SIEMENS

Data sheet

6AG1518-4AX00-4AC0

SIPLUS S7-1500 CPU 1518-4 PN/DP MFP with conformal coating based on 6ES7518-4AX00-1AC0. inklusive C/C++ Runtime und OPC UA Runtime Lizenz Arbeits- speicher 4 MByte für Programm und 20MByte für Daten, 1. Schnittstelle: PROFINET IRT mit 2 Port Switch, 2. Schnitt- stelle: PROFINET RT, 3. Schnitt- stelle: Ethernet, 4. Schnitt- stelle: PROFIBUS, 1 NS Bit- Performance, SIMATIC Memory Card (min. 2 GB) notwendig



General information	
Product type designation	CPU 1518-4 PN/DP MFP
Product function	
Isochronous mode	Yes; With minimum OB 6x cycle of 125 µs
Configuration control	
via dataset	Yes
Display	
Screen diagonal [cm]	6.1 cm
Control elements	
Number of keys	6
Mode selector switch	1
Supply voltage	
Type of supply voltage	24 V DC
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes

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Mains buffering	
 Mains/voltage failure stored energy time 	5 ms
Repeat rate, min.	1/s
Input current	
Current consumption (rated value)	1.7 A
Current consumption, max.	2 A
Inrush current, max.	2.7 A; Rated value
l²t	0.02 A ² ·s
Power	
Infeed power to the backplane bus	12 W
Power consumption from the backplane bus (balanced)	35 W
Power loss	
Power loss, typ.	29 W
Memory Number of slots for SIMATIC memory card	1
-	Yes
SIMATIC memory card required	Yes
Work memory	
 integrated (for program) 	4 Mbyte
 integrated (for data) 	20 Mbyte
 integrated (for CPU function library of CPU Runtime) 	50 Mbyte; Note: The "CPU function library of the CPU" are C/C++ blocks for the user program that were created using the SIMATIC ODK 1500S or Target 1500S.
Working memory for additional functions	
 Integrated (for C/C++ Runtime application) 	500 Mbyte
Load memory	
 Plug-in (SIMATIC Memory Card), max. 	32 Gbyte; The memory card must have at least 2 GB of space on it
Backup	
• maintenance-free	Yes
CPU processing times	
for bit operations, typ.	1 ns
for word operations, typ.	2 ns
for fixed point arithmetic, typ.	2 ns
for floating point arithmetic, typ.	6 ns
CPU-blocks	
Number of elements (total)	10 000; 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.	16 Mbyte; For non-optimized block accesses, the max. size of the DB 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 μ s
 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
Counters, timers and their retentivity	
S7 counter	
Number	2 048
Retentivity	
— adjustable	Yes
IEC counter	
• Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
S7 times	
• Number	2 048
Retentivity	
— adjustable	Yes
IEC timer	
Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes

Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags),	768 kbyte; In total; available retentive memory for bit memories,
max.	timers, counters, DBs, and technology data (axes): 700 KB
Extended retentive data area (incl. timers, counters,	20 Mbyte; When using PS 6 0W 24/48/60 V DC HF
flags), max.	
Flag	
 Number, 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	16 384; 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)	16 kbyte; 16 KB via the integrated PROFINET IO interface X1, 8 KB via the integrated PROFINET IO interface X2 and via the integrated PROFIBUS DP interface
— Outputs (volume)	16 kbyte; 16 KB via the integrated PROFINET IO interface X1, 8 KB via the integrated PROFINET IO interface X2 and via the integrated PROFIBUS DP interface
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	
• integrated	1
• 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

PU + 31 modules
mber of connectable PtP CMs is only limited by the numb ilable slots
vare clock
At 40 °C ambient temperature, typically
Гур.: 2 s
(1
Pv4
IRP Automanager according to IEC 62439-2 Edition 2.0

— MRP	Yes; as MRP redundancy manager and/or MRP client; max. number of devices in the ring: 50
— MRPD	Yes; Requirement: IRT
— PROFlenergy	Yes
— 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,	512
max.	512
— of which in line, max.	
 — 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
Update time for IRT	
— for send cycle of 125 µs	125 µs
— for send cycle of 187.5 μs	187.5 µs
— 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"	Update time = set "odd" send clock (any multiple of 125 μ s: 375
send cycles	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	
— PG/OP communication	Yes
— S7 routing	Yes
— Isochronous mode	No
— IRT	Yes
— MRP	Yes
— MRPD	Yes; Requirement: IRT
— PROFlenergy	Yes
— Shared device	Yes

PNAP

device, max. — Asset management record Yes; per u	ser program
2. Interface	
Interface types	
• RJ 45 (Ethernet) Yes; X2	
Number of ports	
integrated switch No	
Protocols	
• IP protocol Yes; IPv4	
PROFINET IO Controller Yes	
PROFINET IO Device Yes	
SIMATIC communication Yes	
Open IE communication Yes	
Web server Yes	
Media redundancy No	
PROFINET IO Controller	
Services	
— PG/OP communication Yes	
— S7 routing Yes	
— Isochronous mode No	
— IRT No	
— MRP No	
MRPD No	
- PROFlenergy Yes	
— Prioritized startup No	
	al, up to 1 000 distributed I/O devices can be connected PROFIBUS or PROFINET
— Number of connectable IO Devices for RT, 128 max.	
— of which in line, max. 128	
 Number of IO Devices that can be 8; in total a simultaneously activated/deactivated, max. 	across all interfaces
communic	num value of the update time also depends on ation share set for PROFINET IO, on the number of IO nd on the quantity of configured user data
Update time for RT	
— for send cycle of 1 ms 1 ms to 51	2 ms
PROFINET IO Device	
Services	
— PG/OP communication Yes	
— S7 routing Yes	

