## **SIEMENS**

## **Data sheet**

6AG1512-1SK01-7AB0



SIPLUS ET 200SP CPU 1512SP F-1 PN based on 6ES7512-1SK01-0AB0 with conformal coating, -40...+70 °C, no pluggable BusAdapter, central processing unit with work memory 300 KB for program and 1 MB for data, 1st interface, PROFINET IRT with 3-port switch, 48 ns bit performance, SIMATIC Memory Card required,

Figure similar

General information	
Product type designation	CPU 1512SP F-1 PN
Product function	
• I&M data	Yes; I&M0 to I&M3
<ul> <li>Module swapping during operation (hot swapping)</li> </ul>	Yes; Multi-hot swapping
Isochronous mode	Yes; Only with PROFINET; with minimum OB 6x cycle of 625 µs
Engineering with	
<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	see entry ID: 109746275
Configuration control	
via dataset	Yes
Control elements	
Mode selector switch	1
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
Input current	
Current consumption (rated value)	0.6 A
Current consumption, max.	0.9 A
Inrush current, max.	4.7 A; Rated value
l²t	0.14 A <sup>2</sup> ·s
Power	
Infeed power to the backplane bus	8.75 W
Power loss	
Power loss, typ.	5.6 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	
<ul><li>integrated (for program)</li></ul>	300 kbyte
integrated (for data)	1 Mbyte
Load memory	
<ul> <li>Plug-in (SIMATIC Memory Card), max.</li> </ul>	32 Gbyte
Backup	
<ul> <li>maintenance-free</li> </ul>	Yes

CPU processing times	
for bit operations, typ.	48 ns
for word operations, typ.	58 ns
for fixed point arithmetic, typ.	77 ns
for floating point arithmetic, typ.	307 ns
CPU-blocks	007 110
Number of elements (total)	4 000; Blocks (OB, FB, FC, DB) and UDTs
DB	4 000, Blocks (OB, 1 B, 1 O, BB) and OB 13
Number range	1 60 999; subdivided into: number range that can be used by the user: 1 59 999, and number range of DBs created via SFC 86: 60 000 60 999
• Size, max.	1 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
Number range	0 65 535
• Size, max.	200 kbyte
FC	200 hbyto
Number range	0 65 535
• Size, max.	200 kbyte
OB	
• Size, max.	200 kbyte
<ul> <li>Number of free cycle OBs</li> </ul>	100
<ul> <li>Number of time alarm OBs</li> </ul>	20
<ul> <li>Number of delay alarm OBs</li> </ul>	20
<ul> <li>Number of cyclic interrupt OBs</li> </ul>	20; With minimum OB 3x cycle of 500 μs
<ul> <li>Number of process alarm OBs</li> </ul>	50
<ul> <li>Number of DPV1 alarm OBs</li> </ul>	3
<ul> <li>Number of isochronous mode OBs</li> </ul>	1
<ul> <li>Number of technology synchronous alarm OBs</li> </ul>	2
<ul> <li>Number of startup OBs</li> </ul>	100
<ul> <li>Number of asynchronous error OBs</li> </ul>	4
<ul> <li>Number of synchronous error OBs</li> </ul>	2
<ul> <li>Number of diagnostic alarm OBs</li> </ul>	1
Nesting depth	
<ul><li>per priority class</li></ul>	24; Up to 8 possible for F-blocks
Counters, timers and their retentivity	
S7 counter	
Number	2 048
Retentivity	
— adjustable	Yes
IEC counter	
in a souritor	
Number	Any (only limited by the main memory)
	Any (only limited by the main memory)
Number	Any (only limited by the main memory) Yes
Number Retentivity — adjustable S7 times	
<ul><li>Number</li><li>Retentivity</li><li>— adjustable</li></ul>	
Number Retentivity — adjustable S7 times	Yes
<ul> <li>Number</li> <li>Retentivity</li> <li>— adjustable</li> <li>S7 times</li> <li>Number</li> </ul>	Yes
<ul> <li>Number</li> <li>Retentivity</li> <li>— adjustable</li> <li>S7 times</li> <li>Number</li> <li>Retentivity</li> </ul>	Yes 2 048
<ul> <li>Number Retentivity  — adjustable</li> <li>S7 times <ul> <li>Number</li> <li>Retentivity</li> <li>— adjustable</li> </ul> </li> </ul>	Yes 2 048
<ul> <li>Number Retentivity  — adjustable</li> <li>S7 times <ul> <li>Number</li> <li>Retentivity</li> <li>— adjustable</li> </ul> </li> <li>IEC timer  <ul> <li>Number</li> <li>Retentivity</li> </ul> </li> </ul>	Yes 2 048 Yes
<ul> <li>Number</li> <li>Retentivity</li> <li>— adjustable</li> <li>S7 times</li> <li>Number</li> <li>Retentivity</li> <li>— adjustable</li> <li>IEC timer</li> <li>Number</li> </ul>	Yes 2 048 Yes
<ul> <li>Number Retentivity  — adjustable</li> <li>S7 times <ul> <li>Number</li> <li>Retentivity</li> <li>— adjustable</li> </ul> </li> <li>IEC timer  <ul> <li>Number</li> <li>Retentivity</li> </ul> </li> </ul>	Yes  2 048  Yes  Any (only limited by the main memory)
<ul> <li>Number Retentivity  — adjustable</li> <li>S7 times <ul> <li>Number</li> <li>Retentivity</li> <li>— adjustable</li> </ul> </li> <li>IEC timer <ul> <li>Number</li> <li>Retentivity</li> <li>— adjustable</li> </ul> </li> </ul>	Yes  2 048  Yes  Any (only limited by the main memory)
<ul> <li>Number         Retentivity             — adjustable</li> <li>S7 times             • Number             Retentivity             — adjustable</li> <li>IEC timer             • Number             Retentivity             — adjustable</li> <li>Data areas and their retentivity</li> </ul>	Yes  2 048  Yes  Any (only limited by the main memory)  Yes  128 kbyte; Available retentive memory for bit memories, timers,
Number Retentivity — adjustable S7 times  Number Retentivity — adjustable IEC timer  Number Retentivity — adjustable Data areas and their retentivity  Retentive data area (incl. timers, counters, flags), max.	Yes  2 048  Yes  Any (only limited by the main memory)  Yes  128 kbyte; Available retentive memory for bit memories, timers,
Number Retentivity — adjustable  S7 times  Number Retentivity — adjustable  IEC timer  Number Retentivity — adjustable  Data areas and their retentivity  Retentive data area (incl. timers, counters, flags), max.  Flag	Yes  2 048  Yes  Any (only limited by the main memory)  Yes  128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB
Number Retentivity — adjustable  S7 times  Number Retentivity — adjustable  IEC timer  Number Retentivity — adjustable  Data areas and their retentivity  Retentive data area (incl. timers, counters, flags), max.  Flag  Size, max.	Yes  2 048  Yes  Any (only limited by the main memory)  Yes  128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB  16 kbyte
Number Retentivity — adjustable  S7 times  Number Retentivity — adjustable  IEC timer  Number Retentivity — adjustable  Data areas and their retentivity  Retentive data area (incl. timers, counters, flags), max.  Flag  Size, max. Number of clock memories	Yes  2 048  Yes  Any (only limited by the main memory)  Yes  128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB  16 kbyte
<ul> <li>Number Retentivity  — adjustable</li> <li>S7 times <ul> <li>Number</li> <li>Retentivity — adjustable</li> </ul> </li> <li>IEC timer <ul> <li>Number</li> <li>Retentivity — adjustable</li> </ul> </li> <li>Data areas and their retentivity</li> <li>Retentive data area (incl. timers, counters, flags), max.</li> </ul> <li>Flag <ul> <li>Size, max.</li> <li>Number of clock memories</li> </ul> </li> <li>Data blocks</li>	Yes  2 048  Yes  Any (only limited by the main memory)  Yes  128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB  16 kbyte  8; 8 clock memory bit, grouped into one clock memory byte
Number Retentivity — adjustable  S7 times  Number Retentivity — adjustable  IEC timer  Number Retentivity — adjustable  Data areas and their retentivity  Retentive data area (incl. timers, counters, flags), max.  Flag  Size, max. Number of clock memories  Data blocks Retentivity adjustable	Yes  2 048  Yes  Any (only limited by the main memory)  Yes  128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB  16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte  Yes
Number Retentivity — adjustable  S7 times  Number Retentivity — adjustable  IEC timer  Number Retentivity — adjustable  Data areas and their retentivity  Retentive data area (incl. timers, counters, flags), max.  Flag  Size, max. Number of clock memories  Data blocks Retentivity adjustable Retentivity preset	Yes  2 048  Yes  Any (only limited by the main memory)  Yes  128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB  16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte  Yes
