SIEMENS

Data sheet

6ES7513-1FM03-0AB0



SIMATIC S7-1500F, CPU 1513F-1 PN, central processing unit with work memory 900 KB for program and 2.5 MB for data, 1st interface: PROFINET IRT with 2-port switch, 25 ns bit performance, SIMATIC Memory Card required **** approvals and certificate according to entry 109815653 at support.industry.siemens.com to be observed! ****

Figure similar

General information	
Product type designation	CPU 1513F-1 PN
HW functional status	FS01
Firmware version	V3.0
 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 500 µs (distributed) and 1 ms (central)
Engineering with	
 STEP 7 TIA Portal configurable/integrated from version 	V18 (FW V3.0); with older TIA Portal versions configurable as 6ES7513-1FL02-0AB0
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)	0.73 A
Current consumption, max.	0.9 A
Inrush current, max.	1.15 A; Rated value
²t	0.5 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.	7.5 W
Memory	
Number of slots for SIMATIC memory card	1

CIMATIC moment gard required	Voc
SIMATIC memory card required	Yes
Work memory	000 khyto
integrated (for program) integrated (for data)	900 kbyte
• integrated (for data)	2.5 Mbyte
Load memory	20 Chida
Plug-in (SIMATIC Memory Card), max.	32 Gbyte
Backup	V
maintenance-free	Yes
CPU processing times	
for bit operations, typ.	25 ns
for word operations, typ.	32 ns
for fixed point arithmetic, typ.	42 ns
for floating point arithmetic, typ.	170 ns
CPU-blocks	
Number of elements (total)	4 000; Blocks (OB, FB, FC, DB) and UDTs
DB	
Number range	1 60 999; subdivided into: number range that can be used by the user: 1 59 999, and number range of DBs created via SFC 86: 60 000 60 999
• Size, max.	2.5 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	,,
Number range	0 65 535
• Size, max.	900 kbyte
FC	
Number range	0 65 535
• Size, max.	900 kbyte
OB	,
Size, max.	900 kbyte
Number of free cycle OBs	100
Number of time alarm OBs	20
Number of delay alarm OBs	20
Number of cyclic interrupt OBs	20; With minimum OB 3x cycle of 250 µs
Number of process alarm OBs	50
Number of DPV1 alarm OBs	3
Number of isochronous mode OBs	2
 Number of technology synchronous alarm OBs 	2
Number of startup OBs	100
Number of 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	24, Op to a possible for a blooks
S7 counter	2.049
Number Potontivity	2 048
Retentivity	Von
— adjustable	Yes
IEC counter	Any (only limited by the main memory)
Number Potentivity	Any (only limited by the main memory)
Retentivity — adjustable	Yes
— adjustable	1 00
S7 times • Number	2 048
	2 040
Retentivity — adjustable	Yes
— adjustable IEC timer	100
Number	Any (only limited by the main memory)
1 11	Any (only limited by the main memory)
Retentivity	Von
— adjustable	Yes
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	256 kbyte; in total; available retentive memory for bit memories, timers,
	counters, DBs, and technology data (axes): 216 KB
Extended retentive data area (incl. timers, counters, flags),	2.5 Mbyte; When using PS 6 0W 24/48/60 V DC HF
max.	

Flag	
• Size, max.	16 kbyte
Number of clock memories	8; 8 clock memory bit, grouped into one clock memory byte
Data blocks	
Retentivity adjustable	Yes
Retentivity preset	No
Local data	
per priority class, max.	64 kbyte; max. 16 KB per block
Address area	
Number of IO modules	2 048; max. number of modules / submodules
I/O address area	
Inputs	32 kbyte; All inputs are in the process image
Outputs	32 kbyte; All outputs are in the process image
per integrated IO subsystem	***
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
per CM/CP	O lebuda
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images • Number of subprocess images, max.	32
Hardware configuration	V2
	22) A distributed I/O system is shorestaring durational built a list.
