



MSTronic Co., Ltd.

2F, 12, Gongshang Rd., Wugu District, New Taipei City, 248, Taiwan

TEL:886-2-2293-0159 FAX:886-2-2292-8851

E.MAIL: mse@mse.com.tw

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MS-T200G

Network Lightning/Surge Protector
PoE Compatible

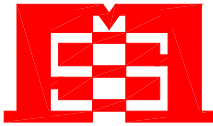
Feature

- + **Shielded RJ45 jack and metal housing for EMI noise suppression**
- + **CAT5e/CAT6/CAT6a compatible**
- + **10 Gigabit Ethernet available**
- + **Cast aluminum construction**
- + **Integrated mounting brackets**
- + **DIN rail mount available (Option Kit)**
- + **802.3af/at/bt/PoH compliant**
- + **AC/DC, DC/DC PoE available**
- + **UL 497B approved**



Specification

1. Nominal voltage operating DC voltage 56 V
2. Max. continuous operating DC voltage 58V
3. DC breakdown voltage 75V
4. Max. continuous DC voltage pair-pair (PoE) 58V
5. Nominal current 2.5 A(Each pair of lines)
6. Nominal discharge current line-line 17A (8/20 μ s)
7. Nominal discharge current line-FG 100A (10/1000 μ s,300times with 3mins interval)
8. Nominal discharge current line-FG 10KA (8/20 μ s,10 times with 3mins interval)
9. Voltage protection level line- FG Breakdown Voltage: 64V ~ 650V (for rising voltage 100V/s and 1000V/us)
10. Voltage protection level line- line Breakdown Voltage: 24V ~ 650V (for rising voltage 100V/s and 1000V/us)
11. Voltage protection level line-line for POE In Maximum Breakdown Voltage : 6V ~ 18.3V @IPP = 17A(8/20 μ S)
12. Capacitance line-line \leq 3 PF
13. Capacitance line-FG \leq 3 PF



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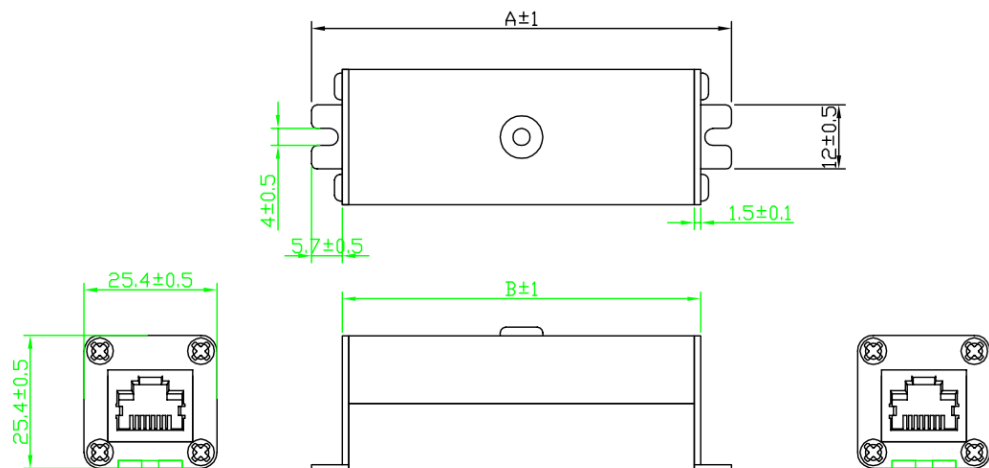
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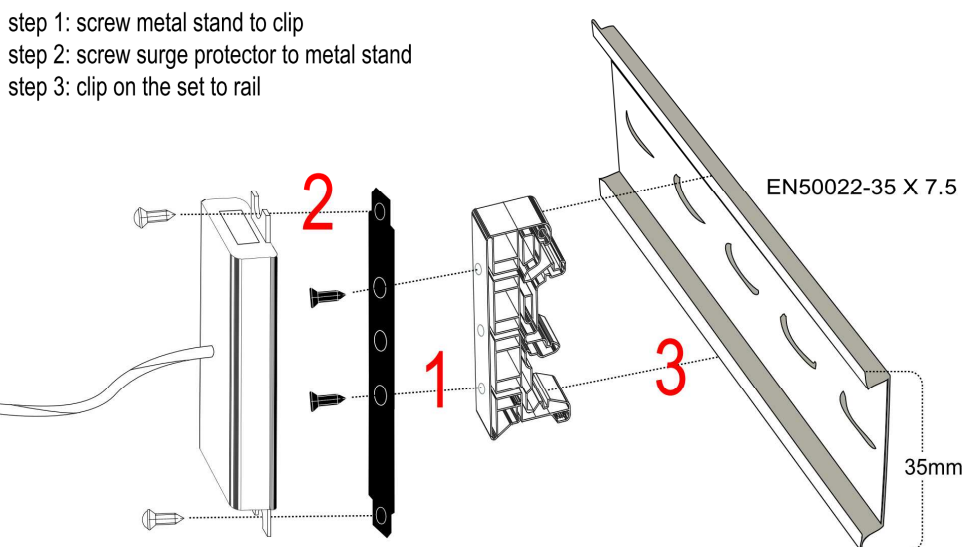
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- 14. Capacitance line-FG ≤ 150 PF@(3-FG) , (4-FG)
 - 15. Operating temperature range -40°C to $+90^{\circ}\text{C}$
 - 16. Connection (input / output) RJ45 socket
 - 17. Pinning 1 / 2, 3 / 6, 4 / 5, 7 / 8
 - 18. Data Rate : Ethernet 10Gbps, PoE 5Gbps @ CAT6A 90m (pin to pin)
 - 19. Ground Lug Wire : 14AWG 350mm \pm 5mm
 - 20. Weight : 105 \pm 5g
 - 21. Dimensions : 120*25.4*25.4(include bracket)
 - 22. Each pair of lines Over-Current Protection , (1,2/3,6) & (4,5/7,8)
- Over-Current Protection Turn-off point 2700 mA ~5400mA**



