M3-60A: DeviceNet and dual serial port module

▶ Controller may be configured as master, slave, or both
▶ Monitor mode identifies and interrogates any device on the DeviceNet network; nodes selectable via on-board switches

▶ Supports bit-strobe, poll, change-of-state, cyclic, and explicit messaging125K, 250K, and 500K baud rates are supported
▶ ODVA compliant

General specifications

DeviceNet specifications	
Number of ports	1
Connector	Pluggable screw-down 5-pin
Baud rate	125, 250, 500 KBaud
MAC ID range	0-63
Maximum cable trunk	500 m
Operating mode	Master, slave, both
Message formats	Poll, change-of-state (COS), cyclic, explicit messaging, bit-strobe
Compliance	ODVA
Serial specifications	
Number of ports	2
Connectors	RJ-11
Type	1x RS232, 1x RS485
Max speed	115 KBaud
Default speed	19.2 KBaud
Other specifications	
Module size	1 rack slot (0.75"/19 mm)
Bus power required (5 VDC)	0.26 mA
Isolation rating	500 VDC
Operating temperature	
Horizontal installation	0 - 50°C
Vertical installation	0 - 45°C
Storage temperature	-25 – 85°C
Humidity	5 – 95% non-condensing

Actual size

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Minimum hardware revision	0, A
Minimum firmware revision	1.02
Minimum operating system revision	5.00.90
Documentation number: 950-536001-002	

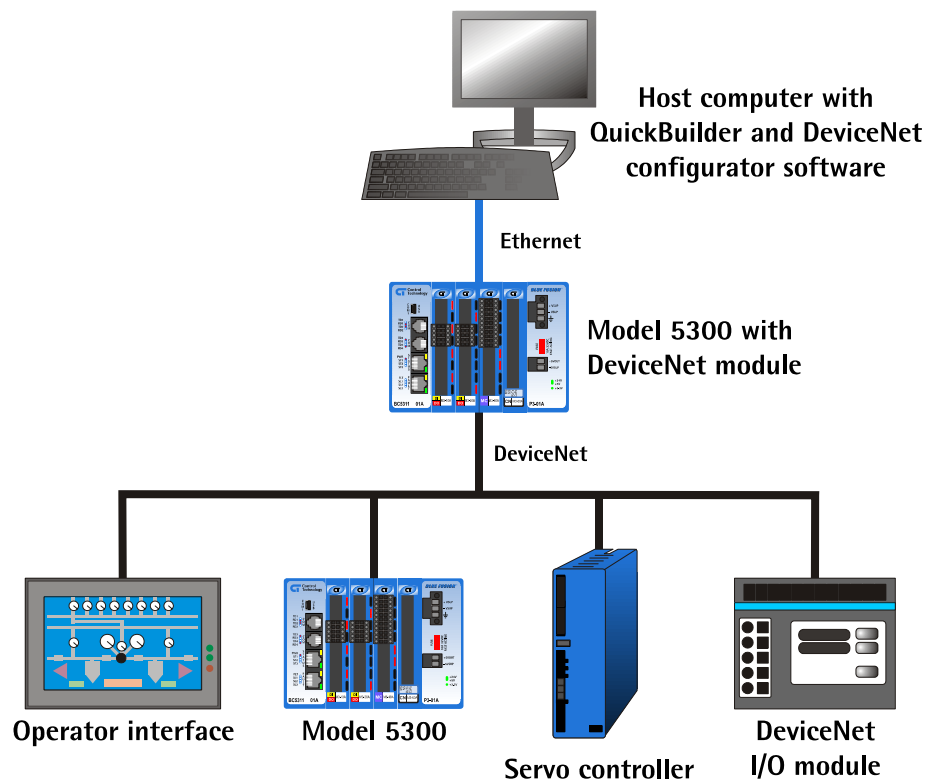| DeviceNet and serial modules	CN	M3-60A

Operating modes

The M3-60A DeviceNet and serial module can be configured as a DeviceNet master, DeviceNet slave, or as both master and slave on the same network. In master mode, CTC's DeviceNet configurator software is used to create a network configuration and load it into the DeviceNet master residing on a Model 5300 automation controller. The master module then establishes links to each device on the network and masks the devices' I/O points and other resources locally for program access using QuickBuilder.

The configurator also has a monitor mode that identifies and interrogates any device on a DeviceNet network through the M3-60A module. This mode is especially useful when a device's documentation or electronic data sheet (EDS) is not readily available. Monitor mode can establish links, execute link commands, send and receive data, and generate a network traffic log.

