Matrix Controller Test Data Sheet

7311-F Grove Road Frederick, MD 21704 USA Phone: (301)662-5019 Fax: (301)662-1731
Email: sales@pmi-rf.com
Unit Serial Number:PL14423
Date Code:1351
Part No:3146514-1 REV. E

Parameter	Test Condition	Limits Min	Limits Max	Units	Measured Value	Pass/Fail
High Level Input Current (Clock Input)	Vcc=5.5V, VIH=2.4V S2=Open Test at pin 34	-	160	uA	0.03 uA	PASS
Low Level Input Current (Clock Input)	Vcc=5.5V, VIL=0.8V S2=Open Test at pin 34	-	-6.4	mA	-0.1 uA	PASS
Low Level Input Current (Selector Input)	Vcc=5.5V, VIL=0.8V S2=Open Test at pin 19	-3.9	-7.5	mA	-4.70 mA	PASS
Low Level Input Current (Selector Input)	Vcc=5.5V, VIL=0.8V S2=Open Test at pin 20	-3.9	-7.5	mA	-4.68 mA	PASS
Low Level Input Current (Selector Input)	Vcc=5.5V, VIL=0.8V S2=Open Test at pin 21	-3.9	-7.5	mA	-4.66 mA	PASS
Low Level Input Current (Selector Input)	Vcc=5.5V, VIL=0.8V S2=Open Test at pin 22	-3.9	-7.5	mA	-4.68 mA	PASS
Low Level Input Current (Selector Input)	Vcc=5.5V, VIL=0.8V S2=Open Test at pin 15	-3.9	-7.5	mA	-4.69 mA	PASS
Low Level Input Current (Selector Input)	Vcc=5.5V, VIL=0.8V S2=Open Test at pin 16	-3.9	-7.5	mA	-4.68 mA	PASS
Low Level Input Current (Selector Input)	Vcc=5.5V, VIL=0.8V S2=Open Test at pin 17	-3.9	-7.5	mA	-4.70 mA	PASS
Low Level Input Current (Selector Input)	Vcc=5.5V, VIL=0.8V S2=Open Test at pin 18	-3.9	-7.5	mA	-4.65 mA	PASS
Low Level Output Voltage (Counter Outputs)	Vcc=4.5V, Close V0H0 Switch, Apply Clear Pulse, IOL=12mA Test at Pins 3	-	0.4	V	~0.1 mV	PASS
Low Level Output Voltage (Counter Outputs)	Vcc=4.5V, Close V0H0 Switch, Apply Clear Pulse, IOL=12mA Test at Pins 4	-	0.4	V	~0.1 mV	PASS
Low Level Output Voltage (Counter Outputs)	Vcc=4.5V, Close V0H0 Switch, Apply Clear Pulse, IOL=12mA Test at Pins 5	-	0.4	V	~0.1 mV	PASS
Low Level Output Voltage (Counter Outputs)	Vcc=4.5V, Close V0H0 Switch, Apply Clear Pulse, IOL=12mA Test at Pins 6	-	0.4	V	~0.1 mV	PASS

