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Data sheet

6ES7515-2FN03-0AB0



SIMATIC S7-1500F, CPU 1515F-2 PN, central processing unit with 1.5 MB work memory for program and 4.5 MB for data, 1st interface: PROFINET IRT with 2-port switch, 2nd interface: PROFINET RT, 6 ns bit performance, SIMATIC Memory Card required - - approvals and certificates according to entry 109817466 at support.industry.siemens.com to be considered! - -

General information		
Product type designation	CPU 1515F-2 PN	
HW functional status	FS04	
Firmware version	V4.0	
• FW update possible	Yes	
Product function		
• I&M data	Yes; I&M0 to I&M3	
Isochronous mode	Yes; Distributed and central; with minimum OB 6x cycle of 375 μs (distributed) and 1 ms (central)	
• SysLog	Yes	
Engineering with		
STEP 7 TIA Portal configurable/integrated from version	V20 (FW V4.0) / V18 (FW V3.0) or higher; configurable with older TIA Portal versions as 6ES7 515-2FM02-0AB0	
Configuration control		
via dataset	Yes	
Display		
Screen diagonal [cm]	6.1 cm	
Control elements		
Number of keys	8	
Mode buttons	2	
Supply voltage		
Rated value (DC)	24 V	
permissible range, lower limit (DC)	19.2 V	
permissible range, upper limit (DC)	28.8 V	
Reverse polarity protection	Yes	
Mains buffering		
 Mains/voltage failure stored energy time 	5 ms	
Repeat rate, min.	1/s	
Input current		
Current consumption (rated value)	0.65 A	
Current consumption, max.	1.03 A	
Inrush current, max.	1.15 A; Rated value	
²t	0.6 A ² ·s	
Power		
Infeed power to the backplane bus	12 W	
Power consumption from the backplane bus (balanced)	6.2 W	
Power loss		
Power loss, typ.	3.6 W	
Memory		
Number of slots for SIMATIC memory card	1	

SIMATIC memory card required	Yes
Work memory	
 integrated (for program) 	1.5 Mbyte
 integrated (for data) 	4.5 Mbyte
Load memory	
Plug-in (SIMATIC Memory Card), max.	32 Gbyte
Backup	02 00910
· · ·	Ver
maintenance-free	Yes
CPU processing times	
for bit operations, typ.	6 ns
for word operations, typ.	7 ns
for fixed point arithmetic, typ.	9 ns
for floating point arithmetic, typ.	37 ns
CPU-blocks	
Number of elements (total)	8 000; Blocks (OB, FB, FC, DB) and UDTs
DB	
Number range	1 60 999; subdivided into: number range that can be used by the user: 1
	59 999, and number range of DBs created via SFC 86: 60 000 60 999
• Size, max.	4.5 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	
Number range	0 65 535
• Size, max.	1 Mbyte
FC	
Number range	0 65 535
• Size, max.	1 Mbyte
OB	
• Size, max.	1 Mbyte
 Number of free cycle OBs 	100
 Number of time alarm OBs 	20
 Number of delay alarm OBs 	20
Number of cyclic interrupt OBs	20; With minimum OB 3x cycle of 250 µs
Number of process alarm OBs	50
Number of DPV1 alarm OBs	3
Number of isochronous mode OBs	2
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	
S7 counter	
Number	2 048
Retentivity	
· · · · · · · · · · · · · · · · · · ·	Vec
— 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	
· · · · · · · · · · · · · · · · · · ·	Vac
— adjustable	Yes
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB

Extended retentive data area (incl. timers, counters, flags), max.	4.5 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	8 192; max. number of modules / submodules
I/O address area	
• Inputs	32 kbyte; All inputs are in the process image
-	32 kbyte; All outputs are in the process image
Outputs	SZ kuyte, 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	64; A distributed I/O system is characterized not only by the integration of distributed I/O via PROFINET or PROFIBUS communication modules, but also by the connection of I/O via AS-i master modules or links (e.g. IE/PB-Link)
Number of DP masters	
• Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be
	inserted in total
Number of IO Controllers	
integrated	2
• Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total
Rack	
Modules per rack, max.	32; CPU + 31 modules
Number of lines, max.	1
PtP CM	
Number of PtP CMs	the number of connectable PtP CMs is only limited by the number of available
Time of day	slots
Clock	
	Hardwara alaak
• 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	16
	16 Yes
Clock synchronization	
Clock synchronization • supported	Yes
Clock synchronization • supported • to DP, master	Yes Yes; via PROFIBUS CM / CP
Clock synchronization • supported • to DP, master • on DP, device	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP
Clock synchronization • supported • to DP, master • on DP, device • in AS, master	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes
Clock synchronization • supported • to DP, master • on DP, device • in AS, master • in AS, device	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes Yes
Clock synchronization • supported • to DP, master • on DP, device • in AS, master • in AS, device • on Ethernet via NTP Interfaces	Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes Yes Yes
Clock synchronization • supported • to DP, master • on DP, device • in AS, master • in AS, device • on Ethernet via NTP Interfaces Number of PROFINET interfaces	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes Yes
Clock synchronization • supported • to DP, master • on DP, device • in AS, master • in AS, device • on Ethernet via NTP Interfaces Number of PROFINET interfaces 1. Interface	Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes Yes Yes
Clock synchronization supported to DP, master on DP, device in AS, master in AS, device on Ethernet via NTP Interfaces Number of PROFINET interfaces 1. Interface Interface types	Yes Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes Yes Yes
Clock synchronization supported to DP, master on DP, device in AS, master in AS, device on Ethernet via NTP Interfaces Number of PROFINET interfaces I. Interface Interface types RJ 45 (Ethernet)	Yes Yes; via PROFIBUS CM / CP Yes Yes Yes 2 Yes; X1
Clock synchronization supported to DP, master on DP, device in AS, master in AS, device on Ethernet via NTP Interfaces Number of PROFINET interfaces 1. Interface Interface types RJ 45 (Ethernet) Number of ports 	Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes Yes Yes Yes Yes
Clock synchronization supported to DP, master on DP, device in AS, master in AS, device on Ethernet via NTP Interfaces Number of PROFINET interfaces 1. Interface Interface types RJ 45 (Ethernet) Number of ports integrated switch 	Yes Yes; via PROFIBUS CM / CP Yes Yes Yes 2 Yes; X1
Clock synchronization supported to DP, master on DP, device in AS, master in AS, device on Ethernet via NTP Interfaces Number of PROFINET interfaces 1. Interface Interface types RJ 45 (Ethernet) Number of ports 	Yes; via PROFIBUS CM / CP Yes; via PROFIBUS CM / CP Yes Yes Yes Yes Yes

