TNSxx-xxx-UL series

The TNSxx-xxx-UL series are an off-the-shelf line filter which can be used in commercial applications such as data centers and manufacturing.

Three Phase

High Attenuation Characteristics (150KHz ~ 1MHz)

Delta or Wye configuration

1-Stage Filter

		UNIT	TNS20-080	TNS20-100
INPUT	**Max Voltage**	V	AC 250 / DC 250	
	Frequency	Hz	50/60 or DC	
	Phase		Three phase	
	Rated Current *1	A	80	100
	Voltage Drop	V	0.3V max	
	Leakage Current	250V	2.5 mA max at 60Hz	
	Temp Rise	°C	50C max	

		TNS20-080	TNS20-100
ISOLATION	**Isolation Resistance**	100！ Min (500VDC / 1Min)	
	Test Voltage	2,500VAC (at cut off current 100mA / 1Min)	

ENVIRONMENT	**Operating Temp & Humidity**	-25 ~ +85°C 20~95% RH (Non Condensing)	
	Storage Temp & Humidity	-40 ~ +85°C 20~95% RH (Non Condensing)	
	Vibration	10~55Hz at 2G 3minutes period, 1hour each X,Y and Z	
DIMENSION	**WxLxH (mm)**	235 x 115 x 85	
WEIGHT	**Grams**	2250	2450
SAFETY		Approved by standard UL60939-3	

		UNIT	TNS20-120	TNS20-150	TNS20-200	TNS20-250
INPUT	**Max Voltage**	V	AC 250 / DC 250			
	Frequency	Hz	50/60 or DC			
	Phase		Three phase			
	Rated Current *1	A	120	150	200	250
	Voltage Drop	V	0.3V max			
	Leakage Current	250V	2.5mA max at 60Hz			
	Temp Rise	°C	50C max			

		TNS20-120	TNS20-150	TNS20-200	TNS20-250
ISOLATION	**Isolation Resistance**	100 MΩ Min (500VDC / 1Min)			
	Test Voltage	2,500VAC (at cut off current 100mA / 1Min)			
ENVIRONMENT	**Operating Temp & Humidity**	-25 ~ +85°C 20~95% RH (Non Condensing)			
	Storage Temp & Humidity	-40 ~ +85°C 20~95% RH (Non Condensing)			
	Vibration	10~55Hz at 2G 3minutes period, 1hour each X,Y and Z			

DIMENSION	**WxLxH (mm)**	336 x 157 x 110		
WEIGHT	**Grams**	3100	3850	4200
SAFETY		Approved by standard UL60939-3		

Notes:

*1 For temperatures below 50C. See derating when above 50C

More models on next page

		UNIT	TNS20-300	TNS20-400	TNSS20-500	TNS20-600	TNS20-700
INPUT	Max Voltage	V	AC 250 / DC 250				
	Frequency	Hz	50/60 or DC				
	Phase		Three phase				
	Rated Current *1	A	300	400	500	600	700
	Voltage Drop	V	0.3V max				
	Leakage Current	250V	2.5mA max at 60Hz				
	Temp Rise	°C	50C max				

		TNS20-300	TNS20-400	TNSS20-500	TNS20-600	TNS20-700
ISOLATION	Isolation Resistance	100 MΩ Min (500VDC / 1Min)				
	Test Voltage	2,500VAC (at cut off current 100mA / 1Min)				
ENVIRONMENT	Operating Temp & Humidity	-25 ~ +85°C 20~95% RH (Non Condensing)				
	Storage Temp & Humidity	-40 ~ +85°C 20~95% RH (Non Condensing)				
	Vibration	10~55Hz at 2G 3minutes period, 1hour each X,Y and Z				
DIMENSION	WxLxH (mm)	340 x 160 x 150				
WEIGHT	Grams	4850		8250	9300	
SAFETY		Approved by standard UL60939-3				

Notes:

*1 For temperatures below 50C. See derating when above 50C

More models on next page

		UNIT	TNS50-080	TNS50-100
INPUT	**Max Voltage**	V	AC 500 / DC 500	
	Frequency	Hz	50/60 or DC	
	Phase		Three phase	
	Rated Current *1	A	80	100
	Voltage Drop	V	0.3V max	
	Leakage Current	250V	5mA max at 60Hz	
	DC Resistance	mΩ	80	100
	Temp Rise	°C	50C max	

	TNS50-080	TNS50-100

ISOLATION	**Isolation Resistance**	100㏁ Min (500VDC / 1Min)	
	Test Voltage	2,500VAC (at cut off current 100mA / 1Min)	
ENVIRONMENT	**Operating Temp & Humidity**	-25 ~ +85℃ 20~95% RH (Non Condensing)	
	Storage Temp & Humidity	-40 ~ +85°C 20~95% RH (Non Condensing)	
	Vibration	10~55Hz at 2G 3minutes period, 1hour each X,Y and Z	
DIMENSION	**WxLxH (mm)**	235 x 115 x 85	
WEIGHT	**Grams**	2250	2450
SAFETY		Approved by standard UL60939-3	

Notes:

