SIEMENS

Data sheet

6ES7517-3FP01-0AB0



Figure similar

SIMATIC S7-1500F, CPU 1517F-3 PN/DP, central processing unit with work memory 3 MB for program and 8 MB for data, 1st interface: PROFINET IRT with 2-port switch, 2nd interface: PROFINET RT, 3rd interface: PROFIBUS, 2 ns bit performance, SIMATIC memory card required

Product type designation CPU 1517F-3 PN/DP HW functional status FS01 Firmware version V3.1 Firmware version FW update possible Yes Product function • I&M data Yes; I&M0 to I&M3 • Isochronous mode • Isochronous mode • SysLog Yes Engineering with • STEP 7 TIA Portal configurable/integrated from version V19 (FW V3.1); with older TIA Portal versions configurable as 6ES7517-3FP00-0AB0 Configuration control Via dataset Yes Display Screen diagonal [cm] Control elements Number of keys Mode selector switch 1 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 Mains buffering • Mains/voltage failure stored energy time • Mains/voltage failure store	General information				
Firmware version Firmware version Firmware version Firmware version Firmware version Fireware function Fireware function Fireware function Fireware version Fir	Product type designation	CPU 1517F-3 PN/DP			
Product function • I&M data • Isochronous mode • SysLog SysLog Engineering with • STEP 7 TIA Portal configurable/integrated from version Val (ENW V3.1); with older TIA Portal versions configurable as 6ES7517-3FP00-0AB0 Configuration control via dataset Possplay Screen diagonal [cm] Control elements Number of keys 6 Mode selector switch 1 Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) 28.8 V Reverse polarity protection Wains buffering • Mains'voltage failure stored energy time • Repeat rate, min. Injut current Current consumption (rated value) 1.7 A Current consumption (rated value) 1.7 A Current consumption (rated value) 1.7 A Current consumption (max. 1.2 V Power consumption from the backplane bus (balanced) Power foss Power foss, typ. Power foss, typ. 29 W	HW functional status	FS01			
Product function I &M data Isochronous mode Syst.og Yes: I&M0 to I&M3 Yes: Distributed and central; with minimum OB 6x cycle of 250 µs (distributed) and 1 ms (central) Yes Engineering with STEP 7 TIA Portal configurable/integrated from version V19 (FW V3.1); with older TIA Portal versions configurable as 6ES7517-3FP00-0AB0 Configuration control Via dataset Yes Display Screen diagonal [cm] Gontrol elements Number of keys 6 Mode selector switch 1 Supply voltage Rated value (DC) Permissible range, lower limit (DC) 19.2 V Permissible range, lower limit (DC) 28.8 V Reverse polarity protection Wains buffering Alains voltage failure stored energy time Alains/voltage failure stored energy time Yes Permit consumption (rated value) 1.7 A Current consumption (rated value) 1.7 A Current consumption, max. 2.2 A; Rated value Pt O.5 A*s Power consumption from the backplane bus Permisses (pans) Power consumption from the backplane bus (balanced) Power consumption from the backplane bus (balanced) Power consus, typ. Power loss, typ. 29 W	Firmware version	V3.1			
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SysLog S	Product function				
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Power consumption from the backplane bus (balanced) 30 W Power loss Power loss, typ. 29 W	Power				
Power loss Power loss, typ. 29 W	Infeed power to the backplane bus	12 W			
Power loss, typ. 29 W	Power consumption from the backplane bus (balanced)	30 W			
	Power loss				
Memory	Power loss, typ.	29 W			
	Memory				

