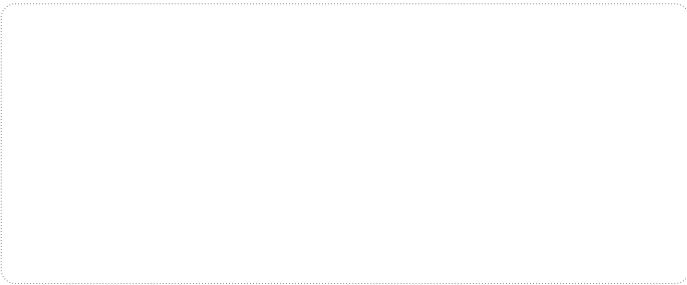


EMI Power Filter

Innovation, Value, Teamwork



Service line:86-755-86312859 E-mail:overseas@invt.com.cn Website:www.invt.com

SHENZHEN INVT ELECTRIC CO.,LTD.

No. 4 Building, Gaofa Scientific Industrial Park, Longjing, Nanshan District, Shenzhen, China

- Electric Drive:** ■Frequency Inverter ■Intelligent Elevator Control System ■Traction Drive
- Industrial Control:** ■Servo & Motion Control ■Motor & Electric Spindle ■PLC ■HMI
- New Energy:** ■SVG ■Solar Inverter ■UPS ■Online Energy Management System

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201210(V2.0)



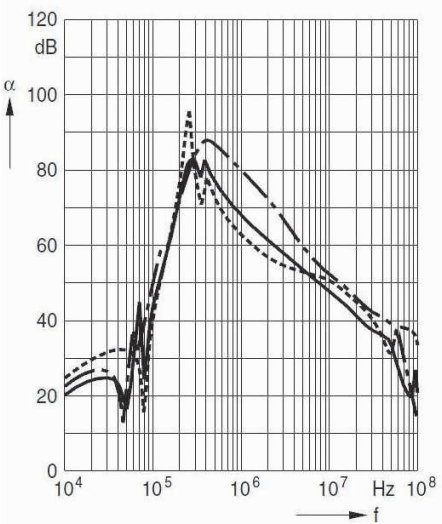
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Technical Features

High insertion loss

Insertion loss, which reflects the interference reduction capacity to various high-frequency signals, is the key parameter for filters;



FLT-P12400H-B

Insertion loss(typical value Z=50 Ω)

- Insertion loss
- Insertion loss in common-mode
- Insertion loss in differential-mode

Low leakage current

Applying low leakage current topology, better environmental adaptability and complete reliability test verification;

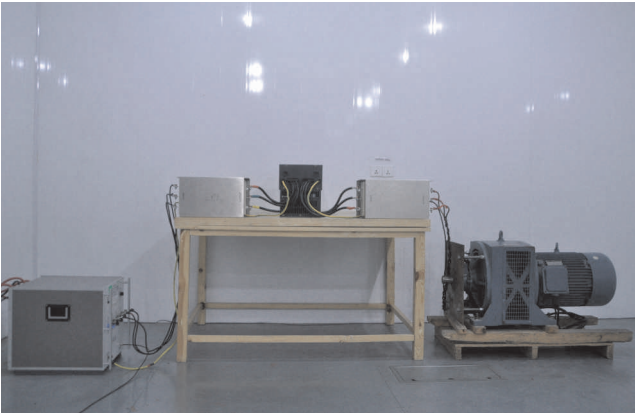
Grounding

Two grounding modes for different power system;

PCB board design

Applied PCB board to ensure stable performance;

Full Load test



Passed the inverter test with full load and non-load.

Really set up picture

Product description and selection

Product model

Filter

EMI Filter

Code

FLT

Filter

Input Filter

Code

P

Filter

Output Filter

Code

L

Filter

Sin Filter

Code

S

Filter

dv/dt Filter

Code

U

Voltage

1Ph 220Vac

Code

S2

Voltage

3Ph 220Vac

Code

02

Voltage

3Ph 400Vac

Code

04

Voltage

3Ph 690Vac

Code

06

Voltage

3Ph 1140Vac

Code

12

FLT-P04016L-B

Code

A

Environment

category C1

Code

B

Environment

category C2

Code

C

Environment

category C3

Code

L

Performance

Common

Code

H

Performance

High Performance

Code

016

Current(A)

16

Filter selection

PCB Input Filter selection

Voltage	Input Filter	Order Num	Current(A)	Applicable Model Example
1Ph 220V	FLT-PS2003H-A-PCB	11013-00067	3	For sophisticated device 220Vac power filter
	FLT-PS2010H-A-PCB	11013-00069	10	
3Ph 400V	FLT-P04006L-B-PCB	11013-00068	6	GD300-1R5G-4
				GD300-2R2G-4
	FLT-P04016L-B-PCB	11013-00070	16	GD300-004G-4
				GD300-5R5G-4
	FLT-P04032L-B-PCB	11013-00071	32	GD300-7R5G-4
				GD300-011G-4

Single-phase 220VAC Filter selection

Voltage	Input Filter	Order Num	Output Filter	Order Num	Current(A)	Applicable Model Example
1Ph 220V	FLT-PS2003H-A	11013-00018	FLT-LS2003H-A	11013-00046	3	For sophisticated device 220Vac power filter
	FLT-PS2010H-A	11013-00019	FLT-LS2010H-A	11013-00047	10	

