

EMI Power Filter



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/ About us

INVT (Shenzhen INVT Electric Co., Ltd) has been concentrating on industry automation and energy power since its foundation in 2002 and is committed to "Providing the best product and service to allow customers more competitiveness". INVT goes public in 2010 and is the first A-share listed company (002334) in Shenzhen Stock Exchange in the industry. At present, INVT owns 15 subsidiaries and more than 4000 employees, over 40 branches, forming a sales network covering more than 100 overseas countries and regions.

INVT has been awarded as the Key High-tech Enterprise of National Torch Plan based on mastering of key technologies in power electronics, auto control and IT. With business covering industry automation, electric vehicle, network power and rail transit, INVT has established 11 R&D centers nationwide, boasts more than 1300 patents and owns the first lab in the industry awarded ACT qualification from TÜV SÜD, UL-WTDP and CNAS National Lab. The industrial parks in

Shenzhen and Suzhou aim to provide customers with advanced integrated product development design management, comprehensive product R&D test and auto informational production. The worldwide INVT branches and warranty service centers are ready to offer customers all-around back-ups including professional solutions, technical trainings and service support.

In the next decade, INVT will continue to take "Honesty and Integrity, Professionalism and Excellence" as our business philosophy, enhance core business sectors including industrial automation, electric vehicle, network power and rail transit based on the three major technologies in industry automation and energy power fields, and strive to become a leading, responsible and harmonic international professional group armed with proper product structure, leading technologies, efficient management, robust profitability and superior competitiveness.

Industrial Park in Suzhou

Group's core industrial base and R&D center in East China



Industrial Park in Guangming Shenzhen

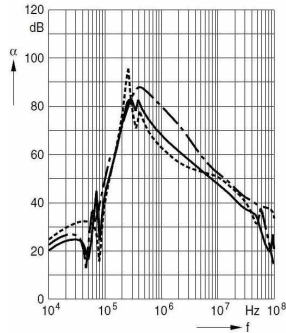
Group headquarters, new product development and new business incubation base



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 $Z=50\Omega$)

- 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

FLT-P04016L-B

FLT: EMI Filter

P: Input Filter L: Output Filter S: Sin Filter U: dv/dt Filter

S2: 1Ph 220Vac 02: 3Ph 220Vac 04: 3Ph 400Vac 06: 3Ph 690Vac 12: 3Ph 1140Vac

016: 16

L: Common H: High Performance

A: Category C1 B: Category C2 C: Category C3

Filter selection

PCB Input Filter selection

Voltage	Input Filter	Order Num	Current(A)
1Ph 220V	FLT-PS2010H-A-PCB	11013-00069	10
3Ph 400V	FLT-P04006L-B-PCB	11013-00068	6
	FLT-P04016L-B-PCB	11013-00070	16
	FLT-P04032L-B-PCB	11013-00071	32

Single-phase 220VAC Filter selection

Input Filter	Order Num	Current(A)
FLT-PS2003H-A	11013-00018	3
FLT-PS2010H-A	11013-00019	10

Three-phase 400VAC Input /Output Filter selection

Input Filter	Order Num	Output Filter	Order Num	Current(A)
FLT-P04006L-B	11013-00005	FLT-L04006L-B	11013-00032	6
FLT-P04016L-B	11013-00006	FLT-L04016L-B	11013-00033	16
FLT-P04032L-B	11013-00007	FLT-L04032L-B	11013-00034	32
FLT-P04045L-B	11013-00008	FLT-L04045L-B	11013-00035	45
FLT-P04065L-B	11013-00009	FLT-L04065L-B	11013-00036	65
FLT-P04100L-B	11013-00010	FLT-L04100L-B	11013-00037	100
FLT-P04150L-B	11013-00013	FLT-L04150L-B	11013-00040	150
FLT-P04240L-B	11013-00020	FLT-L04240L-B	11013-00042	240
FLT-P04400L-B	11013-00015	FLT-L04400L-B	11013-00043	400
FLT-P04600L-B	11013-00016	FLT-L04600L-B	11013-00044	600
FLT-P04800L-B	11013-00017	FLT-L04800L-B	11013-00045	800
FLT-P041000L-B	11013-00011	FLT-L041000L-B	11013-00038	1000

