6ES7516-3TN00-0AB0

## **Data sheet**



SIMATIC S7-1500T, CPU 1516T-3 PN/DP, central processing unit with work memory 3 MB for program and 7.5 MB for data, 1st interface: PROFINET IRT with 2-port switch, 2nd interface, Ethernet, 3rd interface, PROFIBUS, 6 ns bit performance, SIMATIC Memory Card required

General information	
Product type designation	CPU 1516T-3 PN/DP
HW functional status	FS11
Firmware version	V3.1
FW update possible	Yes
Product function	
● I&M data	Yes; I&M0 to I&M3
• Isochronous mode	Yes; Distributed and central; with minimum OB 6x cycle of 375 $\mu s$ (distributed) and 1 ms (central)
SysLog	Yes
Engineering with	
STEP 7 TIA Portal configurable/integrated from version	V19 (FW V3.1) / V15 (FW V2.5) or higher
Configuration control	
via dataset	Yes
Display	
Screen diagonal [cm]	6.1 cm
Control elements	
Number of keys	6
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	
<ul> <li>Mains/voltage failure stored energy time</li> </ul>	5 ms
Repeat rate, min.	1/s
Input current	
Current consumption (rated value)	1.2 A
Current consumption, max.	1.5 A
Inrush current, max.	1.9 A; Rated value
l²t	0.4 A <sup>2</sup> ·s
Power	
Infeed power to the backplane bus	12 W
Power consumption from the backplane bus (balanced)	30 W
Power loss	
Power loss, typ.	24 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes

Work memory	
Work memory  • integrated (for program)	3 Mbyte
<ul><li>integrated (for program)</li><li>integrated (for data)</li></ul>	
	7.5 Mbyte
Load memory	00 Ob. 4-
Plug-in (SIMATIC Memory Card), max.	32 Gbyte
Backup	
maintenance-free	Yes
CPU processing times	
for bit operations, typ.	6 ns
for word operations, typ.	7 ns
for fixed point arithmetic, typ.	9 ns
for floating point arithmetic, typ.	37 ns
CPU-blocks	
Number of elements (total)	8 000; Blocks (OB, FB, FC, DB) and UDTs
DB	
Number range	1 60 999; subdivided into: number range that can be used by the user: 1 59 999, and number range of DBs created via SFC 86: 60 000 60 999
• Size, max.	7.5 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	
Number range	0 65 535
• Size, max.	1 Mbyte
FC	
Number range	0 65 535
• Size, max.	1 Mbyte
• Size, max.	1 mbyto
	1 Mbyto
Size, max.  Number of free evels ORs.	1 Mbyte
Number of free cycle OBs  Number of free clare OBs	100
Number of time alarm OBs	20
Number of delay alarm OBs	20
Number of cyclic interrupt OBs	20; With minimum OB 3x cycle of 250 μs
<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>	3
<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
Counters, timers and their retentivity	
S7 counter	
Number	2 048
Retentivity	
— adjustable	Yes
IEC counter	
Number	Any (only limited by the main memory)
Retentivity	, (,
— adjustable	Yes
S7 times	
• Number	2 048
Retentivity	2 0.10
•	Voc
— adjustable	Yes
IEC timer	Any (ant) limited by the ansi-
• Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB

Flag	
• Size, max.	16 kbyte
Number of clock memories	8; 8 clock memory bit, grouped into one clock memory byte
Data blocks	2, a cost memory significant modern morning system
Retentivity adjustable	Yes
Retentivity adjustable     Retentivity preset	No
Local data	
per priority class, max.	64 kbyte; max. 16 KB per block
Address area	o i norto, max. To tto poi blook
Number of IO modules	8 192; max. number of modules / submodules
I/O address area	0 132, max. Humber of modules / submodules
• Inputs	32 kbyte; All inputs are in the process image
Outputs	32 kbyte; All outputs are in the process image
per integrated IO subsystem	52 kbyte, All outputs are in the process image
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
per CM/CP	o huyic
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
	o kuyte
Subprocess images  • Number of subprocess images, max.	32
Hardware configuration	02
	64: A distributed I/O system is sharesterized not sally by the interretion of
Number of distributed IO systems	64; A distributed I/O system is characterized not only by the integration of distributed I/O via PROFINET or PROFIBUS communication modules, but also by the connection of I/O via AS-i master modules or links (e.g. IE/PB-Link)
Number of DP masters	
• integrated	1
• Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total
Number of IO Controllers	
<ul><li>integrated</li></ul>	2
• Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be
Rack	inserted in total
Modules per rack, max.	32; CPU + 31 modules
Number of lines, max.	1
PtP CM	
Number of PtP CMs	the number of connectable PtP CMs is only limited by the number of available slots
Time of day	
Clock	
• Type	Hardware clock
Backup time	6 wk; At 40 °C ambient temperature, typically
Deviation per day, max.	10 s; Typ.: 2 s
Operating hours counter	
• Number	16
Clock synchronization	
• supported	Yes
• to DP, master	Yes
• on DP, device	Yes
• in AS, master	Yes
• in AS, device	Yes
• on Ethernet via NTP	Yes
Interfaces	
Number of PROFINET interfaces	2
Number of PROFIBUS interfaces	1
Interface	
Interface types	Vac. Y1
RJ 45 (Ethernet)      Number of parts	Yes; X1
Number of ports     integrated quiteb	2 Voc
• integrated switch	Yes
Protocols	

Yes; IPv4 • IP protocol • PROFINET IO Controller Yes PROFINET IO Device Yes • SIMATIC communication Yes • Open IE communication Yes; Optionally also encrypted Web server Yes Media redundancy Yes **PROFINET IO Controller** Services - Isochronous mode Yes Yes; Requirement: IRT and isochronous mode (MRPD optional) Direct data exchange — IRT Yes - PROFlenergy Yes; per user program - Prioritized startup Yes; Max. 32 PROFINET devices 256; In total, up to 1 000 distributed I/O devices can be connected via AS-i, - Number of connectable IO Devices, max. PROFIBUS or PROFINET - Of which IO devices with IRT, max. - Number of connectable IO Devices for RT, max. 256 - of which in line, max. 256 Number of IO Devices that can be simultaneously 8: in total across all interfaces activated/deactivated, max. Number of IO Devices per tool, max. 8 — Updating times The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data - PROFINET Security Class Update time for IRT  $250\ \mu s$  to 4 ms; Note: In the case of IRT with isochronous mode, the minimum — for send cycle of 250 µs update time of 375  $\mu s$  of the isochronous OB is decisive — for send cycle of 500 µs 500 us to 8 ms - for send cycle of 1 ms 1 ms to 16 ms - for send cycle of 2 ms 2 ms to 32 ms - for send cycle of 4 ms 4 ms to 64 ms — With IRT and parameterization of "odd" send cycles Update time = set "odd" send clock (any multiple of 125  $\mu$ s: 375  $\mu$ s, 625  $\mu$ s ... 