- IRT No - MRP No - MRPD No - MRPD No - PROFIenergy Ves - Prioritized startup No - Shared device Yes - Number of IO Controllers with shared 4 device, max. - - Asset management record Yes; per user program Started device RASet management record Yes; X3 • Number of IO Controllers Yes; K1 • Number of ports 1; C/C++ Runtime can also be reached via this port • Interface types No • PROFINET IO Controller No • PROFINET IO Device No • PROFINET IO Device No • Open IE communication Yes • Web server Yes • RS 485 Yes; X4 • Number of ports 1 • PROFIBUS DP master Yes • PROFIBUS DP slave No • SIMATIC communication Yes • PROFIBUS DP slave No • SIMATIC communication Yes • PROFIBUS DP slave No • SIMATIC communication Yes • PROFIBUS DP slave No • SIMATIC communication Yes		
NoMRPNoMRPDNoPROFlenergyYesPrioritzed startupNoShared deviceYes- Number of IO Controllers with shared device, max.4- Asset management recordYes: per user program3. Interface types• RJ 45 (Ethernet)Yes; X3• Number of ports1; C/C++ Runtime can also be reached via this port• Integrade switchNo• ProtocolsYes; IPv4• PROFINET IO ControllerNo• PROFINET IO ControllerNo• SIMATIC communicationYes• Qeen IE communicationYes• RS 485Yes; X4• Number of ports1• PROFINET IO DeviceNo• SIMATIC communicationYes• RS 485Yes; X4• Number of ports1• PROFIBUS DP masterYes• PROFIBUS DP masterYes• PROFIBUS DP slaveNo• SIMATIC communicationYes• SIMATIC communicationYes• PROFIBUS DP slaveNo• SIMATIC communicationYes• PROFIBUS DP slaveNo• SIMATIC communicationYes• PROFIBUS DP slaveNo• SIMATIC communicationYes• LutoracionYes• LutoracionYes• SIMATIC communicationYes• SIMATIC communicationYes• SIMATIC communicationYes• SIMATIC communicationYes• LutoracionYes	— Isochronous mode	No
Interface No — PROFlenergy Yes — Prioritized startup No — Shared device Yes — Number of IO Controllers with shared 4 device, max. - — Asset management record Yes; per user program Stared device Interface Stared Startup Interface types Stared Switch No Interface types Interface ty	— IRT	No
PROFIenergy Yes PROFIEnergy Yes Prioritized startup No Shared device Yes Number of IO Controllers with shared 4 device, max. - - Asset management record Yes; per user program 3. Interface - Interface types - • RJ 45 (Ethernet) Yes; X3 • Number of ports 1; C/C++ Runtime can also be reached via this port • Integrated switch No Protocols - • IP protocol Yes; IPv4 • PROFINET IO Controller No • PROFINET IO Controller No • Open IE communication Yes • Web server Yes • Red 455 Yes; X4 • Number of ports 1 • PROFIBUS DP master Yes • PROFIBUS DP alave No • SIMATIC communication Yes • SIMATIC communication Yes • Red Flaus DP alave No • SIMATIC communication Yes • Red Flaus DP alave No • SIMATIC communication Yes • SIMATIC communication Yes • PROFIBUS DP alave No • SIMATIC communication Y	— MRP	No
Prioritized starup No - Shared device Yes - Number of IO Controllers with shared 4 device, max. - - Asset management record Yes; per user program 3. Interface Interface types • RJ 45 (Ethernet) Yes; X3 • Number of ports 1; C/C++ Runtime can also be reached via this port • Interface types No • Protocol Yes; IPv4 • PROFINET IO Controller No • PROFINET IO Device No • Open IE communication Yes • Web server Yes • RS 485 Yes; X4 • Number of ports 1 • PROFINET IO Device No • SIMATIC communication Yes • Web server Yes • RS 485 Yes; X4 • Number of ports 1 • PROFIBUS DP master Yes • SIMATIC communication Yes • 100 Mbps Yes	— MRPD	No
- Shared device Yes - Number of IO Controllers with shared device, max. 4 - Asset management record Yes; per user program 3. Interface types - Interface types - - R1 45 (Ethernet) Yes; X3 - Number of ports 1; C/C++ Runtime can also be reached via this port - Integrated switch No Protocol Yes; IPv4 - PROFINET IO Controller No - PROFINET IO Controller No - PROFINET IO Device No - SIMATIC communication Yes - Web server Yes - RS 485 Yes; X4 - Number of ports 1 - PROFINET IO Device No - SIMATIC communication Yes - RS 485 Yes; X4 - Number of ports 1 - PROFIBUS DP master Yes - PROFIBUS DP slave No - SIMATIC communication Yes - SIMATIC communication Yes - PROFIBUS DP slave No - SIMATIC communication Yes; Only possible at the X3 interface of the CPU 1518	— PROFlenergy	Yes
- Number of 10 Controllers with shared device, max. 4 - Asset management record Yes; per user program 3. Interface Yes; X3 • RJ 45 (Ethernet) Yes; X3 • Number of ports 1; C/C++ Runtime can also be reached via this port • integrated switch No Protocols • IP protocol Yes; IPv4 • PROFINET IO Controller No • PROFINET IO Device No • SIMATIC communication Yes • RS 485 Yes; X4 • Number of ports 1 • PROFINET structure Yes 4. Interface Yes • RDFIBUS DP master Yes; X4 • No SIMATIC communication • SIMATIC communication Yes • RS 485 Yes; X4 • Number of ports 1 • PROFIBUS DP master Yes • PROFIBUS DP slave No • SIMATIC communication Yes • Interface types Yes • Interface types Yes • PROFIBUS DP slave No • SIMATIC communication Yes • Iterface types Yes • Ido Mbps Yes • 100 Mbps Yes • Autoregoliation <td>— Prioritized startup</td> <td>No</td>	— Prioritized startup	No
