



**MADE IN
BRITAIN**

ESTA

energy services and technology association

**Product Catalogue
Issue 5**

Manufactured in Britain
 All our products are designed and built in the UK, meaning that your order is shipped within days - not off the ship next month.
 So why not join us, and companies like us, in supporting British jobs, British engineering, and British innovation - together we can make the difference.



Eligible for ECAs

Installing flex7 controls can significantly reduce your energy costs, and can make you eligible for the Government's ECA scheme.



Cost Effective

Simple 'plug and play' nature of the system reduces installation time on site.



7-Pole

All connection units are 7-pole. Ideal for simple on/off or for dimming control - use only the poles you require.



Modular

Units can be plugged directly into each other or connected via leads, to provide complete flexibility.



Future Proof

The modular nature of the system means that changes can be made at any time, as and when user needs change.



Huge Control Range

We believe we offer more variety of plug-in controls than any other company.



Unique Project Service

See page 61 for details on our project service, which offers you support for your project from start to finish.



Home to The flex7 eZeBox*

7-pole, 16A, easy wiring access, ultimate flexibility, plug-in control - could you ask for more from a connection unit? *Patent pending

Why Choose The flex7 System?



The flex7 System offers you the perfect lighting connection and control solution. The modular nature of our products means that we can offer you ultimate flexibility when designing your lighting system, with the security that it is future-proof. All boxes are 7-pole, and rated at 16A, and the whole system is built around a plug and play philosophy. This means that boxes can easily be added to the system at a later date, as and when user needs change.

Pre-manufactured wiring systems are becoming the preferred norm for most electrical installations in commercial environments. The case is now well proven that prefabrication can offer:

- **Faster installation**
- **Reduced costs**
- **Simplified maintenance**
- **Easy reconfiguration**
- **Complete flexibility**
- **Less snagging**
- **Reduced requirement for skills on site**
- **Less material waste**

Our vast range of products enables us to provide a solution to virtually any problem you can throw at us. We specialise in bespoke systems for schools, hospitals and offices.

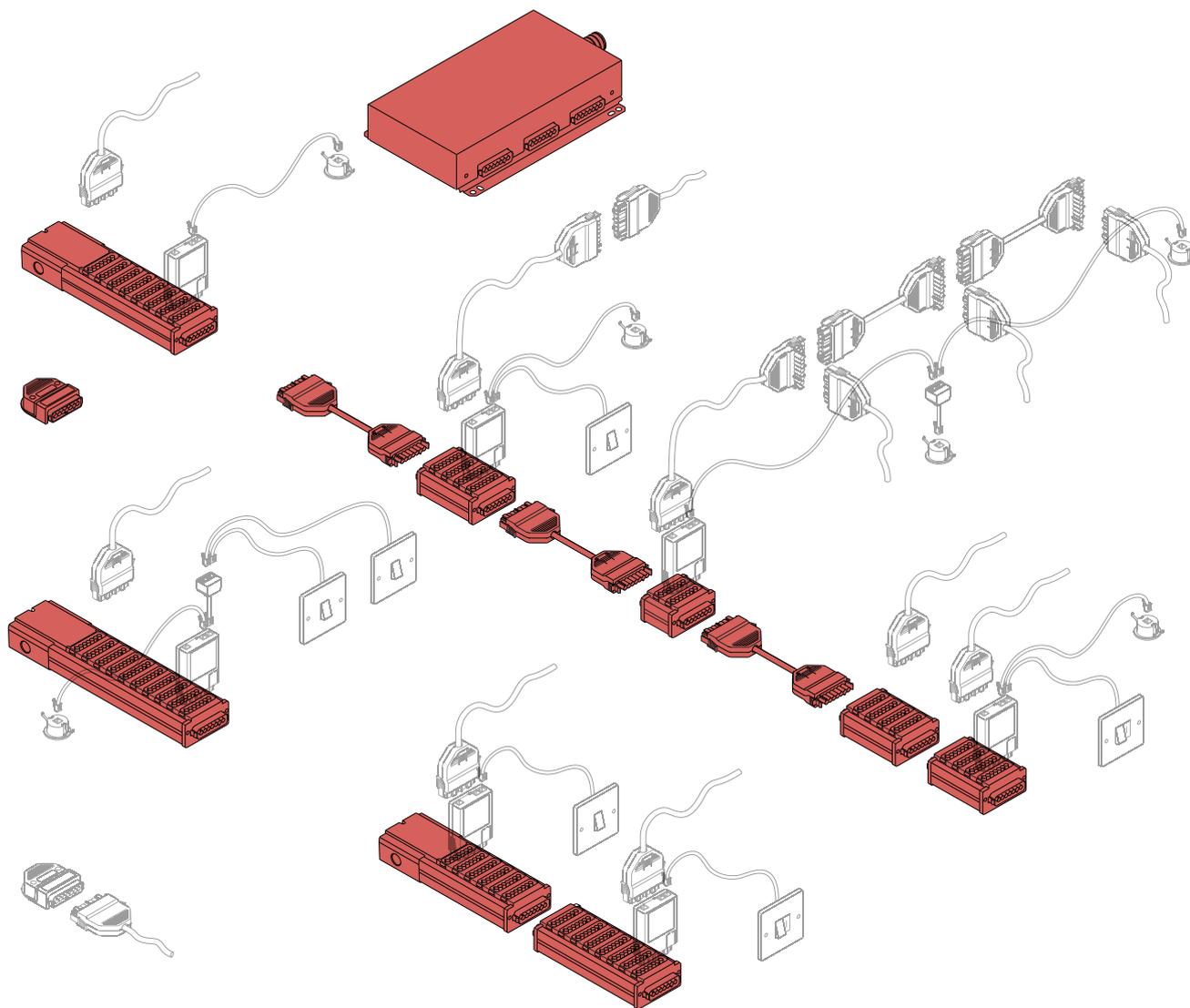
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email: info@flexconnectors.co.uk



Power up...

Distributing power to supply your lighting circuits couldn't be easier. Use the eZeBox Units or Single Socket Outlets as stand alone, or take advantage of the unique modular design to add further units and build a plug together connection system.

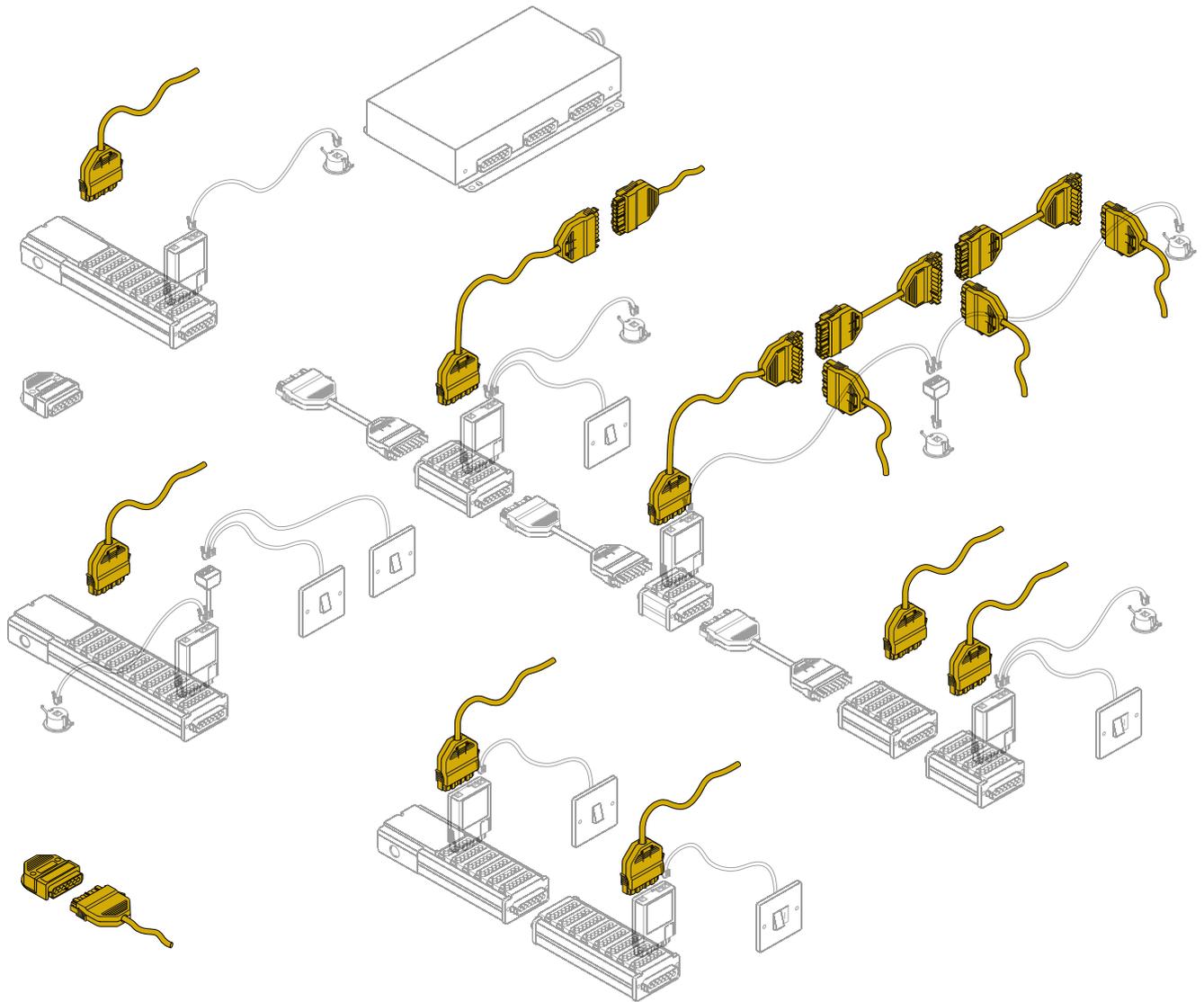
Plug-in an Expansion Unit to extend the previous switched circuit or plug in a Tap-off Unit to extend just the supply. Units can be used in any combination and either plugged directly into one another or via a suitable interconnecting lead (when for example continuing on to another room). For a fully modular system use a Hub Unit as the starting point to provide multiple supply circuit tap off points.



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Light up...

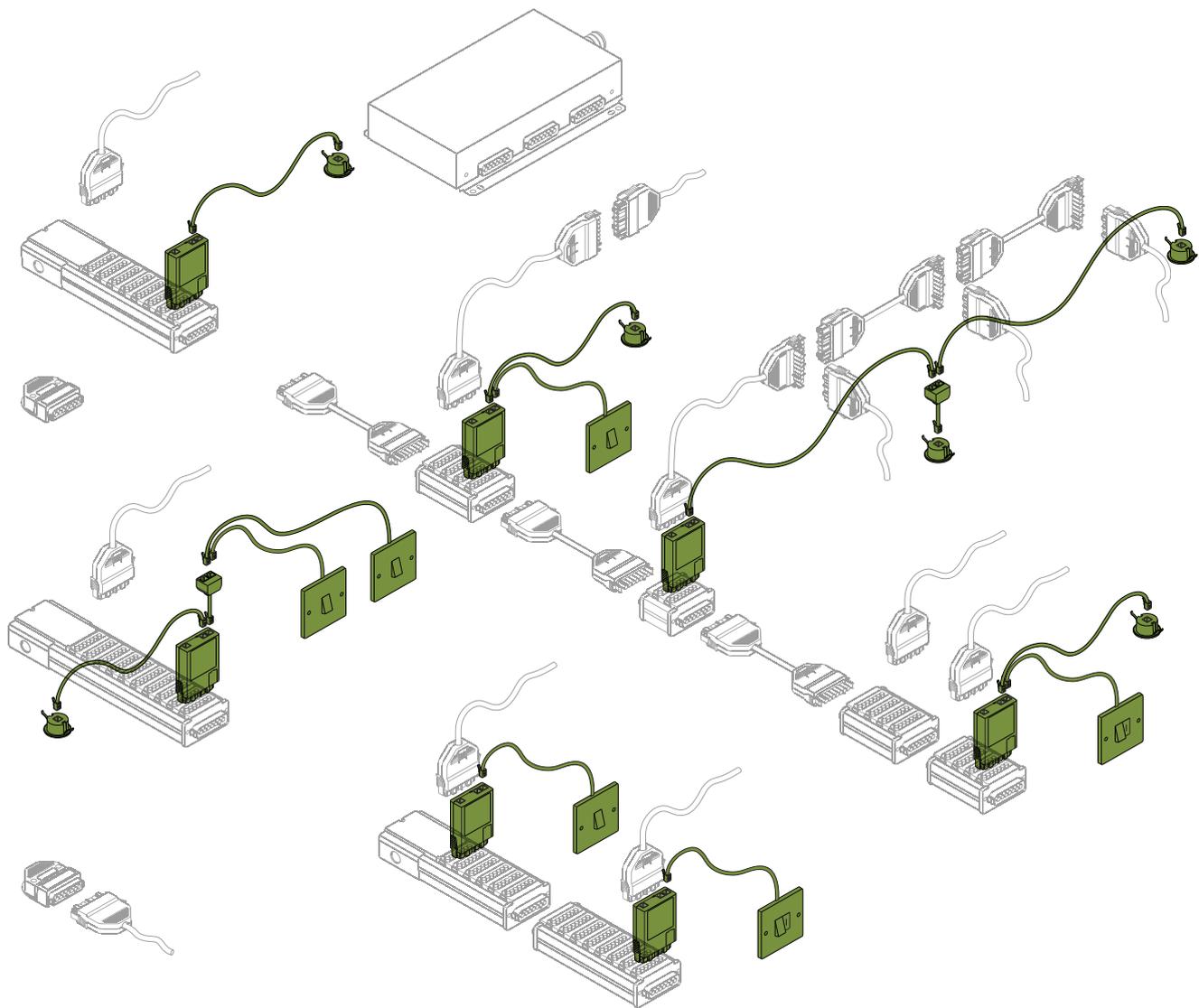
Once the lighting supply is in place the next consideration is connection to the luminaires. Use any of our extensive range of Pre-wired Luminaire Leads, Extender and Double Extender Leads (T system), pre-wired and unwired Plug and Socket Sets, or just Plugs. There are also Panel Mounted Plugs and Sockets for incorporation into luminaires.



3, 4, 5, 6 & 7-Pole Single Socket Outlets	20	Special Pre-wired Luminaire Leads	27
3, 4, 5, 6 & 7-Pin Plugs	21	Special Extender Leads	28
3, 4, 5, 6 & 7-Pole Plug & Socket Sets	22	Special Double Extender Leads	29
3 & 4-Core Pre-wired Plug & Socket Sets	23	3, 4 & 7-Pole Cable Mount Sockets	30
3, 4, 5 & 6-Core Pre-wired Luminaire Leads	24	Flush Panel Mount Plugs	31
3, 4, 5 & 6-Core Extender Leads	25	Flush Panel Mount Sockets	32
3, 4, 5 & 6-Core Double Extender Leads	26		

& Control

At its simplest a flex7 eZeBox Unit can be controlled by hard-wired switch inputs, but to best utilise The flex7 System, why not choose a suitable plug-in control device from our extensive range of sensors and switches, and simply plug into any spare outlet to control that box. Operating at protected extra low voltage we can provide occupancy, presence, daylight linking, daylight dependency, manual dimming/switching and remote control. If preferred there is also a range of mains voltage plug-in switch drops.



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The flex7 eZeBox range

For simple plug together distribution of lighting power and control - the culmination of two years of intensive research, design and development. Our first step in the process was to listen to you, our customer, taking account of your observations, compliments and criticisms alike. By keeping your needs always firmly in sight we believe we now have a product range on the market today that is quite simply, unrivalled.

Combine the enormous flexibility of the new flex7 eZeBox range with our already popular range of plug-in lighting control devices, and virtually any lighting connection and control requirement can be simply and quickly realised with just a handful of off the shelf products. And there won't be much call for a screwdriver!

Units are 16A rated and available in 2, 4, 6, 8, 10 and 12 way.



Q. How did we make the units universally suitable for both on/off control and dimming control?



A. By making all eZeBox Units 7-pole so that it doesn't matter whether your control is simple on/off or dimming. Which also means your installation is future proofed for any control upgrades at a later date.

Q. How did we make the unit so easy and straightforward to wire up?



A. By providing an easy to remove cover, a large wiring compartment and large capacity input terminals. Furthermore we have used the same '7-in-a-line' terminal layout common to all other flex7 products – thus enabling us to offer the installer a consistent and familiar wiring up experience no matter whether they are terminating to an eZeBox, a Plug, Single Socket Outlet, or Hub Unit.

Q. How did we make the eZeBox so easy to fix to the building fabric?



A. By providing each eZeBox Unit with our unique 'snap on/snap off' bracket system. Just fix each bracket with a single screw, to concrete slab or trunking, or use tie wraps provided to secure brackets to cable basket or drop rods. Once the brackets are in place the unit simply snaps in (or out) at any stage.

Q. How did we make the eZeBox Units so easy to expand or reconfigure at any time?



A. By incorporating a spare outlet socket at the end of each eZeBox Unit, more outlets can be created at any stage simply by plugging in additional units. For example: plug in an Expansion Unit to simply increase the capacity of the original unit, or plug in a Tap-off Unit and control the new unit separately from the original. In either case units plug in direct 'unit to unit' or via a suitable interconnecting lead.

● Fixing The 'eZe' Way

Fixing Using Brackets (full kit supplied with unit)



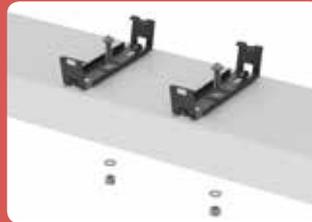
Solid Surface

Fix each bracket with just a single screw (or perfect for nail gun fixing). If necessary align the brackets before 'snapping' in the eZeBox.



Cable Basket

Attach each bracket with a single tie wrap (supplied) then 'snap' in the eZeBox.



Trunking

Fix each bracket with just a single fixing (supplied). If necessary align the brackets before 'snapping' in the eZeBox.



Drop Rods

Attach each bracket with a pair of tie wraps (supplied) then 'snap' in the eZeBox.

Fixing To Conduit Box



Fix direct to the conduit box (screws not supplied) and use the angle bracket to support the free end.

Starter Units

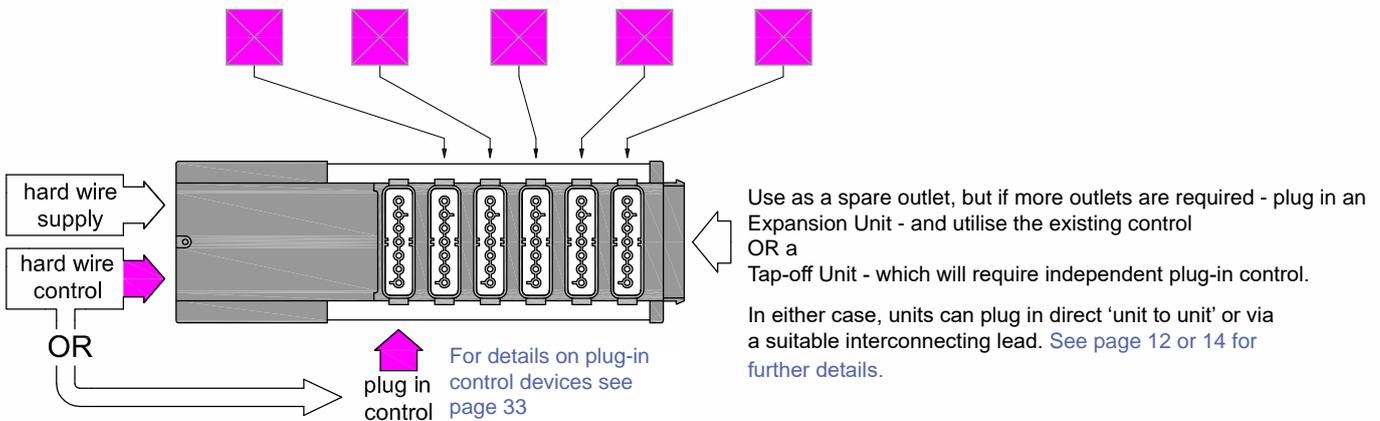
The Starter Unit is at the heart of the flex7 eZeBox range. At its simplest it provides for plug-in connection of multiple luminaires controlled by a single switch or control device. In common with all units in the eZeBox range the type of control can be simple on/off or dimmable, and for ease of installation we strongly recommend selecting the appropriate control from our extensive range of plug-in control devices. If using third party control products is a requirement refer to page 54 for a range of suitable plug & lead sets, or alternatively they can be hard-wired into the input terminals provided. Reserve one outlet when using plug-in controls.



Expanding the Starter Unit

All Starter Units have an additional inline socket at one end. Use like any other outlet, or as the ideal connection point for plugging in further units. This offers enormous flexibility to easily create tailored connection and control solutions.

For details on plugs and pre-wired luminaire leads see page 21 onward



Key Features



Outlets rated 16A 230V~
Total system rating 16A.



Large capacity input terminals can accept 3x2.5mm², 2x4mm² or 1x6mm² conductors.



All outlets are 7-pole. Ideal for simple on/off or for dimming control.

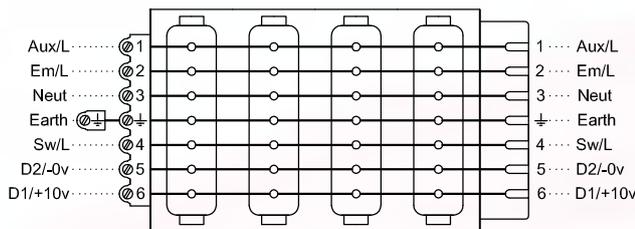


End outlet - use as a spare or to plug in additional units.



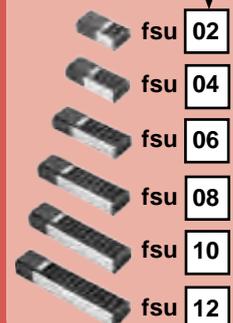
All units come complete with the unique snap on/off single point fixing brackets.

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Ordering flex7 eZeBox Starter Units

No. of outlets (excludes end socket)

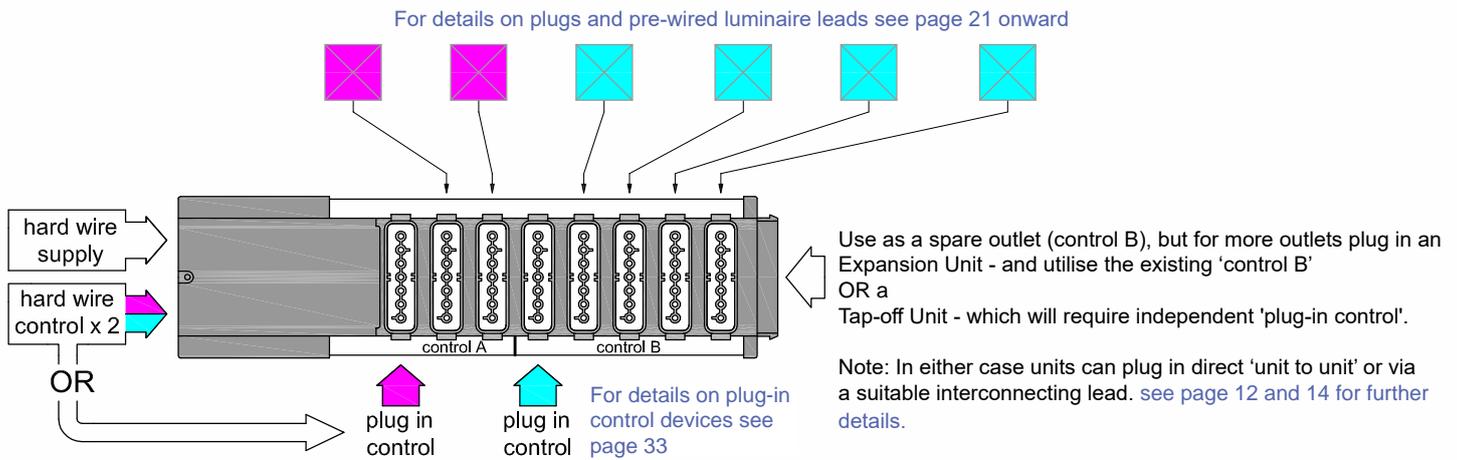


Dual Control Starter Units

The Dual Control Starter Unit makes it possible to independently control two groups of luminaires within one unit. The desired control split point is factory configured to order. In common with all units in the eZeBox range the type of control can be simple on/off or dimmable, and for ease of installation we strongly recommend selecting the appropriate control from our extensive range of plug-in control devices. If using third party control products is a requirement refer to page 54 for a range of suitable plug & lead sets, or alternatively they can be hard-wired into the input terminals provided. Reserve one outlet for each control when using plug-in controls.



Use for areas requiring two groups of luminaires to be controlled independently. Note that if required, control terminals (4, 5 & 6) for A can be linked with those for B on site (using suitable sized conductors). This will consolidate the unit to single control.



Key Features

Outlets rated 16A 230V-
Total system rating 16A

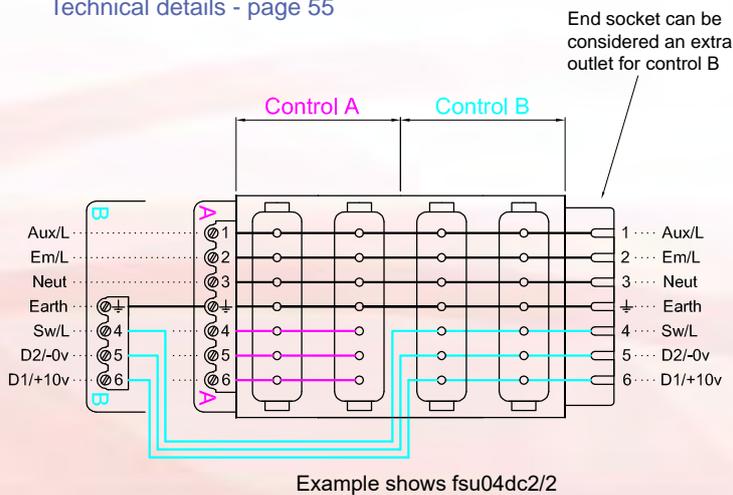
Large capacity input terminals
can accept 3x2.5mm², 2x4mm²
or 1x6mm² conductors

All outlets are 7-pole. Ideal for
simple on/off or for dimming
control.

End outlet - use as a spare or
to plug in additional units.

