



4022C DATASHEET CONTINUITY TESTER FOR REMOTE EARTH BONDED STRUCTURES



REDPHASE INSTRUMENTS

Contents

	Section
Key Features	
Application	1
Where it is used	1.1
Components	2
Base Unit	2.1
Remote Unit with Pistol Grip Probe	2.2
Main Earth Lead	2.3
Hardware & Performance	3
Power Source	3.1
The Interface	3.2
Nominal Accuracy	3.3
Injection Current	3.4
Interconnection Lead	3.5
Calibration Check	3.6
Charge Cycle	3.7
Discharge Cycle	3.8
Enclosure	4
Cases	4.1
Case Sizes (L x W x H)	4.2
Weight	4.3
Optional Accessory	5
Warranty	6

RED PHASE INSTRUMENTS PTY. LTD. ABN 47 005 176 670
10 Ceylon Street, Nunawading, Melbourne, Victoria, 3131, Australia
Tel: + 61 3 9877 6988 **Fax:** + 61 3 9878 8508
E-mail: sales@redphase.com.au

KEY FEATURES:

- **PORTABLE AND LIGHTWEIGHT FOR TESTING EARTH BONDED STRUCTURES IN ACTIVE AND NON-ACTIVE ELECTRICAL OR INDUSTRIAL COMPLEXES SUCH AS SUBSTATIONS, FACTORIES etc..**
- **4 - TERMINAL DC INJECTION PROVIDES SUFFICIENT MEASUREABLE TEST RESISTANCE IN BOTH LARGE AND SMALL GROUND SYSTEMS.**
- **CALCULATES CONTINUITY OF REMOTE BONDED STRUCTURES FROM: 0 TO 1999mΩ.**
- **MAINS POWERED OR INTERNAL BATTERY OPERATION.**
- **CAN OPERATE FOR 3 TO 4 HOURS ON A FULL CHARGE OF THE INTERNAL BATTERY, GIVING THE OPERATOR MOBILITY AND THE FLEXIBILITY TO MOVE EARTHING REFERENCES WITH EASE.**
- **RUGGED CONSTRUCTION, ALSO COMES WITH A DURABLE PISTOL GRIP HAND PROBE WITH HARD WEARING STAINLESS STEEL TWIST PROBES.**

1.0. APPLICATIONS

1.1. Where it is used

The Model 4022C is a lightweight field portable instrument designed to test the integrity of buried conductors and remotely connected structures in and around a grounded Electrical or industrial complex.

Types of structures which may be tested:

- Transformers
- Poles / Towers
- Fencing
- Equipment barriers

It is ideally used to map the continuity of these earth bonded structures prior to performing a grounding system current injection analysis.

(please refer to our earth testing products at www.redphase.com.au for more information).

2.0. COMPONENTS

The 4022C continuity meter comprises the following components:

2.1. Base Unit

Housed in a ruggedized Pelican case, it contains the source supply, self calibration plate, 2 fans, the supply source switch, supply connection and status indicators.

2.2. Remote Unit with Pistol Grip Probe

Comprises the handheld 4 digit milli-Ohm (mΩ) meter display and measurement probe.

The remote unit has a fixed 5m lead that connects to the base unit via a 2 pin connector.

The Pistol grip probe handle is manufactured from impact resistant polycarbonate and comes with a 2.30m lead which also connects to the remote display unit.

The probe pins are a spring loaded and made from a hardened stainless steel. The pins also rotate and recess when pressed against a hard surface.

2.3. Main Earth Lead

5 metres long, it connects the Base Unit to the earth grid and is terminated with crocodile clips.

3.0. HARDWARE & PERFORMANCE

3.1. Power Source

The 4022C can be powered from 2 sources:

- Mains (IEC Connection): 85V - 265VAC, 50/60Hz for continuous operation.
- Internal re-chargeable battery

3.2. The Interface

A 3.5 digit numeric display on the remote unit shows resistive bonding values from: 0 to 1999mΩ.

3.3. Nominal Accuracy

Accuracy better than 1% over 0 to 1999mΩ at 20 Degrees Celsius.

3.4. Injection current

Typically 1A but can also depend on the external burden, the internal supply and heat dissipation factors.

3.5. Interconnection Lead

The lead between the Base Unit and the Remote Unit must be limited to a loop resistance of 8 Ohms or less to maintain proper regulation of drive current.

3.6. Calibration Check

The 4022C unit has an on board calibration plate which the operator may reference against before field tests commence.

Accuracy will also depend on the unit maintaining the correct DC injection level and the noise level in the electrical or industrial complex.

3.7. Charge Cycle

The 4022C is charged by connecting the base unit to mains and toggling the supply switch to mains. The charge status indicator will be red in colour when the unit begins to charge.

The indicator will begin to alternate at a progressively slower rate between red and green when reaching close to full charge.

When the indicator turns green and remains stable then the battery is fully charged.

It is recommended that the base unit remain in charge mode for another half of one hour to top up the battery charge.

3.8. Discharge Cycle

Normal use of the 4022C should provide the operator with at least 3 to 4 hours of continual field use.

The Red Low Battery indicator will come on once the 4022C requires re-charging.

The unit may still be used even after the indicator has come on and the 4022C will still allow a significant number of readings to be made before the battery finally disconnects itself so as to prolong its lifetime.

4.0. ENCLOSURE

4.1. Cases

The 4022C Base unit is housed in a moulded plastic Pelican case.

A transit case is also provided as standard for transportation. Purpose built from ABS plastic, it is foam lined and partitioned offering suitable protection for the 4022C Base and Remote units during transportation to and from site.

The case has room for test leads, probes and accessories.

4.2. Case Sizes (L x W x H)

4022C Base Unit: 275mm X 250mm x 180mm.

Remote Unit: 92mm x 86mm x 53mm

Transit case: 370mm X 340mm X 340mm

4.3. Weight

4022C Base Unit: ~3.5kgs

Transit case: ~3kgs

Test Probes & Leads: ~3kgs

5.0. OPTIONAL ACCESSORY

An optional 100m extension cable (on reel) is available. *Part No. 4022B-1*

100m cable cross section area is 1.5mm square.

6.0. WARRANTY

1 Year limited warranty applies to all products and accessories supplied by:

Red Phase Instruments Australia Pty Ltd

Every care has been taken to ensure that the above data is correct at the time of printing. Always refer to the latest data sheet when purchasing. RED PHASE INSTRUMENTS reserves the right to alter specifications without notice.