device, max. — Asset management record Yes; per user program 3. Interface Interface types R.I 45 (Ethernet) Yes; X3 Number of ports 1; C/C++ Runtime can also be reached via this port intergrated switch No Protocols Image and the protocol of the p	— Shared device	Yes
Asset management record Yes; per user program Interface	— Number of IO Controllers with shared	4
Interface Interface types • RJ 45 (Ethernet) Yes; X3 • Number of ports 1; C/C++ Runtime can also be reached via this port • integrated switch No Protocols • IP protocol Yes; IPv4 • PROFINET IO Controller No • PROFINET IO Device No • SIMATIC communication Yes • Open IE communication Yes • Web server Yes • Ro FIBUS DP stave Yes; X4 • Number of ports 1 Protocols • PROFIBUS DP master Yes • SIMATIC communication Yes • Number of ports 1 Protocols • PROFIBUS DP master Yes • SIMATIC communication Yes • SIMATIC communication Yes • SIMATIC communication Yes • PROFIBUS DP slave No • SIMATIC communication Yes • 1000 Mbps Yes; Only possible at the X3 interface of the CPU 1518 • Autoercosing Yes • Autoercosing <t< td=""><td>device, max.</td><td></td></t<>	device, max.	
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• RJ 45 (Ethernet) Yes; X3 • Number of ports 1; C/C++ Runtime can also be reached via this port • integrated switch No Protocols • IP protocol Yes; IPv4 • PROFINET IO Controller No • PROFINET IO Device No • SIMATIC communication Yes • Open IE communication Yes • Web server Yes Interface Yes; X4 • Number of ports 1 Protocols Yes; X4 • Number of ports 1 Protocols Yes; X4 • Number of ports 1 Protocols Yes • PROFIBUS DP master Yes • SIMATIC communication Yes • SIMATIC communication Yes • SIMATIC communication Yes • Interface types Yes • Open IE communication Yes • Interface types Yes • Io00 Mbps Yes • 1000 Mbps Yes; Only possible at the X3 interface of the CPU 1518 • Autocrossing Yes •	3. Interface	
• Number of ports 1; C/C++ Runtime can also be reached via this port • integrated switch No Protocols	Interface types	
• integrated switch No Protocols • IP protocol Yes; IPv4 • PROFINET IO Controller No • PROFINET IO Controller No • SIMATIC communication Yes • Open IE communication Yes • Web server Yes • Interface Yes • No Yes • No Yes • Neb server Yes • Number of ports 1 • PROFIBUS DP master Yes • PROFIBUS DP slave No • SIMATIC communication Yes • PROFIBUS DP slave No • SIMATIC communication Yes • PROFIBUS DP slave No • SIMATIC communication Yes • PROFIBUS DP slave No • SIMATIC communication Yes • Interface types Yes • Interface types Yes • RY 45 (Ethernet) Yes • 100 Mbps Yes; Only possible at the X3 interface of the CPU 1518 • Autorcossing Yes • Industrial Ethernet status LED Yes • Industrial Ethernet, max. 12 Mbit/s	• RJ 45 (Ethernet)	Yes; X3
Protocols • IP protocol Yes; IPv4 • PROFINET IO Controller No • PROFINET IO Device No • SIMATIC communication Yes • Open IE communication Yes • Web server Yes Interface Yes • Number of ports 1 PROFIBUS DP master Yes • PROFIBUS DP slave No • SIMATIC communication Yes • RS 485 Yes; X4 • Number of ports 1 Protocols • PROFIBUS DP master Yes • SIMATIC communication Yes • SIMATIC communication Yes • Interface types No • SIMATIC communication Yes • Industrial Ethernet) Yes • 100 Mbps Yes; Only possible at the X3 interface of the CPU 1518 • Autoregotiation Yes • Industrial Ethernet status LED Yes • Industrial Ethernet status LED Yes • Transmission rate, max. 12 Mbit/s	 Number of ports 	1; C/C++ Runtime can also be reached via this port
• IP protocol Yes; IPv4 • PROFINET IO Controller No • PROFINET IO Device No • SIMATIC communication Yes • Open IE communication Yes • Web server Yes Interface Yes • Number of ports 1 • PROFIBUS DP master Yes • PROFIBUS DP master Yes • PROFIBUS DP slave No • SIMATIC communication Yes • RS 485 Yes, X4 • Number of ports 1 • PROFIBUS DP master Yes • PROFIBUS DP slave No • SIMATIC communication Yes Interface types Yes RJ 45 (Ethernet) Yes • 100 Mbps Yes; Only possible at the X3 interface of the CPU 1518 • Autoregotiation Yes • Industrial Ethernet status LED Yes • Industrial Ethernet status LED Yes • Iransmission rate, max. 12 Mbit/s	 integrated switch 	No
• PROFINET IO ControllerNo• PROFINET IO DeviceNo• SIMATIC communicationYes• Open IE communicationYes• Web serverYes• Web serverYes• InterfaceInterfaceInterface types1• Number of ports1• Number of ports1• PROFIBUS DP masterYes• PROFIBUS DP slaveNo• SIMATIC communicationYes• SIMATIC communicationYesInterface types100 Mbps• SIMATIC communicationYes• I00 MbpsYes; Only possible at the X3 interface of the CPU 1518• AutoregotiationYes• Industrial Ethernet status LEDYes• RS 485Yes• Industrial Ethernet status LEDYes• Transmission rate, max.12 Mbit/s	Protocols	
• PROFINET IO DeviceNo• SIMATIC communicationYes• Open IE communicationYes• Web serverYes• Web serverYes• InterfaceInterface types• RS 485Yes; X4• Number of ports1• PROFIBUS DP masterYes• PROFIBUS DP slaveNo• SIMATIC communicationYesInterface typesNo• SIMATIC communicationYesInterface typesInterface typesInterface typesYes• 100 MbpsYes; Only possible at the X3 interface of the CPU 1518• AutonegotiationYes• Industrial Ethernet status LEDYesRS 485Yes• Transmission rate, max.12 Mbit/s	IP protocol	Yes; IPv4