A=120mm \pm 1mm, B=108mm \pm 1mm

Option: DIN rail mounting kit





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STRIKE VOLTAGE MEASUREMENTS TEST (CONT'D):

Sample No.	Model No. (Unit No.) (L-L),(L-G)	Rated Breakdown Voltage, 100 V/s		Measured Breakdown Voltage			
				100 V/s		100 V/ μ s	
				L-L	L-G	L-L	L-G
1C	T200G (1) (1-2),(1-G)	24-54	70-80	48.5	76.0	49.3	101
2C	T200G (1) (3-8),(8-G)	24-54	70-80	48.3	72.0	49.2	101
3C	T200G (1) (4-5)	24-54	-	48.4	-	49.3	-
4C	T200G (2) (1-2),(1-G)	24-54	70-80	48.4	78.8	49.0	101
5C	T200G (2) (3-8),(8-G)	24-54	70-80	48.4	68.8	49.4	108
6C	T200G (2) (4-5)	24-54	-	48.4	-	49.4	-
7C	T200G (3) (1-2),(1-G)	24-54	70-80	48.4	74.2	49.2	124
8C	T200G (3) (3-8),(8-G)	24-54	70-80	48.2	73.2	49.5	113
9C	T200G (3) (4-5)	24-54	-	48.3	-	49.5	-
10C	T200G (4) (1-2),(1-G)	24-54	70-80	48.3	73.4	50.1	118
11C	T200G (4) (3-8),(8-G)	24-54	70-80	48.2	72.8	50.3	130
12C	T200G (4) (4-5)	24-54	-	48.4	-	52.1	-
13C	T200G (5) (1-2),(1-G)	24-54	70-80	48.2	76.4	52.0	115
14C	T200G (5) (3-8),(8-G)	24-54	70-80	48.3	72.8	49.8	121
15C	T200G (5) (4-5)	24-54	-	48.3	-	49.8	-
16C	T200G (6) (1-2),(1-G)	24-54	70-80	48.2	72.0	49.6	137
17C	T200G (6) (3-8),(8-G)	24-54	70-80	48.3	72.8	49.3	122
18C	T200G (6) (4-5)	24-54	-	48.5	-	50.0	-

VARIABLE AMBIENT CONDITIONING TEST

METHOD

Each of six samples were placed in a position of normal use and subjected to hot and cold ambient conditions. The units were first subjected to 49°C for 4 h and at the completion of the 4 h exposure, while still at the test ambient or immediately following removal, each unit was subjected to breakdown voltage measurements. The samples were then subjected to 0°C for 4 h and breakdown voltage measurements were repeated.

The samples were subjected to breakdown voltage measurements to determine that the device breaks down at or below its maximum voltage breakdown rating.

RESULTS

- The results are considered unacceptable because the measurements obtained are outside
- the upper and lower limits of the protector's rated voltage breakdown range at 100 V/s as shown in the following table and/or are greater than 1000 Vdc at 100 V/ μ s.
- 10 percent of the protector's nominal voltage breakdown rating (Vdc) at 100 V/s and/or are greater than [1000 Vdc at 100 V/ μ s] [the protector's maximum voltage breakdown rating at 100 V/ μ s (Vdc)].

