64-Point Digital Input Modules

Each 64-point Digital Input (DI) module has three isolated channels which independently process all data input to the module. A microprocessor on each channel scans each input point, compiles data and transmits it to the Main Processors on demand. Then input data is voted at the Main Processors just prior to processing to ensure the highest integrity.

All Digital Input Modules sustain complete, ongoing diagnostics for each channel. A failure on any channel activates the Fault indicator which in turn activates the chassis alarm. A TMR module is guaranteed to operate properly in the presence of a single fault and may operate properly with certain kinds of multiple faults.

All Digital Input Modules support hot-spare modules and require a separate external termination panel (ETP) with a cable interface to the Tricon controller backplane. Each module is mechanically keyed to prevent improper installation in a chassis.

The Model 3504E High-Density Digital Input Module continuously verifies the ability of the Tricon controller to detect transitions to the opposite state. On this TMR module, all critical signal paths are 100 percent triplicated for guaranteed safety and maximum availability. Each channel conditions signals independently between the field and the Tricon controller.

The Model 3564 Single Digital Input Module 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 which are required to ensure safe operation are triplicated. Special self-test circuitry detects all stuck-On and stuck-Off fault conditions in less than half a second. If a single module detects an input fault, it reports that point as Off, which may cause a glitch during switch-over to a hot-spare module.

64-Point Digital Input Module Specifications

Model Number	3564	3504E
Type	Single, DI	TMR, DI
Voltage	24 VDC	24 or 48 VDC[a]
Points	64, commoned	64, commoned, DC coupled
DC Range	15-30 VDC	20-72 VDC
Maximum Voltage	36 VDC	72 VDC
Switching Level		24 V / 48 V
OFF to ON[b]	> 15 VDC	>18 VDC / >32 VDC
ON to OFF[c]	< 6 VDC	< 6 VDC / <11 VDC
Nominal Turn-On	2-3 mA	negligible
Typical Hysteresis	4 VDC	4 VDC/7 VDC
Input Delay		
Off to On/On to Off	< 2 ms/< 2 ms	< 10 ms/< 10 ms
Minimum Point Isolation	1,500 VDC	n/a
Nominal Input Impedance	> 3.0 KΩ	> 30 KΩ
Nominal Field Power Load		
Per On point	0.2 watts	negligible
@ maximum field voltage	0.5 watts	negligible
Diagnostic Indicators		
Input Status	1 per point	1 per point
Module Status	PASS, FAULT, ACTIVE	PASS, FAULT, ACTIVE
Stuck Test	On and Off	On and Off
Color Code	Dark Red	Dark Red

a. The voltage is selected using the TriStation 1131 software.
b. Off to On transition is guaranteed at or above this level but it might occur at a lower voltage, depending on the module's hysteresis.
c. On to Off transition is guaranteed at or below this level but it might occur at a higher voltage, depending on the module's hysteresis.