Table 33 3505E Digital Input Specifications *(continued)*

Feature	Specification
Diagnostic glitch duration[d]	20 ms typical
Output voltage	< 1/2 V_{IN}
Output impedance	< 1.87 kΩ

a. When used with a typical shunt-diode intrinsic safety barrier, the nominal field power per On point is approximately 350 milliwatts @ 24 VDC.

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

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

d. V_{IN} is the voltage applied to an energized point. Output voltage is noticeable on an adjacent de-energized point for the duration of the diagnostic glitch. Be advised that the glitch output may falsely energize the paralleled input of another piece of equipment.

24 to 48 VDC Digital Input Modules

This figure is a simplified schematic for Model 3504E, which is a high-density TMR Digital Input Module.

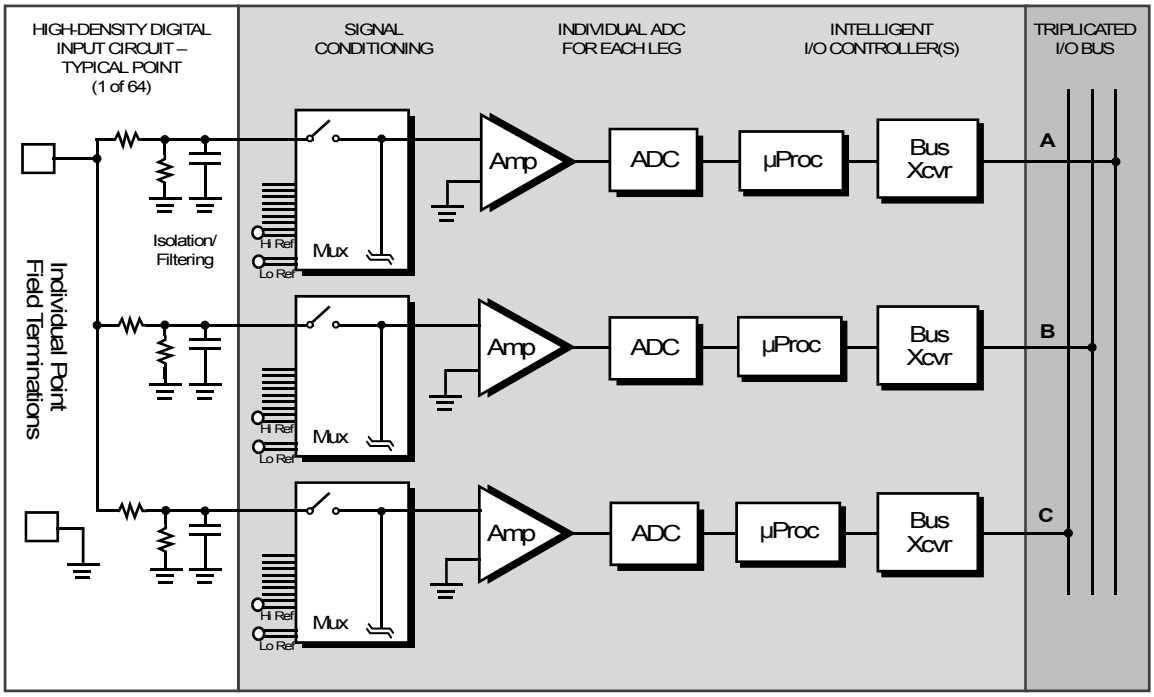

Figure 39 3504E Simplified Schematic

This figure shows the front panel of Model 3504E.

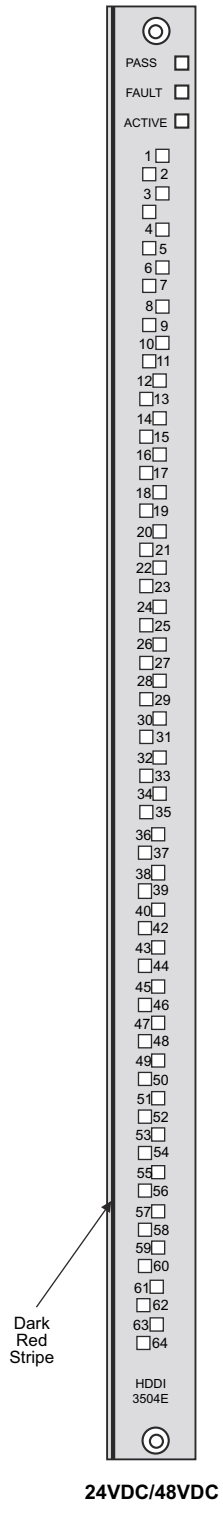

Figure 40 3504E Front Panel

3504E Specifications

This table lists the specifications for Model 3504E, which is a high-density TMR Digital Input Module with an nominal input voltage of 24 or 48 VDC.

Table 34 3504E Digital Input Specifications

Feature	Specification
Color code	Dark red
Number of input points	64, commoned, DC-coupled
Input voltage range: 24 VDC[a]	20–36 VDC
Input voltage range: 48 VDC[1]	40–72 VDC
Input over-range protection	115 VAC continuous, 150 VDC continuous
Switching level for 24 VDC: Off to On	15 VDC typical, 18 VDC worst-case, 4 VDC typical hysteresis
Switching level for 24 VDC: On to Off	8 VDC typical, 6 VDC worst-case, 4 VDC typical hysteresis
Switching level for 48 VDC: Off to On	27 VDC typical, 32 VDC worst-case, 7 VDC typical hysteresis
Switching level for 48 VDC: On to Off	14 VDC typical, 11 VDC worst-case, 7 VDC typical hysteresis
Input delay: Off to On	< 10 ms
Input delay: On to Off	< 10 ms
Status indicator: On or Off state	1 per point
Status indicator: Module status	Pass, Fault, Active
Input impedance[b]	> 30 kΩ nominal
Logic power	< 10 watts
Input diagnostic fault coverage[c]:	
Maximum input toggle rate	Once every 100 ms
Minimum input toggle rate	Not required
Diagnostic glitch duration	1 ms every 2–3 seconds
Output voltage	0 VDC or 5 VDC typical
Output impedance	100 kΩ typical

a. Specified in TriStation 1131.

b. A ballast resistor is installed on the external termination panel to lower the input impedance equivalent to other Triconex Digital Input Modules. For more information, see the *Field Terminations Guide for Tricon v9–v11 Systems*.

c. The maximum input toggle rate enables proper operation of I/O diagnostics and detection of all normally detectable faults. The minimum toggle rate provides fault coverage of normally undetectable faults within 10 percent of the calculated mean-time-between-faults (MTBF) for the module.