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Product overview

Memera consumer units and devices

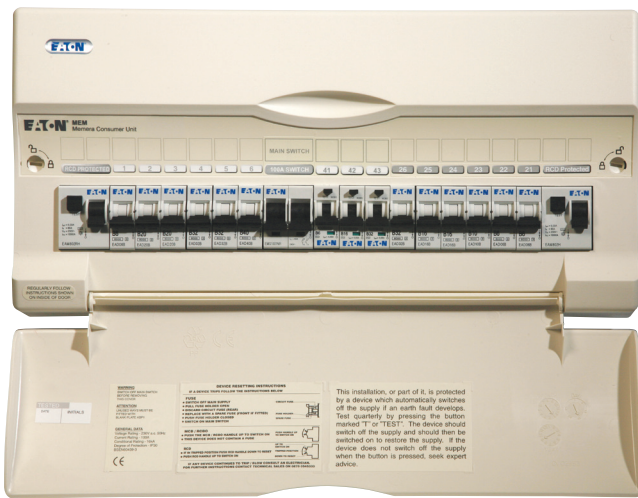
MEM® series Memera consumer units

The Memera range of consumer units provide a broad scope of products to meet the requirements of the 17th edition of the wiring regulations. This well established range offers moulded and metalclad units for both surface and flush mounting applications.

All units have the ability to accommodate a wide range of ancillary and comfort function devices.

The moulded range provides a suite of boards with 1–19 outgoing ways which can be coupled together to make multi rail configurations. With a flexible design that enables speedy on-site configurations this installer friendly unit ensures speed and ease of installation.

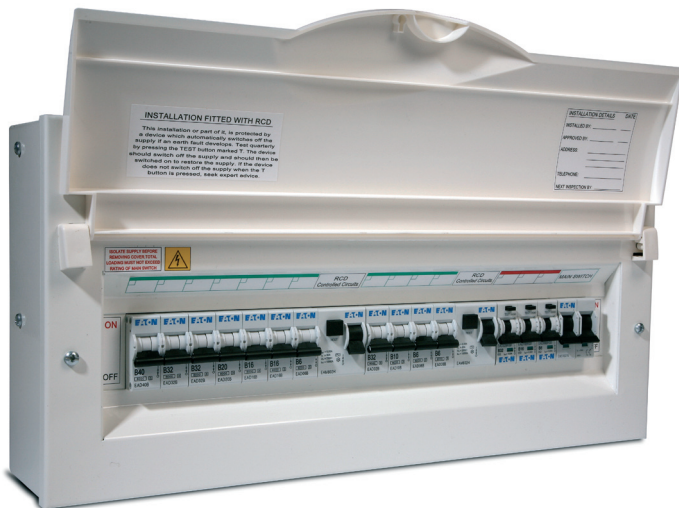
All Memera consumer units comply to BSEN 60439 and are IP30 rated.



Moulded unit features:

- A solid base which can be fitted to all surfaces without the need for a separate back plate.
- Elongated keyhole fixings and optional flexing points compensate for irregularities in the surface and simplify alignment of the box.
- Quick release pan assembly including all neutral links and terminals.
- Quarter turn quick release cover screws.
- Base and cover provided with ample 'cut outs' which can be easily removed.
- A clip-in earth bar can be removed to give full access to the base.
- Snappable busbar enabling easy configuration on site.

All moulded consumer units are supplied with a combined pictorial installation guide and a high quality circuit identification way label which is easy to use and gives the finishing touch to a professional job.



Metalclad unit features:

