CAN KEYPADS
USER MANUAL

Link ECUs currently support up to two CAN Keypads from a select set of models to be connected to and setup in the ECU using a comprehensive and intuitive set of features making it possible to implement a wide range of input types and feedback via keypad LEDs.

KEYPAD MODELS

The following CAN keypads models are supported and have been tested in house:

- Blink Marine PKP-2200-SI
- Blink Marine PKP-2400-SI (Link Part Number 101-0237)
- Blink Marine PKP-2500-SI
- Blink Marine PKP-2600-SI (Link Part Number 101-0239)
- Grayhill 3K208

The following CAN keypads are included in the list of selectable models but haven't been explicitly tested in house, please contact tech support if you have one and can confirm whether or not it works.

- Blink Marine PKP-1500-LI
- Blink Marine PKP-2200-LI (SI model has been tested but LI model has not)
- Blink Marine PKP-2300-SI
- Blink Marine PKP-2400-LI (SI model has been tested but LI model has not)
- Blink Marine PKP-3500-SI
- Grayhill 3K206

Once the keypad model has been selected the appropriate number of button settings will appear. These settings are used to select which of the Button functions is attached to that Button on the keypad. How the different Button functions work is described below.

KEYPAD BRIGHTNESS

The Change Brightness Input can be used to select an input that can be used to switch between two different brightness levels. This can be useful for dealing with situations like driving at night where you may want the lights dimmer than you would during the day. The default (brightness on keypad power up) and the backlight colour can be set in the CAN Setup window->CAN Devices tab by clicking the Find Devices button and selecting the appropriate keypad and so this brightness input is only needed if you want the ability to change it on the go. When an input is selected 4 settings (backlight and key brightness for input inactive and input active) become visible, the available range of values is 0-63

with 63 being the brightest and 0 being off, note the individual key LEDs will always have some brightness even when set to 0.

Note: Backlight/key brightness control is currently only supported for Blink Marine keypads (not Grayhill keypads).

CAN BRIDGE AND SETUP WINDOW

The CAN Keypad needs to be setup in the CAN Setup window as well as in the ECU Settings tab, these instructions explain how to set it the CAN communication side of it up in the CAN Setup window.

Setting up the Link ECU:

