

DATA SHEET

AC 800M and Communication interfaces

Compact Product Suite

Outline of all modules

AC 800M is a family of rail-mounted modules, consisting of CPUs, 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 (Classic)
Article number	3BSE066485R1 (PM851AK01)	3BSE066490R1 (PM856A)	3BSE082895R1 (PM858K01) 3BSE082896R1 (PM858K02)	3BSE066495R1 (PM860AK01)	3BSE018157R1 (PM861K01) 3BSE018160R1 (PM861K02)
Processor Unit	PM851AK01 incl: 1 PM851A CPU and required optional items.	PM856AK01 incl: 1 PM856A CPU and required optional items.	PM858K01 incl: 1 PM858 CPU and required optional items. PM858K02 incl: 2 PM858K01	PM860AK01 incl: 1 PM860A CPU and required optional items.	PM861AK01 incl: 1 PM861A CPU and required optional items PM861AK02 incl: 2 PM861AK01
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/SD853/SD854 Power Supply, SS832 Voting Unit, Mains Breaker Kit.				
Clock frequency	24 MHz	24 MHz	33 MHz	48 MHz	48 MHz
Memory (RAM)	8 MB	8 MB	16MB	8 MB	16 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
From 5.1 FP4	6.253 MB	10.337 MB		10.346 MB	
Processor type	MPC860	MPC860	MPC866	MPC860	MPC860
Flash memory for storage of application and data	Yes	Yes	Yes	Yes	Yes
CPU redundancy support	No	No	Yes	No	Yes

Features / CPUs	PM851A	PM856A	PM858	PM860A	PM861A (Classic)
Switch over time in red. conf.	-	-	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	-
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
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	180/300 mA	210/360 mA	180/300 mA	250/430 mA
Power dissipation typ.	4.32 W	4.32 W	5.1 W	4.32 W	6.0 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
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.
I/O clusters on Modulebus with redundant CPU	NA	NA	0 el. + 7 opt.	NA	0 el. + 7 opt.
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
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
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	<ul style="list-style-type: none"> • Operating +5 to +55 °C (+41 to +131 °F) • Storage -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)				

Features / CPUs	PM851A	PM856A	PM858	PM860A	PM861A (Classic)
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 ⁽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 PM858, PM862) Hazardous location: cULus Class 1, Zone 2, AEx nA IIC T4, ExnA IIC T4Gc X (Note! UL 60079-15 not valid for PM858, PM862) RoHS compliance: EN 50581:2012 WEEE compliance: DIRECTIVE/2012/19/EU				
TÜV Approval	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)

(1) For detailed information on each module, please visit: www.compacthardwareselector.com

Features / CPUs	PM862	PM864A (Classic)	PM866A	PM891
Article number	3BSE076940R1 (PM862K01) 3BSE081636R1 (PM862K02)	3BSE018161R1 (PM864K01) 3BSE018164R1 (PM864K02)	3BSE076939R1 (PM866AK01) 3BSE081637R1 (PM866AK02)	3BSE053241R1 (PM891K01) 3BSE053242R1 (PM891K02)
Processor Unit	PM862K01 incl: 1 PM862 CPU and required optional items. PM862K02 incl: 2 PM862K01	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/SD853/SD854 Power Supply, SS832 Voting Unit, Mains Breaker Kit, SM811 Supervisory Module and SM812 Supervisory Module.			
Clock frequency	67 MHz	96 MHz	133 MHz	450 MHz
Memory (RAM) From 5.1 FP4	32 MB	32 MB	64 MB	256 MB
RAM available for application	23.521 MB	23.522 MB	51.389 MB	208.985 MB
Processor type	MPC866	MPC862	MPC866	MPC8270
Flash memory for storage of application and data	Yes	Yes	Yes	Yes
CPU redundancy support	Yes	Yes	Yes	Yes
Switch over time in red. conf.	Max 10 ms	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 (HI Integrity controllers 10 ms)			
Flash PROM for firmware storage	4 MB	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)	210/360 mA	287/487 mA	210/360 mA	660/750 mA
Power dissipation typ.	5.1 W	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	PM862	PM864A (Classic)	PM866A	PM891
Clock synchronization	1 ms between AC 800M controllers by CNCP protocol			
Comm. modules on CEX bus	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. + 7 opt.	1 el. + 7 opt.	1 el. + 7 opt.	0 el. + 7 opt.
I/O clusters on Modulebus with redundant CPU	7 optical	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 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	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	<ul style="list-style-type: none"> • Operating +5 to +55 °C (+41 to +131 °F) • Storage -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 ⁽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: cULus Class 1, Zone 2, AEx nA IIC T4, ExnA IIC T4Gc X (Note! UL 60079-15 not valid for PM866A, PM891) RoHS compliance: EN 50581:2012 WEEE compliance: DIRECTIVE/2012/19/EU			
TÜV Approval	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.)			Width 174 x Height 186 x Depth 94 mm (6.9 x 7.3 x 3.7 in.)
Weight (including base)	1200 g (2.6 lbs)	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

