

| SWITCH CODE | NUMBER OF SELECTOR POSITIONS | SWITCH STYLE AND PART NUMBER | | |
|----------------------------|------------------------------|------------------------------|------------|--------------------|
| | | SLOTTED | KNOB | THUMBWHEEL |
| Binary Coded Decimal (BCD) | 10 | 435005-1 | 435123-1 | 435128-1 |
| Binary Coded Octal (BCO) | 8 | 435174-1 | 1-435174-1 | --- |
| Decimal | 10 | 1-435097-1 | 2-435097-1 | 435097-1, 435097-2 |
| Hexadecimal | 16 | --- | 1-435167-1 | 2-435167-1 |
| 16-Position Single Pole | 16 | --- | 1-435304-1 | --- |

Figure 1

1. INTRODUCTION

This instruction sheet covers the use of the Low Profile Rotary Switches shown in Figure 1. Read these instructions carefully before installing any switches.

NOTE All dimensions on this document are in metric units [with U.S. customary units in brackets]. Figures and illustrations are for identification only and are not drawn to scale.

See Section 6, REVISION SUMMARY, for revision information.

2. DESCRIPTION

These switches are bi-directional programming devices that are designed to be soldered to printed circuit (pc) boards. They are available with five coded readouts: (1) Binary Coded Decimal (BCD); (2) Binary Coded Octal (BCO); (3) Decimal; (4) Hexadecimal; and (5) 16-Position Single Pole. The switches feature

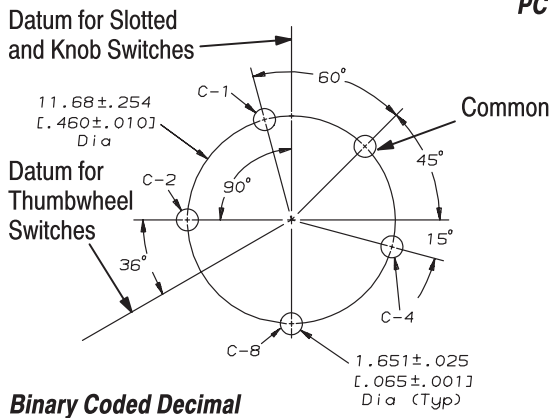
three different styles: slot switch, knob switch, and thumbwheel switch.

The circuit pattern for each code is shown in Figure 2. Make certain the circuit pattern of the switch used matches the circuit layout of the applicable pc board.

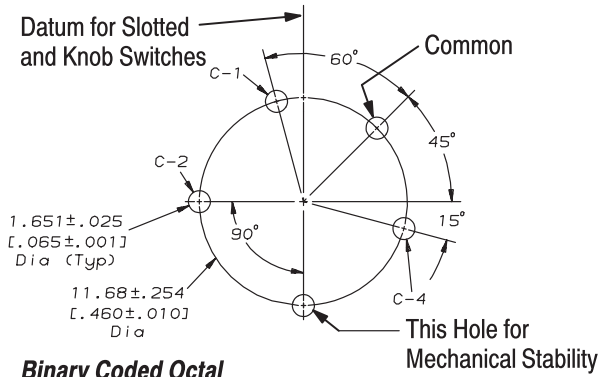
The slotted switch is designed for minimal clearance locations. A screwdriver or similar tool can be used to rotate the selector. The knob switch can be used at similar locations with the exception that more space is required between the applicable pc board and adjacent components. These switches must be installed in locations that provide accessibility to the front of the switch or in pc boards that can be removed for programming of the switch.

The thumbwheel switch is recommended for pc boards that are placed in a fixed position adjacent to existing components. This switch is designed to be rotated from the edge of the pc board. When installing this switch, make certain the selector will face a readable position.

