SIEMENS

Data sheet

6ES7512-1SM03-0AB0

SIMATIC DP, CPU 1512SP F-1 PN for ET 200SP, central processing unit with work memory 600 KB for program and 2 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! ****

General information	support.industry.siemens.com to be observed:
Product type designation	CPU 1512SP F-1 PN
HW functional status	FS01
Firmware version	V3.0
FW update possible	Yes
Product function	V 10M0 to 10M0
• 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	V40 (EVAL) (0.0) with older TIA Destal warrises configurable of 0E07
 STEP 7 TIA Portal configurable/integrated from version 	V18 (FW V3.0); with older TIA Portal versions configurable as 6ES7 512-1SK01-0AB0
Configuration control	
	Mar.
via dataset	Yes
Control elements	
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
l ² t	0.3 A ² ·s
Power	
Infeed power to the backplane bus	8.05 W
	0.05 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) 	600 kbyte
 integrated (for data) 	2 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
• Number range	1 60 999; subdivided into: number range that can be used by the
• Number range	user: 1 59 999, and number range of DBs created via SFC 86: 60 000 60 999
• Size, max.	2 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	.,.,.,
Number range	0 65 535
• Size, max.	600 kbyte
FC	
Number range	0 65 535
• Size, max.	600 kbyte
OB	
Size, max.	600 kbyte
 Number of free cycle OBs Number of time alarm OBs 	100 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; Up to 8 possible for F-blocks
Counters, timers and their retentivity	
S7 counter	
Number	2 048
Retentivity	
— adjustable	Yes
IEC counter	
• Number	Any (only limited by the main memory)
Retentivity	N.
— adjustable	Yes
S7 times	2.049
Number Retentivity	2 048
— adjustable	Yes
IEC timer	
• Number	Any (only limited by the main memory)
Retentivity	
— 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,
	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	64 khyte: may 16 KB per block
• 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	20 libute: All include and in the surgery include
Inputs Outputs	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	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images	
 Number of subprocess images, max. 	32
Address space per module	
 Address space per module, max. 	288 byte; For input and output data respectively
Address space per station	
 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	
 Modules per rack, max. Quantity of operable ET 200SP modules, max. Quantity of operable ET 200AL modules, max. 	82; CPU + 64 modules + server module (mounting width max. 1 m) + 16 ET 200AL modules 64 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	
Clock	
• Туре	Hardware clock
Backup time	6 wk; At 40 °C ambient temperature, typically
 Deviation per day, max. 	10 s; Tvp.: 2 s
Operating hours counter	
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	
• RJ 45 (Ethernet)	Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45
Number of ports	3; 1. integr. + 2. via BusAdapter
• integrated switch	Yes
BusAdapter (PROFINET)	Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12
Protocols	
IP protocol DOGINIET IO Constanting	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	
Media redundancy PROFINET IO Controller	Yes
Media redundancy	Yes

	No.
— Isochronous mode	Yes
— Direct data exchange	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, max. 	128
— of which in line, max.	128
— Number of IO Devices that can be	8; in total across all interfaces
simultaneously activated/deactivated, max.	
- Number of IO Devices per tool, max.	8
— Updating times	The minimum value of the update time also depends on communication
	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 μ s to 4 ms; Note: In the case of IRT with isochronous mode, the
	minimum update time of 500 μs of the isochronous OB is decisive
— for send cycle of 500 μs	500 μs to 8 ms; Note: In the case of IRT with isochronous mode, the
	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	
	Van
	LES
— PG/OP communication — Isochronous mode	Yes
— Isochronous mode	No
 — Isochronous mode — IRT 	No Yes
 Isochronous mode IRT PROFlenergy 	No Yes Yes; per user program
 Isochronous mode IRT PROFlenergy Shared device 	No Yes Yes; per user program Yes
 Isochronous mode IRT PROFlenergy Shared device Number of IO Controllers with shared device, 	No Yes Yes; per user program
 Isochronous mode IRT PROFIenergy Shared device Number of IO Controllers with shared device, max. 	No Yes Yes; per user program Yes 4
 Isochronous mode IRT PROFIenergy Shared device Number of IO Controllers with shared device, max. activation/deactivation of I-devices 	No Yes Yes; per user program Yes 4 Yes; per user program
 Isochronous mode IRT PROFlenergy Shared device Number of IO Controllers with shared device, max. activation/deactivation of I-devices Asset management record 	No Yes Yes; per user program Yes 4
 Isochronous mode IRT PROFIenergy Shared device Number of IO Controllers with shared device, max. activation/deactivation of I-devices 	No Yes Yes; per user program Yes 4 Yes; per user program
 Isochronous mode IRT PROFlenergy Shared device Number of IO Controllers with shared device, max. activation/deactivation of I-devices Asset management record 	No Yes Yes; per user program Yes 4 Yes; per user program
 Isochronous mode IRT PROFIenergy Shared device Number of IO Controllers with shared device, max. activation/deactivation of I-devices Asset management record 2. Interface	No Yes Yes; per user program Yes 4 Yes; per user program
 Isochronous mode IRT PROFIenergy Shared device Number of IO Controllers with shared device, max. activation/deactivation of I-devices Asset management record 2. Interface Interface types	No Yes Yes; per user program Yes; per user program Yes; per user program
 Isochronous mode IRT PROFIenergy Shared device Number of IO Controllers with shared device, max. activation/deactivation of I-devices Asset management record 2. Interface Interface types RS 485 	No Yes Yes; per user program Yes 4 Yes; per user program Yes; per user program
