

# 승 인 원 (APPROVAL SHEET)




품 목	NOISE FILTER
품 명	TMS-S
Rev. No.	A



승 인 (APPROVED)	검 토 Inspected by :
	심 사 Checked by :
	승 인 Approved by :
	날 짜 Date :

상기와 같이 승인원을 제출하오니 검토하시어 승인하여 주시기 바랍니다.

2012 년 9 월 19 일

작 성 : 전 임 고경완   
 검 토 : 선 임 이진원   
 승 인 : 상 무 장재하 



경기도 성남시 중원구 상대원동 143-1

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# 승인원 변경이력

Product.	Noise Filter	Date.	2012.09.19
Model.	TMS-S	Rev.	A
Customer.	STANDARD	Page.	1/1

DWG	전 임 고경완	<i>JKW</i>
CHK	선 임 이진원	<i>이진원</i>
APPD	상 무 장재하	<i>장재하</i>

No.	Date.	변경 내용	변경 사유	변경항목	Rev.
1	2012.09.19	- 승인원 신규발행	신규발행	전체(All Pages)	A

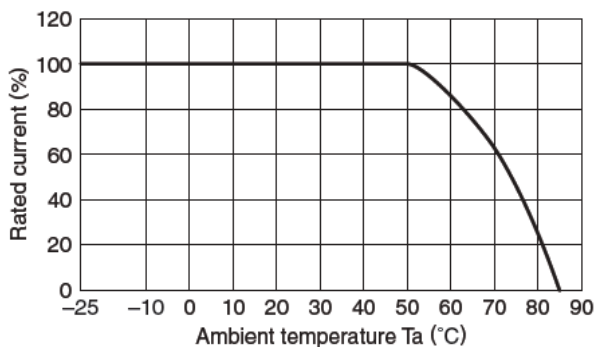
# SPECIFICATIONS

Product.	Noise Filter	Date.	2012. 09. 19
Model.	TMS-2S	Rev.	A
Customer.	STANDARD	Page.	1 / 4

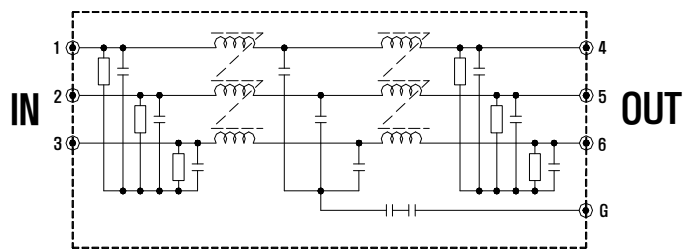
MODEL		Unit.	TMS-2006	TMS-2010	TMS-2020	TMS-2030
INPUT	Voltage	[V]	3 $\Phi$ , AC 250 or DC 250			
	Frequency	[Hz]	50 / 60			
	Rated Current *1)	[A]	6	10	20	30
Voltage Drop		[V]	0.3V Max			
Test voltage		[V]	2,500VAC (at cut off current 100mA / 1Min)			
Isolation Resistance		[M $\Omega$ ]	100M $\Omega$ Min (500VDC / 1Min)			
Leakage Current (60Hz)	250V	[mA]	2.5mA Max			
DC Resistance (Max)		[m $\Omega$ ]	290	120	50	26
Temperature Rise		[ $^{\circ}$ C]	50 $^{\circ}$ C Max			
Environment	Operating temp. & Humidity	-	-25 ~ +85 $^{\circ}$ C, 20 ~ 95% RH (Refer to Derating Curve)			
	Storage temp. & Humidity	-	-40 ~ +85 $^{\circ}$ C, 20 ~ 95% RH (Non Condensing)			
	Vibration	-	10~55Hz at 2G 3minutes period, 1hour each X,Y and Z			
Dimension	Size(WxHxD)	[mm]	210*55*95		240*60*105	
Weight(Typ)		[g]	910g		1,400g	
Safety Standards		-	Approved by standard UL1283, CSA C22.2 No.8(C-UL), IEC/EN60939-2			

비 고 :

- Derating Curve



- Circuit Diagram



= NOTES =

\*1. Value for Ta less than 50 $^{\circ}$ C

For Ta more than 50 $^{\circ}$ C, According to the derating curve as above

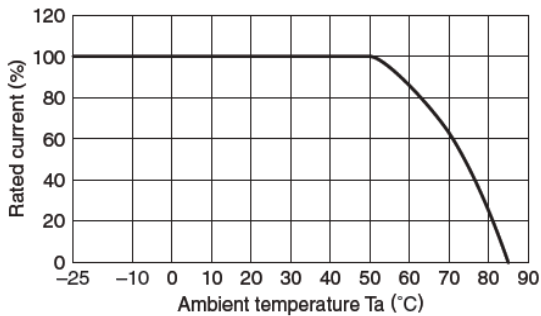
# SPECIFICATIONS

Product.	Noise Filter	Date.	2012. 09. 19
Model.	TMS-2S	Rev.	A
Customer.	STANDARD	Page.	2 / 4

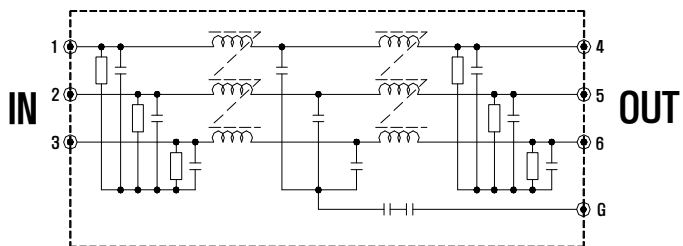
MODEL		Unit.	TMS-2040	TMS-2050	TMS-2060
INPUT	Voltage	[V]	3 $\Phi$ , AC 250 or DC 250		
	Frequency	[Hz]	50 / 60		
	Rated Current *1)	[A]	40	50	60
Voltage Drop		[V]	0.3V Max		
Test voltage		[V]	2,500VAC (at cut off current 100mA / 1Min)		
Isolation Resistance		[M $\Omega$ ]	100M $\Omega$ Min (500VDC / 1Min)		
Leakage Current (60Hz)	250V	[mA]	2.5mA Max		
DC Resistance (Max)		[m $\Omega$ ]	20	14	10
Temperature Rise		[ $^{\circ}$ C]	50 $^{\circ}$ C Max		
Environment	Operating temp. & Humidity	-	-25 ~ +85 $^{\circ}$ C, 20 ~ 95% RH (Refer to Derating Curve)		
	Storage temp. & Humidity	-	-40 ~ +85 $^{\circ}$ C, 20 ~ 95% RH (Non Condensing)		
	Vibration	-	10~55Hz at 2G 3minutes period, 1hour each X,Y and Z		
Dimension	Size(WxHxD)	[mm]	278 * 70 * 128		
	Weight(Typ)	[g]	2,800g		
Safety Standards		-	Approved by standard UL1283, CSA C22.2 No.8(C-UL), IEC/EN60939-2		