Features	BC810	BC820
Article number	3BSE031155R1	3BSE071500R1
Redundancy	Yes	Yes
High Integrity	Yes	No
Performance	Hot swap supported	Hot swap supported
Power supply	Inputs designated L+ and L- 24 V nominal, variation between 19.2 V DC and 30 V DC.	
Power consumption +24 V typ/max	50 mA typical (70 mA max)	120 mA typical (200 mA max)
Power dissipation typ.	1.2 W typical	2.9 W typical
Temperature, Operating	+5 to +55 °C (+41 to +131 °F)	
Temperature, Storage	-40 to +70 °C (-40 to +158 °F)	
Relative humidity	5 to 95 %, non-condensing	
Protection class	IP20 according to EN60529, IEC 529	
CE- marking	Yes	
Electrical Safety	UL508	UL508
Hazardous location	cULus Class 1, Zone 2, AEx nA IIC T4, ExnA IIC T4Gc X	
Marine certificates	ABS, BV, DNV-GL, LR, RS, CCS	ABS, BV, DNV-GL, LR
RoHS compliance	EN 50581:2012	
WEEE compliance	DIRECTIVE/2012/19/EU	
Height	185 mm (7.3 in.)	185 mm (7.3 in.)
Width	59 mm (2.9 in.)	59 mm (2.9 in.)
Depth	127.5 mm (5.0 in.)	127.5 mm (5.0 in.)
Weight	1.5 kg (3.31 lbs) (BC810K02 package)	1.4 kg (3.1 lbs) (BC820K02 package)

Supported Communication modules	RS-232 C	PROFIBUS DP	MB300	S100 I/O	INSUM	Drivebus
Module	CI853	CI854A (Classic) CI854B	CI855	CI856	CI857	CI858
Article number	3BSE 018103R1	3BSE030220R1 (CI854A (Classic)) 3BSE069449R1 (CI854B)	3BSE018106R1	3BSE026055R1	3BSE018144R1	3BSE018135R1
Protocol	MODBUS RTU master, COMLI master/ slave, Siemens 3964R master, User defined protocols	DP-V1 (PA via Linking Device)	MasterBus 300	ABB's S100 I/O	IEEE 802.3	ABB's DriveBus
Master or slave	Master/slave	Master	Master/slave	Master	Master	Master
Number of channels	2	2	2	1	1	1 main, 2 aux
Max units on CEX bus	12	12	12	12	6	2
Transmission speed	75 - 19 200 b/s	9.6 - 12,000kbit/s	10 Mbit/s, 200 Datasets/s	-	10 Mbit/s	4 Mbit/s
Cable redundancy	No	Yes	Yes	No	No	No
Module redundancy	No	Yes	No	No	No	No
Hot Swap	Yes	Yes	Yes	Yes	Yes	Yes
Connectors	RJ-45 female (8-pin)	DB female (9-pin)	RJ-45 female (8-pin)	Miniribbon (36-pin)	RJ-45 female (8-pin)	Fiber optic
24 V current consumption	typ 100 mA	typ 190 mA	typ 150 mA	typ 200 mA	typ 150 mA	typ 200 mA
Protection class	IP20 according to EN60529, IEC 529					
Certification ⁽¹⁾						
• CE-marked	Yes	Yes	Yes	Yes	Yes	Yes
• UL 508	Yes	Yes	Yes	Yes	Yes	Yes
• UL 60079-15 (Class 1 Zone 2)	Yes	Yes	Yes	Yes	Yes	Yes
• RoHS compliance	EN 50581:2012					
• WEEE compliance	DIRECTIVE/2012/19/EU					
Dimensions	Width 58 x Height 186 x Depth 135 mm (2.3 x 7.3 x 5.3 in.)					
Weight (including base)	520 g (1.2 lbs)	700 g (1.5 lbs)	700 g (1.5 lbs)	600 g (1.3 lbs)	600 g (1.3 lbs)	700 g (1.5 lbs)

