Data sheet



Figure similar

SIMATIC ET 200SP Open Controllers, CPU 1515SP PC. 4 GB RAM, 30 GB CFAST with WES 7 E 32 bit pre-installed, with S7-1500 software controller CPU 1505SP F pre-installed, Interfaces: 1x slot CFAST, 1x slot SD/MMC, 1x connection for ET 200SP bus adapter PROFINET 1x 10/100/1000 Mbit/s Ethernet, 3x USB, 1x DVI-I graphics card connection, Documentation on DVD, Restore DVD

General information	
Product type designation	CPU 1515SP PC
HW functional status	FS06
Firmware version	V2.1
Engineering with	
STEP 7 TIA Portal configurable/integrated from version	V14 SP1
Installed software	
 Visualization 	No
Control	S7-1500 Software Controller CPU 1505SP V2.1
Configuration control	
via dataset	Yes
Control elements	
Mode selector switch	1
Supply voltage	
Type of supply voltage	24 V DC
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Mains buffering	
 Mains/voltage failure stored energy time 	5 ms
Input current	
Current consumption (rated value)	1.5 A; Full processor load, incl. ET 200SP modules and using USB
Current consumption (in no-load operation), typ.	0.6 A
Inrush current, max.	4.7 A; Rated value
Power	
Active power input, max.	36 W; incl. ET 200SP modules and using USB
Infeed power to the backplane bus	8.75 W
Power loss	
Power loss, typ.	15 W; without ET 200SP modules and without using USB
Processor	
Processor type	Dual-Core 1 GHz, AMD G Series APU T40E
Memory	
Type of memory	DDR3-SDRAM
Main memory	4 GB RAM
CFast memory card	Yes; 30 GB flash memory

SIMATIC memory card required	No
	INU
Work memory	1 Mbyto
• integrated (for program)	1 Mbyte
• integrated (for CRU function library of CRU	5 Mbyte
 integrated (for CPU function library of CPU Runtime) 	10 Mbyte
Load memory	
integrated (on PC mass storage)	320 Mbyte
Backup	
• with UPS	Yes; all memory areas declared retentive
 with non-volatile memory 	Yes
CPU processing times	
for bit operations, typ.	10 ns
for word operations, typ.	12 ns
for fixed point arithmetic, typ.	16 ns
for floating point arithmetic, typ.	64 ns
CPU-blocks	
Number of elements (total)	6 000; In addition to blocks such as DBs, FBs and FCs, UDTs, global
Number of elements (total)	constants, etc. are also regarded as elements
DB	
Number, max.	5 999; Number range: 1 to 65535
• Size, max.	5 Mbyte
FB	
Number, max.	5 998; Number range: 1 to 65535
• Size, max.	512 kbyte
FC	
Number, max.	5 999; Number range: 1 to 65535
• Size, max.	512 kbyte
OB	·
Size, max.	1 048 kbyte
Number of free cycle OBs	100
Number of time alarm OBs	20
Number of delay alarm OBs	20
Number of cyclic interrupt OBs	20
Number of process alarm OBs	50
·	
 Number of DPV1 alarm OBs Number of isochronous mode OBs 	3
	1
Number of technology synchronous alarm OBs	2
Number of startup OBs	100
Number of asynchronous error OBs	4
 Number of synchronous error OBs 	2
Number of diagnostic alarm OBs	1
Nesting depth	
per priority class	24
Counters, timers and their retentivity	
S7 counter	
Number	2 048
Retentivity	
— adjustable	Yes
IEC counter	
Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
S7 times	
Number	2 048
Retentivity	
— adjustable	Yes
IEC timer	

Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	410 kbyte; For storage in NVRAM; for storage in mass storage 5 242 020 bytes
Flag	
Size, max.	16 kbyte
 Number of clock memories 	8; 8 clock memory bit, grouped into one clock memory byte
Data blocks	
 Retentivity adjustable 	Yes
Retentivity preset	No
Local data	
 per priority class, max. 	64 kbyte; max. 16 KB per block
Address area	
Number of IO modules	8 192
I/O address area	
Inputs	32 kbyte; All inputs are in the process image
Outputs	32 kbyte; All outputs are in the process image
of which per assigned PC interface	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images	
 Number of subprocess images, max. 	32
Hardware configuration	
Integrated power supply	Yes
Number of distributed IO systems	20
Number of DP masters	·
• Via CM	1
Rack	
 Modules per rack, max. 	64; CPU 1515SP PC + 64 modules + server module
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
 Hardware clock (real-time) 	Yes; Resolution: 1 s
 Backup time 	6 wk; At 40 °C ambient temperature, typically
Deviation per day, max.	10 s; Typ.: 2 s
Clock synchronization	
supported	Yes
• to DP, master	No
 on Ethernet via NTP 	Yes
on Windows clock, slave	Yes
Interfaces	
Number of industrial Ethernet interfaces	2
Number of PROFINET interfaces	1
Number of PROFIBUS interfaces	1
Number of RS 485 interfaces	1; Via CM DP module
Number of USB interfaces	3; 3x USB 2.0 on the front, 500 mA each - of which 2x 500 mA and 1x 100 mA simultaneously
Number of SD card slots	1