Three-phase 400VAC Input Filter selection

Voltage	Input Filter	Order Num	Current(A)	Applicable Model Example
3Ph 400V	FLT-P04006L-B	11013-00005	6	GD300-1R5G-4
				GD300-2R2G-4
	FLT-P04016L-B	11013-00006	16	GD300-004G-4
				GD300-5R5G-4
	FLT-P04032L-B	11013-00007	32	GD300-7R5G-4
				GD300-011G-4
	FLT-P04045L-B	11013-00008	45	GD300-015G-4
				GD300-018G-4
	FLT-P04065L-B	11013-00009	65	GD300-022G-4
				GD300-030G-4
	FLT-P04100L-B	11013-00010	100	GD300-037G-4
				GD300-045G-4
	FLT-P04150L-B	11013-00013	150	GD300-055G-4
				GD300-075G-4
	FLT-P04240L-B	11013-00020	240	GD300-090G-4
				GD300-110G-4
	FLT-P04400L-B	11013-00015	400	GD300-132G-4
				GD300-160G-4
	FLT-P04600L-B	11013-00016	600	GD300-200G-4
				GD300-220G-4
	FLT-P04800L-B	11013-00017	800	GD300-250G-4
				GD300-280G-4
	FLT-P041000L-B	11013-00011	1000	GD300-315G-4
				GD300-350G-4

Three-phase 690VAC Input Filter selection

Voltage	Input Filter	Order Num	Current(A)	Applicable Model Example
3Ph 690V	FLT-P06050H-B	11013-00048	50	CHV100-018G-6~CHV100-037G-6
	FLT-P06100H-B	11013-00049	100	CHV100-045G-6~CHV100-090G-6
	FLT-P06200H-B	11013-00051	200	CHV100-110G-6~CHV100-185G-6
	FLT-P06300H-B	11013-00026	300	CHV100-200G-6~CHV100-280G-6
	FLT-P06400H-B	11013-00052	400	CHV100-315G-6~CHV100-350G-6
	FLT-P06600H-B	11013-00053	600	CHV100-400G-6~CHV100-560G-6
	FLT-P06800H-B	11013-00054	800	CHV100-630G-6 and above
	FLT-P061000H-B	11013-00050	1000	Series-parallel connection

Three-phase 1140VAC Input Filter selection

Voltage	Input Filter	Order Num	Current(A)	Applicable Model Example
3Ph 1140V	FLT-P12050H-B	11013-00021	50	CHV100-037G-12~CHV100-075G-12
	FLT-P12100H-B	11013-00022	100	CHV100-090G-12~CHV100-132G-12
	FLT-P12200H-B	26001-00003	200	CHV100-160G-12~CHV100-315G-12
	FLT-P12300H-B	11013-00023	300	CHV100-350G-12~CHV100-400G-12
	FLT-P12400H-B	11013-00063	400	CHV100-500G-12~CHV100-630G-12
	FLT-P12600H-B	11013-00024	600	CHV100-710G-12 and above
	FLT-P12800H-B	11013-00025	800	CHV100-710G-12 and above
	FLT-P121000H-B	26001-00006	1000	Series-parallel connection

Three-phase 400VAC Output Filter selection

Voltage	Output Filter	Order Num	Current(A)	Applicable Model Example
3Ph 400V	FLT-L04006L-B	11013-00032	6	GD300-1R5G-4
				GD300-2R2G-4
	FLT-L04016L-B	11013-00033	16	GD300-004G-4
				GD300-5R5G-4
	FLT-L04032L-B	11013-00034	32	GD300-7R5G-4
				GD300-011G-4
	FLT-L04045L-B	11013-00035	45	GD300-015G-4
				GD300-018G-4
	FLT-L04065L-B	11013-00036	65	GD300-022G-4
				GD300-030G-4
	FLT-L04100L-B	11013-00037	100	GD300-037G-4
				GD300-045G-4
	FLT-L04150L-B	11013-00040	150	GD300-055G-4
				GD300-075G-4

Voltage	Output Filter	Order Num	Current(A)	Applicable Model Example
3Ph 400V	FLT-L04240L-B	11013-00042	240	GD300-090G-4
				GD300-110G-4
				GD300-132G-4
	FLT-L04400L-B	11013-00043	400	GD300-160G-4
				GD300-200G-4
	FLT-P04600L-B	11013-00044	600	GD300-220G-4
				GD300-250G-4
				GD300-280G-4
	FLT-P04800L-B	11013-00045	800	GD300-315G-4
				GD300-350G-4
				GD300-400G-4
	FLT-P041000L-B	11013-00038	1000	GD300-500G-4

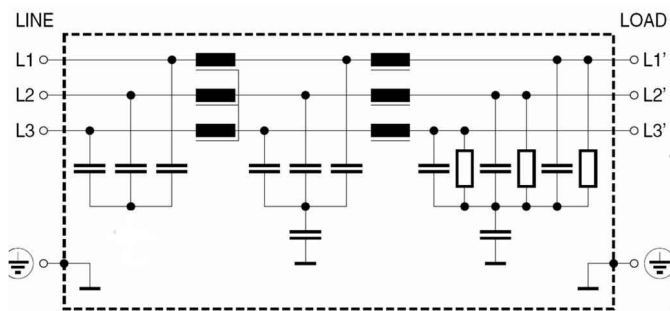
Three-phase 690VAC Output Filter selection

Voltage	Output Filter	Order Num	Current(A)	Applicable Model Example
3Ph 690V	FLT-L06050H-B	11013-00055	50	CHV100-018G-6~CHV100-037G-6
	FLT-L06100H-B	11013-00056	100	CHV100-045G-6~CHV100-090G-6
	FLT-L06200H-B	11013-00058	200	CHV100-110G-6~CHV100-185G-6
	FLT-L06300H-B	11013-00059	300	CHV100-200G-6~CHV100-280G-6
	FLT-L06400H-B	11013-00060	400	CHV100-315G-6~CHV100-350G-6
	FLT-L06600H-B	11013-00061	600	CHV100-400G-6~CHV100-560G-6
	FLT-L06800H-B	11013-00062	800	CHV100-630G-6 and above
	FLT-L061000H-B	11013-00057	1000	Series-parallel connection

