

AC 800M Processor Units

CPU Modules

Several CPU modules are available that vary in terms of processing power, memory size, and redundancy support. Each CPU module is equipped with built in Ethernet port(s) for communication with other controllers and for interaction with operators, engineers, managers, and higher level applications. These ports can be configured for redundancy for those cases where availability is of paramount importance. It is also equipped with two RS-232C ports that can be used for point-to-point communication with programming/debugging tools and with third-party systems and devices.

The SIL3-rated and IEC61508-certified, AC 800HI controller supports running both process control and safety application, in the same machine.

The AC 800M controller can be configured with 800xA control builder. When configured with the 800xA control builder AC 800M becomes a tightly integrated part of the System 800xA.

Communication & I/O Modules

To each CPU module, a number of communication and I/O modules can be added, for example:

- Additional RS-232C ports
- PROFIBUS DP, PROFINET IO
- Foundation Fieldbus HSE/H1
- DeviceNet
- IEC 61850
- Ethernet IP
- MasterBus 300
- MODBUS TCP
- S100 I/O
- S800 I/O



PM891



AC 800M



AC 800M high integrity

AC 800M Controllers selection guide

Features / CPUs	PM851A	PM856A	PM858	PM860A	PM861A	PM862
Processor Unit	PM851AK01 incl: 1 PM851 CPU and required optional items	PM856AK01 incl: 1 PM856 CPU and required optional items	PM858K01 incl: 1 PM858 CPU and required optional items PM858K02 incl: 2 PM858K01	PM860AK01 incl: 1 PM860 CPU and required optional items	PM861AK01 incl: 1 PM861A CPU and required optional items PM861AK02 incl: 2 PM861AK01	PM862K01 incl: 1 PM862 CPU and required optional items. PM862K02 incl: 2 PM862K01
Optional items (partly included in Processor Units, see Price List)	TP830 Baseplate, TP850 CEX-bus term., TK850 CEX-bus cable, TB807, Modulebus term, Battery RAM backup, TB852/TB853 RCU-link term, TB851/TB855/TB856 RCU-link cable, SB822 External Battery Unit, TK212A Tool cable, TC562 Short Distance Modem, TK853V020 Modem cable, BC810K02, BC820K02, CEX-bus Interconnection unit; TK851V010 Connection cable, SD831/SD832/SD833 Power Supply, SS832 Voting Unit, Mains Breaker Kit, SM811 Supervisory Module and SM812 Supervisory Module.					
High Integrity Controller	No	No	No	No	No	No
Clock frequency	24 MHz	24 MHz	33 MHz	48 MHz	48 MHz	67 MHz
Memory (RAM)	8 MB	8 MB	16MB	8 MB	16 MB	32 MB
From 5.1 FP4	12 MB	16 MB		16 MB		
RAM available for application	2.282 MB	2.282 MB	7.147 MB	2.282 MB	7.155 MB	23.521 MB
From 5.1 FP4	6.253 MB	10.337 MB		10.346 MB		
Processor type	MPC860	MPC860	MPC866	MPC860	MPC860	MPC866
Flash memory for storage of application and data	Yes	Yes	Yes	Yes	Yes	Yes
CPU redundancy support	No	No	Yes	No	Yes	Yes
Switch over time in red. conf.	-	-	max 10 ms	-	max 10 ms	max 10 ms
Performance, 1000 boolean operations (a:=b and c)	0.46 ms	0.46 ms	0.36 ms	0.23 ms	0.23 ms	0.18 ms
No. controllers per control projects	32					
No. of applications per control project	1024					
No. of applications per controller	32					
No. of programs per application	64					
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	2 MB	4 MB	2 MB	2 MB	4 MB
Power supply	24 V DC (19.2-30 V DC) max 5 % ripple acc. to IEC 61131-2					
Power consumption +24 V	typ/max 180/300 mA	typ/max 180/300 mA	typ/max 210/360 mA	typ/max 180/300 mA	typ/max 250/430 mA	typ/max 210/360 mA
Power dissipation	typ 4.32 W	typ 4.32 W	typ 5.1 W	typ 4.32 W	typ 6.0 W	5.1 W
Power Reservoir	Internal 5 ms power reservoir, sufficient for the CPU to make a controlled power down					
Power supply connector	Detachable 4-pole screw terminal block					
Redundant power supply status inputs	Yes: 2 inputs designated SA, SB (Max 30 V, high level >15 V, low level < 8 V)					
Built-in back-up battery	Type: Lithium, 3.6 V, 0.95 Ah, size 1/2 AA, 0.3 g Lithium content					
Real-time clock stability	100 ppm (approx. 1 h/year)					
Clock synchronization	1 ms between AC 800M controllers by CNCP protocol					
Comm. modules on CEX bus	1	12	12	12	12	12
Supply current on CEX bus	Supply current: Max 24 V - 2.4 A (fuse 3.15 A fast, PM891 has an embedded auto fuse)					
I/O clusters on Modulebus with non-redundant CPU	1 el. + 1 opt.	1 el. + 7 opt.	1 el. + 7 opt.	1 el. + 7 opt.	1 el. + 7 opt.	1 el. + 7 opt.
I/O clusters on Modulebus with redundant CPU	NA	NA	7 optical	NA	0 el. + 7 opt.	7 optical

