

## SERIES 84R

### Rugged Keypad for Tough Environments

#### FEATURES

- Metal Keys and Housing
- Sealed for Use Outdoors
- Full Travel Keys Provide Positive Feedback
- Choice of Dome Contacts or Conductive Rubber Contacts
- Choice of Matrix Coding or Single Pole/Common Bus Coding
- Available with an Optional Locking Connector
- Custom Engraved Legends Available

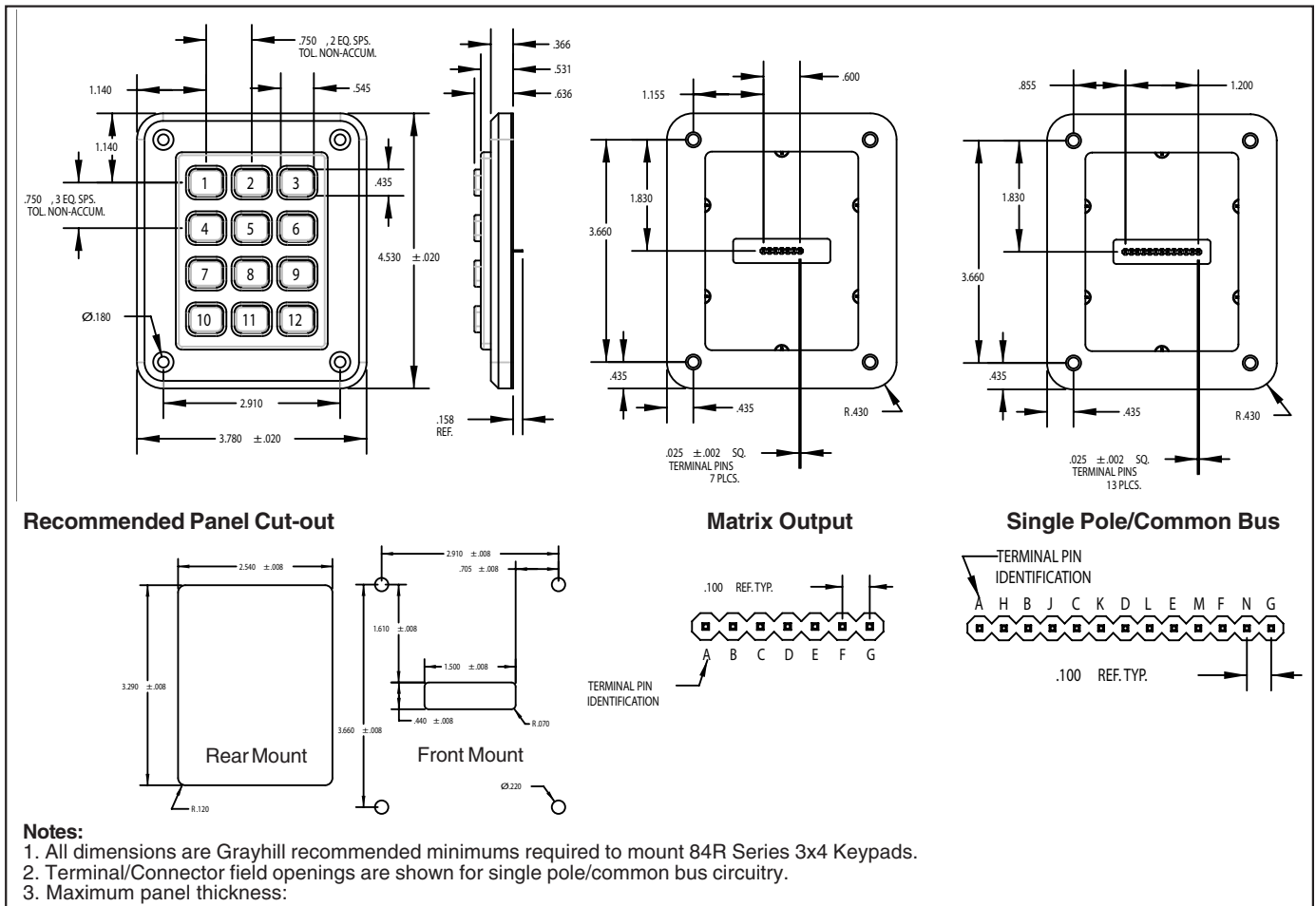
#### DESCRIPTION

Series 84R keypads work in harsh industrial environments where exposure to fine particulates compromises other keypads. The sealed openings and tough construction make this keypad perfect for outdoor use as well. Typical applications include security system code entry and product selection on outdoor terminals.

