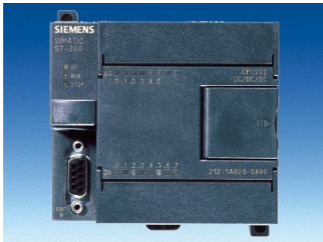


Zentralbaugruppen

CPU 222



A.3 Specifications for the CPU 222

Table A-3 Specifications for CPU 222 DC/DC/DC and CPU 222 AC/DC/Relay

| Description Order Number | CPU 222 DC/DC/DC 6ES7212-1AB20-0XB0 | CPU 222 AC/DC/Relay 6ES7212-1BB20-0XB0 |
|---------------------------------------|--|--|
| Physical Size | | |
| Dimensions (W x H x D) | 90 mm x 80 mm x 62 mm | 90 mm x 80 mm x 62 mm |
| Weight | 270 g | 310 g |
| Power loss (dissipation) | 4 W | 6 W |
| CPU Features | | |
| On-board digital inputs | 8 inputs | 8 inputs |
| On-board digital outputs | 6 outputs | 6 outputs |
| High-speed counters (32 bit value) | | |
| Total | 4 High-speed counters | 4 High-speed counters |
| Single phase counters | 4, each at 20 kHz clock rate | 4, each at 20 kHz clock rate |
| Two phase counters | 2, each at 20 kHz clock rate | 2, each at 20 kHz clock rate |
| Pulse outputs | 2 at 20 kHz pulse rate | 2 at 20 kHz pulse rate |
| Analog adjustments | 1 with 8 bit resolution | 1 with 8 bit resolution |
| Timed interrupts | 2 with 1 ms resolution | 2 with 1 ms resolution |
| Edge interrupts | 4 edge up and/or 4 edge down | 4 edge up and/or 4 edge down |
| Selectable input filter times | 7 ranges from 0.2 ms to 12.8 ms | 7 ranges from 0.2 ms to 12.8 ms |
| Pulse catch | 8 pulse catch inputs | 8 pulse catch inputs |
| Program size (stored permanently) | 2048 words | 2048 words |
| Data block size | 1024 words | 1024 words |
| Stored permanently | 1024 words | 1024 words |
| Backed by super capacitor or battery | 1024 words | 1024 words |
| Number of expansion I/O modules | 2 modules | 2 modules |
| Maximum digital I/O | 256 points | 256 points |
| Maximum analog I/O | 16 inputs and 16 outputs | 16 inputs and 16 outputs |
| Internal memory bits | 256 bits | 256 bits |
| Stored permanently on power down | 112 bits | 112 bits |
| Backed by super capacitor or battery | 256 bits | 256 bits |
| Timers Total | 256 timers | 256 timers |
| Backed by super capacitor or battery | 64 timers | 64 timers |
| 1 ms | 4 timers | 4 timers |
| 10 ms | 16 timers | 16 timers |
| 100 ms | 236 timers | 236 timers |
| Counters total | 256 counters | 256 counters |
| Backed by super capacitor or battery | 256 counters | 256 counters |
| Boolean execution speed | 0.37 μ s per instruction | 0.37 μ s per instruction |
| Move word execution speed | 34 μ s per instruction | 34 μ s per instruction |
| Timer/Counter execution speed | 50 μ s to 64 μ s per instruction | 50 μ s to 64 μ s per instruction |
| Single precision math execution speed | 46 μ s per instruction | 46 μ s per instruction |
| Real math execution speed | 100 μ s to 400 μ s per instruction | 100 μ s to 400 μ s per instruction |
| Super capacitor data retention time | 50 hours, typical, 8 hours minimum at 40° C | 50 hours, typical, 8 hours minimum at 40° C |

Table A-3 Specifications for CPU 222 DC/DC/DC and CPU 222 AC/DC/Relay (continued)

