



## Installation and Operation Manual

for the

UI-4II

### Universal Interface

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*All specifications and features for this product are subject to change without notice.*

Manual update 07/15/98

## Attention: Receiving Clerk

Important: READ THIS

### LOST OR DAMAGED GOODS

THOROUGHLY INSPECT THIS SHIPMENT  
IMMEDIATELY UPON ARRIVAL

OUR RESPONSIBILITY FOR THIS SHIPMENT CEASED  
WHEN THE CARRIER SIGNED THE BILL OF LADING.

If the goods are received short or in damaged condition, it is important that you notify the carrier and insist on a notation of the loss or damage across the face of the freight bill, otherwise no claim can be enforced against the carrier. You must retain the packaging for inspection by the carrier.

If concealed loss or damage is discovered, notify your carrier at once and request an inspection. This is absolutely necessary. You must retain the packaging for inspection by the carrier. A concealed damage report must be made within 15 days of delivery of shipment. Unless you do this, the carrier will not entertain any claim for loss or damage. The carrier will make an inspection and grant a concealed damage notation. If you give the Carrier Company a clear receipt for goods that have been damaged or lost in transit, you do so at your own risk and expense.

*WE ARE WILLING TO ASSIST YOU IN EVERY POSSIBLE MANNER TO COLLECT CLAIMS FOR LOSS OR DAMAGE, BUT THIS WILLINGNESS ON OUR PART DOES NOT MAKE US RESPONSIBLE FOR COLLECTION OF CLAIMS OR REPLACEMENT OF MATERIAL. THE ACTUAL FILING AND PROCESSING OF THE CLAIM IS YOUR RESPONSIBILITY.*

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# Broadcast Tools, Inc. UI-4II Universal Interface

## INTRODUCTION

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Thank you for your purchase of a Broadcast Tools, Inc., UI-4II. We're confident that this product will give you many years of dependable service. This manual is intended to give you all the information needed to install and operate the unit.

 NOTE: This manual should be read thoroughly before installation and operation.

## SAFETY INFORMATION

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Broadcast Tools products should be installed only by qualified personnel. Incorrect or inappropriate use and/or installation could result in a hazardous condition.

Broadcast Tools Products, as any electronic device, can fail without warning. Do not use this product in applications where a life threatening condition could result due to failure.

## WHO TO CONTACT FOR HELP

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If you have any questions regarding your product, or you need assistance, please *contact your distributor from whom you purchased this equipment.*

If you would like more information about Broadcast Tools, Inc., products, you may reach us at:

**Broadcast Tools, Inc.**  
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**Voice** 360 . 428 . 6099

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**Internet Home Page** [www.broadcasttools.com](http://www.broadcasttools.com)

**E-mail** [bti@broadcasttools.com](mailto:bti@broadcasttools.com)

Thank you for choosing Broadcast Tools!

**Broadcast Tools, Inc.**  
**UI-4II Universal Interface**

**PRODUCT DESCRIPTION**


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The UI-4 II Universal Interface facilitates interfacing Transmitters, Audio/Video equipment or any piece of equipment with differing logic levels and functions. The UI-4 II is outfitted with four optically isolated/bridged 5-28 volt ac or dc inputs that operate four SPDT relays with LED indicators.

The UI-4 II may be configured to operate independently or be paired for latched or momentary outputs. Inputs may be momentary or continuous. The UI-4 II is configurable with two dozen combinations via on-board DIPswitches. The UI-4 II is compatible with TTL/CMOS logic levels, open collectors, contact closures or any voltage between 5 and 28 vdc/vac or may be configured to directly connect to most telephone lines.

The UI-4 II is equipped with two sets of input jumpers. The first set of jumpers select input voltages between 5 and 28 vdc/vac, or voltages up to 150 ac, such as the ring voltage on a standard dial-up telephone line. The second set of jumpers configure the UI-4 II for "WET" or "DRY" inputs. Input and output connections are via wire captive terminals.