All units come complete
with the unique snap on/off
single point fixing brackets

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Ordering flex7 eZeBox Dual Control Starter Units

No. of outlets (excludes end socket)	Control A/Control B
fsu 02 dc	1/1
fsu 04 dc	2/2 3/1
fsu 06 dc	3/3 4/2 5/1
fsu 08 dc	4/4 5/3 6/2 7/1
fsu 10 dc	5/5 6/4 7/3 8/2 9/1
fsu 12 dc	6/6 7/5 8/4 9/3 10/2 11/1

Dual Supply Starter Units

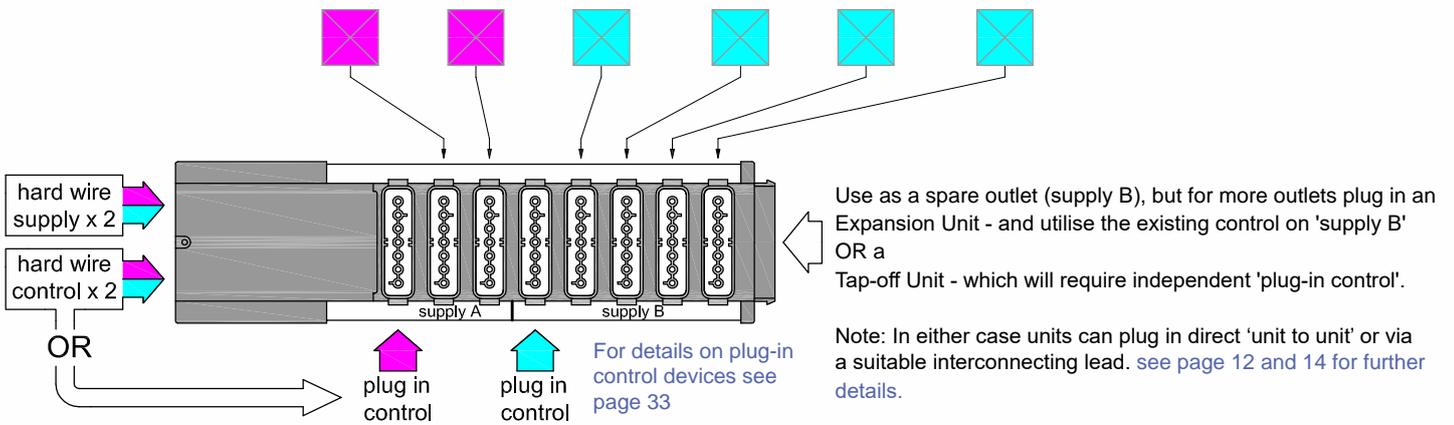
The Dual Supply Starter Unit makes it possible to independently control two groups of luminaires, each separately supplied by its own protective device at the distribution board. The desired supply split point is factory configured to order. In common with all units in the eZeBox range the type of control can be simple on/off or dimmable, and for ease of installation we strongly recommend selecting the appropriate control from our extensive range of plug-in control devices. If using third party control products is a requirement refer to page 54 for a range of suitable plug & lead sets, or alternatively they can be hard-wired into the input terminals provided. Reserve one outlet for each control when using plug-in controls.



Use for installations requiring an essential and a non-essential supply such as hospitals, or for load shedding applications.

Note: Supplies must be on the same phase.

For details on plugs and pre-wired luminaire leads see page 21 onward



Note: If required it is possible to 'PELV link' between plug-in control devices (Control Plus only) to consolidate the two supplies to one common control. Contact Flex Connectors for more details.

Key Features

Outlets rated 16A 230V~. Total system rating 16A

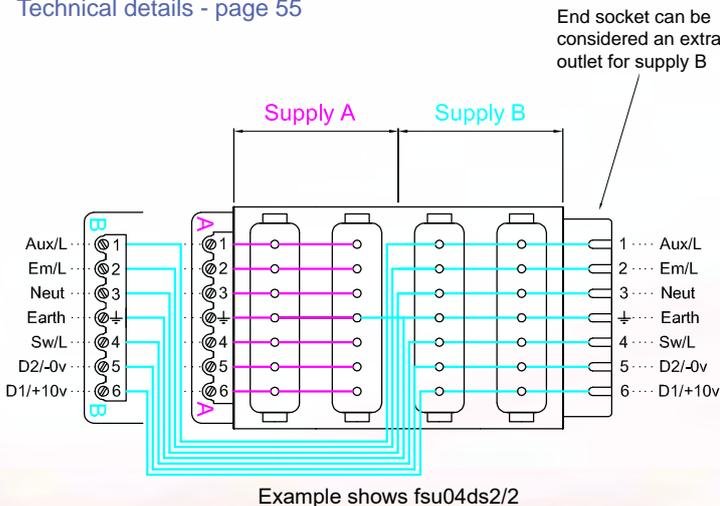
Large capacity input terminals can accept 3x2.5mm², 2x4mm² or 1x6mm² conductors

All outlets are 7-pole. Ideal for simple on/off or for dimming control.

End outlet - use as a spare or to plug in additional units.

All units come complete with the unique snap on/off single point fixing brackets

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Ordering flex7 eZeBox Dual Supply Starter Units

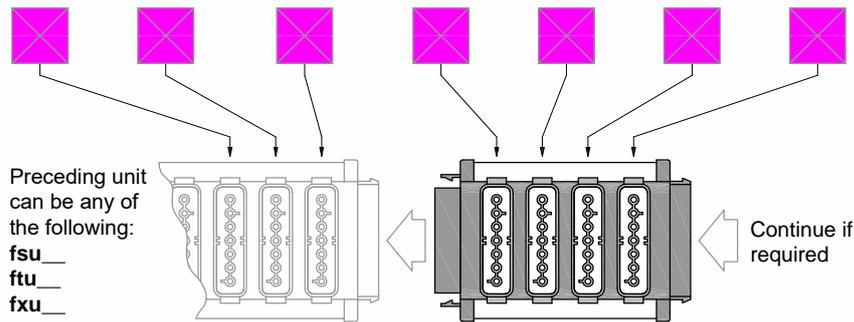
No. of outlets (excludes end socket)	Circuit A/Circuit B
fsu 02 ds	1/1
fsu 04 ds	2/2 3/1
fsu 06 ds	3/3 4/2 5/1
fsu 08 ds	4/4 5/3 6/2 7/1
fsu 10 ds	5/5 6/4 7/3 8/2 9/1
fsu 12 ds	6/6 7/5 8/4 9/3 10/2 11/1

Expansion Units

Plugged in via an appropriate Expansion Lead (see page opposite) or direct 'unit to unit' an Expansion Unit, as its name implies, simply expands the capacity of the preceding unit it is plugging into. For example plugging a 4-way Expansion Unit into an 8-way Starter Unit provides a combined unit of 12 ways. Clearly all connected luminaires will operate together, and it is useful to note that where using a plug-in control device it won't matter which outlet or which unit it is plugged into.



For details on plugs and pre-wired luminaire leads see page 21 onwards



Note: All luminaires will be controlled as one. If using a plug-in control device it can be plugged into any spare outlet on the run. For details on plug-in control devices see page 33

Key Features



Outlets rated 16A 230V~.
Total system rating 16A



All outlets are 7-pole. Ideal for simple on/off or for dimming control



Inline outlet at the end - use as a spare or to plug in additional units

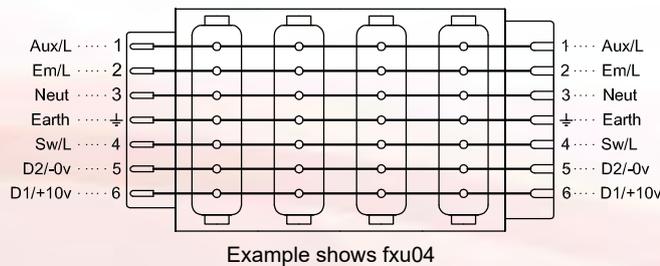


Integral inline plug provides secure linkage to the inline outlet of the preceding unit



All units come complete with the unique snap on/off single point fixing brackets

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Ordering flex7 eZeBox Expansion Units

No. of outlets (excludes end socket)



fxu **02**



fxu **04**



fxu **06**



fxu **08**



fxu **10**



fxu **12**

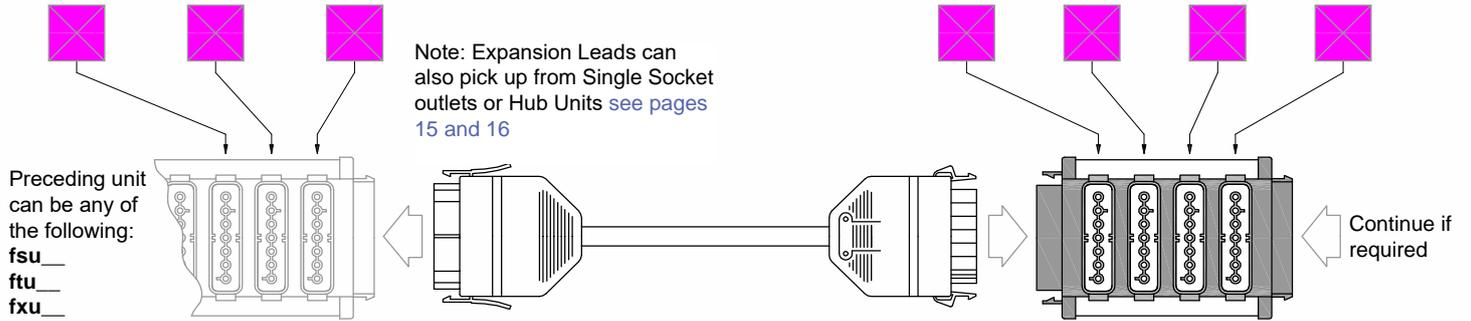
Expansion Leads

Where an Expansion Unit is required to be remote from its preceding unit, plug them together via an Expansion Lead. For example you may wish to keep all the luminaire leads short along a corridor by using more than one unit linked together via Expansion Leads.

Expansion Leads also offer the perfect opportunity for Expansion Units to become part of an interconnection system radiating from a Hub Unit (see page 16) - particularly ideal for the distribution of intelligent control from a central source (i.e DALI bus).



For details on plugs and pre-wired luminaire leads see page 21 onwards



Note: All luminaires will be controlled as one. If using a plug-in control device it can be plugged into any spare outlet on the run. For details on plug-in control devices see page 33

Expansion Leads would normally need to be 7-core in order to precisely expand the original units, however if your particular installation does not utilize all 7 poles, for example if your lights are not dimmable, a 5-core expansion lead will suffice.

7-core

Use for installations that need to control dimmable fittings

5-core

Use for installations where control of fittings is simple on/off

* Plastic flexible conduit is 16mmØ black. It contains the appropriate number of loose single cores in LSHF at the csa indicated by the part number.

Ordering flex7 eZeBox Expansion Leads

150 1.50mm ²	lshf LSHF cable
250 2.50mm ²	fc Plastic flexible conduit*

5 5-core
7 7-core

0.5, 1, 2, 3, 4, 5, 7, 10
 (length in metres)

fx

/b

2.50mm² is only available for 5-core

Note: Choice of cable csa, cable length and any cable calculations are the sole responsibility of the installer

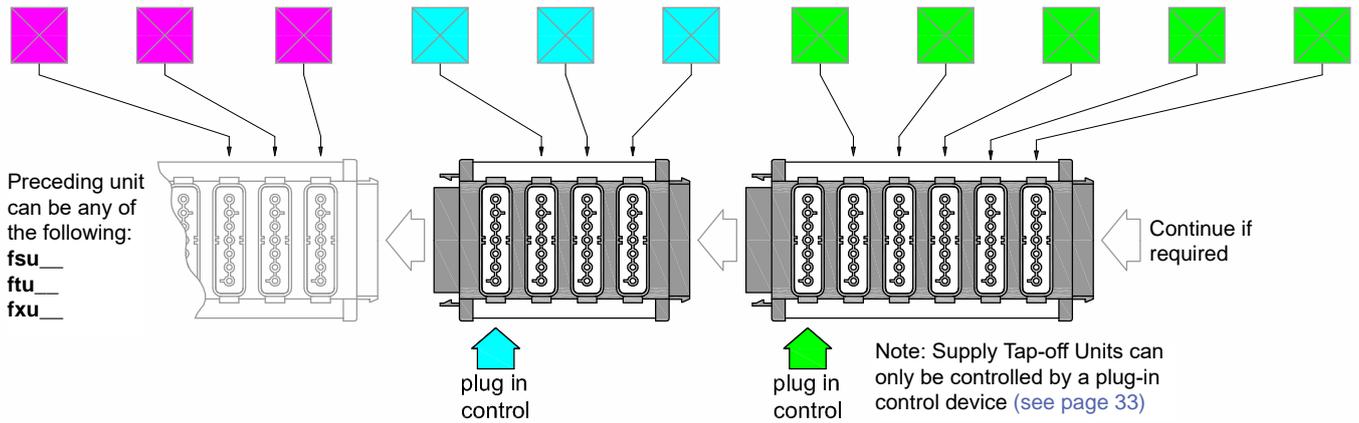
Supply Tap-off Units

The Supply Tap-off Unit is a convenient method for extending the supply from any preceding unit whilst allowing the additional lighting to be independently controlled. Note that the connected luminaires on a Supply Tap-off Unit can only be controlled by a suitable plug-in control device (see page 33) so ensure you reserve a spare outlet for this purpose.

The unit plugs in either direct 'unit to unit', or if required as part of an interconnection system, via a suitable Supply Tap-off Lead (see opposite page). Units would typically be plugged in 'unit to unit' when for example a room requires two or more control circuits. By choosing the number and size of the units and the type of plug-in control, virtually any lighting control philosophy can be realised.



For details on plugs and pre-wired luminaire leads see page 21 onwards



Key Features



Outlets rated 16A 230V~ .
Total system rating 16A



All outlets are 7-pole. Ideal for simple on/off or for dimming control



Inline outlet at the end - use as a spare or to plug in additional units

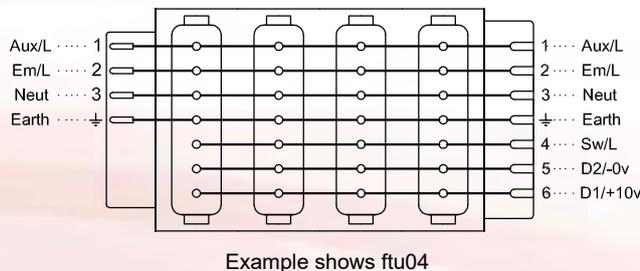


Integral inline plug provides secure linkage to the inline outlet of the preceding unit



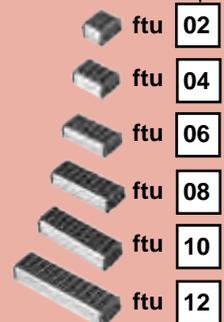
All units come complete with the unique snap on/off single point fixing brackets

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Ordering flex7 eZeBox Tap-off Units

No. of outlets (excludes end socket)



Supply Tap-off Leads

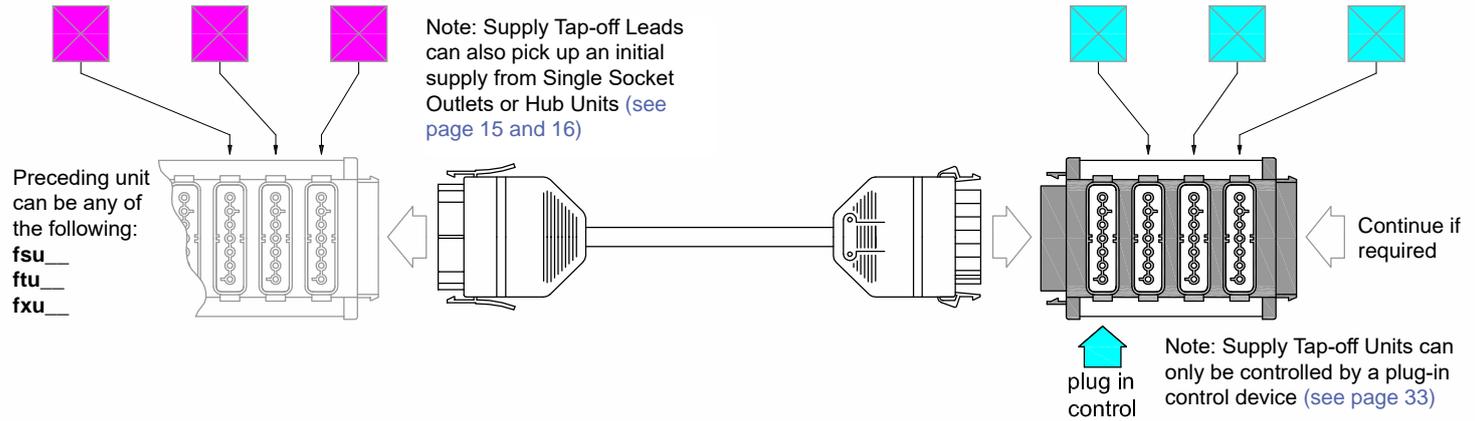
Where a Tap-off Unit is required to be remote from its preceding unit, plug them together via a Supply Tap-off Lead. This combination provides the perfect solution for distributing one circuit supply over perhaps several rooms or areas, thus saving valuable installation time, as only the original source unit requires fixed wiring termination.

Using a Supply Tap-off Lead also opens up the possibility of connecting to sources other than Starter Units. For example: Using a Single Socket Outlet (see page 15) as the initial source simplifies and standardizes the first fix leaving complete flexibility to choose the correct plug-in unit/s at the second fix.

Alternatively, and for the complete interconnection system, use a Hub Unit which offers 6 independent supplies from one unit (see page 16).



For details on plugs and pre-wired luminaire leads see page 21 onwards



Supply Tap-off Leads are available in 3 or 4 core depending on whether an emergency test is required locally on each unit, or globally across one unit to the next

4-core

Use where the emergency test is common to all interconnected units.

3-core

Use only where each interconnected unit has its own plug-in emergency test facility.

* Plastic flexible conduit is 16mmØ black. It contains the appropriate number of loose single cores in LSHF at the csa indicated by the part number.

Ordering flex7 eZeBox Tap-off Leads

150	1.50mm ²	lshf	LSHF cable
250	2.50mm ²	fc	Plastic flexible conduit*

4	4-core	0.5, 1, 2, 3, 4, 5, 7, 10 (length in metres)
3	3-core	

ft [] [] [] [] /b

Note: Choice of cable csa, cable length and cable calculations are the sole responsibility of the installer.

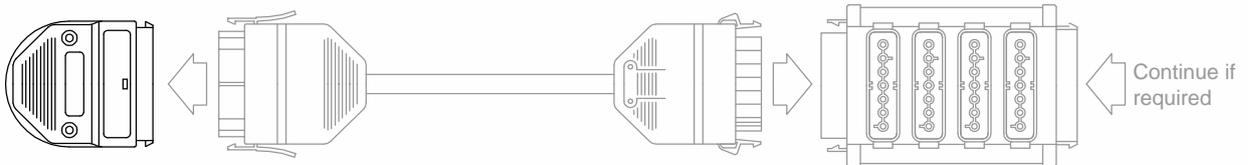
Single Socket Outlets

A 7-pole Single Socket Outlet can be used as an alternative where a Starter Unit is not required, or is deemed unsuitable to start a run of interconnected eZeBox Unit/s. It is not possible to directly plug an Expansion Unit or Tap-off Unit into a Single Socket Outlet, so a suitable interconnecting lead will always be required (see page 12 and 14).

Note that Single Socket Outlets are dealt with in greater detail on page 20

Substantial wiring space, large capacity terminals and the ability to be fitted to either a conduit box or to trunking, make the Single Socket Outlet an ideal candidate to initiate an interconnected system of unit/s. For example, you may wish to standardize the first fix, or possibly the lighting design is not yet finalised.

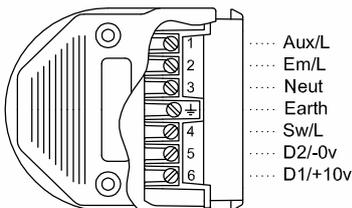
In either case installing a Single Socket Outlet as a starting point for each circuit can dispense with any further on site terminations of fixed wiring leaving complete flexibility to choose the correct plug-in unit/s and control/s for the second fix.



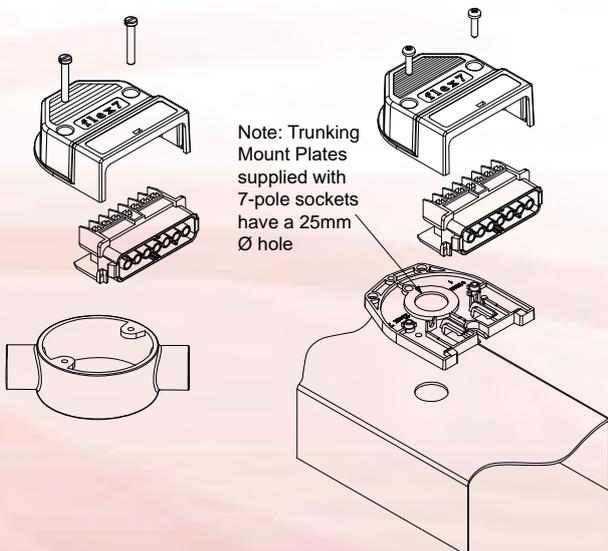
Always use the 7-pole type Single Socket Outlets when using for the purpose of feeding an interconnected system.

Use either:
An Expansion Lead to feed an Expansion Unit
or a Tap-off Lead to feed a Tap-off Unit*

For guidance on choosing the correct interconnecting leads and units see pages 11 to 14



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Key Features

- Outlets rated 230V~ 16A
- Terminals accept 1x10.00mm², 2x4.00mm² or 3x2.5mm² conductors
- Mount to a conduit box (screws supplied), or to trunking, cable basket, or tray
- Simple to wire with easy access for power screwdrivers

Ordering flex7 7-Pole Single Socket Outlets

Leave blank, or add /tm to include Trunking Mount Plate

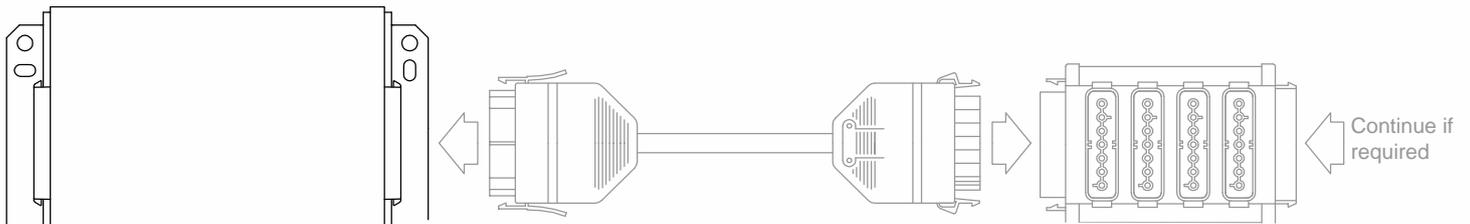
fts07 /b

For other socket variants and their uses see page 20

Hub Units

To achieve further savings in installation time and for maximum flexibility why not choose a Hub Unit to feed up to to 6 separate runs of interconnected eZeBox Unit/s. A Hub Unit can be considered as 6 Single Socket Outlets (see previous page) that, for convenience have been housed in one enclosure. This allows the installer to consolidate the supply wiring to just one multi-core from the lighting distribution board, with the added benefit that terminating the supplies can now be carried out in one place.

Internal separation of the 6 circuits is such that mixed phases can safely be supplied and as they employ the same 16A 7-pole type outlets, Hub Units are equally at home distributing just the lighting supply or the lighting supply + control.



Supply cable entry

Where lighting control is required locally

Connect up to 6 x supply circuits to the Hub Unit. Plug in as required up to 6 individual runs of interconnected Supply Tap-off Units and Supply Tap-off Leads. Control luminaires by plugging in an appropriate plug-in control device to each and every Supply Tap-off Unit.

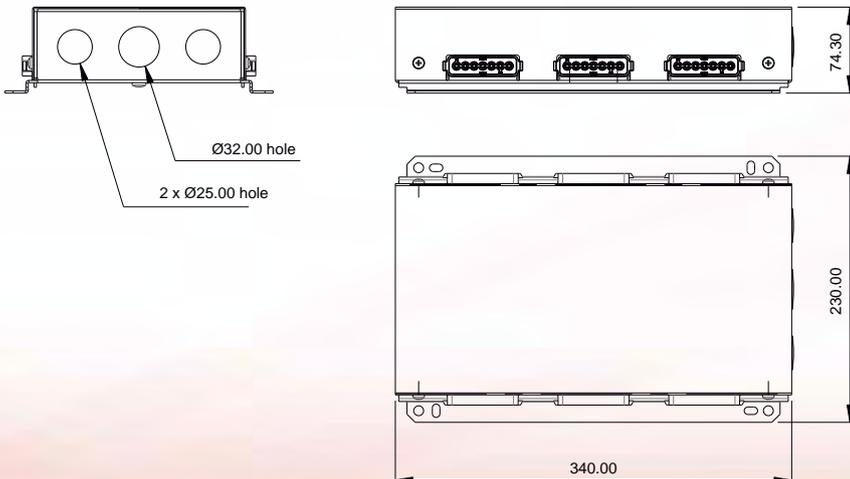
Where lighting control is required centrally

Connect up to 6 x supply circuits plus the relevant control lines to the Hub Unit. Plug in as required up to 6 individual runs of interconnected Expansion Units and Expansion Leads. Lighting control will be central, and the end users responsibility. Typical applications: Simple centralised mains switching or centralised intelligent control i.e. DALI network.

For guidance on choosing the correct interconnecting leads and units see pages 11 to 14

For information on wiring to individual outlets within the Hub Unit refer to Single Socket Outlets (opposite page)

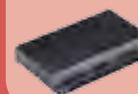
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Key Features

- Each outlet rated 230V~ 16A
- Terminals accept 1 x 10.00mm², 2 x 4.00mm² or 3 x 2.50mm² conductors
- 2-holes 25mmØ and 1-hole 32mmØ for cable entry
- Simple to wire, with easy access for power screwdrivers.

Ordering flex7 Hub Units



fhu06

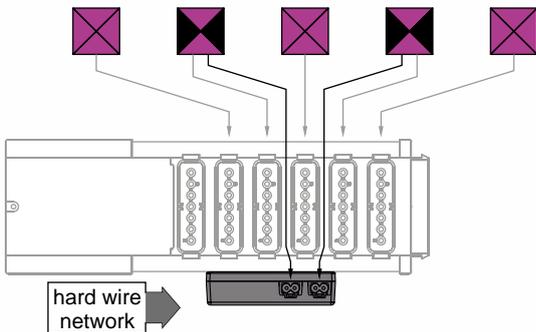
6-way Hub Unit

Hub Units are only supplied unwired

2-Pole Auxiliary Adaptor Unit

The 2-Pole Auxiliary Adaptor Unit affords additional connectivity to the flex7 System in the form of a 2 or 4 module unit. It provides a convenient point of termination for the fixed wiring of a third party's 2 wire control or monitoring system; a centralised emergency luminaire monitoring system, or suitable control network for example.

Once connected into the unit's terminals the network is distributed to its 2 or 4 socket outlets. A suitable Pre-wired Plug & Lead Set (see opposite page for details) then connects a luminaire or control device to the network via one of the unit's socket outlets. Its clever design allows the unit to be fixed directly to the side channel of any variant of eZeBox (6 outlets or larger) resulting in a single position for the pluggable connection/disconnection of a luminaire's entire electrical requirements; power, control, monitoring etc.



It's now commonplace for luminaires to receive their power and control via a plug & socket arrangement. However, the advantages to installation and planned maintenance such systems offer are often lost when additional monitoring or network wiring is required, as this element often tends to be hard-wired directly into the terminals of the luminaire or device. The 2-Pole Auxiliary Adaptor Unit means such wiring can also benefit from a plug & socket connection.

