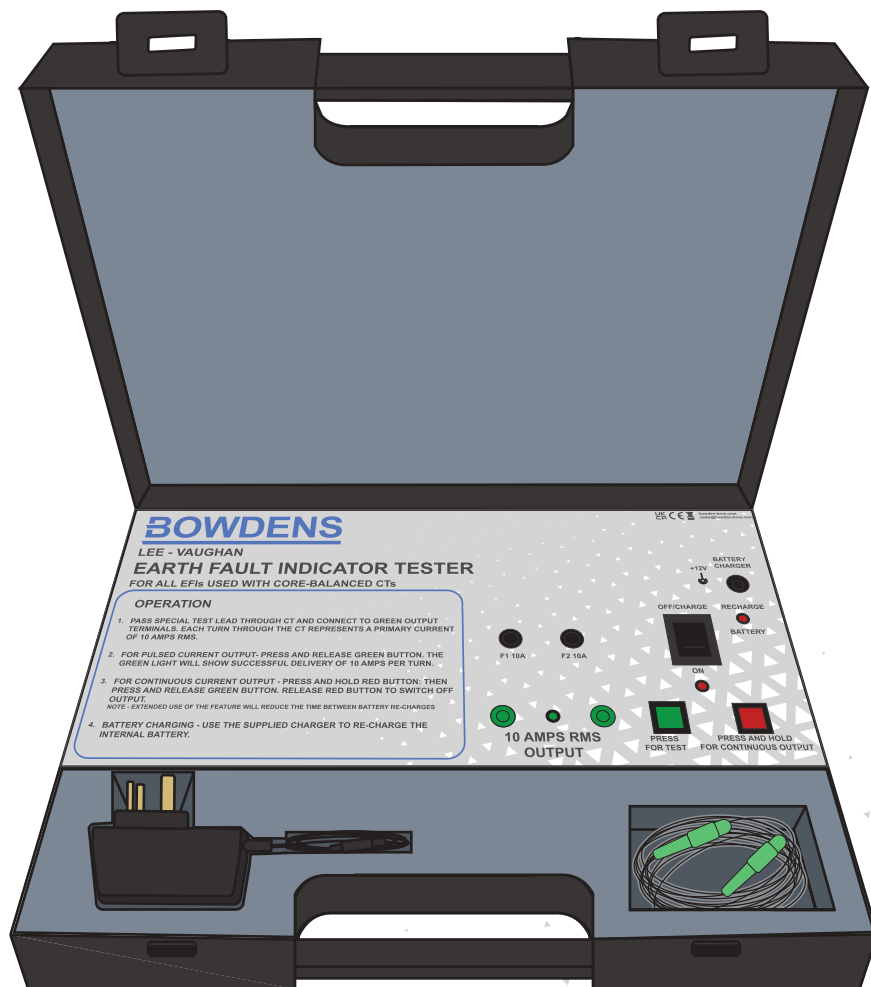


BOWDENS

EARTH FAULT INDICATOR TESTER



**A PORTABLE EARTH FAULT INDICATOR
TESTER THAT WORKS ON ALL TYPES OF EFIS**

enquiries@springltd.co

1.0 OVERVIEW

Earth Fault Passage Indicators on high voltage cable networks are an extremely effective means of fault localisation. However, the benefits derived from the use of such devices are entirely dependant on their correct operation under fault conditions. The Bowden Earth Fault Indicator Tester (EFI Tester) is a battery powered portable instrument that permits a quick and easy method of testing on site all types of EFIs mounted on core balance CTs.

The EFI Tester is a light-weight, self-contained portable instrument enclosed in a tough black ABS carry case. Within the case is a control panel with printed operating instructions. The controls on the front panel include an LED to indicate when the battery needs charging and a battery charge connection facility. The rechargeable battery LED indicator will automatically illuminate when the battery power has fallen to a minimum level and the battery requires recharging. There are test lead output terminals and two test buttons. The green button offers a test current of five cycles duration and the red a continuous current flow of 10 Amps, which can be measured by a clamp meter.