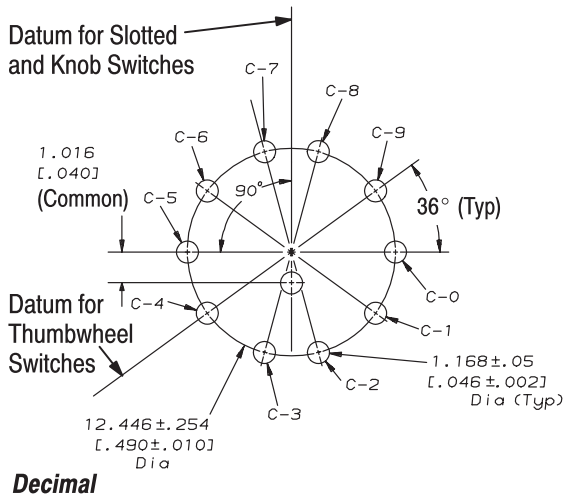
PC Board Layouts



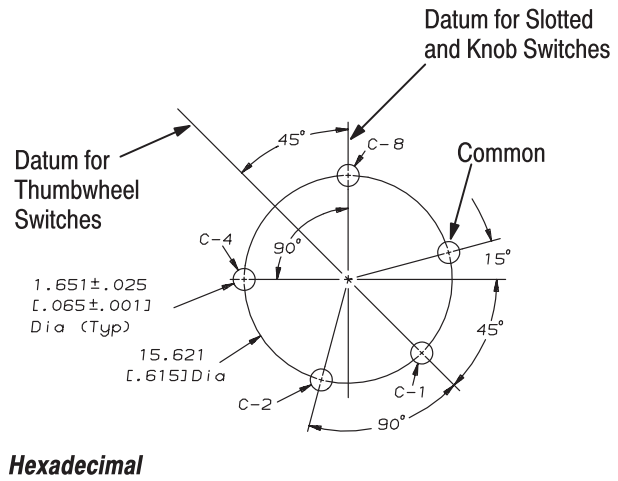
Binary Coded Decimal



Binary Coded Octal



Decimal



Hexadecimal

| SWITCH CODE | BCD | | | | BCO | | | | DECIMAL | | | | | | | | | | HEXA-DEC | | | |
|-----------------------|-----|---|---|---|-----|---|---|---|---------|---|---|---|---|---|---|---|---|---|----------|---|---|--|
| | 1 | 2 | 4 | 8 | 1 | 2 | 4 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 4 | 8 | |
| SOLDER POST (circuit) | 1 | 2 | 4 | 8 | 1 | 2 | 4 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 4 | 8 | |
| S | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| E | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| L | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| E | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| C | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| T | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| O | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| R | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| P | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| O | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| S | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| I | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| T | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| I | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| O | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| N | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Figure 2

3. INSTALLATION

Determine the number of selector positions, printed circuit pads, and the circuit pattern required for the application. Then refer to the table in Figure 1 and select the applicable switch.



The solder posts of the switch are polarized to ensure proper installation. Make certain they align with the holes before attempting to insert the switch in the pc board, otherwise damage may result.

Proceed as follows:

1. Align the selector and "0" character as shown in Figure 1. This provides a datum that will aid in alignment of the solder posts.
2. Align the solder posts with the holes in the pc board. Then start them into the board.
3. Press on the outer edge of the switch until it bottoms on the pc board. Do not press on the center of the switch. See Figure 3.

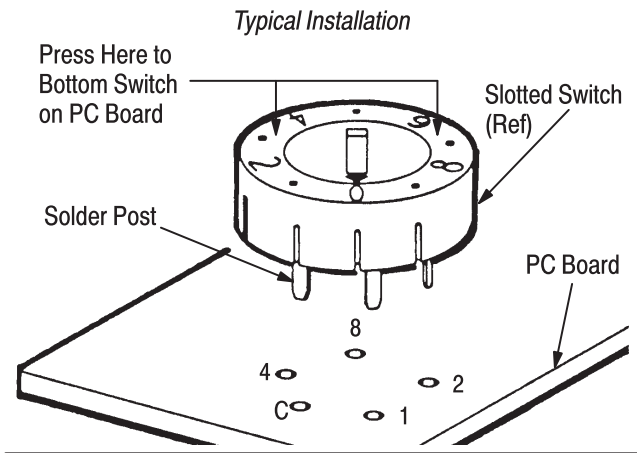


Figure 3

4. Make certain the switch is flat against the pc board. Then solder the posts to the circuit pads using a standard wave soldering or hand soldering technique.

4. SOLDERING

4.1. Wave Soldering



The switch does not have to be in any specific position before soldering.

1. Preheat pc board and keep the temperature regulated so that the switch case does not exceed 88°C [190°F].
2. Apply flux only to the bottom of the pc board. Do NOT allow flux to pass over the top of the pc board.
3. Keeping the solder temperature at 260°C [500°F] pass the pc board over the solder wave.



Do NOT allow the switch to be exposed to the solder wave for more than five seconds or damage to the switch could occur.

4.2. Hand Soldering



The switch does not have to be in any specific position before soldering.

1. Make sure the switch is fully bottomed on the pc board.
2. Using a soldering iron (47 watts maximum), simultaneously apply heat and solder to the pc board and switch lead for approximately five seconds.

5. CLEANING (Figure 4)

Clean the pc board with a cleaning solution that is free of contamination and dissolved flux (3% maximum), and one that will NOT affect plastic, nor subject the switches to solvent temperatures above 52°C [125°F]. Recommended cleaning solutions are listed in the chart in Figure 4.



Vapor cleaning (with pc board on edge) is preferred over immersion in a liquid solvent.

| CLEANING SOLVENTS | |
|---------------------|-----------------------|
| FREON TP 35 | Recommended |
| FREON TE 35 | Recommended |
| Detergent and Water | Suggested Alternative |
| FREON TF | Suggested Alternative |
| Isopropyl Alcohol | Suggested Alternative |

Figure 4

6. REVISION SUMMARY

- Updated document to corporate requirements
- New format
- Deleted obsolete part numbers in table in Figure 1