Number of clate for CINAATIO	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	
• integrated (for program)	3 Mbyte
integrated (for data)	8 Mbyte
Load memory	
Plug-in (SIMATIC Memory Card), max.	32 Gbyte
Backup	
maintenance-free	Yes
CPU processing times	
for bit operations, typ.	2 ns
for word operations, typ.	3 ns
for fixed point arithmetic, typ.	3 ns
for floating point arithmetic, typ.	12 ns
CPU-blocks	
Number of elements (total)	12 000; 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.	8 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	
Number range	0 65 535
Size, max.	1 Mbyte
FC	
Number range	0 65 535
• Size, max.	1 Mbyte
OB	
• Size, max.	1 Mbyte
 Number of free cycle OBs 	100
 Number of time alarm OBs 	20
 Number of delay alarm OBs 	20
 Number of cyclic interrupt OBs 	20; with minimum OB 3x cycle of 100 μs
Number of process alarm OBs	50
Number of DPV1 alarm OBs	3
 Number of isochronous mode OBs 	3
 Number of technology synchronous alarm OBs 	2
Number of startup OBs	100
Number of asynchronous error OBs	4
Number of synchronous error OBs	2
Number of diagnostic alarm OBs	1
Nesting depth	
per priority class	24; Up to 8 possible for F-blocks
Counters, timers and their retentivity	21, 00 to 0 possible 1011 blooks
S7 counter	
Number	2 048
Number Retentivity	2 040
•	Von
— adjustable	Yes
IEC counter	Any (and Himited by the grants
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.	768 kbyte; In total; available retentive memory for bit memories, timers,
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Mary		
Size, max Size, max Size (solds memory byte		counters, DBs, and technology data (axes): 700 KB
Size, max		8 Mbyte; When using PS 6 0W 24/48/60 V DC HF
Number of book memories Patenthyly adjustable Patenthyly patent Patenthyly Patenthy		16 librito
Retentifyly adjustable Yes No Retentifyly preset No Retentifyly preset No Retentifyly preset No Per pronor yolasa, max 644 kbyte; max, 16 KB per block Retentifyl preset Retentify Per pronor yolasa, max Per yolasa,		
Relearhify adjustable Ves No		o, o clock memory bit, grouped into one clock memory byte
e Reterrivity preset Local datas per priority class, max. 464 kbyte: max. 16 KB per block 466 kbyte: max. 18 KB via x1; max. 8 KB via x2 or x3 466 kbyte: max. 18 KB via x1; max. 8 KB via x2 or x3 467 kbyte: Max. 32 KB via x1; max. 8 KB via x2 or x3 467 kbyte: Max. 32 KB via x1; max. 8 KB via x2 or x3 467 kbyte: Max. 32 KB via x1; max. 8 KB via x2 or x3 467 kbyte: Max. 32 KB via x1; max. 8 KB via x2 or x3 467 kbyte: Max. 32 KB via x1; max. 8 KB via x2 or x3 467 kbyte: Max. 32 KB via x1; max. 8 KB via x2 or x3 467 kbyte: Max. 32 KB via x1; max. 8 KB via x2 or x3 467 kbyte: Max. 32 KB via x1; max. 8 KB via x2 or x3 467 kbyte: Max. 32 kB via x1; max. 8 KB via x2 or x3 467 kbyte: Max. 32 kB via x1; max. 8 KB via x2 or x3 467 kbyte: Max. 32 kByte: Max		Vac
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### Control Co		140
Number of IO modules 16 384; max. number of modules / submodules 17 32; max. number of modules / submodules 18 384; max. number of modules / submodules /		64 kbyte: max. 16 KB per block
Number of IO modules 16 384; max. number of modules / submodules 10 address area	· · · ·	
Figure State Sta		16 384; max. number of modules / submodules
■ Outputs 32 kbyte; All outputs are in the process image per integrated IO subsystem — Inputs (volume) 32 kbyte; Max. 32 KB via X1; max. 8 KB via X2 or X3 32 kbyte; Max. 32 KB via X1; max. 8 KB via X2 or X3 32 kbyte; Max. 32 KB via X1; max. 8 KB via X2 or X3 32 kbyte; Max. 32 KB via X1; max. 8 KB via X2 or X3 32 kbyte; Max. 32 KB via X1; max. 8 KB via X2 or X3 32 kbyte 3	I/O address area	
per integrated IO subsystem	• Inputs	32 kbyte; All inputs are in the process image
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Inputs (volume)	— Inputs (volume)	32 kbyte; Max. 32 KB via X1; max. 8 KB via X2 or X3
- Inputs (volume)	— Outputs (volume)	32 kbyte; Max. 32 KB via X1; max. 8 KB via X2 or X3
- Outputs (volume) 8 k byte Subprocess images (max.	per CM/CP	
Subprocess images • Number of subprocess images, max. • Number of distributed IO systems 64; A distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO was RS-i master modules or links (e.g., IE/PB-Link) Number of DP masters • Integrated • Via CM 18; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total Number of IO Controllers • Integrated • Via CM 8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total Number of IO Controllers • Number of III system in the III system in total Rack • Nodules per rack, max. • Number of III system in total * Operating hours counter • Deviation per day, max. * Operating hours counter • Number • Nu	— Inputs (volume)	8 kbyte