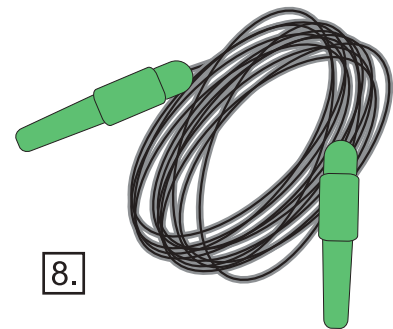
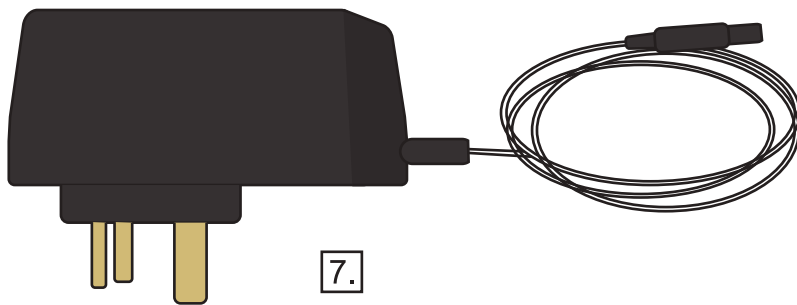
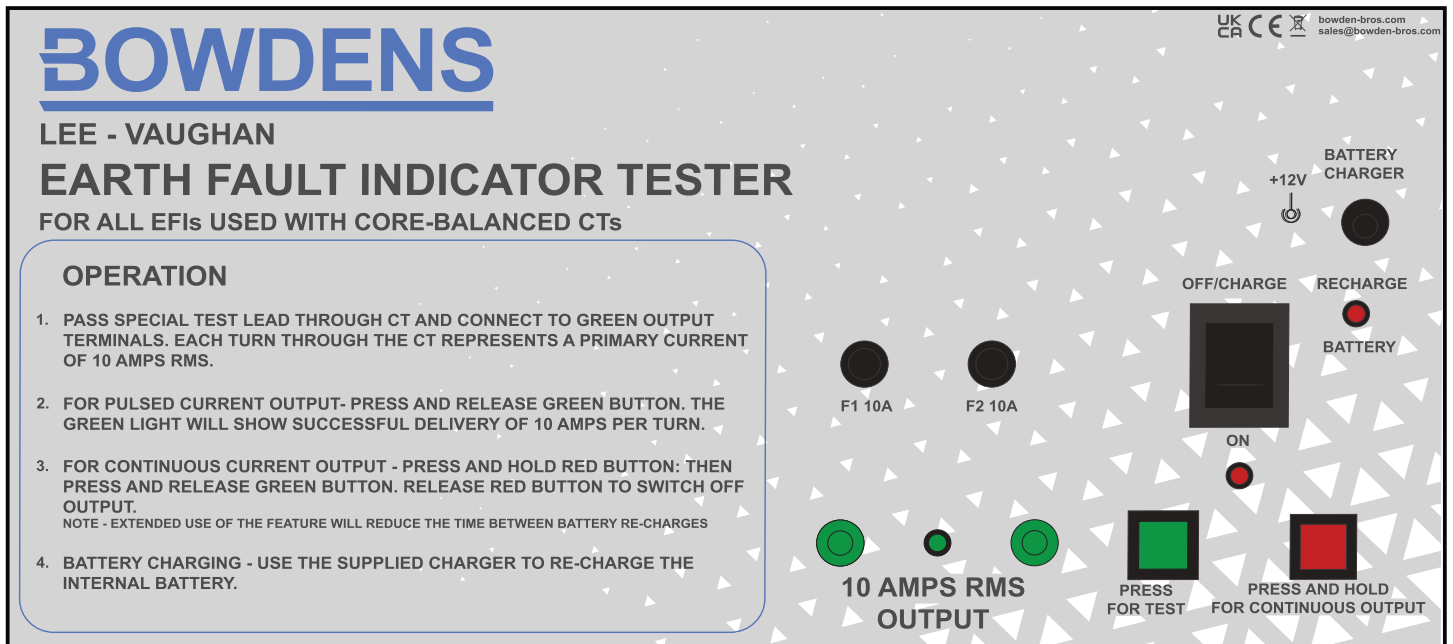
The foam in front of this panel holds the battery charger and output cable. The foam lid holds spare fuses. Each operation of the green press for test button produces a preset number of 50 Hz output current cycles at precisely 10 Amps RMS. The number of 50 Hz output cycles can be factory preset from 1 to 255. The standard setting is five cycles (100ms).

