

# 2019

ABB PM864AK01 3BSE018161R1 Datasheet



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# AC 800M with Compact Control Builder 5.1

The AC 800M for Compact Control Builder is a family of process PLCs built as rail-mounted modules, consisting of CPU:s, communication modules, power supply modules and various accessories. There are 7 CPU:s to choose from, ranging from medium processor power and low cost to high processor power and support for full redundancy.



Features / Process PLCs (requires firmware version $\geq$ 5.1)	PM851	PM856	PM860	PM861A	PM864A	PM866	PM891
<b>Processor Unit</b>	<b>PM851K01</b> incl: 1 PM851 CPU and required optional items	<b>PM856K01</b> incl: 1 PM856 CPU and required optional items	<b>PM860K01</b> incl: 1 PM860 CPU and required optional items	<b>PM861AK01</b> incl: 1 PM861A CPU and required optional items <b>PM861AK02</b> incl: 2 PM861A CPUs and required optional items	<b>PM864AK01</b> incl: 1 PM864A CPU and required optional items <b>PM864AK02</b> incl: 2 PM864A CPUs and required optional items	<b>PM866K01</b> incl: 1 PM866 CPU and required optional items <b>PM866K02</b> incl: 2 PM866 CPUs and required optional items	<b>PM891K01</b> incl: 1 PM891 CPU and required optional items <b>PM891K02</b> incl: 2 PM891K01 CPUs and required optional items
<b>Optional items</b> (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 CEX-bus Interconnection unit, TK851V010 Connection cable, SD831/SD832/SD833/SD834 Power Supply, SS832 Voting Unit, Mains Breaker Kit.						
<b>Clock frequency</b>	24 MHz	24 MHz	48 MHz	48 MHz	96 MHz	133 MHz	450 MHz
<b>Memory (RAM)</b>	8 MB	8 MB	8 MB	16 MB	32 MB	64 MB	256 MB
<b>RAM available for application</b>	2.622 MB	2.622 MB	2.622 MB	7.864 MB	24.237 MB	51.672 MB	199.650 MB
<b>Processor type</b>	MPC860	MPC860	MPC860	MPC860	MPC862	MPC 866	MPC8270
<b>Flash memory for storage of application and data</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>CPU redundancy support</b>	No	No	No	Yes	Yes	Yes	Yes
<b>Switch over time in red. conf.</b>	-	-	-	max 10 ms	max 10 ms	max 10 ms	max 10 ms
<b>Performance, 1000 boolean operations (a:=b and c)</b>	0.46 ms	0.46 ms	0.23 ms	0.23 ms	0.15 ms	0.09 ms	0.043 ms
<b>No. Process PLCs per control projects</b>	32						
<b>No. of applications per control project</b>	1024						

Features / Process PLCs	PM851	PM856	PM860	PM861A	PM864A	PM866	PM891
No. of applications per AC 800M	32						
No. of programs per application	64						
No. of tasks per AC 800M	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 180/300 mA	typ/max 180/300 mA	typ/max 180/300 mA	typ/max 250/430 mA	typ/max 287/487 mA	typ/max 210/360 mA	typ/max 660/750 mA
Power dissipation	typ 5.0 W	typ 5.0 W	typ 5.0 W	typ 6.0 W	typ 6.9 W	typ 5.1 W	typ 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
Clock synchronization	1 ms between AC 800M process PLCs by CNCP protocol						
Comm. modules on CEX bus	1	12	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)						
S800 I/O clusters on Modulebus (local I/O)	1 electrical + 1 optical	1 electrical + 7 optical	1 electrical + 7 optical	1 electrical + 7 optical	1 electrical + 7 optical	1 electrical + 7 optical	0 electrical + 7 optical
S800 I/O capacity on Modulebus (local I/O) (Non redundant configuration only)	max 24 I/O modules	max 96 I/O modules	max 96 I/O modules	max 96/84 I/O modules	max 96/84 I/O modules	max 96/84 I/O modules	max 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)						Not supported
S800 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	2
Ethernet interface	Ethernet (IEEE 802.3), 10 Mbits/s, RJ-45 female (8-pole)						10/100 Mbit/s
Control Network protocol	MMS (Manufacturing Message Service)						
Control Network capacity	Up to 23 000 Boolean/s (<475 boolean/message) with 50 % CPU application load Up to 140 000 Boolean/s (<475 boolean/message) with <5 % CPU application load						
Recommended Control Network backbone	100 Mbit/s - 1 Gbit/s Ethernet (IEEE 802.3)						
Redundancy Control Network switchover time	1 sec						
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, 300-19 200 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, 9600 baud, RJ-45 female (8-pole), opto isolated, no RTS-CTS support						
Temperature							
- Operating	+5 to +55 °C (+41 to +131 °F)						
- Storage	-25 to +70 °C (-13 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	G3 compliant according to ISA-S71.04						
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 <sup>2</sup> 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						

