



## SERVICE BULLETIN LA-V75-001

Product: Underground VHF Line Amplifier

Subject: Updated “live wiring” guidelines

Date: 11<sup>th</sup> March 2021

### Description

This Service Bulletin updates the recommended installation procedure when connecting a LineAmp into a powered leaky feeder cable. This revised procedure minimises the likelihood of the DC pass-through electronics being damaged during “live wiring” operations.

### Background

Two sites have reported failures with LineAmps after performing live connections into powered leaky feeder systems. In both instances it was found that the DC pass-through power transistor (Q803) failed. The impact on the LineAmp functionality after such a failure is:

1. The device no longer passes DC between its left and right ports;
2. The “DC CTRL” slide switch is no longer effective.

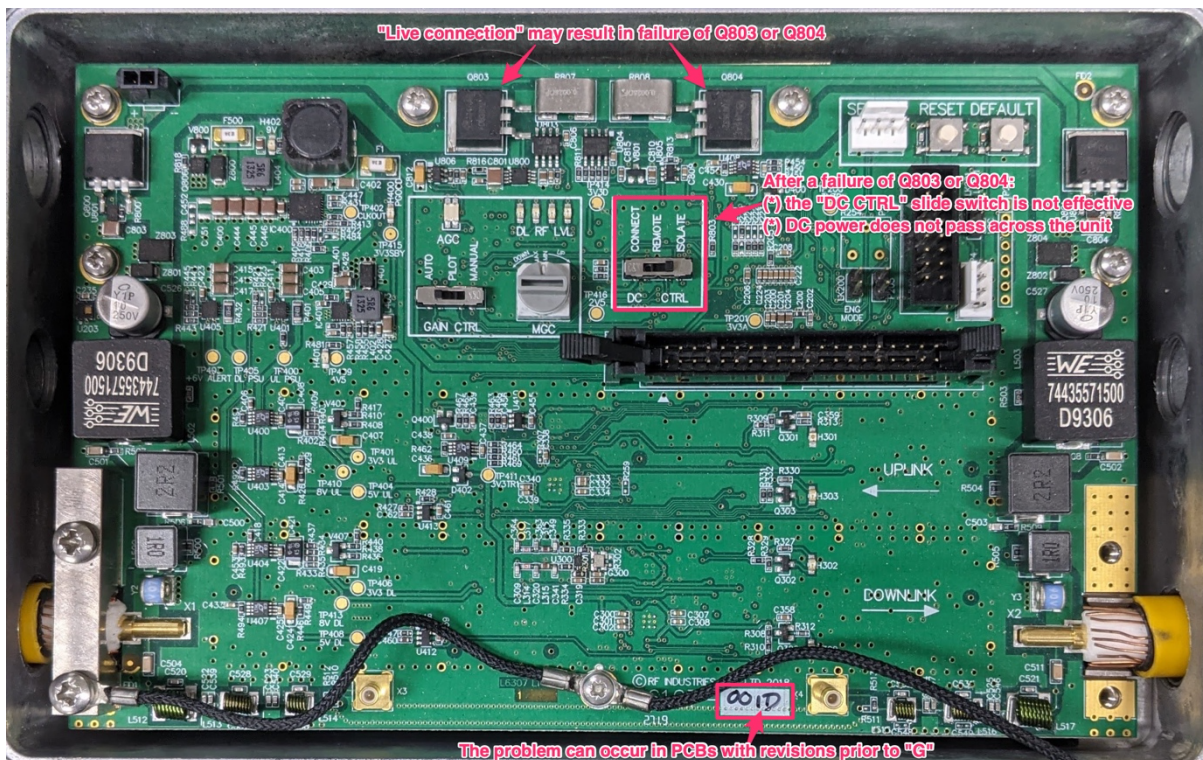


Figure 1: Illustration of the BDA PCB, highlighting the components that are affected.



Coincidentally, a running design change was made to the BDA board design in mid-2020, which reduced the LineAmp's total power consumption and simplified the electronics. This simplification of the electronics resulted in:

- The power pass-through transistors and “DC CTRL” slide switch being replaced by an 8A jumper link;
- 40% reduced power consumption (achieved by running the internal rails at lower voltages);
- Improved labelling of PCB controls;
- Addition of the EXPANSION port (for connection of Bluetooth or tag reading modules).

These changes were implemented in PCB revisions G and onwards, as illustrated below.

