

# *Euphonix ML530*

## Mic-Line Interface Operation Manual

**Document Revision:** 2.2

**Release Date:** May, 2005

**Part Number:** 840-07522-03



### **Euphonix, Inc.**

220 Portage Ave.

Palo Alto, California 94306

Phone: 650-855-0400

Fax: 650-855-0410

Web: <http://www.euphonix.com>

e-mail: [info@euphonix.com](mailto:info@euphonix.com)



digital emotion

---

---

In the interest of continued product development, Euphonix Inc. reserves the right to make improvements in this manual and the products it describes at any time, without notice or obligation.

System 5, S5, Max Air, PatchNet, eMix, EuCon, R-1, Audio Deck, Studio Hub are trademarks of Euphonix, Inc.

©2002 Euphonix, Inc. All rights reserved worldwide. No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language in any form by any means without written permission from Euphonix, Inc.

---

---

---

---

## ***IMPORTANT SAFETY INSTRUCTIONS***



The lightning flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.

The exclamation point within an equilateral triangle, is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

- 1) Read these instructions.
  - 2) Keep these instructions.
  - 3) Heed all warnings.
  - 4) Follow all instructions.
  - 5) Do not use this apparatus near water.
  - 6) Clean only with a dry cloth.
  - 7) Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
  - 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
  - 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
  - 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
  - 11) Only use attachments/accessories specified by the manufacturer.
  - 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 
-

- 
- 
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
  - 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
  - 15) **WARNING**– TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.
  - 16) Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.
  - 17) To completely disconnect this equipment from the AC Mains, disconnect the power supply cord plug from the AC receptacle.
  - 18) The mains plug of the power supply cord shall remain readily operable.
  - 19) This unit is provided with a power supply cord set suitable for 120V AC input only (for U.S.A. and Canada). For other than U.S.A. and Canada, a qualified person must provide for use with this unit, an appropriate, approved power supply cord set which is in compliance with the end use country requirements and has a minimum cross-sectional area of 1.0mm<sup>2</sup>.
  - 20) For units with more than one power cord:

**Caution:** This unit has more than one power supply cord. Disconnect two power supply cords before servicing to avoid electrical shock.

**Attention:** Cet appareil comporte plus d'un cordon d'alimentation. Afin de prévenir les chocs électriques, débrancher les deux cordons d'alimentation avant de faire le dépannage.

- 21) Operator Accessible Fuse:

**Caution:** For continued protection against risk of fire, replace only with same type and rating of fuse.

**Attention:** Pour ne pas compromettre la protection contre les risques d'incendie, remplacer par un fusible de même type et de même caractéristiques nominales.

---

---

# Table of Contents

<b>List of Figures</b> .....	vi
<b>List of Tables</b> .....	vii
Overview .....	8
Features .....	8
Applications .....	8
Front Panel .....	9
Rear Panel .....	10
Specifications .....	11
User Reference .....	13
Standard Configuration .....	13
Optional Input Patch .....	15
Elco 38 Input/Output Pinout .....	17

## List of Figures

1	ML530 Front Panel .....	9
2	Front Panel Channel Status LEDs .....	9
3	ML530 Rear Panel .....	10
4	ML530 Standard Cable Diagram .....	13
5	ML530 Standard Configuration .....	14
6	Input Patch Cable Diagram .....	15
7	Input Patch Configuration .....	16
5-1	ML530 In 1/In 2 Pinout: Elco 38 Socket .....	17
5-2	ML530 Out 1/Out 2 Pinout: Elco 38 Socket .....	17

## List of Tables

1	Performance Specifications .....	11
2	Environmental and Power Specifications .....	12
3	ML530 Physical Dimensions .....	12
4	ML530 Standard Cable Specification .....	14
5	Input Patch Cable Specifications .....	15

## Overview

The ML530 Mic-Line Interface is a 24-channel, digitally controlled analog preamplifier. The ML530 is controlled by the SC253i Interface Pilot, which is controlled from the System 5 console surface. The ML530 is packaged in a 2RU enclosure.

## Features

The ML530 provides gain over a range of -12 to +72 dB in 0.5 dB increments for each channel. The ML530 also features a high-pass filter, HiZ/LowZ switch, and phantom power.