*1 For temperatures below 50C. See derating when above 50C

More models on next page

		UNIT	TNS50-120	TNS50-150	TNS50-200	TNS50-250
INPUT	**Max Voltage**	V	AC 500 / DC 500			
	Frequency	Hz	50/60 or DC			
	Phase		Three phase			
	Rated Current *1	A	120	150	200	250
	Voltage Drop	V	0.3V max			
	Leakage Current	250V	5mA max at 60Hz			
	Temp Rise	°C	50C max			

		TNS50-120	TNS50-150	TNS50-200	TNS50-250
ISOLATION	**Isolation Resistance**	100㏁ Min (500VDC / 1Min)			
	Test Voltage	2,500VAC (at cut off current 100mA / 1Min)			
ENVIRONMENT	**Operating Temp & Humidity**	-25 ~ +85℃ 20~95% RH (Non Condensing)			
	Storage Temp & Humidity	-40 ~ +85°C 20~95% RH (Non Condensing)			
	Vibration	10~55Hz at 2G 3minutes period, 1hour each X,Y and Z			
DIMENSION	**WxLxH (mm)**	336 x 157 x 110			
WEIGHT	**Grams**	3100		3850	4200
SAFETY		Approved by standard UL60939-3			

Notes:

*1 For temperatures below 50C. See derating when above 50C

More models on next page

		UNIT	TNS50-300	TNS50-400	TNSS50-500	TNS50-600	TNS50-700
INPUT	**Max Voltage**	V	AC 500 / DC 500				
	Frequency	Hz	50/60 or DC				
	Phase		Three phase				
	Rated Current *1	A	300	400	500	600	700
	Voltage Drop	V	0.3V max				
	Leakage Current	250V	5mA max at 60Hz				
	Temp Rise	°C	50C max				

	TNS50-300	TNS50-400	TNSS50-500	TNS50-600	TNS50-700

ISOLATION	**Isolation Resistance**	100㏁ Min (500VDC / 1Min)		
	Test Voltage	2,500VAC (at cut off current 100mA / 1Min)		
ENVIRONMENT	**Operating Temp & Humidity**	-25 ~ +85°C 20~95% RH (Non Condensing)		
	Storage Temp & Humidity	-40 ~ +85°C 20~95% RH (Non Condensing)		
	Vibration	10~55Hz at 2G 3minutes period, 1hour each X,Y and Z		
DIMENSION	**WxLxH (mm)**	340 x 160 x 150		
WEIGHT	**Grams**	4850	8250	9300
SAFETY		Approved by standard UL60939-3		

Notes:

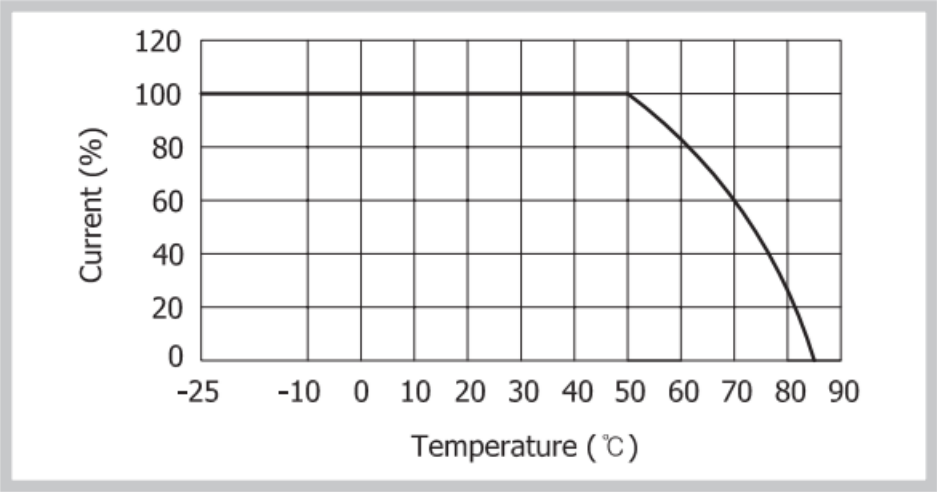
*1 For temperatures below 50C. See derating when above 50C

HOW TO ORDER

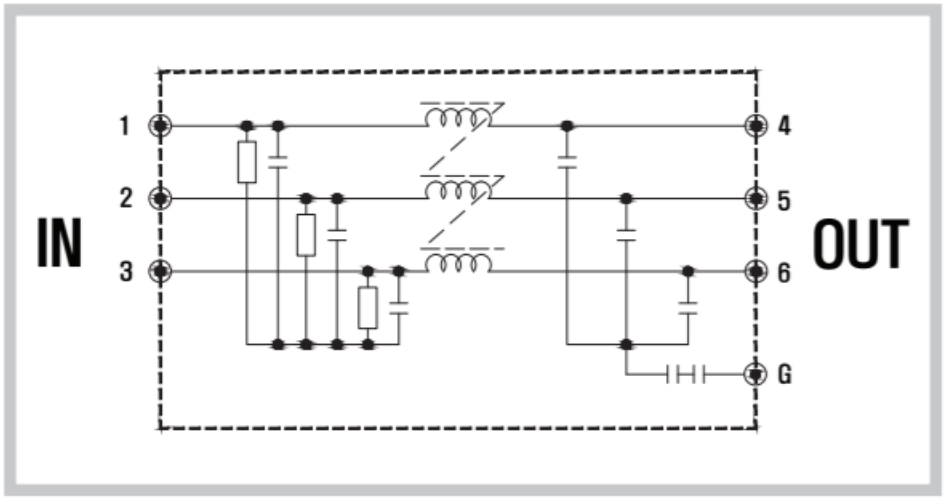
SERIES	**PHASE**	**VOLTAGE**	**CURRENT**	**ADDITIONAL OPTIONS**
TNS20-080-UL	3Ø	AC250/DC250	80	
TNS20-100-UL	3Ø	AC250/DC250	100	
TNS20-120-UL	3Ø	AC250/DC250	120	
TNS20-150-UL	3Ø	AC250/DC250	150	
TNS20-200-UL	3Ø	AC250/DC250	200	