Three-phase 1140VAC Output Filter selection

Voltage	Output Filter	Order Num	Current(A)	Applicable Model Example
3Ph 1140V	FLT-L12050H-B	11013-00027	50	CHV100-037G-12~CHV100-075G-12
	FLT-L12100H-B	11013-00028	100	CHV100-090G-12~CHV100-132G-12
	FLT-L12200H-B	11013-00066	200	CHV100-160G-12~CHV100-315G-12
	FLT-L12300H-B	11013-00029	300	CHV100-350G-12~CHV100-400G-12
	FLT-L12400H-B	11013-00064	400	CHV100-500G-12~CHV100-630G-12
	FLT-L12600H-B	11013-00030	600	CHV100-710G-12 and above
	FLT-L12800H-B	11013-00031	800	CHV100-710G-12 and above
	FLT-L121000H-B	26001-00007	1000	Series-parallel connection

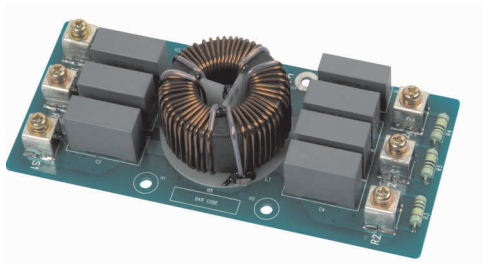
Filter schematic



Typical topological graph

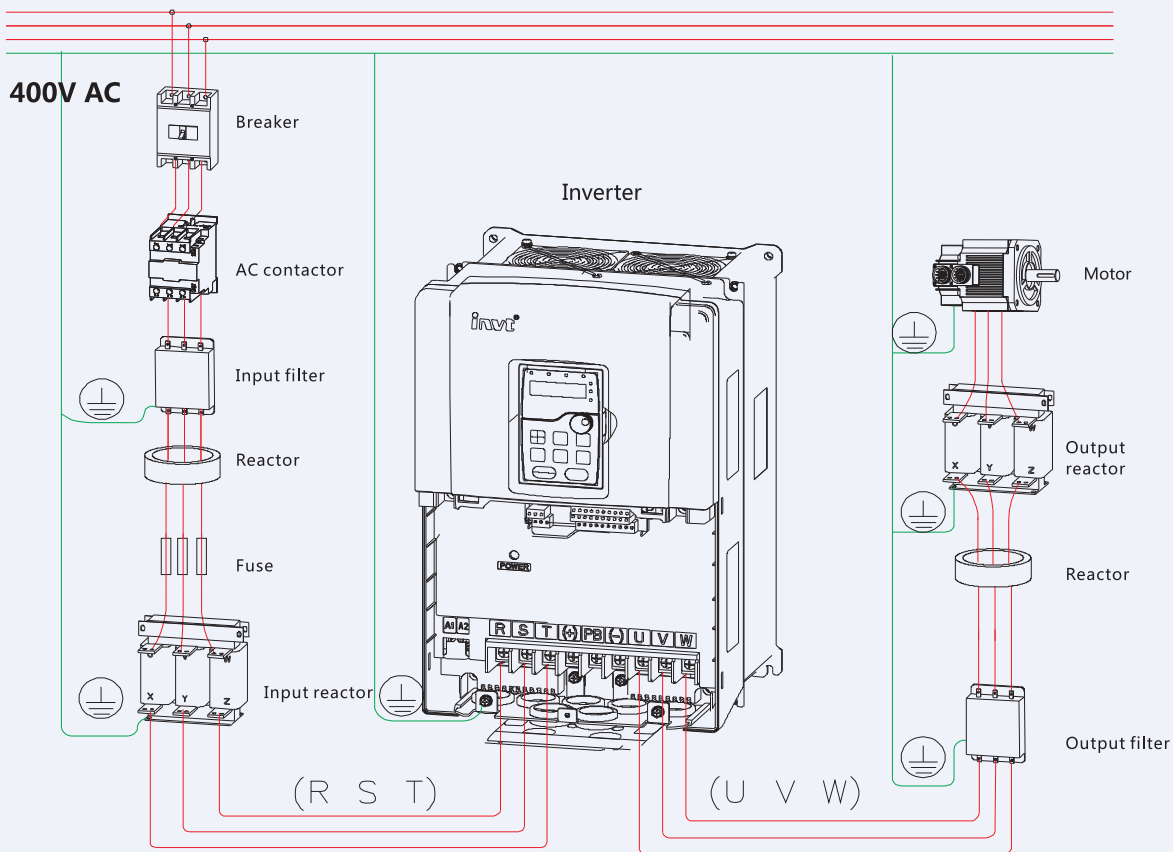


Filters graph



PCB-filter

Diagram



Filter size

Voltage	Model	L (mm)	L1 (mm)	L2 (mm)	W (mm)	W1 (mm)	H (mm)	Weight (kg)	Hole size	Figure No.	Wiring	
1Ph 220V	FLT-PS2003H-A	150	129	138	64	40	42	0.5	a	A	Terminal	
	FLT-LS2003H-A											
	FLT-PS2010H-A	180	158	167	70	40	47	1.0				
	FLT-LS2010H-A											
3Ph 400V	FLT-P04006L-B	201	164	185	80	65	55	1.5	b	A	Terminal	
	FLT-L04006L-B											
	FLT-P04016L-B	233	196	216	87	65	61	2.5				
	FLT-L04016L-B											
	FLT-P04032L-B	222	185	204	105	76	94	3.5	c			
	FLT-L04032L-B											
	FLT-P04045L-B	260	213	243	110	90	104	4.0				
	FLT-L04045L-B											
	FLT-P04065L-B	310	265	294	125	90	111	4.5				
	FLT-L04065L-B											
	FLT-P04100L-B	301	265	240	143	96	106	9	d			D
	FLT-L04100L-B											
	FLT-P04150L-B	330	290	268	163	104	140	9		C	Copper bars	
	FLT-L04150L-B											
	FLT-P04240L-B	483	386	286	220	200	126	11		B		
	FLT-L04240L-B											
	FLT-P04400L-B	590	540	508	263	196	210	34	e	c		
	FLT-L04400L-B	480	430	398	263	196	210	32				
	FLT-P04600L-B	570	520	488	230	116	145	27				
