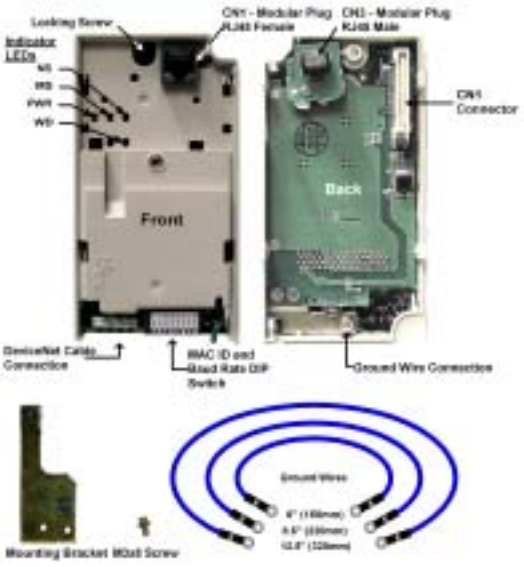
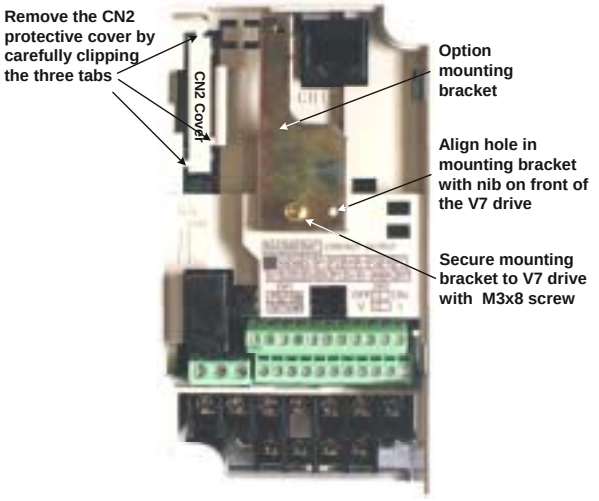
DeviceNet™ Option Card and Ring Kit CM052

- ❑ Unpack the *V7 DeviceNet Option* and verify that all components are present and undamaged.

Part	Qty.
V7 DeviceNet Option Card and Ring Kit	1
Mounting Bracket	1
M3×8 Screw	1
6” Ground Wire (150mm)	1
8.5” Ground Wire (220mm)	1
12.5” Ground Wire (320mm)	1
Installation Guide (IG.V7.13)	1

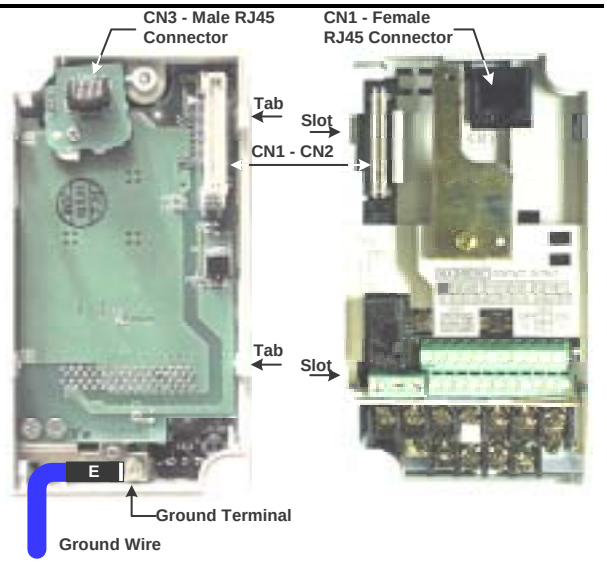


- ❑ Connect power to the drive and verify that the drive functions correctly. This includes running the drive from the operator keypad. Refer to the ***V7 Technical Manual*, TM.V7.01**, for information on connecting and operating the drive.
- ❑ Installing the *V7 DeviceNet Option* obscures the I/O, power and motor terminals on the V7 drive. It is necessary to make these connections prior to installing the *V7 DeviceNet Option*. Check that all connections have been made and are working correctly before continuing.
- ❑ Remove power from the drive and wait for the charge lamp to be completely extinguished. Wait at least five additional minutes for the drive to be completely discharged. Measure the DC BUS voltage and verify that it is at a safe level.



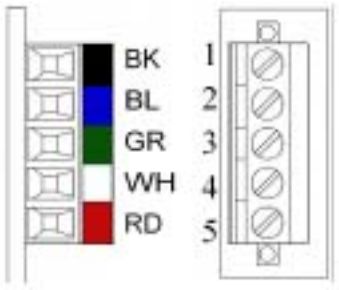
- ❑ Prepare the drive for the *V7 DeviceNet Option*.
  - Remove the V7 operator keypad and terminal cover.
  - Remove the plastic protective cover from over the CN2 connector and install the option mounting bracket provided on to the drive.