• Number of subprocess images, max. Variabrative configuration Number of distributed I/O systems \$\frac{4}{3}{1}{1}{1}{1}{1}{1}{1}{1}{1}{1}{1}{1}{1}	— Outputs (volume)	8 kbyte
Number of distributed I/O systems	Subprocess images	
Number of distributed IO systems 64, 4 distributed IO system is characterized not only by the integration of distributed IO 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	 Number of subprocess images, max. 	32
distributed I/O via PROFIBUS communication modules, but also by the connection of I/O via AS-i master modules or links (e.g. IE/PB-Link) Number of DP masters • integrated	Hardware configuration	
Number of DP masters integrated 1 integrated 2 integrated 2 integrated 3 integrated 4 integrated 5 integrated 5 integrated 6 integrated 6 integrated 7 integrate	Number of distributed IO systems	distributed I/O via PROFINET or PROFIBUS communication modules, but also
Number of IO Controllers Integrated Int	Number of DP masters	
Number of IO Controllers Integrated Integr	• integrated	1
• integrated 2 8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total	-	
Via CM 8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total Rack Modules per rack, max. Number of lines, max. Number of PtP CM Number of PtP CMs Time of day Clock Type Backup time Deviation per day, max. Number Num	Number of IO Controllers	
Rack • Modules per rack, max. • Number of lines, max. 1 PtP CM • Number of PtP CMs * Number of PtP CMs • Type • Backup time • Deviation per day, max. • Number • Number • Number • Number • Number • Deviation per day, max. Operating hours counter • Number • Nu	• integrated	2
Rack Modules per rack, max. Number of lines, max. Number of lines, max. Number of PtP CM Number of PtP CMs Number of PtP CMs Number of PtP CMs Number of expectable PtP CMs is only limited by the number of available slots Number of expectable PtP CMs is only limited by the number of available slots Number of expectable PtP CMs is only limited by the number of available slots Number of expectable PtP CMs is only limited by the number of available slots Number of expectable PtP CMs is only limited by the number of available slots Number of expectable PtP CMs is only limited by the number of available slots Number of expectable PtP CMs is only limited by the number of available slots Number of expectable PtP CMs is only limited by the number of available slots Number of expectable PtP CMs is only limited by the number of available slots Number of expectable PtP CMs is only limited by the number of available slots Number of expectable PtP CMs is only limited by the number of available slots Number of expectable PtP CMs is only limited by the number of available slots Number of expectable PtP CMs is only limited by the number of available slots Number of expectable PtP CMs is only limited by the number of available slots Number of expectable PtP CMs is only limited by the number of available slots Number of expectable PtP CMs is only limited by the number of available slots Number of expectable PtP CMs is only limited by the number of expectable slots Number of expectable PtP CMs is only limited by the number of expectable slots Number of expectable PtP CMs is only limited by the number of expectable slots Number of expectable PtP CMs is only limited by the number of expectable slots Number of expectable PtP CMs is only limited by the number of expectable slots Number of expectable PtP CMs is only limited by the number of expectable slots Number of expectable PtP CMs is only limited by the number of expectable slots Number of expectable PtP CMs is only limited by the number of expectable	• Via CM	
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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 Backup time Obeviation per day, max. Deviation per day, max. Operating hours counter Number Number Supported Ot DP, master On DP, device On DP	•	
the number of connectable PtP CMs is only limited by the number of available slots Firme of day Clock Type Backup time Deviation per day, max. Operating hours counter Number Number Number Supported To DP, master On DP, device In AS, master In AS, device On Ethernet via NTP Number of PROFINET interfaces Number of PROFIBUS interfaces Ru J 45 (Ethernet) Ru Hardware clock Of wk; At 40 °C ambient temperature, typically Os ; Typ.: 2 s Wes Ow k; At 40 °C ambient temperature, typically Os ; Typ.: 2 s Number of PROFINET interfaces Os Supported		
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 ● on DP, device Yes ● in AS, master Yes ● in AS, device Yes ● on Ethernet via NTP Yes Number of PROFINET interfaces Lumber of PROFIBUS interfaces 1 Interface types RJ 45 (Ethernet) ● RJ 45 (Ethernet) Yes; X1		
