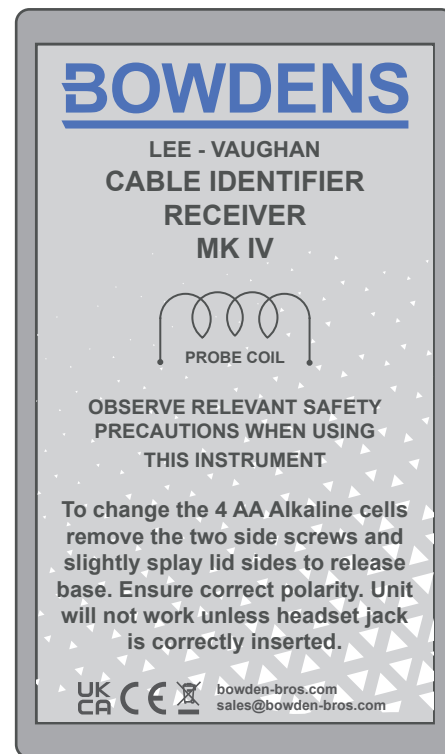
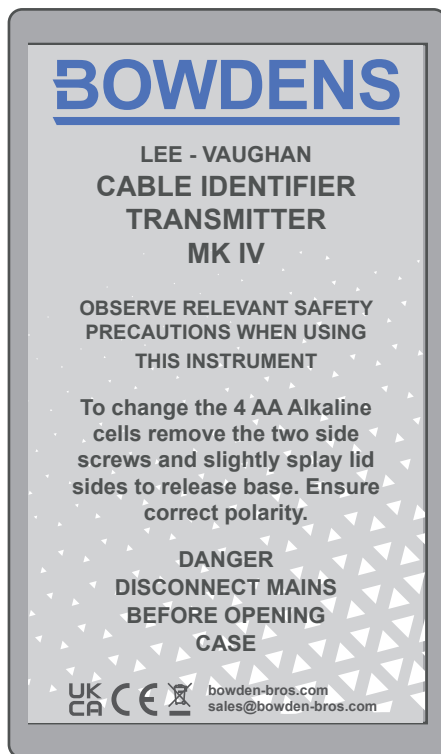


BOWDENS

LEE VAUGHAN CABLE IDENTIFIER MK IV



**A CABLE IDENTIFIER FOR USE BY
ELECTRICITY DISTRIBUTION ENGINEERS**

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1.0 OVERVIEW

The MKIV Lee Vaughan Cable Identifier will give an accurate and positive identification of high voltage power cables prior to spiking or commencing work. The MKIV is particularly beneficial in situations where one of several cables in a trench needs to be identified. It has been developed for use by electricity distribution system engineers and complies with relevant CE legislation. The MKIV visually and audibly identifies from the rise and fall of an induced signal due to the 'lay' of the cable cores. It is conveniently housed in a fitted carry case and consists of a transmitter and receiver, each powered by four AA battery cells.

The MKIV consists of a sturdy plastic carrying case, foam-fitted to house the transmitter, receiver, headset and connecting cable with clips. The transmitter is in a strong plastic case with spring loaded output connection terminals. The transmitter emits an interrupted signal that when fed into the cable, can be picked up by the receiver at the identification point. When the unit is in operation, a red LED flashes at the interrupt frequency.

The receiver is housed in a similar case to the transmitter and requires the same type of battery. It contains a coil for signal pickup and an amplifier with gain control for the meter and headset. To help conserve the battery life, an interlock is arranged to disconnect the battery when the headset plug is removed from its socket.

WARNING: The cable to be identified must be de-energised and discharged.

2.0 OPERATION

TRANSMITTER SET UP

Two cores of the cable at the remote end must be shorted together, and the transmitter connected to the same two cores at the supply end using the cable connectors supplied. The transmitter should be switched on and observe the LED flashing approx twice per second. Plug in the headphones to the receiver (the unit will not function without the jack plug engaged) and rotate the volume control. On approaching the transmitter, the characteristic 'Bleep Bleep' will be heard and the meter will respond at the same frequency. Connect the test lead to the transmitter terminals and short the crocodile clips together, the signal from the receiver heard in the headphones should increase. Follow the instructions in the case but if in doubt, change the batteries.

