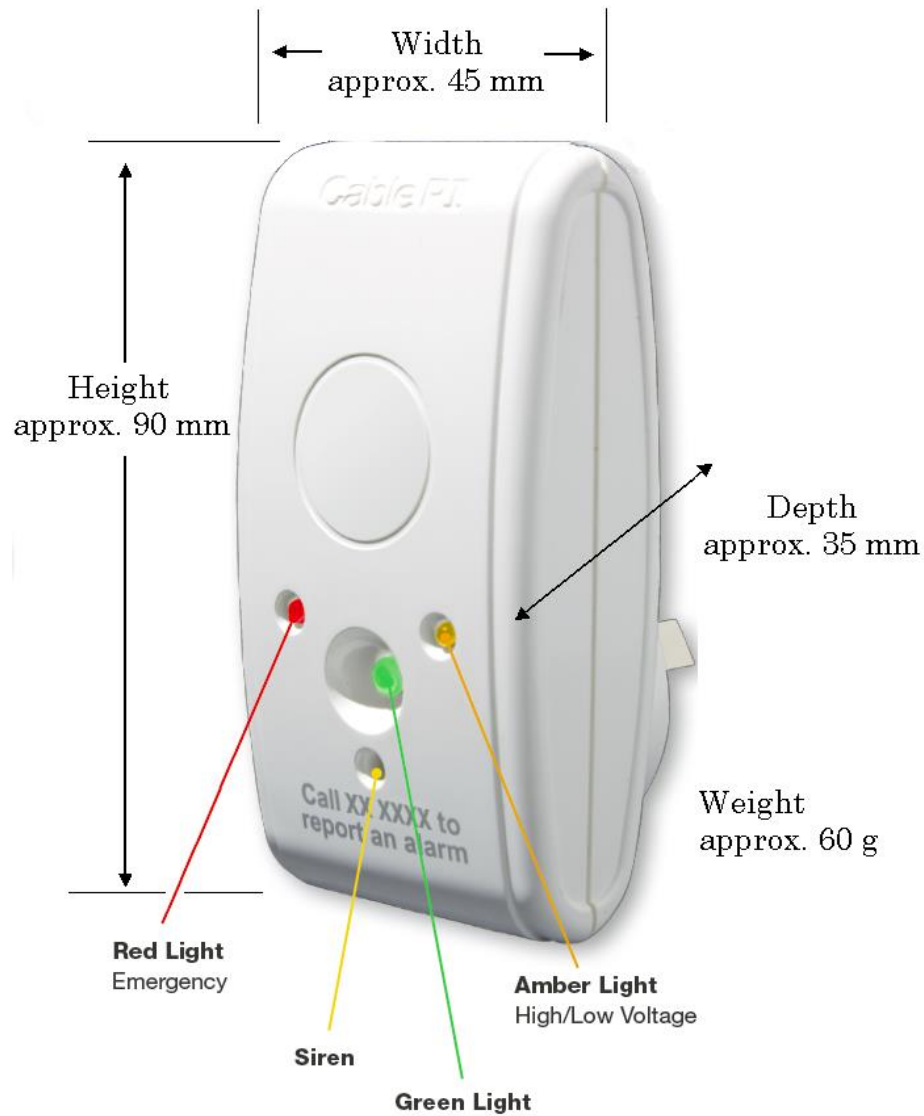


CablePI Update

May 2018

Device Dimensions



Device Technical Specifications

Function

- Tests loop impedance from the point where the device is plugged in back to the transformer
- Measures voltage
- Design life of 10 years (up to nearly 50 years in accelerated testing regimes)

Alarm Thresholds

- | | |
|------------------------------|----------------------------------|
| • Return path loop impedance | 1.6 Ohms |
| • Low voltage alarm | 200 VAC (5 min. running average) |
| • High voltage alarm | 270 VAC (5 min. running average) |

Electrical

- nominal 230 VAC
- operating range 20 VAC – 300 VAC
- 50 Hz
- 25 mA (max) during monitoring mode

