## **Data sheet**

## 6ES7515-2FN03-0AB0

## Siemens EcoTech



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



General information	
Product type designation	CPU 1515F-2 PN
HW functional status	FS01
Firmware version	V3.0
FW update possible	Yes
Product function	
I&M data	Yes; I&M0 to I&M3
Isochronous mode	Yes; Distributed and central; with minimum OB 6x cycle of 375 $\mu s$ (distributed) and 1 ms (central)
Engineering with	
STEP 7 TIA Portal configurable/integrated from version	V18 (FW V3.0); with older TIA Portal versions configurable as 6ES7515-2FM02-0AB0
Configuration control	
via dataset	Yes
Display	
Screen diagonal [cm]	6.1 cm
Control elements	
Number of keys	8
Mode buttons	2
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Mains buffering	
<ul> <li>Mains/voltage failure stored energy time</li> </ul>	5 ms
Repeat rate, min.	1/s
Input current	
Current consumption (rated value)	0.83 A
Current consumption, max.	1.03 A
Inrush current, max.	1.15 A; Rated value
l²t	0.6 A <sup>2</sup> ·s
Power	
Infeed power to the backplane bus	12 W
Power consumption from the backplane bus (balanced)	6.2 W
Power loss	
Power loss, typ.	3.6 W

Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	100
• integrated (for program)	1.5 Mbyte
• integrated (for data)	4.5 Mbyte
Load memory	T.O Millyto
Plug-in (SIMATIC Memory Card), max.	32 Gbyte
Backup	02 dayte
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	Of 110
Number of elements (total)	8 000; Blocks (OB, FB, FC, DB) and UDTs
DB	2 300, Diocha (OD, 1 D, 1 O, DD) and OD 13
Number range	1 60 999; subdivided into: number range that can be used by the user: 1
→ Humber range	59 999, and number range of DBs created via SFC 86: 60 000 60 999
• Size, max.	4.5 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	
Number range	0 65 535
• Size, max.	1 Mbyte
FC	
Number range	0 65 535
• Size, max.	1 Mbyte
ОВ	
• Size, max.	1 Mbyte
Number of free cycle OBs	100
Number of time alarm OBs	20
Number of delay alarm OBs	20
Number of cyclic interrupt OBs	20; With minimum OB 3x cycle of 250 µs
Number of process alarm OBs	50
<ul> <li>Number of DPV1 alarm OBs</li> </ul>	3
<ul> <li>Number of isochronous mode OBs</li> </ul>	2
<ul> <li>Number of technology synchronous alarm OBs</li> </ul>	2
Number of startup OBs	100
<ul> <li>Number of asynchronous error OBs</li> </ul>	4
<ul> <li>Number of synchronous error OBs</li> </ul>	2
Number of diagnostic alarm OBs	1
Nesting depth	
per priority class	24; Up to 8 possible for F-blocks
Counters, timers and their retentivity	
S7 counter	
• Number	2 048
Retentivity	
— adjustable	Yes
IEC counter	
Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
S7 times	
Number	2 048
Retentivity	
— adjustable	Yes
IEC timer	
• Number	Any (only limited by the main memory)
Retentivity	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
— adjustable	Yes
Data areas and their retentivity	

Retentive data area (incl. timers, counters, flags), max.	512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB
Extended retentive data area (incl. timers, counters, flags), max.	4.5 Mbyte; When using PS 6 0W 24/48/60 V DC HF
Flag	
• Size, max.	16 kbyte
Number of clock memories	8; 8 clock memory bit, grouped into one clock memory byte
Data blocks	o, o disort monitory strip grouped into and allow monitory syllo
Retentivity adjustable	Yes
Retentivity preset	No
Local data	
per priority class, max.	64 kbyte; max. 16 KB per block
Address area	of Rayle, max. To the per block
Number of IO modules	8 192; max. number of modules / submodules
I/O address area	o 132, max. number of modules / submodules
• Inputs	32 kbyte; All inputs are in the process image
	32 kbyte; All outputs are in the process image
Outputs  Par integrated IO subsystem	52 kbyte, All outputs are in the process image
per integrated IO subsystem	O John dia
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
per CM/CP	9 librato
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images	
Number of subprocess images, max.	32
Hardware configuration	
Number of distributed IO systems	64; A distributed I/O system is characterized not only by the integration of distributed I/O via PROFINET or PROFIBUS communication modules, but also by the connection of I/O via AS-i master modules or links (e.g. IE/PB-Link)
Number of DP masters	
• Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total
Number of IO Controllers	
• integrated	2
• Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be
Deale	inserted in total
Rack	00. ODL + 04 modulos
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	10 0, 1 βρ.: 2 0
Number	16
Clock synchronization	10
• supported	Yes
• in AS, master	Yes
in AS, device     on Ethernet via NTP	Yes
on Ethernet via NTP  pterfaces	Yes
nterfaces	0
Number of PROFINET interfaces	2
. Interface	
Interface types	
<ul><li>RJ 45 (Ethernet)</li></ul>	Yes; X1
<ul> <li>Number of ports</li> </ul>	2
integrated switch	Yes
Protocols  • IP protocol	Yes; IPv4

Yes PROFINET IO Controller • PROFINET IO Device Yes • SIMATIC communication Yes • Open IE communication Yes; Optionally also encrypted Yes • Web server Media redundancy Yes **PROFINET IO Controller** Services - PG/OP communication Yes Yes - Isochronous mode 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 Update time for IRT — for send cycle of 250 µs 250 µs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 375  $\mu s$  of the isochronous OB is decisive — for send cycle of 500  $\mu s$  $500 \mu s$  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 ... 3 875 us) Update time for RT - for send cycle of 250 µs 250 µs to 128 ms 500 μs to 256 ms — for send cycle of 500  $\mu s$ - for send cycle of 1 ms 1 ms to 512 ms - for send cycle of 2 ms 2 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms PROFINET IO Device Services - PG/OP communication Yes 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 Interface types • RJ 45 (Ethernet) Yes; X2 Number of ports integrated switch No Protocols • IP protocol Yes; IPv4 • PROFINET IO Controller Yes • PROFINET IO Device Yes • SIMATIC communication Yes • Open IE communication Yes; Optionally also encrypted • Web server Yes

Media redundancy	No
PROFINET IO Controller	
Services	
— PG/OP communication	Yes
— Isochronous mode	No
Direct data exchange	No
— IRT	No
— PROFlenergy	Yes; per user program
Prioritized startup	No
Number of connectable IO Devices, max.	32; In total, up to 1 000 distributed I/O devices can be connected via AS-i,
Number of confidence to Devices, max.	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</li> </ul>	8; in total across all interfaces
activated/deactivated, max.  — Number of IO Devices per tool, max.	8
	The minimum value of the update time also depends on communication share
