Data sheet 6ES7510-1DK03-0AB0

SIMATIC DP, CPU 1510SP-1 PN for ET 200SP, central processing unit with work memory 200 KB for program and 1 MB for data, 1st interface: PROFINET IRT with 3-port switch, 25 ns bit performance, SIMATIC Memory Card required, BusAdapter required for port 1 and 2 * *** approvals and certificates according to entry 109816889 at support.industry.siemens.com to be observed! ****

Compared information	support.industry.siemens.com to be observed:
General information	CRU 45400D 4 DV
Product type designation	CPU 1510SP-1 PN
HW functional status	FS01
Firmware version	V3.0
Product function	V10MO t10MO
• I&M data	Yes; I&M0 to I&M3
 Module swapping during operation (hot swapping) 	Yes; Multi-hot swapping
Isochronous mode	Yes; only with PROFINET; with minimum OB 6x cycle of 500 μs
Engineering with	V/19 /EW/V/2 0): with older TIA Portal versions configurable as 6ES7510
 STEP 7 TIA Portal configurable/integrated from version 	V18 (FW V3.0); with older TIA Portal versions configurable as 6ES7510- 1DJ01-0AB0
Configuration control	15001 0.150
via dataset	Yes
Control elements	100
	1
Mode selector switch	1
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Mains buffering	
Mains/voltage failure stored energy time	10 ms
Input current	
Current consumption (rated value)	0.51 A
Current consumption, max.	0.7 A
Inrush current, max.	1.34 A; Rated value
l²t	0.3 A ² ·s
Power	
Infeed power to the backplane bus	8.05 W
Power loss	
Power loss, typ.	6.5 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	
• integrated (for program)	200 kbyte
• integrated (for data)	1 Mbyte
Load memory	
Plug-in (SIMATIC Memory Card), max.	32 Gbyte
Backup	
maintenance-free	Yes
CPU processing times	
for bit operations, typ.	25 ns
for word operations, typ.	32 ns
for fixed point arithmetic, typ.	42 ns
for floating point arithmetic, typ.	170 ns
CPU-blocks	
Number of elements (total)	4 000; Blocks (OB, FB, FC, DB) and UDTs
radination of citation (total)	7 000, Diodico (OD, 1 D, 1 O, DD) and OD 13

DB	
Number range	1 60 999; subdivided into: number range that can be used by the
- Hambor rango	user: 1 59 999, and number range of DBs created via SFC 86: 60 000
	60 999
• Size, max.	1 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	
Number range	0 65 535
• Size, max.	200 kbyte
FC Number and the	0 05 505
Number range Size, may	0 65 535 200 kbyte
• Size, max.	200 kDyte
• Size, max.	200 kbyte
Number of free cycle OBs	100
Number of time alarm OBs	20
Number of delay alarm OBs	20
Number of cyclic interrupt OBs	20; With minimum OB 3x cycle of 250 µs
Number of process alarm OBs	50
Number of DPV1 alarm OBs	3
 Number of isochronous mode OBs 	1
 Number of technology synchronous alarm OBs 	2
Number of startup OBs	100
 Number of asynchronous error OBs 	4
 Number of synchronous error OBs 	2
Number of diagnostic alarm OBs	1
Nesting depth	
per priority class	24
Counters, timers and their retentivity	
S7 counter	
Number	2 048
Retentivity	
— adjustable	Yes
IEC counter	
• Number	Any (only limited by the main memory)
Retentivity	V
— adjustable	Yes
S7 times	2.040
Number Retentivity	2 048
— adjustable	Yes
IEC timer	103
Number	Any (only limited by the main memory)
Retentivity	, any (only animously and main monally)
— adjustable	Yes
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	256 kbyte; in total; available retentive memory for bit memories, timers,
retentive data area (mei. timers, counters, nago), max.	counters, DBs, and technology data (axes): 216 KB
Flag	
• Size, max.	16 kbyte
Number of clock memories	8; 8 clock memory bit, grouped into one clock memory byte
Data blocks	
 Retentivity adjustable 	Yes
Retentivity preset	No
Local data	
per priority class, max.	64 kbyte; max. 16 KB per block
Address area	
Number of IO modules	2 048; max. number of modules / submodules
I/O address area	
• Inputs	32 kbyte; All inputs are in the process image
Outputs	32 kbyte; All outputs are in the process image
per integrated IO subsystem	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
per CM/CP	

Innuto (velume)	0 lebuta
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images	32
Number of subprocess images, max. Address appearant madula.	32
Address space per module • Address space per module, max.	288 byte; For input and output data respectively
Address space per module, max. Address space per station	200 byte, 1 of hiput and output data respectively
Address space per station, max.	2 560 byte; for central inputs and outputs; depending on configuration; 2
· · ·	048 bytes for ET 200SP modules + 512 bytes for ET 200AL modules
Hardware configuration	
Number of distributed IO systems	32; A distributed I/O system is characterized not only by the integration of distributed I/O via PROFINET or PROFIBUS communication modules, but also by the connection of I/O via AS-i master modules or links (e.g. IE/PB-Link)
Number of DP masters	
• Via CM	1
Number of IO Controllers	,
• integrated	1
• Via CM	0
Rack	92: CDL L 64 modulos L comos modulo (mountine vidille mon 4 m.) 140
 Modules per rack, max. 	82; CPU + 64 modules + server module (mounting width max. 1 m) + 16 ET 200AL modules
 Quantity of operable ET 200SP modules, max. 	64
Quantity of operable ET 200AL modules, max.	16
Number of lines, max.	1
PtP CM	
Number of PtP CMs	the number of connectable PtP CMs is only limited by the number of available slots
Time of day	available slots
Clock	
• Type	Hardware clock
Backup time	6 wk; At 40 °C ambient temperature, typically
Deviation per day, max.	10 s; Typ.: 2 s
Operating hours counter	100, 19020
Number	16
Clock synchronization	
• supported	Yes
to DP, master	Yes; Via CM DP module
• to DP, slave	Yes; Via CM DP module
• in AS, master	Yes
• in AS, slave	Yes
on Ethernet via NTP	Yes
Interfaces	
Number of PROFINET interfaces	1
Number of PROFIBUS interfaces	1; Via CM DP module
Optical interface	No
1. Interface	
Interface types	Vec: Y1 P3: ont Y1 P1 and Y1 P2 via Buchdanter PA 2v P IA5
RJ 45 (Ethernet) Number of ports	Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45
Number of ports integrated switch	3; 1. integr. + 2. via BusAdapter Yes
integrated switchBusAdapter (PROFINET)	Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12
Protocols	100, companione buortaupiero. DA ZA NOTO, DA ZA 1 O, DA ZA 19112
IP protocol	Yes; IPv4
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
SIMATIC communication	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes
Media redundancy	Yes
PROFINET IO Controller	100
Services	
— PG/OP communication	Yes
— Isochronous mode	Yes
1000HIOHOUG HIOUC	100

	Yes; Requirement: IRT and isochronous mode (MRPD optional)
— IRT	Yes
— PROFlenergy	Yes; per user program
— Prioritized startup	Yes; Max. 32 PROFINET devices
 Number of connectable IO Devices, max. 	128; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
Of which IO devices with IRT, max.	64
 Number of connectable IO Devices for RT, 	128
max.	
