SIEMENS

Data sheet

6ES7511-1AK02-0AB0



spare part SIMATIC S7-1500, CPU 1511-1 PN, central processing unit with work memory 150 KB for program and 1 MB for data, 1st interface: PROFINET IRT with 2-port switch, 60 ns bit performance, SIMATIC Memory Card required

General information			
Product type designation	CPU 1511-1 PN		
HW functional status	FS03		
Firmware version	V2.9		
Product function			
• I&M data	Yes; I&M0 to I&M3		
Isochronous mode	Yes; Distributed and central; with minimum OB 6x cycle of 625 μs (distributed) and 1 ms (central)		
Engineering with			
STEP 7 TIA Portal configurable/integrated from version	V17 (FW V2.9) / V15 (FW V2.5) or higher; with older TIA Portal versions configurable as 6ES7511-1AK01-0AB0		
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		
Repeat rate, min.	1/s		
Input current			
Current consumption (rated value)	0.7 A		
Current consumption, max.	0.95 A		
Inrush current, max.	1.9 A; Rated value		
l²t	0.02 A ² ·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.	5.7 W		
Memory			
Number of slots for SIMATIC memory card	1		
SIMATIC memory card required	Yes		
Work memory			

• integrated (for program)	150 kbyte
integrated (for program) integrated (for data)	150 kbyte
integrated (for data) Load memory	1 Mbyte
Plug-in (SIMATIC Memory Card), max.	32 Gbyte
Backup	<u></u>
maintenance-free	Yes
CPU processing times	
for bit operations, typ.	60 ns
for word operations, typ.	72 ns
for fixed point arithmetic, typ.	96 ns
for floating point arithmetic, typ.	384 ns
CPU-blocks	
Number of elements (total)	4 000; Blocks (OB, FB, FC, DB) and UDTs
DB	
Number range	1 60 999; subdivided into: number range that can be used by the user: 1 59 999, and number range of DBs created via SFC 86: 60 000 60 999
• Size, max.	1 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	
Number range	0 65 535
• Size, max.	150 kbyte
FC	
Number range	0 65 535
• Size, max.	150 kbyte
OB	
• Size, max.	150 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 500 μs
Number of process alarm OBs	50
Number of DPV1 alarm OBs	3
Number of isochronous mode OBs	2 2
Number of technology synchronous alarm OBs Number of startup OBs	
Number of startup OBs Number of sourcebropous error OBs	100
Number of asynchronous error OBs	4 2
 Number of synchronous error OBs Number of diagnostic alarm OBs 	1
Number of diagnostic alarm OBs Nesting depth	
per priority class	24
Counters, timers and their retentivity	
S7 counter	
Number	2 048
Retentivity	
— adjustable	Yes
IEC counter	
• Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
S7 times	
• Number	2 048
Retentivity	
— adjustable	Yes
IEC timer	
Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	128 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB
Extended retentive data area (incl. timers, counters, flags), max.	1 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	
	Od like tax array 40 KD array his size
 per priority class, max. 	64 kbyte; max. 16 KB per block
Address area	
Number of IO modules	1 024; 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	
· · ·	32
Number of subprocess images, max.	JZ
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
 Number of lines, max. 	1
PtP CM	
Number of PtP CMs	the number of connectable PtP CMs is only limited by the number of available slots
Time of day	
Clock	
• Туре	Hardware clock
Backup time Deviation per day, max	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
• in AS, master	Yes
• in AS, device	Yes
 on Ethernet via NTP 	Yes
Interfaces	
Number of PROFINET interfaces	1
1. Interface	
Interface types	
RJ 45 (Ethernet)	Yes; X1
Number of ports	2
integrated switch	Yes
Protocols	
IP protocol	Yes; IPv4
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
SIMATIC communication	Yes
Open IE communication	Yes; Optionally also encrypted
	i es, optionally also ello ypteu

• Head raduadancy 96 PROFINE Locatoria - Services - - -	Web server	Yes																																																																																																			
