SIEMENS

Product data sheet   6ES7314-6CF02-0AB0

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

General information	
Hardware product version	1
Firmware version	V2.0.0
Engineering with	
Programming package	STEP 7 V5.2 + SP1 or higher with HW update
Supply voltage	
24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Load voltage L+	
Rated value (DC)	24 V
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Input current	
Current consumption (rated value)	1000 mA
Current consumption (in no-load operation), typ.	150 mA
Inrush current, typ.	11 A
I²t	0.7 A²·s
from supply voltage L+, max.	1000 mA
Power losses	
Power loss, typ.	14 W
Memory	
Work memory	
integrated	64 kbyte ; For program and data
expandable	No
Load memory	
pluggable (MMC)	Yes

pluggable (MMC), max.	8 Mbyte
Data management on MMC (after last programming), min.	10 a
Backup	
present	Yes ; Guaranteed by MMC (maintenance-free)
without battery	Yes ; Program and data
CPU processing times	
for bit operations, typ.	0.1 µs
for word operations, typ.	0.2 µs
for fixed point arithmetic, typ.	2 µs
for floating point arithmetic, typ.	3 µs
CPU-blocks	
Number of blocks (total)	1024
DB	
Number, max.	511 ; Number range: 1 to 511
Size, max.	16 kbyte
FB	
Number, max.	512 ; Number range: 0 to 2047
Size, max.	16 kbyte
FC	
Number, max.	512 ; Number range: 0 to 2047
Size, max.	16 kbyte
OB	
Number, max.	see instruction list
Size, max.	16 kbyte
Number of free cycle OBs	1 ; OB 1
Number of time alarm OBs	1 ; OB 10
Number of delay alarm OBs	1 ; OB 20
Number of time interrupt OBs	1 ; OB 35
Number of process alarm OBs	1 ; OB 40
Number of startup OBs	1 ; OB 100
Number of asynchronous error OBs	1 ; OB 80
Number of synchronous error OBs	2 ; OB 121, 122
Nesting depth	
per priority class	8
additional within an error OB	4
Counters, timers and their retentivity	
S7 counter	
Number	256

of which retentive without battery		
adjustable	Yes	
lower limit	0	
upper limit	256	
Counting range		
lower limit	0	
upper limit	999	
IEC counter		
present	Yes	
Type	SFB	
S7 times		
Number	256	
Retentivity		
adjustable	Yes	
lower limit	0	
upper limit	256	
preset	No retentivity	
Time range		
lower limit	10 ms	
upper limit	9990 s	
IEC timer		
present	Yes	
Type	SFB	
Data areas and their retentivity		
retentive data area, total	all	
Flag		
Number, max.	256 byte	
Retentivity available	Yes ; MB 0 to MB 255	
Retentivity preset	MB 0 to MB 15	
Number of clock memories	8	
Data blocks		
Number, max.	511	
Size, max.	16 kbyte	
Retentivity adjustable	No	
Retentivity preset	Yes	
Local data		
per priority class, max.	510 byte	
Address area		

I/O address area	
Inputs	1 kbyte
Outputs	1 kbyte
Process image	
Inputs	128 byte
Outputs	128 byte
Default addresses of the integrated channels	
Digital inputs	124.0 to 126.7
Digital outputs	124.01 to 125.7
Analog inputs	752 to 761
Analog outputs	752 to 755
Digital channels	
Inputs	992
Outputs	992
Inputs, of which central	992
Outputs, of which central	992
Analog channels	
Inputs	512
Outputs	124
Inputs, of which central	248
Outputs, of which central	248
Hardware configuration	
Expansion devices, max.	3
Integrated power supply	
Racks, max.	4
Modules per rack, max.	8 ; In rack 3 max. 7
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
Time of day	
Clock	
Hardware clock (real-time clock)	Yes
battery-backed and synchronizable	Yes
Deviation per day, max.	10 s