— of which in line, max.	128
Number of IO Devices that can be simultaneously activated deactivated may.	8; in total across all interfaces
simultaneously activated/deactivated, max. — Number of IO Devices per tool, max.	8
Humber of 10 Devices per tool, max. — Updating times	The minimum value of the update time also depends on communication
— opdating times	share set for PROFINET IO, on the number of IO devices, and on the
	quantity of configured user data
Update time for IRT	
— for send cycle of 250 μs	250 µs to 4 ms; Note: In the case of IRT with isochronous mode, the
— for send cycle of 500 μs	minimum update time of 500 µs of the isochronous OB is decisive 500 µs to 8 ms; Note: In the case of IRT with isochronous mode, the
— for seria cycle of 500 μs	minimum update time of 625 µs of the isochronous OB is decisive
— for send cycle of 1 ms	1 ms to 16 ms
— for send cycle of 2 ms	2 ms to 32 ms
— for send cycle of 4 ms	4 ms to 64 ms
With IRT and parameterization of "odd" send	Update time = set "odd" send clock (any multiple of 125 μs: 375 μs, 625
cycles	μs 3 875 μs)
Update time for RT	
— for send cycle of 250 μs	250 μs to 128 ms
— for send cycle of 500 μs	500 µs to 256 ms
— for send cycle of 1 ms	1 ms to 512 ms
— for send cycle of 2 ms	2 ms to 512 ms
— for send cycle of 4 ms	4 ms to 512 ms
PROFINET IO Device	
Services	
— PG/OP communication	Yes
 Isochronous mode 	No
— IRT	Yes
— PROFlenergy	Yes; per user program
— Shared device	Yes
 Number of IO Controllers with shared device, 	4
max.	
max. — activation/deactivation of I-devices	Yes; per user program
max. — activation/deactivation of I-devices — Asset management record	
max. — activation/deactivation of I-devices	Yes; per user program
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types	Yes; per user program Yes; per user program
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types • RS 485	Yes; per user program Yes; per user program Yes; Via CM DP module
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types • RS 485 • Number of ports	Yes; per user program Yes; per user program
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types • RS 485 • Number of ports Protocols	Yes; per user program Yes; per user program Yes; Via CM DP module
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master	Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP slave	Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP slave • SIMATIC communication	Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP slave • SIMATIC communication PROFIBUS DP master	Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes Yes
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP slave • SIMATIC communication PROFIBUS DP master • Number of connections, max.	Yes; per user program Yes; via CM DP module 1 Yes Yes Yes Yes Yes Yes Yes
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP slave • SIMATIC communication PROFIBUS DP master	Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes Yes Yes Yes In total, up to 512 distributed I/O devices can be connected via AS-
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP slave • SIMATIC communication PROFIBUS DP master • Number of connections, max. • Number of DP slaves, max.	Yes; per user program Yes; via CM DP module 1 Yes Yes Yes Yes Yes Yes Yes
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP slave • SIMATIC communication PROFIBUS DP master • Number of connections, max. • Number of DP slaves, max. Services	Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes Yes Yes Yes 48; Of which 4 each reserved for ES and HMI 125; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP slave • SIMATIC communication PROFIBUS DP master • Number of connections, max. • Number of DP slaves, max. Services — PG/OP communication	Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes Yes Yes Yes 48; Of which 4 each reserved for ES and HMI 125; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP slave • SIMATIC communication PROFIBUS DP master • Number of connections, max. • Number of DP slaves, max. Services — PG/OP communication — Equidistance	Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes Yes Yes Yes Yes 48; Of which 4 each reserved for ES and HMI 125; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes No
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP slave • SIMATIC communication PROFIBUS DP master • Number of connections, max. • Number of DP slaves, max. Services — PG/OP communication	Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes Yes Yes Yes 48; Of which 4 each reserved for ES and HMI 125; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP slave • SIMATIC communication PROFIBUS DP master • Number of connections, max. • Number of DP slaves, max. Services — PG/OP communication — Equidistance — Isochronous mode — Activation/deactivation of DP slaves	Yes; per user program Yes; per user program Yes; Via CM DP module Yes Yes Yes Yes Yes Yes 48; Of which 4 each reserved for ES and HMI 125; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes No No
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP slave • SIMATIC communication PROFIBUS DP master • Number of connections, max. • Number of DP slaves, max. Services — PG/OP communication — Equidistance — Isochronous mode — Activation/deactivation of DP slaves Interface types	Yes; per user program Yes; per user program Yes; Via CM DP module Yes Yes Yes Yes Yes Yes 48; Of which 4 each reserved for ES and HMI 125; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes No No
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types	Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes Yes Yes 48; Of which 4 each reserved for ES and HMI 125; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes No No No Yes
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP slave • SIMATIC communication PROFIBUS DP master • Number of connections, max. • Number of DP slaves, max. Services — PG/OP communication — Equidistance — Isochronous mode — Activation/deactivation of DP slaves Interface types RJ 45 (Ethernet) • 100 Mbps	Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes Yes Yes 48; Of which 4 each reserved for ES and HMI 125; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes No No Yes Yes
max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types	Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes Yes Yes 48; Of which 4 each reserved for ES and HMI 125; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes No No No Yes

Industrial Ethernet status LED	Yes
RS 485	
Transmission rate, max.	12 Mbit/s
Protocols	
PROFIsafe	No
Number of connections	400 via interpreted interference of the ODI Land comparted ODI / OMI
Number of connections, max. Number of connections resoured for ES/HMI/web.	128; via integrated interfaces of the CPU and connected CPs / CMs
 Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces 	10 88
 Number of connections via integrated interraces Number of connections per CP/CM 	32