3 Update time for RT 250 µs to 128 ms — for send cycle of 250  $\mu s$ - for send cycle of 500 μs 500 µs to 256 ms - for send cycle of 1 ms 1 ms to 512 ms - for send cycle of 2 ms 2 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms **PROFINET IO Device** Services - Isochronous mode Nο -- IRT Yes — PROFlenergy Yes; per user program - Shared device Yes - Number of IO Controllers with shared device, max. - activation/deactivation of I-devices Yes; per user program - Asset management record Yes; per user program - PROFINET Security Class SNMP Configuration and DCP Read Only Interface types • RJ 45 (Ethernet) Yes; X2 Number of ports 1 • integrated switch Nο Protocols • IP protocol Yes: IPv4 • PROFINET IO Controller Yes • PROFINET IO Device Yes Yes • SIMATIC communication • Open IE communication Yes; Optionally also encrypted

Web server	Yes
web server     Media redundancy	Yes No
PROFINET IO Controller	INU
Services	
— Isochronous mode	No
— Direct data exchange	No
— IRT	No Year no reason
— PROFlenergy	Yes; per user program
— Prioritized startup	No
Number of connectable IO Devices, max.	32; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
<ul> <li>Number of connectable IO Devices for RT, max.</li> </ul>	32
— of which in line, max.	32
<ul> <li>Number of IO Devices that can be simultaneously activated/deactivated, max.</li> </ul>	8; in total across all interfaces
Number of IO Devices per tool, max.	8
— Updating times	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data
— PROFINET Security Class	1
Update time for RT	
— for send cycle of 1 ms	1 ms to 512 ms
PROFINET IO Device	
Services	
— Isochronous mode	No
— IRT	No
— PROFlenergy	Yes; per user program
— Prioritized startup	No
Shared device	Yes
Number of IO Controllers with shared device, max.	4
activation/deactivation of I-devices	Yes; per user program
Asset management record	Yes; per user program
— PROFINET Security Class	SNMP Configuration and DCP Read Only
3. Interface	or time configuration and por road only
Interface types	
• RS 485	Yes; X3
Number of ports	1
Protocols	
PROFIBUS DP master	Yes
PROFIBUS DP device	No
SIMATIC communication	Yes
PROFIBUS DP master	100
Number of connections, max.	48; for the integrated PROFIBUS DP interface
max. number of DP devices	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
Services	
— Equidistance	Yes
Legitidistance     Isochronous mode	Yes
activation/deactivation of DP devices	Yes
Interface types	
RJ 45 (Ethernet)	
,	Yes
• 100 Mbps	
Autoropoing	Yes
Autocrossing     Industrial Ethornet status I ED	Yes
Industrial Ethernet status LED	Yes
RS 485	
	40 M 31/
Transmission rate, max.	12 Mbit/s
Transmission rate, max.  Protocols	
Transmission rate, max.  Protocols  PROFIsafe	12 Mbit/s No
Transmission rate, max.  Protocols  PROFIsafe  Number of connections	No
Transmission rate, max.  Protocols  PROFIsafe	

<ul> <li>Number of connections via integrated interfaces</li> </ul>	128
Number of S7 routing paths	16
Redundancy mode	
H-Sync forwarding	Yes
Media redundancy	
— Media redundancy	only via 1st interface (X1)
— MRP	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager;
MDD interconnection connected	MRP Client
MRP interconnection, supported	Yes; as MRP ring node according to IEC 62439-2 Edition 3.0
— MRPD	Yes; Requirement: IRT
Switchover time on line break, typ.	200 ms; For MRP, bumpless for MRPD
— Number of stations in the ring, max.	50
SIMATIC communication	V
PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
• S7 routing	Yes
Data record routing	Yes
S7 communication, as server	Yes
S7 communication, as client	Yes
User data per job, max.	See online help (S7 communication, user data size)
Open IE communication	
• TCP/IP	Yes
— Data length, max.	64 kbyte
<ul> <li>several passive connections per port, supported</li> </ul>	Yes
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	64 kbyte
• UDP	Yes
— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast
— UDP multicast	Yes; Max. 5 multicast circuits
• DHCP	Yes
• DNS	Yes
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Encryption	Yes; Optional
Web server	
• HTTP	Yes; Standard and user pages
• HTTPS	Yes; Standard and user pages
• web API	
<ul> <li>Number of sessions, max.</li> </ul>	200
— number of simultaneous HTTP calls, max.	4
— HTTP request body, max.	131 072 byte
OPC UA	10.0123,0
Runtime license required	Yes; "Medium" license required
OPC UA Client	Yes; Data Access (registered Read/Write), Method Call
Application authentication	Yes
Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15,
— occurry pondice	Basic256Sha256
— User authentication	"anonymous" or by user name & password
<ul><li>Number of connections, max.</li></ul>	10
<ul> <li>Number of nodes of the client interfaces, recommended max.</li> </ul>	2 000
<ul> <li>Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_ max.</li> </ul>	300
Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.	20
Number of elements for one call of OPC_UA_MethodGetHandleList, max.	100
<ul> <li>Number of simultaneous calls of the client instructions for session management, per connection, max.</li> </ul>	1
<ul> <li>Number of simultaneous calls of the client instructions for data access, per connection, max.</li> </ul>	5
<ul> <li>Number of registerable nodes, max.</li> </ul>	5 000

- Number of injustication when calling OPC-U.A Server	<ul> <li>Number of registerable method calls of OPC UA MethodCall, max.</li> </ul>	100
OPC UA Server     Application authemisation     Application authemisation     Security policies     Peace 255ha256, 8e.86.86     Security policies     Peace 255ha256, 8e.86     Peace 255ha256, 8e.87	Number of inputs/outputs when calling	20