TNS20-250-UL	3Ø	AC250/DC250	250	
TNS20-300-UL	3Ø	AC250/DC250	300	
TNS20-400-UL	3Ø	AC250/DC250	400	
TNS20-500-UL	3Ø	AC250/DC250	500	
TNS20-600-UL	3Ø	AC250/DC250	600	
TNS20-700-UL	3Ø	AC250/DC250	700	
SERIES	**PHASE**	**VOLTAGE**	**CURRENT**	**ADDITIONAL OPTIONS**
TNS50-080-UL	3Ø	AC500/DC500	80	
TNS50-100-UL	3Ø	AC500/DC500	100	
TNS50-120-UL	3Ø	AC500/DC500	120	
TNS50-150-UL	3Ø	AC500/DC500	150	
TNS50-200-UL	3Ø	AC500/DC500	200	
TNS50-250-UL	3Ø	AC500/DC500	250	
TNS50-300-UL	3Ø	AC500/DC500	300	
TNS50-400-UL	3Ø	AC500/DC500	400	
TNS50-500-UL	3Ø	AC500/DC500	500	
TNS50-600-UL	3Ø	AC500/DC500	600	
TNS50-700-UL	3Ø	AC500/DC500	700	

TEMPERATURE DERATING



CIRCUIT DIAGRAM



Connections

INPUT, OUTPUT Terminal Connection

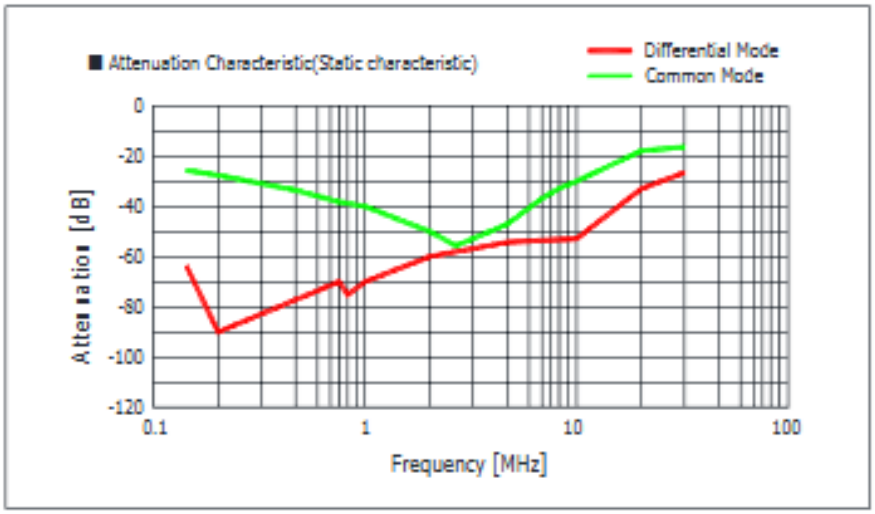
Pin Connection		Function
AC INPUT	AC R	EMI FILTER AC INPUT TERMINAL
	AC S	
	AC T	
AC OUTPUT	AC R	EMI FILTER AC OUTPUT TERMINAL
	AC S	
	AC T	
Frame ground		CASE

Applicable Electric Cable

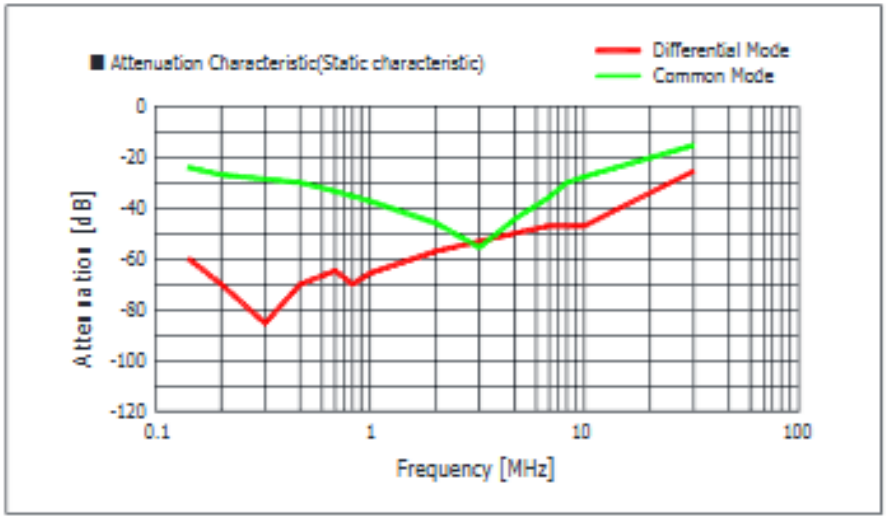
ALLOWABLE CURRENT (A)	MINIMUM LINE DIAMETER CROSS-SECTIONAL AREA (mm^2)
80	35.0
100	35.0
120	105.0
150	105.0
200	105.0
250	105.0
300	400.0
400	400.0
500	400.0
600	400.0
700	400.0