— Updating times	set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data
Update time for RT	
— for send cycle of 1 ms	1 ms to 512 ms
PROFINET IO Device	
Services	
— PG/OP communication	Yes
— Isochronous mode	No
— IRT	No
— PROFlenergy	Yes; per user program
— Prioritized startup	No
Shared device	Yes
<ul> <li>Number of IO Controllers with shared device, max.</li> </ul>	4
— activation/deactivation of I-devices	Yes; per user program
Asset management record	Yes; per user program
Interface types	ros, por soor program
RJ 45 (Ethernet)	
• 100 Mbps	V
	YES
	Yes Yes
Autonegotiation	Yes
<ul><li>Autonegotiation</li><li>Autocrossing</li></ul>	Yes Yes
<ul><li>Autonegotiation</li><li>Autocrossing</li><li>Industrial Ethernet status LED</li></ul>	Yes
<ul> <li>Autoregotiation</li> <li>Autocrossing</li> <li>Industrial Ethernet status LED</li> </ul> Protocols	Yes Yes Yes
<ul> <li>Autonegotiation</li> <li>Autocrossing</li> <li>Industrial Ethernet status LED</li> </ul> Protocols PROFIsafe	Yes Yes
Autoregotiation     Autocrossing     Industrial Ethernet status LED  Protocols  PROFIsafe  Number of connections	Yes Yes Yes Yes; V2.4 / V2.6
<ul> <li>Autoregotiation</li> <li>Autocrossing</li> <li>Industrial Ethernet status LED</li> </ul> Protocols PROFIsafe Number of connections <ul> <li>Number of connections, max.</li> </ul>	Yes Yes Yes Yes; V2.4 / V2.6  256; via integrated interfaces of the CPU and connected CPs / CMs
Autoropsiation Autocrossing Industrial Ethernet status LED  Protocols  PROFIsafe Number of connections Number of connections, max. Number of connections reserved for ES/HMI/web	Yes Yes Yes; V2.4 / V2.6  256; via integrated interfaces of the CPU and connected CPs / CMs 10
Autocrossing Industrial Ethernet status LED  Protocols  PROFIsafe Number of connections  Number of connections, max.  Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces	Yes Yes Yes Yes; V2.4 / V2.6  256; via integrated interfaces of the CPU and connected CPs / CMs 10 128
Autocrossing Industrial Ethernet status LED  Protocols  PROFIsafe  Number of connections  Number of connections, max.  Number of connections reserved for ES/HMI/web  Number of connections via integrated interfaces  Number of S7 routing paths	Yes Yes Yes; V2.4 / V2.6  256; via integrated interfaces of the CPU and connected CPs / CMs 10
Autorossing Industrial Ethernet status LED  Protocols  PROFIsafe Number of connections  Number of connections, max.  Number of connections reserved for ES/HMI/web  Number of connections via integrated interfaces  Number of S7 routing paths  Redundancy mode	Yes Yes Yes Yes; V2.4 / V2.6  256; via integrated interfaces of the CPU and connected CPs / CMs 10 128 16
Autorossing Industrial Ethernet status LED  Protocols  PROFIsafe  Number of connections  Number of connections, max.  Number of connections reserved for ES/HMI/web  Number of connections via integrated interfaces  Number of S7 routing paths  Redundancy mode  H-Sync forwarding	Yes Yes Yes Yes; V2.4 / V2.6  256; via integrated interfaces of the CPU and connected CPs / CMs 10 128
Autorossing Industrial Ethernet status LED  Protocols  PROFIsafe Number of connections  Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths  Redundancy mode  H-Sync forwarding  Media redundancy	Yes Yes Yes; V2.4 / V2.6  256; via integrated interfaces of the CPU and connected CPs / CMs 10 128 16
Autorossing Industrial Ethernet status LED  Protocols  PROFIsafe  Number of connections  Number of connections, max.  Number of connections reserved for ES/HMI/web  Number of connections via integrated interfaces  Number of S7 routing paths  Redundancy mode  H-Sync forwarding  Media redundancy  — Media redundancy	Yes Yes Yes Yes; V2.4 / V2.6  256; via integrated interfaces of the CPU and connected CPs / CMs 10 128 16  Yes only via 1st interface (X1)
Autorossing Industrial Ethernet status LED  Protocols  PROFIsafe Number of connections  Number of connections, max.  Number of connections reserved for ES/HMI/web  Number of connections via integrated interfaces  Number of S7 routing paths  Redundancy mode  H-Sync forwarding  Media redundancy	Yes Yes Yes Yes; V2.4 / V2.6  256; via integrated interfaces of the CPU and connected CPs / CMs 10 128 16  Yes  only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager;
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<ul> <li>Autocrossing</li> <li>Industrial Ethernet status LED</li> </ul> Protocols PROFIsafe <ul> <li>Number of connections</li> <li>Number of connections, max.</li> <li>Number of connections reserved for ES/HMI/web</li> <li>Number of connections via integrated interfaces</li> <li>Number of S7 routing paths</li> </ul> Redundancy mode <ul> <li>H-Sync forwarding</li> </ul> Media redundancy <ul> <li>Media redundancy</li> <li>MRP</li> </ul> — MRP interconnection, supported <ul> <li>MRPD</li> <li>Switchover time on line break, typ.</li> <li>Number of stations in the ring, max.</li> </ul> SIMATIC communication <ul> <li>PG/OP communication</li> <li>S7 routing</li> </ul>	Yes Yes Yes Yes; V2.4 / V2.6  256; via integrated interfaces of the CPU and connected CPs / CMs 10 128 16  Yes  only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 Yes; Requirement: IRT 200 ms; For MRP, bumpless for MRPD 50  Yes; encryption with TLS V1.3 pre-selected Yes
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Open IE communication	
TCP/IP	Yes
— Data length, max.	64 kbyte
several passive connections per port, supported	Yes
Several passive conflections per port, supported     ISO-on-TCP (RFC1006)	Yes
	64 kbyte
— Data length, max. ● UDP	Yes
— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast
— UDP multicast	Yes; max. 118 multicast circuits
DHCP	Yes
• DNS	Yes
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
• Encryption	Yes; Optional
Web server	res, optional
• HTTP	Yes; Standard and user pages
• HTTPS	Yes; Standard and user pages
OPC UA	100, oldindira and door pages
Runtime license required	Yes; "Medium" license required
OPC UA Client	Yes; Data Access (registered Read/Write), Method Call
Application authentication	Yes
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password
<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_I max.</li> </ul>	300
<ul> <li>Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.</li> </ul>	20
<ul> <li>Number of elements for one call of OPC_UA_MethodGetHandleList, max.</li> </ul>	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
<ul> <li>Number of registerable method calls of OPC_UA_MethodCall, max.</li> </ul>	100
<ul> <li>Number of inputs/outputs when calling OPC_UA_MethodCall, max.</li> </ul>	20
OPC UA Server	Yes; Data Access (Read, Write, Subscribe), Method Call, Alarms & Condition (A&C), Custom Address Space
Application authentication	Yes
