

## **Keeping FlexiDim Up & Running**

In the last 20 years, FlexiDim has shown itself to be a very reliable lighting system. Problems, where they have occurred, have usually been resolved by a simple procedure or a simple board level repair. 20 year old systems are still running and have not required any interventions.

Firstly, FlexiDim has always been a self-managed system so make sure you have downloaded the configuration software (PC and Windows) or the App (iPad) depending on the age and variant of your system.

Also, download manuals from the website and/or videos for the iPad.

The PC software is available from [www.jclighting.com](http://www.jclighting.com)

Click on My JCL and log in with a username of 'general' and password of 'general' to access the software.

Follow the installation instructions carefully, in particular install to C:\Program Files\FlexiDim and create a C:\FlexiDim folder for your configuration files.

For iPad, download from the App Store (search for FlexiDim). Make sure you keep a copy of your configuration file - email it to yourself from the App and save the attachment to a safe place.

In both cases you will need the configuration files, or you will need to reconfigure the system from scratch.

In all instances, if you have a problem and it's not something obvious, start by using the tools that are part of the installation program (PC) and equipment tab (iPad) to directly monitor and control the system to determine exactly what is causing the problem. Use the trace facilities to see if a button press is being seen by the main controller and that the system is subsequently commanding a channel to do something. Control the dimmer directly to see what is and is not responding.

Make sure you are actually connected with the PC/App (!) There are guides on getting connected in the various manuals/documents on the website.

<http://jclighting.com/Technical/TCP1.asp>

<http://jclighting.com/Technical/Serial1.asp>

Are the LEDs on the switches illuminated? Has there been any electrical/networking work that could have changed something?

Don't assume that the cause is the most complex thing! Often it's just a tripped circuit breaker, a blown bulb (or several bulbs that have died over time and now the last one is gone), defective transformer etc.

Quest End [questend.co.uk](http://questend.co.uk) are familiar with FlexiDim and are experienced in programming. They can also assist in a migration strategy if your FlexiDim system reaches the end of its viable life.

While we have given part numbers and source for components in the interests of openness, if you have a problem that requires a board level repair, and/or if you or your electrician are not completely confident that you have the tools and skills necessary to effect board repairs then it is highly recommended to contact Quest End in the first instance.

In spite of the demise of JCL, it is our personal intention to assist Quest End, where possible, in providing a solution for system problems.

**The list below describes the likely solution to things we have seen over the years.**

**1) Date & Time slipped, resulting in automated scenes occurring at the wrong time**

Download your configuration (iPad) or open the User Configuration program (PC) and select Set Date & Time from the menu.

You can then verify the configuration to see that the time & date are correct.

Make sure you are actually connected! There are guides on getting connected in the various manuals/documents on the website.

**2) A switch still has its LED illuminated, but behaves erratically.**

The symptom to look out for is the on/off button not working but scene button 1 works normally.

Reset the switch by pressing and holding buttons 3 & 4 for 30 seconds.

**3) Some channels stop working, or are operated by the wrong switch. 3000 series dimmers only.**

This is caused by the dimmer reverting to its factory setting and is probably after a power failure.

With the Installer configuration program (PC) open your site file (8 digit number.fx) and press program dimmer modules button on the main page (bottom right).

On iPad, enable hardware changes on the main tab. Then select the equipment tab, select Modules from the list on the left and click 'Resend all configuration information'

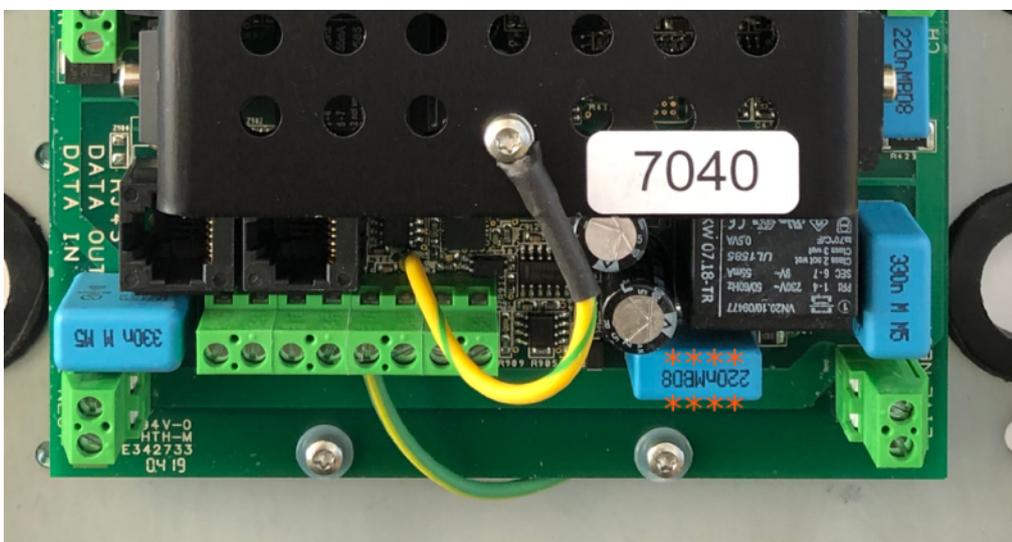
Make sure you are actually connected! There are guides on getting connected in the various manuals/documents on the website.

**4) Flickering/unpredictable dimming on 7000 series dimmers**

All channels on the module are likely to be affected.

This is most likely a minor component failure in the circuit that detects the start of each mains cycle. The component is easily changed by someone competent with a soldering iron. The RS part number is 874-1419 and the manufacturers (EPCOS) part number is B32932A3224K000 It can be fitted either way round.

It is located at the bottom right of the board as shown here.



