NOTE: If you are using the SFP-based IOP bus, insert the SFP into the port on the MP, and then insert the cable into the SFP before you insert the MP into the chassis.

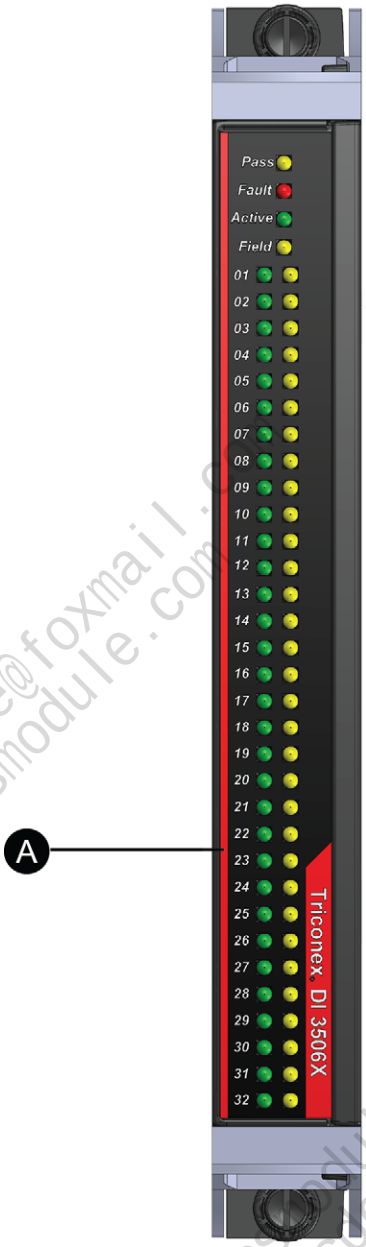
For more information, see these sections:

- I/O Bus Wiring, page 140.
- I/O Bus Interface Module Indicators, page 167.

3506X Supervised Digital Input Module

Model 3506X is a TMR Supervised Digital Input Module. It can be user programmed as non-supervised or supervised (with the addition of an end of line resistor network). The 3506X module can be installed only in Tricon CX I/O expansion chassis.

Figure 13 - 3506X DI Front Panel



A	Dark Red Stripe

3506X Digital Input Specifications

Table 24 - 3506X Digital Input Specifications

Feature	Specification
Color code	Dark Red
Number of input points	32
Recommended input range	0–28.8 VDC
Maximum voltage	28.8 VDC is the maximum usable range 32 VDC is the maximum over-voltage range
Switching level: Off to On	11.5 V
Switching level: On to Off	7.5 V
Supervision: high threshold	11.5–18.3 V
Supervision: low threshold	5.5–7.5 V
Typical hysteresis	3.8 VDC
Nominal turn-on	4.4 mA to 6.3 mA
Input impedance	2.7 kΩ nominal
Input delay: Off to On	<3 ms
Input delay: On to Off	<3 ms
Field to system ground isolation	400 V_{rms} (566 V peak) continuous, 1500 VDC for 60 seconds
Status indicator: Module status	Pass, Fault, Active, Field
Status indicator (green): On or Off state	1 per point
Status indicator (yellow): Field alarm	Load (1 per point)
Logic power	<8 watts
Nominal field power load	0.5 watts per On point[a] 1.5 watts @ maximum field voltage
SOE Resolution Accuracy	 1 ms <1 ms
SOE Resolution Accuracy	 1 ms <1 ms
Input diagnostic fault coverage: Maximum input toggle rate[b]	 100 ms
End of line resistors: R_{series}	 1.69 kΩ, 1% tolerance: 0.5 W minimum / 2 W recommended

Table 24 - 3506X Digital Input Specifications (Continued)

Feature	Specification
$R_{parallel}$	5.49 kΩ, 1% tolerance: 0.5 W minimum / 2 W recommended
Compatible termination options	9563X-910RF ETP kit, 16 pts. 9566X-810RF ETP kit(c), 32 pts. 9570X-610RF Nonincendive ETP kit(c), 32 pts.
Compatible field external termination (FET) connector	9770X FET(d), 32 pts.

(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) Individual field power monitoring is not supported and must be turned off in TriStation. The module will detect a fault if it is turned on.

(d) FETs are required for installing I/O modules in the Model 8131X I/O Expansion Chassis and for connecting ETPs to the I/O modules in the Model 8131X I/O Expansion Chassis.

