Basic Control Structure (BCS) Protocol

For complete BCS information, see the *BCS Programming Guide* at www.amx.com.

IMPORTANT: *This is a general BCS quick reference guide. All commands are not supported on all systems/boards.*

BCS Command String Formats

Enter BCS (Basic Control Structure) commands from terminal emulation software (e.g., HyperTerminal) or custom control software. To generate BCS commands, enter them using the following formats. Replace the "#"s with the appropriate level, local preset, global preset, input, or output number. Enter the decibel level (^^^) as a decimal number to the tenth place without the decimal point (e.g., -5 dB is entered as -50).

To specify multiple numbers, enter a space between them.

NOTE: *O is the letter O, not the number zero (0).*

Basic Commands

- To execute a switch:
  CL#I#O#T or CL#O#I#T
- To disconnect a switch:
  DL#I#T or DL#O#T
- To verify switch status:
  SL#O#T or SL#I#T The result is in ( ), e.g., SL0O3T(12)

Preset Commands

To use preset commands, the system must support them.

- To execute a local preset:
  RL#P#T
- To define a global preset:
  RR#T
- To execute a global preset:
  R#T

Audio Commands

To use audio commands, the system must support the specific command. For absolute and relative commands, the decibel level must fall within the adjustment range for the specific type of audio board.

- To adjust absolute volume:
  CL#O#VA^^^T
- To adjust relative volume:
  CL#O#VR^^^T
- To adjust increment or decrement volume:
  CL#O#VS+T or CL#O#VS-T
- To apply volume mute or un-mute to outputs:
  CL#O#VMT or CL#O#VUT
- To adjust absolute input gain:
  CL#I#VA^^^T
- To adjust relative input gain:
  CL#I#VR^^^T
- To adjust increment or decrement input gain:
  CL#I#VS+T or CL#I#VS-T

DSP Commands

To use DSP (Digital Signal Processing) commands, the system must support the specific command.

- To adjust balance by a percentage:
  Pan right: P^^^ or pan left: P-^^^
    CL#O#P^^^T or CL#O#P-^^^T
- To adjust a tone band:
  Filter #: F# (bass = 1, treble = 3) and dB: G^^^ or G-^^^
    CL#O#F#G^^^T or CL#O#F#G-^^^T
- To adjust equalization bands (see chart to right):
  EQ band number: E# and dB: G^^^ or G-^^^
    CL#O#E#G^^^T or CL#O#E#G-^^^T

NOTE: *For multiple EQ bands in one command, the bands listed must correspond exactly to the gain settings listed.*

BCS Command Table

KEYS	FUNCTION	DESCRIPTION
C	Change	Initiates a Change (execute switch command); this must precede the level, input, and output specification
D	Disconnect	Initiates a Disconnect switch command; this must precede the level and input or output specifications
S	Status	Initiates a Status command; this must precede the level and input or output specifications
L	Level	Indicates the number(s) following is the level
"0"-"9"	Number	Identifies input, output, preset, level, and decibel values; combine the digits to form larger numbers
I	Input	Indicates the number following is an input (source)
O	Output	Indicates the number(s) following is an output(s) (destination)
" "	Space	Separates numbers in entries with multiple numbers
:	Colon	Specifies a range of numbers in entries containing multiple numbers
T	Take	Executes a command
X	Exit	Exits (cancels) the command being entered
R	Execute Preset*	Initiates Execute Global Preset command by indicating that the number following it is a global preset number. Also initiates an Execute Local Preset command when it precedes the level and the local preset character "P"
P	Local Preset*	Indicates the number(s) following is a local preset number
RR	Define Global Preset*	Initiates a Define Global Preset command
V	Volume (for Status)*	Used in Status commands for volume and input gain
VA	Volume Absolute*	Indicates the number(s) following is the volume adjustment to a specific decibel level
VR	Volume Relative*	Indicates the number(s) following the volume adjustment by a specific decibel amount
VS+	Volume Increment*	Adjusts volume of a specified output up a step
VS-	Volume Decrement*	Adjusts volume of a specified output down a step
VM	Volume Mute*	Applies mute to the volume
VU	Volume Un-mute*	Removes mute from the volume
P, P-	Balance Pan*	Pans the balance right or left by a percentage
F	Filter* (Tone)	Indicates the number following is the tone band (filter) designation
E	Equalization Band*	Indicates the number following is an equalization band
G	Gain Adjustment*	Indicates the number following is the decibel level (used only for tone and equalization)

* These command characters are not supported on all systems/boards.

NOTE: *To cancel an incomplete BCS command, enter the "X" command at any time.*

EQ Band Number	1	2	3	4	5	6	7	8	9	10
EQ Band Frequency	32 Hz	64 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	16 kHz

93-900-00   REV: D