Data sheet

6ES7511-1AL03-0AB0



SIMATIC S7-1500, CPU 1511-1 PN, central processing unit with work memory 300 KB for program and 1.5 MB for data, 1st interface: PROFINET IRT with 2-port switch, 25 ns bit performance, SIMATIC Memory Card required **** approvals and certificate according to entry 109815653 at support.industry.siemens.com to be observed! ****

Product type designation HW functional status FS03 FS03 Firmware version • IRW update possible Product function • IRM data • Isochronous mode • Isochronous mode • SysLog Fengineering with • STEP 7 TIA Portal configurable/integrated from version Configuration control via dataset Yes Display Screen diagonal [cm] Control olements Number of keys Mode buttons 2 Supply voltage Rated value (DC) permissible range, upper limit (DC) Per	General information	
Firmware version Fiv update possible Fiv update possible Fiv update possible Fives Product function I &M data I sochronous mode SysLog Yes Engineering with STEP 7 TIA Portal configurable/integrated from version Configuration control via dataset Yes Display Screen diagonal [cm] Control elements Number of keys Mode buttons 2 Supply votage Rated value (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) Alars with elements Mains buffering Mains buffering Mains buffering Mains votage failure stored energy time Intrust current, max. Power Infeed power to the backplane bus (balanced) Power loss, typ. Memory Number of slots for SIMATIC memory card 1 Ves 1 Ves Ves Namer Namer Ves Namer	Product type designation	CPU 1511-1 PN
FW update possible Product function I I&M data I slochronous mode Syst.og Syst.og Syst.og Product control STEP 7 TIA Portal configurable/integrated from version Configuration control Via dataset Yes Display Screen diagonal [cm] Sumber of keys Mode buttons Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Mains buffering Alans Stored energy time Mainshottage failure stored energy time Dut current Current consumption (rated value) Current consumption, max. Incust Current, max. Power consumption from the backplane bus (balanced) Power of sets for SIMATIC memory card 1 15 Memory Number of slots for SIMATIC memory card 1 15 Memory Number of slots for SIMATIC memory card 1 15 Memory Number of slots for SIMATIC memory card 1 15 Memory Number of slots for SIMATIC memory card 1 15 Memory Number of slots for SIMATIC memory card 1 5 Memory Number of slots for SIMATIC memory card 1 5 Memory Number of slots for SIMATIC memory card 1 5 Memory Number of slots for SIMATIC memory card 1 5 Memory Number of slots for SIMATIC memory card 1 5 Memory Number of slots for SIMATIC memory card	HW functional status	FS03
Product function IAM data ISM data Isoschronous mode Syst.og Yes Pes; Distributed and central; with minimum OB 6x cycle of 500 µs (distributed) and 1 ms (central) Yes Pes; Distributed and central; with minimum OB 6x cycle of 500 µs (distributed) and 1 ms (central) Yes Pes Periodic form of the product o	Firmware version	V3.1
• I&M data • Isochronous mode • SysLog Yes; Distributed and central; with minimum OB 6x cycle of 500 µs (distributed) and 1 ns (central) • SysLog Yes Engineering with • STEP 7 TIA Portal configurable/integrated from version • STEP 7 TIA Portal configurable/integrated from version **Configuration control** via dataset **Yes **Display **Screen diagonal [cm] **Control elements **Number of keys **A 8 **Mode buttons **2 **Supply voitage **Rated value (DC) **permissible range, lower limit (DC) **19.2 V **permissible range, upper limit (DC) **28.8 V **Reverse polarity protection **A wins'voitage failure stored energy time **Inans' consumption (rated value) **Ourent consumption (rated value) **DU 9A **Innush current, max. **J.15 A; Rated value **Power loss. †*D. **Power loss. †*D. **Wemonyy **Number of slots for SIMATIC memory card **J. Wemonyy **Number of slots for SIMATIC memory card **J. Wemonyy **Number of slots for SIMATIC memory card **J. Weshord **Ves; Istributed and central; with minimum OB 6x cycle of 500 µs (distributed) and 1 fs (central) **Yes **Ves (SIMATIC memory card **J. Simple file (PW V3.1) / V18 (FW V3.0) or higher; with older TIA Portal versions configurable as 6ES7511-1AK02-0AB0 **J. Simple file (FW V3.0) or higher; with older TIA Portal versions configurable as 6ES7511-1AK02-0AB0 **J. Simple file (FW V3.0) or higher; with older TIA Portal versions configurable as 6ES7511-1AK02-0AB0 **J. Simple file (FW V3.0) or higher; with older TIA Portal versions configurable as 6ES7511-1AK02-0AB0 **J. Simple file (FW V3.0) or higher; with older TIA Portal versions configurable as 6ES7511-1AK02-0AB0 **J. Simple file file file file file file file fi	 FW update possible 	Yes