Video interfaces	
Graphics interface	1x DVI-I
1. Interface	
Interface type	PROFINET

automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Number of connections	88
Interface types	
• RJ 45 (Ethernet)	Yes; Via BusAdapter BA 2x RJ45
— Transmission rate, max.	100 Mbit/s
Industrial Ethernet status LED	Yes
Number of ports	2
integrated switch	Yes
BusAdapter (PROFINET)	Yes; Applicable BusAdapter: BA 2x RJ45, BA 2x FC
Protocols	100, 1 pp. 100 100 100 100 100 100 100 100 100 10
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
SIMATIC communication	Yes
Open IE communication	Yes
Web server	Yes
PROFINET IO Controller	
Services	
— Isochronous mode	Yes
— shortest clock pulse	500 μs
— IRT	Yes
 Prioritized startup 	Yes; Max. 32 PROFINET devices
 Number of connectable IO Devices, max. 	128
 Of which IO devices with IRT, max. 	64
— of which in line, max.	64
 Number of connectable IO Devices for RT, max. 	128
— of which in line, max.	128
 Number of IO Devices that can be simultaneously activated/deactivated, max. 	8
 IO Devices changing during operation (partner ports), supported 	Yes
 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 500 μs	500 μs to 8 ms
— for send cycle of 1 ms	1 ms to 16 ms
— for send cycle of 2 ms	2 ms to 32 ms
— for send cycle of 4 ms	4 ms to 64 ms
With IRT and parameterization of "odd" send	Update time = set "odd" send clock (any multiple of 125 μs: 375 μs, 625
cycles	μs 3 875 μs)
Update time for RT	
— 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	No
— IRT	Yes
 Prioritized startup 	Yes
— Shared device	Yes
 Number of IO Controllers with shared device, 	4
max.	
2. Interface	
Interface type	Integrated Ethernet interface
automatic detection of transmission rate	Yes

Autonogotistion	Yes
Autonogotiation	
Autocrossing	Yes
Interface types • RJ 45 (Ethernet)	Yes; Integrated
— Transmission rate, max.	1 000 Mbit/s
— Industrial Ethernet status LED	No
Number of ports	1
3. Interface	
	PROFIDIA W ON PR
Interface type	PROFIBUS with CM DP
Number of connections via this interface	44
Interface types	V
• RS 485	Yes
Protocols	V
PROFIBUS DP master	Yes
PROFIBUS DP slave	Yes
SIMATIC communication	Yes
PROFIBUS DP master	405
Number of DP slaves, max.	125
Services	No
— Equidistance	No No
— Isochronous mode	No
Interface types	
RS 485	
Transmission rate, max.	12 Mbit/s
Protocols	
Number of connections	
 Number of connections, max. 	88
 Number of connections reserved for ES/HMI/web 	10
Number of S7 routing paths	16
Redundancy mode	
Media redundancy	
— MRP	Yes
— MRPD	Yes
 Switchover time on line break, typ. 	200 ms
Number of stations in the ring, max.	50
SIMATIC communication	
 PG/OP communication 	Yes
 S7 routing 	Yes
 S7 communication, as server 	Yes
 S7 communication, as client 	Yes
User data per job, max.	64 kbyte
Open IE communication	
• TCP/IP	Yes
— Data length, max.	64 kbyte
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	64 kbyte
• UDP	Yes
— Data length, max.	1 472 kbyte
• SNMP	Yes
SNMPDCP	
	Yes
• DCP	Yes Yes
DCP LLDP	Yes Yes
DCP LLDP Web server	Yes Yes Yes
DCP LLDP Web server HTTP	Yes Yes Yes Yes; Via Windows and PROFINET interface
DCP LLDP Web server HTTP HTTPS	Yes Yes Yes Yes; Via Windows and PROFINET interface
DCP LLDP Web server HTTP HTTPS OPC UA	Yes Yes Yes Yes; Via Windows and PROFINET interface Yes; Only via PROFINET interface

- User authentication	— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
MODBUS **MonDeud** **Number of login stations for message functions, max.** **Program alarms** **Number of configurable program messages, max.** **Number of configurable program messages, max.** **Number of configurable program alarms** **Number of program alarms** **Number of alarms for system diagnostics and system of alarms for motion technology objects and system of alarms for motion technology objects.** **Number of alarms for motion technology objects** **Test commissioning functions** **Joint Commission Team Engineering** **Joint Commissioning functions** **Joint Commission Team Engineering** **Joint Status Woods** **Status/control variable** **Number of variables, max.** **Of which status variables, max.** **Diagnosts buffer** **Prescript Vess** **Number of variables, max.** **Of which powerfail proof** **Prescript Vess** **Number of configurable Traces** **Number of configurable Traces** **Number of configurable Traces** **Number of configurable Traces** **Number of ordingurable Traces** **Number of ordingur	User authentication	"anonymous" or by user name & password
S7 message functions Number of login statons for message functions, max. 7 yes	Further protocols	
