



RCCB Type B

Residual current circuit breakers
for single and three phase AC applications



THIS GUIDE MUST BE LEFT WITH THE
UNIT FOR FUTURE REFERENCE



General Information

Type B residual current circuit breakers (RCCBs) provide total protection for all known residual current faults. They are particularly suited to applications such as:

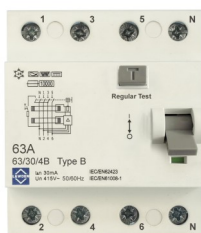
- Electric vehicle charging, where smooth DC fault current >6mA exists
- Small scale electricity generating systems such as solar PV and wind generators
- Inverters for variable speed control
- Uninterruptible power supplies (UPS), and battery chargers
- Three phase rectified supplies

The Lewden range of circuit protection devices are designed and tested for use with Lewden branded distribution boards.

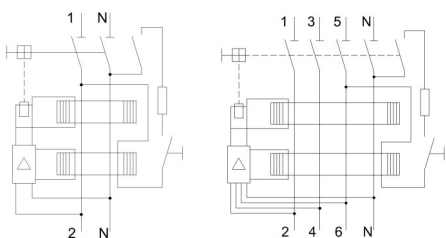
The RCCBs are suitable for use in TN-S, TN-C-S, & TT network systems.

This device must be installed by a qualified electrician in accordance with the latest edition of the IET wiring regulations for electrical installations BS7671.

Appliance manufacturers instructions



Current rating	mA trip	Poles	Part No Type B
63A	30mA	2	63/30/2B
63A	30mA	4	63/30/4B



Note: The 4P model can also be used on single phase applications by connecting a 230V supply across terminals 5 and N

Technical Data	
Reference standards	IEC/EN61008-1 IEC/EN62423
Rated residual current (I Δ n)	30mA
Rated Voltage (Un)	230 / 400VAC
No. of poles	2 / 4
Rated Current (In)	63A
Frequency response range (Fn)	0-1000Hz
Rated conditional short circuit current (Inc)	10000A
Rated making & breaking capacity (Im)	800A
Rated residual making & breaking capacity (I Δ m)	800A
Rated impulse withstand (Uimp)	4kV
Type Classification	B
Maximum back up fuse rating	63A
Neutral pole	Switched
Terminals line/load	1-35mm ²
Terminal tightening torque	2.5Nm
Dimensions (mm) All models	71w x 83h x 75d
Operating temperature	-25 to +55°C

Protection against overcurrent

RCCBs do not provide protection against overload or short circuits. They must be used in conjunction with a suitable rated fuse or miniature circuit breaker (MCB), to provide protection against overloads and short circuit faults. The rating of the fuse or MCB must not exceed the rated current of the RCCB.

Types of RCCB

RCCBs are available in various forms, and react differently in the presence of DC components. DC components or frequencies are produced by electronic equipment that modify the pure AC waveform from which they are powered, in order for the equipment to function normally. Appliance manufacturers instructions must be considered when selecting the appropriate RCCB for a particular item of equipment.

Type	Protection level
AC 	Provides protection against AC earth fault currents, whether suddenly applied or slowly increasing
A 	Provides protection against AC earth fault currents and pulsating DC currents, whether suddenly applied or slowly increasing. (For type A, tripping is achieved for residual pulsating DC currents super-imposed on a smooth DC current up to 6mA)
F 	Provides protection as for type A, and in addition; -For composite residual currents, whether suddenly applied or slowly rising, intended for a circuit supplied between line and neutral, or line and an earthed middle conductor. -For pulsating DC currents superimposed on smooth DC (For type F, tripping is achieved for residual pulsating DC currents super-imposed on a smooth DC current up to 10mA)
B 	Provides protection as for type F, and in addition; -For residual sinusoidal AC currents up to 1kHz -For residual AC currents superimposed on a smooth DC current -For residual pulsating DC currents superimposed on smooth DC current -For residual pulsating rectified DC current which results from 2 or more phases -For residual smooth DC currents, whether suddenly applied or slowly increased, independent of polarity (For type B, tripping is achieved for residual pulsating DC currents superimposed on a smooth DC current up to 0.4x the rated residual current (I Δ n) or 10mA, whichever is the highest value.)

Power supply polarity

Lewden type B RCCBs are not polarity sensitive. The devices can be mains fed from either the upper or lower terminal sets. Line and Neutral terminal connections must be respected in accordance with the markings on the device.

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) Compliance to BS7671 is deemed to have been verified with an alternating current (AC) test at rated residual operating current 1.0x I Δ n

Testing Equipment RCD setting & frequency	I Δ n	Min. Non actuating	Max. Disconnect
Alternating current (AC setting)	50Hz	0.5x I Δ n	No trip
		1.0x I Δ n	300mS
		5.0x I Δ n	40mS
Pulsating DC (A setting)	50Hz	1.4x I Δ n	300mS
		350mA	40mS
Smooth DC At rated frequency (B setting)	50Hz	2.0x I Δ n	300mS
		4.0x I Δ n	150mS
		10.0x I Δ n	40mS
Smooth DC At frequencies other than rated frequency (B setting)	150Hz	-	0.5x I Δ n
	400Hz	-	0.5x I Δ n
	1000Hz	-	1.0x I Δ n

Maintenance

The RCCB should be tested on a regular basis (at least every 6 months) by pressing the TEST button (T) in accordance with the latest edition of the IET wiring regulations for electrical installations (BS7671)

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). 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.**