

Spare part SIMATIC C7-633 DP, Complete unit with integrated components: S7-300 CPU 315-2DP, SIMATIC OP7 and IM360, with integrated MPI/PROFIBUS DP interface

Operator control and monitoring	
Password protection	Yes
• Password levels	9
Graphics object	
• Character graphics	Yes; As part of the character set
Process images	
• Number of process images	99
• Number of variables in message text, max.	8
• Entries per process image	99
Operating-/fault messages	
• Number of operating messages, max.	499
• Scroll operating messages, max.	256
• Number of entries in operational log, max.	256
• Number of fault message, max.	499
• Number of entries in fault message buffer, max.	256
• Number of symbol/character sets	1
Recipes	
• Number, max.	99
• Data records per recipe, max.	99
• Entries per data record, max.	99
• Recipe data memory, max.	4 kbyte
Display	
Design of display	LCD backlit
dynamic objects	Input, output, input/output fields, date/time fields, symbolic input/output fields
Line display	
• Number of lines	4
• Number of characters per line	20
• Character size	8 mm
Backlighting	
• MTBF backlighting (at 25 °C)	100 000 h; about 11 years
Control elements	
Keyboard fonts	
• Function keys	

— Number of function keys	16
— Number of softkeys	4

Supply voltage

Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	30.2 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, typ.	550 mA
Current consumption, max.	1 A

Power loss

Power loss, typ.	12 W
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Memory

Work memory	
• integrated	64 kbyte; 20 K instructions RAM
Load memory	
• expandable FEPRM	Yes
• expandable FEPRM, max.	512 kbyte
• integrated RAM, max.	96 kbyte
Backup	
• present	Yes
• with battery	Yes; all data
• without battery	Yes; 4736 Byte: parameterizable for memory bits, times, counters, data

CPU processing times

for bit operations, typ.	0.3 µs
for bit operations, max.	0.6 µs
for word operations, typ.	1 µs
for fixed point arithmetic, typ.	2 µs
for floating point arithmetic, typ.	50 µs
for timer/counter operations, typ.	12 µs

CPU-blocks

DB	
• Number, max.	255; DB 0 reserved
FB	
• Number, max.	192; see instruction list

FC	
• Number, max.	192; see instruction list
OB	
• Number, max.	see instruction list
• Number of free cycle OBs	1; OB 1
• Number of time alarm OBs	1; OB 10
• Number of cyclic 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	8; OB 80, 81, 82, 85, 86, 87, 121, 122
Nesting depth	
• per priority class	8
Counters, timers and their retentivity	
S7 counter	
• Number	64
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	63
Counting range	
— lower limit	0
— upper limit	999
S7 times	
• Number	128
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	127
Time range	
— lower limit	10 ms
— upper limit	9 990 s
Data areas and their retentivity	
Flag	
• Number, max.	256 byte
• Retentivity available	Yes
• of which retentive with battery	0 to 2047
• of which retentive without battery	0 to 2047
Address area	
I/O address area	
• Inputs	1 kbyte

• Outputs	1 kbyte
Process image	
• Inputs	128 byte
• Outputs	128 byte
Hardware configuration	
connectable programming devices/PCs	SIMATIC PG/PC, standard PC
Number of modules per system, max.	8
Number of modules per DP slave interface, max.	32; 122 byte address space per DP station
Interface modules	
• Interface module IM 360 integrated	Yes
Number of DP masters	
• integrated	1
• via CP	1; CP 342-5
Number of operable FMs and CPs (recommended)	
• FM	8
• CP, PtP	4
• CP, LAN	2
Expansion modules	
• Analog inputs/outputs, max.	192
• Digital inputs/outputs, max.	768
• Number of expansion modules, max.	24
Rack	
• Modules per rack, max.	8
• Number of lines, max.	3
Time of day	
Clock	
• Hardware clock (real-time)	Yes; CPU
• Software clock	Yes; OP
Interfaces	
Number of printer interfaces	1; RS 232
MPI	
• Cable length, max.	9 100 m; without repeaters 50 m; with 2 repeaters: 1100 m; with 10 repeaters in series: 9100 m; via fiber optic cable: 23.8 km (with star hubs or OLMs)
1. Interface	
Protocols	
• MPI	Yes; occupies 2 nodes per device (1 x CPU, 1 x OP)
• PROFIBUS DP master	Yes
• PROFIBUS DP slave	Yes
MPI	
• Number of nodes, max.	32; PG/PC, OP, C7, S7-300/400, M7