The voltage breakdown results are shown in the following table.



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VARIABLE AMBIENT CONDITIONING TEST (CONT'D):

Sample No.	Model No.	Rated Breakdown Voltage, 100 V/s		Test Condition, °C	Measured Breakdown Voltage			
					100 V/s		100 V/μs	
					L-L	L-G	L-L	L-G
1C	T200G (1) (1-2),(1-G)	24-54	70-80	49	48.3	79.2	49.5	124
2C	T200G (1) (3-8),(8-G)	24-54	70-80	49	48.3	77.2	52.1	127
3C	T200G (1) (4-5)	24-54	-	49	48.4	-	52.1	-
4C	T200G (2) (1-2),(1-G)	24-54	70-80	49	48.4	76.8	51.3	127
5C	T200G (2) (3-8),(8-G)	24-54	70-80	49	48.3	77.2	51.3	112
6C	T200G (2) (4-5)	24-54	-	49	48.3	-	52.3	-
7C	T200G (3) (1-2),(1-G)	24-54	70-80	0	48.3	76.4	52.0	120
8C	T200G (3) (3-8),(8-G)	24-54	70-80	0	48.5	74.0	51.3	126
9C	T200G (3) (4-5)	24-54	-	0	48.5	-	52.2	-
10C	T200G (4) (1-2),(1-G)	24-54	70-80	0	48.3	75.2	52.2	130
11C	T200G (4) (3-8),(8-G)	24-54	70-80	0	148.3	78.8	522	127
12C	T200G (4) (4-5)	24-54	-	0	48.2	-	52.5	-

HUMIDITY CONDITIONING TEST

METHOD

Each of six samples were placed in a position of normal use and subjected to 85 percent relative humidity at 30°C for 24 h.

The samples were then subjected to breakdown voltage measurements to determine that the device breaks down at or below its maximum voltage breakdown rating.

Each sample was then subjected to the Dielectric Voltage Withstand Test followed by breakdown voltage measurements.

RESULTS

- The results are considered unacceptable because the measurements obtained are outside
- the upper and lower limits of the protector's rated voltage breakdown range at 100 V/s as shown in the following table and/or are greater than 1000 Vdc at 100 V/μs.
- 10 percent of the protector's nominal voltage breakdown rating (Vdc) at 100 V/s and/or are greater than [1000 Vdc at 100 V/μs] [the protector's maximum voltage breakdown rating at 100 V/μs (Vdc)].

The voltage breakdown results are shown in the following table.



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HUMIDITY CONDITIONING TEST (CONT'D):

Sample No.	Model No. (Unit No.) (L-L),(L-G)	Rated Breakdown Voltage, 100 V/s		Measured Breakdown Voltage			
				100 V/s		100 V/ μ s	
		L-L	L-G	L-L	L-G	L-L	L-G
13C	T200G (5) (1-2),(1-G)	24-54	70-80	53.4	78.0	53.5	116
14C	T200G (5) (3-6),(8-G)	24-54	70-80	53.4	76.0	53.5	130
15C	T200G (5) (4-5)	24-54	-	53.4	-	52.2	-
16C	T200G (6) (1-2),(1-G)	24-54	70-80	53.4	72.6	53.6	130
17C	T200G (6) (3-6),(8-G)	24-54	70-80	53.4	75.0	53.2	116
18C	T200G (6) (4-5)	24-54	-	53.4	-	53.6	-

DISCHARGE TEST

METHOD

Each of six samples were subjected to five discharges from a 2 μ F capacitor charged to a potential of 1000 V dc. The discharges were applied every 10 s between

- input line to ground.
- line to line.

The samples were then subjected to breakdown voltage measurements to determine that the device breaks down at or below its maximum voltage breakdown rating.

RESULTS

- The results are considered unacceptable because the measurements obtained are outside
 - the upper and lower limits of the protector's rated voltage breakdown range at 100 V/s as shown in the following table and/or are greater than 1000 Vdc at 100 V/ μ s.
 - 10 percent of the protector's nominal voltage breakdown rating (Vdc) at 100 V/s and/or are greater than [1000 Vdc at 100 V/ μ s] [the protector's maximum voltage breakdown rating at 100 V/ μ s (Vdc)].

The voltage breakdown results are shown in the following table.



