Specifications are subject to change. Please refer to the current datasheet on www.grayhill.com for the most current published specifications for this product.

SERIES 84LS
Sealed, Low Profile



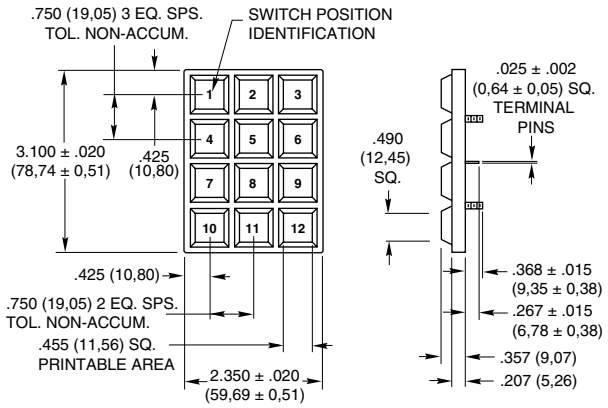


FEATURES
- Waterproof Silicone Rubber
- Easily Customized Legends
- Audible, Tactile Contacts
- Low Contact Resistance
- Optional RFI/EMI Shielding
- 3,000,000 Operations per Button

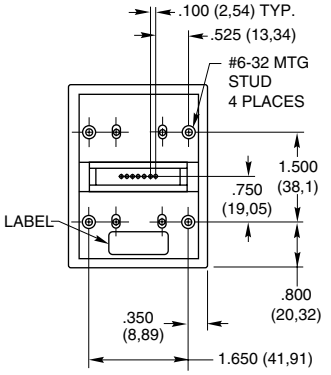
DESCRIPTION
The Series 84LS is the low profile version of Grayhill's popular Series 84S sealed keypads. These keypads are legended by epoxy ink printing the rubber key tops. Custom legends and colors are available at a nominal cost. The Series 84LS is offered with a choice of matrix or single pole/common bus circuitries and EMI shielding.

DIMENSIONS in inches (and millimeters)

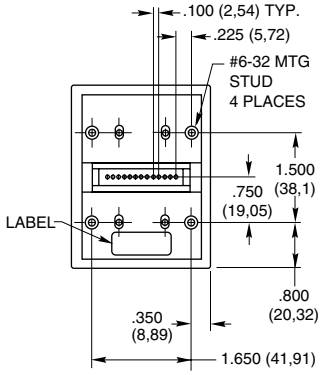
3x4 Keyboard

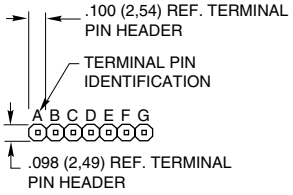


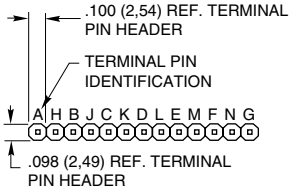
Matrix Output



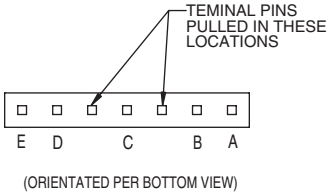
Single Pole/Common Bus



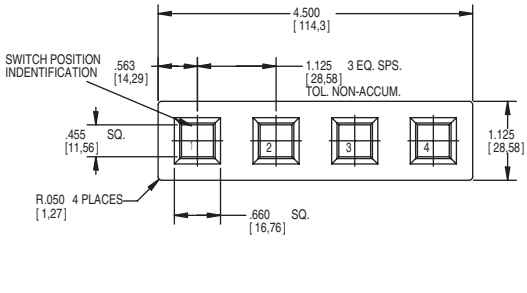


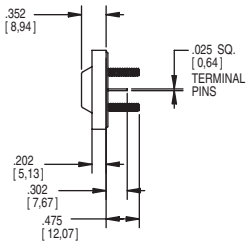


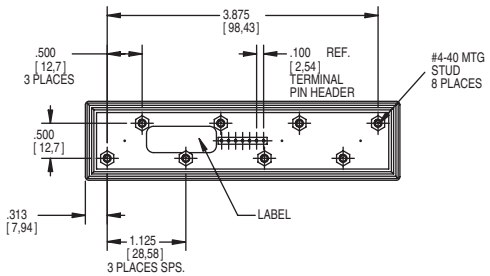
1x4 Keyboard



Single Pole/Common Bus

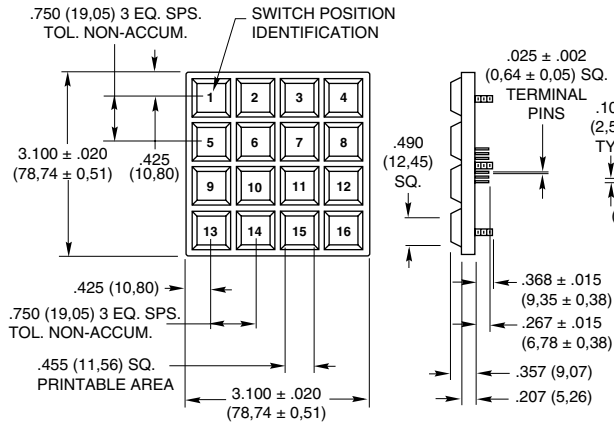




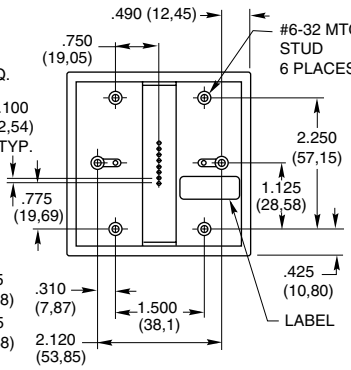


DIMENSIONS in inches (and millimeters)