	FLT-L04600L-B	480	430	398	230	116	145	22				
	FLT-P04800L-B	570	520	488	230	116	145	27				
	FLT-L04800L-B	480	430	398	230	116	145	22				
	FLT-P041000L-B	570	520	488	230	116	145	27				
	FLT-L041000L-B	480	430	398	230	116	145	22				
3Ph 690V	FLT-P06050H-B	450	410	378	183	116	111	11	e	D	Copper bars	
	FLT-L06050H-B							12				
	FLT-P06100H-B	455	415	383	230	116	150	18		C		
	FLT-L06100H-B	405	365	333	203	116	150	14				
	FLT-P06200H-B	570	520	488	233	116	145	21				
	FLT-L06200H-B	480	430	398	233	116	145	19				
	FLT-P06300H-B	520	480	448	233	116	200	26				
	FLT-L06300H-B	470	430	398	233	116	200	23				
	FLT-P06400H-B	590	540	508	263	196	210	34				
	FLT-L06400H-B	480	430	398	230	196	210	32				
	FLT-P06600H-B	570	520	488	230	116	145	27				
	FLT-L06600H-B	480	430	398	230	116	145	22				
	FLT-P06800H-B	570	520	488	230	116	145	27				
	FLT-L06800H-B	480	430	398	263	116	145	22				
	FLT-P061000H-B	570	520	488	230	116	145	27				
	FLT-L061000H-B	480	430	398	230	116	145	22				

Voltage	Model	L (mm)	L1 (mm)	L2 (mm)	W (mm)	W1 (mm)	H (mm)	Weight (kg)	Hole size	Figure No.	Wiring
3Ph 1140V	FLT-P12050H-B	450	410	378	183	116	111	11	e	D	Copper bars
	FLT-L12050H-B							12			
	FLT-P12100H-B	455	415	383	230	116	150	18		C	
	FLT-L12100H-B	405	365	333	203	116	150	14			
	FLT-P12200H-B	570	520	488	233	116	145	21			
	FLT-L12200H-B	480	430	398	233	116	145	19			
	FLT-P12300H-B	520	480	448	233	116	200	26			
	FLT-L12300H-B	470	430	398	233	116	200	23			
	FLT-P12400H-B	590	540	508	263	196	210	34			
	FLT-L12400H-B	480	430	398	263	196	210	32			
	FLT-P12600H-B	570	520	488	230	116	145	27			
	FLT-L12600H-B	480	430	398	230	116	145	22			
	FLT-P12800H-B	570	520	488	230	116	145	27			
	FLT-L12800H-B	480	430	398	230	116	145	22			
	FLT-P121000H-B	570	520	488	230	116	145	27			
	FLT-L121000H-B	480	430	398	230	116	145	22			