TRANSMITTER POWER

The MKIV has only one fixed transmitter power. This is adequate for most cable identification situations.

CAUTION: The Electricity Supply Safety Rules should be observed when using this instrument.

RECEIVER SET UP

Plug the headphones into the top jack plug, next to the On/Off volume knob. The receiver will not turn on unless the headphones are plugged in. The receiver can be checked by approaching the transmitter and the signal will be heard.

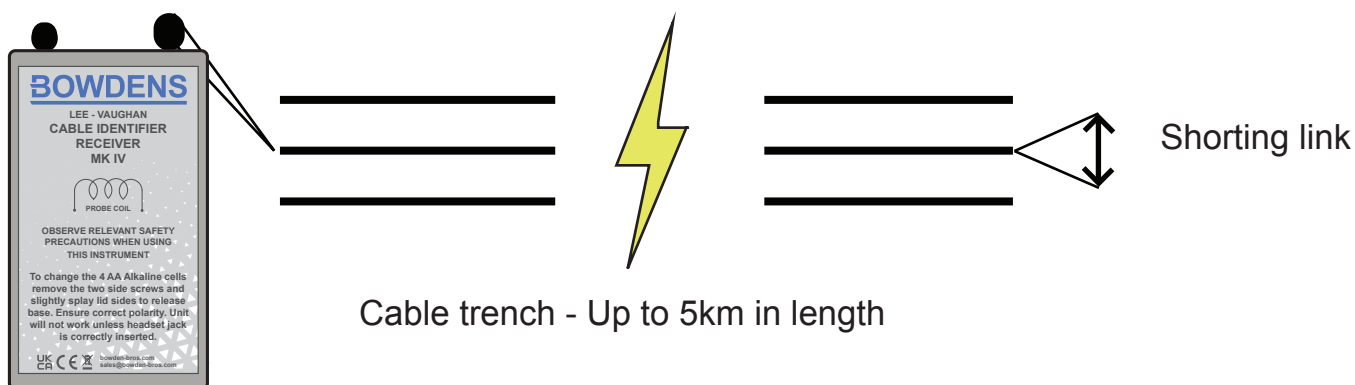
At the point of identification, the volume control can be set to maximise the signal reception. The receiver being held at right angles to the cable, traverse the cable up and down over a length of approximately one metre, and listen to the rise and fall of the signal due to the 'lay' effect of the cores which are twisted over each other. The effect can also be observed on the receiver meter.

For a positive identification of the target cable, the rise and fall must be experienced. Some induced pick up may appear in adjacent cables, but although detectable by the receiver, will not exhibit the rise and fall characteristics. Following identification, when the headphones jack plug is removed, the receiver is automatically switched off. The transmitter must be turned off before storing back in the case.



