

Caterpillar CCM (M50) Protocol

Connector Configuration Parameters

Unit Number (hex)

The default Unit Number, sometimes called Module Identifier (MID) that will be used when defining CCM Broadcast Lists and Requesting Fault Code Broadcast. Can be overridden by entering a non-zero value in the high byte of the first word of the Broadcast list setup data. Common Unit Numbers are:

\$0E	G3400 EIS & G3500 EIS
\$12	G3500 Air-to-Fuel Ratio
\$13	G3600
\$21	3500B Marine Engine Controller, Port
\$22	3500B Marine Engine Controller, Starboard
\$24	3500B Marine Engine Controller, Single or Center
\$21-\$26,\$28, \$29	3500B Generator Set 1 thru 8
\$24	G3600A+ (ADEM III)
\$58-\$5F	EMCP II Generator Set Unit Number
\$6D	G3600 ICSM Odd Bank
\$6E	G3600 ICSM Even Bank
\$61	CCM

Separator Character

PID data values returned in a broadcast list can be optionally separated with a Separator Character. Select Comma, Space or None. This field is only used in the Auto Initialization Sequence when broadcast lists are being defined.

Fault Time (5s/cnt)

The rate that Fault Codes will be broadcast from the CCM. The time will be 5 seconds per count. To receive a Fault Code Broadcast every 30 seconds enter a 6 in this field. Entering 0 will disable Fault Code Broadcasts.

RTS ON DelayX10ms

Enter a number from 0 to 255 (0 to 2.55 seconds) to delay sending a message after turning on Request To Send (RTS). Commonly used with modem communication to allow additional time for the modems to synchronize.

RTS OFF DelayX10ms

Enter a number from 0 to 255 (0 to 2.55 seconds) to keep RTS on after a message has been sent. Commonly used to keep a radio on for a short period of time at the end of a message.

Handshake Option

If Full Handshake is selected the Omnii-Comm will assert RTS and wait for CTS before sending a message. RTS will be turned off after the message has been sent. If Constant Carrier is selected the Omnii-Comm will assert RTS when it sends its first message and leave it asserted. It will wait for CTS before sending. If Ignore CTS is selected, RTS will be asserted before sending a message and removed at the end of the message. The CTS input will be ignored. If No Handshake is selected, RTS will be asserted when the Omnii-Comm sends its first message. RTS will not be turned off at the end of the message. The CTS input will be ignored. If Activity Monitor is selected, the Omnii-Comm will check the DCD input before sending a message. If DCD is ON, the Omnii-Comm will delay sending the message.

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Option Bit Parameters

Use Radio Key

Check this box if Dial up Modem is connected to the port. Click on the "Edit Dial Up" button to set up the modem options.

CR or CR/LF

Selects the ending characters for a Broadcast List. Check the box to have the CCM insert a line feed at the end of each Broadcast List. This field is only used in the Auto Initialization Sequence when Broadcast Lists are being defined.

ASCII/Binary

Selects the format of the Broadcast Lists data. If the box is checked data will be returned in Binary format (non printable). If the box is unchecked data will be returned in printable ASCII format. This field is only used in the Auto Initialization Sequence when Broadcast Lists are being defined.

Enable Auto Init

Enables the Auto Initialization Sequence when checked.

EMCP II Equipped

Check this box if the Omnii-Comm is being used in a system that has EMCP II control panels.

Use New Data Flags

Uncheck this box if you want the Omnii-Comm to set a bit in the database, or users PLC, to indicate the receipt of a new Broadcast List. Check this box to disable this feature. Note, if Use New Data Flags is unchecked, the number of messages to the PLC is doubled.

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Protocol Extension Table Parameters

Enable the Extension Table and click on the Edit Ext Table button to edit the Protocol Extension Table for Caterpillar. You must use the Extension Table. The Caterpillar Protocol Extension Table fields are:

CMD Flag Data Type and Flag Offset

The first two fields define the data type and starting offset that will be used to store the Command Flags. The Command Flags are monitored by the Omnii-Comm and when the state changes from OFF to ON, a command is built using information read from the Command Data words. For Caterpillar the Command Bits are:

Bit	Function
0	Activate Broadcast List
1	Deactivate Broadcast List
2	Program Broadcast List
3	Single Parameter Read
4	Request Fault Codes
5	Special Parameter Command
6	Single Parameter Write
7	Start Automatic Initialization Sequence

CMD Data Data Type and Starting Offset

These two fields are used to specify what Data Type and Starting Offset will be used to store the information required to build a command. The Command Data should be set up before setting the Command Trigger bit ON. Caterpillar requires 32 bytes of Command Data.

Word	Function
00	Expect Delimiters in Broadcast List 1 bit per list, 1=use delimiters
01	List Number
02	List Time, .5 seconds per count
03	List Flags
04-	11 PIDs for List, up to 8 PIDs
12	Single Parameter Read IID
13	Single Parameter Read Flags
14	Fault Time, 5 seconds per count
15	Fault Flags
16	Unit Number for Single Parameter Read or Write
17	Parameter byte count for IID00 and IID34
18-31	Parameter data for ID00 and IID34 (1 to 27 bytes)

Data Available Data Type and Offset

These two fields are used to specify the Data Type and starting Offset that will be used to store the New Data Available bits, if used.

Reply Data type and Offset

These two fields are used to specify the Data Type and starting Offset that will be used to store information received from the CCM. The first 20 words are fixed:

Word	Function
00	Command Response Data
01	Single Parameter Read Data
02-	19 Fault Codes, 2 words per Fault Code, up to 9 Fault Codes.

List 1 thru List 8 Data Offset

These entries are used to specify the Starting Offset in the Reply Data Type that will be used to store each of the Broadcast Lists received from the CCM.

Poll Table Read Parameters

INVALID SELECTION. Cannot read from Caterpillar port. CCM Broadcast Data is returned per Protocol extension table (see Connector Selections Screen)

Poll Table Write and Error Parameters

INVALID SELECTION. Cannot Write to Caterpillar port. Use Command Control bits to send messages to CCM.

Note: System Error Protocol Definitions are the same as Poll Table Write and Error Parameters

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Database Extension Table Parameters

Index	Name	Size:Max Length
0	Type 00	2:256
1	Type 01	2:256
2	Type 02	2:256
3	Type 03	2:256
4	Type 04	2:256
5	Type 05	2:256
6	Type 06	2:256
7	Type 07	2:32
8	Type 08	2:32
9	Type 09	2:32
10	Type 10	2:64
11	Type 11	2:32
12	Type 12	2:32
13	Type 13	2:32
14	Type 14	2:32
15	Type 15	2:32
16	Type 16	2:32
17	Type 17	2:32
18	Type 18	2:32
19	Type 19	2:32
20	Type 20	2:256
21	Type 21	2:256