



Universal Input Unit User's Guide



Delsys Inc.
P.O. Box 15734
Boston, MA 02215

phone: 617 236 0599
fax: 617 236 0549

email: delsys@delsys.com
web: www.delsys.com

Universal Input Unit

User's Guide

**July 2007 Edition
PM-U01**

Copyright © 2007 by Delsys Incorporated

Specifications and procedures outlined in this document are subject to change without notice.

Delsys Logo, EMGworks, and Myomonitor are Registered Trademarks of Delsys Incorporated.

MAN-008-1-0

Table of Contents

Important Information	3
Intended Use	3
Technical Service and Support.....	3
Warnings and Precautions.....	4
Device Information	5
Disclaimer	6
Limited Warranty.....	6
Universal Input Unit.....	7
Setting Up the Universal Input Unit	8
1. Connecting Input Signals.....	8
EMG System Input	8
BNC Auxiliary Inputs.....	8
2. Selecting the Input Signals	9
3. Connecting Output Signals to a Data Acquisition System .	9
A/D System Output.....	9
Additional Features	10
Terminal Block	10
Trigger Connectors (Only “E” and “M” Series A/D Cards)	11
Specifications	12
Universal Input Unit	12
Component References	13

Important Information

Intended Use

The Universal Input Unit is designed for research, investigational and scholarship purposes only. Delsys® products are not intended for measurement purposes or for use in the treatment and diagnosis of humans.

Technical Service and Support

For information and assistance visit our web site at:

www.delsys.com

Contact us at:

E-mail: support@delsys.com

tel: (617) 236 0599

Warnings and Precautions



Consult all accompanying documents for precautionary statements and other important information.



Consult accompanying user's guide for detailed instructions.



Keep the device dry. The presence of liquids may compromise the safety features of the device.



Handle with care.



Sensitive electronic device. Avoid static discharges. Do not operate or store near strong electrostatic, electromagnetic, magnetic or radioactive fields. Interference from external sources may decrease the signal-to-noise ratio or result in corrupted data.



This device may cause electrical disturbances in sensitive equipment within its operating environment.



Connect only to Delsys-approved devices.



Immediately discontinue device use if a change in the device's performance is noted. Contact Delsys technical support for assistance.



Delsys Inc. guarantees the safety, reliability, and performance of the equipment only if assembly, modifications and repairs are carried out by authorized technicians; the electrical installation complies with the appropriate requirements; and the equipment is used in accordance with the instructions for use.

Device Information



Do not dispose this product with house waste. Contact Delsys Inc. for instructions on responsibly disposing this device. This product should not be mixed with other commercial wastes.



Date of Manufacturing (appears on device)



Serial Number (appears on device)



DELSYS INC.
650 Beacon St.
Boston MA 02215
USA

Manufacturer

Disclaimer

DELSYS INC. makes no warranties, express or implied, as to the quality and performance of this product including but not limited to, any implied warranty of applicability for other than research uses by qualified individuals. DELSYS INC. shall not be liable to any person for any medical expenses or any direct or consequential damages resulting from any defect, failure or malfunction, whether a claim for such damages is based upon theory of warranty, contract, tort or otherwise. No representative, agent, or licensed practitioner is authorized to waive this disclaimer. DELSYS INC. makes no diagnosis or prescription by virtue of anything about this product.

Limited Warranty

The Universal Input Unit is warranted against failure of materials and workmanship for a period of 1 year from the date of delivery, provided that the product is given proper care and has not been subject to abuse during this period. This warranty is in lieu of all other warranties expressed or implied. Operation of this device outside specifications determined by DELSYS INC. or use with any other input devices other than DELSYS INC. sensors constitute an invalidation of this limited warranty. This warranty is not transferable.

Universal Input Unit

The Universal Input Unit (UIU) simplifies data acquisition by providing convenient BNC connectors for gathering signals from multiple sources. Two output connectors provide flexibility to interface with various data acquisition boards. Connectors for trigger inputs and outputs allow for full command of acquisition software.

The UIU can be used as a stand-alone device or in parallel with a Bagnoli EMG System.



Figure 1. Universal Input Unit: Front (Top) and Rear (Bottom) Views

Setting Up the Universal Input Unit

1. Connecting Input Signals

EMG System Input

If a Bagnoli-4, 8, or 16 Channel EMG System is being used with the UIU, connect the output of the Bagnoli System to the 68-pin Connector on the rear of the UIU labeled “EMG System”.



Figure 2. EMG System Input

BNC Auxiliary Inputs

The front of the UIU offers 16 BNC connectors. Any signal with a +/- 5V range can be input to each of these BNC connectors.



Figure 3. BNC Auxiliary Inputs. Notice the slide switch next to each BNC connector.



