

승 인 원 (APPROVAL SHEET)

품 목	NOISE FILTER
품 명	TNS-S(-DIN)
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

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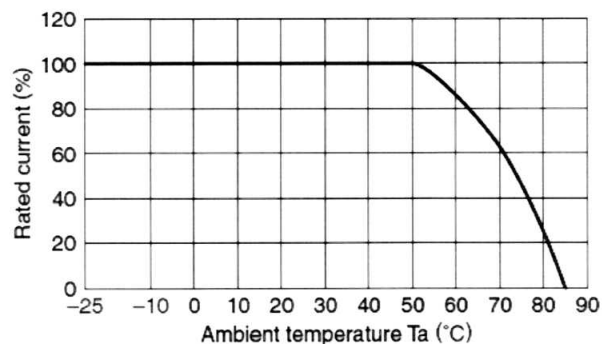
SPECIFICATIONS

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

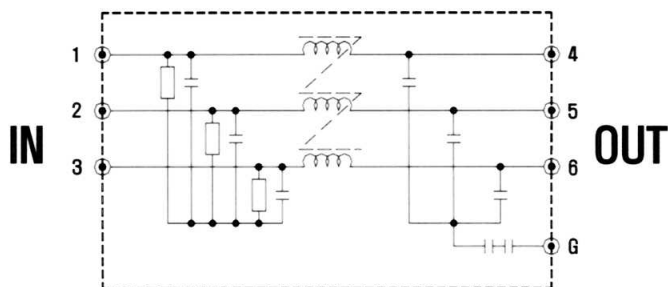
MODEL		Unit.	TNS-2006	TNS-2010	TNS-2020	TNS-2030
			TNS-2006-DIN	TNS-2010-DIN	TNS-2020-DIN	TNS-2030-DIN
INPUT	Voltage	[V]	3 Φ , AC 250 or DC 250			
	Frequency	[Hz]	50 / 60			
	Rated Current *1)	[A]	6	10	20	30
Voltage Drop		[V]	0.3V Max			
Test voltage		[V]	2,500VAC (at cut off current 100mA / 1Min)			
Isolation Resistance		[M Ω]	100M Ω Min (500VDC / 1Min)			
Leakage Current (60Hz)	250V	[mA]	2.5mA Max			
DC Resistance (Max)		[m Ω]	75	30	15	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]	121*42*64		141*42*71	
Weight(Typ)	Normal Type	[g]	360g		560g	
	Din-Rail Type		370g		570g	
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

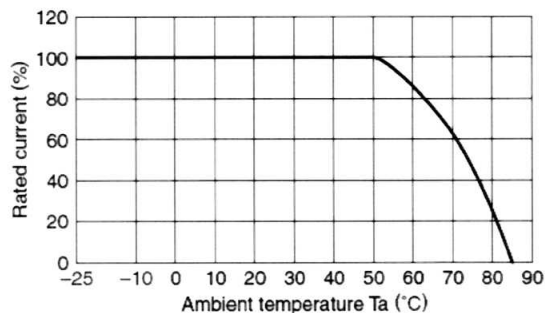
SPECIFICATIONS

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

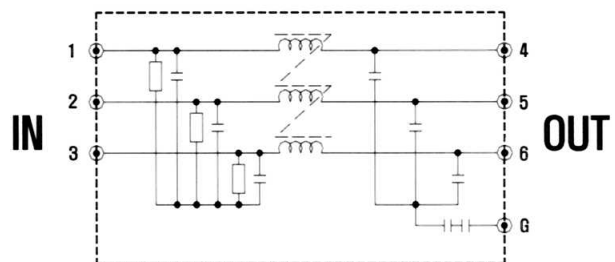
MODEL		Unit.	TNS-2040	TNS-2050	TNS-2060
INPUT	Voltage	[V]	3 Φ , AC 250 or DC 250		
	Frequency	[Hz]	50 / 60		
	Rated Current *1)	[A]	40	50	60
Voltage Drop		[V]	0.3V Max		
Test voltage		[V]	2,500VAC (at cut off current 100mA / 1Min)		
Isolation Resistance		[M Ω]	100M Ω Min (500VDC / 1Min)		
Leakage Current (60Hz)	250V	[mA]	2.5mA Max		
DC Resistance (Max)		[m Ω]	10	7	5
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]	179 * 59 * 90		
	Weight(Typ)	[g]	1,300g		
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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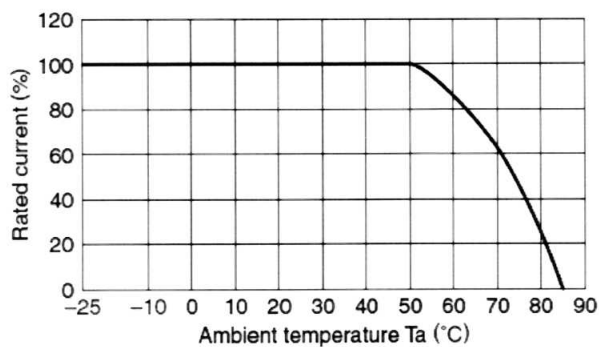
SPECIFICATIONS