ATTENUATION

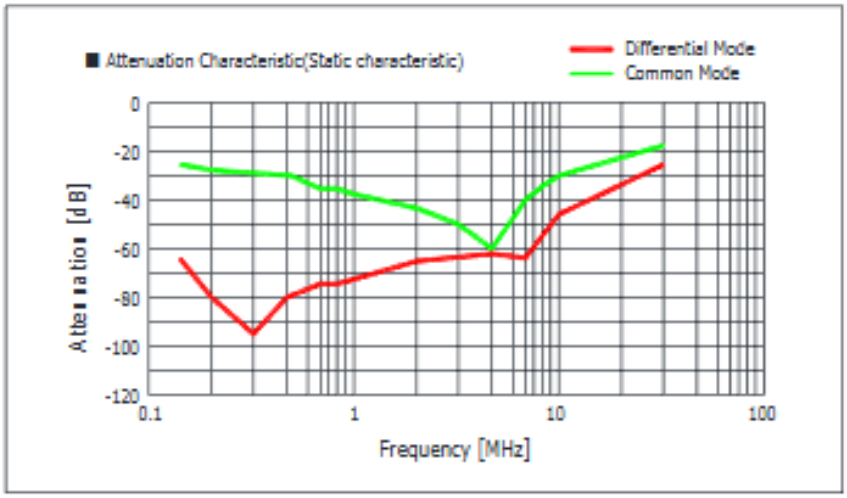
TNS20-080-UL, TNS50-080-UL



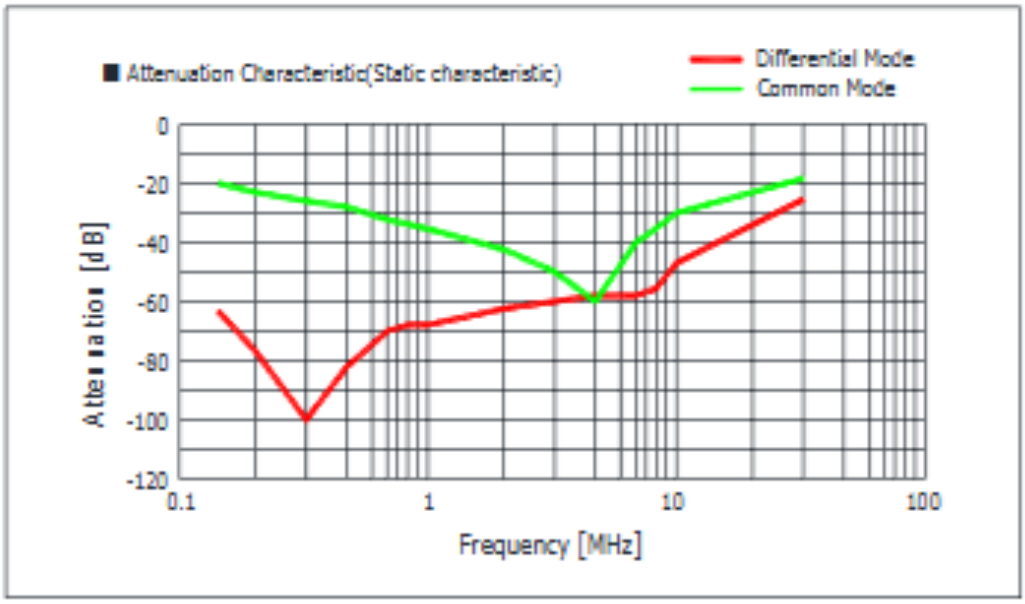
TNS20-100-UL, TNS50-100-UL



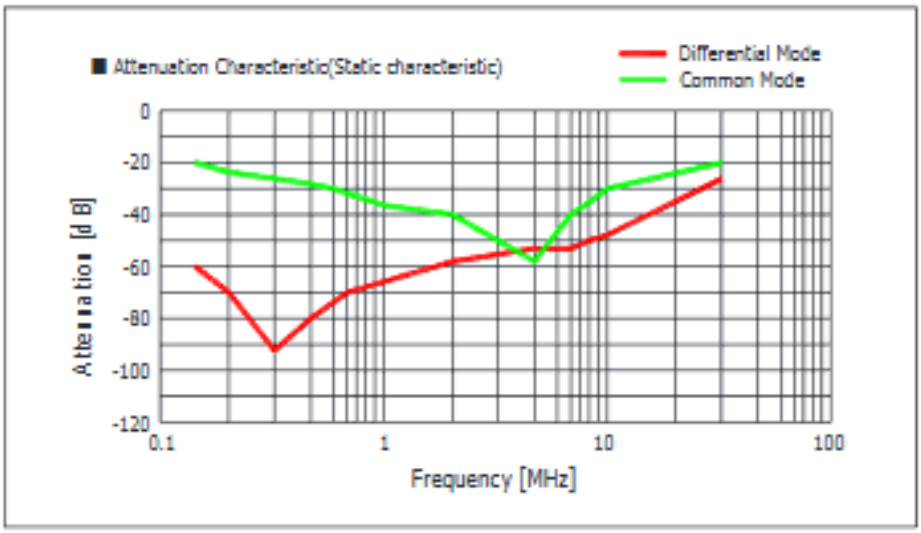
TNS20-120-UL, TNS50-120-UL



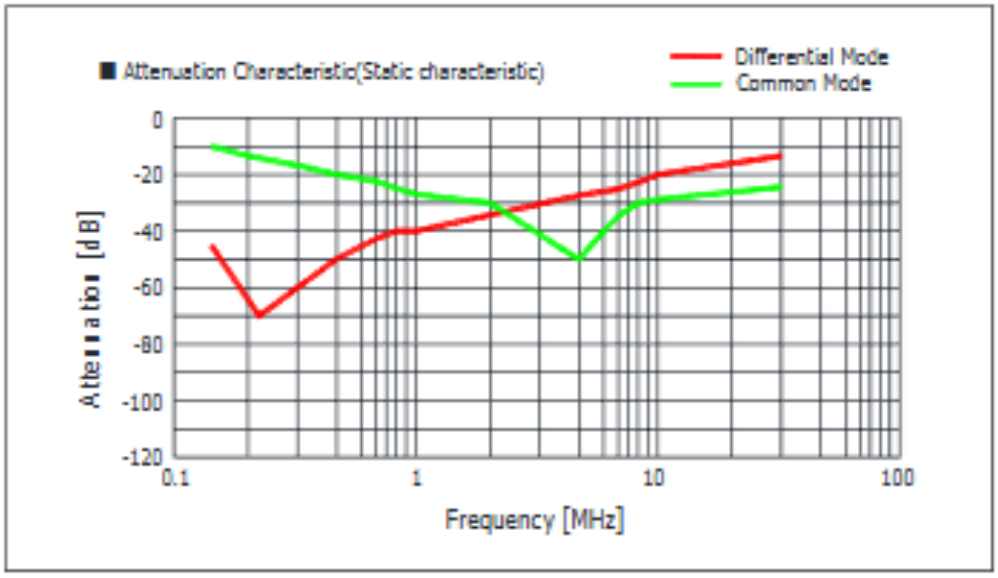