(1) For detailed information on each module, please visit: www.compacthardwareselector.com

Supported Communication modules	Satt I/O	MODBUS TCP	IEC 61850	AF100	PROFINET IO	EtherNet/IP DeviceNet
Module	CI865	CI867/CI867A	CI868/CI868A	CI869	CI871/CI871A	CI873/CI873A
Article number	3BSE040795R1	3BSE043660R1 (CI867) 3BSE092689R1 (CI867A)	3BSE048845R1 (CI868) 3BSE092691R1 (CI868A)	3BSE049110R1	3BSE056767R1 (CI871) 3BSE092693R1 (CI871A)	3BSE056899R1 (CI873) 3BSE092695R1 (CI873A)
Protocol	ABB's Satt I/O	MODBUS TCP	IEC 61850	Advant Fieldbus 100	PROFINET IO	EtherNet/IP DeviceNet (via LD800DN)
Master or slave	Master	Master/slave	Master	Slave	Master	Master
Number of channels	1	2 (CI867A 1 channel)	1	2	1	1
Max units on CEX bus	4	12	4	4	12	4
Transmission speed	-	10/100 Mbit/s (Ch1), 10 Mbit/s (Ch2)	10/100 Mbit/s	Up to 500 Kbit/s	10/100 Mbit/s	10/100 Mbit/s
Cable redundancy	No	No	No	Yes	No	No
Module redundancy	No	Yes	No	Yes	Yes	Yes
Hot Swap	Yes	Yes	Yes	Yes	Yes	Yes
Connectors	BNC	RJ-45 female (8-pin)	RJ-45 female (8-pin)	Phoenix (4-pin)	RJ-45 female (8-pin)	RJ-45 female (8-pin)
24 V current consumption	typ 190 mA	typ 160 mA	typ 160 mA	typ 160 mA	typ 160 mA	typ 160 mA
Protection class	IP20 according to EN60529, IEC 529					
Certification ⁽¹⁾						
• CE-marked	Yes	Yes	Yes	Yes	Yes	Yes
• UL 508	Yes	Yes	Yes	Yes	Yes	Yes
• UL 60079-15 (Class 1 Zone 2)	Yes	Yes	Yes	Yes	Yes	Yes
• RoHS compliance	EN 50581:2012					
• WEEE compliance	DIRECTIVE/2012/19/EU					
Dimensions	Width 58 x Height 186 x Depth 135 mm (2.3 x 7.3 x 5.3 in.)					
Weight (including base)	600 g (1.3 lbs)	700 g (1.5 lbs)	700 g (1.5 lbs)	700 g (1.5 lbs)	700 g (1.5 lbs)	700 g (1.5 lbs)

(1) For detailed information on each module, please visit: www.compacthardwareselector.com