 Type 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 to DP, master on DP, device in AS, master in AS, device on Ethernet via NTP ves Number of PROFINET interfaces 1 Interface Interface types RJ 45 (Ethernet) Yes; X1 Yes; X1 Yes; X1 	Time of day	
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 on DP, device Yes in AS, master Yes in AS, device Yes on Ethernet via NTP Yes Number of PROFINET interfaces 2 Number of PROFIBUS interfaces 1 Interface types RJ 45 (Ethernet) Yes; X1		
Deviation per day, max. Operating hours counter Number Number 16 Clock synchronization supported to DP, master on DP, device in AS, master in AS, device on Ethernet via NTP Number of PROFIBUS interfaces Number of PROFIBUS interfaces RJ 45 (Ethernet) 10 s; Typ.: 2 s 10 s; Typ.: 2 s 16 Yes 16 Yes Yes Yes Yes Yes Yes Yes Ye	• Type	Hardware clock
Operating hours counter 16 Clock synchronization Yes ● supported Yes ● to DP, master Yes ● on DP, device Yes ● in AS, master Yes ● in AS, device Yes ● on Ethernet via NTP Yes Interfaces Number of PROFIBUS interfaces 2 Number of PROFIBUS interfaces 1 1. Interface Interface types ● RJ 45 (Ethernet) Yes; X1	Backup time	6 wk; At 40 °C ambient temperature, typically
 Number Supported Supported Yes to DP, master on DP, device in AS, master in AS, device on Ethernet via NTP Number of PROFINET interfaces Number of PROFIBUS interfaces Interface Interface RJ 45 (Ethernet) Yes; X1 	Deviation per day, max.	10 s; Typ.: 2 s
Clock synchronization • supported • to DP, master • on DP, device • in AS, master • in AS, device • on Ethernet via NTP Number of PROFINET interfaces Number of PROFIBUS interfaces 1. Interface Interface types • RJ 45 (Ethernet) Yes Yes Yes Yes Yes Yes Yes Ye	Operating hours counter	
 supported to DP, master on DP, device in AS, master in AS, device on Ethernet via NTP Number of PROFINET interfaces Number of PROFIBUS interfaces Interface Interface Interface types RJ 45 (Ethernet) Yes Y	Number	16
• to DP, master • on DP, device • in AS, master • in AS, device • on Ethernet via NTP • on Ethernet via NTP Number of PROFINET interfaces Number of PROFIBUS interfaces 1 1. Interface Interface types • RJ 45 (Ethernet) Yes Yes Yes Yes Yes Yes Yes Ye	Clock synchronization	
	• supported	Yes
 in AS, master in AS, device on Ethernet via NTP Yes Number of PROFINET interfaces Number of PROFIBUS interfaces 1. Interface Interface types RJ 45 (Ethernet) Yes Yes Yes Yes Yes Yes Yes X1 Yes X2 Yes X1 Yes X2 Yes X1 Yes X2 Yes<	• to DP, master	Yes
	• on DP, device	Yes
● on Ethernet via NTP Number of PROFINET interfaces Number of PROFIBUS interfaces 1 I. Interface Interface types ● RJ 45 (Ethernet) Yes Yes	• in AS, master	Yes
Number of PROFINET interfaces 2 Number of PROFIBUS interfaces 1 1. Interface Interface types • RJ 45 (Ethernet) Yes; X1	• in AS, device	Yes
Number of PROFINET interfaces 2 Number of PROFIBUS interfaces 1 1. Interface Interface types • RJ 45 (Ethernet) Yes; X1	on Ethernet via NTP	Yes
Number of PROFIBUS interfaces 1. Interface Interface types • RJ 45 (Ethernet) Yes; X1	Interfaces	
Interface Interface types • RJ 45 (Ethernet) Yes; X1	Number of PROFINET interfaces	2
Interface types • RJ 45 (Ethernet) Yes; X1	Number of PROFIBUS interfaces	1
RJ 45 (Ethernet) Yes; X1	1. Interface	
	Interface types	
• Number of ports 2	• 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
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.	
	512; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
Of which IO devices with IRT, max.	64
Number of connectable IO Devices for RT, max.	512
— of which in line, max.	512
 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
— for send cycle of 500 μs	500 μs to 8 ms
— for send cycle of 1 ms	1 ms to 16 ms
— for send cycle of 2 ms	2 ms to 32 ms
— for send cycle of 4 ms	4 ms to 64 ms
With IRT and parameterization of "odd" send cycles	Update time = set "odd" send clock (any multiple of 125 μ s: 375 μ s, 625 μ s 3 875 μ s)
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
— number of 10 Controllers with shared device, max. — activation/deactivation of I-devices	Yes; per user program
Asset management record	Yes; per user program
Asset management record PROFINET Security Class	SNMP Configuration and DCP Read Only
2. Interface	Orthon Continguitation and DOI Tread Office
Interface types	Voc. V2
RJ 45 (Ethernet) Number of parts	Yes; X2
Number of ports interpreted anything	1
integrated switch	No
Protocols	V ID 4
• IP protocol	Yes; IPv4
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
 SIMATIC communication 	Yes