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Low Level Output Voltage (Counter Outputs)	Vcc=4.5V, Close V0H0 Switch, Apply Clear Pulse, IOL=12mA Test at Pins 8	-	0.4	V	~0.1 mV	PASS
Low Level Output Voltage (Counter Outputs)	Vcc=4.5V, Close V0H0 Switch, Apply Clear Pulse, IOL=12mA Test at Pins 9	-	0.4	V	~0.1 mV	PASS
Low Level Output Voltage (Decoder Outputs)	Vcc=4.5V, Close V0 to H0 Apply Clear Pulse, Test Pin 37	-	0.4	V	~ 40 mV	PASS
Low Level Output Voltage (Decoder Outputs)	Vcc=4.5V, Close V1 to H1 Apply Clear Pulse, Test Pin 39	-	0.4	V	~ 40 mV	PASS
Low Level Output Voltage (Decoder Outputs)	Vcc=4.5V, Close V2 to H2 Apply Clear Pulse, Test Pin 38	-	0.4	V	~ 40 mV	PASS
Low Level Output Voltage (Decoder Outputs)	Vcc=4.5V, Close V3 to H3 Apply Clear Pulse, Test Pin 36	-	0.4	V	~ 40 mV	PASS
Low Level Output Voltage (Decoder Outputs)	Vcc=4.5V, Close V4 to H4 Apply Clear Pulse, Test Pin 42	-	0.4	V	~ 40 mV	PASS
Low Level Output Voltage (Decoder Outputs)	Vcc=4.5V, Close V5 to H5 Apply Clear Pulse, Test Pin 41	-	0.4	V	~ 40 mV	PASS
Low Level Output Voltage (Decoder Outputs)	Vcc=4.5V, Close V6 to H6 Apply Clear Pulse, Test Pin 40	-	0.4	V	~ 40 mV	PASS
Low Level Output Voltage (Decoder Outputs)	Vcc=4.5V, Close V7 to H7 Apply Clear Pulse, Test Pin 2	-	0.4	V	~ 40 mV	PASS

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High Level Output Voltages ("STOP")	Vcc=4.5V, Close V0 to H0 Switch, I0H=-560uA (Pin 10)	2.4	-	V	~3.3 V	PASS
High Level Output Voltages ("DELTA")	Vcc=4.5V, Close V0 to H0 Switch, IOH=-400uA (Pin 33)	2.4	-	V	~3.3 V	PASS
Low Level Output Voltages ("STOP")	Vcc=4.5V, Close V0 to H0 Switch, I0H=-5mA (Pin 10)	-	0.4	V	~ 6 mV	PASS
Low Level Output Voltages ("DELTA")	Vcc=4.5V, Close V0 to H0 Switch, I0H=-16mA (Pin 33)	-	0.4	V	~ 6 mV	PASS
Clock Pulse	Observe output at pin 26. It shall be a square wave with Duty Cycle = 45% to 65% VLO=0.4V Max VHI=2.4 Min, f=220kHz to 390KHz	220	390	kHz	333.333 kHz	PASS
Counter Outputs	Observe output at Pin 8. Waveform shall be CP/4	55	97.5	kHz	83.33 kHz	PASS
Counter Outputs	Observe output at Pin 9. Waveform shall be CP/8	27.5	48.75	kHz	41.67 kHz	PASS
Counter Outputs	Observe output at Pin 5. Waveform shall be CP/16	13.75	24.375	kHz	20.83 kHz	PASS
Counter Outputs	Observe output at Pin 6. Waveform shall be CP/32	6.875	12.1875	kHz	10.42 kHz	PASS
Counter Outputs	Observe output at Pin 4. Waveform shall be CP/64	3.4375	6.09375	kHz	5.208 kHz	PASS
Counter Outputs	Observe output at Pin 3. Waveform shall be CP/128	1.71875	3.046875	kHz	2.604 kHz	PASS

