SIEMENS

Data sheet

6ES7513-1AM03-0AB0



SIMATIC S7-1500, CPU 1513-1 PN, central processing unit with work memory 600 KB for program and 2.5 MB for data, 1st interface: PROFINET IRT with 2-port switch, 25 ns bit performance, SIMATIC Memory Card required - - approvals and certificates according to entry 109815653 at support.industry.siemens.com to be considered! - -

Via dataset Yes Display Screen diagonal [cm] 3.45 cm Control elements 8 Number of keys 8 Mode buttons 2 Supply voltage 8 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 5 ms • Repeat rate, min. 1/s Input current Current consumption (rated value) 0.56 A Current consumption, max. 0.9 A Inrush current, max. 1.15 A; Rated value I²t 0.6 A²-s	General information	
Firmware version	Product type designation	CPU 1513-1 PN
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 500 µs (distributed) and 1 ms (central) • SysLog Yes Engineering with V20 (FW V4.0) / V18 (FW V3.0) or higher; configurable with older TIA Portal versions as 6ES7513-1AL02-0AB0 Configuration control Yes Via dataset Yes Obsplay Screen diagonal (cm) 3.45 cm Control elements 8 Number of keys 8 Mode buttons 2 Supply voltage 24 V Rated value (DC) 24 V permissible range, lower limit (DC) 28.8 V Reverse polarity protection Yes Mains buffering 5 ms • Mains/voltage failure stored energy time 5 ms • Repeat rate, min. 1/s Input current 2.0 A Current consumption (rated value) 0.56 A Current consumption (max. 0.9 A Inright current 1.15 A; Rated value Power loss	HW functional status	FS04
Product function I&M data	Firmware version	V4.0
• 18M data • Isochronous mode • Isochronous mode • SysLog • Steppinering with • STEP 7 TIA Portal configurable/integrated from version • STEP 7 TIA Portal configurable/integrated from version • STEP 7 TIA Portal configurable/integrated from version • V20 (FW V4.0) / V18 (FW V3.0) or higher; configurable with older TIA Portal versions as 6ES7513-1AL02-0AB0 Configuration control via dataset • Yes Coren diagonal [cm] • 3.45 cm Control elements Whumber 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 • Mains/voltage failure stored energy time • Repeat rate, min. Inshin/voltage failure stored energy time • Repeat rate, min. Inshinut current Current consumption (rated value) Current consumption, max. 0.9 A Inrush current, max. Pt Ocher of Server Infeed power to the backplane bus Power consumption from the backplane bus (balanced) Power loss, typ. 3.4 W Memory	 FW update possible 	Yes
• Isochronous mode • Sysl.og Sysl.og Engineering with • STEP 7 TIA Portal configurable/integrated from version Configuration control via dataset Ves Display Screen diagonal [cm] Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, lower limit (DC) permissible range, upper limit (DC	Product function	
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Engineering with STEP 7 TIA Portal configurable/integrated from version versions as 6ES7513-1AL02-0AB0 Configuration control via dataset Yes Display Screen diagonal [cm] 3.45 cm Control dements Number of keys 8 8 Mode buttons 2 Supply voltage Rated value (DC) 24 V permissible range, lower limit (DC) 28.8 V Reverse polarity protection Yes Mains buffering Mains/voltage failure stored energy time 8 Repeat rate, min. 1/8 Input current Current consumption (rated value) 0.56 A Current consumption, max. 0.9 A Innush current, max. 1.15 A; Rated value Power Consumption from the backplane bus (balanced) 5 W Power consumption from the backplane bus (balanced) 5 W Power loss, typ. Memory Memory Vao (FW V4.0) / V18 (FW V3.0) or higher; configurable with older TIA Portal versions as 6ES7513-1AL02-0AB0 V20 (FW V4.0) / V18 (FW V3.0) or higher; configurable with older TIA Portal versions as 6ES7513-1AL02-0AB0 Vao (FW V4.0) / V18 (FW V3.0) or higher; configurable with older TIA Portal versions as 6ES7513-1AL02-0AB0 Versions as 6ES7513-1AL02-0AB0 S. 45 cm S. 45 cm Ves Display Ves S. 45 cm S. 47 cm S. 5 m S. 5 m Power loss, typ. 3.4 W Memory	• Isochronous mode	
