SIEMENS

Data sheet

6ES7516-3AP03-0AB0



SIMATIC S7-1500, CPU 1516-3 PN/DP, central processing unit with 2 MB work memory for program and 7.5 MB for data 1st interface: PROFINET IRT with 2-port switch, 2nd interface: PROFINET RT, 3rd interface: PROFIBUS, 6 ns bit performance, SIMATIC Memory Card required - - approvals and certificates according to entry 109817466 at support.industry.siemens.com to be considered! -

General information	
Product type designation	CPU 1516-3 PN/DP
HW functional status	FS04
Firmware version	V3.1
FW update possible	Yes
Product function	
● I&M data	Yes; I&M0 to I&M3
Isochronous mode	Yes; Distributed and central; with minimum OB 6x cycle of 375 μs (distributed) and 1 ms (central)
 SysLog 	Yes
Engineering with	
STEP 7 TIA Portal configurable/integrated from version	V19 (FW V3.1) / V18 (FW V3.0) or higher; with older TIA Portal versions configurable as 6ES7516-3AN02-0AB0
Configuration control	
via dataset	Yes
Display	
Screen diagonal [cm]	6.1 cm
Control elements	
Number of keys	8
Mode buttons	2
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 	5 ms
Repeat rate, min.	1/s
Input current	
Current consumption (rated value)	0.69 A
Current consumption, max.	1.08 A
Inrush current, max.	1.15 A; Rated value
l²t	0.6 A ² ·s
Power	
Infeed power to the backplane bus	12 W
Power consumption from the backplane bus (balanced)	6.7 W
Power loss	

Power loss tur	4 101
Power loss, typ.	4 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	
 integrated (for program) 	2 Mbyte
integrated (for data)	7.5 Mbyte
Load memory	
 Plug-in (SIMATIC Memory Card), max. 	32 Gbyte
Backup	
maintenance-free	Yes
CPU processing times	
for bit operations, typ.	6 ns
for word operations, typ.	7 ns
for fixed point arithmetic, typ.	9 ns
for floating point arithmetic, typ.	37 ns
CPU-blocks	
Number of elements (total)	8 000; 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.	7.5 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	
Number range	0 65 535
• Size, max.	1 Mbyte
FC	
Number range	0 65 535
• Size, max.	1 Mbyte
OB	
• Size, max.	1 Mbyte
 Number of free cycle OBs 	100
 Number of time alarm OBs 	20
 Number of delay alarm OBs 	20
 Number of cyclic interrupt OBs 	20; With minimum OB 3x cycle of 250 µs
 Number of process alarm OBs 	50
 Number of DPV1 alarm OBs 	3
 Number of isochronous mode OBs 	3
 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
	2 070
Retentivity	Vac
— adjustable	Yes
IEC timer	Any (only limited by the main means a
Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes

Retentive data area (incl. timers, counters, flags), max.	512 kbyte; In total; available retentive memory for bit memories, timers,
Retentive data area (inci. timers, counters, hags), max.	counters, DBs, and technology data (axes): 472 KB
Extended retentive data area (incl. timers, counters, flags), max	x. 7.5 Mbyte; When using PS 6 0W 24/48/60 V DC HF
Flag	
• Size, max.	16 kbyte
 Number of clock memories 	8; 8 clock memory bit, grouped into one clock memory byte
Data blocks	
Retentivity adjustable	Yes
Retentivity preset	No
Local data	
 per priority class, max. 	64 kbyte; max. 16 KB per block
ddress area	· · · · · · · · · · · · · · · · · · ·
Number of IO modules	8 192; max. number of modules / submodules
I/O address area	
Inputs	32 kbyte; All inputs are in the process image
Outputs	32 kbyte; All outputs are in the process image
	52 kbyte, All outputs are in the process image
per integrated IO subsystem	8 khuta
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
per CM/CP	0 librate
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images	
Number of subprocess images, max.	32
ardware configuration	
Number of distributed IO systems	64; 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	
integrated	1
• Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total
Number of IO Controllers	
integrated	2
• Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total
Rack	
 Modules per rack, max. 	32; CPU + 31 modules
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
ime of day	
Clock	Hardware clock
Type Packup time	
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 PROFIBUS CM / CP
• on DP, device	Yes; via PROFIBUS CM / CP
• in AS, master	Yes
• in AS, device	Yes
 on Ethernet via NTP 	Yes
iterfaces	
Number of PROFINET interfaces	2
Number of PROFIBUS interfaces	1
. Interface	

P 45 (Ethornot)	Voc. V1
RJ 45 (Ethernet)	Yes; X1
Number of ports	2
integrated switch	Yes