• Transmission rate, max.	187.5 kbit/s
PROFIBUS DP master	
• Transmission rate, max.	12 Mbit/s
• Number of DP slaves, max.	64
User data per DP slave	
— User data per DP slave, max.	122 byte

2. Interface

Protocols	
• PROFIBUS DP master	Yes
• PROFIBUS DP slave	Yes
PROFIBUS DP master	
• Transmission rate, max.	12 Mbit/s
• Number of DP slaves, max.	64
User data per DP slave	
— User data per DP slave, max.	122 byte

Communication functions

S7 communication	
• S7 extended communication	Yes; Server
S5 compatible communication	
• supported	Yes
Standard communication (FMS)	
• supported	Yes
Number of connections	
• overall	
— of which dynamic	8
— of which static	4

Isolation

Isolation tested with	500 V DC
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EMC

EMC interference immunity	Noise immunity: IEC 1000-4-2, IEC 1000-4-3, IEC 1000-4-4, IEC 1000-4-6, EN 50140
Emission of radio interference acc. to EN 55 022	
• Interference emission acc. to EN 55022, class A	Yes; Noise emission: Class A / EN 55022; conducted interference: IEC 1000-4-4, IEC 1000-4-5

Degree and class of protection

Degree of protection acc. to EN 60529	
• IP20	Yes; Housing
• IP65	Yes; Front

Standards, approvals, certificates

CSA approval	Yes; to Standard C22.2 number 142
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UL approval	Yes; UL 508
FM approval	Yes; FM-Standards No. 3611, 3600, 3810 Class I, Division 2, Group A, B, C, D
developed in accordance with IEC 61131	Yes; EN 61131-2 (IEC 1131-2)
DIN/ISO 9001	Yes

Ambient conditions

Ambient temperature during operation

- | | |
|--------------------------------|-------|
| • 45 degree installation, min. | 0 °C |
| • 45 degree installation, max. | 45 °C |
| • vertical installation, min. | 0 °C |
| • vertical installation, max. | 50 °C |

Air pressure acc. to IEC 60068-2-13

- | | |
|----------------------------------|-----------|
| • permissible range, lower limit | 795 hPa |
| • permissible range, upper limit | 1 080 hPa |

Relative humidity

- | | |
|-------------------|-----------------------|
| • Operation, min. | 5 % |
| • Operation, max. | 95 %; no condensation |

Vibrations

- | | |
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| • Operation, tested according to IEC 60068-2-6 | Yes; IEC 60068-2-6; 10 Hz to 58 Hz; (constant amplitude 0.075 mm); 58 Hz to 500 Hz; (constant acceleration 9.8 m/s²) |
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Shock testing

- | | |
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| • tested according to IEC 60068-2-29 | Yes; IEC 68, Part 2-29 half-sine: 100 m/s² (10 g), 16 ms, 100 shocks |
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Configuration

Configuration software

- | | |
|----------------|-----|
| • STEP 7 | Yes |
| • STEP 7 Lite | Yes |
| • ProTool | Yes |
| • ProTool/Lite | Yes |
| • ProTool/Pro | Yes |

Programming

- | | |
|--------------------------|----------------------|
| • Command set | see instruction list |
| • Nesting levels | 8 |
| • Program organization | Linear, structured |
| • System functions (SFC) | see instruction list |

Programming language

- | | |
|---------|-----|
| — LAD | Yes |
| — FBD | Yes |
| — STL | Yes |
| — SCL | Yes |
| — CFC | Yes |
| — GRAPH | Yes |

— HiGraph®	Yes
Software libraries	
— Process diagnostics	Yes; C7-CPU
— Software controller	Yes; 16 circles
Know-how protection	
• User program protection/password protection	Yes
Cycle time monitoring	
• lower limit	1 ms
• upper limit	6 000 ms
• adjustable	Yes
• preset	150 ms
Languages	
Online languages	
• Number of online/runtime languages	3
Dimensions	
Width	240 mm
Height	203.5 mm
Depth	74.4 mm
Mounting cutout, width	231 mm
Mounting cutout, height	159 mm
Weights	
Weight, approx.	1 600 g
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