● STEP 7 TIA Portal configurable/integrated from version Configuration control via dataset Ves Display Screen diagonal [cm] Control elements Number of keys 8 Mode buttons 2 Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) Alians buffering • Mains/voltage failure stored energy time • Repeat rate, min. 1/s Input current Current consumption (rated value) Current consumption, max. Pt Power loss Power consumption from the backplane bus (balanced) Power loss, typ. Power loss, typ. Memory Ves Ves Ves Ves Ves Ves Ves Ve	SysLog	Yes
Versions as 6ES7513-1AL02-0AB0	Engineering with	
via dataset Yes Display Screen diagonal [cm] 3.45 cm Control elements 8 Number of keys 8 Mode buttons 2 Supply voltage 2 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 5 ms • Repeat rate, min. 1/s Input current Current consumption (rated value) Current consumption, max. 0.9 A Inrush current, max. 1.15 A; Rated value Pt 0.6 A²-s Power 10 W Power consumption from the backplane bus (balanced) 5.5 W Power loss, typ. 3.4 W	STEP 7 TIA Portal configurable/integrated from version	
Screen diagonal [cm] 3.45 cm	Configuration control	
Screen diagonal [cm] 3.45 cm	via dataset	Yes
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) 0.56 A Current consumption, max. 0.9 A Inrush current, max. 1.15 A; Rated value Power Infeed power to the backplane bus (balanced) 5.5 W Power consumption from the backplane bus (balanced) 5.5 W Power loss Power loss, typ. 3.4 W Memory	Display	
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 voltage failure stored energy time • Repeat rate, min. 1/s Input current Current consumption (rated value) 0.56 A Current consumption, max. 0.9 A Inrush current, max. 1.15 A; Rated value It 0.6 A ² -s Power loss Power loss Power loss Power loss, typ. 3.4 W Memory	Screen diagonal [cm]	3.45 cm
Mode buttons 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 • Repeat rate, min. 1/s Input current Current consumption (rated value) 0.56 A Current consumption, max. 0.9 A Inrush current, max. 1.15 A; Rated value I** I** I** I** I** I** I** I** I** I	Control elements	
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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) 0.56 A Current consumption, max. 0.9 A Inrush current, max. 1.15 A; Rated value Pt 0.6 A²-s Power Infeed power to the backplane bus 10 W Power consumption from the backplane bus (balanced) 5.5 W Power loss Power loss, typ. 3.4 W Memory	Mode buttons	2
permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes Mains buffering • Mains/voltage failure stored energy time • Repeat rate, min. 1/s Input current Current consumption (rated value) Current consumption, max. 1.15 A; Rated value 1²t 0.6 A²-s Power Infeed power to the backplane bus Power loss Power loss, typ. Memory	Supply voltage	
permissible range, upper limit (DC) Reverse polarity protection Yes Mains buffering • Mains/voltage failure stored energy time • Repeat rate, min. 1/s Input current Current consumption (rated value) Current consumption, max. 1.15 A; Rated value 1²t 0.6 A²-s Power Infeed power to the backplane bus Power loss Power loss Power loss, typ. Memory	Rated value (DC)	24 V
