

Logitek



# MON-10

Meter Monitor  
& Switcher

Operation & Service Manual

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# MON-10 INSTRUCTION MANUAL

## Table of Contents

<b>SECTION 1 — GENERAL INFORMATION</b>	
1-1 General Description . . . . .	2
1-2 Physical Description . . . . .	2
1-3 Electrical Specifications . . . . .	2
1-4 Instrument Identification . . . . .	2
1-5 Where to find help . . . . .	2
<b>SECTION 2 — PREPARATION FOR USE</b>	
2-1 Initial Inspection . . . . .	3
2-2 Claims . . . . .	3
2-3 Repacking for Shipment . . . . .	3
2-4 Installation . . . . .	3
2-5 Connecting Inputs and Outputs . . . . .	3
<b>SECTION 3 — OPERATING INSTRUCTIONS</b>	
3-1 Input Selector Pushbuttons . . . . .	4
3-2 SOURCE Switch . . . . .	4
3-3 METER Switch . . . . .	4
3-4 VOLUME Control . . . . .	4
<b>SECTION 4 — PRINCIPLES OF OPERATION</b>	
4-1 General Information . . . . .	5
4-2 Fuse . . . . .	5
4-3 Power Supply . . . . .	5
4-4 Switching and Amplification Circuitry . . . . .	5
<b>SECTION 5 — REPLACEMENT PARTS LIST</b>	
5-1 MON-10 . . . . .	6
<b>SECTION 6 — MANUFACTURERS LIST</b>	
<b>SECTION 7 — DIAGRAMS</b>	

# SECTION 1 — GENERAL INFORMATION

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## 1-1 General Description

The Logitek MON-10 is a mechanical routing switcher, a six-range VU meter and a six-watt amplifier all in one convenient rack-mounted unit.

The MON-10 features ten balanced stereo inputs, any one of which can be selected using front-panel pushbuttons. The selected input is passively fed to balanced output terminals on the rear panel. It is also buffered and fed to a four-position source mode switch. This switch selects whether the meter and monitor will be fed the left channel, the right channel, the mono sum (L+R) or the out-of-phase difference (L-R).

The output of the source mode switch feeds a meter amp, which in turn feeds a built-in VU meter and peak LED. The VU meter can be switched between any of six ranges, as determined by the front panel meter switch. The mode switch also feeds a six-watt monitor amp, which in turn feeds either a built-in speaker, headphones, or an external speaker.

## 1-2 Physical Description

The Logitek MON-10 is constructed within a 3 1/2" H x 19" W X 7" D cabinet, which is designed to take up two rack spaces in a standard 19" equipment rack. The power cord, fuse and all connections except the headphone jack are located on the rear panel. The headphone jack, meter, speaker and all controls are located on the unit's front panel.

## 1-3 Electrical Specifications

### **Number of Inputs:**

10 stereo

### **Input Level:**

normal 0 dBu  
maximum +23 dBu

### **Input Impedance:**

140kohms

### **Line Output Level:**

Line output switching is passive so the output level, impedance and balancing is the same as that of the selected input.

### **Speaker Output Level:**

maximum 6 watts

### **Speaker Output Noise:**

ref. 0 dBu input 60 dBu

### **AC Line Input Voltage:**

50-60 hz 105-129 V  
(optional factory modification for 220-240 VAC)

## 1-4 Instrument Identification

The MON-10 is identified by a model number and a three or four digit serial number. The model number

and serial number appear on a label on the back of the unit near the power cord. All correspondence to your Logitek dealer or to the Logitek factory should refer to the model number and serial number.

