G1000 v2.3

PCB Instructions

For Parts list and Mobiflight configuration information:
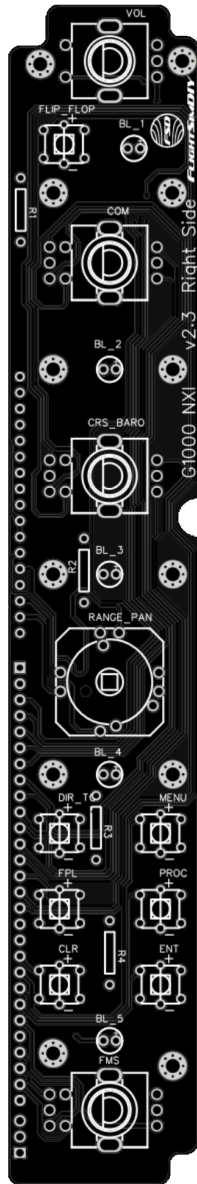
Please refer to the Parts list located on the Project resource page at FlightSimDIY.com

Important Notes:

The part numbers listed on the website are the parts that these PCB's as well as the 3D print files are designed to use. Please use caution when using other components as they may not fit properly.

Base PCB set (Faceplate)

Right Side

Resister Values

Please note that these values are based on using a 12v power supply.

Please double check based on the ratings of the LED's you are using

$$R = \frac{(\text{PWR Volts} - (\text{LED Volts} * \text{\# of LEDS}))}{\text{Current rating of LED's in mA}}$$

R1 (3 LED's) = 150 ohm
R2 (3 LED's) = 150 ohm
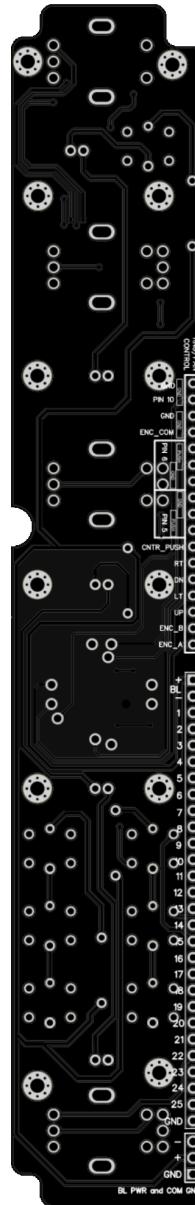**R3** (3 LED's) = 150 ohm
R4 (3 LED's) = 150 ohm

G1000 TBM 900 Mod:

Replace the CRS/BARO Dual encoder with a single encoder
        Part # EC11E15244G1

Also, you will not need to connect pins 12 and 13 to your I/O board.

Set this encoder as BARO in your Sim. And pin 14 to BARO STANDARD

These pins are for the jumper shunts. The standard configuration should be Pin 10 - GND, ENC_COM - GND, Pin 6 - PUSH, Pin 5 - GND.
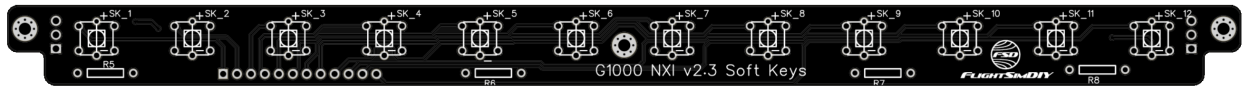If needed, Pin 6 can be set to GND and pin 5 can be set to PUSH.

These pins should be wired to you Arduino or whatever I/O solution you have choosing.

Power input for Backlighting (connect to one side (left PCB or right PCB) to power source (12v).

1 - VOL Encoder A	**17** - CLR
2 - VOL Encoder B	**18** - MENU
3 - VOL PUSH	**19** - PROC
4 - Flip-Flop	**20** - ENT
5 - COM Inner A	**21** - FMS Inner A
6 - COM Inner B	**22** - FMS Inner B
7 - COM Outer A	**23** - FMS Outer A
8 - COM Outer B	**24** - FMS Outer B
9 - COM PUSH	**25** - FMS PUSH
10 - CRS/BARO Inner A	**GND** - Connect to GND on I/O Board
11 - CRS/BARO Inner B	
12 - CRS/BARO Outer A	(only need to connect either the right or left PCB GND to your I/O board)
13 - CRS/BARO Outer B	
14 - CRS/BARO PUSH	
15 - DIR_TO	
16 - FPL	

These pins are connected to the same pins on the Bottom PCB, They pass the Backlight Power and the I/O GND along to the next PCB.