Open IE communication	Yes; Optionally also encrypted
Web server	Yes
Media redundancy	No
PROFINET IO Controller	
Services	
— Isochronous mode	No
Direct data exchange	No
— IRT	No
— PROFlenergy	Yes; per user program
Prioritized startup	No
Number of connectable IO Devices, max.	128; In total, up to 1 000 distributed I/O devices can be connected via AS-i,
Number of connectable IO Devices for RT, max.	PROFIBUS or PROFINET
— 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
Humber of 10 Devices per tool, max. Updating times	The minimum value of the update time also depends on communication share
— Opdating times	set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data
— PROFINET Security Class	1
Update time for RT	
— for send cycle of 1 ms	1 ms to 512 ms
PROFINET IO Device	
Services	
— Isochronous mode	No
— IRT	No
— PROFlenergy	Yes; per user program
Prioritized startup	No
— Shared device	Yes
 Number of IO Controllers with shared device, max. 	4
 activation/deactivation of I-devices 	Yes; per user program
Asset management record	Yes; per user program
— PROFINET Security Class	SNMP Configuration and DCP Read Only
3. Interface	
Interface types	
• RS 485	Yes; X3
Number of ports	1
Protocols	•
PROFIBUS DP master	Yes
PROFIBUS DP device	No V
SIMATIC communication	Yes
PROFIBUS DP master	40. for the interrested PDOFIDUO DD 1. 1. f
Number of connections, max.	48; for the integrated PROFIBUS DP interface
 max. number of DP devices 	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
Services	
— Equidistance	Yes
Isochronous mode	Yes
activation/deactivation of DP devices	Yes
Interface types	
RJ 45 (Ethernet)	
• 100 Mbps	Yes
·	Yes
Autorosping	
Autocrossing Industrial Ethernet status LED	Yes
Industrial Ethernet status LED	Yes
RS 485	40.1874
 Transmission rate, max. 	12 Mbit/s
Protocols	
PROFIsafe	Yes; V2.4 / V2.6
	Yes; V2.4 / V2.6 320; via integrated interfaces of the CPU and connected CPs / CMs