Inputs to the Universal Input Unit should remain within the range of +/- 5 V. Signals outside of this range may cause damage to the connected A/D system.



The Universal Input Unit does not perform any signal conditioning. Make sure that signals are properly conditioned prior to connecting them as inputs to the UIU.

2. Selecting the Input Signals

There is a slide switch next to each BNC connector that allows the user to specify which input signal for each channel is routed to the output. If the switch is set to “EMG”, then the signal from that channel of the EMG System Input is routed to the output. If the switch is set to “AUX”, then the signal from that BNC Auxiliary Input is routed to the output.

3. Connecting Output Signals to a Data Acquisition System

A/D System Output

A 68-pin connector provides a direct connection to National Instruments™ 68-pin A/D cards. This connector is labeled “A/D System” and is located on the rear of the UIU.

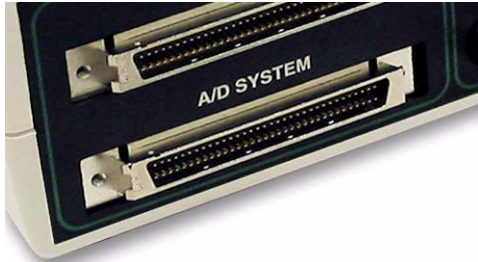


Figure 4. “A/D System” Output

Additional Features

Terminal Block

The terminal block provides access to the 16 analog outputs of the UIU individually. This provides the option of using discrete wires to connect to an A/D screw terminal if necessary. The pinout for the terminal block connector is labeled on the back panel of the UIU.

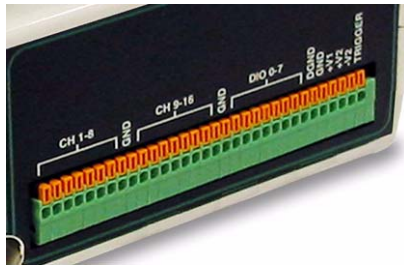


Figure 5. Terminal Block. Functions marked with * are only available with “E” series A/D cards.

Label	Description
CH 1-8	UIU Output for Channels 1-8
GND	Analog Ground
CH 9-16	UIU Output for Channels 9-16
DIO 0-7*	Digital I/O
DGND*	Digital Ground
+V1*	+5V from A/D Card
+V2	Not connected
-V1	Not connected
TRIGGER	Trigger In (see trigger section)

If the UIU is connected directly to a National Instrument A/D card via the 68-pin connector, the other features of the A/D card listed in the table above are available through the terminal block.



USE CAUTION if accessing any of the additional A/D Card pins made available by the terminal block.



For a detailed description of the A/D card functions, please refer to the National Instruments manual.

Trigger Connectors (Only with “E” and “M” Series A/D Cards)

The trigger connectors on the rear panel of the UIU allow the user to utilize the triggering features of EMGworks® Data Acquisition and Analysis Software and the National Instruments A/D card. The four trigger signals are:

- Start In* Starts data collection on a +5V rising edge
- Stop In* Ends data collection on a +5V rising edge
- Start Out* Outputs a +5V pulse once data collection is started
- Stop Out* Outputs a +5V pulse once data collection is stopped

The “Start In” function is available with EMGworks versions 2.0 and higher. All of the trigger function are available in EMGworks 3.0 and higher.



For a detailed description of the triggering capabilities of the A/D card, please refer to the National Instruments manual.

The BNC and terminal block connectors offer the “Start In” signal. The LEMO connector offers all of the trigger functions.

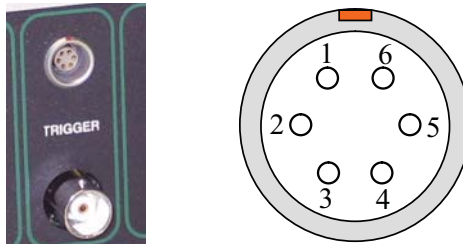


Figure 6. Trigger Connectors and LEMO Pinout.

LEMO Pin	Signal	NI Pin	NI Function
1	(SPI) Stop In	42	PF13
2	GND	67	GND
3	(SPO) Stop Out	11	PF10
4	(STO) Start Out	49	P0.2
5	+5V	8,14	+5V
6	(STI) Start In	41	PF14

Specifications

Universal Input Unit

General	
Dimensions	106.68mm x 205.74mm x 55.88mm
Material	ABS-94HB
External Input Connectors	16 BNCs
EMG System Input Connector	SCSI-68
A/D Connector	SCSI-68

Electrical	
Maximum Input Range	+/- 5 V

Component References

Part Description	Part Number
Universal Input Unit Package	DS-U01
Universal Input Unit	SP-U01
Desktop A/D Cable	DC-A08
Universal Input Unit User's Guide	PM-U01

