



PEAVEY®

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**SYSTEM EXCLUSIVE
COMMANDS
SUPPLEMENT**

For:

**CEQ™ 28,
CEQ™ 28R**

This supplement contains the format of the system exclusive commands used by the CEQ™ 28 and CEQ™ 28R. Each of the system exclusive commands sent by the CEQ 28 to control the CEQ 28R has a corresponding response message. In many cases the CEQ 28R responds by sending the requested data, but it may be just an "Acknowledgement message" that confirms the receipt of data. The response message sent by the CEQ 28R is listed in the description of each of the messages that it receives.

The range of valid values is also listed for most of the data in the message descriptions. The description of the bit functions of status bytes and other data range information is listed at the end of this section. In all cases, though, data values cannot exceed 127 (hex 7F).

The format below, used for all system exclusive commands, is as follows:

Hexadecimal

F0	Start of System Exclusive
00	PEAVEY'S Manufacturer ID
00	
1B	
04	PEAVEY Product ID (CEQ 28 family)
0N	MIDI channel #
0X	Command byte
xx	Data bytes
F7	End of Exclusive (EOX)

The header used for all commands consists of:

F0 00 00 1B 04 0N where '0N' is channel (0-15)

COMMANDS

	CEQ 28	CEQ 28R
1 LOAD A PRESET	S, R	S, R
2 DUMP A PRESET	R	R
3 LOAD ALL PRESETS	S, R	S, R
4 DUMP ALL PRESETS	R	R
5 LOAD CURRENT EQ AND STATUS BYTES	R	S
6 DUMP EQ STATUS ON CHANNEL '0x'	S	R
7 LOAD A COMPARE PRESET	R	S
8 DUMP A COMPARE PRESET ON CHANNEL '0x'	S	R
9 SYSTEM EXCLUSIVE PROGRAM CHANGE	S	R
10 SYSTEM EXCLUSIVE CONTROLLER CHANGE	S	R
11 LOAD STATUS BYTES	S	R
12 SET EQ FLAT	S	R
13 SAVE CURRENT EQ TO PRESET ON AND NAME	S	R
14 LOAD CURRENT VCA OFFSET FROM CEQ 28R TO CEQ 28	S, R	S
15 CHANGE VCA OFFSET VALUE AND TRANSMIT NEW VALUE TO CEQ 28	S, R	R
16 RESET MEMORY TO FACTORY PRESETS	S	R
17 LOAD PRESET #, LABEL, AND ADD PROG# AND LABEL	R	S
18 DUMP STATUS AND LABEL FOR PRESET nr AND ADD PROGRAM	S	R
19 ACKNOWLEDGE RECEIPT OF TRANSMISSION	R	S
20 LOAD ADD PROG LABEL FOR RECALL DISPLAY	R	S
21 DUMP ADD PROG LABEL FOR RECALL DISPLAY	S	R
22 LOAD COMPARE EQ CURVE FLAG	S	R
23 SEND CURRENT EQ TO CEQ 28R	S	R

(S = Sends, R = Receives)

The command bytes and data formats are listed below:

1. LOAD A PRESET (87 BYTES)

When received, the preset data is loaded into receiving unit.

01 Load preset command byte
nn Preset # to be loaded (0-127)
DATA 78 BYTES (39 data bytes sent a nibble at a time)
F7 EOX

2. DUMP A PRESET (9 BYTES)

When received, the unit sends the requested preset data in a load preset format (see above).

02 Dump preset command byte
nn Preset # to be dumped (0-127)
F7 EOX

3. LOAD ALL PRESETS (9993 BYTES)

When received, all 128 presets are loaded with the new data.

03 Load all presets command byte
DATA 9984 BYTES (128 presets * 39 bytes * 2 nibbles)
Presets are dumped in order (0-127)
CKSUM 2's compliment of the Modulo 128 sum of the DATA bytes (CKSUM = -1 * Modulo 128 sum of data)
The SUM of the received CKSUM and the Modulo 128 sum of the received data should equal zero.
F7 EOX

4. DUMP ALL PRESETS (8 BYTES)

When received, the unit dumps all program presets in the load all presets format above.

04 Dump all presets command byte
F7 EOX

5. LOAD CURRENT EQ AND STATUS BYTES (95 BYTES)

When received by the CEQ 28, the current EQ and status bytes are stored for use in creating the displays for controlling the CEQ 28R.