 Number of connections reserved for ES/HMI/web 	10
 Number of connections via integrated interfaces 	288
Number of S7 routing paths	64; in total, only 16 S7-Routing connections are supported via PROFIBUS
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;
MDD interconnection of provided	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 50
Number of stations in the ring, max. SIMATIC communication	50
PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
	Yes
S7 routing Date record routing	Yes
Data record routingS7 communication, as server	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	Coo offiline freip (Of confirmatileation, user data size)
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; 128 multicast circuits (of which max. 5 via X1)
• 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.	200
number of simultaneous HTTP calls, max.	4
— HTTP request body, max.	131 072 byte
OPC UA	
Runtime license required	Yes; "Large" 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. 	40
 Number of nodes of the client interfaces, recommended max. 	5 000
 Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_I max. 	300
 Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. 	20
 Number of elements for one call of OPC_UA_MethodGetHandleList, max. 	100
 Number of simultaneous calls of the client 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, 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.	64				
Number of accessible variables, max.	200 000				
 Number of registerable nodes, max. 	50 000				
 Number of subscriptions per session, max. 	50				
— Sampling interval, min.	10 ms				
— Publishing interval, min.	10 ms				
Number of server methods, max.	100				
Number of inputs/outputs per server method, max.	20				
Number of impuls/outputs per server method, max. Number of monitored items, recommended max.	10 000; 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. 	30 000				
Alarms and Conditions	Yes				
Number of program alarms	400				
Number of alarms for system diagnostics	200				
Further protocols					
MODBUS	Yes; MODBUS TCP				
sochronous mode					
Equidistance	Yes				
57 message functions					
or message functions					
	64				
Number of login stations for message functions, max.	64 750				
Number of login stations for message functions, max. number of subscriptions, max.					
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max.	750 20 000				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms	750 20 000 Yes				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max.	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max.	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block,				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms • Number of program alarms	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 2 000				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms • Number of program alarms • Number of alarms for system diagnostics	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 2 000 1 000				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 2 000				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms • Number of program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Test commissioning functions	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 2 000 1 000 480				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms • Number of program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering)	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 2 000 1 000 480 Yes; Parallel online access possible for up to 10 engineering systems				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 2 000 1 000 480 Yes; Parallel online access possible for up to 10 engineering systems Yes; Up to 16 simultaneously (in total across all ES clients)				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms • Number of program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects rest commissioning functions Joint commission (Team Engineering) Status block Single step	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 2 000 1 000 480 Yes; Parallel online access possible for up to 10 engineering systems Yes; Up to 16 simultaneously (in total across all ES clients) No				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 2 000 1 000 480 Yes; Parallel online access possible for up to 10 engineering systems Yes; Up to 16 simultaneously (in total across all ES clients) No 20				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms • Number of program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Profiling	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 2 000 1 000 480 Yes; Parallel online access possible for up to 10 engineering systems Yes; Up to 16 simultaneously (in total across all ES clients) No				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Profiling Status/control	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 2 000 1 000 480 Yes; Parallel online access possible for up to 10 engineering systems Yes; Up to 16 simultaneously (in total across all ES clients) No 20 No				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Profiling Status/control Status/control variable	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 2 000 1 000 480 Yes; Parallel online access possible for up to 10 engineering systems Yes; Up to 16 simultaneously (in total across all ES clients) No 20 No Yes; without fail-safe				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects rest commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Profiling Status/control Status/control variable Variables	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 2 000 1 000 480 Yes; Parallel online access possible for up to 10 engineering systems Yes; Up to 16 simultaneously (in total across all ES clients) No 20 No				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms • Number of program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Fest commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Profiling Status/control • Status/control variable • Variables • Number of variables, max.	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 2 000 1 000 480 Yes; Parallel online access possible for up to 10 engineering systems Yes; Up to 16 simultaneously (in total across all ES clients) No 20 No Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms • Number of program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Profiling Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max.	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 2 000 1 000 480 Yes; Parallel online access possible for up to 10 engineering systems Yes; Up to 16 simultaneously (in total across all ES clients) No 20 No Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms • Number of program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Profiling Status/control • Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max.	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 2 000 1 000 480 Yes; Parallel online access possible for up to 10 engineering systems Yes; Up to 16 simultaneously (in total across all ES clients) No 20 No Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters				
Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms • Number of program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects [est commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Profiling Status/control • Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. Forcing	750 20 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 2 000 1 000 480 Yes; Parallel online access possible for up to 10 engineering systems Yes; Up to 16 simultaneously (in total across all ES clients) No 20 No Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job				
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No. 1 Control	0.000
Number of entries, max.	3 200
— of which powerfail-proof	1 000
Traces	
Number of configurable Traces	8
Memory size per trace, max.	512 kbyte
Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT 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 	10 240
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)	70
 Number of positioning axes at motion control cycle of 8 ms (typical value) 	128
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
Standards, approvals, certificates	
Highest safety class achievable in safety mode	
Performance level according to ISO 13849-1	PLe
• SIL acc. to IEC 61508	SIL 3
Probability of failure (for service life of 20 years and repair time	of 100 hours)
Low demand mode: PFDavg in accordance with SIL3	< 2.00E-05
 High demand/continuous mode: PFH in accordance with SIL3 	< 1.00E-09
Ambient conditions	
Ambient temperature during operation	
horizontal installation, min.	0 °C
horizontal installation, max.	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
 vertical installation, min. 	0 °C
vertical installation, max.	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the
	display is switched off
Ambient temperature during storage/transportation	40.90
• 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	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
configuration / header configuration / programming / header	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
configuration / programming / header	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe
configuration / programming / header Programming language	