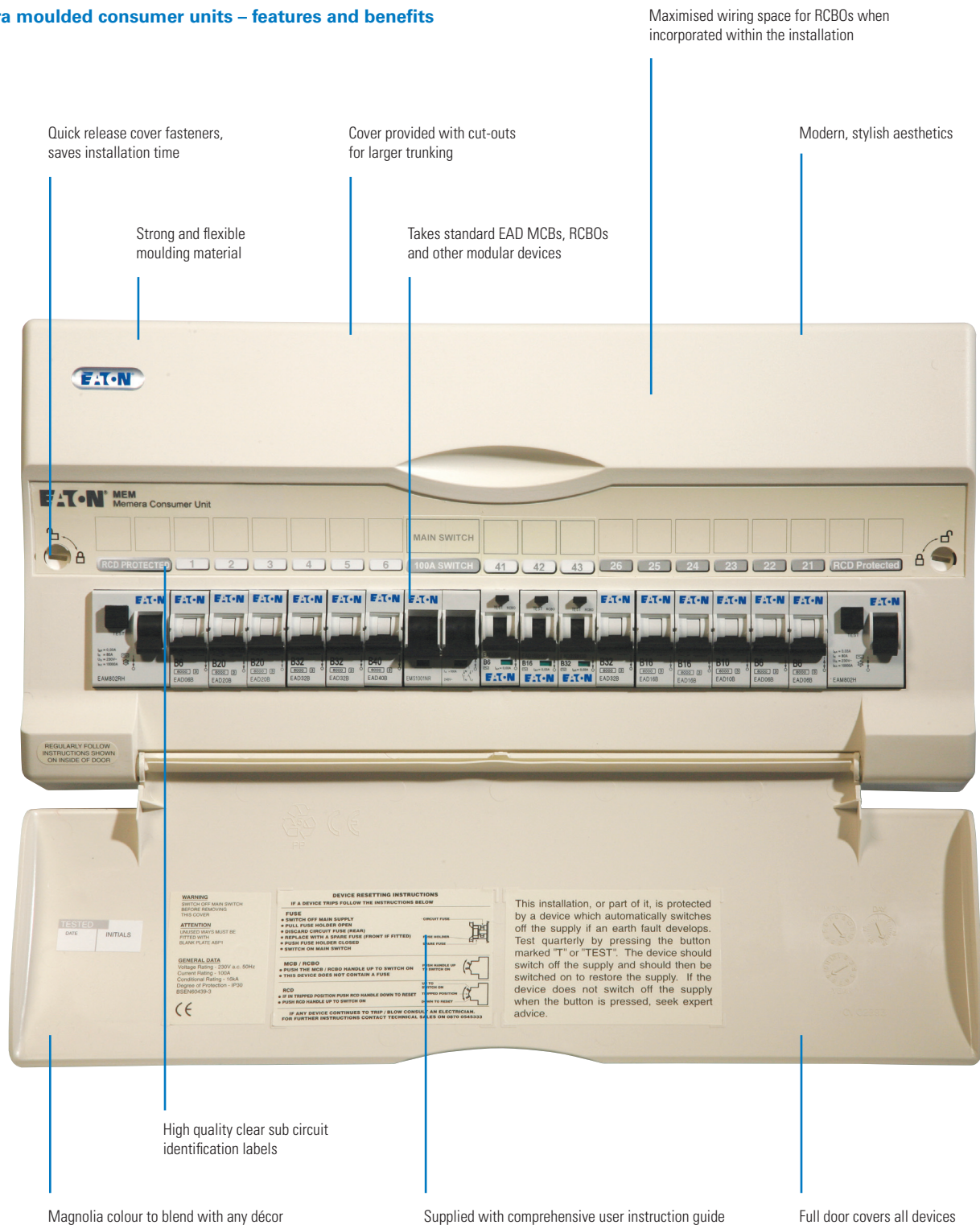
- Sturdy steel enclosure with ample circular knock outs to allow the mounting of conduit or cable glands.
- Large removable apertures in back of enclosure to allow cable access from the rear.
- Snappable busbar enabling easy configuration on site.
- Twin rail units available with up to 38 outgoing ways.

All metalclad consumer units are supplied with a comprehensive label kit to complete the installation.

Factory Built Assemblies (FBA) features:

- Moulded or metal case construction, single rail or dual rail metal.
- Configured with outgoing protective devices to customer requirements.
- Can be fitted with other modular devices including timers, contactors and relays.
- Can also be fitted with additional components including kWh meters, sensors, other devices and internal wiring as required.

Memera moulded consumer units – features and benefits



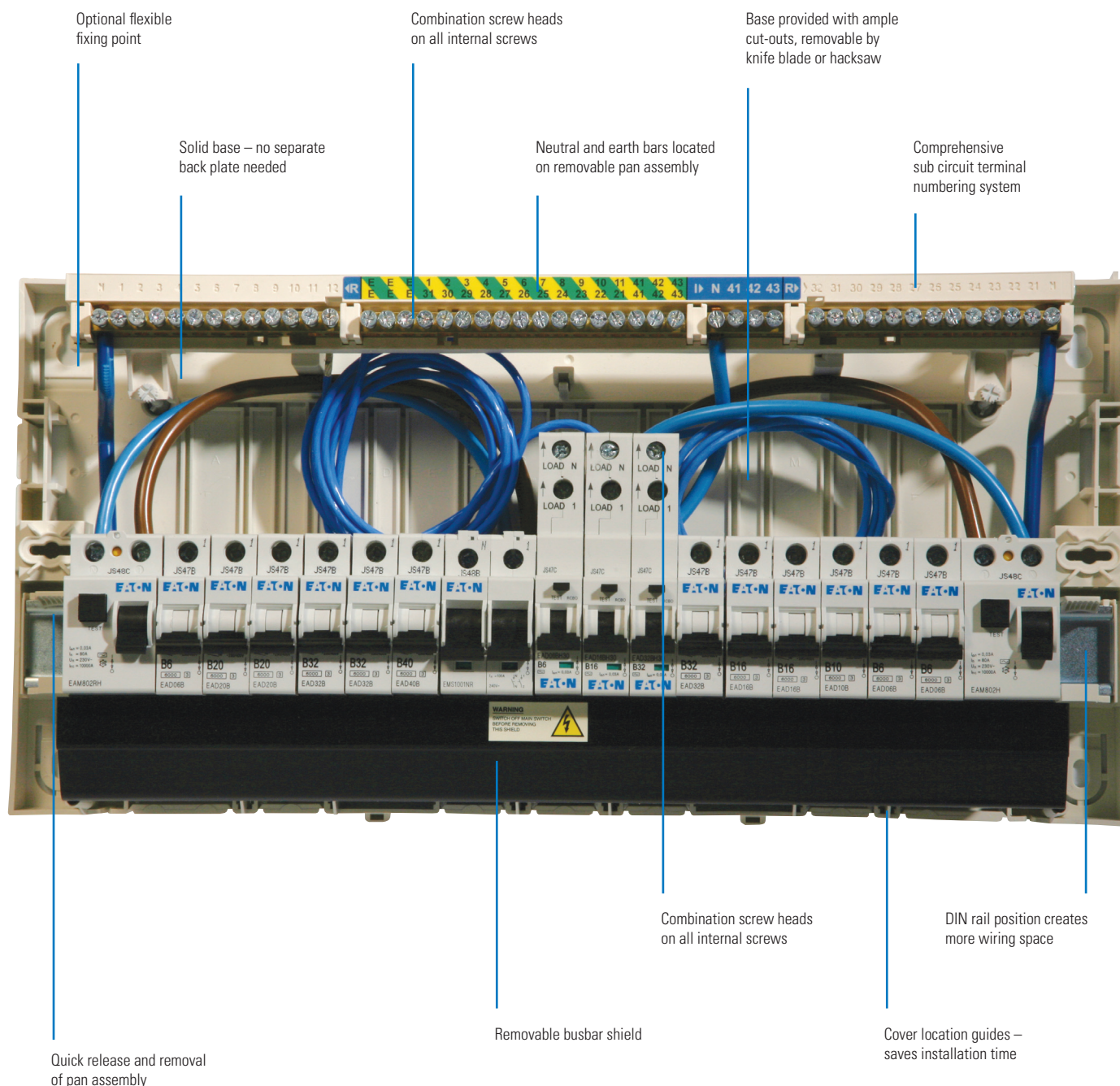
- Memera consumer units are factory assembled and include the main controlling devices. All that's required is the fitting of the MCBs etc, and the busbar which is provided in every unit securely held in it's transit carrier.
- The compact Memera range is ideal for domestic and light commercial applications.
- The range of units provides various solutions to the 17th edition wiring regulations, with grouped RCD outgoing sections as well as accommodating multiple RCBO devices.
- Dual tariff units with multiple incoming devices are also available.
- Manufactured to BSEN 60439-3.
- Degree of protection IP30.

