DATA SHEET

AC 800M for Compact Product Suite

Outline of all modules

AC 800M is a family of rail-mounted modules, consisting of CPU:s, communication modules, power supply modules and various accessories. There are several CPU modules to choose from, ranging from medium processor power and low cost to high processor power and support for full redundancy.

For updated information regarding AC 800M hardware please visit our Hardware Selector. In the selector you can compare different communication modules, S800 IO modules, module termination units, AC 800M controllers, power supplies, voters, panels and also print your own pdf files.

www.compacthardwareselector.com

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.					
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

Features / CPUs	PM851A	PM856A	PM858	PM860A	PM861A	PM862
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	0 el. + 7 optical	NA	0 el. + 7 optical	7 optical
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/s2 in 11 ms, 20 g in 3 ms					

Features / CPUs	PM851A	PM856A	PM858	PM860A	PM861A	PM862
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)

Features / CPUs	PM864A	PM866A	PM891
Processor Unit	**PM864AK01 incl:** 1 PM864A CPU and required optional items **PM864AK02 incl:** 2 PM864AK01	**PM866AK01 incl:** 1 PM866A CPU and required optional items **PM866AK02 incl:** 2 PM866AK01	**PM891K01 incl:** 1 PM891 CPU and required optional items **PM891K02 incl:** 2 PM891K01
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.		
High Integrity Controller	No	No	No
Clock frequency	96 MHz	133 MHz	450 MHz
Memory (RAM) From 5.1 FP4	32 MB	64 MB	256 MB
RAM available for application	23.522 MB	51.389 MB	208.985 MB
Processor type	MPC862	MPC866	MPC8270
Flash memory for storage of application and data	Yes	Yes	Yes
CPU redundancy support	Yes	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)	0.15 ms	0.09 ms	0.043 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	4 MB	16 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 287/487 mA	typ/max 210/360 mA	typ/max 660/750 mA
Power dissipation typ.	6.9 W	5.1 W	15.8 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		No
Real-time clock stability	100 ppm (approx. 1 h/year)		50 ppm

Features / CPUs	PM864A	PM866A	PM891
Clock synchronization	1 ms between AC 800M controllers by CNCP protocol		
Comm. modules on CEX bus	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. + 7 opt.	1 el. + 7 opt.	0 el. + 7 opt.
I/O clusters on Modulebus with redundant CPU	0 el. + 7 opt.	0 el. + 7 opt.	0 el. + 7 opt.
I/O capacity on Modulebus with non-redundant/ redundant CPU	Max 96/84 I/O modules	Max 96/84 I/O modules	Max 84/84 I/O modules
Modulebus scan rate	0 - 100 ms (actual time depending on number of I/O modules), 0 - 300 for PM865 and PM867		
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)		Not supported
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	2	2	2
Ethernet interface	Ethernet (IEEE 802.3), 10 Mbit/s, RJ-45, female (8-pole)		10/100 Mbit/s
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)		1 for service tool (COM 4)
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		Not supported
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/s2 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 [1]	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 PM866A, PM891) Hazardous location: UL 60079-15 (Note! UL 60079-15 not valid for PM866A, PM891)		
TÜV Approval	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.)		Width 174 x Height 186 x Depth 94 mm
Weight (including base)	1100 g (2.4 lbs)	1200 g (2.6 lbs)	1600 g (3.5 lbs)

[1] For detailed information on each module, please visit: www.compacthardwareselector.com

Supported Communication modules	**PROFIBUS DP**	**RS-232 C**	**MB300**	**INSUM**	**Drivebus**	**S100 I/O**	**Satt I/O**	**MODBUS TCP**	**IEC 61850**
Module	CI854A	CI853	CI855	CI857	CI858	CI856	CI865	CI867	CI868
Protocol	DP-V1 (PA via Linking Device)	MODBUS RTU master, COMLI master/ slave, Siemens 3964R master, User defined protocols	MasterBus 300	IEEE 802.3	ABB's DriveBus	ABB's S100 I/O	ABB's Satt I/O	MODBUS TCP	IEC 61850
Master or slave	Master	Master/slave	Master/ slave	Master	Master	Master	Master	Master/slave	Master
Number of channels	2	2	2	1	1 main, 2 aux	1	1	2	1
Max units on CEX bus	12	12	12	6	2	12	4	12	4
Transmission speed	9.6 - 12,000 kbit/s	75 - 19 200 b/s	10 Mbit/s, 200 Datasets/s	10 Mbit/s	4 Mbit/s	-	-	10/100 Mbit/s (Ch1), 10 Mbit/s (Ch2)	10/100 Mbit/s
Cable redundancy	Yes	No	Yes	No	No	No	No	No	No
Module redundancy	Yes	No	No	No	No	No	No	Yes	No
Hot Swap	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Connectors	DB female (9-pin)	RJ-45 female (8-pin)	RJ-45 female (8-pin)	RJ-45 female (8-pin)	Fiberoptic	Miniribbon (36-pin)	BNC	RJ-45 female (8-pin)	RJ-45 female (8-pin)
24 V current consumption	typ 190 mA	typ 100 mA	typ 150 mA	typ 150 mA	typ 200 mA	typ 200 mA	typ 120 mA	typ 160 mA	typ 160 mA
Protection class	IP20 according to EN60529, IEC 529								
Certification									
– CE-marked	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
– UL 508	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
– UL 60079-15 (Class 1 Zone 2)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dimensions	Width 58 x Height 186 x Depth 135 mm (2.3 x 7.3 x 5.3 in.)								
Weight (including base)	700 g (1.5 lbs)	520 g (1.2 lbs)	700 g (1.5 lbs)	600 g (1.3 lbs)	700 g (1.5 lbs)	600 g (1.3 lbs)	600 g (1.3 lbs)	700 g (1.5 lbs)	700 g (1.5 lbs)

Supported Communication modules	AF100	PROFINET IO	EtherNet/IP DeviceNet
Module	CI869	CI871	CI873
Protocol	Advant Fieldbus 100	PROFINET IO	EtherNet/IP DeviceNet (via LD800DN)
Master or slave	Master/Slave	Master	Master
Number of channels	2	1	1
Max units on CEX bus	4	12	4
Transmission speed	Up to 500 Kbit/s	10/100 Mbit/s	10/100 Mbit/s
Cable redundancy	Yes	No	No
Module redundancy	Yes	No	No
Hot Swap	Yes	Yes	Yes
Connectors	Phoenix (4-pin)	RJ-45 female (8-pin)	RJ-45 female (8-pin)
24 V current consumption	typ 160 mA	typ 160 mA	typ 160 mA
Protection class	IP20 according to EN60529, IEC 529		
UL 508	Yes	Yes	Yes
UL 60079-15 (Class 1 Zone 2)	Yes	Yes	Yes
Dimensions	Width 58 x Height 186 x Depth 135 mm (2.3 x 7.3 x 5.3 in.)		
Weight (including base)	700 g (1.5 lbs)	700 g (1.5 lbs)	700 g (1.5 lbs)

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