Number of distributed IO systems	32; A distributed I/O system is characterized not only by the integration of distributed I/O via PROFINET or PROFIBUS communication modules, but also by the connection of I/O via AS-i master modules or links (e.g. IE/PB-Link)
Number of DP masters	
• Via CM	6; A maximum of 6 CMs (PROFINET + PROFIBUS) can be inserted in total
Number of IO Controllers	
integrated	1
• Via CM	6; A maximum of 6 CMs (PROFINET + PROFIBUS) can be inserted in total
Rack	
Modules per rack, max.	32; CPU + 31 modules
Number of lines, max. PAR CM	1
Number of PtP CMs	the number of connectable PtP CMs is only limited by the number of available slots
Time of day	
Clock	
• Type	Hardware clock
 Backup time 	6 wk; At 40 °C ambient temperature, typically
Deviation per day, max.	10 s; Typ.: 2 s
Operating hours counter	
• Number	16
Clock synchronization	
• supported	Yes
• in AS, master	Yes
in AS, slave on Ethornot via NTP	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	Voc IDv4
IP protocol DROFINET IO Controller	Yes; IPv4
PROFINET IO Controller PROFINET IO Device	Yes Yes
SIMATIC communication	Yes
Open IE communication	
■ Open in confinitionication	Yes; Optionally also encrypted

Update time for IRT — for send cycle of 250 μs — for send cycle of 500 μs — for send cycle of 1 ms — for send cycle of 1 ms — for send cycle of 4 ms — for send cycle of 4 ms — With IRT and parameterization of "odd" send cycles time for RT — for send cycle of 500 μs — for send cycle of 500 μs — for send cycle of 4 ms — With IRT and parameterization of "odd" send cycles Update time for RT — for send cycle of 250 μs — for send cycle of 550 μs — for send cycle of 500 μs — for send cycle of 500 μs — for send cycle of 1 ms — for send cycle of 4 ms — for send cycle of 4 ms — the send cycle of 4 ms — for send cycle of 8 — 2 ms to 512 ms — for send cycle of 9 ms — for send cycle of 4 ms — PROFINET IO Device Services — PG/OP communication — Isochronous mode — IRT — PROFIenergy — Shared device — Number of IO Controllers with shared device, max. — activation/deactivation of I-devices — Asset management record Interface types RJ 45 (Ethernet) • 100 Mbps • Autonegoliation • Autocrossing • Autonegoliation • Autocrossing • Autonegoliation • Autocrossing • Industrial Ethernet status LED PROFIosale Number of connections, max. • Number of connections, max. • Number of connections reserved for ES/HMI/web 100 Number of connections reserved for ES/HMI/web 100 Number of connections reserved for ES/HMI/web	Web server	Yes
Services - PG/OP communication - Isochronous mode - Direct data exchange - Direct data exchange - IRT - PROFlenergy - Prioritized startup - Number of connectable IO Devices, max Of which IO devices with IRT, max Number of connectable IO Devices for RT, max Number of connectable IO Devices for RT, max Number of IO Devices that can be simultaneously activate/deactivated, max Number of IO Devices per tool, max Updating times - For send cycle of 250 µs - For send cycle of 500 µs - For send cycle of 4 ms - For send cycle of 500 µs - For send		Yes
- PC/OP communication - Isochronous mode - Direct data exchange - IRT - PROFlenergy - Prioritzed startup - Number of connectable IO Devices, max Of which IO devices with IRT, max Number of connectable IO Devices for RT, max Number of IO Devices with IRT, max Number of IO Devices that can be simultaneously activated/deactivated, max Number of IO Devices per tool, max Updating times - For send cycle of 250 µs - For send cycle of 250 µs - For send cycle of 4 ms - For send cycle of 450 µs - For send cycle of 500 µs - For send cycle of 450 µs - For send cycle of 500 µs - For send cycle of 450 µs	PROFINET IO Controller	
- Isochronous mode - Direct data exchange - IRT - PROFlenergy - Profrized startup - Number of connectable IO Devices, max Of which in line, max Number of connectable IO Devices for RT, max Number of connectable IO Devices for RT, max Number of Devices that can be simultaneously advised/deactivated, max Number of IO Devices that can be simultaneously advised/deactivated, max Number of IO Devices per tool, max Updating times - For send cycle of 250 µs - For send cycle of 250 µs - For send cycle of 1 ms - For send cycle of 27 ms - For send cycle of 27 ms - For send cycle of 28 ms - With IRT and parameterization of "odd" send cycles - For send cycle of 250 µs - For send cycle of 1 ms - For send cycle of 27 ms - For send cycle of 28 ms - For send cycle of 38 ms - For send cycle of 48 ms - For send cycle of 50 µs - For s		
- Direct datale exchange - IRT - IRT - PROFlenergy - Prioritized startup - Number of connectable IO Devices, max Of which IO devices with IRT, max Of which Io devices with IRT, max Number of connectable IO Devices for RT, max Number of IO Devices that can be simultaneously activated/deactivated, max Number of IO Devices per tool, max Updating times - for send cycle of 250 µs - for send cycle of 1 ms - for send cycle of 4 ms - with IRT and parameterization of "odd" send cycles are deviced for Sof µs - for send cycle of 1500 µs - for send cycle of 250 µs - for send cycle of 1500 µs - for send cycle of 250 µs - for send cycle of 1500 µs - for send cyc		
- IRT - PROFIlenergy - Prioritized startup - Number of connectable IO Devices, max Of which IO devices with IRT, max Of which in line, max Number of connectable IO Devices for RT, max Of which in line, max Number of IO Devices that can be simultaneously activate/deactivated, max Number of IO Devices per tool, max Updating times - For send cycle of 250 µs - For send cycle of 150 µs - For send cycle of 250 µs - For send cycle of 150 µs - For send cycle of 250 µs - For send cycle of 2		