Protocols	Very ID-4
• IP protocol	Yes; IPv4
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
SIMATIC communication	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes
Media redundancy	Yes
PROFINET IO Controller	
Services	
 — 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.	256; In total, up to 1 000 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. 	256
— of which in line, max.	256
 — 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
- PROFINET Security Class	1
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 375 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 μ s: 375 μ s, 625 μ s 3
Update time for RT	875 μs)
— 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	
— Isochronous mode	No
— IRT	Yes
- 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
— PROFINET Security Class	SNMP Configuration and DCP Read Only
. Interface	
Interface types	
RJ 45 (Ethernet)	Yes; X2
Number of ports	1
integrated switch	No
Protocols	
	Yes; IPv4
IP protocol	

	Yes
PROFINET IO Controller	
PROFINET IO Device	Yes
SIMATIC communication	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes
Media redundancy	No
PROFINET IO Controller	
Services	
— Isochronous mode	No
— Direct data exchange	No
— IRT	No
— PROFlenergy	Yes; per user program
— Prioritized startup	No
- Number of connectable IO Devices, max.	32; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
 Number of connectable IO Devices for RT, max. 	32
— of which in line, max.	32
 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
— PROFINET Security Class	1
Update time for RT	
— for send cycle of 1 ms	1 ms to 512 ms
PROFINET IO Device	
Services	
— Isochronous mode	No
— IRT	No
- PROFlenergy	Yes; per user program
- Prioritized startup	No
— 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
— PROFINET Security Class	SNMP Configuration and DCP Read Only
3. Interface	
Interface types	
• RS 485	Yes; X3
Number of ports	1
Protocols	
PROFIBUS DP master	Yes
PROFIBUS DP device	No
SIMATIC communication	Yes
PROFIBUS DP master	
Number of connections, max.	48; for the integrated PROFIBUS DP interface
max. number of DP devices	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
Services	
- Equidistance	Yes
— Isochronous mode	Yes
 activation/deactivation of DP devices 	Yes
Interface types	
RJ 45 (Ethernet)	
• 100 Mbps	Yes
	Yes
Autoregotiation	Yes
Autocrossing	
Industrial Ethernet status LED RS 485	Yes
Transmission rate, max.	12 Mbit/s
Protocols	

PROFIsafe	No
Number of connections	
Number of connections, max.	256; via integrated interfaces of the CPU and connected CPs / CMs
Number of connections reserved for ES/HMI/web	
Number of connections via integrated interfaces	128
Number of S7 routing paths	16
Redundancy mode	
H-Sync forwarding	Yes
Media redundancy	
— Media redundancy	only via 1st interface (X1)
— 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 S7 communication, as conver	Yes
S7 communication, as server	Yes
 S7 communication, as client User data per job, max. 	Yes See online help (S7 communication, user data size)
• Oser data per job, max. Open IE communication	See online help (S7 communication, user data size)
• TCP/IP	Yes
— Data length, max.	64 kbyte
— bata length, max. — several passive connections per port, supported	Yes
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. 118 multicast circuits
• DHCP	Yes
• DNS	Yes
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Encryption	Yes; Optional
Web server	
● HTTP	Yes; Standard and user pages
• HTTPS	Yes; Standard and user pages
• web API	
— Number of sessions, max.	100
- number of simultaneous HTTP calls, max.	4
— HTTP request body, max.	131 072 byte
OPC UA	
Runtime license required	Yes; "Medium" license required
OPC UA Client	Yes; Data Access (registered Read/Write), Method Call
 Application authentication 	Yes
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password
 Number of connections, max. 	10
 Number of nodes of the client interfaces, recommended max. 	2 000
 — Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_I max. 	300
 — Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. 	20
 Number of elements for one call of OPC_UA_MethodGetHandleList, max. 	100
 Number of simultaneous calls of the client 	1

inclusions for an and the second se	
instructions for session management, per connection, max.	
- Number of simultaneous calls of the client 5 instructions for data access, per connection, max.	