Bottom

G1000 NXI v2.3 Soft Keys

SK_1 SK_2 SK_3 SK_4 SK_5 SK_6 SK_7 SK_8 SK_9 SK_10 SK_11 SK_12

R5 R6 R7 R8

Resister Values

Please note that these values are based on using a 12v power supply.

Please double check based on the ratings of the LED's you are using

$$R = \frac{(PWR\ Volts - (LED\ Volts * \#\ of\ LEDS))}{Current\ rating\ of\ LED's\ in\ mA}$$
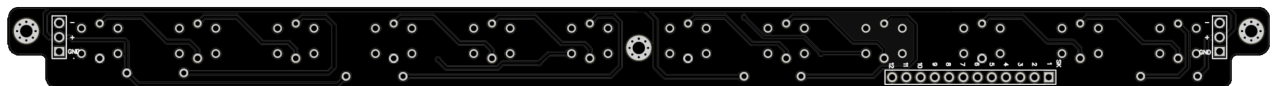
R5 (3 LED's) = 150 ohm
R6 (3 LED's) = 150 ohm
R7 (3 LED's) = 150 ohm
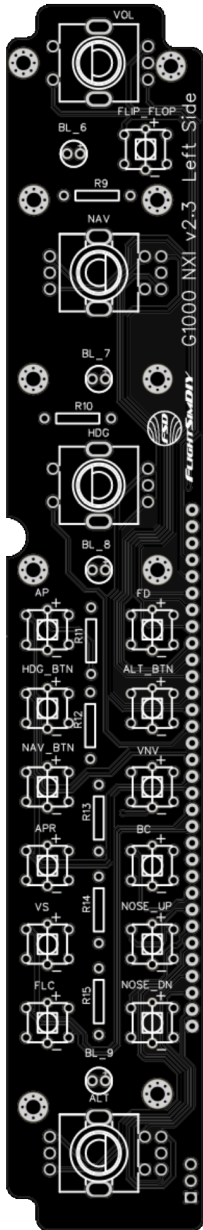**R8** (3 LED's) = 150 ohm

These pins are connected to the same pins on the Right & Left PCB's, They pass the Backlight Power and the I/O GND along to the next PCB.
These should be connected to the right and left PCBs when NOT using the control board PCB.

1 - Soft Key 1
2 - Soft Key 2
3 - Soft Key 3
4 - Soft Key 4
5 - Soft Key 5
6 - Soft Key 6
7 - Soft Key 7
8 - Soft Key 8
9 - Soft Key 9
10 - Soft Key 10
11 - Soft Key 11

Resister Values

Please note that these values are based on using a 12v power supply.

Please double check based on the ratings of the LED's you are using

$$R = \frac{(\text{PWR Volts} - (\text{LED Volts} * \text{\# of LEDS}))}{\text{Current rating of LED's in mA}}$$

R9 (2 LED's) = 300 ohm
R10 (2 LED's) = 300 ohm
R11 (3 LED's) = 150 ohm
R12 (3 LED's) = 150 ohm
R13 (3 LED's) = 150 ohm
R14 (3 LED's) = 150 ohm
R15 (1 LED) = 450 ohm

G1000 TBM 900 Mod:

Do not install the following parts:

HDG Encoder
ALT Encoder
BL_9
12 Autopilot switches
Resisters R11,R12,R13,R14,R15

Note: you still need to install BL_8 to maintain the functionality of BL_7.

No Autopilot Mod:

Do not install the following parts:

