M1 processor adapters		M1E processor adapters			
					
512 K bit		544 K bit			
512 K bit		512 K bit	1 M bit	512 K bit	1 M bit
18 K bit					
240 K bit		–	200 K bit	–	200 K bit
24 K bit					
1 ms/K		0.3 ms/K			
32 MHz		50 MHz			
8192					
Up to 2048 I/O points with Modbus Plus option adapter	80 with ProWORX 128 with Concept	Up to 2048 I/O points with Modbus Plus option adapter		80 with ProWORX 128 with Concept	
Power supply on-board the I/O bases					
1 RS 232 Modbus 1 RS 485 Modbus	1 RS 232 Modbus 1 I/O bus	1 Ethernet (Transparent Ready class B10) 1 RS 485 Modbus		1 Ethernet (Transparent Ready class B10) 1 I/O bus	
Compatible		–	Supplied	–	Supplied
171CCC78010	**171CCC76010**	**171CCC98020**	**171CCC98030**	**171CCC96020**	**171CCC96030**
67		68	69	68	69

Modicon Momentum automation platform
M1/M1E processor adapters

Presentation

The Momentum M1/M1E processor adapters are based on the Modicon 984 family of products. You can mount these Adapters on Momentum I/O Bases to provide intelligence to the I/O. The processor adapter can quickly and independently solve logic, control its own local I/O (discrete or analog), and communicate to other control entities through one of a number of Momentum communication options. The processor adapter can turn an ordinary I/O Base into a PID controller or high-speed logic solver.

You can create your own controller from a number of different bases, and with other Momentum options, network your local logic solvers together into an intelligent subsystem as part of a larger Modicon application, or into a standalone, integrally networked system with local controllers with extended I/O. A controller can be added to the different bases and combined with other Momentum options, which can then be networked together in an intelligent subsystem as part of a larger Modicon application. The Momentum I/O Base can be made a standalone, integrally networked system using local controllers with extended I/O.

The Momentum M1/M1E processor adapters are meant to stand alone, be mounted on a single Momentum I/O Base (with its own extended Momentum I/O connected to the I/O Bus Port on 171CCS76000 processor adapter), or be mounted together with one of a variety of Momentum Option Adapters, providing different network capabilities, a time-of-day clock, and a battery back-up system. The built-in flash memory is used to store the executive, allowing for convenient field upgrades of the operating system. The flash memory can also be used to back up your applications, creating a local copy of your program to be loaded back into RAM, thus providing original program file integrity. On 171CCS78000 processor adapter, the RS 485 port can be used to connect to dedicated devices such as an operator interface panel or a marquee, or used in a master/slave RS 485 network to connect to multiple devices.

The processor adapters can be programmed with Modsoft version 2.5 or greater, Concept version 2.1 or greater, ProWORX NxT version 2.0 or greater or ProWORX 32.

The following table describes the characteristics of the Momentum M1/M1E processor adapters.

Characteristics

Processor Adapter	RAM Memory	Flash Memory	Scan Time	Modbus Port	I/O Bus Port	IEC Executive
171CCS70000	64 K	256 K	1 ms/K	1 x RS 232C	–	–
171CCS70010	64 K	256 K	0.63 ms/K	1 x RS 232C	–	–
171CCS76000	256 K	256 K	0.63 ms/K	1 x RS 232C	1 x I/O Bus	Compatible
171CCS78000	64 K	256 K	1 ms/K	1 x RS 232C 1 x RS 485	–	–
171CCC76010	512 K	512 K	1 ms/K	1 x RS 232C	1 x I/O Bus	Compatible
171CCC78010	512 K	512 K	1 ms/K	1 x RS 232C 1 x RS 485	–	Compatible
171CCC96020	544 K	512 K	.3 ms/K	1 x Ethernet	1 x I/O Bus	–
171CCC96030	544 K	1 Mb	.3 ms/K	1 x Ethernet	1 x I/O Bus	Supplied
171CCC98020	544 K	512 K	.3 ms/K	1 x RS 485 1 x Ethernet	–	–
171CCC98030	544 K	1 Mb	.3 ms/K	1 x RS 485 1 x Ethernet	–	Supplied

Programming Software for Momentum

Momentum processor adapters have a number of PC programming software options available. You can program your processor Adapter via the Modbus RS 232 serial port, or with an M1E processor via Ethernet network.

If using a Modbus Plus Option Adapter in conjunction with a Processor Adapter, you can program via an SA85 card installed in a PC and connected to the same Modbus Plus network.

For more specific information, see the appropriate Momentum, ProWORX or Concept programming software literature and documentation.