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Backup time	6 wk
Operating hours counter	
Number	1
Number/Number range	0
Range of values	0 to 2^31 hours (when using SFC 101)
Granularity	1 hour
retentive	Yes
Clock synchronization	
supported	Yes
to MPI, master	Yes
to MPI, slave	Yes
in AS, master	Yes
Digital inputs	
Number of digital inputs	24
integrated channels (DI)	24
Input voltage	
Rated value, DC	24 V
for signal "0"	-3 to +5 V
for signal "1"	15 to 30 V
Input current	
for signal "1", typ.	8 mA
Input delay (for rated value of input voltage)	
for standard inputs	
Parameterizable	Yes ; 0.1 / 0.3 / 3 / 15 ms
for counter/technological functions	
at "0" to "1", max.	8 µs
Cable length	
Cable length, shielded, max.	1000 m ; 100 m for technological functions
Cable length unshielded, max.	600 m
Digital outputs	
Number of digital outputs	16
integrated channels (DO)	16
Product function / at the digital outputs / short-circuit protection	Yes ; Clocked electronically
Limitation of inductive shutdown voltage to	L+ (-48 V)
Output voltage	
for signal "1", min.	L+ (-0.8 V)
Output current	
for signal "1" permissible range for 0 to 40 °C, max.	500 mA

for signal "1" permissible range for 0 to 60 °C, max.	500 mA
for signal "1" minimum load current	5 mA
for signal "0" residual current, max.	0.5 mA
Switching frequency	
with resistive load, max.	100 Hz
with inductive load, max.	0.5 Hz
Aggregate current of outputs (per group)	
all mounting positions	
up to 40 °C, max.	8 A
up to 60 °C, max.	4 A
Cable length	
Cable length, shielded, max.	1000 m
Cable length unshielded, max.	600 m
Analog inputs	
Integrated channels (AI)	4+1
Number of analog inputs for voltage/current measurement	4
Number of analog inputs for resistance/resistance thermometer measurement	1
permissible input frequency for current input (destruction limit), max.	5 V ; Permanent
permissible input current for voltage input (destruction limit), max.	0.5 mA ; Permanent
Technical unit for temperature measurement adjustable	Yes ; Degrees Celsius / degrees Fahrenheit / Kelvin
Input ranges	
Current	Yes
Resistance thermometer	Yes
Resistance	Yes
Input ranges (rated values), voltages	
0 to +10 V	Yes
Input resistance (0 to 10 V)	100 kΩ
Input ranges (rated values), currents	
0 to 20 mA	Yes
Input resistance (0 to 20 mA)	100 Ω
-20 to +20 mA	Yes
Input resistance (-20 to +20 mA)	100 Ω
4 to 20 mA	Yes
Input resistance (4 to 20 mA)	100 Ω
Input ranges (rated values), resistance thermometers	
Pt 100	Yes
Input resistance (Pt 100)	10 MΩ

Input ranges (rated values), resistors	
0 to 600 ohms	Yes
Input resistance (0 to 600 ohms)	10 MΩ
Cable length	
Cable length, shielded, max.	100 m
Analog outputs	
Integrated channels (AO)	2
Number of analog outputs	2
Output ranges, voltage	
0 to 10 V	Yes
-10 to +10 V	Yes
Output ranges, current	
0 to 20 mA	Yes
-20 to +20 mA	Yes
4 to 20 mA	Yes
Analog value creation	
Integrations and conversion time/ resolution per channel	
Resolution with overrange (bit including sign), max.	12 bit
Integration time, parameterizable	Yes ; 2.5 / 16.6 / 20 ms
Conversion time (per channel)	1 ms
Encoder	
Connectable encoders	
2-wire sensor	Yes
Permissible quiescent current (2-wire sensor), max.	1.5 mA
Errors/accuracies	
Basic error limit (operational limit at 25 °C)	
Voltage, relative to input area	+/- 0,7 %
Current, relative to input area	+/- 0,7 %
Impedance, relative to input area	+/- 3 %
Resistance-type thermometer, relative to input area	+/- 3 %
Voltage, relative to output area	+/- 0,7 %
Current, relative to output area	+/- 0,7 %
Interfaces	
MPI	
Cable length, max.	50 m ; without repeater
1st interface	
Type of interface	Integrated RS 485 interface
Physics	RS 485