— Security policies	available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256, Aes128Sha256RsaOaep, Aes256Sha256RsaPss
— User authentication	"anonymous" or by user name & password
<ul> <li>— GDS support (certificate management)</li> </ul>	Yes
<ul><li>Number of sessions, max.</li></ul>	48
<ul> <li>Number of accessible variables, max.</li> </ul>	100 000
<ul> <li>Number of registerable nodes, max.</li> </ul>	20 000
<ul> <li>Number of subscriptions per session, max.</li> </ul>	50
— Sampling interval, min.	100 ms
<ul><li>— Publishing interval, min.</li></ul>	100 ms
— Number of server methods, max.	50
<ul> <li>Number of inputs/outputs per server method, max.</li> </ul>	20
<ul> <li>Number of monitored items, recommended max.</li> </ul>	4 000; for 1 s sampling interval and 1 s send interval
— Number of server interfaces, max.	10 of each "Server interfaces" / "Companion specification" type and 20 of the type "Reference namespace"
<ul> <li>Number of nodes for user-defined server interfaces, max.</li> </ul>	30 000

- Number of program alarms 200 - Number of program alarms 200 - Number of contractions 200 - Number of logic stations for resisting functions, max Number of logical stations for resisting functions, max Number of logical stations for resisting functions, max Number of logical stations for resisting functions 200 - Number of logical stations or resisting functions 200 - Number of alarms for system diagnostics 200 - Number of alarms for resistent diagnostics 200 - Number of breakpoints 30 - State block 200 - Variables 30 - Variables 30 - Variables 30 - Number of translations 30 - Variables 40 - Variables 30 - Number of variables, max. 200, per job - Variables 30 - Number of variables, max. 200, per job - Fortriag 30 - Fortriag 30 - Fortriag 40 - Number of entiries, max 30 - Owther hostics variables, max 30 - Owther hostics variables, max 30 - Owther hostics variables 30 - Number of entiries, max 30 - Owther hostics variables 30 - Number of entiries, max 30 - Owther hostics variables 30 - Number of entiries, max 30 - Owther hostics variables 30 - Number of entiries, max 30 - Owther hostics variables 30 - Number of entiries 3	Alarms and Conditions	Yes
- Number of alarms for system diagnostics  * NOCBUS  * NOCBUS  * NOCBUS  * NOCBUS  * NoCBUS  * Number of logs stations for message functions, max.  * Ref.  * Program alarms  * Yes  * Number of logs stations for messages, max.  * Number of ordingurable program messages, max.  * Probleg or CRAPH*  * Number of ordingurable program messages, max.  * Number of simultaneously active program alarms  * Number of program alarms  * Number of program alarms  * Number of alarms for system diagnostics  * Status block  * Yes, Parallel online access possible for up to 8 engineering systems  * Status block  * Yes, Up to 8 simultaneously (in total across all ES clients)  * Status block  * Status block  * Yes, Up to 8 simultaneously (in total across all ES clients)  * Status block  * Status block  * Status block  * Yes, Up to 8 simultaneously (in total across all ES clients)  * Status block  * Yes, Up to 8 simultaneously (in total across all ES clients)  * Status block  * Yes, without fail-safe  * Income;  * Forting, variables  * Outper for divinitialities, max.  * of which control variables, max.  * of which control variables, max.  * of which control variables, max.  * Forting, variables  * Forting, variables  * Number of variables, max.  * Outper of variables,		
### Without of login stations for mosage functions was program messages, max.    Number of login stations for mosage functions, max.   0.000   Program messages are generated by the "Program_Alarm" block, Probling or GRAPH		
**MODBUS** 7 resistance functions  Number of login stations for message functions, max. Program alarms  Number of orinflyurable program messages, max.  10 000, Program messages are generated by the "Program, Alarm" block, Precision or orinflyurable program messages in RUM, max.  5 000  Number of loadsbile program messages in RUM, max.  5 000  Number of simultaneously active program alarms  * Number of orisms for system diagnostics  * Number of orisms for system diagnostics  * Number of datems for system diagnostics  * Number of treatspoints  \$ 1000  * Yes; Parallel online access possible for up to 8 engineering systems.  * Yes; Up to 8 simultaneously (in total across all ES clients)  \$ Status block  * Yes; without fails active  * Program, Alarm" block, Precision of the Commission of the Systems  * Status block  * Number of treatspoints  * Status block  * Number of variables, max.  - of which control variables, max.  - of which powerfails proof  * Forcing  * Yes  * Number of configurable Traces  * Number of avariables, from station.  * Diagnosis buttler  * Present  * Number of avariables from station.  * Original state of the PLC program, selection guide via the TM Selection Tool  * Program, selection guide via the TM Selection Tool  * Ves  * Program call active the Configurable Traces  * Program call active the Co		100
Stressperimentions   Ves   V	·	Vac: MODRUS TCD
Number of ringin stations for message functions, max.  Program atarms  Yes  Number of configurable program messages, max.  Number of configurable program messages in RUN, max.  Number of rindulaneously active program atarms  Number of rindulaneously active program atarms  Number of rindulaneously active program atarms  Number of ramitianeously active program atarms  Number of radiations for system diagnostics  Number of atarms for motion technology objects  1000  **Number of atarms for motion technology objects  **Test commissioning functions  John commissioning functio		Tes, MODBOS TO
Program alarms Yes Number of londable program messages in RUN, max Number of londable program messages in RUN, max Number of londable program messages in RUN, max Number of londable program alarms  • Number of alarms for system diagnostics • Number of alarms for repiden diagnostics • Number of breakpoints • Status block • Yes: Up to 8 simultaneously (in total across all ES clients) Signige step • Na Number of breakpoints • Number of breakpoints • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  — of which control variables, max.  Procing • Forcing, variables • Number of variables, max.  — of which powerfail proof  Traces • Number of variables, max.  — of which powerfail-proof  Traces • Number of configurable Traces • Number of available Motion Control resources for technology objects  Prepationing axis • Per protoch data • Number of positioning axes at motion control cycle of 4 ms (typical value) • Number of positioning axes at motion control cycle of 4 ms (typical value) • Number of positioning axes at motion control cycle of 4 ms (typical value) • Number of positioning axes at motion control cycle of 4 ms (typical value)		64
