SIEMENS

productdatablad 6ES7314-6EH04-0AB0

SIMATIC S7-300,
CPU 314C-2PN/DP COMPACT CPU WITH 192 KBYTE WORKING MEMORY,
24 DI/16 DO, 4AI, 2AO, 1 PT100,
4 FAST COUNTERS (60 KHZ),
1. INTERFACE MPI/DP 12MBIT/S,
2. INTERFACE ETHERNET PROFINET,
WITH 2 PORT SWITCH,
INTEGRATED 24V DC POWER SUPPLY,
FRONT CONNECTOR (2 X 40PIN) AND MICRO MEMORY CARD REQUIRED

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Supply voltage	
24 V DC	Ja
Voedingsspanning / bij DC / nominale waarde / minimaal	19,2 V
Voedingsspanning / bij DC / nominale waarde / maximaal	28,8 V
Mains buffering	
Mains/voltage failure stored energy time	5 ms
Repeat rate, min.	1 s
Digital inputs	
Load voltage L+	
Rated value (DC)	24 V
Reverse polarity protection	Ja
Digital outputs	
Load voltage L+	
Rated value (DC)	24 V
Reverse polarity protection	Nee
Input current	
Current consumption (rated value)	850 mA
Current consumption (in no-load operation), typ.	190 mA

Inschakelstroom / typisch	5 A
Spanningen en stromen / I^2t	0,7 $A^2 \cdot s$
from supply voltage L+, max.	850 mA
Stroomopname / digitale ingangen	
from load voltage L+ (without load), max.	80 mA
Digital outputs	
from load voltage L+, max.	50 mA
Power loss	
Werkelijk vermogensverlies / typisch	14 W
Memory	
Work memory	
integrated	192 kbyte
expandable	Nee
Size of retentive memory for retentive data blocks	64 kbyte
Load memory	
Plug-in (MMC)	Ja
Plug-in (MMC), max.	8 Mbyte
Data management on MMC (after last programming), min.	10 a
Backup	
present	Ja
without battery	Ja
CPU processing times	
for bit operations, typ.	0,06 µs
for word operations, typ.	0,12 µs
for fixed point arithmetic, typ.	0,16 µs
for floating point arithmetic, typ.	0,59 µs
CPU-blocks	
Number of blocks (total)	1024
DB	
Number, max.	1024
Size, max.	64 kbyte
FB	
Number, max.	1024
Size, max.	64 kbyte
FC	
Number, max.	1024
Size, max.	64 kbyte
OB	

Size, max.	64 kbyte
Number of free cycle OBs	1
Number of time alarm OBs	1
Number of delay alarm OBs	2
Number of time interrupt OBs	4
Number of process alarm OBs	1
Number of DPV1 alarm OBs	3
Number of isochronous mode OBs	1
Number of startup OBs	1
Number of asynchronous error OBs	6
Number of synchronous error OBs	2
Nesting depth	
per priority class	16
additional within an error OB	4
Counters, timers and their retentivity	
S7 counter	
Number	256
Retentivity	
adjustable	Ja
lower limit	0
upper limit	255
Counting range	
adjustable	Ja
lower limit	0
upper limit	999
IEC counter	
present	Ja
S7 times	
Number	256
Retentivity	
adjustable	Ja
lower limit	0
upper limit	255
Time range	
lower limit	10 ms
upper limit	9990 s
IEC timer	
present	Ja

Data areas and their retentivity	
Flag	
Number, max.	256 byte
Retentivity available	Ja
Number of clock memories	8
Data blocks	
Number, max.	1024
Size, max.	64 kbyte
Retentivity adjustable	Ja
Local data	
per priority class, max.	32 kbyte
Address area	
I/O address area	
Inputs	2048 byte
Outputs	2048 byte
of which distributed	
Inputs	2003 byte
Outputs	2010 byte
Process image	
Inputs	2048 byte
Outputs	2048 byte
Inputs, adjustable	2048 byte
Outputs, adjustable	2048 byte
Inputs, default	256 byte
Outputs, default	256 byte
Subprocess images	
Number of subprocess images, max.	1
Digital channels	
Inputs	16048
Outputs	16096
Inputs, of which central	1016
Outputs, of which central	1008
Analog channels	
Inputs	1006
Outputs	1007
Inputs, of which central	253
Outputs, of which central	250
Hardware configuration	