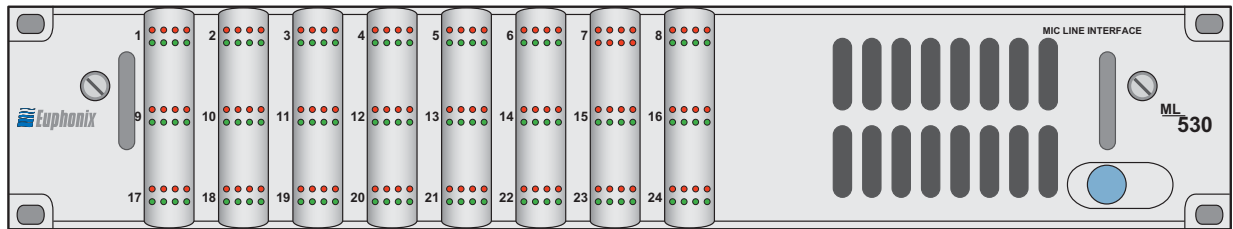
Front panel LEDs provide status information for all features so the operator can quickly view the status of each input channel. Red front panel LEDs indicate signal clipping, mute, impedance, and phantom power activation. Green LEDs indicate signal presence, activation of the high-pass filter, and pad attenuator.

Redundant power is supported by purchasing an additional power module (Euphonix part number: 964-06692-01).

## Applications

Used in conjunction with the Euphonix AM713 analog to MADI converter, the ML530 provides multiple variable gain inputs for the System 5 or Max Air. Additional ML530s can be added if more than 24 channels of variable gain inputs are desired.

## Front Panel

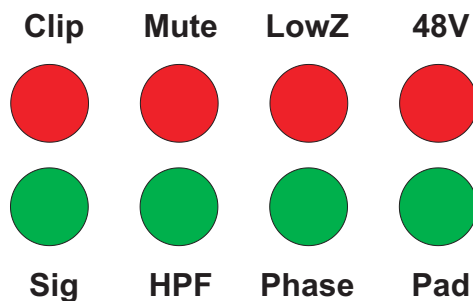


**Figure 1** ML530 Front Panel

**Power Switch:** The power switch, on the lower right, turns the unit on/off.

**Status LEDs:** Eight LEDs provide status information for each of the 24 channels:

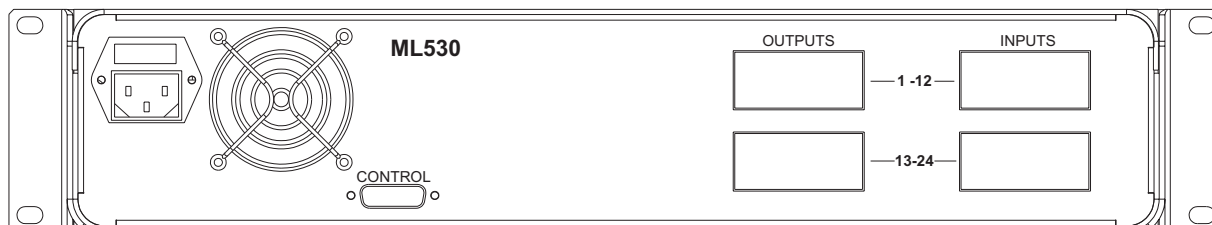
- **Clip:** Signal clipping (red)
- **Mute:** Channel muted (red)
- **HiZ:** High impedance (red)
- **48V:** Phantom power (red)
- **Sig:** signal present (green)
- **HPF:** High-pass filter (green)
- **Phase:** Phase invert (green)
- **Pad:** 12 dB attenuation (green)



**Figure 2** Front Panel Channel Status LEDs

Since the ML530 is digitally controlled via software, the power switch is the only front panel control.

## Rear Panel



**Figure 3** ML530 Rear Panel

**Inputs** (38-pin Elco): 24 inputs are provided on two 38-pin ELCO connectors. The level of all signals input at these ports can be boosted or attenuated. In standard configuration, the input cable is configured by customer. Elco connectors and pins are provided. See *Elco 38 Input/Output Pinout* on page 17.