	000
	00
Number of inputs/outputs when calling 20 OPC_UA_MethodCall, max.	0
	'es; Data Access (Read, Write, Subscribe), Method Call, Alarms & Condition A&C), Custom Address Space
- Application authentication Y	/es
	vailable security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256, Aes128Sha256RsaOaep, Aes256Sha256RsaPss
— User authentication "a	anonymous" or by user name & password
— GDS support (certificate management) Y	/es
- Number of sessions, max. 44	8
- Number of accessible variables, max.	00 000
- Number of registerable nodes, max. 20	0 000
- Number of subscriptions per session, max. 50	0
— Sampling interval, min.	00 ms
— Publishing interval, min.	00 ms
— Number of server methods, max. 50	0
- Number of inputs/outputs per server method, max. 20	
	000; for 1 s sampling interval and 1 s send interval
- Number of server interfaces, max.	0 of each "Server interfaces" / "Companion specification" type and 20 of the ype "Reference namespace"
 — Number of nodes for user-defined server interfaces, 30 max. 	0 000
Alarms and Conditions Y	/es
— Number of program alarms 20	00
— Number of alarms for system diagnostics	00
Further protocols	
• MODBUS Y	es; MODBUS TCP
le e chren cue me de	
Isochronous mode	
	/es
	/es
Equidistance Y	
Equidistance Y S7 message functions Y Number of login stations for message functions, max. 64	
Equidistance Y S7 message functions Y Number of login stations for message functions, max. 64 number of subscriptions, max. 54	4
Equidistance Y S7 message functions Y Number of login stations for message functions, max. 64 number of subscriptions, max. 54 number of tags/attributes for subscriptions, max. 8	4 00
Equidistance Y S7 message functions Y Number of login stations for message functions, max. 64 number of subscriptions, max. 50 number of tags/attributes for subscriptions, max. 88 Program alarms Y Number of configurable program messages, max. 10	4 00 000
Equidistance Y S7 message functions Y Number of login stations for message functions, max. 64 number of subscriptions, max. 55 number of tags/attributes for subscriptions, max. 8 Program alarms Y Number of configurable program messages, max. 11 P P	4 00 000 ′es 0 000; Program messages are generated by the "Program_Alarm" block,
Equidistance Y S7 message functions Y Number of login stations for message functions, max. 64 number of subscriptions, max. 55 number of tags/attributes for subscriptions, max. 8 Program alarms Y Number of configurable program messages, max. 11 P P	4 00 000 ′es 0 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
Equidistance Y S7 message functions 9 Number of login stations for message functions, max. 64 number of subscriptions, max. 56 number of tags/attributes for subscriptions, max. 56 Program alarms Y Number of configurable program messages, max. 10 Number of loadable program messages in RUN, max. 10 Number of simultaneously active program alarms 10	4 00 000 ′es 0 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
Equidistance Y S7 message functions S7 message functions Number of login stations for message functions, max. 64 number of subscriptions, max. 50 number of tags/attributes for subscriptions, max. 50 number of tags/attributes for subscriptions, max. 8 Program alarms Y Number of configurable program messages, max. 10 P Number of loadable program messages in RUN, max. 10 Number of simultaneously active program alarms 1 • Number of program alarms 1	4 00 000 ′es 0 000; Program messages are generated by the "Program_Alarm" block, °roDiag or GRAPH 0 000
Equidistance Y S7 message functions 9 Number of login stations for message functions, max. 64 number of subscriptions, max. 56 number of tags/attributes for subscriptions, max. 88 Program alarms Y Number of configurable program messages, max. 10 Number of loadable program messages in RUN, max. 10 Number of simultaneously active program alarms 1 • Number of program alarms 1 • Number of alarms for system diagnostics 20	4 00 000 'es 0 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 0 000 000
Equidistance Y S7 message functions V Number of login stations for message functions, max. 64 number of subscriptions, max. 56 number of tags/attributes for subscriptions, max. 88 Program alarms Y Number of configurable program messages, max. 11 Number of loadable program messages in RUN, max. 11 Number of simultaneously active program alarms 1 Number of program alarms 1 Number of alarms for system diagnostics 24 Number of alarms for motion technology objects 14	4 00 000 'es 0 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 0 000 000 000
Equidistance Y S7 message functions S7 message functions Number of login stations for message functions, max. 64 number of subscriptions, max. 56 number of tags/attributes for subscriptions, max. 56 number of tags/attributes for subscriptions, max. 8 Program alarms Y Number of configurable program messages, max. 10 Number of loadable program messages in RUN, max. 11 Number of simultaneously active program alarms 1 Number of program alarms 1 Number of alarms for system diagnostics 20 Number of alarms for motion technology objects 10 Test commissioning functions 10	4 00 000 'es 0 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 0 000 000 000 000