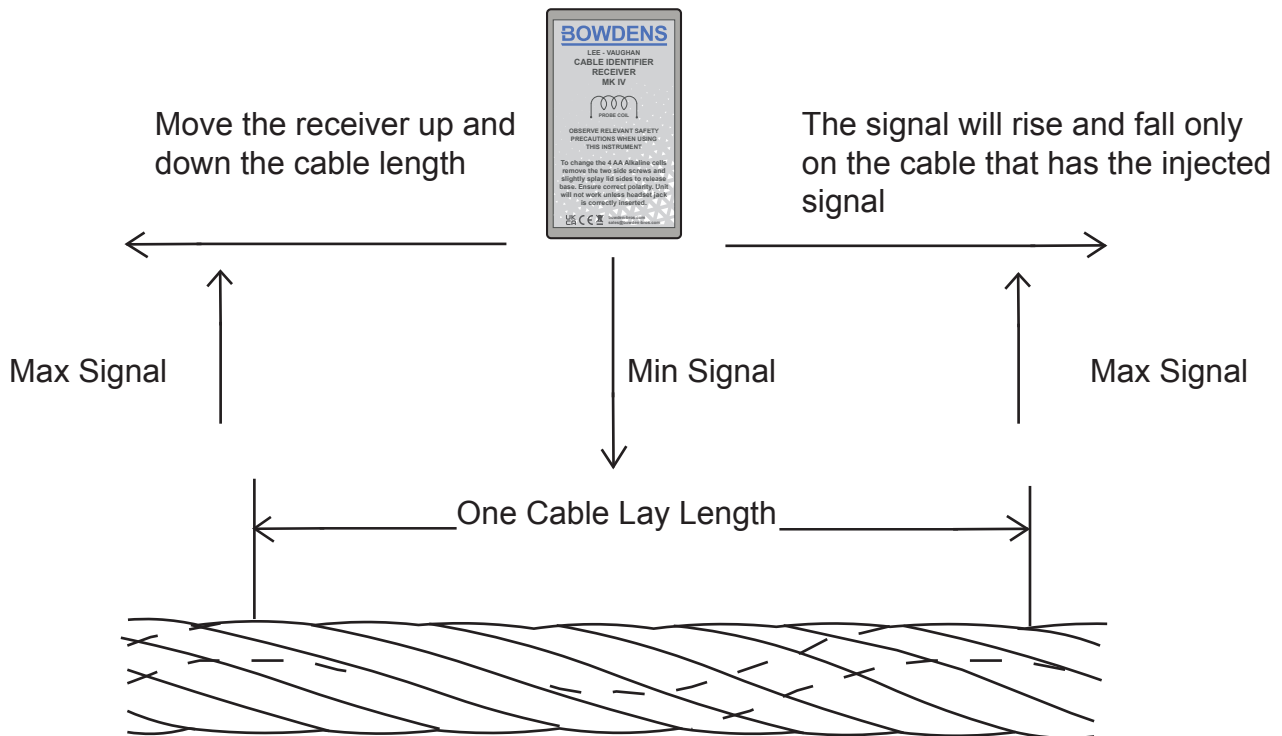
Substation
or source

Remote end
of cable



Three HV or LV cables lay in a trench. The middle cable is the target cable to be identified. Firstly the cable must be made dead, and discharged from capacitive charge. The transmitter is connected to two cores of the cable at the substation or source end of the cable. The same two cores must be shorted at the remote end of the cable using the shorting link.

The signal in the headphones will rise and fall with the lay of the cores.



Adjacent cables may pick up a small amount of inducted signal, but the signal will not rise and fall, this will only happen with the target cable to which the transmitter is connected.



3.0 POWER SUPPLY

Batteries must be fitted to both the transmitter and receiver before use. For either unit remove the two nylon thumbscrews and gently splay the box lid one side at a time to release the box base. Carefully insert four new 'AA' size cells (not supplied) into each unit observing the correct polarity.

4.0 SPECIFICATION

TECHNICAL DATA

Transmitter I Receiver: 175 x 90 x 45mm

Carrying Case: 360 x 270 x 90mm

Weight including carry case and batteries: 1.7 kg

TRANSMITTER

Power Source: 4 x AA Standard alkaline Batteries

Battery Test: LED indication for loaded battery

Tone Frequency: 1.4kHz

Tone Style: Modulated or Continuous

Power Output

At 1 Ω impedance: 8.0 V rms at 18.0 mA

At 10 Ω impedance: 2.59 V rms at 17.0 mA

Typical Cable Lengths: up to 5 km (depending upon impedance)

RECEIVER

Power Source: 4 x AA standard alkaline batteries

Pick up Coil: Fixed within body of receiver

Volume Switch: To maximise the pick up signal

Visual Indicator: Simple centre biased meter to detect rise and fall of signal

Headphones: Mono 64 Ω with jack plug

Auto-power Down: On removal of headphones

ANCILLARY

Connection Cable: 1.2m with heavy duty crocodile clips

Specification subject to change without notice

VERSION 2.0

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