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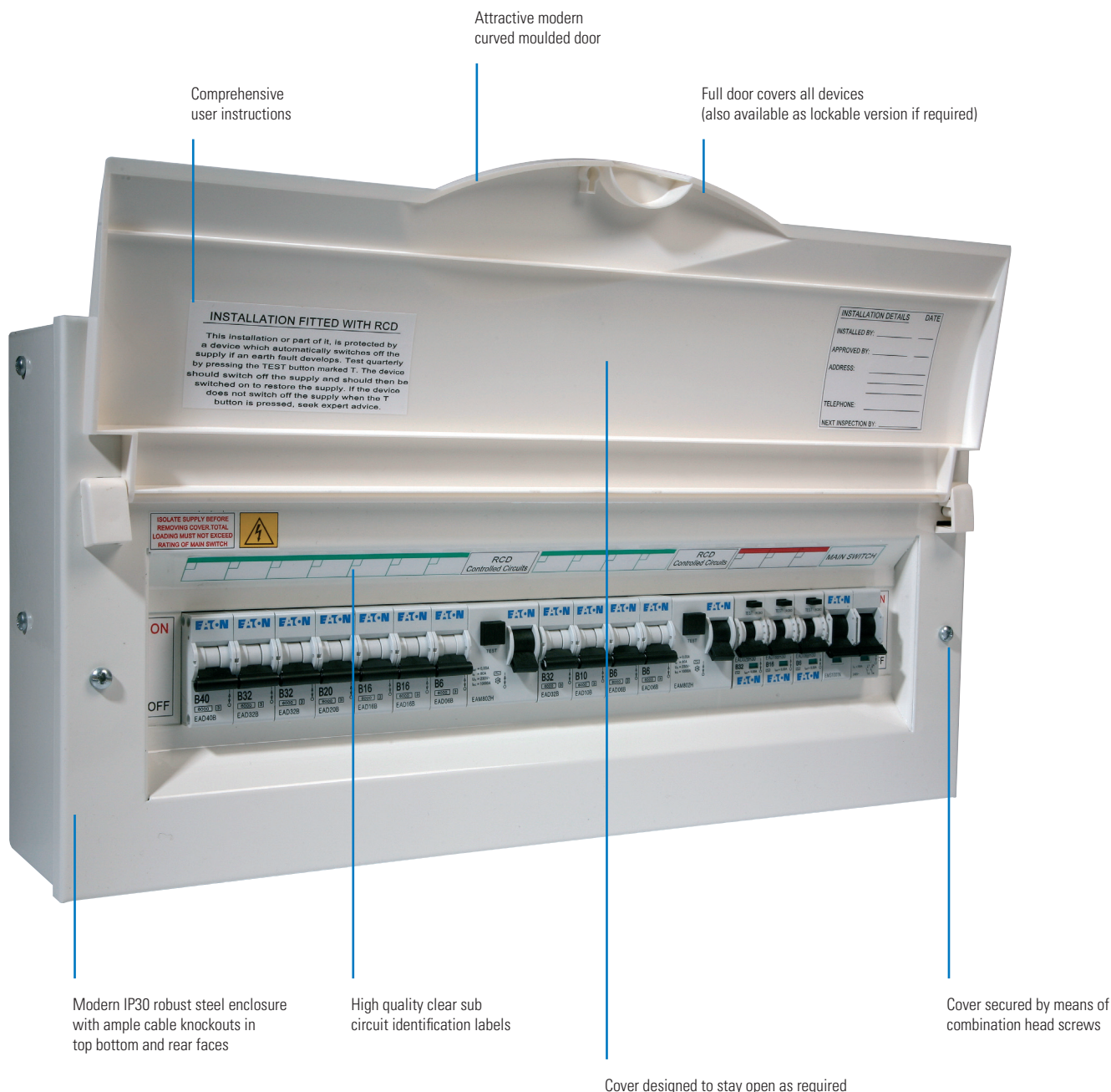
Memera consumer units and devices

Memera moulded consumer units – features and benefits (continued)