| Description Order Number | CPU 222 DC/DC/DC 6ES7212-1AB20-0XB0 | CPU 222 AC/DC/Relay 6ES7212-1BB20-0XB0 |
|---|--|--|
| On-board Communication | | |
| Number of ports | 1 port | 1 port |
| Electrical interface | RS-485 | RS-485 |
| Isolation (external signal to logic circuit) | Not isolated | Not isolated |
| PPI/MPI baud rates | 9.6, 19.2, and 187.5 kbaud | 9.6, 19.2, and 187.5 kbaud |
| Freeport baud rates | 0.3, 0.6, 1.2, 2.4, 4.8, 9.6, 19.2, and 38.4 kbaud | 0.3, 0.6, 1.2, 2.4, 4.8, 9.6, 19.2, and 38.4 kbaud |
| Maximum cable length per segment up to 38.4 kbaud 187.5 kbaud | 1200 m 1000 m | 1200 m 1000 m |
| Maximum number of stations Per segment Per network | 32 stations 126 stations | 32 stations 126 stations |
| Maximum number of masters | 32 masters | 32 masters |
| PPI master mode (NETR/NETW) | Yes | Yes |
| MPI connections | 4 total, 2 reserved: 1 for PG and 1 OP | 4 total, 2 reserved: 1 for PG and 1 OP |
| Cartridge Options | | |
| Memory cartridge (permanent storage) | Program, Data, and Configuration | Program, Data, and Configuration |
| Battery cartridge (data retention time) | 200 days, typical | 200 days, typical |
| Clock cartridge (clock accuracy) | 2 minutes per month at 25° C 7 minutes per month at 0° C to 55° C | 2 minutes per month at 25° C 7 minutes per month at 0° C to 55° C |
| Power Supply | | |
| Line voltage—permissible range | 20.4 to 28.8 VDC | 85 to 264 VAC, 47 to 63 Hz |
| Input current CPU only/max load | 70/600 mA at 24 VDC | 25/80 mA at 240 VAC 25/180 mA at 120 VAC |
| In rush current (maximum) | 10 A at 28.8 VDC | 20 A at 264 VAC |
| Isolation (input power to logic) | Not isolated | 1500 VAC |
| Hold up time (from loss of input power) | 10 ms at 24 VDC | 80 ms at 240 VAC, 20 ms at 120 VAC |
| Internal Fuse, not user-replaceable | 2 A, 250 V, Slow Blow | 2 A, 250 V, Slow Blow |
| +5 Power for Expansion I/O (max) | 340 mA | 340 mA |
| 24 VDC Sensor Power Output | | |
| Voltage range | 15.4 to 28.8 VDC | 20.4 to 28.8 VDC |
| Maximum current | 180 mA | 180 mA |
| Ripple noise | Same as input line | Less than 1 V peak to peak (maximum) |
| Current limit | 600 mA | 600 mA |
| Isolation (sensor power to logic circuit) | Not isolated | Not isolated |

Table A-3 Specifications for CPU 222 DC/DC/DC and CPU 222 AC/DC/Relay (continued)

| Description Order Number | CPU 222 DC/DC/DC 6ES7212-1AB20-0XB0 | CPU 222 AC/DC/Relay 6ES7212-1BB20-0XB0 |
|---|--|---|
| Input Features | | |
| Number of integrated inputs | 8 inputs | 8 inputs |
| Input type | Sink/Source (IEC Type 1 sink) | Sink/Source (IEC Type 1 sink) |
| Input Voltage | | |
| Maximum continuous permissible | 30 VDC | 30 VDC |
| Surge | 35 VDC for 0.5 s | 35 VDC for 0.5 s |
| Rated value | 24 VDC at 4 mA, nominal | 24 VDC at 4 mA, nominal |
| Logic 1 signal (minimum) | 15 VDC at 2.5 mA, minimum | 15 VDC at 2.5 mA, minimum |
| Logic 0 signal (maximum) | 5 VDC at 1 mA, maximum | 5 VDC at 1 mA, maximum |
| Isolation (Field Side to Logic Circuit) | | |
| Optical isolation (Galvanic) | 500 VAC for 1 minute | 500 VAC for 1 minute |
| Isolation groups of | 4 points | 4 points |
| Input Delay Times | | |
| Filtered inputs and interrupt inputs | 0.2 to 12.8 ms, user-selectable | 0.2 to 12.8 ms, user-selectable |
| HSC Clock Input Rate | | |
| Single Phase | | |
| Logic 1 level = 15 to 30 VDC | 20 kHz, maximum | 20 kHz, maximum |
| Logic 1 level = 15 to 26 VDC | 30 kHz, maximum | 30 kHz, maximum |
| Quadrature | | |
| Logic 1 level = 15 to 30 VDC | 10 kHz, maximum | 10 kHz, maximum |
| Logic 1 level = 15 to 26 VDC | 20 kHz, maximum | 20 kHz, maximum |
| Connection of 2 Wire Proximity Sensor (Bero) | | |
| Permissible leakage current | 1 mA, maximum | 1 mA, maximum |
| Cable Length | | |
| Unshielded (not HSC) | 300 m | 300 m |
| Shielded | 500 m | 500 m |
| HSC inputs, shielded | 50 m | 50 m |
| Number of Inputs ON Simultaneously | | |
| 40 ° C | 8 | 8 |
| 55 ° C | 8 | 8 |
| Output Features | | |
| Number of integrated outputs | 6 outputs | 6 outputs |
| Output type | Solid State-MOSFET | Relay, dry contact |
| Output Voltage | | |
| Permissible range | 20.4 to 28.8 VDC | 5 to 30 VDC or 5 to 250 VAC |
| Rated value | 24 VDC | – |
| Logic 1 signal at maximum current | 20 VDC, minimum | – |
| Logic 0 signal with 10 K Ω load | 0.1 VDC, maximum | – |
| Output Current | | |
| Logic 1 signal | 0.75 A | 2.00 A |
| Number of output groups | 1 | 2 |
| Number of outputs ON (maximum) | 6 | 6 |
| Per group – horizontal mounting (maximum) | 6 | 3 |
| Per group – vertical mounting (maximum) | 6 | 3 |
| Maximum current per common/group | 4.5 A | 6 A |
| Lamp load | 5 W | 30 W DC/ 200 W AC |
| ON state resistance (contact resistance) | 0.3 Ω | 0.002 Ω , maximum when new |
| Leakage current per point | 10 μ A, maximum | – |
| Surge current | 8 A for 100 ms, maximum | 7 A with contacts closed |
| Overload protection | No | No |