Example shows distribution of emergency monitoring system to luminaires

Note: The Auxiliary Adaptor Unit is only suitable for mounting onto an eZeBox

Key Features



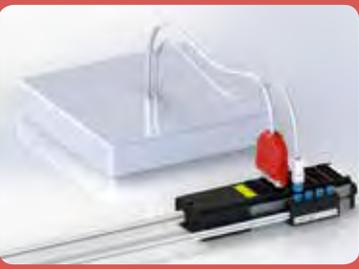
2 or 4 outlets rated at 10A 50V
Total system rating 10A



4 x terminals, each accept up to
1 x 1.50mm² conductor

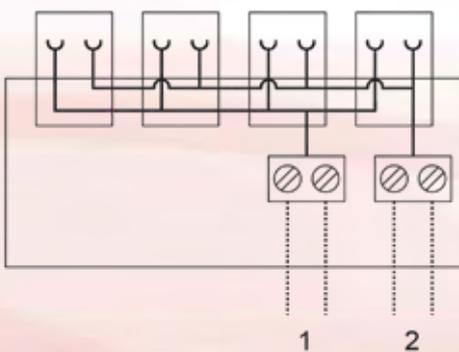


Fixes easily to any eZeBox at the
time of installation or as a retrofit



A single position for plugged
connection/disconnection of all a
luminaire's electrical requirements.

Technical details - page 55



Schematic shows faa2/04

Ordering flex7 2-Pole Auxiliary Adaptors

No. of outlets

↓



faa2/ 02



faa2/ 04

Note: It is the buyer's responsibility to ensure this product is compatible with the requirements of the system it is intended to be used with. Flex Connectors Limited is not liable for any operational failure as a result of incompatibility.

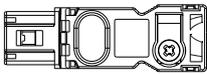
2-Pole Auxiliary Adaptor Unit Plugs

The plug used with the flex7 2-Pole Auxiliary Adaptor Unit is pale blue as standard, and is supplied complete with a white strain relief and integral cord grip. On mating with the socket it latches in place ensuring it is only disconnected when required. Both terminals are numbered and each will accept 1 x 1.50mm² conductor



2-Pin Plug

2-Pin



Ordering flex7 2-Pole Auxiliary Adaptor Plug



fa2/bl

2-Pole Auxiliary Adaptor Unit Pre-wired Leads

To save valuable time on site the flex7 2-Pole Auxiliary Adaptor Plug can be pre-wired with LSHF 2-core flexible cable or twisted control cable (unscreened). The free end of the lead is stripped and conductors are ferruled ready for connection into the terminals of the luminaire/device.



2-Pin Pre-wired Plug

LSHF flexible cable.

2-Pin



2-Pin Pre-wired Plug

LSHF Twisted control cable (unscreened).

2-Pin



Ordering flex7 2-Pole Auxiliary Adaptor Leads

lshf LSHF flexible cable
beld LSHF Twisted Control Cable

150 1.50mm²*

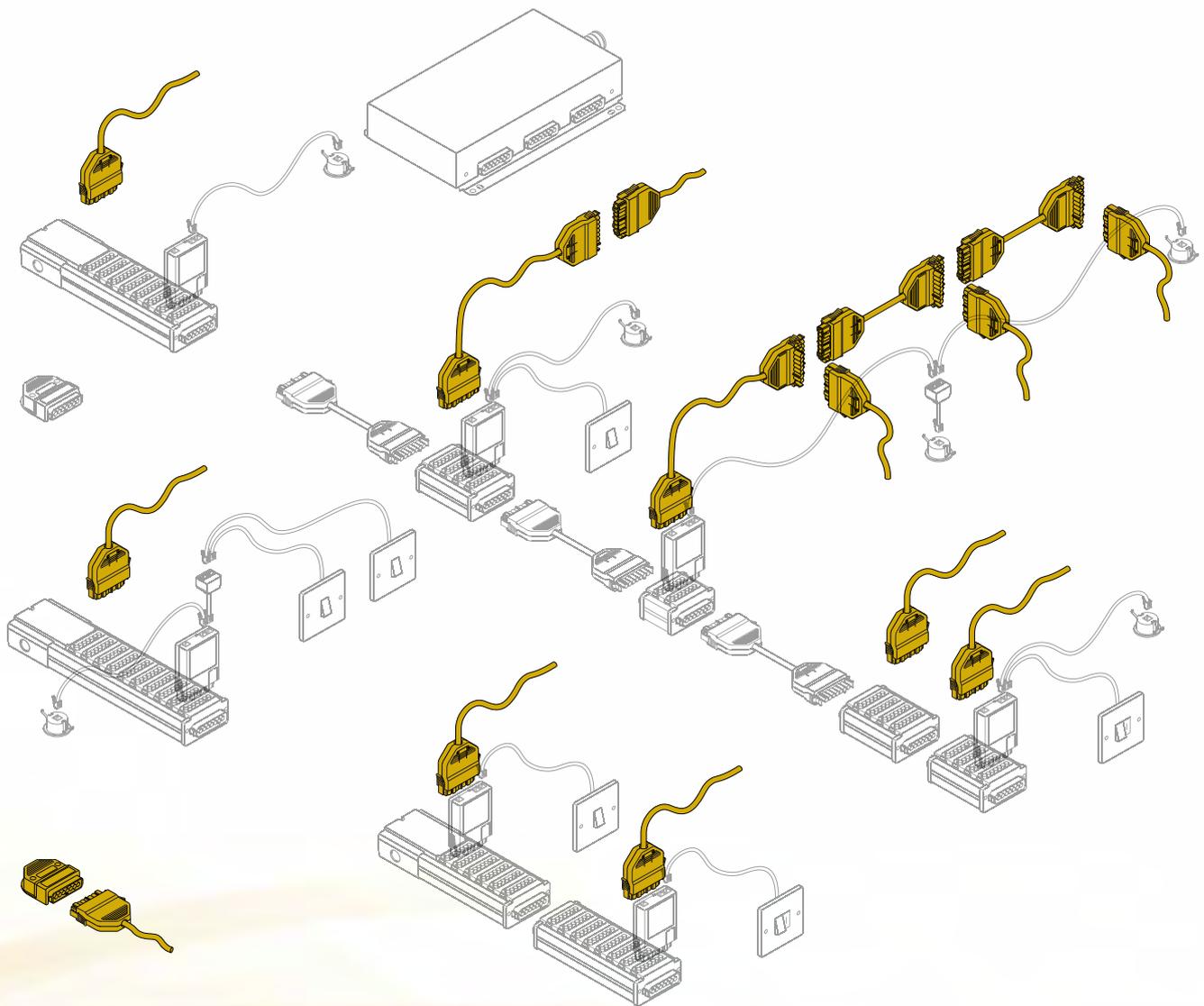
1, 2, 3, 4, 5
(length in metres)

fa2 [] [] [] /bl

*LSHF twisted control cable conductors are 16awg which is the equivalent of 1.31mm².

Light up...

Once the lighting supply is in place the next consideration is connection to the luminaires. Use any of our extensive range of Pre-wired Luminaire Leads, Extender and Double Extender Leads (T system), pre-wired and unwired Plug and Socket Sets, or just Plugs. There are also Panel Mounted Plugs and Sockets for incorporation into luminaires.



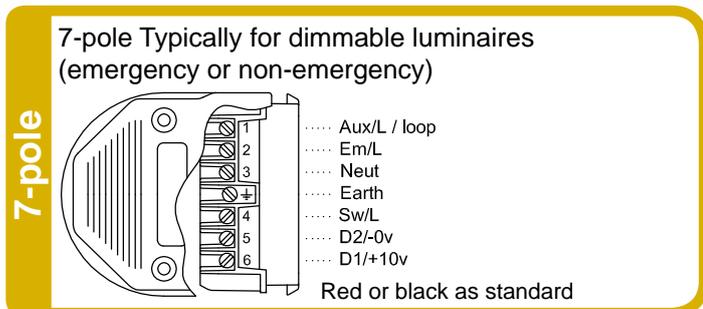
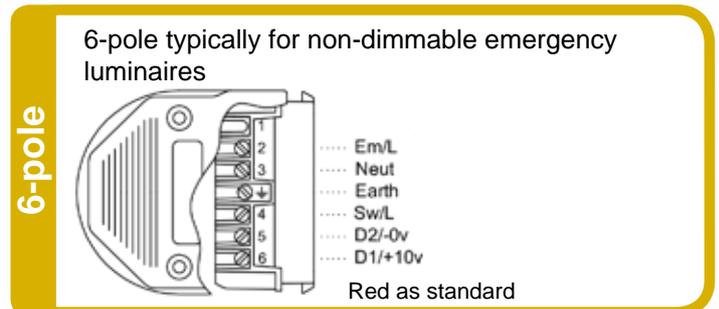
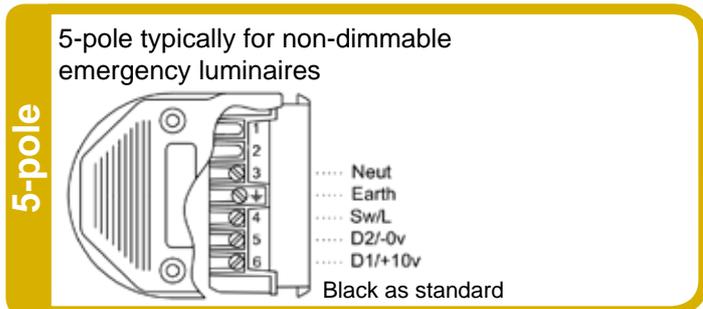
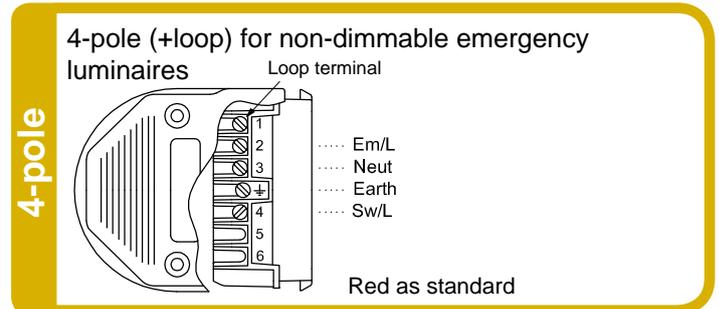
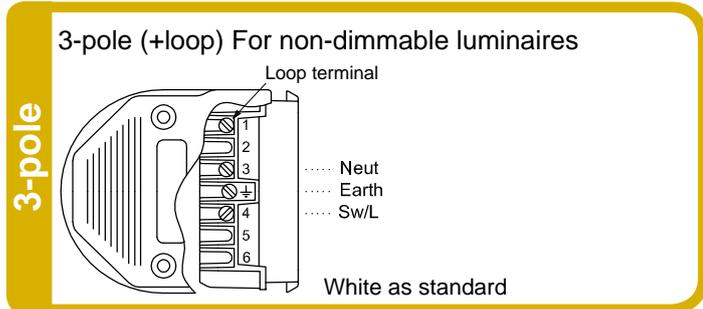
3, 4, 5, 6 & 7-Pole Single Socket Outlets	20	Special Pre-wired Luminaire Leads	27
3, 4, 5, 6 & 7-Pin Plugs	21	Special Extender Leads	28
3, 4, 5, 6 & 7-Pole Plug & Socket Sets	22	Special Double Extender Leads	29
3 & 4-Core Pre-wired Plug & Socket Sets	23	3, 4 & 7-Pole Cable Mount Sockets	30
3, 4, 5 & 6-Core Pre-wired Luminaire Leads	24	Flush Panel Mount Plugs	31
3, 4, 5 & 6-Core Extender Leads	25	Flush Panel Mount Sockets	32
3, 4, 5 & 6-Core Double Extender Leads	26		

3, 4, 5, 6 & 7-Pole Single Socket Outlets

Complementing the eZeBox range of connection units, Single Socket Outlets are ideal where only one outlet is required. Available in 3 and 4-pole for applications requiring standard or emergency lighting connection and 7-pole where additional connections are required e.g. dimming.

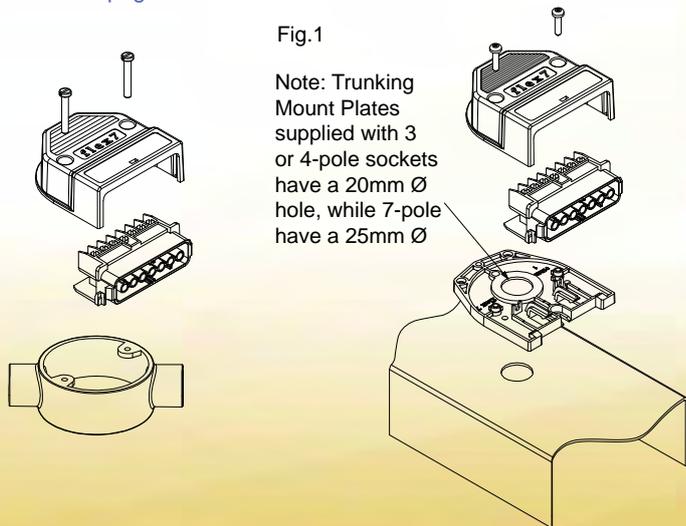
Sockets can mount directly to a round conduit box (50.8mm centre) using the 2 captive M4 screws provided, or order the trunking mount version if fitting to trunking, cable basket or tray.

Large terminals, all in line, and a cover that fits last means that termination is particularly easy. Unlike similar products the conductors don't need to be forced back into the conduit box and instead are easily accommodated underneath the spacious cover.



- ### Key Features
- Outlets rated 230V~ 16A
 - Terminals accept 1x10.00mm², 2x4.00mm² or 3x2.5mm²
 - Mount to a conduit box (screws supplied), or to trunking, cable basket, or tray
 - Simple to wire with easy access for power screwdriver.

Technical details on page 56.



Ordering flex7 3, 4, 5, 6 & 7-Pole Single Sockets

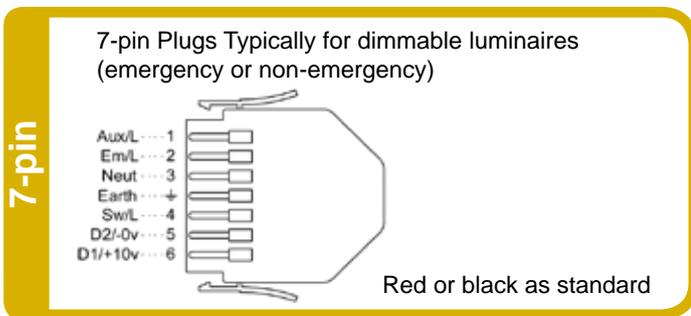
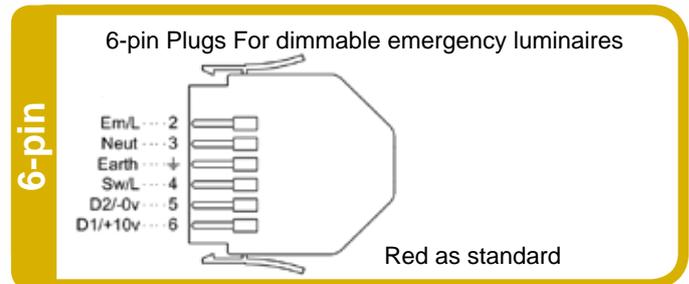
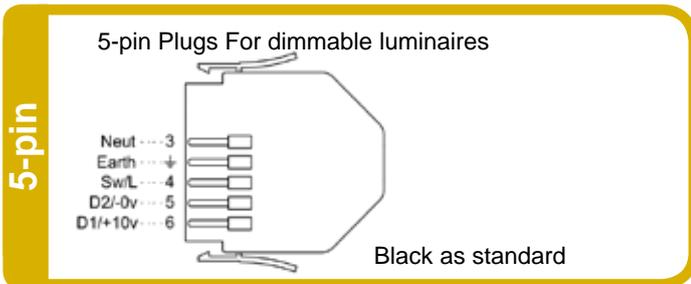
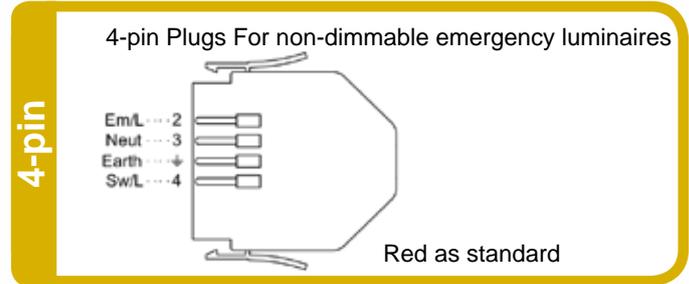
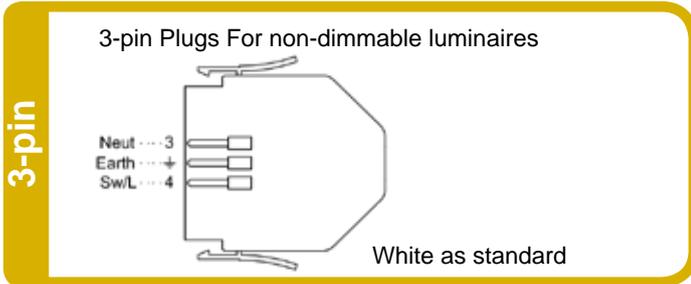
Leave blank or add **/tm** to include Trunking Mount Plate

03 3-pole	/w white /r red /b black
04 4-pole	
05 5-pole	
06 6-pole	
07 7-pole	

fts

● 3, 4, 5, 6 & 7-Pin Plugs

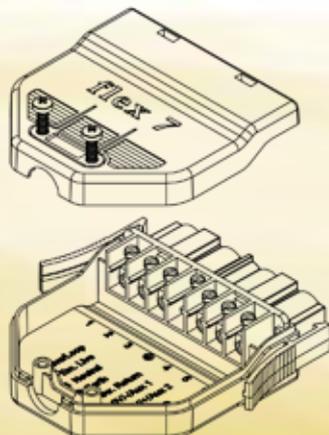
Available in white, red or black, flex7 plugs are robust and simple to use. In-line terminals, a snap-on/snap-off cover and a pair of screws which both secure the cover and clamp the flexible cable, make it quick and easy to wire. The strong mechanical latches on each plug double as finger grips, making de-latching for plug removal almost automatic when (and only when) you need it. All terminals are numbered, with additional marking illustrating normal usage. Grey plugs are also available but we recommend that, for easy identification, these are restricted to control devices on installations with plug-in control.



Key Features

- Plugs rated 230V~ 16A
- Strong latches for ensuring secure connection
- Simple to wire with easy access for power screwdriver.

[Technical details on page 56.](#)



Ordering flex7 3, 4, 5, 6 & 7-Pin Plugs

3	3-pin	/w	white	3-pin plugs are not available in red.
4	4-pin	/r	red	
5	5-pin	/b	black	
6	6-pin	/g	grey*	
7	7-pin			

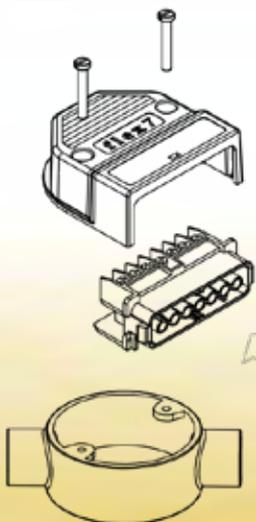
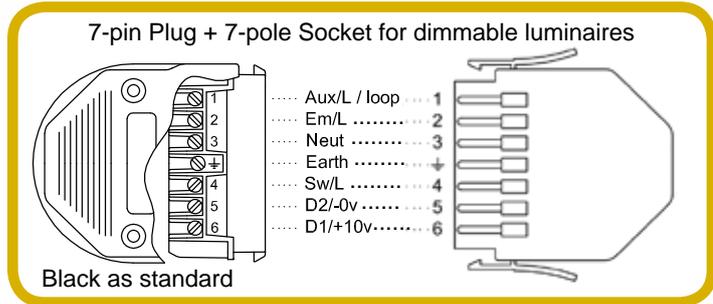
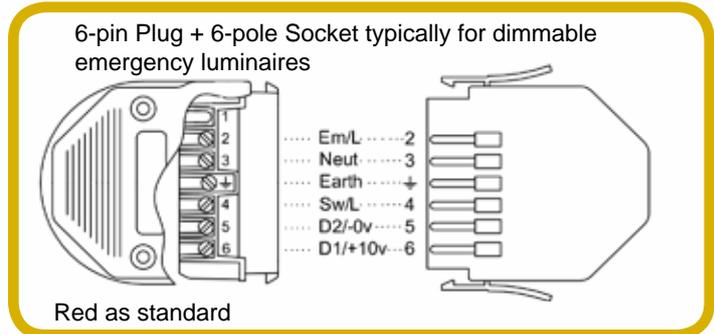
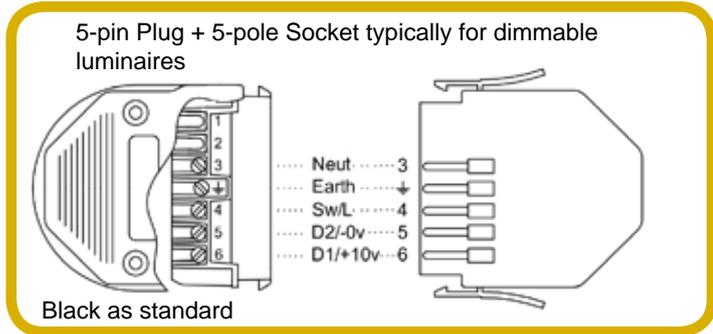
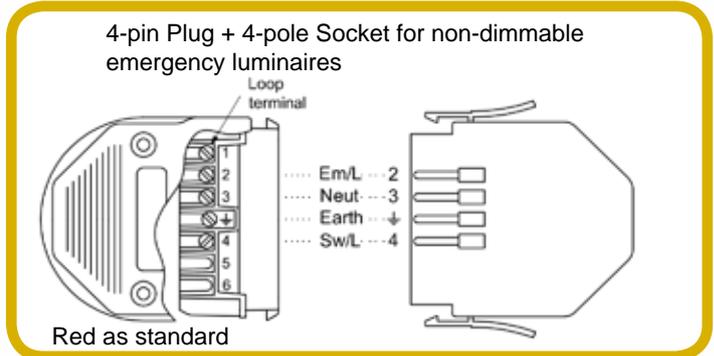
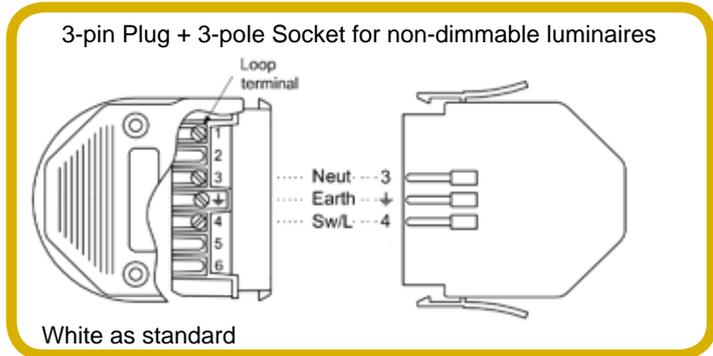
fp

*grey should be reserved for plug-in control devices i.e. plug-in mains switch drop leads.

3, 4, 5, 6 & 7-Pole Plug & Socket Sets (for non-dimmable & dimmable luminaires)

For convenience, flex7 3, 4, 5, 6 and 7-pole sockets are also available as kits which include the appropriate plug. Kits are supplied all in white for 3-pole, all in red for 4-pole, all in black for 5-pole, all in red for 6-pole, and all in black for 7-pole.*

The socket comes ready to fit to round conduit boxes with 50.8mm centres or if required can also be fitted to trunking, cable tray or basket using a trunking mount plate - ordered separately.



Note: For fitting to trunking, cable tray or basket (see fig.1 on page 20) order a separate Trunking Mount Plate . See below.

Ordering flex7 Trunking Mount Plates

/20	20mm Ø	/w	white
/25	25mm Ø	/r	red
		/b	black

tm

Ordering flex7 3, 4, 5, 6 & 7-Pole Plug & Socket Sets

- 3-pole **fk3/w**
- 4-pole **fk4/r**
- 5-pole **fk5/b**
- 6-pole **fk6/r**
- 7-pole **fk7/b**

*For other plug and socket combinations order as separate items.

3 & 4-Core Pre-wired Plug & Socket Sets (for non-dimmable luminaires)

For convenience, flex7 3 and 4-pole sockets are also available as kits which include the appropriate pre-wired plug. Kits are supplied all in white for 3-pole and all in red for 4-pole*

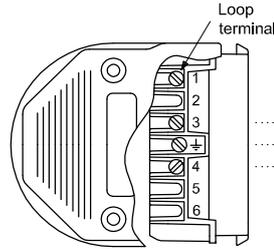
The socket comes ready to fit to round conduit boxes with 50.8mm centres, or if required can also be fitted to trunking, cable tray or basket using a Trunking Mount Plate - ordered separately.



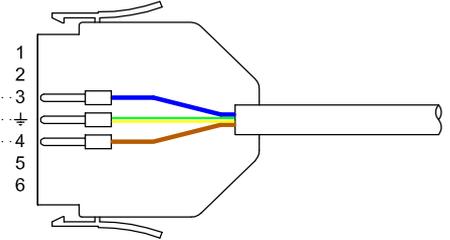
3-core

3-core Pre-wired Plug & Socket

For non-dimmable luminaires



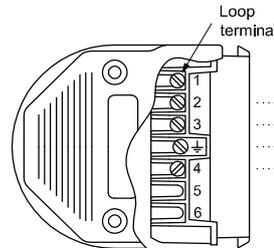
..... Neut: ...3
..... Earth: ...4
..... Sw/L: ...4



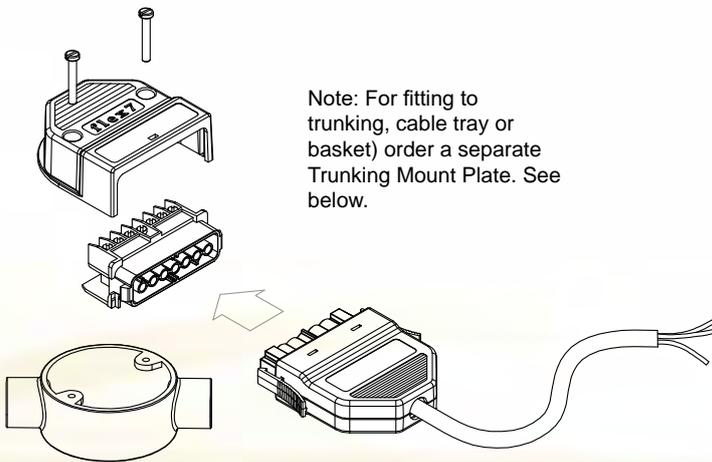
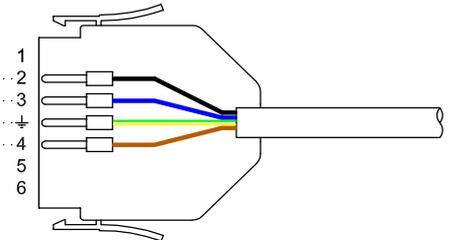
4-core

4-core Pre-wired Plug & Socket

For non-dimmable emergency luminaires

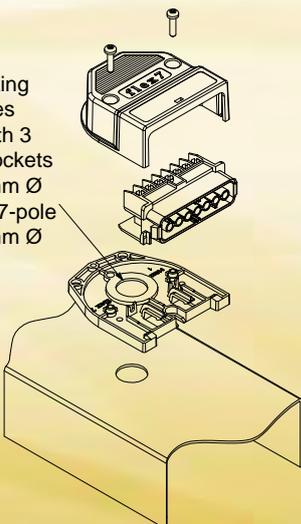


..... Em/L: ...2
..... Neut: ...3
..... Earth: ...4
..... Sw/L: ...4



Note: For fitting to trunking, cable tray or basket) order a separate Trunking Mount Plate. See below.