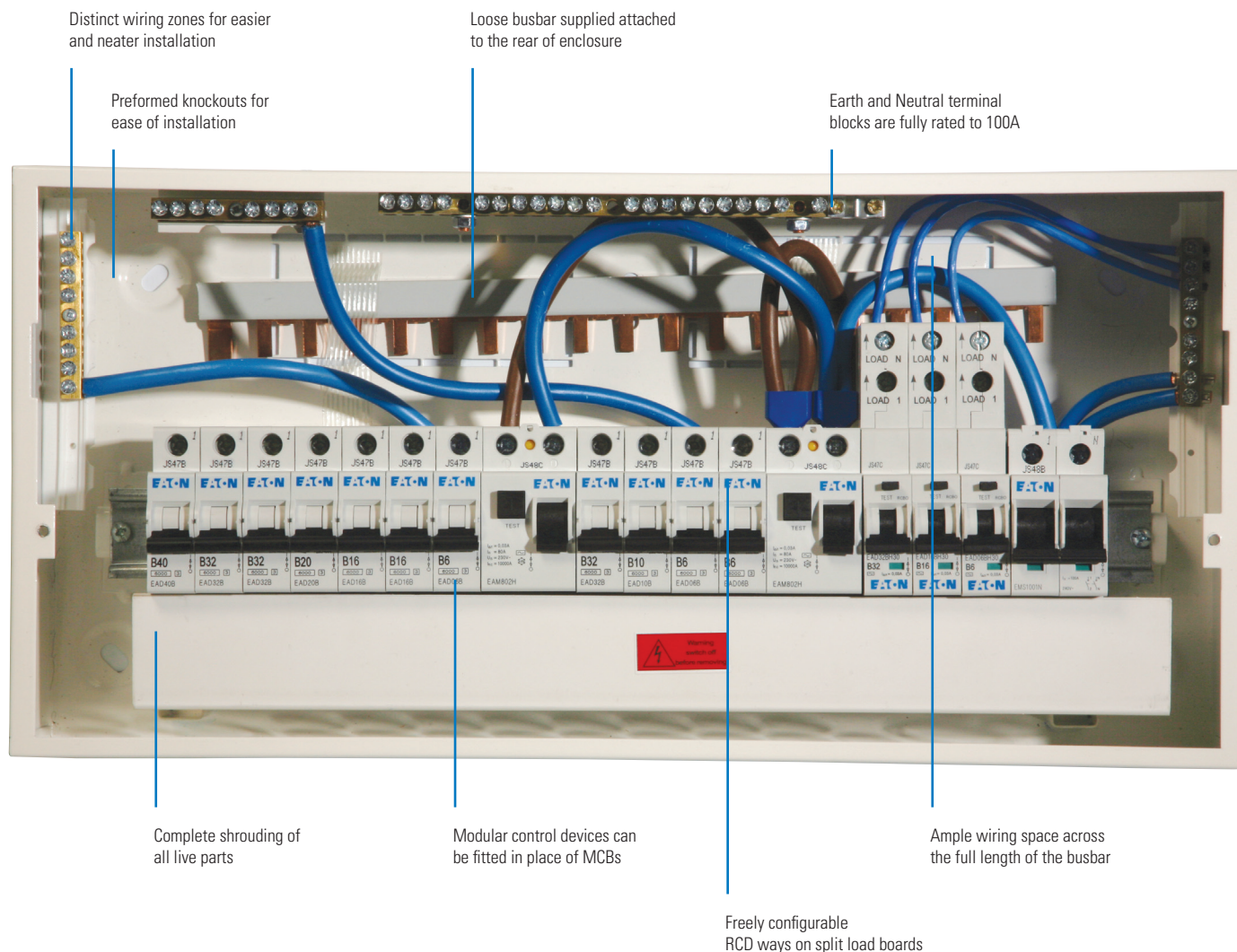
- All Memera consumer units use MCBs and RCBs for final sub-circuit protection and some also feature the variable split load design which allows on-site configuration of the number of ways allocated to each main section.
- The units are supplied with a combined pictorial installation guide and a high quality circuit identification way label which is easy to use and gives the finishing touch to a professional job.
- Dual RCD isolator controlled units offer grouped 30mA protection on all circuits with the ability to also connect RCBs directly off the main switch.
- Comprehensive sub circuit terminal numbering system. This easy, but clever way to distinguish individual circuit wiring terminations is as simple as 1,2,3. Typically, all isolator circuits utilise numbers from 1–16 whilst RCD controlled circuits use 21–36. Therefore, no need for last minute re-numbering of circuits. All numbers work away from the main or secondary controlling devices in conjunction with the MCB etc. All variations of split load units are catered for ensuring each circuit has its own unique circuit number.

Memera metalclad consumer units – features and benefits



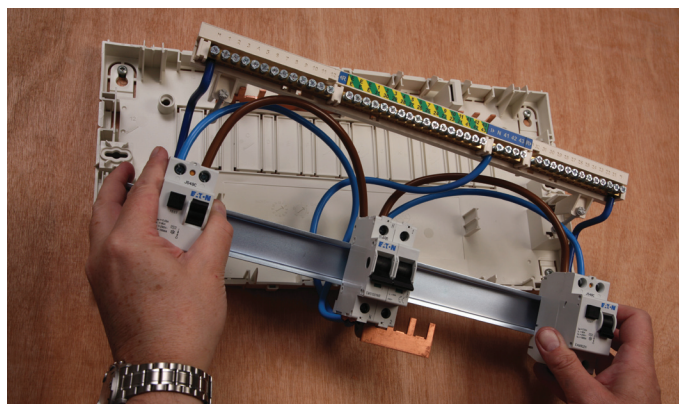
- Modern stylish appearance fully assembled with ample knock-outs in steel enclosure to suit all applications. The units are delivered factory assembled and fully equipped with all main controlling devices and interconnections. All that is required is to remove and install the busbar which is secured in the rear of the unit and fit the outgoing devices.
- The Memera metalclad consumer units are ideal for both domestic and light commercial applications where a more robust metal enclosure is needed.
- The units are available with single or multiple incoming device options as well as the various dual RCD combinations widely used to enable compliance with the 17th Edition wiring regulations.
- Manufactured to BSEN 60439-3.
- Degree of protection IP 30.