Number of S7 routing paths	16
Redundancy mode	
H-Sync forwarding	Yes
Media redundancy	
— Media redundancy	Yes; only via BusAdapter
— MRP	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client
 MRP interconnection, supported 	Yes; as MRP ring node according to IEC 62439-2 Edition 3.0
— MRPD	Yes; Requirement: IRT
 Switchover time on line break, typ. 	200 ms; For MRP, bumpless for MRPD
Number of stations in the ring, max.	50
SIMATIC communication	
PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
• S7 routing	Yes
Data record routing	Yes
S7 communication, as server S7 communication, as alient	Yes
S7 communication, as clientUser data per job, max.	Yes See online help (S7 communication, user data size)
Open IE communication	See Offiline help (S7 Confinitutification), user data size)
• TCP/IP	Yes
— Data length, max.	64 kbyte
several passive connections per port,	Yes
supported	
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	64 kbyte
• UDP	Yes
— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast
— UDP multicast	Yes; max. 78 multicast circuits
• DHCP	Yes
• DNS	Yes
• SNMP	Yes
DCP LLDP	Yes Yes
• Encryption	Yes; Optional
Web server	100, Optional
• HTTP	Yes; Standard and user pages
• HTTPS	Yes; Standard and user pages
OPC UA	
Runtime license required	Yes; "Small" license required
OPC UA Client	Yes; Data Access (registered Read/Write), Method Call
 Application authentication 	Yes
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
User authentication	"anonymous" or by user name & password
 Number of connections, max. Number of nodes of the client interfaces, recommended max. 	4 1 000
— Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/C	300
max. — Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.	20
Number of elements for one call of OPC_UA_MethodGetHandleList, max.	100
Number of simultaneous calls of the client	1

instructions for session management, per	
connection, max.	r
 Number of simultaneous calls of the client instructions for data access, per connection, max. 	5
Number of registerable nodes, max.	5 000
Number of registerable method calls of	100
OPC_UA_MethodCall, max.	
Number of inputs/outputs when calling	20
OPC_UA_MethodCall, max. OPC UA Server	Yes; Data Access (Read, Write, Subscribe), Method Call, Alarms &
• Of C DA Server	Condition (A&C), Custom Address Space
 Application authentication 	Yes
 Security policies 	available security policies: None, Basic128Rsa15, Basic256Rsa15,
	Basic256Sha256, Aes128Sha256RsaOaep, Aes256Sha256RsaPss
— User authentication	"anonymous" or by user name & password
GDS support (certificate management)	Yes
Number of sessions, max.	32
Number of accessible variables, max.	50 000
Number of registerable nodes, max.	10 000
— Number of subscriptions per session, max.— Sampling interval, min.	50 100 ms
— Publishing interval, min.	200 ms
Number of server methods, max.	20
Number of inputs/outputs per server method,	20
max.	
 Number of monitored items, recommended 	4 000; for 1 s sampling interval and 1 s send interval
max.	
 Number of server interfaces, max. 	10 of each "Server interfaces" / "Companion specification" type and 20
 Number of nodes for user-defined server 	of the type "Reference namespace" 15 000
interfaces, max.	13 000
Alarms and Conditions	Yes
 Number of program alarms 	100
 Number of alarms for system diagnostics 	50
Further protocols	
Further protocols • MODBUS	Yes; MODBUS TCP
•	Yes; MODBUS TCP
MODBUS S7 message functions Number of login stations for message functions, max.	32
MODBUS S7 message functions Number of login stations for message functions, max. Program alarms	32 Yes
MODBUS S7 message functions Number of login stations for message functions, max.	32 Yes 5 000; Program messages are generated by the "Program_Alarm"
MODBUS S7 message functions Number of login stations for message functions, max. Program alarms Number of configurable program messages, max.	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
MODBUS S7 message functions Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max.	32 Yes 5 000; Program messages are generated by the "Program_Alarm"
MODBUS S7 message functions Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500
MODBUS S7 message functions Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
MODBUS S7 message functions Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600
MODBUS S7 message functions Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100
MODBUS S7 message functions Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 160
MODBUS S7 message functions Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 160 Yes; Parallel online access possible for up to 5 engineering systems
MODBUS S7 message functions Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering)	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 160
MODBUS S7 message functions Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 160 Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients)
MODBUS S7 message functions Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block Single step	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 160 Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No
MODBUS S7 message functions Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 160 Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No
MODBUS S7 message functions Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control Status/control variable Variables	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 160 Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8
MODBUS S7 message functions Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control Status/control Status/control variable Variables Number of variables, max.	Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 160 Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
MODBUS Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control Status/control Status/control Status/control Status/control Status/control Status variables, max. Number of login stations for message functions, max. Number of configurable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control Status/control Status/control variables, max. — of which status variables, max.	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 160 Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job
MODBUS Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control Status/control Status/control variable Variables Number of variables, max. — of which status variables, max. — of which control variables, max.	Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 160 Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
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MODBUS Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control Status/control Status/control variable Variables Number of variables, max. — of which status variables, max. — of which control variables, max. Forcing Forcing Forcing Forcing, variables	Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 160 Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job 200; per job Yes Peripheral inputs/outputs
