

**SERIES 86**  
**Unsealed, .500" Centers,**  
**Flange Mounted**

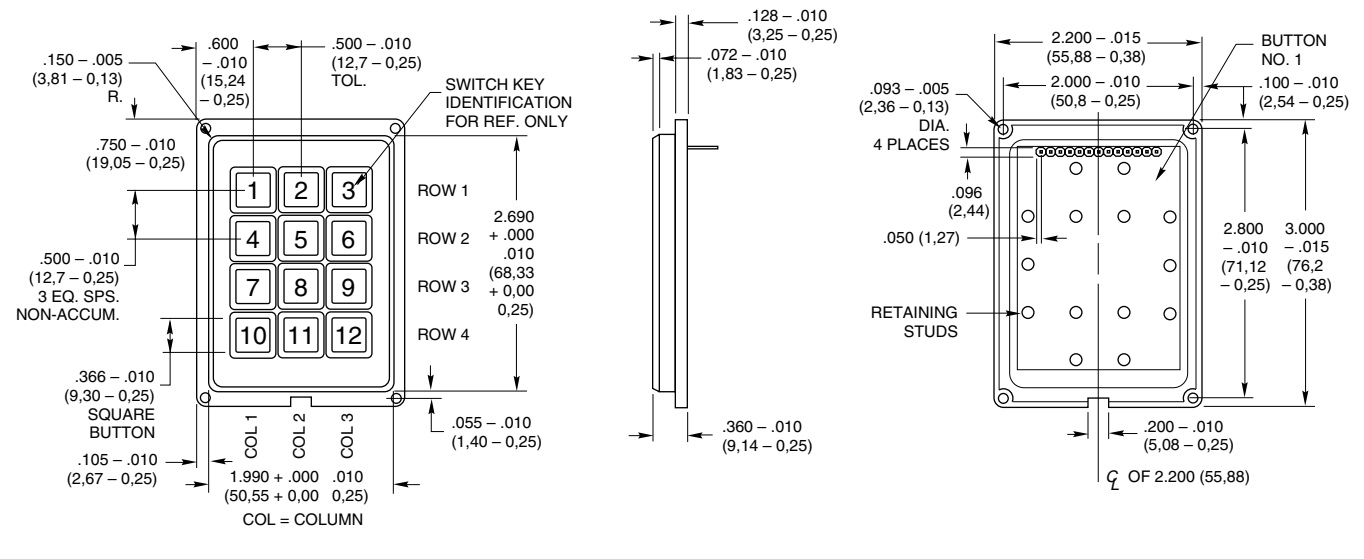
**FEATURES**

- 1/2" Button Centers
- Flange Mounted
- Top Surface or Sub Surface Mounting
- Snap-Dome Contact Provides Positive Feedback



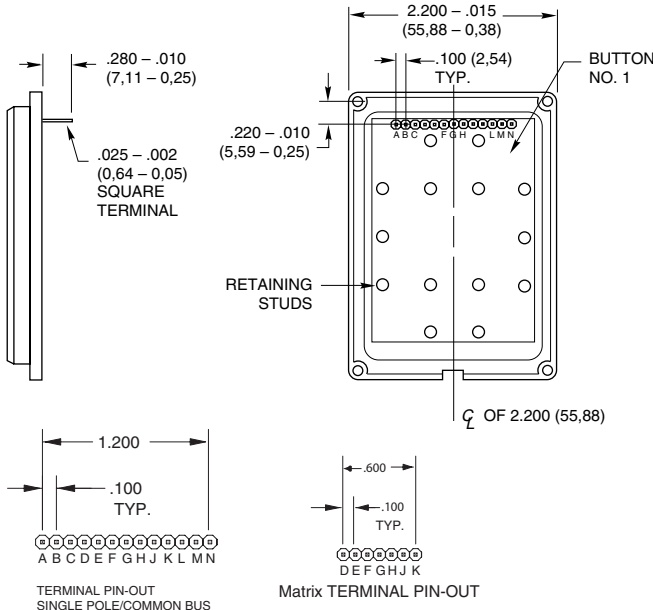
**DIMENSIONS** in inches (and millimeters)