2.0 OPERATION

Earth Fault Indicators can be tested in 10 Amp increments by passing multiple turns of the output cable through the EFI current transformer, eg four turns for 40 Amps. The press for test button is inhibited for one second after each operation. The output current can be made continuous by depressing the red continuous button, prior to pressing the green press for test button, and then holding the continuous button depressed for as long as required. This may be used, for example, to check the Tester output current with a clamp meter. The output current will turn off after 60 seconds of continuous operation to save battery life and prevent over heating.

NB Extended use of this feature will reduce the time before the batteries require recharging. The front panel LED indicator verifies output current operation. This indicator will illuminate for a minimum of one second when output current is generated. A flashing recharge battery LED indicates one of the fuses has blown.

SETUP

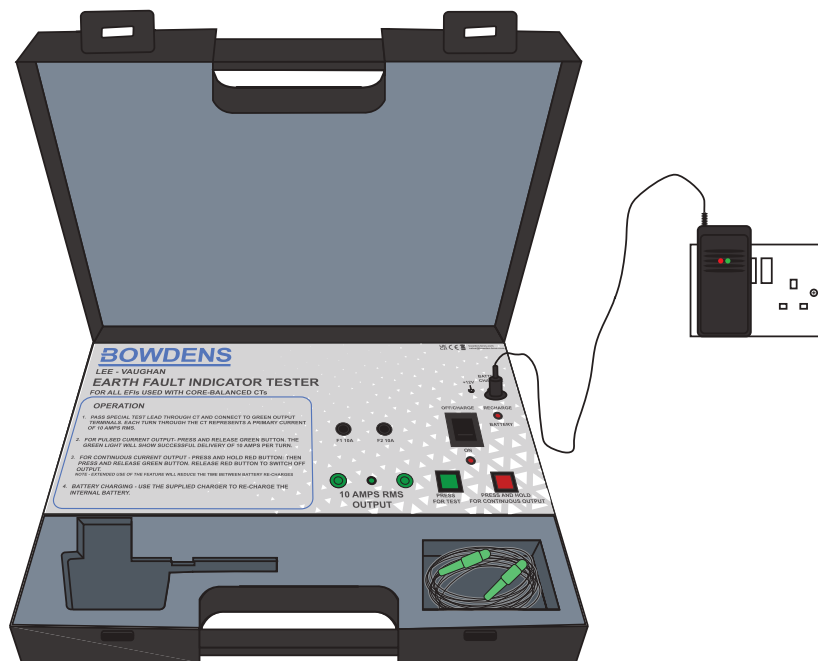


1. On/Off switch with red LED indicating the unit is on
2. Warning red LED indicating the battery needs to be recharged
3. Battery protection fuses, one for each 6Vdc battery
4. Test output female connections
5. Green button for pulse test
6. Red button to be pressed together with green button to give continuous output
7. Mains charger
8. Test lead with male connectors

3.0 POWER SUPPLY - CHARGING

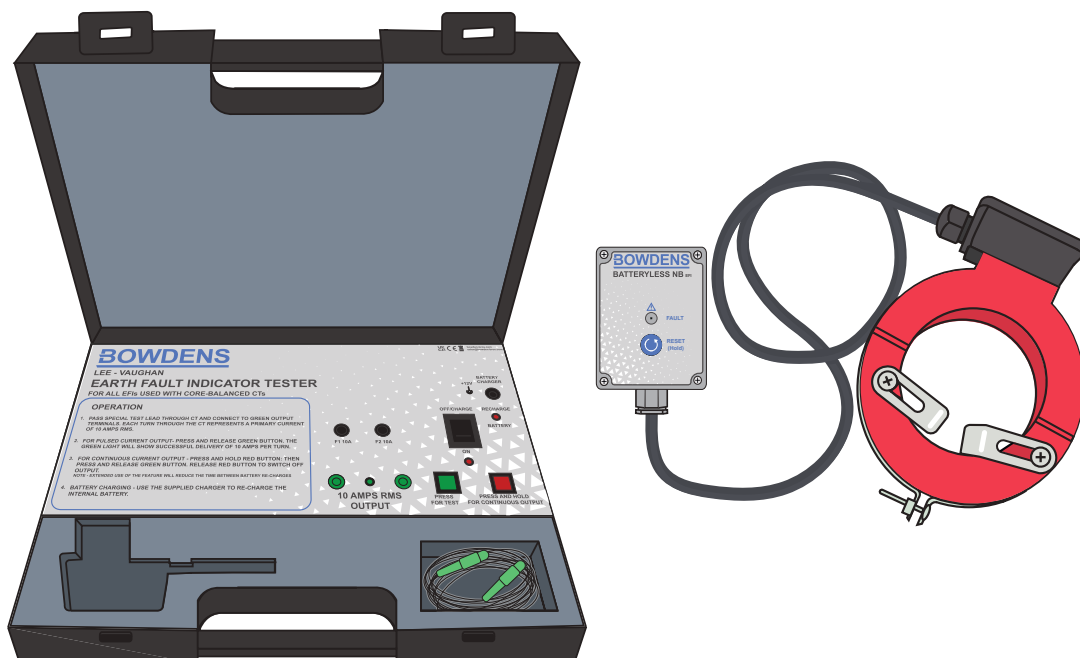
Before use, plug the battery charger into the mains (230Vac 50 Hz). The red LED will indicate the unit is charging; the green LED will indicate when the unit is fully charged. The two 6V internal batteries should not be allowed to go into deep discharge, and must be kept charged at all times. It is recommended that the unit be charged before and after a testing.