## 1-5 Where to find help

Logitek customer service personnel are available to help with any questions, comments or problems you might have with the MON-10, both during and after the warranty period. Our hours of operation are 8AM to 5PM central time. We may be contacted in one of the following ways:

**By Phone: 877-231-5870 (U.S.A. & Canada)**  
or 713-664-4470

**By Fax: 713-664-4479**

**By Email: help@logitekaudio.com**

**By Mail: Logitek Electronic Systems, Inc.**  
5622 Edgemoor Drive  
Houston, TX 77081  
USA

## SECTION 2 — PREPARATION FOR USE

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### 2-1 Initial Inspection

Check the shipping carton carefully for external damage. If the carton shows evidence of abuse, ask the carrier's agent to be present when the unit is unpacked. Carefully unpack the unit to avoid damaging the equipment through the use of careless procedures. Inspect all equipment for damages immediately after unpacking. Bent and broken parts, dents, and scratches should be noted. If damage is found, refer to paragraph 2-2 for recommended claim procedures. Keep all packing material for possible future use.

### 2-2 Claims

If the unit has been damaged, notify the carrier immediately. File a claim with the carrier and advise Logitek of such action to arrange for repair or replacement without waiting for a claim to be settled with the carrier.

### 2-3 Repacking for Shipment

If the unit must be returned to Logitek, attach a letter to it showing the owner's name and address. A description of necessary service should be included in the letter. The original shipping carton and packaging materials should be used for reshipment if possible. Use FRAGILE labels on each surface. Return the unit freight prepaid. Be sure to insure the unit for its full value. The unit will be repaired promptly and returned freight prepaid.

### 2-4 Installation

The MON-10 is designed to be mounted in a standard 19" equipment rack by using the four mounting holes in the corners of the front panel. While flow-through ventilation is not necessary, the unit should not be mounted directly above equipment which produces significant heat, such as equipment using vacuum tubes. The unit should never be operated if the ambient temperature is above 55 degrees C (131 degrees F).

### 2-5 Connecting Inputs and Outputs

All inputs and outputs (except the headphone output) are connected via the barrier strips on the rear panel. These terminals are "wire-capturing", so it is not necessary to attach crimp lugs to each wire before fastening the wire to the terminal. Crimp lugs may be used, however, if desired.

Balanced line-level inputs and the line output should be connected to the terminals as indicated on the rear panel. Unbalanced sources can be fed to the MON-10 by connecting the "hot" lead from the unbalanced source to the "+" input terminal on the MON-10, while connecting the "-" terminal on the MON-10 to the accompanying MON-10 ground terminal.

Unbalanced equipment can be fed from the output of the MON-10 by connecting the "+" terminal on the MON-10 to the "hot" input on the unbalanced equipment, while leaving the "-" terminal on the MON-10 unconnected. Connect the cable shield to the ground side of the input connector on the unbalanced unit. When feeding unbalanced equipment from the output of the MON-10, it is important that the "-" output terminal be left unconnected. Connecting this terminal to ground will not harm the equipment. However, it might cause undesired crosstalk.

Care should be taken to be sure that cable shields are connected to grounded equipment on only one end of the cable. On any cable which connects two pieces of equipment, of which both are grounded, the cable shield must be left unconnected on one end, or poor noise performance may result.

An external speaker may be connected to the SPEAKER OUT terminals on the rear panel. For best performance, be sure that the speaker ground return is connected to the indicated ground terminals on the unit. To use the speaker on the front panel, connect the SPEAKER OUT terminal to the INTERNAL SPEAKER terminal. **DO NOT CONNECT BOTH AN EXTERNAL SPEAKER AND THE INTERNAL SPEAKER AT THE SAME TIME, AS THE AMPLIFIER MAY BE DAMAGED IF YOU DO.**

## **SECTION 3 — OPERATING INSTRUCTIONS**

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### 3-1 Input Selector Pushbuttons

The meter, monitor, and output terminals can be fed from any one of ten different stereo inputs. The input is selected by depressing any of the ten pushbuttons on the front panel. Inputs may be labeled using the removable label strip under the pushbuttons.