Table A-3 Specifications for CPU 222 DC/DC/DC and CPU 222 AC/DC/Relay (continued)

| Description Order Number | CPU 222 DC/DC/DC 6ES7212-1AB20-0XB0 | CPU 222 AC/DC/Relay 6ES7212-1BB20-0XB0 |
|--|--|---|
| Isolation | | |
| Optical isolation (galvanic) | 500 VAC for 1 minute | – |
| Isolation resistance | – | 100 M Ω , minimum when new |
| Isolation coil to contact | – | 1500 VAC for 1 minute |
| Isolation between open contacts | – | 750 VAC for 1 minute |
| In groups of | 6 points | 3 points |
| Inductive Load Clamping | | |
| Repetitive energy dissipation < 0.5 LI ² x switching rate | 1 W, all channels | – |
| Clamp voltage limits | L+ minus 48V | – |
| Output Delay | | |
| Off to On (Q0.0 and Q0.1) | 2 μ s, maximum | – |
| On to Off (Q0.0 and Q0.1) | 10 μ s, maximum | – |
| Off to On (Q0.2 through Q0.5) | 15 μ s, maximum | – |
| On to Off (Q0.2 through Q0.5) | 100 μ s, maximum | – |
| Switching Frequency (Pulse Train Outputs) | | |
| Q0.0 and I0.1 | 20 kHz, maximum | 1 Hz, maximum |
| Relay | | |
| Switching delay | – | 10 ms, maximum |
| Lifetime mechanical (no load) | – | 10,000,000 open/close cycles |
| Lifetime contacts at rated load | – | 100,000 open/close cycles |
| Cable Length | | |
| Shielded | 150 m | 150 m |
| Unshielded | 500 m | 500 m |