 Isochronous mode IRT PROFlenergy Shared device Number of IO Controllers with shared device, max. activation/deactivation of I-devices Asset management record 2. Interface Interface types RS 485 Number of ports 	No Yes Yes; per user program Yes 4 Yes; per user program Yes; per user program
 Isochronous mode IRT PROFlenergy Shared device Number of IO Controllers with shared device, max. activation/deactivation of I-devices Asset management record 2. Interface Interface types RS 485 Number of ports Protocols	No Yes Yes; per user program Yes; per user program Yes; per user program Yes; Via CM DP module 1
 Isochronous mode IRT PROFIenergy Shared device Number of IO Controllers with shared device, max. activation/deactivation of I-devices Asset management record 2. Interface Interface types RS 485 Number of ports Protocols PROFIBUS DP master 	No Yes Yes; per user program Yes; per user program Yes; per user program Yes; Via CM DP module 1
 Isochronous mode IRT PROFIenergy Shared device Number of IO Controllers with shared device, 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 	No Yes Yes; per user program Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes
 Isochronous mode IRT PROFIenergy Shared device Number of IO Controllers with shared device, 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	No Yes Yes; per user program Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes
 Isochronous mode IRT PROFIenergy Shared device Number of IO Controllers with shared device, 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. 	No Yes Yes; per user program Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes Yes Yes
 Isochronous mode IRT PROFIenergy Shared device Number of IO Controllers with shared device, 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	No Yes Yes; per user program Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes Yes Yes
 Isochronous mode IRT PROFIenergy Shared device Number of IO Controllers with shared device, 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. 	No Yes Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes Yes Yes Yes
 Isochronous mode IRT PROFIenergy Shared device Number of IO Controllers with shared device, 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. 	No Yes Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes Yes Yes Yes
 Isochronous mode IRT PROFlenergy Shared device Number of IO Controllers with shared device, 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 	No Yes Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes Yes Yes Yes Yes Yes
 Isochronous mode IRT PROFlenergy Shared device Number of IO Controllers with shared device, 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 DP slaves, max. Services PG/OP communication Equidistance 	No Yes Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
 Isochronous mode IRT PROFlenergy Shared device Number of IO Controllers with shared device, 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 DP slaves, max. Services PG/OP communication Equidistance Isochronous mode 	No Yes Yes; per user program Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes; Via CM DP module 1 Yes Yes Yes Yes Yes Yes Yes Yes Yes
 Isochronous mode IRT PROFIenergy Shared device Number of IO Controllers with shared device, 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 	No Yes Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
 Isochronous mode IRT PROFlenergy Shared device Number of IO Controllers with shared device, 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 	No Yes Yes; per user program Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes; Via CM DP module 1 Yes Yes Yes Yes Yes Yes Yes Yes Yes
 Isochronous mode IRT PROFlenergy Shared device Number of IO Controllers with shared device, 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) 	No Yes; per user program Yes; per user program Yes; per user program Yes; via CM DP module 1 Yes Yes Yes Yes Yes Yes Yes Yes Yes
 Isochronous mode IRT PROFlenergy Shared device Number of IO Controllers with shared device, 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 	No Yes Yes; per user program Yes; per user program Yes; per user program Yes; per user program Yes; Via CM DP module 1 Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
 Isochronous mode IRT PROFlenergy Shared device Number of IO Controllers with shared device, 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) 	No Yes; per user program Yes; per user program Yes; per user program Yes; via CM DP module 1 Yes Yes Yes Yes Yes Yes Yes Yes Yes

• Autocrossing	Vac
 Autocrossing Industrial Ethernet status LED 	Yes
RS 485	Tes
Transmission rate, max.	12 Mbit/s
Protocols	
PROFIsafe	Yes; V2.4 / V2.6
Number of connections	100, via integrated interfaces of the CDL and connected CDs / CMs
Number of connections, max.	128; via integrated interfaces of the CPU and connected CPs / CMs
Number of connections reserved for ES/HMI/web	10
Number of connections via integrated interfaces	88
Number of connections per CP/CM	32 16
Number of S7 routing paths Redundancy mode	10
H-Sync forwarding	Yes
Media redundancy	1 55
— 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 	Yes
 S7 communication, as client 	Yes
 User data per job, max. 	See online help (S7 communication, user data size)
Open IE communication	
• 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	Yes
• LLDP	Yes
• Encryption	Yes; Optional
Web server	Very Chandland and year no
	Yes; Standard and user pages
• HTTPS	Yes; Standard and user pages
OPC UA	Voc: "Small" license required
Runtime license required	Yes; "Small" license required
OPC UA Client Application authoritization	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. 	4
 Number of nodes of the client interfaces, recommended max. 	1 000
— Number of elements for one call of	300
OPC_UA_NodeGetHandleList/OPC_UA_ReadList/C max.	
 — Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. 	20
- Number of elements for one call of	100
OPC_UA_MethodGetHandleList, max.	

 — Number of simultaneous calls of the client instructions for session management, per 	1
connection, max.	
- Number of simultaneous calls of the client	5
instructions for data access, per connection, max.	
 Number of registerable nodes, max. 	5 000
 Number of registerable method calls of 	100
OPC_UA_MethodCall, max.	
 — Number of inputs/outputs when calling OPC_UA_MethodCall, max. 	20
OPC UA Server	Yes; Data Access (Read, Write, Subscribe), Method Call, Alarms &
	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. 	50
— Sampling interval, min.	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.	4 000, for 1's sampling interval and 1's send interval
— Number of server interfaces, max.	10 of each "Server interfaces" / "Companion specification" type and 20
	of the type "Reference namespace"
 — Number of nodes for user-defined server 	15 000
interfaces, max.	
 Alarms and Conditions 	Yes
 — Number of program alarms 	100
— Number of alarms for system diagnostics	50
Further protocols	
Further protocols MODBUS 	50 Yes; MODBUS TCP
Further protocols MODBUS S7 message functions	
Further protocols MODBUS S7 message functions Number of login stations for message functions, max.	Yes; MODBUS TCP 32
Further protocols MODBUS S7 message functions Number of login stations for message functions, max. Program alarms	Yes; MODBUS TCP 32 Yes
Further protocols MODBUS S7 message functions Number of login stations for message functions, max.	Yes; MODBUS TCP 32 Yes 5 000; Program messages are generated by the "Program_Alarm"
Further protocols • MODBUS S7 message functions Number of login stations for message functions, max. Program alarms Number of configurable program messages, max.	Yes; MODBUS TCP 32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
Further protocols • MODBUS S7 message functions 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.	Yes; MODBUS TCP 32 Yes 5 000; Program messages are generated by the "Program_Alarm"
Further protocols • MODBUS S7 message functions 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	Yes; MODBUS TCP 32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500
Further protocols • 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	Yes; MODBUS TCP 32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600
Further protocols • 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	Yes; MODBUS TCP 32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100
Further protocols • 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	Yes; MODBUS TCP 32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600
Further protocols • 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	Yes; MODBUS TCP 32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 160
Further protocols • 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 program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Test commission ing functions Joint commission (Team Engineering)	Yes; MODBUS TCP 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
Further protocols • 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 program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Test commission (Team Engineering) Status block	Yes; MODBUS TCP 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)
Further protocols • 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 commission (Team Engineering) Status block Single step	Yes; MODBUS TCP 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
Further protocols • 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 program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints	Yes; MODBUS TCP 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)
Further protocols • 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 program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Status/control	Yes; MODBUS TCP 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
Further protocols • 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 program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Status/control • Status/control variable	Yes; MODBUS TCP 32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 100 160 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; without fail-safe
Further protocols • 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 program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Status/control	Yes; MODBUS TCP 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
Further protocols • 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 program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Status/control • Status/control variable	Yes; MODBUS TCP 32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 100 160 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; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe),
Further protocols • 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 loadable 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 commission (Team Engineering) Status block Single step Number of breakpoints Status/control • Status/control variable • Variables	Yes; MODBUS TCP 32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 100 160 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; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe),
Further protocols • 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 program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max.	Yes; MODBUS TCP 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; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters
Further protocols • 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 program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. - of which status variables, max.	Yes; MODBUS TCP 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; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job
Further protocols • 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 simultaneously active program alarms • Number of program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max.	Yes; MODBUS TCP 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; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job
Further protocols • 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 program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max.	Yes; MODBUS TCP 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; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job
Further protocols • 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 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 commission (Team Engineering) Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max.	Yes; MODBUS TCP 32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 100 160 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; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job 200; per job
Further protocols • 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 program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. - of which status variables, max. - of which control variables, max. - Forcing • Forcing • Forcing	Yes; MODBUS TCP 32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 100 160 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; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe)
Further protocols • 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 program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. - of which status variables, max. - of which control variables, max. - of which control variables, max. Forcing • Forcing • Forcing • Forcing, variables • Number of variables, max.	Yes; MODBUS TCP 32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100 100 160 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; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe)
Further protocols • 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 commission (Team Engineering) Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. Beroring • Forcing • Forcing • Forcing variables, max. Diagnostic buffer	Yes; MODBUS TCP 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; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job 200; per job 200; per job 200; per job

Number of configurable Traces 4. Up to 512 KB of data per trace are possible Interrupt diagnostic status information Eigenostic status information Eigenostic status information Eigenostic status information Version Version Version Main TLED Yes Monit ong the supply outging (PWR-LED) Yes Monit on gring the supply outging (PWR-LED) Yes Supported to Exclusion display LINK TXRX Yes Supported to Exclusion display LINK TXRX Yes Supported to Exclusion display LINK TXRX Yes Motion Control Yes, Nutc: The muther of Exclusion gring assistic to cycle time of the PLC program; selection gring assistic to cycle time of the PLC program; selection gring assistic to cycle and assistic cycle and assistic to cycle and assistic to cycle and assistic cycle and assistic to cycle and assistic cycle and assistic cycle and assistic cycle and assistic to cycle and assistic cycle and assi	— of which powerfail-proof	500
Interrupt (diapostics indicates LED Ves ERROR LED Yes • RUNSTOP LED Yes • MAINT LED Yes • Monitoring of the supply voltage (PVR-LED) Yes • Connection display LINK TORX Yes Supported technology objects Midion Control Midion Control Yes, Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool • Number of available Motion Control resources for technology objects 40 - per speed-controlled axis 80 - per speed controlled axis 80 - per probe 40 - per probe 40 - per probe 40 - per probe 40 - Per solutioning axis 11 - que of am (typical value) 14 - Aumber of positioning axes at motion control que of am (typical value) 14 - PROS Yes: Universal PID controller with integrated optimization • PID_Step Yes: Donothel with integrated optimization for valves • PID_Step constal Yes: Donothel with integrated optimization for valves • PRO teemand mod		4: Up to 512 KB of data per trace are possible
Diagnostics indication LED Yes • RUNKTOP LED Yes • RENOR LED Yes • MAINT LED Yes • Connection display LINK VIKX Yes Supported technology objects Yes Motion of splay LINK VIKX Yes Supported technology objects Yes, Note: The number of technology objects affects the cycle time of the FLC program, selection guide via the TIA Selection Tool • Number of realizing Addition Control resources for underwork Motion Control resources 11 • Perpetitioning axis 80 - per probleming axis 80 - per probleming axis 160 - per probleming axis 100 - per probleming axis 11 - Number of positioning axes at motion control cycle of 6 ms (typical value) 11 - Number of positioning axes at motion control cycle of 6 ms (typical value) 14 • PID_SStep Yes; Universal PID controller with integrated optimization tor values • PID_Step Yes; Doctroller with integrated optimization for values • PID_Step Yes; Doctroller with integrated optimization for values • PID_Step Yes; • Pidid seas co		
• RINNSTOP LED Yes • ERROR LED Yes • Monotion of the supply voltage (PWR-LED) Yes • Monotion of the supply voltage (PWR-LED) Yes • Monotion of orland Yes, Note: The number of technology objects affects the cycle time of the PLC program, selection guide via the TIA Selection Tool • Monotion of a valable Molion Control resources for technology objects 1.20 • Required Molion Control resources for technology objects 60 - per speci-ontrolled and the supply objects 80 - per speci-ontrolled technology objects 80 - Number of posiolining axes at molion contr		
