SIEMENS

Product data sheet 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

Product version	
Hardware product version	01
Firmware version	V3.3
General information	
associated programming package	STEP7 V5.5 or higher with HSP191
Supply voltage	
Input voltage	
24 V DC	Yes
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
external protection for supply cables (recommendation)	Miniature circuit breaker, type C; min. 2 A; miniature circuit breaker type B, min. 4 A
Digital inputs	
Load voltage L+	
Rated value (DC)	24 V
Reverse polarity protection	Yes

Digital outputs	
Load voltage L+	
Rated value (DC)	24 V
Reverse polarity protection	No
Input current	
Current consumption (rated value)	850 mA
Current consumption (in no-load operation), typ.	190 mA
Inrush current, typ.	5 A
I^2t	0.7 $A^2 \cdot s$
from supply voltage L+, max.	850 mA
Digital inputs	
from load voltage L+ (without load), max.	80 mA
Digital outputs	
from load voltage L+, max.	50 mA
Power losses	
Power loss, typ.	14 W
Memory	
Work memory	
integrated	192 Kibyte
expandable	No
Size of retentive memory for retentive data blocks	64 Kibyte
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-blocks	
Number of blocks (total)	1024 ; (DBs, FCs, FBs) the maximum number of loadable blocks can be reduced by the MMC used.
DB	
Number, max.	1024 ; Number range: 1 to 16000

Size, max.	64 Kibyte
FB	
Number, max.	1024 ; Number range: 0 to 7999
Size, max.	64 Kibyte
FC	
Number, max.	1024 ; Number range: 0 to 7999
Size, max.	64 Kibyte
OB	
Description	See instruction list
Size, max.	64 Kibyte
Number of free cycle OBs	1 ; OB 1
Number of time alarm OBs	1 ; OB 10
Number of delay alarm OBs	2 ; OB 20, 21
Number of time alarm OBs	4 ; OB 32, 33, 34, 35
Number of process alarm OBs	1 ; OB 40
Number of DPV1 alarm OBs	3 ; OB 55, 56, 57
Number isochronous mode OBs	1 ; OB 61; only for PROFINET
Number of startup OBs	1 ; OB 100
Number of asynchronous error OBs	6 ; OB 80, 82, 83, 85, 86, 87 (OB83 only for PROFINET IO)
Number of synchronous error OBs	2 ; OB 121, 122
Nesting depth	
per priority class	16
additional within an error OB	4
CPU processing times	
for bit operations, min.	0.06 µs
for word operations, min.	0.12 µs
for fixed point arithmetic, min.	0.16 µs
for floating point arithmetic, min.	0.59 µs
Counters, timers and their retentivity	
S7 counter	
Number	256
Retentivity	
can be set	Yes

lower limit	0
upper limit	255
preset	Z 0 to Z 7
Counting range	
can be set	Yes
lower limit	0
upper limit	999
IEC counter	
present	Yes
Type	SFB
Number	Unlimited (limited only by RAM capacity)
S7 times	
Number	256
Retentivity	
can be set	Yes
lower limit	0
upper limit	255
preset	no retentivity
Time range	
lower limit	10 ms
upper limit	9990 s
IEC timer	
present	Yes
Type	SFB
Number	unlimited (limited only by RAM capacity)
Data areas and their retentivity	
retentive data area, total	All, max. 64 KB
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 ; 1 memory byte
Data blocks	

Number, max.	1024 ; Number range: 1 to 16000
Size, max.	64 Kibyte
Retentivity adjustable	Yes ; via non-retain property on DB
Retentivity preset	yes
Local data	
per priority class, max.	32 Kibyte ; 2048 bytes max. per block
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
Default addresses of the integrated channels	
Digital inputs	136.0 to 138.7
Digital outputs	136.0 to 137.7
Analog inputs	800 to 809
Analog outputs	800 to 803
Subprocess images	
Number of subprocess images, max.	1 ; With PROFINET IO, the length of the user data is limited to 1600 bytes
Digital channels	
integrated channels (DI)	24
integrated channels (DO)	16
Inputs	16048
Outputs	16096
Inputs, of which central	1016