PROFlenergy Profitzed startup	-	
- Prioritized startup - Number of connectable Io Devices, max Of which Io devices with IRT, max Number of connectable Io Devices for RT, max Of which in line, max Number of 10 Devices that can be simultaneously activated/descrivated, max Number of Io Devices per tool, max Number of Io Devices per tool, max Updating times - Updating times - For send cycle of 250 µs - For send cycle of 1 ms - For send cycle of 1 ms - For send cycle of 4 ms - With IRT and parameterization of "odd" send cycles user device of 500 µs - For send cycle of 250 µs - For send cycle of 1 ms - For send cycle of 2 ms - For send cycle of 2 ms - For send cycle of 3 ms - For send cycle of 4 ms - For send cycle of 4 ms - For send cycle of 500 µs - For send cy		
- Number of connectable IO Devices, max Of which IO devices with IRT, max Number of connectable IO Devices for RT, max of which in line, max Number of 10 Devices that can be simultaneously activated/deactivated, max Number of 10 Devices per tool, max Updating times - for send cycle of 250 µs - for send cycle of 500 µs - for send cycle of 4 ms - with IRT and parameterization of "odd" send cycles - for send cycle of 150 µs - for send cycle of 150 µs - for send cycle of 17 ms - for send cycle of 18 ms - for send cycle of 500 µs - for send cycle of 18 ms - for send cycle of 28 ms - for send c		
- Of which IO devices with IRT, max Number of connectable IO Devices for RT, max Number of 10 Devices that can be simultaneously activated/deactivated, max Number of IO Devices per tool, max Updating times - Updating time for IRT - for send cycle of 250 μs - for send cycle of 1 ms - for send cycle of 4 ms - With IRT and parameterization of "odd" send cycles Update time for RT - for send cycle of 250 μs - for send cycle of 500 μs - for send cycle of 1 ms - for send cycle of 4 ms - for send cycle of 500 μs - for send cycle of 500 μs - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 500 μs - for send cy	·	
— Number of connectable IO Devices for RT, max. — of which in line, max. — Number of IO Devices that can be simultaneously activated/deactivated, max. — Number of IO Devices per tool, max. — Updating times — Updating time for IRT — for send cycle of 250 μs — for send cycle of 1 ms — for send cycle of 1 ms — for send cycle of 4 ms — with IRT and parameterization of "odd" send cycles Update time for RT — for send cycle of 250 μs — for send cycle of 500 μs — for send cycle o	,	i, PROFIBUS or PROFINET
max. — of which in line, max. — Number of IO Devices that can be simultaneously activated/deactivated, max. — Number of IO Devices per tool, max. — Updating times Updating times Update time for IRT — for send cycle of 250 μs — for send cycle of 1 ms — for send cycle of 2 ms — for send cycle of 4 ms — With IRT and parameterization of "odd" send cycles Update time for RT — for send cycle of 500 μs — for send cycle of 2 ms — for send cycle of 500 μs — for send cycle of 4 ms — with IRT and parameterization of "odd" send cycles Update time for RT — for send cycle of 250 μs — for send cycle of 250 μs — for send cycle of 2 ms — with IRT and parameterization of "odd" send cycles Update time for RT — for send cycle of 250 μs — for send cycle of 1 ms — for send cycle of 2 ms — for send cycle of 4 ms PROFINET IO Devices Services — PGOP communication — IRT — yes PROFlenergy — Shared device — Number of IO Controllers with shared device, max. — activation/deactivation of I-devices — Autonegotiation — Autonorosing — Autonegotiation — Autorosing — Yes Industrial Ethernet status LED Protocois PROFlesie Number of connections reserved for ES/HMI/web IO 128; via integrated interfaces of the CPU and connected CPs / CMs 128; via integrated interfaces of the CPU and connected CPs / CMs		
- of which in line, max - Number of IO Devices that can be simultaneously activated/deactivated, max Number of IO Devices per tool, max Updating times - Updating times - Update time for IRT - For send cycle of 250 μs - For send cycle of 1 ms - For send cycle of 2 ms - For send cycle of	·	128
- Number of IO Devices that can be simultaneously activated/deactivated, max Number of IO Devices per tool, max Updating times - Updating times - Updating times - The minimum value of the update time also depends on communication that the control of the update time also depends on communication that the control of the update time also depends on communication that the update time of 500 μs are set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data - The minimum value of the update time also depends on communication that the update time also depends on communication that the update time of 500 μs on the update time also depends on communication that the update time also depends on communication that the update time of 500 μs of the update time also depends on communication that the update time of 500 μs of the update time also depends on communication that the update time of 500 μs of the update time also depends on communication that the update time of 500 μs of the update time also depends on communication that the update time of 500 μs of the update time also depends on communication that the update time of 500 μs of the update time also depends on communication that the update time of 500 μs of the update time also depends on communication that the update time of 500 μs of the		120
