Data sheet

CPU 317SN/PN (317-4PN12)

Technical data

Order no.	317-4PN12
Type	CPU 317SN/PN

General information

Note	-
Features	SPEED7 technology, SPEED-Bus 2 MB work memory Memory extension (max. 8 MB) PROFIBUS-DP master / PtP (switchable) PROFINET Controller integrated Also configurable via TIA-Portal
SPEED-Bus	✔

Technical data power supply

Power supply (rated value)	DC 24 V
Power supply (permitted range)	DC 20.4...28.8 V
Reverse polarity protection	✔
Current consumption (no-load operation)	270 mA
Current consumption (rated value)	1.5 A
Inrush current	6 A
I²t	0.28 A²s
Max. current drain at backplane bus	3 A
Power loss	10 W

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Max. current drain load supply	-
Power loss	10 W

Load and working memory

Load memory, integrated	8 MB
Load memory, maximum	8 MB
Work memory, integrated	2 MB
Work memory, maximal	8 MB
Memory divided in 50% program / 50% data	✔
Memory card slot	MMC-Card with max. 1 GB

Hardware configuration

Racks, max.	4

Modules per rack, max.	8 in multiple-, 32 in a single-rack configuration
Number of integrated DP master	1
Number of DP master via CP	4
Operable function modules	8
Operable communication modules PtP	16
Operable communication modules LAN	8

Command processing times

Bit instructions, min.	0.01 µs
Word instruction, min.	0.01 µs
Double integer arithmetic, min.	0.01 µs
Floating-point arithmetic, min.	0.06 µs

Timers/Counters and their retentive characteristics

Number of S7 counters	2048
S7 counter remanence	adjustable 0 up to 2048
S7 counter remanence adjustable	C0 .. C7
Number of S7 times	2048
S7 times remanence	adjustable 0 up to 2048
S7 times remanence adjustable	not retentive

Data range and retentive characteristic

Number of flags	16384 Byte
Bit memories retentive characteristic adjustable	adjustable 0 up to 16384
Bit memories retentive characteristic preset	MB0 .. MB15
Number of data blocks	8190
Max. data blocks size	64 KB
Number range DBs	1 ... 8190
Max. local data size per execution level	3072 Byte
Max. local data size per block	3072 Byte

Blocks

Number of OBs	24
Maximum OB size	64 KB
Total number DBs, FBs, FCs	-
Number of FBs	8191
Maximum FB size	64 KB
Number range FBs	0 ... 8190
Number of FCs	8191
Maximum FC size	64 KB
Number range FCs	0 ... 8190
Maximum nesting depth per priority class	16
Maximum nesting depth additional within an error OB	4

Time

Real-time clock buffered	✔
Clock buffered period (min.)	6 w
Type of buffering	Vanadium Rechargeable Lithium Battery
Load time for 50% buffering period	20 h

Load time for 100% buffering period	48 h
Accuracy (max. deviation per day)	10 s
Number of operating hours counter	8
Clock synchronization	✔
Synchronization via MPI	Master/Slave
Synchronization via Ethernet (NTP)	Slave

Address areas (I/O)

Input I/O address area	8192 Byte
Output I/O address area	8192 Byte
Process image adjustable	✔
Input process image preset	256 Byte
Output process image preset	256 Byte
Input process image maximal	8192 Byte
Output process image maximal	8192 Byte
Digital inputs	65536
Digital outputs	65536
Digital inputs central	1024
Digital outputs central	1024
Integrated digital inputs	-
Integrated digital outputs	-
Analog inputs	4096
Analog outputs	4096
Analog inputs, central	256
Analog outputs, central	256
Integrated analog inputs	-
Integrated analog outputs	-

Communication functions

PG/OP channel	✔
Global data communication	✔
Number of GD circuits, max.	8
Size of GD packets, max.	22 Byte
S7 basic communication	✔
S7 basic communication, user data per job	76 Byte
S7 communication	✔
S7 communication as server	✔
S7 communication as client	-
S7 communication, user data per job	160 Byte
Number of connections, max.	32

Functionality Sub-D interfaces

Type	X2
Type of interface	RS485
Connector	Sub-D, 9-pin, female
Electrically isolated	✔
MPI	✔