Outputs, of which central	1008
Analog channels	
Integrated channels (AI)	5 ; 4 x current/voltage, 1 x resistance
Integrated channels (AO)	2
Inputs	1006
Outputs	1007
Inputs, of which central	253
Outputs, of which central	250
Hardware configuration	
Racks, max.	4
Modules per rack, max.	8 ; in rack 3 max. 7
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
Time of day	
Clock	
Hardware clock (real-time clock)	Yes
battery-backed and synchronizable	Yes
Deviation per day, max.	10 s ; Typ.: 2 s
Backup time	6 wk ; At 40 °C ambient temperature
Behavior of the clock following POWER-ON	Clock continues running after POWER OFF
Behavior of the clock following expiry of backup period	The clock continues at the time of day it had when power was switched off
Runtime meter	
Number	1
Number/Number range	0
Range of values	0 to 2^31 hours (when using SFC 101)
Granularity	1 hour
retentive	Yes ; Must be restarted at each restart

Clock synchronization	
supported	Yes
to MPI, master	Yes
to MPI, slave	Yes
to DP, master	Yes ; on DP slave only time-of-day slave
to DP, slave	Yes
in AS, master	Yes
in AS, slave	Yes
on Ethernet via NTP	Yes ; as client
Digital inputs	
Number of digital inputs	24
of which, inputs usable for technological functions	16
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
Technological functions	
shielded, max.	50 m ; At maximum count frequency
unshielded, max.	not allowed
Standard DI	
shielded, max.	1000 m
unshielded, max.	600 m
Input characteristic curve acc. to IEC 1131, Type 1	Yes
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 (You can reconfigure the input delay of the standard inputs during program runtime. Please note that under certain circumstances your newly set filter time may not be effective until the next filter cycle.)
Rated value	3 ms
for counter/technological functions	
at "0" to "1", max.	8 µs ; Minimum pulse width/minimum pause between pulses at maximum counting frequency
Cable length	
Cable length, shielded, max.	1000 m ; 50 m for technological functions
Cable length unshielded, max.	600 m ; For technological functions: No
Digital outputs	
Number of digital outputs	16
of which high-speed outputs	4 ; Notice: You cannot connect the fast outputs of your CPU in parallel
Short-circuit protection	Yes ; Clocked electronically
Response threshold, typ.	1 A
Limitation of inductive shutdown voltage to	L+ (-48 V)
Lamp load, max.	5 W
Controlling a digital input	Yes
Output voltage	
for signal "1", min.	L+ (-0.8 V)
Output current	
for signal "1" rated value	500 mA
for signal "1" permissible range, min.	5 mA
for signal "1" permissible range, max.	0.6 A
for signal "1" minimum load current	5 mA
for signal "0" residual current, max.	0.5 mA
Parallel switching of 2 outputs	
for increased power	No
for redundant control of a load	Yes
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
Aggregate current of 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
Load resistance range	
lower limit	48 Ω
upper limit	4 kΩ
Cable length	
Cable length, shielded, max.	1000 m
Cable length unshielded, max.	600 m
Analog inputs	
Number of analog inputs for voltage/current measurement	4
Number of analog inputs for resistance/temperature measurement	1
Cable length, shielded, max.	100 m
permissible input frequency for current input (destruction limit), max.	5 V ; permanent
permissible input voltage for voltage input (destruction limit), max.	30 V ; permanent
permissible input current for voltage input (destruction limit), max.	0.5 mA ; permanent
permissible input current for current input (destruction limit), max.	50 mA ; Permanent
Technical unit for temperature measurement adjustable	Yes ; Degrees Celsius / degrees Fahrenheit / Kelvin
Input ranges	
Voltage	Yes ; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ
Current	Yes ; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω
Resistance thermometer	Yes ; Pt 100 / 10 MΩ

