VIPA

Data sheet
CPU 315SN/PN (315-4PN33)

Technical data

Order no.	315-4PN33
Type	CPU 315SN/PN
General information	
Note	-
Features	SPEED7 technology 512 KB work memory PtP PROFINET controller integrated 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)	200 mA
Current consumption (rated value)	0.7 A
Inrush current	11 A
I²t	0.4 A²s
Max. current drain at backplane bus	2 A
Power loss	5.5 W
Load and working memory	
Load memory, integrated	512 KB
Load memory, maximum	512 KB
Work memory, integrated	512 KB
Work memory, maximal	512 KB
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	0
Number of DP master via CP	4
Operable function modules	8
Operable communication modules PtP	8
Operable communication modules LAN	8
Status information, alarms, diagnostics	
Status display	yes
Interrupts	no
Process alarm	no
Diagnostic interrupt	no
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	512
Number of S7 times	512

Data range and retentive characteristic

Number of flags	8192 Byte
Number of data blocks	4095
Max. data blocks size	64 KB
Max. local data size per execution level	1024 Byte

Blocks

Number of OBs	20
Number of FBs	2048
Number of FCs	2048
Maximum nesting depth per priority class	8
Maximum nesting depth additional within an error OB	4

Time

Real-time clock buffered	✔
Clock buffered period (min.)	6 W
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	2048 Byte
Output I/O address area	2048 Byte
Input process image maximal	2048 Byte
Output process image maximal	2048 Byte
Digital inputs	16384
Digital outputs	16384
Digital inputs central	1024
Digital outputs central	1024
Integrated digital inputs	-
Integrated digital outputs	-
Analog inputs	1024
Analog outputs	1024
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	-
DP slave	-
Point-to-point interface	✔
CAN	-

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	-
Equidistance support	-
Isochronous mode	-
SYNC/FREEZE	-
Activation/deactivation of DP slaves	-
Direct data exchange (slave-to-slave communication)	-
DPV1	-
Transmission speed, min.	-
Transmission speed, max.	-
Number of DP slaves, max.	-
Address range inputs, max.	-
Address range outputs, max.	-
User data inputs per slave, max.	-
User data outputs per slave, max.	-

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.	-
Transmission speed, max.	-
Automatic detection of transmission speed	-
Transfer memory inputs, max.	-
Transfer memory outputs, max.	-
Address areas, max.	-
User data per address area, max.	-

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.	2 KB
Address range outputs, max.	2 KB
Transmiting clock	1 ms
Update time	1 ms .. 512 ms

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 RJ45 interfaces

Type	X5
Type of interface	Ethernet 10/100 MBit
Connector	RJ45
Electrically isolated	✔
PG/OP channel	✔
Productive connections	-
Type	X8
Type of interface	Ethernet 10/100 MBit
Connector	RJ45
Electrically isolated	✔
PG/OP channel	✔
Productive connections	✔

Ethernet communication CP

Number of productive connections, max.	8
Number of productive connections by Siemens NetPro, max.	8
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.	8
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	380 g
Environmental conditions	
Operating temperature	0 °C to 60 °C
Storage temperature	-25 °C to 70 °C
Certifications	
UL508 certification	in preparation