In slave mode, with the M3-60A located in any Model 5300 automation controller, the I/O points and other controller resources may be mapped to any number of commercially available DeviceNet master (or Scanner) systems. The Model M3-60A supports bit-strobe, poll, change-of-state (COS), cyclic, and explicit messaging. All three baud rates (125K, 250K, and 500K) are available, and node selection is available with simple on-board switches.

The Model M3-60A is equipped with a 32-bit processor, allowing operation of the DeviceNet network and both serial ports at full rated speed without encumbering the controller's CPU. Complete messages are assembled locally on the Model M3-60A module and are then passed to the controller's processor for servicing.

5300

Host computer with
QuickBuilder and DeviceNet
configurator software

Ethernet

Model 5300 with
DeviceNet module

DeviceNet

Operator interface   Model 5300   DeviceNet
I/O module

Servo controller

M3-60A: DeviceNet and dual serial port module

Electrical specifications

Parameter	Min	Typ	Max
Current draw from on-board +5V supply			250 mADC
RS–232 operating characteristics			
RS-232 transmitters		±9 VDC	±12 VDC
RS-232 receivers	±3 VDC		±12 VDC
Common mode voltage range	–10 VDC		+10 VDC
RS–485 operating characteristics			
RS-485 common mode rejection	-7 VDC		+12 VDC
RS-485 hysteresis		70 mVDC	
Combined impedance is less than 1 RS–485 load, up to 32 devices on a bus			
Power requirements (from controller)			
Logic supply (5V)		150 mA	175 mA
Logic supply (3.3V)		75 mA	100 mA
Auxiliary supply (24V from 24V bus)		0 mA	0 mA
DeviceNet power	11 VDC	24 VDC	28 VDC
DeviceNet load		100 mA	150 mA
DeviceNet miswiring protection			24 VDC

DeviceNet and serial modules

CN	M3-60A

Connector pinouts

COM2 RS485 pinouts
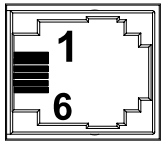
Pin #	RS485
1	–
2	TxRxB
3	COM3
4	COM3
5	TxRxA
6	–

COM1 RS232 pinouts
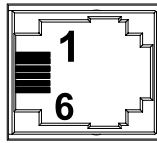
Pin #	Signal
1	RTS2
2	Tx2
3	COM2
4	COM2
5	Rx2
6	CTS2

M3-60A Module

COM2

COM1

DeviceNet

CN M3-60A
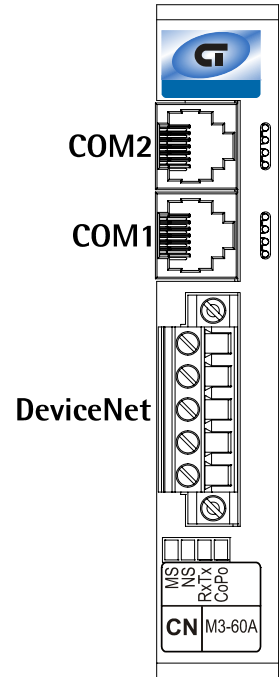
DeviceNet pinouts
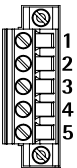
Pin #	Signal
1	V+ (Red)
2	CANH (White)
3	Shield
4	CAN-L (Blue)
5	V– (Black)

COM LEDs
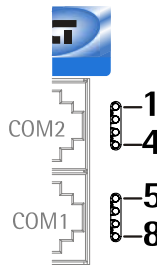
LED	Signal
COM2:	
1	CTS
2	RTS
3	Rx data
4	Tx data
COM1:	
5	CTS
6	RTS
7	Rx data
8	Tx data

COM2 1–4

COM1 5–8

Module LEDs
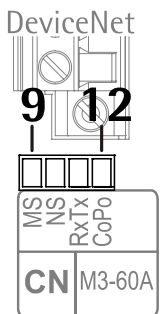
LED	Name	States	
9	MS (Module status)	Off	No power
		Green	Normal operating state
		Flashing green	Device in standby or needs commissioning due to configuration missing, incomplete or incorrect
		Flashing red	Recoverable fault
		Red	Unrecoverable fault
		Flashing red/green	Device in self test
10	NS (Network status)	Off	Device is not powered (MS LED will be off in this case) or not online
		Green	Link OK. Online, connected
		Flashing green	Online, not connected
		Flashing red	Connection timeout
		Red	Failed communication device
		Flashing red/green	Communication faulted and received an Identity Comm Fault Request
11	RxTx	Off	Idle
		Green	Receiving
		Red	Transmitting
12	CoPo	Off	No change
		Green	Poll data updating
		Red	COS data updating

DeviceNet

9 12

MS NS RxTx CoPo

CN M3-60A