Memera metalclad consumer units – features and benefits (continued)



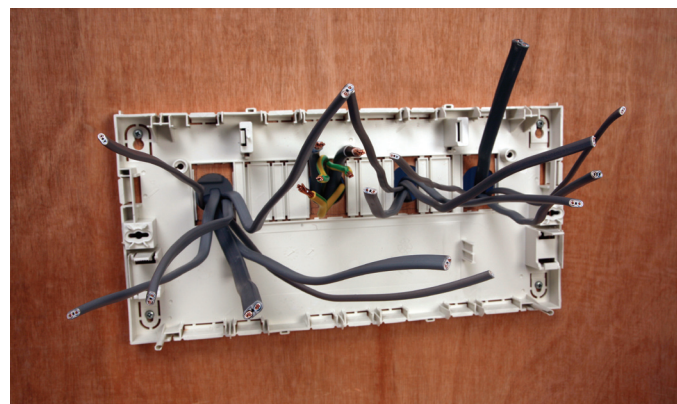
- The Memera metalclad consumer units use MCBs and RCBOs for final sub circuit protection, and can also accommodate a wide range of other modular devices such as timers, contactors and relays.
- The split load and multiple RCD units all feature a variable split design with busbars that can be simply split on site to enable the exact configuration to be achieved.
- Dual RCD units incorporating an isolator main switch and providing grouped 30mA RCD protection in two zones, can also be configured with some high integrity ways fed directly off the isolator. Ideal for protecting selected circuits with independent RCBOs.
- Full instructions and a comprehensive labelling kit enable the installation to be completed professionally with all the appropriate internal warning and circuit identification labels.

Memera moulded consumer units – quick and easy installation



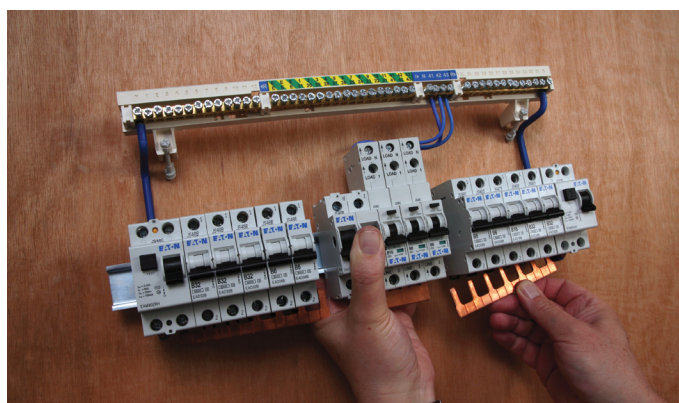
Step 1 – Prepare for base installation

On removal of the main cover using the quick release cover fasteners, the complete pan assembly can be withdrawn from the base by means of the unique clip feature. The busbar is then removed from its retaining clip.



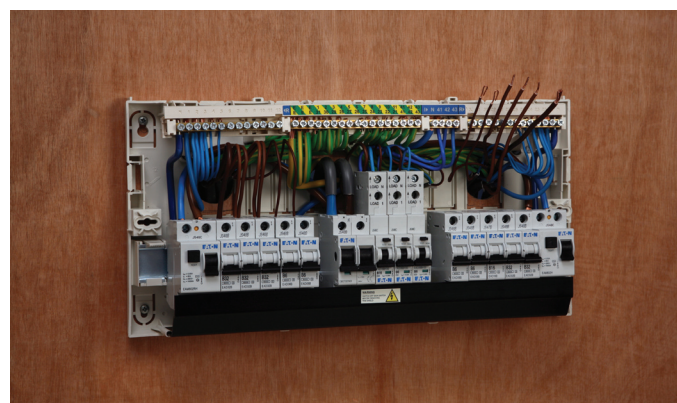
Step 2 – Cut-out and cable preparation

Using any of the easily removable cut out sections, the cables may be prepared. The empty base is then fitted to the wall without obstruction to the cable bunch..



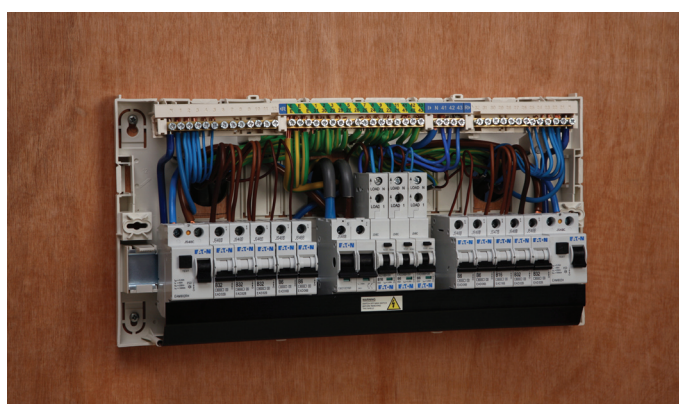
Step 3 – Pan assembly preparation

MCBs and RCBOs are fitted to the pan assembly in the appropriate positions. The busbar is then snapped to the required length (split load units only) and fixed to the device terminals. On completion the pan assembly is clipped into position.



