LanCaster

Structured Cable Tester & Troubleshooter

Operating Instructions

Manufactured in the UK by:-

BI Communications Plc
Unit 7, Buckwins Square,
Burnt Mills Industrial Estate,
Basildon, Essex, SS13 1BJ
Tel:- +44 (0) 1268 729393
Fax:- +44 (0) 1268 727987
Email:- sales@bicommunications.com
Web:- www.bicommunications.com

BI Communications
Innovation through Technology

Safety Warnings

This instrument meets the safety requirements of IEC61010-1:1995. It is designed for use on de-energised circuits only. Connection to mains supply voltages will result in damage to the instrument and/or present a hazard to the operator. The user must assume responsibility for ensuring his or her own safety. The instrument is protected against connection to telecom network voltages according to BS/EN61326-1.

Warning

Only use the unit with non-energised or de-energised and suitably isolated circuits. Connection to mains supply will damage the instrument and could be hazardous to the user.

If the instrument is not used in the manner specified in this manual the protection provided by this equipment may be impaired.

Symbols used on the Instrument

Caution: Refer to accompanying notes

CE Equipment complies with current EU directives

Repair and Warranty

The instrument contains static sensitive devices and is not user serviceable. If an instrument fails, or its protection has been impaired, it should not be used but sent for repair by suitably trained and qualified personnel.

New instruments are guaranteed against breakdown due to manufacturing or component defects for 12 months after the purchase date by the user.

Note: Any unauthorised prior repair or adjustment to the instrument will automatically invalidate the warranty.

9. Specifications

Cable Types	UTP & STP
Faults Indicated	Short Circuit Pair Open Circuit Wire Short Between Pairs Split / Cross Pairs Pair Reversals Shield Continuity
Fault Location	Near or Remote End
Wiring Schemes	TIA568A/B, USOC & ISDN
Service Indication	Telephone, 10 base T, 100Mbit, Token Ring
Tone Generator	Oscillating 810 / 1110Hz
Length Measurement	0 - 150m or 500ft
Battery Life Indication	0 to 100%
Main Unit Display	Dot Matrix LCD
Remote Unit Display	Green/Red LED
Power Supply	6V 4 x AA cells
Battery Life	100+ hrs Continuous use
Auto Shut Down	Operates after 4 minutes
Operating Temperature	0 to 40 deg.C
Storage Temperature	-20 to 70 deg.C
Weight	350gms (12oz)
Dimensions	165 x 90 x 37mm
Safety	IEC61010-1
EMC	EN50081 / 50082

Standards

Safety: IEC61010-1:1995
EMC: EN50081 and EN50082 Light industrial

ESD	IEC1000-4-2	Cat A Pass
EM	IEC1000-4-3	Cat A Pass
Burst	IEC1000-4-4	Cat A Pass
Surge	IEC1000-4-5	Cat A Pass
Conducted RF	IEC1000-4-6	Cat A Pass

Contents

1. Product Introduction

The LanCaster™ is a handheld structured cabling tester and troubleshooter designed for use on UTP and STP cabling fitted with RJ45 connectors and wired to either TIA568A/B, USOC or ISDN specifications.

The LanCaster™ Consists of a main unit and an active remote unit / office identifier.

The LanCaster™ detects open circuit pairs, shorts, crossed wires, screen faults (where relevant) and split pairs.

Using **EDT**™ End Discrimination Technology it will also, in the case of opens and shorts, indicate whether the fault is at the near or remote end of the cable.

The LanCaster™ has the ability to indicate the length of the cable under test, using a Velocity of Propagation figure (Vp) set by the user.

The LanCaster™ incorporates a "warble" mode generating a tone which can be traced down the cable with a conventional tone probe.

The LanCaster™ also has the ability to identify telephone and data lines. If the main unit is plugged into an operational RJ45 socket it will give a continuous warning tone and appropriate display if telephone voltage is present. If the service detect key is pressed it will give a display distinguishing 10base-T, Token Ring and 100Mbit connections.