Product.	Noise Filter	Date.	2012. 09. 19
Model.	TNS-5S(-DIN)	Rev.	A
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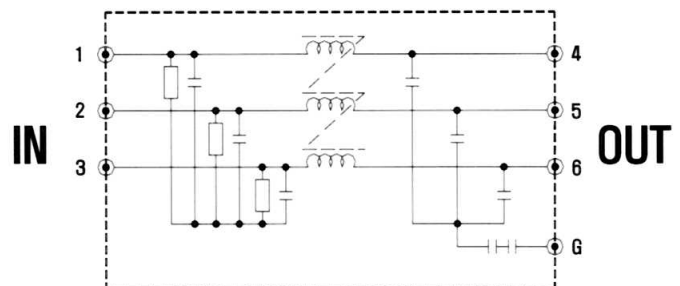
MODEL		Unit.	TNS-5006	TNS-5010	TNS-5020	TNS-5030
			TNS-5006-DIN	TNS-5010-DIN	TNS-5020-DIN	TNS-5030-DIN
INPUT	Voltage	[V]	3 Φ , AC 500 or DC 500			
	Frequency	[Hz]	50 / 60			
	Rated Current *1)	[A]	6	10	20	30
Voltage Drop		[V]	0.3V Max			
Test voltage		[V]	2,500VAC (at cut off current 100mA / 1Min)			
Isolation Resistance		[M Ω]	100M Ω Min (500VDC / 1Min)			
Leakage Current (60Hz)	250V	[mA]	2.5mA Max			
	500V	[mA]	5.0mA Max			
DC Resistance (Max)		[m Ω]	75	30	15	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]	121*42*64		141*42*71	
Weight(Typ)	Normal Type	[g]	360g		560g	
	Din-Rail Type		370g		570g	
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

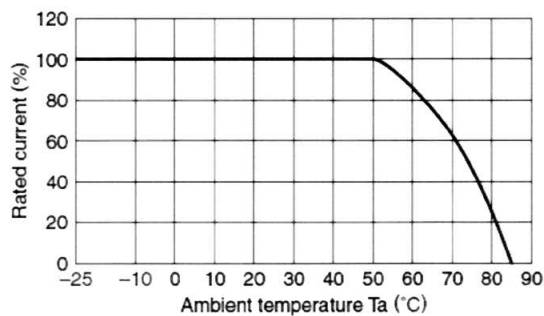
SPECIFICATIONS

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

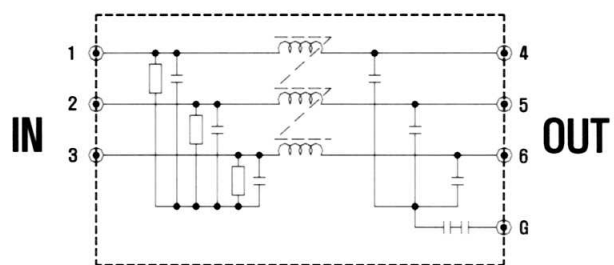
MODEL		Unit.	TNS-5040	TNS-5050	TNS-5060
INPUT	Voltage	[V]	3 Φ , AC 500 or DC 500		
	Frequency	[Hz]	50 / 60		
	Rated Current *1)	[A]	40	50	60
Voltage Drop		[V]	0.3V Max		
Test voltage		[V]	2,500VAC (at cut off current 100mA / 1Min)		
Isolation Resistance		[M Ω]	100M Ω Min (500VDC / 1Min)		
Leakage Current (60Hz)	250V	[mA]	2.5mA Max		
	500V	[mA]	5.0mA Max		
DC Resistance (Max)		[m Ω]	10	7	5
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]	179 * 59 * 90		
Weight(Typ)		[g]	1,300g		
Safety Standards		-	Approved by standard UL1283, CSA C22.2 No.8(C-UL), IEC/EN60939-2		

비 고 :

- Derating Curve



- Circuit Diagram



= NOTES =

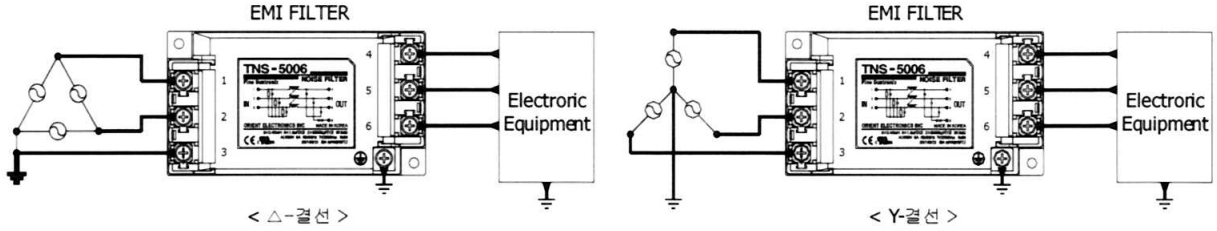
*1. Value for Ta less than 50 $^{\circ}$ C