Reverse polarity protection Mains buffering Mains/voltage failure stored energy time Repeat rate, min. Input current Current consumption (rated value) Current consumption, max. Inrush current, max. Inrush current, max. Inrush current, max. Infeed power to the backplane bus Power consumption from the backplane bus (balanced) Power loss Power loss, typ. Memory	permissible range, lower limit (DC)	19.2 V
Mains buffering • Mains/voltage failure stored energy time • Repeat rate, min. 1/s Input current Current consumption (rated value) Current consumption, max. 1.15 A; Rated value 1²t 0.6 A²-s Power Infeed power to the backplane bus 10 W Power consumption from the backplane bus (balanced) 5.5 W Power loss Power loss, typ. 3.4 W Memory	permissible range, upper limit (DC)	28.8 V
Mains/voltage failure stored energy time Repeat rate, min. Repeat rate, min. Input current Current consumption (rated value) Current consumption, max. Inrush current, max. Inrush current, max. 1.15 A; Rated value ²t 0.6 A²·s Power Infeed power to the backplane bus 10 W Power consumption from the backplane bus (balanced) Power loss Power loss, typ. 3.4 W Memory	Reverse polarity protection	Yes
● Repeat rate, min. Input current Current consumption (rated value) Current consumption, max. Inrush current, max. Inrush current, max. Infeed power to the backplane bus Power consumption from the backplane bus (balanced) Power loss Power loss, typ. 1/s 1/s 1/s 1/s 1/s 1/s 1/s 1/	Mains buffering	
Current consumption (rated value) Current consumption, max. Inrush current, max. Inrush current, max. Infeed power to the backplane bus Power consumption from the backplane bus (balanced) Power loss Power loss, typ. Memory O.56 A 0.9 A 1.15 A; Rated value 1.15 A; Rated value 1.15 A; Rated value 1.15 A; Rated value 5.5 W 9.68 A 1.15 A; Rated value	 Mains/voltage failure stored energy time 	5 ms
Current consumption (rated value) Current consumption, max. Inrush current, max. It to 0.6 A²-s Power Infeed power to the backplane bus Power consumption from the backplane bus (balanced) Power loss Power loss, typ. Memory 0.56 A 0.9 A 1.15 A; Rated value 3.4 W	Repeat rate, min.	1/s
Current consumption, max. Inrush current, max. 1.15 A; Rated value 1²t 0.6 A²-s Power Infeed power to the backplane bus Power consumption from the backplane bus (balanced) Power loss Power loss, typ. 3.4 W Memory	Input current	
Inrush current, max. 1.15 A; Rated value I²t 0.6 A²-s Power Infeed power to the backplane bus Power consumption from the backplane bus (balanced) Power loss Power loss, typ. 3.4 W Memory	Current consumption (rated value)	0.56 A
Power to the backplane bus Power consumption from the backplane bus (balanced) Power loss Power loss, typ. 3.4 W Memory	Current consumption, max.	0.9 A
Power Ioss, typ. Power loss, typ. Power loss 3.4 W Memory	Inrush current, max.	1.15 A; Rated value
Infeed power to the backplane bus Power consumption from the backplane bus (balanced) Fower loss Power loss, typ. 3.4 W Memory	l²t	0.6 A²-s
Power consumption from the backplane bus (balanced) 5.5 W Power loss Power loss, typ. 3.4 W Memory	Power	
Power loss Power loss, typ. 3.4 W Memory	Infeed power to the backplane bus	10 W
Power loss, typ. 3.4 W Memory	Power consumption from the backplane bus (balanced)	5.5 W
Memory	Power loss	
•	Power loss, typ.	3.4 W
Number of slots for SIMATIC memory card 1	Memory	
	Number of slots for SIMATIC memory card	1