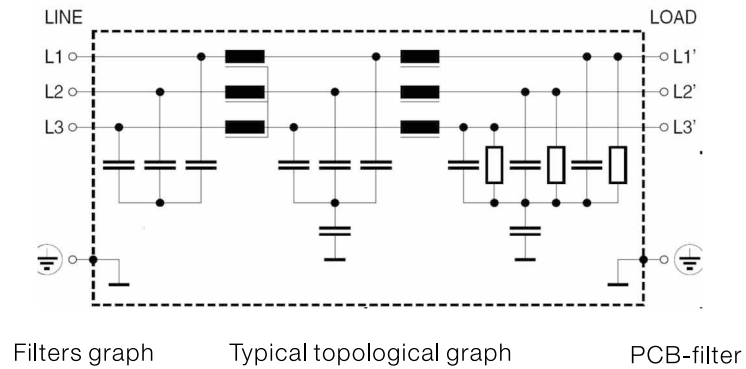
Three-phase 690VAC Input /Output Filter selection

Input Filter	Order Num	Output Filter	Order Num	Current(A)
FLT-P06050H-B	11013-00048	FLT-L06050H-B	11013-00055	50
FLT-P06100H-B	11013-00049	FLT-L06100H-B	11013-00056	100
FLT-P06200H-B	11013-00051	FLT-L06200H-B	11013-00058	200
FLT-P06300H-B	11013-00026	FLT-L06300H-B	11013-00059	300
FLT-P06400H-B	11013-00052	FLT-L06400H-B	11013-00060	400
FLT-P061000H-B	11013-00050	FLT-L061000H-B	11013-00057	1000

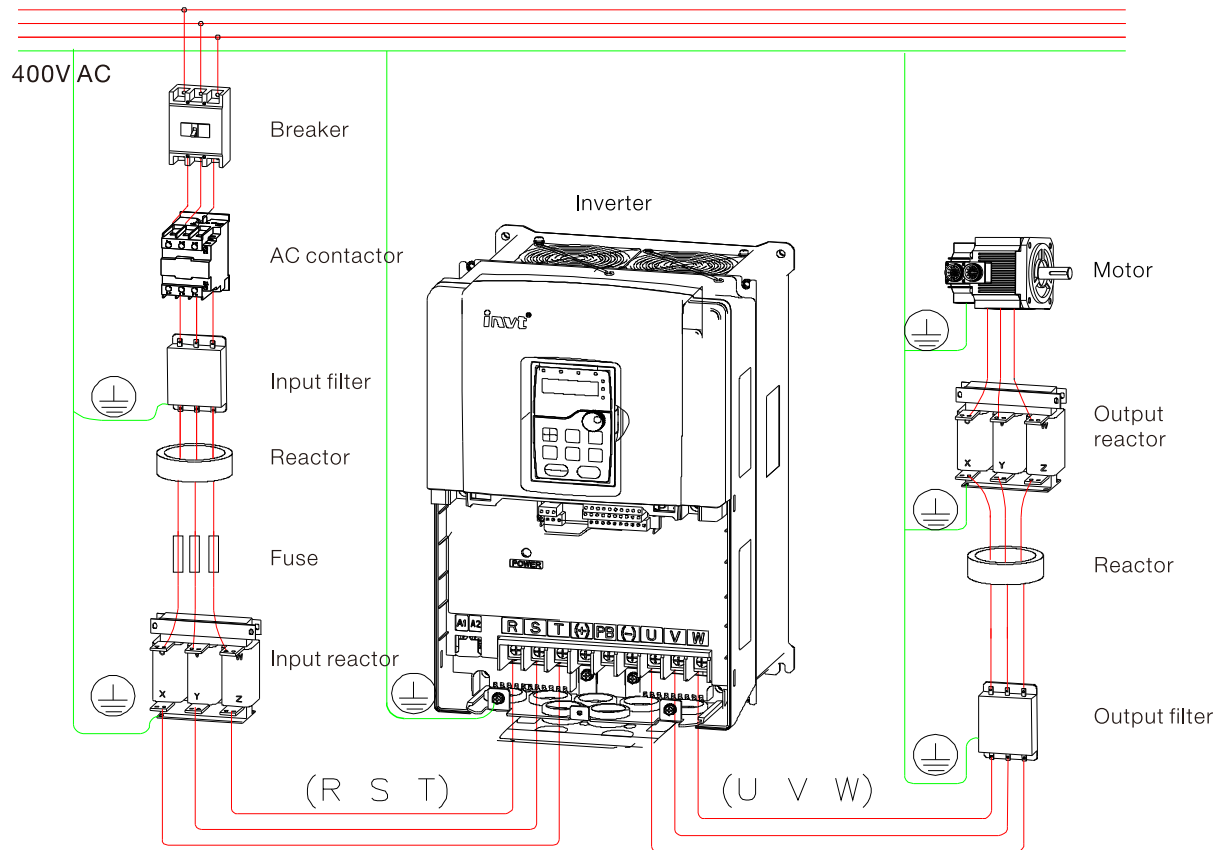
Three-phase 1140VAC Input /Output Filter selection