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Parameter	Test Condition	Limits Min	Limits Max	Units	Measured Value	Pass/Fail
	Matrix Switch Configuration				Counter Bits (LEDS) 6 5 4 3 2 1	
Matrix Decoding	Close Switch V0 to H0	-	-	-	1 1 1 1 1 1	PASS
Matrix Decoding	Close Switch V0 to H1	-	-	-	1 1 1 1 1 0	PASS
Matrix Decoding	Close Switch V0 to H2	-	-	-	1 1 1 1 0 1	PASS
Matrix Decoding	Close Switch V0 to H3	-	-	-	1 1 1 1 0 0	PASS
Matrix Decoding	Close Switch V0 to H4	-	-	-	1 1 1 0 1 1	PASS
Matrix Decoding	Close Switch V0 to H5	-	-	-	1 1 1 0 1 0	PASS
Matrix Decoding	Close Switch V0 to H6	-	-	-	1 1 1 0 0 1	PASS
Matrix Decoding	Close Switch V0 to H7	-	-	-	1 1 1 0 0 0	PASS
Matrix Decoding	Close Switch V1 to H0	-	-	-	1 1 0 1 1 1	PASS
Matrix Decoding	Close Switch V1 to H1	-	-	-	1 1 0 1 1 0	PASS
Matrix Decoding	Close Switch V1 to H2	-	-	-	1 1 0 1 0 1	PASS
Matrix Decoding	Close Switch V1 to H3	-	-	-	1 1 0 1 0 0	PASS
Matrix Decoding	Close Switch V1 to H4	-	-	-	1 1 0 0 1 1	PASS
Matrix Decoding	Close Switch V1 to H5	-	-	-	1 1 0 0 1 0	PASS
Matrix Decoding	Close Switch V1 to H6	-	-	-	1 1 0 0 0 1	PASS
Matrix Decoding	Close Switch V1 to H7	-	-	-	1 1 0 0 0 0	PASS
Matrix Decoding	Close Switch V2 to H0	-	-	-	1 0 1 1 1 1	PASS
Matrix Decoding	Close Switch V2 to H1	-	-	-	1 0 1 1 1 0	PASS
Matrix Decoding	Close Switch V2 to H2	-	-	-	1 0 1 1 0 1	PASS
Matrix Decoding	Close Switch V2 to H3	-	-	-	1 0 1 1 0 0	PASS
Matrix Decoding	Close Switch V2 to H4	-	-	-	1 0 1 0 1 1	PASS
Matrix Decoding	Close Switch V2 to H5	-	-	-	1 0 1 0 1 0	PASS
Matrix Decoding	Close Switch V2 to H6	-	-	-	1 0 1 0 0 1	PASS
Matrix Decoding	Close Switch V2 to H7	-	-	-	1 0 1 0 0 0	PASS

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	Matrix Switch Configuration				Counter Bits (LEDS) 6 5 4 3 2 1	
Matrix Decoding	Close Switch V3 to H0	-	-	-	1 0 0 1 1 1	PASS
Matrix Decoding	Close Switch V3 to H1	-	-	-	1 0 0 1 1 0	PASS
Matrix Decoding	Close Switch V3 to H2	-	-	-	1 0 0 1 0 1	PASS
Matrix Decoding	Close Switch V3 to H3	-	-	-	1 0 0 1 0 0	PASS
Matrix Decoding	Close Switch V3 to H4	-	-	-	1 0 0 0 1 1	PASS
Matrix Decoding	Close Switch V3 to H5	-	-	-	1 0 0 0 1 0	PASS
Matrix Decoding	Close Switch V3 to H6	-	-	-	1 0 0 0 0 1	PASS
Matrix Decoding	Close Switch V3 to H7	-	-	-	1 0 0 0 0 0	PASS
Matrix Decoding	Close Switch V4 to H0	-	-	-	0 1 1 1 1 1	PASS
Matrix Decoding	Close Switch V4 to H1	-	-	-	0 1 1 1 1 0	PASS
Matrix Decoding	Close Switch V4 to H2	-	-	-	0 1 1 1 0 1	PASS
Matrix Decoding	Close Switch V4 to H3	-	-	-	0 1 1 1 0 0	PASS
Matrix Decoding	Close Switch V4 to H4	-	-	-	0 1 1 0 1 1	PASS
Matrix Decoding	Close Switch V4 to H5	-	-	-	0 1 1 0 1 0	PASS
Matrix Decoding	Close Switch V4 to H6	-	-	-	0 1 1 0 0 1	PASS
Matrix Decoding	Close Switch V4 to H7	-	-	-	0 1 1 0 0 0	PASS
Matrix Decoding	Close Switch V5 to H0	-	-	-	0 1 0 1 1 1	PASS
Matrix Decoding	Close Switch V5 to H1	-	-	-	0 1 0 1 1 0	PASS
Matrix Decoding	Close Switch V5 to H2	-	-	-	0 1 0 1 0 1	PASS
Matrix Decoding	Close Switch V5 to H3	-	-	-	0 1 0 1 0 0	PASS
Matrix Decoding	Close Switch V5 to H4	-	-	-	0 1 0 0 1 1	PASS
Matrix Decoding	Close Switch V5 to H5	-	-	-	0 1 0 0 1 0	PASS
Matrix Decoding	Close Switch V5 to H6	-	-	-	0 1 0 0 0 1	PASS
Matrix Decoding	Close Switch V5 to H7	-	-	-	0 1 0 0 0 0	PASS