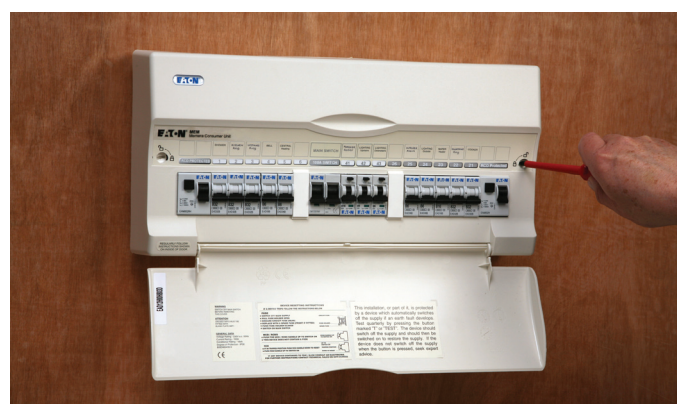
Step 4 – Internal wiring

On re-fitting of the pan assembly, the pre-prepared cables can be wired to the devices. Circuit testing can then be carried out at the appropriate time.



Step 5 – Completion of internal wiring and labelling

Once all wiring is completed, the push-fit busbar cover is slotted into position and the internal labels can be applied.



Step 6 – External identification labels and fitting of main cover

The external circuit identification labels are now applied. The cover is then replaced easily and quickly using the quarter turn fasteners.



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Memera consumer units and devices

17th Edition regulations and consumer units

The advent of the 17th Edition of the Wiring regulations brought with it new challenges for installers and manufacturers alike, one such challenge involves the much greater use of RCDs within the electrical installation. The regulations BS 7671:2008 now incorporate amendment No.1 2011.

Regulation 411.3.3.

States that additional protection by means of a 30mA RCD is to be provided for all socket outlets with a rated current not exceeding 20A for use by ordinary persons. The only exceptions allowed are for socket outlets for use under the supervision of "skilled" or "instructed persons" e.g. some commercial / industrial locations, or a specific labelled socket provided for connection of a particular item of equipment, e.g. a freezer circuit.

Regulation 701.411.3.3

In specific locations such as those containing a bath or shower there is a requirement now to provide RCD protection on all circuits, including the lighting and shower circuits.

Regulation 314.1 & 2

Requires that every installation shall be divided into circuits as necessary to avoid danger and minimise inconvenience, in the event of a fault. Also reducing the possibility of unwanted RCD tripping, due to excessive protective conductor currents but not due to an Earth fault. Separate circuits may be required for parts of the installation, which need to be separately controlled in such a way that they are not affected by the failure of other circuits. The appropriate subdivision should take account of any danger arising from the failure of a single circuit eg. an RCD trip on a socket outlet causing the unwanted failure of a lighting circuit and its associated hazards.

Regulation 522.6.102

Now requires a much greater use of RCDs to protect the wiring concealed in walls or partitions even where installed in previously defined "Safe Zones". These regulations effectively mean that all concealed wiring at a depth of less than 50mm from the surface now requires protection by a 30mA RCD unless provided with earthed mechanical protection.

Application of RCDs

The 17th Edition of the IEE wiring regulations (BS7671), detail a number of regulations relating to protection against electric shock, including the need for additional protection.

The use of RCDs (Residual Current Devices) with a residual operating current not exceeding 30mA is the recognised means of providing this additional protection in the event of failure of the provision for basic protection and or the provision for fault protection or carelessness by users.

Such RCDs should not be used to provide the sole means of protection and do not obviate the need to apply one or more of the recognised protective measure as detailed in the regulations.

Under the new regulations an installation is required to incorporate one or more RCDs, depending upon the circumstances. Such instances include:-

- All socket outlets not exceeding 20A, but with certain exceptions. One such exception would be permitted for a specific labelled or otherwise suitably identified socket outlet for connection of a particular piece of equipment.
- Mobile equipment with a current rating not exceeding 32A for use outdoors
- Electrical circuits installed under "Special installations and locations" as defined in Part 7 of the regulations e.g. Swimming Pools / Saunas.
- All electrical circuits, including shower and lighting circuits etc. in rooms with a fixed bath or shower e.g. bedrooms and en-suite bathrooms.

In addition to the protection requirements of the outgoing circuits / loads, the requirements of the installed cabling also must be taken into account.

Where a cable is concealed in a wall or partition at a depth of less than 50mm from the surface, even if installed in the "safe zone", if not provided with earthed mechanical protection e.g. Metal trunking or conduit, it must be provided with additional protection by means of a 30mA RCD.

Whilst it may be desirable to have one or two circuits fed via an unprotected circuit e.g. an identified / dedicated freezer circuit, the installation of the wiring may still dictate that the circuit must be RCD protected. The protection of a circuit by means of a 30mA RCD is also required where cables are concealed in walls constructed with metal stud partitions which are common in modern buildings, irrespective of the depth from the surface, unless provided with protection in the form of earthed metallic covering, trunking, conduit or other mechanical protection so as to avoid damage to the cable during installation or construction of the wall.

IEE Regulations and British Standards are subject to amendments. This Eaton guide to consumer unit solutions is not a substitute for the regulations which should always be used for all types of electrical installations and design work.