PROFINET IO Controller	Yes	
PROFINET IO Device	Yes	
 SIMATIC communication 	Yes	
Open IE communication	Yes; Optionally also encrypted	
Web server	Yes	
Media redundancy	Yes	
PROFINET IO Controller		
Services		
 — Isochronous mode 	Yes	
— Direct data exchange	Yes; Requirement: IRT and isochronous mode (MRPD optional)	
— IRT	Yes	
— PROFlenergy	Yes; per user program	
— Prioritized startup	Yes; Max. 32 PROFINET devices	
 Number of connectable IO Devices, max. 	256; in total, up to 1024 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET	
 Of which IO devices with IRT, max. 	64	
- Number of connectable IO Devices for RT, max.	256	
— of which in line, max.	256	
 Number of IO Devices that can be simultaneously activated/deactivated, max. 	8; in total across all interfaces	
- Number of IO Devices per tool, max.	8	
— Updating times	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data	
— PROFINET Security Class	1	
Update time for IRT		
— for send cycle of 250 µs	250 μ s to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 375 μ s of the isochronous OB is decisive	
— for send cycle of 500 μs	500 µs to 8 ms	
— for send cycle of 1 ms	1 ms to 16 ms	
— for send cycle of 2 ms	2 ms to 32 ms	
— for send cycle of 4 ms	4 ms to 64 ms	
— With IRT and parameterization of "odd" send cycles	Update time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs 3	
····· ··· · · · · · · · · · · · · · ·	875 µs)	
Update time for RT		
— for send cycle of 250 μs	250 μs to 128 ms	
— for send cycle of 500 μs	500 µs to 256 ms	
— for send cycle of 1 ms	1 ms to 512 ms	
— for send cycle of 2 ms	2 ms to 512 ms	
— for send cycle of 4 ms	4 ms to 512 ms	
PROFINET IO Device		
Services		
 — Isochronous mode 	No	
— IRT	Yes	
— PROFlenergy	Yes; per user program	
— Shared device	Yes	
 Number of IO Controllers with shared device, max. 	4	
 activation/deactivation of I-devices 	Yes; per user program	
 Asset management record 	Yes; per user program	
— PROFINET Security Class	SNMP Configuration and DCP Read Only	
2. Interface		
Interface types		
RJ 45 (Ethernet)	Yes; X2	
Number of ports	1	
 integrated switch 	No	
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	No	
PROFINET IO Controller		
Services		
— Isochronous mode	No	
— Direct data exchange	No	
— IRT	No	
- PROFlenergy	Yes; per user program	
— Prioritized startup	No	
- Number of connectable IO Devices, max.	32; in total, up to 1024 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET	
 — Number of connectable IO Devices for RT, max. 	32	
- of which in line, max.	32	
 — Number of IO Devices that can be simultaneously activated/deactivated, max. 	8; in total across all interfaces	
- Number of IO Devices per tool, max.	8	
— Updating times	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data	
— PROFINET Security Class	1	
Update time for RT		
— for send cycle of 1 ms	1 ms to 512 ms	
PROFINET IO Device		
Services		
— Isochronous mode	No	
— IRT	No	
- PROFlenergy	Yes; per user program	
- Prioritized startup	No	
— Shared device	Yes	
— Number of IO Controllers with shared device, max.	4	
— activation/deactivation of I-devices	Yes; per user program	
Asset management record	Yes; per user program	
- PROFINET Security Class	SNMP Configuration and DCP Read Only	
Interface types		
RJ 45 (Ethernet)		
RJ 45 (Ethernet) • 100 Mbps	Yes	
• 100 Mbps	Yes	
100 Mbps Autonegotiation	Yes	
 100 Mbps Autonegotiation Autocrossing	Yes Yes	
 100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED 	Yes	
100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED Protocols	Yes Yes Yes	
100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED Protocols PROFIsafe	Yes Yes	
100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED Protocols PROFIsafe Number of connections	Yes Yes Yes; V2.4 / V2.6	
100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED Protocols PROFIsafe Number of connections Number of connections, max.	Yes Yes Yes Yes; V2.4 / V2.6 256; via integrated interfaces of the CPU and connected CPs / CMs	
100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED Protocols PROFIsafe Number of connections Number of connections, max. Number of connections reserved for ES/HMI/web	Yes Yes Yes; V2.4 / V2.6 256; via integrated interfaces of the CPU and connected CPs / CMs 10	
100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED Protocols PROFIsafe Number of connections Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces	Yes Yes Yes Yes; V2.4 / V2.6 256; via integrated interfaces of the CPU and connected CPs / CMs 10 128	
 100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED Protocols PROFIsafe Number of connections Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths 	Yes Yes Yes; V2.4 / V2.6 256; via integrated interfaces of the CPU and connected CPs / CMs 10	
 100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED Protocols PROFIsafe Number of connections Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths Redundancy mode 	Yes Yes Yes Yes; V2.4 / V2.6 256; via integrated interfaces of the CPU and connected CPs / CMs 10 128 16	
 100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED Protocols PROFIsafe Number of connections Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths Redundancy mode H-Sync forwarding 	Yes Yes Yes Yes; V2.4 / V2.6 256; via integrated interfaces of the CPU and connected CPs / CMs 10 128	
 100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED Protocols PROFIsafe Number of connections Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy 	Yes Yes Yes Yes; V2.4 / V2.6 256; via integrated interfaces of the CPU and connected CPs / CMs 10 128 16	
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 100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED Protocols PROFIsafe Number of connections Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy MRP 	Yes Yes Yes Yes; V2.4 / V2.6 256; via integrated interfaces of the CPU and connected CPs / CMs 10 128 16 Yes Yes	
 100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED Protocols PROFIsafe Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy MRP MRP MRPD 	Yes Yes Yes Yes Yes Yes; V2.4 / V2.6 256; via integrated interfaces of the CPU and connected CPs / CMs 10 128 16 Yes NRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT	
 100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED Protocols PROFIsafe Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy MRP MRP MRPD Switchover time on line break, typ. 	Yes Yes Yes Yes; V2.4 / V2.6 256; via integrated interfaces of the CPU and connected CPs / CMs 10 128 16 Yes Only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0	
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 100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED Protocols PROFIsafe Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy MRP MRP MRP Switchover time on line break, typ. Number of stations in the ring, max. 	Yes Yes Yes Yes; V2.4 / V2.6 256; via integrated interfaces of the CPU and connected CPs / CMs 10 128 16 Yes Yes only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50	
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 100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED Protocols PROFIsafe Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy MRP MRP MRP MRPD Switchover time on line break, typ. Number of stations in the ring, max. SIMATIC communication PG/OP communication S7 routing Data record routing 	Yes Yes Yes Yes Yes Yes; V2.4 / V2.6 256; via integrated interfaces of the CPU and connected CPs / CMs 10 128 16 Yes Yes only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50 Yes; encryption with TLS V1.3 pre-selected Yes Yes	
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 100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED Protocols PROFIsafe Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy MRP MRP MRP MRPD Switchover time on line break, typ. Number of stations in the ring, max. SIMATIC communication PG/OP communication S7 routing Data record routing 	Yes Yes Yes Yes Yes Yes; V2.4 / V2.6 256; via integrated interfaces of the CPU and connected CPs / CMs 10 128 16 Yes Yes only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50 Yes; encryption with TLS V1.3 pre-selected Yes Yes	

