



# Robust Industrial Interfaces

## The 5 Most Critical Considerations...

1

### Chemical Resistance

Whether it's from chemicals used in the processing environment or simply used during cleanup, it is inevitable that industrial controls will come in contact with harsh substances. It is imperative that product designers not only have an understanding of these chemicals, but also the durations for which contact with the controls is likely. If the correct materials are not chosen, the life of the controls can be significantly lessened. The good news is that raw materials are getting more and more advanced, and if proper thought is given to the necessary requirements, many material options are available to make industrial interface controls extremely durable.

2

### Moisture Resistance

Though membrane switches and touch panels have inherent moisture resistant qualities, certain rigorous environments require special attention. Prolonged exposure to high humidity, pressurized moisture and submersion are a few examples of these particularly challenging environments. The negative impact of even the most challenging conditions, however, can be eliminated by employing proper design elements. Some of the considerations are related to the geometry of the interface device in relationship to the location of the keys and cable exit point. Additionally, a multitude of safeguards can be integrated into the inner workings of the input device to make them last under these rigorous conditions.

3

### UV Resistance

The negative impact of ultraviolet rays on plastics and other materials is well documented. In terms of its effect on input devices, the two biggest concerns are that UV light could cause the working layers of the switch to become brittle as well as discolor the inks used to print the graphics on the device. The most critical step on addressing this risk is understanding the extent to which UV exposure is likely. Then, it is critical to communicate this requirement to the interface device manufacture to ensure that the proper UV resistant materials are integrated in the design.

4

### Impact Resistance

While the base materials often used in the majority of interface devices such as polyester and polycarbonate are innately resistance to impact, these layers can be vulnerable in areas that are not supported by a rigid backer. This is most commonly the case in display areas where often a film layer of .010" or less separates the user from the LCD display. If the likelihood of rough operation and/or vandalism exists, additional robust polymer layers can be added to reinforce the necessary areas.

5

### Durability of Actuation Device

The typical user demographic of industrial devices means that the keys will be likely be subjected to forces higher than typical keypads. Longevity of a given keypad is not only related to the number of key cycles, but also the force for which the keypads are being depressed. This fact requires that the device manufacture uses the appropriate components to ensure that the life of the input device is not lessened due to the inevitable stresses for which it will be subjected.