**Outputs** (38-pin Elco): 24 outputs are provided on two 38-pin Elco connectors. The supplied output cables fan out to two sets of 12 male XLRs for connection to the AM713 Analog to MADI converter. See *Elco 38 Input/Output Pinout* on page 17.

**Control** (DB-15): Input for digital control signal from PC253i Digital Pilot. Signal format is Euphonix TCC bi-directional serial protocol. All switching and gain controls are communicated via this connector.

**AC Line In** (IEC) and **Fuse Tray**: The power connector accepts standard IEC power cords. 90–250 VAC 110, 220, or 240 VAC, 50/60 Hz can be applied at this connector.

## Specifications

**Table 1** Performance Specifications

<b>Gain Range</b>	-12 dB to 72 dB in 0.5 dB increments
<b>Phantom Power</b>	+48 V $\pm$ 2% (Switched per channel)
<b>Maximum Input Level</b>	41 dB (Pad inserted, unity gain, @1 kHz, @1% THD+N)
<b>Differential Input Impedance</b>	200 k $\Omega$ (Hi Z, Pad off, +48V off) 200 k $\Omega$ (Hi Z, Pad on, +48V off) 12.7 k $\Omega$ (Hi Z, Pad on, +48V on) 12.7 k $\Omega$ (Hi Z, Pad off, +48V on) 1.5 k $\Omega$ (Lo Z, Pad off, +48V off) 1.5 k $\Omega$ (Lo Z, Pad on, +48V off) 1.4 k $\Omega$ (Lo Z, Pad on, +48V on) 1.4 k $\Omega$ (Lo Z, Pad off, +48V on)
<b>Maximum Output Level</b>	29 dB (@1 kHz, @1% THD+N)
<b>Output Impedance</b>	100 $\Omega$
<b>Frequency Response</b>	10 Hz – 60 kHz (-0.5 dB @ unity gain) 10 Hz – 50 kHz (-0.5 dB @ 30 dB gain) 10 Hz – 40 kHz (-0.5 dB @ 66 dB gain)
<b>Gain Accuracy</b>	$\pm$ 0.15 dB (@1 kHz)
<b>Distortion (THD+N)</b>	0.004% (@ 1 kHz @ 0 dB gain with +13.5 dB applied, 22 kHz filtered) < 0.02% (20 Hz – 20 kHz @ 13.5 dB 80 kHz filtered)
<b>Equivalent Input Noise (EIN)</b>	-127 dB (@66 dB gain, 22 Hz – 22 kHz filtered, Low Z mode, 150 $\Omega$ source)
<b>Common Mode Rejection (CMR)</b>	>50 dB (10 Hz – 20 kHz)
<b>Phase Linearity</b>	$\pm$ 10° (25 Hz – 20 kHz)
<b>High-pass Filter</b>	80 Hz 18 dB/octave switched per channel
<b>Phase Invert</b>	180° switched per channel

**Table 2** Environmental and Power Specifications

<b>Operating Temperature</b>	5–35°C
<b>Power Requirements</b>	90–250 VAC, 50/60Hz
<b>Power Consumption</b>	100 W