05 Load current EQ and status bytes command byte
DATA 39 bytes Current EQ sent as bytes in preset format
DATA 39 bytes ADD EQ sent as bytes in preset format
CPRG 1 byte - Current Program Preset # (0-127)
CCAV 1 byte - Continuous controller number for EQ gain and start of EQ slider block (0-92)
CCSB 1 byte - Continuous controller number for subsonic ON/OFF (0-120)
CCRG 1 byte - Continuous controller number for EQ range 6/12 dB (0-120)
STAT1 1 byte - Contains MIDI send/receive enable flags

VER# 4 bytes - CEQ 28R software version # (sent as 4 ASCII chars)

F7 EOX

6. DUMP EQ STATUS ON CHANNEL '0x' (9 BYTES)

When received by CEQ 28R, the unit responds with message 5, "LOAD CURRENT EQ AND STATUS".

06 Dump EQ and Status bytes on channel 0x command byte
0x Respond on channel 0x, x=(0-15)
F7 EOX

7. LOAD A COMPARE PRESET (48 BYTES)

When received by the CEQ 28, the preset is loaded into memory for comparison with the CEQ 28R's current EQ.

07 Load preset command byte
nn Preset # to be loaded (0-127)
DATA 39 BYTES
F7 EOX

8. DUMP A COMPARE PRESET ON CHANNEL '0x' (9 BYTES)

When received by the CEQ 28R, the requested preset is dumped on the channel # contained in the request. Used to set up compare curve display. Responds by sending message 7, "Load a compare preset".

08 Dump a preset on channel 0x command byte
0X Respond on channel 0x, x=(0-15)
nn Preset to dump (0-127)
F7 EOX

9. REMOTE RECALL OF PROGRAM PRESET (13 BYTES)

When received by an CEQ 28R, a program change is initiated. Responds with message 19, "acknowledge."

09 Program change sent via system exclusive command byte
0x Respond on channel 0x, x=(0-15)
0h Preset to load, high nibble (0-8)
0L Preset to load, low nibble (0-15)
(The preset number can range from 0 to 128, 0 to 127 are the normal presets, 128 is the "Last EQ preset")
STAT2 1 byte - Contains MIDI preset status
On Add preset # (0-127)
F7 EOX

10. SYSTEM EXCLUSIVE CONTROLLER CHANGE (11 BYTES)

When received by an CEQ 28R, the appropriate continuous controller is changed to the value received. Responds with message 19 "acknowledge."

0A Continuous controller change sent via system exclusive command byte
0X Respond on channel 0x, x=(0-15)
nn Controller # to change (0-120)
vv Value to set controller to (0-127)
F7 EOX

1. LOAD STATUS BYTES (15 BYTES)

When received by the CEQ 28R, the status bytes are loaded. Responds with message 5, "Load EQ and status bytes."

0B Load Status bytes command byte
0x Respond on channel 0x, x=(0-15)
CCAV 1 byte - Continuous controller number for EQ gain and start of EQ slider black (0-92)
CCSB 1 byte - Continuous controller number for subsonic ON/OFF (0-120)
CCRG 1 byte - Continuous controller number for EQ range 6/12 dB (0-120)
STAT1 1 byte - Contains MIDI send/receive enable flags
STAT2 1 byte - Contains MIDI preset status
ADD# 1 byte - Add Program # (0-127)
F7 EOX

12. SET EQ FLAT (9 BYTES)

When a CEQ 28R receives this command, it sets the EQ flat. Responds with message 5, "Load EQ and status bytes".

0C Set EQ flat command byte
0x Respond on channel 0x, x=(0-15)
F7 EOX

13. STORE CURRENT EQ TO PRESET ON AND NAME xx xx xx xx xx xx xx xx (18 BYTES)

When received by the CEQ 28R, the current EQ settings are stored in the preset whose number is received along with the received user label. Responds with message 19.

0D Store current EQ command byte
0x Respond on channel 0x, x=(0-15)
0n Save to preset On (0-127)
xx 8 bytes - User label field ASCII
F7 EOX

14. LOAD CURRENT VCA OFFSET FROM CEQ 28R TO CEQ 28 (9 BYTES)

When the CEQ 28R receives command 15 (change VCA offset and send value) the CEQ 28R responds with this message (current VCA offset is).

0E Load current VCA offset
dd Value of "Unity" VCA offset (40-80)
F7 EOX

15. CHANGE VCA OFFSET VALUE AND TRANSMIT NEW VALUE TO CEQ 28 (10 BYTES)

Responds with message 14, "LOAD CURRENT VCA OFFSET".

0F Change VCA value
0x Respond on channel 0x, x=(0-15)
dd If dd=58H: Dec Unity
If dd=4AH: Inc Unity
If dd=13H: Set EQ flat then send current value
F7 EOX

16. RESET MEMORY TO FACTORY PRESETS (10 BYTES)

(The command must be received twice.)

The first time the data value must be 39H and the second time, 46H. A timer is started after the receipt of the first message and the second must be received before it times out.