비 고 :

- Derating Curve



- Circuit Diagram



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- \*1. Value for Ta less than 50 $^{\circ}$ C  
For Ta more than 50 $^{\circ}$ C, According to the derating curve as above

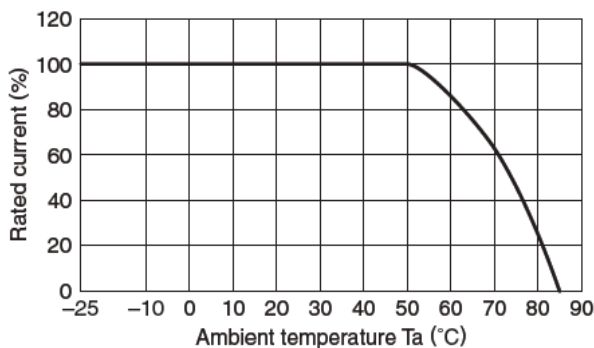
# SPECIFICATIONS

Product.	Noise Filter	Date.	2012. 09. 19
Model.	TMS-5S	Rev.	A
Customer.	STANDARD	Page.	3 / 4

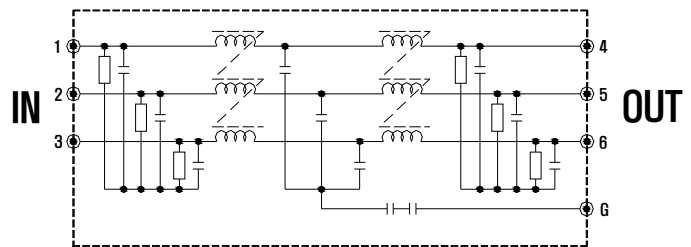
MODEL		Unit.	TMS-5006	TMS-5010	TMS-5020	TMS-5030
INPUT	Voltage	[V]	3Φ, AC 500 or DC 500			
	Frequency	[Hz]	50 / 60			
	Rated Current *1)	[A]	6	10	20	30
Voltage Drop		[V]	0.3V Max			
Test voltage		[V]	2,500VAC (at cut off current 100mA / 1Min)			
Isolation Resistance		[MΩ]	100MΩ Min (500VDC / 1Min)			
Leakage Current (60Hz)	250V	[mA]	2.5mA Max			
	500V	[mA]	5.0mA Max			
DC Resistance (Max)		[mΩ]	290	120	50	26
Temperature Rise		[℃]	50℃ Max			
Environment	Operating temp. & Humidity	-	-25 ~ +85℃, 20 ~ 95% RH (Refer to Derating Curve)			
	Storage temp. & Humidity	-	-40 ~ +85℃, 20 ~ 95% RH (Non Condensing)			
	Vibration	-	10~55Hz at 2G 3minutes period, 1hour each X,Y and Z			
Dimension	Size(WxHxD)	[mm]	210*55*95		240*60*105	
Weight(Typ)		[g]	910g		1,400g	
Safety Standards		-	Approved by standard UL1283, CSA C22.2 No.8(C-UL), IEC/EN60939-2			

비 고 :

- Derating Curve



- Circuit Diagram



= NOTES =

- \*1. Value for Ta less than 50℃  
For Ta more than 50℃, According to the derating curve as above

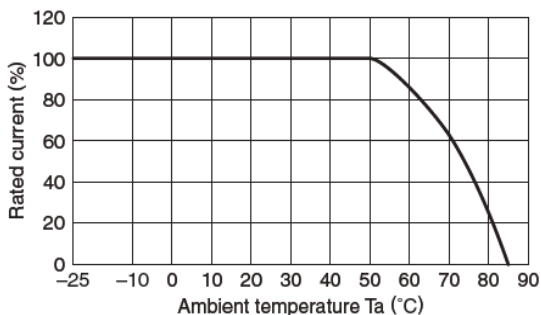
# SPECIFICATIONS

Product.	Noise Filter	Date.	2012. 09. 19
Model.	TMS-5S	Rev.	A
Customer.	STANDARD	Page.	4 / 4

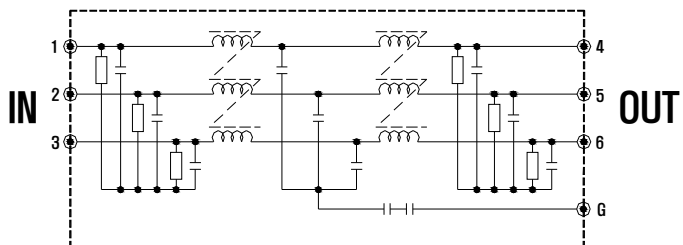
MODEL		Unit.	TMS-5040	TMS-5050	TMS-5060
INPUT	Voltage	[V]	3 $\Phi$ , AC 500 or DC 500		
	Frequency	[Hz]	50 / 60		
	Rated Current *1)	[A]	40	50	60
Voltage Drop		[V]	0.3V Max		
Test voltage		[V]	2,500VAC (at cut off current 100mA / 1Min)		
Isolation Resistance		[M $\Omega$ ]	100M $\Omega$ Min (500VDC / 1Min)		
Leakage Current (60Hz)	250V	[mA]	2.5mA Max		
	500V	[mA]	5.0mA Max		
DC Resistance (Max)		[m $\Omega$ ]	20	14	10
Temperature Rise		[ $^{\circ}$ C]	50 $^{\circ}$ C Max		
Environment	Operating temp. & Humidity	-	-25 ~ +85 $^{\circ}$ C, 20 ~ 95% RH (Refer to Derating Curve)		
	Storage temp. & Humidity	-	-40 ~ +85 $^{\circ}$ C, 20 ~ 95% RH (Non Condensing)		
	Vibration	-	10~55Hz at 2G 3minutes period, 1hour each X,Y and Z		
Dimension	Size(WxHxD)	[mm]	278 * 70 * 128		
	Weight(Typ)	[g]	2,800g		
Safety Standards		-	Approved by standard UL1283, CSA C22.2 No.8(C-UL), IEC/EN60939-2		

