

**AC7**  
**RS232 to RS422**  
**Adapter Card**

**Form 11.1**

**January 1989**

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## INTRODUCTION

The AC7 is an adapter card that converts any RS-232 serial port to an RS-422 serial port that is directly compatible with the OPTOMUX family of intelligent controllers.

## FEATURES

- RS-422 balanced line drivers
- Operates with up to 5000 feet of cable
- Optical isolation on RS-422 lines
- Visual indicators for transmit and receive lines
- Transmission speeds up to 38,400 bits per second\*

## INSTALLATION

### Physical Installation

The following equipment should be available during installation of the AC7:

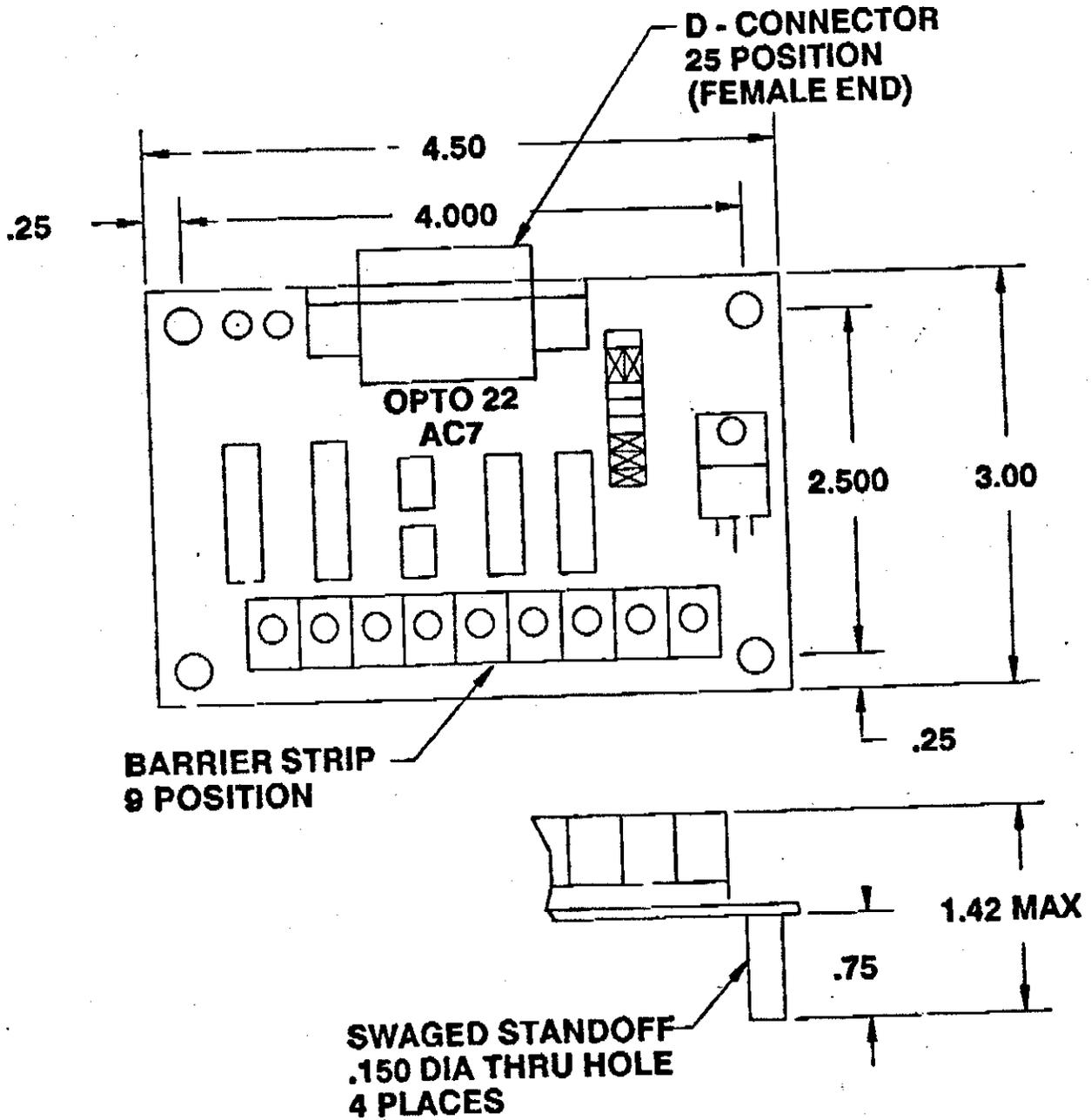
- Medium sized, flat-blade screw driver
- Wire stripper
- 25-Watt soldering iron
- Variety of color coded wires
  - 22 gauge for data link
  - 18 gauge for power connections