### **5) Single channel stuck off (3000 series dimmers only)**

Some variants of these dimmers have a fuse that protects each channel. It is adjacent to the channel connections and is about 8mm diameter and red-brown in colour. It can be pulled out with long nosed pliers (ensure dimmer is switched off at the isolation switch first). The RS part number is 377-2203 and the manufacturer part number is Wickmann 3821500041. Variants that do not have fuses have an uprated output device that is protected by the MCB.

We have seen a few instances of electricians removing or replacing a case cover with the power on and dropping the lid onto the coils at the top of the dimmer module (channels 1 & 5). This will typically destroy the coil winding at the point of contact. These coils were specially made and are not generally available, however it is possible to repair the damaged section by unwinding one turn of the coil each side of the break, stripping off the enamel coating and soldering the ends together.

### **6) Single channel stuck on (3000 series dimmer only)**

These are very rare once installation is complete as they are usually the result of a dead short circuit in the building wiring that the electrician did not test before connecting the dimmers. The repeated surge as the circuit breaker was repeatedly reset (rather than looking for and resolving the problem) damages the output device for the channel. Occasionally a catastrophic failure in a LV transformer behind a 12V halogen can also cause this, again if the MCB is reset repeatedly without resolving the underlying problem.

The failed component can be replaced by someone experienced in component replacement on circuit boards. The manufacturers part number is BTA24-600-BWRG - RS part number 168-6668

Occasionally part MOC3023 will also be damaged. RS part number 691-2287

These components are immediately adjacent to the affected channel's connector and attached to/ under the heatsink.

Both must be inserted the correct way round - i.e the same as the one being removed.

### **7) Single channel stuck off (7000 series dimmers only)**

This has only been seen where a transformer has overheated due to inadequate ventilation and higher levels of dimmer loading. The top of the affected transformer will be swollen and is relatively easily replaced by someone with experience of board level repairs with a desoldering tool & soldering iron. The part number of a replacement is RS 732-0297

The transformers are located under the heatsink, which will need to be removed to access them. Critical: Ensure the isolating pads are replaced when the heatsink is refitted.

Ensure that ventilation is addressed to avoid this problem recurring.

On one occasion we have seen a short circuit failure on a protection component cause this (as the dimmer thinks that there is a wiring fault and locks out the channel). This component is adjacent to the affected channel. RS part number 764-5458 manufacturers part number 1.5SMC440CA It can be lifted off one end at a time with a soldering iron and tweezers and then replaced. It can be fitted either way round.

### **8) Single channel stuck on (7000 series dimmers only)**

These are very rare once installation is complete as they are usually the result of a dead short circuit in the building wiring that the electrician did not test before connecting the dimmers. The repeated surge as the circuit breaker was repeatedly reset (rather than looking for and resolving the problem) damages the output device for the channel. Occasionally a catastrophic failure in a LV transformer behind a 12V halogen or an LED driver can also cause this, again if the MCB is reset repeatedly without resolving the underlying problem.

The failed component can be replaced by someone experienced in component replacement on circuit boards. The manufacturers part number is IGW40T120 - RS part number 754-5392 Occasionally part KBU1007 will also be damaged. RS part number 687-5879

Note that they have a correct orientation, which is the same as those removed/others on the same side of the module.

When replacing these parts it is best to cut the legs first, then desolder. This is because they both have high thermal mass that can make desoldering difficult.

## **General**

Here are some thoughts that could help extend the life of an installation.

The most vulnerable parts of a lighting system are those connected to household wiring and especially outside wiring, which is prone to water ingress. This is because a fault can impose a significant strain on the output devices (of the dimmer module) if a complete short circuit occurs between Live & Neutral. While the modules are protected against short circuits and voltage transients, this protection must be something of a compromise as certain types of lamp can look like a fault when switched on. Therefore the dimmer has to quickly (10 millionths of a second) determine whether a fault has occurred or if the apparent fault is a transient in-rush current. Just occasionally, a transient event will develop into a real fault (things tend to fail at switch on) and the dimmer misses the chance to protect itself.

However, to avoid adding to the chances of a dimmer module problem:

Isolate before removing or replacing case lids. It's all too easy to drop it on the internal components when working in a tight space and the resulting damage is usually terminal.

Switch off FlexiDim at the supply when doing work on circuits. Don't rely on the lights being turned off from the FlexiDim switch as (especially with lighting control systems) they can be turned on without notice, possibly from another room as part of a complex scene that spans rooms. Aside from the electric shock risk, it makes damage to a dimmer a bit more likely than if it's been isolated, which is a pointless risk to take.

Check wiring before connecting it to FlexiDim/powering back up, both with a test meter and with a trial power-up on a mains supply. The reason for the trial power up is that a reversed driver can/will fail catastrophically the first time mains is applied. Also, no matter how careful you've been, please don't assume you've not introduced a short circuit - it is all too easy to do with metal wall lamps, small metal ceiling roses etc. etc.

The last line of defence against a L-N short circuit on the output of the dimmer module is the MCB feeding the module.

Modules should have been fed by a 10A type B MCB at point of installation. Over the years, we have found instances where this has not been the case and two dimmers have been put on a 20A MCB, or a type C profile which does not offer sufficient protection. If we have stumbled on instances of this, the chances are there are other cases. Obviously, when all is going well it goes unnoticed. However, If you check that your system has the correct primary protection, you'll be doing the system a favour in the long run.

Also, with the move to LED and the corresponding reduction in running current, a 6A or even a 3A MCB offers improved protection for the dimmer if it misses the opportunity to protect itself against a short circuit. The cost and time to change a handful of MCBs could be worthwhile.

Finally, it makes sense to upgrade to RCD/RCCB protection on installations dating back to a time before this was a requirement. This is especially the case with modules feeding exterior lights where water ingress is a real possibility and the chance for a short circuit are therefore increased.