Number of configurable program messages, max.  Number of froadable program messages in RN. max.  Number of program alarms  Number of adams to response diagnostics  Number of program alarms  Number of program alarms  Number of program alarms  Number of variables  Noncommissioning functions  Number of variables  Noncommissioning functions  Number of variables  Noncommissioning functions  Number of variables, max.  Of which status variables, max.  Number of variables variables.  Number of variables variables variables variables variables variables variables variables variables variables.  Number of variables var		
Number of loadable program messages in RUN, max. 5.000  Number of nimultaneously active program alarms  Number of program alarms  Number of program alarms  Number of alarms for system diagnostics  State ablook. 7 set. Up to 8 simultaneously (in total across all ES clients)  Single step. No  Number of breakpoints  Sistuationterial  Status ablook. 7 set. Up to 8 simultaneously (in total across all ES clients)  No  Number of breakpoints  Status ablook. 9 set. Up to 8 simultaneously (in total across all ES clients)  No  Number of breakpoints  Status alarms  Status alarms  Status alarms  Number of variables, max. 9 set.		
Number of simultaneously active program alarms  Number of program alarms  Number of alarms for system diagnostics  Number of alarms for system diagnostics  Joint commission (Team Engineering)  Ves: Parallel online access possible for up to 8 engineering systems  Vesity by to 8 aimultaneously (in total across all ES clients)  Single step  No  Number of breakpoints  8  Status-control variable  Variables  Variabl	Number of configurable program messages, max.	
Number of alarms for system diagnostics 200 Number of alarms for system diagnostics 150  Test commissioning functions 150 Slatus block 7 yes; Parallel online access possible for up to 8 engineering yestems 7 yes; Parallel online access possible for up to 8 engineering yestems 7 yes; Parallel online access possible for up to 8 engineering yestems 8 yes; Up to 8 simultaneously (in total across all ES clients) Slatus block 7 yes; Up to 8 simultaneously (in total across all ES clients) Slatus control variables 8 yes; without fail-safe inputs/outputs, bit memories, DBa, peripheral I/Oa (without fail-safe), times, counters  Number of viorafables, max. 200 per job 200; per job 2	Number of loadable program messages in RUN, max.	5 000
Number of alarms for resident diagnostics   180	Number of simultaneously active program alarms	
A Number of alaims for motion technology objects Test commissioning functions  Joint commission (Team Engineering)  Status block  Yes; Up to 8 simultaneously (in total across all ES clients)  Single step  No  Number of breakpoints  8  Situsticontrol variable  • Variables  • Number of variables, max.  — of which softed variables, max.  — of which control variables, max.  — of which powerfaile, max.  • Number of variables, max.  9  • Forcing  • Forcing  • Forcing, variables  • Number of variables, max.  — of which powerfail-proof  Traces  • Number of configurable Traces  • Per specification ED  • RUN/STOP LED  • STOP ACTIVE LED  • Per specification Traces  • Per specification Traces  • Per specification Traces  • Per specificatio	<ul> <li>Number of program alarms</li> </ul>	1 000
Joint 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  Status stock  Status stock  Status stoch  Status stoch of breakpoints  No Number of variables, max.  — of which status variables, max.  — of which control variables, max.  — of which powerfall prof  Present  Number of variables, max.  — of which powerfall-prof  Stoch  Traces  Number of configurable Traces  Number	<ul> <li>Number of alarms for system diagnostics</li> </ul>	200
Joint commission (Team Engineering)  Status block  Status block  Single step  No  Number of breakpoints  Status/control variable  • Status/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 powerfall—proof  Forcing  • Forcing, variables  • Number of variables, max.  — of which powerfall—proof  Traces  • Number of configurable Traces  • Number of configurable Traces  • Number of configurable information  Diagnostic buffer  • present  • Number of configurable information  Diagnostic flatus information  Post of the powerfall—proof  • RUNNSTOP LED  • RUNNSTOP LED  • RUNNSTOP LED  • STOP ACTIVE	<ul> <li>Number of alarms for motion technology objects</li> </ul>	160
Status block  Yes; Up to 8 simultaneously (in total across all ES clients)  Single step  No  Number of breakpoints  8  Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  — Peroring, variables  • Number of variables, max.  Diagnostic buffer  • Prorcing, variables  • Number of variables, max.  — of which powerfail-proof  Forces  • Number of configurable Traces  • Yes  • SEROR LED  • Yes  • SEROR LED  • Yes  • Connection display LINK TXRX  Yes  Supported technology objects  Motion Control  • Number of configurable Traces  — per speed-controlled axis  — per positioning axis  • per synchronous axis  — per open conder  — per output cam  — per cam track  — per probe  • Positioning axes at motion control cycle  of 4 ms (typical value)  — Number of positioning axes at motion control cycle  of 4 ms (typical value)  — Number of positioning axes at motion control cycle  of 4 ms (typical value)  — Number of positioning axes at motion control cycle  of 4 ms (typical value)  — Number of positioning axes at motion control cycle  of 4 ms (typical value)  — Number of positioning axes at	Test commissioning functions	
Single step	Joint commission (Team Engineering)	Yes; Parallel online access possible for up to 8 engineering systems
Number of breakpoints  Status/control variable  Status/control variables  Status/control variables  Status/control variables  Status/control variables  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  — of which powerfall-proof  Forcing  Present  Number of variables, max.  — of which powerfall-proof  Fraces  Number of configurable Traces  Number of variables, taux information  Diagnostics indication LED  PRENCR LED  NUNSTOP LED  NUNSTOP LED  Nunstor CATTIVE LED  Connection display LINK TX/RX  Yes  Supported technology objects  Motion Control  Number of available Motion Control resources for technology objects  Perspection and the control resources for technology objects  Per spect-controlled axis  — per synchronous axis  — per synchronous axis  — per opentioning axis  — per output cam  — per cam track  160  — per output cam  — per cam track  160  — per probe  Positioning axes at motion control cycle  of 4 ms (typical value)  — Number of positioning axes at motion control cycle  of 4 ms (typical value)  — Number of positioning axes at motion control cycle  of 4 ms (typical value)  — Number of positioning axes at motion control cycle  of 4 ms (typical value)  — Number of positioning axes at motion control cycle  of 4 ms (typical value)  — Number of positioning axes at motion control cycle  of 4 ms (typical value)  — Number of positioning axes at motion control cycle  of 4 ms (typical value)  — Number of positioning axes at motion control cycle  of 4 ms (typical value)  — Number of positioning axes at motion control cycle  of 4 ms	Status block	Yes; Up to 8 simultaneously (in total across all ES clients)