Characteristics: pages 66 to 69
References: page 70

Modicon Momentum automation platform
M1/M1E processor adapters

Environment

Type of processor			171CCC76010	171CCC78010
Temperature	Operating	**°C**	0 to 60	
	Storage	**°C**	- 40 to 85	
Relative humidity			5 to 96% (non-condensing)	
Altitude		**m**	2000 (6,500 ft.)	
Mechanical withstand (immunity)	To vibrations		57 to 150 Hz @ 1 gn 10 to 57 Hz @ 0.075 mm d.a	
	To shocks		± 15 gn peak, 11 ms, half sine wave	
Designed to meet			UL, e, CUL, FM Class 1 Div. 2, NEMA 250 Type 1, and IP 20 conforming to IEC52	

Characteristics

Central processing unit (CPU)			x 86 based	
Word length		**bit**	16	
Material			Lexan	
Voltage		**VDC**	5.0 V (supplied by I/O Base)	
Voltage tolerance			± 5% (as supplied by I/O Base)	
RFI immunity/EMI susceptibility/Electrostatic discharge			Meets e mark for open equipment. Open equipment should be installed in an industry standard enclosure, with access restricted to qualified service personnel	
Di-electric strength			RS 232 is non-isolated from logic common	
Indicator lights			Run and communication active	
Power source			Power supply on-board the Momentum I/O Base	
Clock speed		**MHz**	32	
Scan time		**ms/K**	1	
Communication ports	1		Dedicated RS 232C Modbus	
	2		I/O Bus (derivative of INTERBUS)	Dedicated RS 485 Modbus
Capacity	984 LL program memory	**K**	18	
	IEC program memory	**K**	240	
	Data memory	**K**	24	
	Discrete I/O		8192 In/8192 Out (A total of 8192 bits can be configured for discrete and analog I/O, any mix up to the stated limits)	
	Register I/O		26048 In/26048 Out (A total of 26048 words can be configured for discrete and analog I/O, any mix up to the stated limits)	
	I/O limit		8192 bits max.: - 4096 In/4096 Out on I/O Bus - I/O can be extended using a Modbus Plus option Adapter and Peer Cop (2048 In/Out)	- I/O local on Modbus - I/O can be extended using a Modbus Plus option Adapter and Peer Cop (2048 In/Out)
I/O bus addressing			80 I/O drops with ProWORX 128 I/O drops with Concept	–

References:
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Modicon Momentum automation platform
M1/M1E processor adapters

171CCS7●0●0

171CCC7●010

171CCC9●020 / 30

M1/M1E processor adapters

RAM Memory	Communication Port(s)	Clock Speed	Reference	Weight kg (oz.)
64 K	1 Modbus	20 MHz	**171CCS70000**	0.042(1.5)
	1 Modbus	32 MHz	**171CCS70010**	0.042(1.5)
	2 Modbus	20 MHz	**171CCS78000**	0.042(1.5)
256 K	1 Modbus, 1 I/O Bus	32 MHz	**171CCS76000**	0.042(1.5)
512 K	1 Modbus, 1 I/O Bus	32 MHz	**171CCC76010**	0.042(1.5)
	2 Modbus	32 MHz	**171CCC78010**	0.042(1.5)
544 K (1)	1 Modbus, 1 Ethernet	50 MHz	**171CCC98020**	0.042(1.5)
	1 Ethernet, 1 I/O Bus	50 MHz	**171CCC96020**	0.042(1.5)
544 K, IEC Exec (1)	1 Modbus, 1 Ethernet	50 MHz	**171CCC98030**	0.042(1.5)
	1 Ethernet, 1 I/O Bus	50 MHz	**171CCC96030**	0.042(1.5)

Connection accessories and documentation

Description	Type	Sold in lot of	Reference	Weight kg (oz.)
RS 232 communication cable RJ45 to RJ45	1 m (3 ft.)	–	**110XCA28201**	–
	3 m (10 ft.)	–	**110XCA28202**	–
	6 m (20 ft.)	–	**110XCA28203**	–
RS 485 cable connector T for RJ45	–	–	**170XTS04000**	–
RS 485 terminating (RJ45 resistor plugs)	–	2	**170XTS02100**	–
D-shell adapters	RJ45 to 9-pin (for AT serial port)	–	**110XCA20300**	–
	RJ45 to 25-pin (for XT serial port)	–	**110XCA20400**	–
Ground clamp	–	–	**424244739**	–
ConneXium cabling system	Ethernet cabling for M1E processor adapters	–	See page 78	–
Concept software	–	–	See page 88	–
ProWORX software	–	–	See page 93	–
Processor adapters user guide	–	–	See page 97	–

(1) Transparent Ready Class B10 (embedded standard Web server - standard Ethernet TCP/IP communication services). For more details, consult our catalog "Transparent Ready, Ethernet TCP/IP and Web technologies".

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