Isolation Switch Relays

For Use with NAMUR Proximity Sensors and Mechanical Switches

TURCK offers a wide range of isolating switch relays. These devices can serve various applications ranging from a single dry contact switch input with a complimentary dry contact switch output, to four NAMUR proximity inputs and four transistor outputs, while also providing open and short-circuit protection in addition to alarm functionality.

Isolation switch relays may be used in general purpose applications, and most are certified for use in hazardous (explosive atmospheres) areas by various approvals bodies. These devices carry U.S., Canadian and European approvals that may be required in order to cover projects being engineered for use in locations throughout the world. The devices share many common attributes, such as housings and removable terminal connectors. Most are also available with the universal voltage (20-250 VAC/20-125 VDC) required to power the unit. All units have the option for short-circuit and open-circuit (wire-break) protection: a simple series of switches that can be manually configured by the user if the function is to be implemented. A resistor network (WM1 shown in Figure 1) is required to incorporate these functions when using a mechanical (dry contact) switch for the hazardous area inputs.

The IM series of isolation switch relays is designed to handle the vast majority of applications where mechanical switches or NAMUR proximity sensors are used. Short-circuit and open-circuit (wire-break) functions are available for most devices. This function can be implemented by appropriately configuring the switches located on the top of the units. NAMUR proximity switches have no special requirements in order to incorporate this function, simply set the switches to the appropriate positions.

Dry contact (mechanical switches) however, require the use of a resistor network in order for the additional functions to operate properly. The incorporation of a ready made resistor network module (WM1 see Figure 1) is recommended.

This section highlights the devices and provides a simple approach for installing the various models available. Examples of common applications are provided along with simple connection diagrams that allow any user to easily and safely install these devices.

Typical and specific functions for each individual device are highlighted in the "Features" portion of the specification pages. A handy pin-out reference chart is also provided for each device. Input and output common configurations for use with NAMUR proximity sensors and dry contact mechanical switches, are also highlighted in this section.

Common Input Configuration for Proximity Sensors

NAMUR 2-wire proximity sensors are specifically designed to work with **TURCK** isolation switch relays. No entity calculations are required, as all NAMUR proximity sensors and associated apparatus with NAMUR inputs (**TURCK** isolation switch relays) are designed to be 100% compatible without the requirement to calculate entity parameters. These calculations are accounted for in the design of both the field devices (proximity sensors) and the interfaces (barriers). All NAMUR proximity sensors are compatible with NAMUR interface devices in all classified areas.

The 2-wire configuration is standardized so the blue wire is always negative and the brown wire is always positive. Reversing these connections will not damage the device, however it will not function.

Connection diagrams for individual devices are shown in the product specification description pages.

Common Input Configurations for Dry Contact Mechanical Switches

Simple switch inputs are easily accommodated by the NAMUR input interface units. Switches are not required to be approved as intrinsically safe devices. Simple switches are defined as "simple apparatus" by the national electrical code as: (NEC 504-2)
A device that will neither generate nor store more than 1.2 V, 0.1 A, 25 mW, or 20 µ.

Using a simple switch does require the use of a resistor network (WM1) if the short-circuit and open-circuit (wire-break) functions are not used. These functions are not required and can be disabled by simply switching the function "OFF" using the configuration switches on the top of the units.

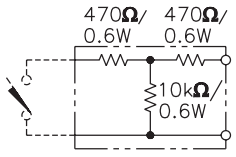

Figure 1