chamando Blocos

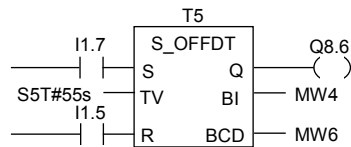


e

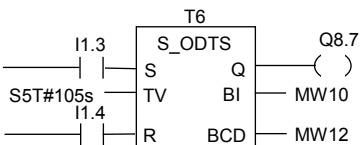
Temporizadores com Retardo na Energização/Desenergização



On-Delay Timer S_ODT
Retardo na Energização



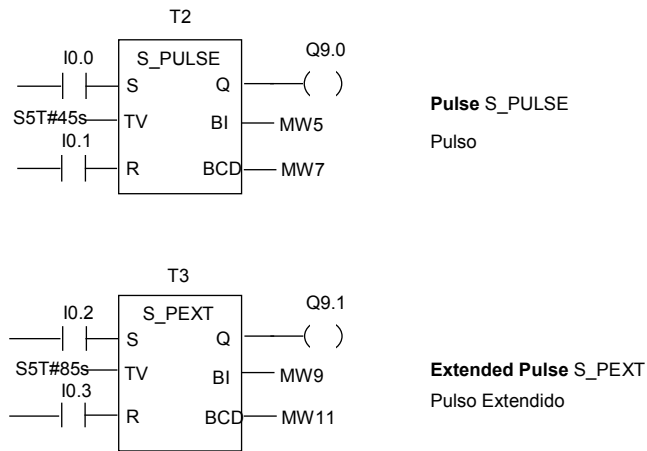
Off-Delay Timer S_OFFDT
Retardo na Desenergização



Retentive On-Delay S_ODTS
Retardo na Energização com Retenção

e

Temporizadores de Pulsos



On – Delay Timer

(S_ODT)