Status/control  Status/control variable  Variables  Variables  Number of variables, max.  — of which status variables, max.  — of which status variables, max.  — of which control variables, max.  — of which powerfail proof  Traces  Number of configurable Traces  — of which powerfail proof  PRONSTOP LED  — RUNSTOP LED  — RUNSTOP LED  — Connection display LINK TX/RX  Yes  Supported technology objects  Motion Control  — Number of available Motion Control resources for technology objects  — per speed-controlled axis  — per speed-controlled axis  — per speed-controlled axis  — per speed-controlled axis  — per positioning axis  — per positioning axis  — near track  — per portioning axis  — Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle	Single step	No
Status/control variable Variables Variables Variables Number of variables, max. — of which status variables, max. — of which control variables, max. — of which particles  • Forcing • Forcing, variables • Number of variables, max. — of which powerfall-troc  • Number of entries, max. — of which powerfall-troc  • Number of configurable Traces • Number of positioning axis • Required Motion Control resources or technology objects • Required Motion Control resources • Per synechronous axis • Required Motion Control resources • Per synechronous axis • Number of positioning axes at motion control cycle • Positioning axes • Number of positioning axes at motion control cycle • Number of positioning axes at motion control cycle • Number of positioning axes at motion control cycle • Number of positioning axes at motion control cycle • Number of positioning axes at motion control cycle • Number of positioning axes at motion control cycle • Number of positioning axes at motion control cycle • Number of positioning axes at motion control cycle • Number of positioning axes at motion control cycle	Number of breakpoints	8
Variables  Number of variables, max.  of which status variables, max.  Forcing  Forcing  Forcing  Forcing Yes; without fail-safe  Peroring, variables  Number of variables, max.  200; per job  Forcing  Forcing Yes; without fail-safe  Peroring, variables  Number of variables, max.  200  Diagnostic buffer  Persent  Number of entries, max.  200  Diagnostic buffer  Persent  Number of configurable Traces  Number of available Motion Control Traces  Number of available Motion Control resources for technology objects  Required Motion Control resources  Per speed-controlled axis  Per prositioning axis  Number of positioning axes at motion control cycle  Positioning axis  Number of positioning axes at motion control cycle	Status/control	
Number of variables, max.  — of which status variables, max.  — of which control variables, max.  — of which control variables, max.  Porcing  • Forcing  • Forcing, variables  • Number of variables, max.  Diagnostic buffer  • present  • Number of entries, max.  — of which powerfail-proof  Traces  • Number of configurable Traces  • Number of positioning axis  — per speed-controlled axis  — per speed-controlled axis  — per synchronous axis  — per external encoder  — per output cam — per probe  • Positioning axis — Number of positioning axes at motion control cycle of 4 ms (typical value)  — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 4 ms (typical value)  • Ves	<ul> <li>Status/control variable</li> </ul>	Yes; without fail-safe
- of which status variables, max.   - of which control variables, max.  Forcing Forcing Forcing, variables Forcing, variables Forcing, variables, max.  - of which powerfales, max.  - of which powerfales, max.  - of which powerfales, max.  - of which powerfales of configurable Traces  Number of configurable Traces  Number of configurable Traces  Number of configurable Traces  - Number of configurable Traces  Number of configurable Traces  - Ves - ERROR LED - Yes - STOP ACTIVE LED - STOP ACTIVE LED - Connection display LINK TX/RX - Yes  Supported technology objects  Motion Control  - Number of available Motion Control resources for technology objects - Required Motion Control resources for technology objects - Required Motion Control resources - per speed-controlled axis - per positioning axis - per external encoder - per output cam - per output cam - per output cam - per porbe - Positioning axis - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle	Variables	
Forcing Forcing Forcing Forcing Forcing Forcing Forcing Forcing, variables Forcing, variables Forcing, variables, max.  Possible Forcing, variables, max.  Possible Forcing, variables, max.  Possible Forcing, variables, max.  Possible Forcing Forc	<ul> <li>Number of variables, max.</li> </ul>	
Forcing  Forcing Forcing Forcing, variables Forcing, variables, max.  200  Diagnostic buffer  Pesent Forcing Forc	<ul><li>of which status variables, max.</li></ul>	200; per job
Forcing Forcing, variables Forcing, variables Number of variables, max.  Diagnostic buffer  present Plagnostic buffer  Present Plagnostic side information  Plagnostics indication LED  RUNNSTOP LED RUNNSTOP LED STOP ACTIVE LED STOP ACTIVE LED Connection display LINK TX/RX  Supported technology objects  Motion Control Number of available Motion Control resources for technology objects  Required Motion Control resources Per synechronous axis Per per per chernal encoder Per per per motioning axis Per per per controling axis Per per per motioning axes at motion control cycle of 4 ms (typical value) PNumber of positioning axes at motion control cycle of 4 ms (typical value) PNumber of positioning axes at motion control cycle	— of which control variables, max.	200; per job
Forcing, variables Number of variables, max.  Diagnostic buffer  opresent Number of entries, max.  of which powerfail-proof Traces  Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of available Motion Control resources for technology objects Required Motion Control resources Per speed-controlled axis Per external encoder Per external encoder Number of positioning axis Per controlled Positioning axis Per external encoder Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle Onumber of positioning axes at motion control cycle Of Mms (typical value) Number of positioning axes at motion control cycle Onumber of positioning axes at motion control cycle	Forcing	