PROFINET ID Controller Services - PCOP communication Yes - Direct (als exchange Yes - Interct (als exchange Yes - ProfDenergy Yes, Requirement IRT and exchange on the connected wis ASH, PRO/TEURS of PRO/TEURS - ProfDenergy Yes, Yes, Was, 22 (PRO/TEUR devices - ProfDenergy Yes, Yes, Was, 22 (PRO/TEUR devices - Number of connectable ID Devices from the interfaces 128. In total up 526 distributes I/O Devices for the interfaces - of which ID devices with IRT, max. B4 - Another of Condectable ID Devices for RT, max. B5 - of which ID devices with a can be simultaneously B6 in total across all interfaces - Update fires for IRT B6 - Update fires for IRT B6 - Update fires for IRT B6 - Update fires for IRT B7 - for send cycle of 200 µs 500 µs No Brm, Note In the cost of RT with isochronous mode, the minimum update time of 250 µs of the isochronous of B1 devices - for send cycle of 200 µs 200 µs No Brm, Note In the cost of RT with isochronous mode, the minimum update time of 250 µs of the isochronous mode, the minimum update time of 250 µs of the isochronous mode, the minimum update time of 250 µs of the isochronous mode, the minimu																																																																																																					
Services - Fach communication Yes - Incontromous mode Yes - Direct cate exchange Yes, Requirement: IRT and isochronous mode (MRPD optional) - IRT Yes - PROFinancy Yes, Per user program - Of which ID devices with IRT, max. 64 - Number of connectable ID Devices (PR TIII) 128 - Number of ID Devices per fort, max. 8 - Updating times 550 (or 6 Am Note in the case of RT with isochronous mode, the minimum due of the update fine also depends on communicator share set for MeDevices (PT of ID meDevices Per User) - For send cycle of 20 as 2550 (or 6 Am Note in the case of RT with isochronous mode, the minimum due of the update fine of 625 (or 6 Am Note in the case of RT with isochronous mode, the minimum due term for the update fine of 625 (or 6 Am Note in the case of RT with isochronous mode, the minimum due term for the update fine of 625 (or 6 Am Note in the case of RT with isochronous mode, the minimum due term for fine (or 6 Am Note in the case of RT with isochronous mode, th																																																																																																					
- PGOP communication Yes - Direct data exchange Yes - Int Control data exchange Yes, Requirement: IRT and incohronous mode (MRPD optional) - Int Control data exchange Yes, Yes, Yes, Yes, Yes, Yes, Yes, Yes,																																																																																																					
- Isochroous mode Yes - Direct data exchange Yes, Requirement: IRT and isochronous mode (MRPD optional) - PROF learning Yes, Per user program - PROF learning Yes, Per user program - Proof on concetable ID Devices, max. The information of the concetable ID Devices, max. - Of which ID devices with IRT, max. 64 - Number of concetable ID Devices for RT, max. 128 - Number of Dovices for RT, max. 52 - Witch ID Devices for RT, max. 64 - Number of Dovices for RT, max. 53 - Number of Dovices for RT, max. 54 - Number of Dovices per tool, max. 8 - Number of Dovices per tool, max. 8 - Number of Dovices per tool, max. 8 - Updating times 50 us to 4 ms. Note: In the case of RT with inchronous mode, the minimum update time for IST - for send cycle of 200 us 250 us to 4 ms. Note: In the case of IRT with inchronous mode, the minimum update time for IST - for send cycle of 1 ms 1 ms to 16 ms - for send cycle of 200 us 250 us to 4 ms. Note: In the case of IRT with inchronous mode, the minimum update time for IST - for send cycle of 1 ms 1 ms to 16 ms - for send cycle of 20 us 250 us to 4 ms. Note: In the case of IRT with inchronous mode. - for send cycle of 1 ms 1 ms to 16 ms		Yes																																																																																																			