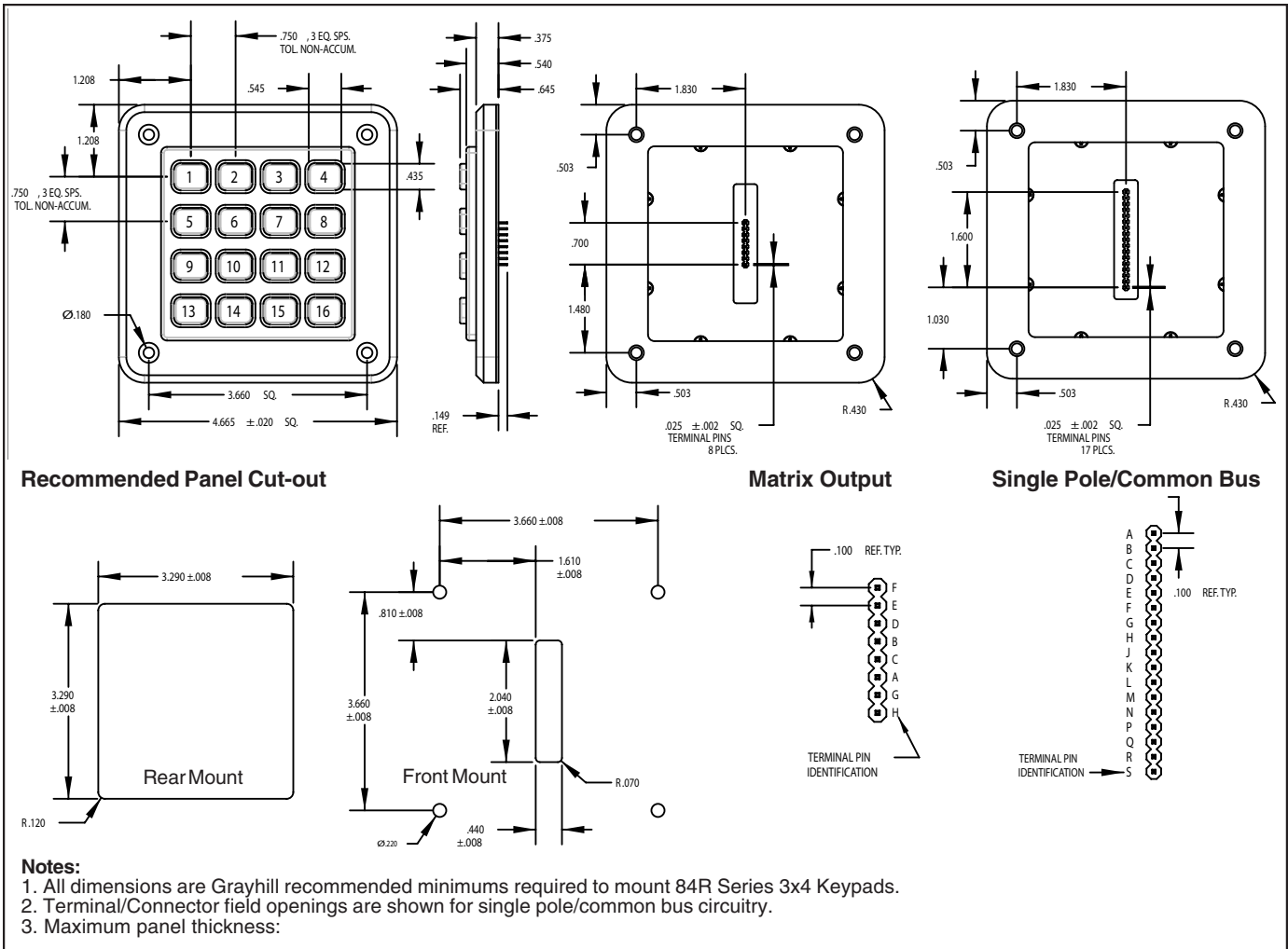


Keyboards and Keypads

#### 3 X 4 DIMENSIONS in inches (and millimeters)



4 X 4 DIMENSIONS in inches (and millimeters)



Keyboards and Keycaps

CODE AND TRUTH TABLES

Dots in the chart indicate connected terminals when switch is closed. Terminals are identified on the keyboard.

