

SIMATIC S7-200 SMART, CPU ST40, CPU, DC/DC/DC, onboard I/O: 24 DI 24 V DC; 16 DO 24 V DC; Power supply: DC 20.4-28.8V DC, Program/data memory 40 KB



General information

Product type designation	CPU ST40 DC/DC/DC
Engineering with	
<ul style="list-style-type: none"> Programming package 	STEP 7 Micro/WIN SMART

Installation type/mounting

Rail mounting	Yes; Standard - DIN rail
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Supply voltage

Type of supply voltage	24 V DC
Rated value (DC)	
<ul style="list-style-type: none"> 24 V DC 	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Rated value (AC)	
<ul style="list-style-type: none"> 120 V AC 230 V AC 	No No

Input current

Current consumption, max.	680 mA; 24 V DC
Inrush current, max.	11.7 A; at 28.8 V

Output current	
Current output, max.	300 mA; 24 V DC Sensor Power
for backplane bus (5 V DC), max.	1.4 A; max. 5 V DC for EM bus
Power loss	
Power loss, max.	18 W
Memory	
Type of memory	DDR
Flash	Yes
RAM	Yes
Memory available for user data	16 kbyte
Memory size	24 kbyte; Program memory
Micro Memory Card	Yes; microSDHC Card (optional)
CPU processing times	
for bit operations, typ.	150 ns; / instruction
for word operations, typ.	1.2 μ s; / instruction
for floating point arithmetic, typ.	3.6 μ s; / instruction
Address area	
I/O address area	
<ul style="list-style-type: none"> Inputs 	144 byte; 256 bit of digital inputs & 56 words of analog inputs
<ul style="list-style-type: none"> Outputs 	144 byte; 256 bit of digital outputs & 56 words of analog outputs
Time of day	
Clock	
<ul style="list-style-type: none"> Type 	Hardware clock, no battery backup
<ul style="list-style-type: none"> Hardware clock (real-time) 	Yes
<ul style="list-style-type: none"> Backup time 	7 d
<ul style="list-style-type: none"> Deviation per day, max. 	4 s; within 120s/month at 25 °C
Digital inputs	
Number of digital inputs	24
Input voltage	
<ul style="list-style-type: none"> Type of input voltage 	DC
<ul style="list-style-type: none"> Rated value (DC) 	24 V
<ul style="list-style-type: none"> for signal "0" 	10.0 to 10.3 < 1 V DC; 10.4 to 12.7 < 5 V DC
<ul style="list-style-type: none"> for signal "1" 	10.0 to 10.3 > 4V; 10.4 to 12.7 > 15V
Input current	
<ul style="list-style-type: none"> for signal "1", typ. 	4 mA
Cable length	
<ul style="list-style-type: none"> shielded, max. 	500 m; 50m shielded for HSC inputs
<ul style="list-style-type: none"> unshielded, max. 	300 m
Digital outputs	

Number of digital outputs	16; Transistor
<ul style="list-style-type: none"> • of which high-speed outputs 	3
Short-circuit protection	No
Switching capacity of the outputs	
<ul style="list-style-type: none"> • with resistive load, max. 	0.5 A
<ul style="list-style-type: none"> • on lamp load, max. 	5 W
Cable length	
<ul style="list-style-type: none"> • shielded, max. 	500 m
<ul style="list-style-type: none"> • unshielded, max. 	150 m

Interfaces

Number of industrial Ethernet interfaces	1
Number of RS 485 interfaces	1

1. Interface

Interface type	Ethernet
Physics	RJ45
Isolated	Yes; Transformer isolated, 1,500V AC
automatic detection of transmission rate	Yes; 10/100 Mbit/s
Autonegotiation	Yes
Autocrossing	Yes

2. Interface

Interface type	RS 485 (max. 187.5 Mbit/s)
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Communication functions

S7 communication	
<ul style="list-style-type: none"> • supported 	Yes
<ul style="list-style-type: none"> • as server 	Yes
<ul style="list-style-type: none"> • as client 	Yes

Test commissioning functions

Forcing	
<ul style="list-style-type: none"> • Forcing 	Yes

Integrated Functions

Number of counters	4; 4 HSC at 200 kHz for single phase or 2 HSC at 100 kHz for A/B phase
PID controller	Yes; PID closed-loop control function: Continuous controller outputs, binary controller outputs, automatic/manual mode, max. 8 loops

EMC

Interference immunity against discharge of static electricity	
<ul style="list-style-type: none"> • Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 	Yes
<ul style="list-style-type: none"> — Test voltage at air discharge 	8 kV

— Test voltage at contact discharge	4 kV
Interference immunity against high-frequency electromagnetic fields	
• Interference immunity against high-frequency radiation acc. to IEC 61000-4-3	Yes; 10 V/m, 80 to 1 000 MHz (to IEC 61000-4-3); 10 V/m, 900 MHz, 1.89 GHz, 50% ED (to IEC 61000-4-3)
Interference immunity to cable-borne interference	
• Interference immunity on supply lines acc. to IEC 61000-4-4	Yes; 2 kV acc. to IEC 61000-4-4, burst
• Interference immunity on signal cables acc. to IEC 61000-4-4	Yes; ±2 kV acc. to IEC 61000-4-4, Burst
Interference immunity against conducted variable disturbance induced by high-frequency fields	
• Interference immunity against high frequency current feed acc. to IEC 61000-4-6	Yes; 10 V, 150 kHz to 80 MHz (to IEC 61000-4-6)
Emission of radio interference acc. to EN 55 011	
• Limit class A, for use in industrial areas	Yes; EN 61000-6-4, interference emission: Intended for use in industrial areas.
Emission of conducted and non-conducted interference	
• Interference emission via line/AC current cables	EN 61000-6-4, interference emission: Intended for use in industrial areas.
Degree and class of protection	
Degree of protection acc. to EN 60529	
• IP20	Yes
Standards, approvals, certificates	
CE mark	Yes
Ambient conditions	
Free fall	
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
• min.	0 °C
• max.	55 °C
• horizontal installation, min.	0 °C
• horizontal installation, max.	55 °C
• vertical installation, min.	0 °C
• vertical installation, max.	45 °C
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Air pressure acc. to IEC 60068-2-13	
• Storage/transport, min.	660 hPa
• Storage/transport, max.	1 080 hPa
Altitude during operation relating to sea level	
• Installation altitude, min.	-1 000 m
• Installation altitude, max.	2 000 m

Relative humidity	
• Operation at 25 °C without condensation, max.	95 %
Configuration	
Programming	
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
Dimensions	
Width	125 mm
Height	100 mm
Depth	81 mm
Weights	
Weight, approx.	410.3 g
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