- Dred data exchange Yes; Requirement: IRT and isochronous mode (MRPD optional) - IRT Yes - PROFINET devices Yes, Max: 32 PROFINET devices - Number of connectable I/O Devices, max. 128; Inbul, up 226; definitude I/O devices can be connected via AS4, PROFINET devices - Of which Inbur, max. 64 - Of which Inbur, max. 128 - Of which Inbur, max. 128 - Of which Inbur, max. 64 - Or which Inbur, max. 128 - Number of IO Devices tor IRT, max. 128 - Updating times 8 - Updating times 8 - Updating times 8 - Dr send cycle of 220 µs ys in total across all Interfaces - for send cycle of 1 ms 1 ms to 18 ms - for send cycle of 1 ms 1 ms to 18 ms - for send cycle of 2 ms 2 ms to 32 ms - for send cycle of 2 ms 2 ms to 32 ms - for send cycle of 20 µs 2 ms to 32 ms - for send cycle of 20 µs 2 ms to 32 ms - for send cycle of 20 µs 2 ms to 51 ms - for send cycle of 20 µs 2 ms to 51 ms - for send cycle of 2 ms 2 ms to 512																																																																																																					
- PROFilementy Yes; Pare user program - Prioritized stantup Yes; Max 32 PROFINET devices - Number of connectable IO Devices, max. 128. In total, up to 258 distributed VD devices can be connected Via AS-I, RCP-IDUS or PROFINET - Or which In Ordevices with IRT, max. 64 - Ordwhich Inte, max. 128 - Ordwhich Inte, max. 84 - Ordwhich Inte, max. 8 - Number of ID Devices that can be simultaneously adviced/decativated, max. 8 - Number of ID Devices pare tool, max. 8 - Updating times 250 pts b 4 ms. Note: In the case of IRT, With incohronous mode, the minimum value of the update time also depends on communication share set for PROFINET IO. on the number of ID devices, and on the quantity of the isochronous mode, the minimum value of the update time also depends on communication share set for SIMI isochronous mode, the minimum value of the update time also depends on communication share set for SIMI isochronous mode, the minimum value due due due due due due due due due d	C C																																																																																																				
- Protitized stamp Yes, Max: 32 PROFINET devices - Number of connectable IO Devices, max. PROFIBUS or PROFINET - O' which IO devices with IRT, max. 64 - Number of connectable IO Devices for RT, max. 128 - With Prof IO Devices per tool, max. 8 - Number of IO Devices per tool, max. 8 - With Prof IO Devices per tool, max. 8 - Updating times 250 us to 4 ms, None: In the case of IRT with isochronous mode, 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 update time for IRT - for send cycle of 250 us 250 us to 4 ms, None: In the case of IRT with isochronous mode, the minimum update time of 250 us to 128 with isochronous mode, the minimum update time of 250 us of 128 with isochronous mode, the minimum update time of 250 us to 128 with isochronous mode, the minimum update time of 250 us of 128 with isochronous mode, the minimum update time of 250 us to 128 with isochronous mode, the minimum update time of 250 us to 128 with isochronous mode, the minimum update time of 250 us to 128 with isochronous mode, the minimum update time for S10 with isochronous mode, the minimum update time of 250 us to 128 with isochronous mode, the minimum update time of 250 us to 128 with isochronous mode, the minimum update time of 250 us to 128 with isochronous mode, the minimum update time of 250 us to 128 with isochronous mode, the minimum update time of 250 us to 128 with isochronous mode, the minimum update time of 250 us to 128 with 250 with 250 with 128 with 250 with 250 with 250 wit																																																																																																					
Number of connectable IO Devices, max. 128; In total, up to 256 distributed IO devices can be connected via AS-1, PROFINET Or which IO devices with IRT, max. 64 Number of connectable IO Devices for RT, max. 128 Number of IO Devices that can be simultaneously activated/deviced/activated. 8; in total across all interfaces Number of IO Devices per tool, max. 8 Number of IO Devices per tool, max. 8																																																																																																					
