MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

SIEMENS

6ES7288-1CR40-0AA1

CPU CR40 AC/DC/RELAY CONTROLLER

Used with the applicable SIMATIC S7-200 SMART configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Siemens official technical documentation for 6ES7288-1CR40-0AA1

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Data sheet 6ES7288-1CR40-0AA1



SIMATIC S7-200 SMART CPU CR40s, COMPACT CPU, AC/DC/RELAY, ONBOARD I/O: 24 DI 24V DC; 16DO RELAY 2A; POWER SUPPLY: AC, 85 - 264 V AC AT 47 - 63 HZ, PROGRAM/DATA MEMORY: 20 KB

General information	
Product type designation	CPU CR40 AC/DC/Relay
Engineering with	
● Programming package	STEP 7 Micro/WIN SMART
Installation type/mounting	
Rail mounting	Yes; Standard - DIN rail
Supply voltage	
Rated value (AC)	230 V; 230 V AC (L1, N)
● 120 V AC	Yes; 85 to 132 V AC
● 230 V AC	Yes; 170 to 264 V AC
permissible range, lower limit (AC)	85 V
permissible range, upper limit (AC)	264 V
Reverse polarity protection	No
Line frequency	
● permissible range, lower limit	47 Hz
● permissible range, upper limit	63 Hz
Load voltage L+	
● Rated value (DC)	24 V
● permissible range, lower limit (DC)	5 V
● permissible range, upper limit (DC)	250 V
Input current	
Current consumption (rated value)	80 mA; At 220 V AC
Current consumption, max.	100 mA; At 220 V AC
Inrush current, max.	16.3 A; at 264 V
Power loss	
Power loss, max.	8 W
Memory	
Type of memory	DDR
Flash	Yes
RAM	Yes
Micro Memory Card	No
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
Hardware configuration	
Integrated power supply	No
Time of day	
Clock	
● Type	Software clock

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● Hardware clock (real-time)	No
Digital inputs	
Number of digital inputs	24; Integrated
● of which inputs usable for technological functions	4; HSC: 4 @ 100 kHz single phase, 2 @ 50 kHz A/B phase
Source/sink input	Yes
Input voltage	
● Type of input voltage	DC
● Rated value (DC)	24 V
● for signal "0"	< 5 V DC
● for signal "1"	+15 to +30 V
Input current	
● for signal "0", max. (permissible quiescent current)	1 mA
● for signal "1", typ.	4 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	Yes; 0.2 µs, 0.4 µs, 0.8 µs, 1.6 µs, 3.2 µs, 6.4 µs and 12.8 µs, selectable in 4 groups
— at "0" to "1", min.	0.2 µs
— at "0" to "1", max.	12.8 µs
for interrupt inputs	
— parameterizable	Yes
Cable length	
● shielded, max.	500 m; 50m shielded for HSC inputs
● unshielded, max.	300 m
Digital outputs	
Number of digital outputs	16; Relays
Switching capacity of the outputs	
● with resistive load, max.	2 A
● on lamp load, max.	30 W; 30 W with DC, 200 W with AC
Output delay with resistive load	
● "0" to "1", max.	10 ms; max.
● "1" to "0", max.	10 ms; max.
Switching frequency	
● of the pulse outputs, with resistive load, max.	1 Hz
Relay outputs	
● Number of relay outputs	16
● Number of operating cycles, max.	100 000; mechanically 10 million, at rated load voltage 100 000
Cable length	
● shielded, max.	500 m
● unshielded, max.	150 m
Interfaces	
Number of industrial Ethernet interfaces	0
Number of RS 485 interfaces	1
Optical interface	No
1. Interface	
Interface type	RS 485 (max. 187.5 kbps)
Isolated	Yes; 500 V AC or 707 V DC
Interface types	
● RS 485	Yes
● Design of the connection	9-pin sub D socket
Protocols	
Supports protocol for PROFINET IO	No
PROFIBUS	No
Protocols (Ethernet)	
● TCP/IP	No
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
— Test voltage at contact discharge	4 kV

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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)
— Frequency range of the RF radiation	10 V/m for 80 MHz ~ 1 GHz, 3 V/m for 1.4 GHz ~ 2 GHz, 3 V/m for 87 MHz ~ 108 MHz, 174 MHz ~ 230 MHz, 470 MHz ~ 790 MHz, 1.4 GHz ~ 2 GHz, 1 V/m for 2 GHz ~ 2.7 GHz
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 voltage surge	
● Interference immunity on supply lines acc. to IEC 61000-4-5	Yes; ±1 kV (acc. to IEC 61000-4-5; 1995; surge symm.), ±2 kV (acc. to IEC 61000-4-5; 1995; surge asymm.), no external protective circuit required
● asymmetric interference	
— Test voltage on supply cables	2 kV
— Test voltage on signal cables >30m	2 kV
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	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes
Ambient conditions	
Free fall	
● Fall height, max.	0.5 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 / header	
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
Dimensions	
Width	125 mm
Height	100 mm
Depth	81 mm
Weights	
Weight, approx.	475 g; approx.
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