

FIELD LOGIC CONVERSION

(Options for problem solving in a pinch)

Sourcing sensors (PNP) are commonly connected with sinking input cards, and sinking sensors (NPN) with sourcing input cards. A problem arises however, when connecting a sourcing sensor (PNP) with a sourcing input card, or a sinking sensor (NPN) with a sinking input card.

If the PLC input card or sensor cannot be changed, then a signal conditioner, relay, or circuit must be used to make the input functional. A simple circuit solution is to use a Pull-Up or Pull-Down resistor.

Option 1

When connecting a sinking sensor (NPN) with a sinking input card, a Pull-Up resistor can be used. For 24 VDC a 2.2K Ohm resistor is typically connected between the PLC input and +24 VDC, however, depending on the sensor and PLC input being used, a larger or smaller resistor size may be needed. The resistor must be big enough to keep the current below the sensor current rating, but also small enough to allow for a sufficiently high voltage at the PLC input.

Option 2

If instead you need to connect a sourcing sensor (PNP) with a sourcing input card, then a Pull-Down resistor can be used. For 24 VDC, a 2.2K Ohm resistor can be connected between the PLC input and 0 VDC. Just as in case #1, depending on the sensor and PLC input being used, a larger or smaller resistor size may be required. The resistor must be big enough to keep the current below the Sensor current rating, and small enough to allow for a high enough voltage at the PLC Input.

It is important to remember that when using either a Pull-Up or Pull-Down resistor on your PLC input it will invert the input signal. In the PLC program, the logic for your input must therefore be reversed.

For more help on this or other technical questions please contact our TECHTEAM at (314) 731-4444.

SOUND COMPLICATED?

Consider instead an off-the-shelf Murr model 82500 opto-coupler, an easy to wire 5mm din rail mounted device.



Murr Model 82500

\$21.13 ea.*

+ 24 V DC



Or, if you choose a field wire solution such as on an M12 cordset, you can use the Balluff model BOS S-F01 PNP to NPN



Balluff Models: BOSS-F01 (PNP to NPN) BOSS-F02 (NPN to PNP)

\$54.91 ea.* \$54.91 ea.*

* Pricing as of November 2011. Prices may change without notice.



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