• Isochronous mode Syst.og Syst.og Fingineering with • STEP 7 TIA Portal configurable/integrated from version configurable as 6ES7511-1AK02-0AB0 Configuration control via dataset Ves Screen diagonal [cm] Sorten deloments Number of keys Mode buttons 2 Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) Alains buffering • Mains buffering • Mains voltage failure stored energy time • Mains voltage failure stored energy time Inrush current. Current consumption (rated value) Current consumption (rated value) Current consumption (rated value) Current consumption from the backplane bus (balanced) Power consumption from the backplane bus (balanced) Power consumption from the backplane bus (balanced) Power loss Power loss Power olss typ. Memory Number of slots for SIMATIC memory card 1 15 Memory Number of slots for SIMATIC memory card 1 15 Memory Number of slots for SIMATIC memory card 1 15 Yes Distributed and central; with minimum OB 6x cycle of 500 µs (distributed) Poser Consumption of time (central) Poser consumption from the foot part of the sackplane bus (balanced) Power of slots for SIMATIC memory card 1 5 Mumber of slots for SIMATIC memory card 1 5 Myes Poser loss typ. Memory Number of slots for SIMATIC memory card 1 5 Myes Power consumption from the memory card 1 5 Myes Power loss Power loss typ. Mains part in the foot part of the backplane bus (balanced) Power consumption from the packplane bus (balanced) Power consumption from the backplane bus (balanced) Power consumption from the packplane bus (balanced) Power consumption from the packplane c	Product function	
and 1 ms (central) Yes Engineering with • STEP 7 TIA Portal configurable/integrated from version configurable as 6ES7511-1AK02-0AB0 Configuration control via dataset Yes Display Screen diagonal [cm] 3.45 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, lower 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) 0.56 A Current consumption (rated value) 0.5 A*s Power onsumption from the backplane bus (balanced) 5.5 W Power loss, tpp. Number of slots for SIMATIC memory card 1	● I&M data	Yes; I&M0 to I&M3
Engineering with STEP 7 TIA Portal configurable/integrated from version configurable as 6ES7511-1AK02-0AB0 Configuration control via dataset Yes Display Screen diagonal [cm] 3.45 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, lower 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) 0.56 A Current consumption (rated value) 0.5 A²-s Power Infeed power to the backplane bus (balanced) 5.5 W Power loss Power loss, typ. Number of slots for SIMATIC memory card 1	• Isochronous mode	
• STEP 7 TIA Portal configurable/integrated from version configurable as 6ES7511-1AK02-0AB0 Configuration control via dataset Yes Display Screen diagonal [cm] 3.45 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 Input current Current consumption (rated value) 0.56 A Current consumption, max. 0.9 A Incush current, max. 1.15 A; Rated value Prower loss Power loss, typ. Memory Number of slots for SIMATIC memory card 1	 SysLog 	Yes
configuration control via dataset Ves Display Screen diagonal [cm] Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, lower limit (DC) permissible range apper limit (DC) permissible range apper limit (DC) permissible range apper limit (DC) Sussible range apper limit (DC) Sussi	Engineering with	
via dataset Yes Display Screen diagonal [cm] 3.45 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 Input current Current consumption (rated value) 0.56 A Current consumption, max. 0.9 A Inrush current, max. 1.15 A; Rated value If 0.5 A²-s Power Infeed power to the backplane bus (balanced) 5.5 W Power loss Power loss, typ. 3.4 W Memory Number of slots for SIMATIC memory card 1	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
