MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Amikon cover with selected official Siemens pages

SIMATIC S7-200 SMART

6ES7288-1ST30-0AA0

CPU ST30 TRANSISTOR-OUTPUT CONTROLLER

OFFICIAL SOURCES

Siemens official product documentation for 6ES7288-1ST30-0AA0. Selected pages retain their original content, color and aspect ratio.

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Data sheet 6ES7288-1ST30-0AA0

SIMATIC S7-200 SMART, CPU ST30, Standard CPU, DC/DC/DC, onboard I/O: 18 DI 24 V DC; 12 DO 24 V DC; Power supply: DC 20.4-28.8V DC, Program/data memory 30 KB



General information	
Product type designation	CPU ST30 DC/DC/DC
Engineering with	
• Programming package	STEP 7 Micro/WIN SMART
Installation type/mounting	
Rail mounting	Yes; Standard - DIN rail
Supply voltage	
Type of supply voltage	24 V DC
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Rated value (AC)	
• 120 V AC	No
• 230 V AC	No
Input current	
Current consumption, max.	624 mA; 24 V DC
Inrush current, max.	6 A; at 28.8 V

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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.	12 W
Memory	
Type of memory	DDR
Flash	Yes
RAM	Yes
Memory available for user data	12 kbyte
Memory size	18 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 µs; / instruction
for floating point arithmetic, typ.	3.6 µs; / instruction
Address area	
I/O address area	
• Inputs	144 byte; 256 bit of digital inputs & 56 words of analog inputs
• Outputs	144 byte; 256 bit of digital outputs & 56 words of analog outputs
Time of day	
Clock	
• Type	Hardware clock, no battery backup
• Hardware clock (real-time)	Yes
• Backup time	7 d
• Deviation per day, max.	4 s; within 120s/month at 25 °C
Digital inputs	
Number of digital inputs	18
Input voltage	
• Type of input voltage	DC
• Rated value (DC)	24 V
• for signal "0"	I0.0 to I0.3 < 1 V DC; I0.4 to I2.7 < 5 V DC
• for signal "1"	I0.0 to I0.3 > 4V; I0.4 to I2.7 > 15V
Input current	
• for signal "1", typ.	4 mA
Cable length	
• shielded, max.	500 m; 50m shielded for HSC inputs
• unshielded, max.	300 m
Digital outputs	

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Number of digital outputs	12; Transistor
• of which high-speed outputs	3
Short-circuit protection	No
Switching capacity of the outputs	
• with resistive load, max.	0.5 A
• on lamp load, max.	5 W
Cable length	
• shielded, max.	500 m
• 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)

Communication functions	
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes

Test commissioning functions	
Forcing	
• 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	
• Interference immunity against discharge of static electricity acc. to IEC 61000-4-2	Yes
— Test voltage at air discharge	8 kV

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— 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

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Relative humidity	
• Operation at 25 °C without condensation, max.	95 %

Configuration

Programming	
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes

Dimensions

Width	110 mm
Height	100 mm
Depth	81 mm

Weights

Weight, approx.	375 g

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