TNS20-150-UL, TNS50-150-UL



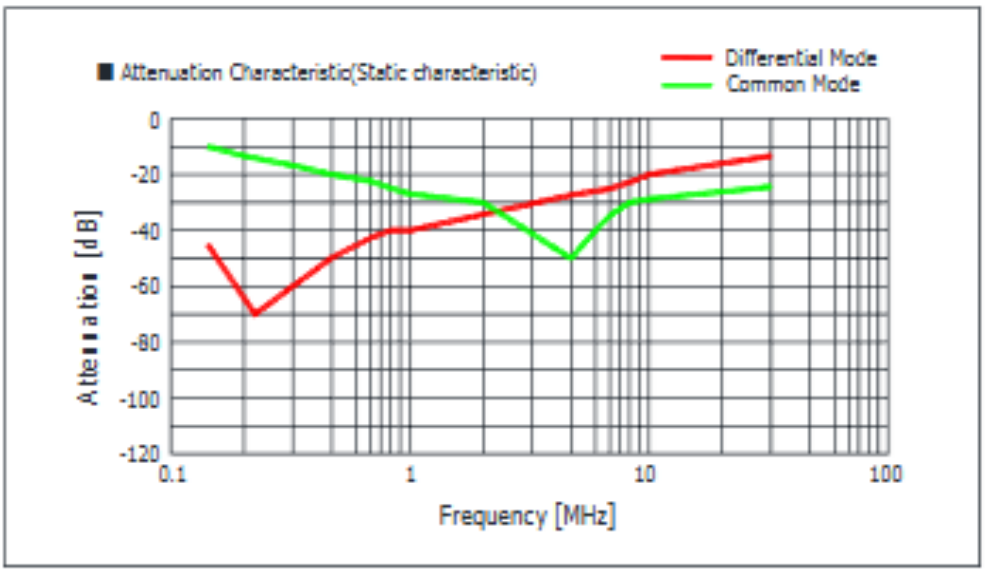
TNS20-200-UL, TNS50-200-UL



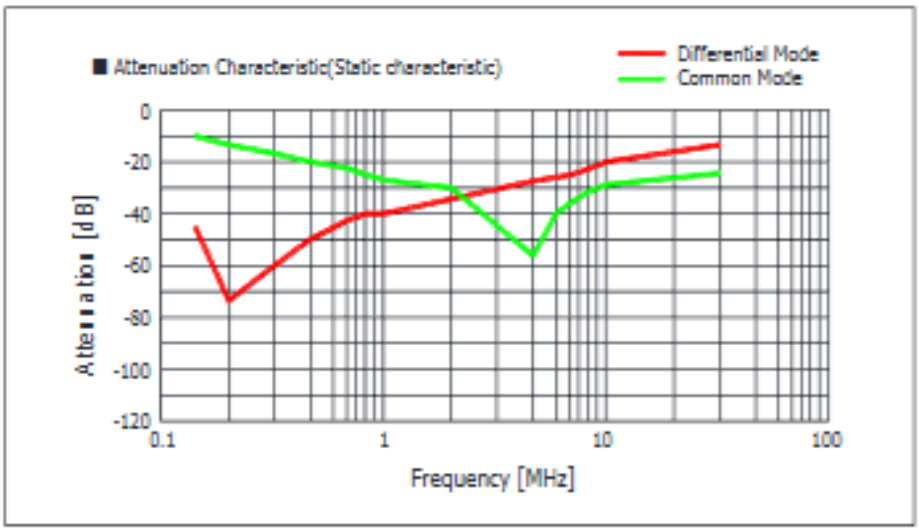
TNS20-250-UL, TNS50-250-UL



TNS20-300-UL, TNS50-300-UL,
TNS20-400-UL, TNS50-400-UL



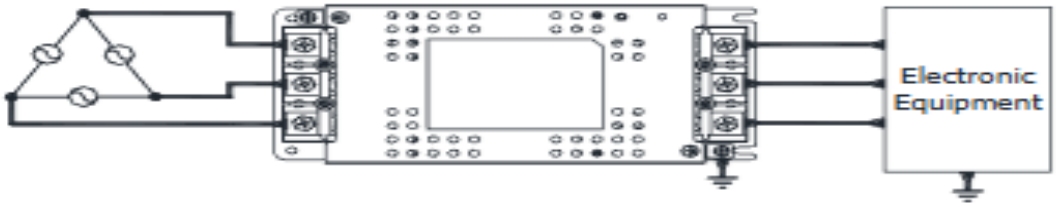