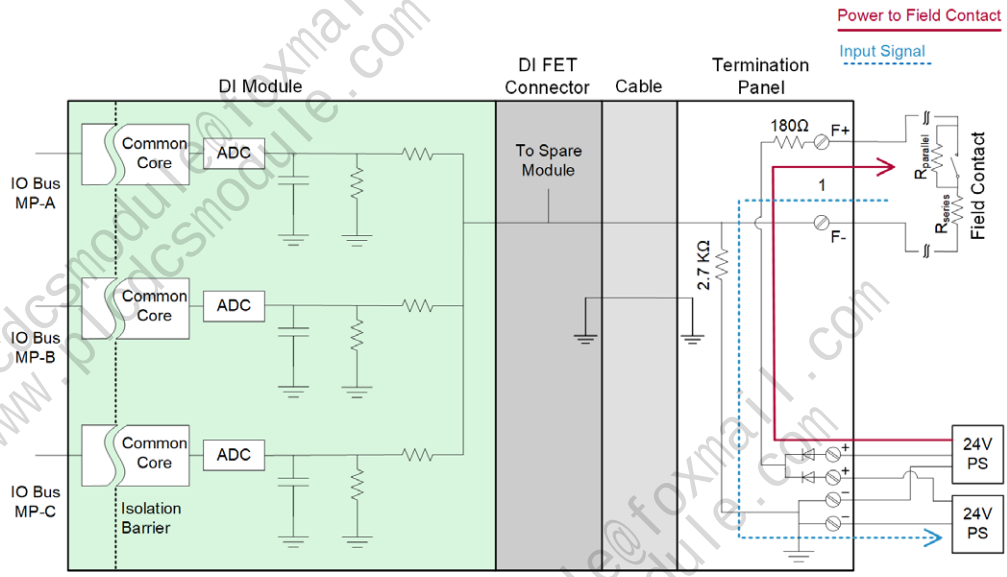
This list describes the ability of the Triconex Sequence of Events (SOE) Recorder to capture events from Model 3506X Supervised DI Modules:

- For every point on every module, the first event will be captured without loss.
- For any one point, the second event will be captured without loss if the time since the first event is at least 6 milliseconds.
- With simultaneous events on all 32 points of a module, a second set of simultaneous events will be captured without loss if the time between events is at least 52 milliseconds.
- Continuous throughput of events on a module can be maintained without loss if there is no more than one event every 30 milliseconds, on average, and no more than 8 events per control program scan.
- Continuous throughput of events on a system can be maintained without loss if there are no more than 32 events per control program scan.

3506X Simplified Schematics

This figure is a simplified schematic of a Model 3506X module with a 9770X FET and a 9566X-810RF ETP.

Figure 14 - Simplified Schematic of a 3506X DI Module with a 9566X-810RF ETP

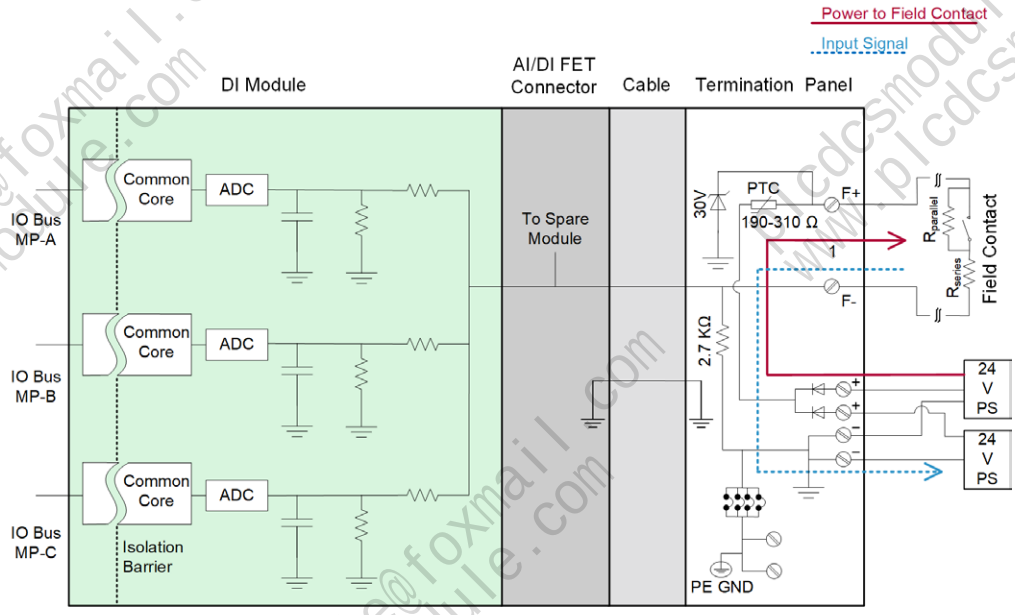


NOTE:

- The end of line resistors (R_{series} and $R_{parallel}$) are optional and used only for supervised points.
- ETP 9563X-910RF also is compatible with the 3506X DI module. See the Termination Panel portion of the "Simplified Schematic of a 3503E or 3505E DI Module with a 9563-910F Panel" in the *Field Terminations Guide for Tricon Systems* for ETP 9563X-910RF details.

This figure is a simplified schematic of a Model 3506X module with a 9770X FET and a 9570X-610RF ETP.

Figure 15 - Simplified Schematic of a 3506X DI Module with a 9570X-610RF ETP



3512X Pulse Input Module

Model 3512X is an 8-point TMR Pulse Input (PI) Module with a frequency range of 0.5 to 32000 Hz. It supports reading of very sensitive frequencies from external field