 ERROR LED Yes Monitoring of the supply voltage (PWR-LED) Yes Connection display LINK TX/RX Yes Supported technology objects Who of control Wes Note: The number of technology objects affects the cycle time of the PLC program, selection guide via the TIA Selection Tool Number of available Motion Control resources for technology objects Required Motion Control resources — per specific control resources — per synchronous axis = per specific control resources = per can track = por probe = Number of positioning axes at motion control cycle of a ms (typical value) — whome of positioning axes at motion control cycle of a ms (typical value) = Number of positioning axes at motion control cycle of a ms (typical value) = Number of positioning axes at motion control cycle of a ms (typical value) = Number of positioning axes at motion control cycle of a ms (typical value) = Number of positioning axes at motion control cycle of a ms (typical value) = Number of positioning axis = PD_Compact = Yes = PD_Compact = Yes = Portomatic for temperature = Ves = Portomatic for a solution to ratio of 20 years and regare time of 100 hours) = Log dam mode (PEP ang) in accordiance = Ves = Stata car: to EC at 5tata = Stata car: to EC at 5tata	-	Yes
• Monitoring of the supply voltage (PWR-LED) Yes Supported technology objects Yes: Note: The number of technology objects affects the cycle time of technology objects affects the cycle time of technology objects • Number of available Motion Control resources for technology objects affects the cycle time of technology objects 1120 • Required Motion Control resources - - per speed: controlled axis 80 - per synchronous axis 180 - per synchronous axis 180 - per synchronous axis 180 - per cam track 180 - per probe 40 - Positioning axis 180 - mome of positioning axes at motion control 11 - Where of positioning axes at motion control 14 - Controller Yes: PID controller with integrated optimization for valves • PID_Senp Yes: PID controller with integrated optimization for valves • PID_Senp Yes: PID controller with integrated optimization for valves • PID_Senp Yes: PID controller with integrated optimization for valves • PID_Senp Yes: PID controller with integrated optimization for valves • PID_Senp Yes: PID controller with integrated optimizati		
Connection display LINK TX/RX Yes Supported technology objects Motion Control Motion Control Motion Control Number of available Motion Control resources for the PLC program: selection guide via the TIA Selection Tool 1 Ta0 The speed-controlled axis Requires Motion Control resources - per speed-controlled axis Requires Motion Control resources - per speed-controlled axis Requires Motion Control resources - per output can - per output can - per output can - per output can - per probe 40 - per output can - per probe 40 - perotall instaliation for installati	MAINT LED	Yes
Connection display LINK TX/RX Yes Supported technology objects Motion Control Motion Control Motion Control Number of available Motion Control resources for the PLC program: selection guide via the TIA Selection Tool 1 Ta0 The speed-controlled axis Requires Motion Control resources - per speed-controlled axis Requires Motion Control resources - per speed-controlled axis Requires Motion Control resources - per output can - per output can - per output can - per output can - per probe 40 - per output can - per probe 40 - perotall instaliation for installati	 Monitoring of the supply voltage (PWR-LED) 	Yes
Motion Control Yes: Note: The number of technology objects affects the cycle time of technology objects • Number of available Motion Control resources for technology objects 1120 • Perspection Control resources 40 • - per spect-controlled axis 80 per synchronous axis 100 - per output cam 20 - per probe 40 • Positioning axis 100 per probe 40 • Positioning axis 100 per probe 40 • Positioning axis 11 worther of nositioning axes at motion control cycle of an (typical value) 11 Number of positioning axes at motion control cycle of an (typical value) 14 • PD_ Compact Yes; PID controller with integrated optimization for valves • PD_ Temp Yes Counting and measuing * • High-speed counter Yes • Stata cot LEC 61508 SLI. 3 Probability of failure (for service) life of 20 years and regarter time of 100 hours) - Low demand mode: PFDag in accordance with SLI.3 Probability of failure (for service) life of 20 years and regarter		Yes
the PLC program: selection guide via the TIA Selection Tool technology objects Program selection guide via the TIA Selection Tool 120 Per select-controlled axis Per spect-controlled axis Per spect-con	Supported technology objects	
• Number of available Molino Control resources for technology objects 1 120 • Pequired Molino Control resources 40 - per synchronous axis 160 - per synchronous axis 160 - per output cam 20 - per output cam 11 - Number of positioning axes at motion control cycle of 4 ms (typical value) 11 - Number of positioning axes at motion control cycle of 8 ms (typical value) 14 Controller • PID_Compact Yes: PID controller with integrated optimization for valves • PID_Step Yes: PID controller with integrated optimization for valves Yes: PID controller with integrated optimization for valves • PID-Temp Yes: PID controller with integrated optimization for valves Yes: PID controller with integrated optimization for valves • PID-Temp Yes: PID controller with integrated optimization for valves Yes: PID controller with integrated optimization for valves • PID-Temp Yes: PID controller with integrated optimization for valves Yes: PID controller with integrated optimization for valves • PiD_Compact Yes: VID controller with integrated optimization for valves<	Motion Control	Yes; Note: The number of technology objects affects the cycle time of
