6ES7512-1DK01-0AB0

Data sheet



SIMATIC DP, CPU 1512SP-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, 48 ns bit performance, SIMATIC Memory Card required, BusAdapter required for Port 1 and 2

General information	
Product type designation	CPU 1512SP-1 PN
HW functional status	FS05
Firmware version	V2.9
Product function	
 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 625 µs
Engineering with	
 STEP 7 TIA Portal configurable/integrated from version 	V17 (FW V2.9) / V13 SP1 Update 4 (FW V1.8) or higher
Configuration control	
via dataset	Yes
Control elements	
Mode selector switch	1
Supply voltage	
Type of supply voltage	24 V DC
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 	5 ms
Input current	
Current consumption (rated value)	0.6 A
Current consumption, max.	0.9 A
Inrush current, max.	4.7 A; Rated value
l²t	0.14 A ² ·s
Power	
Infeed power to the backplane bus	8.75 W
Power loss	
Power loss, typ.	5.6 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

I and manners.	
Load memory	22 Chita
Plug-in (SIMATIC Memory Card), max.	32 Gbyte
■ Backup ■ maintenance-free	Voo
	Yes
CPU processing times	
for bit operations, typ.	48 ns
for word operations, typ.	58 ns
for fixed point arithmetic, typ.	77 ns
for floating point arithmetic, typ.	307 ns
CPU-blocks	
Number of elements (total)	4 000; Blocks (OB, FB, FC, DB) and UDTs
DB	
Number range	1 60 999; subdivided into: number range that can be used by the 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 range	0 65 535
• Size, max.	200 kbyte
OB	
• Size, max.	200 kbyte
Number of free cycle OBs	100
Number of time alarm OBs	20
Number of time diam OBs Number of delay alarm OBs	20
Number of delay diam OBs Number of cyclic interrupt OBs	20; With minimum OB 3x cycle of 500 µs
Number of cyclic interrupt OBs Number of process alarm OBs	50
Number of DPV1 alarm OBs	3
Number of Bochronous 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	
— adjustable	Yes
S7 times	
Number	2 048
Retentivity	
— adjustable	Yes
IEC timer	
Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
Data areas and their retentivity	
	128 khyte: Available retentive memory for hit memories, timere
Retentive data area (incl. timers, counters, flags), max.	128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB

Flag	4011.4
• Size, max.	16 kbyte
Number of clock memories Pate blacks	8; 8 clock memory bit, grouped into one clock memory byte
Data blocks	Voo
Retentivity adjustable Retentivity proced	Yes No
Retentivity preset Local data	INO
• per priority class, max.	64 kbyte; max. 16 KB per block
	04 kbyte, max. To KB per block
Address area	0.040;
Number of IO modules	2 048; max. number of modules / submodules
I/O address area	20 khuta. All inguta are in the present image
• Inputs	32 kbyte; All inputs are in the process image
Outputs Per integrated IO subsystem	32 kbyte; All outputs are in the process image
per integrated IO subsystem	9 khyta
— Inputs (volume)	8 kbyte
— Outputs (volume) per CM/CP	8 kbyte
— Inputs (volume)	8 khyte
— Outputs (volume) — Outputs (volume)	8 kbyte 8 kbyte
— Outputs (volume) Subprocess images	O MOYIC
Number of subprocess images, max.	32
Address space per module	32
Address space per module, max.	288 byte; For input and output data respectively
Address space per module, max. Address space per station	200 byte, i or input and output data respectively
Address space per station, max.	2 560 byte; for central inputs and outputs; depending on configuration; 2
Tradices space per station, max.	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.	80; 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	
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	
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