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 ²)	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

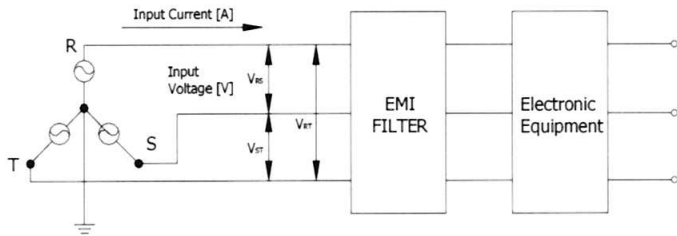
1-4. Recommended Clamping Torque

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

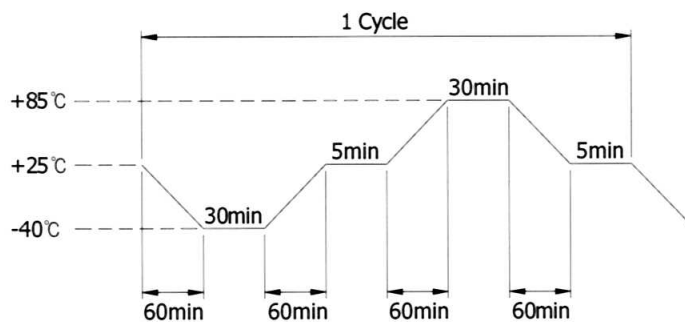
아래의 온, 습도에서 정격입출력 상태로 8시간 운영 시험에서 제반 전기적 특성 및 기구적 특성을 만족하여야 한다.

(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.



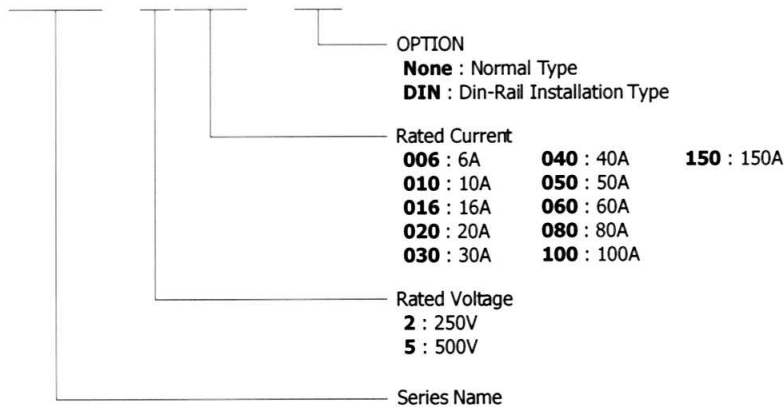
3-3. Vibration Test

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

TNS - 5006 - □



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

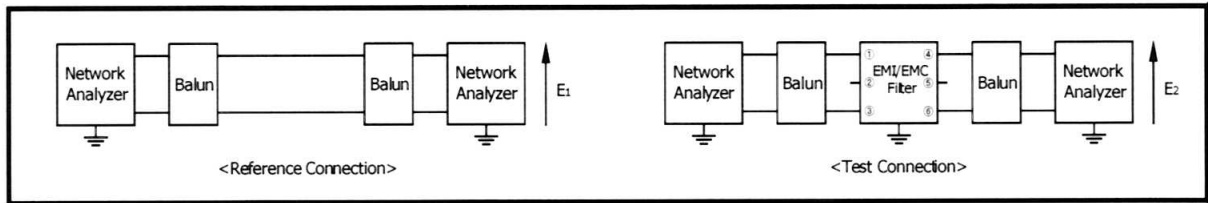


Fig.3.1 Differential Mode Attenuation Measurement Diagram

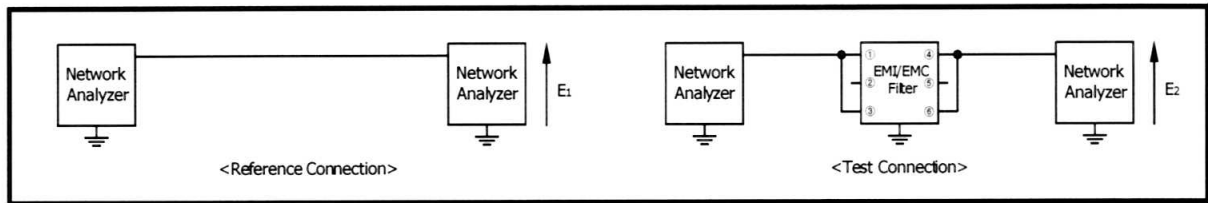
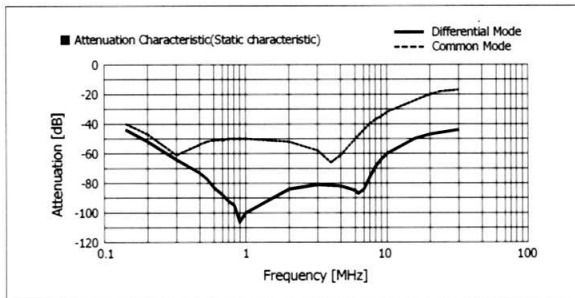