eRequired Motion Control resources		the PLC program; selection guide via the TIA Selection Tool
• Required Motion Control resources 40 - per synchronous axis 80 - per synchronous axis 180 - per authoria 80 - Number of positioning axes at motion control cycle of 8 ms (typical value) 11 - Number of positioning axes at motion control cycle of 8 ms (typical value) 14 Controller Yes; Universal PID controller with integrated optimization PID_Step Yes; PID controller with integrated optimization for valves PID-Temp Yes; PID controller with integrated optimization for valves PID-Temp Yes; VID controller with integrated optimization for temperature Counting and measuring Yes • High-speed counter Yes Probabiity of failure (for service life of 20 ye		1 120
		40
- per output cam 80 - per output cam 20 - per cam track 160 - per probe 40 • Positioning axis - - Number of positioning axes at motion control cycle of 4 ms (typical value) 11 - Number of positioning axes at motion control cycle of 4 ms (typical value) 14 - Number of positioning axes at motion control cycle of 8 ms (typical value) Yes; Universal PID controller with integrated optimization • PID_Compact Yes; Universal PID controller with integrated optimization for valves • PID-Temp Yes; PID controller with integrated optimization for temperature Counting and measuring * • High-speed counter Yes • Performance level according to ISO 13849-1 PLe • Election S Sill 3 Probability of failure (for service life of 20 years and repair time of 100 hours) - - Low demand mode: PFDay in accordance <2.00E-05		
— per probe 40 ● Positioning axis 11 … Number of positioning axes at motion control 11 … Number of positioning axes at motion control 14 … Number of positioning axes at motion control 14 … PID_Compact Yes; Universal 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 ● PID_Temp Yes; PID controller with integrated optimization for temperature Counting and measuring • Yes Standards, approvals, certificates Yes Highest safety class achievable in safety mode • Le • Performance level according to ISO 13849-1 PLe • Sta. co. to IEC 61508 Stl. 3 Probability of failure (for service life of 20 years and repair time of 100 hours) - Low demand mode: PFDay in accordance - — Low demand mode: PFDay in accordance < 2.00E-05		
 Postioning 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) PID_Compact PID_Compact Yes: Universal PID controller with integrated optimization for valves PID_Temp Yes: PID controller with integrated optimization for valves PID_Temp Yes: PID controller with integrated optimization for temperature Ves: PID controller with integrated optimization for valves Ves: PID controller with integrated optimization for temperature Ves: PID controller with integrated optimization for valves Ves: PID controller with integrated optimization for temperature Ves: Volume (for service life of 20 years and repair time of 100 hours) Low demand mode: PFDavg in accordance Ves: Volume of this databon, main. Solution accordance with SIL3 Ambient conditions Ambient conditions max. Solution accordance with SIL3 Ambient conditions max. Solo m; Restrictions for installation attitudes > 2 000 m; see manual Configuration / bader Ves: incl. failsafe - FBD - CAL - SCL - SCL Ves - Copy protection Ves - Co	•	
cycle of 4 ms (typical value) 14 - Number of positioning axes at motion control cycle of 8 ms (typical value) 14 Controller * • PID_Compact Yes; Universal PID controller with integrated optimization • PID_Step 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 Standards, approvals, certificates * Highest staft values activable in safety mode * • Performance level according to ISO 13849-1 PLe • SIL acc. to IEC 61508 SIL 3 Probability of failure (for service life of 20 years and repair time of 100 hours) - Low demand mode: PFDarg in accordance <2.00E-05		
- Number of positioning axes at motion control cycle of 8 ms (typical value) 14 - PID_Compact Yes; Universal PID controller with integrated optimization • PID_Step Yes; PID controller with integrated optimization for valves • PID-Temp Yes; PID controller with integrated optimization for temperature Countroller Yes; PID controller with integrated optimization for temperature Counting and measuring Yes; • High-speed counter Yes Standards, approvals, certificates PLe Statact to IEC 61508 SIL 3 Probability of failure (for service life of 20 years and repair time of 100 hours) - - Low demand mode: PFDavg in accordance with SIL3 Ambient conditions < 1.00E-09	 Number of positioning axes at motion control 	11
cycle of 8 ms (typical value) Controller • PID_Compact • PID_Step • PID-Temp • PID-Temp • Pid-step • Performance level according to ISO 13849-1 • Performance level according to ISO 13849-1 • Performance level according to ISO 13849-1 • Performance level according to ISO 13849-1 • Pidb demand/continuous mode: PFDavg in accordance • with SiL3 • Tow demand mode: PFDavg in accordance • with all stallation, min. • Anbient conditions Ambient conditions • Morizati installation, max. • O'C • vertical installation, max. • O'C No condensation		
