

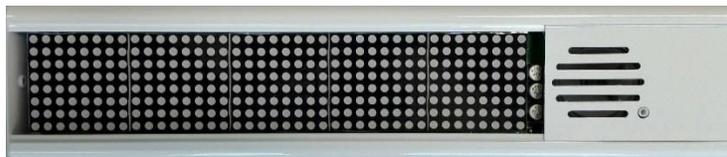


BESTLITE4 DISPLAY USER MANUAL

Revised: Jan 2018



Standard



Mini

INTRODUCTION:

Bestlite 4 is an intelligent stand-alone LED and tone annunciator for use in a variety of applications for Hospitals, Clinics, Aged Care facilities and Industry.

Each panel is individually addressable, or may be addressed with 'broadcast' messages when required. Multiple Bestlites may be connected to a 'multi-drop' RS-485 communication cable. RS-232 is available but not recommended for long-run, or multi-drop installations.

The Bestlite 4 display is available in single, or double-sided, versions with either 80 column (Standard), or 40 column (Mini), sizes. All displays have 7 colours with the use of RGB display modules. Communication uses a proprietary command message protocol that provides simple & reliable visual and audible alert tone information.

ADDRESS SWITCH:

A small 6mm switch just below the 6 way connector. Press this switch to change the address from 01 to 30

DEMO MODE:

Hold the address switch during power-up until Demo appears on the screen.

This mode will show all of the colours, fonts and text styles.

CONNECTIONS:

BL4 Connections

1. Audio A
2. Audio B
3. +12-24
4. GND
5. GND
6. RS-485 (B)-
7. RS-485 (A)+
8. RS-232



Note: When using RS485 always include an end of line terminator across pins 6 & 7. A 120R terminator is included in your kit. Never parallel RS485 lines to go in different directions. Always use the RS485 Expander from Clift Innovations.

AUDIO:

Audio A & B are for a differential audio input and provides a facility to generate audio into the display from an external source. It is differential in order to reduce the noise pickup from the relatively long cables. The input sensitivity is approximately 4v p-p differential. The input impedance is approx 50K ohm.

CABLING:

Always use a single twisted pair of CAT5 for the RS485 A&B lines. Never parallel pairs to go in different directions, always use Clift Innovations RS485 splitter, or alternatively make sure you only have a single run of the twisted pair. Always terminate the end of the line with a 120 ohm resistor that is included in the kit.

You will also need a ground connection from the display back to the Head End or the source of the RS485 data. This data ground connection between the equipment is essential and should be in place before applying power to the display. Do not try to supply the power over the CAT5. We recommend an individual power supply for each display or an appropriate cable that can handle the current requirement for the system installation. Individual 12V/3.5A Power Supplies are available from clift Innovations.

For the external audio input always use a shielded 2 core cable and ground the shield at the source of the audio.

CURRENT CONSUMPTION:

Current requirements for each display are largely dependant on the amount of LEDs lit, however as a good guide allow for 50% of LEDs to be lit and the currents are as follows:

12V DC

	STANDARD	MINI
Double:	2.1 Amps	1.3 Amps
Single:	1.3 Amps	0.8 Amps

24V DC

	STANDARD	MINI
Double:	1.1 Amps	0.7 Amps
Single:	0.7 Amps	0.42 Amps

MATERIAL: Aluminium
COLOUR: Gloss White

SIZE/WEIGHT:	Standard	Mini
Double	750x40x95 / 2.3Kg	440x40x95 / 1.3Kg
Single	750x40x95 / 2.2Kg	440x40x95 / 1.2Kg

COMMUNICATION:

Communication with Bestlite is performed through an **ASCII** serial connection using RS-485 or RS-232 signaling levels.

- 9600 bps
- 8-data
- 1-stop bit
- No parity
- Handshaking disabled.

9600, N, 8, 1

Bestlite does not transmit any data back to the host.

ADDRESSING SCHEME:

Channel messages are framed within 1 or more 'Select Channel' commands, and a Deselect command.

Select Channel - 0xB0

<0xB0><channel address>

Channel address is 2 ASCII digits 00-30

Each display is configured for a channel in the range of 01-30. Displays will ignore received data, until reception is enabled using this command. This command can be issued for multiple channels before sending a message. An address of 00 is global and will enable reception on ALL displays.