External size

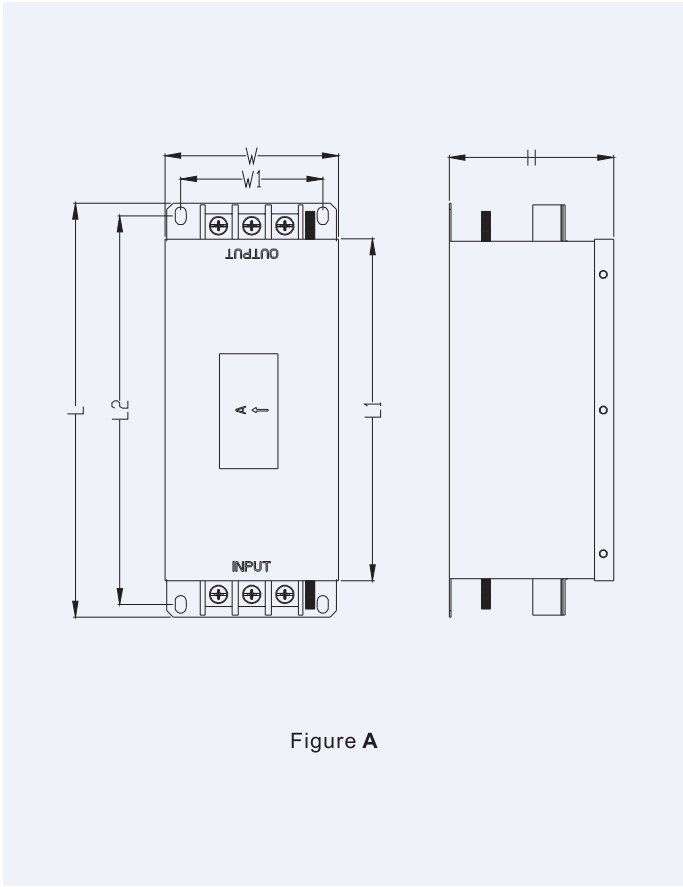


Figure A

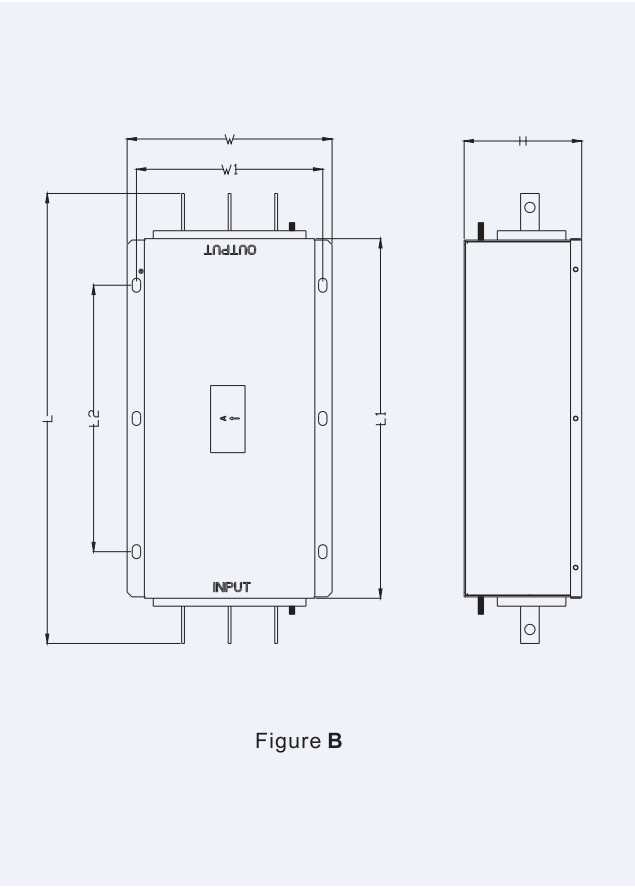


Figure B

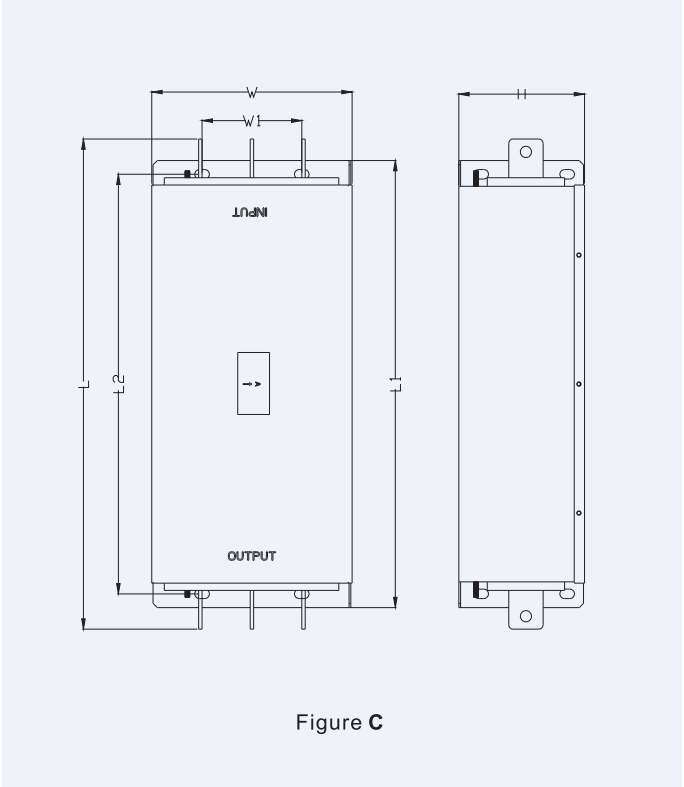


Figure C

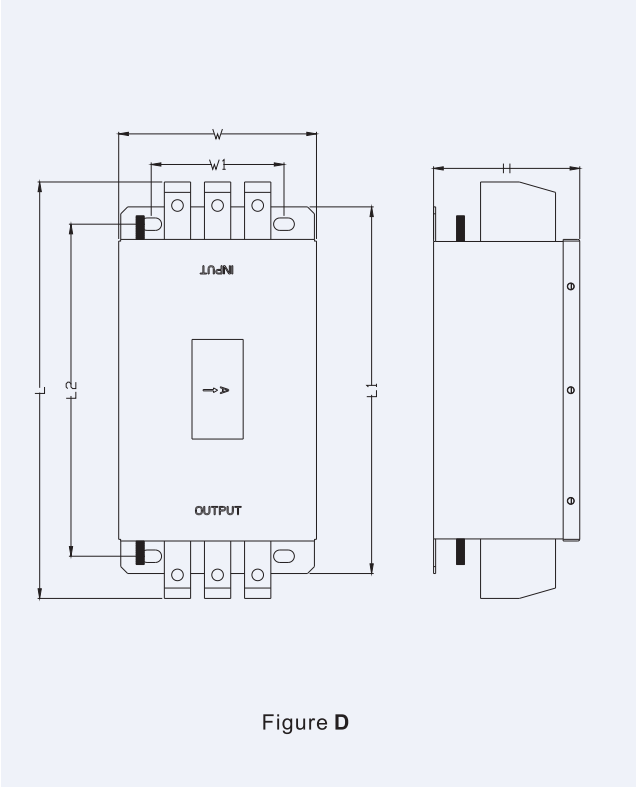


Figure D

Hole size (OB) (unit: mm)