<ul> <li>Number Retentivity  — adjustable</li> <li>S7 times <ul> <li>Number</li> <li>Retentivity  — adjustable</li> </ul> </li> <li>IEC timer <ul> <li>Number</li> <li>Retentivity</li> <li>— adjustable</li> </ul> </li> <li>Data areas and their retentivity  Retentive data area (incl. timers, counters, flags), max.</li> <li>Flag <ul> <li>Size, max.</li> <li>Number of clock memories</li> </ul> </li> <li>Data blocks <ul> <li>Retentivity adjustable</li> <li>Retentivity preset</li> </ul> </li> <li>Local data</li> </ul>	Yes  2 048  Yes  Any (only limited by the main memory)  Yes  128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB  16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte  Yes No

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	on the process and the process and go
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
per CM/CP	O NOYLO
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images	o ribyte
Number of subprocess images, max.	32
Address space per module	32
Address space per module, max.	288 byte; For input and output data respectively
Address space per module, max.  Address space per station	200 byte, i or input and output data respectively
	2.560 byte: for central inpute and outpute: depending on configuration: 2
<ul> <li>Address space per station, max.</li> </ul>	2 560 byte; for central inputs and outputs; depending on configuration; 2 048 bytes for ET 200SP modules + 512 bytes for ET 200AL modules
Hardware configuration	The bytes for ET 20001 infoadios 1012 bytes for ET 2007 is modules
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	1
Number of IO Controllers	
<ul><li>integrated</li></ul>	1
• Via CM	0
Rack	
<ul> <li>Modules per rack, max.</li> <li>Quantity of operable ET 200SP modules, max.</li> <li>Quantity of operable ET 200AL modules, max.</li> <li>Number of lines, max.</li> </ul>	80; CPU + 64 modules + server module (mounting width max. 1 m) + 16 ET 200AL modules; > 60 °C ambient temperature CPU + 32 modules + server module + 16 ET 200AL modules 64; > 60 °C ambient temperature: 32 modules 16
	<u> </u>
PtP CM  ● Number of PtP CMs	the number of connectable PtP CMs is only limited by the number of available slots
Time of day	
Clock	
• Type	Hardware clock
Backup time	6 wk; At 40 °C ambient temperature, typically
<ul><li>Deviation per day, max.</li></ul>	10 s; Typ.: 2 s
Operating hours counter	
• Number	16
Clock synchronization	
• supported	Yes
• to DP, master	Yes; Via CM DP module
• to DP, slave	Yes; Via CM DP module
• in AS, master	Yes
• in AS, slave	Yes
on Ethernet via NTP	Yes
Interfaces	4
Number of PROFINET interfaces	1
Number of PROFIBUS interfaces	1; Via CM DP module
Optical interface	No
1. Interface	
Interface types	
• RJ 45 (Ethernet)	Yes; X1 P3
<ul> <li>Number of ports</li> </ul>	1
BusAdapter (PROFINET)	No
Protocols	
IP protocol	Yes; IPv4
PROFINET IO Controller	Yes
PROFINET IO Device	Yes

SIMATIC communication	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes
Media redundancy	No
PROFINET IO Controller	
Services	
— PG/OP communication	Yes
— Isochronous mode	Yes
— Direct data exchange	Yes; Requirement: IRT and isochronous mode (MRPD optional)
— IRT	Yes
— PROFlenergy	Yes; per user program
Prioritized startup	Yes; Max. 32 PROFINET devices
— Number of connectable IO Devices, max.	128; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
<ul> <li>Of which IO devices with IRT, max.</li> </ul>	64
<ul> <li>Number of connectable IO Devices for RT, max.</li> </ul>	128
— of which in line, max.	128
<ul> <li>Number of IO Devices that can be</li> </ul>	8; in total across all interfaces
simultaneously activated/deactivated, max.	
<ul> <li>Number of IO Devices per tool, max.</li> </ul>	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 250 μs	250 $\mu s$ to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 500 $\mu s$ of the isochronous OB is decisive
— for send cycle of 500 μs	500 μs to 8 ms
— for send cycle of 1 ms	1 ms to 16 ms
— for send cycle of 2 ms	2 ms to 32 ms
— for send cycle of 4 ms	4 ms to 64 ms
<ul> <li>With IRT and parameterization of "odd" send</li> </ul>	Update time = set "odd" send clock (any multiple of 125 μs: 375 μs, 625
cycles	μs 3 875 μs)
Update time for RT	250 up to 120 mg
<ul><li>— for send cycle of 250 μs</li><li>— for send cycle of 500 μs</li></ul>	250 µs to 128 ms 500 µs to 256 ms
— for send cycle of 300 µs  — 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 2 ms	4 ms to 512 ms
PROFINET IO Device	4 110 10 012 110
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.	4
<ul> <li>activation/deactivation of I-devices</li> </ul>	Yes; per user program
Asset management record	Yes; per user program
2. Interface	
Interface types	
• RS 485	Yes; Via CM DP module
Number of ports	1
Protocols	
PROFIBUS DP master	Yes
PROFIBUS DP slave	Yes
SIMATIC communication	Yes
PROFIBUS DP master	
Number of connections, max.	48; Of which 4 each reserved for ES and HMI
Number of DP slaves, max.	125; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
Services	
— PG/OP communication	Yes
— Equidistance	No

— Isochronous mode	No
Activation/deactivation of DP slaves	Yes
Interface types	
RJ 45 (Ethernet)	
• 100 Mbps	Yes
<ul> <li>Autonegotiation</li> </ul>	Yes
<ul> <li>Autocrossing</li> </ul>	Yes
Industrial Ethernet status LED	Yes
RS 485	
Transmission rate, max.	12 Mbit/s
Protocols	
PROFIsafe	Yes; V2.4 / V2.6
Number of connections	
<ul> <li>Number of connections, max.</li> </ul>	128; via integrated interfaces of the CPU and connected CPs / CMs
<ul> <li>Number of connections reserved for ES/HMI/web</li> </ul>	10
<ul> <li>Number of connections via integrated interfaces</li> </ul>	88
<ul> <li>Number of connections per CP/CM</li> </ul>	32
Number of S7 routing paths	16
Redundancy mode	
H-Sync forwarding	No
Media redundancy	
<ul> <li>Media redundancy</li> </ul>	No
— MRP	No
<ul> <li>MRP interconnection, supported</li> </ul>	No
— MRPD	No
SIMATIC communication	
<ul> <li>PG/OP communication</li> </ul>	Yes; encryption with TLS V1.3 pre-selected
• S7 routing	Yes
Data record routing	Yes
<ul> <li>S7 communication, as server</li> </ul>	Yes
<ul> <li>S7 communication, as client</li> </ul>	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,	Yes
supported • ISO-on-TCP (RFC1006)	Yes
· · · · · · · · · · · · · · · · · · ·	
— Data length, max. ● UDP	64 kbyte Yes
— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast
— UDP multicast	Yes; Max. 5 multicast circuits
ODP multicast     DHCP	Yes; Max. 5 multicast circuits Yes
• DNS	Yes
SNMP	Yes
• DCP	Yes
• LLDP	Yes
Encryption	Yes; Optional
• Encryption Web server	1 65, Optional
HTTP	Yes; Standard and user pages
• HTTPS	Yes; Standard and user pages Yes; Standard and user pages
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OPC HA	
OPC UA  Runtime license required	Yes
Runtime license required	Yes
<ul><li>Runtime license required</li><li>OPC UA Client</li></ul>	Yes
<ul><li>Runtime license required</li><li>OPC UA Client</li><li>Application authentication</li></ul>	Yes Yes
<ul><li>Runtime license required</li><li>OPC UA Client</li></ul>	Yes
<ul> <li>Runtime license required</li> <li>OPC UA Client <ul> <li>Application authentication</li> <li>Security policies</li> </ul> </li> </ul>	Yes Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
<ul> <li>Runtime license required</li> <li>OPC UA Client <ul> <li>Application authentication</li> <li>Security policies</li> </ul> </li> <li>User authentication</li> </ul>	Yes Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password
