## **SIEMENS**

## Data sheet

## 6ES7515-2AM00-0AB0

\*\*\*Spare part\*\*\* SIMATIC S7-1500, CPU 1515-2 PN, Central processing unit with work memory 500 KB for Program and 3 MB for data, 1st interface, PROFINET IRT with 2-port switch, 2nd interface, Ethernet, 30 ns bit performance, SIMATIC Memory Card required



General information	
Product type designation	CPU 1515-2 PN
HW functional status	FS02
Firmware version	V1.8
Engineering with	
STEP 7 TIA Portal configurable/integrated as of version	V13 SP1 Update 4
Configuration control	
via dataset	Yes
Display	
Screen diagonal [cm]	6.1 cm
Control elements	
Number of keys	6
Mode selector switch	1
Supply voltage	
Type of supply voltage	24 V DC
permissible range, lower limit (DC)	19.2 V

	00.01/
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
Input current	
Current consumption (rated value)	0.8 A
Inrush current, max.	2.4 A; Rated value
l²t	0.02 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.	6.3 W
Memory	
SIMATIC memory card required	Yes
Work memory	
• integrated (for program)	500 kbyte
• integrated (for data)	3 Mbyte
Load memory	
Plug-in (SIMATIC Memory Card), max.	32 Gbyte
Backup	
maintenance-free	Yes
• maintenance-nee	165
CPU processing times	
for bit operations, typ.	30 ns
for word operations, typ.	36 ns
for fixed point arithmetic, typ.	48 ns
for floating point arithmetic, typ.	192 ns
CPU-blocks	
Number of elements (total)	6 000; Blocks (OB, FB, FC, DB) and UDTs
DB	
Number range	1 60 999; subdivided into: number range that can be used by the user: 1 59 999, and number range of DBs created via SFC 86: 60 000 60 999
• Size, max.	3 Mbyte; For non-optimized block accesses, the max. size of the DB is 64 KB
FB	
Number range	0 65 535
• Size, max.	500 kbyte
FC	
Number range	0 65 535

• Size, max.	500 kbyte
OB	
• Size, max.	500 kbyte
<ul> <li>Number of free cycle OBs</li> </ul>	100
<ul> <li>Number of time alarm OBs</li> </ul>	20
<ul> <li>Number of delay alarm OBs</li> </ul>	20
<ul> <li>Number of cyclic interrupt OBs</li> </ul>	20
<ul> <li>Number of process alarm OBs</li> </ul>	50
<ul> <li>Number of DPV1 alarm OBs</li> </ul>	3
<ul> <li>Number of isochronous mode OBs</li> </ul>	1
<ul> <li>Number of technology synchronous alarm OBs</li> </ul>	2
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
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),	512 kbyte; In total; available retentive memory for bit memories,
max.	timers, counters, DBs, and technology data (axes): 472 KB
Flag	16 khyto
Number, max.	16 kbyte
Number of clock memories	8; 8 clock memory bits, grouped into one clock memory byte
Data blocks	