Fig.3.2 Common Mode Attenuation Measurement Diagram

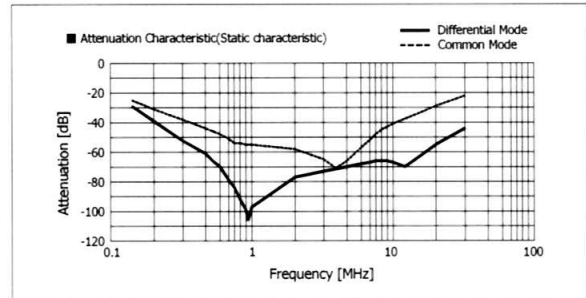
2. ATTENUATION CHARACTERISTICS

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

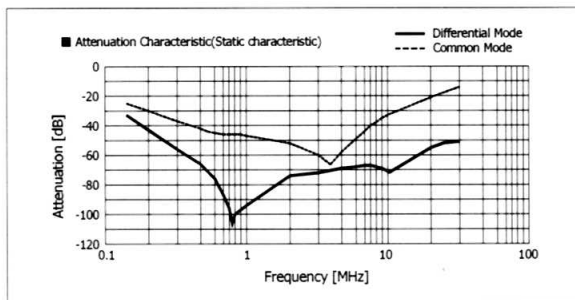
TNS-5006 / TNS-5006-DIN



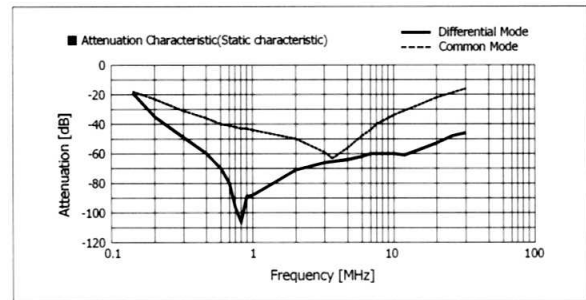
