

Technical specifications and Installation Instructions

THIS GUIDE MUST BE LEFT WITH THE UNIT FOR FUTURE REFERENCE



Technical Specifications				
PRO Range enclosure options (No of outgoing ways)*	RCBO DUAL RCCB	2+1 / 6+1 / 8+1 / 10+1 / 14+1 / 19+1 / 6+1 / 10+1 / 15+1	Rated conditional short circuit current <i>I_{cc}</i>	16kA (According to EN61439-3 Annex ZB) see note ***
Enclosure material		Mild Steel	Max. fuse for short circuit protection	100A BS88-3 / BS HD60269-3 ****
Finish Colour		RAL9003	Protection against electric shock	Automatic disconnection of supply
Assembly conforms to		BS EN61439-3 including Annex ZB	Ingress protection rating	EN60529 IP2XC
Devices conforming to		Main Switch: BS EN60947-3 RCBO: BS EN61009-1 RCCB: BS EN61008-1 MCB: BS EN60898-1	Impact rating of enclosure	IEC62262 IK05
Devices mounting provision		Din rail EN50022	Ambient temperature range	-5°C to +40°C
Rated operational voltage <i>U_n/U_e</i>		230VAC rms	Max. ambient average temp. (24hr)	+35°C
Frequency <i>f_n</i>		50Hz	Installation condition	Indoor, surface wall mount (fixed & stationary position)
Rated current of the assembly <i>I_{nA}</i>		100A max. (dependent on rating of incoming device used) ****		
Rated current of each circuit <i>I_{nc}</i>		6-50A 230VAC	Pollution degree	2
Rated insulation voltage <i>U_i</i>		300V	Product intended for use by	Un-skilled / Un-instructed ordinary persons
Rated impulse withstand voltage <i>U_{imp}</i>		4000V	External housing design	Enclosed assembly
Over voltage category		III	Type of construction	Fixed parts (according to EN61439-1 8.5.1)
Suitable for Earth system types		TNC-S TN-S TT**	Screwdriver type (all wire connections)	SL/PZ2

General Information

Lewden consumer units are designed and tested for use with the Lewden range of circuit protection devices only.

This unit must be installed by a qualified electrician in accordance with the latest edition of the IET wiring regulations for electrical installations BS7671. Wiring connections to the main circuits shall only be connected/disconnected when the assembly is not under voltage.

* +1 refers to one additional modular space in the CU for the provision of a surge protection module (This is not an outgoing busbar way).

** TT earthing arrangement

Consumer units incorporating RCCB's in TT systems must incorporate a type S (time delayed) RCCB e.g. 100mA type S at their origin.

Alternatively a main switch with individual RCBO protection on all outgoing ways may be used. To achieve safe isolation of circuits, both the line and neutral conductors must be disconnected.

*** Rated conditional short circuit current of the assembly (*I_{cc}*)

I_{cc} 16kA where the prospective fault current is greater than 6kA up to 16kA Annex ZB applies e.g. a maximum 16kA at the house service cut out, cable supplying the CU and a BS88-3 or BS1361 type II upstream fuse-link

I_{cc} 6kA where the maximum prospective fault current is up to 6kA at the CU with the specified outgoing MCB or RCBO. This is independent of any upstream fuse or circuit breaker back up co-ordination.

All ratings are with equipment and arrangements specified in the Lewden technical documentation/catalogue.

Note: Where annex ZB arrangements do not apply e.g. not a fused house service cut-out and the maximum prospective fault current is greater than 6kA at the CU, a suitably rated type A distribution board must be used.

Enclosure mounting

This product is designed for indoor installation only. Remove only the minimum number of appropriate cable knockouts.

Fix the enclosure base to a flat vertical surface using appropriate screws and wall plugs (not included). Install in the horizontal plane only.