NB If the unit is stored for any length of time a top up charge is recommended. Keep the unit stored in a low ambient temperature (20° C) for maximum battery longevity.

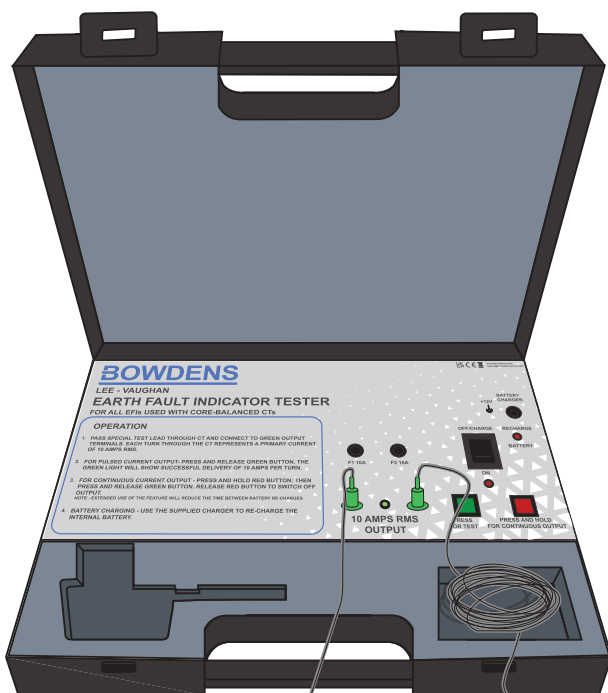
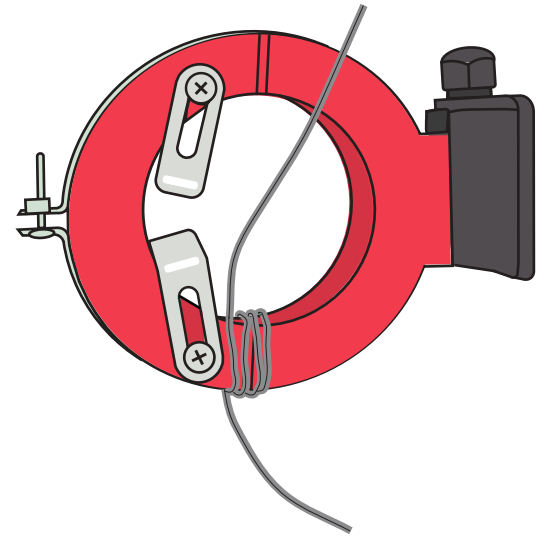


4.0 USE

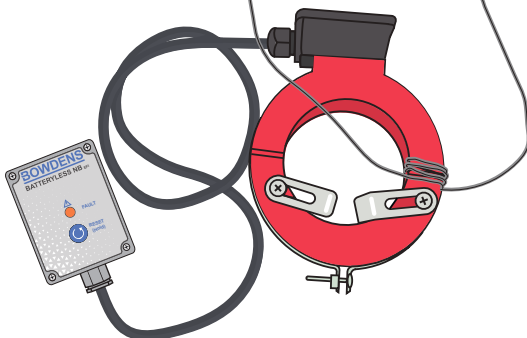
To use the tester take an EFI with a CT connected to it.