Number of login stations for message functions, max. Yes	MODBUS	Yes; MODBUS TCP
Program alarms	S7 message functions	
Number of configurable program messages, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for notion technology objects **Tost.commbisioning functions.** Joint commission (Team Engineering) Joint commission (Team Engineering) Status blook Single step Status blook Single step Status scontrol Status scontrol Number of variables, max. — of which notion variables, max. — of which control variables, max. — of which power of variables, max. — of which power of variables, max. Number of variables, max. Procring Forcing Forcing, variables Number of variables, max. 1000 Forcing Forcing Yes Forcing Yes Number of variables, max. 1000 Present Number of onfigurable Traces Number of configurable Traces Number of configurable Traces Number of variables with information Diagnosite indication LED RNINSTOP LED RNINSTOP LED FROR LED PRINSTOP LED PRINST	Number of login stations for message functions, max.	32
Number of simultaneously active program alarms Number of program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for system diagnostics Number of alarms for motion technology objects Test commission (Team Engineering) Status block Status block Stratus block Stratus control variable Variables No Sistus/control variable Variables Number of variables, max Of which control variables, max Of which open fall-proof No Diagnostic buffer Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of variables information Diagnostics indication LED Per RROR LED Per Specification LED Per Compact Per proble Positioning axis Per proble Positioning axis Per proble Positioning axis Power of positioning axes at motion control cycle of 4 ms (typical value) Power of positioning axes at motion control cycle of 6 ms (typical value) Power of positioning axes at motion control cycle of 6 ms (typical value) Power of positioning axes at motion control cycle of 6 ms (typical value) Power of positioning axes at motion control cycle of 6 ms (typical value) Power of positioning axes at motion control cycle of 6 ms (typical value) Power of positioning axes at motion control cycle of 6 ms (typical value) Power of	Program alarms	Yes
Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block Single step Status block Single step Status control Number of variable Number of variables, max. - of which status variables, max. - of which status variables, max. - of which status variables, max. - of which control variables Number of variables, max. - of which status variables, max. - of which status variables, max. - of which status variables, max. - of which powerfail-proof Forcing Forcing Forcing Forcing Number of variables, max. - of which powerfail-proof Number of variables, max. - of which powerfail-proof Forcing Status Control variables, max. - of which powerfail-proof Number of configurable Traces Number of configura	Number of configurable program messages, max.	10 000
Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Joint commission (Team Engineering) Sitatus block Single step No Sitatus Stock Yes: Up to 8 simultaneously No Sitatus Stock Variables Number of variables Number of variables, max. — of which status variables, max. — of which control variables, max. — of which powerfall proof Number of variables, max. Diagnostics buffer • present • present • Number of configurable Traces • Number of configurable Traces • Memory size per trace, max. • Memory size per trace, max. • Memory size per trace, max. Sita Sita Sita Sita Sita Sita Sita Sita	Number of simultaneously active program alarms	
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Joint Commission (Team Engineering)	 Number of alarms for system diagnostics 	200
Joint commission (Team Engineering) Status block Strole step Status/control Status/control	 Number of alarms for motion technology objects 	160
Status block Single step No Signes step Status/control variable Status/control variable Variables Number of variables, max. — of which status variables, max. — of which control variables, max. — of which order variables, max. Porcing Forcing Forcing Forcing, variables Number of variables, max. — of which powerfall-proof Number of ordigurable Traces • Number of configurable Motion Control Pyes • RROR LED • RUNSTOP LED • RROR LED • RUNSTOP LED • RROR LED • RAINT LED 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 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 8 ms (typical value) Controller • PID_Compact	Test commissioning functions	
Situs/control	Joint commission (Team Engineering)	Yes; Parallel online access possible for up to 8 engineering systems