TNS-5010 / TNS-5010-DIN



TNS-5020 / TNS-5020-DIN



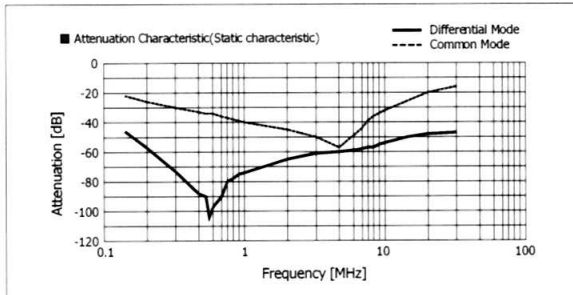
TNS-5030 / TNS-5030-DIN



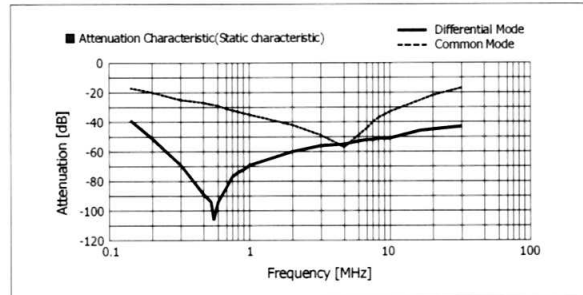
Attenuation Characteristics

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