### 3-2 SOURCE Switch

The SOURCE switch determines the mode of the signal fed to the meter and monitor, but DOES NOT affect the line output signal. From the stereo input selected on the input selector pushbuttons, the SOURCE switch selects the left channel, the right channel, the mono sum (L+R) or the out-of-phase difference (L-R) signal to feed to the meter and monitor, allowing a visual and aural evaluation of channel balance and source phasing.

### 3-3 METER Switch

The METER switch determines the 100% VU level of the meter. By selecting any of the six positions, the user can measure audio levels over a wide range. The METER switch DOES NOT affect the line output or the speaker and headphone level.

### 3-4 VOLUME Control

This control sets the level fed to the internal speaker, the external speaker and the headphone jack. It DOES NOT affect line output signal or the meter.

# SECTION 4 — PRINCIPLES OF OPERATION

## 4-1 General Information

The MON-10 is designed to need a minimum of maintenance for long trouble-free operation. Should repair be necessary, the technician should first read the information in the manual concerning the circuits in question, and should follow proper procedures for testing and replacing semiconductors. Logitek engineers are readily available at the factory to provide technical assistance both during and after the warranty period.

## 4-2 Fuse

The primary winding of the power transformer is fused with a 1/2 amp slow-blow type 20mm fuse, housed in a fuse holder on the rear panel of the unit. It should only be replaced with fuses of the same type and current rating.

**\*\*\*\*\* IMPORTANT NOTE \*\*\*\*\***

Do *NOT* replace fuses without first disconnecting the amplifier's power cord from the wall socket, as dangerous voltages are present which may cause electrical shock. Always use fuses of the same value and type as specified in this manual. Do *NOT* use fuses of a higher value than those specified, as shock hazard and fire hazard may result.

\*\*\*\*\*

A blown fuse is most often, although not always, a symptom of another failure. Related circuitry should always be carefully examined after any fuse failure, especially if a replacement fuse also blows.

## 4-3 Power Supply

Each MON-10 contains a well-regulated power supply to create necessary operation voltages.

T1 is a center-tapped step-down power transformer which is loaded with a full-wave bridge rectifier, RT1. The DC outputs of RT1 are filtered by capacitors C11 and C12 and fed to two voltage regulators, IC8 and IC7. These regulators provide positive and negative 18 volt outputs which feed the unit's amplifier stages.

## 4-4 Switching and Amplification Circuitry

Input signals to the MON-10 are selected by the input selector pushbuttons S1-S10 and fed directly to the LINE OUT terminals on the unit's rear panel. The left channel of the selected input signal is also fed to IC1b, which isolates the signal and convert it to a single-ended source. The right channel of the selected input signal is similarly fed to IC2a and IC2b, which do the same as IC1a and IC1b.

The single-ended left channel output from IC1b is fed to the "L", "L+R" and "L-R" position on the SOURCE switch, S12a and the "L" position on S12b. The single-ended right channel output from IC12b is fed to the

"R" and "L+R" position on switch S12b and the "R" position on S12a. The right channel signal is also inverted by IC3b and fed to the "L-R" position on switch S12b.

The output of the SOURCE switch S12a is fed through the VOLUME pot R38a and buffer amp IC6 to the J6 HEADPHONE jack tip contact. Likewise, the output of S12b is fed through VOLUME pot R38b and buffer amp IC5 to the J6 HEADPHONE jack ring contact. The output of the J6 tip ring switching contacts are combined by R44 and R45 to form a mono sum and fed through power amp IC9 to the rear panel AMP OUT terminal. This terminal may be connected to an external speaker, or it may be connected to the INTERNAL SPEAKER terminal so that the speaker on the front panel is active.

The output of S12a and S12b are also combined to a mono sum by R32 and R33 and fed to op-amp IC4b, which amplifies the signal and feeds it through the meter trim control R32 to the front-panel VU meter. The gain of IC4a, and thus the calibration of the meter, is set by the resistor selected by the METER switch, S11. The meter may be more precisely trimmed by adjusting R30 for the desired reading.