PROFINET PROFINET - O' which 10 devices with IRT, max. 44 - A writter of connectable 100 Devices for RT, max. 128 - Number of 100 Oevices that can be simultaneously activate/descrivation. 8 - Number of 100 Devices per tool, max. 8 - Updating times 8 - Updating times 250 µs to 4 ms. Note. In the case of IRT with sochronous mode, the minimum value of the update time also depends on communication share set for PROFINET 100 Devices. - for send cycle of 500 µs update time of to 10 devices. - for send cycle of 500 µs update time of to 10 bevices. - for send cycle of 1 ms 1 ms to 16 ms - for send cycle of 2 ms 250 µs to 4 ms. Note. In the case of IRT with sochronous mode, the minimum update time of to 25 µs. S75 µs, 625 µs 3 875 µs. - for send cycle of 1 ms 1 ms to 16 ms - for send cycle of 2 ms 250 µs to 128 ms - for send cycle of 20 µs 250 µs to 128 ms - for send cycle of 2 ms 2 ms to 512 ms - for send cycle of 2 ms 2 ms to 512 ms - for send cycle of 2 ms 2 ms to 512 ms - for send cycle of 2 ms 4 ms to 4 ms - lackronous mode Yes																																																																																																					
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activated/deactivated, max. (a) Number of IO Devices per tool, max. (b) Updating times (c) Updating (c) Upd																																																																																																					
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update time of 625 µs of the isochronous OB is decisive - for send cycle of 1 ms 1 ms to 16 ms - for send cycle of 4 ms 4 ms to 64 ms - for send cycle of 4 ms Update time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs3 a 875 µs). Update time for RT 500 µs to 226 ms - for send cycle of 250 µs 250 µs to 128 ms - for send cycle of 250 µs 250 µs to 128 ms - for send cycle of 27 ms 2 ms to 512 ms - for send cycle of 2 ms 2 ms to 512 ms - for send cycle of 2 ms 4 ms to 512 ms - for send cycle of 2 ms 4 ms to 512 ms - for send cycle of 2 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for Send cycle of 4 ms 4 ms to 512 ms - for Send cycle of 4 ms 4 ms to 512 ms - for Send cycle of 4 ms 4 ms to 512 ms - FOG/OP communication Yes - Services - - FOG/OP communication Yes, per user program - Autorion/Gentaris with shared device, max. 4 - Sater management r	— for send cycle of 250 µs																																																																																																				
- for send cycle of 2 ms2 ms to 32 ms- for send cycle of 4 ms4 ms to 64 ms- Wth IRT and parameterization of "odd" send cyclesUpdate time = set "odd" send cick (any multiple of 125 µs: 375 µs, 625 µs3 <i>Update time for RT</i> 500 µs to 128 ms- for send cycle of 500 µs500 µs to 256 ms- for send cycle of 500 µs500 µs to 256 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for Send cycle of 4 ms4 ms to 512 ms- for Send cycle of 4 ms4 ms to 512 ms- for Send cycle of 4 ms4 ms to 512 ms- for Send cycle of 4 ms4 ms to 512 ms- for Send cycle of 4 ms4 ms to 512 ms- for Send cycle of 4 ms4 ms to 512 ms- for Send cycle of 4 ms4 ms to 512 ms- for Send cycle of 4 ms4 ms to 512 ms- for Send cycle of 4 ms4 ms to 512 ms- for Send cycle of 4 ms4 ms to 512 ms- for Send cycle of 4 ms4 ms to 512 ms- for Send cycle of 4 msYes- send cycle of 500 psYes- setdorenous modeYes- liktYes per user program- stand deviceYes per user program- activation/deactivation of 1-devicesYes- fold bogsYes- fold bogsYes- fold bogsYes- fold bogsYes- fold	— for send cycle of 500 μ s	500 μs to 8 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 625 μs of the isochronous OB is decisive																																																																																																			
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	— for send cycle of 2 ms	2 ms to 32 ms																																																																																																			
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— 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		
 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 2 khyte: 1 472 hytes for LIDP broadcast		
— Data length, max. — UDP multicast	2 kbyte; 1 472 bytes for UDP broadcast Yes; Max. 5 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		
OPC UA			
Runtime license required	Yes; "Small" license required		
OPC UA Client	Yes		
 Application authentication 	Yes		
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256		
— User authentication	"anonymous" or by user name & password		
- Number of connections, max.	4		
 Number of nodes of the client interfaces, recommended max. 	1 000		
- Number of elements for one call of	300		
OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_U max.			