Input Filter	Order Num	Output Filter	Order Num	Current(A)
FLT-P12050H-B	11013-00021	FLT-L12050H-B	11013-00027	50
FLT-P12100H-B	11013-00022	FLT-L12100H-B	11013-00028	100
FLT-P12200H-B	26001-00003	FLT-L12200H-B	11013-00066	200
FLT-P12300H-B	11013-00023	FLT-L12300H-B	11013-00029	300
FLT-P12400H-B	11013-00063	FLT-L12400H-B	11013-00064	400
FLT-P12600H-B	11013-00024	FLT-L12600H-B	11013-00030	600
FLT-P12800H-B	11013-00025	FLT-L12800H-B	11013-00031	800
FLT-P121000H-B	26001-00006	FLT-L121000H-B	26001-00007	1000

Filter schematic



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-PS2010H-A	180	158	167	70	40	47	1.0				
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				
	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				
	FLT-L04100L-B											
	FLT-P04150L-B	330	290	268	163	104	140	9				
	FLT-L04150L-B											
	FLT-P04240L-B	483	386	286	220	200	126	11				
	FLT-L04240L-B											
	FLT-P04400L-B	590	540	508	263	196	210	34	d	D	Copper bars	
	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-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

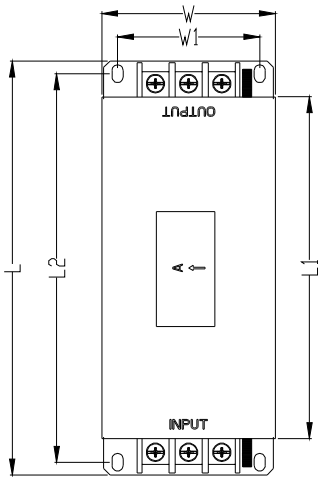


Figure A

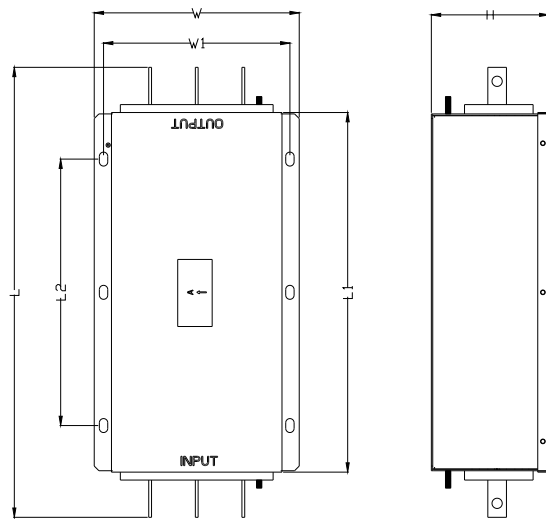


Figure B

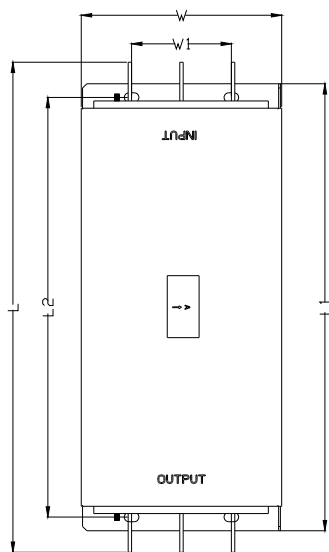


Figure C

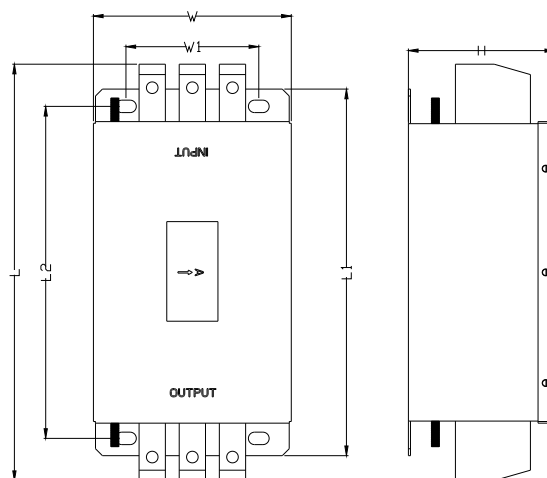


Figure D

[Hole size \(OB\) \(unit: mm\)](#)

