EMI/EMC Filter Selection Guide by Type

Refer to EMI/EMC filter selection flow chart for options.

	Series		Features			Rated Voltage (voltage range max)	Rated Current (1 3 4 6 10 16 20 25 30 36 40 50 60 64 80 100 120 125 150 160 200 250 300 400 600 800 1000)
Single-phase EMI/EMC filter	 **EA Series** 1-stage filter	Small size	Screw type	EAC: Attenuation for low frequency band (150kHz to 1MHz) EAM: Low leakage current EAP: Outside impulse attenuation		250VAC	3A 6A 10A 16A 20A 30A
	 **ES Series** 1-stage filter		Screwless type	ESC: Attenuation for low frequency band (150kHz to 1MHz) ESM: Low leakage current ESP: Outside impulse attenuation		250VAC	3A 6A 10A 16A
	 **NA Series** 1-stage filter	General purpose	Screw type	NAC: High-attenuation for low frequency band (150kHz to 1MHz) NAM: Low leakage current NAH: Ultra high-attenuation for ultra low frequency band (9kHz to 1MHz) NAP: Outside impulse high-attenuation		250VAC	4A 6A 10A 16A 20A 30A * NAH only, 6A to 30A
						277VAC (305VAC) 300VDC (400VDC)	40A 50A 60A
	 **NB Series** 2-stage filter	High-attenuation		NBC: High-attenuation for low frequency band (150kHz to 1MHz) NBM: Low leakage current, Withstand voltage 4,000VAC NBH: Ultra high-attenuation and broadband (9kHz to 10MHz)		250VAC	6A 10A 16A 20A 30A
Three-phase EMI/EMC filter (three-wire)	 **JAC Series** 1-stage filter	Compact and low profile	General purpose	High-attenuation for low frequency band (150kHz to 1MHz)		500VAC (528VAC)	6A 10A 20A 30A 40A 50A 60A
	 **TAC Series** 1-stage filter	Low profile		High-attenuation for low frequency band (150kHz to 1MHz)		500VAC (528VAC)	4A 6A 10A 20A 30A 50A 60A 80A 100A 150A 200A 250A 300A
	 **TAH Series** 1-stage filter			Ultra high-attenuation for ultra low frequency band (9kHz to 10MHz)		500VAC (528VAC)	4A 6A 10A 20A 30A 50A 60A 80A 100A 150A
	 **TBC Series** 2-stage filter		High-attenuation	High-attenuation for low frequency band (150kHz to 1MHz)		500VAC (528VAC)	50A 60A 80A 100A 150A 200A 250A 300A
	 **FTA Series** 1-stage filter	Book type (Space-saving type)	General purpose	High-attenuation for low frequency band (150kHz to 1MHz)		500VAC (528VAC)	40A 50A 60A 80A 100A 125A 150A
	 **FTB Series** 2-stage filter		High-attenuation	Ultra high-attenuation for low frequency band (150kHz to 1MHz)		500VAC (528VAC)	80A 100A 150A
	 **FSB Series** 2-stage filter		Saturation resistance type	EMI/EMC Filter for motor drive system (AC servo) Improve saturation resistance		500VAC (528VAC)	10A 20A 30A 40A 50A 60A 80A 100A 150A
	 **TSC Series** multi-stage filter	Low profile	Ultra high-attenuation	Ultra high-attenuation from 150kHz to 1MHz		500VAC (528VAC)	400A 600A
	 **TSD Series** multi-stage filter		Saturation resistance type	Ultra high-attenuation from 150kHz to 1MHz		500VAC (528VAC)	400A 600A 800A 1000A
Three-phase EMI/EMC filter (four-wire)	 **YAC Series** 1-stage filter 2-stage filter	General purpose		High-attenuation for low frequency band (150kHz to 1MHz) 1-stage filter: 25A to 80A 2-stage filter:120A to 300A		500/289VAC (528/305VAC)	25A 36A 64A 80A 120A 160A 200A 300A
DC EMI/EMC filter	 **SNA Series** 1-stage filter	Ripple noise attenuation for switch mode power supplies		For ±V output power supply		DC±50V	1A 3A 6A
	 **SNR Series** 1-stage filter			For +V output power supply (Peak load)		DC50V	10A

EMI/EMC Filter Selection Guide by Function

Refer to EMI/EMC filter selection flow chart for options.