Features / Process PLCs	PM851	PM856	PM860	PM861A	PM864A	PM866	PM891
<b>Certification</b>							
- CE-marked	Meets EMC directive 89/336/EEC acc. to EN 50081-2 and EN 61000-6-2						
- UL-listed	UL 508 and UL 60079-15 (Class 1 Zone 2)						
<b>Electromagnetic Compatibility</b>	Tested according to IEC/EN 61131-2 Product Standard, Programmable Controller – Industrial Environment						
<b>Emission</b>	Tested according to EN 50081-2 EMC – Generic Emission Standard, Part 2 – Industrial Environment						
<b>Immunity</b>	Tested according to EN 61000-6-2 EMC – Generic Immunity Standard, Part 2 – Industrial Environment						
<b>Dimensions</b>	W 119 x H 186 x D 135 mm (4.7 x 7.3 x 5.3 in.)						W 174 x H 186 x D 94 mm
<b>Weight (including base)</b>	1100 g (2.4 lb)	1100 g (2.4 lb)	1100 g (2.4 lb)	1200 g (2.6 lb)	1200 g (2.6 lb)	1200 g (2.6 lb)	1600 g (3.5 lb)

<b>OPC Server</b>	
<b>OPC Server for AC 800M</b>	40 000 variables
<b>OPC Server update rate</b>	0.1 s - 1 hour (1 s default)
<b>OPC Servers per AC 800M</b>	Max 3
<b>OPC clients per OPC server</b>	Max 5
<b>Event queue in AC 800M per OPC client</b>	Up to 3000 events
<b>AC800M transm. speed to OPC server</b>	36-86 events/sec, 113-143 data messages/sec (PM864, 50 % load, 1 500 subscription queue)

Supported Communication modules	PROFIBUS DP	RS-232 C	MB300	INSUM	DriveBus	Satt I/O	S100 I/O	MODBUS TCP
<b>Module</b>	CI854A	CI853	CI855	CI857	CI858	CI865	CI856	CI867
<b>Protocol</b>	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 Satt I/O	ABB's S100 I/O	MODBUS TCP
<b>Master or slave</b>	Master	Master/slave	Master/slave	Master	Master	Master	Master	Master/slave
<b>Number of channels</b>	2	2	2	1	1 main, 2 aux	1	1	2
<b>Max units on CEX bus</b>	12	12	12	6	2	4	12	12
<b>Transmission speed</b>	9.6 - 12 000 kbits/s	300 - 19 200 b/s	10 Mbits/s, 200 Data-sets/s	10 Mbits/s	4 Mbits/s	-	-	10/100 Mbit/s (Ch1), 10 Mbit/s (Ch2)
<b>Cable redundancy</b>	Yes	No	Yes	No	No	No	No	No
<b>Module redundancy</b>	Yes	No	No	No	No	No	No	Yes
<b>Hot Swap</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Connectors</b>	DB female (9-pin)	RJ-45 female (8-pin)	RJ-45 female (8-pin)	RJ-45 female (8-pin)	Fiber-optic	BNC	Miniribbon (36-pin)	RJ-45 female (8-pin)
<b>24 V current consumption</b>	typ 190 mA	typ 100 mA	typ 150 mA	typ 150 mA	typ 150 mA	typ 120 mA	typ 120 mA	typ 160 mA
<b>Protection class</b>	IP20 according to EN60529, IEC 529							
<b>UL 508</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>UL 60079-15 (Class 1 Zone 2)</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Dimensions</b>	W 58 x H 186 x D 135 mm (2.3 x 7.3 x 5.3 in.)							
<b>Weight (including base)</b>	700g (1.5 lb.)	520g (1.2 lb.)	700g (1.5 lb.)	600g (1.3 lb.)	700g (1.5 lb.)	600g (1.3 lb.)	600g (1.3 lb.)	700g (1.5 lb.)