Controller Yes; Universal PID controller with integrated optimization • PID_Step 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 Standards, approvals, certificates - Highest safety class achievable in safety mode - • Sta acc. to IEC 61508 SL 3 Probability of failure (for service life of 20 years and repair time of 100 hours) - Low demand mode: PFDavg in accordance with SL3 - Ambient temperature during operation < 1.00E-09		14
• PID_Compact Yes; Universal PID controller with integrated optimization for valves • PID_Temp Yes; PID controller with integrated optimization for valves • PID_temp Yes; PID controller with integrated optimization for temperature • Nigh-speed counter Yes; • Nigh-speed counter Yes Standards, approvals, cortificates		
• PID_3Step 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 Standards, approvals, cortificates * Highest safety class achievable in safety mode * • Performance level according to ISO 13849-1 PLe • SiL acc. to IEC 61508 SiL 3 Probability of failure (for service life of 20 years and repair time of 100 hours) - - Low demand mode: PFDavg in accordance with SiL3 Ambient conditions Ambient temperature during operation < 1.00E-09		Vegi Universal DID controller with integrated entimization
• PID-Temp Yes; PID controller with integrated optimization for temperature Counting and measuring Yes Standards, approvals, cortificates Figh-speed counter High-speed counter Yes Standards, approvals, cortificates Figh-speed counter High-stafety class achievable in safety mode Figh-speed counter • Performance level according to ISO 1349-1 PLe • SL acc. to IEC 61508 SL 3 Probability of failure (for service life of 20 years and repair time of 100 hours) - - Low demand mode: PFDavg in accordance with SL3 <1.00E-09		
Counting and measuring Yes High-speed counter Yes Standards, approvals, certificates Highest safety class achievable in safety mode • Performance level according to ISO 13849-1 PLe • SIL acc. to IEC 61508 SIL 3 Probability of failure (for service life of 20 years and repair time of 100 hours)		
High-speed counter Yes Standards, approvals, cortificates Highest safety class achievable in safety mode • Performance level according to ISO 13849-1 PLe • SiL acc. to IEC 61508 SiL 3 Probability of failure (for service life of 20 years and repair time of 100 hours)		res, rib controller with integrated optimization for temperature
Standards, approvals, certificates Highest safety class achievable in safety mode • Performance level according to ISO 13849-1 PLe • SIL acc. to IEC 61508 SIL 3 Probability of failure (for service life of 20 years and repair time of 100 hours) - - Low demand mode: PFDavg in accordance with SIL3 < 2.00E-05		Yes
Highest safety class achievable in safety mode Performance level according to ISO 13849-1 PLe • SIL acc. to IEC 61508 SIL 3 Probability of failure (for service life of 20 years and repair time of 100 hours) - Low demand mode: PFDavg in accordance with SIL3 < 2.00E-05	0	
 Performance level according to ISO 13849-1 PLe SIL acc. to IEC 61508 SIL 3 Probability of failure (for service life of 20 years and repair time of 100 hours) Low demand mode: PFDavg in accordance with SIL3 OBE-05 with SIL3 High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation horizontal installation, min. -30 °C; No condensation horizontal installation, min. -30 °C; No condensation vertical installation, max. 60 °C vertical installation, max. 50 °C Attitude during operation relating to sea level Installation, max. 50 °C Attitude 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 Programming / header Programming language LAD Yes; incl. failsafe FBD Yes; incl. failsafe STL SGL GRAPH Yes GRAPH Yes GRAPH Yes GRAPH Yes Block protection Yes 		
 SIL acc. to IEC 61508 SIL 3 Probability of failure (for service life of 20 years and repair time of 100 hours) Low demand mode: PFDay in accordance with SIL3 High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation horizontal installation, min. -30 °C; No condensation horizontal installation, max. 60 °C vertical installation, max. 60 °C vertical installation, max. 50 °C; No condensation 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. 50 00 m; Restrictions for installation altitudes > 2 000 m, see manual configuration / programming / header Programming language LAD Yes; incl. failsafe SCL SCL Yes SCL Yes Know-how protection Ves Coppy protection Yes 		PLe
Probability of failure (for service life of 20 years and repair time of 100 hours) -	0	
with SL3 - High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. -30 °C; No condensation • horizontal installation, max. 60 °C • vertical installation, max. 60 °C • vertical installation, max. 50 °C • vertical installation, max. 50 °C • Vertical installation, max. 50 °C • vertical installation attitude above sea level - • Installation attitude above sea level, max. 5 000 m; Restrictions for installation attitudes > 2 000 m, see manual configuration / header - Programming language - - LAD Yes; incl. failsafe - STL Yes - SCL Yes - SCL Yes - GRAPH Yes Know-how protection/password protection Yes • User program protection/password protection Yes • Block protection Yes	Probability of failure (for service life of 20 years and repair	
High demand/continuous mode: PFH in accordance with SIL3 < 1.00E-09	- Low demand mode: PFDavg in accordance	< 2.00E-05
accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. -30 °C; No condensation • horizontal installation, max. 60 °C • vertical installation, max. 50 °C; No condensation • vertical installation, max. 50 °C • vertical installation, max. 50 °C • vertical installation, max. 50 °C • Installation altitude above sea level - • Installation altitude above sea level, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual configuration / header - Programming language - - LAD Yes; incl. failsafe - FBD Yes; incl. failsafe - STL Yes - SCL Yes - GRAPH Yes - User program protection/password protection Yes • User program protection/password protection Yes • Block protection Yes		