The output of IC4b also feeds D3, which rectifies the signal and feeds holding capacitor C9, decay time resistor R28, and op-amp IC4a. IC4a works as a comparator, comparing the rectified audio signal of the peak adjust control, R29. When the audio signal exceeds the threshold determined by the setting of R29, IC4a supplies current to turn on the peak led, D1.

## SECTION 5 — REPLACEMENT PARTS LIST

All replacement parts are stocked in depth at the Logitek factory. Most are also available through local electronic parts distributors. For your convenience in purchasing replacement parts locally, we include the following parts list.

All Logitek part numbers consist of a two letter manufacturer code followed by that manufacturer's standard part number for the item. A List of manufacturers, arranged alphabetically by manufacturer code, follows this parts list in Section 7.

All resistors are 1/4 watt, +/- 5% tolerance unless otherwise noted.

SYMBOL	DESCRIPTION	LOGITEK PART NUMBER
5-1	MON-10	
	<b>Capacitors</b>	
C1-4	47uf/10V non-polar electrolytic	NI-UES1A470MPJ
C9	.01uf/16V ceramic	CE-UK16-103
C10	15uf/20V tantalum	SL-TAP156K020CCS
C11	.22uf/50V tantalum	SL-TAP224K050HSB
C12,13	1000uf/35V electrolytic	IL-108TTA035M
C14-18	10uf/25V tantalum	SL-TAP106K025HSB
C19	.33/50V polyester film	IL-33MSS063K
C20	1uf/35V tantalum	SL-TAP105KO35HSB
	<b>Diodes</b>	
D1	Red LED	IE-LL203R
D2,3	Small signal diode	MO-1N4148
D4,5	1A signal diode	MO-1N4001
D6	6.3V zener 1W	MO-1N4735
D7,8	1A signal diode	MO-1N4001
D9	6.3V zener 1W	MO-1N4735
	<b>Fuses</b>	
F1	1/2 amp slow blow, 20mm	LF-239.250
	<b>Integrated Circuits</b>	
IC1-4	Dual bi-fet op-amp	TI-TLO72CP
IC5,6	Dual Quiet op-amp	SG-NE5532N
IC7	-18 volt regulator	TI-uA7918CKK
IC8	+18 volt regulator	TI-uA7818CKK
IC9	Power op-amp	NA-LM1875T
6 pc.	8-pin dip socket	EM-100-083-10-1005
1 pc.	Heat sink - pc mount	AA-5632B
2 pc.	Heat sink - clip	TM-6045B
1 pc.	TO-220 insulator	BQ-K4-54-AC
	<b>Connectors</b>	
J1	6-pin large dip socket	PN-CE156F20-6A
J2,3	6-pin socket	PN-CE100F28-6A
J4,5	3-pin socket	PN-CE100F28-3A
J6	Headphone jack	SW-RN114BPC
J7,10	40-pin socket	PN-050-040-455
J11	3-pin socket	PN-CE100F28-3A
P1	6-pin header large	PN-MFSS156-6A
P2,3	6-pin header	PN-MFSS100-6A
P4,5	3-pin header	PN-MFSS100-3A
P7,10	40-pin header	PN-051-040-153
P11	3-pin header	PN-MFSS100-3A
P14	Power entry module	SR-6200.4115
	<b>Meter</b>	
M1	2 1/2" VU meter	SO-AL29R, B-SCALE
1 pc.	2 1/2" light box	SO-29/LIGHT BOX-12VDC
1 pc.	Light bulb	CM-382