Equidistance Y S7 message functions S7 message functions Number of login stations for message functions, max. 64 number of subscriptions, max. 56 number of tags/attributes for subscriptions, max. 56 number of tags/attributes for subscriptions, max. 8 Program alarms Y Number of configurable program messages, max. 10 Number of loadable program messages in RUN, max. 10 Number of simultaneously active program alarms 1 • Number of program alarms 1 • Number of alarms for system diagnostics 20 • Number of alarms for motion technology objects 10 Test commissioning functions 10 Joint commission (Team Engineering) Y	4 00 000 'es 0 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 0 000 000 000 000 60 'es; Parallel online access possible for up to 8 engineering systems
Equidistance Y S7 message functions Y Number of login stations for message functions, max. 64 number of subscriptions, max. 55 number of tags/attributes for subscriptions, max. 88 Program alarms Y Number of configurable program messages, max. 14 P Number of loadable program messages in RUN, max. 14 Number of simultaneously active program alarms 1 • Number of program alarms 1 • Number of alarms for system diagnostics 24 • Number of alarms for motion technology objects 14 Test commission (Team Engineering) Y Status block Y	4 60 600 7es 0 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 0 000 000 000 60 7es; Parallel online access possible for up to 8 engineering systems 7es; Up to 8 simultaneously (in total across all ES clients)
Equidistance Y S7 message functions Y Number of login stations for message functions, max. 64 number of subscriptions, max. 55 number of tags/attributes for subscriptions, max. 56 number of tags/attributes for subscriptions, max. 8 Program alarms Y Number of configurable program messages, max. 11 Number of loadable program messages in RUN, max. 11 Number of simultaneously active program alarms 1 Number of alarms for system diagnostics 21 Number of alarms for motion technology objects 11 Test commission (Team Engineering) Y Status block Y Single step N	4 00 000 'es 0 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 0 000 000 000 000 60 'es; Parallel online access possible for up to 8 engineering systems 'es; Up to 8 simultaneously (in total across all ES clients) lo
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Equidistance Y S7 message functions Number of login stations for message functions, max. 64 number of subscriptions, max. 55 number of tags/attributes for subscriptions, max. 56 number of tags/attributes for subscriptions, max. 74 Number of configurable program messages, max. 71 Number of loadable program messages in RUN, max. 74 Number of loadable program messages in RUN, max. 74 Number of simultaneously active program alarms 74 Number of program alarms 74 Number of alarms for system diagnostics 74 Number of alarms for motion technology objects 74 Test commission (Team Engineering) Y Status block Y Single step N Number of breakpoints 8 Profiling Y Status/control 9 Status/control variable Y • Variables In	4 00 000 'es 0 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 0 000 000 000 000 60 'es; Parallel online access possible for up to 8 engineering systems 'es; Up to 8 simultaneously (in total across all ES clients) lo
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Equidistance Y S7 message functions Number of login stations for message functions, max. 64 number of subscriptions, max. 56 number of tags/attributes for subscriptions, max. 56 number of configurable program messages, max. 71 Number of loadable program messages, max. 71 Number of loadable program messages in RUN, max. 71 Number of simultaneously active program alarms 11 Number of alarms for system diagnostics 21 Number of alarms for motion technology objects 11 Test commission (Team Engineering) Y Status block Y Single step N Number of breakpoints 8 Profiling Y Status/control 9 Status/control 9 Status/control 9 Number of variables, max. 10 Number of variables, max. 20	4 600 6000 7es 0 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 0 000 000 000 60 7es; Parallel online access possible for up to 8 engineering systems 7es; Up to 8 simultaneously (in total across all ES clients) 10 60 7es 10 10 10 10 10 10 10 10 10 10
Equidistance Y S7 message functions Number of login stations for message functions, max. 64 number of subscriptions, max. 54 number of subscriptions, max. 54 number of tags/attributes for subscriptions, max. 8 Program alarms Y Number of configurable program messages, max. 11 Number of loadable program messages in RUN, max. 11 Number of simultaneously active program alarms 1 • Number of program alarms 1 • Number of alarms for system diagnostics 21 • Number of alarms for motion technology objects 10 Test commission (Team Engineering) Y Status block Y Single step N Number of breakpoints 8 Profiling Y Status/control • • Variables In • Number of variables, max. 24 - of which status variables, max. 24	4 00 000 'es 0 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 0 000 000 000 000 60 'es; Parallel online access possible for up to 8 engineering systems 'es; Up to 8 simultaneously (in total across all ES clients) Io 'es 'es 'es 'es 'number of the state of the sta
