Tough I/O ™
Director 1050

Pulse Width/Pulse Train Module

Conformal Coated

**UTIO-PM-P
UTIO-PM-D**

The UTIO-PM module is an intelligent module for use with the UTSeries PLCs and provide either Pulse Train Output (PTO) or Pulse Width Modulator (PWM) outputs. The module offers 2 channels of outputs. Each channel can be independently programmed to be either PTO or PWM. "P" type or sourcing outputs are provided for UTIO-PM-P model and Differential outputs are provided for UTIO-PM-D model. Please note that the "D" differential model has only one output.
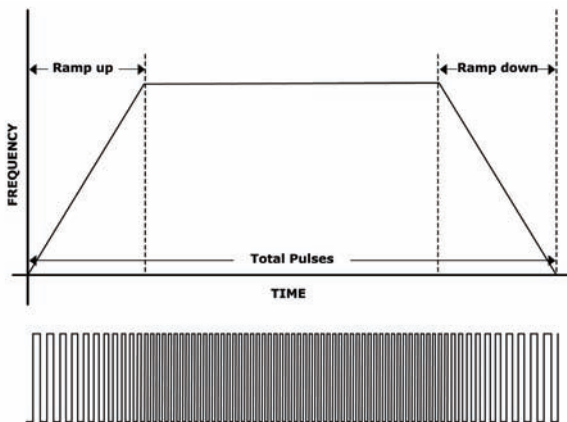
Pulse train Output (PTO) Function

In PTO mode, user specifies Ramp-up and Ramp-down time, total number of pulses to output (includes those generated during ramp up and down), and the frequency at run time. The module generates a pulse train output that ramps up from a minimum frequency (approx 40 Hz) to the user programmed maximum frequency within the ramp-up time. The module would ramp down at such a time so that the total number of pulses generated equals programmed number of pulses. In addition to the PTO output, the module provides a user controlled Direction output for each channel.
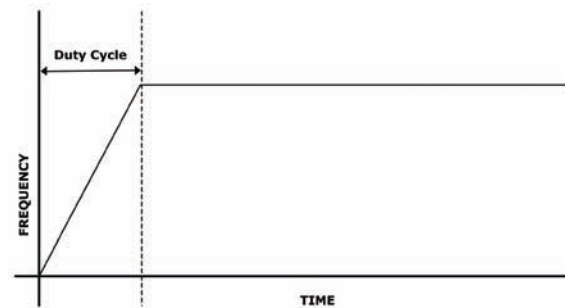

Pulse Train Output

Functional Block Diagram

* Differential output module has only one output
* Outputs use ET727 10-30V output chips with 20mA drive and short circuit protection
* Pins 10 & 8 become positive and Pins 9 & 7 become negative terminals in case of differential outputs.

Quadrature Encoder Input

The module also accepts a quadrature input upto a frequency of 100KHz. the count can be multiplied by 2 or 4. 2^{32} number of counts are allowed. The module allows internal atrt or stop functions for PTO or PWM function based upon count value.
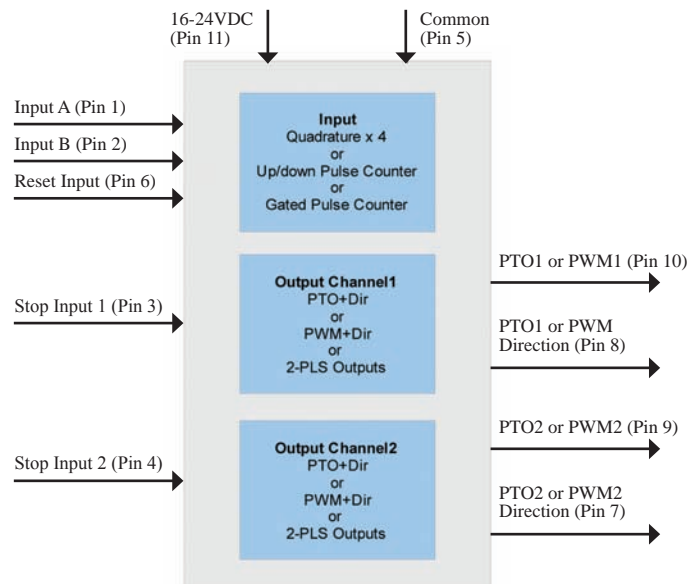
Pulse Width Modulation (PWM) Function

In PWM mode, the module generates a Pulse output with varying duty cycle. The Ramp-up time, frequency and duty cycle is specified by the user, and the module generates a pulse outputs waveform with the specified parameters. The duty cycle goes from 0 to the programmed value within the ramp up time. User also has control over Direction output for each channel.

Pulse Width Modulation