Expansion devices, max.	3
Number of DP masters	
integrated	1
via CP	4
Number of operable FMs and CPs (recommended)	
FM	8
CP, point-to-point	8
CP, LAN	10
Rack	
Racks, max.	4
Modules per rack, max.	8
Time of day	
Clock	
Hardware clock (real-time clock)	Ja
battery-backed and synchronizable	Ja
Deviation per day, max.	10 s
Backup time	6 wk
Operating hours counter	
Number	1
retentive	Ja
Clock synchronization	
supported	Ja
to MPI, master	Ja
to MPI, slave	Ja
to DP, master	Ja
to DP, slave	Ja
in AS, master	Ja
in AS, slave	Ja
on Ethernet via NTP	Ja
Digital inputs	
Aantal digitale ingangen	24
of which inputs usable for technological functions	16
integrated channels (DI)	24
Uitvoering van de digitale ingangen / type 1 volgens IEC 61131	Ja
Number of simultaneously controllable inputs	
horizontal installation	
up to 40 °C, max.	24
up to 60 °C, max.	12

vertical installation	
up to 40 °C, max.	12
Input voltage	
Ingangsspanning / aan de digitale ingang / bij DC / nominale waarde	24 V
Input current	
Ingangsstroom / aan de digitale ingang / bij signaal <1> / typisch	8 mA
Input delay (for rated value of input voltage)	
for standard inputs	
parameterizable	Ja
Rated value	3 ms
for counter/technological functions	
at "0" to "1", max.	8 µs
Cable length	
Cable length, shielded, max.	1000 m
Cable length unshielded, max.	600 m
Technological functions	
shielded, max.	50 m
Standard DI	
shielded, max.	1000 m
unshielded, max.	600 m
Digital outputs	
Aantal van de digitale uitgangen	16
of which high-speed outputs	4
integrated channels (DO)	16
Short-circuit protection	Ja
Controlling a digital input	Ja
Switching capacity of the outputs	
Lamp load, max.	5 W
Load resistance range	
lower limit	48 Ω
upper limit	4 kΩ
Output current	
Uitgangsstroom / aan de digitale uitgang / bij signaal <1> / nominale waarde	500 mA
Uitgangsstroom / aan de digitale uitgang / bij signaal <1> / minimaal	5 mA
Uitgangsstroom / aan de digitale uitgang / bij signaal <1> / maximaal	0,6 A

for signal "1" minimum load current	5 mA
Reststroom / aan de digitale uitgang / bij signaal <0> / maximaal	0,5 mA
Parallel switching of 2 outputs	
for uprating	Nee
for redundant control of a load	Ja
Switching frequency	
with resistive load, max.	100 Hz
with inductive load, max.	0,5 Hz
on lamp load, max.	100 Hz
of the pulse outputs, with resistive load, max.	2,5 kHz
Total current of the outputs (per group)	
horizontal installation	
up to 40 °C, max.	3 A
up to 60 °C, max.	2 A
vertical installation	
up to 40 °C, max.	2 A
Cable length	
Cable length, shielded, max.	1000 m
Cable length unshielded, max.	600 m
Analog inputs	
integrated channels (AI)	5
Aantal analoge ingangen	5
Number of analog inputs for voltage/current measurement	4
Number of analog inputs for resistance/resistance thermometer measurement	1
permissible input voltage for current input (destruction limit), max.	5 V
permissible input voltage for voltage input (destruction limit), max.	30 V
permissible input current for voltage input (destruction limit), max.	0,5 mA
permissible input current for current input (destruction limit), max.	50 mA
Technical unit for temperature measurement adjustable	Ja
Input ranges	
Ingangsgrootte / aan de analoge ingang / spanningssignaal	Ja
Ingangsgrootte / aan de analoge ingang / stroomsignaal	Ja
Uitvoering van de sensor / aan de analoge ingang / wordt ondersteund / sensor voor weerstandstemperatuur	Ja
Ingangsgrootte / aan de analoge ingang / signaal met veranderlijke weerstand	Ja
Input ranges (rated values), voltages	
Bereik ingangsspanning / aan de analoge ingang / 0 V ... 10 V	Ja

