



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

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 <sup>2</sup> t	0,7 A <sup>2</sup> ·s
from supply voltage L+, max.	850 mA
<b>Stroomopname / digitale ingangen</b>	
from load voltage L+ (without load), max.	80 mA
<b>Digital outputs</b>	
from load voltage L+, max.	50 mA
<b>Power loss</b>	
Werkelijk vermogensverlies / typisch	14 W
<b>Memory</b>	
<b>Work memory</b>	
integrated	192 kbyte
expandable	Nee
Size of retentive memory for retentive data blocks	64 kbyte
<b>Load memory</b>	
Plug-in (MMC)	Ja
Plug-in (MMC), max.	8 Mbyte
Data management on MMC (after last programming), min.	10 a
<b>Backup</b>	
present	Ja
without battery	Ja
<b>CPU processing times</b>	
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
<b>CPU-blocks</b>	
Number of blocks (total)	1024
<b>DB</b>	
Number, max.	1024
Size, max.	64 kbyte
<b>FB</b>	
Number, max.	1024
Size, max.	64 kbyte
<b>FC</b>	
Number, max.	1024
Size, max.	64 kbyte
<b>OB</b>	

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
<b>Nesting depth</b>	
per priority class	16
additional within an error OB	4
<b>Counters, timers and their retentivity</b>	
<b>S7 counter</b>	
Number	256
<b>Retentivity</b>	
adjustable	Ja
lower limit	0
upper limit	255
<b>Counting range</b>	
adjustable	Ja
lower limit	0
upper limit	999
<b>IEC counter</b>	
present	Ja
<b>S7 times</b>	
Number	256
<b>Retentivity</b>	
adjustable	Ja
lower limit	0
upper limit	255
<b>Time range</b>	
lower limit	10 ms
upper limit	9990 s
<b>IEC timer</b>	
present	Ja

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

Expansion devices, max.	3
<b>Number of DP masters</b>	
integrated	1
via CP	4
<b>Number of operable FMs and CPs (recommended)</b>	
FM	8
CP, point-to-point	8
CP, LAN	10
<b>Rack</b>	
Racks, max.	4
Modules per rack, max.	8
<b>Time of day</b>	
<b>Clock</b>	
Hardware clock (real-time clock)	Ja
battery-backed and synchronizable	Ja
Deviation per day, max.	10 s
Backup time	6 wk
<b>Operating hours counter</b>	
Number	1
retentive	Ja
<b>Clock synchronization</b>	
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
<b>Digital inputs</b>	
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
<b>Number of simultaneously controllable inputs</b>	
<b>horizontal installation</b>	
up to 40 °C, max.	24
up to 60 °C, max.	12

<b>vertical installation</b>	
up to 40 °C, max.	12
<b>Input voltage</b>	
Ingangsspanning / aan de digitale ingang / bij DC / nominale waarde	24 V
<b>Input current</b>	
Ingangsstroom / aan de digitale ingang / bij signaal <1> / typisch	8 mA
<b>Input delay (for rated value of input voltage)</b>	
<b>for standard inputs</b>	
parameterizable	Ja
Rated value	3 ms
<b>for counter/technological functions</b>	
at "0" to "1", max.	8 µs
<b>Cable length</b>	
Cable length, shielded, max.	1000 m
Cable length unshielded, max.	600 m
<b>Technological functions</b>	
shielded, max.	50 m
<b>Standard DI</b>	
shielded, max.	1000 m
unshielded, max.	600 m
<b>Digital outputs</b>	
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
<b>Switching capacity of the outputs</b>	
Lamp load, max.	5 W
<b>Load resistance range</b>	
lower limit	48 Ω
upper limit	4 kΩ
<b>Output current</b>	
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
<b>Parallel switching of 2 outputs</b>	
for uprating	Nee
for redundant control of a load	Ja
<b>Switching frequency</b>	
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
<b>Total current of the outputs (per group)</b>	
<b>horizontal installation</b>	
up to 40 °C, max.	3 A
up to 60 °C, max.	2 A
<b>vertical installation</b>	
up to 40 °C, max.	2 A
<b>Cable length</b>	
Cable length, shielded, max.	1000 m
Cable length unshielded, max.	600 m
<b>Analog inputs</b>	
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
<b>Input ranges</b>	
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
<b>Input ranges (rated values), voltages</b>	
Bereik ingangsspanning / aan de analoge ingang / 0 V ... 10 V	Ja

