

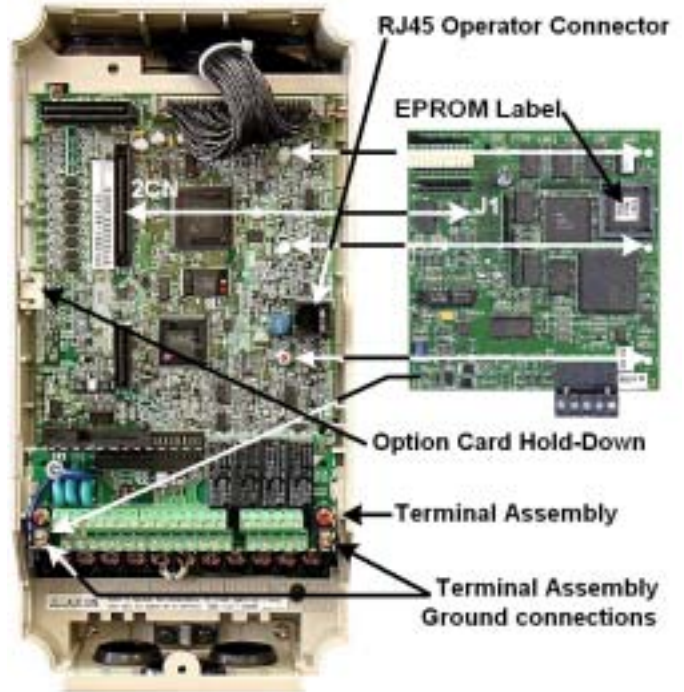
- This document applies to the Yaskawa GPD515/G5, F7, G7 and P7 drives.
- Unpack the *DeviceNet Option (CM05x)* and verify that all components are present and undamaged. Check the EPROM label to verify that the *DeviceNet Option (CM05x)* card is the correct card for the drive.

| Drive | Kit Number | Option Board Number | EPROM Label Designation | Qty. |
|---|------------|---------------------|-------------------------|------|
| G5 | CM053 | 46S03318-001x | VST80007x | 1 |
| F7 | CM056 | 46S03318-002x | VST80003x | 1 |
| G7 | CM057 | 46S03318-003x | VST80004x | 1 |
| P7 | CM058 | 46S03318-004x | VST80005x | 1 |
| DeviceNet Option (CM05x) Installation Guide (IG.AFD.14) | | | | 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 appropriate drive technical manual for information on connecting and operating 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.

- Remove the operator keypad and drive cover.
 - Remove the operator keypad and loosen any screws on the front of the terminal cover. Simultaneously pushing the locking tabs on the bottom right and left sides of the terminal cover inward, pull the bottom edge of the terminal cover outward.
 - Loosen any screws on the front of the control cover. Simultaneously pushing the locking tabs on the bottom right and left sides of the control cover inward, pull the bottom edge of the control cover outward. The drive control card should be visible.
 - Remove the option card hold-down on the left side of the drive case by carefully compressing the top and bottom until it becomes free of its holder. Lift it out.



- Mount the *DeviceNet Option (CM05x)* on the drive.
 - Align the J1 connector on the back of the *DeviceNet Option (CM05x)* with its mating 2CN connector on the drive control card.
 - Align the three standoffs on the front of the drive control board with the three holes on the right side of the *DeviceNet Option (CM05x)*.
 - Press the *DeviceNet Option (CM05x)* firmly onto the drive 2CN connector and standoffs until the J1 connector is fully seated on 2CN and the drive standoffs have locked into their appropriate holes.
 - Replace the option card hold down.
 - Connect the ground wire from the ground terminal E on the option card to a ground terminal on the terminal assembly.

Mounting the *DeviceNet Option* on an F7 drive

- Apply power to the drive and verify that the drive functions correctly.

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

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



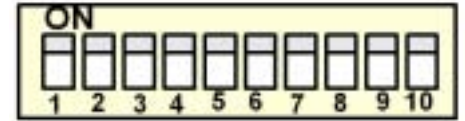
Set the *DeviceNet Option (CM05x)* Baud Rate

Set the Baud Rate for the *DeviceNet Option (CM05x)* to the network baud rate by setting DIP switches 1 and 2 as shown in the figure to the right. 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 *DeviceNet Option (CM05x)* MAC ID

Set the MAC ID of *DeviceNet Option (CM05x)* by setting DIP switches 3 through 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 |
| 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 |
| 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 |
| 5 | 0 | 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 |
| 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 |
| 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 |
| 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 |



| Sw | Baud Rate | | | |
|----|-----------|---------|---------|-----|
| | 125kbps | 250kbps | 500kbps | N/A |
| 1 | 0 | 0 | 1 | 1 |
| 2 | 0 | 1 | 0 | 1 |

| Sw | State | Function |
|----|-------|-----------------|
| 9 | 0 | Always Set to 0 |
| | 1 | Reserved |

| Master Idle Operation | | |
|-----------------------|-------|--------------|
| Sw | State | Function |
| 10 | 0 | EF0 Disabled |
| | 1 | EF0 Enabled |

A DeviceNet master is placed in "idle" mode if it remains connected but stops communicating. Sw 10 setting determines the drive response to a master in "idle" mode.

