

Data sheet CPU 314SE (314-2BG23)

Technical data

Order no.	314-2BG23
Type	CPU 314SE
General information	
Note	-
Features	Powered by SPEED7 Work memory [KB]: 256...1.024 Interface [RJ45]: Ethernet PG/OP communication Interface [2x RS485]: MPI, PROFIBUS slave, PtP: ASCII, STX/ETX, 3964(R), USS master, Modbus master/slave SD/MMC card slot with locking, up to 32 modules stackable, programmable with WinPLC7, SIMATIC Manager and 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	yes
Current consumption (no-load operation)	180 mA
Current consumption (rated value)	900 mA
Inrush current	8 A
I^2t	0.7 A ² s
Max. current drain at backplane bus	3 A
Max. current drain load supply	-
Power loss	6 W
Load and working memory	
Load memory, integrated	1 MB
Load memory, maximum	1 MB
Work memory, integrated	256 KB
Work memory, maximal	1 MB
Memory divided in 50% program / 50% data	yes
Memory card slot	SD/MMC-Card with max. 2 GB
Hardware configuration	
Racks, max.	4
Modules per rack, max.	8 in multiple-, 32 in a single-rack configuration
Number of integrated DP master	-
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
Diagnostic functions	no

Diagnostics information read-out	possible
Supply voltage display	green LED
Group error display	red SF LED
Channel error display	none

Command processing times

Bit instructions, min.	0.02 µs
Word instruction, min.	0.02 µs
Double integer arithmetic, min.	0.02 µs
Floating-point arithmetic, min.	0.12 µs

Timers/Counters and their retentive characteristics

Number of S7 counters	512
S7 counter remanence	adjustable 0 up to 256
S7 counter remanence adjustable	C0 .. C7
Number of S7 times	512
S7 times remanence	adjustable 0 up to 256
S7 times remanence adjustable	not retentive

Data range and retentive characteristic

Number of flags	8192 Byte
Bit memories retentive characteristic adjustable	adjustable 0 up to 2048
Bit memories retentive characteristic preset	MB0 .. MB15
Number of data blocks	4095
Max. data blocks size	64 KB
Number range DBs	1 ... 4095
Max. local data size per execution level	1024 Byte
Max. local data size per block	1024 Byte

Blocks

Number of OBs	15
Maximum OB size	64 KB
Total number DBs, FBs, FCs	-
Number of FBs	2048
Maximum FB size	64 KB
Number range FBs	0 ... 2047
Number of FCs	2048
Maximum FC size	64 KB
Number range FCs	0 ... 2047
Maximum nesting depth per priority class	8
Maximum nesting depth additional within an error OB	4

Time

Real-time clock buffered	yes
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	yes
Synchronization via MPI	Master/Slave

Synchronization via Ethernet (NTP) no

Address areas (I/O)

Input I/O address area	2048 Byte
Output I/O address area	2048 Byte
Process image adjustable	-
Input process image preset	128 Byte
Output process image preset	128 Byte
Input process image maximal	128 Byte
Output process image maximal	128 Byte
Digital inputs	16384
Digital outputs	16385
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	yes
Global data communication	yes
Number of GD circuits, max.	8
Size of GD packets, max.	22 Byte
S7 basic communication	yes
S7 basic communication, user data per job	76 Byte
S7 communication	yes
S7 communication as server	yes
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	yes
MP ² (MPI/RS232)	-
DP master	-
DP slave	-
Point-to-point interface	-
5V DC Power supply	max. 90mA, non-isolated
24V DC Power supply	max. 100mA, non-isolated

Type	X3
Type of interface	RS485

Connector	Sub-D, 9-pin, female
Electrically isolated	yes
MPI	-
MP ² I (MPI/RS232)	-
DP master	-
DP slave	yes
Point-to-point interface	yes
5V DC Power supply	max. 90mA, isolated
24V DC Power supply	max. 100mA, non-isolated

Functionality MPI

Number of connections, max.	32
PG/OP channel	yes
Routing	-
Global data communication	yes
S7 basic communication	yes
S7 communication	yes
S7 communication as server	yes
S7 communication as client	-
Transmission speed, min.	19.2 kbit/s
Transmission speed, max.	187.5 kbit/s

Functionality PROFIBUS master

Number of connections, max.	-
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.	-
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

Number of connections, max.	-
PG/OP channel	-
Routing	-
S7 communication	-
S7 communication as server	-
S7 communication as client	-
Direct data exchange (slave-to-slave communication)	-
DPV1	yes
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

Functionality RJ45 interfaces

Type	X4
Type of interface	Ethernet 10/100 MBit
Connector	RJ45
Electrically isolated	yes
PG/OP channel	yes
Number of connections, max.	4
Productive connections	-

Point-to-point communication

PtP communication	yes
Interface isolated	yes
RS232 interface	-
RS422 interface	-
RS485 interface	yes
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	yes
STX/ETX protocol	yes
3964(R) protocol	yes
RK512 protocol	-
USS master protocol	yes
Modbus master protocol	yes
Modbus slave protocol	-
Special protocols	-

Housing

Material	PPE
Mounting	Rail System 300

Mechanical data

Dimensions (WxHxD)	40 mm x 125 mm x 120 mm
Net weight	235 g
Weight including accessories	-
Gross weight	-

Environmental conditions

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

Certifications

UL certification	yes
KC certification	yes