MODBUS Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control Status/control Status/control variable Variables Number of variables, max. of which status variables, max. Forcing Forcing Forcing Forcing, variables, max.	Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 160 Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job 200; per job
MODBUS Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control Status/control Status/control variable Variables Number of variables, max. of which status variables, max. Forcing Forcing Forcing Forcing, variables, max. Number of variables, max. Diagnostic buffer	Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 160 Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job 200; per job Yes Peripheral inputs/outputs 200
MODBUS Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control Status/control Status/control variable Variables Number of variables, max. of which status variables, max. Forcing Forcing Forcing Forcing Forcing, variables, max. Diagnostic buffer present	Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 160 Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job 200; per job Yes Peripheral inputs/outputs 200 Yes
MODBUS Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control Status/control Variables Number of variables, max. of which status variables, max. forcing Forcing Forcing Forcing Forcing, variables, max. Diagnostic buffer	Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 160 Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job 200; per job Yes Peripheral inputs/outputs 200

Interrupts/diagnostics data is information	 Number of configurable Traces 	4; Up to 512 KB of data per trace are possible
RENOR IED AMANT LED AMANT LED AMANT LED AMANT LED Connection display LINK TX/RX Supported technology objects Motion Cornet Number of available Motion Control resources for technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 1 120 **Required Motion Cornet resources for technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 1 120 **Required Motion Cornet resources for technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 1 120 **Program Tack Per per profit process axis Per positioning axis Per positioning axis Profit	Interrupts/diagnostics/status information	
RENOR IED AMANT LED AMANT LED AMANT LED AMANT LED Connection display LINK TX/RX Supported technology objects Motion Cornet Number of available Motion Control resources for technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 1 120 **Required Motion Cornet resources for technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 1 120 **Required Motion Cornet resources for technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 1 120 **Program Tack Per per profit process axis Per positioning axis Per positioning axis Profit		
MAINT LED Molitoring of the supply voltage (PWR-LED) Connection display LINK TX/RX Supported technology objects Molitor Control Number of available Motion Control resources for technology objects affects the cycle time of the PLC program, selection guide via the TIA Selection Tool 120 Number of available Motion Control resources for technology objects affects the cycle time of the PLC program, selection guide via the TIA Selection Tool 120 Number of available Motion Control resources for technology objects affects the cycle time of the PLC program, selection guide via the TIA Selection Tool 120 Number of positioning axis Per synchronous axis Per synchronous axis Per output cam Per probe Prosting axis Prosting axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 4 ms (typical value) Number of available value in the problem of 4 ms (typical value) Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 4 ms (typical value) Number of available value in the typical value in the	RUN/STOP LED	Yes
Molitoring of the supply voltage (PWR-LED) Connection display LINK TX/RIX Supported technology objects Motion Control Number of available Motion Control resources for technology objects Required Motion Control resources — per speed controlled axis — per postitioning axis — per postitioning axis — per postitioning axis — per external encoder — per cam track — per probe — Postitioning axis — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) — Number of positioning axes at motion control of 8 ms (typical value) — Number of positioning axes at motion control of 8 ms (typical value) — Number of positioning axes at motion control of 8 ms (typical value) — Number of positioning axes at motion control of 8 ms (typical value) — Number of positioning axes at motion control of 9 ms (typical value) — Number of positioning axes at motion control of 9 ms (typical v	• ERROR LED	Yes
Connection display LINK TXFIX Motion Control Number of available Motion Control resources for technology objects affects the cycle time of the PLC program; selection guide via the TiA Selection Tool 1 20 Number of available Motion Control resources for technology objects affects the cycle time of the PLC program; selection guide via the TiA Selection Tool 1 20 Per speed controlled axis — per speed controlled axis — per synchronous axis — per synchronous axis — per output cam — per on time can track — per probe Positioning axis — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 4 ms (typical value) — PLD_3 Step — PLD_3 Step — PLD_3 Step — PLD_5 Step — PLD_5 Step — PLD_5 Step — PLD_6 Step	MAINT LED	Yes
Motion Control	 Monitoring of the supply voltage (PWR-LED) 	Yes
Motion Control Number of available Motion Control resources for technology objects Required Motion Control resources for technology objects Required Motion Control resources — per speed-controlled axis — per synchronous axis — per prosed-controlled axis — per synchronous axis — per output cam — per cam track — per probe Positioning axis — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 4 ms (typical value) PPID_Compact PPID_Step PPID_Temp Counting and measuring PHID_step accounter Ambient conditions Ambient temperature during operation • horizontal installation, min. • vertical installation, min. • horizontal installation, min. • vertical installation, min. • vertical installation, min. • horizontal installation min. • horizontal installation min. • horizontal install	 Connection display LINK TX/RX 	Yes
Number of available Motion Control resources for technology objects Required Motion Control resources Required Motion Control resources Required Motion Control resources Per speed-controlled axis 40	Supported technology objects	