**3x4 Keyboard**



**Termination** in inches (and millimeters)

**3x4**



**Code and Truth Table**

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

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

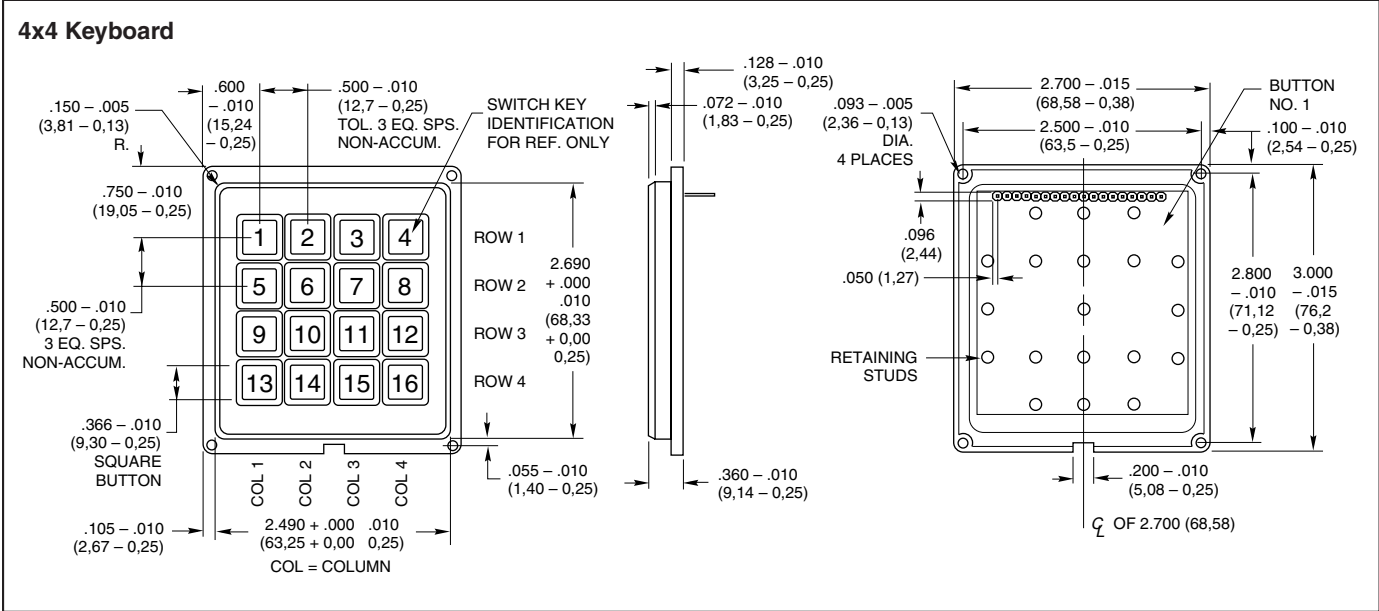
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**FEATURES**

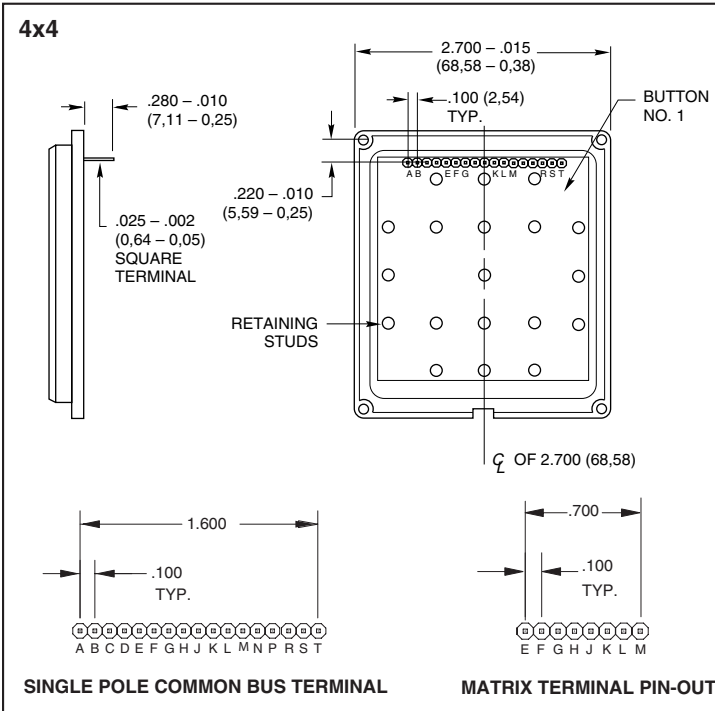
- 1/2" Button Centers
- Flange Mounted
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**DIMENSIONS** in inches (and millimeters)



