Pulse Input Module

The Model 3511 Pulse Input (PI) Module provides eight very sensitive, high-frequency inputs. It is optimized for use with non-amplified magnetic speed sensors common on rotating equipment such as turbines or compressors. The module senses voltage transitions from magnetic transducer input devices, accumulating them during a selected window of time (rate measurement). The resulting count is used to generate a frequency or RPM which is transmitted to the Main Processors. The pulse count is measured to 1 microsecond resolution.

The PI module includes three isolated input channels. Each input channel independently processes all data input to the module and passes the data to the Main Processors, which vote on the data to ensure the highest integrity.

Each module provides complete ongoing diagnostics on each channel. Failure of any diagnostic on any channel activates the Fault indicator, which in turn activates the chassis alarm signal. The Fault indicator merely indicates a channel fault, not a module failure. The module is guaranteed to operate properly in the presence of a single fault and may continue to operate properly with certain kinds of multiple faults. The Pulse Input Module supports hot- spare modules.

***WARNING**: The PI module does not provide a totalization capability—it is optimized for measuring the speed of rotation equipment. For pulse totalization, see Model 3515 on page 38.*

Relay Output Module

The Model 3636R and 3636T Relay Output (RO) Modules are non-triplicated modules for use on non-critical points which are not compatible with "high-side" solid-state output switches. An example is interfacing with annunciator panels. The Relay Output module receives output signals from the Main Processors on each of three channels. The three sets of signals are then voted, and the voted data is used to drive the 32 individual relays.

Each output has a loopback circuit which verifies the operation of each relay switch independently of the presence of a load, while ongoing diagnostics test the operational status of the module. Failure of any diagnostic activates the Fault indicator, which in turn activates the chassis alarm.

The Relay Output module comes with normally open (NO) contacts. It supports hot-spare modules and requires a separate external termination panel (ETP) with a cable interface to the Tricon backplane.

Pulse Input Module Specifications

Model Number	3511
Type	TMR, PI
Input Signals	8, non-commoned
Resolution	16 bits
Accuracy	1,000 Hz to 20,000 Hz, ± 0.01%
Input Characteristics (AC coupled, balanced differential)	
Update Rate	25 ms, typical
Impedance (load)	> 8 KW, 20 KW typical
Common Mode Range	-100 VDC to +100 VDC peak-to-peak
Normal Mode Range	1.5 V to 200 V peak-to-peak
Overrange Protection	±150 VDC, continuous
Hysteresis	150 millivolts, typical
Wave Shape	Sine, square, pulse, etc.
Duty Cycle	10% to 90%
Frequency	20 Hz to 20,000 Hz
Current Range	0-20 mA (250-ohm shunt)
Diagnostic Indicators (ON=true)	
Input Status	1 per point
Module Status	PASS, FAULT, ACTIVE
Color	Light Purple

RO Module Specifications

Model Number	3636R/T
Type	Non-triplicated, RO
Points	32, non-commoned
Voltage Range	125 VAC/VDC, maximum
Current Load	2A, maximum
Minimum Permissible Load	10 mA, 5 VDC
Switching Power, Resistive	2,000 V A, 150 watts maximum
Point Isolation	1,500 VDC 1,900 VDC[1]
Fuses	1 per output (2.5A fast-acting)
Diagnostic Indicators	
Output Status	1 per point
Module Status	PASS, FAULT, ACTIVE
Output Contact	Normally Open
Color Code	Silver Blue

1. For 3636T.