In summary

Regulations	Relating to	Example	Additional Protection
411.3.3	All socket outlets up to 20A rating for general use by ordinary persons	<ul style="list-style-type: none"> – Upstairs sockets – Downstairs sockets – Kitchen sockets – Cooker outlet with integral 13A socket outlet – Plus any other sockets rated up to 20A including garage sockets 	30mA RCD
701.411.3.3	All electrical circuits in a room with a fixed bath or shower	<ul style="list-style-type: none"> – Shower circuit – Lighting circuit – Heating circuit – Ventilation circuit – Shaver socket – Socket outlets 	30mA RCD
522.6.100 522.6.101 522.6.103	All electrical circuits buried in a wall or partition at less than 50mm and without mechanical protection	All concealed wiring <ul style="list-style-type: none"> – Socket outlets – Lighting circuits – Smoke alarm – Burglar alarm 	30mA RCD

Installation design

The 17th edition wiring regulations BS7671 applies to all new installations designed after 30th June 2008, and there are various options that must be considered in order to satisfy these requirements. Starting with the wiring scheme and the building design, consideration must be given to the purpose of the building, and to the persons who will be using the installation, as different regulations will be applicable, e.g. is the installation under the control of skilled or instructed persons, or ordinary persons, or perhaps the installed location contains a bath or shower. Answers to these points will start to focus in on the regulations that need to be followed.

Consideration must be given to the way cables will be fitted within the installation, either on the surface in trunking or conduit, or else concealed beneath the surface of the wall either buried within the plaster or inside the cavity of a hollow partition wall. The chosen installation methods and wiring accessories or loads being fed, will also dictate whether additional protection by means of 30mA RCDs is required on those circuits or not.

The wiring regulations are open to interpretation in some areas, where reference is made to “minimise inconvenience in the event of a fault”, acceptable levels of inconvenience can be somewhat subjective.

In most circumstances the regulations now dictate that a consumer unit will be required to have two or more 30mA RCDs, enabling the load circuits to be spread over a number of RCD protected zones or outgoing ways.

However, the most comprehensive and effective solution, and one that is guaranteed to fully meet the requirements of the regulations is to equip each and every circuit with it's own individual 30mA RCBO.

The examples shown on the next page illustrate just some of the many options available, to a contractor, to achieve a 17th Edition compliant installation. Some options provide a much higher level of circuit integrity than others. The final choice of which may well be made based on this and the cost/ease of the installation.



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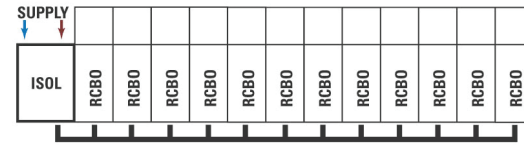
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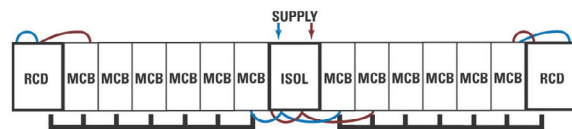
Consumer unit solutions

There are many ways of providing RCD circuit protection to meet the demands of the new regulations.

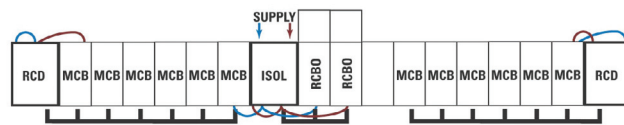
The most comprehensive solution would be to provide individual RCBO protection on each and every out going circuit from a consumer unit. Hence the use of a consumer unit such as a 12 way isolator controlled board. eg. **EAD12** fitted with up to **12 x RCBOs** or the **EAD11R** 11 way unit with additional cabling space to accommodate the RCBOs.



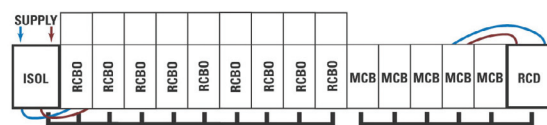
The next level down would be to provide an isolator controlled dual RCD consumer unit feeding two RCD board sections. eg. **EAD12H80H80D** or **EAD12H80H63D** fitted with up to **12 x MCBs**



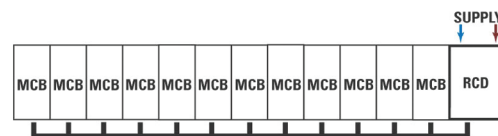
Such a dual RCD board could also be provided with some unprotected ways controlled by the main switch to enable a supply to any individual circuits that don't require RCD protection or else require individual RCBO circuit protection. eg. **EAD12H80H803D** or **EAD12H80H633D** fitted with up to **15 x MCBs**



A conventional split load board such as an **EAD14H80D** could have additional RCBOs fitted to the non protected side allowing a mixture of Group RCD protected circuits and Individual RCBO protected circuits.



Consumer units are already available with RCD incomers of 30mA sensitivity such as **EAD12H80**, **EAD12H100**. However, single RCD controlled units on their own are unlikely to satisfy regulation 314.1 and 2.



Switch and protection devices



Miniature Circuit Breakers (MCBs)

The Eaton range of 6kA high performance Miniature Circuit Breakers (MCBs) has been designed to meet the latest UK, European and International standards, with ratings from 2A up to 63A as standard.