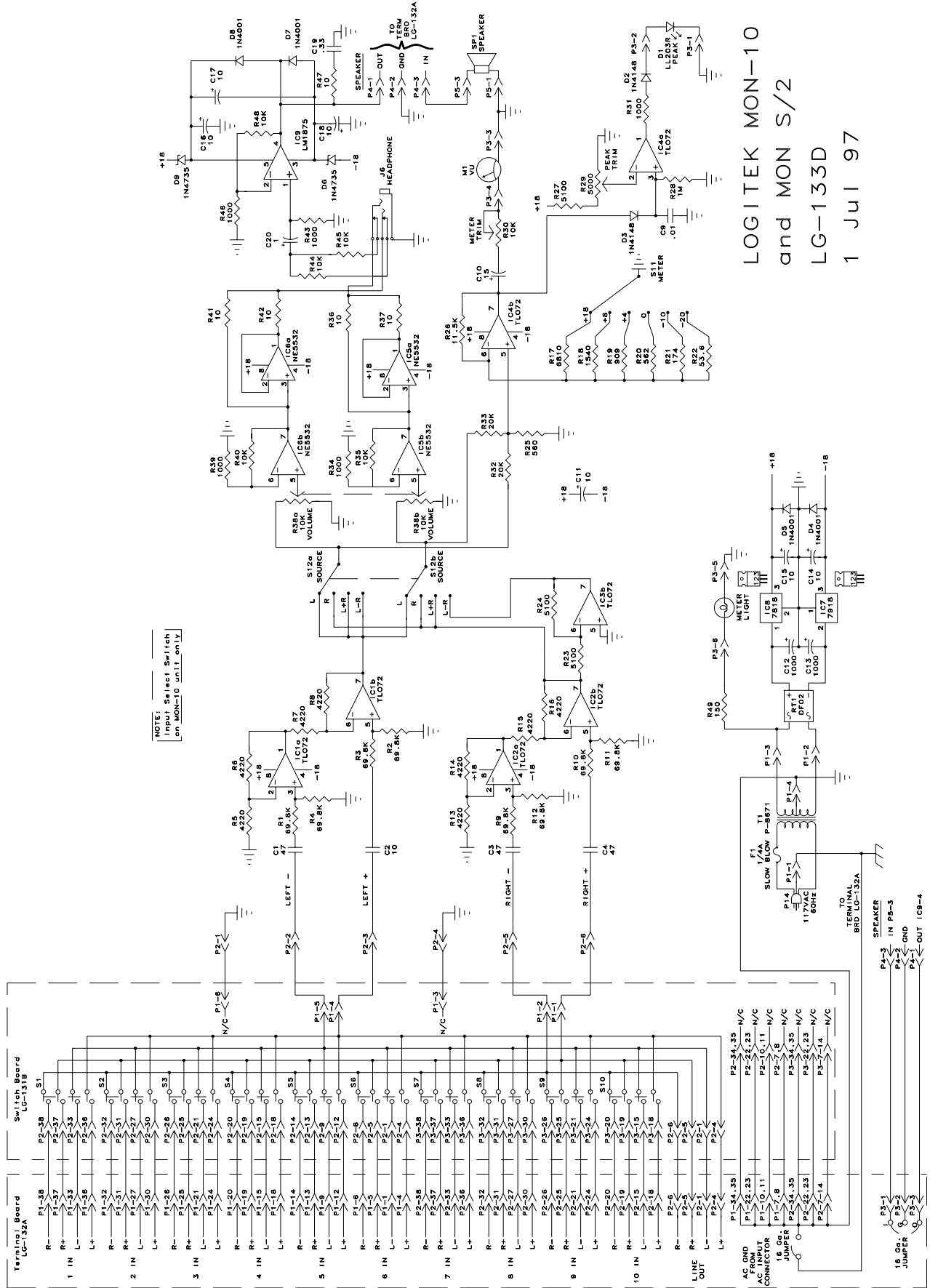
<b>SYMBOL</b>	<b>DESCRIPTION</b>	<b>LOGITEK PART NUMBER</b>
<b>Resistors</b>		
R1-4	69.8K, 1%	
R5-8	4220, 1%	
R9-12	69.8K, 1%	
R13-16	4220, 1%	
R17	6810, 1%	
R18	1540, 1%	
R19	909, 1%	
R20	562, 1%	
R21	174, 1%	
R22	53.6, 1%	
R23,24	5100	
R25	560	
R26	11.5K, 1%	
R27	5100	
R28	1M	
R29	5000 peak trim	BN-3386P-1-502
R30	10K meter trim	BN-3386P-1-103
R31	1000	
R32,33	20K	
R34,	1000	
R35	10K	
R36,37	10	
R38a,b	10K ohm VOLUME pot	CL-70W1N04S103A
R39	1000	
R40	10K	
R41,42	10	
R43	1000	
R44,45	10K	
R46	1000	
R47	1.2	
R48	10K	
R49	150	
1 pc.	Knob	SO-S211-250BLACK
1 pc.	Cap with line	SO-C211BLACK
<b>Rectifiers</b>		
RT1	1A bridge	GI-DF10M
<b>Switches</b>		
S(1-10)	Input selector	EC-10XTA15(NONE)4UGRA
S11	Meter selector	GR-71BDF30-01-1-AJN
S12	Source selector	GR-71BDF30-02-1-AJN
10 pc.	Pushbutton cap	SH-FA20108010112
2 pc.	Knob	SO-S211-250BLACK
2 pc.	Cap with line	SO-C211BLACK
<b>Speakers</b>		
SP1	Speaker	IC-S300SA
<b>Transformers</b>		
T1	36v 1A	ST-P8671
T1 (220V version)	36V 1.2A 220V primary	SI-A41-43-36
<b>Terminals</b>		
4 pc.	Terminal blocks	RD-3PCV-15
	Label strip	AD-4-15230-0030
	Label strip holder	AD-4-25357-0020
	Label strip window	AD-4-25358-0140
	Power cord	BE-17251
	Selector card	LG-131B
	Terminal card	LG-132A
	Amp card	LG-133D