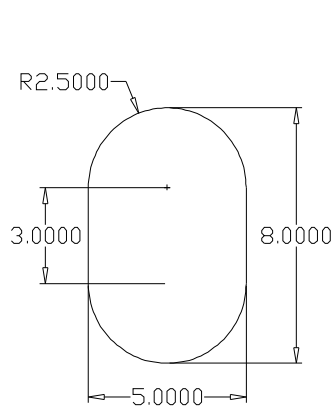


Figure a

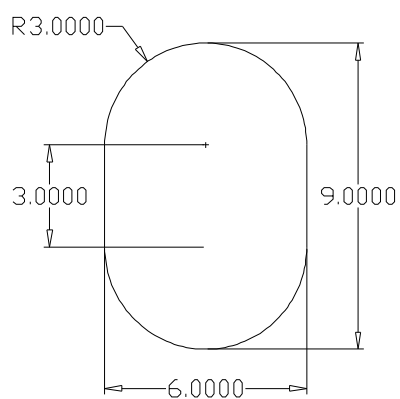


Figure b

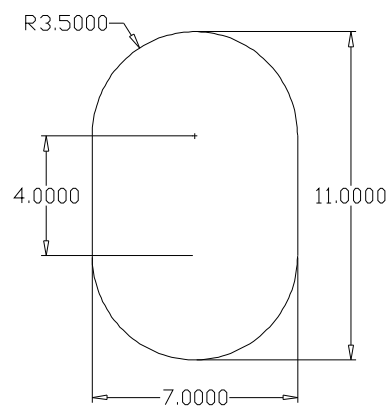


Figure c

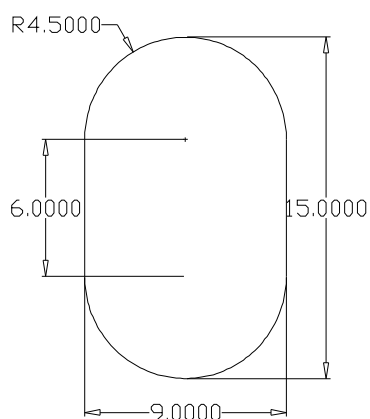


Figure d

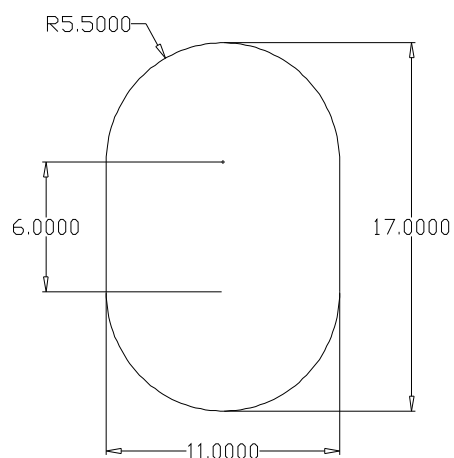