비 고 :

- Derating Curve



- Circuit Diagram



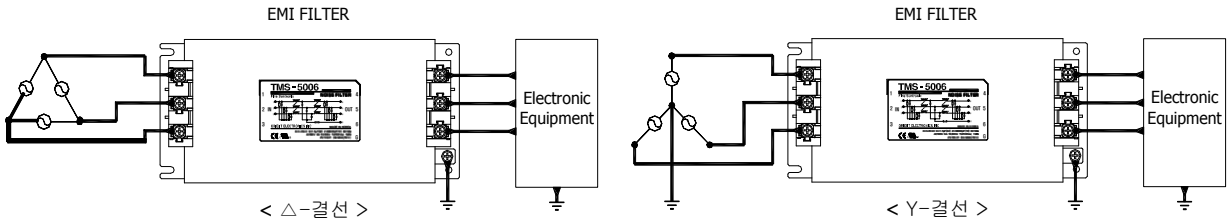
= NOTES =

- \*1. Value for Ta less than 50 $^{\circ}$ C  
For Ta more than 50 $^{\circ}$ C, According to the derating curve as above

# User Guide

## 1. INSTALLATION CONDITION

### 1-1. NOISE FILTER 결선



### 1-2. Terminal Connection

Marking	Pin Connection		Function
1	INPUT	AC R상	Noise Filter AC 입력 Terminal
2		AC S상	
3		AC T상	
4	OUTPUT	AC R상	Noise Filter AC 출력 Terminal
5		AC S상	
6		AC T상	
G	Flame ground		CASE 접지

### 1-3. Applicable Electric Cable

허용전류(A)	최소 선경	
	단면적(mm <sup>2</sup> )	AWG SIZE
6	0.75	18
10	1.0	16
16	1.5	14
20	2.5	12
30	4.0	10
40	6.0	8
50	10.0	6
60	10.0	6

### 1-4. Recommended Clamping Torque

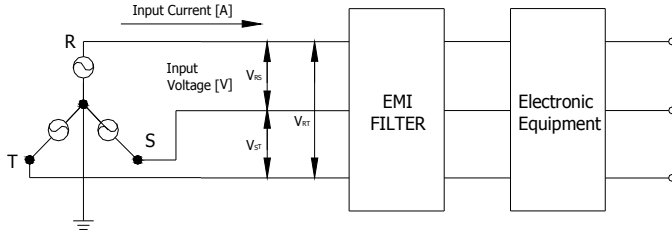
Screw	Torque	비고
M4	1.27N·m	
M5	2.50N·m	



## 2. ELECTRICAL CHARACTERISTICS

2-1. Rated Voltage : 3상, 250VAC or 500VAC

2-2. Rated Current



$$\text{Input Current [A]} = \frac{\text{Input Capacity of the Equipment [VA]}}{\text{Input Voltage [V]} \times \sqrt{3}}$$

$$\text{Rated Current [A]} \geq \text{Input Current [A]}$$

2-3. Withstand Voltage Test

AC 입, 출력과 접지간 절연내압이 AC 2500V에서 1분간 Current 100mA 이하이다.

2-4. Isolation Resistance Test

AC 입, 출력과 접지간 절연저항이 DC 500V에서 1분간 100MΩ이상이다.

2-5. Leakage Current Test

Input Voltage	Leakage Current	Note
0 ~ 250VAC	2.5mA Max	입력 전압 인가시 LINE-GND간 최대 누설전류량
251 ~ 500VAC	5.0mA Max	

## 3. ENVIRONMENT CONDITION

3-1. Operating Temperature Test

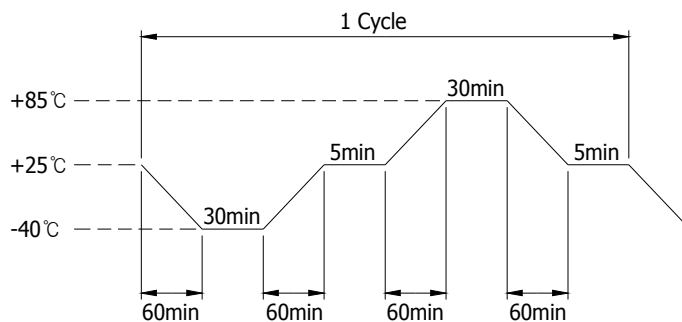
아래의 온, 습도에서 정격입출력 상태로 8시간 운영 시험에서 제반 전기적 특성 및 기구적 특성을 만족하여야 한다.

(1) 온도 : -25℃ ~ +85℃

(2) 상대습도 : 20 ~ 90% RH

3-2. Heat Cycle Test

주위온도 -40℃ ~ +85℃에서 아래의 Cycle을 기준으로 50Cycle 후 제반 전기적 특성 및 기구적 특성을 만족하여야 한다.



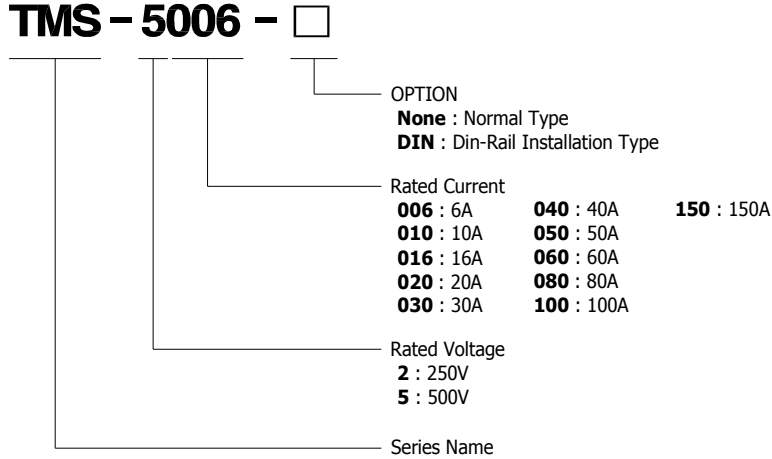
### 3-3. Vibration Test

아래의 진동 조건에 따라 1시간 진동 시험 후 제반 전기적 특성 및 기구적 특성을 만족하여야 한다.