terfaces	
Number of PROFINET interfaces	1
Number of PROFIBUS interfaces	1; Via CM DP module
Optical interface	Yes; via BusAdapter
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 M12, BA 2x FC, BA 2x LC, BA LC/RJ45, BA LC/FC, BA 2x SCRJ, BA SCRJ/RJ45, BA SCRJ/FC,
Protocols	
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; MRP Automanager according to IEC 62439-2 Edition 2.0
PROFINET IO Controller	
Services	
— PG/OP communication	Yes
 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 simultaneously activated/deactivated, max. 	8; in total across all interfaces
 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 μs 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
— 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 cycles	Update time = set "odd" send clock (any multiple of 125 μs: 375 μs, 625
cycles Update time for RT	μs 3 875 μs)
— for send cycle of 250 μs	250 µs to 128 ms
— for send cycle of 230 µs	500 µs to 256 ms
— for send cycle of 500 µs — for send cycle of 1 ms	1 ms to 512 ms
— for send cycle of 1 ms — for send cycle of 2 ms	2 ms to 512 ms
— for send cycle of 2 ms — for send cycle of 4 ms	4 ms to 512 ms
— IOI SEUG CYCIE OF 4 IUS	4 1115 (U 0 12 1115
·	
PROFINET IO Device	
PROFINET IO Device Services	Vac
PROFINET IO Device	Yes No

— PROFlenergy	Yes; per user program
— Shared device	Yes
 Number of IO Controllers with shared device, max. 	4
activation/deactivation of I-devices	Yes; per user program
Asset management record	Yes; per user program
2. Interface	1 50, por door program
Interface types	VVi- OM DD markets
• RS 485	Yes; Via CM DP module
Number of ports	1
Protocols	V
PROFIBUS DP master	Yes
PROFIBUS DP slave	Yes
SIMATIC communication	Yes
PROFIBUS DP master	
 Number of connections, max. 	48; Of which 4 each reserved for ES and HMI
 Number of DP slaves, max. 	125; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
Services	
— PG/OP communication	Yes
— Equidistance	No
— Isochronous mode	No
Activation/deactivation of DP slaves	Yes
	166
Interface types	
RJ 45 (Ethernet)	Vee
• 100 Mbps	Yes
Autonegotiation	Yes
Autocrossing	Yes
Industrial Ethernet status LED	Yes
RS 485	40 MI: 1/-
Transmission rate, max.	12 Mbit/s
Protocols	
Number of connections	
Number of connections, max.	128; via integrated interfaces of the CPU and connected CPs / CMs
Number of connections, max.Number of connections reserved for ES/HMI/web	128; via integrated interfaces of the CPU and connected CPs / CMs
Number of connections, max.	10 88
Number of connections, max.Number of connections reserved for ES/HMI/web	10
 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces 	10 88
 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections per CP/CM 	10 88 32
 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections per CP/CM Number of S7 routing paths 	10 88 32
 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections per CP/CM Number of S7 routing paths Redundancy mode 	10 88 32 16
 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections per CP/CM Number of S7 routing paths Redundancy mode H-Sync forwarding 	10 88 32 16
 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections per CP/CM Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy 	10 88 32 16 Yes Yes; only via BusAdapter Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP
 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections per CP/CM Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy MRP 	10 88 32 16 Yes Yes; only via BusAdapter Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client
 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections per CP/CM Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy MRP MRP interconnection, supported 	10 88 32 16 Yes Yes; only via BusAdapter Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0
 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections per CP/CM Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy MRP MRP interconnection, supported MRPD 	10 88 32 16 Yes Yes; only via BusAdapter Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT
 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections per CP/CM Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy MRP MRP interconnection, supported MRPD Switchover time on line break, typ. 	10 88 32 16 Yes Yes; only via BusAdapter Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD
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 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections per CP/CM Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy MRP MRP MRP interconnection, supported MRPD Switchover time on line break, typ. Number of stations in the ring, max. SIMATIC communication PG/OP communication 	10 88 32 16 Yes Yes; only via BusAdapter Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50 Yes; encryption with TLS V1.3 pre-selected
 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections per CP/CM Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy MRP MRP MRPD Switchover time on line break, typ. Number of stations in the ring, max. SIMATIC communication PG/OP communication S7 routing 	10 88 32 16 Yes Yes; only via BusAdapter Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50 Yes; encryption with TLS V1.3 pre-selected Yes
 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections per CP/CM Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy MRP MRP MRPD Switchover time on line break, typ. Number of stations in the ring, max. SIMATIC communication PG/OP communication S7 routing Data record routing 	10 88 32 16 Yes Yes; only via BusAdapter Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50 Yes; encryption with TLS V1.3 pre-selected Yes Yes
 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections per CP/CM Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy — Media redundancy — MRP — MRP — MRPD — Switchover time on line break, typ. — Number of stations in the ring, max. SIMATIC communication PG/OP communication S7 routing Data record routing S7 communication, as server 	10 88 32 16 Yes Yes; only via BusAdapter Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50 Yes; encryption with TLS V1.3 pre-selected Yes Yes Yes
 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections per CP/CM Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy MRP MRP MRP MRPD Switchover time on line break, typ. Number of stations in the ring, max. SIMATIC communication PG/OP communication S7 routing Data record routing S7 communication, as server S7 communication, as client 	10 88 32 16 Yes Yes; only via BusAdapter Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50 Yes; encryption with TLS V1.3 pre-selected Yes Yes Yes Yes
 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections per CP/CM Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy MRP MRP MRPD Switchover time on line break, typ. Number of stations in the ring, max. SIMATIC communication PG/OP communication S7 routing Data record routing S7 communication, as server S7 communication, as client User data per job, max. 	10 88 32 16 Yes Yes; only via BusAdapter Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50 Yes; encryption with TLS V1.3 pre-selected Yes Yes Yes
 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections per CP/CM Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy MRP MRP MRP interconnection, supported MRPD Switchover time on line break, typ. Number of stations in the ring, max. SIMATIC communication PG/OP communication S7 routing Data record routing S7 communication, as server S7 communication, as client User data per job, max. Open IE communication 	10 88 32 16 Yes; only via BusAdapter Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50 Yes; encryption with TLS V1.3 pre-selected Yes Yes Yes Yes Yes See online help (S7 communication, user data size)
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 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections per CP/CM Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy MRP MRP MRP interconnection, supported MRPD Switchover time on line break, typ. Number of stations in the ring, max. SIMATIC communication PG/OP communication S7 routing Data record routing S7 communication, as server S7 communication, as client User data per job, max. Open IE communication 	10 88 32 16 Yes; only via BusAdapter Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50 Yes; encryption with TLS V1.3 pre-selected Yes Yes Yes Yes Yes See online help (S7 communication, user data size)