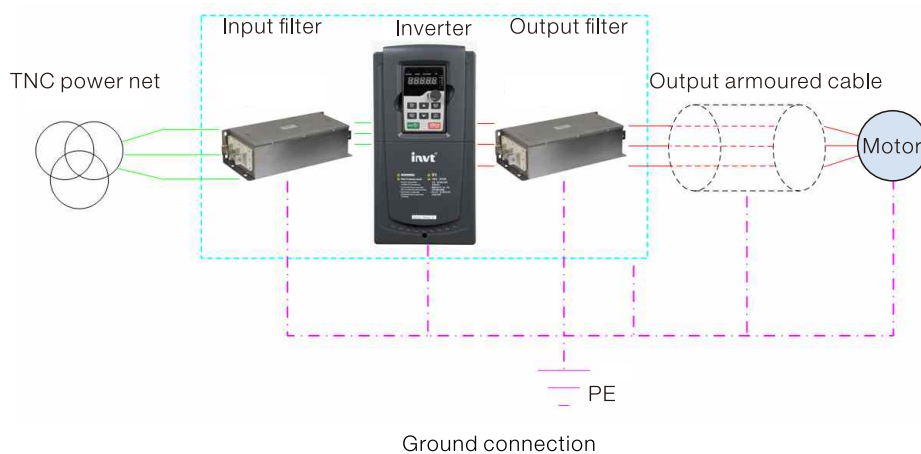


Figure e

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.

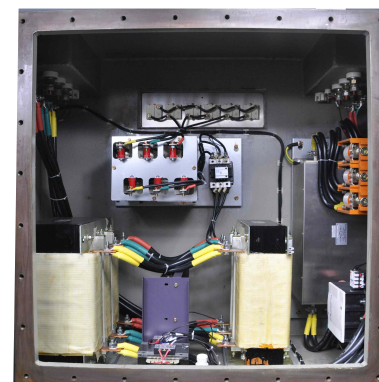
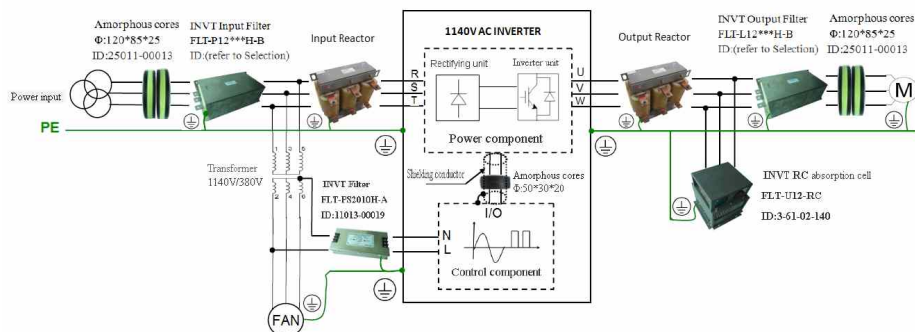


Typical solutions

Explosion-proof inverters solution

Internal layout:

1140V AC Inverter set-up diagram of system configuration

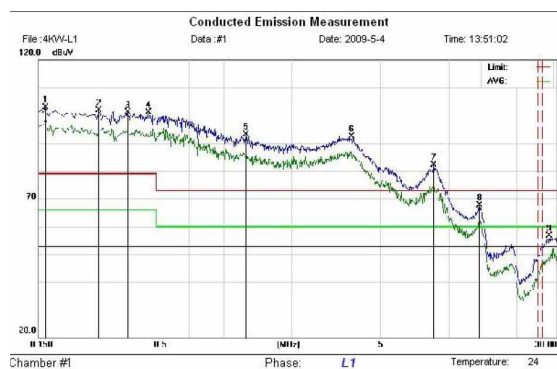


Note : Recommend shielded cable as inverter input and output line for better EMC performance.

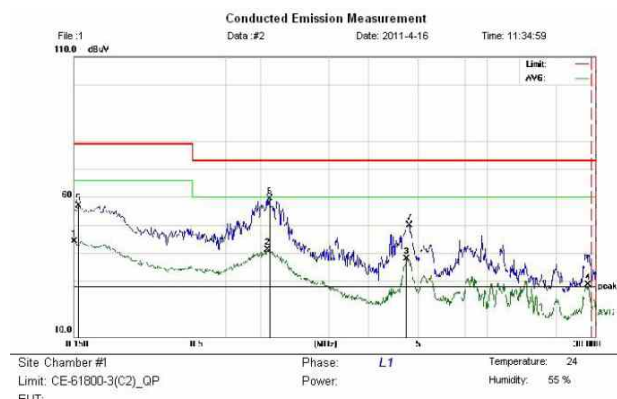
Internal picture



Test site--CE

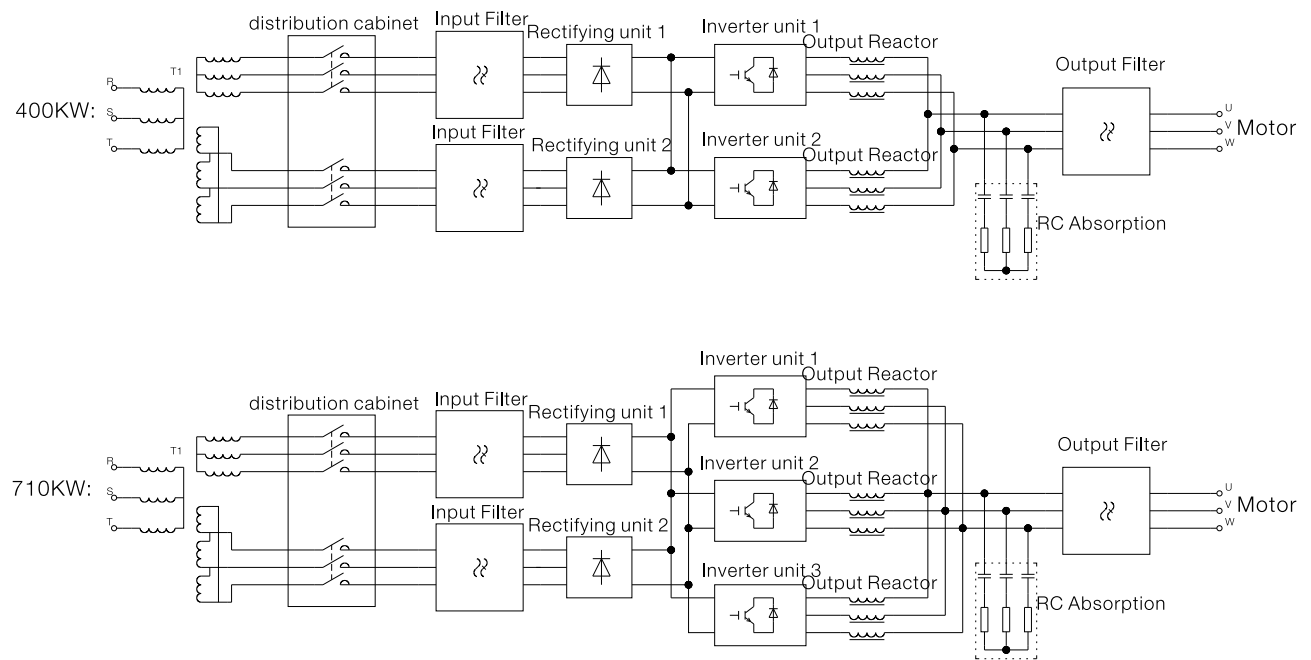


Without installing filter



With installing filter

High protection inverter-12 pulse