Equidistance Y S7 message functions Number of login stations for message functions, max. 64 number of subscriptions, max. 50 number of subscriptions, max. 54 number of tags/attributes for subscriptions, max. 8 Program alarms Y Number of configurable program messages, max. 11 Number of loadable program messages in RUN, max. 11 Number of loadable program messages in RUN, max. 11 Number of simultaneously active program alarms 1 • Number of program alarms 1 • Number of alarms for system diagnostics 21 • Number of alarms for motion technology objects 11 Test commission (Team Engineering) Y Status block Y Single step N Number of breakpoints 8 Profiling Y Status/control • Status/control variable Y • Variables In • Number of variables, max. 20 • of which status variables, max. 20 of which control variables, max. 20 of which control variables, max.<	4 60 600 600 62 63 60 60 60 60 60 60 60 60 60 60
Equidistance Y S7 message functions Number of login stations for message functions, max. 64 number of subscriptions, max. 50 number of subscriptions, max. 51 number of tags/attributes for subscriptions, max. 81 Program alarms Y Number of configurable program messages, max. 11 Number of loadable program messages in RUN, max. 11 Number of simultaneously active program alarms 1 • Number of alarms for system diagnostics 21 • Number of alarms for motion technology objects 11 Test commission (Team Engineering) Y Status block Y Single step N Number of breakpoints 8 Profiling Y Status/control 9 • Status/control variables 9 • Number of variables, max. 20 • Of which status variables, max. 20 • of which control variables, max. 20 • of which control variables, max. 20 • of which control variables, max. 20 • Forcing Y	4 00 000 ('es 0 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 0 000 000 000 000 60 ('es; Parallel online access possible for up to 8 engineering systems ('es; Up to 8 simultaneously (in total across all ES clients) 10 ('es 10 10 10 10 10 10 10 10 10 10

• Joneself Yes • Joneself Yes • Joneself Yes • Muncher of entities, max. 3 200 • - of which proverlation for the provide proof 600 Traces • • Muncher of configurable Traces 4 • Muncher of configurable Traces 512 Jones • Manner of lastical schmadage 512 Jones • Connection display LINK TXFXX Yes Supported Steambady relates 40 • or provide Steambady relates 40 • or provide Steambady relates 80 • prestrestrelates <t< th=""><th>- Number of verification may</th><th>200</th></t<>	- Number of verification may	200
• Sensent Yes • Muncher of entrine, max. 3200 - of which powerfail-pool 500 Traces 4 • Muncher of configuratie Traces 4 • Muncher of configuratie Traces 4 • Muncher of configuratie Traces 4 • MUNSTOP LED Yes • RUNSTOP LED Yes • COnscion diaput LINE TARK Yes • Supported tachinology objects Yes • Conscion diaput LINE TARK Yes • Per presidential extracts 90 • per presidential extracts 90 • per presidential extracts 90 • per president actual 90 • per president actual 90 • per preside 40 • Per optical actual 90 • Per optical actual 90 •	Number of variables, max.	200
- of which powerfail proof 200 Traces 600 - of which powerfail proof 600 - Number of configurable Traces 52 Mayle Memory step trace, max. 52 Mayle Supported technology to be trace, max. 52 Mayle Motion Control Yes. Supported technology to be trace, max. 24 Motion Control - per step trace	-	Vee
drivich powerfail proof 500 Take i Number of configurate Traces 4 i Number of configurate Traces 512 Myle i Remoy size per take, max	-	
There 4 • Number to configurable information 512 kbyte • Representation LED • • Representation LED Yes • Representation LED Yes • Representation LED Yes • REPROFILED Yes • STOP ACTURE LED Yes • Supported isbohnoly by objects The mumber of technology objects affects the cycle time of the PLC properties technology objects affects the cycle time of the PLC properties technology objects • Per presentioning axis 80 - per positioning axis 80 - per output cam 20 - per output cam 100 - per output cam 20 Controler 90 - Per output cam 20 Controler 90		
• Number of configuration Traces 4 • Memory size per face, max. 512 kByte • Heteropy size per face, max. 512 kByte • HENDS LED Yes • RENDS LED Yes • RENDS LED Yes • Supported facehonology collects Yes • Connection display LBNT XPIX Yes • Supported facehonology collects Yes • Number of available Molon Control resources for benchong y collects affects the cycle time of the PLC per facehonology collects affects the cycle time of the PLC per facehonology collects affects the cycle time of the PLC per facehonology collects affects the cycle time of the PLC per facehonology collects affects the cycle time of the PLC per facehonology collects affects the cycle time of the PLC per facehonology collects affects the cycle time of the PLC per facehonology collects affects the cycle time of the PLC per facehonology collects affects the cycle time of the PLC per facehonology collects affects the cycle time of the PLC per facehonology collects affects the cycle time of the PLC per facehonology collects affects the cycle time of the PLC per facehonology collects affects the cycle time of the PLC per facehonology collects affects the cycle time of the PLC per facehonology collects affects the cycle time of the PLC per facehonology collects affects the cycle time of the PLC per facehonology collects affects the cycle time of the PLC per facehonology collects affects the cycle time of the PLC per facehonology		500