- Security policies  - User authentication  - GLS support (certificate management)  - Number of sessions, max.  - Number of sessions, max.  - Number of registerable modes, max.  - Number of registerable modes, max.  - Number of registerable modes, max.  - Sampling interval, min.  - Publishing interval, min.  - Number of sever methods, max.  - Number of server methods, max.  - Number of server methods, max.  - Number of server methods, max.  - Number of monitored terms, recommended max.  - Number of program alarms  - Number of program messages in RUN max.  - Number of subscriptions, max.  - Mumber of subscriptions, max.  - Number of subscriptions, max.  - Number of program messages in RUN max.  - Number of subscriptions, max.  - Number of program messages in RUN max.  - Number of program messages in RUN max.  - Number of program alarms  - Number of program messages in RUN max.  - Number of program darms  - Number of salarms for motion technology objects  - Number of salarms for motion technology objects  - Ves; Parallel online access possible for up to 8 engineering systems  - Status books  - Ves; Parallel online access possible for up to 8 engineering systems  - Status books  - Ves; Parallel online access possible for up to 8 engineering systems  - Status books  - Ves; Parallel online access possible for up to 8 engineering systems  - Status books  - Ves; Parallel online access possible for up to 8 engineering systems  - Status books  -		
User authentication  - CIDS support (certificate management)  - Number of accessible variables, max.  - Number of accessible variables, max.  - Number of accessible variables, max.  - Number of registrable nodes, max.  - Number of accessible variables, max.  - Number of subscriptions per seasion, max.  - Number of subscriptions per seasion, max.  - Publishing interval, min.  - Publishing interval, min.  - Publishing interval, min.  - Number of propularibulous par sever method, max.  - Number of monthod items, accommended max.  - Number of server interfaces, max.  - Number of server interfaces, max.  - Number of server interfaces, max.  - Number of orders for user-defined server interfaces.  - Number of program alarms  - Number of program alarms  - Number of program alarms  - Number of adarms for eystem diagnostics  - Number of subscriptions, max.  - Number of subscriptions in a subscriptions, max.  - Number of loadstote program messages functions, max.  - number of subscriptions in a subscriptions, max.  - number of subscriptions in a subscriptions, max.  - Number of configurable program messages in RUN, max.  - Number of ismultaneously active program alarms  - Number of simultaneously scriptions grams  - Number of simultaneously scriptions in technology objects  - Number of simultaneously scriptions in technology objects  - Number of simultaneously scriptions, max.  - Of which status variables, max.  -	<ul> <li>Application authentication</li> </ul>	Yes
- GDS support (certificate management) - Number of secsions, max Number of accessible variables, max Number of accessible variables, max Number of subscriptions per seasion, max Number of subscriptions per seasion, max Sampling interval, min Publishing interval, min Publishing interval, min Number of subscriptions per seasion, max Number of subscriptions per seasion, max Number of subscriptions per seasion, max Number of subscriptions per server method, max Number of subscriptions per server method, max Number of subscriptions per server method, max Number of server interfaces, max Server	— Security policies	
Number of accessible variables, max.	<ul> <li>User authentication</li> </ul>	"anonymous" or by user name & password
Number of accessible variables, max	<ul> <li>— GDS support (certificate management)</li> </ul>	Yes
- Number of registerable nodes, 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 inspiration per server method, max Number of inspiration per server method, max Number of server interfaces, max Number of program alarms - Number of olasms for message functions, max Number of lagsfattributes for subscriptions, max Stressage functions - Monoble program messages, max Number of lagsfattributes for subscriptions, max Number of lagsfattributes for subscript	— Number of sessions, max.	48
- Number of subscriptions per session, max Sampling interval, min Publishing interval, min Number of orever methods, max Number of imputisolypis per server method, max Number of imputisolypis per server method, max Number of monitored items, recommended max Number of server interfaces, max Number of server interfaces, max Number of or user-defined server interfaces Number of or user-defined server interfaces Number of program slarms - Number of server interfaces Number of server interfaces Number of program slarms - Number of server interfaces Number of program slarms - Number of server interfaces Number of server	<ul> <li>Number of accessible variables, max.</li> </ul>	100 000
- Sampling 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 inputs/outputs per server method, max Number of server interfaces, max Number of server interfaces, max Number of or server interfaces, max Number of or ondes for user-defined server interfaces, max Number of organ alarms - Number of program sessage functions, max Number of organ stations for message functions, max Number of organ stations for message functions, max Number of organ stations for message functions, max Number of organ stations for messages functions, max Number of organ stations for messages functions, max Number of organ stations for messages in RUN, max 10 0000; Program messages are generated by the "Program_Alarm" block, Probleg or GRAPH - Number of organ 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 - Number of program alarms - Number of alarms for motion technology objects - Number of breakpoints - Number of variables, max of which control variables, max Of which	<ul> <li>Number of registerable nodes, max.</li> </ul>	20 000