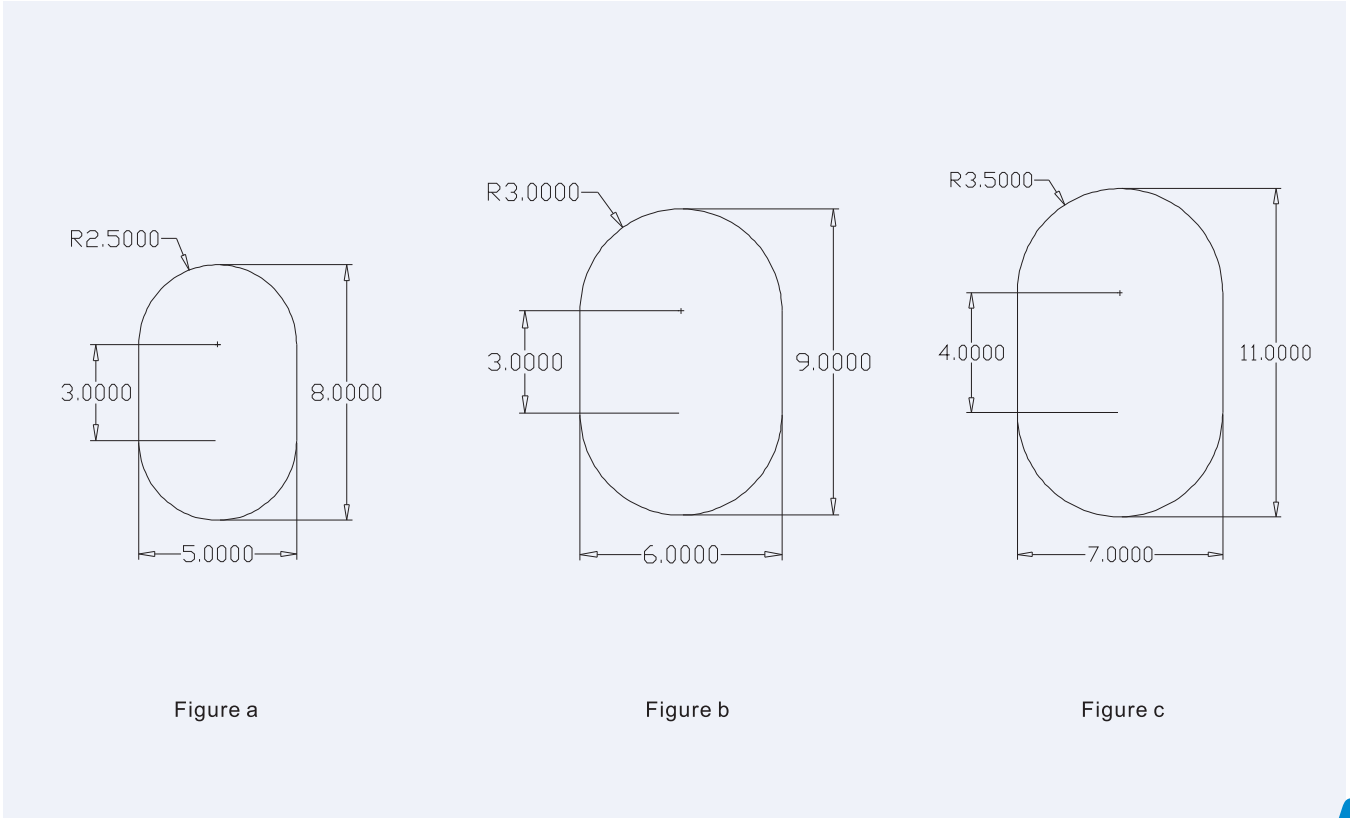


Figure a

Figure b

Figure c

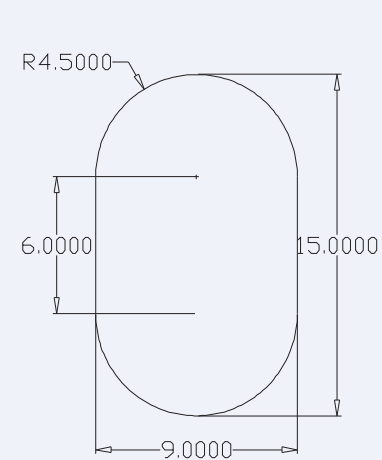


Figure d

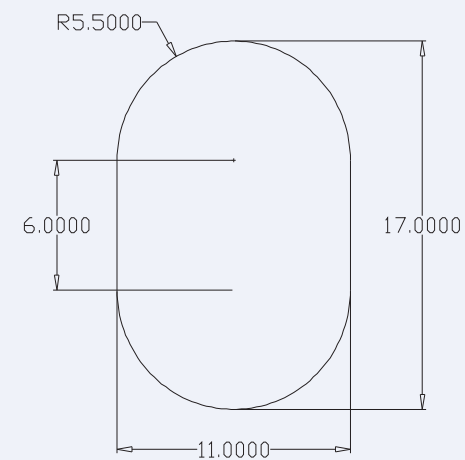
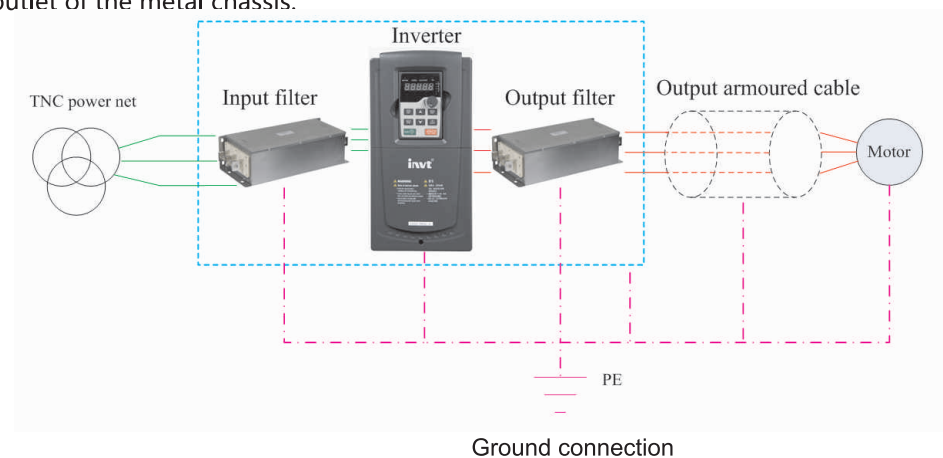


Figure e

Installation notes

- The filter is recommended to be used in TNC system.
- The input filter cannot be used as output filter, and vice versa.
- The input and output of the filter can not be reversed.
- The wiring terminal of the filter needs to be connected well with the cable.
- The metal enclosure of the input filter and the enclosure of the inverter need to be tightly-grounded; otherwise the EMI performance will be influenced.
- The wiring cable of the filter needs to be short and thick enough.
- The input and output cable of the filter can not be routed with overlap.
- The input and output cable of the filter can not be routed in parallel with the control cables. But if long distance parallel route is avoidless, it is recommended to use twisted shielded pairs.
- The input filter needs to be installed to the inlet of the metal chassis, but the output filter needs to be installed to the outlet of the metal chassis.