Number of variables, max.  Diagnostic buffer  • present  • Number of entries, max.  — of which powerfail-proof  Traces  • Number of configurable Traces  • Number of available Motion Control resources for technology objects  • Required Motion Control resources  • Required Motion Control resources  • Required Motion Control resources  • per psed-controlled axis  — per synchronous axis  — per external encoder  — per output cam — per cant track — per probe  • Postitioning axis — Number of positioning axes at motion control cycle • Postitioning axis — Number of positioning axes at motion control cycle — Number of positioning axes at motion control cycle — Number of positioning axes at motion control cycle — Number of positioning axes at motion control cycle — Number of positioning axes at motion control cycle — Number of positioning axes at motion control cycle — Number of positioning axes at motion control cycle — Number of positioning axes at motion control cycle — Number of positioning axes at motion control cycle — Number of positioning axes at motion control cycle — Number of positioning axes at motion control cycle — Number of positioning axes at motion control cycle	<ul><li>Forcing</li></ul>	Yes; without fail-safe
o present	<ul><li>Forcing, variables</li></ul>	peripheral inputs/outputs (without fail-safe)
Present Number of entries, max. Of which powerfail-proof S00  Traces Number of configurable Traces Number of ERROR LED Net Number of Active Led STOP ACTIVE LED STOP ACTIVE LED Notion Control  Number of available Motion Control resources for technology objects Required Motion Control resources Per per per pesitioning axis Per synchronous axis Per per synchronous axis Per cam track Per per cam track Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle Of 4 ms (typical value) Number of positioning axes at motion control cycle Of A ms (typical value) Number of positioning axes at motion control cycle Of A ms (typical value)	Number of variables, max.	200
Number of entries, max.	Diagnostic buffer	
- of which powerfail-proof Traces  • Number of configurable Traces  Interrupts/diagnostics/status information  Diagnostics indication LED  • RUN/STOP LED • REROR LED • MAINT LED • STOP ACTIVE LED • Connection display LINK TX/RX  Supported technology objects  Motion Control  • Number of available Motion Control resources for technology objects • Required Motion Control resources • per speed-controlled axis - per positioning axis - per external encoder - per cutput cam - per cutput cam - per probe - Positioning axis - Per probe - Positioning axis - Positioning axis - Positioning axis - Number of positioning axes at motion control cycle of 4 ms (typical value) - Number of positioning axes at motion control cycle of 4 ms (typical value) - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle - Number of positioning axes at motion control cycle	• present	Yes
Traces  ● Number of configurable Traces  4; Up to 512 KB of data per trace are possible  Interrupts/diagnostics/status information  Diagnostics indication LED  ● RUN/STOP LED  ● ERROR LED  ● STOP ACTIVE LED  ● Connection display LINK TX/RX  Yes  ● Connection display LINK TX/RX  Yes  Supported technology objects  Motion Control  ● Number of available Motion Control resources for technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool  ● Number of available Motion Control resources for technology objects  ● Required Motion Control resources  ─ per speed-controlled axis  ← per positioning axis  ─ per synchronous axis  ─ per external encoder  ─ per output cam	<ul> <li>Number of entries, max.</li> </ul>	3 200
Number of configurable Traces  A; Up to 512 KB of data per trace are possible  Interrupts/diagnostics/status information  Diagnostics indication LED  RUN/STOP LED  RUN/STOP LED  REROR LED  MAINT LED  STOP ACTIVE LED  Connection display LINK TX/RX  Yes  Supported technology objects  Motion Control  Number of available Motion Control resources for technology objects  Required Motion Control resources  Required Motion Control resources  Per speed-controlled axis  Per per positioning axis  Per external encoder  Per output cam  Per cam track  Per per probe  Positioning axis  Number of positioning axes at motion control cycle of 4 ms (typical value)  Number of positioning axes at motion control cycle  A; Up to 512 KB of data per trace are possible  Yes  Yes  Yes  Yes  Yes  Yes  Yes  Y	— of which powerfail-proof	500
Interrupts/diagnostics/status information  Diagnostics indication LED  RUN/STOP LED REROR LED STOP ACTIVE LED Connection display LINK TX/RX  Supported technology objects  Motion Control  Number of available Motion Control resources for technology objects  Required Motion Control resources Required Motion Control resources  Per speed-controlled axis Per synchronous axis Per synchronous axis Per external encoder Per cam track Per probe  Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle Positioning axes at motion control cycle		
Diagnostics indication LED  RUN/STOP LED ERROR LED STOP ACTIVE LED Connection display LINK TX/RX  Supported technology objects  Motion Control Number of available Motion Control resources for technology objects Required Motion Control resources Required Motion Control resources Per speed-controlled axis Per synchronous axis Per external encoder Per external encoder Per per output cam Per per author of positioning axis Per per probe Positioning axis Per probe A0  Positioning axis Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle On Number of positioning axes at motion control cycle On Number of positioning axes at motion control cycle On Number of positioning axes at motion control cycle		4; Up to 512 KB of data per trace are possible
RUN/STOP LED ERROR LED STOP ACTIVE LED STOP ACTIVE LED Connection display LINK TX/RX Yes  Supported technology objects  Motion Control  Number of available Motion Control resources for technology objects  Required Motion Control resources Per speed-controlled axis Per positioning axis Per external encoder Per output cam Per per output cam Per per pobe Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle Polymer of positioning axes at motion control cycle On Number of positioning axes at motio		
ERROR LED     MAINT LED     Yes     STOP ACTIVE LED     Connection display LINK TX/RX     Yes      Connection display LINK TX/RX   Supported technology objects  Motion Control      Number of available Motion Control resources for technology objects      Required Motion Control resources     — per speed-controlled axis     — per positioning axis     — per positioning axis     — per external encoder     — per cam track     — per probe      Positioning axis     — Number of positioning axes at motion control cycle of 4 ms (typical value)     — Number of positioning axes at motion control cycle     — Number of positioning axes at motion control cycle     One control cycle     11	Diagnostics indication LED	