TNS20-500-UL, TNS50-500-UL,
TNS20-600-UL, TNS50-600-UL,
TNS20-700-UL, TNS50-700-UL

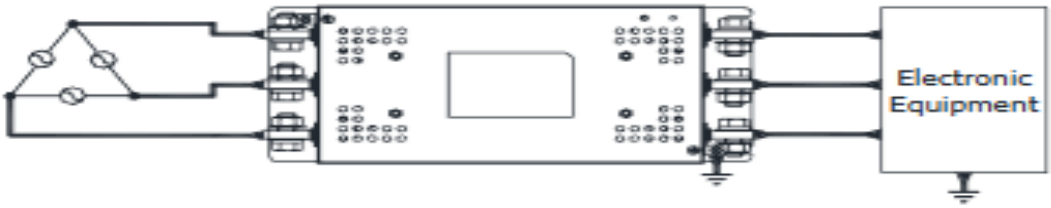


Attenuation[dB] = -20log(E1/E2)

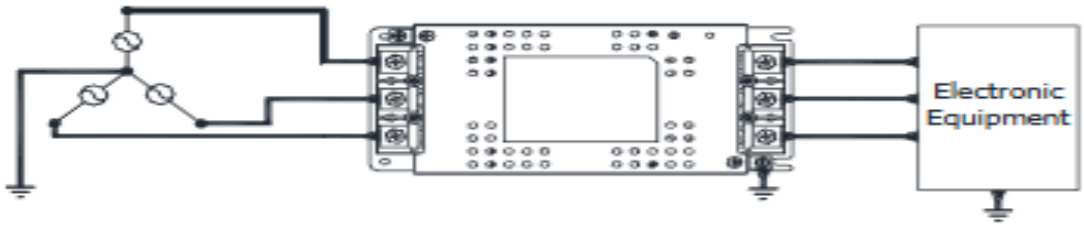
E1 = Voltage in state without filter E2 = Voltage in state with filters