Input resistance (0 to 10 V)	100 kΩ
Input ranges (rated values), currents	
Bereik ingangsstroom / aan de analoge ingang / 0 mA ... 20 mA	Ja
Input resistance (0 to 20 mA)	100 Ω
-20 to +20 mA	Ja
Input resistance (-20 to +20 mA)	100 Ω
Bereik ingangsstroom / aan de analoge ingang / 4 mA ... 20 mA	Ja
Input resistance (4 to 20 mA)	100 Ω
Input ranges (rated values), resistance thermometers	
Pt 100	Ja
Input resistance (Pt 100)	10 MΩ
Input ranges (rated values), resistors	
No-load voltage, typ.	3,3 V
0 to 600 Ohm	Ja
Input resistance (0 to 600 Ohm)	10 MΩ
Thermocouple (TC)	
Temperature compensation	
parameterizable	Nee
Characteristic linearization	
parameterizable	Ja
Cable length	
Cable length, shielded, max.	100 m
Analog outputs	
integrated channels (AO)	2
Aantal analoge uitgangen	2
Voltage output, short-circuit protection	Ja
Voltage output, short-circuit current, max.	55 mA
Current output, no-load voltage, max.	14 V
Output ranges, voltage	
0 to 10 V	Ja
-10 to +10 V	Ja
Output ranges, current	
0 to 20 mA	Ja
-20 to +20 mA	Ja
4 to 20 mA	Ja
Connection of actuators	
for voltage output two-wire connection	Ja

for voltage output four-wire connection	Nee
for current output two-wire connection	Ja
Load impedance (in rated range of output)	
with voltage outputs, min.	1 kΩ
with voltage outputs, capacitive load, max.	0,1 µF
with current outputs, max.	300 Ω
with current outputs, inductive load, max.	0,1 mH
Destruction limits against externally applied voltages and currents	
Voltages at the outputs towards MANA	16 V
Current, max.	50 mA
Cable length	
Cable length, shielded, max.	200 m
Analog value generation	
Integration and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	12 bit
Integration time, parameterizable	Ja
permissible input frequency, max.	400 Hz
Conversion time (per channel)	1 ms
Time constant of the input filter	0,38 ms
Basic execution time of the module (all channels released)	1 ms
Settling time	
for resistive load	0,6 ms
for capacitive load	1 ms
for inductive load	0,5 ms
Encoder	
Connection of signal encoders	
for voltage measurement	Ja
for current measurement as 2-wire transducer	Ja
for current measurement as 4-wire transducer	Ja
for resistance measurement with two-wire connection	Ja
for resistance measurement with three-wire connection	Nee
for resistance measurement with four-wire connection	Nee
Connectable encoders	
2-wire sensor	Ja
permissible quiescent current (2-wire sensor), max.	1,5 mA
Errors/accuracies	
Temperature error (relative to input range), (+/-)	0,0060 %/K
Crosstalk between the inputs, min.	60 dB

Repeat accuracy in steady state at 25 °C (relative to input area), (+/-)	0,06 %
Output ripple (based on output area, bandwidth 0 to 50 kHz), (+/-)	0,1 %
Linearity error (relative to output range), (+/-)	0,15 %
Temperature error (relative to output range), (+/-)	0,01 %/K
Crosstalk between the outputs, min.	60 dB
Repeat accuracy in steady state at 25 °C (relative to output area), (+/-)	0,06 %
Operational error limit in overall temperature range	
Voltage, relative to input area, (+/-)	1 %
Current, relative to input area, (+/-)	1 %
Resistance, relative to input area, (+/-)	1 %
Voltage, relative to output area, (+/-)	1 %
Current, relative to output area, (+/-)	1 %
Basic error limit (operational limit at 25 °C)	
Voltage, relative to input area, (+/-)	0,8 %
Current, relative to input area, (+/-)	0,8 %
Resistance, relative to input area, (+/-)	0,8 %
Resistance thermometer, relative to input area, (+/-)	0,8 %
Voltage, relative to output area, (+/-)	0,8 %
Current, relative to output area, (+/-)	0,8 %
Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency	
Series mode interference (peak value of interference < rated value of input range), min.	30 dB
Common mode interference, min.	40 dB
Interfaces	
Aantal interfaces / conform USB	0
Number of parallel interfaces	0
Number of 20 mA interfaces (TTY)	0
Number of RS 232 interfaces	0
Number of RS 422 interfaces	0
Aantal interfaces / overige	1
1. Interface	
isolated	Ja
Power supply to interface (15 to 30 V DC), max.	200 mA
Functionality	
MPI	Ja
DP master	Ja
DP slave	Ja
Point-to-point connection	Nee