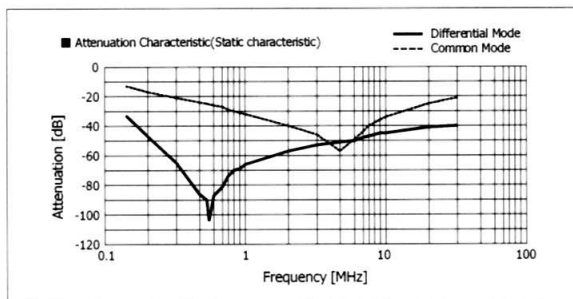
TNS-5040



TNS-5050



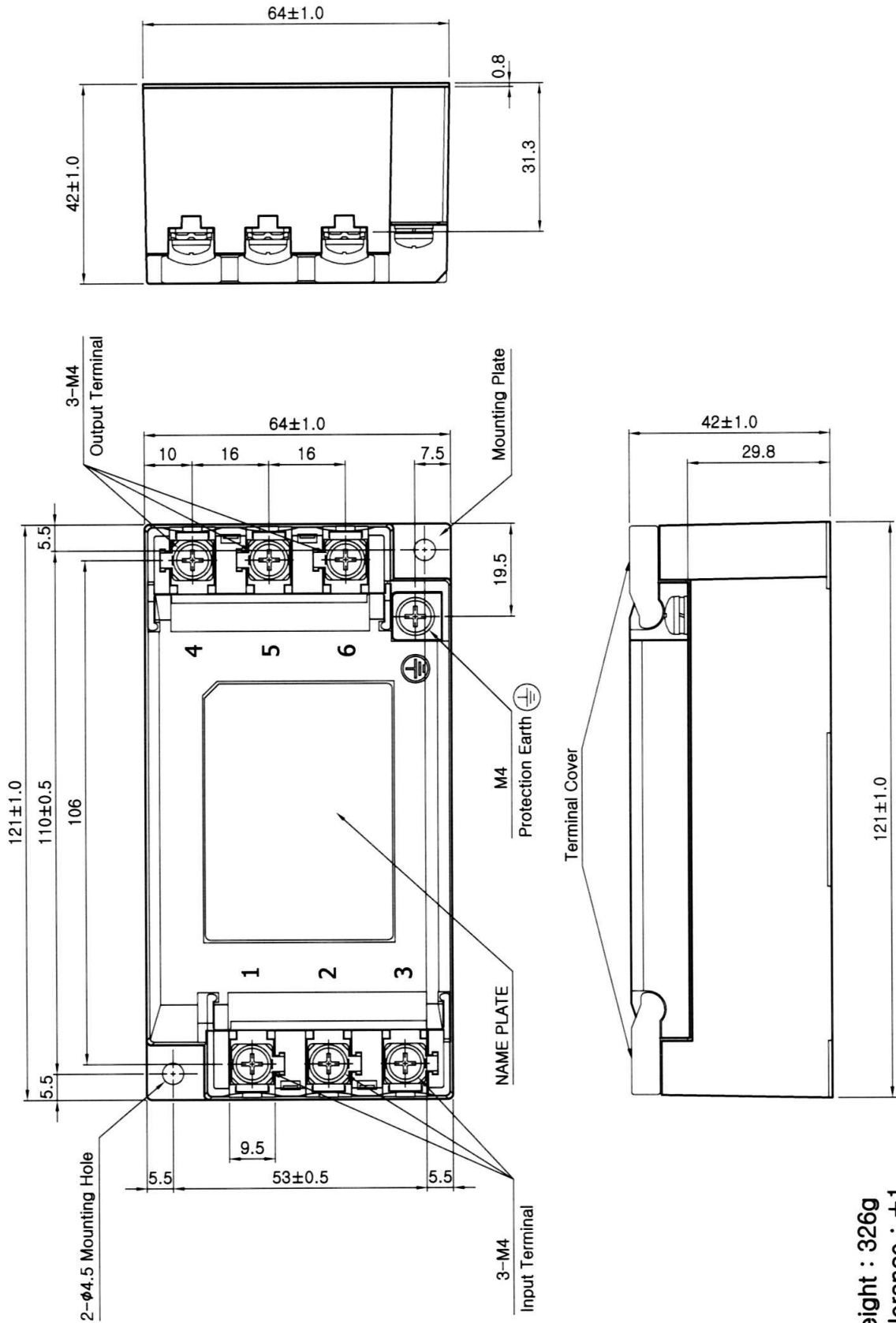
TNS-5060



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

E_1 = Voltage in state without filter

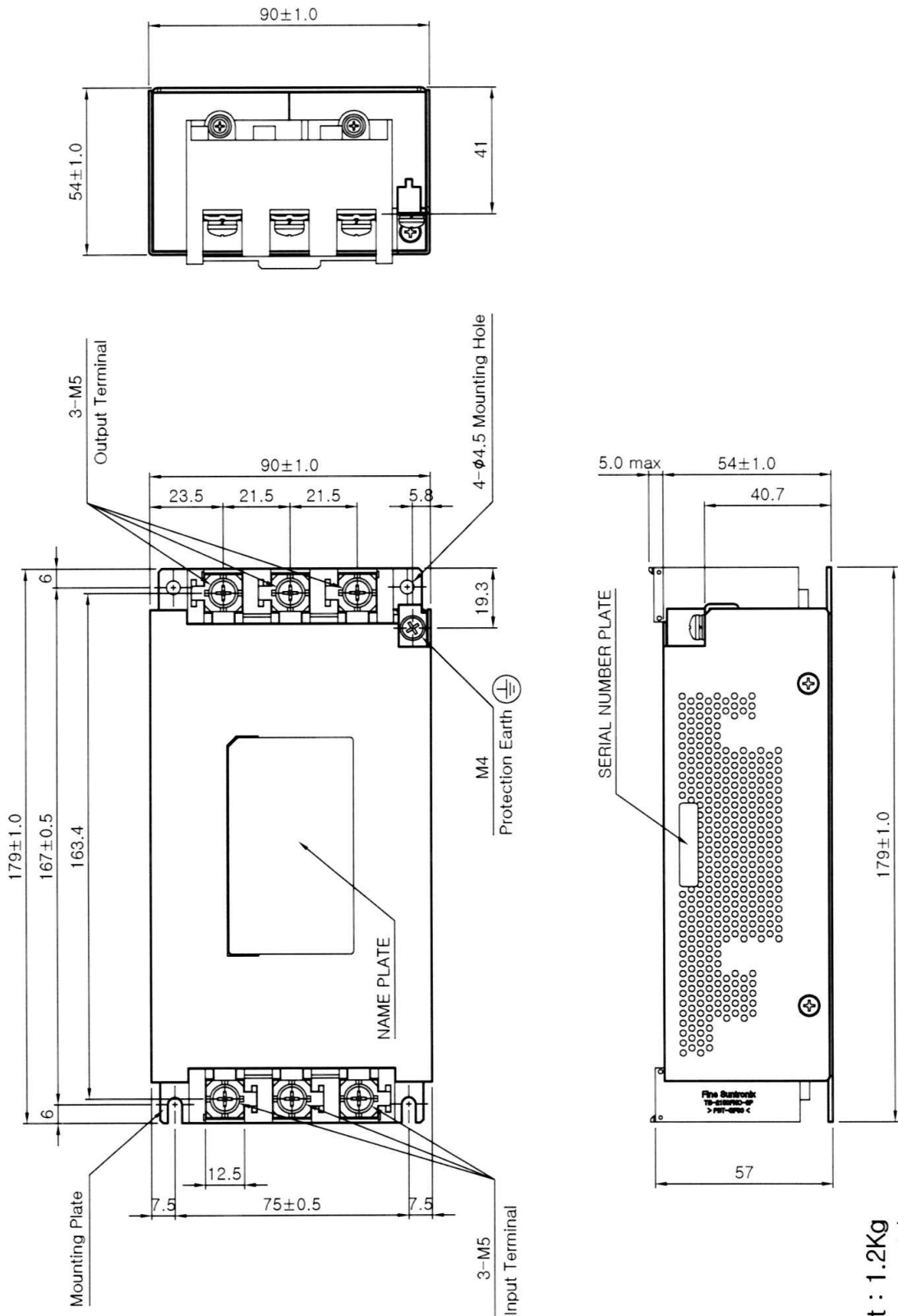
E_2 = Voltage in state with filters



