## Fluorescent lamps generally fall into two categories: those where the control gear is separate and connected to the lamp via wires and lamp end cap(s); and those with integral control gear.

Fluorescent lamps with separate control gear are generally not dimmable via conventional mains rated dimmers. However it is possible to dim these lamps by using dimmable control gear, which is readily available and widely used, mostly in commercial applications. Such dimmable gear falls into a number of categories, namely: Switch-Dim which uses 230V rated push-to-make switches; 1-10V which uses specific 1-10V dimmers; and DALI/DSI which use more sophisticated dimming controls. Richmond Lighting are able to offer dimming solutions for all these dimming options - see Guide to Dimming Commercial Fluorescent Luminaires page 30.

Until recently most fluorescent lamps with integral control gear were not dimmable. This is because a conventional dimmer works by reducing the voltage to the lamp, and when fluorescent lamp control gear input voltage is reduced the gear sees this as a fault and operates abnormally or switches off to protect the electronics.

Following the announcement that conventional GLS tungsten lamps are to be phased out, a number of manufacturers have now introduced compact fluorescent lamps with integral gear, which can be dimmed using conventional mains dimmers, for use in lieu of most GLS lamps. Most Richmond dimmers can be used to operate these dimmable CFL lamps, however it is important to note the following:

1. Due to the nature of these dimmable CFL lamps some additional derating is required and care needs to be taken to select the correct dimmer for the max and min loads required. (see below).
2. Observe the stated maximum and minimum CFL lamp loads shown. Overloading could lead to dimmer failure and underloading can cause flickering or the lamps to extinguish at minimum setting.
3. For optimum performance and lamp life we recommend that new CFL lamps are left on at maximum level for 100 hours before the lamps are dimmed. This does not have to be done in one go; 8 or 10 hours a day is acceptable. If the voltage on a CFL lamp is reduced before 100 hours then the lamps may flicker and rapid deterioration and/or possible burn out will occur, reducing the overall lamp life.
4. Operate lamps at full brightness for a few minutes each time they are switched on to allow them to warm up before dimming down to the desired setting.

Richmond manufacture a number of dimmers which can handle CFL lamp loads. Please contact our Sales Hotline with details of the make, model and wattage of CFL lamps and we can suggest the best dimmer to suit the application.
Dimmable CFL lamp suppliers will normally recommend the maximum and minimum number of their lamps that can be safely operated on various dimmers, and these recommendations should always be followed.

Due to the nature of these dimmable CFL lamps some additional derating is required and care needs to be taken to select the correct dimmer for the maximum and minimum loads required. In the absence of any specific manufacturers' information, the following table gives the maximum and minimum loads of the various Richmond Lighting dimmers which are compatible with Dimmable Compact Fluorescent (CFL) lamps, and the equivalent dimmable CFL lamp loads.

| | Tungsten (T) Low voltage (LV) loads | | | CFL load | |
|---|---|---|---|---|---|
| Dimmer | Min W | Max W (T) | Max VA (LV) | Min W | Max W |
| ECU250 | 40 W | 250 W | 250 VA | 8 W | 41 W |
| ECU400 | 60 W | 400 W | 400 VA | 12 W | 66 W |
| ECU1000 | 150 W | 1000 W | 700 VA | 30 W | 116 W |
| GRID500 | 40 W | 500 W | 400 VA | 12 W | 66 W |
| CKR1500 | 225 W | 1500 W | 1000 VA | 45 W | 166 W |
| CKR2500 | 375 W | 2500 W | 1800 VA | 75 W | 300 W |
| CKR3500 | 525 W | 3500 W | 2500 VA | 105 W | 416 W |
| VMR2500 | 375 W | 2500 W | 1800 VA | 75 W | 300 W |
| VMR3500 | 525 W | 3500 W | 2500 VA | 105 W | 416 W |
| MP600TE | 10 W | 600 W | 600 VA | 2 w | 100 W |
| ILD300WH | 60 W | 300 W | 300 VA | 11 W | 50 W |

Notes:
1. The above tables are based on typical CFL lamp manufacturers' recommendations on dimmer loading, calculated as follows:
Minimum CFL lamp load = 1/5th Dimmer minimum load. Maximum CFL lamp load = 1/6th Dimmer maximum load.

2. For mixed loads, multiply the total CFL load by 6 and add to the Tungsten/Low voltage load, and ensure this total figure does not exceed the dimmer's maximum VA rating.
For example: A circuit contains 5 x 11W Dimmable CFL lamps and 3 x 60w GLS lamps
5x11W=55W, multiply x 6 = 330W, plus (3x60W) = 510W.
So our MP600TE (rated at 600VA) or our ECU1000 dimmer (rated at 700VA) would both be suitable for controlling this mixed load.