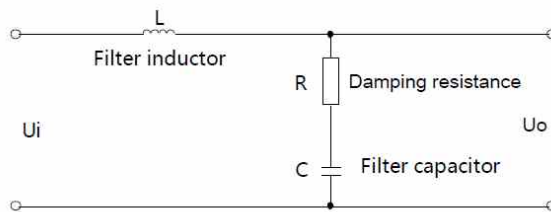
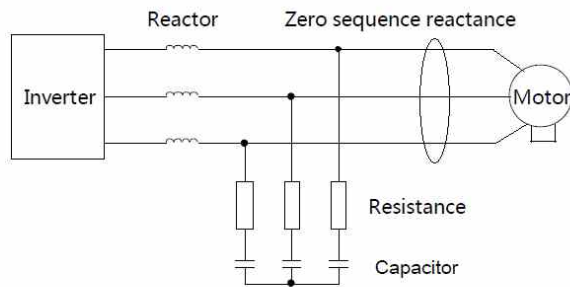


Connection diagram of parallel filters



Internal layout

Integrated solution of preventing motor burn

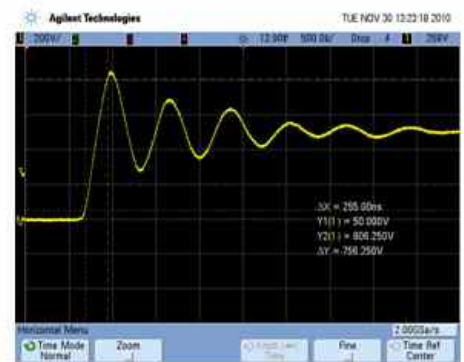


Single phase equivalent circuit

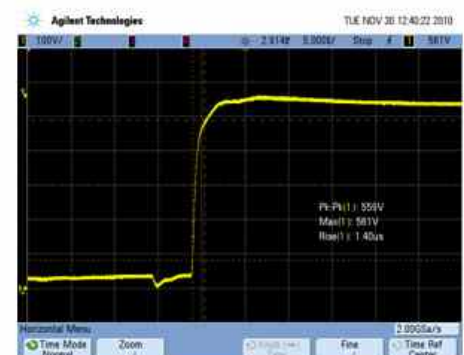
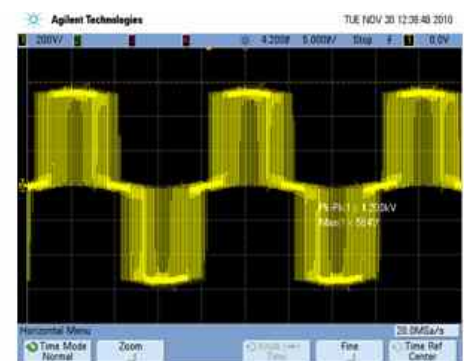
Electrical schematic diagram