simultaneously activated/deactivated, max. — Number of IO Devices per tool, max. — Updating times The minimum value of the update time also depends on communicat share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data Update time for IRT — for send cycle of 250 µs — for send cycle of 1 ms — for send cycle of 1 ms — for send cycle of 2 ms — for send cycle of 4 ms — With IRT and parameterization of "odd" send cycles Update time for RT — for send cycle of 550 µs — for send cy		
- Number of IO Devices per tool, max. - Updating times - Updating times - Update time for IRT - For send cycle of 250 μs - For send cycle of 500 μs - For send cycle of 1 ms - For send cycle of 1 ms - For send cycle of 2 ms - For send cycle of 4 ms - For send cycle of 250 μs - For send cycle of 4 ms - For send cycle of 500 μs -		o, iii total across all litterfaces
Update time for IRT — for send cycle of 250 µs — for send cycle of 1 ms — for send cycle of 2 ms — for send cycle of 2 ms — for send cycle of 4 ms — With IRT and parameterization of "odd" send cycles — With IRT and parameterization of "odd" send cycles — For send cycle of 250 µs — for send cycle of 250 µs — for send cycle of 1 ms — hor send cycle of 1 ms — for send cycle of 1 ms — send cycle of 1 ms — for send cycle of 1 ms — send cycle of 1 ms — send cycle of 1 ms — for send cycle of 1 ms — for send cycle of 1 ms — send cycle of 250 µs —	•	8
Share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data Update time for IRT — for send cycle of 250 µs — for send cycle of 1 ms — for send cycle of 4 ms — for send cycle of 4 ms — with IRT and parameterization of "odd" send cycles Update time for RT — for send cycle of 250 µs — for send cycle of 250 µs — for send cycle of 4 ms — with IRT and parameterization of "odd" send cycles Update time for RT — for send cycle of 250 µs — for send cycle of 250 µs — for send cycle of 1 ms — for send cycle of 4 ms — PROFINET IO Device Services — PG/OP communication — Isochronous mode — IRT — PROFInerry — Shared device — Number of IO Controllers with shared device, max. — activation/deactivation of I-devices — Asset management record Interface types R 4 45 (Ethernet) • 100 Mbps • Autocrossing • Number of connections, max. • Number of connections reserved for ES/HMI/web 100 Number of connections reserved for ES/HMI/web		
Update time for IRT - for send cycle of 250 µs - for send cycle of 100 µs - for send cycle of 1 ms - for send cycle of 4 ms - for send cycle of 4 ms - With IRT and parameterization of "odd" send cycles Update time for RT - for send cycle of 500 µs - for send cycle of 250 µs - for send cycle of 4 ms - With IRT and parameterization of "odd" send cycles Update time for RT - for send cycle of 500 µs - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 4 ms - for send cycle of 6 ms - for send cycle of 7 ms - for send cycle of 8 ms - for send cycle of 9 ms - for send cycle of 9 ms - for send cycle of 9 ms - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 1 ms - for send cycl		share set for PROFINET IO, on the number of IO devices, and on the
minimum update time of 500 µs of the isochronous OB is decisive - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 4 ms - With IRT and parameterization of "odd" send cycles Update time for RT - for send cycle of 250 µs - for send cycle of 500 µs - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 4 ms - FROFINET IO Device - Services - PG/OP communication - Ischronous mode - IRT - PROFlenergy - Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Asset management record - Nes; per user program - Asset management record - Yes; per user program - Asset management record - Ves; per user program - Autocrossing - Industrial Ethernet status LED - Protocols - PROFIsafe - Number of connections, max Number of connections reserved for ES/HMI/web - Number of connections reserved for ES/HMI/web - Number of connections reserved for ES/HMI/web	Update time for IRT	
- for send cycle of 500 μs - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - With IRT and parameterization of "odd" send cycles Update time for RT - for send cycle of 500 μs - for send cycle of 500 μs - for send cycle of 500 μs - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 500 μs - for send cycle of 4 ms - for send cycle of 500 μs - for send cycle of 250 μs - fo	— for send cycle of 250 μs	250 μs to 4 ms; Note: In the case of IRT with isochronous mode, the
- for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 4 ms - with IRT and parameterization of "odd" send cycles - With IRT and parameterization of "odd" send cycles - With IRT and parameterization of "odd" send cycles - With IRT and parameterization of "odd" send cycles - With IRT and parameterization of "odd" send cycles - For send cycle of 250 μs - For send cycle of 250 μs - For send cycle of 500 μs - For send cycle of 500 μs - For send cycle of 2 ms - For send cycle of 2		minimum update time of 500 µs of the isochronous OB is decisive
- for send cycle of 2 ms - for send cycle of 4 ms - With IRT and parameterization of "odd" send cycles - With IRT and parameterization of "odd" send cycles - With IRT and parameterization of "odd" send cycles - For send cycle of 250 μs - For send cycle of 500 μs - For send cycle of 1 ms - For send cycle of 1 ms - For send cycle of 1 ms - For send cycle of 2 ms - For send cycle of 4 ms - For send cycle of 500 μs - For send cycle of 500		·
- for send cycle of 4 ms - With IRT and parameterization of "odd" send cycles Update time for RT - for send cycle of 250 μs - for send cycle of 500 μs - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 500 μs - for send cycle of 1 ms - for send cycle of 500 μs - for send cycle - for send cycle of 500 μs - for send cycle of 500 μs - for se	— for send cycle of 1 ms	1 ms to 16 ms