		Vorsion	Classification
Classifications			
Weight, approx.	2 090 g		
Weights			
Depth	129 mm		
Height	147 mm		
Width	175 mm		
Dimensions			
• upper limit	adjustable maximum cycle time	2	
• lower limit	adjustable minimum cycle time		
programming / cycle time monitoring / header			
User administration	Yes; device-wide		
Protection level: Complete protection	Yes		
Protection level: Write protection for Failsafe	Yes		
 Protection level: Read/write protection 	Yes		
Protection level: Write protection	Yes		
Password for display	Yes		
protection of confidential configuration data	Yes		
Access protection			
Block protection	Yes		
Copy protection	Yes		
User program protection/password protection	Yes		
Know-how protection			
— GRAPH	Yes		
— CFC	Yes; either CFC or failsafe fund	ctionality	
— SCL	Yes		

	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	10	EC000236
ETIM	9	EC000236
ETIM	8	EC000236
ETIM	7	EC000236

Approvals / Certificates

General Product Approval





<u>KC</u>

Miscellaneous

Manufacturer Declaration



General Product Approval		EMV	For use in hazardous locations		
^		KC		FM	CCC-Ex

For use in hazardous locations

Functional Saftey

Miscellaneous



Type Examination Certificate



Type Examination Certificate



Maritime application









NK / Nippon Kaiji Kyokai



Maritime application

other

CCS (China Classification Society)





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