Lab layout



Test data without integrated solution:
 $dv/dt=2965 \text{ v/us}$



Test data with integrated solution:
 $dv/dt=401 \text{ v/us}$

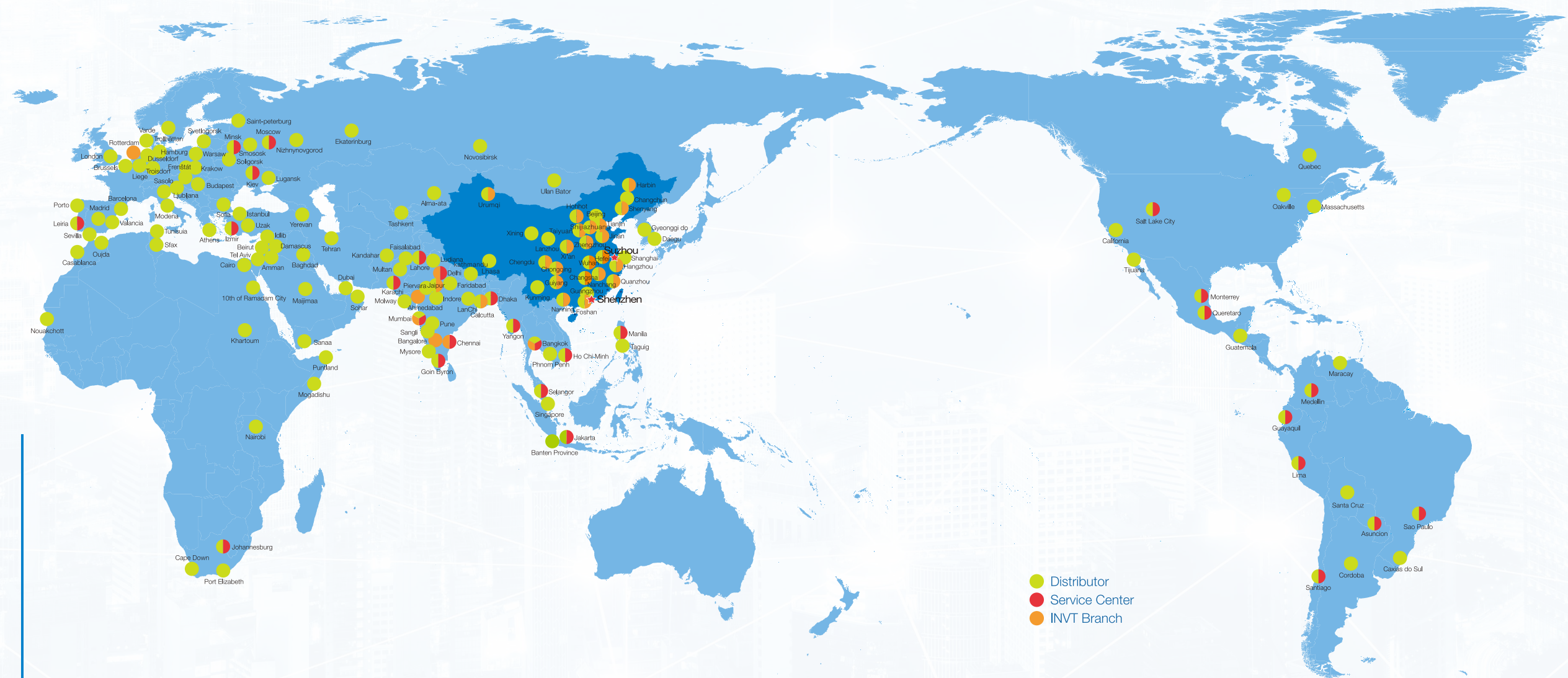
Motor terminal result

Factories * **3**

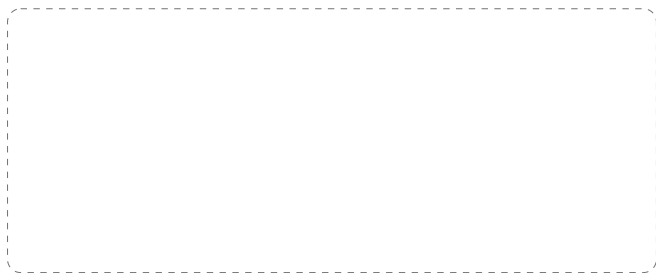
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