Note: Trunking Mount Plates supplied with 3 or 4-pole sockets have a 20mm Ø hole, while 7-pole have a 25mm Ø



Ordering flex7 Trunking Mount Plates

/20	20mm Ø	/w	white
/25	25mm Ø	/r	red



Ordering flex7 3 & 4-Core Pre-wired Plug and Socket Sets

75	0.75mm ²	pvc	PVC Cable
100	1.00mm ²	lshf	LSHF Cable
150	1.50mm ²		1, 2, 3, 4, 5 (length in metres)
			1.50mm ² only available in LSHF

3-core fk3 /w

4-core fk4 /r

*For other plug and socket combinations order as separate items.

3, 4, 5 & 6-Core Pre-wired Luminaire Leads

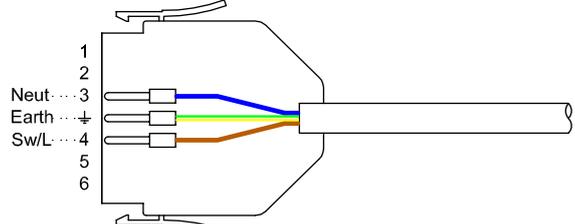
To save valuable time on site flex7 plugs can be pre-wired with a range of PVC or LSHF flexible cables. Once the connection to the luminaire has been made, simply plug into any suitably supplied flex7 outlet.

3-core

3-Core Pre-wired Lead
For non-dimmable, non-emergency luminaires



White as standard

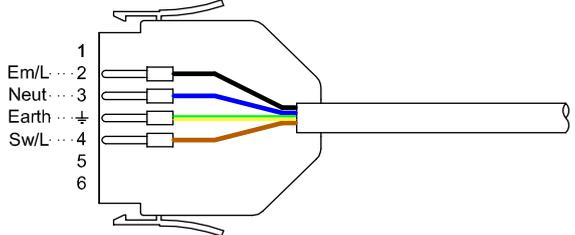


4-core

4-Core Pre-wired Lead
For non-dimmable emergency luminaires



Red as standard

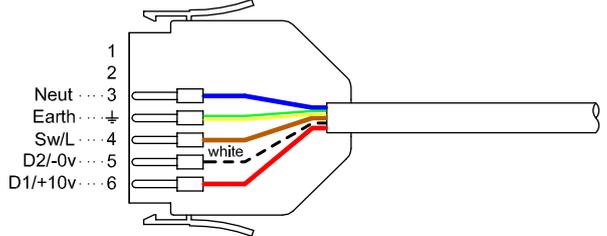


5-core

5-Core Pre-wired Lead
For dimmable non-emergency luminaires



Black as standard

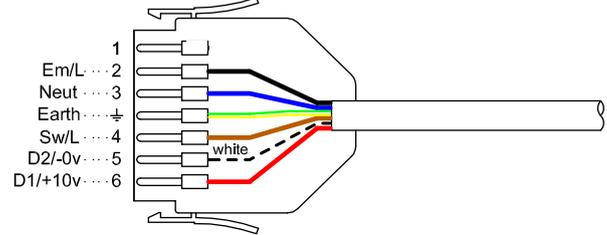


6-core

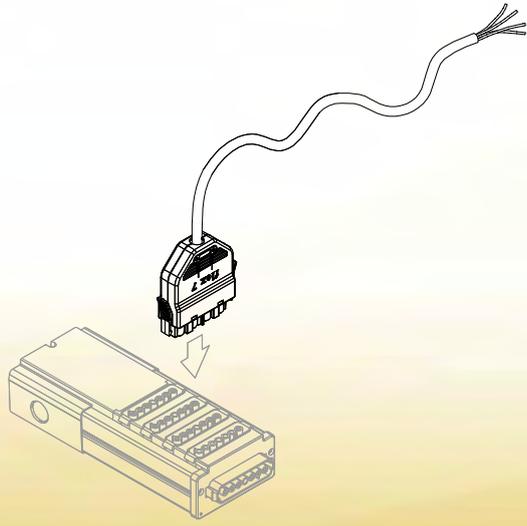
6-Core Pre-wired Lead
For dimmable emergency luminaires



Red as standard



Note: Ordinarily, plugs used in the manufacture of pre-wired leads are only fitted with sufficient pins to suit the lead*

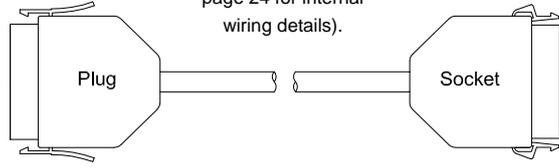
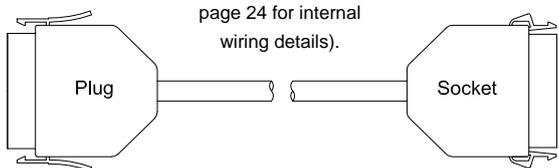
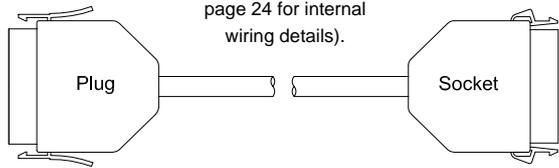
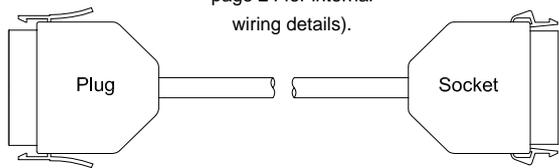


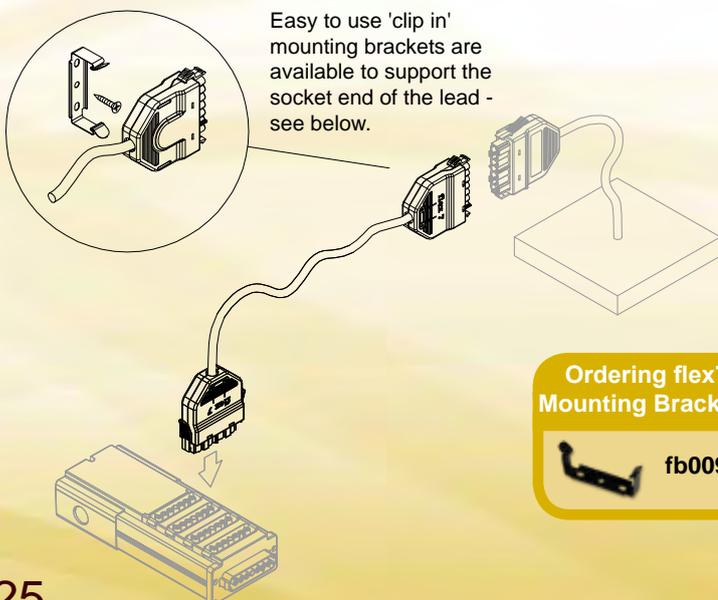
Ordering flex7 3, 4, 5 & 6-Core Pre-wired Luminaire Leads

75 0.75mm ²	pvc PVC cable	5 & 6-core only available in LSHF
100 1.00mm ²	lshf LSHF cable	
150 1.50mm ² <small>(1.50mm² is only available in LSHF)</small>	1, 2, 3, 4, 5 (length in metres)	Non-associative colours or other cable lengths may be available to special order. *If 7-pin plugs are required suffix the colour with 7 for example, instead of /w use /w7 (only available in LSHF cable)
3-core f13	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> /w (white plug)	
4-core f14	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> /r (red plug)	
5-core f15	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> /b (black plug)	
6-core f16	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> /r (red plug)	

3, 4, 5 & 6-Core Extender Leads

For greater flexibility wire a short Luminaire Lead or a Panel Mounted Plug (see page 31) to the luminaire and leave the Extender Lead the job of covering the distance back to the supply socket. Now luminaire manufacturers and electrical contractors can confidently wire up luminaires prior to installation without the risk that the lead may be too long or, more problematically, too short because the correct length Extender Lead can be selected and fitted after the luminaire is in place. This solution is particularly useful if the specification calls for a means of disconnection close to the luminaire.

3-core	<p>3-Core Extender Lead For non-dimmable, non-emergency luminaires</p>  <p>White as standard</p>	<p>(see 3-core lead on page 24 for internal wiring details).</p> 
4-core	<p>4-Core Extender Lead For non-dimmable, emergency luminaires</p>  <p>Red as standard</p>	<p>(see 4-core lead on page 24 for internal wiring details).</p> 
5-core	<p>5-Core Extender Lead For dimmable luminaires</p>  <p>Black as standard</p>	<p>(see 5-core lead on page 24 for internal wiring details).</p> 
6-core	<p>6-Core Extender Lead For dimmable emergency luminaires</p>  <p>Red as standard</p>	<p>(see 6-core lead on page 24 for internal wiring details).</p> 



Ordering flex7 Mounting Brackets

fb009



Ordering flex7 3, 4, 5 & 6-Core Extender Leads

		lshf LSHF cable				
		100	0.5, 1, 2, 3, 4, 5			
		1.00mm ²	(length in metres)			
		150	1.50mm ²			
3-core	fs3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	/w	(white plug/skt)
4-core	fs4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	/r	(red plug/skt)
5-core	fs5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	/b	(black plug/skt)
6-core	fs6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	/r	(red plug/skt)

Non-associative colours, or other cable lengths may be available to special order.

3, 4, 5 & 6-Core Double Extender Leads

Similar in design to the Single Extender Lead, but with an additional socket fitted at right angles to the existing inline socket. Use the right angled socket to plug into the local luminaire, and the inline socket to continue the circuit to the next fitting with another Double Extender Lead. This solution is particularly useful where luminaires are sited in rows, such as in corridors or open plan offices or where the specification calls for a means of disconnection close to the luminaires.

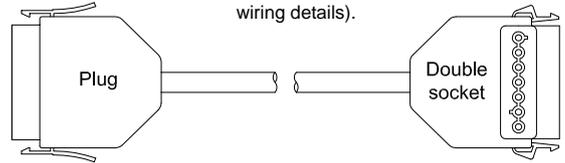
3-core

3-Core Double Extender Lead

Suitable as part of a run in feeding non-dimmable and non-emergency luminaires only.



(see 3-core lead on page 24 for internal wiring details).



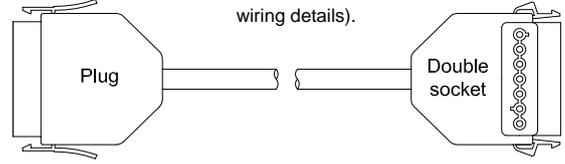
4-core

4-Core Double Extender Lead

Suitable as part of a run in feeding non-dimmable luminaires - both emergency and non-emergency.



(see 4-core lead on page 24 for internal wiring details).



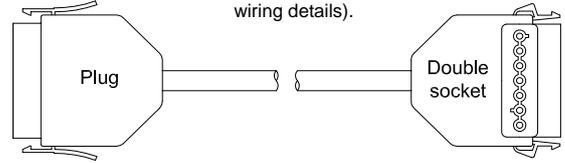
5-core

5-Core Double Extender Lead

Suitable as part of a run in feeding dimmable - non-emergency luminaires only.



(see 5-core lead on page 24 for internal wiring details).



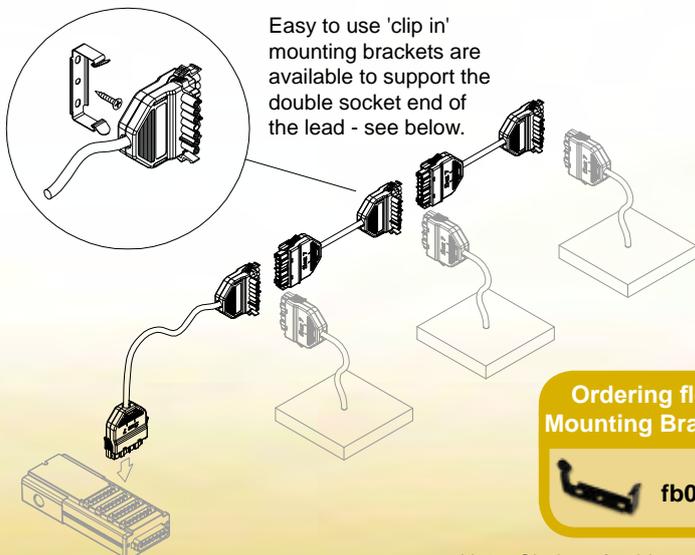
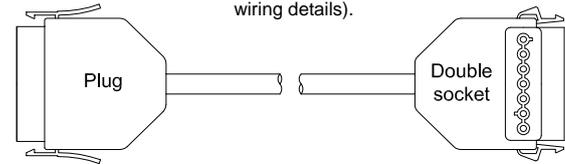
6-core

6-Core Double Extender Lead

Suitable as part of a run in feeding dimmable luminaires - both emergency and non-emergency.



(see 6-core lead on page 24 for internal wiring details).



Easy to use 'clip in' mounting brackets are available to support the double socket end of the lead - see below.

Ordering flex7 Mounting Brackets



fb009

Ordering flex7 3, 4, 5 & 6-Core Double Extender Leads

5 & 6-core only available in 1.50mm²

150	1.50mm ²	lshf	LSHF cable
250	2.50mm ²	fc	Plastic flexible conduit

3	3-core	1, 2, 3, 4, 5, (length in metres)
4	4-core	
5	5-core	
6	6-core	

fd [] [] [] [] /b

Double Extenders are only available with black plug/sockets

Other cable may be available to special order.

Note: Choice of cable csa, cable length and any cable calculations are the sole responsibility of the installer.

Special Pre-wired Luminaire Leads (including 7-core leads)

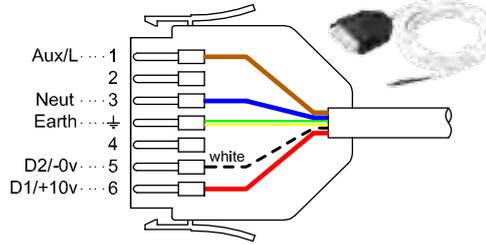
Because not all luminaires have the same standard control and supply requirements we have provided an additional range of Special Pre-wired Luminaire Leads to cater for some of the more unusual applications.

DALI Leads

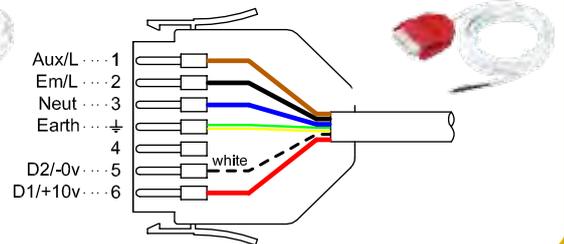
5 & 6-Core Pre-wired Leads for DALI control*

Typically where control of luminaires is via a DALI network.

5-Core for non-emergency DALI control



6-Core for emergency DALI control

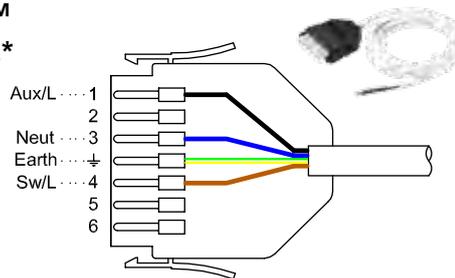


Switch Dim™ Leads

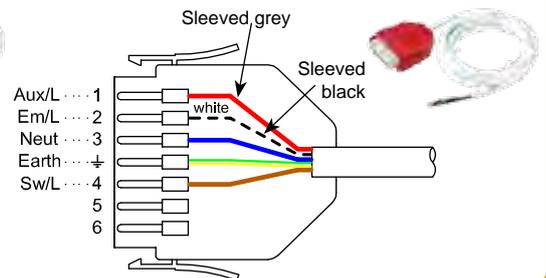
4 & 5-Core Pre-wired Leads for Switch Dim™ (or equivalent) ballasts*

Switch Dim™ ballasts control the luminaire via a mains pulse from a momentary switch.

4-Core for non-emergency switch dim™



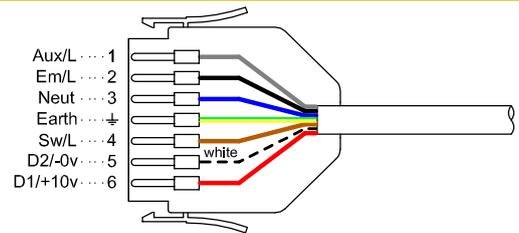
5-Core for emergency switch dim™



7-core

7-Core Pre-wired Leads

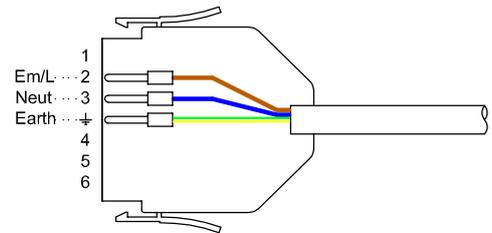
For special luminaire applications (please see note 1 on page 29)



3-core no Sw/L

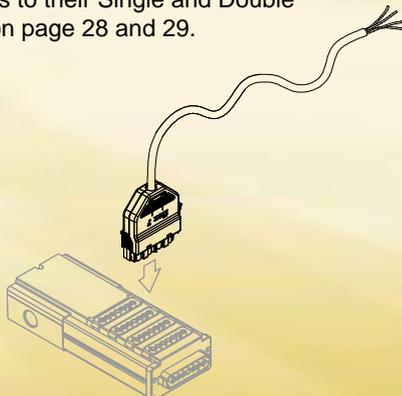
3-Core Pre-wired Leads (no switch live)

Typically for non-maintained emergency luminaires.



*Notes on DALI and Switch Dim™ leads

Lead philosophy assumes luminaires require a permanent supply that is separate to the emergency live (so lights stay on during an emergency test). However, if the emergency supply can suffice for both then the non-emergency type leads can be used throughout, regardless of whether a fitting is emergency or not. This also applies to their Single and Double Extender equivalents on page 28 and 29.



Ordering flex7 Special Pre-wired Luminaire Leads

75	0.75mm ²	Ishf	LSHF cable	1, 2, 3, 4, 5 (length in metres)
100	1.00mm ²			
150	1.50mm ²			

DALI 5-core	f15			/bd (black plug)
DALI 6-core	f16			/rd (red plug)
Switch Dim 4-core	f14			/bt (black plug)
Switch Dim 5-core	f15			/rt (red plug)
7-core leads	f17			/b (black plug)
3-core no Sw/L	f13			/re (red plug)

Non-associative colours, or other cable lengths may be available to special order.

Special Extender Leads (including 7-core leads)

These Extender Leads are available specifically to work with and complement, the Special Pre-wired Luminaire Leads opposite.

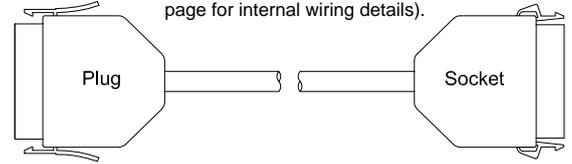
DALI Leads

5 & 6-Core Extender Leads for DALI control*

Typically where control of luminaires is via a DALI network.



5-Core or 6-Core
(see 5 or 6-core leads on opposite page for internal wiring details).



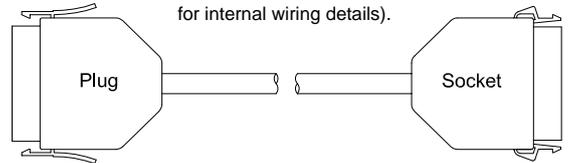
Switch Dim™ Leads

4 & 5-Core Extender Leads for Switch Dim™ (or equivalent) ballasts*

Switch Dim™ ballasts control the luminaire via a mains pulse from a momentary switch.



4-core or 5-core (see 4 or 5-core leads on opposite page for internal wiring details).



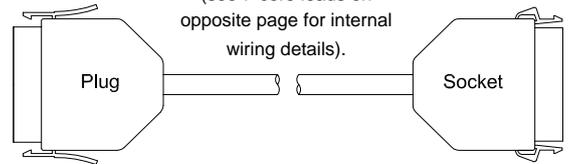
7-core

7-Core Extender Leads

For special luminaire applications (please see note 1 on page 29)



(see 7-core leads on opposite page for internal wiring details).



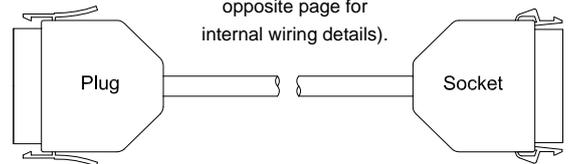
3-core no Sw/L

3-Core Extender Leads - no switch live

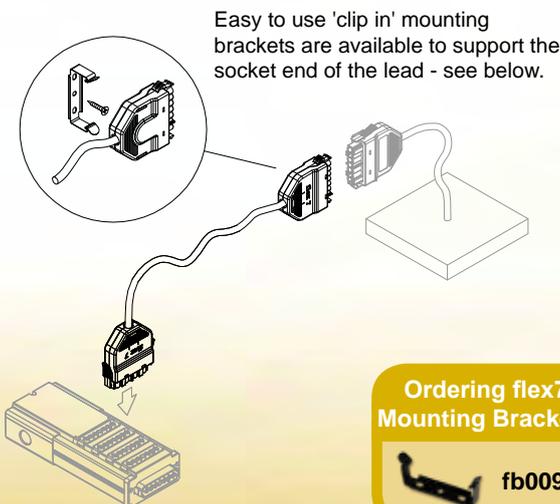
Typically for non-maintained emergency luminaires.



(see 3-core leads on opposite page for internal wiring details).



*See notes on DALI and Switch Dim™ leads on page 27



Ordering flex7 Special Extender Leads

	Ishf LSHF cable			
	100 150	1.00mm ² 1.50mm ²	1, 2, 3, 4, 5 (length in metres)	
DALI 5-core	fs5	<input type="checkbox"/>	<input type="checkbox"/>	/bd (black plug/skt)
DALI 6-core	fs6	<input type="checkbox"/>	<input type="checkbox"/>	/rd (red plug/skt)
Switch Dim 4-core	fs4	<input type="checkbox"/>	<input type="checkbox"/>	/bt (black plug/skt)
Switch Dim 5-core	fs5	<input type="checkbox"/>	<input type="checkbox"/>	/rt (red plug/skt)
7-core leads	fs7	<input type="checkbox"/>	<input type="checkbox"/>	/b (black plug/skt)
3-core no Sw/L	fs3	<input type="checkbox"/>	<input type="checkbox"/>	/re (red plug/skt)

Non-associative colours, or other cable lengths may be available to special order.

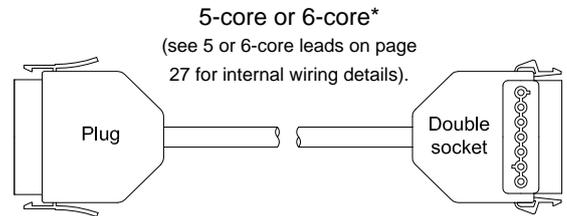
Special Double Extender Leads (including 7-core leads)

These Special Double Extender Leads are available specifically to work with and complement the Special Pre-wired Luminaire Leads and Single Extender Leads on page 27 & 28.

DALI Leads

5 & 6-Core Double Extender Leads for DALI control*

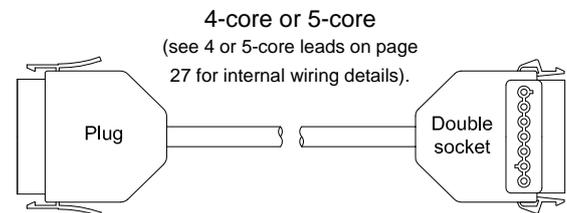
Caution: only use 5-core if there are no emergency fittings in the run. Otherwise use 6-core throughout.



Switch Dim™ Leads

4 & 5-Core Double Extender Leads for Switch Dim™ (or equivalent) ballasts*.

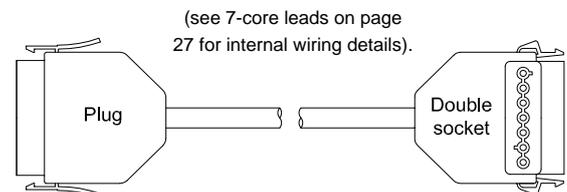
Caution: only use 4-core if there are no emergency fittings in the run. Otherwise use 5-core throughout.



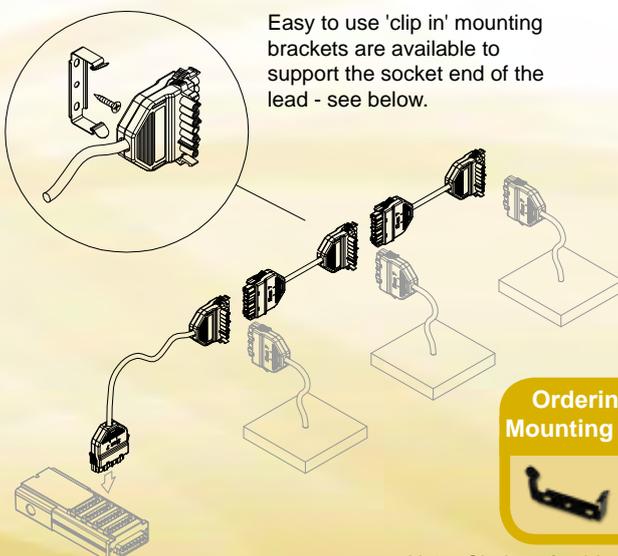
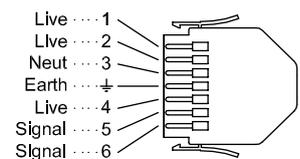
7-core

7-Core Double Extender Leads

For special luminaire applications (please see note 1 below).



Note 1: All terminals on flex7 plugs and sockets are 230V~ 16A rated, but wherever possible we advise adherence to the following flex7 adopted standard of terminal designations. Please exercise care if deviating from these, as cross connection with a standard flex7 installation/product, present or future, may result in personal injury or damage to other equipment.



Ordering flex7 Mounting Brackets

fb009

Ordering flex7 Special Double Extender Leads

	LSHF	LSHF cable	1, 2, 3, 4, 5 (length in metres)		
DALI 5-Core		fd5150	<input type="text"/>	<input type="text"/>	/bd
DALI 6-Core		fd6150	<input type="text"/>	<input type="text"/>	/bd
Switch Dim 4-Core		fd4150	<input type="text"/>	<input type="text"/>	/bt
Switch Dim 5-Core		fd5150	<input type="text"/>	<input type="text"/>	/bt
7-Core Leads		fd7150	<input type="text"/>	<input type="text"/>	/b

Double extenders are only available with black plug/skts

Other cable lengths may be available to special order.

Note: Choice of cable csa, cable length and any cable calculations are the sole responsibility of the installer.

3, 4 & 7-Pole Cable Mount Sockets

Available in white, red or black, flex7 Cable Mount Sockets are robust and simple to use. In-line terminals, a snap-on/snap-off cover and a pair of screws which both secure the cover and clamp the flexible cable, make it quick and easy to wire. The strong mechanical latches on each socket double as finger grips, making de-latching almost automatic when (and only when) you need it. All terminals are numbered, with additional marking illustrating normal usage.