(1) Vibration Frequency : 10~55Hz, 2G

(2) Vibration Period : 3minutes

## 4. ORDERING INFORMATION



## 5. 사용시 주의 사항

- 5-1. 제품에 명시된 허용 전압, 허용 전류, 사용온도조건에 맞게 사용한다.
- 5-2. Noise Filter와 연결하는 단자 및 케이블은 제품 허용 전압/전류 이상의 것을 사용한다.
- 5-3. 접지시 케이블을 가능한한 굵고 짧게 사용한다.
- 5-4. 제품의 입출력 단자 체결시 무리한 힘을 가하여 파손되지 않도록 주의한다.
- 5-5. 제품 설치 및 사용시 상간 단락이 되지 않도록 주의한다.
- 5-6. 통전 중에는 단자부위에 손이나 기타 신체부위가 접촉되지 않도록 주의한다.

## 6. 품질 보증

- 6-1. 계약자는 계약상 별도로 규정하지 않은 본 규격서에 명시된 모든 성능과 특성을 자체 또는 공인 시험 기관의 검사 시설을 이용하여 시험검사를 할 수 있다.
- 6-2. 본 규격서 상에서 규정한 필요조건에 대한 확인 검사 이외에 제품의 품질을 확인하기 위하여 필요한 검사를 할 수 있다.

## 7. 주 기

- 7-1. 본 규격서 상에 명시되지 않은 사항은 본 품의 신뢰도와 호환성 및 성능에 지장이 없는 범위 내에서만 이를 허용한다.

# Attenuation Characteristics

## 1. METHOD OF MEASURING ATTENUATION

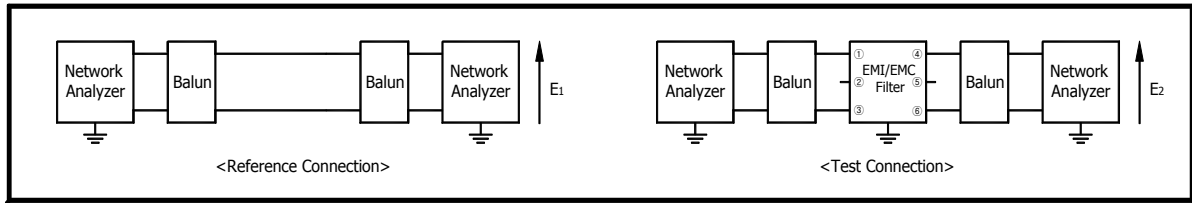


Fig.3.1 Differential Mode Attenuation Measurement Diagram

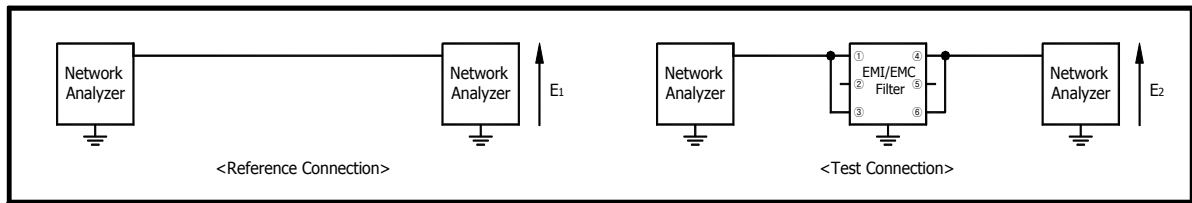
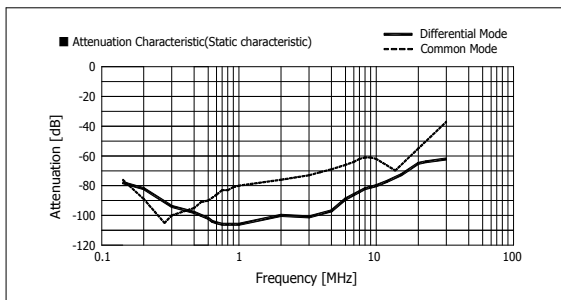


Fig.3.2 Common Mode Attenuation Measurement Diagram

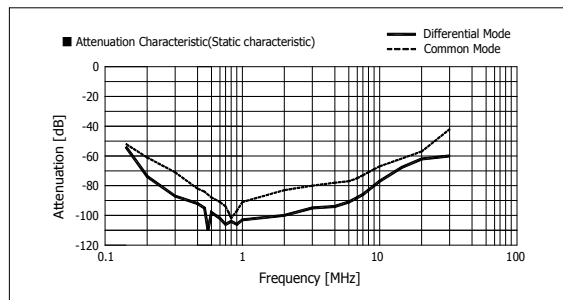
## 2. ATTENUATION CHARACTERISTICS

2-1. TMS-Series (Rated Current : 6~30A)

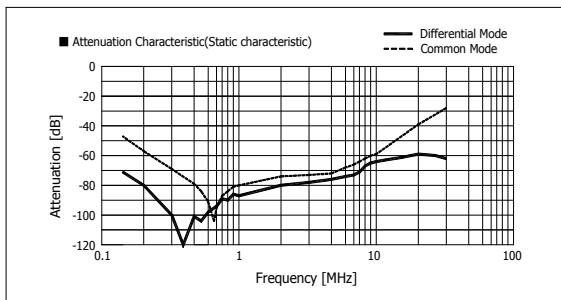
TMS-5006



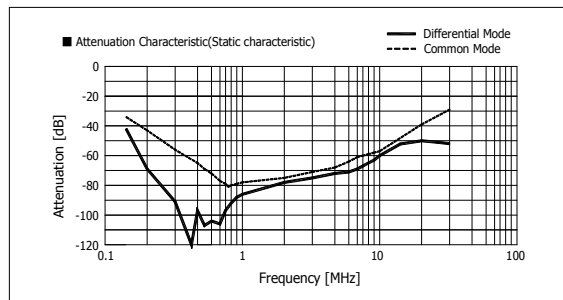
TMS-5010



TMS-5020



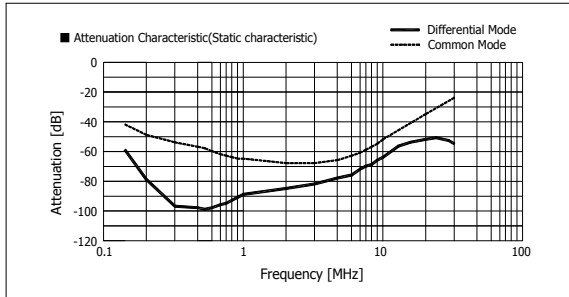
TMS-5030



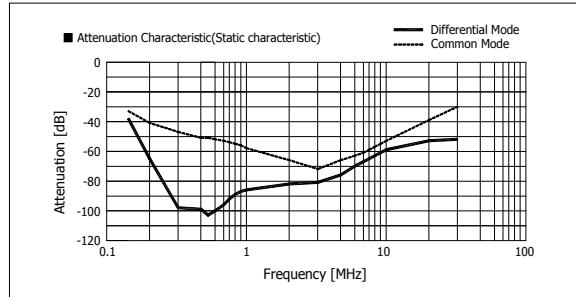
# Attenuation Characteristics

2-2. TMS-Series (Rated Current : 40~60A)