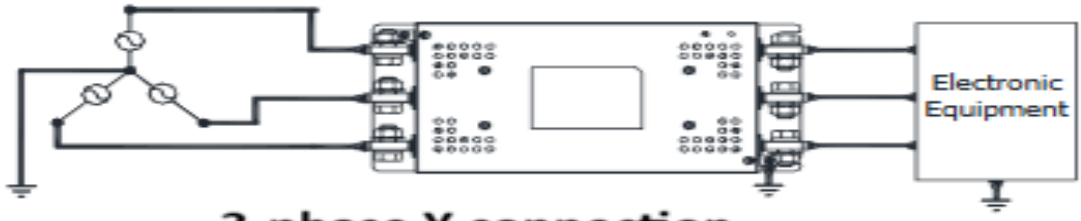
How to Setup





3-phase delta connection

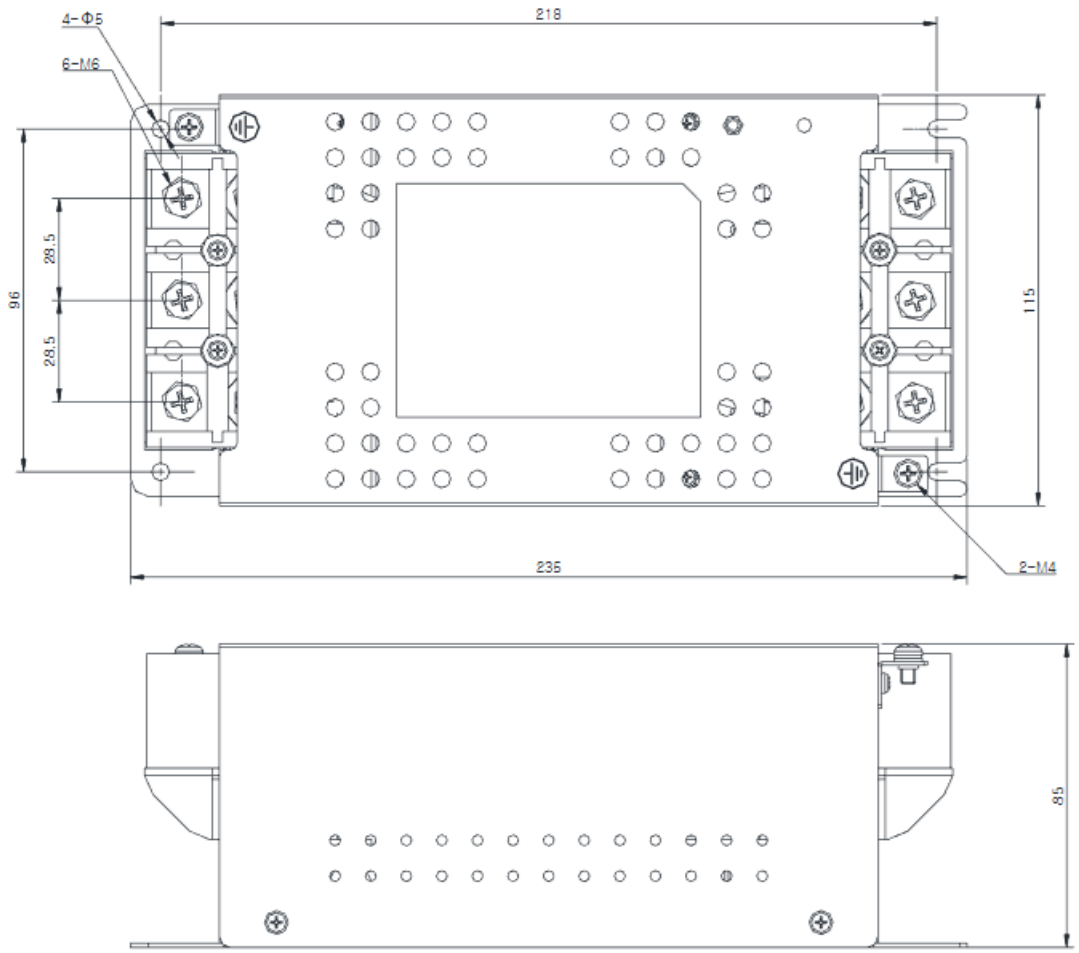




3-phase Y connection

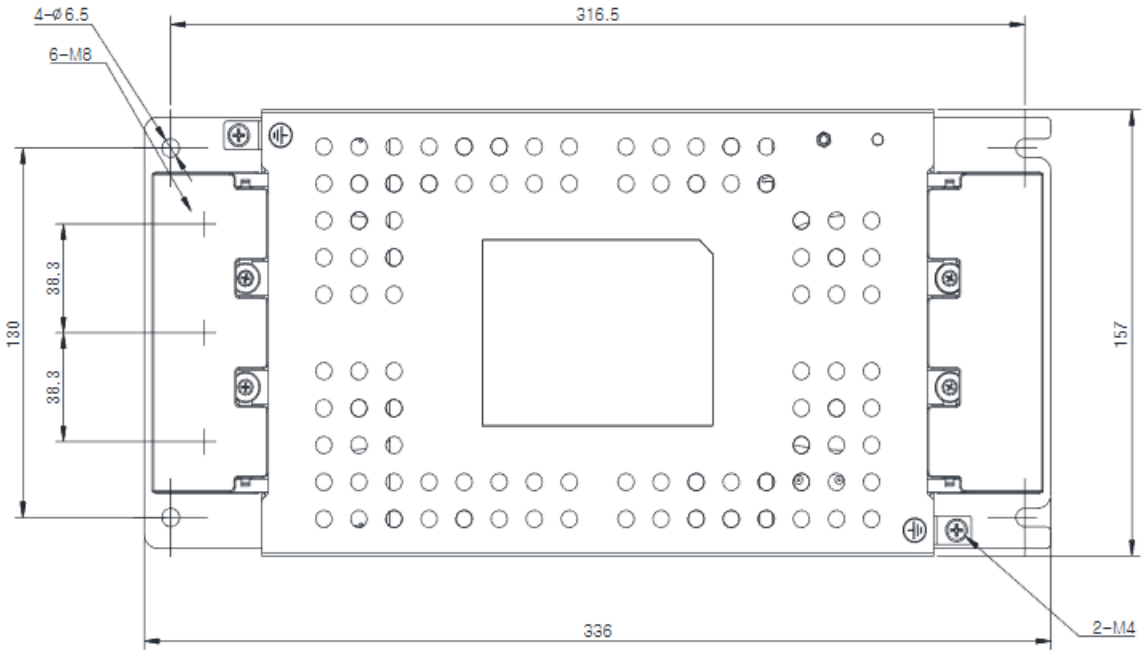
Dimensions

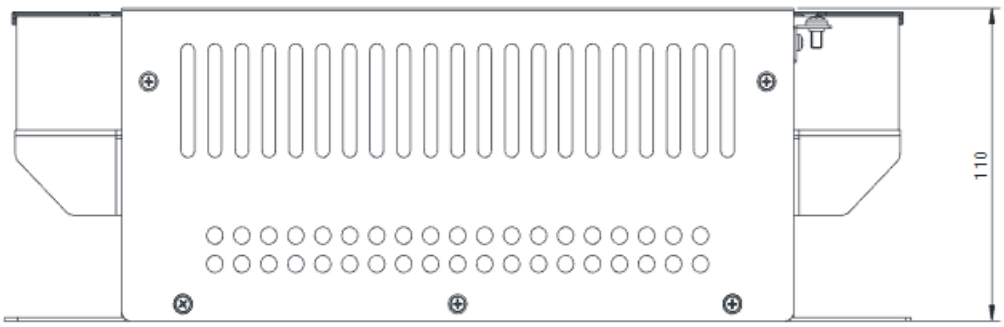
TNSxx-080-UL, -100-UL series



* Tolerance : ±1