Cable Mount Sockets are generally used in the preparation of Extender Leads where they are fitted to one end of a cable whilst the other end is fitted with a plug. Note that this type of lead can be supplied pre-wired - see page 25

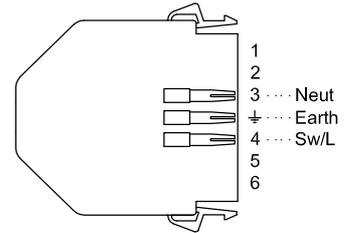
3-pole

3-Pole Cable Mount Sockets

For non-dimmable luminaires



White as standard



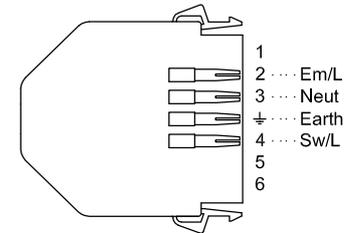
4-pole

4-Pole Cable Mount Sockets

For non-dimmable emergency luminaires



Red as standard



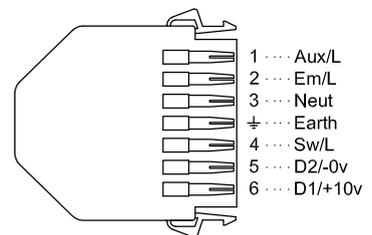
7-pole

7-Pole Cable Mount Sockets

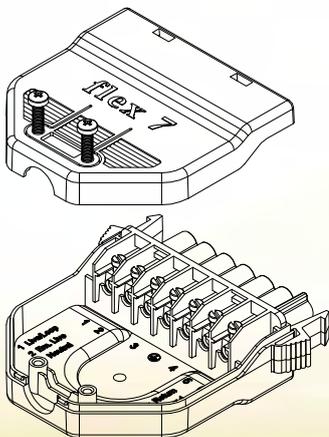
Typically for dimmable luminaires (emergency or non-emergency)



Black or red as standard

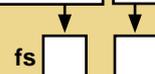


Technical details on page 56.



Ordering flex7 3, 4 & 7-Pole Cable Mount Sockets

3	3-pole	/w	white
4	4-pole	/r	red
7	7-pole	/b	black



● Flush Panel Mount Plugs (3, 4 & 7-Pin)

Available in 3, 4 and 7-pin versions, Panel Mount Plugs enable the flex7 interface to be added to luminaires or other equipment, allowing flex7 leads to connect directly to and from the equipment.

Designed with a minimal thickness front plate and a strong snap fixing, the Panel Mount snaps into a rectangular hole in materials from 0.5mm – 1.50mm thick.

Panel Mount Plugs are supplied with screw terminals. However, they can easily be pre-wired with your required cables – contact us on 020 8580 1066 to discuss your requirements and obtain a quotation.



3-pin Panel Mount Plug

Typically for non-dimmable luminaires

3-pin

1		
2		
Neut	...	3
Earth	...	4
Sw/L	...	5
6		

4-Pin Panel Mount Plug

Typically for non-dimmable emergency luminaires

4-pin

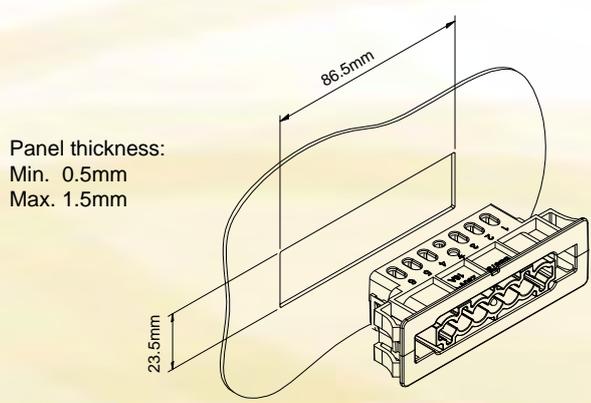
1		
Em/L	...	2
Neut	...	3
Earth	...	4
Sw/L	...	5
6		

7-Pin Panel Mount Plug

Typically for dimmable luminaires (emergency or non-emergency)

7-pin

Aux/L	...	1
Em/L	...	2
Neut	...	3
Earth	...	4
Sw/L	...	5
D2/-0v	...	6
D1/+10v	...	7



Key Features

- Rated 230V~ 16A
- Snaps into rectangular cut out 23.5mm x 86.5mm

[Technical details on page 57.](#)

Ordering flex7 Panel Mounted Plugs

03	3-pin
04	4-pin
07	7-pin

Panel mount plug fmp /b

● Flush Panel Mount Sockets (3, 4 & 7-Pole)

Available in 3, 4 and 7-pole versions, Panel Mount Sockets enable the flex7 interface to be added to luminaires or other equipment, allowing flex7 leads to connect directly to and from the equipment.

Designed with a minimal thickness front plate and a strong snap fixing, the Panel Mount snaps into a rectangular hole in materials from 0.5mm – 1.5mm thick.

Panel Mount Sockets are supplied with screw terminals. However, they can easily be pre-wired with your required cables – contact us on 020 8580 1066 to discuss your requirements and obtain a quotation.



3-pole

3-Pole Panel Mount Socket

Typically for non-dimmable luminaires

1	
2	
Neut	...
Earth	...
Sw/L	...
4	
5	
6	

4-pole

4-Pole Panel Mount Socket

Typically for non-dimmable emergency luminaires

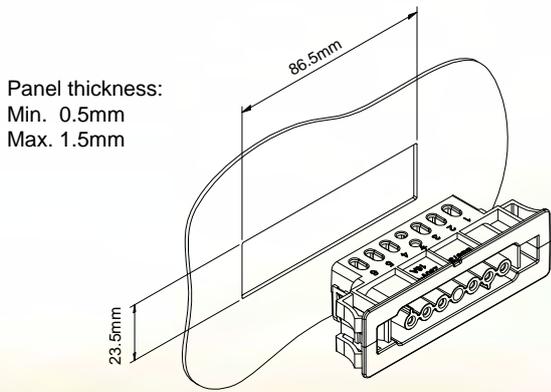
1	
Em/L	...
Neut	...
Earth	...
Sw/L	...
4	
5	
6	

7-pole

7-Pole Panel Mount Socket

Typically for dimmable luminaires (emergency or non-emergency)

Aux/L	...
Em/L	...
Neut	...
Earth	...
Sw/L	...
D2/-0v	...
D1/+10v	...
6	



Key Features

- Rated 230V~ 16A
- Snaps into rectangular cut out 23.5mm x 86.5mm

[Technical details on page 57.](#)

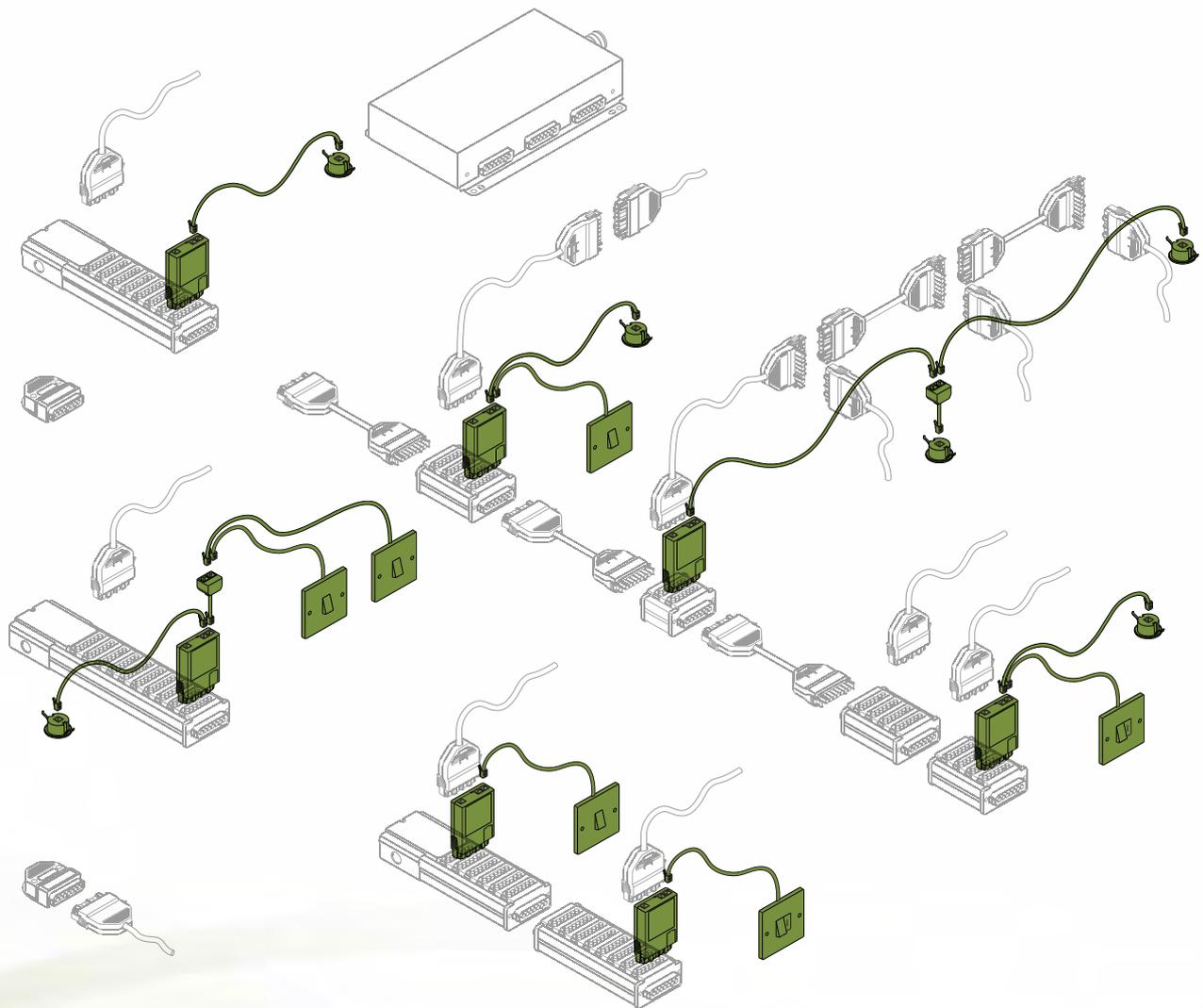
Ordering flex7 Panel Mounted Sockets

03	3-pin
04	4-pin
07	7-pin

Panel mount socket fms /b

& Control

At its simplest a flex7 eZeBox Unit can be controlled by hard-wired switch inputs, but to best utilise The flex7 System, why not choose a suitable plug-in control device from our extensive range of sensors and switches, and simply plug into any spare outlet to control that box? Operating at protected extra low voltage we can provide occupancy, presence, daylight linking, daylight dependency, manual dimming / switching and remote control. If preferred there is also a range of mains voltage plug-in switch drops.



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Series 3000 - Dimmer Switch Kits	44		
Occupancy Sensor Heads	45		

flex7 Energy Efficient Controls

Installing Flex Connectors' lighting control products can significantly reduce energy costs and carbon emissions. The flex7 lighting control system has been developed to meet this need in the widest range of building environments.

The unique concept behind the system provides the most versatile lighting control options for both installers and end users, whilst fully complying with Part L of the Building Regulations. All this is achieved without any need for specialist commissioning.

Up to 70% of the energy used by lighting may be saved if manual switching is replaced by automatic lighting controls. flex7 makes it easy to select and install the controls to achieve these savings.

A compact plug-in Control Pack, compatible with the flex7 connector, and the smallest sensor head of its type feature throughout the simple 1000 and 3000 Series, as well as the more advanced products in the Control-Plus range. All Control Packs plug in to flex7 eZeBox Units or Single Socket Outlets to provide instant control.



Glossary



Absence Sensors

Lights need to be turned on when entering a room, but will turn off automatically when the room is empty.



Occupancy Sensors

Lights come on automatically as someone enters the room, and turn off automatically when the room is empty.



Daylight Dependency

Lights turn off when daylight is present and, and on when it is not.



Daylight Linking

Lights adjust up or down depending on the amount of natural daylight in the room.



Manual Dimming

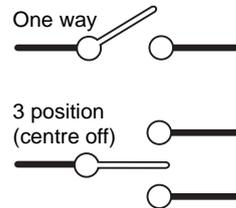
Lights can be dimmed up and down manually.

(Luminaires must be fitted with suitable regulating ballasts).



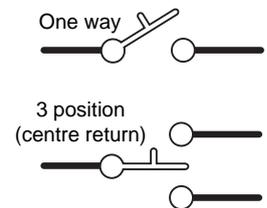
User Remote Control

Pre-program light levels to recall at anytime or use simply to operate lights on/off/dim up/dim down.



Latching Switching

A switch where the rocker stays in the position it is moved to.



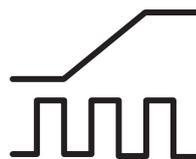
Retractive Switching

A switch where the rocker springs back, allowing pulsed operation.



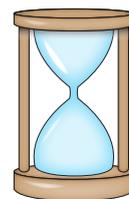
PIR

Passive Infra Red. Detects a body's heat moving across zones created by its special lens.



1-10V, DSI & DALI

Different ways of dimming a luminaire's ballasts - by varying a voltage or sending digital code.



Timeout

The period of time set on a sensor that holds lights on after the last movement is detected.



Override

A switch or a time clock used to hold lights On or Off regardless of the sensor's state.

Selecting Occupancy or Absence Control

This table describes the 4 basic sensor control options and their applications:

Occupancy (switch optional but if used must be latched type)		Absence (always requires a retractive switch type)	
Stand alone	With override switch	As standard	Presence enabled*

Basic operation:

Turns on the light when presence is detected	ALWAYS	YES - but only if switch is not in override off position	NEVER	YES - but only if the sensor has timed out
Turns off the light when absence is detected	ALWAYS	ALWAYS†	ALWAYS	ALWAYS

Suitable for working with:

Daylight Dependency	YES	YES	Not recommended	Not recommended
Daylight Linking	YES	YES	YES	YES
Manual Dimming (at the switch)	NO	NO	YES	YES

Potential to save energy

For comparison only	***	****	*****	****
---------------------	------------	-------------	--------------	-------------

*All Absence sensors can have presence enabled using the remote control (**frc/set**)

†Series 2000 and 4000 sensors have an option to override ON as well - which could prevent lights turning off after a timeout.

Areas with no natural light, or where it is vital the lights are always on whenever an area is occupied. Ideal for circulation areas, WCs, cupboards, etc.	Ability to override the lights off provides greater control and improved energy savings however we recommend first considering absence control as a possibly better alternative.	Optimal energy saving and end user control - ideal for offices, classrooms, meeting rooms, hotel rooms, storeroom, cupboards etc.	All the features of absence, but by allowing the lights to turn on with presence (after time-out) means for instance that on a dark winter's morning the lights would switch on automatically upon entry.
------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Use of daylight linking or daylight dependent switching

Used correctly, daylight linking or daylight dependent switching saves energy, and enhances the working environment, however the contribution from daylight must be consistent across the controlled area. If some parts of the controlled area receive much less daylight than others, occupants of the darker area may not receive sufficient light.

As lamp output across the circuit must be common, it is not possible to provide the 'optimal' light level for all areas when some receive more daylight than others.

✗

We strongly recommend that only the row of lights nearest the window is controlled by any daylight dependent switching sensor, and that no more than two rows of lights are controlled by one daylight-linked dimming sensor.

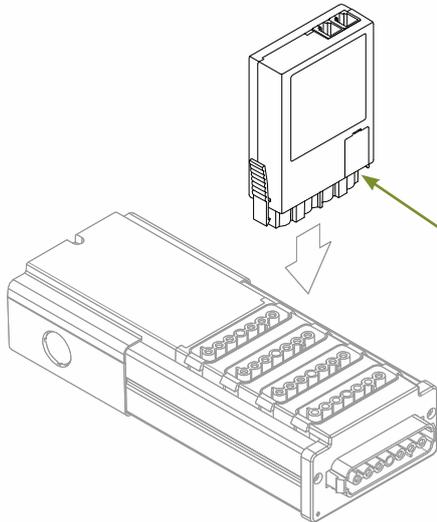
Try to split into zones where the changes in daylight are reasonably consistent. Darker areas may then be controlled via alternative means such as on/off without consideration to light level. You may even consider sufficient natural light reaches these areas to justify a second light level sensing circuit.

✓

Using the Control Pack

Plug-in Control Packs are at the heart of any flex7 control solution, but how a Control Pack controls the lighting is determined by its type (dimming or non-dimming) and what is plugged into it. For example it becomes a low voltage switch if just a Switch Drop is plugged in or a sensor if just a Sensor Head is plugged in, however plugging in both a Switch Drop and a Sensor Head provides the maximum level of control.

No matter whether it's a Series 1000, 2000, 3000, or 4000, Control Packs are designed to be as flexible and as easy to use as possible. So not only do the Sensor Heads, Sensor Leads and Switch Drops plug in, but so too does the Control Pack - typically plugging into any unit from the eZeBox range, thus saving the installer the maximum amount of time on site.



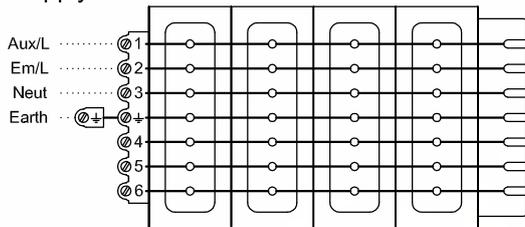
A moveable link allows the installer to select where the Control Pack derives power from. This affects the way the non-emergency luminaires respond during an emergency test e.g.

If the Control Pack is powered by Line fixed (Aux/L) - Non-emergency fittings will remain operational during a test.

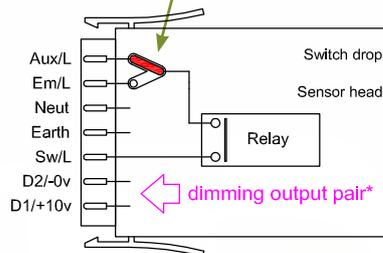
If the Control Pack is powered by Line emergency (Em/L) - Non-emergency fittings will lose their supply during a test.

The eZeBox Unit must be wired accordingly.

Supply



Schematic shows fsu04 as typical



All Control Packs type:

- 1000** - Non dimmable
- 2000** - Non dimmable (Control Plus)
- 3000** - Dimmable
- 4000** - Dimmable (Control Plus)

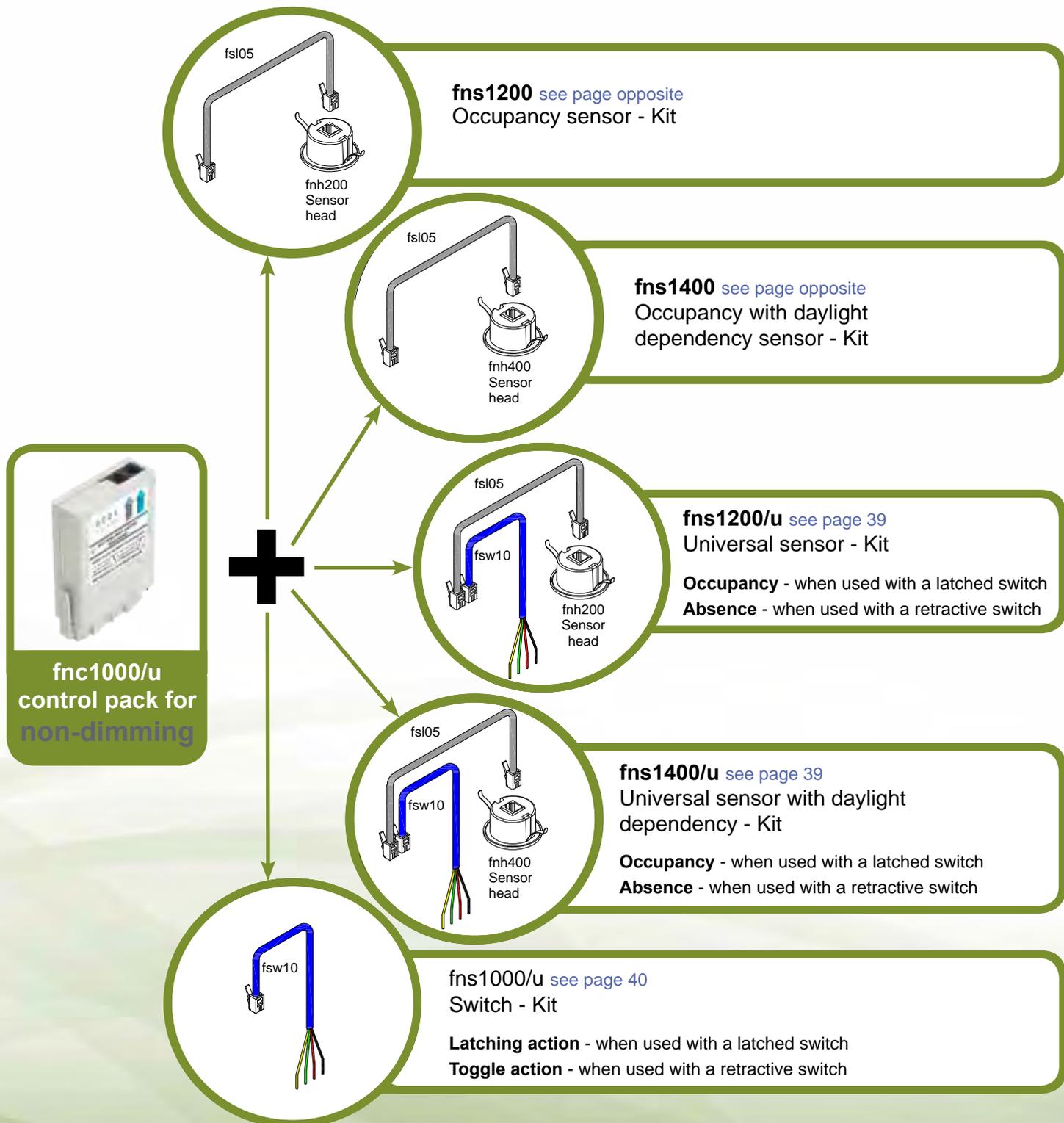
*Dimming output pair only on dimming type control packs 3000 & 4000 types. DSI, DALI or Analogue output versions available to order.

Series 1000 Control Kits - At a glance

(for non-dimming applications)

Plugging straight into any suitably supplied eZeBox Unit the flex7 Series 1000 Universal Control Kits provide an extensive choice of ON/OFF control philosophies. Because all kits are made up from a pool of the same common elements, your control can easily be altered at any stage simply by adding or removing components. Kit components are also available to order separately as well as many extras such as a Setup or a User Remote Control, alternative lead lengths and, if more occupancy coverage is required, Slave Occupancy Heads that can be plugged-in in parallel (up to 5 slaves max.) with the existing sensor head.

Note that all flex7 controls operate at PELV (protected extra low voltage) so using our Switch Drops, unlike mains switching, means that cables can be set at any depth within the wall, will not require enclosing in an earthed metallic covering nor will the circuit require the added protection of an RCD for that purpose. (see IET Wiring Regulations 17th Edition BS7671: 2008 incorporating Amendment No 1: 2011).



Series 1000 (Non-dimming) Occupancy Sensor - Kits

Occupancy Sensors switch lights on when presence is detected and off if absence is detected for a period equal to its programmed timeout.

A daylight dependent version is also available which, during normal periods of occupancy, will switch the lights off whenever there is adequate daylight. Typically this means lights are off during brighter periods of the day.

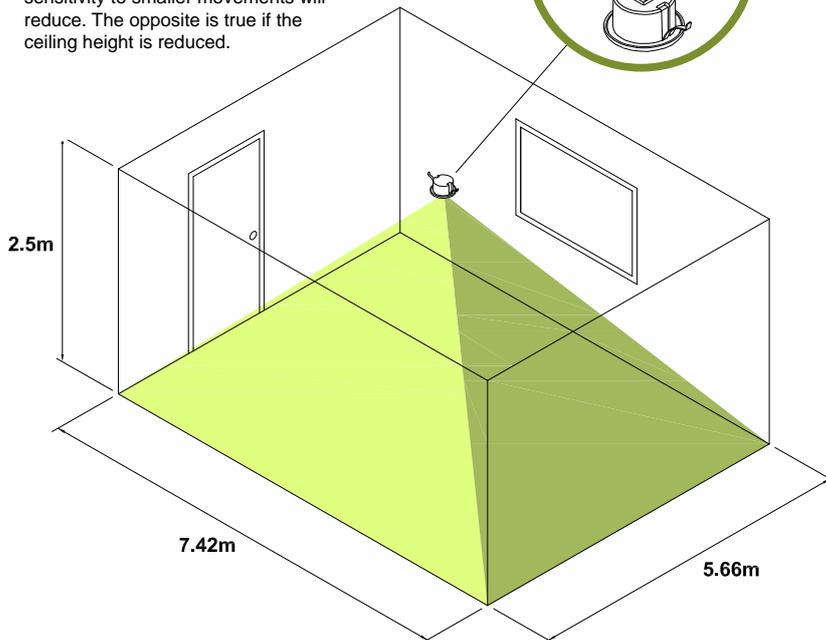


Occupancy detection pattern

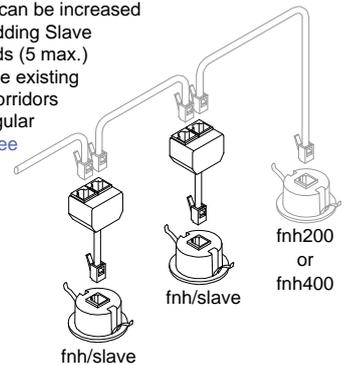
Note that if the ceiling height increases so too will the range, but sensitivity to smaller movements will reduce. The opposite is true if the ceiling height is reduced.

Small sensor head!

Requires only a 32mm Ø cutout for flush fitting



Detection range can be increased up to 6 fold by adding Slave Occupancy Heads (5 max.) in parallel with the existing head. Ideal for corridors and large or irregular shaped areas. See page 45.



frc/set - Setup Remote Control

*All sensors come factory set with a 20 minute timeout but for other times (2, 5, 10, 20 or 40 minutes) or to Setup the light level for daylight dependency version, a Setup Remote Control is required. See page 46

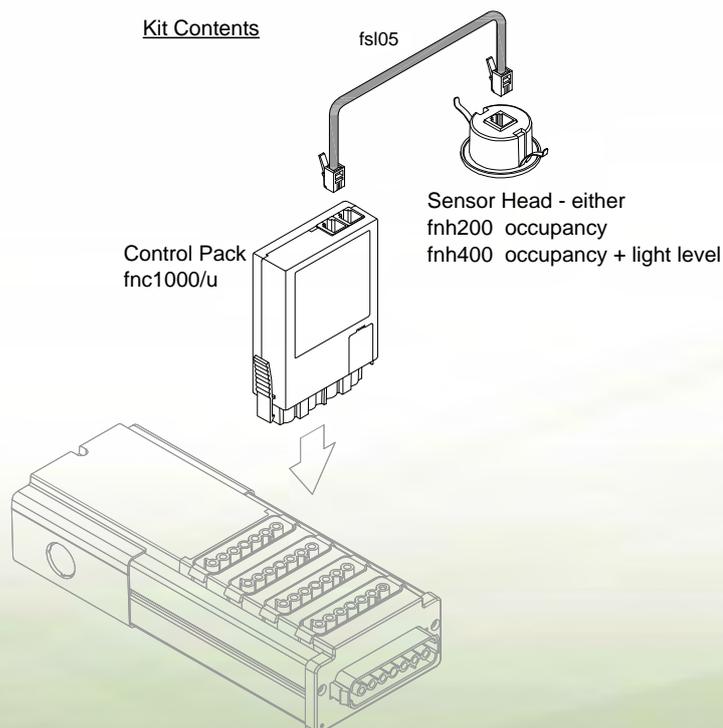


frc/user - End User Remote Control

For additional control for the end user a User Remote Control is available. Unit comes with its own wall mounted holster. See page 46



Kit Contents



Technical Details

Control Pack Supply voltage: 230V~ 50hz

Load rating at 230V ~ : 6A max

Further technical details - Page 57

Ordering flex7 Series 1000 - Occupancy Sensor Kits

D/D = Daylight dependency

200 without D/D

400 with D/D

fns1

*Do you need a setup remote control? See above

Series 1000 (Non-dimming) Universal Sensor - Kits

Adding a Switch Drop to an Occupancy Sensor Kit provides another level of control, and with it the option to configure the sensor as either occupancy or absence - configured simply by the choice of switch and the way it is terminated.