<ul> <li>Runtime license required</li> <li>OPC UA Client <ul> <li>Application authentication</li> <li>Security policies</li> </ul> </li> <li>User authentication</li> <li>Number of connections, max.</li> </ul>	Yes Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4
<ul> <li>Runtime license required</li> <li>OPC UA Client <ul> <li>Application authentication</li> <li>Security policies</li> </ul> </li> <li>User authentication</li> </ul>	Yes Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password
<ul> <li>Runtime license required</li> <li>OPC UA Client         <ul> <li>Application authentication</li> <li>Security policies</li> </ul> </li> <li>User authentication         <ul> <li>Number of connections, max.</li> <li>Number of nodes of the client interfaces,</li> </ul> </li> </ul>	Yes Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4
<ul> <li>Runtime license required</li> <li>OPC UA Client         <ul> <li>Application authentication</li> <li>Security policies</li> </ul> </li> <li>User authentication         <ul> <li>Number of connections, max.</li> <li>Number of nodes of the client interfaces, recommended max.</li> </ul> </li> </ul>	Yes Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000

- Number of elements for one call of OPC_UA_NameSpaceGetionexList, max Number of elements for one call of OPC_UA_NethoricOsterhoricList, max Number of sumultaneous calls of the client instructions for data access, per connection, max Number of sumultaneous calls of the client instructions for data access, per connection, max Number of registerable nodes, max Number of registerable nodes, max Number of registerable nodes, max Number of injust/sudjust when calling OPC_UA_NethoricOst. max OPC UA_NethoricOst. max OPC UA_NethoricOst. max Number of substraints and substraints and substraints and substraints Security policies - Application autherification - Security policies - User autherification - Number of sensitions, max Number of substraints, max Number of substraints, max Number of substraints per sensions, max Number of substraints per sensions, max Number of substraints and substraints Number of organ alarms - Number of daterns for system displacations Number of alarms for system displacations Numb		
- Number of lenemants for one call of OPC_UA_MethorOde-Handledist, max Number of simultaneous calls of the client instructions for session management, per connection, max Number of simultaneous calls of the client instructions for session management, per connection, max Number of registerable notes, max Number of registerable notes, max Number of injustacouplast when calling OPC_UA_MethorOdall, max Number of injustacouplast when calling OPC_UA_MethorOdall, max Number of injustacouplast when calling OPC_UA_MethorOdall, max Number of sessions, max Application authentication - Security policies - Security policies - User authentication - Number of sessions, max Number of sessions, max Number of registerable notes, max Number of sessions, max Number of registerable notes, max Number of server methods, max Number of server methods, max Number of server methods, max Number of injustacouplast per server method, max Number of injustacouplast per server method, max Number of server interfaces, max Number of ondes for user-defined server interfaces, max Number of ondes for user-defined server interfaces, max Number of ondes for user-defined server interfaces max Number of ondes for user-defined server interfaces max Number of server interfaces, max Number of server interfaces, max Number of ondes for user-defined server interfaces max Number of ondes for user-defined server interfaces max Number of server interfaces, max Number of server interfaces, max Number of ondes for user-defined server interfaces max Number of server interfaces, max Number of ondes for user-defined server interfaces max Number of server interfaces max Number of program a		20
Number of simultaneous calls of the client instructions for session management, per connection, max Number of aimultaneous calls of the client instructions for data access, per connection, max Number of registerable method calls of O-Number of services of Number of Services	<ul> <li>Number of elements for one call of</li> </ul>	100
instructions for data access, per connection, max. — Number of registerable method calls of OPC_UA_MethodCall, max. — Number of prograte allow method calls of OPC_UA_MethodCall, max. — Number of prograte allow method calls of OPC_UA_MethodCall, max.  • 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, Basic256Sha266 — User authentication Power of security policies None, Basic128Rsa15, Basic256Rsa15, Basic256Sha266 — Number of accessable variables, max. — Number of subscribions per session, max. — Number of server methods, max. — Number of server interfaces, max. — Number of server interfaces, max. — Number of of monitored items, recommended max. — Number of server interfaces, max. — Number of of server interfaces, max. — Number of configurable program messages functions.  **Streamscape functions**  Number of configurable program messages in RUN, max. Number of originable program messages in RUN, max. Number of program alarms  • Number of program alarms • Number	<ul> <li>Number of simultaneous calls of the client instructions for session management, per</li> </ul>	1
- Number of registerable method calls of OPC_UA_MethodCall, max Number of Inputs/outputs when calling OPC_UA_MethodCall, max OPC UA_Sener		5
- Number of registerable method calls of OPC_UA_MethodCall, max Number of Inputs/outputs when calling OPC_UA_MethodCall, max OPC UA_Sener		5 000
OPC_UA_MethodCall, max.  - Number of inputs/outputs when calling OPC_UA_MethodCall, max.  • OPC UA_Server  - Application authentication - Security policies  - Application authentication - Security policies  - User authentication - Number of secsions, max Number of sections per session, max Number of septerable nodes, max Number of inputs/outputs per sever method, max Number of inputs/outputs per sever method, max Number of server interfaces, max Number of nontored items, recommended max Number of server interfaces, max Number of server interfaces, max Number of login stations for message functions, max Program alarms - Number of login stations for message functions, max Program alarms - Number of slams for motion technology objects - Status/control variables, max of which status variables, max of which status variables, max of which status variables, max of which control variables, max of which control variables, max Of which control variables, max Number of entries, max Number of entries, max Number of entries, max Number of readpoints - Status/control variables, max Of which control variables, ma		100
OPC_UA_MethodCall, max.  OPC US server  Application authentication — Security policies — Application authentication — Security policies — User authentication — Number of secsions, max. — Number of accessible variables, max. — Number of secsions, max. — Number of sectorptions per session, max. — Policibring interval, min. — Publishing interval, min. — Number of perver methods, max. — Number of perver interfaces, max. — Number of perver interfaces, max. — Number of perver interfaces, max. — Number of sever-interfaces, max. — Number of login stations for message functions, max. Program alarms Number of configurable program messages. max. Number of configurable program messages in RUN, max. Number of salams for motion technology objects  Per commissioning functions Number of salams for motion technology objects  Per commissioning functions Status block Single step Number of variables, max. — of which status variables, max. — of which control variables, max.  Pressent Number of variables, max.  Pressent Number of variables, max.  Program Pressent Press	OPC_UA_MethodCall, max.	
- Application authentication - Security policies - Security of policies - S	OPC_UA_MethodCall, max.	