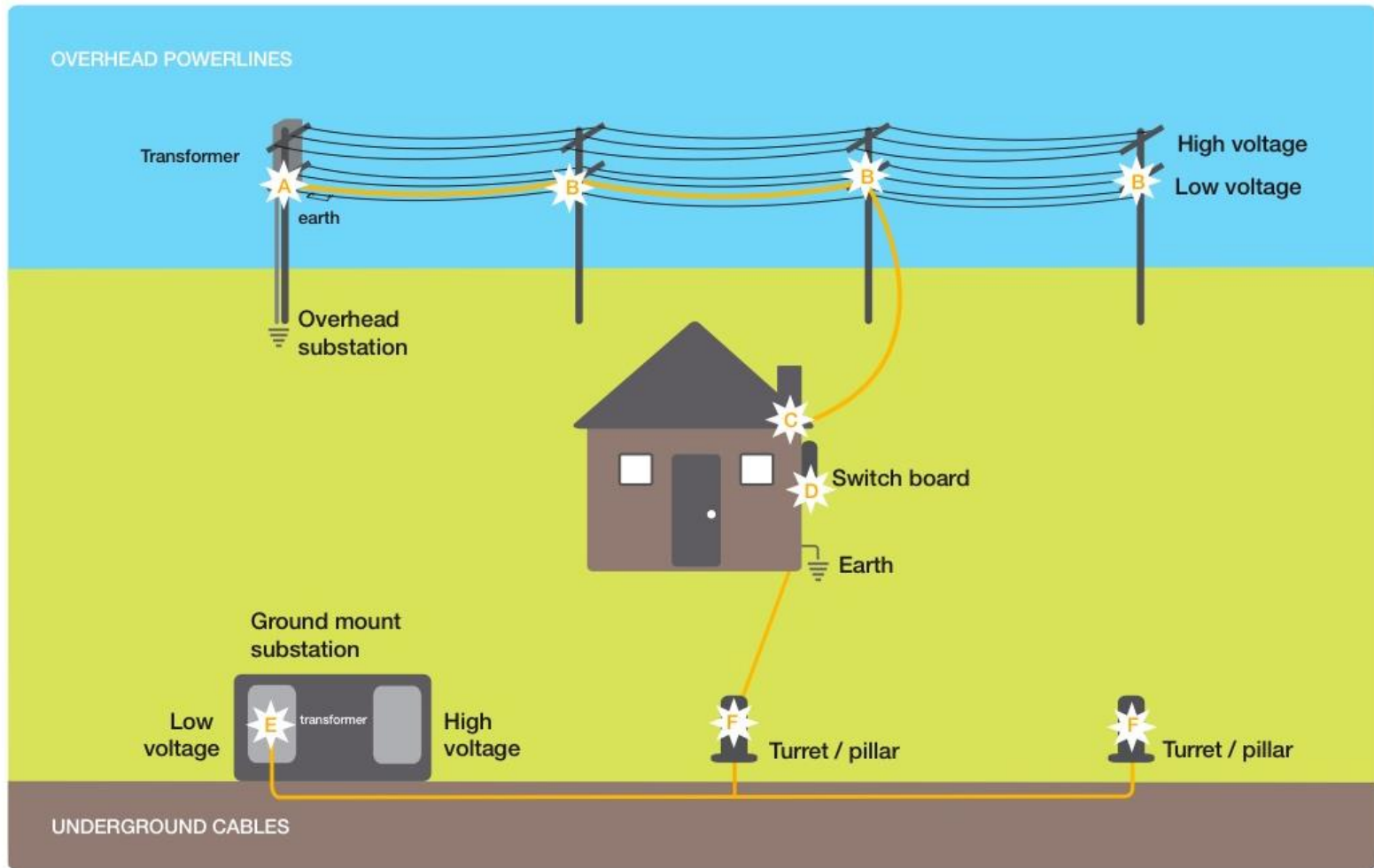
Certification

- Certificate of Suitability from Standards & Compliance Tasmania
- AS/NZ3112:2004 Inc Amdt 1. (Approval and Test Specification Plugs and Socket-Outlets)
- AS/NZ 3100:2002 Inc. Amdts 1, 2 & 3. (General Requirements for Electrical Equipment)
- UL94V-0*
- Ctick meets AS4251.1