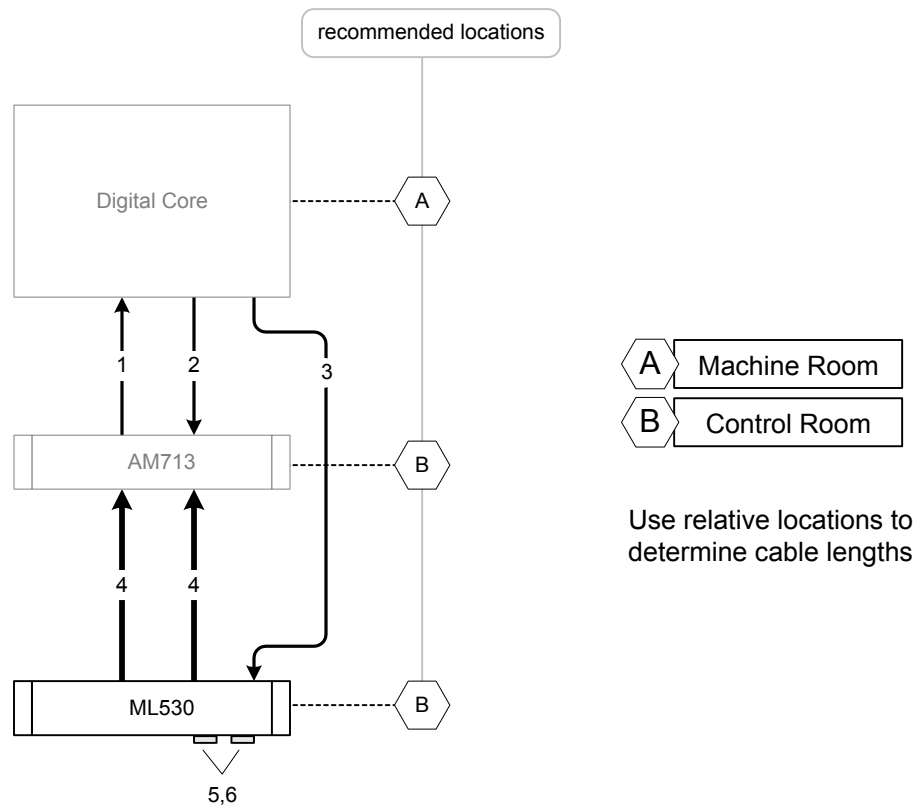
**Table 3** ML530 Physical Dimensions

<b>Height</b>	3.5 inches
<b>Width</b>	19 inches
<b>Depth</b>	18.6 inches
<b>Weight</b>	17 lb

**NOTE:** Leave about six inches behind the ML530 for cable connections.

## User Reference

### Standard Configuration



Elco crimp pins and hoods for user inputs are supplied in accessory cable kits. Input cabling supplied by customer

**Figure 4** ML530 Standard Cable Diagram

The standard lengths specified in Table 4 and Table 5 are supplied so the mic-line interface can be located in the control room. Custom lengths are available and cable kits must be ordered separately.

**Table 4** ML530 Standard Cable Specification

Cable	Qty	Description	10M Part #	20M Part#	Length
		Accessory cable kits by special order	936-07083-01	936-07155-01	
1	1	<b>MADI Output:</b> RG59 75 $\Omega$ coax	032-07230-00	032-07306-00	
2	1	<b>AES/EBU Sync:</b> one male XLR <> one female XLR	030-07085-01	030-07153-01	
3	1	TCC Control from 253i Interface Pilot	030-06983-01	030-06985-01	
4	2	<b>ML530 Analog Out</b> one Elco 38 <> twelve male XLR	030-7108-01		.5 m
5	2	Elco 38-Pin Connector w/hood	100-02099-00		NA
6	80	Elco Crimp Pins	100-02100-00		NA