- With IRT and parameterization of "odd" send cycles Update time for RT - for send cycle of 250 µs - for send cycle of 500 µs - for send cycle of 500 µs - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 5 ms - for send cycle of 5 ms - for send cycle of 4 ms - for send cycle of 4 ms - for send cycle of 4 ms - FOFINET IO Device Services - PG/OP communication - IRT - PROFlenergy - Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Asset management record - Asset management record - Autocrossing - 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 reserved for ES/HMI/web - Number of connections reserved for ES/HMI/web	•	2 ms to 32 ms
cycles Update time for RT — for send cycle of 250 μs — for send cycle of 500 μs 500 μs to 256 ms — for send cycle of 1 ms — for send cycle of 2 ms — for send cycle of 4 ms — for send cycle of 2 ms — profile of the send cycle of 4 ms — PROFINET IO Device Services — PG/OP communication — Ist — PROFIenergy — Shared device — Number of IO Controllers with shared device, max. — activation/deactivation of I-devices — Asset management record — Yes; per user program — asset management record — Yes; per user program Interface types RJ 45 (Ethernet) — 100 Mbps — Autocrossing — Autocrossing — Industrial Ethernet status LED — Yes Protocols PROFIsafe — Yes; V2.4 / V2.6 Number of connections — Number of connections, max. — Number of connections reserved for ES/HMI/web — 100 Number of connections reserved for ES/HMI/web — 128; via integrated interfaces of the CPU and connected CPs / CMs — Number of connections reserved for ES/HMI/web	•	
Update time for RT - for send cycle of 250 µs - for send cycle of 500 µs - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - FOFINET IO Device Services - PG/OP communication - Isochronous mode - IRT - PROFINETT - PROFILENT - PROFILENT - PROFILENT - Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Yes; per user program - Asset management record - Yes; per user program - Asset management record - Yes; per user program - Asset management record - Yes; per user program - Autocrossing - Number of connections - Number of connections - Number of connections, max Number of connections reserved for ES/HMI/web - 100 Mbps - Ves; V2.4 / V2.6 - Number of connections reserved for ES/HMI/web - 100 Number of connections reserved for ES/HMI/web		Update time = set "odd" send clock (any multiple of 125 μs: 375 μs, 625 μs 3 875 μs)
for send cycle of 500 µs for send cycle of 1 ms for send cycle of 2 ms for send cycle of 2 ms for send cycle of 4 ms for send cycle of 2 ms for send cycle of 2 ms		' '
for send cycle of 1 ms for send cycle of 2 ms for send cycle of 4 ms for send cycle of 2 ms	— for send cycle of 250 μs	250 μs to 128 ms
for send cycle of 2 ms for send cycle of 4 ms FROFINET IO Device PG/OP communication Isochronous mode IRT PROFlenergy Shared device Number of IO Controllers with shared device, max activation/deactivation of I-devices Asset management record Asset management record Frotocols Autocrossing Autocrossing Autocrossing Autocrossing Autocrossing Autocrossing Autocrossing Frotocols FROFIsafe Number of connections Number of connections Number of connections, max Number of connections reserved for ES/HMI/web 12 ms to 512 ms 4 ms to 512 ms	 for send cycle of 500 μs 	500 μs to 256 ms
for send cycle of 4 ms 4 ms to 512 ms PROFINET IO Device Services PG/OP communication Yes Isochronous mode No IRT Yes PROFlenergy Yes; per user program Shared device Yes Number of IO Controllers with shared device, max activation/deactivation of I-devices Yes; per user program Asset management record Yes; per user program Interface types RJ 45 (Ethernet) 100 Mbps Yes Autocrossing Yes Industrial Ethernet status LED Yes Protocols PROFIsafe Yes; V2.4 / V2.6 Number of connections, max Number of connections reserved for ES/HMI/web Valor of connected CPs / CMs Number of connections reserved for ES/HMI/web Valor of connections reserved for ES/HMI/web Valor of connections reserved for ES/HMI/web	— for send cycle of 1 ms	1 ms to 512 ms
PROFINET IO Device Services - PG/OP communication Yes No No IRT Yes PROFlenergy Yes; per user program Interface types RJ 45 (Ethernet) • 100 Mbps Yes • Autonegotiation Yes • Autocrossing Yes • Industrial Ethernet status LED Yes Protocols PROFIsafe Yes; V2.4 / V2.6 Number of connections • Number of connections, max. • Number of connections reserved for ES/HMI/web 10	— for send cycle of 2 ms	2 ms to 512 ms
Services - PG/OP communication Yes - Isochronous mode No - IRT Yes - PROFlenergy Yes; per user program - Shared device Yes - Number of IO Controllers with shared device, max activation/deactivation of I-devices Yes; per user program - Asset management record Yes; per user program Interface types RJ 45 (Ethernet) • 100 Mbps Yes • Autoreossing Yes • Industrial Ethernet status LED Yes PROFIsafe Yes; V2.4 / V2.6 Number of connections, max. • Number of connections, max. • Number of connections reserved for ES/HMI/web 10	— for send cycle of 4 ms	4 ms to 512 ms
- PG/OP communication - Isochronous mode - IRT - PROFlenergy - Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Asset management record Interface types RJ 45 (Ethernet) • 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 No No Yes Yes Yes Yes Yes Yes Yes Ye	PROFINET IO Device	
- Isochronous mode - IRT - PROFlenergy - Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Asset management record Interface types RJ 45 (Ethernet) • 100 Mbps • Autorogotiation • Autocrossing • Industrial Ethernet status LED Protocols PROFIsafe Number of connections • Number of connections, max. • Number of connections reserved for ES/HMI/web No Yes 100 Yes Yes Yes Yes Yes Yes Yes Yes	Services	