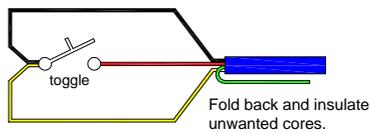
Universal Sensor Kits are available with or without daylight dependency.

For details relating to detection range, use of Slave Heads or Remote Controls please refer to Occupancy Sensor Kits ([see previous page](#)).



Absence

Requires a 1-way retractive switch



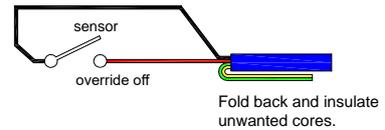
Operation:

Lights do not turn on automatically with presence but instead need to be switched on. Choose to switch them off again or, if left on, will switch off after absence has been detected for a period equal to its programmed timeout

*Note: we do not recommend configuring the daylight dependent version for absence type control.

Occupancy (with override off)

Requires a 1-way latched switch



Operation:

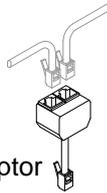
While the switch is open (sensor position), lights will switch on when presence is detected, and off after absence has been detected for a period equal to its programmed timeout.

While the switch is closed (override off position) - the lights are off permanently.

In the daylight dependent version, during normal periods of occupancy, the lights will switch off whenever there is adequate daylight.

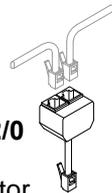
Retractive switching is ideal for multiple switch points. Just plug in any additional switch drop/s alongside the existing using our standard 'Y' adaptors.

fsy/a
'Y' adaptor

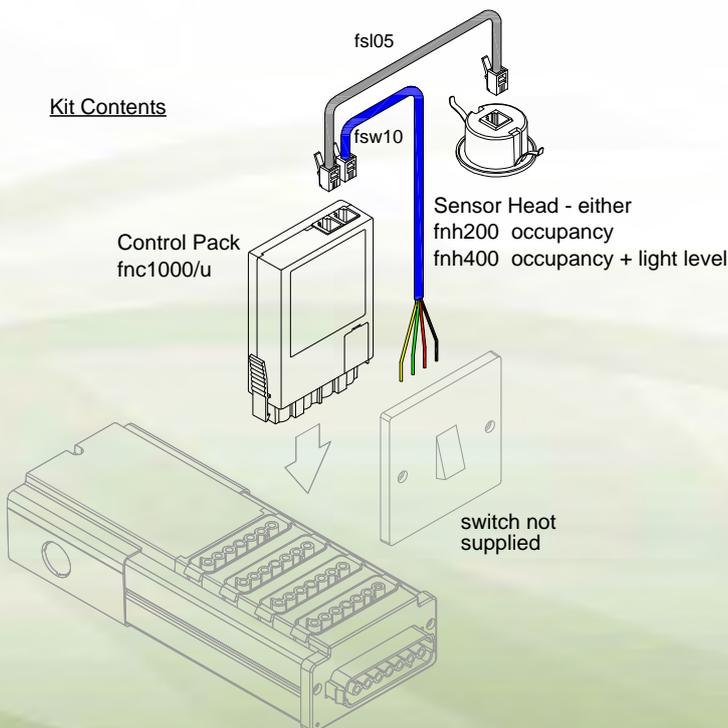


A special adaptor is available for 2-way switching of override off. Special switch wiring instructions are included with the adaptor.

fsy/2e/2/0
special
'Y' adaptor



Kit Contents



Technical Details

Control Pack Supply voltage: 230V~ 50hz

Load rating at 230V ~ : 6A max

[Further technical details - page 57](#)

Ordering flex7 Series 1000 - Universal Sensor Kits

D/D = Daylight dependency

200 without D/D

400 with D/D

fns1 /u

*Do you need a *setup* remote control? [See previous page](#)

Series 1000 (Non-dimming) Switch - Kits

Benefits of using a Series 1000 Switch Kit instead of traditional mains switching?

- **Versatility**

Retractive switching is ideal for multiple switch points, and as leads simply plug-in, you can add more switch drops at any stage, even adding occupancy or light level sensing.

- **Cost**

Apart from terminating the switch, everything else plugs together saving valuable installation time. Also compared to the cost of traditional mains cable, our switch drops can often prove to be a more cost effective alternative.

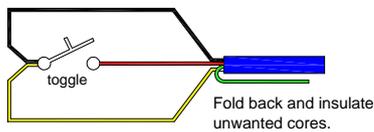
- **Safety**

All flex7 controls operate at PELV (protected extra low voltage) so using our switch drops, unlike mains switching, means that cables can be set at any depth within the wall, will not require enclosing in an earthed metallic covering, nor will the circuit require the added protection of an RCD for that purpose. (see IET Wiring Regulations 17th Edition BS7671: 2008 incorporating Amendment No 1: 2011).



Retractive

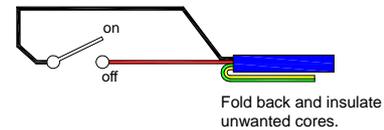
Requires a 1-way retractive switch



Operation: Toggle light on/off

Latched

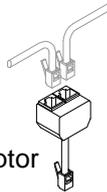
Requires a 1-way latched switch



Operation: Latch light on/off

Retractive switching is ideal for multiple switch points. Just plug in any additional switch drop/s alongside the existing using our standard 'Y' adaptors.

fsy/a
'Y'adaptor

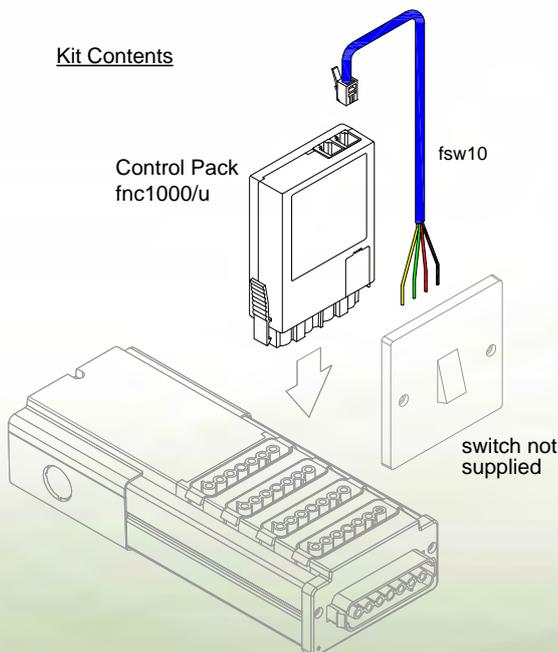


A special adaptor is available for 2-way switching of override off. Special switch wiring instructions are included with the adaptor.

fsy/2e/2/0
special
'Y'adaptor



Kit Contents



Technical Details

Control Pack Supply voltage: 230V~ 50hz

Load rating at 230V ~ : 6A max

[Further technical details - page 57](#)

Ordering flex7 Series 1000-Switch Kits

Switch - kit

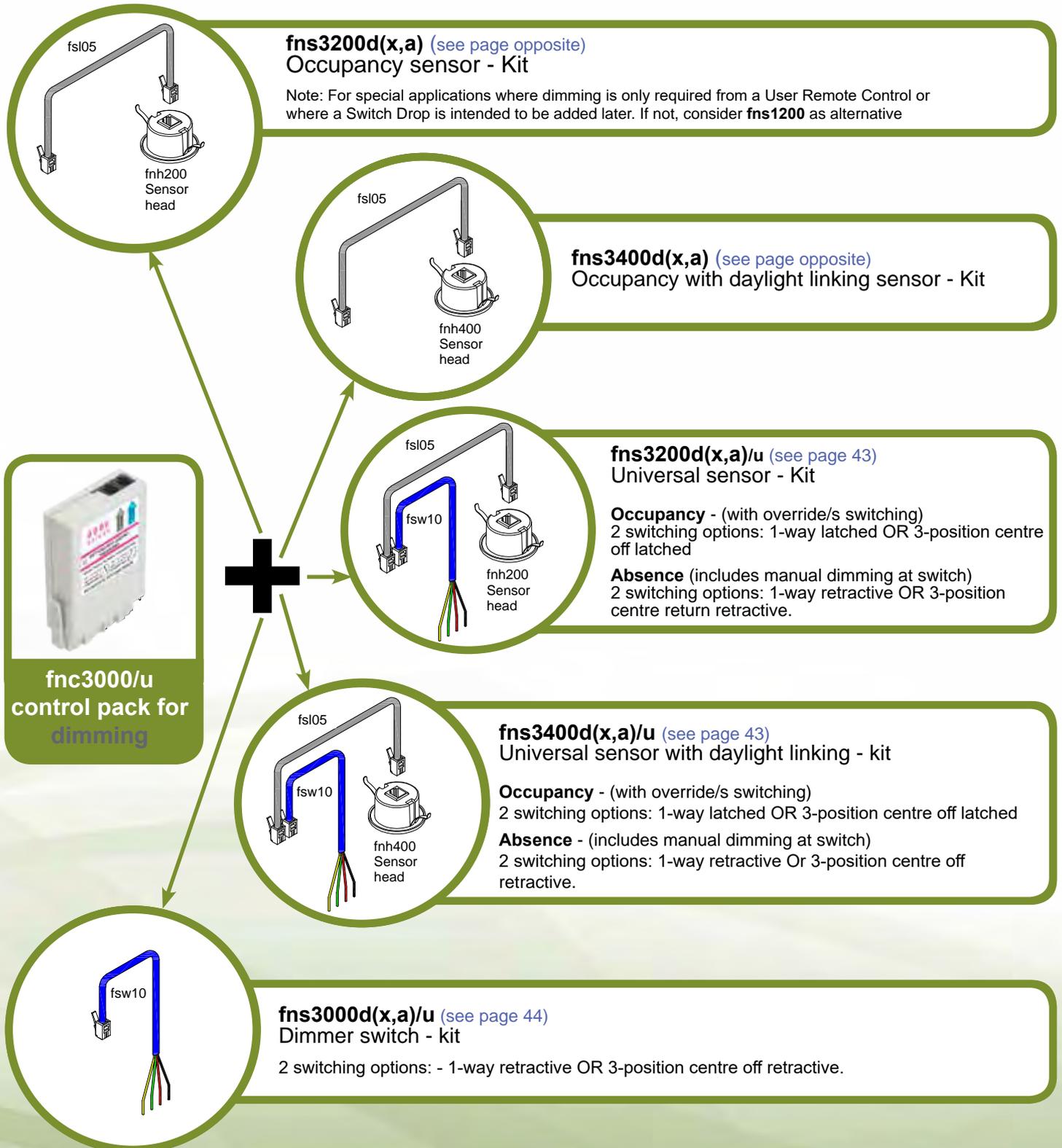
fns1000/u

Series 3000 Control Kits - At a glance

(for dimming applications)

Plugging straight into any suitably supplied eZeBox Unit the flex7 Series 3000 Universal Control Kits provide an extensive choice of ON/OFF/DIM control philosophies. Because all kits are made up from a pool of the same common elements your control can easily be altered at any stage simply by adding or removing components. Kit components are also available to order separately as well as many extras such as a Setup or User Remote Control, alternative lead lengths and, if more occupancy coverage is required, Slave Occupancy Heads that can be plugged-in in parallel (up to 5 slaves max.) with the existing sensor head. Units are available with DSI, DALI, or 1-10v (analogue) dimming outputs to order.

Note that all flex7 controls operate at PELV (protected extra low voltage) so using our Switch Drops, unlike mains switching, means that cables can be set at any depth within the wall, will not require enclosing in an earthed metallic covering nor will the circuit require the added protection of an RCD for that purpose. (see IET Wiring Regulations 17th Edition BS7671: 2008 incorporating Amendment No 1: 2011).



Series 3000 (Dimming) Occupancy Sensor - Kits

Occupancy sensors switch lights on when presence is detected, and off if absence is detected for a period equal to its programmed timeout.

A daylight linking version is also available where luminaires adjust their light output to compensate for any changes in ambient light in order to maintain a constant light level under the sensor head - the target level (set at point of installation).

3 versions of the product are available, one for each of the generally used dimming protocols - DSI, DALI or 1-10v (analogue).

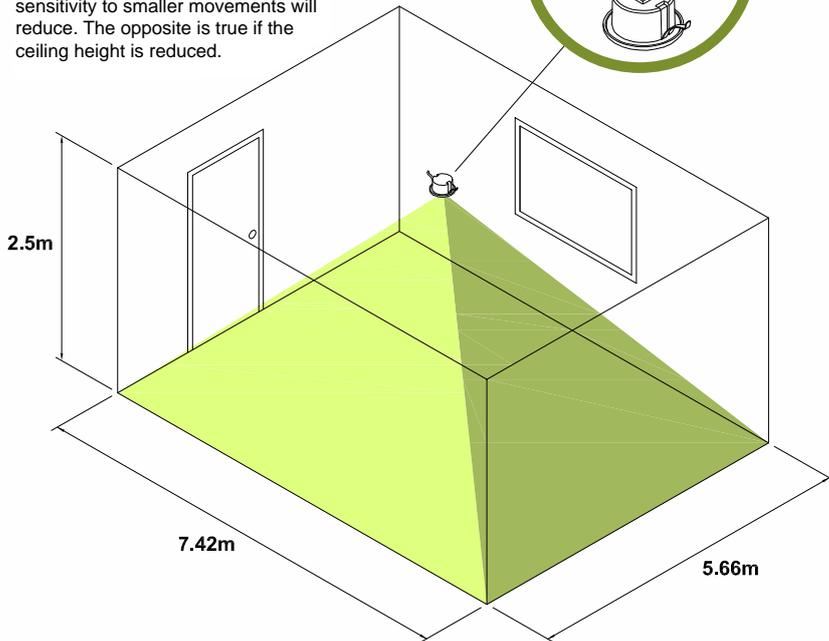


Occupancy detection pattern

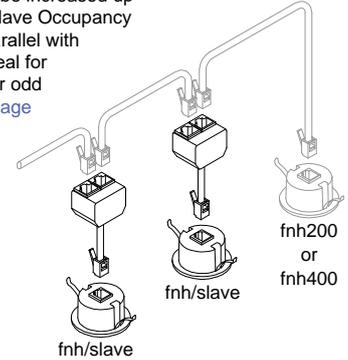
Note that if the ceiling height increases so too will the range, but sensitivity to smaller movements will reduce. The opposite is true if the ceiling height is reduced.

Small sensor head!

Requires only a 32mm Ø cutout for flush fitting



Detection range can be increased up to 6 fold by adding Slave Occupancy Heads (5 max.) in parallel with the existing head. Ideal for corridors and large or odd shaped areas. See page 45.



frc/set

Setup Remote Control

All sensors come factory set with a 20 minute timeout but for other times (2,5,10,20 or 40 min) or to Setup the light level for daylight linking, a Setup Remote Control is required. See page 46



frc/user

End User Remote Control

For additional control for the end user a User Remote Control is available. Unit comes with its own wall mounted holster. See page 46

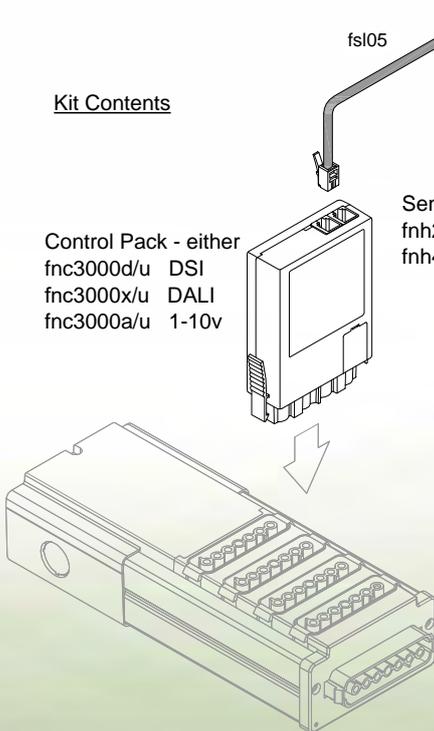


Kit Contents

Control Pack - either
fnc3000d/u DSI
fnc3000x/u DALI
fnc3000a/u 1-10v

fsl05

Sensor Head - either
fnh200 occupancy
fnh400 occupancy + light level



Technical Details

Control Pack Supply voltage: 230V~ 50hz

Load rating at 230V ~ : 6A max

Further technical details - page 57

Ordering flex7 Series 3000 - Occupancy Sensor Kits

D/L = Daylight linking

200 without D/L
400 with D/L

d DSI
x DALI
a 1-10v

must be appropriate for the type of ballast

fns3

*Do you need a setup remote control? See above

Series 3000 (Dimming) Universal Sensor - Kits

With the addition of a Switch Drop Lead to the kit comes a whole new level of control. Configure for occupancy or absence type control simply by choosing the right switch and terminating it appropriately. For optimum control we recommend configuring for absence, in particular because the retractive switch provides the option for manual dimming, as well as all the other benefits usually associated with absence sensing.

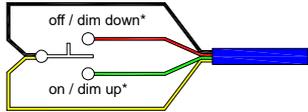
Employing retractive switching means that more Switch Drops can be plugged-in at any stage to provide multiple switching points.

Universal Sensors Kits are available with either DSI, DALI or 1-10v (analogue) dimming outputs and with or without daylight linking. For details relating to detection range, use of Slave Heads or Remote Controls [please refer to Occupancy Sensor Kits on the previous page.](#)

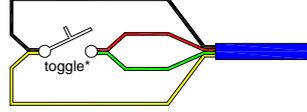


Absence type control

Option 1 - Requires a 3-position, centre return, *retractive* switch



Option 2 - Requires a 1-way, *retractive* switch



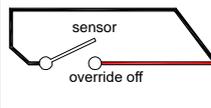
*Short pulses switch the lights on/off. Long pulses dim up/down.

Operation:

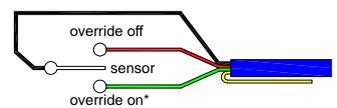
- Lights do not turn on with presence and instead need to be switched on. Lights can be dimmed up or down at the switch or turned off at any time but if left on, will switch off after absence has been detected for a period equal to the timeout period (set at point of installation).
- In the daylight linking version, the lights adjust to compensate for any changes in ambient light, to maintain a constant light level under the sensor head - the target level (set at point of installation). Note that dimming at the switch temporarily disables daylight linking (reset by any short switch pulse)

Occupancy type control

Option 3 - Requires a 1-way, *latched* switch



Option 4 - Requires a 3-position, centre off, *latched* switch



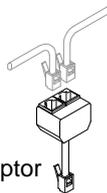
Fold back and insulate unwanted cores.

Operation:

- While the switch is open (sensor position), the lights will switch on when presence is detected and off if absence is detected for a period equal to the timeout period (set at point of installation).
- In the daylight linking version, the lights adjust to compensate for any changes in ambient light, to maintain a constant light level under the sensor head - the target level (set at point of installation).
- Override off (or on) takes priority (override on = full bright).

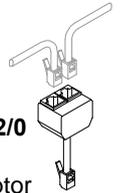
Retractive switching is ideal for multiple switch points. Just plug in any additional switch drop/s alongside the existing ones using our standard 'Y' adaptors.

fsy/a
'Y' adaptor



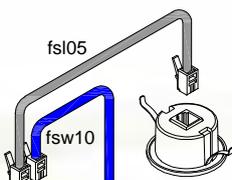
A special adaptor is available for 2-way switching of override off. Special switch wiring instructions are included with the adaptor.

fsy/2e/2/0
special
'Y' adaptor

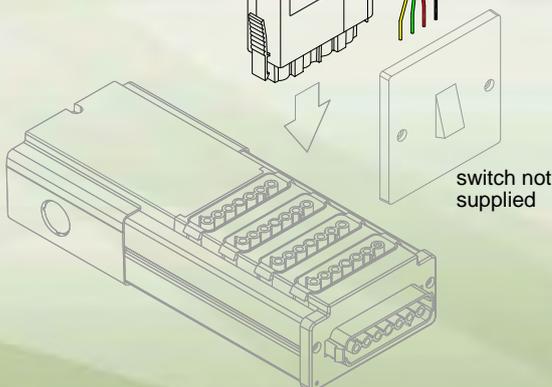


Kit Contents

Control Pack - either
fnc3000d/u DSI
fnc3000x/u DALI
fnc3000a/u 1-10v



Sensor head - either
fnh200 occupancy
fnh400 occupancy + light level



Note:

Switch option 1 is considered the best option for manual dimming. If manual dimming is not required (can be disabled using Setup Remote Control) we recommend option 2.

Note:

You may not be able to claim enhanced capital allowances under the carbon trust scheme if your switching arrangement incorporates override on (switch option 4)

Technical Details

Control Pack Supply voltage: 230V~ 50hz
Load rating at 230V~ : 6A max
Max no. of ballasts: 25 (all versions)
[Further technical details - page 57](#)

Ordering flex7 Series 3000 - Universal Sensor Kits

D/L = Daylight linking

200	without D/L	d	DSI	must be appropriate for the type of ballast
400	with D/L	x	DALI	
		a	1-10v	

fns3 /u

*Do you need a *setup* remote control? [See previous page](#)

Series 3000 (Dimming) Dimmer Switch - Kits

Benefits of using a Series 3000 Dimmer Switch Kit instead of traditional mains switching/dimming?

• **Versatility**

Retractive switching is ideal for multiple switch points, and as leads simply plug-in you can add more Switch Drops at any stage, even adding occupancy or light level sensing.

• **Cost**

Apart from terminating the switch, everything else plugs together saving valuable installation time. Also compared to the cost of traditional mains cable our Switch Drops can often prove to be a more cost effective alternative.

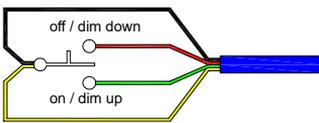
• **Safety**

All flex7 controls operate at PELV (protected extra low voltage) so using our switch drops, unlike mains switching, means that cables can be set at any depth within the wall, will not require enclosing in an earthed metallic covering nor will the circuit require the added protection of an RCD for that purpose. (see IET Wiring Regulations 17th Edition BS7671: 2008 incorporating Amendment No 1: 2011).



Switching Options

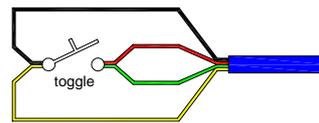
Option 1 - requires a 3-position, centre return, retractive switch



Operation:

- **A short ON pulse** (<0.5 secs) turns the lights on (to last dimmed level)
- **A short OFF pulse** (<0.5 secs) turns the lights off
- **A long ON pulse** (>0.5 secs) brightens the lights (eventually to maximum)
- **A long OFF pulse** (>0.5 secs) dims the lights (to the minimum operating range of the ballast)

Option 2 - requires a 1-way, retractive switch

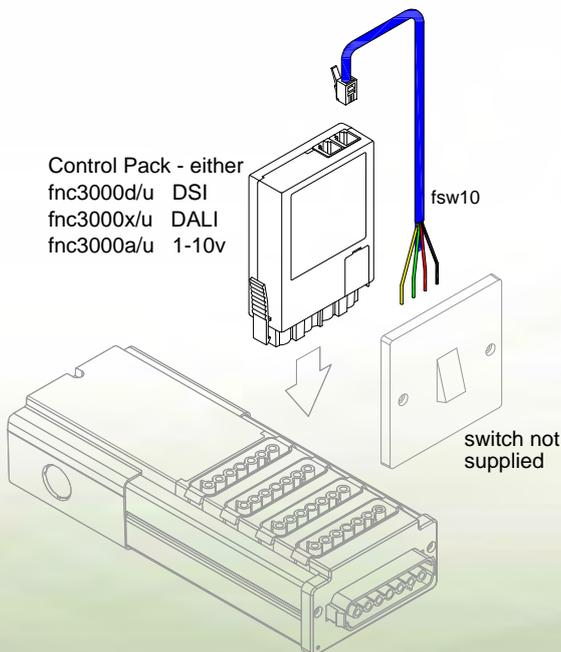


Operation:

- **A short pulse** (<0.5 secs) toggles the lights on or off (when turning on, lights adopt the last dimmed level)
- **A long pulse** (<0.5 secs) alternates from brightening the lights to dimming the lights with each consecutive long pulse. Note that lights can only dim down to the minimum operating range of the ballast.
- **A prolonged pulse** (>15 secs) *synchronizes the lights to off.

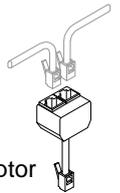
Notes:

Wherever possible option 1 switching is to be recommended as it is considered more intuitive for dimming. It is also an ideal choice if switches are commoned up to more than one control pack so that they can operate together - using option 2 switching in this instance can lead to the lights going out of sync*.



Retractive switching is ideal for multiple switch points. Just plug in any additional Switch Drop/s alongside the existing using our standard 'Y' adaptors.

fsy/a
'Y' adaptor

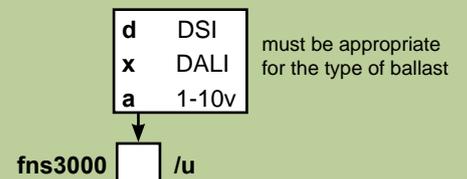


Technical Details

Control Pack Supply voltage: 230V~ 50hz
 Load rating at 230V~ : 6A max
 Max no. of ballasts: 25 (all versions)

[Further technical details - page 57](#)

Ordering flex7 Series 3000 - Dimmer Switch Kits



Occupancy Sensor Heads



The PIR (passive infra-red) detector senses movement of warm bodies against a cooler background. The detection pattern is broadly rectangular at 7.4m x 5.6m when fixed at a ceiling height of 2.5m (longest length of detection aligning with the spring clips). For further details see [occupancy detection pattern on page 42](#).

Occupancy Sensor Head



fnh200 (Master Head)

The standard offering for straightforward occupancy sensing. Inbuilt infra-red receiver accepts commands from either the Setup or User hand held Remote Controls whilst an LED provides indication of operation. Requires a 1000, 2000, 3000 or 4000 Control Pack and Link Lead to operate.

