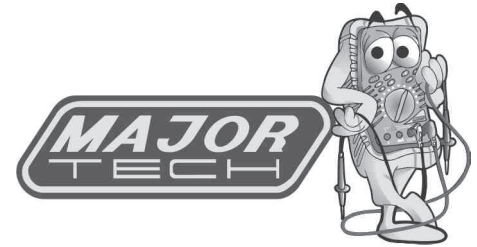


# MT120 Dead Circuit Finder Instruction Manual



## **IMPORTANT**

Although the MT120 is easy to use it do require the user to have sufficient knowledge of electrical supplies to be able to identify the difference between LIVE (energised) and DEAD (unenergised) cabling. If in any doubt please seek guidance or consult a qualified electrician. This product is intended for use on Dead circuits only. DO NOT connect to a live supply.

## **APPLICATIONS**

Your MT120 is intended for use on DEAD CIRCUITS ONLY. For work on tracing live circuits the Major Tech range of Fuse finder product is available. The MT120 can be used for

- Fuse finding - find which MCB or fuse is feeding the dead circuit
- Wire tracing – trace wires through floors and walls
- Wire picking – pick the correct wire from a bundle or loom
- Wire break detection – locate a break in a wire
- Circuit identification - find a circuit by identifying the individual conductor

## **PRINCIPLES OF OPERATION**

Both the transmitter and receiver are powered by a 9v battery (MN1604 or equivalent).

The transmitter (MT 120TX) injects a safe low voltage signal into the cable under test. One of the test leads is 'earthy' (green) and the other is 'hot' (red). The receiver (MT 120RX) picks up the encoded signal and automatically adjusts its sensitivity to the strength of the signal being received to eliminate 'false' signals. The tracing signal is indicated in the form of a variable LED bar graph with an increasing/decreasing tone according to the strength of the signal received.

## **BEFORE USE**

Both the transmitter and receiver must be fitted with an MN1604 or equivalent 9v battery (not supplied) before use.

Transmitter- Always ensure that the leads are disconnected before opening the transmitter. To gain access to the battery compartment remove the four screws that secure the back of the transmitter case. Fit the battery into the rectangular bay with the foam pad at the base of the battery. The moulding will only allow the battery to be fitted in the correct orientation. To avoid any risk of static damage to components please take care not to touch any of the components on the circuit board whilst the case is open. Re-fit the back cover.

Receiver- Unscrew the battery cover, fit the battery and replace the cover.

## **OPERATION**

Before connecting the MT120 to any conductor ALWAYS check with a voltage indicator such as the Major Tech MT 401 that the circuit is DEAD.

Best results will be obtained if the circuit you are tracing is not in close proximity to live circuits. Therefore where possible make all circuits are DEAD (at the Mains Switch) to concentrate the signal on the circuit you are tracing.

The user is the return signal path for the receiver so at all times keep your hold on the receiver consistent. If you change your grip on the receiver you change the signal so be consistent in the way you hold the receiver. For the same reason if the signal trace is weak it can be improved if you increase your own 'grounding' by for instance touching a nearby wall with your other hand. All of this will be built up with your experience of using your Major Tech MT120 Dead Circuit Finder.

The most important part of setting up the transmitter for use is to ensure that the Green crocodile clip is connected to as good an earth as possible. Bear in mind that if you are trying to trace a Live or Neutral conductor that is disconnected there will be a good chance that the accompanying earth wire will also be disconnected and will be incapable of providing the Earth needed for the Green test lead of the MT120 to give you the best performance.

The ability of the tester to discriminate between the conductor you are trying to trace and others will be best improved by a good Earth for the Green crocodile clip regardless of where it is connected. There is no advantage in using the Earth conductor of a twin and Earth cable that you are tracing over any other Earth.

Switch on the transmitter and bring the nozzle of the receiver towards the crocodile clips, gain the 'feel' and sound of the signal being received. Above all get experience of using the receiver **RESET** function. Resetting the receiver can be done at any time by briefly pushing the receiver ON/OFF button.

## **FUSE FINDING**

Open all Breakers/Fuses even if dead or otherwise all circuits will have a signal on them. If you are familiar with live circuit fuse finders the principles are similar but it is worth experimenting with the position of the MT120RX sensor tip relative to the breaker as it is different to live circuit fuse finding.

## **CABLE TRACING**

Move the receiver slowly to 'scan' and trace the circuit under test. In ideal conditions the receiver can trace a signal up to half a metre away but the effects of wood, plaster (especially if damp) or screened plasterboard will reduce the signal (an earthed metal conduit may shield it completely).

## **CABLE SORTING**

To trace individual cables in a multi conductor situation **TOTALLY AVOID TOUCHING ANY OTHER WIRES EVEN OUTER SHEATHS WITH YOUR OTHER HAND** as this will effectively short out the signal you are tracing.

In any situation where there are multiple conductors optimum results will be obtained by grounding or earthing all other conductors except the circuit under test. **IT IS ESSENTIAL TO ENSURE THAT ALL CONDUCTORS ARE DEAD BEFORE DOING THIS.**

## **FINDING A BREAK IN A CABLE**

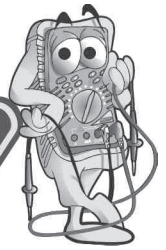
Again avoid holding or touching the cable with your other hand. Trace the cable slowly and at the point the signal falls off you are within about 0.5 metres of the break (or more likely the disconnection).

## **PRODUCT IMPROVEMENT**

We welcome comments on improving our product so please write to us at Major Tech PTY Ltd,  
PO Box 888 Isando 1600  
Fax us on +27 (0) 11 822 2806 or  
Email us on [sales@major-tech.com](mailto:sales@major-tech.com)

# MT120 Dead Circuit Finder Instruction Manual

continued



## Transmitter functions

Power on button – Short press to turn unit on. Long press to turn unit off.

When connecting the transmitter to a conductor check the colour of the 'POWER ON' LED.

Green = Everything good

Red = Hazard. The leads have been connected to the mains or a conductor with voltage on it. Remove the leads and check the voltage with a voltage indicator and ensure conductor is dead before re-testing.

Orange = Short circuit. The Red & Green leads are connected to the same circuit. Remove Green lead and attach to Earth or Neutral

Flashing = Low battery

Auto shut off after 30 mins. Battery life (9v MN 1604 or similar) approx. 60 hours.

## Receiver functions

Short press to turn on – short press (when operating) to reset memory

Long press to turn off

Bar graph – Peak tracking with bar graph

Flashing – Low battery

Beeper – Relative (peak tracked) strength is indicated just like a Fusefinder; continuous tone = strongest signal since reset; intermittent beep = weak compared with peak signal

Absolute strength indicated by pitch (tone), higher = stronger

At power up or reset, Tracer waits for a signal to wake up, this stops it being loud & annoying when doing nothing.

Auto shut-off after 3 mins. Battery life (9v MN 1604 or similar)

## Self test

Put the transmitter on the bench with both wires separated. Hold the tracer and switch on. Tracing either wire should indicate well (as they are both giving a signal).

## Cleaning

To clean the transmitter and receiver wipe with a moist cloth wetted with a mild soap. Do not use detergent. Take care not to allow water into the unit.

This instrument is CE marked

This unit is double insulated

For a more comprehensive catalogue with all Major Tech's test instrumentation register your details including full address to

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