everything starts here.

Tough Environment Switches

Introduction

Purpose:

- How to choose the right sealed switch for harsh environments.

Objective:

- Switch & Environmental Considerations
- Combating Premature Switch Failure for Harsh Environments
- Switches for your Toughest Applications
- Sealed Switch and Boot Options
- NKK's Industrial & IP-Rated Product Offering
- Panel Sealed Boots for Additional Protection
- Custom Switches & Value Added Capabilities

Note: Please check the presentation speaker notes for additional slide information.

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Switch & Environmental Considerations

- Choosing the right electromechanical switch involves many considerations:
  - Panel size
  - Terminal type
  - Actuator style
  - Illumination
  - Contact material
- Environmental conditions and contaminants
  - Extreme temperatures
  - Water
  - Chemicals
  - Dust
  - Oil
  - Other contaminants

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Preventing Premature Switch Failure

Q: What are the most common contaminants that lead to premature switch failure?

Q: In which other environments does exposure to these contaminants often occur?

Q: When is the redundancy of an IP-Rated switch with a splash proof boot recommended?

Switches for Your Toughest Applications

- NKK's offers a full range of illuminated and nonilluminated switches for today's toughest applications

- Environmentally sealed switches are ideally suited to meet the challenges of heat, humidity, and exposure to the elements

- NKK's sealed switches meet standards from IP60 to IP67

NKK SWITCHES

Sealed Switch and Boot Options

	Description
IP-Ratings	IP60: Dust tight, but not protected against water IP64: Dust tight, protected against splashing water IP65: Dust tight, protected against low-pressure water jets IP67: Dust tight, protected against effects of temporary immersion
Splashproof Boots	Do not provide a complete seal but offer sufficient protection against a variety of contaminating factors. Boots come in a variety of materials and can be retrofitted with most switch types – pushbuttons, rockers, rotary, and toggles.
IP-Rated Devices with Splashproof Boots	This combines the characteristics of sealed IP-rated devices with the splash proof boot. To ensure the highest level of protection against contamination and disastrous switch failure designing in both is recommended.

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NKK SWITCHES

NKK's Industrial & IP-Rated Product Offering

NKK Switches has a full range of:

- Illuminated and nonilluminated switches
- Electrical ratings from 3A to 50A
- IP-Ratings from IP60 to IP67
- Approvals: UL, CSA on several models

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Panel Seal Boots for Additional Protection

NKK offers a variety of boots compatible with toggles and pushbuttons to seal switches to achieve IP65 rating on the front panel.

PN	AT401 Half Boot	AT402, AT402S Full Boots	AT428 Full Boot	AT4041, AT4042 Full Boots	AT4043 Full Boot	AT4181 Full Boot
Material	AT401A: Nitrile butadiene rubber AT401H: Ethylene propylene rubber AT401S: Silicone rubber	Silicone rubber	Silicone rubber	Silicone rubber	Silicone rubber	Silicone rubber
Color	Black for AT401A Gray for AT401H Black for AT401S	Black, Red, Yellow, Green, and Gray	Black	Black	Black	Black
Bushing	12mm	12mm	M6 or 1/4-40 Thd	M6 or 1/4-40 Thd	12mm	12mm

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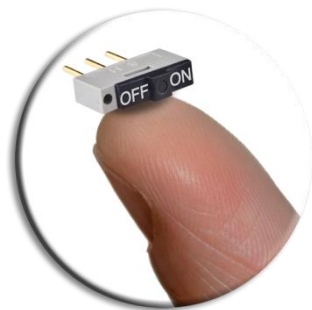
NKK
SWITCHES

Custom Switch & Value Added Capabilities

Methods for All Applications

Custom Switch Solutions:
NKK Switches has the flexibility, expertise and skills to help Engineers design custom switch solutions for today's most innovation applications.

Custom Printing:
- Laser Etching
- Screen Printing
- Pad Printing

Custom Assembly:
- Cables & Harnesses
- Electronic
- Electro-Mechanical
- Mechanical

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Thank you!

Have questions? Contact NKK Switches at 877.2BUYNKK

NKK also provides FREE switch samples and online 3D CAD Models. Go to www.nkkswitches.com to get yours today!

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SWITCHES