- Publishing interval, min 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 server interfaces, max Number of server interfaces, max Number of ondes for user-defined server interfaces, max Number of or user-defined server interfaces, max Alarms and Conditions - Number of program alarms - Number of server interfaces, max Number of server interfaces, max Number of program alarms - Number of program alarms - Number of program alarms - Number of server interfaces, max Number of login stations for message functions, max Number of login stations for message functions, max So - Sr message functions - Number of login stations for subscriptions, max So - Number of login stations for subscriptions, max So - Number of login stations for subscriptions, max So - Number of login stations for subscriptions, max So - Number of login stations for subscriptions, max So - Number of login stations for subscriptions, max So - Number of login stations for subscriptions, max So - Number of login stations for subscriptions, max So - Number of login stations for subscriptions, max In the subscriptions, max	<ul> <li>Number of subscriptions per session, max.</li> </ul>	50
- Number of sever methods, max Number of inputsioutputs per server method, max Number of inputsioutputs 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 nodes for user-defined server interfaces, max Number of program alarms - Number of program alarms - Number of program alarms - Number of alarms for system diagnostics - Number of program alarms - Number of program alarms - Number of login stations for message functions, max Number of login stations for message functions, max Number of login stations for message functions, max Number of login stations for subscriptions, max Program alarms - Yes - Number of login stations for messages, max Program alarms - Yes - Number of loginal program messages, max Program alarms - Number of loginal program messages in RUN, max 10 0000, Program messages are generated by the "Program_Alarm" block Program of alarms for system diagnostics - Number of alarms for motion technology objects - Number of alarms for motion technology objects - Test commissioning functions - Number of alarms for motion technology objects - Number of variables, max of which control variables and program messages are generated by the "Program Alarm"	<ul> <li>— Sampling interval, min.</li> </ul>	100 ms
- Number of inputs/outputs per server method, max Number of monitored items, recommended max Number of server interfaces, max Number of or output of server interfaces, max Number of nodes for user-defined server interfaces, max Alams and Conditions - Number of program alarms - Number of object stations for message functions, max St message functions - St message functions - Number of object stations for message functions, max So 0 - Number of object stations for message since program alarms - Number of object stations for subscriptions, max Number of program alarms - Number of object stations for subscriptions, max Number of program alarms - Number of program alarms - Number of program alarms - Number of object stations for subscriptions, max Number of program alarms - Number of object stations for subscriptions, max Number of object stations for subscriptions, max Number of object stations for subscriptions, max Of which status variable, 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 status variables, max Of which control variables, max Of which status vari	— Publishing interval, min.	100 ms
- Number of monitored items, recommended max Number of server interfaces, max Number of lodes for user-defined server interfaces, max Alarms and Conditions - Number of program alarms - Number of obstactivates for subscriptions, max Number of subscriptions, max Number of subscriptions, max Number of configurable program messages in RUN, 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 program al	Number of server methods, max.	50
- Number of monitored items, recommended max Number of server interfaces, max Number of lodes for user-defined server interfaces, max Alarms and Conditions - Number of program alarms - Number of obstactivates for subscriptions, max Number of subscriptions, max Number of subscriptions, max Number of configurable program messages in RUN, 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 program al	<ul> <li>Number of inputs/outputs per server method, max.</li> </ul>	20
Number of server interfaces, max.  Number of nodes for user-defined server interfaces, max.  Number of program alarms		
max.  Alarms and Conditions — Number of program alarms — Number of alarms for system diagnostics  Further protocols  • MODBUS  • MODBUS  • MODBUS  • MODBUS  • MODBUS  • MODBUS  • Yes; MODBUS TCP    Sochronous mode    Equidistance   Yes    Timessage functions   Number of login stations for message functions, max.   500   number of togin stations for message functions, max.   500   number of togic stations for message functions, max.   8000   Program alarms   Yes   Number of configurable program messages, max.   10 0000; Program messages are generated by the "Program_Alarm" block, Probleg or GRAPH   Number of onfigurable program messages in RUN, max.   10 0000; Program messages are generated by the "Program_Alarm" block, Probleg or GRAPH   Number of logidable program alarms   Number of program alarms   Number of program alarms   Number of program alarms   1000   Number of siams for system diagnostics   200   Number of alarms for system diagnostics   200   Number of blanch for system diagnostics   200   Number of blanch for system diagnostics   200   Number of blanch for system diagnostics   200   Number of variables   200   Perjob   200	•	10 of each "Server interfaces" / "Companion specification" type and 20 of the
Alarms and Conditions Pumber of program alarms NODBUS NODBUS NODBUS Putther protocols NODBUS	<ul> <li>Number of nodes for user-defined server interfaces,</li> </ul>	30 000
- Number of alarms for system diagnostics 100  Further protocols  • MODBUS  • MODBUS  Yes; MODBUS TCP    Sociation outs mode	max.	
- Number of alarms for system diagnostics  • MODBUS  • MODBUS  • MODBUS  Yes; MODBUS TCP    Sociation	<ul> <li>Alarms and Conditions</li> </ul>	Yes