12 Button Keycaps

| 3x4 | CODES             |   |   |   |   |   |                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----|-------------------|---|---|---|---|---|------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|     | Matrix            |   |   |   |   |   | Single Pole/Common Bus |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|     | 1                 | 2 | 3 | 4 | 5 | 6 | 1                      | 2 | 3 | 4 | 5 | 6 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1   | •                 |   |   |   |   |   |                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 2   |                   | • |   |   |   |   |                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 3   |                   |   | • |   |   |   |                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 4   |                   |   |   | • |   |   |                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 5   |                   |   |   |   | • |   |                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 6   |                   |   |   |   |   | • |                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 7   |                   |   |   |   |   |   | •                      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 8   |                   |   |   |   |   |   |                        | • |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 9   |                   |   |   |   |   |   |                        |   | • |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 10  |                   |   |   |   |   |   |                        |   |   | • |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 11  |                   |   |   |   |   |   |                        |   |   |   | • |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 12  |                   |   |   |   |   |   |                        |   |   |   |   | • |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|     |                   |   |   |   |   |   | C                      | B | A | G | F | E | D | E | C | B | F | D | A | N | K | H | M | L | J | G |
|     | TERMINAL LOCATION |   |   |   |   |   |                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

16 Button Keycaps

| 4x4 | CODES             |   |   |   |   |   |   |   |                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----|-------------------|---|---|---|---|---|---|---|------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|     | Matrix            |   |   |   |   |   |   |   | Single Pole/Common Bus |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|     | 1                 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 1                      | 2 | 3 | 4 | 5 | 6 | 7 | 8 |   |   |   |   |   |   |   |   |
| 1   | •                 |   |   |   |   |   |   |   |                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 2   |                   | • |   |   |   |   |   |   |                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 3   |                   |   | • |   |   |   |   |   |                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 4   |                   |   |   | • |   |   |   |   |                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 5   |                   |   |   |   | • |   |   |   |                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 6   |                   |   |   |   |   | • |   |   |                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 7   |                   |   |   |   |   |   | • |   |                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 8   |                   |   |   |   |   |   |   | • |                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 9   |                   |   |   |   |   |   |   |   | •                      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 10  |                   |   |   |   |   |   |   |   |                        | • |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 11  |                   |   |   |   |   |   |   |   |                        |   | • |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 12  |                   |   |   |   |   |   |   |   |                        |   |   | • |   |   |   |   |   |   |   |   |   |   |   |   |
| 13  |                   |   |   |   |   |   |   |   |                        |   |   |   | • |   |   |   |   |   |   |   |   |   |   |   |
| 14  |                   |   |   |   |   |   |   |   |                        |   |   |   |   | • |   |   |   |   |   |   |   |   |   |   |
| 15  |                   |   |   |   |   |   |   |   |                        |   |   |   |   |   | • |   |   |   |   |   |   |   |   |   |
| 16  |                   |   |   |   |   |   |   |   |                        |   |   |   |   |   |   | • |   |   |   |   |   |   |   |   |
|     | A                 | B | C | D | E | F | G | H | D                      | B | A | C | H | F | E | G | K | M | L | J | P | R | Q | S |
|     | TERMINAL LOCATION |   |   |   |   |   |   |   |                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

**SPECIFICATIONS**

**Dome Contacts Rating Criteria**

**Rating at 24 Vdc:** 10 mA resistive (max)  
**Contact Bounce:** 4 milliseconds maximum at make; 10 milliseconds maximum at break  
**Contact Resistance:** 10 ohms maximum  
**Voltage Breakdown:** 250 V  
**Life Expectancy:** 3 million operations/button  
**Insulation Resistance:** 1000 MegOhms min.

