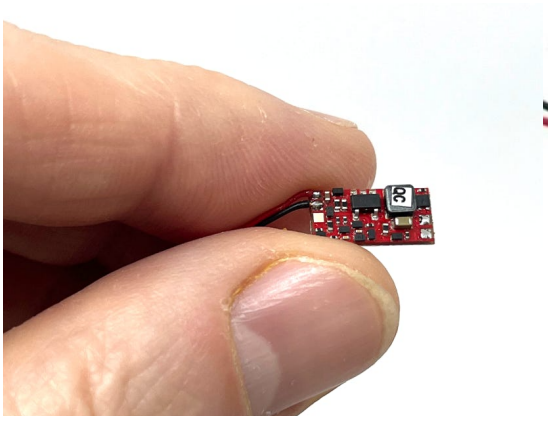
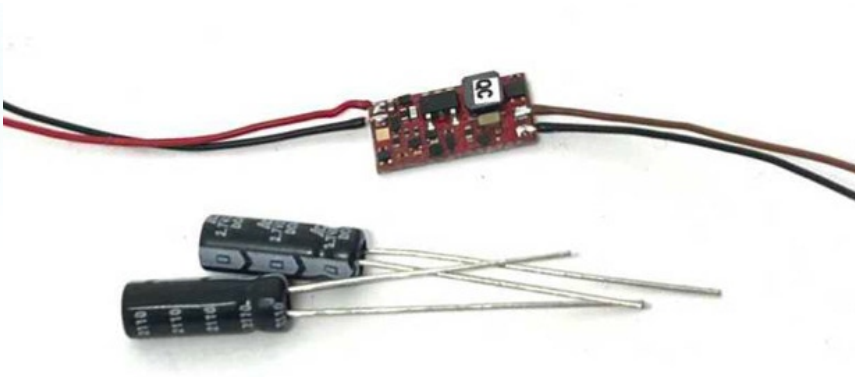
NixTrainz

Power Bridge III
User Manual





- **Please read this manual carefully before carrying out the installation!!! Although our products are very robust, incorrect wiring may destroy the module!**
- **During the operation of the device the specified technical parameters shall always be met. During the installation the environment needs be taken into consideration.**
- **The device must not be exposed to moisture or direct sunlight.**
- **During installation it must be ensured that the bottom of the device does not contact with a conductive surface!**

Contents

Important information 1

Technical Specifications 2

Installation of the Power Bridge III 2

Analog operation (DC) 5

CV Settings 5

1. Important information

Please read this first chapter

- Any connection must be made without power connected. Please make sure that during installation, the locomotive is not powered, not even accidentally.
- Two super capacities rated at **2.7 Volts** must be used in series for the Power Bridge III to function properly. Both capacitors **must** be the same capacitance.
- Do not remove the heat shrink tube from the Power Bridge unless absolutely necessary. (on models fitted with a protective sleeve).
- Ensure that the Power Bridge III does come into electrical contact with the locomotive chassis or other electrical components (short-circuit risk).
- Do not wrap the Power Bridge III in any tape, as this will cause overheating.
- Follow the wiring of the Power Bridge III and any external components as recommended in this manual. Wrong wiring connection can cause damage to the Power Bridge.
- Make sure that there are no wires trapped by the locomotive transmission system when reassembling it.
- Users are advised to read the manual carefully to fully understand the potential risks involved.
- Do not use the Power Bridge III in wet or humid environments.

2. Technical Specifications

Supply voltage: 12-24 V, (rectified DCC voltage in the tracks)
Dimensions (without wires) 12.5 x 6 x 2.5 mm

The Power Bridge III can be attached to all Decoder Buddy models and supplies your locomotive with storage energy when running over dirty tracks and long points. The sound, lights and engine functions are buffered so the locomotive can continue running with lights and sound after it loses power

The Power Bridge III contains an integrated automatic charging circuit. It can remain connected to the decoder even during programming with any decoder.

The Power Bridge III is specially designed so it can be used with decoders that normally require a 3 wire power pack.

The charging current is limited, in order to prevent an excessive load on the boosters if several models are in use.

The Power Bridge III will generate heat during operation, this is normal. Please be sure to leave space around the Power Bridge III for ventilation.

