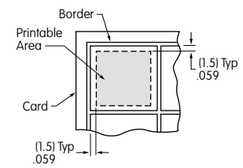
Insertable Legend Cards

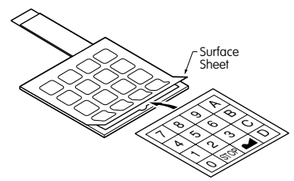
Instructions for Customizing Insertable Legends

The membrane keypad assembly comes with three insertable legend cards: yellow, gray and black.

The following provides guidelines for creating and insertion of legend cards for the membrane switch keypad assembly. Read all of the instructions prior to customizing and inserting the legend card.

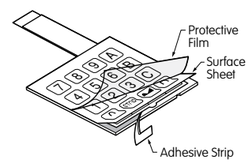
- Using the borders on the insertable legend card as a guide, be sure characters on the card are about 1.5mm (.059″) within these borders. This is the printable area.
- Legend characters may be drawn, printed, etc. Be sure that application choice is completely dry before inserting into membrane keypad assembly.





Instructions for Inserting Legend Card

- Note correct orientation of insertable legend card. Insert card under surface sheet, and use caution to avoid bending the membrane keypad assembly. Do not use pointed object to insert card, and do not remove surface sheet.
- Align and center all legend characters within the squares of the surface sheet.
- Smooth any wrinkles or air pockets from surface sheet.
- Peel off adhesive strip from the membrane keypad assembly.
- The legend card is now firmly in place and cannot be removed.
- Detach the protective film.



Connectors

Recommended connector for 5 pin: Molex 0528060570

Recommended connector for 8 pin: Molex 0528060810

Applications

- Communication equipment
- Automation equipment
- Office machines
- Electronic equipment
- Electronic equipment for national security
- Amusement equipment

Availability

FM Series Membrane Switch Keypads available January 2008.

0108

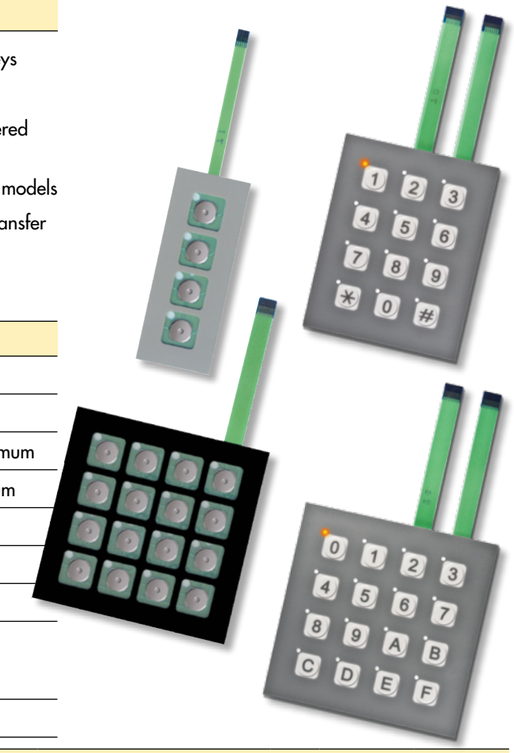
NKK® SWITCHES
7850 East Gelding Drive • Scottsdale, AZ 85260
Telephone 480-991-0942 • Fax 480-998-1435

NEW!

FM Series Membrane Switch Keypads

Distinctive Characteristics

- Nonilluminated options in 4 or 16 keys, illuminated choices in 12 or 16 keys
- 1.0mm (.039″) tail pitch
- Easily integrated into designs: replaces multiple mechanical switches, soldered wires and cable assemblies
- Card insertion into design supports customized legends for nonilluminated models
- Actuating dome offers crisp, tactile feedback to positively indicate circuit transfer
- Illuminated models feature legends on embossed keypads
- Adhesive backing for easy mounting



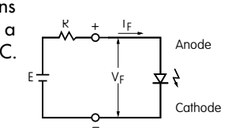
General Specifications

Power Level	20mA @ 24V DC
Contact Resistance	500Ω maximum (10mA @ 10V DC)
Insulation Resistance	100 megohms minimum @ 250V DC minimum
Dielectric Strength	250V AC minimum for one minute minimum
Operational Life	1,000,000 operations minimum
Contact Timing	10 milliseconds maximum
Nominal Operating Force	1.0N ~ 6.0N
Stroke: Nonilluminated Illuminated (with Surface Sheet)	.016″ ~ .039″ (0.4mm ~ 1.0mm) .020″ ~ .047″ (0.5mm ~ 1.2mm)
Operating Temperature Range	−15°C ~ +50°C (+5°F ~ +122°F)