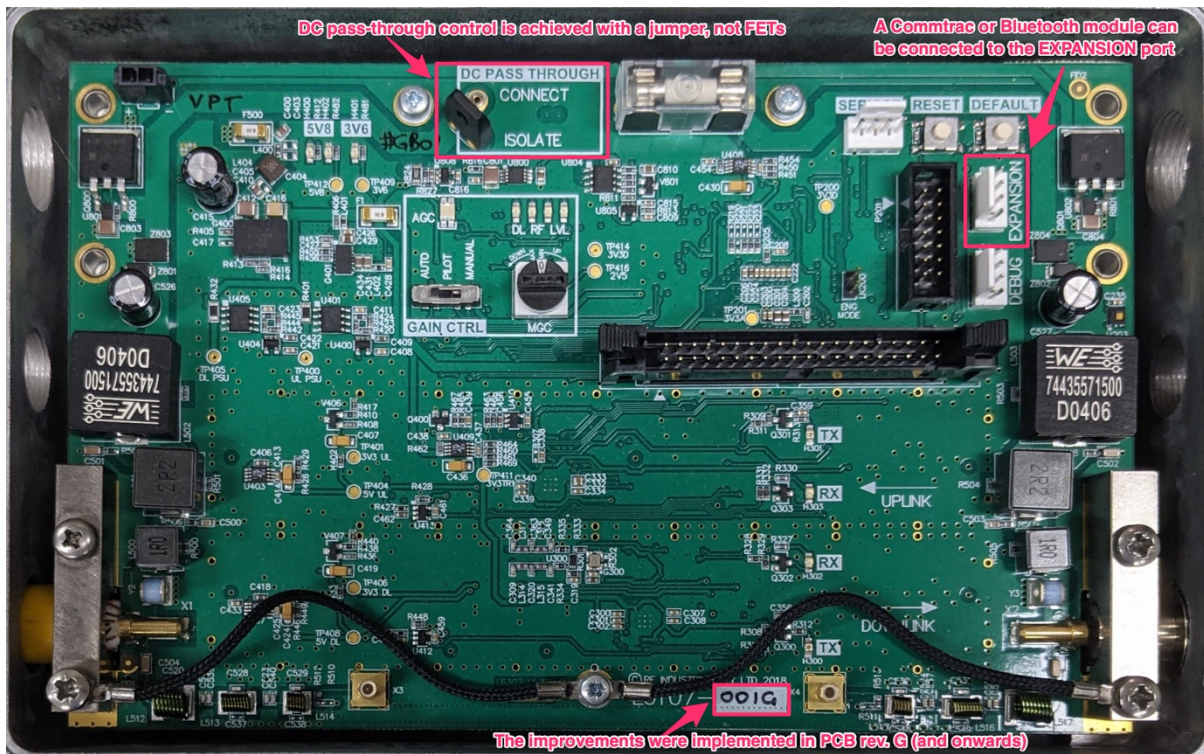


Figure 2: Illustration of the BDA PCB, highlighting the running changes implemented in mid-2020.

Due to the removal of the FETs, BDA PCBs with revision G (and onwards) do not suffer from this issue.





## How to identify the affected devices?

### 1. Product revision on the cardboard outer carton

LineAmps are shipped with a cardboard outer carton. That cardboard outer carton has a label that includes a “HW Rev” field, which identifies the top-level product revision. An image of that cardboard outer carton and label is shown below.

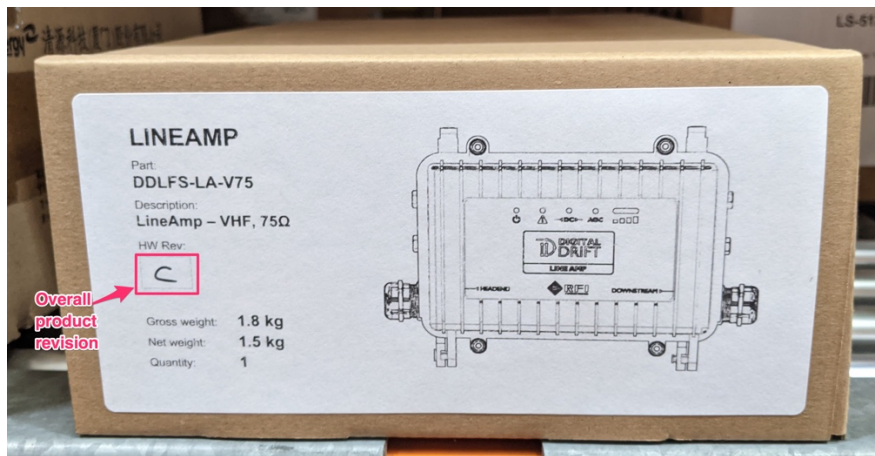


Figure 3: Outer carton, indicating the product revision

**IF:** The product revision on the outer carton is **C**, the internal device’s BDA PCB will be revision G (or greater), and the device is not affected by this issue.

**ELSE:** If the product revision on the outer carton is **A** or **B**, or if there is no label on the outer carton, then the device needs to be opened to check the PCB revision.

### 2. BDA PCB revision

If the outer carton does not indicate a rev. C product, then the lid of the device needs to be opened and the BDA PCB revision inspected.