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Open IE communication		
• TCP/IP	Yes	
	64 kbyte	
— Data length, max.		
— several passive connections per port, supported	Yes	
ISO-on-TCP (RFC1006)	Yes	
— Data length, max.	64 kbyte	
• UDP	Yes	
— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast	
— UDP multicast	Yes; max. 118 multicast circuits	
• DHCP	Yes	
• DNS	Yes	
• SNMP	Yes	
• DCP	Yes	
• LLDP	Yes	
Encryption	Yes; Optional	
Web server		
• HTTP	Yes; Standard and user pages	
• HTTPS	Yes; Standard and user pages	
• web API		
- Number of sessions, max.	100	
 number of simultaneous HTTP calls, max. 	4	
— HTTP request body, max.	131 072 byte	
OPC UA		
Runtime license required	Yes; "Medium" license required	
OPC UA Client	Yes; Data Access (registered Read/Write), Method Call	
 Application authentication 	Yes	
- Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15,	
	Basic256Sha256	
— User authentication	"anonymous" or by user name & password	
- Number of connections, max.	10	
 Number of nodes of the client interfaces, recommended max. 	2 000	
— Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_L 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, role-based access control	
 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. 	48	
 Number of accessible variables, max. 	100 000	
 Number of registerable nodes, max. 	20 000	
 Number of subscriptions per session, max. 	50	
— Sampling interval, min.	100 ms	
— Publishing interval, min.	100 ms	
- Number of server methods, max.	50; max. 20 concurrently running jobs each for asynchronous instructions OPC_UA_ServerMethodPre and OPC_UA_ServerMethodPost	
 Number of inputs/outputs per server method, max. 	20	