MPI	
Transmission rate, max.	12 Mbit/s
Services	
PG/OP communication	Ja
Routing	Ja
Global data communication	Ja
S7 basic communication	Ja
S7 communication	Ja
S7 communication, as client	Nee
S7 communication, as server	Ja
DP master	
Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	124
Services	
PG/OP communication	Ja
Routing	Ja
Global data communication	Nee
S7 basic communication	Ja
S7 communication	Ja
S7 communication, as client	Nee
S7 communication, as server	Ja
Equidistance mode support	Ja
Isochronous mode	Nee
SYNC/FREEZE	Ja
Activation/deactivation of DP slaves	Ja
Number of DP slaves that can be simultaneously activated/deactivated, max.	8
Direct data exchange (slave-to-slave communication)	Ja
DPV1	Ja
Address area	
Inputs, max.	2 kbyte
Outputs, max.	2 kbyte
User data per DP slave	
Inputs, max.	244 byte
Outputs, max.	244 byte
DP slave	
Transmission rate, max.	12 Mbit/s
Automatic baud rate search	Ja
Address area, max.	32

User data per address area, max.	32 byte
Services	
PG/OP communication	Ja
Routing	Ja
Global data communication	Nee
S7 basic communication	Nee
S7 communication	Ja
S7 communication, as client	Nee
S7 communication, as server	Ja
Direct data exchange (slave-to-slave communication)	Ja
DPV1	Nee
Transfer memory	
Inputs	244 byte
Outputs	244 byte
2. Interface	
isolated	Ja
integrated switch	Ja
Number of ports	2
automatic detection of transmission rate	Ja
Autonegotiation	Ja
Autocrossing	Ja
Change of IP address at runtime, supported	Ja
Media redundancy	
supported	Ja
Switchover time on line break, typ.	200 ms
Number of stations in the ring, max.	50
Functionality	
MPI	Nee
DP master	Nee
DP slave	Nee
PROFINET IO Controller	Ja
PROFINET IO Device	Ja
PROFINET CBA	Ja
Open IE communication	Ja
Web server	Ja
Number of HTTP clients	5
PROFINET IO Controller	
Transmission rate, max.	100 Mbit/s
Number of connectable IO Devices, max.	128

Number of connectable IO Devices for RT, max.	128
of which in line, max.	128
Number of IO Devices with IRT and the option "high flexibility"	128
of which in line, max.	61
Number of IO Devices with IRT and the option "high performance", max.	64
of which in line, max.	64
IRT, supported	Ja
Shared device, supported	Ja
Prioritized startup supported	Ja
Number of IO Devices, max.	32
Activation/deactivation of IO Devices	Ja
Number of IO Devices that can be simultaneously activated/deactivated, max.	8
IO Devices changing during operation (partner ports), supported	Ja
Number of IO Devices per tool, max.	8
Device replacement without swap medium	Ja
Services	
PG/OP communication	Ja
Routing	Ja
S7 communication	Ja
Isochronous mode	Ja
Open IE communication	Ja
Address area	
Inputs, max.	2 kbyte
Outputs, max.	2 kbyte
User data consistency, max.	1024 byte
PROFINET IO Device	
Services	
PG/OP communication	Ja
Routing	Ja
S7 communication	Ja
Isochronous mode	Nee
Open IE communication	Ja
IRT	Ja
PROFIenergy, supported	Ja
Shared device	Ja
Number of IO Controllers with shared device, max.	2
Transfer memory	

Inputs, max.	1440 byte
Outputs, max.	1440 byte
Submodules	
Number, max.	64
User data per submodule, max.	1024 byte
PROFINET CBA	
acyclic transmission	Ja
cyclic transmission	Ja
Open IE communication	
Open IE communication, supported	Ja
Number of connections, max.	8
Keep-alive function, supported	Ja
Isochronous mode	
Isochronous mode (application synchronized up to terminal)	Ja
Communication functions	
PG/OP communication	Ja
Data record routing	Ja
Global data communication	
supported	Ja
Number of GD loops, max.	8
Number of GD packets, max.	8
Number of GD packets, transmitter, max.	8
Number of GD packets, receiver, max.	8
Size of GD packets, max.	22 byte
Size of GD packet (of which consistent), max.	22 byte
S7 basic communication	
supported	Ja
User data per job, max.	76 byte
User data per job (of which consistent), max.	76 byte
S7 communication	
supported	Ja
as server	Ja
as client	Ja
S5 compatible communication	
supported	Ja
Open IE communication	
TCP/IP	Ja
Number of connections, max.	8