- IRT - PROFlenergy - Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Asset management record Interface types RJ 45 (Ethernet) • 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; per user program Yes; per user program Yes; per user program Yes Yes Yes Yes Yes Yes Yes Ye	— PG/OP communication	Yes
- PROFlenergy - Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Asset management record Interface types RJ 45 (Ethernet) • 100 Mbps • Autonegotiation • Autocrossing • Industrial Ethernet status LED PROFIsafe Number of connections • Number of connections, max. • Number of connections reserved for ES/HMI/web Yes; per user program Interface types	 Isochronous mode 	No
- Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Asset management record Interface types RJ 45 (Ethernet) • 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; per user program Yes; per user program Yes; per user program Yes Yes Yes Yes Yes Yes Yes Ye	— IRT	Yes
 Number of IO Controllers with shared device, max. activation/deactivation of I-devices Asset management record Yes; per user program Interface types RJ 45 (Ethernet) 100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED Protocols PROFIsafe Yes; V2.4 / V2.6 Number of connections, max. Number of connections reserved for ES/HMI/web 10 128; via integrated interfaces of the CPU and connected CPs / CMs 10 	— PROFlenergy	Yes; per user program
max. — activation/deactivation of I-devices — Asset management record Interface types RJ 45 (Ethernet) • 100 Mbps • Autonegotiation • Autocrossing • Industrial Ethernet status LED Protocols PROFIsafe Number of connections • Number of connections reserved for ES/HMI/web Yes; per user program 128; via integrated interfaces of the CPU and connected CPs / CMs		
activation/deactivation of I-devices Asset management record Interface types RJ 45 (Ethernet) • 100 Mbps • Autonegotiation • Autocrossing • Industrial Ethernet status LED Protocols PROFIsafe Number of connections, max. • Number of connections reserved for ES/HMI/web Yes; per user program 128; via integrated interfaces of the CPU and connected CPs / CMs	•	4
- Asset management record Interface types RJ 45 (Ethernet) • 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; per user program Yes; per user program Yes Yes Yes Yes Yes Yes Yes Ye		V
Interface types RJ 45 (Ethernet) • 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 10		
RJ 45 (Ethernet) • 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 10	-	Yes; per user program
 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 10 		
 Autonegotiation Autocrossing Industrial Ethernet status LED Yes Protocols PROFIsafe Number of connections Number of connections, max. Number of connections reserved for ES/HMI/web 128; via integrated interfaces of the CPU and connected CPs / CMs 		
 Autocrossing Industrial Ethernet status LED Protocols PROFIsafe Number of connections Number of connections, max. Number of connections reserved for ES/HMI/web 128; via integrated interfaces of the CPU and connected CPs / CMs 10 	•	
 Industrial Ethernet status LED Protocols PROFIsafe Number of connections Number of connections, max. Number of connections reserved for ES/HMI/web 128; via integrated interfaces of the CPU and connected CPs / CMs 		
Protocols PROFIsafe Yes; V2.4 / V2.6 Number of connections Number of connections, max. Number of connections reserved for ES/HMI/web 128; via integrated interfaces of the CPU and connected CPs / CMs	9	
PROFIsafe Number of connections Number of connections, max. Number of connections, max. Number of connections reserved for ES/HMI/web Yes; V2.4 / V2.6 128; via integrated interfaces of the CPU and connected CPs / CMs		Yes
Number of connections Number of connections, max. Number of connections, max. Number of connections reserved for ES/HMI/web 128; via integrated interfaces of the CPU and connected CPs / CMs		
 Number of connections, max. Number of connections reserved for ES/HMI/web 128; via integrated interfaces of the CPU and connected CPs / CMs 10 	1 11 1	Yes; V2.4 / V2.6
Number of connections reserved for ES/HMI/web 10		
	9	88
Number of S7 routing paths 16		16
Redundancy mode	•	
H-Sync forwarding Yes		Yes
Media redundancy		
— Media redundancy only via 1st interface (X1)	— Media redundancy	only via 1st interface (X1)

— MRP	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP
MDD into	Manager; MRP Client
MRP interconnection, supported	Yes; as MRP ring node according to IEC 62439-2 Edition 3.0
— MRPD— Switchover time on line break, typ.	Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD
- Number of stations in the ring, max.	50
SIMATIC communication	
PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
S7 routing	Yes
 Data record routing 	Yes
 S7 communication, as server 	Yes
 S7 communication, as client 	Yes
User data per job, max.	See online help (S7 communication, user data size)
Open IE communication	Van
◆ TCP/IP— Data length, max.	Yes 64 kbyte
bata length, max. — several passive connections per port,	Yes
supported	
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	64 kbyte
• UDP	Yes
— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast
— UDP multicast	Yes; max. 78 multicast circuits
DHCP DNS	Yes 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	Vest II Creatill license required
Runtime license required	Yes; "Small" license required Yes: Data Access (registered Read/Write), Method Call
Runtime license requiredOPC UA Client	Yes; Data Access (registered Read/Write), Method Call
Runtime license requiredOPC UA ClientApplication authentication	Yes; Data Access (registered Read/Write), Method Call Yes