• SIMATIC communicationYes• Open IE communicationYes• Web serverYes4. InterfaceInterface types• RS 485Yes; X4• Number of ports1Protocols• PROFIBUS DP masterYes• PROFIBUS DP slaveNo• SIMATIC communicationYesInterface types• RJ 45 (Ethernet)• 100 MbpsYes; Only possible at the X3 interface of the CPU 1518• AutonegotiationYes• Industrial Ethernet status LEDYesRS 485Yes• Transmission rate, max.12 Mbit/s	PROFINET IO Controller	No
• Open IE communicationYes• Web serverYes 4. Interface Interface types• RS 485Yes; X4• Number of ports1ProtocolsInterface types• PROFIBUS DP masterYes• PROFIBUS DP slaveNo• SIMATIC communicationYesInterface typesInterface typesRJ 45 (Ethernet)Yes• 100 MbpsYes; Only possible at the X3 interface of the CPU 1518• AutonegotiationYes• AutonegotiationYes• AutorossingYes• Industrial Ethernet status LEDYesRS 485I2 Mbit/s	PROFINET IO Device	No
• Web server Yes 4. Interface Interface types • RS 485 Yes; X4 • Number of ports 1 Protocols 1 • PROFIBUS DP master Yes • PROFIBUS DP slave No • SIMATIC communication Yes Interface types X45 (Ethernet) • 100 Mbps Yes; Only possible at the X3 interface of the CPU 1518 • Autonegotiation Yes • Autocrossing Yes • Industrial Ethernet status LED Yes • RS 485 Yes	 SIMATIC communication 	Yes
4. Interface Interface types • RS 485 Yes; X4 • Number of ports 1 Protocols 1 • PROFIBUS DP master Yes • PROFIBUS DP slave No • SIMATIC communication Yes Interface types XI 45 (Ethernet) • 100 Mbps Yes; Only possible at the X3 interface of the CPU 1518 • Autonegotiation Yes • Industrial Ethernet status LED Yes • RS 485 Yes • Transmission rate, max. 12 Mbit/s	 Open IE communication 	Yes
Interface types • RS 485 Yes; X4 • Number of ports 1 Protocols ************************************	Web server	Yes
• RS 485Yes; X4• Number of ports1Protocols• PROFIBUS DP masterYes• PROFIBUS DP slaveNo• SIMATIC communicationYesInterface typesRJ 45 (Ethernet)• 100 MbpsYes; Only possible at the X3 interface of the CPU 1518• 1000 MbpsYes; Only possible at the X3 interface of the CPU 1518• AutonegotiationYes• AutocrossingYes• Industrial Ethernet status LEDYesRS 485I2 Mbit/s	4. Interface	
Number of ports1Protocols• PROFIBUS DP masterYes• PROFIBUS DP slaveNo• SIMATIC communicationYesInterface typesRJ 45 (Ethernet)Yes• 100 MbpsYes; Only possible at the X3 interface of the CPU 1518• 1000 MbpsYes; Only possible at the X3 interface of the CPU 1518• AutonegotiationYes• AutocrossingYes• Industrial Ethernet status LEDYesRS 485Image: Status St	Interface types	
Protocols • PROFIBUS DP master Yes • PROFIBUS DP slave No • SIMATIC communication Yes Interface types RJ 45 (Ethernet) Yes • 100 Mbps Yes; Only possible at the X3 interface of the CPU 1518 • 1000 Mbps Yes; Only possible at the X3 interface of the CPU 1518 • Autonegotiation Yes • Industrial Ethernet status LED Yes RS 485 12 Mbit/s	• RS 485	Yes; X4
• PROFIBUS DP masterYes• PROFIBUS DP slaveNo• SIMATIC communicationYesInterface typesRJ 45 (Ethernet)• 100 MbpsYes; Only possible at the X3 interface of the CPU 1518• 1000 MbpsYes; Only possible at the X3 interface of the CPU 1518• AutonegotiationYes• Industrial Ethernet status LEDYesRS 485Transmission rate, max.• Transmission rate, max.12 Mbit/s	 Number of ports 	1
 PROFIBUS DP slave PROFIBUS DP slave SIMATIC communication Yes Interface types RJ 45 (Ethernet) • 100 Mbps Yes • 100 Mbps Yes; Only possible at the X3 interface of the CPU 1518 • Autonegotiation Yes • Autocrossing Yes • Industrial Ethernet status LED Yes RS 485 12 Mbit/s	Protocols	
• SIMATIC communication Yes Interface types FXJ 45 (Ethernet) • 100 Mbps Yes • 1000 Mbps Yes; Only possible at the X3 interface of the CPU 1518 • Autonegotiation Yes • Autocrossing Yes • Industrial Ethernet status LED Yes RS 485 I2 Mbit/s	PROFIBUS DP master	Yes
Interface types RJ 45 (Ethernet) • 100 Mbps Yes • 1000 Mbps Yes; Only possible at the X3 interface of the CPU 1518 • Autonegotiation Yes • Autocrossing Yes • Industrial Ethernet status LED Yes RS 485 12 Mbit/s	PROFIBUS DP slave	No
RJ 45 (Ethernet) • 100 Mbps Yes • 1000 Mbps Yes; Only possible at the X3 interface of the CPU 1518 • Autonegotiation Yes • Autocrossing Yes • Industrial Ethernet status LED Yes RS 485 12 Mbit/s	SIMATIC communication	Yes
• 100 MbpsYes• 1000 MbpsYes; Only possible at the X3 interface of the CPU 1518• AutonegotiationYes• AutocrossingYes• Industrial Ethernet status LEDYesRS 485Yes• Transmission rate, max.12 Mbit/s	Interface types	
 1000 Mbps Yes; Only possible at the X3 interface of the CPU 1518 Autonegotiation Autocrossing Industrial Ethernet status LED Yes Yes RS 485 Transmission rate, max. 12 Mbit/s 	RJ 45 (Ethernet)	
 Autonegotiation Autocrossing Industrial Ethernet status LED Yes Yes	• 100 Mbps	
 Autocrossing Industrial Ethernet status LED Yes RS 485 Transmission rate, max. 12 Mbit/s 	• 1000 Mbps	Yes; Only possible at the X3 interface of the CPU 1518
Industrial Ethernet status LED Yes RS 485 Transmission rate, max. 12 Mbit/s	 Autonegotiation 	Yes
RS 485 • Transmission rate, max. 12 Mbit/s	Autocrossing	Yes
• Transmission rate, max. 12 Mbit/s	 Industrial Ethernet status LED 	Yes
	RS 485	
Protocols	• Transmission rate, max.	12 Mbit/s
	Protocols	