- Security policies - User authentication - Number of sessions, max Number of sessions, max Number of sessions pax Number of registerable nodes, max Number of registerable nodes, max Number of registerable nodes, max Number of subsciptions per session, max Sampling interval, min Publishing interval, min Number of server methods, max Number of server methods, max Number of server interfaces, max Number of server interfaces, max Number of nodes for user-defined server interfaces, max Number of nodes for user-defined server interfaces, max Number of orgin stations for message functions, max Program alarms - Number of configurable program messages, max Number of simultaneously active program alarms - Number of simultaneously active program alarms - Number of alarms for system diagnostics - Number of alarms for system diagnostics - Number of alarms for system diagnostics - Number of larms for system diagnostics - Number of program for methology objects - Test commissioning functions - Status block - Single step - Number of variables, max of which status variables, max of which status variables, max of which ontrol variables, max of which ontrol variables, max Oliagnostic buffer - Present - Number of variables, max Number of variables, max.		space
Basic256Sha256  - User authentication - Number of sessions, max Number of accessible variables, max Number of accessible variables, max Number of subscriptions per session, max Sampling interval, min Publishing interval, min Publishing interval, min Number of server methods, max Number of inputs/outputs per server method, max Number of inputs/outputs per server method, max Number of of monitored items, recommended max Number of server interfaces, max Number of nodes for user-defined server interfaces, max Number of nodes for user-defined server interfaces, max Number of login stations for message functions, max Program alarms Number of login stations for message functions, max. Program alarms Number of login stations for messages, max. Number of loadable program messages in RUN, max. Number of samultaneously active program alarms  • Number of samultaneously active program alarms • Number of breakpoints  Status block Status schorido  * Status variables, max of which schatus variables, max of which control variables, max of which control variables, max of which control variables, max Of which or fortion variables, max Of which or fortion variables, max Of which control variables, max Of which schatus variables, max Of which control variables, max Of which or fortion variables, max Of which control variables, max.	• •	
- Number of accessible variables, max Number of subscriptions per session, max Number of subscriptions per session, max Sampling interval, min Publishing interval, min Publishing interval, min Publishing interval, min Number of server methods, max Number of impulsoulputs per server method, max Number of monitored items, recommended max Number of or server interfaces, max Number of server interfaces, max Number of server interfaces, max Number of or server interfaces, max Number of or server interfaces, max Number of or server interfaces, max Number of logis fations for message functions, max Number of logis stations for message functions, max Program alarms Number of configurable program messages, max Sound of simultaneously active program alarms  • Number of salams for system diagnostics • Number of alarms for motion technology objects  - Number of alarms for motion technology objects  - Status/control - Status/control - Status/control variable or variables, max of which control variables,	— Security policies	
- Number of accessible variables, max Number of subscriptions per session, max Sampling interval, min Publishing interval, min Number of server methods, max Number of server methods, max Number of inputs/outputs per server method, max Number of inputs/outputs per server method, max Number of inputs/outputs per server method, max Number of monitored items, recommended max Number of nodes for user-defined server interfaces, max Number of nodes for user-defined server interfaces, max Number of londes for message functions, max Number of login stations for message functions, max Number of login stations for message functions, max Program alarms Number of loadable program messages in RUN, max. Number of loadable program messages in RUN, max. Number of program alarms - Number of program alarms - Number of alarms for nomion technology objects - Number of alarms for moniton technology objects - Number of alarms for moniton technology objects - Number of alarms for moniton technology objects - Number of brank principles in the program	<ul> <li>User authentication</li> </ul>	"anonymous" or by user name & password
- Number of registerable nodes, max Number of subscriptions per session, max Publishing interval, min Publishing interval, min Number of inputs/outputs per server method, max Number of inputs/outputs per server method, max Number of monitored items, recommended max Number of server interfaces, max Number of server interfaces, max Number of nodes for user-defined server interfaces, max Number of nodes for user-defined server interfaces, max Number of loads for user-defined server interfaces, max Number of loads for user-defined server interfaces, max Number of loads for user-defined server interfaces, max Number of login stations for message functions, max Program alarms Number of loadable program messages, max Number of loadable program messages in RUN, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of alarms for system diagnostics • Number of alarms for system diagnostics • Number of alarms for motion technology objects  • Number of alarms for motion technology objects  1 os simultaneously (in total across all ES clients) No Number of breakpoints  Status/control • Status/control variable • Variables • Number of variables, max of which status variables, max of which control variables, max of which control variables, max of which status variables, max of which control variables, max Of which status variables, max O	<ul> <li>Number of sessions, max.</li> </ul>	32
- Number of registerable nodes, max Number of subscriptions per session, max Publishing interval, min Publishing interval, min Number of inputs/outputs per server method, max Number of inputs/outputs per server method, max Number of monitored items, recommended max Number of server interfaces, max Number of server interfaces, max Number of nodes for user-defined server interfaces, max Number of nodes for user-defined server interfaces, max Number of loads for user-defined server interfaces, max Number of loads for user-defined server interfaces, max Number of loads for user-defined server interfaces, max Number of login stations for message functions, max Program alarms Number of loadable program messages, max Number of loadable program messages in RUN, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of alarms for system diagnostics • Number of alarms for system diagnostics • Number of alarms for motion technology objects  • Number of alarms for motion technology objects  1 os simultaneously (in total across all ES clients) No Number of breakpoints  Status/control • Status/control variable • Variables • Number of variables, max of which status variables, max of which control variables, max of which control variables, max of which status variables, max of which control variables, max Of which status variables, max O	<ul> <li>Number of accessible variables, max.</li> </ul>	50 000
- Number of subscriptions per session, max Sampling interval, min Publishing interval, min Number of server methods, max Number of inputs/outputs per server method, max Number of monitored items, recommended max Number of server interfaces, max Number of server interfaces, max Number of nodes for user-defined server interfaces, max Number of nodes for user-defined server interfaces, max Number of loads for user-defined server interfaces, max Number of loads for user-defined server interfaces max Number of loads for user-defined server interfaces, max Number of login stations for message functions, max Program alarms - Number of loadsble program messages, max Number of loadsble program messages, max Number of loadsble program messages in RUN, max Number of alarms for system diagnostics - Number of alarms for system diagnostics - Number of alarms for motion technology objects - Number of alarms for motion technology objects - Number of breakpoints - Status/control variables - Variables - Variables - Variables - Variables - Variables - Variables, max of which control variables, max Of which order of endines, max Of		10 000
Sampling interval, min.  Publishing interval, min.  Number of server methods, max.  Number of inputs/outputs per server method, max.  Number of server interfaces, max.  Number of server interfaces, max.  Number of server interfaces, max.  Number of nodes for user-defined server interfaces, max.  Further protocols  Number of login stations for message functions, max.  Program alarms  Number of login stations for message functions, max.  Program alarms  Number of login stations for messages, max.  Number of loadable program messages, max.  Number of simultaneously active program alarms  Number of alarms for system diagnostics  Number of alarms for system diagnostics  Number of alarms for system diagnostics  Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints  8 Status/control variable  Variables  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Poresent  Number of entries, max.  1 000 recognam messages are generated by the "Program_Alarm" block, ProDiag or GRAPH  2 500  Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH  2 500  Program alarms  Number of simultaneously active program alarms  Number of samples, max.  0 00  Proscing  Yes: without fail-safe Inputs/outputs, memory bits, DBs, distributed l/Os, timers, counters  Procing  Procing  Procing  Yes: without fail-safe Inputs/outputs, memory bits, DBs, distributed l/Os, timers, counters  Number of variables, max.  200; per job  Procing  Procing  Procing  Procing  Procing  Procing  Procing Yes: without fail-safe Inputs/outputs Number of entries, max.  1 000		
