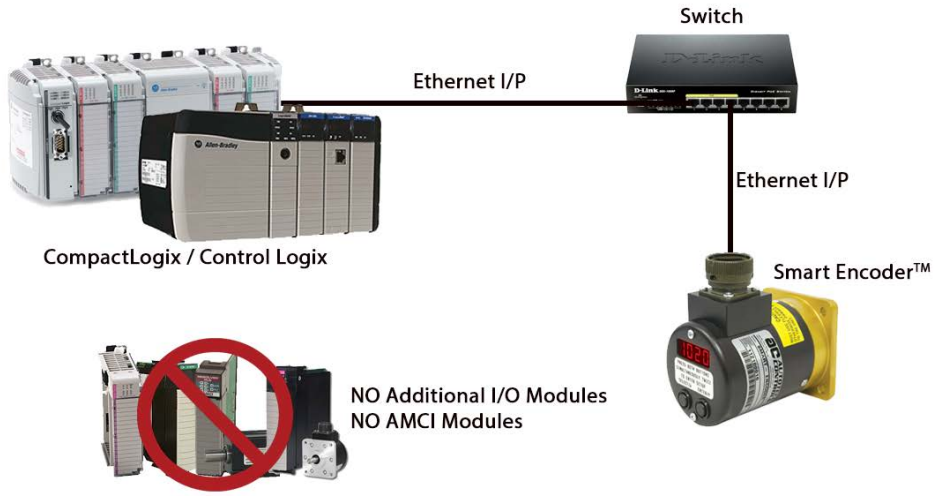
Application Note: EZ-Ap 103

# How to Get Position Feedback without any I/O modules to the PLC using a Smart Encoder with built-in Ethernet I/P

Applications that require position feedback such as in conveyors, converting, printing, metal forming, filling, stamping and many others require an encoder that ties back to a PLC typically via high-speed counter inputs, resolver inputs or DC inputs depending on the type of encoder used. This often results in having to expand the I/O modules on already expensive PLCs. For example, if using an Optical encoder, one must have a minimum of 3 high-speed counter inputs for the 'A', 'B' and 'Z' signals. In the case of absolute encoders, 12 separate DC Inputs are required to obtain at least 12-bit resolution (4096 PPR). Finally, in the case of a resolver encoder input on a Control or CompactLogix PLC from Rockwell Automation, one requires an expensive AMCI Module that eats up one of the rack slots. Hence, EZAutomation, thru its sister company, Autotech Controls, decided to simplify the process by releasing its cost effective, absolute programmable encoder with built in Ethernet I/P. The Smart Encoder™ has a 4 digit LED display that allows you to program resolution, output type, direction, and most importantly has built in Ethernet I/P protocol providing the position signals directly to the PLC.

This application note shows you an example how to obtain position feedback on a machine using the Smart Encoder over Ethernet I/P when using RSLogix 5000 from Allen-Bradley.

## SYSTEM DIAGRAM



## DESCRIPTION

This application note uses the Smart Encoder™ with a RJ45/Ethernet communication cable that directly connects to your existing Allen-Bradley PLC over Ethernet I/P to provide position feedback without the need for any extra I/O modules!

In this simple programming example we consider when the resolver is positioned between 264° (3000 ADC count) and 352° (4000 ADC Count) for a maximum of 10 seconds, the ControlLogix® is programmed to turn off the output. If the position goes above 4000 ADC counts, it will also turn off the output. In this simple example, we show how the output signals of the Smart Encoder™ are directly tied to the PLC over Ethernet I/P without having to use an expensive AMCI module since it is a resolver input. The same would apply if we were using a Quadrature Absolute Encoder to digital inputs on a ControlLogix®

Please see below links for the RSLogix5000 program and Getting Start Guide for the Smart Encoder™. For further details on the setup of the Smart Encoder please contact Jerry Case at 1-877-774-3279 ext. 432 or jcase@avg.net.

For more information on the Smart Encoder™ capabilities and model options please contact Vikram Kumar at vikram@avg.net

A screen shot of the RSLogix5000 program is shown