1. Open the CAN Setup window (PCLink > ECU Controls > CAN Setup).
2. Select the CAN module to be used.
3. Set the Mode to 'User Defined'.
4. Configure the Bit Rate to the same Bit Rate as the keypad (Often 1 Mbit/s).
5. Select a spare CAN channel.
6. Select 'CAN Keypad 1' from the Mode drop-down menu.
7. Set the CAN ID to 384 + the Keypad Node Id. By default the Node Id will be 21 but it can be checked in the CAN Devices tab by clicking the Find Devices button, selecting the keypad and then clicking 'Configure Device'.
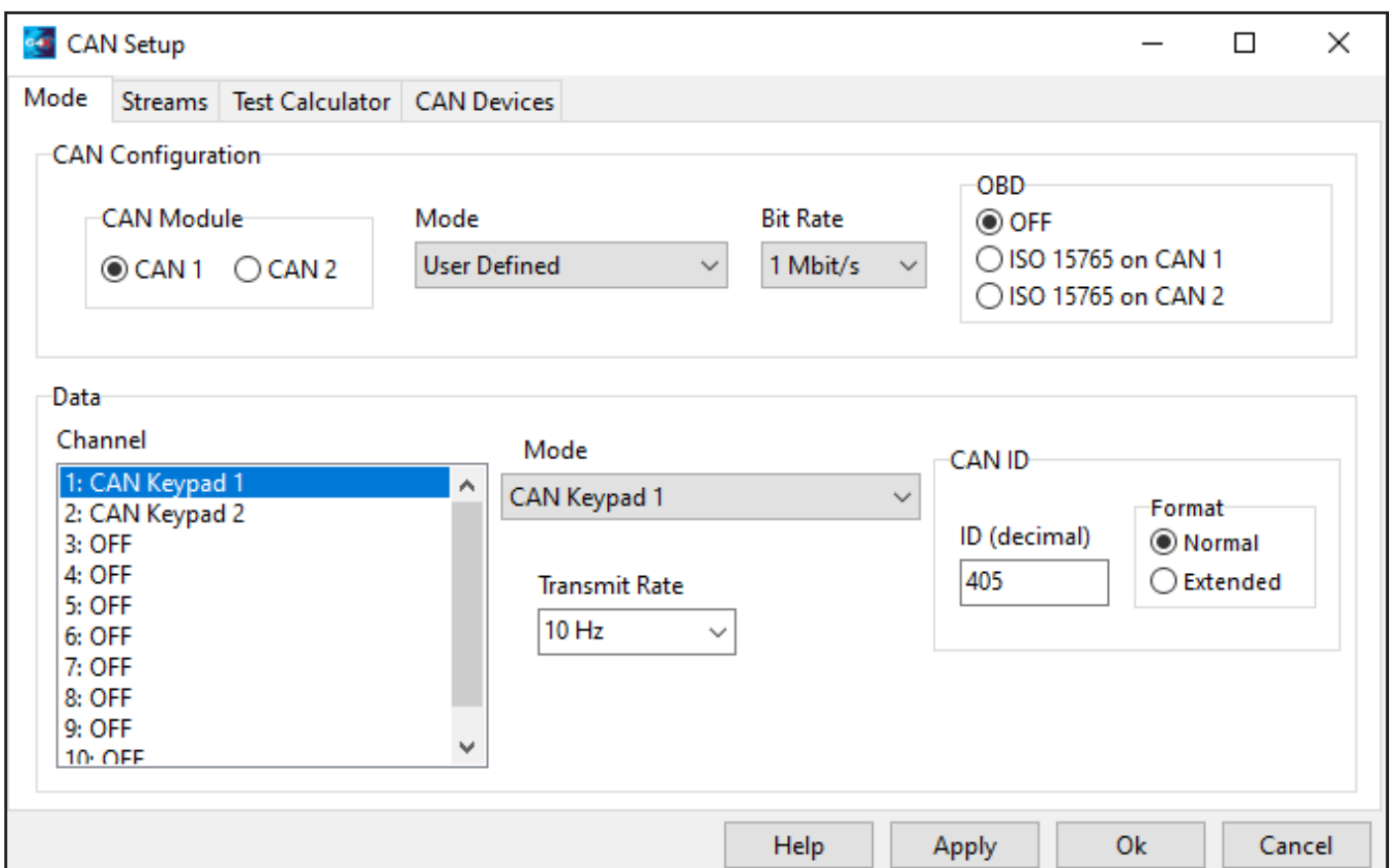
CAN Keypad example with a Node Id of 21.
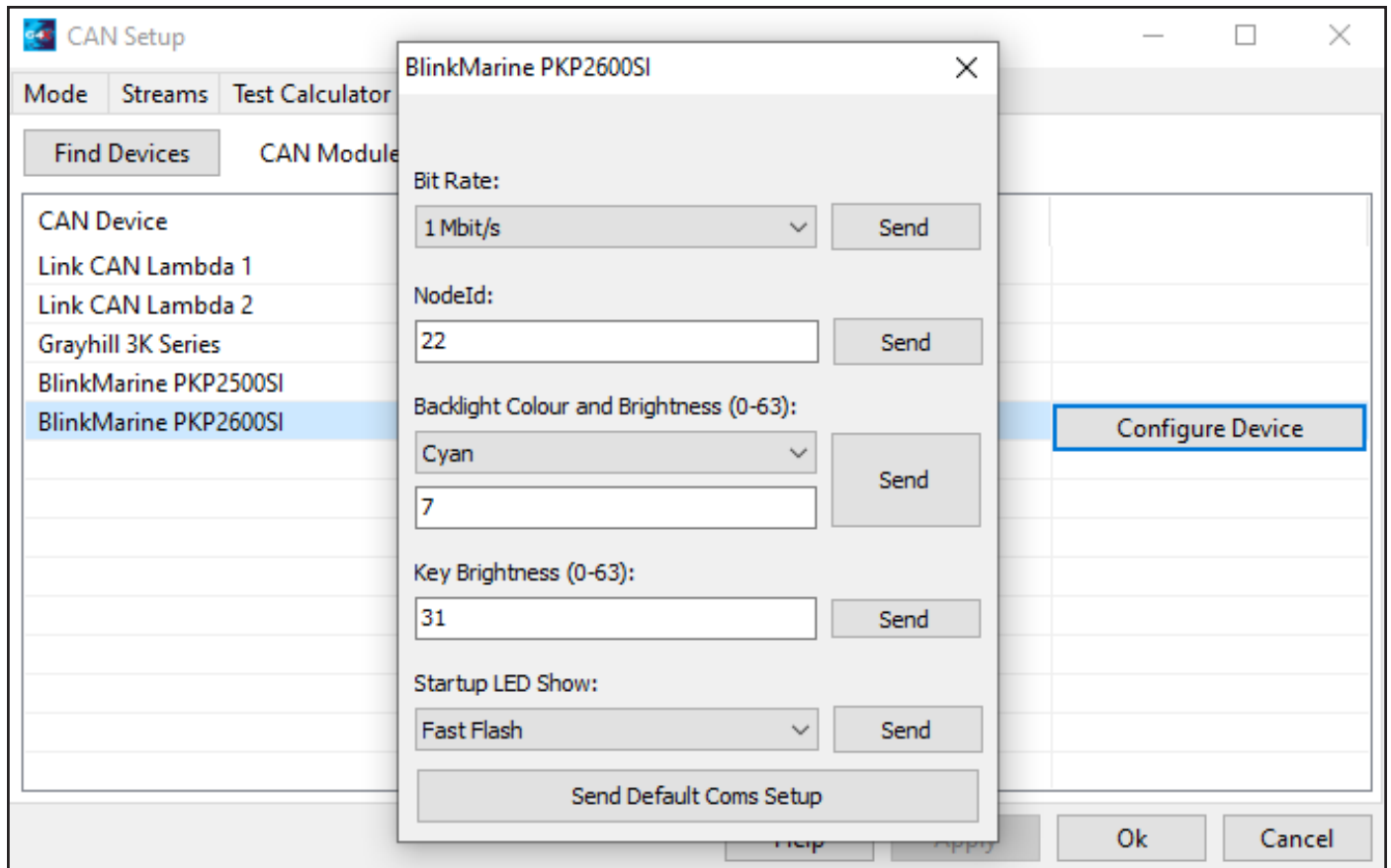
CAN Keypad Configuration Window with a Node Id of 22 visible

