

flex 7 Education Applications Data Sheet



St Joseph's School, Swindon



Tresham Institute, Kettering



Djanogly Academy, Nottingham

Schools, Colleges and Universities

Many schools, colleges and universities are currently being built, rebuilt or upgraded, aided by a number of central and local government initiatives. These educational buildings have often been identified as suitable for energy (and cost) saving, particularly with regard to the lighting installation.

Flex Connectors Limited manufactures an extensive range of standard products suitable for implementing energy savings in the many different areas of these buildings including: classrooms; lecture theatres; laboratories; staffrooms; storerooms; cafeterias; corridors and WCs. A selection of completed educational projects is available at www.flexconnectors.co.uk.

Classrooms, lecture theatres and laboratories

Classrooms, lecture theatres and laboratories often share the same requirements for energy efficient lighting control:

- Lighting to be switched in rows to facilitate audio-visual or whiteboard presentation;
- Daylight linking of light level for the lights nearest the window;
- Separate control (switching and/or dimming) of whiteboard illumination;
- All lighting to be switched off automatically when the room is not occupied.
- There is often the additional requirement for the local testing of emergency lighting.

There is now one product range specifically designed to give all this control in one compact unit – the Flex Connectors **fcr** range of connection units.

Whilst these connection units can be configured in many different ways to suit the particular requirements of a project, **four** standard units are available:

fcr12

Suitable for rooms with up to three rows of three lights and a whiteboard, where the rows of lights are parallel with the window. When fitted with the appropriate plug-in control devices, each row of lights can be individually switched; the window row will daylight link and the whiteboard will be separately switched or it could be dimmed. All the lights will be PIR controlled, with the option of either occupancy (automatic switch On) or absence control (manual switch On). All switch drops will be ELV sourced from an isolating transformer. Switches must be a retractive type. Dimmable ballasts can be DSI or DALI types. The sensors can be linked to a corridor hold system, to timer control or to a BMS system.

fcr12x

Provides similar control for rooms where the rows of lights are perpendicular to the windows.

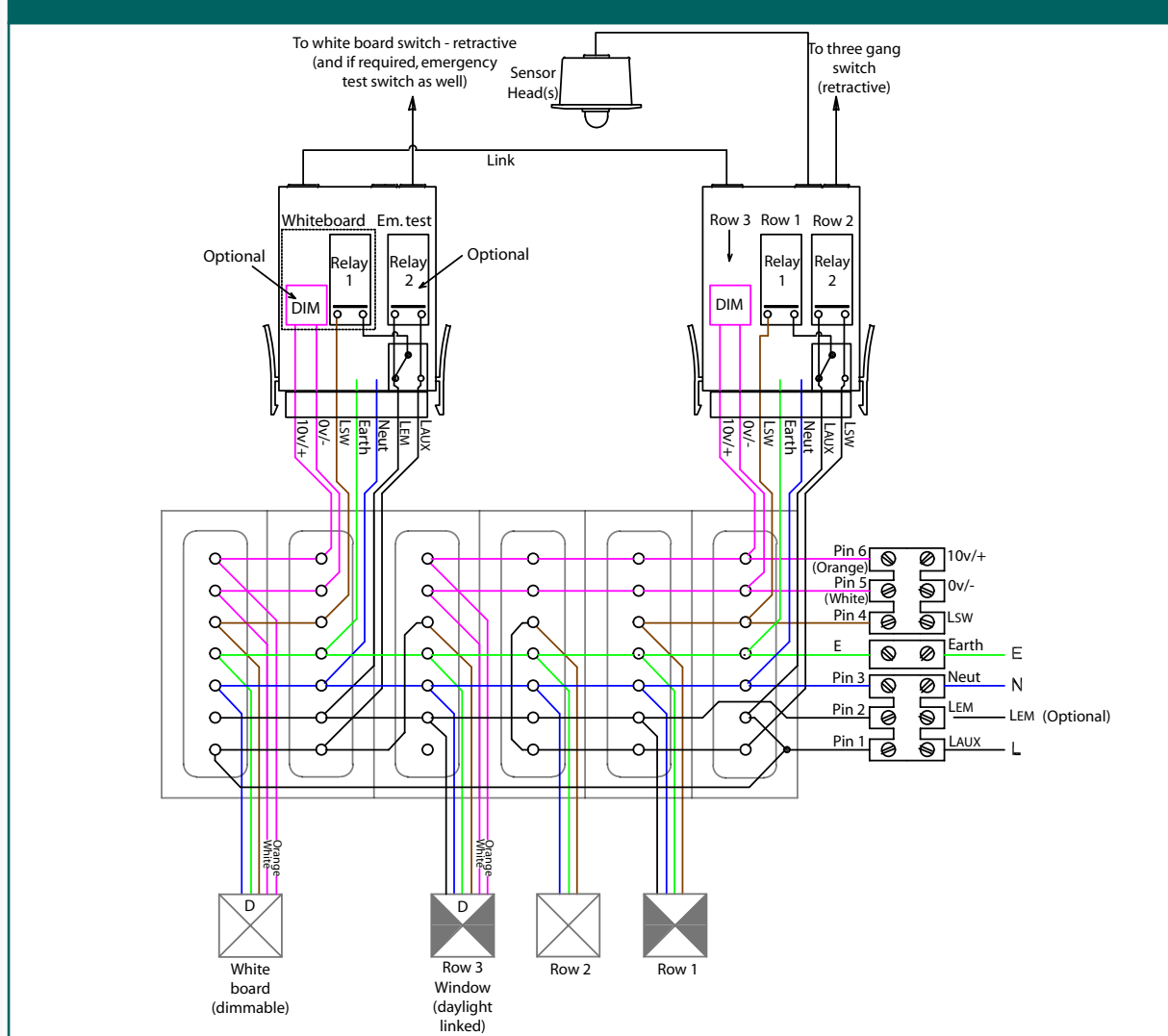
fcr06

Suitable for rooms with more than three lights in a row and will provide identical control to fcr12. This unit is used in conjunction with the unique Flex 7 double extender lead system which piggy backs from fitting to fitting. Rows can be as long or short as required.

fcr06x

Provides similar control for rooms where the rows of lights are perpendicular to the windows.