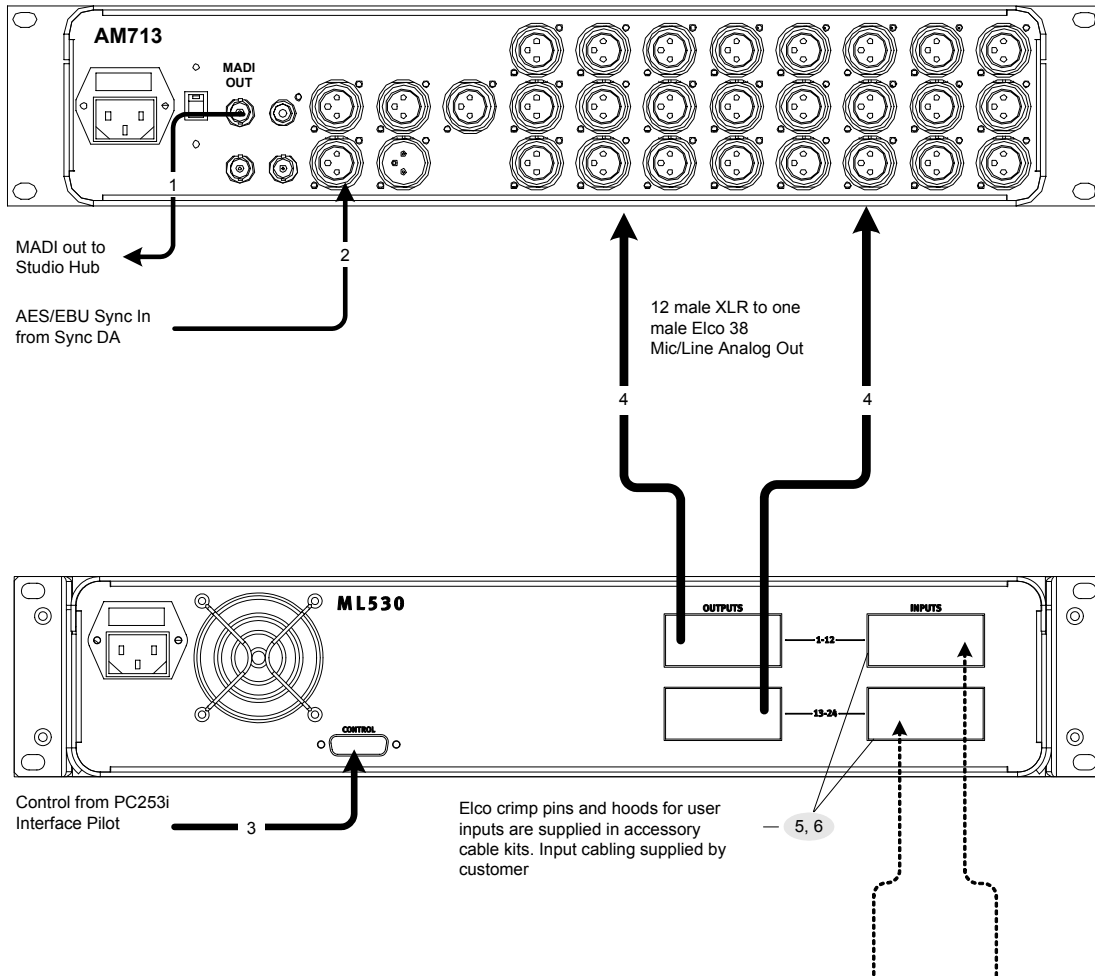
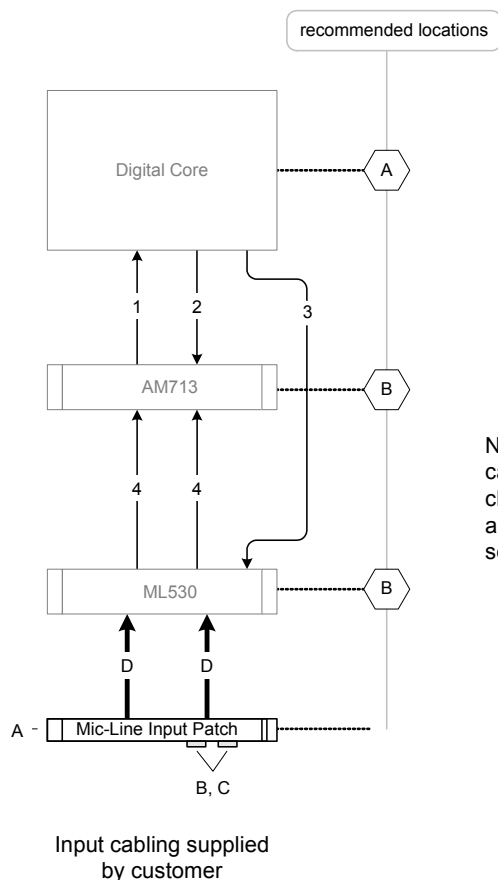


Figure 5 ML530 Standard Configuration

## Optional Input Patch



Note: The optional input patchbay has the capacity to provide input patching to 48 channels or two ML530 Interfaces. An additional set of cable D is required for the second ML530 interface.

**Figure 6** Input Patch Cable Diagram

**NOTE:** Patchbay, cables, pins and connectors are ordered separately as required.

**Table 5** Input Patch Cable Specifications

Part	Qty	Description	Part #	Length
A	1	Tie Line Patch	950-03770-01	NA
B*	2	Elco 38-Pin Connector w/hood	100-02099-00	NA
C*	80	Elco Crimp Pins	100-02100-00	NA
D**	2	<b>ML530 Analog Out</b> one male Elco 38 <> one male Elco 38	030-07158-01	2 m

\*Elco hoods and crimp pins are included in standard 10M and 20M accessory cable kits.

