

# Third-Party CS-Bus™ Programmer's Guide-ZGN Commands

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Remote control of CS-Bus products is possible using simple ASCII commands over RS-232-C serial communications or identical ASCII commands using UDP Protocol over Ethernet with a pair of datagram sockets. Typically these ASCII commands are considered “control” commands which will cause one or more devices to respond (e.g. motor up/down, LED brightness up/down/off). Alternatively, there are other commands which are considered “commissioning” commands which are only supported through the e-Node™ Ethernet Adapter/Firewall using the eNode™ Pilot (commissioning) application. These “commissioning” commands are generally used only for setup for a supported device (e.g. review/set motor direction defaults, review LED light level presets, review/set shared addresses, and review/set trigger-type events). These specialized “commissioning” commands are beyond the scope of this “CS-Bus Command Summary Programmer’s Guide.” Please consult Converging Systems for more information here.

Please refer to the applicable section below for communication parameters and software command syntax relating to the type of communication channel being used. Converging Systems recommends that for simplicity and for driver robustness, the programmer create a single unified driver that permits both RS-232-C as well as Ethernet connectivity.

Please see the relevant section heading below for specifics related to the type of communication desired.

## Section I-Communication Options

**A. RS-232-C Serial Communication.** Serial communication is possible with devices which are connected to the CS-Bus using the IBT-100sfs™ Intelligent Bus Translator/Firewall.

### 1. Serial Communication Parameters

Set up your serial communication software (from your third-party automation system) with the following serial communication parameters. These parameters cannot be changed within the IBT-100sfs.

Baud Rate	Parity	Valid Data	Stop Bit	Hand-Shaking
57600	N	8	1	None

**2. Software Command Syntax/Software Commands.** See Section II below.

**B. Ethernet Communication using UDP datagram sockets.** Ethernet Communication using UDP (User Datagram Protocol) with a pair of datagram sockets is possible using the eNode Ethernet Adapter.

### 1. Enode Communication

Establish communication with the IP address of the e-Node™ (i.e. 192.168.1.1 or other address for e-Node that has either been assigned through DHCP or static addressing). For more information, see “CS-Bus Controllers Installation, Programming and Interface Guide.”

### 2. Datagram Sockets

Mode of Communication	UDP Port
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Transmission to e-Node	5000*
Inquiry of Data from e-Node	4000*

Establish communication with the IP address of the e-Node™ (i.e. 192.168.1.1 or other address for e-Node™ that has either been assigned through DHCP or static addressing). For more information, see “CS-Bus Controllers Installation, Programming and Interface Guide.”

3. **Software Command Syntax/Software Commands.** See Section II below.

## Section II-Syntax and Commands

In order to address a particular CS-Bus compatible device, it is necessary to have previously assigned a unique **Z.G.N.** (zone/group/node) address to each device on the CS-Bus. For more information on how to assign addresses refer to the appropriate documentation that came with your particular device. If you do not know the particular address of a target unit, you can use the wildcard descriptor instead.

**#0.0.0.P=CC;↵**

However, if you use this format, all units on the bus will respond to that command. Certain commands (e.g. Q=QY) will only respond to a particular address that does not have a “0” value within the **Z** or **G** or **N** fields.

**Z.G.N.** command messages are in the dot delimited format as:



	Mandatory; delimiting characters
<b>Z</b>	Mandatory; specifies the Zone number (0 is broadcast, 1-255 possible zones)
<b>G</b>	Mandatory; specifies the Group number (0 is broadcast, 1-255 possible groups)
<b>N</b>	Mandatory; specifies the Node number (i.e. 0 is broadcast, 1-255 possible nodes)
<b>P</b>	Mandatory; Function (see options listed under “Function” in Table 1 below)
<b>CC</b>	Mandatory; command (see options listed under “Command” in Table 1 below)
<b>,D</b>	Optional; some commands require an extra data field
<b>;↵</b>	Mandatory; a semi colon is an end character followed by a return character

When a **ZGN** command is transmitted, a source number is automatically concatenated, by the interface device, to the data stream that is displayed from your communication software. This information is useful for troubleshooting purposes only. Source numbers are specified below:

**Table 1-Source Number References**

Device	Source number
Infrared (through IR wart)	1
Low Voltage & keypads	2
Photosensor	4 (not available in all models)
e-Node or IBT-100sfs™ input	5-8 (specific value set within specific e-Node through downloaded commands)

## Section III-Supported Control Commands

Supported software commands are specified below.