Device Operation

- Self-check to test internal circuitry as well as the alarm lights and siren. Repeated every 24h.
- Device will pause for a random wait period (0 – 30 sec) ensuring device is desynchronised from other devices installed in the same network.
- Device will initiate an “active” test to determine the impedance of the return path loop.
- If the impedance exceeds the threshold value:
 - ⇒ high impedance and the potentially dangerous “broken neutral” alarm (flashing red LED and siren) is triggered.
 - ⇒ Alarm is “latched” and will remain on until power to the device is shut-off.
- If the return path loop impedance does not exceed the alarm threshold the device will enter a passive monitoring mode:
 - Network is monitored for indications that the return path loop impedance has become compromised.
 - Voltages outside the high/low limits are monitored.
 - Should the 5 minute running average network voltage move outside the high/low limits, the device will signal a voltage alarm for the duration of the voltage excursion only. Voltage alarms are not latched.
 - Flashing amber LED: High/Low voltage
 - No audible signal for voltage excursions.
- If the device detects a passive trigger it will automatically initiate a “active” test.
 - If impedance exceeds the threshold the “broken neutral” alarm will be triggered.
 - If the impedance does not exceed the threshold the device will return to passive monitoring mode.
- The device will automatically initiate an active test every hour before returning to passive monitoring mode.