LED Specifications

Single Element LED Color: Amber			Unit
Forward Voltage (Typical)	V_F	2.1	V
Forward Current (Typical)	I_F	20	mA
Forward Current (Maximum)	I_F	30	mA
* Forward Peak Current (Max)	I_{FM}	195	mA
Reverse Voltage (Maximum)	V_R	5.0	V

The electrical specifications shown are determined at a basic temperature of 25°C. LED is an integral part of the switch. LEDs are not sold separately.



$$R = \frac{E - V_F}{I_F}$$

Where: R = Resistor Value (Ohms)
E = Source Voltage (V)
V_F = Forward Voltage (V)
I_F = Forward Current (A)

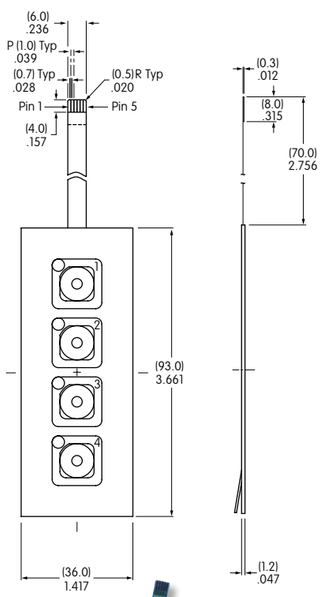
LED circuits are isolated and require an external power source.
If the source voltage exceeds the rated voltage, a ballast resistor is required.

* Note: Pulse width 0.1msec maximum with a maximum duty cycle ratio of 1/10

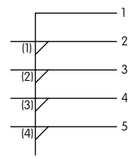
Order Information	Description				
Part Number	Illumination	Number of Keys	Surface Sheet Black (D)	Surface Sheet Gray (E)	Overlay
FMBN04BD	Nonilluminated	4	●		
FMBN04BE		4		●	
FMBN16BD		16	●		
FMBN16BE		16		●	
FMBP12BF	Dot Illuminated with Overlay	12			Gray Surface Sheet with Embossed White Keypad and Gray Legends
FMBP16BF		16			

Typical Switch Dimensions

Nonilluminated • 4 or 16 Keys



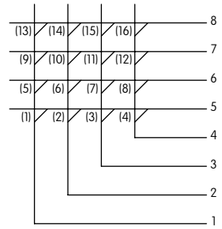
Switch Circuit Matrix For 4 Key



Key numbers in parenthesis are not actually on panel and are for reference only

Switch Circuit Matrix Detail For 4 or 16 Key

Switch Circuit Matrix For 16 Key



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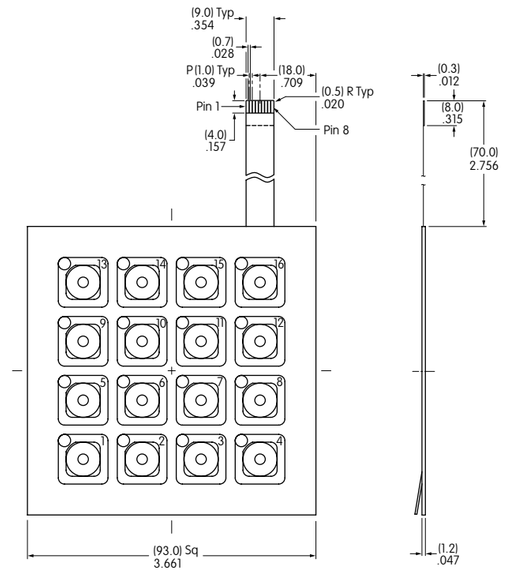
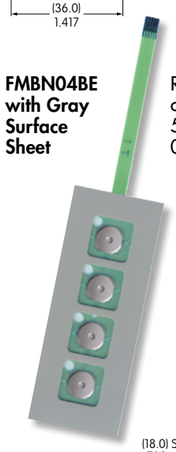