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	Matrix Switch Configuration				Counter Bits (LEDS) 6 5 4 3 2 1	
Matrix Decoding	Close Switch V6 to H0	-	-	-	0 0 1 1 1 1	PASS
Matrix Decoding	Close Switch V6 to H1	-	-	-	0 0 1 1 1 0	PASS
Matrix Decoding	Close Switch V6 to H2	-	-	-	0 0 1 1 0 1	PASS
Matrix Decoding	Close Switch V6 to H3	-	-	-	0 0 1 1 0 0	PASS
Matrix Decoding	Close Switch V6 to H4	-	-	-	0 0 1 0 1 1	PASS
Matrix Decoding	Close Switch V6 to H5	-	-	-	0 0 1 0 1 0	PASS
Matrix Decoding	Close Switch V6 to H6	-	-	-	0 0 1 0 0 1	PASS
Matrix Decoding	Close Switch V6 to H7	-	-	-	0 0 1 0 0 0	PASS
Matrix Decoding	Close Switch V7 to H0	-	-	-	0 0 0 1 1 1	PASS
Matrix Decoding	Close Switch V7 to H1	-	-	-	0 0 0 1 1 0	PASS
Matrix Decoding	Close Switch V7 to H2	-	-	-	0 0 0 1 0 1	PASS
Matrix Decoding	Close Switch V7 to H3	-	-	-	0 0 0 1 0 0	PASS
Matrix Decoding	Close Switch V7 to H4	-	-	-	0 0 0 0 1 1	PASS
Matrix Decoding	Close Switch V7 to H5	-	-	-	0 0 0 0 1 0	PASS
Matrix Decoding	Close Switch V7 to H6	-	-	-	0 0 0 0 0 1	PASS
Matrix Decoding	Close Switch V7 to H7	-	-	-	0 0 0 0 0 0	PASS

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Parameter	Test Condition	Limits Min	Limits Max	Units	Measured Value	Pass/Fail
Propagation Delay Time Low to High Level	CP to CT1 Pin 34 to Pin 8	-	110	nS	~5 nS	PASS
Propagation Delay Time Low to High Level	CP to CT2 Pin 34 to Pin 9	-	110	nS	~5 nS	PASS
Propagation Delay Time Low to High Level	CP to CT3 Pin 34 to Pin 5	-	110	nS	~5 nS	PASS
Propagation Delay Time Low to High Level	CP to CT4 Pin 34 to Pin 6	-	60	nS	~5 nS	PASS
Propagation Delay Time Low to High Level	CP to CT5 Pin 34 to Pin 4	-	60	nS	~5 nS	PASS
Propagation Delay Time Low to High Level	CP to CT6 Pin 34 to Pin 3	-	60	nS	~5 nS	PASS
Propagation Delay Time High to Low Level	CP to CT1 Pin 34 to Pin 8	-	105	nS	~6 nS	PASS
Propagation Delay Time High to Low Level	CP to CT2 Pin 34 to Pin 9	-	105	nS	~6 nS	PASS
Propagation Delay Time High to Low Level	CP to CT3 Pin 34 to Pin 5	-	105	nS	~6 nS	PASS
Propagation Delay Time High to Low Level	CP to CT4 Pin 34 to Pin 6	-	70	nS	~6 nS	PASS
Propagation Delay Time High to Low Level	CP to CT5 Pin 34 to Pin 4	-	70	nS	~6 nS	PASS
Propagation Delay Time High to Low Level	CP to CT6 Pin 34 to Pin 3	-	70	nS	~6 nS	PASS