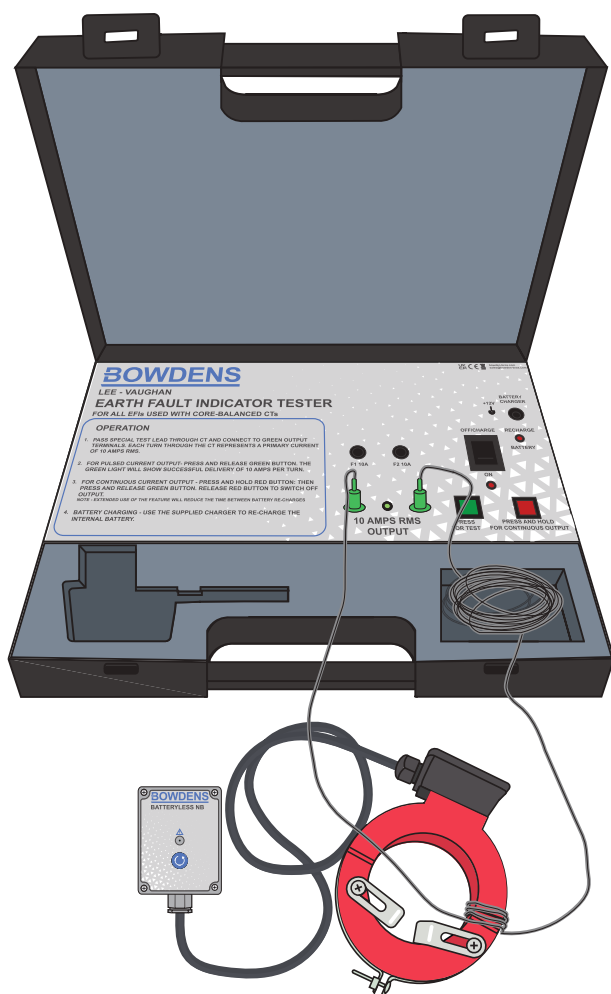


Wrap the test lead around the wall of the CT. Each turn is 10 Amps of current, so for four turns as in the picture, 40 Amps will be generated at the EFI.



Switch on the EFI Tester. The red LED will illuminate. Plug in the two male connectors and press the green button to give a pulsed current of a guaranteed 10 Amps for five cycles. The green LED will light to indicate the current is passing. For an EFI with a trip level of 35A when there is 40 Amps flowing the EFI will be tripped and will indicate.