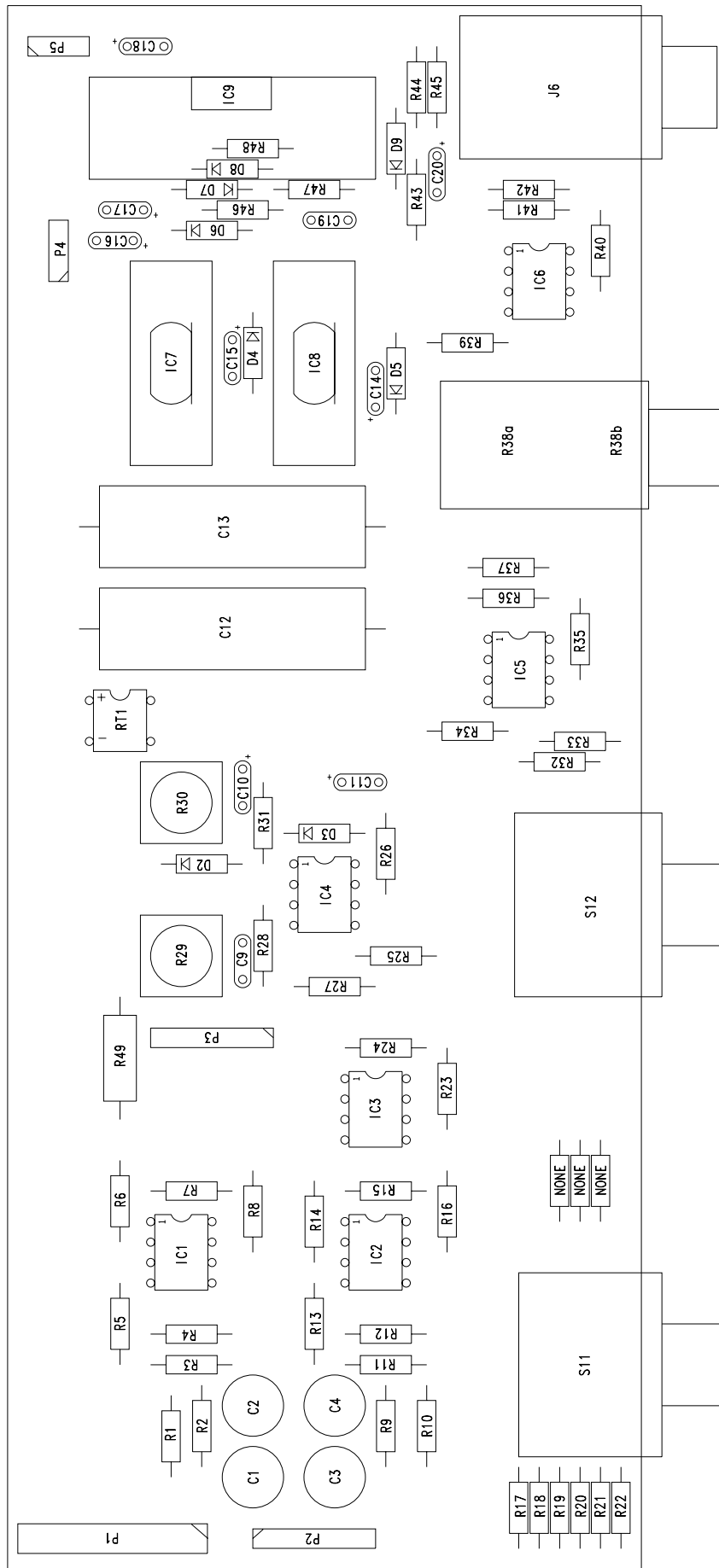
## SECTION 6 — MANUFACTURERS LIST

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CODE	MANUFACTURER	LOCATION
AA	Aavid Engineering	Laconia, NH
AD	ADC	Minneapolis, MN
BE	Belden Wire and Cable	Richmond, IN
BN	Bourns, Inc.	Ogden, UT
BQ	Bergquist Co.	Minneapolis, MN
CE	Centralab Electronics Div.	Milwaukee, WI
CL	Clarostat Mfg. Co., Inc.	Dover, NH
CM	Chicago Miniature Lamp, Inc.	Buffalo Grove, IL
EC	Electronic Components Groupe	Minneapolis, MN
EM	Ecam Technology	Scottsdale, AZ
GI	General Instruments/Quality Technologies	Sunnyvale, CA
GR	Grayhill Inc.	LaGrange, IL
IC	Intervox (International Components Corp)	Melville, NY
IE	Industrial Electronics Engineers	Van Nuys, CA
IL	Illinois Capacitor	Lincolnwood, IL
LF	Littlefuse, Inc.	Des Plaines, IL
LG	Logitek (Circuit cards)	Houston, TX
MO	Motorola Semiconductor Products	Phoenix, AZ
NA	National Semiconductor	Santa Clara, CA
PN	Panduit Corp.	Tinsley Park, IL
RD	Reed Devices, Inc.	Carol Stream, IL
SG	Signetics Corporation	Sunnyvale, CA
SH	ITT Schadow, Inc.	Eden Prairie, MN
SI	Signal Transformer	Inwood, NY
SL	AVX/Stantel Corp.	Myrtle Beach, SC
SO	Selco Products	Buena Vista, CA
SR	Schurter, Inc.	Petaluma, CA
ST	Stancor Products	Logansport, IN
SW	Switchcraft Inc.	Chicago, IL
TI	Texas Instruments, Inc.	Dallas, TX
TM	Thermalloy, Inc.	Dallas, TX

# SECTION 7 — DIAGRAMS





LOGITEK MON-10 & MON S/2  
 COMPONENT DIAGRAM LG-133D  
 25-Jun-97