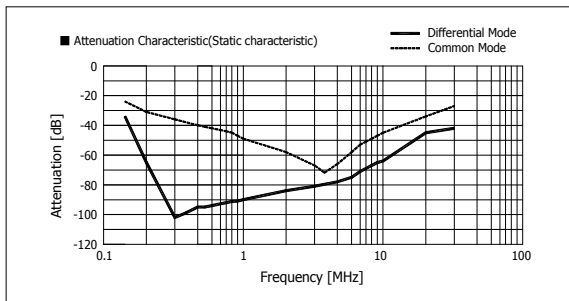
TMS-5040



TMS-5050



TMS-5060

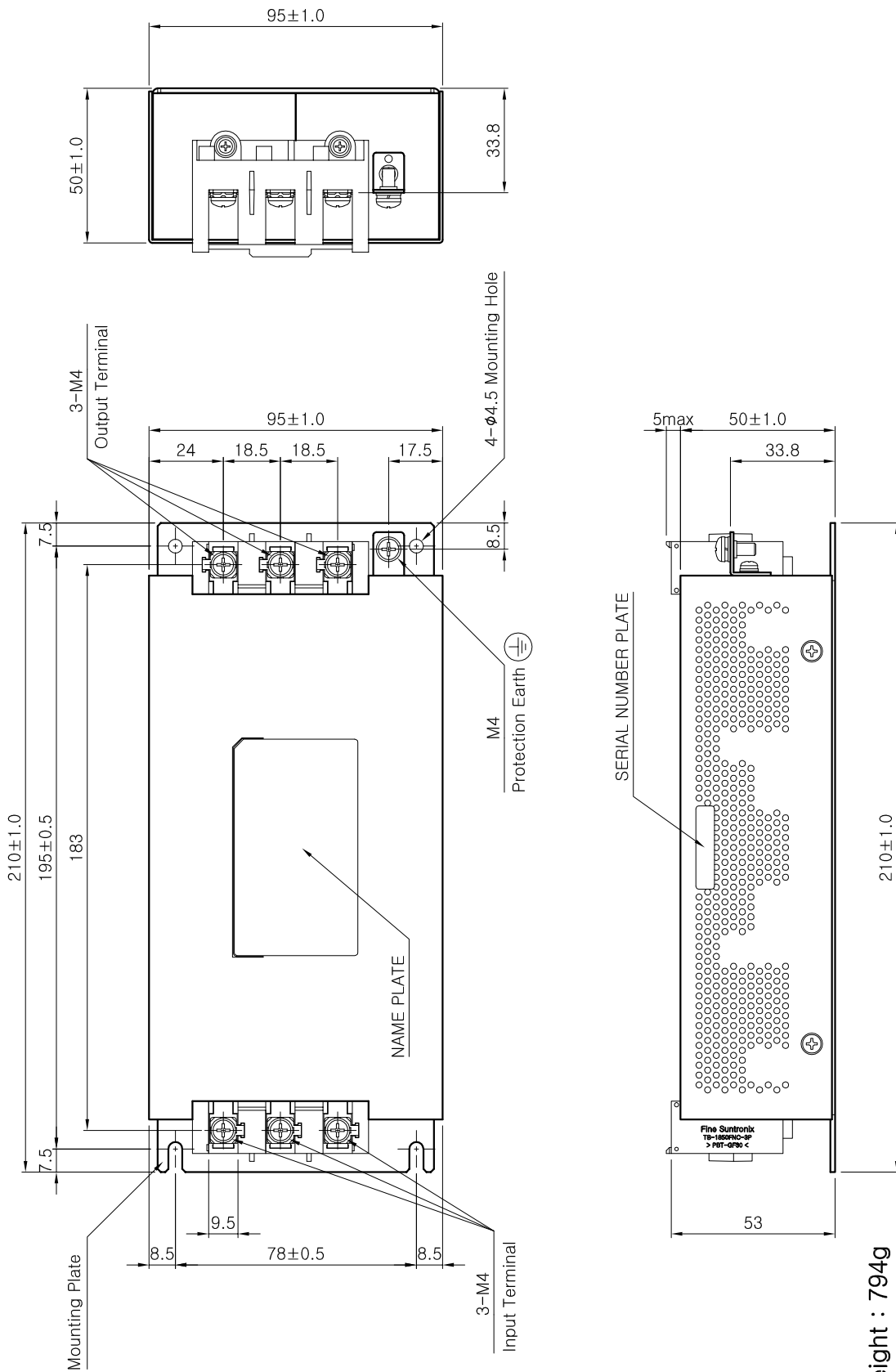


■ Attenuation[dB] =  $-20\log(E_1/E_2)$

E<sub>1</sub> = Voltage in state without filter  
 E<sub>2</sub> = Voltage in state with filters