Features / CPUs	PM851A	PM856A	PM858	PM860A	PM861A	PM862
I/O capacity on Modulebus with non-redundant/redundant CPU	Max 24/NA I/O modules	Max 96/NA I/O modules	Max 96/84 I/O modules	Max 96/NA I/O modules	Max 96/84 I/O modules	Max 96/84 I/O modules
Modulebus scan rate	0 - 100 ms (actual time depending on number of I/O modules)					
Supply current on Electrical Modulebus	Supply current: Max 24 V - 1.0 A (short circuit proof, fuse 2.0 A), Max 5 V - 1.5 A (short circuit proof)					
I/O capacity on PROFIBUS (remote I/O)	Max 99 I/O stations (max 62 redundant I/O stations), max 24 I/O modules per I/O station (max 12 redundant I/O pairs)					
Ethernet channels	1	2	2	2	2	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					
No. of controllers on Control Network	max 50					
RS-232C interface	2 (one general, 1 for service tool)					
RS-232C interface (COM3) (non red.conf. 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.conf. only)	RS-232C, 9 600 baud, RJ-45 female (8-pole), opto isolated, no RTS-CTS support					
Temperature • Operating • Storage	+5 to +55 °C (+41 to +131 °F) -40 to +70 °C (-40 to +158 °F)					
Temperature changes	3 °C/minutes according to IEC/EN 61131-2					
Altitude	2000 m according to IEC/EN 61131-2					
Pollution degree	Degree 2 according to IEC/EN 61131-2					
Corrosion protection	G3 compliant to ISA 71.04					
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					
Emitted noise	< 55 dB (A)					
Shock, no package	150 m/s ² in 11 ms, 20 g in 3 ms					
Relative humidity	5 to 95 %, non-condensing					
Isolation voltage	Type test voltage: 500 V AC (corresponding to 700 V DC)					
Environmental conditions	Industrial					
Protection class	IP20 according to EN 60529, IEC 529					
Certificates and Standards	CE- marking: Meets EMC directive 2004/108/EC acc. to EN 61000-6-4, EN 61000-6-2 and Low Voltage Directive acc. to EN 61131-2 Electrical Safety: EN 50178, IEC 61131-2, UL 508 (Note! UL 508 not valid for PM858, PM862) Hazardous location: UL 60079-15 (Note! UL 60079-15 not valid for PM858, PM862)					
TÜV Approval	No	No	No	No	No	No
Emission	Tested according to EN 61000-6-4 EMC – Generic Emission Standard, Part 2 – Industrial Environment					
Immunity	Tested according to EN 61000-6-2 EMC – Generic Immunity Standard, Part 2 – Industrial Environment					
Dimensions	Width 119 x Height 186 x Depth 135 mm (4.7 x 7.3 x 5.3 in.)					
Weight (including base)	1100 g (2.4 lbs)	1100 g (2.4 lbs)	1200 g (2.6 lbs)	1100 g (2.4 lbs)	1200 g (2.6 lbs)	1200 g (2.6 lbs)