■ Number of available Motion Control resources for technology objects ■ Required Motion Control resources — per speed-controlled vails — per speed-controlled vails — per speed-controlled vails — per speed-controlled vails — per output cam — per cutput cam — per cam track — per probe ■ Positioning axes at motion control cycle of 4 ms (typical vailue) — Number of positioning axes at motion control cycle of 4 ms (typical vailue) — Number of positioning axes at motion control cycle of 8 ms (typical vailue) — Number of positioning axes at motion control cycle of 8 ms (typical vailue) ■ Pill_Compact ■ Pill_	Motion Control	
technology objects Required Motion Control resources — per speed-controlled axis — per speed-controlled axis — per yenchronous axis — per external encoder — per output cam — per cam track — per probe Positioning axis — Number of positioning axes at motion control cycle of arms (typical value) — Number of positioning axes at motion control cycle of arms (typical value) — Number of positioning axes at motion control cycle of arms (typical value) — Number of positioning axes at motion control cycle of arms (typical value) — Number of positioning axes at motion control cycle of arms (typical value) — Number of positioning axes at motion control cycle of arms (typical value) — Number of positioning axes at motion control cycle of arms (typical value) — PID_Compact — PID_Compact — PID_Sistep — PID_Sistep — PID_Sistep — PID_Sistep — PID_Sistep — PID_Sistep — PID_Controller with integrated optimization — Yes; PID controller with integrated optimization for temperature Ves; PID controller with integrated optimization Ves; PID controller with integra	Number of available Motion Control resources for	
Required Motion Control resources Per speed-controlled axis Per synchronous axis Per synchronous axis Per synchronous axis Per synchronous axis Per certamal encoder Per couplus dam Per probe Postitioning axis Postitioning axis at motion control cycle of 4 ms (typical value) Postitioning axis Pulp Compact Per postitioning axis at motion control cycle of 6 ms (typical value) Pulp Compact Per postitioning axis at motion control cycle of 6 ms (typical value) Per postitioning axis at motion control cycle of 6 ms (typical value) Per postitioning axis at motion control cycle of 6 ms (typical value) Per postitioning axis at motion control cycle of 6 ms (typical value) Per postitioning axis at motion control cycle of 6 ms (typical value) Per postitioning axis at motion control cycle of 6 ms (typical value) Per postitioning axis at motion control cycle of 6 ms (typical value) Per postitioning axis at motion control cycle of ms (typical value) Per postitioning axis at motion control cycle of ms (typical value) Per postitioning axis at motion control cycle of ms (typical value) Per postitioning axis at motion control cycle of ms (typical value) Per postitioning axis at motion control cycle of ms (typical value) Per postitioning axis at motion control cycle of ms (typical value) Per postitioning axis at motion control cycle of ms (typical value) Per postitioning axis at motion control cycle of ms (typical value) Per postitioning axis at motion control cycle of ms (typical value) Per postition (ty		1 123
— per speed-controlled axis — per positioning axis — per external encoder — per output carn — per coutput carn — per cam track — per probe — Positioning axis — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 6 ms (typical value) — Number of positioning axes at motion control cycle of 6 ms (typical value) Controller — PID_Compact — PID_Compact — PID_Compact — PID_Sistep — PID_Temp — Yes; Universal PID controller with integrated optimization — PID_Sistep — PID_Temp — Yes; PID controller with integrated optimization for valves — Yes; PID controller with integrated optimization for temperature Conting and measuring — High-speed counter Ambient conditions Ambient conditions Ambient temperature during operation — horizontal installation, min. — horizontal installation, min. — horizontal installation, min. — vertical installation of reliable vertical vertical vertical vertical vertical vertical vertical vertical v		
— per positioning axis — per synchronous axis — per external encoder — per output cam — per output cam — per cam track — per probe — Positioning axis — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 6 ms (typical value) — Number of positioning axes at motion control cycle of 6 ms (typical value) Controller ● PID_Compact ● PID_Compact ● PID_Compact ● PID_Flamp Counting and measuring ● High-speed counter Amblent conditions Ambient temperature during operation ● horizontal installation, min. ● horizontal installation, min. ● horizontal installation, min. ● vertical installation in min. ● vertical installation in min. ● vertical installation min. ●		40
per synchronous axis per external encoder per output cam per cam track per probe Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Number of positioning axes at motion control oxide of 9 ms (typical value) Number of positioning axes at motion control oxide oxid		80
per external encoder per output cam per cam track per probe Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Controller PID_Compact PID_Compact PID_Sistep PID-Temp Yes, PID controller with integrated optimization for valves Yes, PID controller with integrated optimization for temperature Counting and measuring High-speed counter		160
per output cam per cam track per probe per probe Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) PID_Compact PID_Compact PID_Compact PID_Compact PID_Sistep PID_Temp Yes; PID controller with integrated optimization PiD_Sistep PID_Temp Yes; PID controller with integrated optimization for valves PID_Sistep PID_Temp Yes; PID controller with integrated optimization for temperature PID_Sistep PID_Temp Yes; PID controller with integrated optimization for temperature PID_Sistep PID_Sistep Yes; PID controller with integrated optimization for temperature PID_Sistep Yes; PID controller with integrated optimization for temperature PID_Sistep PID_Sistep Yes; PID_controller with integrated optimization for valves PID_Compact PID_Sistep		
- per cam track - per probe Positioning axis - Number of positioning axes at motion control cycle of 4 ms (typical value) - Number of positioning axes at motion control cycle of 8 ms (typical value) Controller PID_Compact		
per probe Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Controller PID_Compact PID_Compact PID_Temp Yes, PID controller with integrated optimization PID_Temp Yes, PID controller with integrated optimization for valves PID_Temp Yes, PID controller with integrated optimization for temperature Counting and measuring High-speed counter Ambient conditions Ambient temperature during operation horizontal installation, min horizontal installation, min horizontal installation, max vertical installation, max vertical installation, max vertical installation, max you will installation attitude above sea level Installation altitude above sea level, max. Configuration / header configuration / programming / header Programming language LAD FEB STI SCI SRI SCI SRI Yes STI SCI SCI SRPH Know-how protection User program protection/password protection Protection Programming / header Protection level: Readwite protection Protection level: Write protection Protection level: Write protection Protection level: Write protection Protection level: Write protection Protection level: Readwite protection -	·	
Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Controller PID_Compact PID_Step PID_Temp PID-Temp PID-Te	•	
- Number of positioning axes at motion control cycle of 4 ms (typical value) - Number of positioning axes at motion control cycle of 8 ms (typical value) Controller • PID_Compact • PID_Compact • PID_Temp Counting and measuring • PID_Temp Counting and measuring • High-speed counter Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, min. • horizontal installation, min. • vertical installation, min. • vertical installation, max. • vertical installation, min. • vertical installation above sea level, max. Installation altitude above sea level, max. Configuration / header Programming language - LAD - FBD - STL - SCL - GRAPH Know-how protection • Discr program protection/password protection • Capy protection • Discr protection • Discr protection level: Write protection • Protection level: Write protection • Protection level: Write protection • Protection level: Complete protection • Discr programmint • lower limit - adjustable maximum cycle time pimensions Width 100 mm		
cycle of 4 ms (typical value) - Number of positioning axes at motion control cycle of 8 ms (typical value) Controller PID_Compact PID_Step PID_Temp Counting and measuring High-speed counter Ambient conditions Ambient conditions Ambient conditions Ambient conditions Ambient imperature during operation horizontal installation, min. horizontal installation, max. vertical installation, min. horizontal installation, max. vertical installation, max. Installation altitude above sea level, max. Total function / Installation / Install	-	11
Number of positioning axes at motion control cycle of 8 ms (typical value) Controller PID_Compact PID_Compact PID_Sistep PID-Temp Yes; PID controller with integrated optimization for valves PID_Temp Yes; PID controller with integrated optimization for temperature Counting and measuring High-speed counter Yes Ambient conditions Ambient conditions Ambient temperature during operation horizontal installation, min. horizontal installation, min. horizontal installation, max. vertical installation, max. vertical installation, max. 100 °C No condensation horizontal installation, max. So °C; No condensation Hittude during operation relating to sea level Installation altitude above sea level, max. So 00 m; Restrictions for installation altitudes > 2 000 m, see manual configuration / programming / header Programming language LAD FBD Yes STL SCL PSTL SCL Yes GRAPH Yes Know-how protection User program protection/password protection Block protection Protection level: Write protection Protection level: Read/write protection Protection level: Read/write protection Programming / header Programming / header Programming level time monitoring / header Programming level time monitoring / header Programming level time monitoring / header Now-how protection level: Complete protection Protection level: Read/write protection Programming / yee time monitoring / header Now-thoughting adjustable maximum cycle time Adjustable maximum cycle time Dimensions Width Nom minus deptimization for temperature Prosection transportation for temperature Prosection for temperature Prose		11
cycle of 8 ms (typical value) Controller PID_Compact PID_Compact PID_Step PID-Temp Counting and measuring High-speed counter Ambient conditions Ambient conditions Anbient deprature during operation horizontal installation, min. vertical installation, min. vertical installation, min. vertical installation, max. for "C" horizontal installation, min. vertical installation, min. Vertical installation, max. for "C" horizontal installation, min. Vertical installation, max. for "C" horizontal installation, min. Vertical installation, min. Vertical installation, min. Vertical installation altitude above sea level. Installation altitude above sea level, max. 50 "C" Altitude during operation relating to sea level. Installation altitude above sea level, max. 5000 m; Restrictions for installation altitudes > 2000 m, see manual configuration / hoader configuration / programming / header Programming language LAD FBD STL SCL GRAPH Yes SCL GRAPH Yes FROW-bow protection User program protection/password protection Ves Copy protection Protection level: Write protection Protection level: Read/write protection Protection level: Read/write protection Protection level: Complete protection Programming / cycle time monitoring / header Now-how proter limit Dimensions Width 100 mm		14
Controller PID_Compact PID_Step PID_Temp Counting and measuring PID_speed counter P		17
PID_Compact PID_Sitep PID_Sitep PID_Sitep PID_Temp Counting and measuring High-speed counter Programming language Pib language Programming confidention Programming confidention Programming confidention Programming confidention is the protection Programming confidention is the protection Programming confidential configuration of yes Protection level: Write protection Programming / yele time monitoring / header		
PID_3Step PID-Temp Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for temperature Counting and measuring High-speed counter Ambient conditions Ambient temperature during operation horizontal installation, min. horizontal installation, max. vertical installation, max. vertical installation, max. horizontal installation, max. vertical installation, max. horizontal installation, max. vertical installation max. horizontal installation max. vertical installation max. horizontal installation max. Vertical installation and intude above sea level histallation altitude above sea level, max. horizontal installation and intude above sea level, max. To "C; No condensation O"C Altitude during operation relating to sea level histallation altitude above sea level, max. To "C; No condensation O"C Altitude during operation relating to sea level No "C and installation altitudes > 2 000 m, see manual configuration / Programming / Peader Programming language - LAD - FBD - STL - SCL - SRAPH Yes - SCL - GRAPH Yes Know-how protection Operation in the protection of yes Block protection Protection level: Write protection Protection level: Write protection Protection level: Read/write protection Protection level: Complete protection Protection level: Co		Yes: Universal PID controller with integrated optimization