Retentivity preset Local data  • per priority class, max.  64 kbyte; max. 16 KB per block  Address area  Number of IO modules  • per priority class, max.  8 192; max. number of modules / submodules  VO address area  • Inputs  • Outputs  • Outputs  per integrated IO subsystem  — Inputs (volume) — Outputs (volume) — Outputs (volume) — Inputs (volume) — Inputs (volume) — Inputs (volume) — Outputs (volume) — Outputs (volume) — Skbyte  — Outputs (volume) — 8 kbyte  • Number of subprocess images • Number of distributed IO systems  • Via CM — Sk A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Number of IO Controllers • integrated — Inputs (volume)  8 k A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Rack  • Modules per rack, max. • Number of Ines, max.  • Number of PIP CMs  • Number of PIP CMs  • Number of PIP CMs  • Hardware clock • Backup time • Deviation per day, max.  • Operating hours counter • Number • Number • Number • Deviation per day, max.  • Operating hours counter • Number • Number • Number • Number	Retentivity adjustable	Yes
Per priority class, max.  Address area  Number of IO modules  8 192; max. number of modules / submodules  I/O address area  Poutputs  Outputs  Out	Retentivity preset	No
Address area  Number of IO modules  ### 170 address area    Inputs	Local data	
Number of IO modules  8 192; max. number of modules / submodules  1/O address area  • Inputs • Inputs • Outputs 92 kbyte; All outputs are in the process image  • Outputs (volume) — Outputs (volume) — Outputs (volume)  • Number of subprocess images, max.  8 kbyte  • Outputs (volume) 9 k kbyte  — Outputs (volume) 9 k kbyte  — Outputs (volume) 9 k kbyte  — Outputs (volume) 9 k kbyte  Subprocess images • Number of subprocess images, max.  32  Hardware configuration  Number of IO Controllers • Via CM  • Via CM  • Number of IO Controllers • integrated • Via CM  • Modules per rack, max. • Number of lines, max.  • Number of PtP CMs • Number of Lock • Type • Backup time • Deviation per day, max.  • Prize Clock • Type • Backup time • Deviation per day, max.  • Operating hours counter • Number • Number • Operating hours counter • Number • Number • Number • Operating hours counter • Number • Number • Number	• per priority class, max.	64 kbyte; max. 16 KB per block
Number of IO modules  8 192; max. number of modules / submodules  1/O address area  • Inputs • Inputs • Outputs 92 kbyte; All outputs are in the process image  • Outputs (volume) — Outputs (volume) — Outputs (volume)  • Number of subprocess images, max.  8 kbyte  • Outputs (volume) 9 k kbyte  — Outputs (volume) 9 k kbyte  — Outputs (volume) 9 k kbyte  — Outputs (volume) 9 k kbyte  Subprocess images • Number of subprocess images, max.  32  Hardware configuration  Number of IO Controllers • Via CM  • Via CM  • Number of IO Controllers • integrated • Via CM  • Modules per rack, max. • Number of lines, max.  • Number of PtP CMs • Number of Lock • Type • Backup time • Deviation per day, max.  • Prize Clock • Type • Backup time • Deviation per day, max.  • Operating hours counter • Number • Number • Operating hours counter • Number • Number • Number • Operating hours counter • Number • Number • Number	Address oras	
I/O address area  Inputs Outputs Outputs Outputs Outputs Outputs (volume)		8 192: max_number of modules / submodules
Outputs  Per integrated IO subsystem  Inputs (volume)  Outputs (volume)  Outputs (volume)  Number of subprocess images  Integrated  Integ		0 10 <u>-</u> , max. named of modules / casmodales
Outputs  Per integrated IO subsystem  Inputs (volume)  Outputs (volume)  Outputs (volume)  Number of subprocess images  Integrated  Integ	• Inputs	32 kbyte; All inputs are in the process image
per integrated IO subsystem  — Inputs (volume) — Outputs (volume) 8 kbyte  per CM/CP — Inputs (volume) 8 kbyte  — Outputs (volume) 8 kbyte  — Outputs (volume) 8 kbyte  Subprocess images  • Number of subprocess images, max.  Hardware configuration  Number of distributed IO systems  • Via CM 8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Number of IO Controllers  • integrated • Via CM 8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Rack • Modules per rack, max. • Number of lines, max.  1  PIP CM • Number of PIP CMs  • Number of PIP CMs  • Hardware clock • Type • Backup time • Deviation per day, max.  10 s; Typ: 2 s  Operating hours counter • Number • Number • Number • Number • Number	·	32 kbyte; All outputs are in the process image
- Inputs (volume) - Outputs (volume) 8 kbyte  per CM/CP - Inputs (volume) 8 kbyte  - Outputs (volume) 8 kbyte  - Outputs (volume) 8 kbyte  Subprocess images • Number of subprocess images, max.  12  Hardware configuration Number of Gistributed IO systems  • Via CM 8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Number of IO Controllers • integrated • Via CM 8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Rack • Modules per rack, max. • Number of lines, max.  1  PIP CM • Number of PtP CMs  • Number of PtP CMs  • Number of day  Clock  • Type • Backup time • Deviation per day, max.  10 s; Typ.: 2 s  Operating hours counter • Number	·	
- Outputs (volume) per CM/CP - Inputs (volume)     - Outputs (volume)     - Sk kbyte  Subprocess images     • Number of subprocess images, max.  32  Hardware configuration  Number of distributed IO systems     - Via CM     - Sk, A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Number of IO Controllers     • integrated     - Via CM     - Sk, A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Rack     - Modules per rack, max.     - Number of lines, max.     - Number of lines, max.  PPP CM     - Number of PtP CMs     - In united by the number of available slots  Time of day  Clock     - Type     - Backup time     - Deviation per day, max.  Operating hours counter     - Number     - Number     - Outputs (volume)     - Sk kbyte     -		8 kbyte
per CM/CP — Inputs (volume) 8 kbyte  — Outputs (volume) 8 kbyte  Subprocess images  • Number of subprocess images, max. 32  Hardware configuration  Number of distributed IO systems 20  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 1  • Via CM 8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Rack  • 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  • Backup time • Deviation per day, max. 10 s; Type. 2 s  Operating hours counter  • Number 16  Clock synchronization		
- Inputs (volume) - Outputs (volume) 8 kbyte  Subprocess images Number of subprocess images, max.  12  Hardware configuration Number of distributed IO systems Via CM Standard CMS/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Number of IO Controllers integrated Via CM Standard CMS/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Rack Modules per rack, max. Number of lines, max. Number of lines, max. THP CM Number of PtP CMs Standard Clock Time of day Clock Type Backup time Deviation per day, max. Deviation per day, max.  Ptp CM Standard Companies Stan		•
- Outputs (volume)  Subprocess images  Number of subprocess images, max.  Number of distributed IO systems  Via CM  Signary Amaximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Number of IO Controllers  integrated  Via CM  Signary Amaximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Rack  Modules per rack, max.  Number of lines, max.  Number of lines, max.  Here CM  Number of PtP CMs  Hardware clock  Signary Andrew Clock  Time of day  Clock  Type  Backup time  Deviation per day, max.  Deviation per day, max.  Operating hours counter  Number  Number  Number  Number  16  Clock synchronization		8 kbyte
Subprocess images  Number of subprocess images, max.  Plandware configuration  Number of distributed IO systems  Via CM  S; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Number of IO Controllers  integrated  Via CM  S; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Rack  Modules per rack, max.  Number of lines, max.  Number of lines, max.  Integrated  Modules per rack, max.  Number of lines, max.  Here CM  Number of PtP CMs  Time of day  Clock  Type  Backup time  Deviation per day, max.  Deviation per day, max.  Operating hours counter  Number  Number  16  Clock synchronization		
Number of subprocess images, max.  Hardware configuration  Number of distributed IO systems  Via CM  S; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Number of IO Controllers  integrated  Via CM  S; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Rack  Modules per rack, max.  Number of lines, max.  Number of lines, max.  Number of lines, max.  HPP CM  Number of PtP CMs  Time of day  Clock  Time of day  Clock  Backup time  Deviation per day, max.  Number  16  Clock synchronization		•
Hardware configuration  Number of distributed IO systems  • Via CM  • Number of IO Controllers  • Integrated  • Via CM  • Nodules per rack, max.  • Number of lines, max.  1  PtP CM  • Number of PtP CMs  • Number of connectable PtP CMs is only limited by the number of available slots  Time of day  Clock  • Type  • Backup time  • Deviation per day, max.  Operating hours counter  • Number  • Number  • Number  • Number  • Number  • Number		32
Number of distributed IO systems  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  Via CM  8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Rack  Modules per rack, max.  Number of lines, max.  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  Backup time  Backup time  Clock ow, At 40 °C ambient temperature, typically  Deviation per day, max.  Deprating hours counter  Number  Number  16  Clock synchronization		
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  • Via CM  8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Rack  • Modules per rack, max.  • 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  • Backup time  • Deviation per day, max.  10  Hardware clock  • Type: 2 s  Operating hours counter  • Number  16  Clock synchronization		
Via CM  8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Number of IO Controllers  integrated  Via CM  8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Rack  Modules per rack, max.  Number of lines, max.  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  Backup time  Sackup time  Clock ow; At 40 °C ambient temperature, typically  Deviation per day, max.  Operating hours counter  Number  Number  16  Clock synchronization		20
Can be inserted in total  Number of IO Controllers  integrated  Via CM  S; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Rack  Modules per rack, max.  Number of lines, max.  Number of 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  Time of day  Clock  Rardware clock  Mardware cloc		A A COM OR ORGENIA PROFINET EN
Number of IO Controllers  • integrated • Via CM  8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Rack  • Modules per rack, max. • Number of lines, max.  1  PtP CM  • Number of PtP CMs  • Number of PtP CMs  • Type • Backup time • Deviation per day, max.  10  Ptp CM  • Sackup time • Deviation per day, max.  10  10  10  10  10  10  10  10  10  1	● Via CM	
Via CM  8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Rack  Modules per rack, max.  Number of lines, max.  Number of 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  Backup time  When the number of connectable PtP CMs is only limited by the number of available slots  When the number of connectable PtP CMs is only limited by the number of available slots  Time of day  Clock  Type  Backup time  When the number clock  Switch at 40 °C ambient temperature, typically  Deviation per day, max.  Operating hours counter  Number  Number  16  Clock synchronization	Number of IO Controllers	
Via CM     8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total  Rack     Modules per rack, max.     Number of lines, max.     Number of 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.  Operating hours counter     Number     16  Clock synchronization	• integrated	1
Modules per rack, max.     Number of lines, max.  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 Backup time Backup time Deviation per day, max.  Operating hours counter  Number  Number  16  Clock synchronization	● Via CM	
Number of lines, max.  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  Backup time  Deviation per day, max.  Operating hours counter  Number  In Clock synchronization	Rack	
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  Backup time  Backup time  Deviation per day, max.  Operating hours counter  Number  16  Clock synchronization	Modules per rack, max.	32; CPU + 31 modules
<ul> <li>Number of PtP CMs</li> <li>the number of connectable PtP CMs is only limited by the number of available slots</li> <li>Time of day</li> <li>Clock</li> <li>Type</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Operating hours counter</li> <li>Number</li> <li>Clock synchronization</li> </ul>	Number of lines, max.	1
Time of day  Clock  Type  Backup time  Deviation per day, max.  Operating hours counter  Number  Clock synchronization	PtP CM	
Clock  Type  Backup time  Deviation per day, max.  Operating hours counter  Number  Clock synchronization  Hardware clock  wk; At 40 °C ambient temperature, typically  10 s; Typ.: 2 s	Number of PtP CMs	
<ul> <li>Type</li> <li>Backup time</li> <li>Wk; At 40 °C ambient temperature, typically</li> <li>Deviation per day, max.</li> <li>Typ.: 2 s</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Clock synchronization</li> </ul>	Time of day	
<ul> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Operating hours counter</li> <li>Number</li> <li>Clock synchronization</li> <li>6 wk; At 40 °C ambient temperature, typically</li> <li>10 s; Typ.: 2 s</li> <li>16</li> </ul>	Clock	
<ul> <li>Deviation per day, max.</li> <li>Operating hours counter</li> <li>Number</li> <li>Clock synchronization</li> </ul>	● Type	Hardware clock
Operating hours counter  • Number 16  Clock synchronization	Backup time	6 wk; At 40 °C ambient temperature, typically
Number 16  Clock synchronization	<ul> <li>Deviation per day, max.</li> </ul>	10 s; Typ.: 2 s
Clock synchronization	Operating hours counter	
	• Number	16
• supported Yes	Clock synchronization	
	• supported	Yes