Ambient conditions Ambient temperature during operation • horizontal installation, min. -30 °C; No condensation • horizontal installation, max. 60 °C • vertical installation, max. 50 °C Altitude during operation relating to sea level -30 °C; No condensation • Installation attitude above sea level 5 000 m; Restrictions for installation attitudes > 2 000 m, see manual configuration / header 5 000 m; Restrictions for installation attitudes > 2 000 m, see manual configuration / programming / header - Programming language - - LAD Yes; incl. failsafe - FBD Yes; incl. failsafe - STL Yes - SCL Yes - GRAPH Yes Ves program protection/password protection Yes • User program protection/password protection Yes • Block protection Yes		< 1.00E-09
Ambient temperature during operation horizontal installation, min. horizontal installation, max. 60 °C vertical installation, min. -30 °C; No condensation 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 Programming language LAD Yes; incl. failsafe SCL SCL Yes GRAPH Yes User program protection/password protection Yes Copy protection Yes Block protection Yes 		
 horizontal installation, min. -30 °C; No condensation horizontal installation, max. 60 °C vertical installation, max. -30 °C; No condensation 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 Yes; incl. failsafe - STL SCL - SCL Yes - GRAPH Ves Know-how protection Ves Know-how protection/password protection Yes Block protection Yes 		
 horizontal installation, max. 60 °C vertical installation, min. -30 °C; No condensation 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 Yes; incl. failsafe FBD Yes; incl. failsafe SCL SCL GRAPH Yes Know-how protection User program protection/password protection Yes Block protection Yes 		20 °C: No condensation
 vertical installation, min. -30 °C; No condensation 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 — STL — SCL — GRAPH Yes Know-how protection User program protection/password protection Yes — Soly protection Yes — Block protection Yes 	-	
• vertical installation, max.50 °CAltitude during operation relating to sea level• Installation altitude above sea level, max.5 000 m; Restrictions for installation altitudes > 2 000 m, see manualconfiguration / headerconfiguration / programming / headerProgramming language- LADYes; incl. failsafe- FBDYes; incl. failsafe- STLYes- SCLYes- GRAPHYesVesr program protection/password protectionYes• Lopy protectionYes• Block protectionYes		
Altitude during operation relating to sea level 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual configuration / header 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual configuration / header restrictions for installation altitudes > 2 000 m, see manual configuration / header Programming / header Programming language - LAD - LAD Yes; incl. failsafe - FBD Yes; incl. failsafe - STL Yes - SCL Yes - GRAPH Yes Know-how protection Yes • User program protection/password protection Yes • Block protection Yes		
● Installation altitude above sea level, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual configuration / programming / header Programming language - LAD Yes; incl. failsafe - FBD Yes; incl. failsafe - STL Yes - SCL Yes - GRAPH Yes ● User program protection/password protection Yes ● Copy protection Yes ● Block protection Yes		
configuration / header Programming language		5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
configuration / programming / header Programming language Yes; incl. failsafe - LAD Yes; incl. failsafe - FBD Yes; incl. failsafe - STL Yes - SCL Yes - GRAPH Yes Vesr program protection/password protection Yes • Copy protection Yes • Block protection Yes		
Programming language - LAD Yes; incl. failsafe - FBD Yes; incl. failsafe - STL Yes - SCL Yes - GRAPH Yes • User program protection/password protection Yes • Copy protection Yes • Block protection Yes		
- LADYes; incl. failsafe- FBDYes; incl. failsafe- STLYes- SCLYes- GRAPHYesKnow-how protectionYes• User program protection/password protectionYes• Copy protectionYes• Block protectionYes		
FBDYes; incl. failsafe STLYes SCLYes GRAPHYesKnow-how protectionYes• User program protection/password protectionYes• Copy protectionYes• Block protectionYes		Yes: incl. failsafe
- STLYes- SCLYes- GRAPHYesKnow-how protectionYes• User program protection/password protectionYes• Copy protectionYes• Block protectionYes		
SCL GRAPHYesKnow-how protectionYesKnow-how protection/password protectionYes• User program protection/password protectionYes• Copy protectionYes• Block protectionYes		
Know-how protection Yes • User program protection/password protection Yes • Copy protection Yes • Block protection Yes		
• User program protection/password protectionYes• Copy protectionYes• Block protectionYes	— GRAPH	Yes
• User program protection/password protectionYes• Copy protectionYes• Block protectionYes	Know-how protection	
Copy protection Yes Block protection Yes		Yes
	Copy protection	Yes
Access protection		Yes
	Access protection	

 protection of confidential configuration data 	Yes
 Protection level: Write protection 	Yes
 Protection level: Read/write protection 	Yes
 Protection level: Write protection for Failsafe 	Yes
 Protection level: Complete protection 	Yes
programming / cycle time monitoring / header	
lower limit	adjustable minimum cycle time
• upper limit	adjustable maximum cycle time
Dimensions	
Width	100 mm
Height	117 mm
Depth	75 mm
Weights	
Weight, approx.	265 g
last modified:	9/22/2022 🖸