Situs/control	Status block	Yes; up to 8 simultaneously
Status/control variables Variables Number of variables, max. — of which status variables, max. — of which status variables, max. — of which control variables, max. — of variables Number of variables, max. — of which powerfail-proof Number of configurable Traces Number of configurable Traces Nemory size per trace, max. — of which powerfail-proof Piagnostics indication LED RRUN-STOP LED RRUN-STOP LED RRUN-STOP LED Namn LED Number of available Motion Control resources for technology objects Wotion Control Number of available Motion Control resources for technology objects Required Motion Control resources — per speed-controlled axis — per speed-controlled axis — per speed-controlled axis — per external encoder — per output cam — per external encoder — per output cam — 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 8 ms (typical value) Polipocompact Yes Universal PID controller with integrated optimization	Single step	
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Number of variables, max. — of which status variables, max. — of which status variables, max. — of which control variables, max. 200 Forcing Forcing Forcing Forcing, variables Number of variables, max. 200 Diagnostic buffer Present Number of entries, max. 1 000 Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of entries, max. 1 000 1 21 kbyte Fraces Number of configurable Traces Number of entries, max. 1 21 kbyte Fraces Number of configurable Traces Number of entries, max. 1 200 Number of entries, max. 1 200 Present Number of entries, max. 1 200 Yes Present Number of available Motion Control resources for technology objects Present Number of available Motion Control resources for technology objects Present Present Present Number of available Motion Control resources for technology objects Present Number of available Motion Control resources Prespect-controlled 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 8 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Propromatical axes at motion control cycle of 8 ms (typical value) Propromatical axes at motion control cycle of 8 ms (typical value) Propromatical axes at motion control cycle of 8 ms (typical	Status/control variable	Yes
Number of variables, max. of which status variables, max. of which status variables, max. of which status variables, max. of which control variables, max. Forcing Forcing Forcing, variables Number of variables, max. Diagnostic buffer opresent Number of entries, max. of which powerfail-proof 300 Traces Number of configurable Traces Nemory size per trace, max. 1 000 - Wes Nemory size per trace, max. 1 000 Traces Nemory size per trace, max. Nemory size per trace, max. Interrupts/diagnostics/status information Diagnostics indication LED RUNISTOP LED REROR LED REROR LED Nation 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 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 8 ms (typical value) - Number of positioning axes at motion control cycle of 8 ms (typical value) - Number of positioning axes at motion control cycle of 8 ms (typical value) - Number of positioning axes at motion control cycle of 8 ms (typical value) - Number of positioning axes at motion control cycle of 8 ms (typical value) - Number of positioning axes at motion control cycle of 8 ms (typical value) - Number of positioning axes at motion control cycle of 8 ms (typical value) - Number of positioning axes at motion control cycle of 8 ms (typical value) - Policycle of 8 ms (typical value) - Policycle of 9 ms (typical value)	Variables	Inputs, outputs, memory bits, DB, times, counters
Forcing Forcing Forcing Forcing Forcing, variables Forcing, variables Forcing, variables Forcing, variables Forcing, variables, max. Diagnostic buffer Present Number of variables, max. 1 000 - of which powerfail-proof 300 Traces Number of configurable Traces Memory size per trace, max. 1 512 kbyte Terrupts/diagnostics/status information Diagnostics indication LED RUN/STOP LED RUN/STOP LED RAINNT LED Pes MAINT LED Pes Supported technology objects Motion Control Number of available Motion Control resources for technology objects Per speed-controlled axis - per pseed-controlled axis - per pseed-controlled axis - per pset-denoted axis - per synchronous axis - per veternal encoder - per output cam - per cam track - per probe Positioning axis at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 6 ms (typical value) Controller PID_Compact Yes: Universal PID controller with integrated optimization	 Number of variables, max. 	