Control Schematic fcr06



Two control packs are required to plug into each unit

Many variations of the fcr system are possible: classrooms with windows perpendicular to the rows of luminaires; luminaires grouped in different configurations; simple on/off control; multiple switches; corridor hold.

Pack 1 - fcr12 and fcr06

fnc4000*/AT/2s

This control pack will daylight link the window row and allow manual switching of the three rows of lights. It can be set up on site as either an occupancy or absence sensor. However the lights are left, they will switch Off at time out and revert to occupancy or absence status.

Pack 1 - fcr12x and fcr06x

fnc4000*/AT/2

This control pack will daylight link the window lights at the end of all three rows of lights and allow manual switching of two rows of lights. It can be set up on site as either an occupancy or absence sensor. However the lights are left, they will switch Off at time out and revert to occupancy or absence status.

Pack 2 – fcr12 and fcr06

fnc2000/AT

This control pack will allow manual switching of the whiteboard light. It is recommended to be set up as an absence sensor. However the lights are left, they will switch Off at time out and revert to absence status.

fnc4000*/AT

This control pack will allow manual switching and dimming of the whiteboard light. It is recommended to be set up as an absence sensor. However the lights are left, they will switch Off at time out and revert to absence status.

These packs can be ordered with an additional relay to perform a local emergency test – add /E suffix to the product code. Otherwise a normal mains emergency test can be performed

Pack 2 – fcr12x and fcr06x

fnc2000/AT/2

This control pack will allow manual switching of the whiteboard light; it will also allow separate switching of row three.

fnc4000*/AT/2

This control pack will allow manual switching and dimming of the whiteboard light; it will also allow separate switching of row three.

These packs cannot be ordered to perform a local emergency test. The second relay option is used to switch row three. A normal mains emergency test can be performed.

* Insert either D for DSI control or X for DALI control options

Sensor heads

fnh400

Should be fitted to Pack 1. This master sensor head provides PIR coverage for a room 7.4m x 5.6m. Time out, light level, occupancy/absence status and a choice of either daylight linking to a minimum level or to Off can be remotely set using the **frc/set** remote control.

fnh/slave

If a larger area of coverage is required, up to five of these slave heads can be added to the master head in Pack 1. Each provides PIR coverage of 7.4m x 5.6m. Total coverage = 250m².

Mounting	
32mm dia	Hole required for flush fixing sensor heads.
Kit fsh/sm	For surface mounting sensor heads.

Leads are required to link all sensor heads, for the switch drop for each control pack and to link the two control packs together:

- **fsl_** leads are available from 5 – 50m long to link the sensor heads
- **fsw_** leads are available from 5 – 50m long as switch drops
- **fnl300** is required to link the control packs.

If corridor hold or linking to a timer or BMS is required, please contact Flex Connectors.

Ratings	
220 – 250 V	ac 50Hz
6A	Max switching capacity for each row of lights but 10A total per control pack and 16A per fcr_ unit.
3A	Max for compact fluorescent, low energy and transformer loads.
20	Maximum dimming fittings per control pack.

Staffrooms, storerooms, cafeterias, corridors and WCs

These rooms and areas generally only require simple, single or twin circuit sensor control. Most do not require daylight linking or dimming. For standard, non-dimming ballasts, the Flex 7 range of Value connection units is the most economic solution. These units are available as single circuit (**fcb_v**) and as two configurable circuits (**fcb_m**).

If daylight linking or dimming is required, the 7-pole (**fcb_/7**) is the appropriate unit. Connection units can be supplied with between 2 and 20 outlets - **m** units are only available larger than 12 outlets to special order.

In corridors and in rooms where lighting is switched in long rows, Flex Connectors' unique double extender connection system is sometimes more appropriate than connection units. Special double outlets, pre-wired with appropriate plugs and leads, allow chains of sockets to be installed at suitable pitches for the luminaires.

Recommendations for control

Absence control or occupancy control with a retractive switch

- Reception areas
- Meeting rooms
- Restrooms or locker rooms with windows
- Student bedrooms
- School classrooms
- Interview rooms
- Workshops

Occupancy control

- WCs, shower rooms & showers
- Lecture theatres
- Workshops
- Cafeterias
- Sports halls & gyms
- Open plan offices
- Circulation areas

Final connection to luminaires

A full selection of pre-wired plug and lead sets and single extender leads are available from Flex Connectors. 2, 3 and 5m lengths are standard, although other lengths can be supplied to special order. Cable is available in 0.75mm², 1.00mm² and 1.50mm². We recommend that LSOH insulation is used in educational establishments. 3-core to 7-core leads are available.

Interconnection system

The connection units detailed above are all intended for wiring in situ. Flex Connectors also supplies all these units as part of our interconnection system. This system reduces the time spent on site by minimising connections and by being fully factory built and tested.

Project service

We offer a full project service for both our connection and interconnection systems. Detailed quotations and product schedules are prepared from your lighting drawings, listing all equipment required. Once ordered, equipment is prepared to the project schedule and can be individually manufactured, configured and labelled, packed circuit by circuit or room by room and supplied to suit your site schedule. Many project specific, non-standard, configurations and adaptations of equipment are possible. Please contact us for details.

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