3. Installation of the Power Bridge III

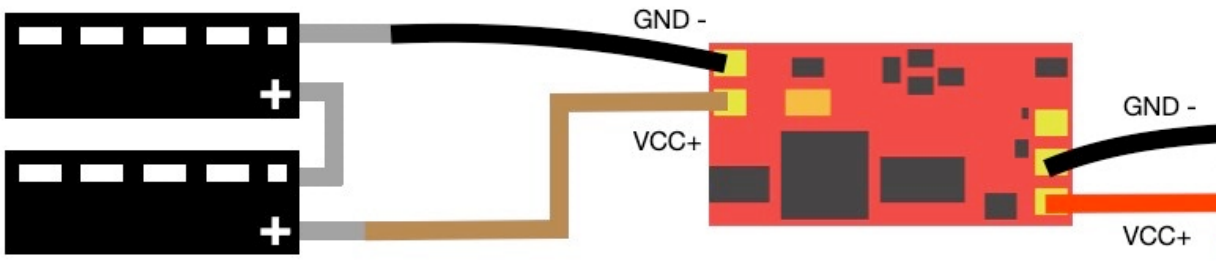
The Power Bridge III is delivered with a pair of RED/BLACK wires for the decoder connection, and a pair of BROWN/BLACK wires for an easily connected two-capacitor pack. You must connect both capacitors for proper function.

The Power Bridge III is specially designed so it can be used with decoders that normally require a 3 wire power pack.

Refer to the figures below for the most common wiring diagrams. The manuals for the **Decoder Buddy** and any decoders indicates the typical soldering locations.

The RED wire of the decoder connection is the positive, the BLACK wire is the negative terminal of the Power Bridge III. The capacitor pack contains two 0.3 Farad / 2.7V super capacitors connected in series. Both Super Capacitors, of the same capacitance, must be connected properly to avoid damage. The polarity of the capacitors is critical. Please use the polarity markings in the illustration below when you are assembling the two series connected capacitors. The BROWN wire of the capacitor pack is the positive, the BLACK wire of the capacitor pack is the negative terminal. Remember the longer lead on the capacitor is the positive, and the stripe

(with negative signs) is the negative. Connecting the capacitor pack with the wrong polarity will damage the capacitors, and could cause fire.