Control elements Number of keys Mode buttons 2 Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) Reverse polarity protection wes Mains buffering • Mains/voltage failure stored energy time 5 ms Input current Current consumption (rated value) Current consumption, max. 1.15 A; Rated value Pt 0.5 A²-s Power Infeed power to the backplane bus Power consumption from the backplane bus (balanced) Power loss Power loss Power of slots for SIMATIC memory card 1	Display	
Number of keys Mode buttons 2 Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Mains buffering Mains/voltage failure stored energy time Mains/voltage failure stored energy time Current consumption (rated value) Current consumption, max. Inrush current, max. 1.15 A; Rated value Power Infeed power to the backplane bus Power loss Power loss, typ. 3.4 W Memory Number of slots for SIMATIC memory card 1 1	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 5 ms Input current Current consumption (rated value) 0.56 A Current consumption, max. 0.9 A Inrush current, max. 1.15 A; Rated value I²t 0.5 A²-s Power Infeed power to the backplane bus (balanced) 5.5 W Power loss Power loss, typ. 3.4 W Memory Number of slots for SIMATIC memory card 1	Control elements	
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 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** Infeed power to the backplane bus (balanced) 5.5 W Power loss Power loss, typ. 3.4 W Memory Number of slots for SIMATIC memory card 1	Number of keys	8
Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) 28.8 V Reverse polarity protection Mains buffering • Mains/voltage failure stored energy time 5 ms Input current Current consumption (rated value) Current consumption, max. Inrush current, max. 1.15 A; Rated value 1²t 0.5 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 Number of slots for SIMATIC memory card 1 19.2 V 24 V 19.2 V	Mode buttons	2
permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Mains buffering Mains/voltage failure stored energy time Mains/voltage failure stored energy time 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. Mumber of slots for SIMATIC memory card 1 9.2 V 28.8 V 29.8 V 20.5 A 5 ms Investment 6 vice of A Current consumption (rated value) 0.56 A Current consumption, max. 1.15 A; Rated value 1.15 A; Rated value 1.15 A; Rated value 1.15 A; Rated value 3.4 W Memory Number of slots for SIMATIC memory card 1	Supply voltage	
permissible range, upper limit (DC) Reverse polarity protection Mains buffering • Mains/voltage failure stored energy time funct current Current consumption (rated value) Current consumption, max. Inrush current, max. Inrush current, max. Infed power to the backplane bus Power Infeed power to the backplane bus (balanced) Power loss Power loss, typ. 3.4 W Memory Number of slots for SIMATIC memory card 1 1	Rated value (DC)	24 V
Reverse polarity protection Mains buffering Mains/voltage failure stored energy time 5 ms Input current Current consumption (rated value) Current consumption, max. Inrush current, max. Inrush current, max. 1.15 A; Rated value Power Infeed power to the backplane bus Power loss Power loss, typ. 3.4 W Memory Number of slots for SIMATIC memory card 1 mss.	permissible range, lower limit (DC)	19.2 V
Mains buffering ● Mains/voltage failure stored energy time Input current Current consumption (rated value) Current consumption, max. Inrush current, max. Inrush current, max. Infeed power to the backplane bus Infeed power to the backplane bus (balanced) Power consumption from the backplane bus (balanced) Power loss Power loss, typ. 3.4 W Memory Number of slots for SIMATIC memory card I s ms 5 ms 0.56 A 0.9 A 1.15 A; Rated value 1.15 A; Rated valu	permissible range, upper limit (DC)	28.8 V