**Termination** in inches (and millimeters)



**Code and Truth Table**

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

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

### SERIES 86

#### Unsealed, .500" Centers, Flange Mounted

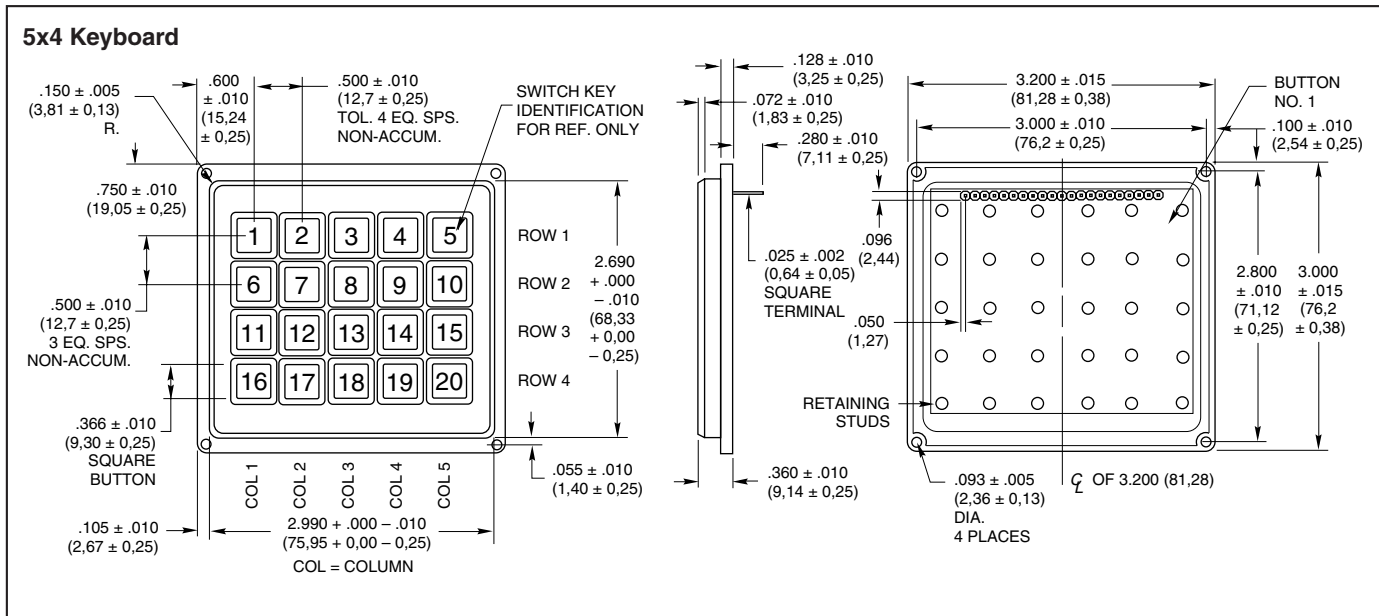
#### FEATURES

- 1/2" Button Centers
- Flange Mounted
- Top Surface or Sub Surface Mounting
- Snap-Dome Contact Provides Positive Feedback

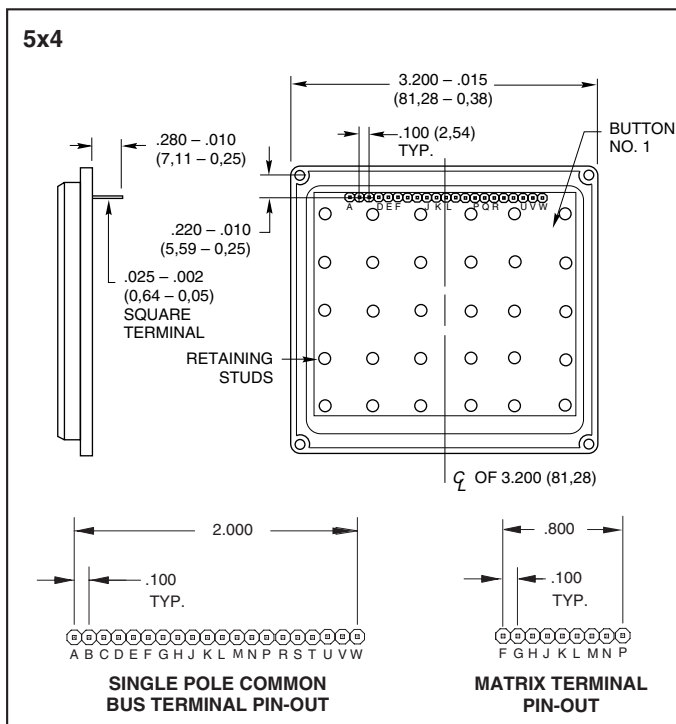


Keyboards and Keypads

#### DIMENSIONS in inches (and millimeters)



#### Termination in inches (and millimeters)



#### Code and Truth Table

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

5x4	Matrix	CODES																													
		Single Pole/Common Bus																													
1	•																				•										
2	•																				•										
3		•																			•										
4			•																		•										
5				•																	•										
6					•																•										
7						•															•										
8							•														•										
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16															•						•										
17																•					•										
18																	•				•										
19																		•			•										
20																			•		•										
		P	N	K	G	F	J	L	M	H	T	P	M	H	D	U	Q	L	G	C	V	R	K	F	B	W	S	J	E	A	N
		<b>TERMINAL LOCATION</b>																													