- Number of neuronal networks matching interval and 1 s sending inferval and 1 s sending in	Number of second terms in the second states	4.000 for 4 a compliant interval and 4 a conditional	
Number of nodes for user-defined server inferience namespace" 3000 Number of nodes for user-defined server inferience namespace" 3000 Number of program starms 200 Number of program starms 600 Number of program message handrom, max. 600 Number of configurable for subscriptions, max. 600 Number of configurable program message in RUN, max. 10000 Number of configurable program messages in RUN, max. 10000 Number of configurable program dammes - Number of configurable program dammes 1000 Number of starbascriptions, max. 10000 Number of starbascriptions 200 Number of starbascriptions 200 Number of starbascriptions 200 Number of starbascriptions 8 Number of starbascriptions 8 Number of starbascriptions 8 Number of starbascriptions 8			
- Number of norgen alams in the second server interfaces, in the second	 Number of server interfaces, max. 		
name name - Number of Conditions Yes - Number of Jacoms for system diagnostics 100 Further grastocki Yes, MODBUS TCP Stransass functions 64 number of lagoins for system diagnostics 600 Number of lagoins for system diagnostics 10 000 Number of lagoins for system diagnostics 100 000 Number of lagoins for system diagnostics 200 Status block Yes, Yes Jo Statuscontiv system Statuscontiv system 8 Poroting Yes	Number of podes for user defined early interfaces		
		30 000	
- Number of alorns for system diagnostics 100 Further protocols NOCBUS TCP Ves: MODBUS TCP VES		Vec	
Functions Yes; MODBUS TCP Stressage functions 64 number of login stations for message functions, max. 500 number of login stations for messages, max. 9000 Program alarms Yes Number of login stations for messages in RUM, max. 500 Number of login stations for messages in RUM, max. 10000, Program messages are generated by the "Program_Alarm" block, Problem of GRAPH Number of login alarms for system diagnostica 200 Number of login functions 800 Own theor of login functions 800 Profiling Yes; Without fail-safe Number of login functions 8 Profiling Yes, Ves Statuscontrol variables, max. 2000, per job - of which control variables, max. 2000, per job - forcing Yes, without fail-safe Number of variables, max. 2000, per job - of which control variables, max. 2000, per job			
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Traces • Number of configurable Traces 4 • Memory size per trace, max. 512 kbyte Interrupts/diagnostics/status information Diagnostics indication LED • RUN/STOP LED Yes • ERROR LED Yes • MAINT LED Yes • STOP ACTIVE LED Yes • Connection display LINK TX/RX Yes Supported technology objects 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 2 400 • Required Motion Control resources for technology objects 400 • per speed-controlled axis 40 • per positioning axis 80			
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• Memory size per trace, max. 512 kbyte Interrupts/diagnostics/status information Diagnostics indication LED • RUN/STOP LED Yes • ERROR LED Yes • MAINT LED Yes • STOP ACTIVE LED Yes • Connection display LINK TX/RX Yes Supported technology objects 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 2 400 • Required Motion Control resources 2 400 • Required Motion Control resources 40 - per speed-controlled axis 40 - per positioning axis 80	Traces		
Interrupts/diagnostics/status information Diagnostics indication LED • RUN/STOP LED Yes • ERROR LED Yes • MAINT LED Yes • STOP ACTIVE LED Yes • Connection display LINK TX/RX Yes Supported technology objects 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 2 400 • Required Motion Control resources 40 - per speed-controlled axis 40 - per positioning axis 80	 Number of configurable Traces 	4	
Interrupts/diagnostics/status information Diagnostics indication LED • RUN/STOP LED Yes • ERROR LED Yes • MAINT LED Yes • STOP ACTIVE LED Yes • Connection display LINK TX/RX Yes Supported technology objects 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 2 400 • Required Motion Control resources 40 - per speed-controlled axis 40 - per positioning axis 80	Memory size per trace, max.	512 kbyte	
Diagnostics indication LED • RUN/STOP LED Yes • ERROR LED Yes • MAINT LED Yes • STOP ACTIVE LED Yes • Connection display LINK TX/RX Yes Supported technology objects 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 2 400 • Required Motion Control resources 40 — per speed-controlled axis 40 — per positioning axis 80	Interrupts/diagnostics/status information		
RUN/STOP LEDYesERROR LEDYesMAINT LEDYesSTOP ACTIVE LEDYesConnection display LINK TX/RXYesSupported technology objectsMotion ControlYes; 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 objects2 400• Required Motion Control resources40- per speed-controlled axis40- per positioning axis80			
• ERROR LEDYes• MAINT LEDYes• STOP ACTIVE LEDYes• Connection display LINK TX/RXYesSupported technology objectsYesMotion ControlYes; 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 objects2 400• Required Motion Control resources40- per speed-controlled axis40- per positioning axis80		Vec	
• MAINT LEDYes• STOP ACTIVE LEDYes• Connection display LINK TX/RXYesSupported technology objectsYes; 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 objects2 400• Required Motion Control resources2 400• Required Motion Control resources40• per speed-controlled axis80			
• STOP ACTIVE LEDYes• Connection display LINK TX/RXYesSupported technology objectsMotion ControlYes; 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 objects2 400• Required Motion Control resources- per speed-controlled axis- per speed-controlled axis40- per positioning axis80			
• Connection display LINK TX/RX Yes Supported technology objects Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool • Number of available Motion Control resources for technology objects 2 400 • Required Motion Control resources 40 – per speed-controlled axis 40 – per positioning axis 80			
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 2 400 • Required Motion Control resources 2 400 — per speed-controlled axis 40 — per positioning axis 80	STOP ACTIVE LED	Yes	
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 2 400 • Required Motion Control resources 2 400 — per speed-controlled axis 40 — per positioning axis 80	 Connection display LINK TX/RX 	Yes	
• Number of available Motion Control resources for technology objects 2 400 • Required Motion Control resources 2 400 • ner speed-controlled axis 40 - per positioning axis 80	Supported technology objects		
 Number of available Motion Control resources for technology objects Required Motion Control resources per speed-controlled axis per positioning axis 80 	Motion Control		
technology objects Fequired Motion Control resources	Number of quality Mating Cost 1		
Required Motion Control resources		2 400	
per speed-controlled axis 40 per positioning axis 80			
- per positioning axis 80			
— per synchronous axis 160	— per positioning axis		
	— per synchronous axis	160	