- ❑ Connect the ground wire provided to the ground connector on the back of the *V7 DeviceNet Option*. Select the ground wire of appropriate length for the drive.
- ❑ Mount the *V7 DeviceNet Option* onto the drive
  - Align the CN1 connector on the back of the option with its mating CN2 connector on the front of the drive.
  - Simultaneously align the CN3 connector, the male RJ45 connector, on the back of the option with the CN1 connector, the female RJ45 connector, on the front of the drive.
  - Align the tabs on the option with their corresponding slots on the front of the drive.
  - Press the option and the drive together until the tabs lock into their associated slots.
  - Secure the option to the V7 drive by tightening the locking screw at the top-center of the option.
  - Connect the ground wire from the *V7 DeviceNet Option* to ground terminal on the V7 drive.



❑ Connect to the DeviceNet network as shown in the figure to the right.

Terminal	Color	Name	Wire Color	Description
1	Black	V-	Black	Communication GND
2	Blue	CAN_L	Blue	CAN Data Low
3	Green	Shield	Bare	Cable Shield
4	White	CAN_H	White	CAN Data High
5	Red	V+	Red	Communications +24Vdc



❑ Set the *V7DeviceNet Option* Baud Rate

Set the Baud Rate for the *V7 DeviceNet Option* to the network baud rate by setting DIP switches DR1 (1) and DR0 (2) as shown in the figure below. The baud rate must match the baud rate of the DeviceNet master (PC/PLC/Scanner) in order for the connection to function properly.

❑ Set the *V7 DeviceNet Option* MAC ID

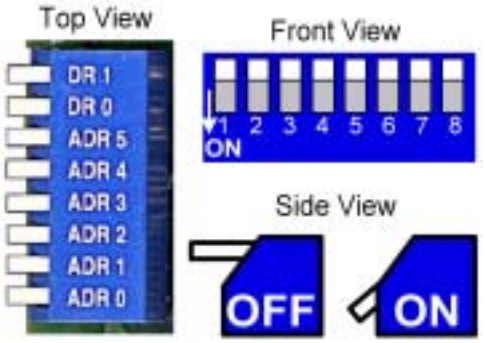
Set the MAC ID of *V7 DeviceNet Option* by setting DIP switches ADR 5 (3) through ADR 0 (8) as shown in the table below. Each device on the network must have a unique MAC ID, typically between 3 and 62. Addresses 0 and 1 are usually reserved for DeviceNet masters, address 2 for diagnostic/monitoring equipment and address 63 for vendor specific functions in some systems. Check the network schematic to verify the MAC ID setting.

Sw	MAC ID																														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
ADR 5 (3)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ADR 4(4)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADR 3(5)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
ADR 2(6)	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
ADR 1(7)	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
ADR 0(8)	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1

0 = OFF 1 = ON

Sw	MAC ID																														
	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
ADR 5 (3)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADR 4(4)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADR 3(5)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
ADR 2(6)	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
ADR 1(7)	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
ADR 0(8)	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1

0 = OFF 1 = ON



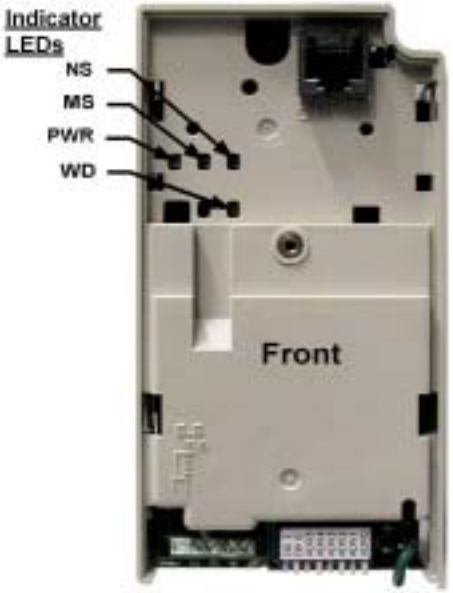
Sw	Baud Rate			
	125kbps	250kbps	500kbps	N/A
DR1 (1)	0	0	1	1
DR0 (2)	0	1	0	1

❑ Verify LED Status

Refer to the table on the following page for a complete listing of LED states.

LED Power-Up Sequence		
LED	Color	Condition
PWR	GREEN	Steady
WD	RED	On for 0.25 sec
WD	NONE	Off for 0.25 sec
WD	GREEN	Blink at 0.1ms interval
MS	GREEN	On for 0.25 sec
MS	RED	On for 0.25 sec
MS	GREEN	On for 0.25 sec
NS	GREEN	On for 0.25 sec
NS	RED	On for 0.25 sec

LED normal operation Status	
LED	Condition
PWR	GREEN
MS	GREEN
NS	FLASH GREEN (no communication)
	REEN (communicating)
WD	FLASH GREEN



- ❑ Remove power from the drive and wait for the charge lamp to be completely extinguished. Wait at least five additional minutes for the drive to be completely discharged. Measure the DC BUS voltage and verify that it is at a safe level.
- ❑ Reinstall all drive covers and the operator keypad.
- ❑ Apply power to the drive and wait for the power-up sequence to complete..