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Interruptidiapositic diabation 1.ED Ves Obigotitics indication 1.ED Yes • RUNSTOP LED Yes • ERUNSTOP LED Yes • STOP ACTIVE LED Yes • Connection display LBK TARK Yes Supported technology objects Yes Motion Control desplay LBK TARK Yes Supported technology objects Yes: Note: The number of rectine of the PLC program: selection guide via the TIA Selection Tool • Number of available Motion Control resources for technology objects 40 • per specification as ass 80 - per specification as ass 160 - per synchronous asis 160 - per synchronous asis 160 - per synchronous asis 11 - Mumber of positioning asses at motion control cycle 11 - Mumber of positioning asses at motion control cycle 120 - Controller Yes: Universal PID controller with integrated optimization - PID_ Compact Yes - PID_ Compact Yes - PiD_ Compact Yes - Mumber do positioning potential (otathi (Co2 eg) 102 kg	-	
Despensis indication LED • RUNSTOP LED Yes • ERROR LED Yes • STOP ACTIVE LED Yes • Connection display LINK TXERX Yes • Mattion Control Yes: Note: The number of schoology 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 probel 40 - per probel 80 - per synchronous axis 100 - per output cam 20 - Per output cam 20 - Port output cam		512 kbyte
• RUNSTOP LED Yes • ERROR LED Yes • MAINT LED Yes • STOP ACTIVE LED Yes • Connection display LINK TXRX Yes Supported technology objects Yes Motion Control Yes • Number of available Motion Control resources for technology objects Yes • Required Motion Control resources for technology objects 40 • per postioning axis 80 - per speed-controlled axis 40 - per speed-controlled axis 40 - per actional model 80 - Number of positioning axes at motion control cycle 11 - FUD_Stop Yes Controler Yes FUD_Stop Yes <td>Interrupts/diagnostics/status information</td> <td></td>	Interrupts/diagnostics/status information	
 KEROR LED Yes STOP ACTIVE LED Yes Connection display LINK TXRX Yes Stop ACTIVE LED Yes Connection display LINK TXRX Yes Motion Control Program Selection guide via the TA Selection Tool 2 400 Aumber of available Motion Control resources for technology objects affects the cycle time of the PLC program selection guide via the TA Selection Tool Per synchronous axis Oper periodic datas Oper probleming axis Bio Per rotput cann Oper ant track Bio Per rotput cann Oper ant track Per probleming axis at motion control cycle Phone of positioning axis at motion control cycle Phone of positenting axis at motion control cycle	Diagnostics indication LED	
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STOP ACTIVE LED Connection display LINK TXORX Yes Connection display LINK TXORX Yes Motion Control Control Ves, Note: The number of technology objects affects the cycle time of the PLC programs: detection guide via the TA Selection Tool August at technology objects Required attention control resources for technology objects Required attention axis A0 - per postioning axis Required attention axis A0 - per synchronous axis 100 - per synchronous axis 100 - per output cam 20 - per output cam 20 - per output cam 20 - per probe 40 - per probe	• ERROR LED	Yes
Connection display LINK TX/FX Yes Supported technology objects 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 affects the cycle time of the PLC program. Selection guide via the TIA Selection Tool 2 400 - per speed-ontrolled axis 40 - - per speed-ontrolled axis 80 - - per speed-ontrolled axis 80 - - per speed-ontrolled axis 80 - - per synchronous axis 180 - - per probe 40 - - Number of positioning axes at motion control cycle 71 - - Number of positioning axes at motion control cycle 74 - - PUD Compact Yes; PID controller with integrated optimization for valves - PD-Temp Yes - - Controller - - -	MAINT LED	Yes
Supported technology objects Motion Control • Number of available Motion Control resources for technology objects - Required Motion Control resources - per positioning axis - per positioning axis - per output dam - per output dam - per probe - per probe - oper probe - Output dam - oper probe - Output onling axes at motion control cycle of an (typical value) - Output onling axes at motion control cycle of an (typical value) - DiD_ Compact + PID_ Compact + PID_ Compact + PID_ Shep - optical and measuring - optical available optimization for values - optical available optimization for values - optical availing potential. (outing portical cycle optimization for values - optical availing potential. - optical availing potential. - optical availing potential. <td>STOP ACTIVE LED</td> <td>Yes</td>	STOP ACTIVE LED	Yes
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• Number of available Motion Control resources for technology objects 2 400 • Required Motion Control resources 2 400 • per special controlled axis 40 - per per positioning axis 80 - per positioning axis 160 - per external encoder 80 - per output cam 20 - per output cam 20 - per output cam 20 - per proble 40 - Positioning axis 160 - per output cam 20 - Positioning axis 100 - Number of positioning axes at motion control cycle 11 of a ms (typical value) 20 - Number of positioning axes at motion control cycle 20 of a ms (typical value) 20 Controller * • PID_Compact Yes: Universal PID controller with integrated optimization for valves • PID_Sisp Yes: PIC controller with integrated optimization for valves • PID_Compact Yes: PIC controller with integrated optimization for valves • PID_Sisp Yes Standards, approvalis, cartificates Stand	Supported technology objects	
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echnology objects 40		
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	-	40
