

PM857K01

ABB Ability™ System 800xA® hardware selector



The CPU board contains the microprocessor and RAM memory, a real-time clock, LED indicators, INIT push button, and a CompactFlash interface.

The base plate of the PM857 controller has two RJ45 Ethernet ports (CN1, CN2) for connection to the Control Network, and two RJ45 serial ports (COM3, COM4). One of the serial ports (COM3) is an RS-232C port with modem control signals, whereas the other port (COM4) is isolated and used for the connection of a configuration tool. The controller supports CPU redundancy for higher availability (CPU, CEX-Bus, communication interfaces and S800 I/O).

The high integrity functionality is enabled by the addition of an SM812 module and the SIL-certified software. This enables non-critical control schemes to be upgraded to SIL-certified schemes by the addition of a plug-in SM81x module, plus a selection of the appropriate software. The AC 800M High-Integrity also offers IEC 61508 and TÜV-certified control environment for combining safety and business-critical process control in one controller unit without sacrificing the safety integrity.

The PM857 can handle Max 128 I/O signals. Certified for SIL3. Requires configuration according to Safety Manual.

Features and benefits

- ISA Secure certified - [Read more](#)
- AC 800M High up to SIL 3 certified using PM857/SM812, PM863/SM812, PM865/SM811 or PM867/SM812
- Supports S800 I/O High Integrity (PM857, PM863, PM865, PM866A and PM891)
- The controller can be configured with 800xA control builder
- The controller has full EMC certification
- TÜV Certified SIL 2 and SIL 3
- Built-in redundant Ethernet Communication ports

| General info | |
|--------------------------------------|-------------------------|
| Article number | 3BSE088385R1 (PM857K01) |
| Redundancy | No |
| High Integrity | Yes |
| Clock Frequency | 96 Mhz |
| Performance, 1000 boolean operations | 0.17 ms |
| Performance | 0.17 ms |
| Memory | 32 MB |
| RAM available for application | 22.184 MB |
| Flash memory for storage | No |

| Detailed data | |
|---|---|
| Processor type | MPC866 |
| Switch over time in red. conf. | Max 10 ms |
| No. of applications per controller | 32 |
| No. of programs per application | 64 |
| No. of diagrams per application | 128 |
| No. of tasks per controller | 32 |
| Number of different cycle times | 32 |
| Cycle time per application programs | 10 ms |
| Flash PROM for firmware storage | 18 MB |
| Power supply | 24 V DC (19.2-30 V DC) |
| Power consumption +24 V typ/max | 210 / 360 mA |
| Power dissipation | 5.1 W (8.6 W max) |
| Redundant power supply status input | Yes |
| Built-in back-up battery | Lithium, 3.6 V |
| Clock synchronization | 1 ms between AC 800M controllers by CNCP protocol |
| Event queue in controller per OPC client | Up to 3000 events |
| AC 800M transm. speed to OPC server | 36-86 events/sec ,113-143 data messages/sec |
| Comm. modules on CEX bus | 12 |
| Supply current on CEX bus | Max 2.4 A |
| I/O clusters on Modulebus with non-red. CPU | 1 electrical, 7 optical |
| I/O clusters on Modulebus with red. CPU | 0 eletrical + 7 optical |
| I/O capacity on Modulebus | Max 96 (single PM857) or 84 (red. PM857) I/O modules Max 128 I/O signals in total |
| Modulebus scan rate | 0 - 100 ms (actual time depending on number of I/O modules) |
| Supply current on Electrical Modulebus | 24 V : max 1.0 A 5 V : max 1.5 A |
| Ethernet channels | 2 |
| Ethernet interface | Ethernet (IEEE 802.3), 10 Mbit/s, RJ-45, female (8-pole) |
| Control Network protocol | MMS (Manufacturing Message Service) and IAC (Inter Application Communication) |
| Recommended Control Network backbone | 100 Mbit/s switched Ethernet |
| Real-time clock stability | 100 ppm (approx. 1 h/year) |
| RS-232C interface | 2 (one general, 1 for service tool) |
| RS-232C interface (COM3) (non red. only) | RS-232C, 75-19 200 baud, RJ-45 female (8-pole), not opto isolated, full RTS-CTS support |
| RS-232C interface (COM4) (non red. only) | RS-232C, 9 600 baud, RJ-45 female (8-pole), opto isolated, no RTS-CTS support |

| Environment and certification | |
|-------------------------------|--|
| Temperature, Operating | +5 to +55 °C (+41 to +131 °F) |
| Temperature, Storage | -40 to +70 °C (-40 to +158 °F) |
| Temperature changes | 3 °C/minutes according to IEC/EN 61131-2 |
| Pollution degree | Degree 2 according to IEC/EN 61131-2 |
| Corrosion protection | G3 compliant to ISA 71.04 |
| Relative humidity | 5 to 95 %, non-condensing |
| Emitted noise | < 55 dB (A) |
| Vibration | 10 < f < 50 Hz: 0.0375 mm amplitude, 50 < f < 150 Hz: 0.5 g acceleration, 5 < f < 500 Hz: 0.2 g acceleration |
| Rated Isolation Voltage | 500 V a.c. |
| Dielectric test voltage | 50 V |
| Protection class | IP20 according to EN 60529, IEC 529 |
| Altitude | 2000 m according to IEC/EN 61131-2 |
| Emission & Immunity | EN 61000-6-4, EN 61000-6-2 |
| Environmental conditions | Industrial |
| CE Mark | Yes |
| Electrical Safety | EN 50178, IEC 61131-2, UL 61010-1, UL 61010-2-201 |
| Hazardous location | cULus Class 1, Zone 2, AEx nA IIC T4, ExnA IIC T4Gc X |
| ISA Secure certified | Yes |
| Marine certificates | ABS, BV, DNV-GL (LR, Lloyd (Pending) |
| TUV Approval | Yes |
| RoHS compliance | EN 50581:2012 |
| WEEE compliance | DIRECTIVE/2012/19/EU |

| Dimensions | |
|-------------------------|------------------|
| Width | 119 mm (4.7 in.) |
| Height | 186 mm (7.3 in.) |
| Depth | 135 mm (5.3 in.) |
| Weight (including base) | 1200 g (2.6 lbs) |

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