8. Make sure no other CAN channels are configured on the same CAN ID.
9. Click Apply and then OK.
10. Use the ECU Settings tab to navigate to CAN–>CAN Keypads–>CAN Keypad 1 and set the Keypad Model setting to the model that you are using.
11. Make sure a Store (F4) is performed.

To add a second keypad repeat the above process but selecting CAN Keypad 2 in steps 6 and 10. Currently only up to two keypads are supported, if your application requires the ECU supporting more than two keypads please contact Link Tech support and request support for more CAN Keypads.

The above image of the Keypad configuration window allows the user to configure various settings within the keypad such as changing the Node Id or CAN Bit Rate. The 'Send Default Coms Setup' button sets several settings to appropriate values for use with Link ECUs such as turning off the Heartbeat messages, turning on Periodic State Transmission to 1500ms (to prevent the CAN inputs from going into fault due to not receiving an update) and setting the device to be active at power on.

KEYPAD AND BUTTON SETTINGS

For maximum configurability each keypad has a number of button settings which are used to select which of the button functions are to be used for that keypad button. This means that more than one keypad can share an input and that any function can be used on any button on any keypad. The only restriction is that when it comes to using an Up/Down Button function both inputs (increase and decrease) have to be setup on the same keypad for it to operate properly.

The different Button types and how they work are described below:

SIMPLE BUTTON

This button type is as basic as it gets, it has a setting to select which CAN DI it controls and an Input On LED State setting which is used to select the button's LED state when the selected CAN DI is active. The different LED state values are explained below.

TABLE BUTTON

The Table Button functions allow the LED state of the the button to be used as feedback for function that the CAN DI feeds into (or any other runtime value/status).

The Input setting is used to select which CAN DI it controls, the LED Parameter setting is used to select which runtime status or value is being used as feedback for the button's LED state and the table is used to control what the LED state is for each status/value of the selected parameter. The table axis is fixed so if you want to use a runtime value and the table axis isn't suitable a math block can be used to give a suitable range. The different LED state values are explained below.

INCREMENT BUTTON

The Increment Button functions can be used where a value that increments each button press is required, this can be useful when there are a range of possible modes for a function (e.g. different traction control levels) and you want to be able to step through them.

The Input setting is used to select which CAN Analog the value is being output on, the Max Value setting is used to set the maximum value that it can increment up to and the table is used to specify what the LED state should be for each output value. When the button is pressed while it is at the Max Value it will reset back to 0. The different LED state values are explained below.

UP/DOWN BUTTON

The Up/Down Button functions are a more advanced version of the Increment Button function. Instead of using just one keypad button and incrementing up until max before resetting they use two keypad buttons, one for incrementing (adding 1) and one for decrementing (subtracting 1) from the selected CAN Analog output value. There is a setting to select the Max value, when this value is reached it stays at the max value

(does not loop back around to 0) and it has a minimum value of 0. If both the up and down buttons are pressed at the same time it resets to 0. The table is used to specify what the LED state should be for each output value, the different LED state values are explained below.

Note: both the Up and Down button must be setup on the same keypad for the dual button press reset to work.

LED STATES
The LED states are displayed as numbers so that they support multiple keypad types and can be used in tables, what the values mean for different keypads is explained below.

BLINK MARINE

- 0 – Off
- 1 – Red
- 2 – Green
- 3 – Blue
- 4 – Yellow
- 5 – Cyan
- 6 – Violet
- 7 – White
- 8 – Flashing Red
- 9 – Flashing Green
- 10 – Flashing Blue
- 11 – Flashing Yellow
- 12 – Flashing Cyan
- 13 – Flashing Violet
- 14 – Flashing White

GRAYHILL

- 0 – No LEDs on
- 1 – Left LED on
- 2 – Middle LED on
- 3 – Right LED on
- 4 – Left & middle LED on
- 5 – Right & middle LED on
- 6 – Left & right LED on
- 7 – All three LEDs on
- 8 – No LEDs on
- 9 – No LEDs on
- 10 – No LEDs on
- 11 – No LEDs on
- 12 – No LEDs on
- 13 – No LEDs on
- 14 – No LEDs on

PINOUT
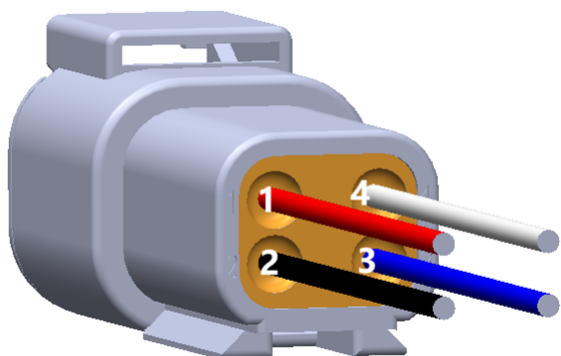
Pin Number	Colour	Pin Function
Pin 1	Red	+12V
Pin 2	Black	Ground
Pin 3	Blue	CAN Low
Pin 4	White	CAN High