## WODBUS TCP	<ul> <li>Number of program alarms</li> </ul>	200
MODBUS  Sochronus mode  Equidistance  7 wessage functions  Number of login stations for message functions, max.  Number of login stations for message functions, max.  Number of subscriptions, max.  500  number of faug-statibutes for subscriptions, max.  Program alarms  Yes  Number of configurable program messages, max.  10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH  Number of loadable program messages in RUN, max.  10 000  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 motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Yes; Parallel online access possible for up to 8 engineering systems  Status block  Yes; Up to 8 simultaneously (in total across all ES clients)  No  Number of breakpoints  8  Profiling  No  Status/control variables, max.  — of which status variables, max.  — of which control variables, max.  — of which control variables, max.  — of which control variables, max.  — of which status variables, max.  — of which control variables, max.  — of which control variables, max.  — of which status variables, max.  — of which status variables, max.  — of which control variables, max.  — of which status variables, max.  — of which control vari	<ul> <li>Number of alarms for system diagnostics</li> </ul>	100
Social State	Further protocols	
Equidistance Yes  S7 message functions  Number of login stations for message functions, max. 64 number of subscriptions, max. 500 number of subscriptions, max. 8000 Program alarms Yes Number of configurable program messages, max. 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH  Number of loadable program messages in RUN, max. 10 000 Number of simultaneously active program alarms • Number of program alarms • Number of program alarms 1000 • Number of alarms for system diagnostics 200 • Number of alarms for system diagnostics 200 • Number of alarms for system diagnostics 200 • Number of alarms for motion technology objects 480  Test commissioning functions  Joint commission (Team Engineering) Yes; Parallel online access possible for up to 8 engineering systems  Status block Yes; Up to 8 simultaneously (in total across all ES clients) Single step No Number of breakpoints 8 Profiling No Status/control variables • Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters • Number of variables, max. 200; per job  Forcing Yes • Forcing Yes • Forcing Yes • Forcing Yes • Forcing Number of variables, max. 200; per job  Forcing Peroting Peroting • Forcing Yes • Forcing Yes • Forcing Yes • Forcing Peroting Number of variables, max. 2000  Diagnostic buffer • present Yes • Number of entries, max. 3 200	• MODBUS	Yes; MODBUS TCP
Number of login stations for message functions, max.  Number of login stations for message functions, max.  10000 Program alarms Yes Number of tags/attributes for subscriptions, max.  10000, Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH Number of loadable program messages in RUN, max.  10000 Number of simultaneously active program alarms 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 motion technology objects  7 st commissioning functions Joint commission (Team Engineering) Yes; Parallel online access possible for up to 8 engineering systems Status block Yes; Up to 8 simultaneously (in total across all ES clients) No Number of breakpoints 8 Profiling No Status/control Status/control variable Yes Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. 200; per job Forcing Fo	Isochronous mode	
Number of login stations for message functions, max.  number of subscriptions, max.  number of subscriptions, max.  10000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH  Number of loadable program messages in RUN, max.  10000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH  Number of loadable program messages in RUN, max.  10000  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  1000  Number of alarms for motion technology objects  1000  Status form (Team Engineering)  Yes; Parallel online access possible for up to 8 engineering systems  Status block  Single step  No Number of breakpoints  Status form (Team Engineering)  No Status/control  Status/control variable  Ves  No Status/control variables  No Status/control variables, max.  — of which status variables, max.  — of which control variables, max.  Peripheral inputs/outputs  Peripheral inputs/outputs  Number of variables, max.  200; per job  Forcing  Forcing  Forcing  Forcing, variables, max.  200  Diagnostic buffer  Present  Present  Number of entries, max.  3 200	Equidistance	Yes
number of subscriptions, max.    Solition   Status/control variables   Status/control variables   Number of variables   Nav.    Procing   Yes   Number of load variables   Nav.   Number of simultaneously active program alarms   1 000	S7 message functions	
number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of loadable program alarms  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  No Number of alarms for motion technology objects  No Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Yes; Parallel online access possible for up to 8 engineering systems  Status block  Yes; Up to 8 simultaneously (in total across all ES clients)  Single step  No  Number of breakpoints  Profiling  No  Status/control variable  Ves  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  — of which c	Number of login stations for massage functions	64
Program alarms  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH  Number of loadable program messages in RUN, max.  10 000  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  1000  Yes; Parallel online access possible for up to 8 engineering systems  Status block  Yes; Up to 8 simultaneously (in total across all ES clients)  Single step  No Number of breakpoints  Status/control  Status/control variable  Ves  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.  Prorcing  Forcing  Forcing  Forcing  Forcing  Forcing  Forcing, variables, max.  200; per job  Peripheral inputs/outputs  Number of variables, max.  200  Peripheral inputs/outputs  Peripheral inputs/outputs  Number of variables, max.  200  Peripheral inputs/outputs  Number of variables, max.  200  Peripheral inputs/outputs  Number of variables, max.  200  Peripheral inputs/outputs  Number of variables, max.  Procesent  Prosent  Prosent  Present  Number of entries, max.  3 200	rvumber of logiti stations for message functions, max.	04
Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  10 000  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  Test commissioning functions  Joint commission (Team Engineering)  Yes; Parallel online access possible for up to 8 engineering systems  Status block Yes; Up to 8 simultaneously (in total across all ES clients)  No Number of breakpoints  Forfiling No Status/control variable Variables Number of variables, max. Of which status variables, max. Of which status variables, max. Of which control variables, max. Of which status variables, max. Of which control variables, max. Of which status variables, max. Of which control variables, max. Of which status vari		
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  Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Yes, Parallel online access possible for up to 8 engineering systems  Yes, Up to 8 simultaneously (in total across all ES clients)  Single step  No Number of breakpoints  Profiling  No  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 control variables, max.  — of which status 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 control variables, max.  — of which control variables, max.  — of which status variables, max.  — of which control variables, max.  — of which status variables, max.  — of which control variables, max.  — of which status variables, max.  — of which control variables, max.  — of which status variables, m	number of subscriptions, max.	500
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 8 engineering systems  Status block  Yes; Up to 8 simultaneously (in total across all ES clients)  No  Number of breakpoints  Profiling  No  Status/control  Status/control  Status/control variable  Variables  Number of variables, max.  — of which status variables, max.  — of which control variables, ma	number of subscriptions, max. number of tags/attributes for subscriptions, max.	500 8 000
Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects  Number of alarms for motion technology objects  Wes; Parallel online access possible for up to 8 engineering systems  Status block Yes; Up to 8 simultaneously (in total across all ES clients)  No Number of breakpoints  Profiling No  Status/control  Status/control variable Variables Number of variables, max.  of which status variables, max.  of which control variables, max.  Prorcing  Forcing  Forcing  Forcing  Forcing  Forcing  No  Diagnostic buffer  Present Ne Number of entries, max.  1 000	number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block,
<ul> <li>Number of alarms for system diagnostics</li> <li>Number of alarms for motion technology objects</li> <li>180</li> <li>180</li></ul>	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.	500 8 000 Yes 10 000; 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)  Yes; Parallel online access possible for up to 8 engineering systems  Status block  Yes; Up to 8 simultaneously (in total across all ES clients)  Single step  No  Number of breakpoints  Profiling  No  Status/control  Status/control variable  Variables  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Prorcing  Forcing  Forcing  Forcing, variables  Number of variables, max.  200; per job  Peripheral inputs/outputs  Number of variables, max.  200  Diagnostic buffer  Present	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
Test commissioning functions  Joint commission (Team Engineering)  Yes; Parallel online access possible for up to 8 engineering systems  Status block  Yes; Up to 8 simultaneously (in total across all ES clients)  No  Number of breakpoints  Profiling  No  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  Forcing  Forcing  Forcing, variables, max.  Number of variables, max.  200  Diagnostic buffer  Persent  Persent  Persent  Persent  Yes  Number of entries, max.  3 200	number of subscriptions, max. number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000
Joint commission (Team Engineering)  Yes; Parallel online access possible for up to 8 engineering systems  Yes; Up to 8 simultaneously (in total across all ES clients)  No Number of breakpoints  Profiling  No Status/control  Status/control variables  Ves  Variables  Number of variables, max.  of which status variables, max.  of which control variables, max.  Profiling  Profiling  Yes  Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job  Porcing  Forcing  Forcing  Peripheral inputs/outputs  Number of variables, max.  200  Diagnostic buffer  Present  Number of entries, max.  3 200	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000
Joint commission (Team Engineering)  Yes; Parallel online access possible for up to 8 engineering systems  Yes; Up to 8 simultaneously (in total across all ES clients)  No Number of breakpoints  Profiling  No Status/control  Status/control variables  Ves  Variables  Number of variables, max.  of which status variables, max.  of which control variables, max.  Profiling  Profiling  Yes  Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job  Porcing  Forcing  Forcing  Peripheral inputs/outputs  Number of variables, max.  200  Diagnostic buffer  Present  Number of entries, max.  3 200	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 1 000 200
Status block Yes; Up to 8 simultaneously (in total across all ES clients)  No Number of breakpoints 8 Profiling No Status/control  Status/control variable Variables Number of variables, max.  of which status variables, max.  of which control variables, max.  Profing Forcing Forcing Forcing Forcing, variables, max. Number of variables, max.  Peripheral inputs/outputs Peripheral inputs/outputs  Number of variables, max.  200 Diagnostic buffer  Pessent Number of entries, max.  Yes Number of entries, max.  3 200	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 1 000 200
Single step  No Number of breakpoints  Profiling  No Status/control  Status/control variable  Variables  Number of variables, max.  of which status variables, max.  of which control variables, max.  Porcing  Forcing  Forcing  Forcing, variables, max.  Number of variables, max.  200; per job  Peripheral inputs/outputs  Peripheral inputs/outputs  Number of variables, max.  200  Diagnostic buffer  Present  Present  Number of entries, max.  3 200	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 1 000 200 480