Resistance	Yes ; 0 Ω to 600 Ω / 10 MΩ
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	
No-Load voltage, typ.	3.3 V
Measured current, typ.	1.25 mA
0 to 600 ohms	Yes
Input resistance (0 to 600 ohms)	10 MΩ
Resistance thermometer (RTD)	
Characteristic linearization	
for resistance thermometer	Pt 100
Characteristic linearization	
parameterizable	Yes ; by software
Temperature compensation	
Parameterizable	No
Analog outputs	
Number of analog outputs	2
Cable length, shielded, max.	200 m
Voltage output, short-circuit protection	Yes
Voltage output, short-circuit current, max.	55 mA
Current output, no-load voltage, max.	14 V
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
Connection of actuators	
for voltage output 2-conductor connection	Yes ; Without compensation of the line resistances
for voltage output 4-conductor connection	No
for current output 2-conductor connection	Yes
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 ; permanent
Current, max.	50 mA ; permanent
Analog value creation	
Measurement principle	Actual value encryption (successive approximation)
Integrations and conversion time/ resolution per channel	
Resolution with overrange (bit including sign), max.	12 bit
Integration time, parameterizable	Yes ; 16.6 / 20 ms
permissible input frequency, max.	400 Hz
Interference voltage suppression for interference frequency f1 in Hz	60 / 50 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	Yes
for current measurement as 2-wire transducer	Yes ; with external supply
for current measurement as 4-wire transducer	Yes
for resistance measurement with 2-conductor connection	Yes ; without compensation of the line resistances
for resistance measurement with 3-conductor connection	No
for resistance measurement with 4-conductor connection	No
Connectable encoders	
2-wire BEROS	Yes
permissible quiescent current (2-wire BEROS), max.	1.5 mA
Errors/accuracies	
Temperature error (relative to input area)	+/- 0,006 %/K
Crosstalk between the inputs, min.	60 dB
Repeat accuracy in settled status 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 area)	+/- 0,15 %
Temperature error (relative to output area)	+/- 0,01 %/K
Crosstalk between the outputs, min.	60 dB
Repeat accuracy in settled status at 25 °C (relative to output area)	+/- 0,06 %
Operational limit in overall temperature range	
Voltage, relative to input area	+/- 1 %
Current, relative to input area	+/- 1 %
Impedance, 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 % ; Linearity error +/- 0.06%
Current, relative to input area	+/- 0,8 % ; Linearity error +/- 0.06%
Impedance, relative to input area	+/- 0,8 % ; Linearity error +/- 0.2%
Resistance-type 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 (fl +/- 1%), fl = interference frequency	
Series mode interference (peak value of interference < rated value of input range), min.	30 dB
Common mode interference, min.	40 dB
Interfaces	
Number of USB interfaces	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
Number of other hardware interfaces	1
1st 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
Functionality	
MPI	Yes
DP master	Yes
DP slave	Yes
Point-to-point connection	No
MPI	
Services	
PG/OP communication	Yes
Routing	Yes
Global data communication	Yes
S7 basic communication	Yes

S7 communication	Yes
S7 communication, as client	No ; (but via CP and loadable FBs)
S7 communication, as server	Yes
Transmission rate, max.	12 Mbit/s
DP master	
Services	
PG/OP communication	Yes
Routing	Yes
Global data communication	No
S7 basic communication	Yes ; (I blocks only)
S7 communication	Yes
S7 communication, as client	No
S7 communication, as server	Yes
Equidistance mode support	Yes
Isochronous mode	No
SYNC/FREEZE	Yes
Activation/deactivation of DP slaves	Yes
Number of DP slaves that can be simultaneously activated/deactivated, max.	8
Direct data exchange (slave-to-slave communication)	Yes ; As subscriber
DPV1	Yes
Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	124
Address area	
Inputs, max.	2 Kibyte
Outputs, max.	2 Kibyte
User data per DP slave	
Inputs, max.	244 byte
Outputs, max.	244 byte
DP slave	
Services	
PG/OP communication	Yes
Routing	Yes ; Only with active interface