• Number of connections, max. 344; via integrated interfaces of the CPU and connected CPs / CNs • Number of connections reserved for ESAHMI/web 10 • Number of connections via integrated interfaces 192 • Number of S7 routing paths 64; in total, only 16 S7-Routing connections are supported via PROFIBUS Redundancy mode 200 ms; For MRP, bumpless for MRPD • Number of stations in the ring, max. 50 SIMATIC communication 50 SIMATIC communication, as server Yes • S7 communication, as client Yes • Ope IE communication See online help (S7 communication, user data size) Open IE communication Yes • TCP/IP Yes • Data length, max. 64 kbyte • UDP Yes • Data length, max. 64 kbyte • UDP Yes • Data length, max. 64 kbyte • UDP Yes • Data length, max. 64 kbyte • UDP Yes • DDA Yes Suticast circuits • DCP No • SIMP Yes • DCP No • SIMP Yes • DCP Yes • LDP Yes • HTTP Yes: Standard and user pages <	Number of connections	
• Number of connections reserved for 10 ES/HMI/web 192 • Number of connections via integrated 192 • Number of S7 routing paths 64; in total, only 16 S7-Routing connections are supported via PROFIBUS Redundancy mode	 Number of connections, max. 	384; via integrated interfaces of the CPU and connected CPs /
ES/HMI/web 192 • Number of connections via integrated interfaces 192 • Number of S7 routing paths 64; in total, only 16 S7-Routing connections are supported via PROFIBUS Redundancy mode 200 ms; For MRP, bumpless for MRPD - Number of stations in the ring, max. 50 SIMATIC communication 50 SIMATIC communication, as server Yes • S7 communication, as client Yes • TOP/IP Yes - Data length, max. 64 kbyte • ISO-on-TCP (RFC1006) Yes - Data length, max. 64 kbyte • USP - Data length, max. - Data length, max. 64 kbyte • USP - Data length, max. - Data length, max. 64 kbyte • UDP Yes - Data length, max. 64 kbyte • UDP Yes - Data length, max. 64 kbyte • UDP Yes - Dub multicast Yes; Max.5 multicast circuits • UDP Yes • DCP Yes • DCP Yes • DCP Yes; Standard and user pages		CMs
• Number of connections via integrated interfaces 192 • Number of S7 routing paths 64; in total, only 16 S7-Routing connections are supported via PROFIBUS Redundancy mode		10
Interfaces • Number of S7 routing paths 64; in total, only 16 S7-Routing connections are supported via PROFIBUS Redundancy mode		402
• Number of S7 routing paths 64; in total, only 16 S7-Routing connections are supported via PROFIBUS Redundancy • Switchover time on line break, typ. - Switchover time on line break, typ. - Number of stations in the ring, max. 200 ms; For MRP, bumpless for MRPD • S7 communication 50 SIMATIC communication, as server Yes • S7 communication, as client Yes • S7 communication, as client Yes • User data per job, max. Ge Albyte • Den IE communication Yes • 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. 64 kbyte • UDP Yes - Data length, max. 64 kbyte • UDP Yes - Data length, max. 2 kbyte; 1 472 bytes for UDP broadcast - UDP multicast Yes; Max. 5 multicast circuits • DHCP No • SIMMP Yes • DLP Yes • LDP Yes • HTTP Yes; Standard and user pages • HTTP Yes; Standard and user pages • HTTPS </td <td>-</td> <td>192</td>	-	192
PROFIBUS Redundancy mode Media redundancy - Switchover time on line break, typ. 200 ms; For MRP, bumpless for MRPD - Number of stations in the ring, max. 50 SIMATIC communication 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 Yes • 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. 64 kbyte • UDP Yes - Data length, max. 2 kbyte; 1 472 bytes for UDP broadcast • UDP Yes; Max. 5 multicast circuits • DAGE Yes; Standard and user pages • DLOP Yes; Standard and user pages • LLDP Yes; Standard and user pages • HTTPS Yes; Standard and user pages • HTTP		64: in total, only 16 S7-Routing connections are supported via
Media redundancy 200 ms; For MRP, bumpless for MRPD - Number of stations in the ring, max. 50 SIMATIC communication 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 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. 64 kbyte • UDP Yes - Data length, max. 64 kbyte • UDP Yes - Data length, max. 64 kbyte • UDP Yes - Data length, max. 2 kbyte; 1 472 bytes for UDP broadcast • UDP multicast Yes; Max. 5 multicast circuits • DHCP No • SIMP Yes • DCP Yes • LDP Yes • HTTPS Yes; Standard and user pages PROFIBUS DP master Yes </td <td></td> <td></td>		
- Switchover time on line break, typ. 200 ms; For MRP, bumpless for MRPD - Number of stations in the ring, max. 50 SIMATIC communication 57 • 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 Yes • Data length, max. 64 kbyte 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. 64 kbyte UDP multicast Yes; Max. 5 multicast circuits • DHCP Yes • DBCP Yes • LLDP Yes • Web server Yes; Standard and user pages • HTTP Yes; Standard and user pages • ROFIBUS DP master Yes • Number of connections, max. 48; for the integrated PROFIBUS DP interface </td <td>Redundancy mode</td> <td></td>	Redundancy mode	
Number of stations in the ring, max.50SIMATIC communication• S7 communication, as serverYes• S7 communication, as clientYes• User data per job, max.See online help (S7 communication, user data size)Open IE communication• TCP/IPYes- Data length, max.64 kbyte- several passive connections per port, supportedYes- Data length, max.64 kbyte• ISO-on-TCP (RFC1006)Yes- Data length, max.64 kbyte• UDPYes- Data length, max.2 kbyte; 1 472 bytes for UDP broadcast- UDP multicastYes; Max. 5 multicast circuits• DHCPYes• DCPYes• DLCPYes• LDPYes• DCPYes• DCPYes• HTTPYes; Standard and user pages• HTTPSYes; Standard and user pages• HTTPSYes; Standard and user pages• Number of connections, max.48; for the integrated PROFIBUS DP interfaceServices-PG/OP communication- S7 routingYes- Data record routingYes	Media redundancy	
SIMATIC communication Simatic communication, as server Yes • S7 communication, as client Yes • User data per job, max. See online help (S7 communication, user data size) Open IE communication * • TCP/IP Yes - Data length, max. 64 kbyte - several passive connections per port, supported Yes • ISO-on-TCP (RFC1006) Yes - Data length, max. 64 kbyte • UDP Yes - Data length, max. 64 kbyte • UDP Yes - Data length, max. 64 kbyte • UDP Yes - Data length, max. 64 kbyte • UDP Yes - Data length, max. 54 kbyte; 1 472 bytes for UDP broadcast - UDP multicast Yes; Max. 5 multicast circuits • DHCP No * SNMP Yes • LLDP Yes Web server Yes; Standard and user pages • HTTPS Yes; Standard and user pages PROFIBUS DP master Yes • Number of connections, max. 48; for the integrated PROFIBUS DP interface <tr< td=""><td>— Switchover time on line break, typ.</td><td>200 ms; For MRP, bumpless for MRPD</td></tr<>	— Switchover time on line break, typ.	200 ms; For MRP, bumpless for MRPD
• S7 communication, as server Yes • S7 communication, as client Yes • User data per job, max. See online help (S7 communication, user data size) Open IE communication - • TCP/IP Yes - Data length, max. 64 kbyte - several passive connections per port, supported Yes • ISC-on-TCP (RFC1006) Yes - Data length, max. 64 kbyte • UDP Yes - Data length, max. 64 kbyte • UDP Yes - Data length, max. 64 kbyte • UDP Yes - Data length, max. 64 kbyte • UDP Yes - Data length, max. 92 kbyte; 1 472 bytes for UDP broadcast • UDP multicast Yes; Max. 5 multicast circuits • DDP multicast Yes; Max. 5 multicast circuits • DLCP No • SIMMP Yes • LLDP Yes • HTTP Yes; Standard and user pages • HTTPS Yes; Standard and user pages • PROFIBUS DP master - • Number of connections, max. 48; for the in	— Number of stations in the ring, max.	50
S7 communication, as clientYesUser data per job, max.See online help (S7 communication, user data size)Open IE communicationYes- Data length, max.64 kbyte- several passive connections per port, supportedYes- Data length, max.64 kbyte- Data length, max.2 kbyte; 1 472 bytes for UDP broadcast- UDP multicastYes; Max. 5 multicast circuits- DHCPNoSNMPYes- DCPYesULDPYes- NDPYes- BCPYes; Standard and user pages- HTTPYes; Standard and user pages- PROFIBUS DP master Number of connections, max.48; for the integrated PROFIBUS DP interfaceServices PG/OP communicationYes- S7 routingYes- Data record routingYes	SIMATIC communication	