Mains/voltage failure stored energy time Input current Current consumption (rated value) Current consumption, max. Inrush current, max. Infeed power to the backplane bus Power consumption from the backplane bus (balanced) Power loss Power loss, typ. Memory Number of slots for SIMATIC memory card 0.56 A 0.9 A 1.15 A; Rated value 0.5 A²-s 1.0 W 9.5 W 10 W 11 W 11 W 12 W 13 W 14 W 15 W 16 W 17 W 18	Reverse polarity protection	Yes
Input current Current consumption (rated value) Current consumption, max. Inrush current, max. Interest power Infeed power to the backplane bus Power consumption from the backplane bus (balanced) Power loss Power loss, typ. Number of slots for SIMATIC memory card 0.56 A 0.9 A 1.15 A; Rated value 1.16 A; Value Value 1.16 A; Value Value 1.17 A; Value Value 1.18 A; Value Value 1.	Mains buffering	
Current consumption (rated value) Current consumption, max. Inrush current, max. Infeed power to the backplane bus Power consumption from the backplane bus (balanced) Power loss Power loss, typ. Memory Number of slots for SIMATIC memory card 0.5 A 1.15 A; Rated value 0.5 A 1.15 A; Rated value 1.15	 Mains/voltage failure stored energy time 	5 ms
Current consumption, max. Inrush current, max. Infeed power to the backplane bus Power consumption from the backplane bus (balanced) Power loss Power loss, typ. Memory Number of slots for SIMATIC memory card 0.9 A 1.15 A; Rated value 1.15 A;	Input current	
Inrush current, max. Inrush current, max. Infect of power to the backplane bus Power consumption from the backplane bus (balanced) Power loss Power loss, typ. Number of slots for SIMATIC memory card 1.15 A; Rated value 1.25 A²-s 1.34 W 1.45 A; Rated value 1.5 A; Rated va	Current consumption (rated value)	0.56 A
Power Infeed power to the backplane bus Power consumption from the backplane bus (balanced) Power loss Power loss, typ. Aumber of slots for SIMATIC memory card 0.5 A²-s 10 W 5.5 W 3.4 W Memory Number of slots for SIMATIC memory card 1	Current consumption, max.	0.9 A
Infeed power to the backplane bus Power consumption from the backplane bus (balanced) Power loss Power loss, typ. Memory Number of slots for SIMATIC memory card 10 W 5.5 W 9.5 W 9.5 W 10 W 1	Inrush current, max.	1.15 A; Rated value
Infeed power to the backplane bus Power consumption from the backplane bus (balanced) 5.5 W Power loss Power loss, typ. Memory Number of slots for SIMATIC memory card 1	l²t	0.5 A²·s
Power consumption from the backplane bus (balanced) 5.5 W Power loss Power loss, typ. 3.4 W Memory Number of slots for SIMATIC memory card 1	Power	
Power loss Power loss, typ. 3.4 W Memory Number of slots for SIMATIC memory card 1	Infeed power to the backplane bus	10 W
Power loss, typ. 3.4 W Memory Number of slots for SIMATIC memory card 1	Power consumption from the backplane bus (balanced)	5.5 W
Memory Number of slots for SIMATIC memory card 1	Power loss	
Memory Number of slots for SIMATIC memory card 1	Power loss, typ.	3.4 W
Number of slots for SIMATIC memory card 1	Memory	
·		1
		Yes

Madenara	
Work memory	
• integrated (for program)	300 kbyte
integrated (for data)	1.5 Mbyte
Load memory	
 Plug-in (SIMATIC Memory Card), max. 	32 Gbyte
Backup	
maintenance-free	Yes
CPU processing times	
for bit operations, typ.	25 ns
for word operations, typ.	32 ns
for fixed point arithmetic, typ.	42 ns
for floating point arithmetic, typ.	170 ns
CPU-blocks	
Number of elements (total)	4 000; Blocks (OB, FB, FC, DB) and UDTs
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.	1.5 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	
Number range	0 65 535
• Size, max.	300 kbyte
FC	
Number range	0 65 535
• Size, max.	300 kbyte
ОВ	
• Size, max.	300 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	
Nesting depth	0.4
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	
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.	1.5 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	
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	4; A maximum of 4 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total
Number of IO Controllers	
• integrated	1
• Via CM	4; A maximum of 4 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total
Rack	
Modules per rack, max.	32; CPU + 31 modules
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. 	