Number of breakpoints 8  Profiling No  Status/control  Status/control variable  Ves Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  Number of variables, max. — of which status variables, max. — of which control variables, max. 200; per job  Forcing Forcing Forcing, variables Forcing, variables Number of variables, max. 200  Diagnostic buffer  Present Number of entries, max. 3 200	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000  1 000 200 480  Yes; Parallel online access possible for up to 8 engineering systems
Profiling  Status/control  Status/control variable  Ves  Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  200; per job  Forcing  Forcing  Forcing  Forcing, variables  Number of variables, max.  200  Diagnostic buffer  Present  Number of entries, max.  3 200	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000  1 000 200 480  Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients)
Status/control  Status/control variable  Variables  Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  Number of variables, max.  of which status variables, max.  of which control variables, max.  Forcing  Forcing  Forcing, variables  Number of variables, max.  200; per job  Peripheral inputs/outputs  Number of variables, max.  200  Diagnostic buffer  present  present  Number of entries, max.  3 200	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000  1 000 200 480  Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No
Status/control variable Variables Variables Number of variables, max. — of which status variables, max. — of which control variables, max. 200; per job  Forcing  Forcing Forcing, variables Number of variables, max.  Number of variables, max.  Peripheral inputs/outputs Number of variables, max.  Diagnostic buffer  Present Number of entries, max.  Yes Number of entries, max.  Yes Number of entries, max.  Yes	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000  1 000 200 480  Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8
<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>Forcing</li> <li>Forcing, variables</li> <li>Number of variables, max.</li> <li>200; per job</li> <li>Yes</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>Number of entries, max.</li> <li>3 200</li> </ul>	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints  Profiling	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000  1 000 200 480  Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8
<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>Number of entries, max.</li>	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  Number of program alarms  Number of alarms for system diagnostics  Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints  Profiling  Status/control	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000  1 000 200 480  Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 No
<ul> <li>— of which status variables, max.</li> <li>— of which control variables, max.</li> <li>Forcing</li> <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>3 200</li> </ul>	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  Number of program alarms  Number of alarms for system diagnostics  Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints  Profiling  Status/control  Status/control variable	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000  1 000 200 480  Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 No Yes
<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 <ul> <li>Number of entries, max.</li> </ul> </li> </ul>	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  Number of program alarms  Number of alarms for system diagnostics  Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints  Profiling  Status/control  Status/control variable  Variables	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000  1 000 200 480  Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 No Yes
Forcing  • Forcing  • Forcing, variables  • Number of variables, max.  Diagnostic buffer  • present  • Number of entries, max.  3 200	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints  Profiling  Status/control  • Status/control variable  • Variables  • Number of variables, max.	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000  1 000 200 480  Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 No Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
<ul> <li>Forcing</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>3 200</li> </ul>	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints  Profiling  Status/control  • Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000  1 000 200 480  Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 No  Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job
<ul> <li>Forcing, variables</li> <li>Number of variables, max.</li> <li>Diagnostic buffer</li> <li>present</li> <li>Number of entries, max.</li> <li>3 200</li> </ul>	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  Number of program alarms  Number of alarms for system diagnostics  Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints  Profiling  Status/control  Status/control  Variables  Number of variables, max.  — of which status variables, max.  — of which control variables, max.	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000  1 000 200 480  Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 No  Yes 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>3 200</li> </ul>	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints  Profiling  Status/control  • Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000  1 000 200 480  Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 No Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job 200; per job
Diagnostic buffer	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints  Profiling  Status/control  • Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  Forcing  • Forcing	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000  1 000 200 480  Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 No  Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job 200; per job