 — 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 instructions for data access, per connection, max. 	5		
— Number of registerable nodes, max.	5 000		
 — Number of registerable method calls of OPC_UA_MethodCall, max. 	100		
 — Number of inputs/outputs when calling OPC_UA_MethodCall, max. 	20		
• OPC UA Server	Yes; Data access (read, write, subscribe), method call, custom address space		
— Application authentication	Yes		
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256		
— User authentication	"anonymous" or by user name & password		
 — GDS support (certificate management) 	Yes		
	105		

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- Number of server interfaces, max. - Number of program alarms - Number of program messages in RUN, max. - Number of program messages, max. - Number of alarms for system diagnosites - Number of roughts, technology optices - Status block. - Number of roughts, max. - of which status variables, max. - of which proved variables, max. - of which proved variables, max. - of which proved transides, max. - of which proved tr	 Number of inputs/outputs per server method, max. 	20
 Number of notes for user defineds environmentations in the second second	 Number of monitored items, recommended max. 	1 000; for 1 s sampling interval and 1 s send interval
type "Reference namespace" Non- max.	- Number of server interfaces, max.	
max. max. - Alume and Conditions Yes - Number of program plasms 100 - Number of program plasms 50 Function products 50 Function products Function products Schoronaus mode Function products Eguidatance Yes St message functions, max. 22 Program alarms Yes Number of configurable program messages, max. 5000. Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH Number of configurable program messages in RUN, max. 2 2000 Number of alarms for system dignostics 100 Number of alarms for system dignostics 100 Number of alarms for system dignostics 100 Single step No Number of variables, max. 2000. Single step No Number of breakpoints 8 Single step No Number of variables, max. 200; per job - of which status variables, max. 200; per job - of which status variables, max. 200; per job <	· · · · · · · · · · · · · · · · · · ·	
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Number of available Motion Control resources for 800		
Number of available Motion Control resources for 800		
	Number of available Motion Control resources for	

Populited Motion Control resources	
Required Motion Control resources	40
 per speed-controlled axis per positioning axis 	40 80
	160
— per synchronous axis	
— 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) 	5
 — Number of positioning axes at motion control cycle of 8 ms (typical value) 	10
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	
 horizontal installation, min. 	-25 °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. 	-25 °C; No condensation
 vertical installation, max. 	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the
	display is switched off
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	
 Installation altitude above sea level, max. 	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
configuration / header	
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— SCL — GRAPH	
	Yes
— GRAPH	Yes
— GRAPH Know-how protection	Yes Yes
 — GRAPH Know-how protection User program protection/password protection Copy protection 	Yes Yes Yes Yes
GRAPH Know-how protection User program protection/password protection Copy protection Block protection	Yes Yes Yes
GRAPH Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection	Yes Yes Yes Yes
GRAPH Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection • protection of confidential configuration data	Yes Yes Yes Yes Yes Yes
GRAPH Know-how protection • User program protection/password protection • Copy protection • Block protection Block protection • protection of confidential configuration data • Password for display	Yes Yes Yes Yes Yes Yes
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	Yes Yes Yes Yes Yes Yes Yes Yes
GRAPH Know-how protection • User program protection/password protection • Copy protection • Block protection Block protection • Block protection • Protection of confidential configuration data • Password for display • Protection level: Write protection • Protection level: Read/write protection	Yes Yes Yes Yes Yes Yes Yes Yes Yes
GRAPH Know-how protection • User program protection/password protection • Copy protection • Block protection Block protection • Block protection • Protection of confidential configuration data • Password for display • Protection level: Write protection • Protection level: Read/write protection • Protection level: Complete protection	Yes Yes Yes Yes Yes Yes Yes Yes
GRAPH Know-how protection 0 User program protection/password protection 0 Copy protection 0 Block protection 1 Block protection 0 Protection of confidential configuration data 0 Password for display 0 Protection level: Write protection 0 Protection level: Read/write protection 0 Protection level: Complete protection 1 programming / cycle time monitoring / header	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
