



Installation and Operation Manual

AT-1616L *Universal Serial I/O Controller*

Manual update 9/09/05

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INTRODUCTION

Thank you for your purchase of a Broadcast Tools, Inc., AT-1616L Universal Serial I/O Controller. 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.

SAFETY INFORMATION

Only qualified personnel should install Broadcast Tools® products. Incorrect or inappropriate use and/or installation could result in a hazardous condition.

Broadcast Tools, Inc., is unable to support NON-Broadcast Tools software, hardware or NON-Broadcast Tools computer/hardware/software problems. If you experience these problems, please research your hardware/software instruction manuals or contact the manufacturers technical support department.

WHO TO CONTACT FOR HELP

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

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CAUTION!

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



NOTE:

This manual should be read thoroughly before installation and operation.

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SECTION TITLE

Description

The AT-1616L is designed for general I/O control applications. The AT-1616L is equipped with 16 form C relays with LED indicators. The AT-1616L provides 16 - 5 to 24 volt opto-isolated inputs with LED status and may be configured for wet or dry applications. The AT-1616L is equipped with both a RS-232 and RS-485 serial port at baud rate from 600 to 115k and allowing up to 32 - AT-1616L's to be controlled over a single twisted pair cable 4000 feet from the host computer in the RS-485 mode. The default serial protocol is: RS-232, 9600, 8N1

Input and output connections are via clamp style wire captive terminal. The AT-1616L is equipped with a switching type regulator, providing a wide range of power supply voltages.

The AT-1616L is supplied with this manual, 7-foot, six conductor modular cable, RJ-14 modular to DB-9 female adapter and a 12vac, 500-ma wall transformer.

Two AT-1616Ls may be rack mounted with the optional RM-3 rack mount shelf (1 RU's).

Refer to the layout sheets provided at the end of this manual, for configuration Information.



NOTE:

Removing JP-19 sets the AT-1616L into the NEW (Non-Polling serial) AT-1616L command format (Wire Ready users only).

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DESCRIPTION

Input and Output Pin-outs

1 - Input 1 +	33 - Relay 1 N.O.
2 - Input 1 -	34 - Relay 1 Com
3 - Input 2 +	35 - Relay 1 N.C.
4 - Input 2 -	36 - Relay 2 N.O.
5 - Input 3 +	37 - Relay 2 Com
6 - Input 3 -	38 - Relay 2 N.C.
7 - Input 4 +	39 - Relay 3 N.O.
8 - Input 4 -	40 - Relay 3 Com
9 - Input 5 -	41 - Relay 3 N.C.
10 - Input 5 +	42 - Relay 4 N.O.
11 - Input 6 -	43 - Relay 4 Com
12 - Input 6 +	44 - Relay 4 N.C.
13 - Input 7 -	45 - Relay 5 N.O.
14 - Input 7 +	46 - Relay 5 Com
15 - Input 8 -	47 - Relay 5 N.C.
16 - Input 8 +	48 - Relay 6 N.O.
	49 - Relay 6 Com
	50 - Relay 6 N.C.
	51 - Relay 7 N.O.
	52 - Relay 7 Com
	53 - Relay 7 N.C.
	54 - Relay 8 N.O.
	55 - Relay 8 Com
	56 - Relay 8 N.C.
	57 - Relay 9 N.O.
	58 - Relay 9 Com
	59 - Relay 9 N.C.
	60 - Relay 10 N.O.
	61 - Relay 10 Com
	62 - Relay 10 N.C.
	63 - Relay 11 N.O.
	64 - Relay 11 Com
	65 - Relay 11 N.C.
	66 - Relay 12 N.O.
	67 - Relay 12 Com
	68 - Relay 12 N.C.
	69 - Relay 13 N.O.
	70 - Relay 13 Com
	71 - Relay 13 N.C.
	72 - Relay 14 N.O.
	73 - Relay 14 Com
	74 - Relay 14 N.C.
	75 - Relay 15 N.O.
	76 - Relay 15 Com
	77 - Relay 15 N.C.
	78 - Relay 16 N.O.
	79 - Relay 16 Com
	80 - Relay 16 N.C.

DB-9 Connection:

- 2 - Send data to Computer.
- 3 - Rec data from Computer.
- 5 - Ground.

