

# TECHNICAL MANUAL

## LED Boards

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## 2. Overview

The IDI LED boards have been designed to display characters from received Thin protocol communications. The LED boards are available in multiple sizes and configurations, and have a built-in diagnostic display capability.

The current models available include:

Part Number	Configuration (columns x rows)	LEDs per pixel	Pixel Pitch	Nom. Character Height
8001	6 x 9	4	2.85 inch [72mm]	18 inch [457mm]
8002	5 x 7	4	2.85 inch [72mm]	18 inch [457mm]
8003	6 x 9	3	1.90 inch [48mm]	12 inch [305mm]
8004	8 x 8	3	1.90 inch [48mm]	12 inch [305mm]
8005	6 x 9	3	1.58 inch [40mm]	10 inch [254mm]
8006	6 x 9	3	1.10 inch [28mm]	7 inch [178mm]

Nominal character height is based on a 7 row high character, and is measured from the top of the top row of LEDs to the bottom of the bottom row of LEDs.

## 3. Features

### 3.1. Power

The boards have been designed to accept 10.5VDC to 15VDC.

### 3.2. Diagnostic LEDs

The board has three LEDs located on the back of the board. They are labeled and have functions as follows:

- HEARTBEAT – flashes when processor is operating properly
- COMM – turns on when receiving data
- LED FAIL – turns on when an LED is determined to have failed

### 3.3. Addressing

The DIP switches (S1) are used to set the address of the LED board or to put the unit in self-diagnostic mode. The DIP switches are interpreted as an address as long as DIP switch 8 is OFF. The address is set by turning on one or more of the DIP switches from 1 to 7. Note that leaving all DIP switches off (address 0) is invalid, because this is the broadcast address, and turning on all the address DIP switches (1 to 7 on, address 127) is also invalid, as this address is reserved.

The controller firmware organizes the signs according to rows and columns of LED boards, so the DIP switches are set as follows:

DIP SWITCH 7	DIP SWITCH 6	LINE
off	off	1 (top line)
off	ON	2
ON	off	3
ON	ON	4

The remaining switches are set according to the column of the board, as follows:

5	4	3	2	1	COLUMN
off	off	off	off	ON	1 (leftmost column)
off	off	off	ON	off	2
off	off	off	ON	ON	3
off	off	ON	off	off	4
off	off	ON	off	ON	5
off	off	ON	ON	off	6
off	off	ON	ON	ON	7
off	ON	off	off	off	8
off	ON	off	off	ON	9
off	ON	off	ON	off	10

## DIAGNOSTICS

Setting DIP switch 8 and cycling power to the board will enable one of the built-in diagnostic modes. Once a test is started, it will continue until the DIP switches are changed and power is cycled to the board.

The diagnostics are enabled according to the following table:

DIP switches ON	Diagnostic Mode
8 and 1	LED Test
8 and 2	Dimming Level Test

The LED test will cause individual LEDs to turn on until all pixels on the board have turned on, after which the LEDs will turn off one by one.

The Dimming Level test will turn on all LEDs, then the dimming level can be set by changing the DIP switch settings.

### 3.4. Serial Communications

The LED boards receive RS-485 communications on J2 using Thin protocol. Communications parameters are 38400 baud, 8 data bits, no parity, 1 stop bit.

## 4. Troubleshooting / FAQs

### Why is the HEARTBEAT LED not flashing?

If the board is placed in diagnostics mode by the DIP switches, the HEARTBEAT LED will not flash.

## 5. Specifications

### 5.1. Hardware

Operating Temperature:  
Humidity  
Power Requirements  
Diagnostic LEDs  
Switches

-34C to +74C  
5-95% non-condensing  
10.5-15 VDC  
3 – Heartbeat, Comm, LED Fail  
8 Position DIP

### 5.2. Software

Protocol Supported  
Thin Protocol