 – GRAPH Know-how protection User program protection/password protection Copy protection Block protection Block protection Protection of confidential configuration data Password for display Protection level: Write protection Protection level: Read/write protection Protection level: Complete protection programming / cycle time monitoring / header lower limit 	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
GRAPH Know-how protection 9 User program protection/password protection 9 Copy protection 9 Block protection Access protection 9 protection of confidential configuration data 9 Password for display 9 Protection level: Write protection 9 Protection level: Read/write protection 9 Protection level: Complete protection 9 Protection level: Complete protection 9 programming / cycle time monitoring / header 9 lower limit 9 upper limit	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
GRAPH Know-how protection 9 User program protection/password protection 9 Copy protection 9 Block protection Access protection 9 protection of confidential configuration data 9 Password for display 9 Protection level: Write protection 9 Protection level: Read/write protection 9 Protection level: Complete protection 9 Protection level: Complete protection 9 programming / cycle time monitoring / header 9 lower limit 9 upper limit	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
GRAPH Know-how protection 9 User program protection/password protection 9 Copy protection 9 Block protection Access protection 9 protection of confidential configuration data 9 Password for display 9 Protection level: Write protection 9 Protection level: Read/write protection 9 Protection level: Complete protection 9 Protection level: Complete protection 9 programming / cycle time monitoring / header 9 lower limit 9 upper limit	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
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 • Protection level: Write protection • Protection level: Complete protection • Protection level: Complete protection • programming / cycle time monitoring / header • lower limit • upper limit Dimensions	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
GRAPH Know-how protection • User program protection/password protection • Copy protection • Block protection Block protection • Protection of confidential configuration data • Password for display • Protection level: Write protection • Protection level: Read/write protection • Protection level: Complete protection • Protection level: Complete protection • Protection level: Complete protection • Drogramming / cycle time monitoring / header • lower limit • upper limit • Upper limit	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
GRAPH Know-how protection User program protection/password protection Copy protection Block protection Block protection Protection of confidential configuration data Password for display Protection level: Write protection Protection level: Read/write protection Protection level: Complete protection Programming / cycle time monitoring / header lower limit upper limit Dimensions Width Height Depth	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
— 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 Protection level: Read/write protection Protection level: Complete protection Protection level: Complete protection programming / cycle time monitoring / header lower limit upper limit Dimensions Width Height	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
GRAPH Know-how protection User program protection/password protection Copy protection Block protection Access protection ortection of confidential configuration data Password for display Protection level: Write protection Protection level: Write protection Protection level: Read/write protection Protection level: Complete protection programming / cycle time monitoring / header lower limit upper limit Dimensions Width Height Depth Weights	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
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 • Protection level: Write protection • Protection level: Read/write protection • Protection level: Complete protection • Protection level: Complete protection • Protection level: Complete protection • Drogramming / cycle time monitoring / header • lower limit • upper limit • Upper limit Dimensions Width Height Depth Weight, approx.	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes

	tHL		inmations	
CE UK	rnr	Confirmation	Environmental Con- firmations	
General Product Approval		other	Environment	
Approvals / Certificates				
		UNSPSC	15	32-15-17-05
		IDEA	4	3565
		ETIM	7	EC000236
		ETIM	8	EC000236
		ETIM	9	EC000236
		eClass	6	27-24-22-07
		eClass	7.1	27-24-22-07
		eClass	8	27-24-22-07
		eClass	9	27-24-22-07
		eClass	9.1	27-24-22-07
		eClass	12	27-24-22-07
		eClass	14	27-24-22-07

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