\*\*10M cable available, one male Elco 38 <> one male Elco 38, part# 030-06913-01

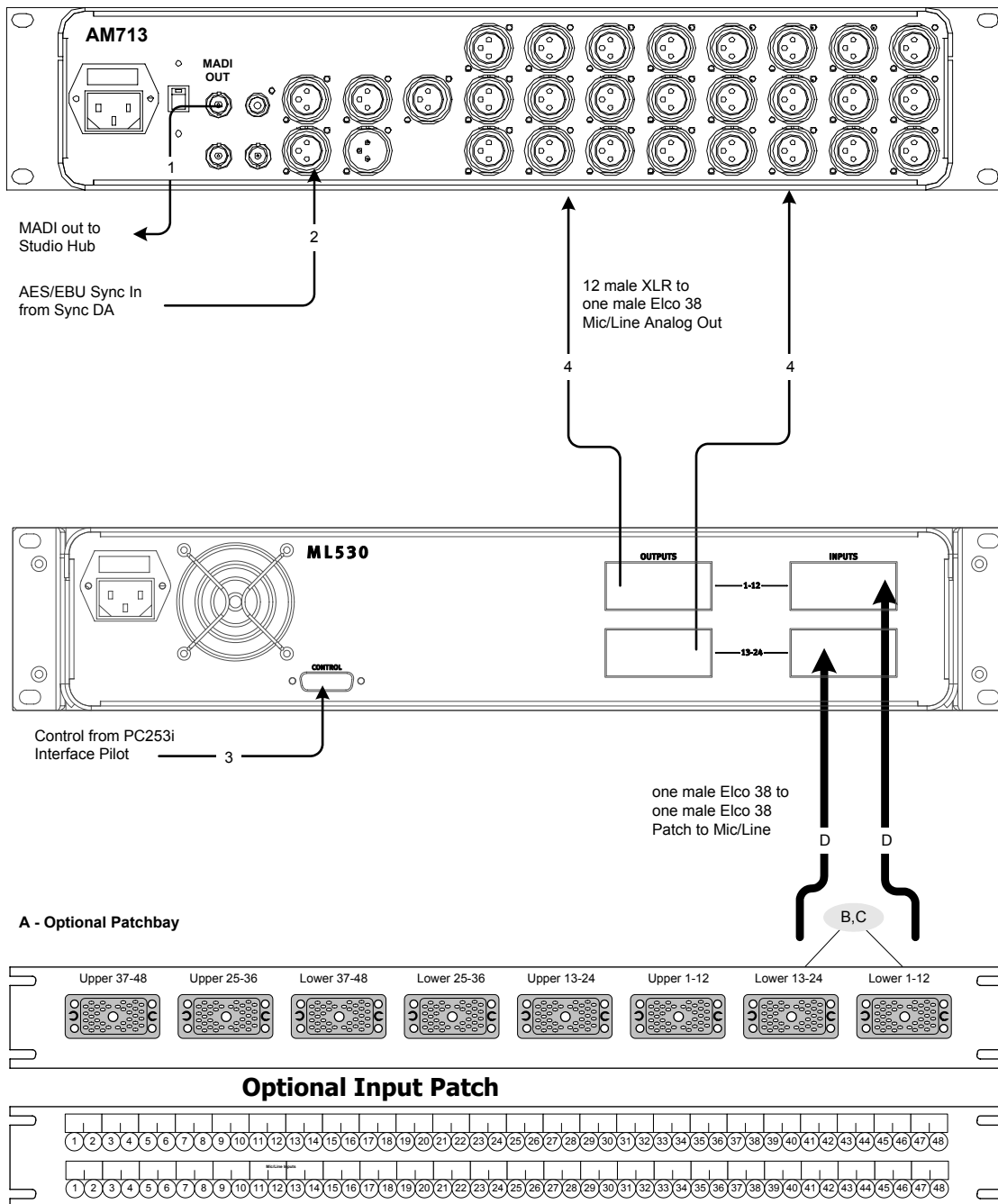
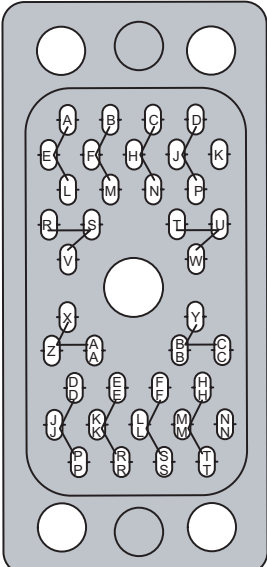