Areas of Vulnerability



Faults detected – Distribution Neutral

Broken Neutral



Heat damage to line tap connector



Heat damage to piercing connector

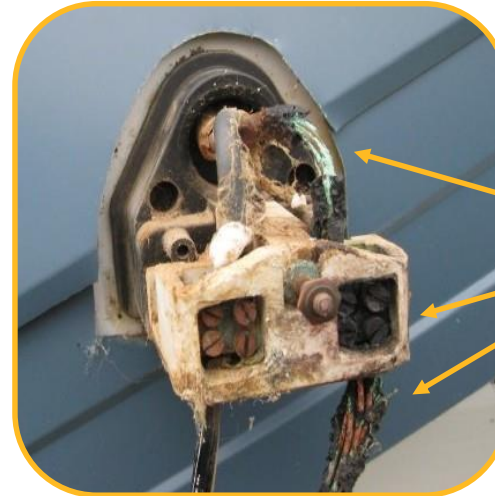


Heat damage to neutral conductor in customer's mains box

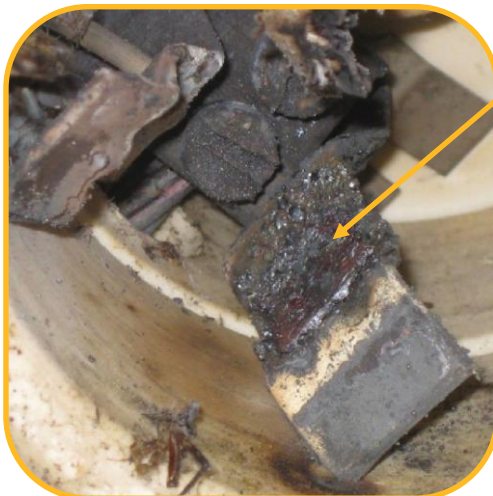
Faults detected – Distribution Active



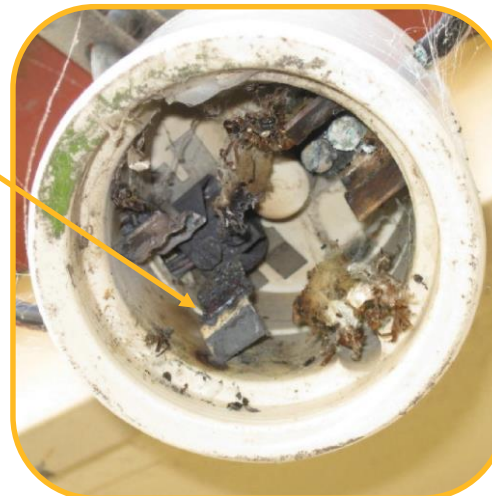
Transformer Fuse



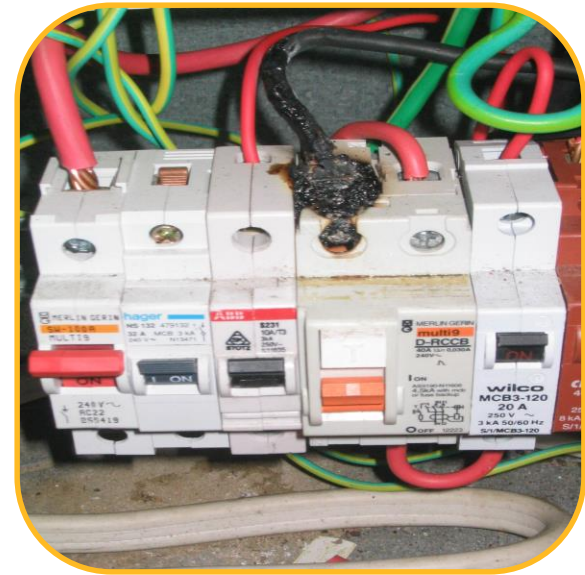
Heat damage to active conductor



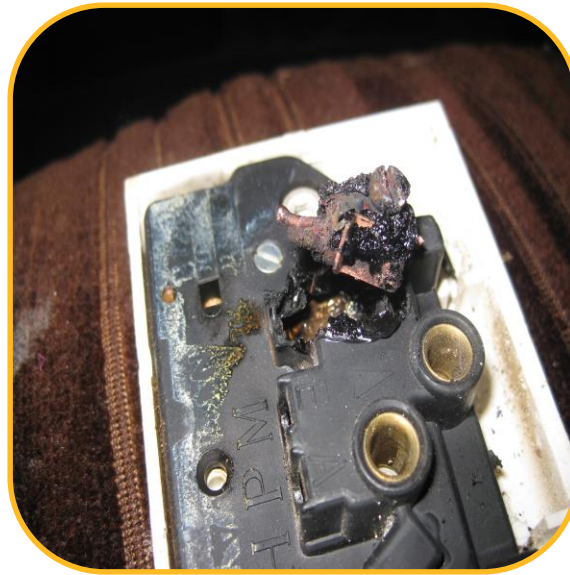
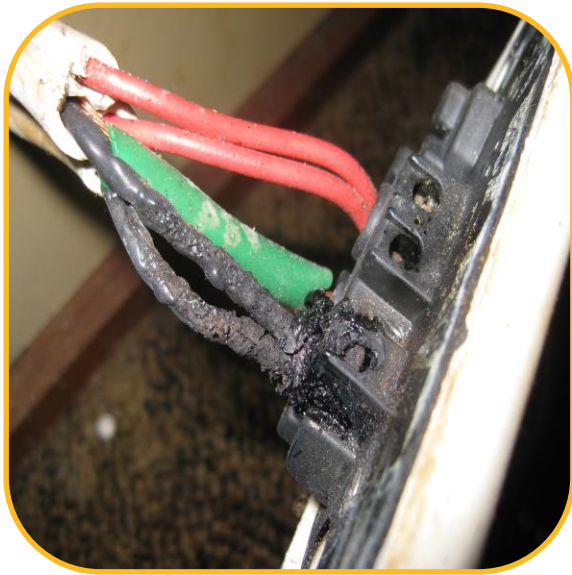
Burnt & damaged fuse fitting



Faults detected – Switchboards



Faults detected – GPO's



Summary

- The CablePI device has been delivered to over 230,000 Tasmanian homes and small businesses.
- This has resulted in numerous faults detected, including a large number of potentially dangerous broken neutrals.
- When working in a customers home ask them if their CablePI is plugged in and switched on.
- If they don't have a CablePI they can easily order a free one by either calling 132 004 or through the TasNetworks website

Questions??