MP²I (MPI/RS232)	-
DP master	-
DP slave	-
Point-to-point interface	-

Type	X3
Type of interface	RS485
Connector	Sub-D, 9-pin, female
Electrically isolated	✔
MPI	-
MP²I (MPI/RS232)	-
DP master	yes
DP slave	yes
Point-to-point interface	✔

Functionality MPI

Number of connections, max.	32
PG/OP channel	✔
Routing	✔
Global data communication	✔
S7 basic communication	✔
S7 communication	✔
S7 communication as server	✔
S7 communication as client	-
Transmission speed, min.	19.2 kbit/s
Transmission speed, max.	12 Mbit/s

Functionality PROFIBUS master

PG/OP channel	✔
Routing	✔
S7 basic communication	✔
S7 communication	✔
S7 communication as server	✔
S7 communication as client	-
Activation/deactivation of DP slaves	✔
Direct data exchange (slave-to-slave communication)	-
DPV1	✔
Transmission speed, min.	9.6 kbit/s
Transmission speed, max.	12 Mbit/s
Number of DP slaves, max.	124
Address range inputs, max.	8 KB
Address range outputs, max.	8 KB
User data inputs per slave, max.	244 Byte
User data outputs per slave, max.	244 Byte

Functionality PROFIBUS slave

PG/OP channel	✔
Routing	✔
S7 communication	✔
S7 communication as server	✔
S7 communication as client	-
Direct data exchange (slave-to-slave communication)	-
DPV1	✔
Transmission speed, min.	9.6 kbit/s
Transmission speed, max.	12 Mbit/s
Automatic detection of transmission speed	-
Transfer memory inputs, max.	244 Byte
Transfer memory outputs, max.	244 Byte
Address areas, max.	32
User data per address area, max.	32 Byte

Point-to-point communication

PtP communication	✔
Interface isolated	✔
RS232 interface	-
RS422 interface	-
RS485 interface	✔
Connector	Sub-D, 9-pin, female
Transmission speed, min.	150 bit/s
Transmission speed, max.	115.5 kbit/s
Cable length, max.	500 m

Point-to-point protocol

ASCII protocol	✔
STX/ETX protocol	✔
3964(R) protocol	✔
RK512 protocol	-
USS master protocol	✔
Modbus master protocol	✔
Modbus slave protocol	-
Special protocols	-

Functionality PROFINET I/O controller

Realtime Class	-
Conformance Class	PROFINET IO
Number of PN IO devices	128
IRT support	-
Prioritized start-up	-
Number of PN IO lines	1
Address range inputs, max.	4 KB
Address range outputs, max.	4 KB

Transmiting clock	1 ms
Update time	1 ms .. 512 ms

Functionality RJ45 interfaces

Type	X5
Type of interface	Ethernet 10/100 MBit
Connector	RJ45
Electrically isolated	✔
PG/OP channel	✔
Number of connections, max.	4
Productive connections	-

Type	X8
Type of interface	Ethernet 10/100 MBit
Connector	RJ45
Electrically isolated	✔
PG/OP channel	✔
Number of connections, max.	8
Productive connections	✔

Ethernet communication CP

Number of productive connections, max.	24
Number of productive connections by Siemens NetPro, max.	14
S7 connections	BSEND, BRCV, GET, PUT, Connection of active and passive data handling
User data per S7 connection, max.	32 KB
TCP-connections	FETCH PASSIV, WRITE PASSIV, Connection of passive data handling
User data per TCP connection, max.	64 KB
ISO-connections	-
User data per ISO connection, max.	-
ISO on TCP connections (RFC 1006)	FETCH PASSIV, WRITE PASSIV, Connection of passive data handling
User data per ISO on TCP connection, max.	32 KB
UDP-connections	-
User data per UDP connection, max.	-
UDP-multicast-connections	-
UDP-broadcast-connections	-

Ethernet open communication

Number of connections, max.	24
User data per ISO on TCP connection, max.	8 KB
User data per native TCP connection, max.	8 KB
User data per ad hoc TCP connection, max.	1460 Byte
User data per UDP connection, max.	1472 Byte

Housing

Material	PPE
Mounting	Rail System 300

Mechanical data

Dimensions (WxHxD)	80 mm x 125 mm x 120 mm
Weight	440 g

Environmental conditions

Operating temperature	0 °C to 60 °C
Storage temperature	-25 °C to 70 °C

Certifications

UL508 certification	yes