- * Weight : 326g
- * Tolerance : ± 1
- * Dimensions in mm

Dimension

TNS-2040/2050/2060



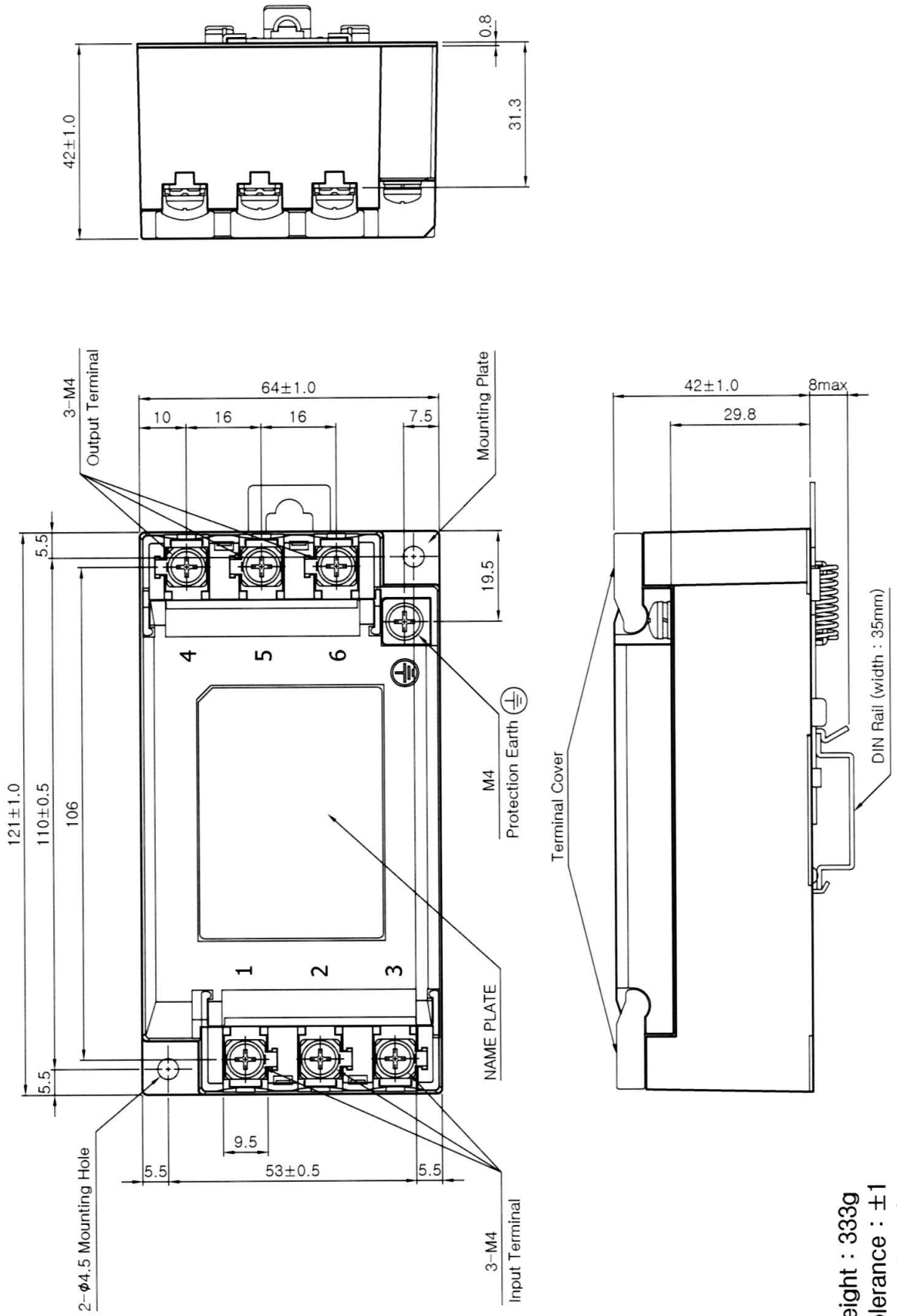
* Weight : 1.2Kg

* Tolerance : ± 1

* Dimensions in mm

Dimension

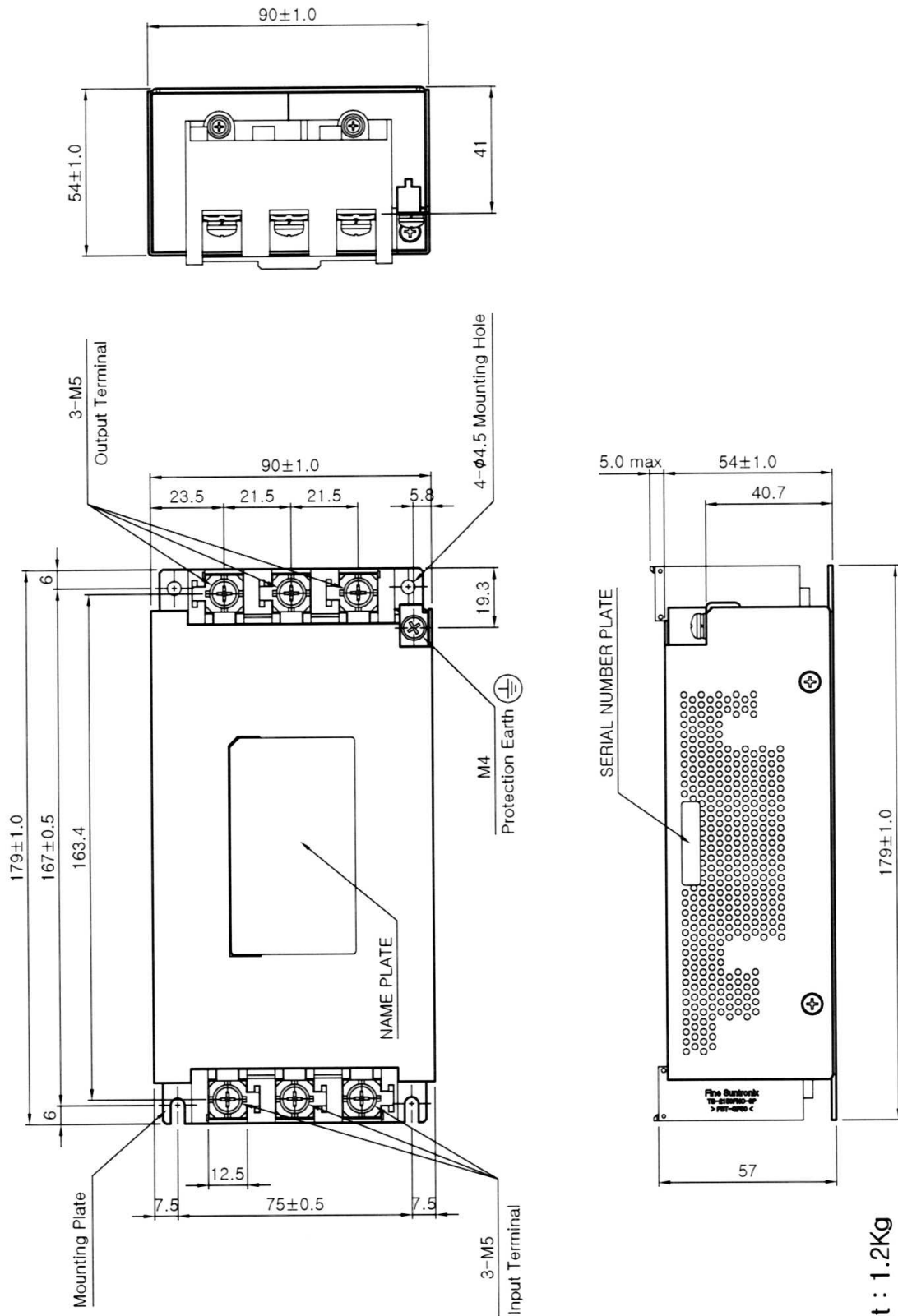
TNS-2006/2010-DIN



- * Weight : 333g