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. 5 multicast circuits
• DHCP	Yes
• DNS	Yes
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
• Encryption	Yes; Optional
Web server	100, 0 p. 101 14.
• HTTP	Yes; Standard and user pages
• HTTPS	Yes; Standard and user pages
OPC UA	, 10
Runtime license required	Yes; "Small" license required
OPC UA Client	Yes
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, 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	20
OPC_UA_NameSpaceGetIndexList, max.	20
Number of elements for one call of	100
OPC_UA_MethodGetHandleList, max.	
Number of simultaneous calls of the client	1
instructions per connection (except OPC_UA_ReadList,OPC_UA_WriteList,OPC_UA_M	
max.	
 Number of simultaneous calls of the client 	5
instructions	
OPC_UA_ReadList,OPC_UA_WriteList and OPC_UA_MethodCall, 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 	20
OPC_UA_MethodCall, max.	
OPC UA Server	Yes; Data access (read, write, subscribe), method call, custom address
Application authoritization	space Yes
Application authentication Security policies	
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
 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.	20
— Sampling interval, min.	100 ms
— Publishing interval, min.	500 ms
Number of server methods, max.	20
Number of inputs/outputs per server method,	20
max.	
 Number of monitored items, max. 	1 000; 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

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Number of modes for user defined conver	of the type "Reference namespace"
 Number of nodes for user-defined server interfaces, max. 	1 000
Alarms and Conditions	Yes
Number of program alarms	100
Number of alarms for system diagnostics	50
Further protocols	30
MODBUS	Yes; MODBUS TCP
S7 message functions	1.00,
Number of login stations for message functions, max.	32
Program alarms	Yes
Number of configurable program messages, max.	5 000; Program messages are generated by the "Program_Alarm"
Number of configurable program messages, max.	block, ProDiag or GRAPH
Number of loadable program messages in RUN, max.	2 500
Number of simultaneously active program alarms	
Number of program alarms	600
Number of alarms for system diagnostics	100
 Number of alarms for motion technology objects 	80
Test commissioning functions	
Joint commission (Team Engineering)	Yes; Parallel online access possible for up to 5 engineering systems
Status block	Yes; Up to 8 simultaneously (in total across all ES clients)
Single step	No
Number of breakpoints	8
Status/control	8
Status/control variable	Yes
Variables Number of variables, may	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Number of variables, max.	200, nor inh
— of which status variables, max.	200; per job
— of which control variables, max.	200; per job
Forcing	Van
• Forcing	Yes
• Forcing, variables	Peripheral inputs/outputs
Number of variables, max.	200
Diagnostic buffer	V
• present	Yes
Number of entries, max.	1 000
— of which powerfail-proof	500
Traces	A. Un to E40 KD of data anatomic and analytic
Number of configurable Traces	4; Up to 512 KB of data per trace are possible
Interrupts/diagnostics/status information	
Diagnostics indication LED	V
RUN/STOP LED	Yes
RUN/STOP LED ERROR LED	Yes
RUN/STOP LEDERROR LEDMAINT LED	Yes Yes
 RUN/STOP LED ERROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) 	Yes Yes Yes
 RUN/STOP LED ERROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Connection display LINK TX/RX 	Yes Yes
RUN/STOP LED ERROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Connection display LINK TX/RX Supported technology objects	Yes Yes Yes Yes
 RUN/STOP LED ERROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Connection display LINK TX/RX 	Yes Yes Yes Yes Yes Yes; Note: The number of technology objects affects the cycle time of
RUN/STOP LED ERROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Connection display LINK TX/RX Supported technology objects Motion Control Number of available Motion Control resources for	Yes Yes Yes Yes
RUN/STOP LED ERROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Connection display LINK TX/RX Supported technology objects Motion Control Number of available Motion Control resources for technology objects	Yes Yes Yes Yes Yes Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool
RUN/STOP LED ERROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Connection display LINK TX/RX Supported technology objects Motion Control Number of available Motion Control resources for technology objects Required Motion Control resources	Yes Yes Yes Yes Yes Yes Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 800
RUN/STOP LED ERROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Connection display LINK TX/RX Supported technology objects Motion Control Number of available Motion Control resources for technology objects Required Motion Control resources — per speed-controlled axis	Yes Yes Yes Yes Yes Yes Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 800
RUN/STOP LED ERROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Connection display LINK TX/RX Supported technology objects Motion Control Number of available Motion Control resources for technology objects Required Motion Control resources — per speed-controlled axis — per positioning axis	Yes Yes Yes Yes Yes Yes Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 800 40 80
RUN/STOP LED ERROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Connection display LINK TX/RX Supported technology objects Motion Control Number of available Motion Control resources for technology objects Required Motion Control resources per speed-controlled axis per positioning axis per synchronous axis	Yes Yes Yes Yes Yes Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 800 40 80 160
RUN/STOP LED ERROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Connection display LINK TX/RX Supported technology objects Motion Control Number of available Motion Control resources for technology objects Required Motion Control resources per speed-controlled axis per positioning axis per synchronous axis per external encoder	Yes Yes Yes Yes Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 800 40 80 160 80
RUN/STOP LED ERROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Connection display LINK TX/RX Supported technology objects Motion Control Number of available Motion Control resources for technology objects Required Motion Control resources Per speed-controlled axis per positioning axis per synchronous axis per external encoder per output cam	Yes Yes Yes Yes Yes Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 800 40 80 160 80 20
RUN/STOP LED ERROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Connection display LINK TX/RX Supported technology objects Motion Control Number of available Motion Control resources for technology objects Required Motion Control resources per speed-controlled axis per positioning axis per synchronous axis per external encoder	Yes Yes Yes Yes Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool 800 40 80 160 80