SIMATIC memory card required	Yes	
Work memory		
integrated (for program)	600 kbyte	
integrated (for data)	2.5 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)	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	
Olean man	59 999, and number range of DBs created via SFC 86: 60 000 60 999	
• Size, max.	2.5 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 	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	2	
Number of technology synchronous alarm OBs	2	
Number of startup OBs	100	
Number of startup OBs 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)	
	Tary (only infliced by the main memory)	
Retentivity	Von	
— 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	

Extended retentive data area (incl. timers, counters, flags), max.	2.5 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	
Address area		
Number of IO modules	2 048; max. number of modules / submodules	
I/O address area		
• Inputs	32 kbyte; All inputs are in the process image	
Outputs	32 kbyte; All outputs are in the process image	
per integrated IO subsystem		
— Inputs (volume)	8 kbyte	
— Outputs (volume)	8 kbyte	
per CM/CP	,	
— Inputs (volume)	8 kbyte	
Outputs (volume)	8 kbyte	
Subprocess images	·,	
Number of subprocess images, max.	32	
Hardware configuration	02	
	22: A distributed I/O system is sharesterized not only by the integration of	
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	6; A maximum of 6 CMs (PROFINET + PROFIBUS) can be inserted in total	
Number of IO Controllers		
• integrated	1	
• Via CM	6; A maximum of 6 CMs (PROFINET + PROFIBUS) 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	
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 PROFIBUS CM / CP	
• on DP, device	Yes; via PROFIBUS CM / CP	
• in AS, master	Yes	
• in AS, device	Yes	
on Ethernet via NTP		
Interfaces	Yes	
	Yes	
Number of PROFINET interfaces	Yes 1	
Number of PROFINET interfaces 1. Interface		
Number of PROFINET interfaces 1. Interface Interface types	1	
Number of PROFINET interfaces 1. Interface Interface types • RJ 45 (Ethernet)	1 Yes; X1	
Number of PROFINET interfaces 1. Interface Interface types	1	
Number of PROFINET interfaces 1. Interface Interface types • RJ 45 (Ethernet)	1 Yes; X1	
Number of PROFINET interfaces 1. Interface Interface types • RJ 45 (Ethernet) • Number of ports	1 Yes; X1 2	
Number of PROFINET interfaces 1. Interface Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch	1 Yes; X1 2	

PROFINET IO R	V	
PROFINET IO Device	Yes	
SIMATIC communication	Yes	
Open IE communication	Yes; Optionally also encrypted	
Web server	Yes	
Media redundancy PROFINET IO 0	Yes	
PROFINET IO Controller		
Services	Voc	
— 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	
— PROFINET Security Class	1	
Update time for IRT		
— for send cycle of 250 μs	$250~\mu s$ 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	
— 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 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		
— 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 PROFINITE Converte Class	Yes; per user program	
— PROFINET Security Class	SNMP Configuration and DCP Read Only	
Interface types		
RJ 45 (Ethernet)	Von	
• 100 Mbps	Yes	
Autoropoiation	Yes	
Autocrossing Industrial Ethernet status LED	Yes	
Industrial Ethernet status LED Protocols	Yes	
Protocols	No	
PROFIsafe Number of connections	No	
Number of connections may	128; via integrated interfaces of the CDLL and connected CDs / 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 reserved for ES/HMI/web Number of connections via integrated interfaces.	10	
Number of S7 routing paths	88	
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	
· ·	Yes	
Data record routing S7 communication, as conver.	Yes	
S7 communication, as server		
S7 communication, as client	Yes	
User data per job, max.	See online help (S7 communication, user data size)	
Open IE communication	v	
• TCP/IP	Yes	
— Data length, max.	64 kbyte	
— 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. 78 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. 	50	
— number of simultaneous HTTP calls, max.	4	
— HTTP request body, max.	131 072 byte	
OPC UA		
Runtime license required	Yes; "Small" license required	
OPC UA Client	Yes; Data Access (registered Read/Write), Method Call	
Application authentication	Yes	
Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256	
— User authentication	"anonymous" or by user name & password	
Number of connections, max.	4	
Number of nodes of the client interfaces, recommended max.	1 000	
 Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_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 instructions for session management, per connection, max. 	1	
Number of simultaneous calls of the client	5	
instructions for data access, per connection, max.		
Instructions for data access, per connection, max.— Number of registerable nodes, max.	5 000	

