

PM851AK01

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 PM851A controller has two RJ45 Ethernet ports (CN1, CN2) for connection to the Control Network, and two RJ45 serial ports (COM3, COM4).

Note that a PM851/PM851A is restricted to one Ethernet (CN1) port, thus redundant Ethernet is not available. 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.

Simple DIN rail attachment / detachment procedures, using the unique slide & lock mechanism. All base plates are provided with a unique Ethernet address which provides every CPU with a hardware identity. The address can be found on the Ethernet address label attached to the TP830 base plate.

Features and benefits

- Reliability and simple fault diagnosis procedures
- Modularity, allowing for step-by-step expansion
- IP20 Class protection without the requirement for enclosures
- The controller can be configured with 800xA control builder
- The controller has full EMC certification
- Hardware based on standards for optimum communication connectivity (Ethernet, PROFIBUS DP, etc.)

| General info | |
|--------------------------------------|-------------------------------|
| Article number | 3BSE066485R1 (PM851AK01) |
| Redundancy | No |
| High Integrity | No |
| Clock Frequency | 24 MHz |
| Performance, 1000 boolean operations | 0.46 ms |
| Performance | 0.46 ms |
| Memory | 12 MB (from 800xA 5.1 FP4) |
| RAM available for application | 6.253 MB (from 800xA 5.1 FP4) |
| Flash memory for storage | Yes |

Detailed data

| | |
|---|---|
| Processor type | MPC860 |
| Switch over time in red. conf. | NA |
| 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 | Down to 1 ms |
| Flash PROM for firmware storage | 2 MB |
| Power supply | 24 V DC (19.2-30 V d.c.) |
| Power consumption +24 V typ/max | 180 / 300 mA |
| Power dissipation | 4.32 W (7.2 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 | 1 |
| Supply current on CEX bus | 2.4 A |
| I/O clusters on Modulebus with non-red. CPU | 1 electrical, 1 optical |
| I/O clusters on Modulebus with red. CPU | NA |
| I/O capacity on Modulebus | Max 24 I/O modules |
| 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 | 1 |
| 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

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|--------------------------|--|
| 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 | 50 V |
| Dielectric test voltage | 500 V a.c. |
| 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 |
| Marine certificates | ABS, BV, DNV-GL, LR |
| TUV Approval | No |
| 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) | 1100 g (2.4 lbs) |

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