Global data communication	No
S7 basic communication	No
S7 communication	Yes
S7 communication, as client	No
S7 communication, as server	Yes ; Connection configured on one side only
Direct data exchange (slave-to-slave communication)	Yes
DPV1	No
Transmission rate, max.	12 Mbit/s
Automatic baud rate search	Yes ; only with passive interface
Transfer memory	
Inputs	244 byte
Outputs	244 byte
Address area, max.	32
User data per address area, max.	32 byte
2nd interface	
Type of interface	PROFINET
Physics	Ethernet RJ45
Isolated	Yes
Integrated switch	Yes
Number of ports	2
automatic detection of transmission speed	Yes ; 10/100 Mbit/s
Autonegotiation	Yes
Autocrossing	Yes
Media redundancy	
supported	Yes
Switchover time on line break, typically	200 ms ; PROFINET MRP
Number of stations in the ring, max.	50
Change of IP address at runtime, supported	Yes
Functionality	
MPI	No
DP master	No
DP slave	No
PROFINET IO Controller	Yes ; Also simultaneously with IO Device functionality

PROFINET IO Device	Yes ; Also simultaneously with IO Controller functionality
PROFINET CBA	Yes
Open IE communication	Yes ; via TCP/IP, ISO on TCP and UDP
Web server	Yes
Number of HTTP clients	5
PROFINET IO Controller	
Services	
PG/OP communication	Yes
Routing	Yes
S7 communication	Yes ; With loadable FBs, max. configurable connections: 10, max. number of instances: 32
Isochronous mode	Yes ; OB 61
Open IE communication	Yes ; via TCP/IP, ISO on TCP and UDP
Transmission rate, max.	100 Mbit/s
Number of connectable IO devices, max.	128
Max. number of connectable IO devices for RT	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	Yes
Shared device, supported	Yes
Prioritized startup supported	Yes
Number of IO Devices, max.	32
Activation/deactivation of IO Devices	Yes
Number of IO Devices that can be simultaneously activated/deactivated, max.	8
IO Devices changing during operation (partner ports), supported	Yes
Max. number of IO devices per tool	8
Device replacement without swap medium	Yes

Send clock times	250 µs, 500 µs,1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option)
Updating time	250 µs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, Technical Data" for more details)
Address area	
Inputs, max.	2 Kibyte
Outputs, max.	2 Kibyte
User data consistency, max.	1024 byte
PROFINET IO device	
Services	
PG/OP communication	Yes
Routing	Yes
S7 communication	Yes ; With loadable FBs, max. configurable connections: 10, max. number of instances: 32
Isochronous mode	No
Open IE communication	Yes ; Via TCP/IP, ISO on TCP, UDP
IRT, supported	Yes
PROFIenergy, supported	Yes ; With SFB 73 / 74 prepared for loadable PROFIenergy standard FB for I-Device
Shared device, supported	Yes
Number of IO controllers with shared device, max.	2
Transfer memory	
Inputs, max.	1440 byte ; Per IO Controller with shared device
Outputs, max.	1440 byte ; Per IO Controller with shared device
Submodules	
Number, max.	64
User data per submodule, max.	1024 byte
PROFINET CBA	
acyclic transmission	Yes
cyclic transmission	Yes
Open IE communication	
Open IE communication, supported	Yes
Number of connections, max.	8

