WAVETEK®

Meterman™

Operator's Manual

LP10A/LP25A
Digital Multimeter

Logic Probes

WARRANTY

The LP10A and LP25A Logic Probes are warranted against any defects of material or workmanship within a period of one (1) year following the date of purchase of the Logic Probe by the original purchaser or original user. Any Logic Probe claimed to be defective during the warranty period should be returned with proof of purchase to an authorized Wavetek Meterman Service Center or to the local Wavetek Meterman dealer or distributor where your Logic Probe was purchased. See maintenance section for details. Any implied warranties arising out of the sale of a Wavetek Meterman Logic Probe, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited in duration to the above stated one (1) year period. Wavetek Meterman shall not be liable for loss of use of the Logic Probe or other incidental or consequential damages, expenses, or economical loss or for any claim or claims for such damage, expenses or economical loss. Some states do not allow limitations on how long implied warranties last or the exclusion or limitation of incidental or consequential damages,

so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

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.

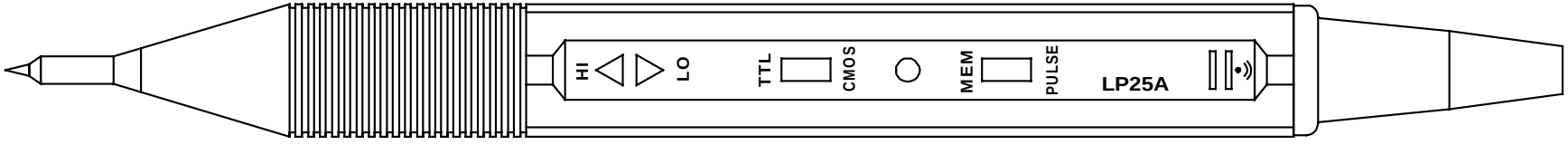
PREPARATION FOR USE – UNPACKING

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.

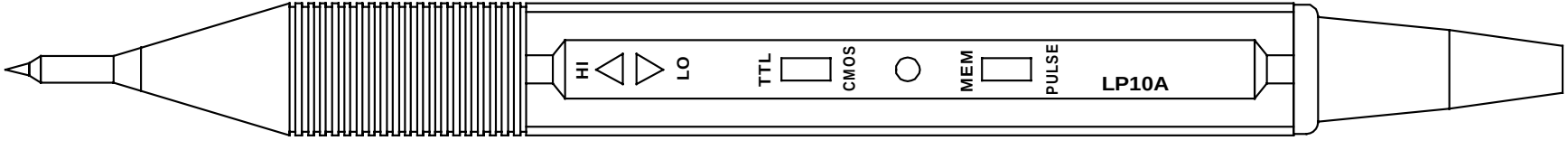
INTRODUCTION

The LP10A and LP25A Logic Probes are logic troubleshooting instruments that give visual (LED's) and audio indications (LP25A 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.

LP25A



LP10A



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 LP10A or LP25A 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 page 11.

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:
①Review 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

Read the warranty located at the front of this manual before requesting warranty or non-warranty repairs. For warranty repairs, any probe claimed to be defective can be returned to any Wavetek Meterman authorized distributor or to a Wavetek Meterman Service Center for an over-the-counter exchange for the same or like product. Non-warranty repairs should be sent to a Wavetek Meterman Service Center. Please call Wavetek Meterman or enquire at your point of purchase for the nearest location and current repair rates. All probes returned for warranty or non-warranty repair or for calibration should be accompanied by the following information or items: company name, customer's name, address, telephone number, proof of purchase (warranty repairs), a brief description of the problem or the service requested, and the appropriate service charge (for non-warranty repairs). Please include the test leads with the meter. Service 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 Wavetek Meterman or to the specific service

PEWA
Messtechnik GmbH

Weidenweg 21
58239 Schwerte

Tel.: 02304-96109-0
Fax: 02304-96109-88
E-Mail: info@pewa.de
Homepage : www.pewa .de

SPECIFICATIONS

Input signal	Levels	LED's	BEEPER(LP25A)
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
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

Input signal	Levels	LED's	BEEPER(LP25A)
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 10 for specifications.

Electrical Specifications:

	LP10A	LP25A
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			

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 EN61010-1:1993.
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.