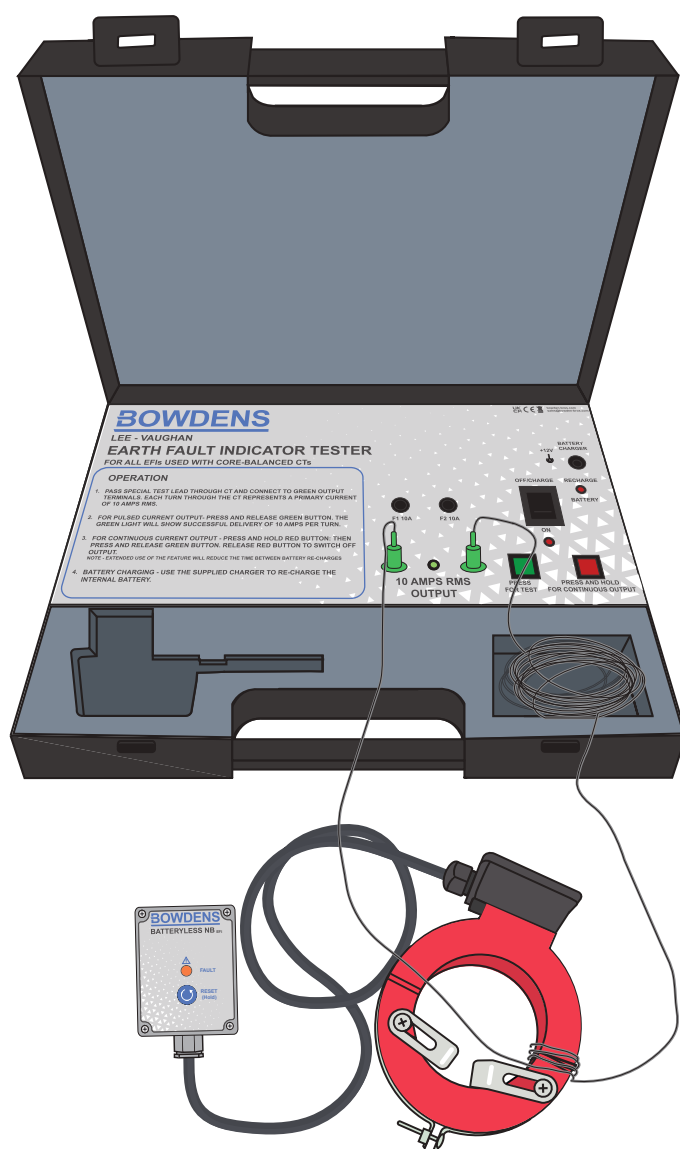




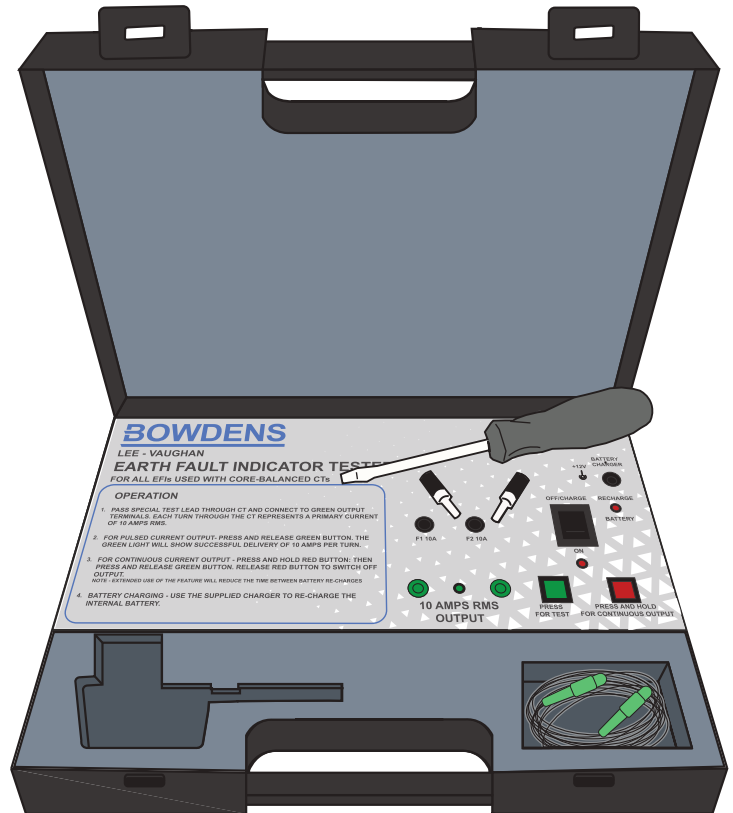
If the number of turns is reduced to only two turns, 20 Amps will flow when the green button is pressed, which is not sufficient to trip the EFI.

If the EFI has a built-in delay to protect against magnetising currents that is longer than five cycles, then press both the green and red buttons together to give a continuous output for as long as the buttons are pressed. However, do not keep them pressed for too long, as a continuous current of 10 Amps will reduce the charge in the battery quite quickly. This test can also be used in conjunction with a clip-on ammeter to confirm the current output at 10 Amps.

WARNING: Prolonged use in the continuous mode will reduce the life of the batteries.



If the green LED does not light when the button is pressed, check the fuses F1 and F2 to ensure they have not blown. Check the recharge LED is not on.



5.0 SPECIFICATION

Output current:	10 Amps RMS +/- 5%
Output frequency:	50 Hz +/- 1%
Output cycles/shot:	5 (1-255 option)
Batteries (internal):	2 x 6V 2.8Ah rechargeable
Recharge interval (typical):	2500 shots
Charging:	Only use the battery charger supplied with the EFI Tester. The use of other chargers may damage the battery.
Output Cable:	Only cable supplied with unit to be used. 4 metres (resistance <0.1 R)
Weight:	3.5kg (approx)
Dimensions:	36 x 26.5 x 9.5 cm (approx)

Specification subject to change without notice.