AMPROBE®

LP10B LP25B
Logic Probes

User Manual

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PN 1566429

Limited Warranty and Limitation of Liability

Your Amprobe product will be free from defects in material and workmanship for 1 year from the date of purchase. This warranty does not cover fuses, disposable batteries or damage from accident, neglect, misuse, alteration, contamination, or abnormal conditions of operation or handling. Resellers are not authorized to extend any other warranty on Amprobe's behalf. To obtain service during the warranty period, return the product with proof of purchase to an authorized Amprobe Test Tools Service Center or to an Amprobe dealer or distributor. See Repair Section for details. THIS WARRANTY IS YOUR ONLY REMEDY. ALL OTHER WARRANTIES - WHETHER EXPRESS, IMPLIED OR STAUTORY - INCLUDING IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, ARE HEREBY DISCLAIMED. MANUFACTURER SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, ARISING FROM ANY CAUSE OR THEORY. Since some states or countries do not allow the exclusion or limitation of an implied warranty or of incidental or consequential damages, this limitation of liability may not apply to you.

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Symbols

	Battery		Refer to the manual		Double insulated
	Earth ground		Complies with EU directives		Audible tone
	Conforms to relevant Australian standards				

Certifications and Precautions

This instrument is EMC/EMI certified. All inputs are protected against continuous overload conditions up to the limits of each function's stated input protection (see specifications). Never exceed these limits or the ratings marked on the instrument itself. Always inspect your Logic Probe, test leads and accessories for signs of damage or abnormality before every use. If an abnormal condition exists (broken or damaged test leads, cracked case, display not reading, etc.), do not use. Never ground yourself when taking measurements. Do not touch exposed metal pipes, outlets, fixtures, etc., which might be at ground potential. Keep your body isolated from ground and never touch exposed wiring, connections, test probe tips, or any live circuit conductors. Do not operate instrument in an explosive atmosphere (flammable gases, fumes, vapor, dust.) Do not use this or any piece of test equipment without proper training.

⚠ **CAUTION: To avoid damaging the instrument, do not use it in a place where ambient temperature exceeds 40°C.**

⚠ **CAUTION: To avoid damaging the instrument, do not input more than 40 VAC or VDC.**

Preparation For Use – Unpacking

Your shipping carton should include the Logic Probe with 0.5 meter long cable with a mini-alligator clip for the ground connection and a mini-grabber for the Vcc connection and this manual. If any of the items are damaged or missing, immediately return the complete package to the place of purchase for an exchange.

Introduction

The LP10B and LP25B Logic Probes are logic troubleshooting instruments that give visual (LED's) and audio indications (LP25B only) of logic levels and pulses. They will also capture positive or negative events as short as 30 nanoseconds. The probe is powered by the circuit under test.

Control Descriptions

TTL/CMOS – set for logic family of the circuit under test.

PULSE/MEM

PULSE – normal operation mode for pulse or level detection.

MEM – pulse capture or memory.

Operation

Setup

Connect the black alligator clip to ground or common of the circuit under test. Connect the red mini-hook clip to Vcc of the circuit under test.

Select TTL or CMOS with the TTL/CMOS switch depending upon the type of logic being tested. TTL level is nominal 0 to 5 VDC and CMOS levels are 0 to 5 – 15 VDC. The PULSE/MEM switch should be in PULSE for Pulse or Logic level testing.

Using the Logic Probe

Touch the LP10B or LP25B probe tip to the circuit point under test. The probes LED's indicate the logic level or signals present when the circuit node is probed. The LED's response is noted on pages 7 and 8.

Maintenance

If there appears to be a malfunction during the operation of the Logic Probe, the following steps should be performed in order to isolate the cause of the problem:

1. Review the operating instructions for possible mistakes in operating procedure.
2. Inspect and test the Test Cables for a broken or intermittent connection.

Any repair of the Logic Probe should be performed only by a Factory Authorized Service Center or by other qualified instrument service personnel. The probe case can be cleaned with a mild solution of detergent and water. Apply sparingly with a soft cloth and allow the Logic Probe to dry completely before using. Do not use aromatic hydrocarbons or chlorinated solvents for cleaning.

Repair

All test tools returned for warranty or non-warranty repair or for calibration should be accompanied by the following: your name, company's name, address, telephone number, and proof of purchase. Additionally, please include a brief description of the problem or the service requested and include the test leads with the meter. Non-warranty repair or replacement charges should be remitted in the form of a check, a money order, credit card with expiration date, or a purchase order made payable to Amprobe® Test Tools.