12 Autopilot switches
Resisters R11,R12,R13,R14

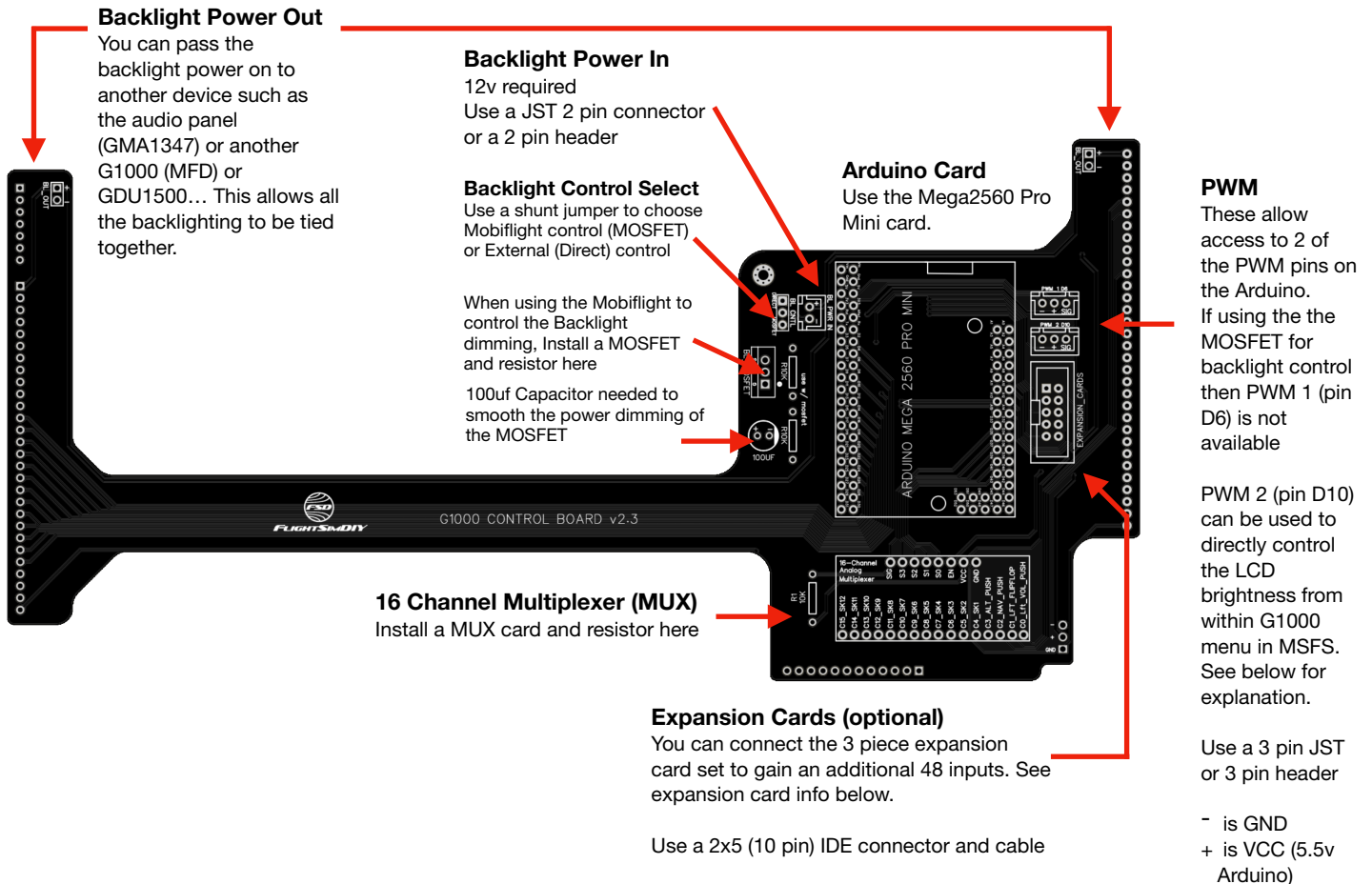Power input for Backlighting (connect to one side (left PCB or right PCB) to power source (12v).

1 - VOL Encoder A	**19** - FD
2 - VOL Encoder B	**20** - ALT
3 - VOL PUSH	**21** - VNV
4 - Flip-Flop	**22** - BC
5 - NAV Inner A	**23** - NOSE_UP
6 - NAV Inner B	**24** - NOSE_DN
7 - NAV Outer A	**25** - ALT Inner A
8 - NAV Outer B	**26** - ALT Inner B
9 - NAV PUSH	**27** - ALT Outer A
10 - HDG Encoder A	**28** - ALT Outer B
11 - HDG Encoder B	**29** - ALT PUSH
12 - HDG PUSH	**GND** - Connect to GND on I/O Board
13 - AP	
14 - HDG	(only need to connect either the right or left PCB GND to your I/O board)
15 - NAV	
16 - APR	
17 - VS	
18 - FLC	

These pins are connected to the same pins on the Bottom PCB, They pass the Backlight Power and the I/O GND along to the next PCB.
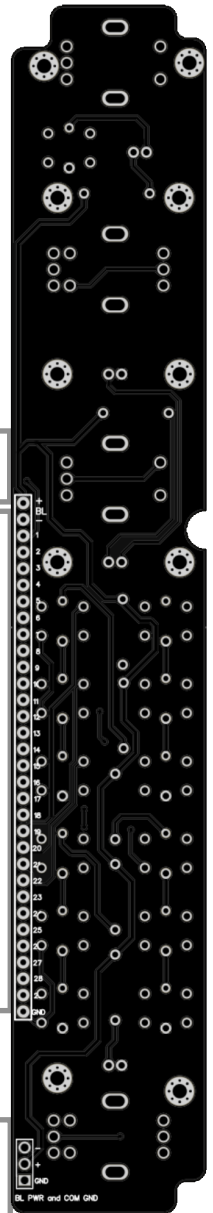
Mobiflight Control Board

This control board is designed to plug into the Faceplate (Base set) PCB's. It creates a much cleaner setup and provides some additional functionality to your G1000.