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SECTION TITLE

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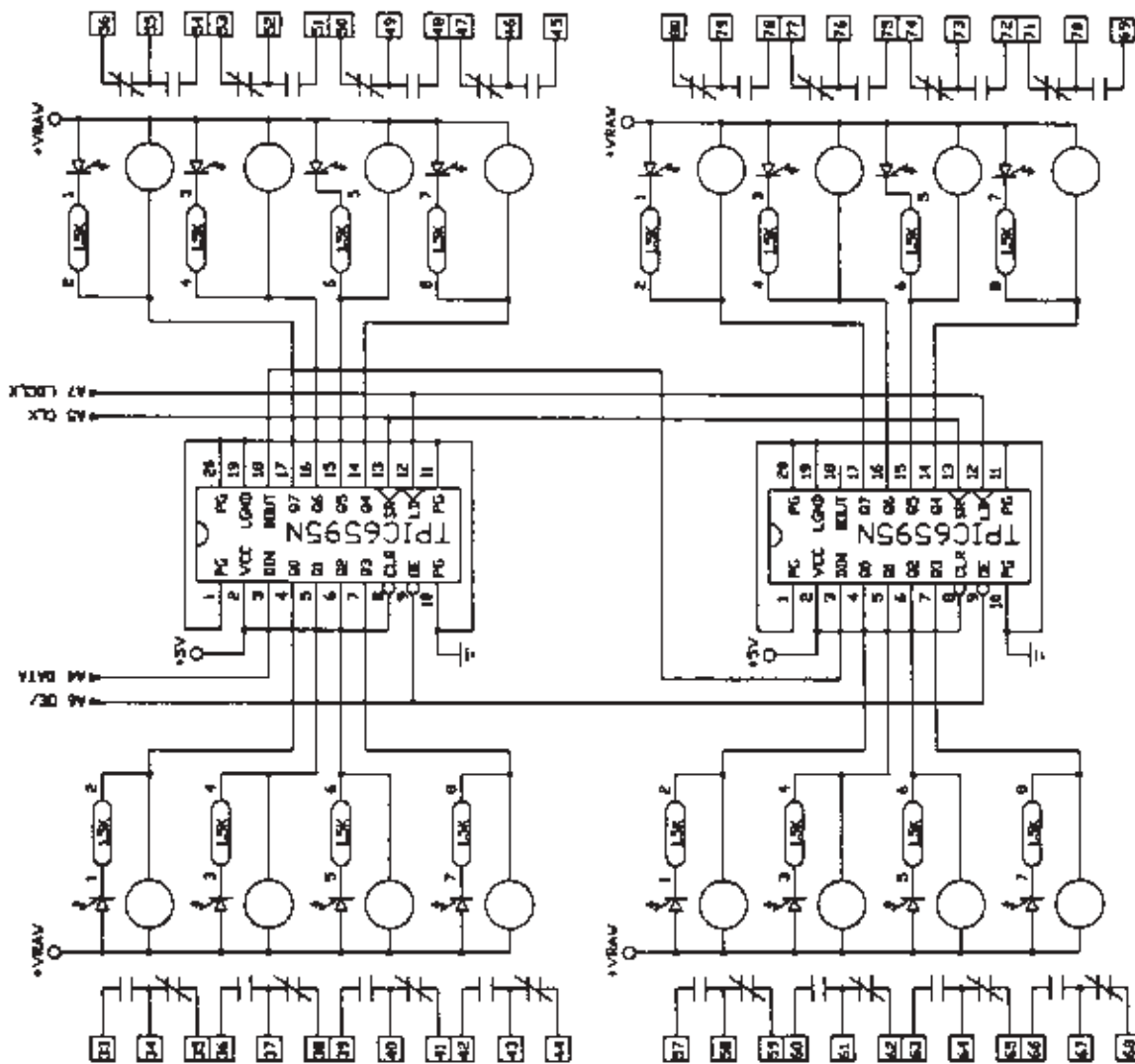
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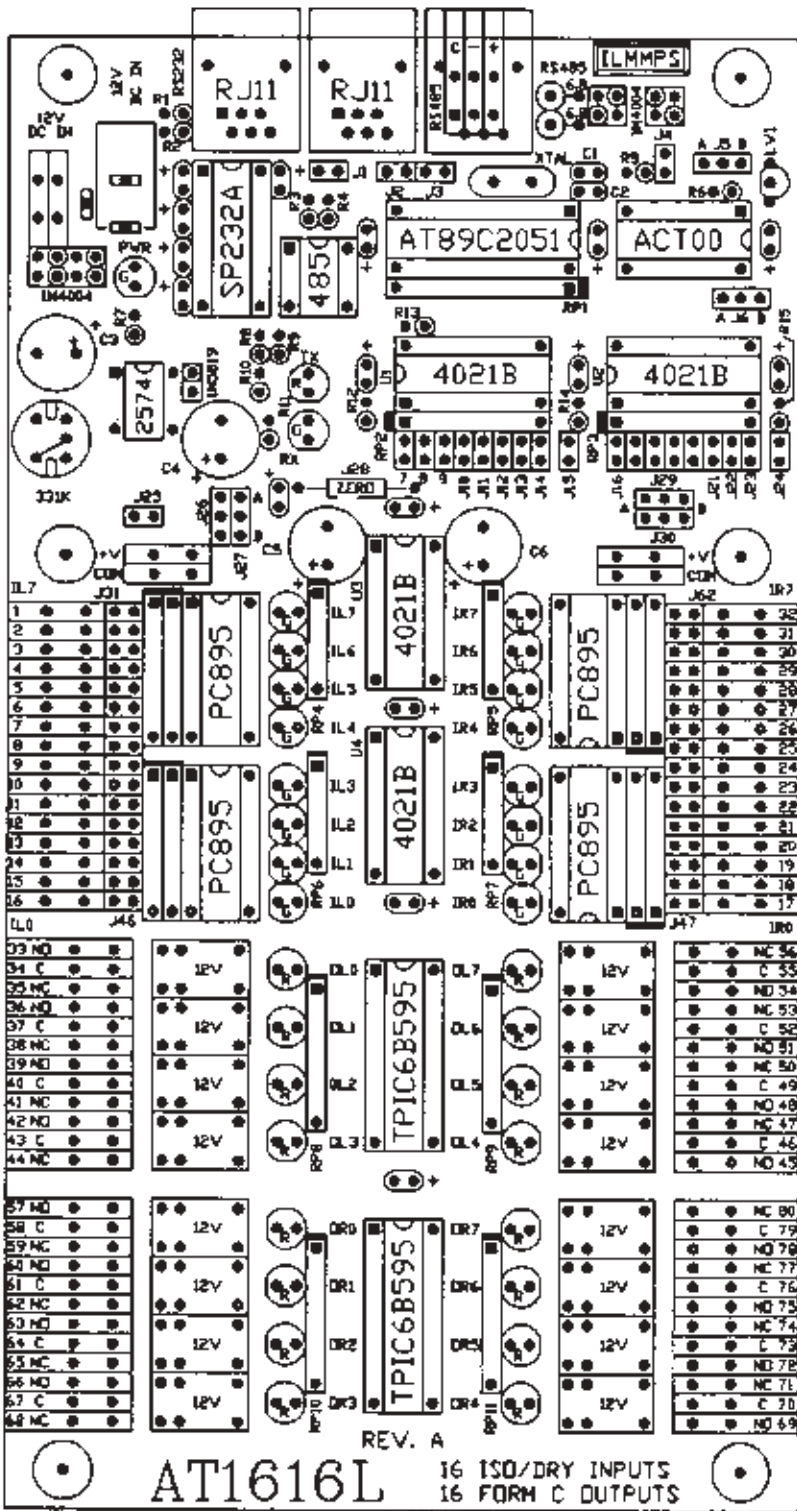
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- NOTES:**
- 11 HIGH ISOLATED INPUT CURRENT = 1.0MA
 - 12 HIGH CURRENT TRANSFER RATED = RICE
 - 13 MAX POWER OF RESISTORS = 0.25W
 - 40 R = 1800 X 2, 10-50V, 12-40MA
 - 50 R = 3100 X 2, 13-31V, 12-50MA
 - 63 R = 4700 X 2, 18-40V, 12-50MA
 - 75 R = 3000 X 2, 9-40V, 12-61MA
 - 80 R = 2500 X 2, 7-32V, 12-7.3MA@31.2V
 - 90 R = 1500 X 2, 3-27V, 12-8.8MA
 - 100 R = 1000 X 2, 4.5-26V, 12-10.2MA
 - 110 R = 1000 X 2, 3.0-22V, 12-11.0MA