Runtime license requiredOPC UA Client	Yes; Data Access (registered Read/Write), Method Call
 Runtime license required OPC UA Client Application authentication Security policies User authentication 	Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15,
 Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. 	Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
 Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. 	Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password
 Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/O 	Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300
 Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax. 	Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300
 Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/O 	Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300
 Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. Number of elements for one call of 	Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300
 Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. Number of elements for one call of OPC_UA_MethodGetHandleList, max. Number of simultaneous calls of the client instructions for session management, per 	Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300
 Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. Number of elements for one call of OPC_UA_MethodGetHandleList, max. Number of simultaneous calls of the client instructions for session management, per connection, max. Number of simultaneous calls of the client 	Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 100
 Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. Number of elements for one call of OPC_UA_MethodGetHandleList, max. Number of simultaneous calls of the client instructions for session management, per connection, max. Number of simultaneous calls of the client instructions for data access, per connection, max. 	Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 100 1
 Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. Number of elements for one call of OPC_UA_MethodGetHandleList, max. Number of simultaneous calls of the client instructions for session management, per connection, max. Number of simultaneous calls of the client instructions for data access, per connection, max. Number of registerable nodes, max. 	Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 100
 Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. Number of elements for one call of OPC_UA_MethodGetHandleList, max. Number of simultaneous calls of the client instructions for session management, per connection, max. Number of simultaneous calls of the client instructions for data access, per connection, max. Number of registerable nodes, max. Number of registerable method calls of OPC_UA_MethodCall, max. 	Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 100 1 5 5 000
 Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. Number of elements for one call of OPC_UA_MethodGetHandleList, max. Number of simultaneous calls of the client instructions for session management, per connection, max. Number of simultaneous calls of the client instructions for data access, per connection, max. Number of registerable nodes, max. Number of registerable method calls of OPC_UA_MethodCall, max. Number of inputs/outputs when calling OPC_UA_MethodCall, max. 	Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 100 1 5 5 000
 Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. Number of elements for one call of OPC_UA_MethodGetHandleList, max. Number of simultaneous calls of the client instructions for session management, per connection, max. Number of simultaneous calls of the client instructions for data access, per connection, max. Number of registerable nodes, max. Number of registerable method calls of OPC_UA_MethodCall, max. Number of inputs/outputs when calling 	Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 100 1 5 5 000 100
 Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. Number of elements for one call of OPC_UA_MethodGetHandleList, max. Number of simultaneous calls of the client instructions for session management, per connection, max. Number of simultaneous calls of the client instructions for data access, per connection, max. Number of registerable nodes, max. Number of registerable method calls of OPC_UA_MethodCall, max. Number of inputs/outputs when calling OPC_UA_MethodCall, max. 	Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 100 1 5 5 000 100 20 Yes; Data Access (Read, Write, Subscribe), Method Call, Alarms &
 Runtime license required OPC UA Client — Application authentication — Security policies — User authentication — Number of connections, max. — Number of nodes of the client interfaces, recommended max. — Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax. — Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. — Number of elements for one call of OPC_UA_MethodGetHandleList, max. — Number of simultaneous calls of the client instructions for session management, per connection, max. — Number of simultaneous calls of the client instructions for data access, per connection, max. — Number of registerable nodes, max. — Number of registerable method calls of OPC_UA_MethodCall, max. — Number of inputs/outputs when calling OPC_UA_MethodCall, max. OPC UA Server 	Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 100 1 5 5 000 100 20 Yes; Data Access (Read, Write, Subscribe), Method Call, Alarms & Condition (A&C), Custom Address Space
 Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. Number of elements for one call of OPC_UA_MethodGetHandleList, max. Number of simultaneous calls of the client instructions for session management, per connection, max. Number of simultaneous calls of the client instructions for data access, per connection, max. Number of registerable nodes, max. Number of registerable method calls of OPC_UA_MethodCall, max. Number of inputs/outputs when calling OPC_UA_MethodCall, max. OPC UA Server Application authentication 	Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 100 1 5 5 000 100 20 Yes; Data Access (Read, Write, Subscribe), Method Call, Alarms & Condition (A&C), Custom Address Space Yes available security policies: None, Basic128Rsa15, Basic256Rsa15,
 Runtime license required OPC UA Client Application authentication Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. Number of elements for one call of OPC_UA_MethodGetHandleList, max. Number of simultaneous calls of the client instructions for session management, per connection, max. Number of simultaneous calls of the client instructions for data access, per connection, max. Number of registerable nodes, max. Number of registerable method calls of OPC_UA_MethodCall, max. Number of inputs/outputs when calling OPC_UA_MethodCall, max. OPC UA Server Application authentication Security policies 	Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 100 1 5 5 000 100 20 Yes; Data Access (Read, Write, Subscribe), Method Call, Alarms & Condition (A&C), Custom Address Space Yes available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256, Aes128Sha256RsaOaep, Aes256Sha256RsaPss

N 1 6 71 211	F0 000
 Number of accessible variables, max. 	50 000
 Number of registerable nodes, max. 	10 000
 Number of subscriptions per session, max. 	50
 — Sampling interval, min. 	100 ms
— Publishing interval, min.	200 ms
 Number of server methods, max. 	20
 Number of inputs/outputs per server method, 	20
max.	
 Number of monitored items, recommended 	4 000; for 1 s sampling interval and 1 s send interval
max.	
 Number of server interfaces, max. 	10 of each "Server interfaces" / "Companion specification" type and 20
	of the type "Reference namespace"
 Number of nodes for user-defined server interfaces, max. 	15 000
Alarms and Conditions	Yes
Number of program alarms	100
Number of alarms for system diagnostics Further protocols	50
Further protocols • MODBUS	Yes; MODBUS TCP
	Yes; MODBOS TCP
S7 message functions	
Number of login stations for message functions, max.	32
Program alarms	Yes
Number of configurable program messages, max.	5 000; Program messages are generated by the "Program_Alarm"
	block, ProDiag or GRAPH
Number of loadable program messages in RUN, max.	2 500
Number of simultaneously active program alarms	
 Number of program alarms 	600
 Number of alarms for system diagnostics 	100
Number of alarms for motion technology objects	160
Test commissioning functions	
Joint commission (Team Engineering)	Yes; Parallel online access possible for up to 5 engineering systems
Status block	Yes; Up to 8 simultaneously (in total across all ES clients)
Single step	No
Number of breakpoints	8
Status/control	
 Status/control variable 	Yes; without fail-safe
 Variables 	inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe),
	times, counters
 Number of variables, max. 	
of which status variables, max.	200; per job
— of which control variables, max.	200; per job
Forcing	
Forcing	Yes; without fail-safe
 Forcing, variables 	peripheral inputs/outputs (without fail-safe)
 Number of variables, max. 	200
Diagnostic buffer	
• present	Yes
 Number of entries, max. 	1 000
— of which powerfail-proof	500
Traces	
Number of configurable Traces	4; Up to 512 KB of data per trace are possible
Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
STOP ACTIVE LED	Yes
 Connection display LINK TX/RX 	Yes
Supported technology objects	
Motion Control	Yes; Note: The number of technology objects affects the cycle time of
	the PLC program; selection guide via the TIA Selection Tool
 Number of available Motion Control resources for 	1 120
technology objects	
 Required Motion Control resources 	

nor annual controlled avic	40
— 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 	11
cycle of 4 ms (typical value)	
Number of positioning axes at motion control evels of 9 mg (typical value)	14
cycle of 8 ms (typical value)	
Controller	Vacable interest DID and allowed the interest of antiquing the
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	ir time of 100 hours)
 Low demand mode: PFDavg in accordance 	< 2.00E-05
with SIL3	
— High demand/continuous mode: PFH in	< 1.00E-09
accordance with SIL3	
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
A seek is set to see a seek see also sign as to see a set to see	display is switched off
Ambient temperature during storage/transportation	40.00
• 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
— GRAPH	Yes
Know-how protection	
User program protection/password protection	Yes
Copy protection	Yes
Block protection	Yes
Access protection	
protection of confidential configuration data	Yes
Password for display	Yes
Protection level: Write protection	Yes
Protection level: White protection Protection level: Read/write protection	Yes
Protection level: Write protection for Failsafe	Yes
Protection level: Write protection of alisate Protection level: Complete protection	Yes
programming / cycle time monitoring / header	100
lower limit	adjustable minimum cycle time
	adjustable minimum cycle time
• upper limit	adjustable maximum cycle time
Dimensions	
Width	35 mm

Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	336 g

last modified: 12/13/2022 🖸