MAINT LED STOP ACTIVE LED Connection display LINK TX/RX Yes  Supported technology objects  Motion Control  Number of available Motion Control resources for technology objects  Required Motion Control resources Per speed-controlled axis per per positioning axis per external encoder per output cam per cam track per probe Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle  Nes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool  4 400  4	RUN/STOP LED	Yes
STOP ACTIVE LED Connection display LINK TX/RX  Supported technology objects  Motion Control  Number of available Motion Control resources for technology objects Required Motion Control resources per speed-controlled axis per synchronous axis per external encoder per cam track per probe Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle  Number of positioning axes at motion control cycle  1 Yes		
Connection display LINK TX/RX  Supported technology objects  Motion Control  Number of available Motion Control resources for technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool  Number of available Motion Control resources for technology objects  Required Motion Control resources  per speed-controlled axis per positioning axis per synchronous axis per external encoder per output cam per cam track per probe  Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle Number of positioning axes at motion control cycle 20		
Motion Control  Per Speed-controlled axis — per synchronous axis — per external encoder — per cam track — per cam track — per probe — Positioning axis — Positioning axis — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle — Number of positioning axes at motion control cycle  Pes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool  2 400  2 400  40  40  40  40  40  40  40  40  40		Yes
Motion Control  • Number of available Motion Control resources for technology objects  • Required Motion Control resources  — per speed-controlled axis — per positioning axis — per external encoder — per output cam — per cam track — per probe  • Positioning axis — Number of positioning axes at motion control cycle of 4 ms (typical value)  — Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  • Number of positioning axes at motion control cycle  2 400  40  2 400  2 400  2 400  2 400  2 400  40  40  40  40  40  40  41  41  41		Yes
<ul> <li>Number of available Motion Control resources for technology objects</li> <li>Required Motion Control resources</li> <li>— per speed-controlled axis</li> <li>— per positioning axis</li> <li>— per synchronous axis</li> <li>— per external encoder</li> <li>— per cam track</li> <li>— per probe</li> <li>Positioning axis</li> <li>— Number of positioning axes at motion control cycle of 4 ms (typical value)</li> <li>— Number of positioning axes at motion control cycle</li> <li>2 400</li> <li>2 400</li> <li>40</li> <li>80</li> <li>80</li> <li>90</li> <li>40</li> <li>11</li> <li>11</li> <li>11</li> <li>20</li> <li>11</li> <li>20</li> <li>20</li> <li>20</li> <li>20</li> <li>20</li> <li>20</li> <li>20</li> <li>20</li> </ul>		
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<ul> <li>Required Motion Control resources</li> <li>— per speed-controlled axis</li> <li>— per positioning axis</li> <li>— per synchronous axis</li> <li>— per external encoder</li> <li>— per output cam</li> <li>— per cam track</li> <li>— per probe</li> <li>Positioning axis</li> <li>— Number of positioning axes at motion control cycle of 4 ms (typical value)</li> <li>— Number of positioning axes at motion control cycle</li> <li>20</li> <li>11</li> <li>11</li> <li>11</li> <li>11</li> <li>11</li> <li>12</li> <li>12</li> <li>13</li> <li>14</li> <li>15</li> <li>16</li> <li>17</li> <li>18</li> <li>19</li> <li>10</li> <li>11</li> <li>11</li> <li>11</li> <li>12</li> <li>12</li> <li>12</li> <li>13</li> <li>14</li> <li>15</li> <li>16</li> <li>17</li> <li>18</li> <li>19</li> <li>10</li> <li>10</li> <li>11</li> <li>11</li> <li>12</li> <li>12</li> <li>13</li> <li>14</li> <li>15</li> <li>16</li> <li>17</li> <li>17</li> <li>18</li> <li>19</li> <li>10</li> <li>10</li> <li>10</li> <li>11</li> <li>11</li> <li>12</li> <li>13</li> <li>14</li> <li>15</li> <li>16</li> <li>17</li> <li>17</li> <li>18</li> <li>19</li> <li>10</li> <li>11</li> <li>10</li> <li>10</li></ul>		
<ul> <li>per speed-controlled axis</li> <li>per positioning axis</li> <li>per synchronous axis</li> <li>per external encoder</li> <li>per output cam</li> <li>per cam track</li> <li>per probe</li> <li>Positioning axis</li> <li>Number of positioning axes at motion control cycle of 4 ms (typical value)</li> <li>Number of positioning axes at motion control cycle</li> <li>Number of positioning axes at motion control cycle</li> <li>20</li> <li>11</li> <li>11</li> <li>11</li> <li>11</li> <li>11</li> <li>12</li> <li>12</li> <li>14</li> <li>15</li> <li>16</li> <li>17</li> <li>16</li> <li>11</li> <li>11</li> <li>12</li> <li>12</li> <li>13</li> <li>14</li> <li>15</li> <li>16</li> <li>17</li> <li>18</li> <li>19</li> <li>10</li> <li>10</li> <li>11</li> <li>11</li> <li>12</li> <li>12</li> <li>13</li> <li>14</li> <li>15</li> <li>16</li> <li>17</li> <li>18</li> <li>19</li> <li>10</li> <li>10</li></ul>		
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<ul> <li>— per synchronous axis</li> <li>— per external encoder</li> <li>— per output cam</li> <li>— per cam track</li> <li>— per probe</li> <li>• Positioning axis</li> <li>— Number of positioning axes at motion control cycle of 4 ms (typical value)</li> <li>— Number of positioning axes at motion control cycle</li> <li>20</li> <li>40</li> <li>11</li> <li>11</li> <li>11</li> <li>20</li> <li>20</li> </ul>		
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<ul> <li>— per output cam</li> <li>— per cam track</li> <li>— per probe</li> <li>◆ Positioning axis</li> <li>— Number of positioning axes at motion control cycle of 4 ms (typical value)</li> <li>— Number of positioning axes at motion control cycle</li> <li>20</li> <li>40</li> <li>11</li> <li>11</li> <li>20</li> <li>40</li> <li>20</li> <li>20</li> </ul>		
— per cam track 160 — per probe 40  • Positioning axis — Number of positioning axes at motion control cycle of 4 ms (typical value) 11 — Number of positioning axes at motion control cycle 20	·	
<ul> <li>— per probe</li> <li>Positioning axis</li> <li>— Number of positioning axes at motion control cycle of 4 ms (typical value)</li> <li>— Number of positioning axes at motion control cycle</li> <li>20</li> </ul>		
