# *INSTALLATION INSTRUCTIONS*

**Description:**

A multiplexing 16 zone expansion board for apex control panels.

**Specifications:**

16 dry contact inputs
Contacts wired normally open or closed
Optional 4.7K End of Line resistors
10 second polling - trouble indication upon loss of communication

**Power:**

Current draw - 85mA
Source - 4 wire bus
Operating voltage - 9.5 to 14VDC

**Wiring:**

Observing proper color code, attach the HWB-416 to the 4 wire bus using four-wire stranded cable. For wire runs up to 50 feet, 24 gauge wire is recommended and for runs over 50 feet use 22 gauge. An HWB-416 can be wired directly to the control panel or daisy chained to any other 4 wire bus peripheral in the system.

Each zone can be wired in one of three methods:
- With a 4.7K end of line resistor
- Fully Supervised with two 4.7K resistors (Selected in programming)
- Without an end of line resistor

See "Wiring an Input" in the Installation Manual for wiring an input with 1, 2 or no resistors.

**Dip Switches:**

An HWB-416 is two 8 input zone expanders on one circuit board. Each group of eight (inputs L1-L8 and U1-U8) have separate dip switch settings. Depending on control panel support, up to 8 groups with 8 inputs per section can be used per system (total of 64 expansion zones on 4 boards). To determine the number of zones supported by the panel being used consult the control panel's Installation Manual. Use the chart below to determine proper dip switch settings. Examples of the most common dip switch settings are shown on the following page.



| | Lower Group | | | Upper Group | | | Enable Group | | EOL / No EOL | |
|---|---|---|---|---|---|---|---|---|---|---|
| Group 1 | **On** | **On** | **On** | On | On | On | | | | |
| Group 2 | Off | On | On | **Off** | **On** | **On** | | | | |
| Group 3 | **On** | **Off** | **On** | On | Off | On | | | | |
| Group 4 | Off | Off | On | **Off** | **Off** | **On** | | | | |
| Group 5 | **On** | **On** | **Off** | On | On | Off | | | | |
| Group 6 | Off | On | Off | **Off** | **On** | **Off** | | | | |
| Group 7 | **On** | **Off** | **Off** | On | Off | Off | | | | |
| Group 8 | Off | Off | Off | **Off** | **Off** | **Off** | | | | |
| Enable Low Group | | | | | | | On | | | |
| Enable High Group | | | | | | | | On | | |
| No E.O.L Resistor Low Group | | | | | | | | | On | |
| No E.O.L Resistor High Group | | | | | | | | | | On |

Diagram 1: HWB-416 Dip Switch Settings

**Board 1**
**Lower Group #1 Upper Group #2**

**Board 2**
**Lower Group #3 Upper Group #4**

**Board 3**
**Lower Group #5 Upper Group #6**

**Board 4**
**Lower Group #7 Upper Group #8**

= Rocker switch pressed down (on)

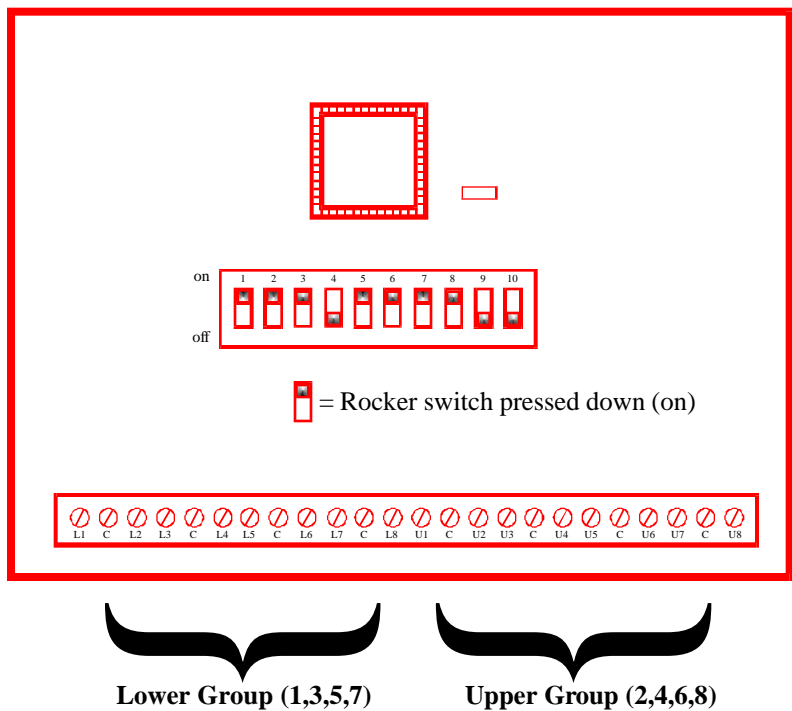**Lower Group (1,3,5,7)**      **Upper Group (2,4,6,8)**

Diagram 2: HWB-416 at default: Lower Group (#1), Upper Group (#2), Upper and Lower Groups Enabled, 1 E.O.L. resistor on all upper and lower group inputs.
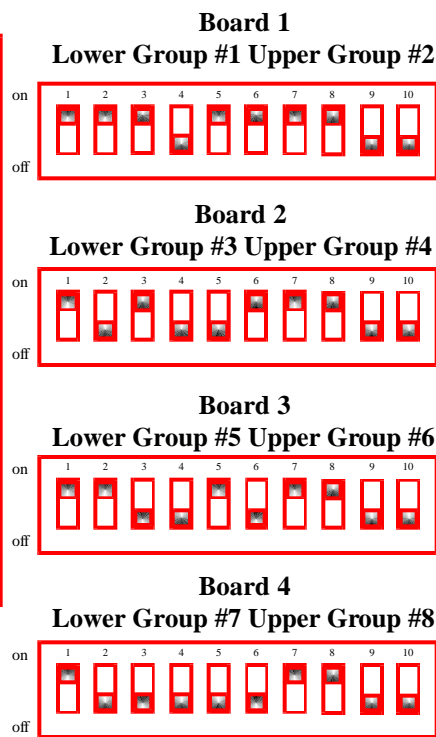
Diagram 3: Most Common Dip Switch Settings: Upper and Lower Groups Enabled, 1 E.O.L. resistor on all upper and lower group inputs.

**Programming:**

Destiny 6100:

Consult Installation Manual for programming information.

Advantage and Destiny:

Program the number of zones used in each group into the appropriate memory location:

| | | | |
|---|---|---|---|
| Group 1 : 214 | Group 3 : 216 | Group 5 : 218 | Group 7 : 220 |
| Group 2 : 215 | Group 4 : 217 | Group 6 : 219 | Group 8 : 221 |

Example: To use all 16 inputs (Groups 1 & 2) on the first HWB-416, program 214,008 and 215,008.

LED- 1:

The green power LED on the HWB-416 indicates power and activity of the four-wire bus. When the HWB-416 is operating correctly the LED should have a consistent flash that is often interrupted by flashing at twice the normal rate. This indicates signaling on the four wire bus. Each time a zone is opened, the LED should flash quickly for a brief moment. If the LED flashes at a constant rate and no devices in the system are operating, check all four-wire bus connections. If the problem persists, contact technical support at 800-272-7937.