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DISCHARGE TEST (CONT'D):

Sample No.	Model No. (Unit No.) (L-L),(L-G)	Rated Breakdown Voltage, 100 V/s		Measured Breakdown Voltage			
				100 V/s		100 V/ μ s	
		L-L	L-G	L-L	L-G	L-L	L-G
1C	T200G (1) (1-2),(1-G)	24-54	70-80	25.24	63	53.2	130
2C	T200G (1) (3-6),(8-G)	24-54	70-80	25.24	67	53.2	132
3C	T200G (1) (4-5)	24-54	-	25.20	-	52.0	-
4C	T200G (2) (1-2),(1-G)	24-54	70-80	25.40	79.6	53.1	125
5C	T200G (2) (3-6),(8-G)	24-54	70-80	25.20	78	53.5	128
6C	T200G (2) (4-5)	24-54	-	25.24	-	52.2	-

REPEATED DISCHARGE TEST

METHOD

Each of six samples was subjected to 500 discharges from a 0.001 μ F capacitor charged to a potential of 10,000 V dc. The discharges were applied every 5 s between

input line to ground.

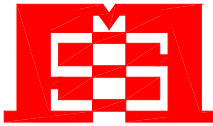
line to line.

The samples were then subjected to voltage breakdown measurements to determine that the device breaks down at or below its maximum voltage breakdown rating.

RESULTS

- The results are considered unacceptable because the measurements obtained are outside
- the upper and lower limits of the protector's rated voltage breakdown range at 100 V/s as shown in the following table and/or are greater than 1000 Vdc at 100 V/ μ s.
- 10 percent of the protector's nominal voltage breakdown rating (Vdc) at 100 V/s and/or are greater than [1000 Vdc at 100 V/ μ s] [the protector's maximum voltage breakdown rating at 100 V/ μ s (Vdc)].

The voltage breakdown results are shown in the following table.



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REPEATED DISCHARGE TEST (CONT'D):

Sample No.	Model No. (Unit No.) (L-L),(L-G)	Rated Breakdown Voltage, 100 V/s		Measured Breakdown Voltage			
				100 V/s		100 V/ μ s	
				L-L	L-G	L-L	L-G
7C	T200G (3) (1-2),(1-G)	24-54	70-80	25.40	65.3	52.3	STG
8C	T200G (3) (3-6),(8-G)	24-54	70-80	25.40	67	52.8	STG
9C	T200G (3) (4-5)	24-54	-	25.40	-	52.1	-
10C	T200G (4) (1-2),(1-G)	24-54	70-80	25.30	72	53.5	STG
11C	T200G (4) (3-6),(8-G)	24-54	70-80	25.40	73	53.7	STG
12C	T200G (4) (4-5)	24-54	-	25.40	-	53.8	-



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ENDURANCE CONDITIONING TEST

METHOD

Each of six samples were mounted in a position of normal use and subjected to 50 pulses of a 10/1000 μ s waveform. The waveform consisted of an open circuit test voltage sufficient to create a short circuit peak current of 10 A. The pulses were applied at a rate of one pulse every 10 s from [X] input line to ground. [X] line to line.

The 50 pulses were then repeated, except in the opposite polarity.

Each sample was then subjected to breakdown voltage measurements to determine that the device breaks down at or below its maximum voltage breakdown rating.

RESULTS

- [X] The results are considered unacceptable because the measurements obtained are outside
 - [X] the upper and lower limits of the protector's rated voltage breakdown range at 100 V/s as shown in the following table and/or are greater than 1000 Vdc at 100 V/ μ s.
 - [] 10 percent of the protector's nominal voltage breakdown rating (Vdc) at 100 V/s and/or are greater than [1000 Vdc at 100 V/ μ s] [the protector's maximum voltage breakdown rating at 100 V/ μ s (Vdc)].

The voltage breakdown results are shown in the following table.

ENDURANCE CONDITIONING TEST (CONT'D):

Sample No.	Model No. (Unit No.) (L-L),(L-G)	Rated Breakdown Voltage, 100 V/s		Measured Breakdown Voltage			
				100 V/s		100 V/ μ s	
				L-L	L-G	L-L	L-G
13C	T200G (5) (1-2),(1-G)	24-54	70-80	26.2	51.0	401	450
14C	T200G (5) (3-6),(8-G)	24-54	70-80	25.9	57.0	119	114
15C	T200G (5) (4-5)	24-54	-	25.8	-	401	-
16C	T200G (6) (1-2),(1-G)	24-54	70-80	25.3	63	401	373
17C	T200G (6) (3-6),(8-G)	24-54	70-80	26.4	79	401	134
18C	T200G (6) (4-5)	24-54	-	25.6	-	401	-