<ul> <li>Positioning axis</li> <li>— Number of positioning axes at motion control cycle of 4 ms (typical value)</li> <li>— Number of positioning axes at motion control cycle</li> <li>20</li> </ul>	·	
<ul> <li>— Number of positioning axes at motion control cycle of 4 ms (typical value)</li> <li>— Number of positioning axes at motion control cycle</li> <li>20</li> </ul>		
— Number of positioning axes at motion control cycle 20	Number of positioning axes at motion control cycle	11
	Number of positioning axes at motion control cycle	20

Controller	
PID_Compact	Yes; Universal PID controller with integrated optimization
PID_3Step	Yes; PID controller with integrated optimization for valves
PID-Temp	Yes; PID controller with integrated optimization for temperature
Counting and measuring	
High-speed counter	Yes
Standards, approvals, certificates	
Ecological footprint	
environmental product declaration	Yes
Global warming potential	
global warming potential, (total) [CO2 eq]	100 kg
— global warming potential, (during production) [CO2	25.8 kg
eq]	25.5 mg
<ul> <li>global warming potential, (during operation) [CO2</li> </ul>	75.2 kg
eq]	
— global warming potential, (after end of life cycle)	-0.83 kg
[CO2 eq]	
Highest safety class achievable in safety mode	DI -
Performance level according to ISO 13849-1      SIL according to ISO 13849-1	PLe
SIL acc. to IEC 61508  People hills of fellows (fee any piece life of 60 are any and any piece).	SIL 3
Probability of failure (for service life of 20 years and repair time	· · · · · · · · · · · · · · · · · · ·
<ul> <li>Low demand mode: PFDavg in accordance with SIL3</li> </ul>	< 2.00E-05
High demand/continuous mode: PFH in accordance	< 1.00E-09
with SIL3	
Ambient conditions	
Ambient temperature during operation	
horizontal installation, min.	-30 °C; No condensation
horizontal installation, max.	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the
,	display is switched off
<ul> <li>vertical installation, min.</li> </ul>	-30 °C; No condensation
<ul> <li>vertical installation, max.</li> </ul>	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the
	display is switched off
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	
Installation altitude above sea level, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
configuration / header	
configuration / programming / header	
December of the second	
Programming language	
Programming language — LAD	Yes; incl. failsafe
	Yes; incl. failsafe Yes; incl. failsafe
— LAD	
— LAD — FBD	Yes; incl. failsafe
— LAD — FBD — STL	Yes; incl. failsafe Yes
— LAD — FBD — STL — SCL	Yes; incl. failsafe Yes Yes
— LAD — FBD — STL — SCL — GRAPH	Yes; incl. failsafe Yes Yes
— LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection	Yes; incl. failsafe Yes Yes Yes
— LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection  ■ User program protection/password protection	Yes; incl. failsafe Yes Yes Yes Yes
— LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection  • User program protection/password protection  • Copy protection	Yes; incl. failsafe Yes Yes Yes Yes Yes
- 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
- LAD - FBD - STL - SCL - GRAPH  Know-how protection  • User program protection/password protection • Copy protection • Block protection  Access protection  • protection of confidential configuration data	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes
- LAD - FBD - STL - SCL - GRAPH  Know-how protection  • User program protection/password protection • Copy protection • Block protection  Access protection  • protection of confidential configuration data • Password for display	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes
- LAD - FBD - STL - SCL - GRAPH  Know-how protection  • User program protection/password protection • Copy protection • Block protection  Access protection  • protection of confidential configuration data • Password for display • Protection level: Write protection	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
LAD FBD STL SCL GRAPH  Know-how protection  • User program protection/password protection • Copy protection • Block protection  Access protection  • protection of confidential configuration data • Password for display • Protection level: Write protection • Protection level: Read/write protection	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
LAD FBD STL SCL GRAPH  Know-how protection  • User program protection/password protection • Copy protection • Block protection  Access protection  • protection of confidential configuration data • Password for display • Protection level: Write protection • Protection level: Read/write protection • Protection level: Write protection	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
LAD FBD STL SCL GRAPH  Know-how protection  • User program protection/password protection • Copy protection • Block protection  Access protection  • protection of confidential configuration data • Password for display • Protection level: Write protection • Protection level: Write protection • Protection level: Write protection • Protection level: Complete protection	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
LAD FBD STL SCL GRAPH  Know-how protection  • User program protection/password protection • Copy protection • Block protection  Access protection  • protection of confidential configuration data • Password for display • Protection level: Write protection • Protection level: Read/write protection • Protection level: Write protection • Protection level: Complete protection  programming / cycle time monitoring / header	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
LAD FBD STL SCL GRAPH  Know-how protection  • User program protection/password protection • Copy protection • Block protection  Access protection  • protection of confidential configuration data • Password for display • Protection level: Write protection • Protection level: Write protection • Protection level: Write protection • Protection level: Complete protection programming / cycle time monitoring / header • lower limit	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
LAD FBD STL SCL GRAPH  Know-how protection  • User program protection/password protection • Copy protection • Block protection  Access protection  • protection of confidential configuration data • Password for display • Protection level: Write protection • Protection level: Read/write protection • Protection level: 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 Yes Ye
	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
	Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye

Depth	129 mm
Weights	
Weight, approx.	456 g

last modified:

10/9/2024