\* Only "REV 1" boards and above, can be used up to 38,400 baud. Earlier revision boards will operate up to 19,200 baud only.

# AC7

## Mounting the AC7

The AC7 adapter card can be mounted in any position on any flat surface. The adapter card is supplied with 3/4" standoffs. All the standoffs should be secured using #6 hardware to provide maximum physical strength. Leave sufficient space around the AC7 for serial data link and power wiring.



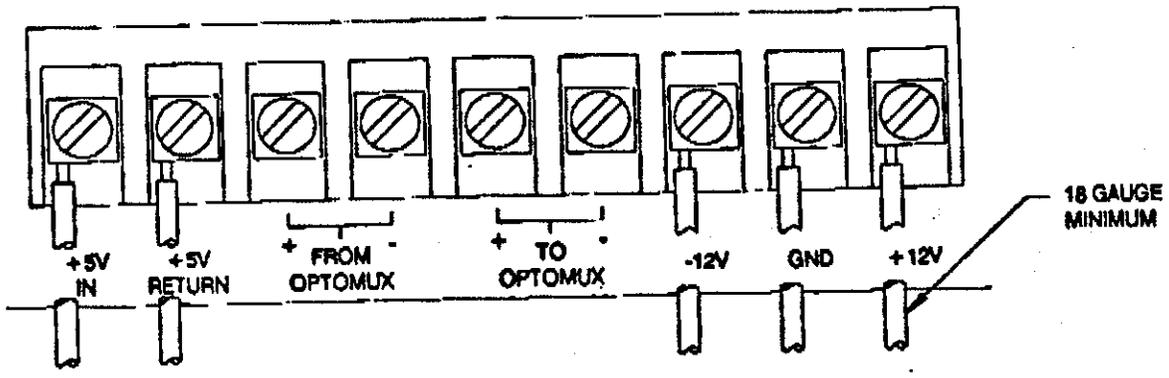
**Connecting Power**

The AC7 requires +12 VDC and -12 VDC. If +15V and -15V is available, it may be substituted for  $\pm 12V$ . The AC7 requires 200 millamps at +12V and 50 millamps at -12V.

If OPTICAL isolation between the RS232 and RS422 portions of the circuit on the AC7 is desired, an additional +5V supply is required. (200 millamps at +5V)

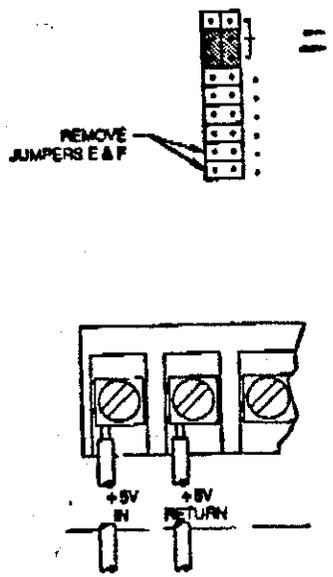
**Connect the Power Supply to AC7**

**CAUTION:** Be sure power supply is OFF while making or removing all connections to AC7 and OPTOMUX.



**Optical Isolation on AC7**

A 5V power supply can be used to provide optical isolation on the AC7. Connect 5V supply as shown:



# AC7

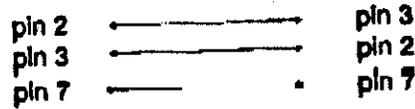
## Connect AC7

Connect the RS232 data connector on the AC7 to the serial port connector on your host computer using a null modem cable. The AC7 can be located up to 50 cable feet from the RS232 serial port.