Input resistance (0 to 10 V)	100 k $\Omega$
<b>Input ranges (rated values), currents</b>	
Bereik ingangsstroom / aan de analoge ingang / 0 mA ... 20 mA	Ja
Input resistance (0 to 20 mA)	100 $\Omega$
-20 to +20 mA	Ja
Input resistance (-20 to +20 mA)	100 $\Omega$
Bereik ingangsstroom / aan de analoge ingang / 4 mA ... 20 mA	Ja
Input resistance (4 to 20 mA)	100 $\Omega$
<b>Input ranges (rated values), resistance thermometers</b>	
Pt 100	Ja
Input resistance (Pt 100)	10 M $\Omega$
<b>Input ranges (rated values), resistors</b>	
No-load voltage, typ.	3,3 V
0 to 600 Ohm	Ja
Input resistance (0 to 600 Ohm)	10 M $\Omega$
<b>Thermocouple (TC)</b>	
<b>Temperature compensation</b>	
parameterizable	Nee
<b>Characteristic linearization</b>	
parameterizable	Ja
<b>Cable length</b>	
Cable length, shielded, max.	100 m
<b>Analog outputs</b>	
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
<b>Output ranges, voltage</b>	
0 to 10 V	Ja
-10 to +10 V	Ja
<b>Output ranges, current</b>	
0 to 20 mA	Ja
-20 to +20 mA	Ja
4 to 20 mA	Ja
<b>Connection of actuators</b>	
for voltage output two-wire connection	Ja



for voltage output four-wire connection	Nee
for current output two-wire connection	Ja
<b>Load impedance (in rated range of output)</b>	
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
<b>Destruction limits against externally applied voltages and currents</b>	
Voltages at the outputs towards MANA	16 V
Current, max.	50 mA
<b>Cable length</b>	
Cable length, shielded, max.	200 m
<b>Analog value generation</b>	
<b>Integration and conversion time/resolution per channel</b>	
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
<b>Settling time</b>	
for resistive load	0,6 ms
for capacitive load	1 ms
for inductive load	0,5 ms
<b>Encoder</b>	
<b>Connection of signal encoders</b>	
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
<b>Connectable encoders</b>	
2-wire sensor	Ja
permissible quiescent current (2-wire sensor), max.	1,5 mA
<b>Errors/accuracies</b>	
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 %
<b>Operational error limit in overall temperature range</b>	
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 %
<b>Basic error limit (operational limit at 25 °C)</b>	
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 %
<b>Interference voltage suppression for <math>f = n \times (f_1 \pm 1 \%)</math>, <math>f_1</math> = interference frequency</b>	
Series mode interference (peak value of interference < rated value of input range), min.	30 dB
Common mode interference, min.	40 dB
<b>Interfaces</b>	
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
<b>1. Interface</b>	
isolated	Ja
Power supply to interface (15 to 30 V DC), max.	200 mA
<b>Functionality</b>	
MPI	Ja
DP master	Ja
DP slave	Ja
Point-to-point connection	Nee

<b>MPI</b>	
Transmission rate, max.	12 Mbit/s
<b>Services</b>	
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
<b>DP master</b>	
Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	124
<b>Services</b>	
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
<b>Address area</b>	
Inputs, max.	2 kbyte
Outputs, max.	2 kbyte
<b>User data per DP slave</b>	
Inputs, max.	244 byte
Outputs, max.	244 byte
<b>DP slave</b>	
Transmission rate, max.	12 Mbit/s
Automatic baud rate search	Ja
Address area, max.	32