Three-phase three-wire EMI/EMC filter

Low profile

Book type (Space-saving type)

1-stage filter

JAC 6A to 60A
High-attenuation for low frequency band (150kHz to 1MHz)

Compact size

TAC 4A to 300A
Shape
High-attenuation for low frequency band (150kHz to 1MHz)

Ultra low frequency band

TAH 4A to 150A
Ultra high-attenuation for ultra low frequency band (9kHz to 10MHz)

High-attenuation (2-stage filter)

2-stage filter

TBC 50A to 300A
Shape
High-attenuation for low frequency band (150kHz to 1MHz)

Large capacity (Multi-stage filter)

multi-stage filter

TSC 400A 600A
Ultra high-attenuation for low frequency band (150kHz to 1MHz)

Saturation resistance

TSD 400A to 1000A
NEW
Ultra high-attenuation type for moter drive system (Multi-functional regenerative converter)
Improve saturation resistance

FTA 40A to 150A
High-attenuation for low frequency band (150kHz to 1MHz)

High-attenuation (2-stage filter)

FTB 80A to 150A
High-attenuation for low frequency band (150kHz to 1MHz)

Saturation resistance

FSB 10A to 150A
EMI/EMC filter for moter drive system (AC servo)
Improve saturation resistance

Three-phase four-wire EMI/EMC filter

1-stage filter 2-stage filter

YAC*4 25A to 300A
NEW
High-attenuation for low frequency band (150kHz to 1MHz)

*4 1-stage filter : 25A to 80A
2-stage filter : 120A to 300A

Single-phase EMI/EMC filter

Push down type terminal block

Screw type

Torque management unnecessary

Screwless

Screwless

1-stage filter

EA□*1 3A to 30A
Screw type
Interface
ES□*1 3A to 16A
Screwless
Installation compatible ①

Small size

NA□*2 4A to 30A
Screw type
Large capacity
NA□*2 40A to 60A
NEW
Screw type

2-stage filter

High-attenuation (2-stage filter)

NBC/NBM*3 6A to 30A
Screw type
Installation compatible ②

Broad -band

NBH 6A to 30A
Screw type
Ultra high-attenuation and broadband (9kHz to 10MHz)

*1 EAC/ESC : Attenuation type from 150kHz to 1MHz
EAM/ESM : Low leakage current type
EAP/ESP : Outside impulse attenuation

*2 NAC : High-attenuation type from 150kHz to 1MHz
NAM : Low leakage current type
NAH : Ultra high-attenuation from 9kHz to 1MHz
NAP : Outside impulse high-attenuation

*3 NBC : High-attenuation type from 150kHz to 1MHz
NBM : Low leakage current, Withstand voltage 4,000VAC