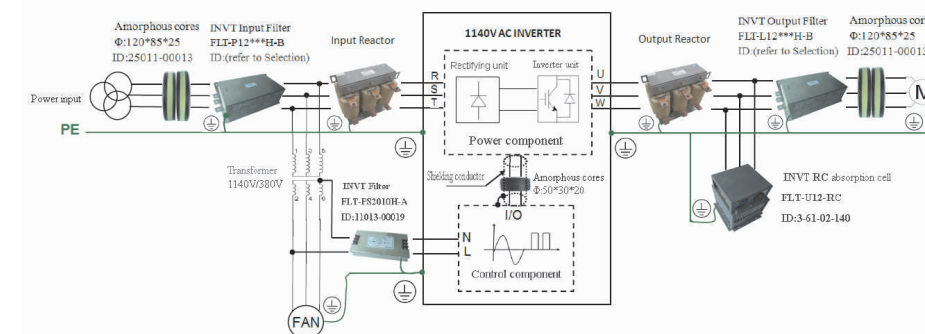
Ground connection

Typical solutions

Explosion-proof inverters solution

Internal layout:

1140V AC Inverter set-up diagram of system configuration



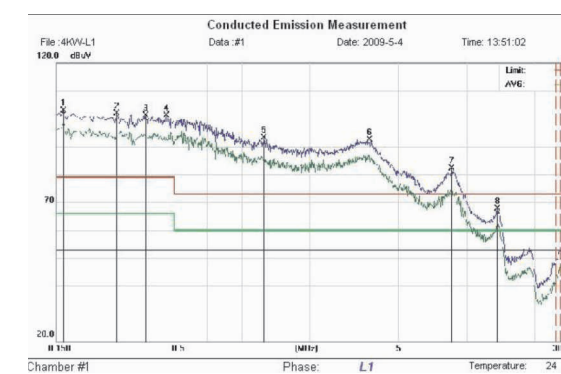
Note : Recommend shielded cable as inverter input and output line for better EMC performance.