**Note:** If a command is valid, the command will be echoed back. If however the command is invalid, an asterisk “\*” followed by the partial command, will be returned. In case of the “\*”, check the command and try again.

### Z.G.N Commands

Function		Command	(comment)
<b>Motor Control</b> Applicability: -IMC-100T -ILC-100x	A or MOTOR <sup>1</sup>	DOWN	Commands port to send motor Down
		UP	Commands port to send motor UP
		STOP	Commands port to STOP motor
<b>LED</b> Applicability: -ILC-100x (for external LED load, not on-board indicator)	L or LED <sup>1</sup>	ON	Turns LED on to full on, or value when OFF was issued
		OFF	Turns LED off
		FADE_UP	Fades brightness up <sup>2</sup>
		FADE_DOWN	Fades brightness up <sup>2</sup>
		SAT_UP	Increases saturation (more color-less white) <sup>2</sup>
		SAT_DOWN	Decreases saturation (less color-more white) <sup>2</sup>
		HUE_UP	Shifts hue (color) red>yellow>green>cyan>blue>magenta <sup>2</sup>
		HUE_DOWN	Shifts hue (color) magenta>blue>cyan>green>yellow>red <sup>2</sup>
		STOP	Stops any of the above (Fades,Sat, Hue actions) either in up or down direction
		SET	Sets a value 0- 240 of brightness Syntax: Follow the command with a “,” (comma) and number (1-240) Example: SET,240
		SAT	Sets a value 0-240 for saturation Syntax: Follow the command with a “,” (comma) and number (1-6) Example: SAT,240
		HUE	Sets a value 0-240 for hue (in HSL color space only). Note: within the HSL color space, “0” is red, “80” is green, and “160” is blue. If you wish to create a color in the RGB color space you must use the Pilot application and e-Node. Syntax: Follow the command with a “,” (comma) and number (1-6). Example: HUE,240
		STORE	Stores a preset. Syntax: Follow the command with a “,” (comma) and number (1-6) Example: STORE,4
RECALL	Recalls a previously stored preset. Syntax: Follow the command with a “,” (comma) and number (1-6) Example: RECALL,3		
EFFECT	Cycles through first eight preset colors (e.g. Preset 1>Preset 2>Preset 3>Preset 4>Preset 5>Preset 6>Preset7>Preset 8)		
<b>LED</b> Applicability: -IMC-100x (for on-board LED indicator only)	L or LED <sup>1</sup>	ON	Turns (on-board amber) LED to full ON
		OFF	Turns(on-board amber) LED to full OFF
		FLASH	Repeatedly flashes (on-board amber) LED
<b>Device Control</b> Applicability: -IMC-100x -ILC-100x WIP	Q	QY	Returns Information Example: Q=QY Response will be as follows: For IMC-100 99 For ILC-100 48 Note: only devices which can have a Z.G.N address will support this bidirectional command. This command will <b>not</b> respond to a wildcard address such as #0.0.0.Q=Y

Note 1: The acknowledge is returned with the full name

Note 2: Continuous ramping until halted with “Stop” command (#.Z.G.N.L=STOP;↵)

## Section IV-Programming Examples

### 1. Programming Examples-For IMC-100 Controller

- A. Activate motor to move downwards are specified below.  
-If you know the address for the device, for instance 2.1.1  
**#1.1.1.MOTOR=DOWN;↵**  
-If you do not know the address for the particular device  
**#0.0.0.MOTOR=DOWN;↵**

### 2. Programming Examples-For ILC-100 Controller

- A. Turn LED load to Preset 1  
-If you know the address for the device, for instance 2.1.1  
**#2.1.1.LED=RECALL,1;↵**  
-If you do not know the address for the particular device  
**#0.0.0.LED=RECALL,1;↵**
- B. Turn UP the brightness of a particular color already being displayed UP  
-If you know the address for the device, for instance 2.1.1  
**#2.1.1.LED=FADE\_UP;↵**  
-If you do not know the address for the particular device  
**#0.0.0.LED=FADE\_UP;↵**