DC EMI/EMC filter

Ripple noise attenuation for switch mode power supplies

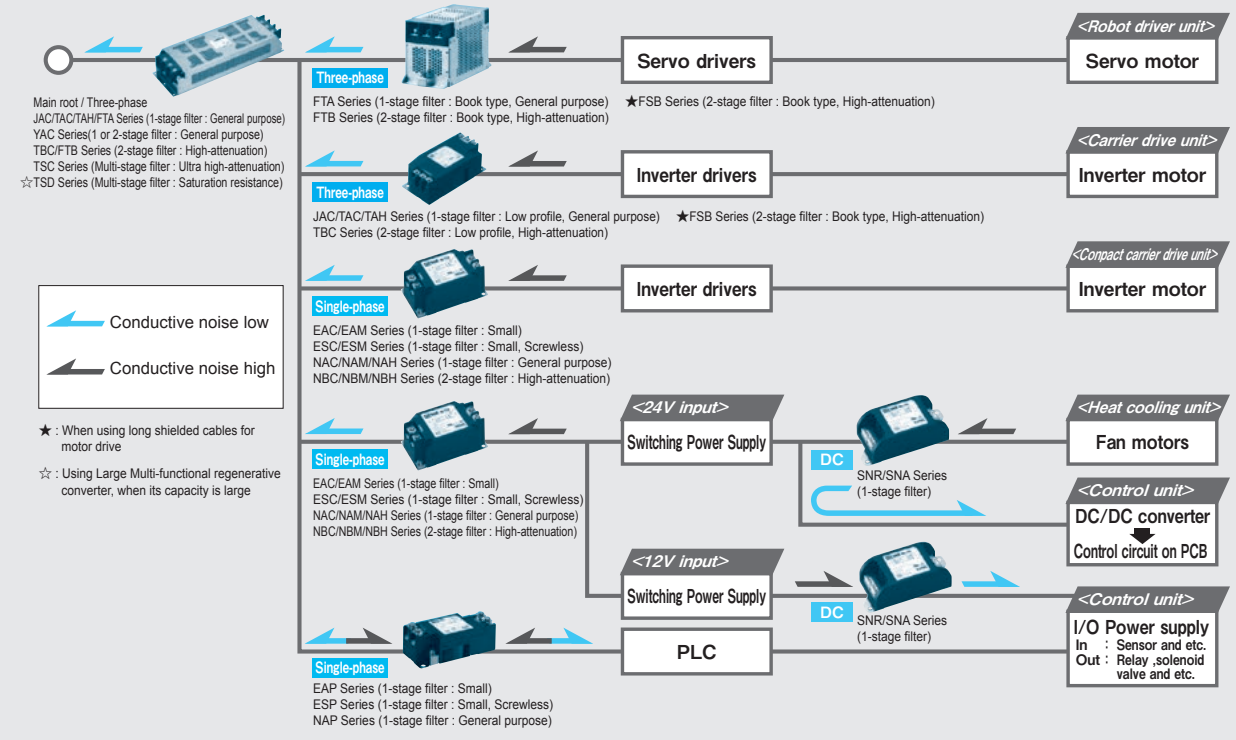
1-stage filter

SNA 1A 3A 6A
For ±V output power supply

Large capacity

SNR 10A
For +V output power supply (Peak load)
Installation compatible ③

Diagram of Sample application



EMI/EMC Filter Selection flow chart

By using the flow chart below, you can easily select the model you need.

START

- For ripple noise attenuation for switch mode power supplies(DC line)
- For AC line
- Three-phase input type
- Single-phase input type
- Three-phase three-wire system ※Can also be used as single-phase input
- Three-phase four-wire system
- Low profile
- Book type (Space-saving type)
- High-attenuation (2-stage filter)
- General purpose (1-stage filter)
- When using long motor cables (Over 10m)
- When using normal length motor cables(10m or less)
- High-attenuation (2-stage filter or more)
- General purpose (1-stage filter)
- Compact size
- General purpose (1-stage filter)
- For ultra low frequency band
- For low frequency band

YAC series(1or 2-stage filter)	FTA series(1-stage filter)	FTB series(2-stage filter)	FSB series(2-stage filter)	TAC series(1-stage filter)	TAH series(1-stage filter)	JAC series(1-stage filter)
						