p j,	10 s; Typ.: 2 s
Operating hours counter	10 s; Typ.: 2 s
Operating hours counter • Number	10 s; Typ.: 2 s
Operating hours counter • Number Clock synchronization	
Operating hours counter • Number	16 Yes
Operating hours counter Number Clock synchronization supported to DP, master	16
Operating hours counter Number Clock synchronization supported to DP, master to DP, slave	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP
Operating hours counter Number Clock synchronization supported to DP, master to DP, slave in AS, master	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes
Operating hours counter Number Clock synchronization supported to DP, master to DP, slave in AS, master in AS, slave	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes Yes
Operating hours counter Number Clock synchronization supported to DP, master to DP, slave in AS, master	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes
Operating hours counter Number Clock synchronization supported to DP, master to DP, slave in AS, master in AS, slave	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes Yes
Operating hours counter Number Clock synchronization supported to DP, master to DP, slave in AS, master in AS, slave on Ethernet via NTP	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes Yes
Operating hours counter Number Clock synchronization supported to DP, master to DP, slave in AS, master in AS, slave on Ethernet via NTP	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes Yes Yes
Operating hours counter Number Clock synchronization supported to DP, master to DP, slave in AS, master in AS, slave on Ethernet via NTP Interfaces Number of PROFINET interfaces	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes Yes Yes
Operating hours counter Number Clock synchronization supported to DP, master to DP, slave in AS, master in AS, slave on Ethernet via NTP Interfaces Number of PROFINET interfaces 1. Interface	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes Yes Yes
Operating hours counter Number Clock synchronization supported to DP, master to DP, slave in AS, master in AS, slave on Ethernet via NTP Interfaces Number of PROFINET interfaces Interface types	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes Yes Yes 1
Operating hours counter Number Clock synchronization supported to DP, master to DP, slave in AS, master in AS, slave on Ethernet via NTP Interfaces Number of PROFINET interfaces 1. Interface Interface types RJ 45 (Ethernet)	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes Yes Yes Yes Yes
Operating hours counter Number Clock synchronization supported to DP, master to DP, slave in AS, master in AS, slave on Ethernet via NTP Interfaces Number of PROFINET interfaces I. Interface Interface types RJ 45 (Ethernet) Number of ports	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes Yes Yes Yes Yes 1
Operating hours counter Number Clock synchronization supported to DP, master to DP, slave in AS, master in AS, slave on Ethernet via NTP Interfaces Number of PROFINET interfaces 1. Interface types RJ 45 (Ethernet) Number of ports integrated switch	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes Yes Yes Yes Yes 1
Operating hours counter Number Clock synchronization supported to DP, master to DP, slave in AS, master in AS, slave on Ethernet via NTP Interfaces Number of PROFINET interfaces 1. Interface types RJ 45 (Ethernet) Number of ports integrated switch Protocols	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes Yes Yes Yes 1 Yes; X1 2 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. 	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 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 μs 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	- III to 0 12 III
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 types	The standard and s
RJ 45 (Ethernet)	
• 100 Mbps	Yes
Autonegotiation	Yes
Autoriossing	Yes
Industrial Ethernet status LED	Yes
Protocols	
PROFIsafe	No
Number of connections	
Number of connections, max.	128; via integrated interfaces of the CPU and connected CPs / CMs
Number of connections reserved for ES/HMI/web	10
Number of connections reserved for Eon Minweb Number of connections via integrated interfaces	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
Data record routing	Yes
S7 communication, as server	Yes
S7 communication, as client	Yes
User data per job, max.	See online help (S7 communication, user data size)
Open IE communication	,
• TCP/IP	Yes
— Data length, max.	64 kbyte
several passive connections per port, 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	103, Optional
• HTTP	Yes; Standard and user pages
• HTTPS	Yes; Standard and user pages Yes; Standard and user pages
• web API	1 co, otanuara una uoci pugeo
	50
- NUMBER OF SESSIONS THAY	
Number of sessions, max. — number of simultaneous HTTP calls, may.	