Forcing	— of which status variables, max.	200
Forcing Forcing Forcing Forcing, variables Forcing	— of which control variables, max.	200
Porcing, variables Number of variables, max. Diagnostic buffer present present Number of entries, max. 1 000 present Number of entries, max. 1 000 present Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of configurable Traces Number of spittoning axis Per parable Motion Control resources for technology objects Notion Control Number of available Motion Control resources for technology objects Per speed-controlled axis Per synchronous axis Per external encoder Per output cam Per per output cam Per per output cam Per per probe Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) PID_Compact Press Press Press Pub (Ves) Press Press Press Press Press Probe Prositioning axes at motion control cycle of 8 ms (typical value) Prior Controller Press Press Press Press Press Probe Prositioning axes at motion control cycle of 8 ms (typical value) Prior Controller Prior Sumper axis the press of the press Pre		
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operation of entries, max. of which powerfail-proof 300 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 • Memory size per trace, max. Interrupts/diagnostics/status information Diagnostics indication LED • RUN/STOP LED • RUN/STOP LED • MAINT LED • Yes • ERROR LED • MAINT LED • 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 synchronous axis — per synchronous 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 8 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) • PID_Compact Yes: Universal PID controller with integrated optimization	_	
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Traces • Number of configurable Traces • Nemory size per trace, max. Interrupts/diagnostics/status information Diagnostics indication LED • RUN/STOP LED • RUN/STOP LED • ERROR LED • MAINT LED 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 synchronous axis - per synchronous axis - per output cam - per cam track - per probe • Positioning axis - Number of positioning axes at motion control cycle of 8 ms (typical value) - Number of positioning axes at motion control cycle of 8 ms (typical value) Controller • PID_Compact 4 Yes 4 Yes 4 Yes 4 Yes 2 400 Yes 2 400 40; per axis 40; per probe 40; per probe 40; per probe	• present	Yes
Proces ● Number of configurable Traces ● Memory size per trace, max. Memory size per trace, max. S12 kbyte	Number of entries, max.	1 000
Proces ● Number of configurable Traces ● Memory size per trace, max. Memory size per trace, max. S12 kbyte	 of which powerfail-proof 	300
Memory size per trace, max. Interrupts/diagnostics/status information Diagnostics indication LED RUN/STOP LED REROR LED Yes MAINT LED Supported technology objects Motion Control Number of available Motion Control resources for technology objects Required Motion Control resources Per speed-controlled axis Per speed-controlled axis Per synchronous 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) Controller PID_Compact Yes Yes 2 400 Yes 30; per axis 40; per axis 80; per axis 40; per cam 160; per cam 160; per cam track 7 per probe 10; per cam track 10; per probe 12 Yes; Universal PID controller with integrated optimization		
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Diagnostics indication LED RUN/STOP LED REROR LED Pess MAINT LED Motion Control Number of available Motion Control resources for technology objects Required Motion Control resources Required Motion Control resources Per speed-controlled axis Per positioning axis Per external encoder Per external encoder Per output cam Per cam track Per or of positioning axis Per porbe Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Controller PID_Compact Yes Yes Yes Yes 400 Yes 2 400 40; per axis 80; per axis 80; per axis 80; per axis 80; per external encoder 20; per cam 160; per cam track 40; per probe Yes; Universal PID controller with integrated optimization		
■ RUN/STOP LED ■ ERROR LED ■ Yes ■ MAINT LED 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 synchronous axis ■ per external encoder ■ per output cam ■ per cam track ■ per porbe ■ Positioning axis ■ Number of positioning axes at motion control cycle of 4 ms (typical value) Controller ■ PID_Compact Yes Yes Yes 400 400 40; per axis 80; per axis 80; per axis 80; per external encoder 20; per cam 160; per cam track 40; per probe 120 Yes; Universal PID controller with integrated optimization		
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Motion Control 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 8 ms (typical value) Controller PID_Compact Yes Yes Yes 40; per axis 40; per axis 80; per axis 80; per axis 160; per cam 160; per cam 160; per cam track 40; per probe		
Motion Control 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 per positioning axis per probe Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Controller PID_Compact Yes 400 Yes 2 400 40; per axis 80; per axis 80; per axis 80; per external encoder 20; per cam 160; per cam track 40; per probe 120 5 Controller Yes; Universal PID controller with integrated optimization		