(25 to 300A) Three-phase four-wire system EMI/EMC filter ideal for High-power office equipment and Energy storage systems	(40 to 150A) EMI/EMC filter for anti-conducted emission of servomotor and device having inverter General purpose from 150kHz to 1MHz	(80 to 150A) EMI/EMC filter for anti-conducted emission of servomotor and device having inverter High-attenuation from 150kHz to 1MHz	(10 to 150A) EMI/EMC filter for motor drive system (AC servo) Improve saturation resistance	(4 to 300A) EMI/EMC filter for anti-conducted emission of servomotor and device having inverter General purpose from 150kHz to 1MHz	(4 to 150A) EMI/EMC filter for anti-conducted emission of servomotor and device having inverter General purpose from 9kHz to 1MHz (Ultra low frequency band)	(6 to 60A) EMI/EMC filter for anti-conducted emission of servomotor and device having inverter General purpose from 150kHz to 1MHz Compact size
■Option -	■Option -H, -U, -G, -S(80 to 150A)	■Option -H, -L, -S	■Option -H, -U, -HU, -S(80 to 150A)	■Option -D(4 to 30A), -U(50 to 300A)	■Option -D(4 to 30A), -U(50 to 150A)	■Option -D(6 to 30A), -H, -U
■Use:High-power office equipment, UPS, Renewable energy, Lighting, Medical equipment, etc	■Use:Robot with inverter or servomotor, Welding machine, Elevator, Medical equipment, etc	■Use:Robot with inverter or servomotor, Welding machine, Elevator, Medical equipment, etc	■Use:Robot with inverter or servomotor, Welding machine, Elevator, Medical equipment, etc	■Use:Robot with inverter or servomotor, Welding machine, Elevator, Medical equipment, etc	■Use:Robot with inverter or servomotor, Welding machine, Elevator, Medical equipment, etc	■Use:Robot with inverter or servomotor, Welding machine, Elevator, Medical equipment, etc

Three-phase EMI/EMC filter

- For conduction noise attenuation
- For outside impulse attenuation
- Small size
- General purpose
- Screwless type
- Screw type
- Medical equipment (Low leakage current type)
- General purpose
- High-attenuation (2-stage filter)
- General purpose (1-stage filter)
- Small size
- General purpose
- Screwless type
- Screw type
- For ultra low frequency band
- For low frequency band

NAP series(1-stage filter)	EAP series(1-stage filter)	ESP series(1-stage filter)	NAC series(1-stage filter)	NAH series(1-stage filter)(★)	EAC series(1-stage filter)	ESC series(1-stage filter)
						
(4 to 60A) EMI/EMC filter for anti-malfunction by external noise Outside impulse high-attenuation ※Including 4,000VAC withstand voltage model (Medical equipment)	(3 to 30A) EMI/EMC filter for anti-malfunction by external noise Outside impulse attenuation Small size	(3 to 16A) EMI/EMC filter for anti-malfunction by external noise Outside impulse attenuation Small size, Screwless terminal type	(4 to 60A) EMI/EMC filter for anti-conducted emission General purpose from 150kHz to 1MHz ※Including 4,000VAC withstand voltage model (Medical equipment)	(6 to 60A) EMI/EMC filter for anti-conducted emission General purpose from 9kHz to 1MHz (Ultra low frequency band) ※Including 4,000VAC withstand voltage model (Medical equipment)	(3 to 30A) EMI/EMC filter for anti-conducted emission General purpose from 150kHz to 1MHz Small size	(3 to 16A) EMI/EMC filter for anti-conducted emission General purpose from 150kHz to 1MHz Small size, Screwless terminal type
■Option -D (4 to 30A) -F (40 to 60A)	■Option -D	■Option -D	■Option -D (4 to 30A) -F (40 to 60A)	■Option -D (6 to 30A) -F (40 to 60A)	■Option -D	■Option -D
■Use:PLC, industrial equipment with computer, etc	■Use:PLC, industrial equipment with computer, etc	■Use:PLC, industrial equipment with computer, etc	■Use:Using multiple switching power supplies, single-phase inverter, etc	■Use:Using multiple switching power supplies, single-phase inverter, robot with servo motor, medical equipment, etc	■Use:Using multiple switching power supplies, single-phase inverter, etc	■Use:Using multiple switching power supplies, single-phase inverter, etc

Single-phase EMI/EMC filter

■Option
-D : DIN rail installation type
-G : With switch of line to ground capacitor
-L : Ultra high-attenuation type for EU
-T : Terminal block type
-F : High input voltage (Rated voltage 500VAC/600VDC)
-H : Ultra high-attenuation type
-S : Hexagon socket head cap screw (Standard type is Hexagon head screw)
-U : Improve differential mode attenuation (Rated voltage 250V)

