

Single Digital Input Module

Model 3564 is a Single Digital Input Module, which is optimized for safety-critical applications where low cost is more important than maximum availability. On Single modules, only those portions of the signal path that are required to ensure safe operation are triplicated. Self-test circuitry detects all stuck-On and stuck-Off fault conditions within the non-triplicated signal conditioners in less than 500 milliseconds. This is a mandatory feature of a fail-safe system, which must detect all faults in a timely manner and upon detection of a fault, force the measured input value to the safe state. Because the Tricon controller is optimized for de-energize-to-trip applications, detection of a fault in the input circuitry forces to Off (the de-energized state) the value reported to the Main Processors by each channel. Although this module is fail-safe, it does not offer the same level of availability and reliability as a TMR module.

115 VAC/VDC Digital Input Modules

This figure is a simplified schematic for Models 3501E and 3501T, which are 16-point TMR Digital Input Modules without a self-test feature.

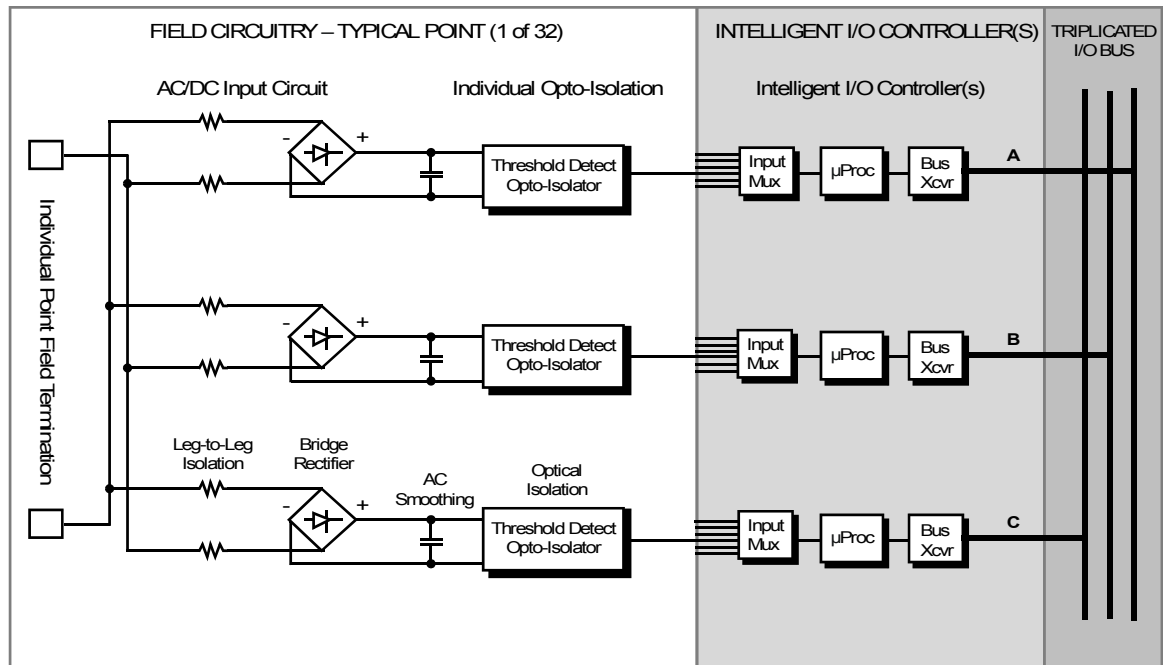


Figure 35 3501E and 3501T Simplified Schematic

This figure shows the front panels of Models 3501E and 3501T.

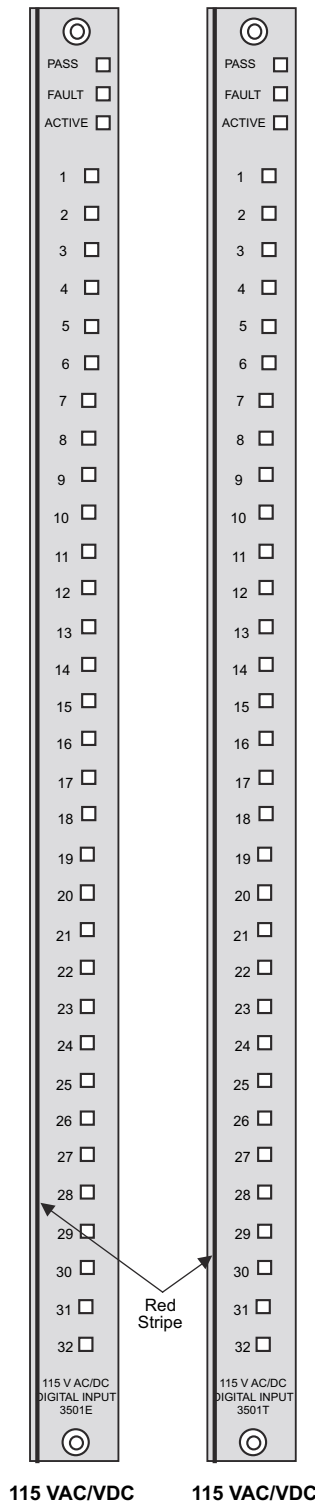


Figure 36 3501E and 3501T Front Panels

3501E and 3501T Specifications

This table lists the specifications for Models 3501E and 3501T, which are 16-point TMR Digital Input Modules with a nominal input voltage of 115 VAC/VDC. Model 3501T has a higher point isolation minimum than Model 3501E.

Table 30 3501E and 3501T Digital Input Specifications

Feature	Specification
Color code	Red
Number of input points	32, non-commoned, isolated
Input frequency range	DC or 47-63 Hz
Recommended input range	90-155 VAC/VDC
Maximum voltage	155 VAC/VDC
Switching level: Off to On	69 VAC/VDC typical, 86 VAC/VDC worst-case
Switching level: On to Off	36 VAC/VDC typical, 28 VAC/VDC worst-case
Typical hysteresis	32 VAC/VDC
Nominal turn-on	6 mA to 9 mA
Input impedance	> 8.5 k Ω nominal
Input delay: Off to On	< 8 ms
Input delay: On to Off	< 15 ms
Point isolation, opto-isolated: 3501E	1,000 VAC minimum, 1,500 VDC minimum
Point isolation, opto-isolated: 3501T	1,780 VAC minimum, 2,500 VDC minimum
Status indicator: On or Off state	1 per point
Status indicator: Module status	Pass, Fault, Active
Logic power	< 10 watts
Nominal field power load	1.5 watts per On point, 2.9 watts @ maximum field voltage
Leakage current to chassis @ 60 Hz	1 mA maximum per On point
Input diagnostic fault coverage:	
Maximum input toggle rate ^a	Every 100 ms
Minimum input toggle rate	Every 24 months (manually toggled by the user) ^b
Diagnostic glitch duration	Not applicable

a. The maximum input toggle rate enables proper operation of I/O diagnostics and detection of all normally detectable faults.

b. For more information, see *Toggling Field I/O Points* on page 288.