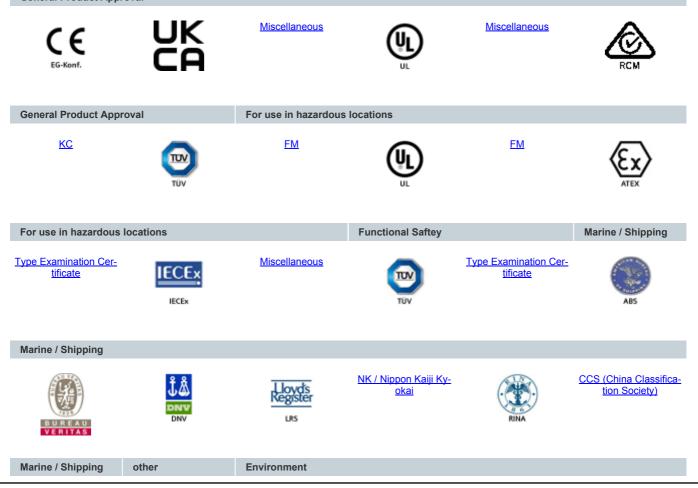
— per external encoder	80	
— per output cam	20	
— per cam track	160	
— per probe	40	
 Positioning axis 		
 — Number of positioning axes at motion control cycle of 4 ms (typical value) 	11	
 — Number of positioning axes at motion control cycle of 8 ms (typical value) 	20	
Controller		
PID_Compact	Yes; 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		
 Low demand mode: PFDavg in accordance with SIL3 	< 2.00E-05	
 — High demand/continuous mode: PFH in accordance with SIL3 	< 1.00E-09	
product functions / security / header		
PROFINET Security Class	1	
signed firmware update	Yes	
Secure Boot	Yes	
safely removing data	Yes	
Ambient conditions		
Ambient temperature during operation		
 horizontal installation, min. 	-30 °C; No condensation	
 horizontal installation, max. 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off	
 vertical installation, min. 	-30 °C; No condensation	
• vertical installation, max.	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the 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; incl. failsafe	
— FBD	Yes; incl. failsafe	
— STL	Yes	
— SCL	Yes	
— CFC	Yes; either CFC or failsafe functionality	
— GRAPH	Yes	
Know-how protection		
 User program protection/password protection 		
	Yes	
 Copy protection 	Yes	
Copy protection Block protection		
	Yes	
Block protection	Yes	
Block protection Access protection	Yes Yes	
Block protection Access protection protection of confidential configuration data	Yes Yes Yes	
 Block protection Access protection protection of confidential configuration data Password for display 	Yes Yes Yes	
Block protection Access protection ortection of confidential configuration data Password for display Protection level: Write protection Protection level: Read/write protection	Yes Yes Yes Yes	
Block protection Access protection protection of confidential configuration data Password for display Protection level: Write protection	Yes Yes Yes Yes Yes	

User administration	Yes; device-wide and centralized
Number of users	100
Number of groups	100
Number of roles	50
programming / cycle time monitoring / header	
lower limit	adjustable minimum cycle time
• upper limit	adjustable maximum cycle time
Dimensions	
Width	70 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	456 g
Classifications	

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

Approvals / Certificates

General Product Approval





PROFINET



last modified:

4/1/2025 🖸