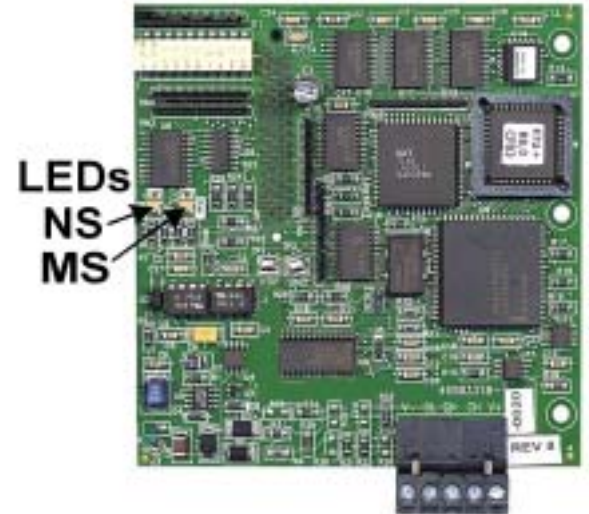
| Sw | MAC ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----|--------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 |
| 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 |
| 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 |
| 5 | 0 | 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 |
| 6 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 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 |
| 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 |

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 |
| 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 | |
| MS | Green | |
| NS | Flash Green (No Communication) | |
| | Green (Communicating) | |



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.

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) | |
| 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 master configuration tool for information on installing EDS files and configuring a DeviceNet node.

Note: The EDS files located on the CD 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.

www.datasheet4u.com

LED Status Indicators and Diagnostics

| MS LED | Condition | Solution |
|----------------|------------------------|---|
| Off | Power Off | <ul style="list-style-type: none"> ■ Check the drive main circuit wiring ■ Check the connection of the option board to the 2CN connector on the drive ■ Turn power on |
| Flashing Red | Minor Fault | <ul style="list-style-type: none"> ■ Check network termination ■ Check network wiring ■ Check baud rate ■ Check that the communication bus wiring is separated from the main circuit wiring |
| Solid Red | Unrecoverable Fault. | <ul style="list-style-type: none"> ■ Check if MAC ID is unique per the network ■ Check baud rate ■ Check if the master is correctly configured ■ Check if the termination resistors are correctly connected to the communication bus ■ Check if the communication device is correctly connected per wiring diagrams ■ Check if the communication bus wiring is separated from the main circuit wiring |
| Flashing Green | In Standby | <ul style="list-style-type: none"> ■ Check that the DeviceNet master has been configured for the drive |
| Solid Green | Normal – Communicating | - |

| NS LED | Condition | Solution |
|----------------|----------------------------|--|
| Off | Power Off | <ul style="list-style-type: none"> ■ Check the drive main circuit wiring ■ Check the connection of the option board to the 2CN connector on the drive ■ Turn power on |
| | Incomplete Initialization | <ul style="list-style-type: none"> ■ Wait for initialization to complete |
| Flashing Red | Connection Time-Out | <ul style="list-style-type: none"> ■ Check that the DeviceNet master is connected and on-line |
| Solid Red | Critical Link Failure | <ul style="list-style-type: none"> ■ Check if MAC ID is unique per the network ■ Check baud rate ■ Check that the DeviceNet master is configured correctly ■ Check that the termination resistors are correctly installed at the ends of the communication bus ■ Check that the communications bus is not terminated any place other than at the ends ■ Check that the drive is correctly connected per wiring diagrams ■ Check that the communication bus wiring is separated from the main circuit wiring |
| Flashing Green | Normal – Not Communicating | <ul style="list-style-type: none"> ■ DeviceNet master is in “idle” mode ■ Send an explicit or I/O message from the master as necessary |
| Solid Green | Normal – Communicating | - |

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 manual may be obtained by contacting the nearest Yaskawa office. Information on DeviceNet may be obtained from www.ODVA.org

Reference documents:

G5 Technical Manual – TM.4515
GPD515/G5 MODBUS® Technical Manual – TM.4025
F7 Drive User Manual – TM.F7.01
F7 Drive Programming Manual – TM.F7.02
F7 Drive Parameter Access Technical Manual – TM.F7.11
G7 Drive Technical Manual – TM.G7.01
P7 Drive User Manual – TM.P7.01
P7 Drive Programming Manual – TM.P7.02
DeviceNet Option (CM05x) Installation Guide – IG.AFD.14
F7, G7, P7 DeviceNet Option (CM05x) Technical Manual – TM.AFD.14
G5 DeviceNet Option (CM053) Technical Manual – TM4556

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