SIEMENS

Data sheet

6ES7513-1RM03-0AB0



SIMATIC S7-1500R, CPU 1513R-1PN, central processing unit with work memory 600 KB for program and 2.5 MB for data, 1st interface: PROFINET RT with 2-port switch, SIMATIC Memory Card required **** approvals and certificate according to entry 109815625 at support.industry.siemens.com to be observed! ****

General information	
Product type designation	CPU 1513R-1 PN
HW functional status	FS01
Firmware version	V3.0
Product function	
• I&M data	Yes; I&M0 to I&M3
 Isochronous mode 	No
Display	
Screen diagonal [cm]	3.45 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	
 Mains/voltage failure stored energy time 	5 ms
Repeat rate, min.	1/s
Input current	
Current consumption (rated value)	0.73 A
Current consumption, max.	0.87 A
Inrush current, max.	1.15 A; Rated value
² t	0.5 A ² ·s
Power loss	
Power loss, typ.	7.5 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	
 integrated (for program) 	600 kbyte
 integrated (for data) 	2.5 Mbyte
Load memory	
 Plug-in (SIMATIC Memory Card), max. 	32 Gbyte
Backup	
maintenance-free	Yes
CPU processing times	
for bit operations, typ.	50 ns
for word operations, typ.	64 ns

2/14/2023



for fixed point arithmetic, typ.	85 ns
for floating point arithmetic, typ.	340 ns
CPU-blocks	
Number of elements (total)	4 000; Blocks (OB, FB, FC, DB) and UDTs
DB	
Number range	Number range: 1 to 59 999
• Size, max.	2.5 Mbyte; For non-optimized block accesses, the max. size of the DB is
	64 KB
FB	0 05 525
 Number range Size, max. 	0 65 535 600 kbyte
FC	000 kbyte
Number range	0 65 535
• Size, max.	600 kbyte
OB	
• Size, max.	600 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; with minimum OB 3x cycle of 10 ms
Number of process alarm OBs	50
Number of DPV1 alarm OBs	3
 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	N .
— adjustable	Yes
S7 times	0.040
Number Detentivity	2 048
Retentivity	Yes
— adjustable IEC timer	165
Number	Any (only limited by the main memory)
Retentivity	Any (only influed by the main memory)
— adjustable	Yes
Data areas and their retentivity	
	256 khutav in tataly available ratentive memory for hit memories, timera
Retentive data area (incl. timers, counters, flags), max.	256 kbyte; in total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 216 KB
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	2 048; max. number of modules / submodules
I/O address area	
• Inputs	32 kbyte; All inputs are in the process image
Outputs	32 kbyte; All outputs are in the process image
per integrated IO subsystem	
— Inputs (volume)	8 kbyte



2/14/2023

— Outputs (volume)	8 kbyte
Subprocess images	
 Number of subprocess images, max. 	32
Hardware configuration	
Number of distributed IO systems	1
Number of IO Controllers	
 integrated 	1
Rack	
 Modules per rack, max. 	1; CPU
Time of day	
Clock	
• Туре	Hardware clock
Backup time	6 wk; At 40 °C ambient temperature, typically
Deviation per day, max.	10 s; Typ.: 2 s
Operating hours counter	
Number	16
Clock synchronization	
 supported 	Yes
on Ethernet via NTP	Yes
Interfaces	
Number of PROFINET interfaces	1
1. Interface	
Interface types	
RJ 45 (Ethernet)	Yes; X1
 Number of ports 	2
 integrated switch 	Yes
Protocols	
IP protocol	Yes; IPv4
PROFINET IO Controller	Yes
PROFINET IO Device	No
SIMATIC communication	Yes; Only Server
Open IE communication	Yes
• Web server	No
Media redundancy PROFINET IO Controller	Yes
Services	
— PG/OP communication	Yes
— Isochronous mode	No
— IRT	No
— PROFlenergy	Yes
— Number of connectable IO Devices, max.	64
— 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 RT	
— for send cycle of 1 ms	1 ms to 512 ms
Interface types	
RJ 45 (Ethernet)	
• 100 Mbps	Yes
Autonegotiation	Yes
Autocrossing	Yes
Industrial Ethernet status LED	Yes
Protocols	
PROFIsafe	No
Number of connections	00
Number of connections, max.	88
Number of connections reserved for ES/HMI/web	10
Redundancy mode	Vac
 PROFINET system redundancy (S2) PROFINET system redundancy (R1) 	Yes No
Media redundancy	
— MRP	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0
MRP interconnection, supported	Yes; as MRP ring node according to IEC 62439-2 Edition 3.0
in a merodimotion, supported	



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— MRPD	No
— Switchover time on line break, typ.	200 ms; PROFINET MRP
— Number of stations in the ring, max.	50; Only 16 are recommended, however
SIMATIC communication	so, only to are recommended, nowever
PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
• S7 routing	No
 S7 communication, as server 	Yes
• S7 communication, as client	No
Open IE communication	
• TCP/IP	Yes
— Data length, max.	64 kbyte
 — several passive connections per port, 	Yes
supported	
 ISO-on-TCP (RFC1006) 	Yes
— Data length, max.	64 kbyte
• UDP	Yes
— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast
— UDP multicast	Yes; max. 78 multicast circuits
• DHCP	No
• DNS	Yes
• SNMP	Yes
• DCP • LLDP	Yes
	res
Web server HTTP	No
• HTTPS	No
OPC UA	
OPC UA Client	No
OPC UA Server	No
Further protocols	
• MODBUS	Yes; MODBUS TCP
S7 message functions	
Number of login stations for message functions, max.	32
Program alarms	Yes
Number of configurable program messages, max.	5 000; Program messages are generated by the "Program_Alarm"
	block, ProDiag or GRAPH
Number of loadable program messages in RUN, max.	2 500
Number of simultaneously active program alarms	
 Number of program alarms 	600
 Number of alarms for system diagnostics 	100
Test commissioning functions	
Joint commission (Team Engineering)	No
Status block	Yes; up to 8 simultaneously
Single step	No
Number of breakpoints	8; Breakpoints are only supported in RUN-Solo status
Status/control	
Status/control variable	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
 Number of variables, max. 	
— of which status variables, max.	200; per job
— of which control variables, max.	200; per job
Forcing	
Forcing	Yes
 Forcing, variables 	Peripheral inputs/outputs
Number of variables, max.	200
Diagnostic buffer	
• present	Yes
Number of entries, max.	1 000
— of which powerfail-proof	500
Traces	
Number of configurable Traces	
Memory size per trace, max.	512 kbyte
Interrupts/diagnostics/status information	
Diagnostics indication LED	



2/14/2023

RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
Connection display LINK TX/RX	Yes
Supported technology objects	
Motion Control	No
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	Yes
High-speed counter	No
Ambient conditions	
Ambient temperature during operation	
 horizontal installation, min. 	-30 °C
horizontal installation, max.	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
 vertical installation, min. 	-30 °C
vertical installation, max.	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	
 Installation altitude above sea level, max. 	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
configuration / header	
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— GRAPH	Yes
Know-how protection	
 User program protection/password protection 	Yes
Copy protection	No
 Block protection 	Yes
Access protection	
 protection of confidential configuration data 	Yes
 Password for display 	Yes
 Protection level: Write protection 	Yes
 Protection level: Read/write protection 	Yes
 Protection level: Complete protection 	Yes
programming / cycle time monitoring / header	
lower limit	adjustable minimum cycle time
• upper limit	adjustable maximum cycle time
Dimensions	
Width	35 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	336 g
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