- * Tolerance : ± 1
- * Dimensions in mm

Dimension

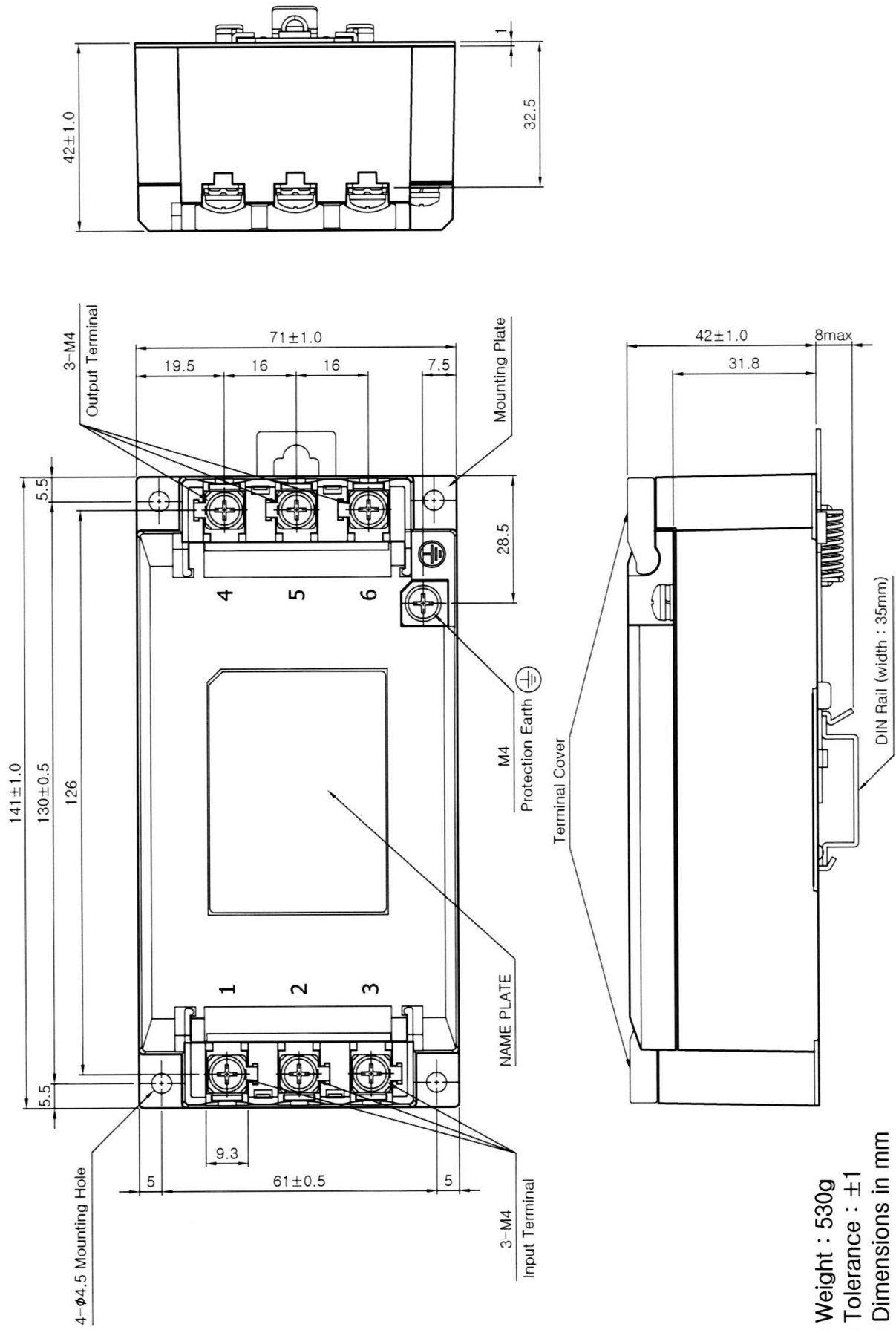
TNS-5040/5050/5060



- * Weight : 1.2Kg
- * Tolerance : ± 1
- * Dimensions in mm

Dimension

TNS-5020/5030-DIN



- * Weight : 530g
- * Tolerance : ± 1
- * Dimensions in mm