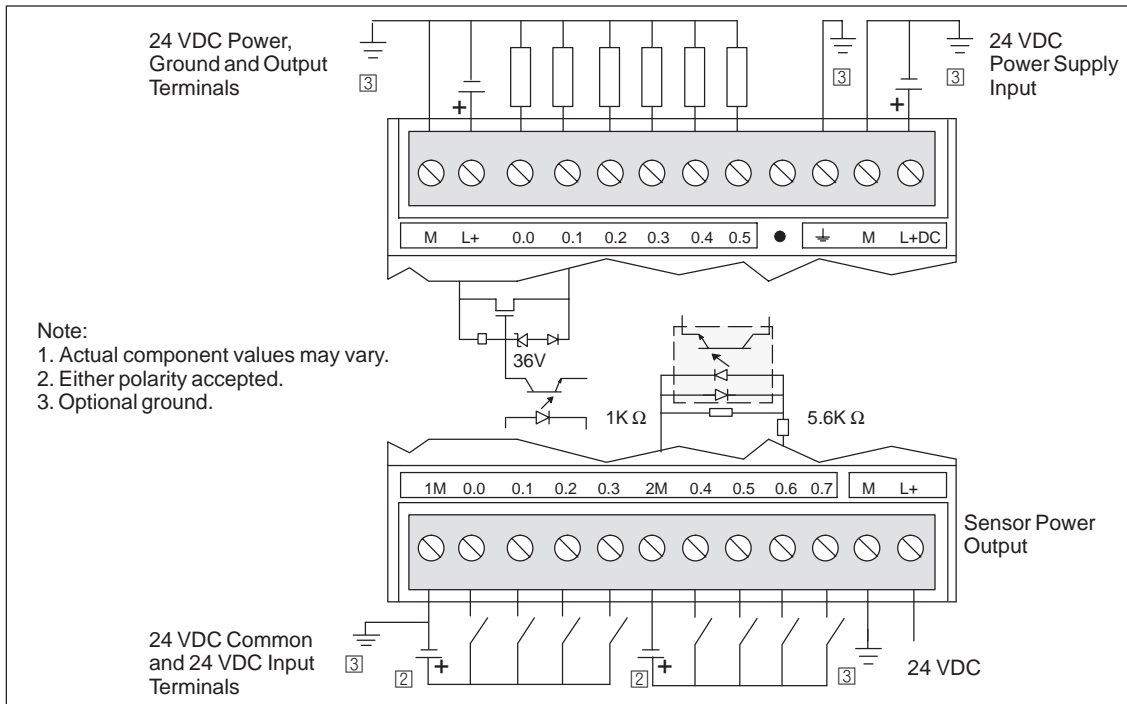


Figure A-4 Connector Terminal Identification for CPU 222 DC/DC/DC

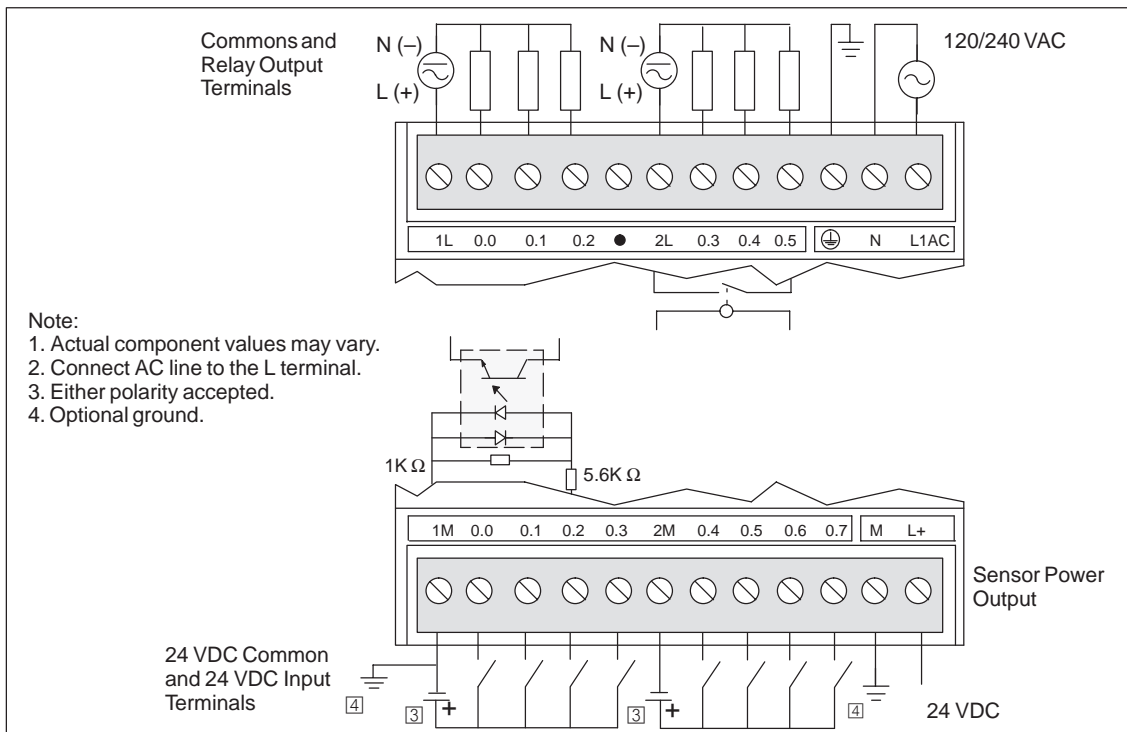


Figure A-5 Connector Terminal Identification for CPU 222 AC/DC/Relay