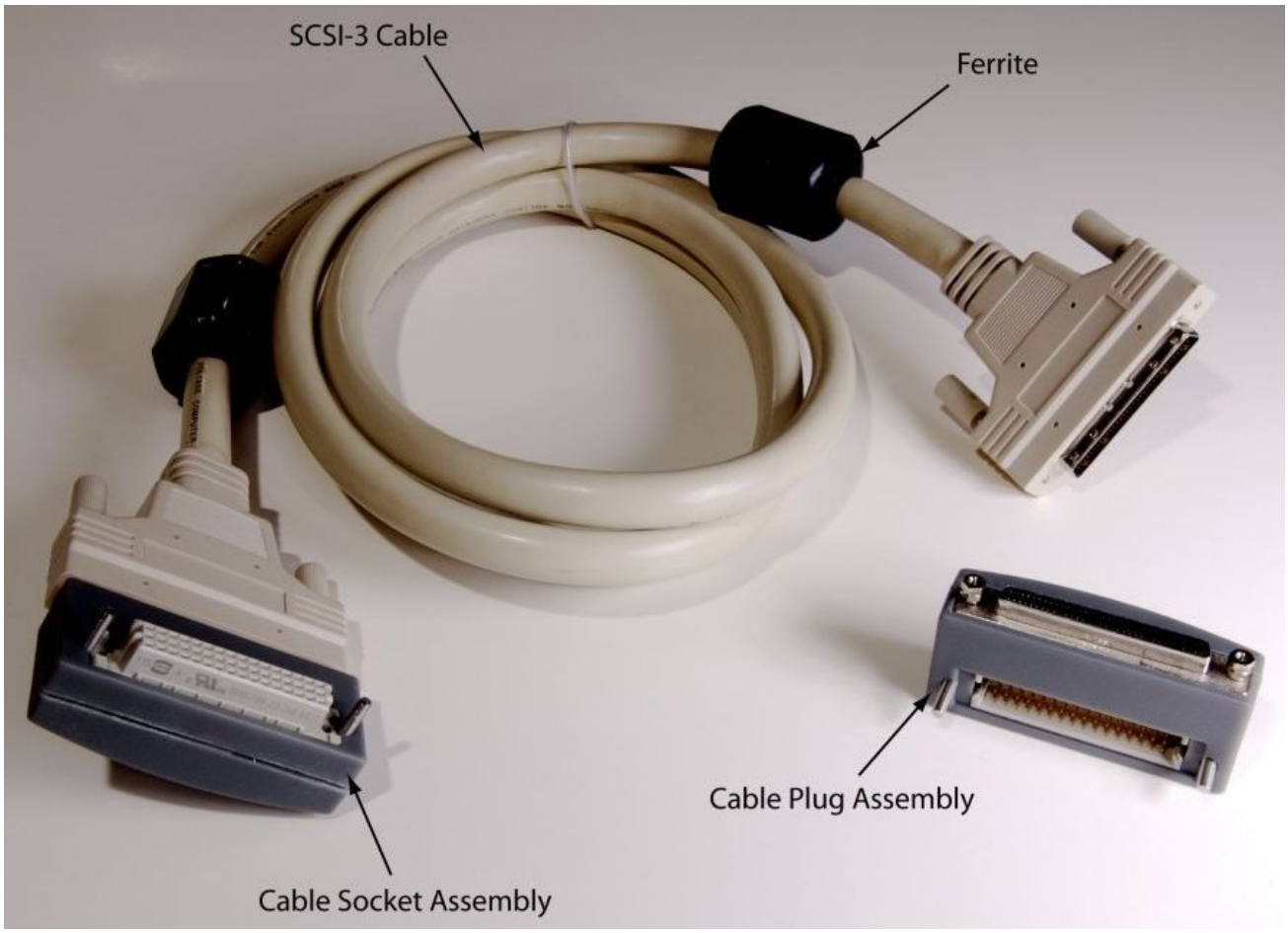
Figure 29 - Expansion Cable



T9310 Extension Cable Specification

Table 26 - T9310 Extension Cable Specification

Attribute	Value
Electrical Specification	
Carries the following Signals:	Command Bus I/O Response Bus x 24 Backplane 0 V Return Redundant System +24 Vdc_1 & 2 power supplies
Mechanical Specification	
Length	2 m (78.74 in.)
Weight SCS1-3 Cable Assembly Cable Plug Assembly Cable Socket	 57 g (2 oz.) 50 g (2 oz.) 50 g (2 oz.)

T9401/2 Digital Input Module, 24 Vdc, 8/16 channel

The T9401/2 digital input module monitors eight (T9401) or sixteen (T9402) isolated digital input channels and measures input voltages in the range 0 V to 32 Vdc. Each channel supplies the digital state and voltage data to the processor module for field device state, line monitoring and field fault detection.

Input modules give module and individual channel status indications through the front panel LEDs. These status indications are also connected to application variables and viewed at the Workbench. Comprehensive diagnostics at both system and module levels give clear fault indications which help fast maintenance and repair.

Signal and power isolation circuits divide each input channel from the remainder of the system, protecting the controller from field faults. An independent watchdog arrangement monitors the module operation and gives more fault containment by a shutdown mechanism should a fault occur.

These modules mate with the T9801/2/3 Digital input termination assemblies. When digital input modules are installed in a dual or TMR configuration they provide fault tolerant input functionality, enabling you to replace a faulty input module without interrupting the channel data flow to the processor modules.