# Dimension

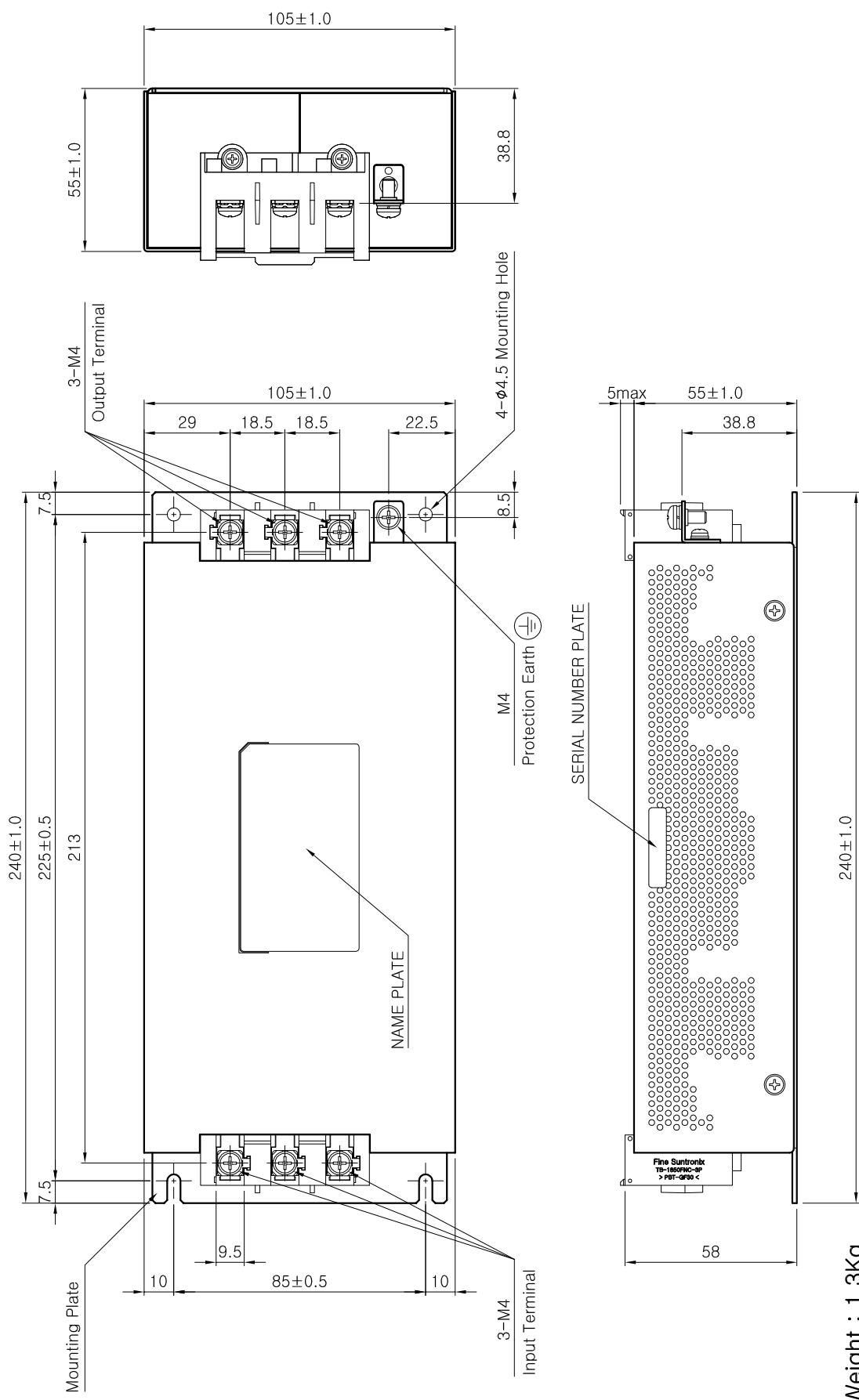
# TMS-2006/2010



- \* Weight : 794g
- \* Tolerance :  $\pm 1$
- \* Dimensions in mm

# Dimension

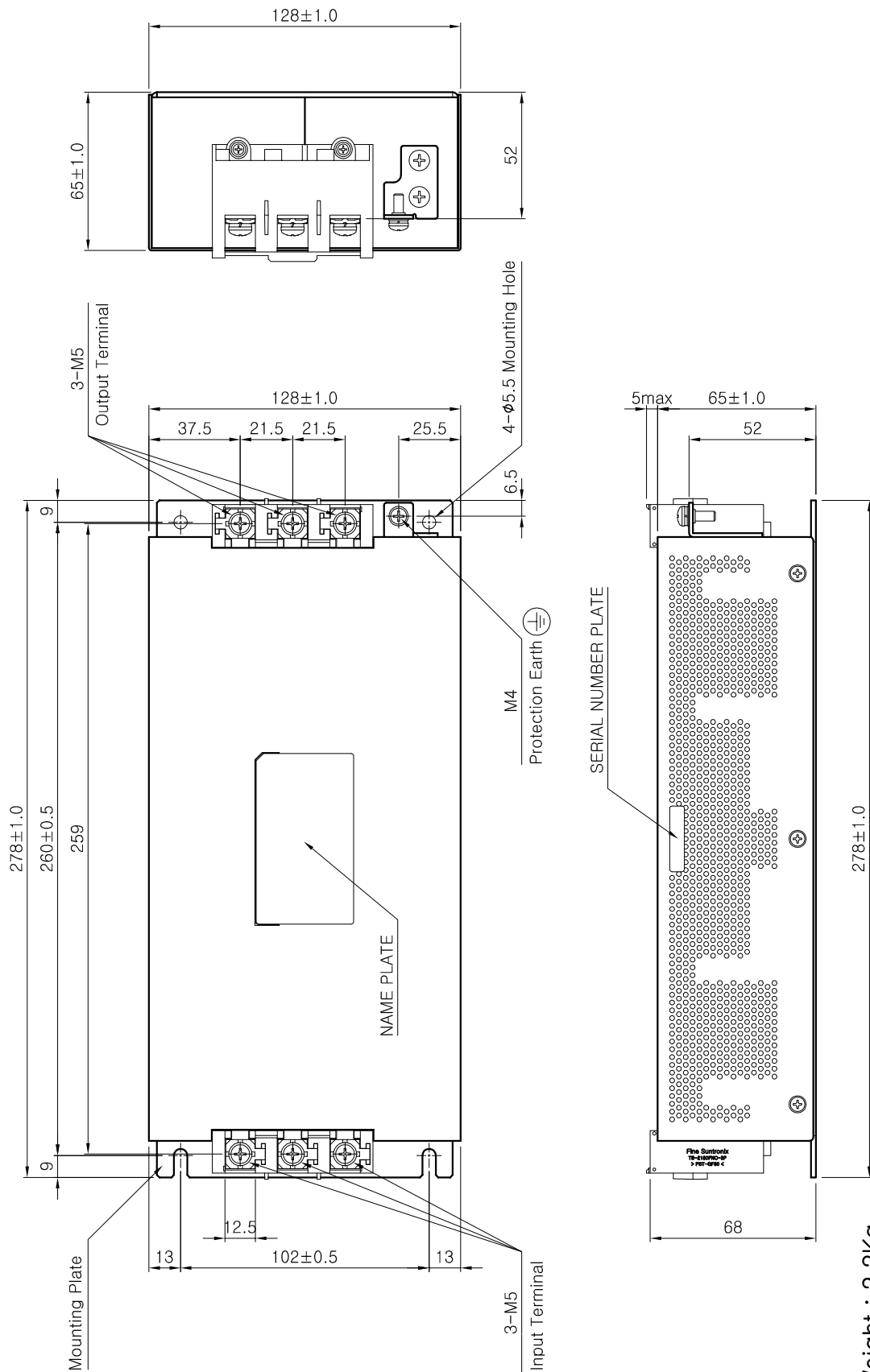
# TMS-2020/2030



- \* Weight : 1.3Kg
- \* Tolerance :  $\pm 1$
- \* Dimensions in mm