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) PID_Compact PID_Compact PID_Compact PID_Temp Yes; PID controller with integrated optimization of valves PID-Temp Yes; 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 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 va	al PID controller with integrated optimization
cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) Controller • PID_Compact • PID_Sistep • PID_Temp Counting and measuring • High-speed counter Standards, approvals, certificates Highest safety class achievable in safety mode • Performance level according to ISO 13849-1 • No Ambient conditions Ambient conditions Ambient installation, min. • horizontal installation, min. • vertical installation, min. • vertical installation, max. • vertical installation, max. • vertical installation altitude above sea level, max. Altitude during operation relating to sea level • Installation altitude above sea level, max. Configuration Programming Programming Programming Programming Programming language — LAD — FBD — STL — SCL — GRAPH Yes Know-how protection • User program protection/password protection • Copy protection • User programprotection/password protection • Copy protection • Block protection • Block protection • Block protection • Site of the microantal installation and thing as a level • Installation • Block protection • User program protection/password protection • User program protection Yes	al PID controller with integrated optimization
- Number of positioning axes at motion control cycle of 8 ms (typical value) Controller • PID_Compact • PID_Sistep • PID-Temp Counting and measuring • High-speed counter Standards, approvals, certificates Highest safety class achievable in safety mode • Performance level according to ISO 13849-1 • SiL acc. to IEC 61508 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, min. • vertical installation, min. • vertical installation, min. • vertical installation attitude above sea level, max. Altitude during operation relating to sea level • Installation attitude above sea level, max. Configuration Programming Programming language — LAD — FBD — STL — SCL — GRAPH Know-how protection • User program protection/password protection • Copy protection • Block protection • Block protection • Block protection	al PID controller with integrated optimization
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Controller PID_Compact PID_Step PID_Temp Yes; 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 valves Performance according to Pyes Standards, approvals, certificates Highest safety class achievable in safety mode Performance level according to ISO 13849-1 SIL acc. to IEC 61508 Ambient conditions Ambient emperature during operation Porizontal installation, min. Porizontal installation, min. Porizontal installation, max. Portical installation, max. Portical installation, max. Porgraming operation relating to sea level Installation altitude above sea level, max. So °C Altitude during operation relating to sea level Installation altitude above sea level, max. So 000 m; Restrictions for installation altitudes > 2 000 m, see manual Configuration Programming language — LAD — FBD — Yes — STL — SCL — GRAPH — Yes Know-how protection User program protection/password protection Pyes User program protection/password protection Pyes Nes PlD controller with integrated optimization for valves Pyes PiD controller with integrated optimization for temperature One program integrated optimization for temperature Pos; PID controller with integrated optimization for tem	al PID controller with integrated ontimization
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— GRAPH Yes Know-how protection • User program protection/password protection Yes • Copy protection Yes • Block protection Yes	
Know-how protection • User program protection/password protection • Copy protection • Block protection Yes • Yes	
 User program protection/password protection Copy protection Block protection Yes Yes 	
 Copy protection Block protection Yes 	
Block protection Yes	
• protection of confidential configuration data Yes	
Protection level: Write protection Yes	
Protection level: Read/write protection Yes	
Protection level: Complete protection Yes	
Cycle time monitoring	
lower limit adjustable minimum cycle time	
upper limit adjustable maximum cycle time	nimum cycle time
Dimensions	·
Width 100 mm	·
Height 117 mm	· · · · · · · · · · · · · · · · · · ·
Depth 75 mm	· · · · · · · · · · · · · · · · · · ·
Weights	· · · · · · · · · · · · · · · · · · ·
Weight, approx. 310 g	· · · · · · · · · · · · · · · · · · ·
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