Publishing interval, min Number of server methods, max Number of inputs/outputs per server method, max Number of monitored items, recommended max Number of server interfaces, max Number of server interfaces, max Number of nodes for user-defined server interfaces, max Number of nodes for user-defined server interfaces, max.  Further protocols MODBUS -		
- Number of inputs/outputs per server method, max Number of monitored items, recommended max Number of server interfaces, max Number of server interfaces, max Number of server interfaces, max Number of nodes for user-defined server interfaces max Number of nodes for user-defined server interfaces, max Number of nodes for user-defined server interfaces, max Number of protecols  • MODBUS  77 message functions Number of login stations for message functions, max. Number of oftogin stations for messages, max. Number of oftogin stations for messages, max. Number of login stations for messages, max. Number of login stations for messages, max. Number of login stations for messages in RUN, max. Number of login stations for messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms • Number of program alarms • Number of program alarms • Number of alarms for system diagnostics • Number of alarms for motion technology objects  100  • Ves: Parallel online access possible for up to 5 engineering systems  Yes; Up to 8 simultaneously (in total across all ES clients) No Number of breakpoints  • Status/control variable • Variables • Number of variables, max of which control v	. •	
- Number of inputs/outputs per server method, max.  - Number of monitored items, recommended max.  - Number of server interfaces, max.  - Number of nodes for user-defined server interfaces, max.  - Number of nodes for user-defined server interfaces, max.  - Number of nodes for user-defined server interfaces, max.  - Number of loads for user-defined server interfaces, max.  Further protocots  • MODBUS  - Wes; MODBUS TCP  S7 message functions  Number of login stations for message functions, max. Program alarms Number of loadable program messages, max.  Number of loadable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program diams for without technology objects  100  • Number of alarms for motion technology objects  7est commission (Team Engineering)  Joint commission (Team Engineering)  Ves; Parallel online access possible for up to 5 engineering systems  Yes; Up to 8 simultaneously (in total across all ES clients)  No  Number of breakpoints  8  Status/control  • Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which control variables, max.  —	· · · · · · · · · · · · · · · · · · ·	
max.  — Number of monitored items, recommended max.  — Number of server interfaces, max.  — Number of nodes for user-defined server interfaces, max.  Further protocols  • MODBUS  SY message functions  Number of login stations for message functions, max. Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of alarms for system diagnostics  • Number of alarms for system diagnostics  • Number of alarms for system diagnostics  • Number of breakpoints  Status block Single step Number of breakpoints  • Status/control variable  • Variables • Number of variables, max. — of which control variables, max. — of which control variables, max. — of which control variables, max.  • Forcing • Forcing • Forcing • Forcing • Forcing, variables • Number of variables, max.  • Number of variables, max.  200  Diagnostic buffer  • Present • Number of variables, max.  200  Diagnostic buffer • Present • Number of variables, max.  1000		
max.  — Number of server interfaces, max.  — Number of nodes for user-defined server interfaces, max.  Further protocols  • MODBUS  **Test functions**  Number of login stations for message functions, max.  Program alarms  Number of configurable program messages, max.  Number of login stations for message functions, max.  Program alarms  Number of login stations for message functions, max.  Program alarms  Number of login stations for messages in RUN, max.  Number of loginations for messages in RUN, max.  Number of simultaneously active program alarms  • Number of alarms for system diagnostics  • Number of alarms for system diagnostics  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Joint commission (Team Engineering)  Status block  Single step  No  Number of breakpoints  8  Status/control  • Status/control variables, max.  — of which status variables, max.  — of which status variables, max.  — of which status variables, max.  — of which control variables, max.  Porcing  • Forcing  • F		20
of the type "Reference namespace"  1 000  - Number of nodes for user-defined server interfaces, max.  Further protocols  • MODBUS  7 message functions  Number of login stations for message functions, max. Program alarms  Number of configurable program messages, max.  1 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  • Number of alarms for motion technology objects  100  • Number of alarms for motion technology objects  100  • Status block  Tost commission(Team Engineering)  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)  Number of breakpoints  8 Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which status variables, max.  — of which status variables, max.  — of which control variables, max.  Program  • Forcing  • Forcing  • Forcing  • Forcing, variables  • Number of variables, max.  Diagnostic buffer  • present  • Number of entries, max.  1 000		1 000; for 1 s sampling interval and 1 s send interval
Number of nodes for user-defined server interfaces, max.  Further protocols  ● MODBUS  ST message functions  Number of login stations for message functions, max. Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  ● Number of simultaneously active program alarms  ● Number of alarms for motion technology objects  Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  No  Number of breakpoints  Status/control  ● Status/control variables  ● Variables  ● Number of variables, max.  - of which status variables, max.  - of which control variables, max.  - of which control variables, max.  Persent  ● Forcing  ● Forcing, variables, max.  Persent  ● Number of entries, max.  1000  100	<ul> <li>Number of server interfaces, max.</li> </ul>	
Further protocols  MODBUS  Yes; MODBUS TCP  ST message functions  Number of login stations for message functions, max. Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  Number of simultaneously active program alarms  Number of program alarms  Number of program alarms  Number of alarms for system diagnostics Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Yes; Parallel online access possible for up to 5 engineering systems  Status block Yes; Up to 8 simultaneously (in total across all ES clients)  No Number of breakpoints  Status/control  Status/control  Status/control variable  Ves; without fail-safe Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  Porcing  Porcing  Porcing  Porcing  Porcing  Porcing  Peripheral inputs/outputs  Nes  Number of variables, max.  200  Peripheral inputs/outputs  Pes  Number of trains, max.  1 000		
Number of login stations for message functions, max. Program alarms Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms     Number of alarms for system diagnostics     Number of alarms for system diagnostics     Number of alarms for system diagnostics     Number of alarms for motion technology objects  Test commission (Team Engineering)  Joint commission (Team Engineering)  Status block Single step No Number of breakpoints  Status/control  Status/control  Status/control variable Variables Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max.  Perside Forcing Forcing Forcing Forcing Forcing Foresent Number of variables, max.  Persent Persent Persent Pess  Yes: MODBUS TCP  32  Yes  32  Yes  6000  600  600  7es; Parallel online access possible for up to 5 engineering systems  Yes; Up to 8 simultaneously (in total across all ES clients) No No No No No Status/control variable (Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  Peripheral inputs/outputs Peripheral inputs/outputs Persent Persent Persent Persent Persent Pess Number of entries, max.  1000	mienaces max	
Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of simultaneously active program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block Single step Number of breakpoints  Status/control  • Status/control  • Status/control  • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. — of which ordinal variables, max. — of which control variab		
Number of login stations for message functions, max. Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  Number of simultaneously active program alarms  Number of program alarms  Number of program alarms  Number of alarms for system diagnostics Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients)  No  Number of breakpoints  Status/control  Status/control variable  Variables  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Porcing  Forcing  Forcing  Forcing  Forcing, variables, max.  Number of variables, max.  Program messages are generated by the "Program_Alarm" biolock, ProDiag or GRAPH  2 500  Program messages are generated by the "Program_Alarm" biolock, ProDiag or GRAPH  2 500  100  100  100  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients)  No  Number of variables, max.  — of which control variables, max.  — of which control variables, max.  Peripheral inputs/outputs  Peripheral inputs/outputs  Number of variables, max.  Number of variables, max.  Peripheral inputs/outputs  Number of entries, max.  Yes  Yes  Number of entries, max.	Further protocols	Yes: MODBUS TCP
Program alarms Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  Number of program alarms  Number of alarms for system diagnostics Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block Single step No Number of breakpoints  Status/control  Status/control  Status/control  Status/control  Status/control variables Number of variables, max.  — of which status variables, max.  — of which control variables, max.  — of which control variables, max.  Porcing  Forcing  Forcing  Forcing  Forcing  Forcing  Forcing  Present  Number of entries, max.  Yes  1000  Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH  2 500  Status for GRAPH  2 500  Yes; Parallel online access possible for up to 5 engineering systems of simultaneously (in total across all ES clients)  No  No  Yes; Parallel online access possible for up to 5 engineering systems of simultaneously (in total across all ES clients)  No  Number of breakpoints  8  Status/control  Yes; without fail-safe  Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  Peripheral inputs/outputs  Peripheral inputs/outputs  Number of variables, max.  200  Diagnostic buffer  Persent  Present  Present  Number of entries, max.	Further protocols  • MODBUS	Yes; MODBUS TCP
Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  Number of simultaneously active program alarms  Number of program alarms  Number of alarms for system diagnostics  Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients)  No Number of breakpoints  Status/control  Status/control variable  Variables  Number of variables, max.  of which status variables, max.  of which control variables, max.  of which control variables, max.  Porcing  Forcing  Forcing  Forcing  Forcing  Forcing  Forcing, variables, max.  Number of variables, max.  200; per job  Peripheral inputs/outputs  Number of variables, max.  200  Diagnostic buffer  Yes  Number of entries, max.  Yes  Number of entries, max.  Yes  Number of entries, max.	Further protocols  • MODBUS  S7 message functions	
Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  Number of simultaneously active program alarms  Number of program alarms  Number of alarms for system diagnostics Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Yes; Parallel online access possible for up to 5 engineering systems  Yes; Up to 8 simultaneously (in total across all ES clients)  No Number of breakpoints  Status/control  Status/control  Status/control variable  Variables  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  — of which control variables, max.  200; per job  Forcing  Forcing  Forcing  Forcing  Forcing  Peripheral inputs/outputs  Number of variables, max.  200  Diagnostic buffer  Present  Number of entries, max.  Yes  Number of entries, max.	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max.	32
Number of simultaneously active program alarms  Number of program alarms  Number of program alarms  Number of alarms for system diagnostics  Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Yes; Parallel online access possible for up to 5 engineering systems  Yes; Up to 8 simultaneously (in total across all ES clients)  Single step  No  Number of breakpoints  Status/control  Status/control variable  Yes; without fail-safe  Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  Number of variables, max.  of which status variables, max.  of which control variables, max.  of which control variables, max.  Porcing  Forcing  Forcing  Forcing  Peripheral inputs/outputs  Number of variables, max.  Diagnostic buffer  present  Number of entries, max.  1 000	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max.  Program alarms	32 Yes
<ul> <li>Number of program alarms</li> <li>Number of alarms for system diagnostics</li> <li>Number of alarms for motion technology objects</li> <li>Number of alarms for motion technology objects</li> <li>Test commissioning functions</li> <li>Joint commission (Team Engineering)</li> <li>Yes; Parallel online access possible for up to 5 engineering systems</li> <li>Status block</li> <li>Yes; Up to 8 simultaneously (in total across all ES clients)</li> <li>Single step</li> <li>No</li> <li>Number of breakpoints</li> <li>Status/control</li> <li>Status/control</li> <li>Status/control variable</li> <li>Variables</li> <li>Number of variables, max.</li> <li>of which status variables, max.</li> <li>of which control variables, max.</li> <li>of which control variables, max.</li> <li>Forcing</li> <li>Forcing</li> <li>Forcing, variables</li> <li>Peripheral inputs/outputs</li> <li>Number of variables, max.</li> <li>200</li> <li>Diagnostic buffer</li> <li>present</li> <li>Number of entries, max.</li> <li>1 000</li> </ul>	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max.  Program alarms  Number of configurable program messages, max.	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
Number of alarms for system diagnostics Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block Single step No Number of breakpoints  Status/control  Status/control variables Number of variables, max.  — of which satus variables, max. — of which control variables, max.  — of which control variables, max.  — of which control variables, max.  — of which control variables, max.  — of which control variables, max.  — of which control variables, max.  — of which control variables, max.  — of which control variables, max.  — of which control variables, max.  — of which control variables, max.  — of which control variables, max.  — of which control variables, max.  Diagnostic buffer  • present • present • Number of entries, max.  1000	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max.  Program alarms  Number of configurable program messages, max.	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block Single step No Number of breakpoints  Status/control  Status/control  Status/control variable Variables Number of variables, max. — of which status variables, max. — of which control variables, max.  Forcing  Forcing  Forcing  Forcing  Forcing  Forcing	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block Single step No Number of breakpoints  Status/control  Status/control  Status/control variable Variables Number of variables, max. — of which status variables, max. — of which control variables, max.  Forcing  Forcing  Forcing  Forcing  Forcing  Forcing	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500
Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  No  Number of breakpoints  Status/control  Statu	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600
Joint commission (Team Engineering)  Status block Single step No Number of breakpoints  Status/control  Status/control  Status/control  Status/control variables Number of variables, max.  of which control variables, max.  of which control variables, max.  Forcing  Forcing  Forcing  Forcing, variables, max.  Number of variables, max.  Number of variables, max.  Peripheral inputs/outputs  Number of variables, max.  Diagnostic buffer  Persent Number of entries, max.  Yes; Parallel online access possible for up to 5 engineering systems  Yes; Up to 8 simultaneously (in total across all ES clients)  No Status/control  Yes; without fail-safe  Peripheral inputs/outputs  OD Diagnostic buffer  Yes Number of entries, max.  1 000	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100
Status block Single step No Number of breakpoints  Status/control  Status/cont	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500 600 100
Single step Number of breakpoints 8  Status/control  Status/control variable Variables Number of variables, max.  - of which status variables, max.  - of which control variables, max.  200; per job  Forcing Forcing Forcing, variables Forcing, variables, max.  Number of variables, max.  200; per job  Forcing Yes; without fail-safe Peripheral inputs/outputs Number of variables, max.  200  Diagnostic buffer  present Number of entries, max.  1 000	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80
Number of breakpoints  Status/control  Status/control variable  Variables  Number of variables, max.  of which status variables, max.  of which control variables, max.  Forcing  Forcing  Forcing, variables  Number of variables, max.  Peripheral inputs/outputs  Number of variables, max.  200; per job  Yes; without fail-safe  Peripheral inputs/outputs  Number of variables, max.  Diagnostic buffer  present  Number of entries, max.  1 000	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80  Yes; Parallel online access possible for up to 5 engineering systems
Status/control  Status/control variable  Variables  Number of variables, max.  of which status variables, max.  of which control variables, max.  Forcing  Forcing  Forcing, variables  Number of variables, max.  Peripheral inputs/outputs  Number of variables, max.  1000  Persent  Number of entries, max.	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients)
<ul> <li>Status/control variable</li> <li>Variables</li> <li>Number of variables, max.</li> <li>— of which status variables, max.</li> <li>— of which control variables, max.</li> <li>Erorcing</li> <li>Forcing</li> <li>Forcing, variables</li> <li>Number of variables, max.</li> <li>200; per job</li> <li>Forcing</li> <li>Forcing Yes; without fail-safe</li> <li>Forcing, variables</li> <li>Peripheral inputs/outputs</li> <li>Number of variables, max.</li> <li>Diagnostic buffer</li> <li>present</li> <li>Number of entries, max.</li> <li>1 000</li> </ul>	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block Single step	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No
<ul> <li>Variables</li> <li>Number of variables, max.</li> <li>— of which status variables, max.</li> <li>— of which control variables, max.</li> <li>Eorcing</li> <li>Forcing, variables</li> <li>Number of variables, max.</li> <li>200; per job</li> <li>Forcing</li> <li>Forcing Yes; without fail-safe</li> <li>Peripheral inputs/outputs</li> <li>Number of variables, max.</li> <li>Diagnostic buffer</li> <li>present</li> <li>Number of entries, max.</li> <li>1 000</li> </ul>	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block Single step Number of breakpoints	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No
<ul> <li>Number of variables, max. <ul> <li>of which status variables, max.</li> <li>of which control variables, max.</li> </ul> </li> <li>Forcing <ul> <li>Forcing</li> <li>Forcing, variables</li> <li>Number of variables, max.</li> </ul> </li> <li>Diagnostic buffer <ul> <li>present</li> <li>Number of entries, max.</li> </ul> </li> <li>Number of entries, max.</li> </ul> <li>Ves; without fail-safe <ul> <li>Peripheral inputs/outputs</li> </ul> </li> <li>Yes</li> <li>Number of entries, max.</li>	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block Single step Number of breakpoints	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No
<ul> <li>Number of variables, max. <ul> <li>of which status variables, max.</li> <li>of which control variables, max.</li> </ul> </li> <li>Forcing <ul> <li>Forcing, variables</li> <li>Number of variables, max.</li> </ul> </li> <li>Diagnostic buffer <ul> <li>present</li> <li>Number of entries, max.</li> </ul> </li> <li>Number of entries, max.</li> </ul> <li>Number of entries, max.</li>	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints  Status/control	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8