OPC UA Server Application submitted tent alternation Application submitted tent alternation Security policies Number of sessions max. Number of sessions max. Number of registratible nodes, max. Number of registratible nodes, max. Number of sessions max. Security policies Number of sessions max. Number of session max. Number of session max. Number of session max. Number of session max. Number of sessions sessions max. Number of sessions for reseage functions. Number of places and sessions for message functions. Number of sessions for message functions. Number of subscriptions, max. Number of variables, max. Number of variables, max. Number of variables, max. Number of originations of variables, ma	 Number of inputs/outputs when calling OPC_UA_MethodCall, max. 	20	
- Application authentication - Security policies Available security policies Available Available			
Security policios User authentication CLS support (certificate management) CLS support (certificate management) Number of secisions, max Number of accessible variables, max Number of subscriptions per session, max Number of subscriptions per server method, max Number of subscriptions per server method, max Number of subscriptions per server method, max Number of subscriptions per subscriptions, max Number of subscriptions, max Subscriptions per subscriptions, max Subscrip	 Application authentication 		
- CDS support (certificate management) - Number of sessions, max - Number of sessions, max - Number of sessions, max - Number of subscriptions per session, max - Number of subscriptions per session, max - Number of subscriptions per session, max - Publishing interval, min Publishing interval, min Number of server methods, max - Number of server methods, max - Number of server interfaces, max - Number of minoritoristic ms, recommended max - Number of minoritoristic ms, recommended max - Number of server interfaces, max - Number of ondes for user-defined server interfaces, max - Number of program alarms - Number of program alarms - Number of situations - Number of situations - Number of situations - Number of situations - Number of program alarms - Number of situations - Number of situations for message functions, max - Number of subscriptions, max - Number of subscriptions, max - Number of subscriptions, max - 2000 - Program alarms - Number of subscriptions, max - 2000 - Program alarms - Number of subscriptions, max - 2000 - Program alarms - Number of subscriptions, max - 2000 - Program alarms - Number of situations for messages in RUN, max - 5 0000 - Program alarms - Number of situations for motion technology objects - Number of configurable program messages, max - Febblag or GRAPH - Number of situations for motion technology objects - Number of situations for motion technology objects - Number of situations functions - Number of situations for motion technology objects - Status scontrol - Ves: Up to 8 simultaneously in total across all ES clients) - Status control - Versibles or variables, max - of which status variables, max - of which status variables, max - of which control variables, max - of which control variables, max - of which powerfail-proof - Forcing - Forcing, variables - Number of configurable Traces - Number of configurable Traces - Number of configurable Traces	— Security policies	available security policies: None, Basic128Rsa15, Basic256Rsa15,	
- Number of registerable nodes, max Sampling interval, min Subscriptions per session, max Subscriptions per session, max Subscriptions per session, max Subscriptions per session, max Number of server methods, max Number of server methods, max Number of server interfaces, max Number of inputs/outputs per server method, max Number of inputs/outputs per server method, max Number of server interfaces, max Number of program latims - Number of program latims - Number of program latims - Number of login storos for message functions, max Number of login storos for message functions, max Number of login storos for message functions, max Number of login storos for message sinctions, max Yes, MODBUS TCP - Streamspar functions - Yes - Number of login storos for message sinctions, max Number of login storos for message sinctions, max Yes, MODBUS TCP - Streamspar functions - Number of login storos for message sinctions, max Yes, MODBUS TCP -	 User authentication 	"anonymous" or by user name & password	
- Number of accessible variables, max. Number of subscriptions per seasion, max. - Sampling interval, min. - Publishing interval, min. - Number of supscriptions per seasion, max. - Number of supscriptions per seasion, max. - Number of subscriptions per seasion, max. - Number of subscriptions per seasion, max. - Number of supscriptions per seasion, max. - Number of inputsoutputs per server method, max. - Number of inputsoutputs per server method, max. - Number of monitored items, recommended max. - Number of nodes for user defined server interfaces, max. - Number of nodes for user defined server interfaces, max. - Number of program alarms - Number of program alarms - Number of program alarms - Number of subscriptions, max. - Number of subscriptions, max. - Number of subscriptions, max. - Subscriptions, subscriptions, max. - Subscriptions, subscription	 — GDS support (certificate management) 	Yes	