• User data per job, max. See online help (S7 communication, user data size) Open E communication Yes • Data length, max. 64 kbyte - 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. 64 kbyte • UDP Yes - Data length, max. 64 kbyte • UDP Yes - Data length, max. 64 kbyte • UDP Yes - Data length, max. 1000 broadcast - UDP multicast Yes; Max. 5 multicast circuits • DHCP No • SNMP Yes • DCP Yes • LLDP Yes • HTTP Yes; Standard and user pages • HTTPS Yes; Standard and user pages PROFIBUS DP master 48; for the integrated PROFIBUS DP interface Services - - PG/OP communication Yes - S7 routing Yes - Data record routing Yes	 S7 communication, as server 	Yes
Open IE communication • TCP/IP Yes - Data length, max. 64 kbyte - several passive connections per port, supported Yes • ISO-on-TCP (RFC1006) Yes - Data length, max. 64 kbyte • UDP Yes - Data length, max. 64 kbyte • UDP Yes - Data length, max. 64 kbyte • UDP Yes - Data length, max. 2 kbyte; 1 472 bytes for UDP broadcast - UDP multicast Yes; Max. 5 multicast circuits • UDP Yes - DDP multicast Yes; Max. 5 multicast circuits • DHCP No • SNMP Yes • LLDP Yes • LLDP Yes; Standard and user pages • HTTPs Yes; Standard and user pages • HTTPs Yes; Standard and user pages • Number of connections, max. 48; for the integrated PROFIBUS DP interface Services - - PG/OP communication Yes - S7 routing Yes - Data record routing Yes	 S7 communication, as client 	Yes
• TCP/IPYes- Data length, max.64 kbyte- several passive connections per port, supportedYes• ISO-on-TCP (RFC1006)Yes- Data length, max.64 kbyte• UDPYes- Data length, max.64 kbyte; 1 472 bytes for UDP broadcast- UDP multicastYes; Max. 5 multicast circuits• DHCPNo• SNMPYes• LLDPYes• LLDPYes• DCPYes• LLDPYes• NoYes• DCPYes; Standard and user pages• HTTPYes; Standard and user pages• HTTPSYes; Standard and user pages• PROFIBUS DP master48; for the integrated PROFIBUS DP interface• Number of connections, max.48; for the integrated PROFIBUS DP interface- PG/OP communicationYes- S7 routingYes- Data record routingYes	 User data per job, max. 	See online help (S7 communication, user data size)
NotifiedConstruction- Data length, max.64 kbyte- Data length, max.64 kbyte- Data length, max.64 kbyte- Data length, max.64 kbyte- Data length, max.2 kbyte; 1 472 bytes for UDP broadcast- Data length, max.2 kbyte; 1 472 bytes for UDP broadcast- Data length, max.2 kbyte; 1 472 bytes for UDP broadcast- DDP multicastYes; Max. 5 multicast circuits- DDP multicastYes; Max. 5 multicast circuits- DHCPNo• SNMPYes• DCPYes• LLDPYesWeb serverYes; Standard and user pages• HTTPYes; Standard and user pages• HTTPSYes; Standard and user pages• PROFIBUS DP masterYes- PG/OP communicationYes- PG/OP communicationYes- S7 routingYes- Data record routingYes	Open IE communication	
- several passive connections per port, supportedYes- supported ISO-on-TCP (RFC1006)Yes- Data length, max.64 kbyte- UDPYes- Data length, max.2 kbyte; 1 472 bytes for UDP broadcast- UDP multicastYes; Max. 5 multicast circuits- UDP multicastYes- DHCPNoSNMPYes- DCPYes- LLDPYes- HTTPYes; Standard and user pages- HTTPSYes; Standard and user pages- PROFIBUS DP master PG/OP communicationYes- S7 routingYes- Data record routingYes	• TCP/IP	Yes
supportedYes- Data length, max.64 kbyte- Data length, max.24 kbyte; 1 472 bytes for UDP broadcast- DDP multicastYes; Max. 5 multicast circuits- UDP multicastYes; Max. 5 multicast circuits- DHCPNoSNMPYes- DCPYes- DLPYes- DCPYes- UDP multicastYes- DCPYes- UDPYes- DCPYes- DCPYes- HTTPYes; Standard and user pages- HTTPSYes; Standard and user pages- PROFIBUS DP masterYes; Standard and user pages- PG/OP communicationYes- S7 routingYes- Data record routingYes	— Data length, max.	64 kbyte
Data length, max.64 kbyte Data length, max.Yes Data length, max.2 kbyte; 1 472 bytes for UDP broadcast UDP multicastYes; Max. 5 multicast circuits UDP multicastYes; Max. 5 multicast circuits DHCPNo• DHCPNo• SNMPYes• DCPYes• LLDPYes• HTTPYes; Standard and user pages• HTTPSYes; Standard and user pages• HTTPSYes; Standard and user pages• PROFIBUS DP masterYes; Standard and user pages• Number of connections, max.48; for the integrated PROFIBUS DP interfaceServicesPG/OP communicationYes PG/OP communicationYes Data record routingYes		Yes
• UDPYes- Data length, max.2 kbyte; 1 472 bytes for UDP broadcast- UDP multicastYes; Max. 5 multicast circuits• DHCPNo• DHCPYes• DCPYes• DCPYes• LLDPYes• LLDPYes• HTTPYes; Standard and user pages• HTTPSYes; Standard and user pages• HTTPSYes; Standard and user pages• Number of connections, max.48; for the integrated PROFIBUS DP interfaceServices	• ISO-on-TCP (RFC1006)	Yes
- Data length, max.2 kbyte; 1 472 bytes for UDP broadcast- UDP multicastYes; Max. 5 multicast circuits• DHCPNo• SNMPYes• DCPYes• LLDPYes• LLDPYes• HTTPYes; Standard and user pages• HTTPSYes; Standard and user pages• HTTPSYes; Standard and user pages• Number of connections, max.48; for the integrated PROFIBUS DP interfaceServices PG/OP communicationYes- S7 routingYes- Data record routingYes	— Data length, max.	64 kbyte
- UDP multicastYes; Max. 5 multicast circuits• DHCPNo• SNMPYes• DCPYes• LLDPYes• KTTPYes; Standard and user pages• HTTPSYes; Standard and user pages• HTTPSYes; Standard and user pages• Number of connections, max.48; for the integrated PROFIBUS DP interfaceServices PG/OP communicationYes- S7 routingYes- Data record routingYes	• UDP	Yes
• DHCPNo• SNMPYes• DCPYes• LLDPYes• HTTPYes; Standard and user pages• HTTPSYes; Standard and user pages• HTTPSYes; Standard and user pages• Number of connections, max.48; for the integrated PROFIBUS DP interfaceServices PG/OP communicationYes- S7 routingYes- Data record routingYes	— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast
• SNMPYes• DCPYes• LLDPYes• LLDPYesWeb serverYes; Standard and user pages• HTTPSYes; Standard and user pages• HTTPSYes; Standard and user pages• Number of connections, max.48; for the integrated PROFIBUS DP interfaceServices	— UDP multicast	Yes; Max. 5 multicast circuits
• DCPYes• LLDPYes• LLDPYes; Standard and user pages• HTTPYes; Standard and user pages• HTTPSYes; Standard and user pages• HTTPSYes; Standard and user pages• Number of connections, max.48; for the integrated PROFIBUS DP interfaceServices PG/OP communicationYes- S7 routingYes- Data record routingYes	• DHCP	No
• LLDPYesWeb server• HTTPYes; Standard and user pages• HTTPSYes; Standard and user pages• HTTPSYes; Standard and user pagesPROFIBUS DP masterYes; Standard and user pages• Number of connections, max.48; for the integrated PROFIBUS DP interfaceServices PG/OP communicationYes- S7 routingYes- Data record routingYes	• SNMP	Yes
Web server • HTTP Yes; Standard and user pages • HTTPS Yes; Standard and user pages PROFIBUS DP master Yes; Standard and user pages • Number of connections, max. 48; for the integrated PROFIBUS DP interface Services - - PG/OP communication Yes - S7 routing Yes - Data record routing Yes	• DCP	Yes
• HTTPYes; Standard and user pages• HTTPSYes; Standard and user pagesPROFIBUS DP masterYes; Standard and user pages• Number of connections, max.48; for the integrated PROFIBUS DP interfaceServicesYes- PG/OP communicationYes- S7 routingYes- Data record routingYes	• LLDP	Yes
• HTTPSYes; Standard and user pagesPROFIBUS DP master48; for the integrated PROFIBUS DP interface• Number of connections, max.48; for the integrated PROFIBUS DP interfaceServicesYes- PG/OP communicationYes- S7 routingYes- Data record routingYes	Web server	
PROFIBUS DP master • Number of connections, max. 48; for the integrated PROFIBUS DP interface Services - PG/OP communication Yes - S7 routing Yes - Data record routing Yes	• HTTP	Yes; Standard and user pages
 Number of connections, max. 48; for the integrated PROFIBUS DP interface Services PG/OP communication S7 routing Data record routing Yes 	• HTTPS	Yes; Standard and user pages
Services — PG/OP communication Yes — S7 routing Yes — Data record routing Yes	PROFIBUS DP master	
— PG/OP communication Yes — S7 routing Yes — Data record routing Yes	 Number of connections, max. 	48; for the integrated PROFIBUS DP interface
— S7 routing Yes — Data record routing Yes	Services	
— Data record routing Yes	— PG/OP communication	Yes
	— S7 routing	Yes
— Isochronous mode Yes	— Data record routing	Yes
	— Isochronous mode	Yes
- Equidistance Yes	— Equidistance	Yes