10 Reset memory Command byte
0x Respond on channel 0x, x=(0-15)
dd Data 39H first, 46H second
F7 EOX

17. LOAD PRESET #, LABEL, AND ADD PROG# AND LABEL (28 BYTES)

When received by the CEQ 28, the preset # and its label and the preset number and label that correspond with an add program are stored in the memory page for remote CEQ 28R data. Used to generate, store, and recall page displays.

11 Load preset #'s and labels command byte
0H Preset #, high nibble
0L Preset #, low nibble
ns Preset status byte STAT2
xx Add preset # (0-127)
xx 8 bytes preset label ASCII
F7 EOX

18. DUMP PRESET nn'S STATUS AND LABEL AND ADD PROGRAMS STATUS AND LABEL (11 BYTES)

When received by the CEQ 28R, the command 17 is sent to the CEQ 28.

12 Respond on channel 0x, x=(0-15)
0H Preset number requested, High nibble
0L Preset number requested, Low nibble
F7 EOX

19. ACKNOWLEDGE RECEIPT OF TRANSMISSION (9 BYTES)

When an CEQ 28R receives a command that would not otherwise require a response, this command is transmitted back to confirm receipt of command.

13 Acknowledge receipt of transmission command byte
0s Channel of acknowledging CEQ 28R
F7 EOX

20. LOAD ADD PROG LABEL FOR RECALL DISPLAY (16 BYTES)

When the CEQ 28 receives this command, the label for the RECALL ADD display is loaded into memory.

14 Load add preset's label command byte
xx 8 bytes recall ADD preset user label
F7 EOX

21. DUMP ADD PROG LABEL FOR RECALL DISPLAY (10 BYTES)

When received by the CEQ 28R, the command 20 is sent to the CEQ 28.

- 15 Dump preset nn's status and label command byte
- 0x Respond on channel 0x, x=(0-15)
- nn Preset number requested
- F7 EOX

22. LOAD COMPARE EQ CURVE FLAG (10 BYTES)

When received by the CEQ 28, the Compare flag is changed and acknowledgement message 19 is sent.

- 16 Load compare flag command byte

- 0H Preset number requested, High nibble
- 0L Preset number requested, Low nibble
- F7 EOX

23. LOAD CURRENT EQ (38 BYTES)

When received by the CEQ 28R, the current EQ settings are loaded and message 5 (load EQ and stats) is sent.

- 17 Send current new current EQ to CEQ 28R
- 0X Respond on channel 0x, x=(0-15)
- dd Send 29 Bytes current EQ settings
- F7 EOX

Each program preset consists of the following 39 bytes:

BYTE	DESCRIPTION	RANGE OR FORMAT
1	CC Value for EQ gain	0 - 127
2	CC Value for band 1 (32 Hz)	0 - 127
3	CC Value for band 2 (40 Hz)	0 - 127
4	CC Value for band 3 (50 Hz)	0 - 127
-	-	-
-	-	-
-	-	-
28	CC Value for band 27 (12.5 kHz)	0 - 127
29	CC Value for band 28 (16 kHz)	0 - 127
30	MIDI Status byte STAT2	xxxxSxRA
31	ADD program preset number	0 - 127
32	8 character user label field	ASCII
33	8 character user label field	ASCII
-	-	-
-	-	-
-	-	-
39	8 character user label field	ASCII
STAT 2-MIDI STATUS BYTE		xxxxSxRA
S	Subsonic filter ON/OFF	1 = ON 0 = OFF
R	EQ Range	1 = 12 dB 0 = 6 dB
A	ADD ON/OFF	1 = ON 0 = OFF
x	Don't care	
STAT1 (Send/Receive flags)		xxxxxCPx
C	Receive MIDI Controller Change	1 = Enabled 0 = Disabled
P	Receive MIDI Program Change	1 = Enabled 0 = Disabled

NOTE: The CEQ 28 displays the program presets (0-127) as 1 to 128.

The system exclusive data in messages 1 and 3 are transmitted a nibble at a time. The high nibble (top 4 bits) is transmitted first, followed by the low nibble.

MIDI Controller Values:

EQ Gain and individual band sliders respond to values from 0 - 127. There are 25 discrete slider positions (-12 dB to +12 dB) and a range of 5 values that correspond to each position except for maximum cut and boost. For example, a value of 63 (61 - 65) corresponds to the slider being set flat, 66 - 70; +1 dB etc. Higher controller values boost band while lower values cut the selected band. 0 to 5 corresponds to -12 dB, and 121 to 127 set the band to +12 dB. If the EQ range is set to 6 dB, the 25 slider positions correspond to the same 0 to 127 controller values, but the amount of cut or boost is 1/2 the value of those for 12 dB range.

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Features and specifications are subject to change

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