Local port numbers used at the system end	0, 20, 21, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535
Keep-alive function, supported	Yes
Communication functions	
PG/OP communication	Yes
Data record routing	Yes
Global data communication	
supported	Yes
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	Yes
User data per job, max.	76 byte
User data per job (of which consistent), max.	76 byte ; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)
S7 communication	
supported	Yes
as server	Yes
as client	Yes ; via integrated PROFINET interface and loadable FB or via CP and loadable FB
User data per job, max.	See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication)
S5-compatible communication	
supported	Yes ; via CP and loadable FC
Open IE communication	
TCP/IP	Yes ; via integrated PROFINET interface and loadable FBs
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	Yes

ISO-on-TCP (RFC1006)	Yes ; via integrated PROFINET interface and loadable FBs
Number of connections, max.	8
Data length, max.	32768 byte
UDP	Yes ; via integrated PROFINET interface and loadable FBs
Number of connections, max.	8
Data length, max.	1472 byte
Web server	
supported	Yes
Number of HTTP clients	5
User-defined websites	Yes
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 ; 2x PN OPC/1x iMap
HMI variable updating	500 ms
Number of HMI variables	200
Data length of all HMI variables, max.	2000 byte
PROFIBUS proxy functionality	
supported	Yes
Number of linked PROFIBUS devices	16
Data length per connection, max.	240 byte ; Slave-dependent
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
Max. total number of instances	32
usable for routing	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: max. 24
S7 message functions	
Number of login stations for message functions, max.	12 ; Depending on the connections configured for PG/OP and S7 basic communication
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	300
Test commissioning functions	
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
Status block	Yes ; Up to 2 simultaneously
Single step	Yes
Number of breakpoints	4
Diagnostic buffer	
present	Yes
Number of entries, max.	500
can be set	No
Of which powerfail-proof	100 ; Only the last 100 entries are retained
Number of entries readable in RUN, max.	499
adjustable	Yes ; From 10 to 499
preset	10

Service data	
can be read out	Yes
Interrupts/diagnostics/status information	
Diagnostics indication LED	
Status indicator digital output (green)	Yes
Status indicator digital input (green)	Yes
Integrated Functions	
Number of counters	4 ; see "Technological Functions" manual
Counter frequency (counter) max.	60 kHz
Frequency measurement	Yes
Number of frequency meters	4 ; up to 60 kHz (see "Technological Functions" manual)
controlled positioning	Yes
integrated function blocks (closed-loop control)	Yes ; PID controller (see "Technological Functions" manual)
PID controller	Yes
Number of pulse outputs	4 ; Pulse width modulation up to 2.5 kHz (see "Technological Functions" Manual)
Limit frequency (pulse)	2.5 kHz
Isochronous mode	
Isochronous mode	Yes ; For PROFINET only
Galvanic isolation	
Galvanic isolation digital inputs	
Galvanic isolation digital inputs	Yes
between the channels	No
between the channels and the backplane bus	Yes
Galvanic isolation digital outputs	
Galvanic isolation digital outputs	Yes
between the channels	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	No

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	No
between the channels and the backplane bus	Yes
Permissible potential difference	
between different circuits	75 VDC / 60 VAC
between inputs and MANA (UCM)	8.0 V DC
between MANA and M internally (UISO)	75 V DC/60 V AC
Isolation	
Isolation checked with	600 VDC
Ambient conditions	
Operating temperature	
Min.	0 °C
max.	60 °C
Configuration	
Configuration software	
STEP 7	Yes ; V5.5 or higher
programming	
Programming language	
LAD	Yes
FBD	Yes
STL	Yes
SCL	Yes
CFC	Yes
GRAPH	Yes
HiGraph®	Yes
Command set	see instruction list
Nesting levels	8
Software libraries	
System functions (SFC)	see instruction list
System function blocks (SFB)	see instruction list
Know-how protection	

User program protection/password protection	Yes
Block encryption	Yes ; with S7 block privacy
Dimensions and weight	
Dimensions	
Width	120 mm
Height	125 mm
Depth	130 mm
Weight	
Weight, approx.	730 g
Status	Jun 22, 2011