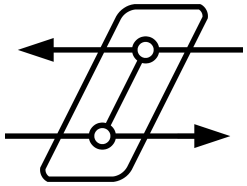


BogoNEL Corp

BogoNEL BN-P-6000404

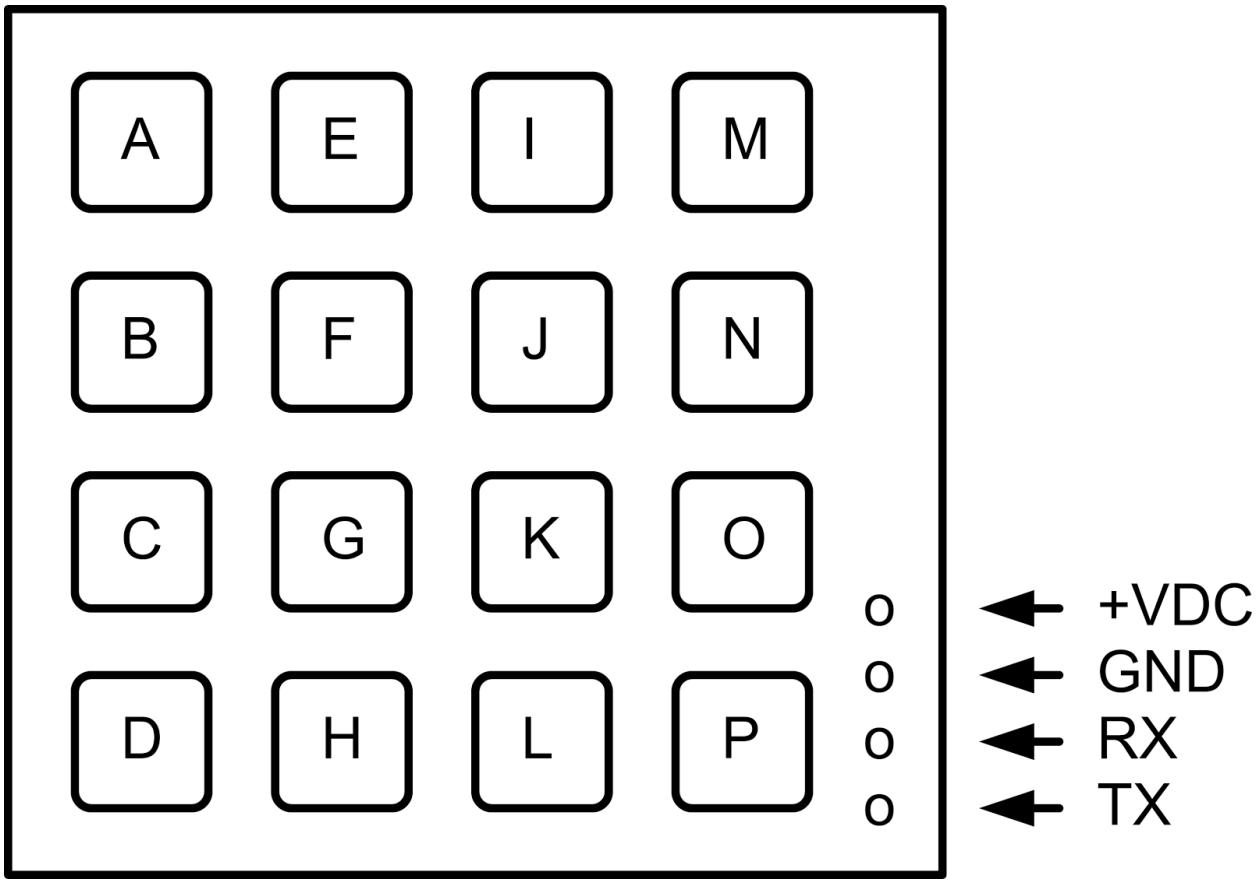
Programmable RGB Button Panel

USER GUIDE

Document BN-P-6000404-3
November 2017

3.1 Block Diagram

The BN-P-6000404 features 16 buttons in a 4x4 grid. A four-pin header provides power and serial communication.



5.3 Datagram Specifications

The BN-P-6000404 provides a serial control interface for notifying the host system of button presses and for the host system to specify RGB illumination power for the BN-P-6000404 button backlights.

5.3.1 Data Formats

FORMAT	DESCRIPTION
U1	1 byte unsigned integer
U2	2 byte unsigned integer, little endian
U4	4 byte unsigned integer, little endian

5.3.2 Header

ADDRESS	FIELD	FORMAT	VALUE
0	SYNC 1	U1	0x42
1	SYNC 2	U1	0x4E
2	MESSAGE ID	U1	Type of message
3	MESSAGE LENGTH	U1	Length of message, including header and checksum

5.3.3 IDENTIFICATION

Direction: BN-P-6000404 to Host
ID: 0x01

ADDRESS	FIELD	FORMAT	VALUE
H+0	VENDOR	U4	0x4F474F42 for BogoNEL Corp
H+4	FIRMWARE MAJOR	U2	Firmware major version
H+6	FIRMWARE MINOR	U2	Firmware minor version
H+8	CHECKSUM	U4	Checksum

5.3.4 INTERACTION

Direction: BN-P-6000404 to Host
ID: 0x02

ADDRESS	FIELD	FORMAT	VALUE
H+0	NUMBER OF BUTTONS	U1	Number of buttons currently depressed by user
H+1	RESERVED		Reserved
H+4+N	BUTTON ID	U1	ID of pressed button. A number of entries equal to NUMBER OF BUTTONS will be provided. See table 5-6 for button IDs.
H+4+N+padding	CHECKSUM	U4	The checksum is located after the BUTTON IDs, with enough padding to be 4-byte aligned.

Table 5-6 Button IDs

Button	ID	Button	ID
A	0x00	I	0x02
B	0x04	J	0x06
C	0x08	K	0x0A
D	0x0C	L	0x0E
E	0x01	M	0x03
F	0x05	N	0x07
G	0x09	O	0x0B
H	0x0D	P	0x0F

5.3.5 QUERY IDENTIFICATION

Direction: Host to BN-P-6000404
ID: 0x10

ADDRESS	FIELD	FORMAT	VALUE
H	CHECKSUM	U4	Checksum

5.3.6 QUERY BUTTONS

Direction: Host to BN-P-6000404
ID: 0x11

ADDRESS	FIELD	FORMAT	VALUE
H	CHECKSUM	U4	Checksum

5.3.7 SET ILLUMINATION

Direction: Host to BN-P-6000404
ID: 0x12

ADDRESS	FIELD	FORMAT	VALUE
H	CHANNEL MASK	U1	Bit 0: Enable RED channel Bit 1: Enable BLUE channel Bit 2: Enable GREEN channel
H+1	BLINK DUTY	U1	Sets the proportion of time between time on and time off for blink feature. Minimum value = 0 (no illumination) Maximum value = 240 (constant illumination)
H+2	BLINK PERIOD	U2	Sets the blink period, in milliseconds. Minimum value = 10 Maximum value = 10000
H+4	INTENSITY MATRIX	U4	Intensity values for the unmasked channels. 2 bits of intensity for each button.
H+8	CHECKSUM	U4	Checksum