In-Warranty Repairs and Replacement – All Countries

Please read the warranty statement and check your battery before requesting repair. During the warranty period any defective test tool can be returned to your Amprobe® Test Tools distributor for an exchange for the same or like product. Please check the "Where to Buy" section on www.amprobe.com for a list of distributors near you. Additionally, in the United States and Canada In-Warranty repair and replacement units can also be sent to a Amprobe® Test Tools Service Center (see next page for address).

Non-Warranty Repairs and Replacement – US and Canada

Non-warranty repairs in the United States and Canada should be sent to a Amprobe® Test Tools Service Center. Call Amprobe® Test Tools or inquire at your point of purchase for current repair and replacement rates.

In USA
Amprobe Test Tools
Everett, WA 98203
Tel: 877-AMPROBE (267-7623)
Fax: 425-446-6390

In Canada
Amprobe Test Tools
Mississauga, ON L4Z 1X9
Tel: 905-890-7600
Fax: 905-890-6866

Non-Warranty Repairs and Replacement – Europe

European non-warranty units can be replaced by your Amprobe® Test Tools distributor for a nominal charge. Please check the “Where to Buy” section on www.amprobe.com for a list of distributors near you.

European Correspondence Address*
Amprobe® Test Tools Europe
In den Engematten 14
79286 Glottertal, Germany
Tel.: +49 (0) 7684 8009 - 0

*(Correspondence only – no repair or replacement available from this address. European customers please contact your distributor.)

Specifications

Input signal	Levels	LED's	BEEPER(LP25B)
Logic "1"	TTL: > 2.3 V ± 0.2 VDC	HI (Red) ON	Fixed Tone
	CMOS: >70 % Vcc ± 10%	HI (Red) ON	
Logic "0"	TTL: < 0.8 V ± 0.2 VDC	LO (Green) ON	Fixed Tone
	CMOS: <30 % Vcc ± 10%	LO (Green) ON	
Bad Logic Level or Open circuit		none	No Tone

Input signal	Levels	LED's	BEEPER(LP25B)
Square Wave	< 200 Hz	HI and LO blinking at frequency rate	Variable Tone at frequency rate
Square Wave	> 200 Hz	HI and LO may or may not be ON	Variable Tone at frequency rate
Narrow Hi Pulse Low with POS pulse		LO (Green) blinking intensity depends on pulse duty cycle	Variable Tone at frequency rate
Narrow Lo Pulse High with NEG pulse		HI (Red) blinking intensity depends on pulse duty cycle	Variable Tone at frequency rate

PULSE/MEMory

PULSE uses the pulse detection modes listed above.
MEM allows the probe to capture a positive or negative pulse.
The YELLOW LED will come ON and stay ON until switch is reset to PULSE.
See page 11 for specifications.

Electrical Specifications:

	LP10B	LP25B
Power Supply	5 - 15 VDC	5 - 15 VDC
Power Supply Current @ 5V	30 mA	40 mA
@ 15 V	80 mA	90 mA
Power Supply Protection	20 VAC/VDC	20 VAC/VDC
Maximum Input voltage (15 seconds)	40 VAC/VDC	40 VAC/VDC
Size	210(8.2) x 18(0.7) x 18(0.7) mm (in.)	
Weight	38.1(1.3)	42.6(1.5) gm(oz)
TTL/CMOS selectable	yes	yes
Maximum Input Signal Frequency	20 MHz	20 MHz

Minimum Detectable Pulse Width

Frequency	1 kHz	1 to 20 kHz	20 kHz to 20 MHz
Minimum Pulse width	100 ns	50 ns	30ns
Pulse amplitude + 3 V			

	LP10B	**LP25B**
Input Impedance	1 MΩ	1 MΩ
Pulse Indicator Flash Time	500 mS	500 mS
Audible tone at pulse rate	no	yes

Operating Temperature	0 °C to 50 °C at 80 % R.H.
Storage Temperature	-20 °C to 65 °C at 75 % R.H.

CE

Safety: This instrument is intended for use below the Low Voltage Directive, thus is considered exempt from EN61010-1:12001.

EMC: This product complies with requirements of the following European Community Directives: 89/336/EEC (Electromagnetic Compatibility) and 73/23/EEC (Low Voltage) as amended by 93/68/EEC (CE Marking). However, electrical noise or intense electromagnetic fields in the vicinity of the equipment may disturb the measurement circuit. Measuring instruments will also respond to unwanted signals that may be present within the measurement circuit. Users should exercise care and take appropriate precautions to avoid misleading results when making measurements in the presence of electronic interference.

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