# Dimension

# TMS-2040/2050/2060



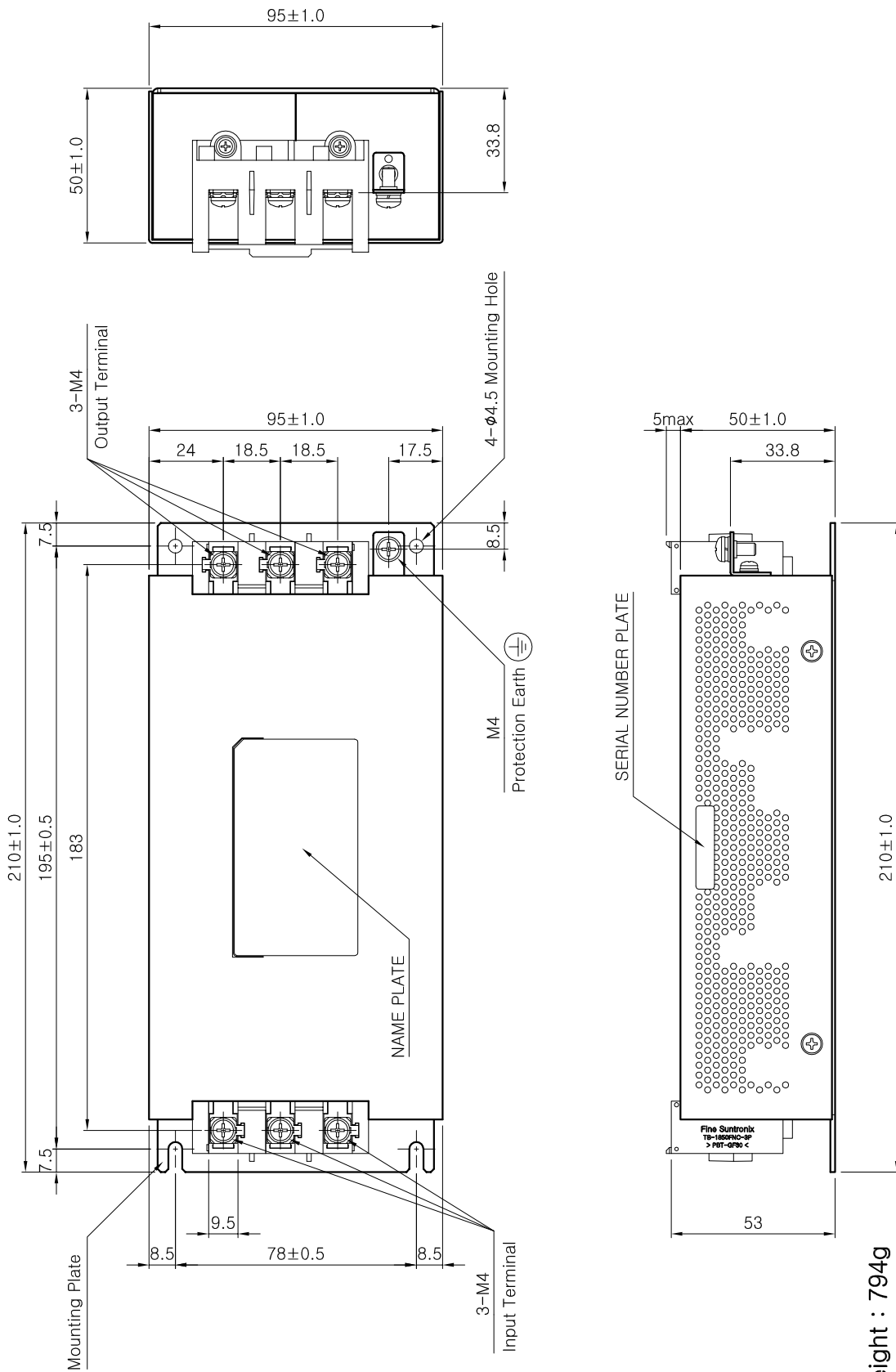
\* Weight : 2.2Kg

\* Tolerance :  $\pm 1$

\* Dimensions in mm

# Dimension

# TMS-5006/5010

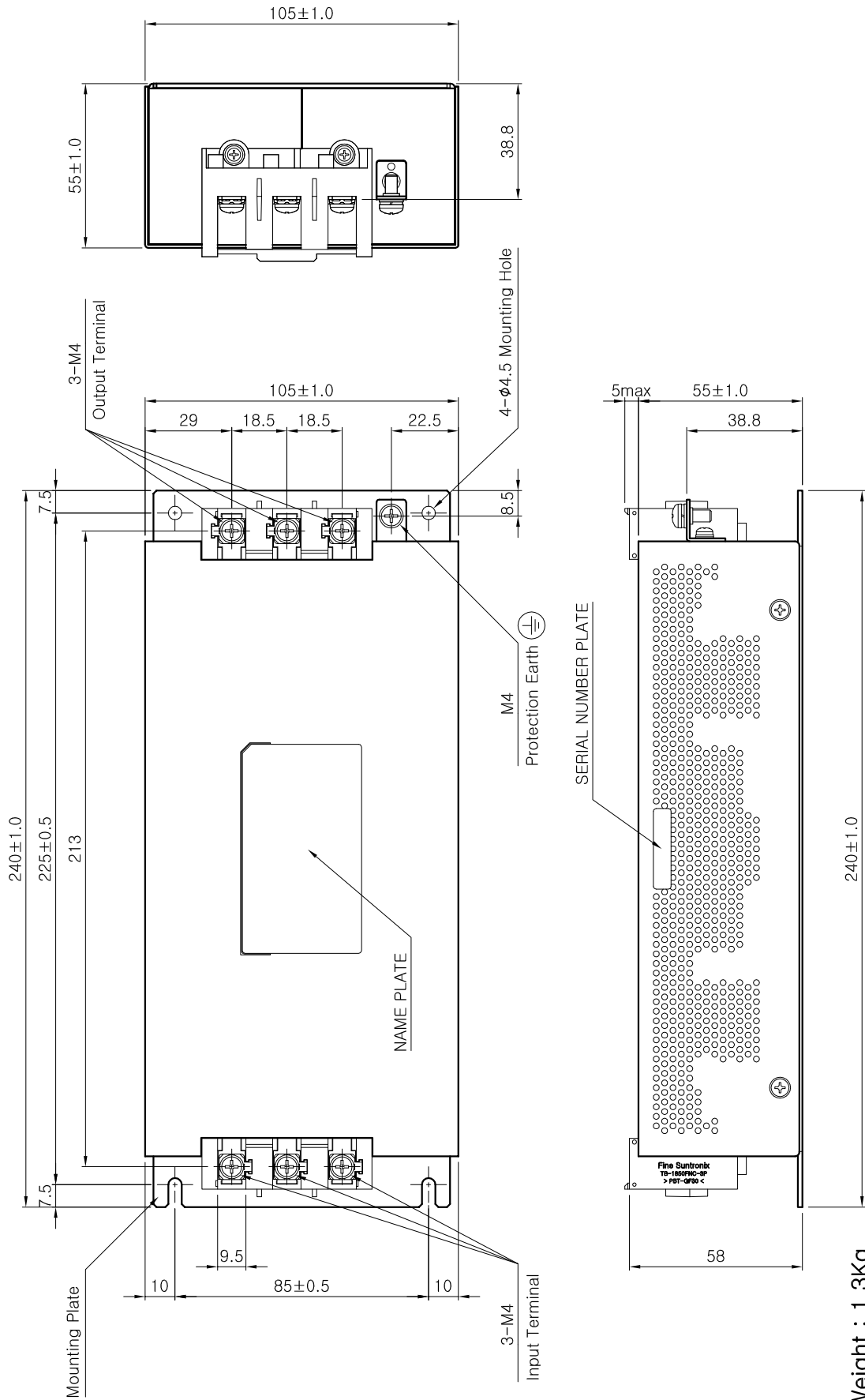


- \* Weight : 794g
- \* Tolerance :  $\pm 1$