● in AS, master	Yes
• in AS, slave	Yes
• on Ethernet via NTP	Yes
Interfaces	
Number of PROFINET interfaces	2
1. Interface	
Interface types	
Number of ports	2
• integrated switch	Yes
• RJ 45 (Ethernet)	Yes; X1
Functionality	
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
SIMATIC communication	Yes
Open IE communication	Yes
Web server	Yes
Media redundancy	Yes
2. Interface	
Interface types	
Number of ports	1
• integrated switch	No
• RJ 45 (Ethernet)	Yes; X2
Functionality	
PROFINET IO Controller	No
<ul> <li>PROFINET IO Device</li> </ul>	No
<ul> <li>SIMATIC communication</li> </ul>	Yes
Open IE communication	Yes
• Web server	Yes
Interface types	
RJ 45 (Ethernet)	
• 100 Mbps	Yes
<ul><li>Autonegotiation</li></ul>	Yes
<ul> <li>Autocrossing</li> </ul>	Yes
<ul> <li>Industrial Ethernet status LED</li> </ul>	Yes
Protocols	
Number of connections	
<ul> <li>Number of connections, max.</li> </ul>	192; via integrated interfaces of the CPU and connected CPs / CMs
<ul> <li>Number of connections reserved for</li> </ul>	10
ES/HMI/web	

<ul> <li>Number of connections via integrated interfaces</li> </ul>	108
<ul> <li>Number of S7 routing paths</li> </ul>	16
PROFINET IO Controller	
Services	
— PG/OP communication	Yes
— S7 routing	Yes
— Isochronous mode	Yes
<ul><li>— Open IE communication</li></ul>	Yes
— IRT	Yes
— PROFlenergy	Yes
<ul> <li>Prioritized startup</li> </ul>	Yes; Max. 32 PROFINET devices
— Number of connectable IO Devices, max.	256; In total, up to 512 distributed I/O devices can be connected via PROFIBUS or PROFINET
— Of which IO devices with IRT, max.	64
<ul> <li>Number of connectable IO Devices for RT, max.</li> </ul>	256
— of which in line, max.	256
<ul> <li>Number of IO Devices that can be simultaneously activated/deactivated, max.</li> </ul>	8
<ul> <li>Number of IO Devices per tool, max.</li> </ul>	8
— Updating times	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data
Redundancy mode	
— MRP	Yes; As MRP redundancy manager and/or MRP client; max. number of devices in the ring: 50
Update time for IRT	
— for send cycle of 250 μs	$250~\mu s$ to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 500 $\mu s$ of the isochronous OB is decisive
— for send cycle of 500 μs	500 μs to 8 ms
— for send cycle of 1 ms	1 ms to 16 ms
— for send cycle of 2 ms	2 ms to 32 ms
— for send cycle of 4 ms	4 ms to 64 ms
With IRT and parameterization of "odd"	Update time = set "odd" send clock (any multiple of 125 μs: 375
send cycles	μs, 625 μs 3 875 μs)
Update time for RT	250 up to 129 mg
— for send cycle of 250 μs	250 μs to 128 ms
— for send cycle of 500 μs	500 µs to 256 ms
— for send cycle of 1 ms	1 ms to 512 ms
— for send cycle of 2 ms	2 ms to 512 ms 4 ms to 512 ms
— for send cycle of 4 ms	T 1113 (U U 12 1113

PROFINET IO Device	
Services	
— PG/OP communication	Yes
— S7 routing	Yes
— Isochronous mode	No
— Open IE communication	Yes
— IRT	Yes
— PROFlenergy	Yes
Shared device	Yes
<ul> <li>Number of IO Controllers with shared</li> </ul>	4
device, max.	
Redundancy mode	
— MRP	Yes
SIMATIC communication	
S7 communication, as server	Yes
<ul> <li>S7 communication, as client</li> </ul>	Yes
<ul> <li>User data per job, max.</li> </ul>	See online help (S7 communication, user data size)
Open IE communication	
• TCP/IP	Yes
— Data length, max.	64 kbyte
<ul> <li>several passive connections per port, supported</li> </ul>	Yes
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	64 kbyte
• UDP	Yes
— Data length, max.	1 472 byte
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Web server	
• HTTP	Yes; Standard and user-defined pages
• HTTPS	Yes; Standard and user-defined pages
Further protocols	
• MODBUS	Yes; MODBUS TCP
Media redundancy	
<ul> <li>Switchover time on line break, typ.</li> </ul>	200 ms
<ul> <li>Number of stations in the ring, max.</li> </ul>	50
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	Yes; With minimum OB 6x cycle of 500 μs
Equidistance	Yes
•	

S7 message functions	
Number of login stations for message functions, max.	32
Program alarms	Yes
Number of configurable program alarms	10 000
Number of simultaneously active program alarms	
<ul> <li>Number of program alarms</li> </ul>	600
<ul> <li>Number of alarms for system diagnostics</li> </ul>	200
<ul> <li>Number of alarms for motion technology objects</li> </ul>	160
Test commissioning functions	
Joint commission (Team Engineering)	Yes; Parallel online access possible for up to 8 engineering systems
Status block	Yes; Up to 8 simultaneously (in total across all ES clients)
Single step	No
Status/control	
<ul> <li>Status/control variable</li> </ul>	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
<ul><li>Number of variables, max.</li></ul>	
— of which status variables, max.	200; per job
— of which control variables, max.	200; per job
Forcing	
Forcing, variables	Peripheral inputs/outputs
<ul> <li>Number of variables, max.</li> </ul>	200
Diagnostic buffer	
• present	Yes
<ul> <li>Number of entries, max.</li> </ul>	3 200
<ul><li>of which powerfail-proof</li></ul>	500
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	Yes
• ERROR LED	Yes
MAINT LED	Yes
Connection display LINK TX/RX	Yes
Supported technology objects	
Motion Control	Yes
<ul> <li>Speed-controlled axis</li> </ul>	

<ul> <li>Number of speed-controlled axes, max.</li> </ul>	30; Requirement: There must be no other motion technology objects created; note: The number of axes affects the cycle time of the PLC program; selection guide via the TIA Selection Tool
<ul> <li>Positioning axis</li> </ul>	
<ul> <li>Number of positioning axes, max.</li> </ul>	30; Requirement: There must be no other motion technology objects created; note: The number of axes affects the cycle time of the PLC program; selection guide via the TIA Selection Tool
<ul> <li>Synchronized axes (relative gear synchronization)</li> </ul>	
— Number of axes, max.	15; Requirement: There must be no other motion technology objects created; note: The number of axes affects the cycle time of the PLC program; selection guide via the TIA Selection Tool
External encoders	
<ul> <li>Number of external encoders, max.</li> </ul>	30; Requirement: There must be no other motion technology objects created; note: The number of axes affects the cycle time of the PLC program; selection guide via the TIA Selection Tool
Controller	
<ul><li>PID_Compact</li></ul>	Yes; Universal PID controller with integrated optimization
<ul><li>PID_3Step</li></ul>	Yes; PID controller with integrated optimization for valves
• PID-Temp	Yes; PID controller with integrated optimization for temperature
Counting and measuring	
<ul> <li>High-speed counter</li> </ul>	Yes

Ambient conditions	
Ambient temperature during operation	
<ul><li>horizontal installation, min.</li></ul>	0 °C
• 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>	0 °C

40 °C; Display: 40 °C, at an operating temperature of typically 40 • vertical installation, max. °C, the display is switched off

Configuration	
Programming	
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— GRAPH	Yes
Know-how protection	
User program protection/password protection	Yes
<ul> <li>Copy protection</li> </ul>	Yes
<ul> <li>Block protection</li> </ul>	Yes
Access protection	

• vertical installation, min.

<ul> <li>Password for display</li> </ul>	Yes
<ul> <li>Protection level: Write protection</li> </ul>	Yes
<ul> <li>Protection level: Read/write protection</li> </ul>	Yes
<ul> <li>Protection level: Complete protection</li> </ul>	Yes
Cycle time monitoring	
• lower limit	adjustable minimum cycle time
• upper limit	adjustable maximum cycle time
Dimensions	
Dimensions Width	70 mm
	70 mm 147 mm
Width	
Width Height	147 mm
Width Height Depth	147 mm