The Eaton 6kA miniature circuit breakers are designed and tested in accordance with IEC/EN 60898 and are available in both B and C characteristic curve as standard

Technical characteristics

- Modular design, DIN rail mountable, one module wide.
- Single pole MCB for commercial and residential applications.
- Rated Breaking Capacity 6kA to IEC/EN 60898
- 2–63A in both type B and C characteristics
- Positive contact indication
- Box clamp barrier to prevent incorrect cable insertion
- Calibrated at 40°C
- Can be used with both pin and comb type busbars
- Suitable for use in Eaton consumer units and a wide range of other applications



Residual Current Circuit Breakers (RCCBs)

The Eaton range of Residual Current Circuit Breakers without integral overload protection (RCCBs), provide protection solutions to a wide range of applications.

The Eaton range of double pole RCDs are available with 10mA, 30mA, 100mA and 300mA sensitivities.

Technical characteristics

- Modular design, DIN rail mountable, two modules wide.
- Double pole RCD for commercial and residential applications
- Rated short circuit capacity 10kA with fuse back up
- Manufactured and tested to IEC/EN 61008
- Trip sensitivities 10, 30, 100 and 300mA
- Positive contact indication
- Test button



Compact Residual Current Circuit Breakers with Overcurrent protection (RCBOs)

The Eaton range of combined Residual Current Circuit Breakers with integral Overload protection (RCBOs), combine the highest level of protection for both people and circuits in a single one module device.

The Eaton range of 6kA RCBOs are available from 6A to 45A in both B and C curve with 30mA trip sensitivity and fully comply to IEC/EN 61009

Technical characteristics

- New compact modular design, DIN rail mountable, one module wide. Providing significant wiring space above the module.
- Single module combined MCB/RCD unit
- Solid neutral
- Positive contact indication
- Rated currents from 6–45A in both B and C characteristic
- Trip sensitivity 30mA (others available)
- Rated breaking capacity 6kA
- Test button



Main load disconnect switch (isolator)

The Eaton range of modular Isolators are available in single pole, double pole and single pole with switched neutral arrangements.

Technical characteristics

- Compact modular design, DIN rail mountable, one or two modules wide.
- Positive contact indication
- Rated at up to 12.5kA these switches are fully tested to IEC 60947-3 for AC23 duty at 240VAC
- Terminal capacity 2.5–50 mm²



Single pole & neutral switchfuse

The Eaton wall mounted switchfuse **800KMF** is a fully moulded, compact wall mounted, SP&N unit rated at up to 80A, complying with EN 60947-3 for duty AC22B, 240v AC. The unit is fitted with a fully insulated pull out fuse carrier, which will accommodate HRC fuse links complying with BS 88-3 (formerly BS 1361) and rated between 45–80A.



Control and Switching Devices

Timers

The Eaton range comprises of a wide variety of different products which include analogue timers, digital timers, twilight switches and staircase timers. Timers are available either with 50Hz net-synchronisation or quartz control. Except for net-synchronised timers all units do have self power reserve to secure the time setting and program storage in case a power interruption does occur. Twilight Switches are supplied with a remote light sensor, which can be easily installed on the outside wall where the required light intensity threshold can be simply adjusted on the modular device itself. The multifunctional staircase timer TE1 with many advanced switching facilities completes our range of timer products.

Technical characteristics (depending on type)

- Modular design.
- Analogue and digital timers.
- Time adjustment by 50 Hz net, quartz.
- Maximum 2 channel output.
- Manual override switching function.
- Power reserve for all quartz, analogue and digital controlled timers.
- Remote Light Sensor for Twilight Switching.

Advantages of Eaton timers

- Easily programmable on front of device.
- Computer aided programming software available.
- Compact 18 mm design for restricted space opportunities.
- Separate IP40 covers are available for direct wall mounting.
- High level of accuracy.
- Maximum lamp load test data is available for reference.
- Automatic summer and winter time adjustment.
- Holiday & Random program settings.
- High power reserve up to 10 years.



Contactors and impulse switches

Contactors are frequently applied for switching of lamp loads, fans, heaters or pumps in both utility as well as industrial areas. All contactors with ac/dc coils ensure silent operation which is further enhanced by a low power consumption.

Optimal contacts and low heat dissipation guarantee a long lifetime of the contactor which is available in a wide range of characteristics.

Technical characteristics

- Designed according to IEC 60947-4-1 and IEC 61095 standards.
- Suitable for applications in general control, heating & lighting applications.
- Available in 20, 25, 40 & 63 A ratings with up to 4-pole contacts.
- Coil voltages: 12 Vac/dc, 24 Vac/dc, 48 Vac/dc, 230 Vac, 220 Vdc.
- Optional add-on auxiliary contact available.
- DIN modular profile.
- Spacers available to extend lifetime (it is recommended to use 1 spacer between every 2 contactors installed).
- Day / night contactors available with manual override function.

Advantages of Eaton contactors

- Low inrush power for all ac/dc types.
- Availability of combined ac/dc type contactors ensure silent operation.
- Contactors of ac/dc coil type are operable on both ac and dc voltage. The 20A and 25A versions are also available with ac coil. All combined ac/dc type versions are equipped with surge protection on the operating coil.
- Equipped with contact indication.
- Optimal quality of contacts and low heat dissipation ensure a long life time.

Transformers



The Eaton bell transformer is a simple two module unit providing a dual voltage output (12V, 0.6A and 8V, 1.0A) and can be used with most commercially available door bells.

Wireless electricity monitor



Take control of your energy use by using the efergy wireless electricity monitor. It displays instant power, costs, historical and average data and estimated CO2 emissions. Discover and reduce the size of your carbon footprint by monitoring the cost of using your home appliances and lighting. It's also fun and educational for all the family.