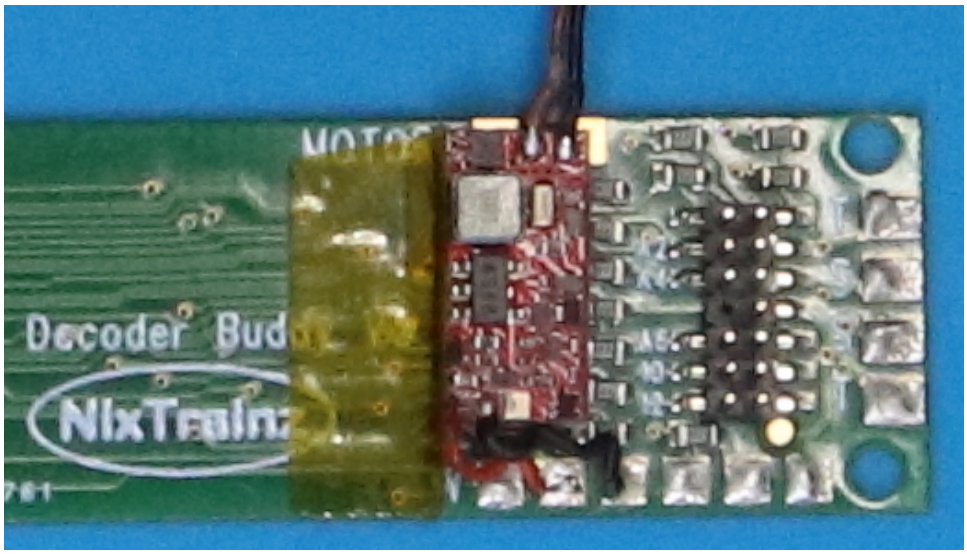


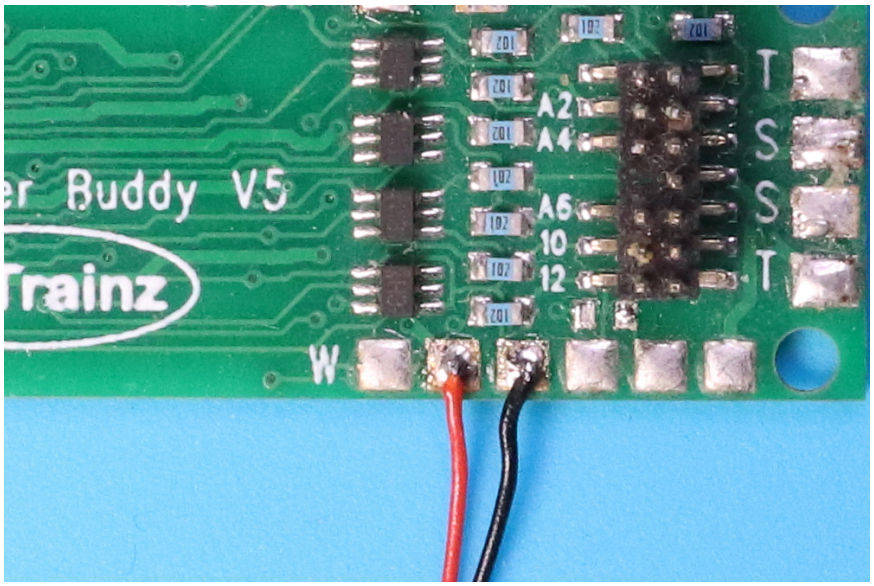
Optionally the two series connected capacitors can be replaced by two series connected 1 Farad / 2.7V capacitors for an increased storage time.

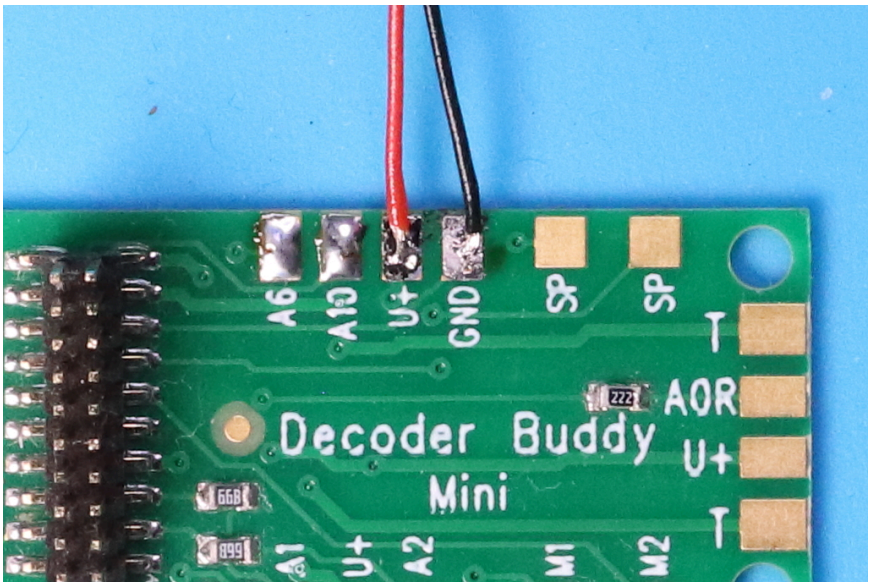
The bottom side of the printed circuit board of the Power Bridge III is flat and doesn't contain electronic components. However, direct contact of the bottom surface with any metal parts is not recommended. Please use a double sided adhesive tape, or adhesive goo, or caulk. **Use of 2 sided foam tape is not recommended.** This will also provide electrical insulation.

Follow the next steps for the connection of the wires to the Decoder Buddy or directly to a decoder.

- Solder the RED wire of the Power Bridge III to the Vcc/U+ soldering surface of the decoder.
- Solder the BLACK wire of the Power Bridge III to the GND soldering surface of the decoder.







➠ Make sure when soldering that you do not create a short circuit between the soldering pads, the capacitors, the circuit board, or any other part of the locomotive! A short circuit might damage the decoder!

➠ The Power Bridge III will generate heat during operation, which is normal. Do not mount on a vulnerable or plastic surface. Leaving some space around the Power Bridge III is recommended.

4. Analog operation (DC)

When operated on analogue layouts, the Power Bridge III operation will depend on the decoder used. Please consult the decoder manual for details.

5. CV settings

The Power Bridge III basically doesn’t need any special CV configuration. However, certain decoders require the disabling of DC operation to be able to run with a Power Bridge. This must to be done in CV29, setting bit 2 to a zero value (please see the decoder's manual for an example).