Isolated	No
Power supply to interface (15 to 30 V DC), max.	200 mA
Functionality	
MPI	Yes
DP master	No
DP slave	No
Point-to-point connection	No
MPI	
Number of connections	12
Transmission rate, max.	187.5 kbit/s
Services	
PG/OP communication	Yes
Routing	Yes
Global data communication	Yes
S7 basic communication	Yes
S7 communication	Yes
S7 communication, as client	No
S7 communication, as server	Yes
2nd interface	
Type of interface	Integrated RS 485 interface
Physics	RS 485
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	200 mA
Number of connection resources	12
Functionality	
MPI	No
DP master	Yes
DP slave	Yes
Local Operating Network	No
DP master	
Number of connections, max.	12 ; For PG/OP communication
Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	32
Services	
PG/OP communication	Yes
Routing	Yes
Global data communication	No
S7 basic communication	Yes

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S7 communication	Yes
S7 communication, as client	No
S7 communication, as server	Yes
Equidistance mode support	Yes
SYNC/FREEZE	Yes
Activation/deactivation of DP slaves	Yes
Direct data exchange (slave-to-slave communication)	Yes
DPV1	Yes
Address area	
Inputs, max.	1 kbyte
Outputs, max.	1 kbyte
User data per DP slave	
Inputs, max.	244 byte
Outputs, max.	244 byte
DP slave	
Number of connections	12
GSD file	The latest GSD file is available at: http://www.ad.siemens.de/support in Product Support area
Transmission rate, max.	12 kbit/s
Automatic baud rate search	Yes
Address area, max.	32
User data per address area, max.	32 byte
Services	
PG/OP communication	Yes
Routing	Yes
Global data communication	No
S7 basic communication	Yes
S7 communication	Yes
S7 communication, as client	No
S7 communication, as server	Yes
Direct data exchange (slave-to-slave communication)	Yes
DPV1	No
Transfer memory	
Inputs	244 byte
Outputs	244 byte
Communication functions	
PG/OP communication	Yes
Global data communication	
supported	Yes

Number of GD loops, max.	4
Number of GD packets, max.	4
Number of GD packets, transmitter, max.	4
Number of GD packets, receiver, max.	4
Size of GD packets, max.	22 byte
Size of GD packet (of which consistent), max.	22 byte
S7 basic communication	
supported	Yes
User data per job, max.	76 byte
User data per job (of which consistent), max.	76 byte
S7 communication	
supported	Yes
as server	Yes
as client	Yes ; Via CP and loadable FB
User data per job, max.	180 kbyte
User data per job (of which consistent), max.	64 byte
S5-compatible communication	
supported	Yes ; via CP and loadable FC
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	8
adjustable for S7 basic communication, min.	0
adjustable for S7 basic communication, max.	8
usable for routing	4
S7 message functions	
Number of login stations for message functions, max.	12
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	40
Test commissioning functions	
Status block	Yes

Single step	Yes
Number of breakpoints	2
Status/control	
Status/control variable	Yes
Variables	Inputs, outputs, memory bits, DB, times, counters
Number of variables, max.	30
of which status variables, max.	30
of which control variables, max.	14
Forcing	
Forcing	Yes
Force, variables	Inputs, outputs
Number of variables, max.	10
Diagnostic buffer	
present	Yes
Number of entries, max.	100
Integrated Functions	
Number of counters	4
Counter frequency (counter) max.	60 kHz
Frequency measurement	Yes
Number of frequency meters	4
controlled positioning	Yes
PID controller	Yes
Number of pulse outputs	4
Limit frequency (pulse)	2.5 kHz
Galvanic isolation	
Galvanic isolation digital inputs	
Galvanic isolation digital inputs	Yes
between the channels, in groups of	16
between the channels and the backplane bus	Yes
Galvanic isolation digital outputs	
Galvanic isolation digital outputs	Yes
between the channels, in groups of	8
between the channels and the backplane bus	Yes
Galvanic isolation analog inputs	
Galvanic isolation analog inputs	Yes ; common for analog I/O
between the channels and the backplane bus	Yes
Galvanic isolation analog outputs	
Galvanic isolation analog outputs	Yes ; common for analog I/O

between the channels and the backplane bus	Yes
Configuration	
Configuration software	
STEP 7	Yes ; V5.2 SP1 with HW update
programming	
Command set	see instruction list
Nesting levels	8
System functions (SFC)	see instruction list
System function blocks (SFB)	see instruction list
Programming language	
LAD	Yes
FBD	Yes
STL	Yes
SCL	Yes
CFC	Yes
GRAPH	Yes
HiGraph®	Yes
Know-how protection	
User program protection/password protection	Yes
Dimensions	
Width	120 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	676 g
Status	Dec 2, 2013