- \* Dimensions in mm



# Dimension

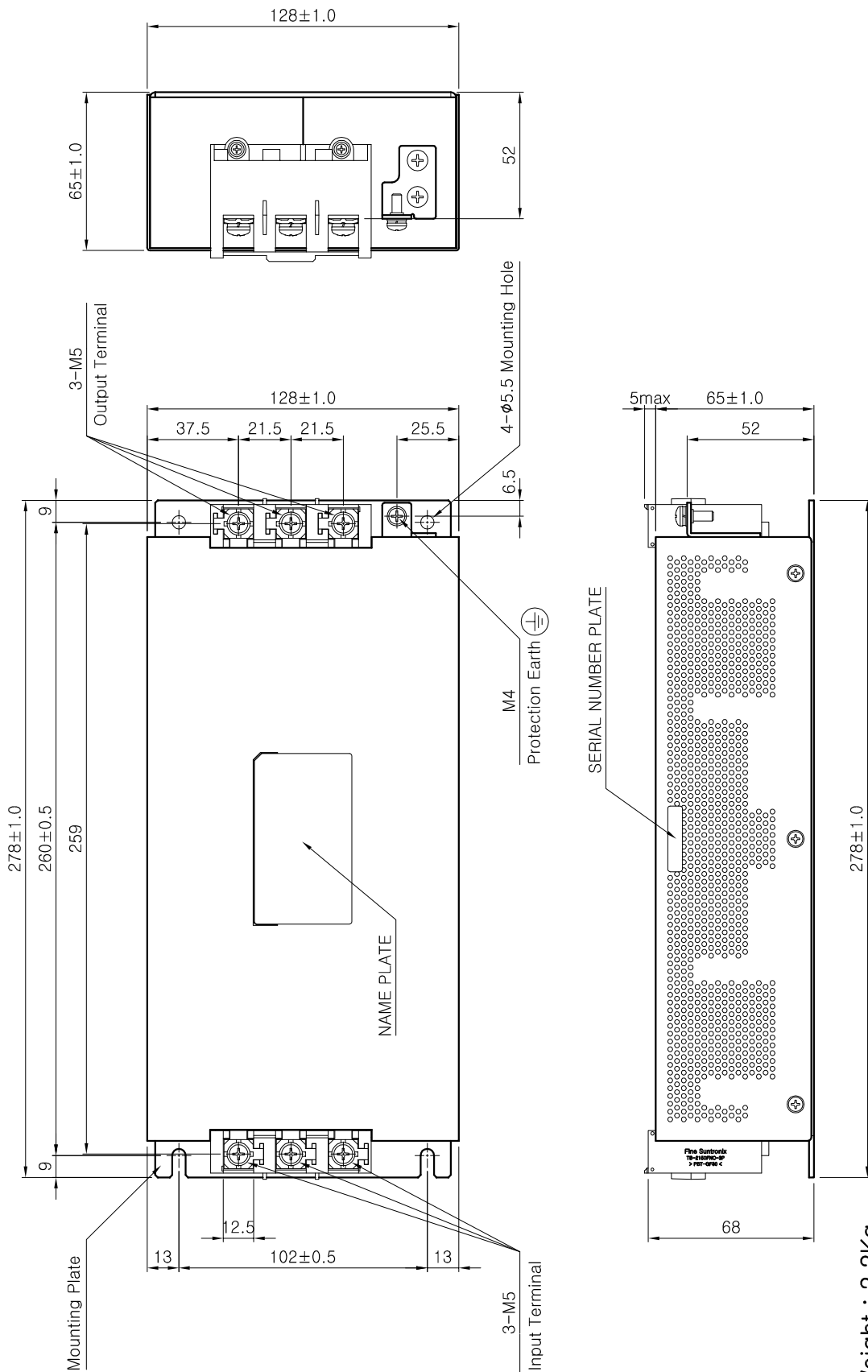
# TMS-5020/5030



- \* Weight : 1.3Kg
- \* Tolerance :  $\pm 1$
- \* Dimensions in mm

# Dimension

# TMS-5040/5050/5060



- \* Weight : 2.2Kg
- \* Tolerance :  $\pm 1$
- \* Dimensions in mm