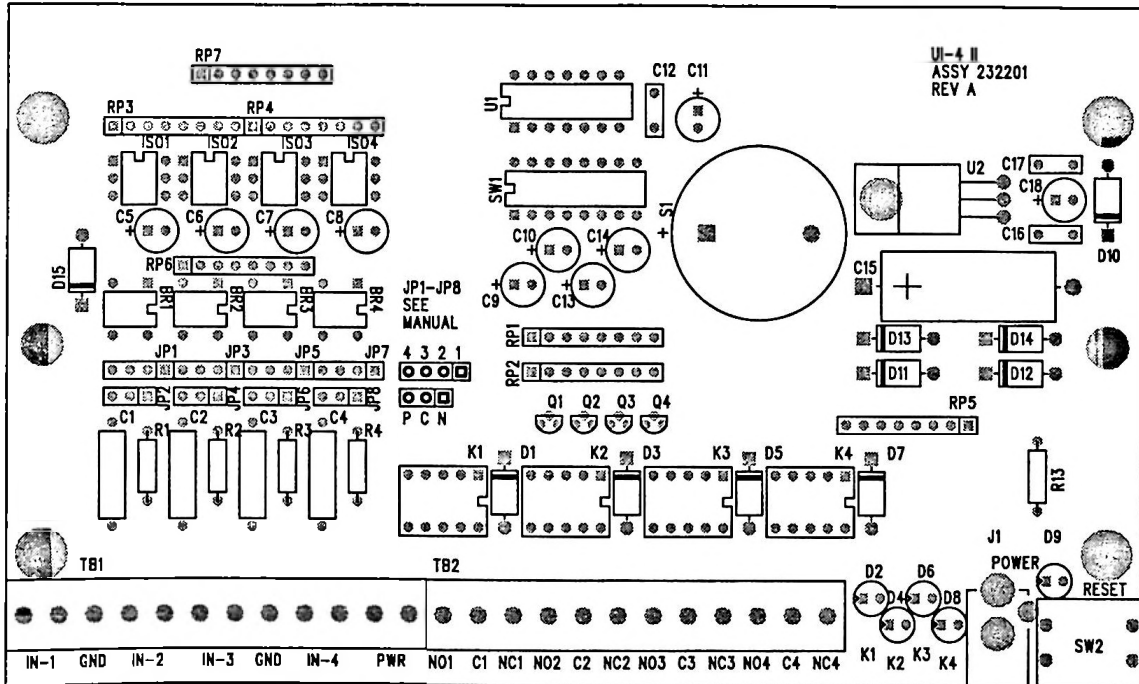
The UI-4 II is supplied in a compact (7.75" x 4.0" x 1.25") aluminum case, with mounting holes on end flanges, the optional RM-2 or RM-3 rack mounts may be purchased, allowing the mounting of two units in a 19 inch rack space. The UI-4 II operates with a supply voltage of 14 to 28 vdc or 12 to 18 vac. A 12 to 18 vac wall transformer is provided.

 **NOTE: For safety, do NOT connect 120 vac circuits to these relays!**

 **NOTE: Installation of the UI-4II in high RF environments should be performed with care. Shielded cable is suggested for all connections. Shields should be tied to the station ground. It is recommended that all cables connected to the UI-4II be looped through ferrite cores to suppress RF. Surge protection with RF filtering such as the Tripp Lite "ISOBAR 4" is also suggested for the wall transformer. The purchase of an inexpensive frequency stable UPS will provide back up in case of power outages.**

# Broadcast Tools, Inc. UI-4II Universal Interface

## CIRCUIT BOARD PARTS LAYOUT



All specifications and features are subject to change without notice.

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**INSTALLATION**

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Please examine your *UI-4 II* for any damage that may have been sustained during shipping. If any is noted, please notify the shipper immediately and retain the packaging for inspection by the shipper. The package should contain the *UI-4 II*, wall power transformer and this manual.

1. Mount the *UI-4 II* where it will be visible and the rear panel accessible. Four (4) screw holes are provided for mounting. The inputs, relays and auxiliary power connections to the *UI-4 II* are via TB-1. This type of terminal allows the installer to strip off the insulation, insert the bare wire and tighten the capture screw.
2. The next step is to determine what function is to be performed. The following explanation is for input # 1. For dry contact closures or open collector, insert a jumper on JP-1 between positions 1 & 2 and 3 & 4, and a jumper on JP-2 between the "C"ommon and "N"ormal position.
3. Connect one side of the switch (collector on a NPN transistor) to terminal # 2 (+ 12 vdc) on TB-1 and the other side of the switch (Emitter on a NPN transistor) to terminal # 1 (gnd) on TB-1. For relay and input connections, follow the silk screen legends on the circuit board.