<ul> <li>of which status variables, max.</li> <li>of which control variables, max.</li> <li>200; per job</li> </ul> Forcing <ul> <li>Forcing</li> <li>Forcing, variables</li> <li>Number of variables, max.</li> </ul> Diagnostic buffer <ul> <li>present</li> <li>Number of entries, max.</li> </ul> Yes <ul> <li>Number of entries, max.</li> </ul> Yes <ul> <li>Number of entries, max.</li> </ul> 1 000	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block Single step Number of breakpoints  Status/control  • Status/control variable	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8
<ul> <li>— of which control variables, max.</li> <li>Forcing <ul> <li>Forcing</li> <li>Forcing, variables</li> <li>Peripheral inputs/outputs</li> <li>Number of variables, max.</li> </ul> </li> <li>Diagnostic buffer <ul> <li>present</li> <li>Number of entries, max.</li> </ul> </li> <li>Yes</li> <li>Number of entries, max.</li> </ul>	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block Single step Number of breakpoints  Status/control  • Status/control variable  • Variables	32 Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8
Forcing  • Forcing  • Forcing, variables  • Number of variables, max.  Diagnostic buffer  • present  • Number of entries, max.  1 000	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering) Status block Single step Number of breakpoints  Status/control  • Status/control  • Status/control variable  • Variables  • Number of variables, max.	Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8  Yes; without fail-safe Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
<ul> <li>Forcing</li> <li>Forcing, variables</li> <li>Number of variables, max.</li> <li>Diagnostic buffer</li> <li>present</li> <li>Number of entries, max.</li> <li>1 000</li> </ul>	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block Single step Number of breakpoints  Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.	Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8  Yes; without fail-safe Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job
<ul> <li>Forcing, variables</li> <li>Number of variables, max.</li> </ul> Diagnostic buffer <ul> <li>present</li> <li>Number of entries, max.</li> </ul> Yes <ul> <li>Number of entries, max.</li> </ul> 1 000	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block Single step Number of breakpoints  Status/control  • Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which control variables, max.	Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8  Yes; without fail-safe Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job
<ul> <li>Number of variables, max.</li> <li>Diagnostic buffer</li> <li>present</li> <li>Number of entries, max.</li> <li>1 000</li> </ul>	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block Single step Number of breakpoints  Status/control  • Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing	Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8  Yes; without fail-safe Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job 200; per job
Diagnostic buffer	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block Single step Number of breakpoints  Status/control  • Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing  • Forcing	Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8  Yes; without fail-safe Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job 200; per job Yes; without fail-safe
<ul><li>present</li><li>Number of entries, max.</li><li>1 000</li></ul>	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints  Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing  • Forcing  • Forcing, variables	Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8  Yes; without fail-safe Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job 200; per job Yes; without fail-safe Peripheral inputs/outputs
Number of entries, max.  1 000	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints  Status/control  • Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing  • Forcing  • Forcing, variables  • Number of variables, max.	Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8  Yes; without fail-safe Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job 200; per job Yes; without fail-safe Peripheral inputs/outputs
	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block Single step Number of breakpoints  Status/control  • Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing  • Forcing  • Forcing, variables  • Number of variables, max.  Diagnostic buffer	Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8  Yes; without fail-safe Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job 200; per job  Yes; without fail-safe Peripheral inputs/outputs 200
— of which powerfail-proof 500	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block Single step Number of breakpoints  Status/control  • Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing  • Forcing  • Forcing, variables  • Number of variables, max.  Diagnostic buffer  • present	Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8  Yes; without fail-safe Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job 200; per job  Yes; without fail-safe Peripheral inputs/outputs 200 Yes
	Further protocols  • MODBUS  S7 message functions  Number of login stations for message functions, max. Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max. Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block Single step Number of breakpoints  Status/control  • Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing  • Forcing  • Forcing, variables  • Number of variables, max.  Diagnostic buffer  • present	Yes 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 2 500  600 100 80  Yes; Parallel online access possible for up to 5 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8  Yes; without fail-safe Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job 200; per job  Yes; without fail-safe Peripheral inputs/outputs 200 Yes

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Traces	4 11 1 540 KD ( 1 1
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
<ul> <li>Monitoring of the supply voltage (PWR-LED)</li> </ul>	Yes
<ul> <li>Connection display LINK TX/RX</li> </ul>	Yes
Supported technology objects	
Motion Control	Yes; Note: The number of technology objects affects the cycle time of
Modell College	the PLC program; selection guide via the TIA Selection Tool
<ul> <li>Number of available Motion Control resources for technology objects</li> </ul>	800
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 output cam  — per cam track	160
— per can track  — per probe	40
Positioning axis	70
Number of positioning axes at motion control cycle of 4 ms (typical value)	5
Number of positioning axes at motion control	10
cycle of 8 ms (typical value)	10
Controller	
PID_Compact	Yes; Universal PID controller with integrated optimization
• PID_3Step	Yes; PID controller with integrated optimization for valves
• PID-Temp	Yes; PID controller with integrated optimization for temperature
Counting and measuring	. os, r. iz osmasnos mar mogratos opamization for temporaturo
High-speed counter	Yes
Standards, approvals, certificates	
Highest safety class achievable in safety mode	
·	DI o
<ul> <li>Performance level according to ISO 13849-1</li> </ul>	PLe
• SII and to IEC 61509	CII 2
SIL acc. to IEC 61508  Probability of failure (for service life of 20 years and range)	SIL 3
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance	
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in	ir time of 100 hours)
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3	ir time of 100 hours) < 2.00E-05
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in	ir time of 100 hours) < 2.00E-05
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3	ir time of 100 hours) < 2.00E-05
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions	ir time of 100 hours) < 2.00E-05
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation	ir time of 100 hours) < 2.00E-05 < 1.00E-09
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.	ir time of 100 hours) < 2.00E-05 < 1.00E-09  -40 °C; = Tmin (incl. condensation/frost)
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min. • horizontal installation, max.	ir time of 100 hours) < 2.00E-05 < 1.00E-09  -40 °C; = Tmin (incl. condensation/frost) 70 °C; = Tmax
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  • vertical installation, min.	ir time of 100 hours) < 2.00E-05 < 1.00E-09  -40 °C; = Tmin (incl. condensation/frost) 70 °C; = Tmax -40 °C; = Tmin
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  • vertical installation, min.  • vertical installation, max.	ir time of 100 hours) < 2.00E-05 < 1.00E-09  -40 °C; = Tmin (incl. condensation/frost) 70 °C; = Tmax -40 °C; = Tmin
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  • vertical installation, min.  • vertical installation, max.  Altitude during operation relating to sea level	ir time of 100 hours) < 2.00E-05 < 1.00E-09  -40 °C; = Tmin (incl. condensation/frost) 70 °C; = Tmax -40 °C; = Tmin 50 °C; = Tmax