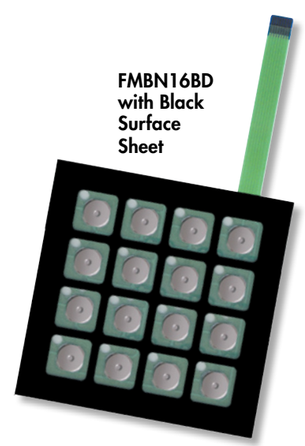
FMBN04BE with Gray Surface Sheet



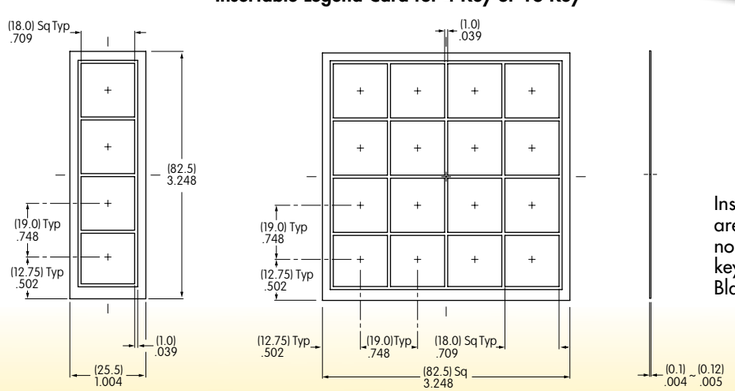
Recommended connector for 5 pin: Molex 0528060570

Recommended connector for 8 pin: Molex 0528060810

FMBN16BD with Black Surface Sheet



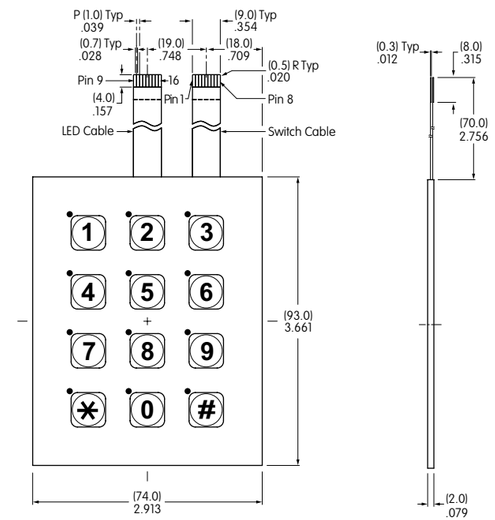
Insertable Legend Card for 4 Key or 16 Key



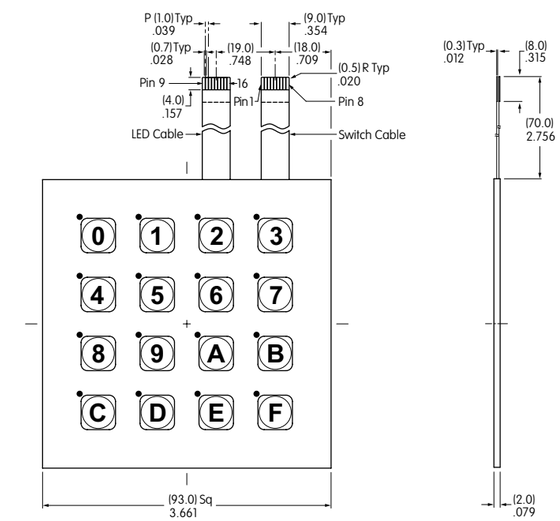
Insertable Legend Cards are supplied with the nonilluminated switch keypad assembly in Black, Gray and Yellow

Typical Switch Dimensions

Illuminated • 12 or 16 Keys

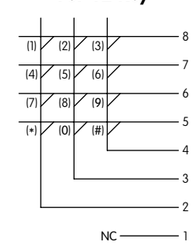


Dot illumination at upper left corner of each keypad

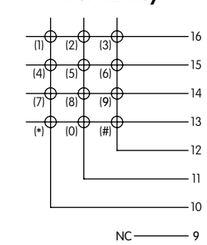


Dot illumination at upper left corner of each keypad

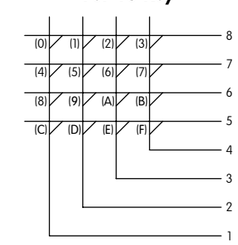
Switch Circuit Matrix For 12 Key



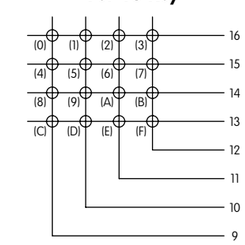
LED Circuit Matrix For 12 Key



Switch Circuit Matrix For 16 Key



LED Circuit Matrix For 16 Key



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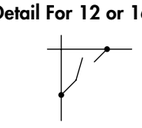
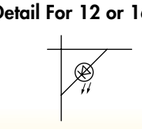
Recommended connector for 8 pin: Molex 0528060810

FMBP12BF

Switch Circuit Matrix Detail For 12 or 16 Key



LED Circuit Matrix Detail For 12 or 16 Key



FMBP16BF