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- Number of subscriptions per session, max Sampling interval, min Publishing interval, min Number of server methods, max Number of inputs/outputs per server method, max Number of inputs/outputs per server method, max Number of inputs/outputs per server method, max Number of server interfaces, max Number of obeside for user-defined server interfaces, max Number of offices for server interfaces, max Number of server for forgam alarms - Number of server forgam alarms - Number of server forgam alarms - Number of server forgam messages, max Number of server forgam messages in RUN, max Number of server forgam messages in RUN, max Number of server forgam messages in RUN, max Number of server dams for motion technology objects - Number of program alarms - Number of program alarms - Number of program alarms - Number of server forgam dams - Number of program alarms - Number of program messages in RUN, max Number of server forgam messages in RUN, max Number of server forgam messages in RUN, max Number of server forgam messages in RUN, max Number of program alarms - Number of program messages in RUN, max Number of program alarms - Number of program messages in RUN, max Number of program alarms - Number of program messages in RUN, max Number of program alarms - Number of program alarms - Number of program messages in RUN, max Number of program alarms - Number of	 Number of accessible variables, max. 	50 000	
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- Number of monitored items, recommended max Number of server interfaces, max. - Number of nodes for user-defined server interfaces, max. - Number of program alarism - Number of program alarism - Number of program messages functions, max. - Monitor of logish stations for message functions, max. 250 - Monitor of logish stations for message functions, max. - Number of logish stations for message functions, max. - Number of of logish stations for message functions, max. - Number of of logish stations for message functions, max. - Program alarism - Number of of logish stations for message functions, max. - Program alarism - Number of logish stations for message functions, max. - Program alarism - Number of of logish stations for messages, max. - Program alarism - Number of of offigurable program messages, max Propling or GRAPH - Number of logish stations for messages in RUN, max. - Number of program alarism - Number of alarisms for system diagnostics - Number of alarisms for motion technology objects - Number of alarisms for motion technology objects - Status blook - Number of alarisms for motion technology objects - Status blook - Yes; Up to 8 simultaneously (in total across all ES clients) - Number of variables, max of which status variables, max of which powerfall-proof - Number of configurable Traces	— Number of server methods, max.		
- Number of server interfaces, max. - Number of nodes for user-defined server interfaces, max. - Number of program alarms - Number of program alarms - Number of program alarms - Number of subscriptions, max. - Number of subscriptions, max. Number of subscriptions, max. Number of subscriptions, max. Number of subscriptions, max. - Or which status variables, max Or which some Number of program provides, max Or which status variables, max Or which some Number of variables, max Or which status variables, max Or which some Or which some Or which some Or which some Number of variables, max Or which some Or	 Number of inputs/outputs per server method, max. 	20	
### Status Control variables Status Control variables Status Control variables No. ### Number of nodes for user-defined server interfaces, max. ### Alarms and Conditions ### Number of program alarms ### Number of program alarms ### Number of palarms for system diagnostics ### Number of palarms for system diagnostics ### Number of login stations for message functions, max. ### Status Control variables No. ### Number of or of subscriptions, max. ### Number of fough stations for message functions, max. ### Status Stock ### Number of fough stations for message functions, max. ### Status Stock ### Number of fough stations for message functions, max. ### Status Stock ### Number of fough stations for message functions, max. ### Status Stock ### Number of fough stations for messages in RUN, max. ### Number of fough stations for system diagnostics ### Number of simultaneously active program alarms ### Number of palarms for system diagnostics ### Number of palarms for windown technology objects ### Status Stock ### Number of siams for motion technology objects ### Test Commissioning functions ### Joint Commissioning functions ### Joint Commission (Team Engineering) ### Yes, Parallel online access possible for up to 5 engineering systems ### Status Stock ### Status Stock ### Profiling ### Yes ### Profiling ### Yes ### Profiling ### Yes ### Status Stock ### Number of variables, max. ### Or which status variables, max. ### Or which control variables, max. ### Or which control