



ABB SAFT166APC 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
Processor Unit	PM851K01 incl: 1 PM851 CPU and required optional items	PM856K01 incl: 1 PM856 CPU and required optional items	PM860K01 incl: 1 PM860 CPU and required optional items	PM861AK01 incl: 1 PM861A CPU and required optional items PM861AK02 incl: 2 PM861A CPUs and required optional items	PM864AK01 incl: 1 PM864A CPU and required optional items PM864AK02 incl: 2 PM864A CPUs and required optional items	PM866K01 incl: 1 PM866 CPU and required optional items PM866K02 incl: 2 PM866 CPUs and required optional items	PM891K01 incl: 1 PM891 CPU and required optional items PM891K02 incl: 2 PM891K01 CPUs and required optional items
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 CEX-bus Interconnection unit, TK851V010 Connection cable, SD831/SD832/SD833/SD834 Power Supply, SS832 Voting Unit, Mains Breaker Kit.						
Clock frequency	24 MHz	24 MHz	48 MHz	48 MHz	96 MHz	133 MHz	450 MHz
Memory (RAM)	8 MB	8 MB	8 MB	16 MB	32 MB	64 MB	256 MB
RAM available for application	2.622 MB	2.622 MB	2.622 MB	7.864 MB	24.237 MB	51.672 MB	199.650 MB
Processor type	MPC860	MPC860	MPC860	MPC860	MPC862	MPC 866	MPC8270
Flash memory for storage of application and data	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CPU redundancy support	No	No	No	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)	0.46 ms	0.46 ms	0.23 ms	0.23 ms	0.15 ms	0.09 ms	0.043 ms
No. Process PLCs per control projects	32						
No. of applications per control project	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 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						

Features / Process PLCs	PM851	PM856	PM860	PM861A	PM864A	PM866	PM891
Certification							
- 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)						
Electromagnetic Compatibility	Tested according to IEC/EN 61131-2 Product Standard, Programmable Controller – Industrial Environment						
Emission	Tested according to EN 50081-2 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	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
Weight (including base)	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)

OPC Server	
OPC Server for AC 800M	40 000 variables
OPC Server update rate	0.1 s - 1 hour (1 s default)
OPC Servers per AC 800M	Max 3
OPC clients per OPC server	Max 5
Event queue in AC 800M per OPC client	Up to 3000 events
AC800M transm. speed to OPC server	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
Module	CI854A	CI853	CI855	CI857	CI858	CI865	CI856	CI867
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 Satt I/O	ABB's S100 I/O	MODBUS TCP
Master or slave	Master	Master/slave	Master/slave	Master	Master	Master	Master	Master/slave
Number of channels	2	2	2	1	1 main, 2 aux	1	1	2
Max units on CEX bus	12	12	12	6	2	4	12	12
Transmission speed	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)
Cable redundancy	Yes	No	Yes	No	No	No	No	No
Module redundancy	Yes	No	No	No	No	No	No	Yes
Hot Swap	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)	Fiber-optic	BNC	Miniribbon (36-pin)	RJ-45 female (8-pin)
24 V current consumption	typ 190 mA	typ 100 mA	typ 150 mA	typ 150 mA	typ 150 mA	typ 120 mA	typ 120 mA	typ 160 mA
Protection class	IP20 according to EN60529, IEC 529							
UL 508	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UL 60079-15 (Class 1 Zone 2)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dimensions	W 58 x H 186 x D 135 mm (2.3 x 7.3 x 5.3 in.)							
Weight (including base)	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.)