Example:    IN-1 = INput ONE,  
              NO1 = Normally Open contact for relay 1,  
              C1  = Common contact for relay 1,  
              NC1 = Normally Closed contact for relay 1.

For wet inputs 5 - 28 vdc/vac, insert a jumper on JP-1 between positions 2 & 3 ONLY and a jumper on JP-2 between the "C"ommon and "N"ormal position. Connect one side of the source to terminal # 1 on TB-1 and the other side to terminal # 2 on TB-1.

For telephone line monitoring with inputs from 70 to 150 vac / 20 - 100 hz insert a jumper on JP-1 between positions 2 & 3 ONLY and a jumper on JP-2 between the "C"ommon and the "P"hone position. Connect one side of the source to terminal # 1 on TB-1 and the other side to terminal # 2 on TB-1.

☞ NOTE: Sections 3 & 4 of the *UI-4 II* may be setup to do the same functions as sections 1 & 2. Substitute the companion switch (SW-1) for each section (refer to the parts layout page).

☞ NOTE: The optional reset switch SW-2 is connected to INPUT # 2 and the optional S1 is connected to K1.

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For independent operation:

**Turn switches 2-3, 7-8 OFF.** For a input to produce an output from input # 1, **turn switch 1 ON.**  
For input # 2 **turn switch 4 ON,** For input # 3 **turn switch 5 ON,** For input # 4 **turn switch 6 ON.**

For independent operation with pulsed output:

**Turn switches 2-3, 7-8 OFF.** For a input to product a pulsed output from input # 1, **turn switch 1 OFF.**  
For input # 2 **turn switch 4 OFF,** For input # 3 **turn switch 5 OFF,** For input # 4 **turn switch 6 OFF.**

For paired alternate action latching operation with a single maintained input:

**Turn switch 2 OFF and switches 1,3,4 ON..** For a maintained input on input # 1, output # 1 will latch on and by removing the input on input # 1, output # 2 will latch on and output # 1 will latch off..

For paired alternate action non-latching operation with a single maintained input:

**Turn switches 1, 2, 4 OFF and switch 3 ON..** For a maintained input on input # 1, output # 1 will produce a > 200 ms pulse, and by removing the input on input # 1, output # 2 will produce a > 200 ms pulse.

For paired flip/flop operation with set/reset inputs:

**Turn switches 1, 2, 3,4 ON.** With a input on input # 1, output # 1 will latch on. A input on input # 2 will produce an output on output # 2 and will turn off output # 1.  
Note: **Turning switches 1 & 4 OFF** will produce the same operation except that the outputs will produce a > 200 ms pulse.

**Note:** You may change the pulse duration by increasing or decreasing the values of C9,C10,C13,C14

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**LIMITED WARRANTY AND REMEDIES**

LIMITED WARRANTY

The term "Buyer" as used in this document refers to and includes both (but only) (a) any person or entity who acquires such an item for the purpose of resale to others (i.e., a dealer or distributor of an item), and (b) the first person or entity who acquires such an item for such person's or entity's own use.

Broadcast Tools warrants to each Buyer of any item manufactured by Broadcast Tools that the item will be free from defects in materials and workmanship at the time it is shipped by Broadcast Tools if the item is properly installed, used and maintained.

EXCLUSIVE REMEDIES

If Broadcast Tools is notified of in writing of a failure of any item manufactured by Broadcast Tools to conform to the foregoing Limited Warranty within one (1) year following the date of the Buyer's acquisition of the item, and if the item is returned in to Broadcast Tools in accordance with Broadcast Tools' instructions for confirmation by inspection of the defect (which at Broadcast Tools' election may include, without limitation, a requirement that the Buyer first obtain a Return Authorization number from Broadcast Tools, that the Buyer furnish proof of purchase in the form of an invoice and/or receipt, and that the Buyer prepay all freight charges associated with any return of the item to Broadcast Tools using such freight service as Broadcast Tools reasonably may specify), Broadcast Tools will repair or replace the defective item, or will refund the purchase price paid by the Buyer for the item. Broadcast Tools shall have the exclusive right to choose between these alternative remedies.

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