1. Getting Started

The main unit is switched on and off using the key. When the unit is first turned on it will display the opening screen giving the software version and also the remaining battery capacity.

An auto shutdown feature turns the unit off automatically four minutes after the last key press in case the operator forgets, and in order to preserve battery life.

7. Tone Generator

Press the key to inject a warbling tone into the cable or link under test.

The injected signal oscillates between 810Hz and 1110Hz six times per second.

This signal can be detected with a conventional inductive tone probe and enables cable tracing and identification.

The auto-shutdown facility is disabled in Tone Generator mode so that the tone may be injected into a cable for an extended period of time while tracing takes place.

To exit Tone Generator mode press any key.

8. Battery Replacement

The LanCaster™ is powered by 4 x 1.5v AA cells which are provided. Alkaline replacement cells are essential to ensure instrument performance.

Remaining battery capacity is indicated on a “fuel gauge” display when the instrument is switched on and also when in set-up mode.

To replace the battery cells first switch off the product and disconnect from any cables or network links, then remove the battery compartment cover by loosening the 2 fixing screws.

6. Length Measurement

The remote unit does not need to be attached for this test to be performed but any resistive terminators on ISDN wiring or sockets should be switched out of the circuit or disconnected.

Attach the main unit to one end of the cable and press the **L** key.

The display will read

Test in Progress

followed by the test result. A typical test result would be:

Length 26.5m
Vp=70%

Length will be displayed in the selected units and the Vp setting is displayed for confirmation.

Cables less than 2m or 6ft long will be indicated as <6ft or <2m depending on the units of measurement selected.

The maximum measurable length is 150m or 500ft.

Length measurement accuracy depends on the correct setting of Vp (Velocity or propagation) for the cable under test. See section 2 of this user guide for details.

If the Vp is not known for a particular cable then a known length of that cable (at least 20m or 60ft long) may be connected to the instrument and the Vp adjusted until the correct length reading is obtained.

2. Cable / Network Type & Units Selection

Hold down the key and at the same time press the key. After releasing both keys the display will show :-

>STP TIA 568A/B
Vp=70%

Press the **S** and **L** keys to scroll through the wiring schemes.

UTP TIA 568A/B
STP TIA 568A/B
UTP USOC
STP USOC
ISDN

To select the cable Vp (Velocity of Propagation) press .

>Vp=70%
Metres

Press the **S** and **L** keys to change the value of Vp.

To select the units of measurement press .

>Metres
Battery 91%

To toggle between feet and metres press the **S** and **L** keys.

The lower line shows the remaining battery capacity.

To exit set-up mode at any time press .

The display will revert to the start up screen.

3. TNV (Telecom Network Voltage) Warning

Plug the main unit into the port to be tested via a short patch lead. If a Telecom Network Voltage is present the unit will immediately display:

Telephone

and give a continuous audible warning.

The unit should immediately be disconnected and testing ceased since it is not designed to test on live networks.

4. Service Detection

To detect data ports press the **S** key. The display will show the type of data connection or service present.

No Services	10 Base T
100 Mbit	Token Ring
or	Unknown

5. General Operation

Attach the main unit to one end of the cable, the remote unit to the other end, and press the ● key. The display will read

Test in Progress

followed by the test result. A typical test pass would be:

STP TIA 568A/B
PASS Ident-1

Note When testing ISDN wiring any resistive terminators should be switched out of the circuit or disconnected. Failure to do so could lead to erroneous test results

The cable scheme is confirmed along with the identification number for the remote unit at the far end.

A test pass is also confirmed by a double beep on the main unit and a double green flash on the remote LED.

If a fault is found an appropriate message will be displayed, along with a warning tone on the main unit, and a red flashing LED on the remote unit.

In the event of an open or short circuit fault the main unit will also indicate at which end the fault lies reducing the time taken to locate and repair the problem.

Examples of typical fault messages are:

Open Near End
Pin 3

Short Remote
Pin 1 2

Crossed Wires
Pin 3 6

Split Pair
Pin 1 2 3 6

Missing
Remote Unit

Open Near
End Screen

Open Remote
Screen