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  • vertical installation, min.  • vertical installation, max.  Altitude during operation relating to sea level  • Installation altitude above sea level, max.	ir time of 100 hours) < 2.00E-05 < 1.00E-09  -40 °C; = Tmin (incl. condensation/frost) 70 °C; = Tmax -40 °C; = Tmin 50 °C; = Tmax  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  • vertical installation, min.  • vertical installation, max.  Altitude during operation relating to sea level  • Installation altitude above sea level, max.  Relative humidity  • With condensation, tested in accordance with IEC	ir time of 100 hours) < 2.00E-05 < 1.00E-09  -40 °C; = Tmin (incl. condensation/frost) 70 °C; = Tmax -40 °C; = Tmin 50 °C; = Tmax  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  • vertical installation, min.  • vertical installation, max.  Altitude during operation relating to sea level  • Installation altitude above sea level, max.  Relative humidity  • With condensation, tested in accordance with IEC 60068-2-38, max.	ir time of 100 hours) < 2.00E-05 < 1.00E-09  -40 °C; = Tmin (incl. condensation/frost) 70 °C; = Tmax -40 °C; = Tmin 50 °C; = Tmax  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  • vertical installation, min.  • vertical installation, max.  Altitude during operation relating to sea level  • Installation altitude above sea level, max.  Relative humidity  • With condensation, tested in accordance with IEC 60068-2-38, max.  Resistance	ir time of 100 hours) < 2.00E-05 < 1.00E-09  -40 °C; = Tmin (incl. condensation/frost) 70 °C; = Tmax -40 °C; = Tmin 50 °C; = Tmax  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, min.  • vertical installation, min.  • vertical installation, max.  Altitude during operation relating to sea level  • Installation altitude above sea level, max.  Relative humidity  • With condensation, tested in accordance with IEC 60068-2-38, max.  Resistance  Coolants and lubricants  — Resistant to commercially available coolants and lubricants	ir time of 100 hours) < 2.00E-05 < 1.00E-09  -40 °C; = Tmin (incl. condensation/frost) 70 °C; = Tmax -40 °C; = Tmin 50 °C; = Tmax  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  • vertical installation, min.  • vertical installation, max.  Altitude during operation relating to sea level  • Installation altitude above sea level, max.  Relative humidity  • With condensation, tested in accordance with IEC 60068-2-38, max.  Resistance  Coolants and lubricants  — Resistant to commercially available coolants	ir time of 100 hours) < 2.00E-05 < 1.00E-09  -40 °C; = Tmin (incl. condensation/frost) 70 °C; = Tmax -40 °C; = Tmin 50 °C; = Tmax  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, min.  • vertical installation, min.  • vertical installation, max.  Altitude during operation relating to sea level  • Installation altitude above sea level, max.  Relative humidity  • With condensation, tested in accordance with IEC 60068-2-38, max.  Resistance  Coolants and lubricants  — Resistant to commercially available coolants and lubricants  Use in stationary industrial systems  — to biologically active substances according to EN 60721-3-3  — to chemically active substances according to	ir time of 100 hours) < 2.00E-05 < 1.00E-09  -40 °C; = Tmin (incl. condensation/frost) 70 °C; = Tmax -40 °C; = Tmin 50 °C; = Tmax  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation  No  Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, min.  • vertical installation, min.  • vertical installation, max.  Altitude during operation relating to sea level  • Installation altitude above sea level, max.  Relative humidity  • With condensation, tested in accordance with IEC 60068-2-38, max.  Resistance  Coolants and lubricants  — Resistant to commercially available coolants and lubricants  Use in stationary industrial systems  — to biologically active substances according to EN 60721-3-3  — to chemically active substances according to EN 60721-3-3  — to mechanically active substances according to	ir time of 100 hours) < 2.00E-05 < 1.00E-09  -40 °C; = Tmin (incl. condensation/frost) 70 °C; = Tmax -40 °C; = Tmin 50 °C; = Tmax  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation  No  Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
Probability of failure (for service life of 20 years and repa  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, min.  • vertical installation, min.  • vertical installation, max.  Altitude during operation relating to sea level  • Installation altitude above sea level, max.  Relative humidity  • With condensation, tested in accordance with IEC 60068-2-38, max.  Resistance  Coolants and lubricants  — Resistant to commercially available coolants and lubricants  Use in stationary industrial systems  — to biologically active substances according to EN 60721-3-3  — to chemically active substances according to EN 60721-3-3	ir time of 100 hours) < 2.00E-05 < 1.00E-09  -40 °C; = Tmin (incl. condensation/frost) 70 °C; = Tmax -40 °C; = Tmin 50 °C; = Tmax  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation  No  Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *

<ul> <li>to biologically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6B2 mold, fungal and dry rot spores (excluding fauna)
<ul> <li>to chemically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); $^{\star}$
<ul> <li>to mechanically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6S3 incl. sand, dust (with the exception of oil droplets in the air); $^{\star}$
Usage in industrial process technology	
<ul> <li>Against chemically active substances acc. to EN 60654-4</li> </ul>	Yes; Class 3 (excluding trichlorethylene)
<ul> <li>Environmental conditions for process, measuring and control systems acc. to ANSI/ISA- 71.04</li> </ul>	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	
<ul> <li>Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04</li> </ul>	* The supplied plug covers must remain in place over the unused interfaces during operation!
Conformal coating	
<ul> <li>Coatings for printed circuit board assemblies acc. to EN 61086</li> </ul>	Yes; Class 2 for high reliability
<ul> <li>Protection against fouling acc. to EN 60664-3</li> </ul>	Yes; Type 1 protection
<ul> <li>Military testing according to MIL-I-46058C, Amendment 7</li> </ul>	Yes; Discoloration of coating possible during service life
<ul> <li>Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A</li> </ul>	Yes; Conformal coating, Class A
configuration / header	
configuration / programming / header	
configuration / programming / header Programming language	
	Yes; incl. failsafe
Programming language	Yes; incl. failsafe Yes; incl. failsafe
Programming language — LAD	
Programming language — LAD — FBD	Yes; incl. failsafe
Programming language  — LAD  — FBD  — STL	Yes; incl. failsafe Yes
Programming language  — LAD  — FBD  — STL  — SCL	Yes; incl. failsafe Yes Yes
Programming language  — LAD  — FBD  — STL  — SCL  — GRAPH	Yes; incl. failsafe Yes Yes
Programming language  — LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection	Yes; incl. failsafe Yes Yes Yes
Programming language  — LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection  • User program protection/password protection	Yes; incl. failsafe Yes Yes Yes Yes
Programming language  — LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection  • User program protection/password protection  • Copy protection	Yes; incl. failsafe Yes Yes Yes Yes Yes
Programming language  — LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection	Yes; incl. failsafe Yes Yes Yes Yes Yes
Programming language  — LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection  Access protection	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes
Programming language  — LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection  Access protection  • Protection level: Write protection	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes
Programming language  — LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection  Access protection  • Protection level: Write protection  • Protection level: Read/write protection	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes
Programming language  — LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection  Access protection  • Protection level: Write protection  • Protection level: Read/write protection  • Protection level: Complete protection  programming / cycle time monitoring / header  • lower limit	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Adjustable minimum cycle time
Programming language  — LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection  Access protection  • Protection level: Write protection  • Protection level: Read/write protection  • Protection level: Complete protection  programming / cycle time monitoring / header	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Programming language  — LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection  Access protection  • Protection level: Write protection  • Protection level: Read/write protection  • Protection level: Complete protection  programming / cycle time monitoring / header  • lower limit	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Adjustable minimum cycle time
Programming language  — LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection  Access protection  • Protection level: Write protection  • Protection level: Read/write protection  • Protection level: Complete protection  programming / cycle time monitoring / header  • lower limit  • upper limit	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Adjustable minimum cycle time
Programming language  — LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection  Access protection  • Protection level: Write protection  • Protection level: Read/write protection  • Protection level: Complete protection  programming / cycle time monitoring / header  • lower limit  • upper limit  Dimensions	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Programming language  — LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection  Access protection  • Protection level: Write protection  • Protection level: Read/write protection  • Protection level: Complete protection  programming / cycle time monitoring / header  • lower limit  • upper limit  Dimensions  Width	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes Adjustable minimum cycle time adjustable maximum cycle time
Programming language  — LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection  Access protection  • Protection level: Write protection  • Protection level: Read/write protection  • Protection level: Complete protection  • Protection level: Complete protection  • programming / cycle time monitoring / header  • lower limit  • upper limit  Dimensions  Width  Height	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes  Yes Yes
Programming language  — LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection  Access protection  • Protection level: Write protection  • Protection level: Read/write protection  • Protection level: Complete protection  programming / cycle time monitoring / header  • lower limit  • upper limit  Dimensions  Width  Height  Depth	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes  Yes Yes

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