

SIMATIC S7-300,
 CPU 313C COMPACT CPU WITH MPI,
 24 DI/16 DO, 4AI, 2AO 1 PT100,
 3 FAST COUNTERS (30 KHZ),
 INTEGRATED 24V DC POWER SUPPLY,
 32 KBYTE WORKING MEMORY,
 MICRO MEMORY CARD REQUIRED

Supply voltage	
Rated value (DC)	24 V
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	
Rated value at 24 V DC	700 mA
Inrush current, max.	11 A
Power losses	
Power loss, max.	14 W
Memory	
Work memory	
integrated	32 kbyte ; For program and data
expandable	No
Load memory	
expandable FEPR0M	Yes ; with Micro Memory Card (MMC)
expandable FEPR0M, max.	4 Mbyte
Backup	
present	Yes ; Guaranteed by MMC (maintenance-free)
without battery	Yes ; Program and data
CPU processing times	
for bit operations, typ.	0.1 μ s
for bit operations, max.	0.2 μ s
for word operations, typ.	0.5 μ s
for fixed point arithmetic, typ.	1 μ s

for floating point arithmetic, typ.	15 µs
CPU-blocks	
DB	
Number, max.	127 ; DB 0 reserved
Size, max.	16 kbyte
FB	
Number, max.	128
Size, max.	16 kbyte
FC	
Number, max.	128
Size, max.	16 kbyte
OB	
Size, max.	16 kbyte
Number of time alarm OBs	1
Number of delay alarm OBs	1
Number of time interrupt OBs	1
Number of process alarm OBs	1
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	
lower limit	0
upper limit	256
Counting range	
lower limit	1
upper limit	999
IEC counter	
present	Yes
Type	SFB
S7 times	
Number	256
Retentivity	
adjustable	Yes
lower limit	0
upper limit	256

Time range	
lower limit	10 ms
upper limit	9990 s
IEC timer	
present	Yes
Type	SFB
Data areas and their retentivity	
Flag	
Number, max.	256 byte
Retentivity available	Yes ; MB 0 to MB 255
Address area	
I/O address area	
Inputs	1 kbyte
Outputs	1 kbyte
Process image	
Inputs	128 byte
Outputs	128 byte
Digital channels	
Inputs	992
Outputs	992
Analog channels	
Inputs	248
Outputs	124
Hardware configuration	
Expansion devices, max.	3
Modules per rack, max.	31
Number of DP masters	
via CP	1
Number of operable FMs and CPs (recommended)	
FM	8
CP, point-to-point	4
CP, LAN	2
Time of day	
Clock	
Hardware clock (real-time clock)	Yes
battery-backed and synchronizable	Yes
Operating hours counter	
Number	1

Clock synchronization	
supported	Yes
Digital inputs	
Number of digital inputs	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
at "0" to "1", max.	15 ms
for counter/technological functions	
at "0" to "1", max.	16 μ s
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
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	
Number of analog inputs	4
Number of analog inputs for voltage/current measurement	4
Number of analog inputs for resistance/resistance thermometer measurement	1
Input ranges	
Voltage	Yes
Current	Yes
Resistance thermometer	Yes
Resistance	Yes
Input ranges (rated values), voltages	
0 to +10 V	Yes
Input ranges (rated values), currents	
0 to 20 mA	Yes
-20 to +20 mA	Yes
4 to 20 mA	Yes
Input ranges (rated values), resistance thermometers	
Pt 100	Yes
Input ranges (rated values), resistors	
0 to 600 ohms	Yes
Analog outputs	
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
Integration time, ms	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	
Isolated	No
Functionality	
MPI	Yes
DP master	No
DP slave	No
MPI	
Number of connections	8
Transmission rate, max.	187.5 kbit/s
Services	
PG/OP communication	Yes
Global data communication	Yes
S7 communication	Yes
S7 communication, as client	No
S7 communication, as server	Yes
Communication functions	
PG/OP communication	Yes
Global data communication	
Number of GD packets, transmitter, max.	4
Number of GD packets, receiver, max.	4
Size of GD packets, max.	22 byte
S7 basic communication	
supported	Yes
User data per job, max.	76 byte

S7 communication	
supported	Yes
as server	Yes
as client	No
User data per job, max.	64 kbyte
Number of connections	
overall	8
usable for PG communication	7
reserved for PG communication	1
Adjustable for PG communication, max.	7
usable for OP communication	7
reserved for OP communication	1
adjustable for OP communication, max.	7
usable for S7 basic communication	4
Reserved for S7 basic communication	4
adjustable for S7 basic communication, max.	4
S7 message functions	
Number of login stations for message functions, max.	5
Integrated Functions	
Number of counters	3
Counter frequency (counter) max.	30 kHz
Frequency measurement	Yes
PID controller	Yes
Number of pulse outputs	3
Limit frequency (pulse)	2.5 kHz
Galvanic isolation	
Galvanic isolation digital inputs	
Galvanic isolation digital inputs	Yes
between the channels, in groups of	16 ; 16 and 8
between the channels and the backplane bus	Yes
Galvanic isolation digital outputs	
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

Configuration	
Configuration software	
STEP 7	Yes ; V5.1 SP2
programming	
Nesting levels	8
Programming language	
LAD	Yes
FBD	Yes
STL	Yes
SCL	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.	660 g
Status	Dec 30, 2013