**SPECIFICATIONS**

**Rating Criteria**

**Rating at 24 Vdc:** 10 milliamps, resistive  
**Contact Resistance:** Compatible with MOS, TTL and DTL (10 ohms maximum)  
**Voltage Breakdown:** 250Vac between mutually insulated parts  
**Life Expectancy:** 3,000,000 operations per button

**Contact Bounce:** Less than 4 milliseconds at make, 10 milliseconds at break  
**Operating Temperature:** -40°C to +80°C

**Contact Dome:** Stainless steel, selectively gold-plated  
**Terminals:** Phosphor bronze

**Materials and Finishes**

**Housing:** ABS polycarbonate, black  
**Buttons:** ABS plastic, white. Legends are black.  
**Snap-On-Cap:** Clear polycarbonate

**Operating Features**

**Button Travel:** 0.015" nominal total travel  
**Typical Operating Force:** 350 grams

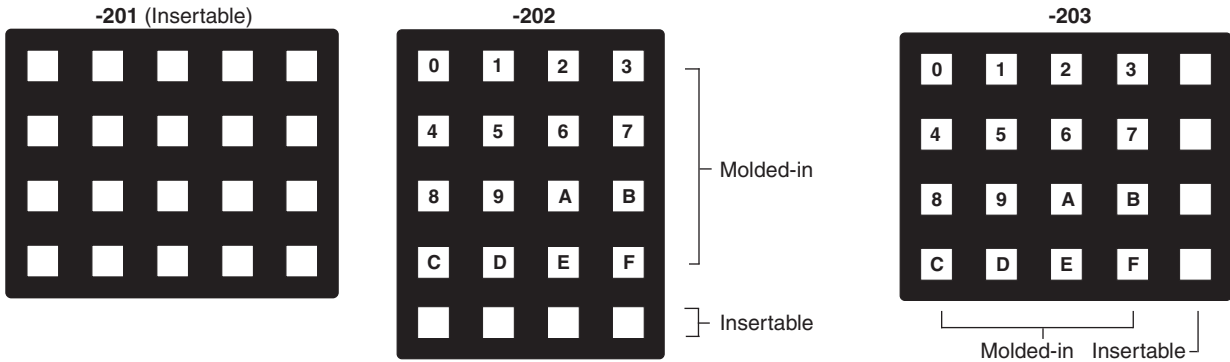
**STANDARD LEGENDS**

Insertable legend version (legend numbers -101, -001, -201 and row or column indicated in -202 and -203) has a removable cap. The revealed button surface can be legended by an insert or a dry transfer of a blank legend

insert. This surface can also be ink stamped by Grayhill in higher volume quantities. When the cap is replaced, the assembly extends approximately .015" (0,38 mm) above the surface. The legend sheet information follows

the legend presentation. All other legends incorporate molded-in (two shot) legends with the exception of legend numbers -202 and -203. The blank legends or spaces in legends -202 and -203 are insertable legends, others are molded-in.

**5x4:** Shown below



**INSERTABLE LEGENDS**

For use with -101, -001, -201, -202 and -203 legend options. Legends are die cut to fit button surface when cap is removed. Dry transfer legends offer some flexibility to customize the blank inserts included on the sheet of popular legend letters, words and symbols provided or on the insertable legends sheet.

Description	Part No.
Sheet of Legend Inserts	<b>87AC2046</b>
Dry Transfer Lettering, Small	<b>87-DT-2096-088</b>
Dry Transfer Lettering, Medium	<b>87-DT-2096-125</b>
Dry Transfer Lettering, Large	<b>87-DT-2096-187</b>

**ORDERING INFORMATION**

**Grayhill Series Number**

**Size Option**  
 A = 3x4  
 B = 4x4  
 J = 5x4

**Circuitry Option**  
 B2 = Matrix code  
 C2 = Single pole/common bus

**Standard Legend Choices**  
 3x4 Size: -101, -102 or -103  
 4x4 Size: -001, -002, -003, -004, -005 or -006  
 5x4 Size: -201, -202, or -203

86AB2-103

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