— number of simultaneous HTTP calls, max.	4
— number of simultaneous HTTP calls, max. — HTTP request body, max.	
— number of simultaneous HTTP calls, max. — HTTP request body, max. OPC UA	4 131 072 byte
 number of simultaneous HTTP calls, max. HTTP request body, max. OPC UA Runtime license required 	4 131 072 byte Yes; "Small" license required
 — number of simultaneous HTTP calls, max. — HTTP request body, max. OPC UA • Runtime license required • OPC UA Client 	4 131 072 byte Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call
 number of simultaneous HTTP calls, max. HTTP request body, max. OPC UA Runtime license required OPC UA Client Application authentication 	4 131 072 byte Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes
 number of simultaneous HTTP calls, max. HTTP request body, max. OPC UA Runtime license required OPC UA Client Application authentication Security policies 	4 131 072 byte Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
 number of simultaneous HTTP calls, max. HTTP request body, max. OPC UA Runtime license required OPC UA Client Application authentication Security policies User authentication 	4 131 072 byte Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password
 number of simultaneous HTTP calls, max. HTTP request body, max. OPC UA Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max.	4 131 072 byte Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4
 number of simultaneous HTTP calls, max. HTTP request body, max. OPC UA Runtime license required OPC UA Client Application authentication Security policies User authentication 	4 131 072 byte Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password
 number of simultaneous HTTP calls, max. HTTP request body, max. OPC UA Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces,	4 131 072 byte Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300
 number of simultaneous HTTP calls, max. HTTP request body, max. OPC UA Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_I 	4 131 072 byte Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300
 number of simultaneous HTTP calls, max. HTTP request body, max. OPC UA Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_UA_max. Number of elements for one call of 	4 131 072 byte Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300
 number of simultaneous HTTP calls, max. HTTP request body, max. OPC UA Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_I max. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. Number of elements for one call of OPC_UA_MethodGetHandleList, max. Number of simultaneous calls of the client instructions for session management, per connection, 	4 131 072 byte Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300
 number of simultaneous HTTP calls, max. HTTP request body, max. OPC UA Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_I max. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. Number of elements for one call of OPC_UA_MethodGetHandleList, max. Number of simultaneous calls of the client 	4 131 072 byte Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 100
 number of simultaneous HTTP calls, max. HTTP request body, max. OPC UA Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_U max. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. Number of elements for one call of OPC_UA_MethodGetHandleList, max. Number of simultaneous calls of the client instructions for session management, per connection, max. Number of simultaneous calls of the client instructions for data access, per connection, max. 	4 131 072 byte Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 100
 number of simultaneous HTTP calls, max. HTTP request body, max. OPC UA Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_I max. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. Number of elements for one call of OPC_UA_MethodGetHandleList, max. Number of simultaneous calls of the client instructions for session management, per connection, max. Number of simultaneous calls of the client instructions for data access, per connection, max. Number of registerable nodes, max. Number of registerable method calls of 	Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 100 1
 number of simultaneous HTTP calls, max. HTTP request body, max. OPC UA Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_U max. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. Number of elements for one call of OPC_UA_MethodGetHandleList, max. Number of simultaneous calls of the client instructions for session management, per connection, max. Number of simultaneous calls of the client instructions for data access, per connection, max. Number of registerable nodes, max. 	Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 100 1 5 5 000

OPC UA MethodCall, max.	