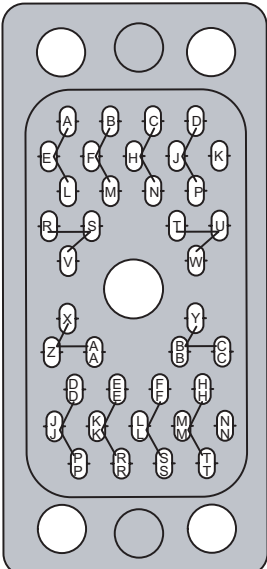
Figure 7 Input Patch Configuration

## Elco 38 Input/Output Pinout



Num	Signal	Wiring Instruction & Description	+	-	G
1	Mic In 1 / Mic In 13	From studio Mic 1 / 13	A	E	L
2	Mic In 2 / Mic In 14	From studio Mic 2 / 14	B	F	M
3	Mic In 3 / Mic In 15	From studio Mic 3 / 15	C	H	N
4	Mic In 4 / Mic In 16	From studio Mic 4 / 16	D	J	P
5	Mic In 5 / Mic In 17	From studio Mic 5 / 17	DD	JJ	PP
6	Mic In 6 / Mic In 18	From studio Mic 6 / 18	EE	KK	RR
7	Mic In 7 / Mic In 19	From studio Mic 7 / 19	FF	LL	SS
8	Mic In 8 / Mic In 20	From studio Mic 8 / 20	HH	MM	TT
9	Mic In 9 / Mic In 21	From studio Mic 9 / 21	R	S	V
10	Mic In 10 / Mic In 22	From studio Mic 10 / 22	T	U	W
11	Mic In 11 / Mic In 23	From studio Mic 11 / 23	X	Z	AA
12	Mic In 12 / Mic In 24	From studio Mic 12 / 24	Y	BB	CC

**Figure 5-1** ML530 In 1/In 2 Pinout: Elco 38 Socket



Num	Signal	Wiring Instruction & Description	+	-	G
1	Mic Pre Out 1 / Out 13	To AM713 Analog In 1 / In 13	A	E	L
2	Mic Pre Out 2 / Out 14	To AM713 Analog In 2 / In 14	B	F	M
3	Mic Pre Out 3 / Out 15	To AM713 Analog In 3 / In 15	C	H	N
4	Mic Pre Out 4 / Out 16	To AM713 Analog In 4 / In 16	D	J	P
5	Mic Pre Out 5 / Out 17	To AM713 Analog In 5 / In 17	DD	JJ	PP
6	Mic Pre Out 6 / Out 18	To AM713 Analog In 6 / In 18	EE	KK	RR
7	Mic Pre Out 7 / Out 19	To AM713 Analog In 7 / In 19	FF	LL	SS
8	Mic Pre Out 8 / Out 20	To AM713 Analog In 8 / In 20	HH	MM	TT
9	Mic Pre Out 9 / Out 21	To AM713 Analog In 9 / In 21	R	S	V
10	Mic Pre Out 10 / Out 22	To AM713 Analog In 10 / In 22	T	U	W
11	Mic Pre Out 11 / Out 23	To AM713 Analog In 11 / In 23	X	Z	AA
12	Mic Pre Out 12 / Out 24	To AM713 Analog In 12 / In 24	Y	BB	CC

**Figure 5-2** ML530 Out 1/Out 2 Pinout: Elco 38 Socket

### Connector Specifications

38-pin male w/ hood Elco P/N 00-8016-038000-519 (Euphonix P/N 100-02099)

Use crimp pins Elco P/N 60-8017-031300-339 (Euphonix P/N 100-02100)