**IF:** The BDA revision is **G** (or greater), it is not affected by the issue.

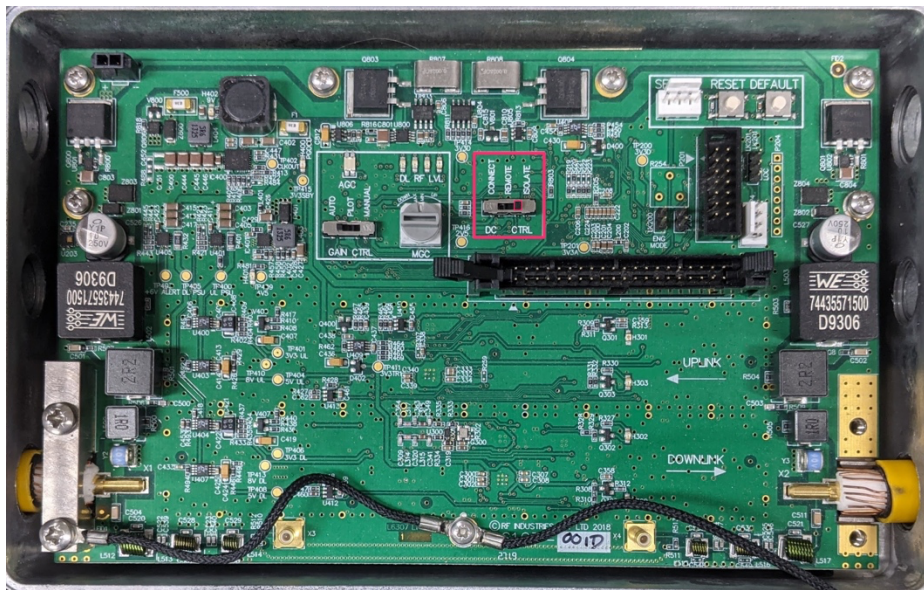
**ELSE:** It is affected by the issue.



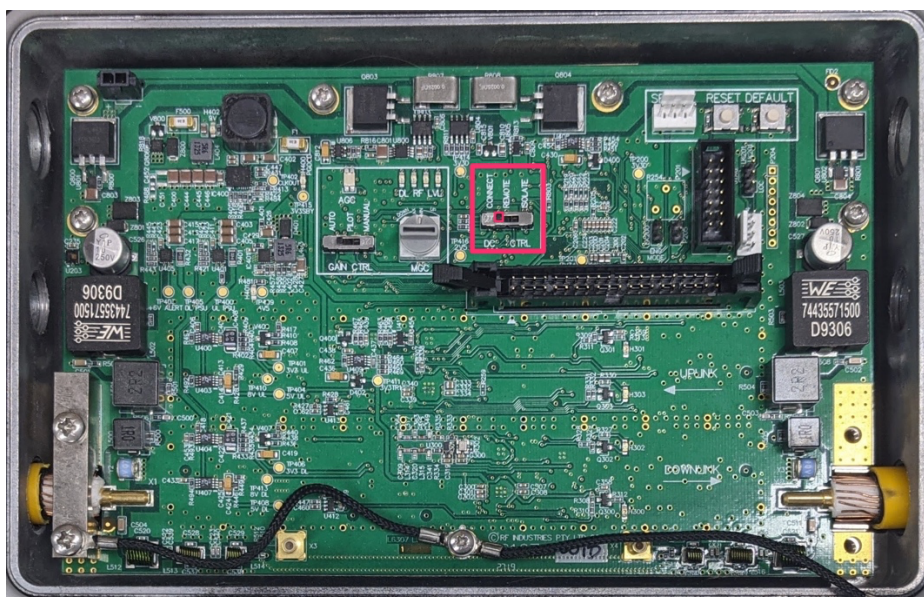
## Recommended solution

Select the ISOLATE position prior to “wiring live”

1. Before wiring a LineAmp into a powered leaky feeder system, place the DC pass-through control into the **ISOLATE** position as shown below.



2. Connect the leaky feeder cables into each side of the LineAmp in the following order for each cable:
  - a) Push the stripped cable through the external cable gland and the internal saddle clamp until the centre conductor is seated in the receptacle on the PCB;
  - b) Tighten the external cable gland, which provides the strain relief;
  - c) Tighten the internal cable saddle, which makes electrical contact with the coaxial cable shield.
3. If DC power pass-through is required, move the DC pass-through control into the **CONNECT** position.







## What to do if there is failure of the DC pass-through FETs?

### Confirm the diagnosis

If there is a suspected failure of the FETs, use the following procedure to confirm this:

1. Select the **ISOLATE** position on the DC pass-through control.
2. Connect a powered leaky feeder cable to the left-side of the LineAmp (i.e. the HeadEnd side)
3. Using a multimeter, measure the DC voltage between the large flat metal surface on the back of **Q803** and the head of the PCB mounting screw adjacent to it.
  - This will result in a DC voltage equal to the voltage on the leaky feeder cable.
4. Using a multimeter, measure the DC voltage between the large flat metal surface on the back of **Q804** and the head of the PCB mounting screw adjacent to it.
  - This should result in a very small DC voltage (i.e. DC is not passed through).
5. Select the **CONNECT** position on the DC pass-through control.
6. Repeat Step 4, and:
  - **IF:** the multimeter presents the same value as measured in Step 3:
    - The DC pass-through functionality is working correctly.
  - **ELSE:**
    - The DC pass-through functionality is not working.

### Return for warranty

If the diagnosis is confirmed (as per the procedure above), contact your supplier to raise an RMA and then return for a warranty repair.