Occupancy Sensor Head with light level sensing



fnh400 (Master Head)

All the features of the fnh200 but with the addition of a light cell for accurate lux readings under the head. Requires a 1000, 2000, 3000 or 4000 Control Pack and Link Lead to operate.

Slave Occupancy Sensor Head



fnh/slave (Slave Head)

Up to 5 Slave Heads can plug-in in parallel with an existing Master Sensor Head (either of the above), increasing the detection range up to 6 fold. Each Slave Head comes with a 'Y' adaptor to facilitate parallel connecting.

Note: Slave Sensor Heads automatically adopt the same timeout that has been set on the existing Master Head they connect to.

Tamper-resistant Sensor Head



fnh200/s (Master Head), fnh400/s (Master Head) & fnh/slave/s (Slave Head)

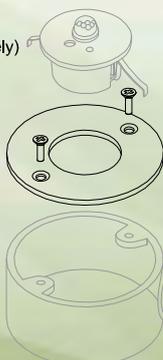
The sensor heads above are also available in a 'tamper-resistant' design, intended specifically for installations where resilience to unsolicited attempts to remove or tamper is paramount – prisons, secure units etc. The head can be mounted directly to the ceiling (32mmØ hole required) or a standard conduit box, and is then secured with two suitable security screws (not supplied).

fnh200/s & fnh400/s requires a 1000, 2000, 3000 or 4000 Control Pack and Link Lead to operate

fnh200, fnh400 or fnh/slave (order separately)

Includes 2 x fixing screws

Conduit box not supplied



Adaptor plate

Enables either of fnh200, fnh400 or fnh/slave sensor heads to be surface mounted.

Ordering flex7 Adaptor Plates



fnh/adapt

[Further technical details on Sensor Heads - page 58](#)

Ordering flex7 Occupancy Sensor Heads

200	occupancy sensor	leave blank or add /s for tamper-resistant sensor head type.
400	occupancy + light level	
/slave	slave occupancy sensor	

fnh

Note: a Sensor Link Lead will be required to connect your Sensor Head. [See page 47](#).

Remote Controls

Two types of infra-red remote controls are available:

A Setup Remote - to setup and optimize the sensor at or after installation and

A User Remote - to offer the end user an additional level of control



Setup Remote Control



Sensor heads come factory set with a timeout of 20 minutes but for other timeouts, setting the light level, or setting up for other operational modes* a Setup Remote control will be required.

* Depending on the type of sensor up to 3 operational modes can be enabled/disabled:

Daylight Dependency - applicable only where the sensor includes an **fnh400** type sensor head.

Manual Dimming (at switch) - applicable only if the Control Pack is a dimming version and wall switch is retractive type.

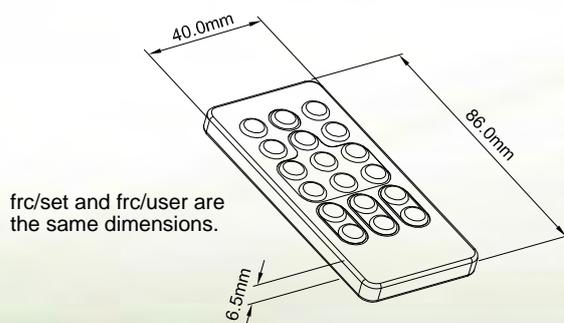
Presence Detection - applicable only in absence mode where wall switch is retractive type (an increasingly popular form of control - a hybrid of occupancy and absence operation).

User Remote Control



Providing additional control for the end user it comes complete with its own holster with self adhesive pads ready for immediate attachment to wall, desk, computer etc.

Can be used on any master sensor head to operate the lights on or off but is particularly suited to the Series **3000/4000** dimming type to provide dim up/dim down, as well as the ability to store and recall up to 6 discreet light levels.



Ordering flex7 Remote Controls

set	Setup remote control
user	User remote control

frc/

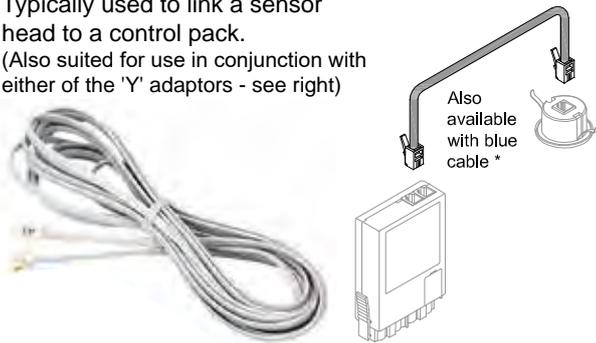
● Link & Switch Drop Leads

Whether linking sensor heads or switches to the Control Pack there is a complete range of different length leads to choose from. To avoid confusion, leads are colour coded grey for Sensor Head linking, and blue for Switch Drops and Switch Drop Adaptor linking. Remember that all flex7 controls operate at PELV (protected extra low voltage), so using our Switch Drops, unlike mains voltage switching, means that cables can be set at any depth within the wall, will not require enclosing in an earthed metallic covering nor will the circuit require the added protection of an RCD for that purpose. (see IET Wiring Regulations 17th Edition BS7671: 2008 incorporating Amendment No 1: 2011).



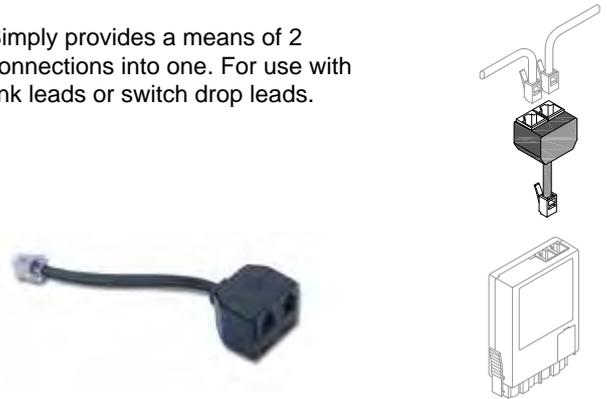
Link Lead

Typically used to link a sensor head to a control pack.
(Also suited for use in conjunction with either of the 'Y' adaptors - see right)



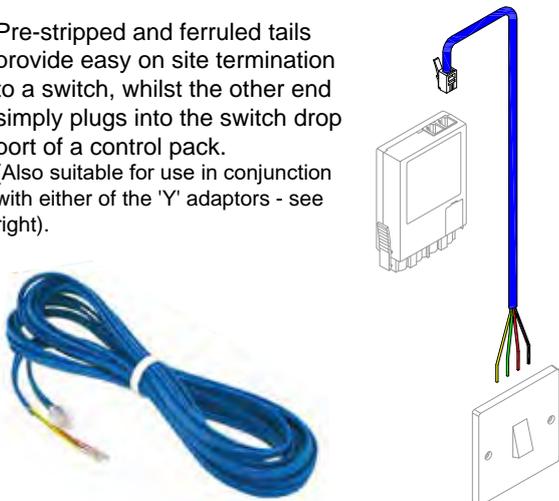
'Y' Adaptor

Simply provides a means of 2 connections into one. For use with link leads or switch drop leads.



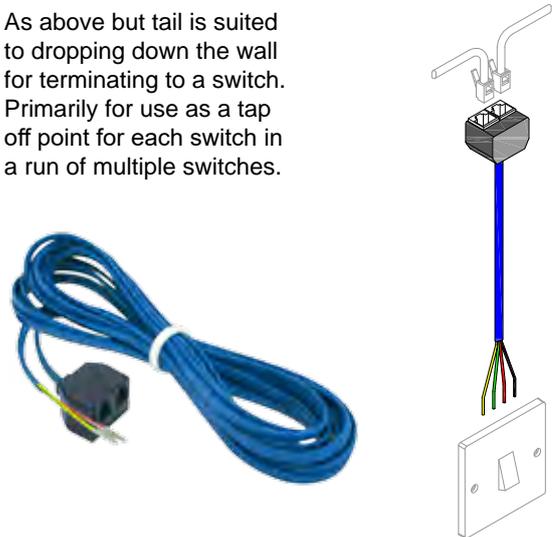
Switch Drop Leads

Pre-stripped and ferruled tails provide easy on site termination to a switch, whilst the other end simply plugs into the switch drop port of a control pack.
(Also suitable for use in conjunction with either of the 'Y' adaptors - see right).



Switch Drop 'Y' Adaptor

As above but tail is suited to dropping down the wall for terminating to a switch. Primarily for use as a tap off point for each switch in a run of multiple switches.



Ordering flex7 Link Leads & Switch Drop Leads

05	5 metres
10	10 metres
15	15 metres
20	20 metres
30	30 metres
40	40 metres
50	50 metres

leave blank for pvc or add /lshf for low smoke halogen free cable

leave blank or add /bl for link leads in blue.

Link lead **fsl** (Grey cable)
Switch drop lead **fsw** (Blue cable)

Ordering flex7 'Y' Adaptors

'Y' adaptor **fsy/a**
02 2 metres
03 3 metres
Switch drop 'Y' adaptor **fswy** (blue cable)

Control-Plus Range - At a Glance

- Series 2000 and 4000 Control Packs

With such a large selection to choose from it makes sense that Series 2000 (non dimming) and 4000 (dimming) Control Packs are not sold as kits. This means that the appropriate Sensor Heads, Sensor Leads, Switch Drops and Network Leads can be mixed and matched with the Control Pack to create your ideal control requirement.

What are the benefits of using Series 2000/4000 controls?

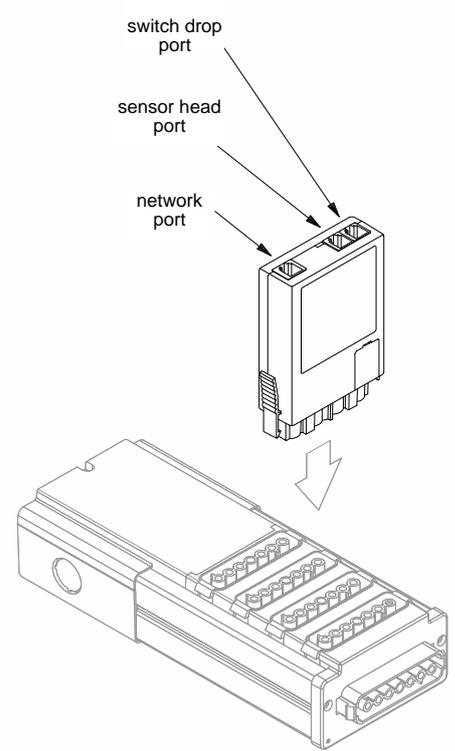
Networking - Uniquely, series 2000/4000 control packs can be 'linked' together using simple plug-in network leads. A powerful yet simple way of 'sharing' inputs and outputs between Control Packs. [See networking sensors - page 50](#)

Emergency luminaire test - Each version is also available with an additional relay to facilitate emergency test. Simply connect one of the cores of the switch drop reserved for this purpose, to a suitable key switch.



Series 2000 Control Packs (On/Off)	Occupancy*	Absence**	Daylight Dependency †	Integral emerg. test	Series 4000 Control Packs (Dimming)	Occupancy*	Absence**	Daylight linking †	Integral emerg. test	Manual Dimming at switch † †
	fnc2000	●		●			fnc4000d	●		●
fnc2000/ab		●	●		fnc4000d/ab		●	●		●
fnc2000/at		●	●		fnc4000d/at		●	●		●
fnc2000/e	●		●	●	fnc4000d/e	●		●	●	
fnc2000/ab/e		●	●	●	fnc4000d/ab/e		●	●	●	●
fnc2000/at/e		●	●	●	fnc4000d/at/e		●	●	●	●

Part numbers shown are for DSI control. For DALI change d to x. For analogue change d to a.



* Though not essential, a switch drop provides override off (and if required - override on). Use latched switch.

** A switch drop is essential. Use a retractive 3-position centre return switch for 'ab' type Control Pack or a 1-way retractive for 'at' type.

† Provided Control Pack is used with an fnh400 type Sensor Head.

† † Manual dimming at the switch (available only with retractive switching) can be disabled if not required using the frc/set Setup Remote Control (reverts switch to on/off control only).

See page 49 for guidance on selecting the right combination of products.

Technical details - page 57 and 58

To operate, a Control Pack requires a minimum of:

- a Sensor Head & Link Lead
- or a Switch Drop
- or a Sensor Head, a Link Lead and a Switch Drop Lead

fnh200
occupancy sensor head
[see page 45](#)

fnh400
occupancy + light level sensor head
[see page 45](#)

fsl__
Link lead [see page opposite](#)

fsw__
switch drop lead
[see page opposite](#)

Other items that may be required

fnh/slave
slave occupancy sensor head
(add to existing master head to increase occupancy range - max. 5 heads)
[see page 45](#)

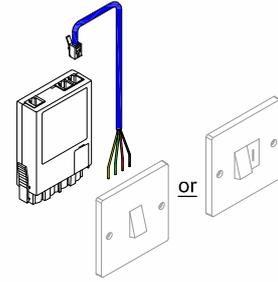
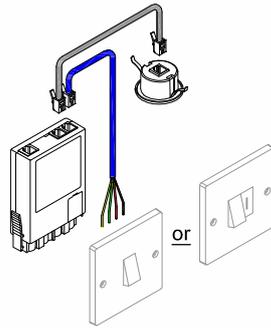
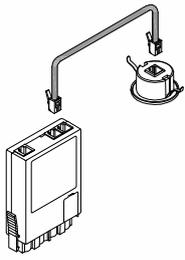
frc/set
setup remote control [see page 46](#)

frc/user
end user remote control [see page 46](#)

fsl/a
'Y' Adaptor
(to link switch drops together)
[see page opposite](#)

Network leads and network 'Y' Adaptors [see page 50](#)

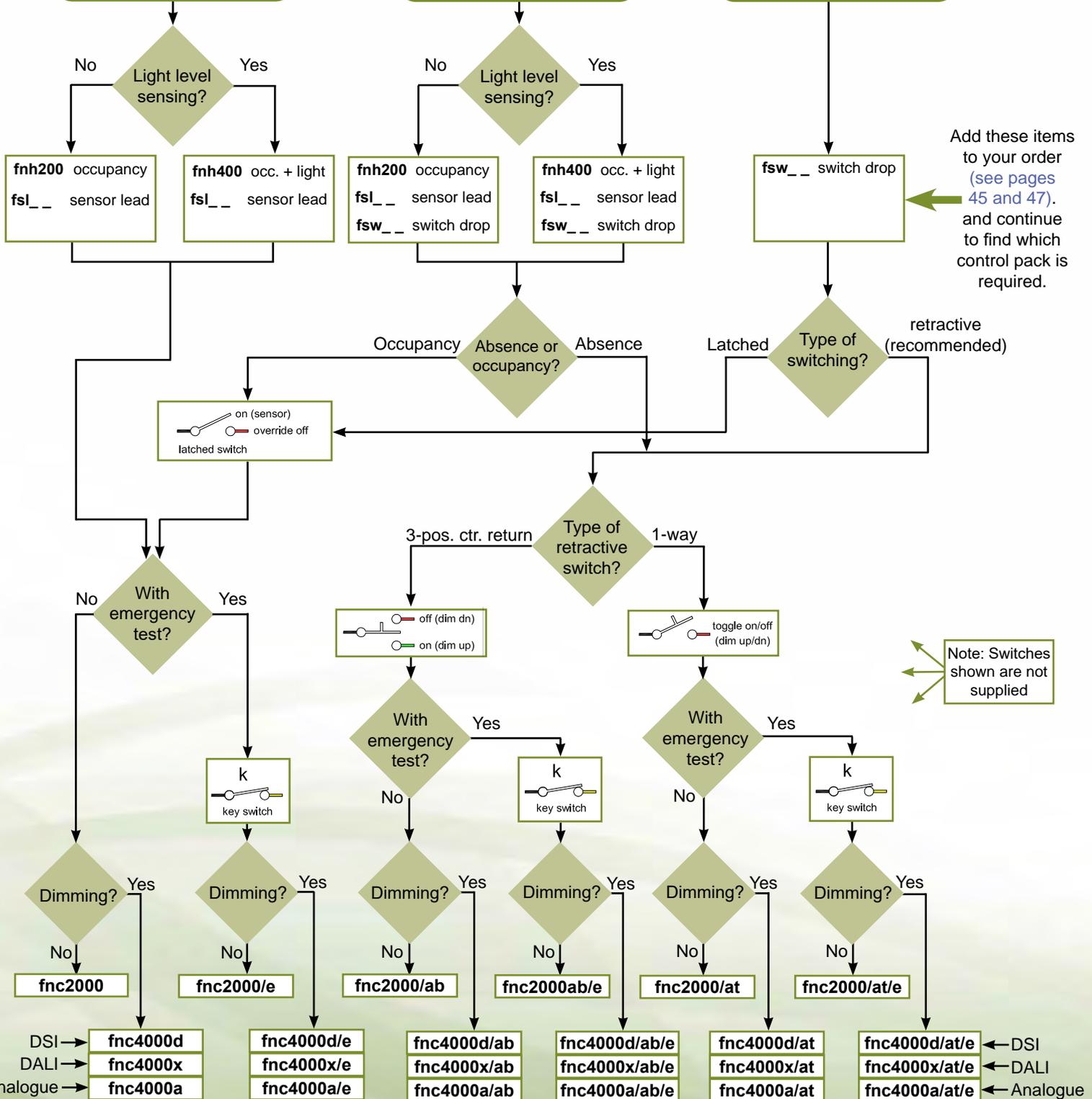
Series 2000/4000 Product Selector Guide



Sensing Only

Sensing With Switch

Switching Only



Control Plus - Networking

Control Plus networking is a simple way of sharing up to 5 signals between control devices on a network. There is nothing to program, and you won't need a computer. Just link the required number of Control Packs together with plug-in network leads. These connect into each Control Pack via a special network 'Y' adaptor. Selecting the correct adaptor decides which of the 5 signals the control pack will share with others on the network. There are:

3 x Switch (inputs)

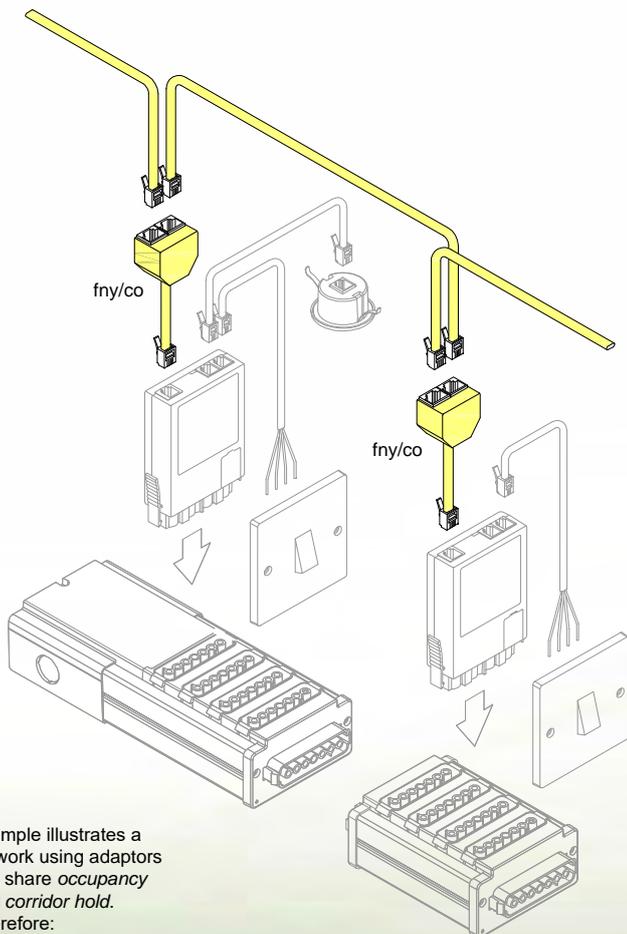
Simply share these inputs between same type control packs to allow global activation of all connected switches. For example: If your Control Packs have the additional facility for emergency test then 1 key switch can initiate the test on multiple control packs, regardless that they may be controlling lights on different circuits, or even dissimilar phases.

1 x Occupancy (input/output)

Share this output to make occupancy global. Useful for large areas controlled by many individual Control Packs on different circuits, where occupancy anywhere is required to operate all the lights.

1 x Corridor Hold (output)

Linking this output will have no observable effect on connected control packs, but will allow this group, via a corridor hold Unit (see page 51), to operate and hold corridor lighting on.



Example illustrates a network using adaptors that share *occupancy* and *corridor hold*. Therefore:

occupancy is global
switching is local

Ordering flex7 Control Plus Network Adaptors

Signals shared with the network



Corridor Hold	Red wire switch input	Green wire switch input	Yellow wire switch input	Occupancy	Part number
●	●	●	●	●	fny/a
●				●	fny/co
●	●	●	●		fny/crgy
●			●		fny/cy
●			●	●	fny/cyo

Ordering flex7 Control Plus Network Leads

Further technical details - page 58



300	300mm	leave blank for pvc or add /lshf for low smoke halogen free cable
05	5 metres	
10	10 metres	
15	15 metres	
20	20 metres	
30	30 metres	
40	40 metres	
50	50 metres	

Network Lead fnl

Control Plus Corridor Hold Units

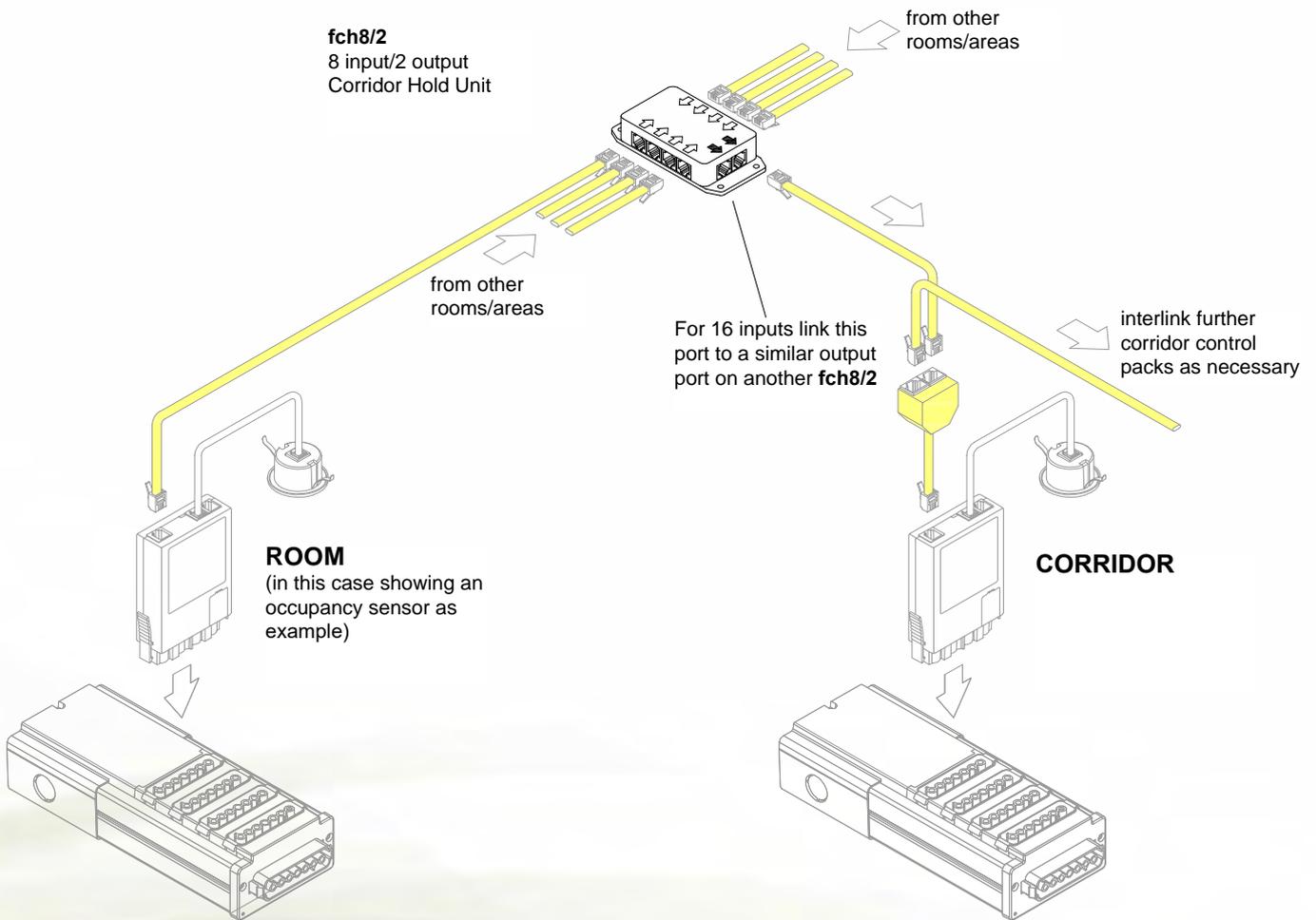
In many buildings where energy-saving occupancy sensors are installed, corridor lights can go off when the adjacent rooms and areas are still occupied. It is sometimes necessary or desirable - for safety or security reasons - for the lights to be kept on even when the corridor is empty. The Corridor Hold Unit (**fch8/2**) provides the solution to this problem.

The unit is self powered and designed to allow up to 8 rooms or areas adjacent to a corridor to hold the lights on whilst any of those areas are occupied. If more inputs are required units can be doubled up to create a total of 16 inputs. Note that each input can accept a feed from either:

A single control device

OR

A group of appropriately pre-networked control devices ([see page 50 for details on networking control packs](#))



For information:

Sensor Heads output the corridor hold signal whenever occupancy is detected or not yet timed-out. This happens regardless of the state of the lights or the state of any controlling switch.

