

\*\*\*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
------------------	------

### 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 $\mu$ s
for bit operations, max.	0.6 $\mu$ s
for word operations, typ.	1 $\mu$ s
for fixed point arithmetic, typ.	2 $\mu$ s
for floating point arithmetic, typ.	50 $\mu$ s
for timer/counter operations, typ.	12 $\mu$ s

### CPU-blocks

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

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

• Outputs	1 kbyte
<b>Process image</b>	
• Inputs	128 byte
• Outputs	128 byte
<b>Hardware configuration</b>	
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
<b>Interface modules</b>	
• Interface module IM 360 integrated	Yes
<b>Number of DP masters</b>	
• integrated	1
• via CP	1; CP 342-5
<b>Number of operable FMs and CPs (recommended)</b>	
• FM	8
• CP, PtP	4
• CP, LAN	2
<b>Expansion modules</b>	
• Analog inputs/outputs, max.	192
• Digital inputs/outputs, max.	768
• Number of expansion modules, max.	24
<b>Rack</b>	
• Modules per rack, max.	8
• Number of lines, max.	3
<b>Time of day</b>	
<b>Clock</b>	
• Hardware clock (real-time)	Yes; CPU
• Software clock	Yes; OP
<b>Interfaces</b>	
Number of printer interfaces	1; RS 232
<b>MPI</b>	
• 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)
<b>1. Interface</b>	
<b>Protocols</b>	
• MPI	Yes; occupies 2 nodes per device (1 x CPU, 1 x OP)
• PROFIBUS DP master	Yes
• PROFIBUS DP slave	Yes
<b>MPI</b>	
• Number of nodes, max.	32; PG/PC, OP, C7, S7-300/400, M7

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

## 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

<b>Degree of protection acc. to EN 60529</b>	
• IP20	Yes; Housing
• IP65	Yes; Front

## Standards, approvals, certificates

CSA approval	Yes; to Standard C22.2 number 142
--------------	-----------------------------------

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	
• 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	
• 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/s <sup>2</sup> )
Shock testing	
• tested according to IEC 60068-2-29	Yes; IEC 68, Part 2-29 half-sine: 100 m/s <sup>2</sup> (10 g), 16 ms, 100 shocks

## 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
<b>Know-how protection</b>	
• User program protection/password protection	Yes
<b>Cycle time monitoring</b>	
• lower limit	1 ms
• upper limit	6 000 ms
• adjustable	Yes
• preset	150 ms
<b>Languages</b>	
<b>Online languages</b>	
• Number of online/runtime languages	3
<b>Dimensions</b>	
Width	240 mm
Height	203.5 mm
Depth	74.4 mm
Mounting cutout, width	231 mm
Mounting cutout, height	159 mm
<b>Weights</b>	
Weight, approx.	1 600 g
<b>last modified:</b>	08/30/2019