User data per address area, max.	32 byte
<b>Services</b>	
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
<b>Transfer memory</b>	
Inputs	244 byte
Outputs	244 byte
<b>2. Interface</b>	
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
<b>Media redundancy</b>	
supported	Ja
Switchover time on line break, typ.	200 ms
Number of stations in the ring, max.	50
<b>Functionality</b>	
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
<b>PROFINET IO Controller</b>	
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
<b>Services</b>	
PG/OP communication	Ja
Routing	Ja
S7 communication	Ja
Isochronous mode	Ja
Open IE communication	Ja
<b>Address area</b>	
Inputs, max.	2 kbyte
Outputs, max.	2 kbyte
User data consistency, max.	1024 byte
<b>PROFINET IO Device</b>	
<b>Services</b>	
PG/OP communication	Ja
Routing	Ja
S7 communication	Ja
Isochronous mode	Nee
Open IE communication	Ja
IRT	Ja
PROFInergy, supported	Ja
Shared device	Ja
Number of IO Controllers with shared device, max.	2
<b>Transfer memory</b>	

Inputs, max.	1440 byte
Outputs, max.	1440 byte
<b>Submodules</b>	
Number, max.	64
User data per submodule, max.	1024 byte
<b>PROFINET CBA</b>	
acyclic transmission	Ja
cyclic transmission	Ja
<b>Open IE communication</b>	
Open IE communication, supported	Ja
Number of connections, max.	8
Keep-alive function, supported	Ja
<b>Isochronous mode</b>	
Isochronous mode (application synchronized up to terminal)	Ja
<b>Communication functions</b>	
PG/OP communication	Ja
Data record routing	Ja
<b>Global data communication</b>	
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
<b>S7 basic communication</b>	
supported	Ja
User data per job, max.	76 byte
User data per job (of which consistent), max.	76 byte
<b>S7 communication</b>	
supported	Ja
as server	Ja
as client	Ja
<b>S5 compatible communication</b>	
supported	Ja
<b>Open IE communication</b>	
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
<b>Web server</b>	
supported	Ja
Number of HTTP clients	5
User-defined websites	Ja
<b>PROFINET CBA (at set setpoint communication load)</b>	
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
<b>Remote interconnections with acyclic transmission</b>	
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
<b>Remote interconnections with cyclic transmission</b>	
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
<b>HMI variables via PROFINET (acyclic)</b>	

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
<b>PROFIBUS proxy functionality</b>	
supported	Ja
Number of linked PROFIBUS devices	16
Data length per connection, max.	240 byte
<b>Number of connections</b>	
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
<b>S7 message functions</b>	
Number of login stations for message functions, max.	12
Process diagnostic messages	Ja
simultaneously active Alarm-S blocks, max.	300
<b>Test commissioning functions</b>	
Status block	Ja
Single step	Ja
Number of breakpoints	4
<b>Status/control</b>	
Status/control variable	Ja
Number of variables, max.	30



of which status variables, max.	30
of which control variables, max.	14
<b>Forcing</b>	
Forcing	Ja
Number of variables, max.	10
<b>Diagnostic buffer</b>	
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
<b>Service data</b>	
can be read out	Ja
<b>Interrupts/diagnostics/status information</b>	
<b>Diagnostics indication LED</b>	
Status indicator digital output (green)	Ja
Status indicator digital input (green)	Ja
<b>Integrated Functions</b>	
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
<b>Galvanic isolation</b>	
<b>Galvanic isolation digital inputs</b>	
Galvanic isolation digital inputs	Ja
between the channels	Nee
between the channels and the backplane bus	Ja
<b>Galvanic isolation digital outputs</b>	
Galvanic isolation digital outputs	Ja
between the channels	Ja
between the channels, in groups of	8

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