* Dimension in mm

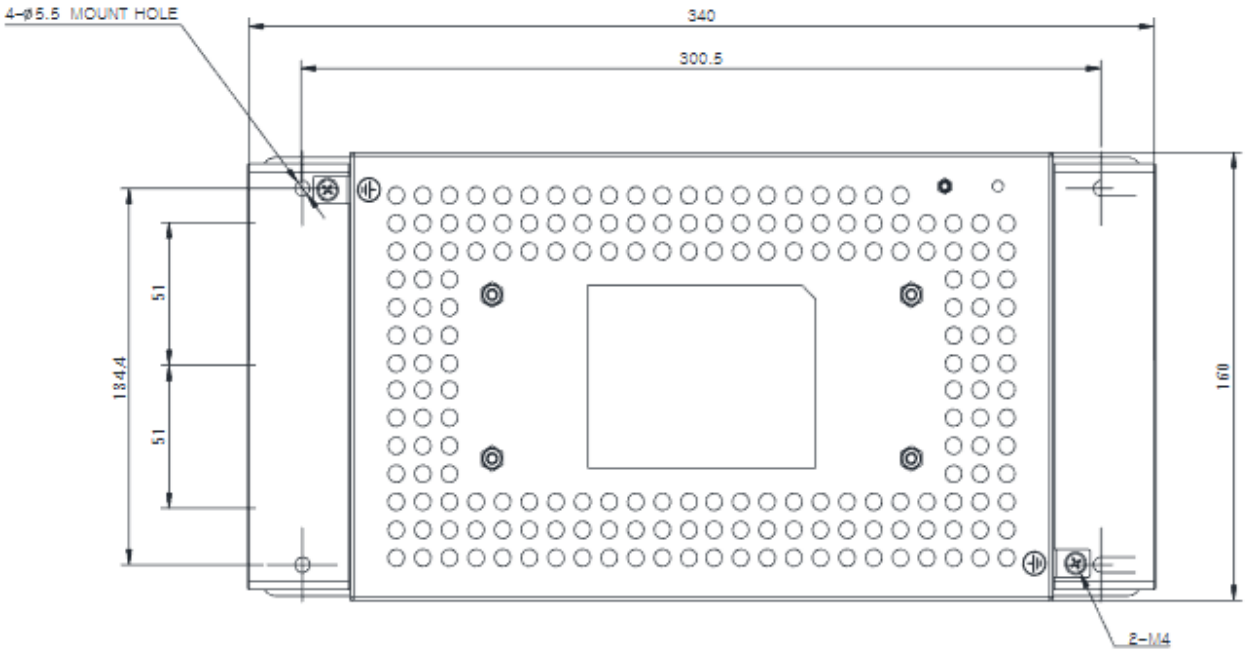
TNSxx-120-UL, -150-UL, -200-UL, -300-UL series

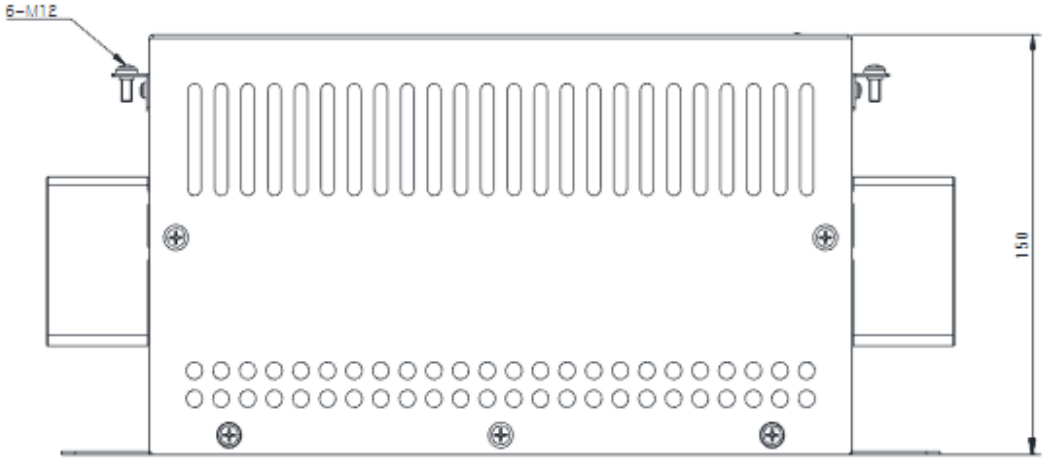




* Tolerance : ±1
* Dimension in mm

TNSxx-300-UL, -400-UL, -500-UL, -600-UL, -700-UL series





* Tolerance : ± 1
* Dimension in mm