**Rubber Contacts Rating Criteria**

**Rating at 24 Vdc:** 5 mA for .5 seconds  
**Contact Bounce:** less than 12 milliseconds  
**Contact Resistance:** less than 100 ohms initial  
**Voltage Breakdown:** 250 VAC between components  
**Life Expectancy:** 3 million operations/button  
**Insulation Resistance:** >10 Ohms @500 VDC

**Materials and Finishes**

**PC Board:** FR-4 Glass Cloth Epoxy  
**Dome Retainer/Rear Seal Sheet:** Polyester  
**Housing/Buttons:** Aluminum Alloy  
**Keypad/Gasket:** Black Fluorosilicone Rubber, 50 Durometer +5  
**Domes:** Stainless Steel  
**Connector/Header:** Glass Filled Polyester  
**Terminals:** Gold Plated, Phosphor Bronze

**Dome Contacts Operating Features**

**Pre-Travel:** 0.030" minimum  
**Operating Force:** 20 ±4 ounces  
**Operating Temperature:** -55°C to 85°C  
**Humidity:** 0 to 98% (no condensation)

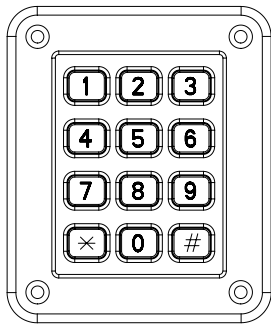
**Rubber Contacts Operating Features**

**Pre-Travel:** 0.050" minimum  
**Operating Force:** 175 ±40 grams  
**Operating Temperature:** -55°C to 85°C  
**Humidity:** 0 to 98% (no condensation)

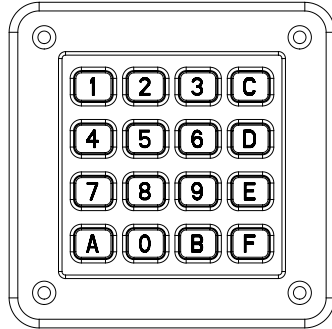
**STANDARD LEGENDS**

Available through Grayhill Distributors

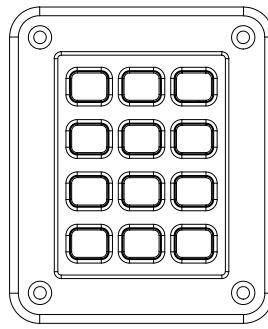
To order one of the configurations below, use the dash number shown here; select the keypad size and code, and order the part number with the appropriate legend dash number.



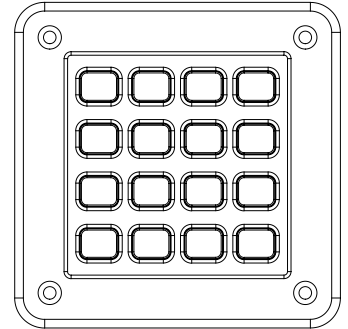
-112



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**HEADER CONNECTORS**

Compatible with: Samtec, Inc. Header Series BCS, BSW, CES, ESW, ESQ, SLW, SSW, SSQ, IDSS and IDSD or equivalent.

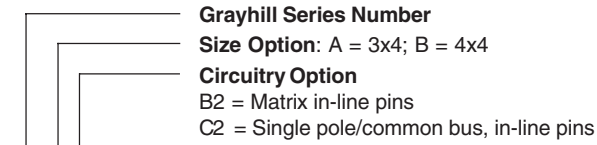
**AVAILABILITY**

For prices and discounts, contact a local Sales Office, an authorized local Distributor or Grayhill.

**CUSTOM LEGENDS**

Custom keytop graphics are available. Contact a local Sales Office or Grayhill directly to enquire about minimum requirements and costs.

**ORDERING INFORMATION**



84R-AB2-112-PD

**Grayhill Series Number**

**Size Option:** A = 3x4; B = 4x4

**Circuitry Option**

B2 = Matrix in-line pins

C2 = Single pole/common bus, in-line pins

**Key Contact Option**

D = Metal Domes; R = Conductive Rubber

**Connector Option**

P = Terminal Pins; C = Locking Connector

**Standard Legend Choices**

3x4 Size = -112; 4x4 Size = -014; Blank = -000