

SPECIFICATIONS

MT PXIe-X401

This document contains the specifications for MT PXIe-X401. Specifications are typical at 25°C unless otherwise noted.



Caution Using the MT PXIe-X401 in a manner not described in this document may impair the protection the MT PXIe-X401 provides.

Analog Input

Number of channels	32
ADC resolution	16 bits
Type of ADC	Successive approximation register (SAR)
Input range	$\pm 10\text{V}$
Input Voltage Ranges	
Measurement Voltage (AI+ to AI-)	
Minimum(V)	$\pm 10.2\text{V}$
Typical(V)	$\pm 10.4\text{V}$
Maximum	$\pm 10.6\text{V}$
Overvoltage protection	$\pm 30\text{ V}$
Conversion time	5 μs minimum
Sample rate	200kS/s (Single channel maximum)

Table 1. Accuracy

Measurement Conditions		Percent of Reading (Gain Error)	Percent of Range (Offset Error)
Calibrated	Maximum (-40 °C to 70 °C)	0.142%	±0.070%
	Typical (23 °C ±5 °C)	0.010%	±0.007%

CMRR	120 dB minimum
-3 dB bandwidth	>15 kHz
Input impedance	>1GΩ
Crosstalk	-90 dB
Total Harmonic Distortion(THD)	-107dB
No missing codes	16 bits
DNL	±0.4LSB
INL	±0.5LSB
SNR	90 dB
SFDR	109 dB

Digital I/O

Table 2. Channel Frequency

Connector	Number of Channels	Maximum Frequency
Connector 0	16	80 MHz
Connector 1	16	80 MHz

Compatibility	LVTTL, LVCOMS
Logic family	Fixed
Voltage level	5V

Table 3. Digital Output Logic Levels

Logic Family	Output Low Voltage(VoL) Maximum	Output High Voltage(VoH) Minimum
5V	0.10 V	4.80 V

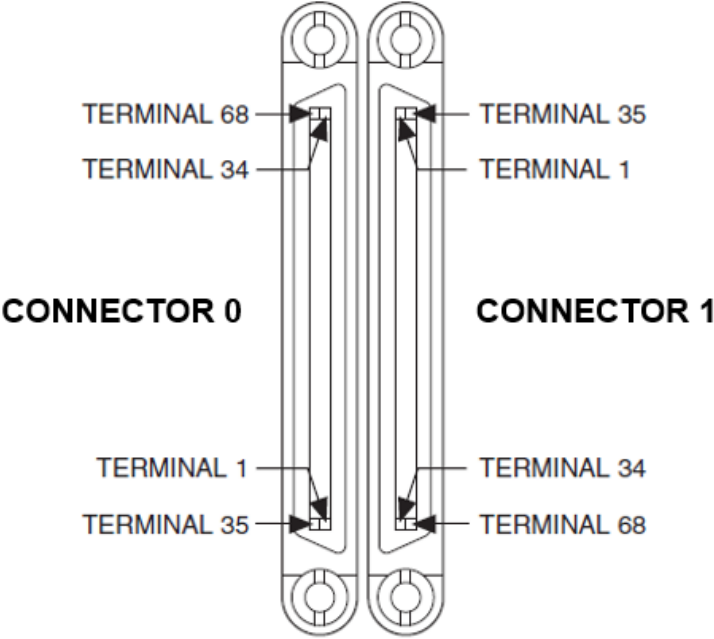
Maximum DC output current per channel

Source	4.0 mA
Sink	4.0 mA
Output impedance	50 Ω
Direction control of digital I/O channels	Per Channel
Minimum I/O pulse width	6.25 ns
Minimum sampling period	5 ns

Table 4. Digital Input Logic Levels

Logic Family	Input Low Voltage(VIL) Maximum	Input High Voltage(VIH) Minimum
5V	1.50V	3.50 V
Minimum input	-0.3 V	
Maximum input	5.23V	
Input leakage current	$\pm 15\mu\text{A}$ maximum	
Input impedance	50k Ω typical, pull-down	