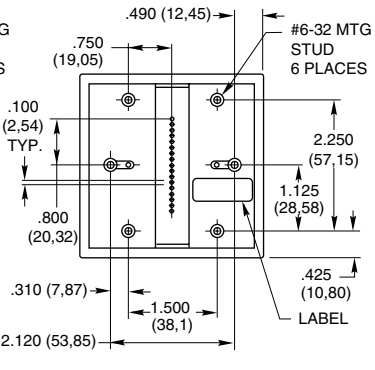
4x4 Keyboard



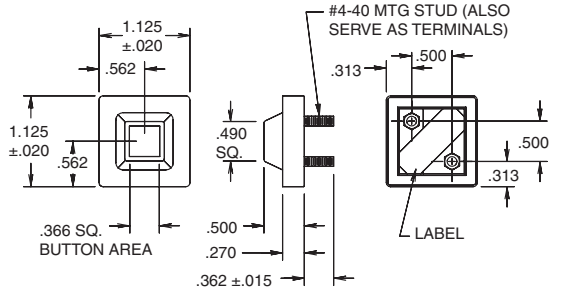
Matrix Output

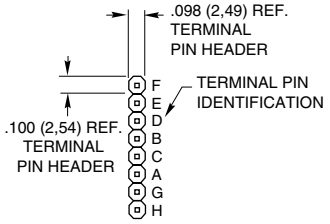


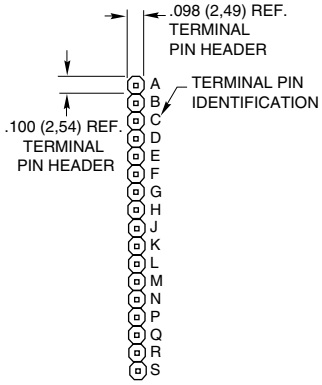
Single Pole/Common Bus



1x1 Keyboard



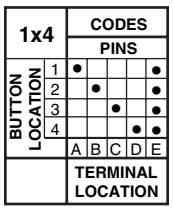




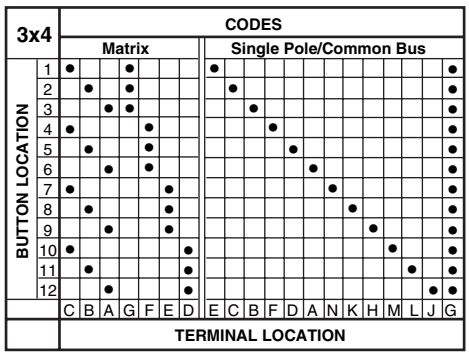
CODE AND TRUTH TABLES

The chart indicates the relationship of the terminal pins to each key switch.
The dot indicates a closed switch. Terminals are identified on the keyboard.

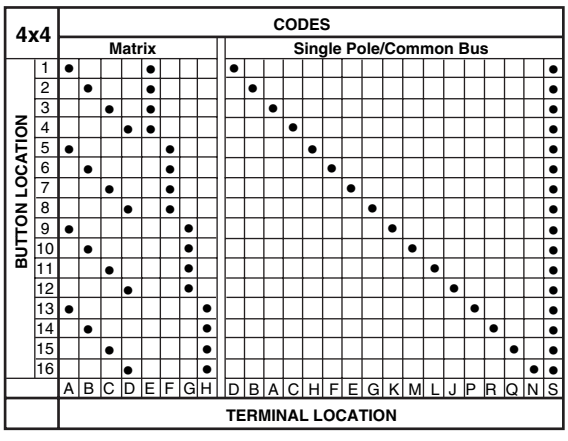
4 Button Keypads



12 Button Keypads



16 Button Keypads



SPECIFICATIONS

Rating Criteria

Rating at 24 Vdc: ≤ 10 milliamps resistive
Contact Bounce: 4 milliseconds maximum at make; 10 milliseconds, at break
Contact Resistance: MOS, TTL, and DTL compatible. (10 ohms maximum)
Operating Temperature: -55°C to 85°C
Life Expectancy: 3 million operations/button
Insulation Resistance: 1,000 megohms

Operating Features

Pre-Travel: .030 inches minimum
Operating Force: 20 ± 4 ounces
Humidity: 0 to 98% (no condensation)
Minimum Push Out Force Per Pin: 5 pounds