PID-Temp Counting and measuring High-speed counter Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • of °C • vertical installation, min. • vertical installation, min. • vertical installation, max. • vertical installation, max. • vertical installation, max. • vertical installation, max. 50 °C Altitude during operation relating to sea level • Installation altitude above sea level, max. configuration / programming / header Programming language — LAD — FBD — STL — SCL — GRAPH Yes Know-how protection • User program protection/password protection • Block protection • Block protection • Protection level: Write protection • Protection level: Read/write protection • Protection level: Read/write protection • Protection level: Read/write protection • Programming / cycle time monitoring / header • lower limit • upper limit • upper limit • pimensions Width 100 mm		
Counting and measuring		
Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, max. • vertical installation, max. Altitude during operation relating to sea level • Installation altitude above sea level, max. 5 0°C Altitude during operation relating to sea level • Installation altitude above sea level, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual configuration / header configuration / programming / header Programming language — LAD — FBD — STI — SCL — SCL — Yes — GRAPH — Yes Know-how protection • User program protection/password protection • User program protection/password protection • Slock protection • Copy protection • Protection of confidential configuration data • Protection fevel: Write protection • Protection level: Write protection • Protection level: Write protection • Protection level: Complete protection	•	103, 1 15 controller with integrated optimization for temperature
Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, min. • vertical installation, min. • vertical installation, max. • vertical installation, max. 50 °C Altitude during operation relating to sea level • Installation altitude above sea level, max. 50 °C Altitude during operation relating to sea level • Installation altitude above sea level, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual configuration / header configuration / programming / header Programming language — LAD — Yes — STL — Yes — STL — SCL — Yes — GRAPH — Yes Know-how protection • User program protection/password protection • User program protection/password protection • Block protection • Block protection • Protection level: Write protection • Protection level: Write protection • Protection level: Read/write protection • Protection level: Read/write protection • Protection level: Read/write protection • Protection level: Complete protection • Protection level: Initit • upper limit • User protection sevel: Vertice protection • Dimensions Width		Ves
Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. • vertical installation, max. • vertical installation, max. 50 °C Altitude during operation relating to sea level • Installation altitude above sea level, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual configuration / header configuration / programming / header Programming language — LAD — FBD — Yes — STL — SCL — GRAPH Yes Know-how protection • User program protection/password protection • User program protection/password protection • Block protection • Block protection • protection of confidential configuration data • Protection level: Write protection • Protection level: Write protection • Protection level: Complete protection • Protection level: Complete protection • Programming / cycle time monitoring / header • lower limit • upper limit Dimensions Width		Tes
horizontal installation, min. horizontal installation, max. vertical installation, max. vertical installation attitude above sea level Installation attitude above sea level, max. vertical installation attitude above sea level Installation attitude above sea level, max. vertical representation / header configuration / header Programming language LAD Yes FBD Yes STL Yes SCL Yes GRAPH Yes Know-how protection User program protection/password protection Copy protection Selbck protection Protection for confidential configuration data Protection level: Write protection Protection level: Read/write protection Protection level: Complete protection Protection level: Complete protection Programming / cycle time monitoring / header lower limit upper limit Dimensions Width 100 mm		
 horizontal installation, max. vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual configuration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH Yes GRAPH Yes Know-how protection User program protection/password protection Copy protection Block protection Protection level: Write protection Protection level: Read/write protection Protection level: Complete protection Yes Protection level: Complete protection 		22.22.1
vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. Installation altitudes > 2 000 m, see manual Installation altitude during please Installation altitude during please Installation altitude above alevel and altitudes > 2 000 m, see manual Installation altitude during please Installat	·	
• vertical installation, max. Altitude during operation relating to sea level • Installation altitude above sea level, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual configuration / header configuration / programming / header Programming language — LAD — FBD — STL — SCL — GRAPH — Yes — GRAPH Know-how protection • User program protection/password protection • Copy protection • Block protection • Protection of confidential configuration data • Protection level: Write protection • Protection level: Read/write protection • Protection level: Complete protection • Protection level: Complete protection • Protection level: Complete protection • Olower limit • upper limit • upper limit Dimensions Width 100 mm	 horizontal installation may 	60 °C
Altitude during operation relating to sea level Installation altitude above sea level, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual configuration / programming / header Programming language	•	
Installation altitude above sea level, max. Installation altitudes > 2 000 m, see manual configuration / header Configuration / programming / header Programming language - LAD - FBD - STL - SCL - SCL - GRAPH Yes Know-how protection User program protection/password protection Slock protection Block protection protection of confidential configuration data Protection level: Write protection Protection level: Write protection Protection level: Complete protection Programming / cycle time monitoring / header lower limit Dimensions Width 100 mm	• vertical installation, min.	
configuration / header configuration / programming / header Programming language — LAD — FBD — Yes — STL — SCL — GRAPH — Yes Know-how protection • User program protection/password protection • Block protection • Block protection • protection of confidential configuration data • protection level: Write protection • Protection level: Read/write protection • Protection level: Complete protection • Protection level: Complete protection • Protection level: Complete protection • programming / cycle time monitoring / header • lower limit • upper limit • upper limit Dimensions Width 100 mm	• vertical installation, min.	