A null modem cable can be fabricated from the following diagram. The AC7 end uses a standard 25-pin, male "D" connector.

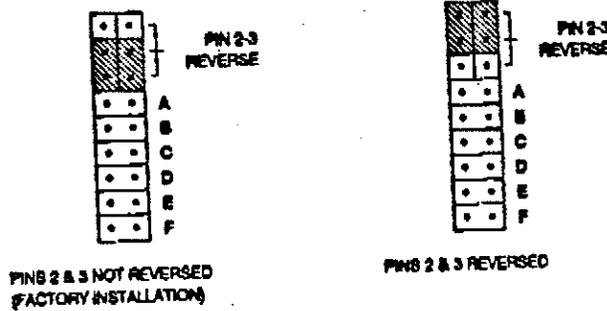
RS232 end of cable

AC7 end of cable



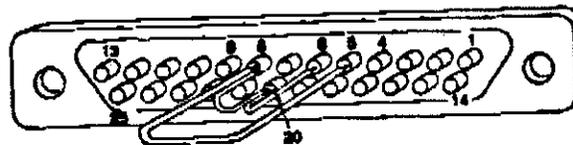
## Reversing Pins 2 and 3 on AC7

The AC7 provides a set of jumpers that allows you to reverse pins 2 and 3. This is helpful if you are using a cable that is not a null modem. The jumpers are installed at the factory for use with a null modem cable.



## Enabling Signals

Many serial ports monitor pins on the RS232 connector as an indication that the connected data equipment is ready to receive data. If you are fabricating your own cable, the required logic levels can be provided by "looping back" the appropriate pins on the RS232 connector that attaches to your serial port. For example, when connecting the AC7 to the IBM PC, asynchronous, serial communications adapter pins 5, 6, 8 and 20 must be tied together as shown below:

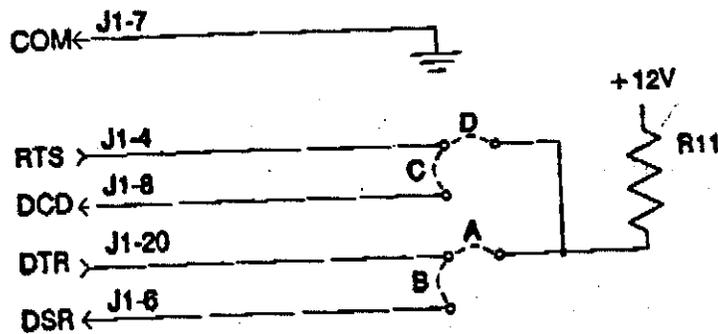


RS232 D-CONNECTOR (MALE END) SOLDER SIDE

# RS232 to RS422 Adapter Card

If you are using a commercially prepared data cable that carries handshaking signals required by your RS232 port through to the AC7, jumpers A through D may be used to enable the appropriate RS232 signals on your computer. The table below describes the function of each of the jumpers. J1 is the RS232 connector on the AC7.

Jumper	Connects
A	pin 20 (DTR) to +12V
B	pin 6 (DSR) to pin 20 (DTR)
C	pin 8 (DCD) to pin 4 (RTS)
D	pin 4 (RTS) to +12V



NOTE: These signals are provided for use by the host computer only -- AC7 uses only pins 2, 3 and 7 of the RS232 connector.

# AC7

## CONNECT AC7

Select 5 wires of different colors that reach from your A7 to the nearest OPTOMUX controller. The recommended colors are yellow, red, green, black and blue.

Strip 1/8 to 1/4 inch insulation from both ends of each wire. Use the table below to connect the RS422 communications wires between the adapter card and OPTOMUX.

**CAUTION:** Make sure the power is OFF while making or removing all connections to the AC7 and OPTOMUX.

Connect the RS422 communication wires as follows:

AC7 Terminal	OPTOMUX Terminal	Wire Color
To OPTOMUX (+)	From Host (+)	Red
To OPTOMUX (-)	From Host (-)	Green
From OPTOMUX (+)	To Host (+)	Yellow
From OPTOMUX (-)	To Host (-)	Black
AC7 +5 Return	GND	Blue