T9401/2 Digital Input Module Specification

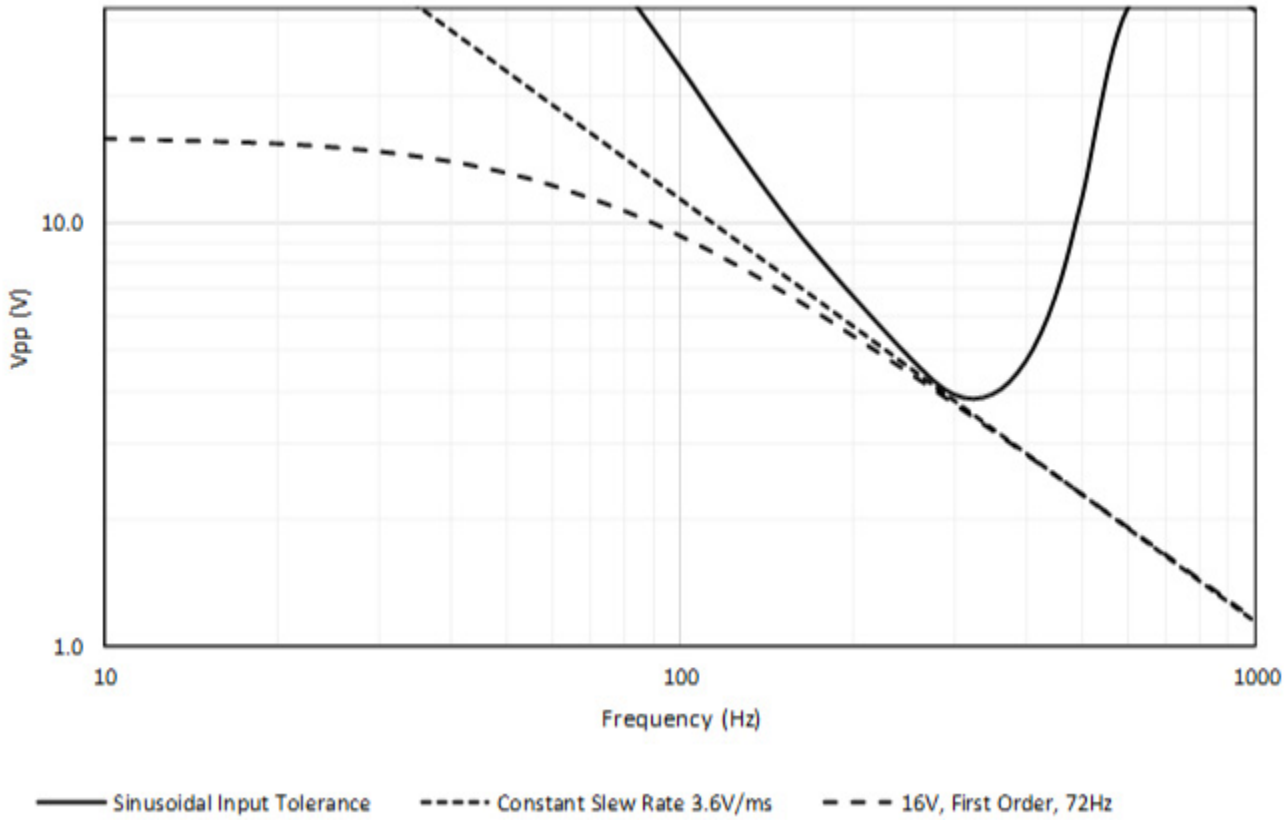
Table 27 - T9401/2 Digital Input Module Specification

Attribute	Value
Functional Characteristics	
Input Channels	T9401: 8 T9402: 16
Performance Characteristics	
Safety integrity level	IEC 61508 SIL 3 (1)
Safety level degradation	1oo1D, 1oo2D,2oo3D
Safety accuracy limit	1.0 Vdc
Self test interval	< 1 hour; system dependent
Sample update interval (no filter)	6 ms
Sequence of events Event resolution Time-stamp accuracy	 1 ms 10 ms
Electrical Characteristics	
Module Supply Voltage:	
Voltage	Redundant + 24 Vdc nominal; 18 Vdc to 32 Vdc range
Module supply power dissipation	T9401: 3.3 W (11.3 BTU/hr.) T9402: 4.0 W (13.6 BTU/hr.)
Input data voltage range	0V to 32 Vdc
Maximum Slew Rate	See Figure 30 below (2)
Maximum Transition Rate	1/(Application Scan Time + 10 ms) Hz(2)
Input channel load	see TA specification
Input measurement voltage accuracy	± 0.5 V
Input measurement voltage resolution	5 mV 13-bit
Field loop power dissipation	(see T9801/2/3 Termination Assembly)
Channel Isolation maximum withstand	± 1.5 KVdc for 1 minute
Mechanical Specification	
Dimensions	166 mm x 42 mm x 118 mm (6½ in. × 1 21/32 in. × 4 21/32 in.)
Weight	T9401: 280 g (10 oz.) T9402: 340 g (12 oz.)
Casing	Plastic, non-flammable

(1) SIL 3 is the maximum achievable SIL for a single channel. Selected CPU, input and output voting configurations could increase or decrease the SIL achieved.

(2) The input slew may exceed the specified levels providing the duration of the transgression is less than the process safety time of the configured module.

Figure 30 - Digital Input Slew Tolerance



Transgression of the slew rate limits identified above may lead to channel failure resulting from diagnostics otherwise designed to verify that channels are operating within their defined safety accuracy.

T9801/2/3 Termination Assemblies for Digital Inputs

There are three termination assemblies for use with digital input modules that supply simplex, dual and triple modular redundant configurations.

A T9801 termination assembly is for a simplex application and has terminations for 16 non-isolated digital inputs, it has connections for one T9401 or T9402 digital input module. The T9802 and T9803 termination assemblies support 16 isolated digital inputs for dual and triple modular redundant arrangements of digital input modules.

Illustrated is the T9802 dual termination assembly.