configuration / programming / header Programming language — LAD — FBD — FBD — STL — SCL — GRAPH Yes — GRAPH Know-how protection • User program protection/password protection • Copy protection • Block protection • Protection of confidential configuration data • protection of confidential configuration data • Protection level: Write protection • Protection level: Read/write protection • Protection level: Complete protection • programming / cycle time monitoring / header • lower limit • upper limit • upper limit Dimensions Width 100 mm	 vertical installation, min. vertical installation, max. Altitude during operation relating to sea level 	50 °C
Programming language	 vertical installation, min. vertical installation, max. Altitude during operation relating to sea level 	50 °C
- LAD Yes - FBD Yes - STL Yes - SCL Yes - GRAPH Yes Yes - GRAPH Yes SKnow-how protection Yes Scot Yes - Group protection Yes Scot Yes - Group protection Yes Scot Yes Yes - Group protection Yes Scot Yes Scot Yes Scot Yes Yes Scot Yes Yes Scot Yes Yes Scot Yes Yes Yes Scot Yes Yes Yes Scot Yes	 vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. 	50 °C
- FBD - STL - SCL - GRAPH Yes - GRAPH Yes Know-how protection • User program protection/password protection • Copy protection • Block protection • protection • protection of confidential configuration data • Protection level: Write protection • Protection level: Read/write protection • Protection level: Complete protection • Protection level: Complete protection • Protection level: Complete protection • Protection level: Write protection • Protection level: Write protection • Protection level: Complete protection	 vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header 	50 °C
- STL - SCL - GRAPH Yes Know-how protection • User program protection/password protection • Copy protection • Block protection • protection • protection of confidential configuration data • Protection level: Write protection • Protection level: Read/write protection • Protection level: Complete protection • Protection level: Complete protection • Protection level: Complete protection • Protection level: Manual protection • Protection level: Acad write protection • Protection level: Complete protection • Protection leve	 vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language 	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
SCL GRAPH Yes Know-how protection User program protection/password protection Copy protection Block protection Pess Protection of confidential configuration data Protection level: Write protection Protection level: Write protection Protection level: Read/write protection Protection level: Complete protection Protection level: Complete protection Programming / cycle time monitoring / header I lower limit Upper limit	 vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD 	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes
Mow-how protection User program protection/password protection Copy protection Block protection Protection Protection protection of confidential configuration data Protection level: Write protection Protection level: Write protection Protection level: Complete protection Protection level: Complete protection Protection level: Complete protection Programming / cycle time monitoring / header I lower limit Upper	 vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD 	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes
Know-how protection User program protection/password protection Copy protection Block protection Protection Protection of confidential configuration data Protection level: Write protection Protection level: Read/write protection Protection level: Complete protection Programming / cycle time monitoring / header I lower limit Upper limit Dimensions Width Ves Yes Yes Yes Yes Access protection Yes Yes Protection level: Complete protection Yes Adjustable minimum cycle time Adjustable maximum cycle time Dimensions Width 100 mm	 vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL 	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes
User program protection/password protection Copy protection Block protection Pes Access protection protection of confidential configuration data Protection level: Write protection Protection level: Read/write protection Protection level: Complete protection Protection level: Complete protection Programming / cycle time monitoring / header I lower limit Upper limit Upper limit Upper limit Dimensions Width Uses Yes Yes Yes Yes Adjustable minimum cycle time adjustable maximum cycle time Dimensions 100 mm	 vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL 	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes
Copy protection Block protection Yes Access protection protection of confidential configuration data Protection level: Write protection Protection level: Read/write protection Protection level: Complete protection Programming / cycle time monitoring / header lower limit upper limit Dimensions Width Yes Yes Yes Yes Yes Adjustable minimum cycle time adjustable maximum cycle time 100 mm	 vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL 	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes
Block protection Access protection protection of confidential configuration data Protection level: Write protection Protection level: Write protection Protection level: Read/write protection Protection level: Complete protection Programming / cycle time monitoring / header I lower limit Upper limit Dimensions Width Yes Yes Yes Yes Adjustable minimum cycle time adjustable maximum cycle time 100 mm	 vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH 	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes
Access protection • protection of confidential configuration data • Protection level: Write protection • Protection level: Read/write protection • Protection level: Complete protection • Protection level: Complete protection programming / cycle time monitoring / header • lower limit • upper limit • upper limit Dimensions Width 100 mm	 vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection 	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes
 protection of confidential configuration data Protection level: Write protection Protection level: Read/write protection Protection level: Complete protection Programming / cycle time monitoring / header lower limit upper limit adjustable minimum cycle time upper limit adjustable maximum cycle time Dimensions Width 100 mm	 vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection User program protection/password protection 	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes
 protection of confidential configuration data Protection level: Write protection Protection level: Read/write protection Protection level: Complete protection Programming / cycle time monitoring / header lower limit upper limit adjustable minimum cycle time upper limit adjustable maximum cycle time Dimensions Width 100 mm	vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection User program protection/password protection Copy protection	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes
 Protection level: Write protection Protection level: Read/write protection Protection level: Complete protection Programming / cycle time monitoring / header lower limit upper limit adjustable minimum cycle time upper limit adjustable maximum cycle time Dimensions Width 100 mm	vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection User program protection/password protection Copy protection Block protection	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes
Protection level: Read/write protection Protection level: Complete protection Yes programming / cycle time monitoring / header I lower limit Upper l	vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection User program protection/password protection Copy protection Block protection Access protection	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Protection level: Complete protection programming / cycle time monitoring / header	vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection User program protection/password protection Copy protection Block protection Access protection protection of confidential configuration data	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
programming / cycle time monitoring / header	vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection User program protection/password protection Copy protection Block protection Access protection protection of confidential configuration data Protection level: Write protection	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
● lower limit ● upper limit ● upper limit Dimensions Width adjustable minimum cycle time adjustable maximum cycle time	vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection User program protection/password protection Copy protection Block protection Access protection protection of confidential configuration data Protection level: Write protection Protection level: Read/write protection	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
● upper limit adjustable maximum cycle time Dimensions Width 100 mm	vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection User program protection/password protection Copy protection Block protection Access protection protection of confidential configuration data Protection level: Write protection Protection level: Read/write protection Protection level: Complete protection	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Dimensions Width 100 mm	 vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection User program protection/password protection Copy protection Block protection Access protection protection of confidential configuration data Protection level: Write protection Protection level: Read/write protection Protection level: Complete protection programming / cycle time monitoring / header 	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Width 100 mm	vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection User program protection/password protection Copy protection Block protection Access protection protection of confidential configuration data Protection level: Write protection Protection level: Complete protection programming / cycle time monitoring / header lower limit	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
	vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection User program protection/password protection Copy protection Block protection Protection of confidential configuration data Protection level: Write protection Protection level: Read/write protection Programming / cycle time monitoring / header lower limit upper limit	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Height 117 mm	vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection User program protection/password protection Copy protection Block protection Access protection Protection of confidential configuration data Protection level: Write protection Protection level: Read/write protection Protection level: Complete protection programming / cycle time monitoring / header lower limit upper limit Dimensions	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
	vertical installation, min. vertical installation, max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection User program protection/password protection Copy protection Block protection Access protection Protection of confidential configuration data Protection level: Write protection Protection level: Read/write protection Protection level: Complete protection programming / cycle time monitoring / header lower limit upper limit Dimensions Width	50 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye

Depth	75 mm
Weights	
Weight, approx.	265 g
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