Backlight Power Out
You can pass the backlight power on to another device such as the audio panel (GMA1347) or another G1000 (MFD) or GDU1500… This allows all the backlighting to be tied together.

Backlight Power In
12v required
Use a JST 2 pin connector or a 2 pin header

Backlight Control Select
Use a shunt jumper to choose Mobiflight control (MOSFET) or External (Direct) control

When using the Mobiflight to control the Backlight dimming, Install a MOSFET and resistor here

100uf Capacitor needed to smooth the power dimming of the MOSFET

Arduino Card
Use the Mega2560 Pro Mini card.

PWM
These allow access to 2 of the PWM pins on the Arduino.
If using the the MOSFET for backlight control then PWM 1 (pin D6) is not available

PWM 2 (pin D10) can be used to directly control the LCD brightness from within G1000 menu in MSFS. See below for explanation.

Use a 3 pin JST or 3 pin header

˗ is GND
+ is VCC (5.5v Arduino)

16 Channel Multiplexer (MUX)
Install a MUX card and resistor here

Expansion Cards (optional)
You can connect the 3 piece expansion card set to gain an additional 48 inputs. See expansion card info below.

Use a 2x5 (10 pin) IDE connector and cable

Mobiflight Expansion Cards

These expansion cards can be daisy chained together and allow for 48 additional inputs to the Arduino card. These are inputs only (buttons or switches). They are connected using IDE ribbon cables to allow flexibility in where you put them in your home cockpit.

2x5 (10 pin) IDE connector and cable. Connects to Mobiflight control board

2x4 (8 pin) IDE connector and cable. Connects to Card 1

2x4 (8 pin) IDE connector and cable. Connects to Card 2

Use 2 pin JST connectors or 2 pin headers
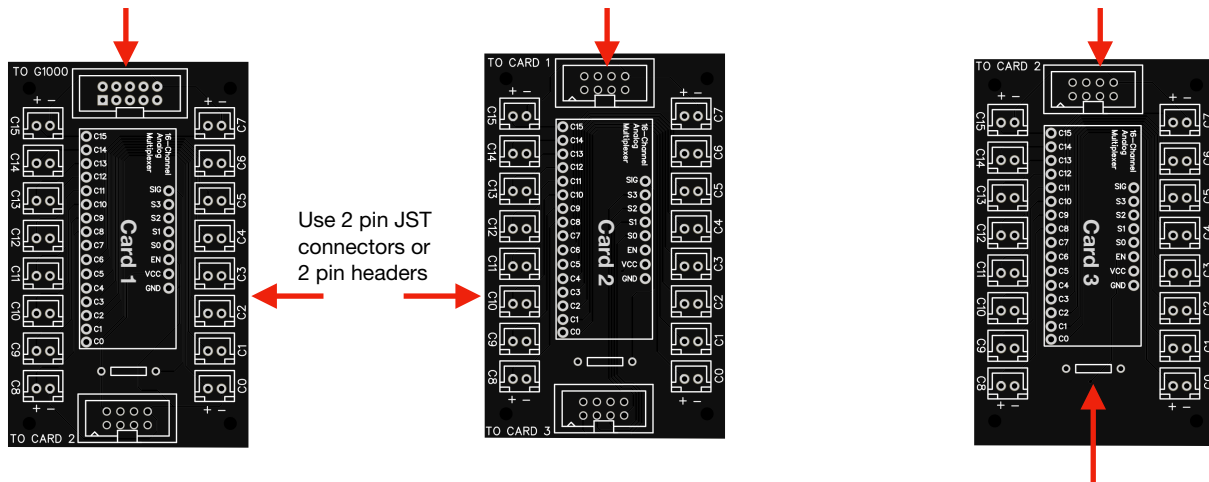
NOTE: The cards must be connected in this order…
MF Control Board > Card 1 > Card 2 > Card 3

16 Channel Multiplexer (MUX)
Install a MUX card and resistor onto each card