Pinouts



CONNECTOR 0

AI0+	68	34	AI0-
AIGND	67	33	AIGND
AI1+	66	32	AI1-
AI2+	65	31	AI2-
AIGND	64	30	AIGND
AI3+	63	29	AI3-
AI4+	62	28	AI4-
AIGND	61	27	AIGND
AI5+	60	26	AI5-
AI6+	59	25	AI6-
AIGND	58	24	AIGND
AI7+	57	23	AI7-
NC	56	22	NC
AI8+	55	21	AI8-
AI9+	54	20	AI9-
AI10+	53	19	AI10-
AI11+	52	18	AI11-
AI12+	51	17	AI12-
AI13+	50	16	AI13-
AI14+	49	15	AI14-
AI15+	48	14	AI15-
DIO15	47	13	DIO14
DIO13	46	12	DIO12
DIO11	45	11	DIO10
DIO9	44	10	DIO8
DIO7	43	9	DGND
DIO6	42	8	DGND
DIO5	41	7	DGND
DIO4	40	6	DGND
DIO3	39	5	DGND
DIO2	38	4	DGND
DIO1	37	3	DGND
DIO0	36	2	DGND
+5V	35	1	+5V

CONNECTOR 1

AI16+	68	34	AI16-
AIGND	67	33	AIGND
AI17+	66	32	AI17-
AI18+	65	31	AI18-
AIGND	64	30	AIGND
AI19+	63	29	AI19-
AI20+	62	28	AI20-
AIGND	61	27	AIGND
AI21+	60	26	AI21-
AI22+	59	25	AI22-
AIGND	58	24	AIGND
AI23+	57	23	AI23-
NC	56	22	NC
AI24+	55	21	AI24-
AI25+	54	20	AI25-
AI26+	53	19	AI26-
AI27+	52	18	AI27-
AI28+	51	17	AI28-
AI29+	50	16	AI29-
AI30+	49	15	AI30-
AI31+	48	14	AI31-
DIO15	47	13	DIO14
DIO13	46	12	DIO12
DIO11	45	11	DIO10
DIO9	44	10	DIO8
DIO7	43	9	DGND
DIO6	42	8	DGND
DIO5	41	7	DGND
DIO4	40	6	DGND
DIO3	39	5	DGND
DIO2	38	4	DGND
DIO1	37	3	DGND
DIO0	36	2	DGND
+5V	35	1	+5V

Maximum Power Requirements

Power requirements are dependent on the digital output loads and configuration of the LabVIEW FPGA VI used in your application.

+3.3 V	3 A
+12 V	2 A

Safety Voltages

This product is designed to meet the requirements of the following electrical equipment safety standards for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA C22.2 No. 61010-1

CE Compliance

This product meets the essential requirements of applicable European Directives, as follows:

- 2014/35/EU; Low-Voltage Directive (safety)
- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)
- 2014/34/EU; Potentially Explosive Atmospheres (ATEX)

Shock and Vibration

To meet these specifications, you must panel mount the system.

Operating vibration	
Random (IEC 60068-2-64)	5 g _{rms} , 10 Hz to 500 Hz
Sinusoidal (IEC 60068-2-6)	5 g, 10 Hz to 500 Hz
Operating shock (IEC 60068-2-27)	30 g, 11 ms half sine; 50 g, 3 ms half sine; 18 shocks at 6 orientations

Environmental

Refer to the manual for the chassis you are using for more information about meeting these specifications.

Operating temperature (IEC 60068-2-1, IEC 60068-2-2)	-40 °C to 70 °C
Storage temperature (IEC 60068-2-1, IEC 60068-2-2)	-40 °C to 85 °C
Ingress protection	IP40
Operating humidity (IEC 60068-2-78)	10% RH to 90% RH, noncondensing Storage

humidity (IEC 60068-2-78)	5% RH to 95% RH, noncondensing Pollution
Degree	2
Maximum altitude	4,000 m
Indoor use only.	