→ Rated current 400A or more
↓ Rated current less than 400A
→ Multi-functional regenerative converter
↓ General purpose
→ Power capacity exceeds 110kW
Power capacity 110kW or less
→ For +V output power supply (Peak load)
↓ For ±V output power supply
※Can also be used for +V output power supply

TBC series(2-stage filter)

(50 to 300A)
EMI/EMC filter for anti-conducted emission of servomotor and device having inverter
High-attenuation from 150kHz to 1MHz

■Option
—

■Use:Robot with inverter or servomotor, Welding machine, Elevator, Medical equipment, etc

TSC series(multi-stage filter)

(400, 600A)
EMI/EMC filter for anti-conducted emission of servomotor and device having inverter
Ultra high-attenuation from 150kHz to 1MHz

■Option ※1
-H

■Use:Robot with inverter or servomotor, Welding machine, Elevator, Medical equipment, etc

TSD series(multi-stage filter)

(400 to 1000A)
Ultra high-attenuation for motor drive system (Multi-functional regenerative converter)
Improve saturation resistance

■Option ※1
—

■Use:Large equipment with Multi-functional regenerative converter (Transferred equipment, air conditioning equipment), etc

※1 Please contact us about low leakage current type (Change to low grounding capacitor)

SNA series(1-stage filter)

(1, 3, 6A)
Ripple noise attenuation for switch mode power supplies
(DC±50V)

■Option
-D, -T(6A), -DT(6A)

■Use:DC EMI/EMC filter for ±V output power supply of analog circuit (Operational amplifier etc.)

SNR series(1-stage filter)

(10A)
Ripple noise attenuation for switch mode power supplies
(DC+50V)

■Option
-D, -T, -DT

■Use:DC EMI/EMC filter for +V output power supply of analog circuit

DC EMI/EMC filter

→ High-attenuation (2-stage filter)
→ For broadband
↓ For low frequency band
↓ General purpose (1-stage filter)
→ Small size
↓ General purpose
→ Screwless type
↓ Screw type
→ For ultra low frequency band
NAH series(★)
↓ For Low frequency band
→ For broadband
NBH series(◆)
↓ For low frequency band

NBC series(2-stage filter)

(6 to 30A)
EMI/EMC filter for anti-conducted emission
High-attenuation from 150kHz to 1MHz

■Option
-D

■Use:Using multiple switching power supplies, single-phase inverter, etc

NBH series(2-stage filter(◆))

(6 to 30A)
EMI/EMC filter for anti-conducted emission
Ultra high-attenuation and broadband from 9kHz to 10MHz
※Including 4,000VAC withstand voltage model (Medical equipment)

■Option
-D

■Use:Using multiple switching power supplies, single-phase inverter, robot with servo motor, medical equipment, etc

NAM series(1-stage filter)

(4 to 60A)
EMI/EMC filter for medical applications
Low leakage current type
General purpose from 150kHz to 1MHz
※Including 4,000VAC withstand voltage model

■Option
-D (4 to 30A)

■Use:A case when using multiple switching power supplies, or for medical applications like endoscope, etc

EAM series(1-stage filter)

(3 to 30A)
EMI/EMC filter for medical applications
Low leakage current type
General purpose from 150kHz to 1MHz
Small size

■Option
-D

■Use:A case when using multiple switching power supplies, or for medical applications like endoscope, etc

ESM series(1-stage filter)

(3 to 16A)
EMI/EMC filter for medical applications
Low leakage current type
General purpose from 150kHz to 1MHz
Small size, Screwless terminal type

■Option
-D

■Use:A case when using multiple switching power supplies, or for medical applications like endoscope, etc

NBM series(2-stage filter)

(6 to 30A)
EMI/EMC filter for medical applications
Low leakage current type
General purpose from 150kHz to 1MHz with stand voltage 4,000VAC

■Option
-D

■Use:A case when using multiple switching power supplies, or for medical applications like endoscope, etc