CA = COM. ADDRESS
 ID = CONFIGURATION
 DL = OUTPUT LEFT
 DR = OUTPUT RIGHT
 IL = INPUT LEFT
 IR = INPUT RIGHT

ACTUAL SIZE (1:1)



- J29 T.S. COMMON ISOLATED A B
- J29 DIGITAL COMMON TO T.S.
- J30 'RAW' 9-35VDC TO T.S. A B (IF J26A IS INSTALLED)
- J30 +5VDC TO T.S.

INDICATES JUMPER IS INSTALLED.



CLOSURE MODE: THIS MODE OF 'DRY' DIGITAL INPUT ALLOWS FOR EASY INTERFAC TO SWITCH AND/OR RELAY INPUT CLOSURES WITH J29 AND J30 REMOVED, ISOLATED POWER CAN BE APPLIED TO THE TWO PIN TERMINAL STRIP NEAR J30. ISOLATED POWER CAN RANGE FROM 5VDC TO 24VDC WITH LOAD CURRENT OF 12mA TO 8mA PER CONTACT CLOSURE WITH J29B AND J30B INSTALLED LOCAL NON-ISOLATED '+5V' POWER CAN BE USED TO POWER THE INPUTS.

ISOLATED MODE: THIS MODE OF 'WETTED' DIGITAL INPUT ALLOWS INDIVIDUALLY ISOLATED INPUTS. OBSERVE POLARITY AND LIMIT INPUT VOLTAGE FROM 5-24VDC.

WARNING! A VERTICAL JUMPER IN THIS LOCATION WILL CAUSE A POWER SUPPLY SHORT ONLY USE VALID SETTINGS SHOWN ABOVE.