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- per output cam 20 - per can track 160 - per probe 40 • Positioning axis 11 - Number of positioning axes at motion control cycle 11 - Number of positioning axes at motion control cycle 20 of 4 ms (typical value) 20 - Number of positioning axes at motion control cycle 20 Controller 44 ms (typical value) • 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 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 • 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 • Output the advanting potential 102 kg - global warming potential, (total) [CO2 eq] 102 kg - global warming potential, (during operation) [CO2 65. kg eq] - global warming potential, (during operati		
- per can track 160 - per probe 40 • Positioning axis 40 - 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) 11 - Number of positioning axes at motion control cycle of 8 ms (typical value) 20 Controller 9 - DiD_Compact Yes; Universal PID controller with integrated optimization of this measuring • PID_Step Yes; PID controller with integrated optimization for valves • Variant emperature Yes; PID controller with integrated optimization for temperature • Counting and measuring Yes; PID controller with integrated optimization for temperature • Number of position ing axes at motion control cycle Yes; PID controller with integrated optimization for temperature • environmental product declaration Yes Standards, approvals, certificates Yes Ecological footprint 102 kg - global warming potential, (during portuction) [CO2 eq] 76.7 kg - global warming potential, (after end of life cycle) -0.898 kg Constrontal installation, min. -30 °C; No condensation • horizontal installation, min. -30 °C; No condensation • vertical installation, min. -30 °C; No condensation • vertical installation, min. <t< td=""><td></td><td></td></t<>		
- per probe 40 • Positioning axis 11 - Number of positioning axes at motion control cycle 11 of 4 ms (typical value) 20 - Number of positioning axes at motion control cycle 20 of 8 ms (typical value) 20 - Number of positioning axes at motion control cycle 20 of 8 ms (typical value) 20 Controller 48 • 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 valves • PID_stemp Yes: PID controller with integrated optimization for temperature Counting and measuring Yes: PID controller with integrated optimization for temperature Counting and measuring Yes: PID controller with integrated optimization for temperature Counting and measuring Yes: PID controller with integrated optimization for temperature Counting and measuring Yes: PID controller with integrated optimization for temperature Counting and measuring Yes Global warming potential, (total) (CO2 eq] 102 kg - global warming potential, (during operation [CO2 76.7 kg - global warming potential, (after end of life cycle) -0.898 kg Ico2 eq]		
Positioning axis	-	
		40
of 4 ms (typical value) 20 - Number of positioning axes at motion control cycle of 8 ms (typical value) 20 Controller Yes; Universal PID controller with integrated optimization PID_3step • PID_Temp Yes; PID controller with integrated optimization for valves • PID_Temp Yes; PID controller with integrated optimization for valves Counting and measuring Yes; PID controller with integrated optimization for temperature Ecological footprint Yes Ecological footprint Yes environmental product declaration Yes Global warming potential - global warming potential, (during operation) [CO2 eq] 102 kg - global warming potential, (during operation) [CO2 eq] 76.7 kg - global warming potential, (during operation) [CO2 eq] -0.898 kg - global warming potential, (after end of life cycle) -0.898 kg - for Zo call -30 °C; No condensation • horizontal installation, min. -30 °C; No condensation • horizontal installation, max. 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off • vertical installation, max. -30 °C; No condensation • vertical installation, max. -30 °C; No condensation • vertical in	C C	44
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Counting and measuring Yes Standards, approvals, certificates Ecological footprint environmental product declaration Yes Global warming potential 102 kg	PID_3Step	Yes; PID controller with integrated optimization for valves
• High-speed counter Yes Standards, approvals, certificates Ecological footprint • environmental product declaration Yes Global warming potential 102 kg - global warming potential, (during production) [CO2 eq] 102 kg - global warming potential, (during production) [CO2 eq] 102 kg - global warming potential, (during operation) [CO2 eq] 0.67.7 kg - global warming potential, (after end of life cycle) -0.898 kg CO2 eq] -0.898 kg Ambient conditions -00 °C, No condensation • horizontal installation, min. -30 °C; No condensation • vertical installation, min. -30 °C; No condensation • vertical installation, min. -30 °C; No condensation • vertical installation, max. 40 °C; Display: 50 °C, at an operating temperature of typically 40 °C, the display is switched off Ambient temperature during storage/transportation -40 °C • min. -40 °C • max. 70 °C Attitude during operation relating to sea level -40 °C	PID-Temp	Yes; PID controller with integrated optimization for temperature
Standards, approvals, certificates Ecological footprint • environmental product declaration Yes Global warming potential 102 kg global warming potential, (during production) [CO2 26.5 kg eq] global warming potential, (during operation) [CO2 26.7 kg global warming potential, (during operation) [CO2 76.7 kg eq] global warming potential, (after end of life cycle) -0.898 kg [CO2 eq] -0.898 kg Ambient temperature during operation -0.898 kg • horizontal installation, min. -30 °C; No condensation • horizontal installation, min. -30 °C; No condensation • vertical installation, min. -30 °C; No condensation • vertical installation, max. 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off Ambient temperature during storage/transportation -40 °C • min. -40 °C • max. 70 °C	Counting and measuring	