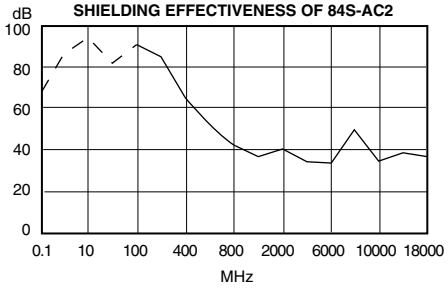
Materials and Finishes

Terminal Pins: Copper alloy CDA 725
PC Board: FR-4 glass cloth epoxy
Dome Retainer/Rear Seal Sheet: Polyester
Mounting Studs: Phosphor bronze
Optional Hex Nut: Stainless steel, passivated
Optional EMI Shield: Aluminum foil
Keypad: Silicone rubber

Specifications are subject to change. Please refer to the current datasheet on www.grayhill.com for the most current published specifications for this product.

Shielding Effectiveness

Results shown are typical for a standard Grayhill Series 84LS Keyboard. A conductive gasket will generally increase the shielding, depending on the size and shape of the gasket and its material. Data derived for E-Field Radiation.



– – Represents shielding effectiveness greater than or equal to line.

Frequency MHz	Rating in dB
0.1	66.2
10	94.8
100	89.0
400	70.6
800	42.5
2,000	39.5
6,000	32.6
10,000	45.2
18,000	42.2

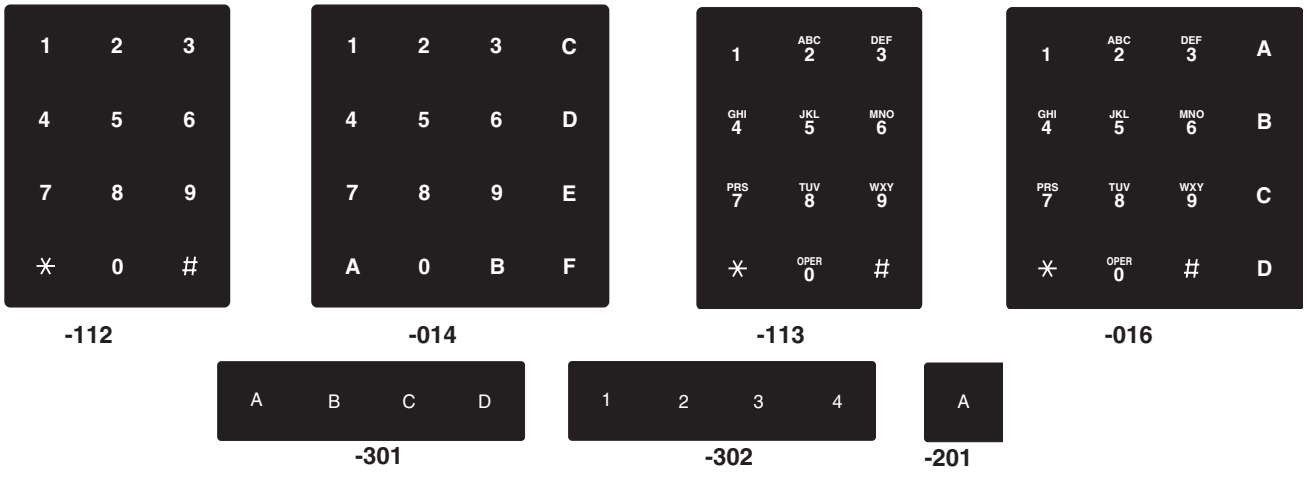
Test Method:
Measurements were made with the keyboard mounted to a brass plate, which in turn was mounted to a shielded enclosure containing the receiving equipment. A signal generator provided the frequency source that was radiated from the transmitting antenna to the enclosed receiving antenna. The spacing between antennas was maintained constant throughout the frequency range. The effectiveness rating is determined by establishing a reference reading without obstruction between the two antennas and determining the difference between that reading and the test setup reading.

Note:
When measured in actual equipment, shielding effectiveness is determined by many factors. This method accurately represents the shielding effectiveness of the Grayhill Series 84LS under ideal test conditions.

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.



CUSTOM LEGENDS

Any reasonable legend can be printed in the key area. Fax a sketch of your requirements to Grayhill. Printing and symbols will be coordinated in keeping with concepts of good design. Or, if required, the details of your submitted artwork will be matched as closely as possible. Allow 3 to 4 weeks for custom legend delivery. A nominal charge, depending on the total quantity of keypads ordered and the complexity of the legend, will be assessed.

HEADER CONNECTORS

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

ORDERING INFORMATION

84LS-AC2-113-N

Grayhill Series Number
Shielded or Non-Shielded Option
S = Shielded
SN = Non-Shielded
Size Option
A = 3x4 B = 4x4 C = 1x1 F = 1x4
Circuitry Option
B2 = Matrix in-line pins C2 = Single pole/common bus, in-line pins
Mounting Nut Option
N = Provided with hex nuts for mounting
Blank = Nuts not provided
Standard Legend Choices
3x4 Size, choose -112 or -113
4x4 Size, choose -014 or -016
1x4 Size, choose -301 or -302
1x1 Size, choose -201

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