— Number of DP slaves	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
 Activation/deactivation of DP slaves 	Yes
OPC UA	
Runtime license required	Yes
OPC UA Server	Yes; Data access (read, write, subscribe), method call, custom address space
— Application authentication	Yes
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password
— 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. 	20
— 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 monitored items, max.	50 000
— Number of server interfaces, max.	10
 — Number of nodes for user-defined server 	30 000
interfaces, max.	
Further protocols	
MODBUS	Yes; MODBUS TCP
Isochronous mode	
Equidistance	Yes
S7 message functions Number of login stations for message functions, max.	32
Program alarms	Yes
Number of configurable program messages, max.	10 000
Number of simultaneously active program alarms	
Number of program alarms	1 000
Number of alarms for system diagnostics	200
Number of alarms for motion technology	160
objects	
Test commissioning functions	
Joint commission (Team Engineering)	Yes; Parallel online access possible for up to 10 engineering systems
Status block	Yes; Up to 16 simultaneously (in total across all ES clients)
Single step	No

Number of breakpoints	20
Status/control	
 Status/control variable 	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
 Number of variables, max. 	
— of which status variables, max.	200; per job
— of which control variables, max.	200; per job
Forcing	
 Forcing, variables 	Peripheral inputs/outputs
 Number of variables, max. 	200
Diagnostic buffer	
• present	Yes
 Number of entries, max. 	3 200
— of which powerfail-proof	1 000
Traces	
 Number of configurable Traces 	8; Up to 512 KB of data per trace are possible
nterrupts/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 axes affects the cycle time of the PLC program; selection guide via the TIA Selection Tool or SIZER
 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 cam track — per probe	160 40
— per probe	