  Set parameters b1-01 and b1-02 to their appropriate values. Refer to the table to the right for available b1-01 and b1-02 values.

Param	Function	Data	+/- Limits - Description	Dflt
b1-01	Reference Selection	0	Digital Operator	1
		1	Terminals	
		2	Serial Communication	
		3	**Option PCB (DeviceNet Option)**	
		4	Pulse Input (F7 and G7 Only)	
b1-02	Operation Method Selection	0	Digital Operator	1
		1	Terminals	
		2	Serial Communication	
		3	**Option PCB (DeviceNet Option)**	

- ❑ Install the EDS File and Configure the Drive on the DeviceNet Network

  The EDS file can be obtained from the CD that was included with the drive or downloaded from **www.drives.com**. It is recommended that the EDS file be downloaded from **www.drives.com** to be sure that the latest version is used. Install the EDS file into the DeviceNet configuration tool (i.e. RSNetworx® for DeviceNet). There is a separate EDS file for each drive model, verify that the correct EDS file has been installed for the drive model configured. Refer to the documentation that came with the DeviceNet master configuration tool for information on installing EDS files and configuring a DeviceNet node.

  Note: The EDS files located on the CD, CD.V7J7.01, or downloaded from **www.drives.com** will be in “zip” format and will need to be un-zipped to a temporary directory prior to installation.

❑ LED Status Indicators and Diagnostics

LED Display				Content	Cause	Solution
PWR	MS	NS	WD			
Off	Off	Off	Off	Power Off	■ The drive is not powered	■ Check the drive main circuit wiring ■ Turn power on
					■ The option board is not connected correctly or securely to the drive	■ Turn Off drive power ■ Check the connection of the option board to the 2CN connector on the drive ■ Turn power on
Solid Green	Off	Off	Solid Red	CPU Fault	■ The option board CPU is being initialized or has a fault	■ Cycle power to the drive ■ If the fault persists, replace the option board
Solid Green	Flashing Green	Off	Flashing Green	Option Board Initialization	■ Option board Initialization	■ Wait for initialization to complete ■ If initialization does not complete within several seconds, cycle power to the drive ■ If initialization does not complete after power cycling the drive, replace the option card
Solid Green	Flashing Red	Off	Flashing Green	Recoverable Option Board Fault	■ An incorrect DIP switch setting or other recoverable fault	■ Check baud rate setting (DIP switches DR1 and DR0), then cycle power to the drive ■ If the fault persists, replace the option board
Solid Green	Solid Red	Off	Flashing Green	Unrecoverable Option Board Fault	■ An un-recoverable fault	■ Cycle power to the drive ■ If the fault persists, replace the option board
Solid Green	Solid Red	Solid Red	Flashing Green	Baud Rate Setting Fault	■ DR1 and DR0 are both set to ON	■ Set the baud rate switches correctly ■ Cycle power to the drive
Solid Green	Solid Green	Flashing Red	Flashing Green	Communication Timeout	■ A master communication timeout	■ Check network termination ■ Check network wiring ■ Check that the communication bus wiring is separated from the main circuit wiring
Solid Green	Solid Green	Solid Red	Flashing Green	Communication Error	■ Unrecoverable communication fault	■ Check that other device's MAC ID is not unique per the network ■ Check that the master is configured correctly ■ Check that the end termination resistors are correctly connected to the communication bus ■ Check that the communication device is correctly connected per wiring diagrams ■ Check that the communication bus wiring is separated from the main circuit wiring
Solid Green	Solid Green	Flashing Green	Flashing Green	Normal Not Communicating	■ Connected to a DeviceNet network but not communicating	■ Send explicit message or I/O message from the master as necessary
Solid Green	Solid Green	Solid Green	Flashing Green	Normal Communicating	■ Connected to a DeviceNet network and communicating normally	-

Note: 1: Do not install remove or handle a network card connected to the drive with power applied to the drive. Remove power from the drive and wait for the charge lamp to be completely extinguished. Wait at least five additional minutes for the drive to be completely discharged. Measure the DC BUS voltage and verify that it is at a safe level.
2: When cycling power to the drive make sure that the drive is fully discharged prior to reapplying power.

Copies of this Installation Guide along with all technical manuals in pdf format and support files may be obtained from either the CD supplied with the drive or from **www.drives.com** . Printed copies of any Yaskawa manuals may be obtained by contacting the nearest Yaskawa office. Information on DeviceNet may be obtained from the ODVA at **www.ODVA.**org .

Reference documents:

***V7 Technical Manual* – TM.V7.01**
***V7 MODBUS® Technical Manual* – TM.V7.11**
***V7 DeviceNet™ Technical Manual* – TM 4320**
***V7 DeviceNet™ Option Installation Guide* – IG.V7.13**

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