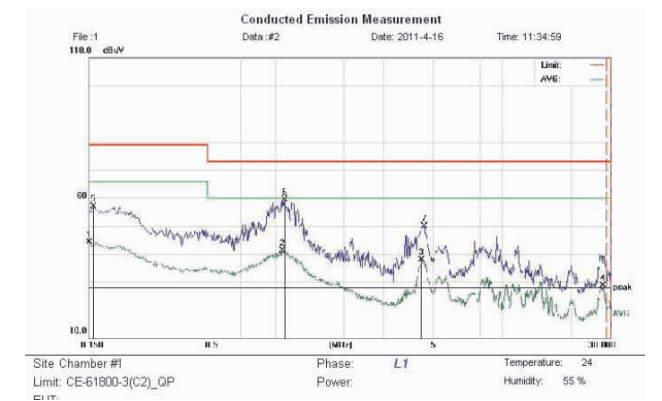
Internal picture



Test site—CE

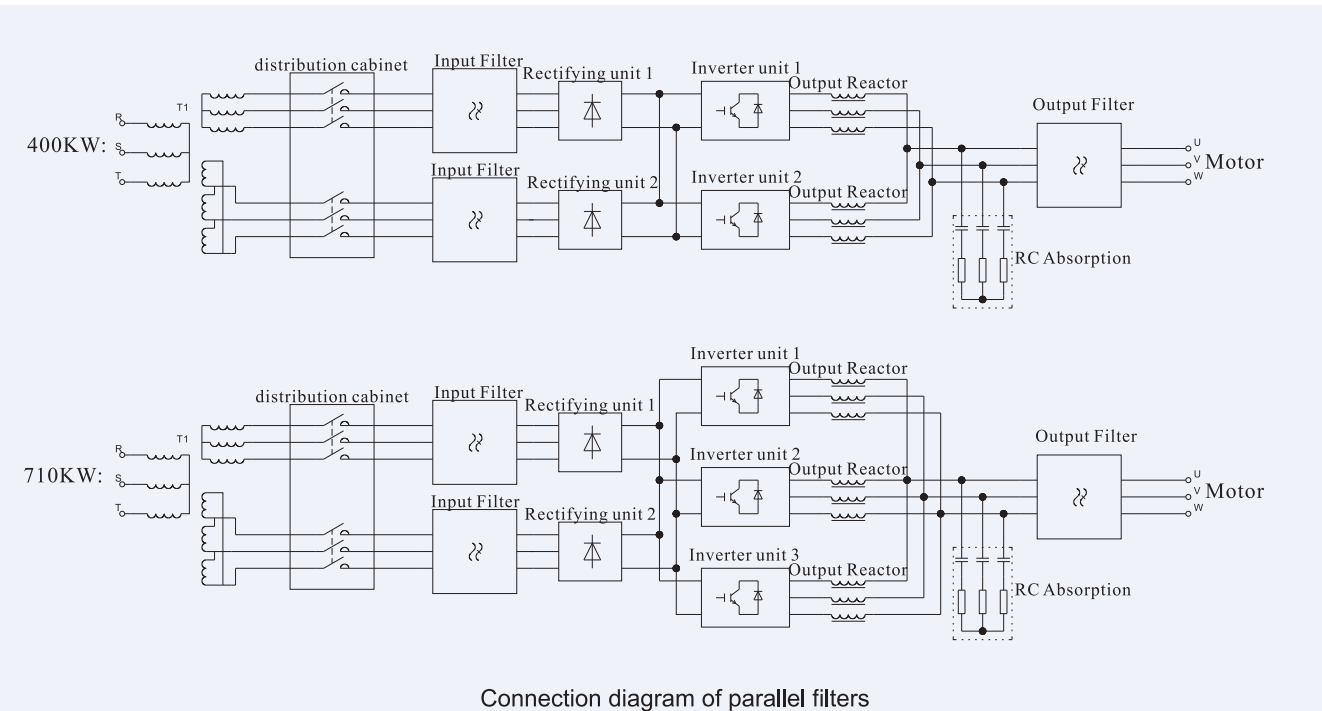


Without installing filter



With installing filter

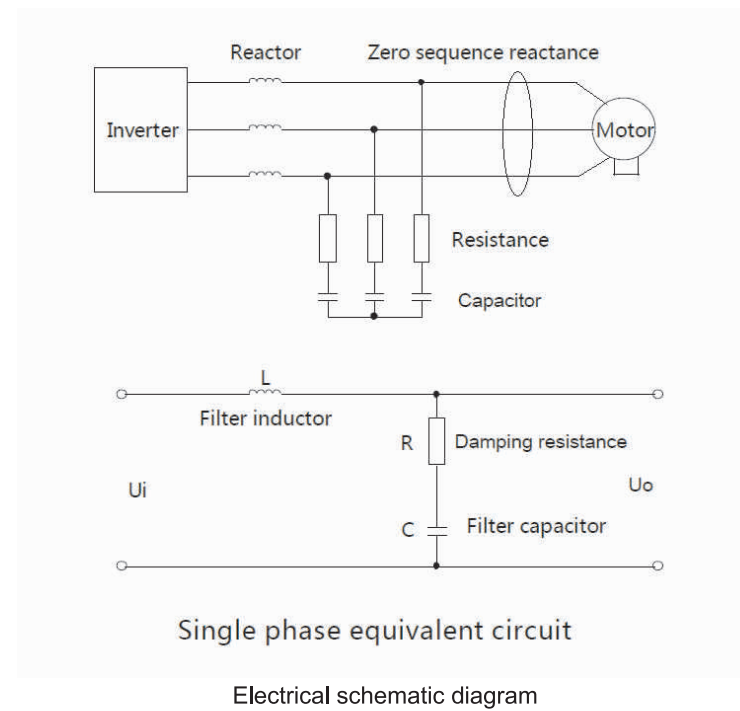
High protection inverter-12 pulse



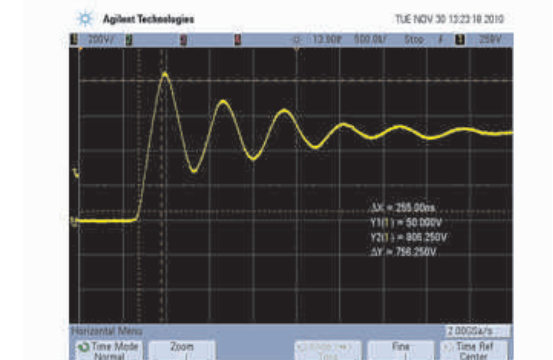
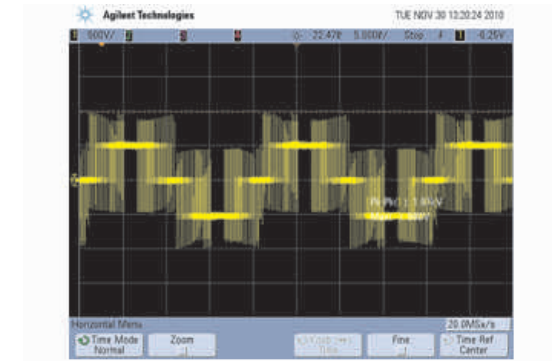
Internal layout



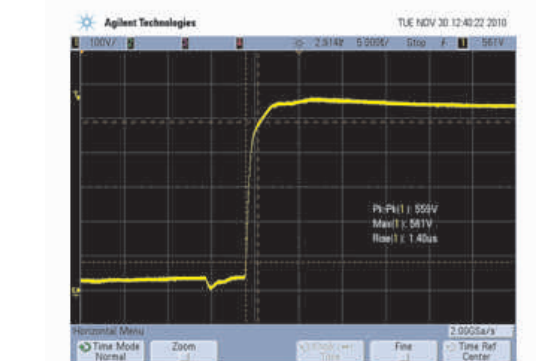
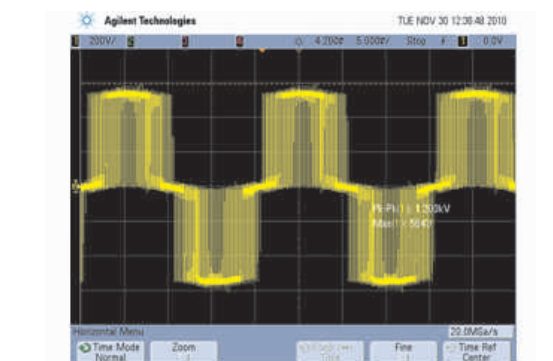
Integrated solution of preventing motor burn



Lab layout



Test data without integrated solution:
dv/dt=2965 v/us



Test data with integrated solution:
dv/dt=401 v/us

Motor terminal result