Ordering flex7 Control Plus
Corridor Hold Units

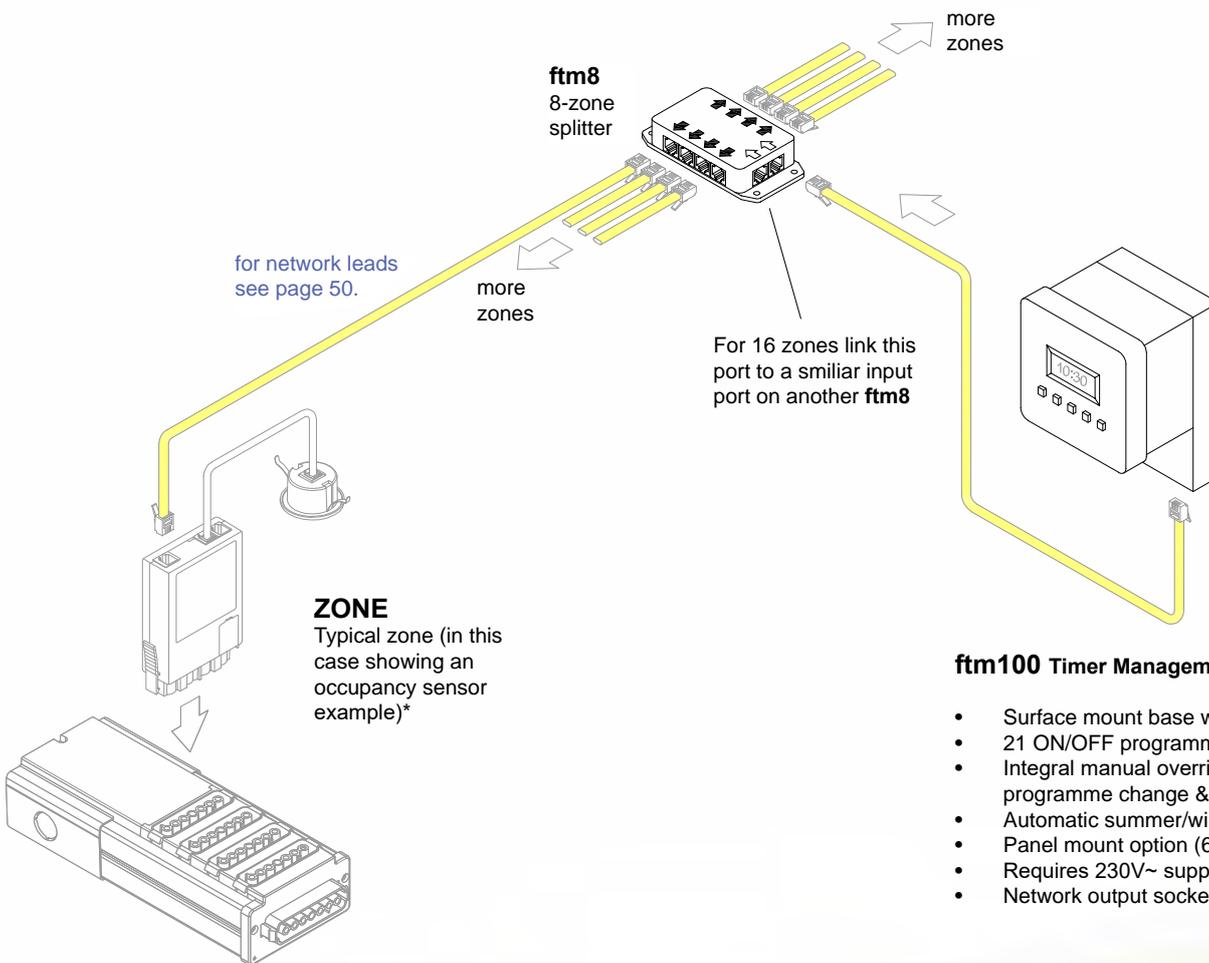
8 input/2 output **fch8/2**
Corridor Hold Unit

Control Plus Timer Management Unit

The **ftm100** Timer Unit is designed to hold lights controlled by Control Plus Sensors ON for pre-set time periods during the day. A typical installation would involve holding certain lights ON in a building - often those in corridors and circulation areas, during normal working hours, allowing them to revert to occupancy control at all other times.

Timer Units operate by outputting 'occupancy' during the timed ON period thus maintaining lights on in areas where they might otherwise be off. If multiple areas are required to be controlled by the same Timer Unit then to avoid occupancy being mutually shared an **ftm8** Zone Splitter is available which provides feeds for up to 8 discrete zones.

A discrete zone = a single control device OR a group of appropriately pre-networked control devices (see page 50 for details on networking control packs).



ftm100 Timer Management Unit

- Surface mount base with plug-in clock module
- 21 ON/OFF programmes per week
- Integral manual override until next programme change & permanent ON/OFF
- Automatic summer/winter time changeover
- Panel mount option (68mm square hole)
- Requires 230V~ supply
- Network output socket (for 1 zone)

*The type of sensors used affects the way the lights behave during a timed on period:

- **Occupancy sensors** - The lights will come ON and stay ON during the timed period (provided that if the sensor is fitted with an override switch, it is not in an 'override off' position).
- **Absence sensors** - The lights will not turn ON as a result of the onset of a time period. However during the timed period, if they were switched ON, they will not timeout.
- **Absence sensors (with presence enabled)** - As above except that lights will turn ON as a result of the onset of a timed period - provided the sensor was timed-out. (*presence* can be enabled using an **frc/set** remote control).

Note: Other possibilities exist for controlling networked sensors using the **ftm100**. Please contact technical support at Flex Connectors for design assistance.

Ordering Control Plus Timer Management Units

Timer Management Unit **ftm100**

Ordering Control Plus 8 Zone Splitters

8 Zone Splitter **ftm8**

● Plug-in Mains Switch Drop Leads

Wherever possible we recommend that lighting is controlled using a suitable plug-in control device selected from our extensive range of PELV sensors and switches. There are circumstances however, where a plug-in mains operated Switch Drop Lead may be considered a viable alternative.

In common with all plug-in control devices Mains Switch Drops simply plug-in to any unit from the eZeBox range.



3-Core

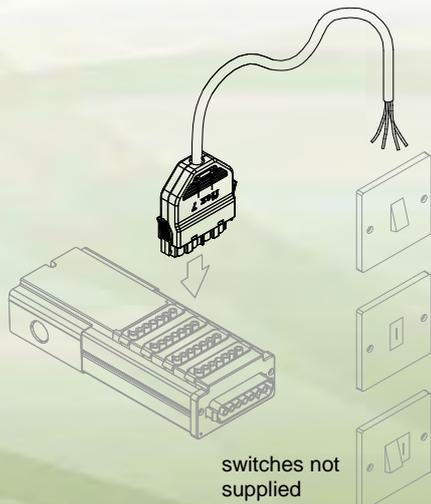
1-way Mains Switch Drop

3-Core

Em. Test Mains Switch Drop

4-Core

Combined 1-way + Em. Test Mains Switch Drop



Ordering flex7 Plug-in Mains Switch Drop Leads

	Ishf	LSHF cable	5, 7, 10, 15 (length in metres)
1-way mains switch drop	fw3150	<input type="checkbox"/>	<input type="checkbox"/> /gs (grey)
Em. test mains switch drop	fw3150	<input type="checkbox"/>	<input type="checkbox"/> /gk (grey)
1-way + em. test mains switch drop	fw4150	<input type="checkbox"/>	<input type="checkbox"/> /gs (grey)

Other cable lengths or other types of cable (ie. flexible pre-wired conduit - Flexishield™) may be available to special order.

Note: Choice of cable length and any cable calculations are the sole responsibility of the installer.

3rd Party Control Device Supply Leads

Wherever possible we recommend that lighting is controlled using a suitable plug-in control device selected from our extensive range of PELV sensors and switches. However, there are circumstances where using a 3rd party control device may be necessary.

3rd party control devices usually require hard wiring into an eZeBox, but these leads provide the option to plug the control directly into the eZeBox, thereby maintaining the same flex7 plug-in control philosophy and all its advantages.



2-Core Control Lead

Typically used to plug-in a 3rd party DALI control device (assumed powered by DALI)

4-Core Control Lead

Typically used to plug-in a 3rd party on/off type control device.

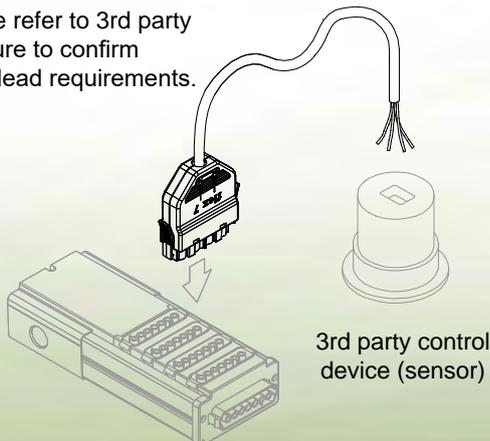
5-Core Control Lead

Typically used to plug-in a 3rd party on/off with dimming (type DSI or DALI) control device.
(If switch live required use lead below).

6-Core Control Lead

Typically used to plug-in a 3rd party on/off with dimming (type Analogue) control device.
(or DSI or DALI if switch live required).

Please refer to 3rd party literature to confirm exact lead requirements.

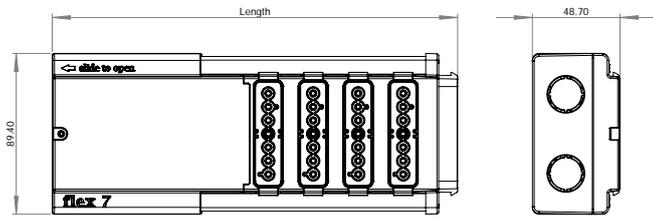


Ordering flex7 3rd Party Control Device Supply Leads

	Ishf	LSHF cable	3, 5, 7, 10 (length in metres)
	100	1.00mm ²	
	150	1.50mm ²	
2-core only available in 1.50mm ²	2-core control lead	fw2	/gc (grey)
	4-core control lead	fw4	/gc (grey)
	5-core control lead	fw5	/gc (grey)
	6-core control lead	fw6	/gc (grey)

Other cable lengths or other types of cable (ie. Belden™ type cable as an alternative to 2-core) may be available to special order.

Starter Units



Connection unit length

2 way outlet:	175mm
4 way outlet:	225mm
6 way outlet:	275mm
8 way outlet:	325mm
10 way outlet:	375mm
12 way outlet:	425mm

All measurements are in millimetres

Rating

Supply Voltage: 230V~ 16A,
Tested to BS5733

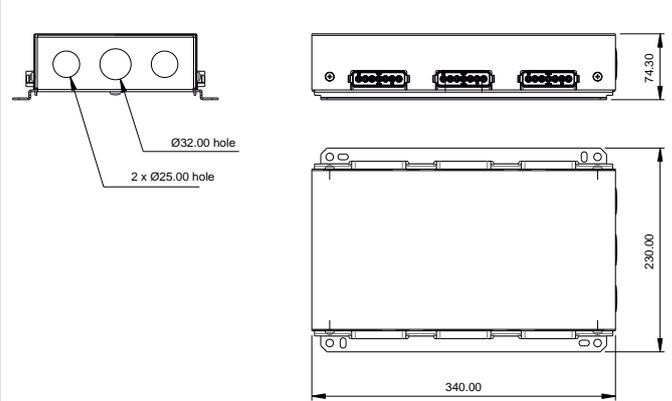
Conformity: LVD-2006/95/EC

Manufactured in black PA6 UL94 V-0 rated, PC/ABS, UL94 V-0 rated and Anodised Aluminium.

7 contacts per outlet, each rated at 16 amps, using flex7 outlet format. Total system rating 16A.

3 x 2.50mm², 2 x 4.00mm² or 1 x 6.00mm² conductors.

Hub Units



All measurements are in millimetres

Rating

Supply Voltage: 400V~ 16A,
Tested to BS5733

Conformity: LVD-2006/95/EC

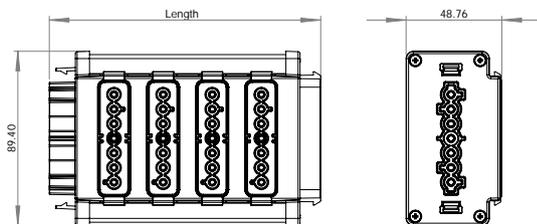
230V~ 16A per outlet

Manufactured in black 1.20mm - 2.00mm thick mild steel.

1-hole 32mmØ centre and 2-holes 25mmØ for cable entry.

Terminals accept 1 x 10.00mm², 2 x 4.00mm² or 3 x 2.50mm² conductors.

Inline Expansion & Tap-off Units



Connection unit length

2 way outlet:	88mm
4 way outlet:	138mm
6 way outlet:	188mm
8 way outlet:	238mm
10 way outlet:	288mm
12 way outlet:	338mm

All measurements are in millimetres

Rating

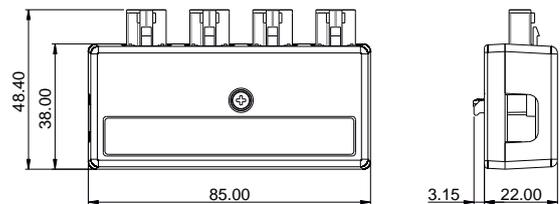
Supply Voltage: 230V~ 16A,
Tested to BS5733

Conformity: LVD-2006/95/EC

Manufactured in black PA6 UL94 V-0 rated, PC/ABS, UL94 V-0 rated and Anodised Aluminium.

7 contacts per outlet, each rated at 16 amps, using flex7 outlet format. Total system rating 16A.

2-Pole Auxiliary Adaptor Unit



Note: The Auxiliary Adaptor Unit is only suitable for mounting onto an eZeBox

All measurements are in millimetres

Rating

Individual outlet: **Voltage rating:** 50V
Current rating: 10A

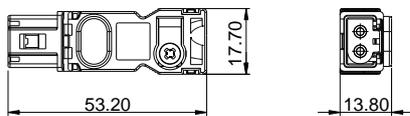
Total system: **Voltage rating:** 50V
Current rating: 10A

Product Standards: IEC 61535

Manufactured in black PA6, Halogen free, UL94 V-0 rated, 2 or 4 outlet, 2 contacts per outlet.

Terminals accept single conductors from 0.50mm² to 1.50mm².

2-Pole Auxiliary Adaptor Plugs



All measurements are in millimetres

Rating

Voltage Rating : 50V

Current Rating: 10A

Product Standards: IEC 61535

Manufactured in white/pale blue PA Halogen-free

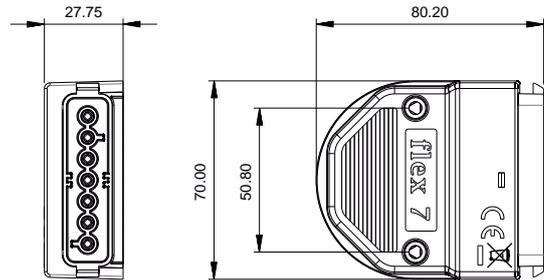
Terminals accept single conductors from 0.50mm² to 1.50mm²

Maximum cord grip size: 7.7mm

Leads in LSHF to BS EN 50525-3-11
(1.50mm² 2-core)

Leads in LSHF as Type 8471/UL 2598 style.
(16awg 2-core, grey sheath)

3, 4 & 7-Pole Single Socket Outlets



All measurements are in millimetres

Rating

Supply Voltage: 230V~ 16A

Tested to BS5733

Conformity: LVD-2006/95/EC

Manufactured in black, red, or white PA6 UL94 V-0 rated.

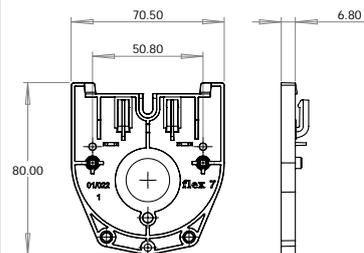
3, 4 or 7 contacts per socket.

Terminals accept 1x 10.00mm², 2x 4.00mm² or 3x 2.50mm² conductors.

3 & 4 contact versions are fitted with an additional looping terminal.

50.80mm / 2" fixing centres for standard round conduit box mounting.

Available in 3-pin White, 4-pin Red or 7-pin Black

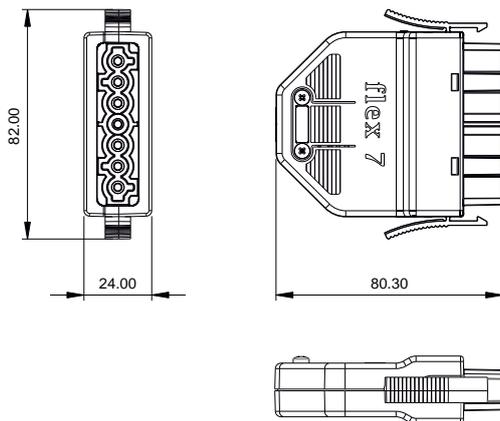


Note:

Trunking mount plates supplied with 3 or 4-pole sockets have a 20mm Ø hole whilst 7-pole have a 25mm Ø

All measurements are in millimetres

3,4 & 7-Pin Plugs



All measurements are in millimetres

Rating

Supply Voltage: 230V~ 16A

Tested to BS5733

Conformity: LVD-2006/95/EC

Manufactured in black, red, white or grey PA6 UL94 V-0 rated.

Terminals accept single conductors from 0.50mm² to 4.00mm²

3 to 7 pins per plug, each rated at 16 amps, using flex7 plug format.

Maximum cord grip size: 11.50mmØ

Leads in PVC to BS EN 50525-2-11.

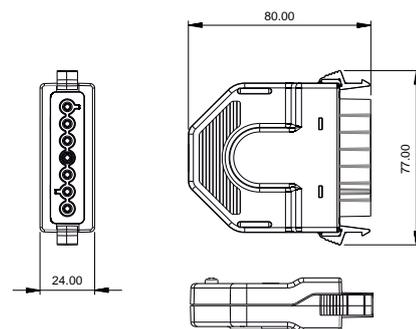
BASEC Approved.

(0.75mm² & 1.00mm² 3 & 4-cores)

Leads in LSHF to BS EN 50525-3-11

(0.75mm² to 1.50mm² 3 to 7-cores)

3,4 & 7-Pole Cable Mount Sockets



All measurements are in millimetres

Rating

Supply Voltage: 230V~ 16A

Tested to BS 5733

Conformity: LVD-2006/95/EC

Manufactured in black, red, or white PA6 UL94 V-0 rated.

Terminals accept single conductors from 0.50mm² to 4.00mm²

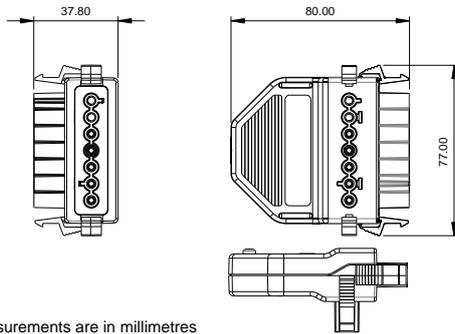
3 to 7 contacts per socket, each rated at 16 amps, using flex 7 socket format

Maximum cord grip size: 11.50mmØ

Leads in LSHF to BS EN 50525-3-11

(1.00mm² to 1.50mm² 3 to 7-cores)

3,4 & 7-Pole Cable Mount Sockets



All measurements are in millimetres

Rating

Supply Voltage: 230V~ 16A

Tested to BS 5733

Conformity: LVD-2006/95/EC

Manufactured in black, red, or white PA6 UL94 V-0 rated.

Terminals accept single conductors from 0.50mm² to 4.00mm²
3 to 7 pins per plug using flex7 plug format.

Maximum cord grip size: 11.50mmØ

Leads in LSHF to BS EN 50525-3-11

(1.00mm² to 1.50mm² 3 to 7-cores)

PVC & LSHF Cable

Leads in PVC to BS EN 50525-2-11.

BASEC Approved.

(0.75mm² & 1.00mm² 3 & 4-cores, white sheath)

Rated Voltage: 300/500V

Max. operating temperature: 70°C

Min. bending radius: 6xD

Leads in LSHF to BS EN 50525-3-11

(0.75mm² to 1.50mm² 2 to 7-cores, white sheath)

Rated Voltage: 300/500V

Max. operating temperature: 70°C

Min Bending radius: 6xD

* 2-core LSHF only available in 1.50mm² CSA

** BS EN 50525-3-11 dependent on number & colour of cores

Leads in LSHF as Type 8471/UL 2598 style.

(16awg 2-core, grey sheath)

Rated Voltage: 600V

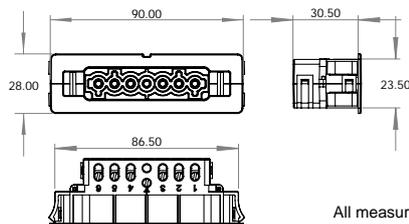
Max. operating temperature: 70°C

Conductor resistance (@20°C): ≤14.7Ω/Km

Nom. Capacitance (conductor to conductor): 108.3pF/m

Max. current (@25°C): 7.1A

Flush Panel Mount Plugs



All measurements are in millimetres

Rating

Supply Voltage: 230V~ 16A

Tested to BS5733

Conformity: LVD-2006/95/EC

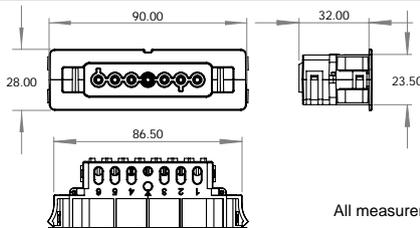
Manufactured in Black PA6 UL94 V-0 rated.

3 to 7 contacts per plug

Terminals accept single conductors from 0.50mm² to 4.00mm²

The panel mount snaps in to rectangular cut out 23.50mm x 86.50mm in materials from 0.50mm - 1.50mm thick.

Flush Panel Mount Sockets



All measurements are in millimetres

Rating

Supply Voltage: 230V~ 16A

Tested to BS5733

Conformity: LVD-2006/95/EC

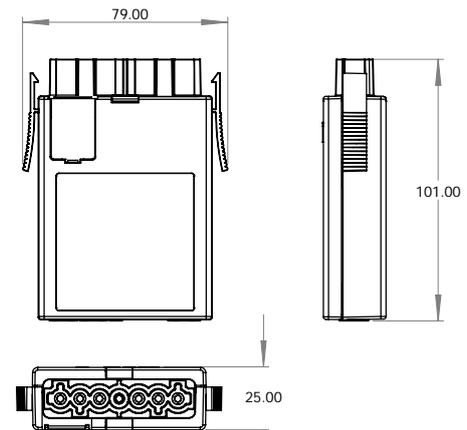
Manufactured in Black PA6 UL94 V-0 rated.

3 to 7 contacts per socket

Terminals accept single conductors from 0.50mm² to 4.00mm²

The panel mount snaps in to rectangular cut out 23.50mm x 86.50mm in materials from 0.50mm - 1.50mm thick.

flex7 Control Devices



All measurements are in millimetres

Rating

Supply Voltage: Nominal 230V~ 50Hz, Class 2 device,

Max parasitic current: with sensor head 9mA, without sensor head 7.5mA

Manufactured in grey PA6 UL94 V-0 rated, Non-halogen

Conformity: LVD-2006/95/EC; EMC-2004/108/EC

Operating range: -10 to 40°C

Tested to **BS5733**

Relay device Load

Fluorescent & Incandescent Lighting :6A

Compact Fluorescent Lighting :3A

For dual relay devices maximum combined load not to exceed 10A

Maximum number of Ballast

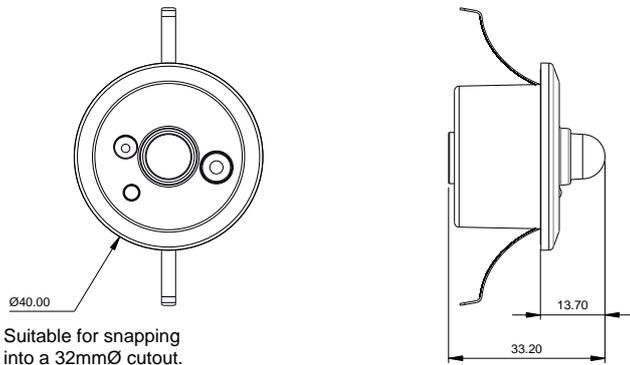
DSI Digital control :25

DALI Digital control :25

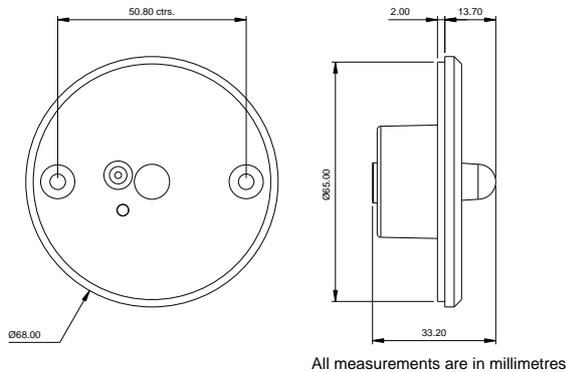
Analogue 0-10V control :25

flex7 Occupancy Sensor Heads

flex7 Standard Occupancy Sensor Heads



flex7 Tamper-resistant Occupancy Sensor Heads



Rating

Supply Voltage: 12V DC

Manufactured in white PA6 UL94 V-0 rated, Non-halogen

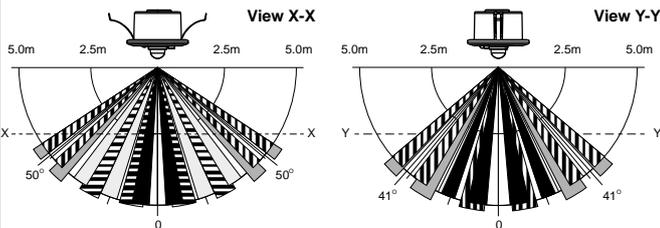
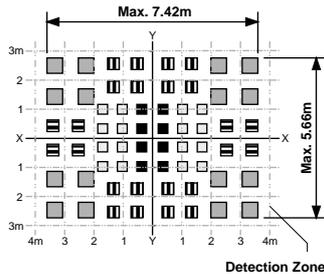
Conformity: LVD-2006/95/EC: EMC-2004/108/EC

Operating range: -10 to 40°C

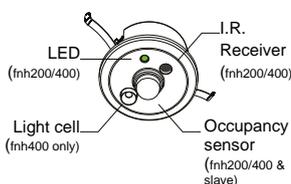
Sensor Range: 7.42m x 5.66m at 2.5m height

Detection Zone

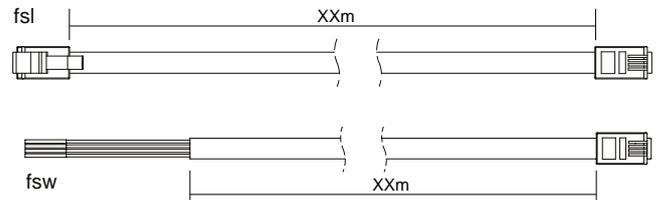
The X-Y cross-sectional diagram shows the detection zone patterns indicate the projections of the 16 lenses with a single focal point. Movement of an object with higher than background temperature, between the detection zones, will be detected.



fnh200, fnh400 & fnhslave



flex7 Sensor Link & Switch Drop Leads



Lengths

Comes in lengths up to 50 metres, refer to price list.

Rating

Connector:

4P4C modular jack, RJ11 style
4 way 28 a.w.g. (7x0.12mm) Cu

Test Standard:

EN50289, UL 1581, UI758

Insulation Material:

Solid Polyethylene

Insulation diameter:

0.95(+/-0.10) mmx4

Jacket External:

2.45(+/-0.15)mmx4.95(+/-0.20)

Jacket Material:

FR-PVC (complies RoHS)

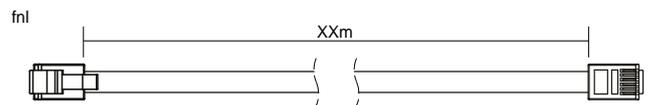
Max. Conductor DC Resistance at 20°C (Ω /100M) **16.73**

Min. Insulation DC Resistance at 20°C (M Ω) **200**

Rated Temperature: 80°C

Rated Voltage: 500V

flex7 Control Plus Network Leads



Lengths

Comes in lengths up to 50 metres, refer to price list.

Rating

Connector:

6P6C modular jack, RJ12 style

Inner conductor:

6 / TC0.16(+0.001/-0.008)mmx7

Conductor Material:

Stranded Tinned Copper

Insulation Material:

Solid Polyethylene

Insulation diameter:

6 / 0.95(+/-0.10)mm

Jacket External:

2.45(+/-0.15)mmx7.15(+/-0.30)

Jacket Material:

PVC (complies RoHS)

Max. Conductor DC Resistance at 20°C (Ω /100M) **14.70**

Min. Insulation DC Resistance at 20°C (M Ω) **200**

Rated Temperature: 80°C

Rated Voltage: 500V