Ecological footprint Yes environmental product declaration Yes Global warming potential 102 kg	High-speed counter	Yes
• environmental product declaration Yes Global warming potential	Standards, approvals, certificates	
Global warming potential	Ecological footprint	
global warming potential, (total) [CO2 eq] 102 kg global warming potential, (during production) [CO2 26.5 kg eq] global warming potential, (during operation) [CO2 76.7 kg eq] global warming potential, (after end of life cycle) -0.898 kg global warming potential, (after end of life cycle) -0.898 kg global warming potential, (after end of life cycle) -0.898 kg global warming potential, (after end of life cycle) -0.898 kg global warming potential, (after end of life cycle) -0.898 kg global warming potential, (after end of life cycle) -0.898 kg global warming potential, (after end of life cycle) -0.898 kg global warming potential, (after end of life cycle) -0.898 kg global warming potential, (after end of life cycle) -0.898 kg global warming potential, (after end of life cycle) -0.898 kg global warming potential, (after end of life cycle) -0.898 kg global warming potential, (after end of life cycle) -0.898 kg global warming potential, (after end of life cycle) -30 °C; No condensation global warming potential, (after end of life cycle) -30 °C; No condensation global warming potential installation, max. </td <td> environmental product declaration </td> <td>Yes</td>	 environmental product declaration 	Yes
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eq] global warming potential, (during operation) [CO2 76.7 kg eq] global warming potential, (after end of life cycle) -0.898 kg [CO2 eq] -0.898 kg Ambient conditions -0.898 kg Ambient temperature during operation -0.898 kg • horizontal installation, min. -30 °C; No condensation • horizontal installation, max. 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off • vertical installation, min. -30 °C; No condensation • vertical installation, min. -30 °C; No condensation • vertical installation, min. -30 °C; No condensation • vertical installation, max. 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off Ambient temperature during storage/transportation -40 °C • min. -40 °C • max. 70 °C Attitude during operation relating to sea level -40 °C	— global warming potential, (total) [CO2 eq]	102 kg
		26.5 kg
eq] global warming potential, (after end of life cycle) -0.898 kg Ambient conditions -0.898 kg Ambient temperature during operation -0.898 kg • horizontal installation, min. -30 °C; No condensation • horizontal installation, max. 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off • vertical installation, min. -30 °C; No condensation • vertical installation, min. -30 °C; No condensation • vertical installation, max. 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off • vertical installation, max. -30 °C; No condensation • vertical installation, max. -40 °C, Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off Ambient temperature during storage/transportation -40 °C • max. 70 °C Altitude during operation relating to sea level -40 °C		
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Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • horizontal installation, max. • vertical installation, min. • vertical installation, min. • vertical installation, min. • vertical installation, max. • min. • min. • max. • max. • max. • Molitude during operation relating to sea level		-0.000 kg
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display is switched off • vertical installation, min. • vertical installation, max. 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off Ambient temperature during storage/transportation • min. -40 °C • max. 70 °C Altitude during operation relating to sea level		
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Ambient temperature during storage/transportation • min. -40 °C • max. 70 °C Altitude during operation relating to sea level	 vertical installation, max. 	
min40 °C max. 70 °C Altitude during operation relating to sea level		display is switched off
• max. 70 °C Altitude during operation relating to sea level		
Altitude during operation relating to sea level		
		70 °C
Installation altitude above sea level, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual		
	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
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
Know-how protection	
 User program protection/password protection 	Yes
Copy protection	Yes
Block protection	Yes
Access protection	
 protection of confidential configuration data 	Yes
 Password for display 	Yes
 Protection level: Write protection 	Yes
 Protection level: Read/write protection 	Yes
 Protection level: Write protection for Failsafe 	No
 Protection level: Complete protection 	Yes
User administration	Yes; device-wide
programming / cycle time monitoring / header	
lower limit	adjustable minimum cycle time
upper limit	adjustable maximum cycle time
Dimensions	
Width	70 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	469 g
last modified:	10/9/2024 🖸