<ul> <li>present</li> <li>Number of entries, max.</li> <li>3 200</li> </ul>	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints  Profiling  Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing  • Forcing  • Forcing, variables	8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000  1 000 200 480  Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 No Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job 200; per job Yes Peripheral inputs/outputs
• Number of entries, max. 3 200	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints  Profiling  Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing  • Forcing  • Forcing  • Forcing, variables, max.  • Number of variables, max.	8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000  1 000 200 480  Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 No Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job 200; per job Yes Peripheral inputs/outputs
	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  • Number of program alarms  • Number of alarms for system diagnostics  • Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints  Profiling  Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing  • Forcing  • Forcing, variables  • Number of variables, max.  Diagnostic buffer	8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000  1 000 200 480  Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 No Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job 200; per job Yes Peripheral inputs/outputs 200
— of which powerfail-proof 500	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  Number of program alarms  Number of alarms for system diagnostics  Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints  Profiling  Status/control  Status/control variable  Variables  Number of variables, max.  of which status variables, max.  Forcing  Forcing  Forcing  Forcing, variables  Number of variables, max.  Diagnostic buffer  present	8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000  1 000 200 480  Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 No Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job 200; per job Yes Peripheral inputs/outputs 200 Yes
	number of subscriptions, max.  number of tags/attributes for subscriptions, max.  Program alarms  Number of configurable program messages, max.  Number of loadable program messages in RUN, max.  Number of simultaneously active program alarms  Number of program alarms  Number of alarms for system diagnostics  Number of alarms for motion technology objects  Test commissioning functions  Joint commission (Team Engineering)  Status block  Single step  Number of breakpoints  Profiling  Status/control  Status/control variable  Variables  Number of variables, max.  of which status variables, max.  Forcing  Forcing  Forcing  Forcing  Forcing  Forcing, variables  Number of variables, max.  Diagnostic buffer  Present  Number of entries, max.	500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000  1 000 200 480  Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 No  Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job 200; per job Yes Peripheral inputs/outputs 200  Yes 3 200

Traces	
<ul> <li>Number of configurable Traces</li> </ul>	4
<ul> <li>Memory size per trace, max.</li> </ul>	512 kbyte
Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	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 the PLC
	program; selection guide via the TIA Selection Tool
<ul> <li>Number of available Motion Control resources for technology objects</li> </ul>	6 400
Required Motion Control resources	
— per speed-controlled axis	40
	80
<ul><li>— per positioning axis</li><li>— per synchronous axis</li></ul>	160
per synchronous axis      per external encoder	80
•	20
— per output cam	160
— per cam track	40
per probe  Number of available Extended Motion Control resources	192
for technology objects	192
Required Extended Motion Control resources	
— per cam (1 000 points and 50 segments)	2
— per cam (10 000 points and 50 segments)	20
— for each set of kinematics	30
— per Interpreter	60
— Per leading axis proxy	3
Positioning axis	
Number of positioning axes at motion control cycle	55
of 4 ms (typical value)	
Number of positioning axes at motion control cycle	80
of 8 ms (typical value)	
Controller	Vac Universal DID and allow the intermetal authorization
PID_Compact  PID_20t  PID_20t	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	V
High-speed counter	Yes
Standards, approvals, certificates	
Ecological footprint	V
environmental product declaration	Yes
Global warming potential	570 hr
— global warming potential, (total) [CO2 eq]	570 kg
<ul> <li>global warming potential, (during production) [CO2 eq]</li> </ul>	96.9 kg
— global warming potential, (during operation) [CO2	483 kg
eq]	
<ul> <li>global warming potential, (after end of life cycle)</li> </ul>	-9.97 kg
[CO2 eq]	
Ambient conditions	
Ambient temperature during operation	
<ul> <li>horizontal installation, min.</li> </ul>	0 °C
<ul> <li>horizontal installation, max.</li> </ul>	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the
- vertical installation	display is switched off
vertical installation, min.	0 °C
vertical installation, max.	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
Ambient temperature during storage/transportation	alopus, to officiate off
min.	-40 °C
• max.	70 °C

Altitude during operation relating to sea level	
Installation altitude above sea level, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
configuration / header	
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
Know-how protection	
<ul> <li>User program protection/password protection</li> </ul>	Yes
Copy protection	Yes
Block protection	Yes
Access protection	
<ul> <li>protection of confidential configuration data</li> </ul>	Yes
<ul> <li>Password for display</li> </ul>	Yes
<ul> <li>Protection level: Write protection</li> </ul>	Yes
<ul> <li>Protection level: Read/write protection</li> </ul>	Yes
<ul> <li>Protection level: Write protection for Failsafe</li> </ul>	No
<ul> <li>Protection level: Complete protection</li> </ul>	Yes
<ul> <li>User administration</li> </ul>	Yes; device-wide
programming / cycle time monitoring / header	
<ul> <li>lower limit</li> </ul>	adjustable minimum cycle time
• upper limit	adjustable maximum cycle time
Dimensions	
Width	175 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	1 929 g

10/9/2024

last modified: