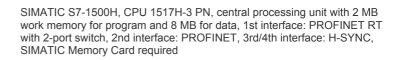
6ES7517-3HP00-0AB0

Data sheet





General information	
Product type designation	CPU 1517H-3 PN
HW functional status	FS05
Firmware version	V2.9
Product function	
 I&M data 	Yes; I&M0 to I&M3
Isochronous mode	No
Engineering with	
 STEP 7 TIA Portal configurable/integrated from version 	V17 (FW V2.9) / V16 (FW V2.8) / V15.1 (FW V2.6)
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
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
Inrush current, max.	2.4 A; Rated value
l²t	0.02 A ² ·s
Power loss	
Power loss, typ.	24 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	
integrated (for program)	2 Mbyte
• integrated (for data)	8 Mbyte
Load memory	
 Plug-in (SIMATIC Memory Card), max. 	32 Gbyte
Backup	

maintenance-free	Yes
CPU processing times	
	4 70
for bit operations, typ.	4 ns
for word operations, typ.	6 ns
for fixed point arithmetic, typ.	6 ns
for floating point arithmetic, typ.	24 ns
CPU-blocks	
Number of elements (total)	12 000; Blocks (OB, FB, FC, DB) and UDTs
DB	
Number range	Number range: 1 to 59 999
• Size, max.	8 Mbyte; For non-optimized block accesses, the max. size of the DB is
FB	64 KB
Number range	0 65 535
• Size, max.	1 Mbyte
Number range	0 65 535
Size, max.	1 Mbyte
	1 Mbyte
OB	A Miles de
Size, max. Number of free guele ORs.	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
 Number of process alarm OBs 	50
 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.	768 kbyte
Flag	
Size, max.	16 kbyte
 Number of clock memories 	8; 8 clock memory bit, grouped into one clock memory byte
	e, e clock memory bit, grouped into one clock memory byte
Data blocks	e, o slock mornery sit, grouped into one clock mornery syste
Data blocks • Retentivity adjustable	Yes
Retentivity adjustable	
	Yes
Retentivity adjustableRetentivity preset	Yes

Number of IO modules Note and the service of the	Address area	
Injusts	Number of IO modules	8 192; max. number of modules / submodules
● Outputs per integrated IO subsystem	I/O address area	
per integrated IO subsystem	• Inputs	32 kbyte; All inputs are in the process image
Injudis (volume)	Outputs	32 kbyte; All outputs are in the process image
- Outputs (volume) 16 kbyte Subprocess images Number of subprocess images, max. 32 Hardware configuration Number of subprocess images, max. 32 Number of Subprocess images, max. 32 Number of IO Controllers 1 Immediate	per integrated IO subsystem	
Subprocess images	— Inputs (volume)	16 kbyte
Number of distributed IO systems 1 Number of IO Controllers • integrated 1 Time of cby Clock • Type	— Outputs (volume)	16 kbyte
Hardware configuration Number of distributed (D systems) • integrated Time of day Clock • Type • Backup time • Deviation per day, max. Operating hours counter • Number of 10 STyp.: 2 s Operating hours counter • Number of 16 Clock synchronization • supported • on Ethernet via NTP Yes Interfaces Number of PROFINET interfaces • 2 1. Interface (Pyes • RJ 45 (Ethernet) • PROFINET IO Device • PROFINET IO Device • SIMATIC communication • PROFINET IO Device • SIMATIC communication • Web server • Media redundancy PROFINET Operation • Web server • Media redundancy PROFINET IO Controller • Services — PGOP communication • Web server • No • Media redundancy PROFINET IO Controller • Services — PGOP communication • Web server • No • Web server • No • Media redundancy PROFINET IO Controller • Services — PGOP communication • Yes • No • Media redundancy Pes • PROFINET IO Controller • Services — PGOP communication • IRT — For send cycle of 1 ms • Insto 512 ms 2. Interface Interface Interface byes • RJ 45 (Ethernet) • Number of ports • Integrated switch • No Protocols		
Number of listributed IO systems 1		32
Integrated	Hardware configuration	
• integrated 1 Time of day Clock • Type • Backup time • Deviation per day, max. Operating hours counter • Number • Number • Number • On Ethernet via NTP Interfaces Number of PROFINET interfaces • RJ 45 (Ethernet) • Integrated switch • PROFINET IO Controller • PROFINET IO Device • PROFINET IO Device • Services • PROFINET IO Controller • Services • Media redundancy • PROFINET IO Controller • Media redundancy • Media redundancy • PROFINET IO Controller • Media redundancy • Media redundancy • PROFINET IO Controller • Media redundancy • Yes • Media redundancy • Yes • No • Media redundancy • Yes • PROFINET IO Controller • Services • PROFINET IO Controller • Services • PROFINET IO Controller • I In No • Media redundancy • Yes • No • No • I In In I	Number of distributed IO systems	1
Time of day Clock Type Backup time Deviation per day, max. Destaint power day, max. Destaint power day, max. Operating hours counter Number Number Number Number Number Number Number Number of PROFINET interfaces Interface types Interface so integrated switch PROFINET IO Controller PROFINET IO Device PROFINET IO Controller Services Number of ponts No Hedia redundancy PROFINET IO Controller Services PROFINET IO Controller Services PROFINET IO Controller No PROFINET IO Controller No PROFINET IO Controller PROFINET IO Controller No PROFINET IO Controller I to communication Per Services PROFINET IO Controller Services PROFINET IO Controller I to controller Services PROFINET IO Controller I to controller Services PROFINET IO Controller I to south of the profit is not 512 ms I ms to 512 ms Interface types RJ 45 (Ethemet) Protocolls Interface without interface without interface without interface without interface interface without interface wi		
Clock		1
• Type	Time of day	
Backup time Deviation per day, max. Deviation per day, max. Destraints hours counter Number Number Number Number Number Number of PROFINET interfaces Regulation per day. Number of protocol Number of protocol Number of protocol Number of protocol Negrated switch Protocol SIMATIC communication Number of protocol SIMATIC communication Negrated switch Negrated switch No Number of protocol PROFINET in Controller No	Clock	
Number		
Number Clock synchronization ■ supported ● on Ethernet via NTP Yes Number of PROFINET interfaces Number of PROFINET interfaces		10 s; Typ.: 2 s
Supported	· · ·	
• supported • on Ethernet via NTP 1 ves Number of PROFINET interfaces 2 1. Interface Interface types • RJ 45 (Ethernet) • Number of prots • integrated switch Protocols • IP protocol • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Ves • SIMATIC communication • Web server • Media redundancy PROFINET IO Controller • PROFINET IO Controller • Yes • PROFINET IO Communication • Yes • Open IE communication • Yes • Media redundancy PROFINET IO Controller Services - PG/OP communication - IRT - No - IRT - PROFienergy - Number of connectable IO Devices, max. Update time for RT - for send cycle of 1 ms 1 ms to 512 ms 2. Interface interface types • RJ 45 (Ethernet) • integrated switch No Protocols		16
• on Ethernet via NTP		V
Number of PROFINET interfaces 2		
Number of PROFINET interfaces 2		Yes
Interface types		
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 • Media redundancy Yes PROFINET IO Controller Services - PG/OP communication Yes - Isochronous mode No - IRT No - PROFlenergy Yes - Number of connectable IO Devices, max. Update time for RT - for send cycle of 1 ms 1 ms to 512 ms Interface types • RJ 45 (Ethernet) • Integrated switch No Protocols		2
RJ 45 (Ethernet) Number of ports integrated switch Protocols IP protocol IP protocol PROFINET IO Controller PROFINET IO Device Open IE communication Web server Mo Media redundancy PROFINET IO Controller Services - PG/OP communication - Isochronous mode - IRT - PROFIenergy - Number of connectable IO Devices, max. Update time for RT - for send cycle of 1 ms Protocols Protocols Yes; X1 Yes Yes Ves No Yes, IPv4 Yes No Yes Only Server No Yes Only Server No Yes No Yes PROFINET IO Controller Services - PG/OP communication - Isochronous mode No - IRT - PROFIenergy - Number of connectable IO Devices, max. 256 Update time for RT - for send cycle of 1 ms 1 ms to 512 ms Protocols		
 Number of ports integrated switch Yes Protoccols IP protoccol PROFINET IO Controller PROFINET IO Device No SIMATIC communication Open IE communication Web server Mo Media redundancy Yes PROFINET IO Controller Services — PG/OP communication Hoo Isochronous mode No IRT No PROFIenergy No No No Update time for RT — for send cycle of 1 ms 1 ms to 512 ms 2. Interface Interface types RJ 45 (Ethernet) No Integrated switch No Protocols Protocols 		
integrated switch Protocols IP protocol PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Mo Media redundancy PROFINET IO Controller Services IND PROFICE OPEN NO PROFICE OPEN NO IND		
Protocols		
		Yes
PROFINET IO Controller PROFINET IO Device No SIMATIC communication Pes; Only Server Open IE communication Web server Web server No Media redundancy PROFINET IO Controller Services PG/OP communication IRT PROFIenergy No PROFIenergy No No No IRT PROFlenergy No Number of connectable IO Devices, max. I ms to 512 ms Interface Interface types PROFICE IO Controller Yes Interface types PROFILE IO Controller Yes Interface types PROFILE IO Controller Yes PROFILE IO Controller Yes PROFILE IO Controller Yes I ms to 512 ms Pes PROFILE IO Controller Yes; X2 Number of ports Interface types Interface types PROFILE IO Controller Protocols		Vee: ID: 4
PROFINET IO Device SIMATIC communication Yes; Only Server Open IE communication Yes Web server No Media redundancy Yes PROFINET IO Controller Services - PG/OP communication - Isochronous mode No - IRT - PROFlenergy - Number of connectable IO Devices, max. Update time for RT - for send cycle of 1 ms Instead 512 ms Protocols Protocools	•	
SIMATIC communication Open IE communication Web server Web server No Media redundancy Yes PROFINET IO Controller Services - PG/OP communication - Isochronous mode No - IRT - PROFlenergy - Number of connectable IO Devices, max. Update time for RT - for send cycle of 1 ms 1 ms to 512 ms Interface Interface types RJ 45 (Ethernet) Integrated switch Protocols		
Open IE communication Web server Modia redundancy PROFINET IO Controller Services — PG/OP communication — Isochronous mode — IRT — PROFIenergy — Number of connectable IO Devices, max. Update time for RT — for send cycle of 1 ms 1 ms to 512 ms Profice types RJ 45 (Ethernet) No Protocols		1.15
 Web server Media redundancy Yes PROFINET IO Controller Services — PG/OP communication — Isochronous mode — IRT — PROFlenergy — Number of connectable IO Devices, max. — Prof send cycle of 1 ms 1 ms to 512 ms 2. Interface Interface types RJ 45 (Ethernet) No Yes; X2 Number of ports integrated switch Protocols No Protocols		
 Media redundancy PROFINET IO Controller Services — PG/OP communication — Isochronous mode — IRT — PROFlenergy — Number of connectable IO Devices, max. Update time for RT — for send cycle of 1 ms 1 ms to 512 ms 2. Interface Interface types RJ 45 (Ethernet) Number of ports Integrated switch Protocols Protocols		
PROFINET IO Controller Services		
Services PG/OP communication	·	100
 — Isochronous mode — IRT — PROFlenergy — Number of connectable IO Devices, max. Update time for RT — for send cycle of 1 ms 1 ms to 512 ms 2. Interface Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols 		Yes
- IRT - PROFlenergy - Number of connectable IO Devices, max. Update time for RT - for send cycle of 1 ms 1 ms to 512 ms 2. Interface Interface types RJ 45 (Ethernet) No No Protocols		
- PROFlenergy - Number of connectable IO Devices, max. Update time for RT - for send cycle of 1 ms 1 ms to 512 ms 2. Interface Interface types RJ 45 (Ethernet) Number of ports integrated switch Protocols		
 Number of connectable IO Devices, max. Update time for RT — for send cycle of 1 ms 1 ms to 512 ms Interface Interface types RJ 45 (Ethernet) Number of ports integrated switch Protocols 		
Update time for RT — for send cycle of 1 ms 1 ms to 512 ms 2. Interface Interface types RJ 45 (Ethernet) Number of ports integrated switch No Protocols		
— for send cycle of 1 ms 1 ms to 512 ms 2. Interface Interface types • RJ 45 (Ethernet) Yes; X2 • Number of ports 1 • integrated switch No Protocols		
2. Interface Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • No	·	1 ms to 512 ms
Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols Interface types Yes; X2 Number of ports Integrated switch No		
 RJ 45 (Ethernet) Number of ports integrated switch Protocols Yes; X2 1 No Protocols		
 Number of ports integrated switch Protocols 	• •	Yes; X2
● integrated switch No Protocols		
Protocols		No
IP protocol Vec: IPv/I		
Protocor	IP protocol	Yes; IPv4
PROFINET IO Controller No	 PROFINET IO Controller 	No
PROFINET IO Device No	PROFINET IO Device	No

 SIMATIC communication 	Yes; Only Server
Open IE communication	Yes
Web server	No
Media redundancy	No
3. Interface	
Interface type	Pluggable synchronization submodule (FO)
Plug-in interface modules	Synchronization module 6ES7960-1CB00-0AA5 or 6ES7960-1FB00-0AA5
4. Interface	0,00
Interface type	Pluggable synchronization submodule (FO)
Plug-in interface modules	Synchronization module 6ES7960-1CB00-0AA5 or 6ES7960-1FB00-
riug-in interface modules	0AA5
Interface types	
RJ 45 (Ethernet)	
• 100 Mbps	Yes
Autonegotiation	Yes
Autocrossing	Yes
Industrial Ethernet status LED	Yes
Protocols	
Number of connections	
Number of connections, max.	288
Number of connections reserved for ES/HMI/web	10
Number of S7 routing paths	64
Redundancy mode	
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
— MRPD	No
Switchover time on line break, typ.	200 ms; PROFINET MRP
Number of stations in the ring, max.	50
SIMATIC communication	
PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
S7 routing	Yes
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, supported	Yes
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	64 kbyte
• UDP	Yes
— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast
— UDP multicast	Yes; 128 multicast circuits (of which max. 5 via X1)
• DHCP	No
• DNS	Yes
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Web server	
• HTTP	No
• HTTPS	No
OPC UA	
OPC UA Client	No
OPC UA Server	No
Further protocols	
• MODBUS	Yes; MODBUS TCP

Isochronous mode	
Equidistance	No
S7 message functions	
Number of login stations for message functions, max.	64
Program alarms	Yes
Number of configurable program messages, max.	10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
Number of loadable program messages in RUN, max.	5 000
Number of simultaneously active program alarms	
Number of program alarms	2 000
Number of alarms for system diagnostics	1 000
Test commissioning functions	
Joint commission (Team Engineering)	No
Status block	Yes; Up to 16 simultaneously
Single step	No
Number of breakpoints	20; 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. 	3 200
— of which powerfail-proof	1 000
Traces	
 Number of configurable Traces 	8
Memory size per trace, max.	512 kbyte
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	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.	0 °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. 	0 °C
 vertical installation, max. 	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the
Ambient temperature during storage/transportation	display is switched off
Ambient temperature during storage/transportation	-40 °C
• min.	70 °C
• max.	10 0

Alex I I I 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	
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	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
Cycle time monitoring	
 lower limit 	adjustable minimum cycle time
• upper limit	adjustable maximum cycle time
Dimensions	
Width	210 mm
Height	147 mm
Depth	129 mm
Veights	
Weight, approx.	2 119 g; Interface modules: 2x 18 g
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