PID_Compact	Yes; Universal PID controller with integrated optimization
• PID_3Step	Yes; PID controller with integrated optimization for valves
• PID-Temp	Yes; PID controller with integrated optimization for temperature
Counting and measuring	
High-speed counter	Yes
Ambient conditions Ambient temperature during operation	
horizontal installation, min.	0 °C; = Tmin (incl. condensation/frost)
 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; = Tmin
 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
 Ambient air temperature-barometric pressure- altitude 	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax -20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m)
Relative humidity	
 With condensation, tested in accordance with IEC 60068-2-38, max. 	100 %; incl. condensation / frost permitted (no commissioning under condensation conditions)
Resistance	
Coolants and lubricants	
 Resistant to commercially available coolants and lubricants 	Yes; Incl. diesel and oil droplets in the air
Use in stationary industrial systems	
 to biologically active substances according to EN 60721-3-3 	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
 — to chemically active substances according to EN 60721-3-3 	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2- 52 (severity degree 3); *
 — to mechanically active substances according to EN 60721-3-3 	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
 — to biologically active substances according to EN 60721-3-6 	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
 — to chemically active substances according to EN 60721-3-6 	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2- 52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	

 Against chemically active substances acc. to EN 60654-4 	Yes; Class 3 (excluding trichlorethylene)
 Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04 	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
 — Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04 	* The supplied plug covers must remain in place over the unused interfaces during operation!
Conformal coating	
 Coatings for printed circuit board assemblies acc. to EN 61086 	Yes; Class 2 for high reliability
 Protection against fouling acc. to EN 60664-3 	Yes; Type 1 protection
 Military testing according to MIL-I-46058C, Amendment 7 	Yes; Discoloration of coating possible during service life
 Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A 	Yes; Conformal coating, Class A
Configuration	
Programming	
Programming language	
— LAD	Yes

Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— GRAPH	Yes
Know-how protection	
 User program protection/password protection 	Yes
Copy protection	Yes
Block protection	Yes
Access protection	
 Password for display 	Yes
Protection level: Write protection	Yes
 Protection level: Read/write protection 	Yes
 Protection level: Complete protection 	Yes
Cycle time monitoring	
lower limit	adjustable minimum cycle time
• upper limit	adjustable maximum cycle time
Open Development interfaces	
 Size of ODK SO file, max. 	9.8 Mbyte
Dimensions	
Width	175 mm

Height	147 mm
Depth	129 mm
Deptil	123 11111
Weights	
Weight, approx.	1 988 g
last modified:	10/09/2020