Data length for connection type 01H, max.	1460 byte
Data length for connection type 11H, max.	32768 byte
Several passive connections per port, supported	Ja
ISO-on-TCP (RFC1006)	Ja
Number of connections, max.	8
Data length, max.	32768 byte
UDP	Ja
Number of connections, max.	8
Data length, max.	1472 byte
Web server	
supported	Ja
Number of HTTP clients	5
User-defined websites	Ja
PROFINET CBA (at set setpoint communication load)	
Setpoint for the CPU communication load	50 %
Number of remote interconnection partners	32
Number of functions, master/slave	30
Total of all master/slave connections	1000
Data length of all incoming connections master/slave, max.	4000 byte
Data length of all outgoing connections master/slave, max.	4000 byte
Number of device-internal and PROFIBUS interconnections	500
Data length of device-internal und PROFIBUS interconnections, max.	4000 byte
Data length per connection, max.	1400 byte
Remote interconnections with acyclic transmission	
Sampling frequency: Sampling time, min.	500 ms
Number of incoming interconnections	100
Number of outgoing interconnections	100
Data length of all incoming interconnections, max.	2000 byte
Data length of all outgoing interconnections, max.	2000 byte
Data length per connection, max.	1400 byte
Remote interconnections with cyclic transmission	
Transmission frequency: Transmission interval, min.	10 ms
Number of incoming interconnections	200
Number of outgoing interconnections	200
Data length of all incoming interconnections, max.	2000 byte
Data length of all outgoing interconnections, max.	2000 byte
Data length per connection, max.	450 byte
HMI variables via PROFINET (acyclic)	

Number of stations that can log on for HMI variables (PN OPC/iMap)	3
HMI variable updating	500 ms
Number of HMI variables	200
Data length of all HMI variables, max.	2000 byte
PROFIBUS proxy functionality	
supported	Ja
Number of linked PROFIBUS devices	16
Data length per connection, max.	240 byte
Number of connections	
overall	12
usable for PG communication	11
reserved for PG communication	1
adjustable for PG communication, min.	1
adjustable for PG communication, max.	11
usable for OP communication	11
reserved for OP communication	1
adjustable for OP communication, min.	1
adjustable for OP communication, max.	11
usable for S7 basic communication	8
reserved for S7 basic communication	0
adjustable for S7 basic communication, min.	0
adjustable for S7 basic communication, max.	8
usable for S7 communication	10
reserved for S7 communication	0
adjustable for S7 communication, min.	0
adjustable for S7 communication, max.	10
total number of instances, max.	32
S7 message functions	
Number of login stations for message functions, max.	12
Process diagnostic messages	Ja
simultaneously active Alarm-S blocks, max.	300
Test commissioning functions	
Status block	Ja
Single step	Ja
Number of breakpoints	4
Status/control	
Status/control variable	Ja
Number of variables, max.	30

of which status variables, max.	30
of which control variables, max.	14
Forcing	
Forcing	Ja
Number of variables, max.	10
Diagnostic buffer	
present	Ja
Number of entries, max.	500
adjustable	Nee
of which powerfail-proof	100
Number of entries readable in RUN, max.	499
adjustable	Ja
preset	10
Service data	
can be read out	Ja
Interrupts/diagnostics/status information	
Diagnostics indication LED	
Status indicator digital output (green)	Ja
Status indicator digital input (green)	Ja
Integrated Functions	
Number of counters	4
Counting frequency (counter) max.	60 kHz
Frequency measurement	Ja
Number of frequency meters	4
controlled positioning	Ja
integrated function blocks (closed-loop control)	Ja
PID controller	Ja
Number of pulse outputs	4
Limit frequency (pulse)	2,5 kHz
Galvanic isolation	
Galvanic isolation digital inputs	
Galvanic isolation digital inputs	Ja
between the channels	Nee
between the channels and the backplane bus	Ja
Galvanic isolation digital outputs	
Galvanic isolation digital outputs	Ja
between the channels	Ja
between the channels, in groups of	8

between the channels and the backplane bus	Ja
Galvanic isolation analog inputs	
Productfunctie / aan de analoge ingang / potentiaalscheiding	Ja
between the channels	Nee
between the channels and the backplane bus	Ja
Galvanic isolation analog outputs	
Galvanic isolation analog outputs	Ja
between the channels	Nee
between the channels and the backplane bus	Ja
Ambient conditions	
Operating temperature	
min.	0 °C
Omgevingstemperatuur / tijdens de werking / maximaal	60 °C
Configuration	
Configuration software	
STEP 7	Ja
Programming	
Nesting levels	8
Programming language	
LAD	Ja
FBD	Ja
STL	Ja
SCL	Ja
CFC	Ja
GRAPH	Ja
HiGraph®	Ja
Know-how protection	
User program protection/password protection	Ja
Block encryption	Ja
Dimensions	
Breedte	120 mm
Hoogte	125 mm
Diepte	130 mm
Weights	
Weight, approx.	730 g
Status	7-jul-2014