variables, max. ### Dough Profiline access fought in the station of the page of the	 Number of monitored items, recommended max. 	4 000; for 1 s sampling interval and 1 s send interval	
max. Alarms and Conditions Number of program alarms Number of alarms for system diagnostics MODBUS Further protocols MODBUS Yes, MODBUS TCP ST message functions Number of login stations for message functions, max. number of subscriptions, max. 250 number of subscriptions, max. 250 number of orifigurable program messages, max. Number of configurable program messages, max. Number of logidable program messages in RUN, max. 5 000; Program messages are generated by the "Program_Alarm" block, Probling or GRAPH Number of loadable program messages in RUN, max. 5 000 Number of simultaneously active program alarms Number of alarms for system diagnostics Number of alarms for system diagnostics Number of alarms for system diagnostics Number of alarms for motion technology objects 160 **Ext commissioning functions Joint commission (Team Engineering) Yes; Paraillel online access possible for up to 5 engineering systems **Status block Test commissioning functions Joint commission (Team Engineering) Yes; Paraillel online access possible for up to 5 engineering systems **Status block Test commissioning functions Joint commission (Team Engineering) Yes; Paraillel online access possible for up to 5 engineering systems **Status block Test commission (Team Engineering) Yes; Up to 8 simultaneously (in total across all ES clients) Single step No No Number of variables Yes Ves Versibles No Number of variables, max. — of which control variables, max. — of which powerfall-proof Persent Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of configurable Traces	 Number of server interfaces, max. 		
Number of larms for system diagnostics Futher protocols • MODBUS **Nomber of larms for system diagnostics • MODBUS **Yes; MODBUS TCP **S7 message functions **Number of login stations for message functions, max. **number of subscriptions, max. **number of subscriptions, max. **number of subscriptions, max. **Number of login stations for message systems are generated by the "Program_Alarm" block, Probleg or GRAPH **Number of configurable program messages, max. **Number of industrial program messages in RUN, max. **Number of industrial program messages in RUN, max. **Number of loginarial program messages in RUN, max. **Number of program alarms • Number of program alarms • Number of larms for system diagnostics • Number of alarms for motion technology objects **Test commissioning functions **Joint commission (Team Engineering) **Joint commission (Team Engineering Systems **Joint commission (Team Eng	·	15 000	
Further protocols	 Alarms and Conditions 	Yes	
## WODBUS * MODBUS * MODBUS * MODBUS * Mode of login stations for message functions, max. * Mumber of login stations for message functions, max. * Login of login stations for subscriptions, max. * Login of lagis statinbutes for subscriptions, max. * Program alarms * Number of configurable program messages, max. * Proplag or GRAPH * Number of industriable program messages in RUN, max. * Number of simultaneously active program alarms * Number of simultaneously active program alarms * Number of alarms for system diagnostics * Number of alarms for system diagnostics * Number of alarms for system diagnostics * Number of alarms for motion technology objects * Statis block * Statis block * Single step * No * Number of breakpoints * Profiling * Yes * Status foortrol variable * Variables * Number of variables, max. * — of which control variables, max. * Diagnostic buffer * Proring * Forcing * For	 Number of program alarms 	100	
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Number of login stations for message functions, max. Number of login stations for message functions, max. 250 number of tags/attributes for subscriptions, max. 2000 Program alarms Yes Number of configurable program messages, max. 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH Number of loadable program messages in RUN, max. 5 000 Number of simultaneously active program alarms Number of simultaneously active program alarms Number of alarms for system diagnostics Number of alarms for system diagnostics Number of alarms for motion technology objects 160 Test commissioning functions Joint 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 Profiling Yes Status/control Status/control variables, max. — of which status variables, max. — of which control variables, max. — of which status variables, max. — of which powerfail-proof Forcing • Number of configurable Traces • Number of configurable Traces 4	Further protocols		
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Diagnostic buffer	-		
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 Number of entries, max. — of which powerfail-proof Traces Number of configurable Traces 4 	·	Vee	
— of which powerfail-proof 500 Traces ● Number of configurable Traces 4	•		
Traces • Number of configurable Traces 4			
Number of configurable Traces 4	— of which powerfail-proof	500	
● Memory size per trace, max. 512 kbyte			
	Memory size per trace, max.	512 kbyte	

Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
• ERROR LED	Yes
• MAINT LED	Yes
STOP ACTIVE LED	Yes
 Connection display LINK TX/RX 	Yes
Supported technology objects	
Motion 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 chicate	1 120
technology objects	
Required Motion Control resources Per append controlled axis.	40
— per speed-controlled axis	80
— per positioning axis	160
— per synchronous axis	80
— per external encoder	
— per output cam — per cam track	20 160
•	40
— per probe● Positioning axis	V
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; Universal PID controller with integrated optimization
• 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
product functions / security / header	
PROFINET Security Class	1
signed firmware update	Yes
Secure Boot	Yes
safely removing data	Yes
Ambient conditions	
Ambient temperature during operation	
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, max.	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the
Ambient temperature during eteroge/transpertation	display is switched off
Ambient temperature during storage/transportation	40 °C
• min.	-40 °C
max. Altitude during eneration relating to see level.	70 °C
Altitude during operation relating to sea level	5 000 m. Postrictions for installation altitudes > 2 000 m. and married
Installation altitude above sea level, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
configuration / header	
configuration / header	
configuration / programming / header	
configuration / programming / header Programming language	Voc
configuration / programming / header Programming language — LAD	Yes
configuration / programming / header Programming language — LAD — FBD	Yes
configuration / programming / header Programming language — LAD — FBD — STL	Yes Yes
configuration / programming / header Programming language — LAD — FBD — STL — SCL	Yes Yes Yes
configuration / programming / header Programming language — LAD — FBD — STL — SCL — CFC	Yes Yes Yes Yes
configuration / programming / header Programming language — LAD — FBD — STL — SCL — CFC — GRAPH	Yes Yes Yes
configuration / programming / header Programming language — LAD — FBD — STL — SCL — CFC — GRAPH Know-how protection	Yes Yes Yes Yes Yes Yes
configuration / programming / header Programming language — LAD — FBD — STL — SCL — CFC — GRAPH Know-how protection • User program protection/password protection	Yes Yes Yes Yes Yes Yes
configuration / programming / header Programming language — LAD — FBD — STL — SCL — CFC — GRAPH Know-how protection	Yes Yes Yes Yes Yes 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 and centralized
 Number of users 	100
 Number of groups 	100
Number of roles	50
programming / cycle time monitoring / header	
 lower limit 	adjustable minimum cycle time
• upper limit	adjustable maximum cycle time
Dimensions	
Width	35 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	336 g
Classifications	

	Version	Classification
eClass	14	27-24-22-07
eClass	12	27-24-22-07
eClass	9.1	27-24-22-07
eClass	9	27-24-22-07
eClass	8	27-24-22-07
eClass	7.1	27-24-22-07
eClass	6	27-24-22-07
ETIM	9	EC000236
ETIM	8	EC000236
ETIM	7	EC000236
IDEA	4	3565
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval

Manufacturer Declaration







Miscellaneous



General Product Approval

For use in hazardous locations

<u>KC</u>



<u>FM</u>



<u>FM</u>



For use in hazardous locations

Test Certificates

Marine / Shipping

Type Examination Certificate



Miscellaneous

Type Test Certificates/Test Report





Marine / Shipping





NK / Nippon Kaiji Kyokai



CCS (China Classification Society)



other

Environment

PROFINET





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