OPC UA Server	Yes; Data Access (Read, Write, Subscribe), Method Call, Alarms & Condition
	(A&C), Custom Address Space
 Application authentication 	Yes
— Security policies	available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256, Aes128Sha256RsaOaep, Aes256Sha256RsaPss
 User authentication 	"anonymous" or by user name & password
 — GDS support (certificate management) 	Yes
— Number of sessions, max.	32
 Number of accessible variables, max. 	50 000
 Number of registerable nodes, max. 	10 000
 Number of subscriptions per session, max. 	50
— Sampling interval, min.	100 ms
— Publishing interval, min.	200 ms
 Number of server methods, max. 	20
 Number of inputs/outputs per server method, max. 	20
 Number of monitored items, recommended max. 	4 000; for 1 s sampling interval and 1 s send interval
— Number of server interfaces, max.	10 of each "Server interfaces" / "Companion specification" type and 20 of the type "Reference namespace"
 Number of nodes for user-defined server interfaces, max. 	15 000
Alarms and Conditions	Yes
— Number of program alarms	100
Number of alarms for system diagnostics	50
Further protocols	
• MODBUS	Yes; MODBUS TCP
S7 message functions	
Number of login stations for message functions, max.	32
number of subscriptions, max.	250
number of tags/attributes for subscriptions, max.	2 000
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 program alarms 	600
 Number of alarms for system diagnostics 	100
 Number of alarms for motion technology objects 	160
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
Profiling	Yes
Status/control	
Status/control variable	Yes
 Variables 	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Number of variables, max.	
— of which status variables, max.	200; per job
— of which control variables, max.	200; per job
Forcing	
• Forcing	Yes
Forcing, variables	Peripheral inputs/outputs
Number of variables, max.	200
Diagnostic buffer	
• present	Yes
Number of entries, max.	1 000
— of which powerfail-proof	500
Traces	
 Number of configurable Traces 	4
 Memory size per trace, max. 	512 kbyte
Interrupts/diagnostics/status information	

Dispusation indication I-FD	
Diagnostics indication LED	Voc
• 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 objects	1 120
 Required Motion Control resources 	
— per speed-controlled axis	40
— per positioning axis	80
— per synchronous axis	160
per external encoder	80
— per output cam	20
— per cam track	160
— per probe	40
Positioning axis	
Number of positioning axes at motion control cycle of 4 ms (typical value)	11
 Number of positioning axes at motion control cycle of 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
Ambient conditions	
Ambient temperature during operation	
hadaada ka	
 horizontal installation, min. 	-30 °C; No condensation
horizontal installation, min.horizontal installation, max.	-30 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the
horizontal installation, max.vertical installation, min.vertical installation, max.	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
horizontal installation, max.vertical installation, min.	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the
 horizontal installation, max. vertical installation, min. vertical installation, max. 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the
 horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
 horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
 horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
 horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C
 horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C
horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C
horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C
horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language — LAD	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language — LAD — FBD	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes
horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level lnstallation altitude above sea level, max. configuration / header configuration / programming / header Programming language — LAD — FBD — STL	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes
horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level lnstallation altitude above sea level, max. configuration / header configuration / programming / header Programming language — LAD — FBD — STL — SCL	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes
horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language — LAD — FBD — STL — SCL — CFC — GRAPH	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes
horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language — LAD — FBD — STL — SCL — CFC — GRAPH Know-how protection	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes
horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level lnstallation altitude above sea level, max. configuration / header configuration / programming / header Programming language — LAD — FBD — STL — SCL — CFC — GRAPH Know-how protection • User program protection/password protection	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes
horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level lnstallation altitude above sea level, max. configuration / header configuration / programming / header Programming language — LAD — FBD — STL — SCL — CFC — GRAPH Know-how protection • User program protection/password protection • Copy protection	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes Yes
 horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL CFC GRAPH Know-how protection User program protection/password protection Copy protection Block protection 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes
 horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL CFC GRAPH Know-how protection User program protection/password protection Copy protection Block protection Access protection	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
 horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL CFC GRAPH Know-how protection User program protection/password protection Copy protection Block protection Access protection protection of confidential configuration data 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
 horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL CFC GRAPH Know-how protection User program protection/password protection Copy protection Block protection Access protection protection of confidential configuration data Password for display 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
 horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL CFC GRAPH Know-how protection User program protection/password protection Copy protection Block protection Access protection protection of confidential configuration data Password for display Protection level: Write protection 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
 horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD STL SCL CFC GRAPH Know-how protection User program protection/password protection Copy protection Block protection Access protection protection of confidential configuration data Password for display 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye

Protection level: Complete protection	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	35 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	336 g

last modified: 4/25/2024 🖸