Motion Control 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) Controller PID_Compact Yes 2 400 40; per axis 40; per probe		100
 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 of 8 ms (typical value) Controller PID_Compact 2 400 40; per axis 80; per external encoder 20; per cam 40; per probe 40; per probe 5 5 12 Yes; Universal PID controller with integrated optimization 		Voe
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 8 ms (typical value) Controller PID_Compact 40; per axis 80; per axis 80; per external encoder 20; per cam 160; per cam track 40; per probe 40; per probe 12 Yes; Universal PID controller with integrated optimization		
 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 of 8 ms (typical value) Controller ● PID_Compact 40; per axis 80; per external encoder 20; per cam 40; per probe 5 12 Yes; Universal PID controller with integrated optimization 		2 700
 — 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) Controller ◆ PID_Compact 40; per axis 80; per external encoder 20; per cam 40; per probe 5 12 Yes; Universal PID controller with integrated optimization 	• •	
 — 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) Controller ◆ PID_Compact 80; per axis 160; per cam 40; per cam track 40; per probe 5 12 Yes; Universal PID controller with integrated optimization 	•	40; per 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 of 8 ms (typical value) Controller PID_Compact 160; per axis 40; per cam track 40; per probe 5 12 Yes; Universal PID controller with integrated optimization 		
 — 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 8 ms (typical value) Controller ◆ PID_Compact 80; per external encoder 40; per cam track 40; per probe 5 12 Yes; Universal PID controller with integrated optimization 		
 — 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 8 ms (typical value) Controller PID_Compact Yes; Universal PID controller with integrated optimization 		
 — 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 8 ms (typical value) Controller ◆ PID_Compact 160; per cam track 40; per probe 5 12 Yes; Universal PID controller with integrated optimization 		
 — 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 8 ms (typical value) Controller ◆ PID_Compact 40; per probe 5 12 Yes; Universal PID controller with integrated optimization 		·
Positioning axis — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) Controller PID_Compact Pid_Compact Yes; Universal PID controller with integrated optimization	·	
 — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) Controller ● PID_Compact ✓ Yes; Universal PID controller with integrated optimization 		, po. proso
cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) Controller • PID_Compact Yes; Universal PID controller with integrated optimization	_	5
— Number of positioning axes at motion control cycle of 8 ms (typical value) Controller ● PID_Compact Yes; Universal PID controller with integrated optimization		3
cycle of 8 ms (typical value) Controller PID_Compact Yes; Universal PID controller with integrated optimization		12
PID_Compact Yes; Universal PID controller with integrated optimization		
	Controller	
	PID_Compact	Yes; Universal PID controller with integrated optimization
 PID_3Step Yes; PID controller with integrated optimization for valves 	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	
CE mark	Yes
CSA approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	Up to 60 $^{\circ}\text{C}$ with max. 32 ET 200SP modules and 3x 100 mA USB load; up to 55 $^{\circ}\text{C}$ with max. 64 ET 200SP modules and 2x max. 500 mA and 1x max. 100 mA USB load
 horizontal installation, min. 	0 °C
 horizontal installation, max. 	60 °C
 vertical installation, min. 	O°C
vertical installation, max.	50 °C; With max. 32 ET 200SP modules and 3x 100 mA USB load
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Vibrations	
 Operation, tested according to IEC 60068-2-6 	Yes
Transport, tested acc. to IEC 60068-2-6	Yes
Shock testing	
 tested according to IEC 60068-2-6 	Yes
 tested according to IEC 60068-2-27 	Yes
 tested according to IEC 60068-2-29 	Yes
Storage/transport, tested acc. to IEC 60068-2-27	Yes
Operating systems	
pre-installed operating system	Windows Embedded Standard 7 E 32-bit
Configuration	
Programming	
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	No
— GRAPH	Yes
Know-how protection	
 User program protection/password protection 	Yes
 Copy protection 	Yes
Block protection	Yes
Access protection	
 Protection level: Write protection 	Yes
 Protection level: Read/write protection 	Yes
Protection level: Complete protection	Yes
Cycle time monitoring	
• lower limit	adjustable minimum cycle time
• upper limit	adjustable maximum cycle time
Open Development interfaces	
Size of ODK SO file, max.	3.8 Mbyte
Peripherals/Options	
SD card	Optionally for additional mass storage
Dimensions	
Width	160 mm

Height	117 mm
Depth	75 mm
Weights	
Weight, approx.	0.83 kg
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