Mains cable installation and connection to the incoming device

For mains connection, use double insulated cables type 6181Y (BS6004). To prevent mechanical damage to mains cables passing through the enclosure wall, and maintain the ingress protection rating of the enclosure, an appropriate cable gland must be used. Note: This item is not available from the Lewden range (See Fig.1)

Cut and dress the main incoming L&N cables and earth conductor. Connect into the appropriate terminals L & N on the main switch or RCCB, and earth terminal bar. Tighten the main incoming terminals securely to the recommended torque setting.

(See Fig.2 shown with optional mains tail clamp)

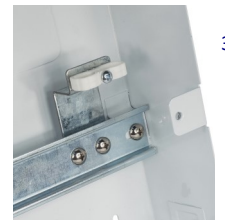
Use of the optional mains tail clamp **MTC** ensures additional cable strain relief to prevent any disturbance at the main switch terminals, whilst maintaining perpendicular insertion of mains tails into the incoming device. This item is suitable for use with both 16mm² & 25mm² mains tails (MTC is sold separately) (See Fig.3)



1



2



3



Device Terminals	Max Conductor size Solid / Stranded	No of modular ways required per circuit protection device		
		Main switch	MCB	RCBO
Main Switch	50mm ²	2	1	
MCB / RCBO	16mm ²	2	1	
Earth & Neutral bars	16mm ²	1		

To prevent potential overheating from loose connections the installer shall check that connections are tight to the torque levels stated, prior to energizing the board. This check should include all factory made connections which may have loosened in transit.



Installation Instructions

Outgoing circuits cable installation

Cable access openings into the consumer unit must maintain the ingress rating of the enclosure. The horizontal top surface of the enclosure must provide a degree of protection to IP4X, and IP2XC for all other surfaces.

IP rating	Description
IP4X	A probe of 1mm dia. shall not be able to enter the enclosure
IP2XC	Protection against penetrable access (using a tool 2.5mm dia. & 100mm long) that can make contact with live hazardous parts



The cable installation method shall, as far as reasonably practicable, maintain the non-combustible properties of the enclosure. Good workmanship and proper materials must be applied by the installer. To ensure best results, fit blind grommets or stuffing glands to all opened knockouts to maintain the ingress protection degree of the enclosure.



When installing cables through grommets, the grommet should first be pierced with a semi-blunt instrument such as a pencil before penetrating with cable. The grommet can be pierced in several places and will maintain a seal around each cable sheath. Avoid cutting the grommet with a knife as this may cause the grommet to tear. Grommets sold separately **CUGR-4025** (for 40x25mm Rectangular K/O) **CUGR-5050** (for 50x50mm Rectangular K/O)



For cable entry via the rear of the consumer unit utilise Lewden rear cable entry plates to prevent chafing of cable insulation. Simply push fit and cut out the internal segments as required.

CUGR-LR (for 100x60mm knockouts), or **CUGR-SR** (for 60x60mm knockouts)



Connection of outgoing devices (MCBs / RCCB / RCBOs)

Ensure that the mains power supply to the unit is isolated before carrying out any work. Mount circuit protection devices onto the din rail. Lock devices into position by pressing the spring clip towards the rail.

Connect wires / comb bus bar ensuring that they are captured fully in the device terminal cage. Tighten the terminal screws to the recommended torque. (see table below) Each neutral and earth connection must correspond numerically to its respective circuit breaker position

When installing RCBOs, connect the blue neutral lead to the terminal of the corresponding outgoing way on the neutral bar



Select a screwdriver that correctly fits the screwhead and is appropriate to the size of screw.

Only those power tools specifically designed for use as torque drivers should be used to tighten electrical connections - ordinary battery drills or impact drivers are NOT suitable for this purpose.

Where torque drivers are used, they must be set to the correct torque, be subjected to regular checks of their accuracy and recalibrated when required.

Incoming Device	Torque setting Nm	Outgoing Device	Torque setting Nm	Earth & Neutral Bar	Torque setting Nm
Main switch	2.5Nm	MCB	2.5Nm	Earth Bar	2.0Nm
RCCB	2.5Nm	RCBO	2.5Nm	Neutral Bar	2.0Nm

Rated diversity factor

The total load current supplied from the unit must not exceed the rating of the main switch or any additional limitation.

The total sum of the individual outgoing MCB ratings may exceed this value where there is appropriately rated diversity in the installation.

Adjacent thermal magnetic MCBs/RCBOs should not be continuously loaded at their nominal rated currents when mounted in enclosures. We recommend a diversity factor (RDF) is applied to the MCB/RCBO nominal rated current where it is intended to load circuits continuously and simultaneously.

Loading factors for outgoing circuits BS EN61439-3 table 101 Total continuous load must not exceed I_nA and or I_nC values as shown in the technical data table RDF = Rated Diversity Factor			
Consumer unit ways	RDF	Consumer unit ways	RDF
1 way	1	6-9 ways	0.6
2-3 ways	0.8	10 ways +	0.5
4-5 ways	0.7		

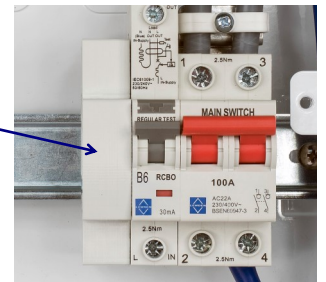
****To ensure adequate overload protection of RCCBs; When installing a dual RCCB consumer unit, the house cut out fuse-link must have an ampere rating which is equal to or lower than the individually rated load current of each RCCB

Blanking of unused ways

Unused ways in the consumer unit must be blanked using either of the following two methods as appropriate:

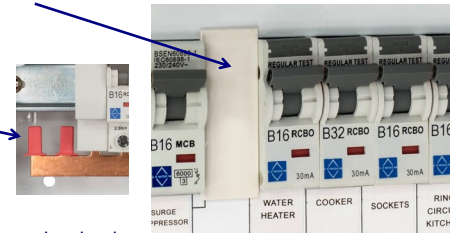
MFDRB multi-functional din rail mounted blanks.

These blanks cannot be removed without first removing the CU screw on cover. (sold separately)



CU-BL blanking strips can be press fitted on to the outer cover (supplied in 6 module lengths)

When using **CU-BL**, phase insulators **PI** should be fitted to the comb bus bar teeth of all unused ways



Circuit Identification

The duty of all outgoing circuits must be clearly marked on the front cover using the pre-printed Labels supplied in the accessory pack.

Earth bonding

Before fitting the front cover, the earth bond must be connected between the enclosure base and the front cover. The connection to the front cover should be made first. To relieve undue pressure on the stud, first fit the M6 plain nut and washer. Fit the earth cable to the stud, and secure using the nylok nut; by locking the two nuts against each other. Note: Plain washers supplied should be installed on either side of the crimp tag.

Connect the other end of the earth cable directly to the earth bar (far left terminal position)



Cover



Testing of the installation

After completion of the installation, it is essential that it is tested in accordance with the latest edition of the IET wiring regulations for electrical installations (BS7671)

What to do if an MCB/RCBO trips

Reset tripped MCB/RCBO to the ON position. If device trips again, disconnect all appliances connected to this circuit. Switch MCB/RCBO ON and safely connect appliances one at a time to identify which one trips the device.

What to do if an RCCB trips

Reset the RCCB to the ON position. If device trips again, switch off all MCBs protected by the RCCB. Switch on RCCB (which should now stay ON without further tripping) Switch on one MCB at a time to see which circuit trips the RCCB. Once the faulty circuit has been identified, disconnect all appliances connected to this circuit. Reconnect one appliance at a time to see which one trips the RCCB

In all cases, once the faulty appliance has been identified, do not continue to use the item until it has been checked.

If fault persists, call a qualified electrician to check the installation.