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Parameter	Test Condition	Limits Min	Limits Max	Units	Measured Value	Pass/Fail
Propagation Delay Time Low to High Level	CP to V0 Pin 34 to Pin 37	-	140	nS	~7 nS	PASS
Propagation Delay Time Low to High Level	CP to V1 Pin 34 to Pin 39	-	140	nS	~7 nS	PASS
Propagation Delay Time Low to High Level	CP to V2 Pin 34 to Pin 38	-	140	nS	~7 nS	PASS
Propagation Delay Time Low to High Level	CP to V3 Pin 34 to Pin 36	-	140	nS	~7 nS	PASS
Propagation Delay Time Low to High Level	CP to V4 Pin 34 to Pin 42	-	140	nS	~7 nS	PASS
Propagation Delay Time Low to High Level	CP to V5 Pin 34 to Pin 41	-	140	nS	~7 nS	PASS
Propagation Delay Time Low to High Level	CP to V6 Pin 34 to Pin 40	-	140	nS	~7 nS	PASS
Propagation Delay Time Low to High Level	CP to V7 Pin 34 to Pin 2	-	140	nS	~7 nS	PASS
Propagation Delay Time High to Low Level	CP to V0 Pin 34 to Pin 37	-	100	nS	~8 nS	PASS
Propagation Delay Time High to Low Level	CP to V1 Pin 34 to Pin 39	-	100	nS	~8 nS	PASS
Propagation Delay Time High to Low Level	CP to V2 Pin 34 to Pin 38	-	100	nS	~8 nS	PASS
Propagation Delay Time High to Low Level	CP to V3 Pin 34 to Pin 36	-	100	nS	~8 nS	PASS
Propagation Delay Time High to Low Level	CP to V4 Pin 34 to Pin 42	-	100	nS	~8 nS	PASS
Propagation Delay Time High to Low Level	CP to V5 Pin 34 to Pin 41	-	100	nS	~8 nS	PASS
Propagation Delay Time High to Low Level	CP to V6 Pin 34 to Pin 40	-	100	nS	~8 nS	PASS
Propagation Delay Time High to Low Level	CP to V7 Pin 34 to Pin 2	-	100	nS	~8 nS	PASS
Propagation Delay Time Low to High Level "STOP" to "Delta"	Measured from "STOP" rising edge to "DELTA" rising edge	-	30	nS	~2 nS	PASS

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Propagation Delay Time High to Low Level "/CLR" to "Delta"	Meaured from "/CLR" falling edge to "DELTA" falling edge	-	80	nS	~ 62 nS	PASS
"Delta" to "STOP" Delay Time (Anti-Bounce Time)	See Figure 4 (Switch H0)	7.5	17.5	mS	8.2 mS	PASS
"Delta" to "STOP" Delay Time (Anti-Bounce Time)	See Figure 4 (Switch H1)	7.5	17.5	mS	8.2 mS	PASS
"Delta" to "STOP" Delay Time (Anti-Bounce Time)	See Figure 4 (Switch H2)	7.5	17.5	mS	8.2 mS	PASS
"Delta" to "STOP" Delay Time (Anti-Bounce Time)	See Figure 4 (Switch H3)	7.5	17.5	mS	8.2 mS	PASS
"Delta" to "STOP" Delay Time (Anti-Bounce Time)	See Figure 4 (Switch H4)	7.5	17.5	mS	8.2 mS	PASS
"Delta" to "STOP" Delay Time (Anti-Bounce Time)	See Figure 4 (Switch H5)	7.5	17.5	mS	8.2 mS	PASS
"Delta" to "STOP" Delay Time (Anti-Bounce Time)	See Figure 4 (Switch H6)	7.5	17.5	mS	8.2 mS	PASS
"Delta" to "STOP" Delay Time (Anti-Bounce Time)	See Figure 4 (Switch H7)	7.5	17.5	mS	8.2 mS	PASS
Supply Current	Vcc+=5.5V		380	mA	40 mA	PASS
Supply Current	Vcc-=-5.5V		-15	mA	0 mA	PASS
QA/QC Approval:				Date:		