Deselect all channels - 0xB1

<0xB1>

Disable all channels previously enabled with the Select Channel command. Unlike the Select Channel command, this command is always global. All displays will ignore messages until re-enabled with the Select Channel command.

EXAMPLES:

Select channels 1,5,7

0xB0, 0x30, 0x31, 0xB0, 0x30, 0x35, 0xB0, 0x30, 0x37

[Channel message for displays set to 1, 5 or 7]

0xB1

0xB0, 0x30, 0x39

[Channel message for displays set to 9]

0xB1

If no Deselect is issued, additional channels may be enabled even after sending messages.

Example:

0xB0, 0x30, 0x36

[Channel message for displays set to 6]

0xB0, 0x31, 0x32

[Channel message for displays set to 6 or 12]

0xB1

CHANNEL MESSAGES:

Within a channel message, commands are available for generating sounds, configuring volume or brightness, and displaying text. Multiple commands may be issued before the channel is deselected.

Sound - 0xB4

<0xB4><Sound ID>

Sound ID is a single character, identifying 1 of 19 sounds, at either full volume, or at night level volume. The sound will commence as soon as this command is received, and will continue if it is a repeating sound.

Available sounds and their ID characters:

<u>Sound</u>	<u>Full volume</u>	<u>Night volume</u>
Silence	0	0
2 beeps	1	A
8 fast beeps	2	B
8 beeps	3	C
Repeated beeping	4	D
Ding Dong	5	E
Ding repeated 2.8sec	6	F
Ding Dong, repeated 4.2sec	7	G
Dong Dong	8	H
Ding Ding Ding	9	I
Repeating 2 tone siren	J	M
2 beeps repeated 10sec	K	N

1 long beep repeated 30sec	L	O
Ding repeated 1sec	P	S
Ding Ding repeated 5sec	Q	T
Ding repeated 10sec	R	U
2 beeps repeated 3.4sec	V	a
3 beeps repeated 1sec	W	b
Ding-Dong-Ding repeated 30sec	X	c

Example to sound 2 beeps on channel 5 at full volume:
0xB0, 0x30, 0x35, 0xB4, 0x31, 0xB1

Set Night level - 0xB5

<0xB5><level '0'-'5'>

Night level is specified using a single ASCII digit in the range 0-5, where 0 is full volume, and 5 is complete silence. This command affects sounds generated using the 'Night volume' identifiers listed above. The default night level at power up is -18dB. Once changed with this command, the new night level remains in effect until it is changed again, or power is cycled on the display.

0. Full volume
1. -6dB
2. -12dB
3. -18dB (default night level)
4. -24dB
5. Silence

Example to sound 2 beeps on channel 5 at -12dB:
0xB0, 0x30, 0x35, 0xB5, 0x32, 0xB4, 0x41, 0xB1

Display brightness - 0xB6

<0xB6><brightness '0'-'9'>

Brightness is specified using a single ASCII digit in the range 0-9, where 0 is dim and 9 is full brightness. The default brightness is maximum. After the brightness is changed with this command, it remains in effect until it is changed again, or power is cycled on the display.

Example to dim displays on channel 5
0xB0, 0x30, 0x35, 0xB6, 0x30, 0xB1

Write message - 0xB2 or 0xB3

<0xB2><Display mode><message text><0x00>

Display mode is a byte in the range of 0xA0 - 0xA3

0xA0 scrolling message (right to left)

0xA1 static message

0xA2 scroll up

0xA3 fade

Message text is the actual message shown, and may contain a number of control characters which modify the text colour, font size, or pause the display cycle. A number of different messages can be contained within one Write Message command, and will be cycled through on the display:

<0xB2><Display mode><message text>...<Display mode><message text><0x00>

Order Codes:

BL4-DS-10 Standard Double sided 55mm characters, 10 modules

BL4-SS-10 Standard Single sided 55mm characters, 10 modules

BL4-DS-5 Mini Double sided 55mm characters, 5 modules

BL4-SS-5 Mini Single sided 55mm characters, 5 modules

Bestlite is proudly designed and manufactured by:

Clift Innovations Pty.Ltd.
Suite 10, 13 Walkers Road
Nunawading, VIC, 3131
Australia.
(613) 98773109
www.clift1.com