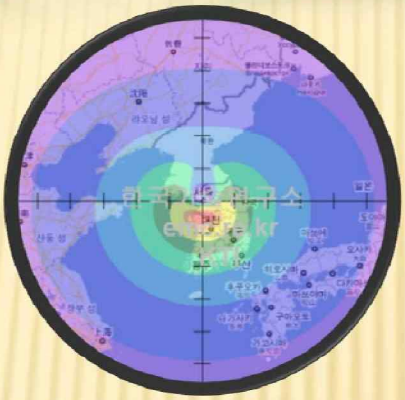
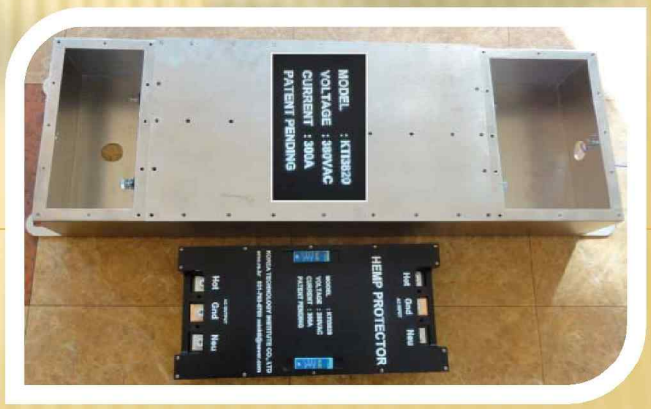
Never seen, Never before, Patented unique Technology

HEMP Power Line Filter





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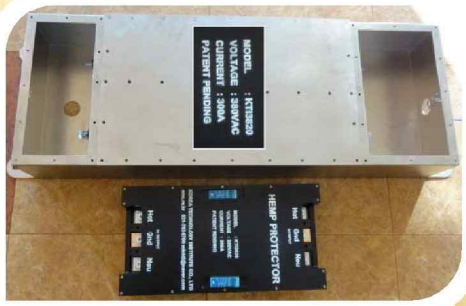
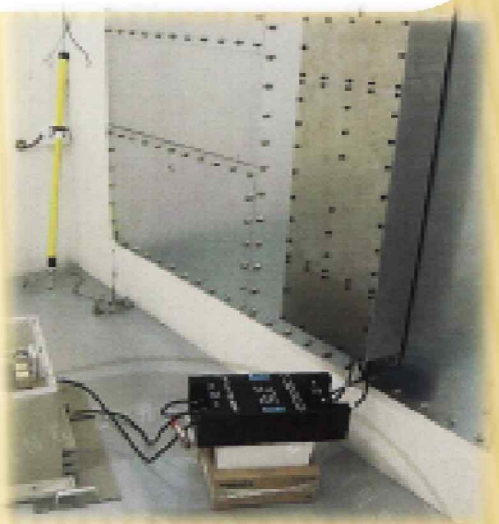
HEMP Power line Filter with Protector

KTI newly developed the intelligent power line filter with HEMP protector which could fully satisfied the MIL STD 188-125-1/2 based on the 25 years expert.

Main features (patent pending)

- 250 Vac to 380 Vac(35A-400A)
- *ns* high speed response time and high reliability
- Automatic monitoring function of the high voltage protector circuit
- Complies with IEC 950, UL 94-V0 insulating material used
- Extremely lowest residual HEMP current
- Easy to replacement for safety, component evaluation; modular type protector
- Short circuit protection of the varistor.
- Ground functionally separated and/or one body style advanced design
- MTBF : Minimum 3 years





Electrical characteristics

-Test voltage : EN 133200 .Y2 5,000V , 2 second for capacitor
-Insulation Resistance : higher than 100MΩ
(Prior to fitting discharge resistor)
-Temperature : -25 to +50
-Leakage current : 1- 5A at 250vac, 60Hz
-Peak surge current : higher than 100kA tested by intermediated pulse
1.5/3,000μs Gas arrestor + varistor multi stage combination protector, patent pending

Selection guidance of the HEMP/HPEM power line filter

-Check on the varistor fails: fire, circuit open, short and quality degradation.
-Fully meet the class II, IEC61643-1 and EN 133200 Y2
-Display and monitoring function of the varistor failures and protections

MIL STD 188 125 Certified

Nominal insertion loss : see attached test results

Transient current limit performance on the MIL STD 188-125-1/2

Tested on the MIL STD 188-125-1/2 acceptance test, 20/500ns						
Injected pulse current [A]	250	500	1,000	2,000	2,500	5,000
Residual current limit on requirement	10A	10A	10A	10A	10A	10A
Typical throughput residual current	1A	1A	1A	2A	3A	4A

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PARTS OTIMUM DESIGN

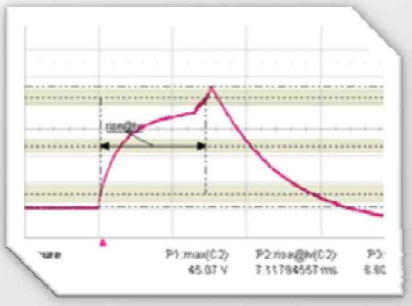
Feed through capacitor
.0.1- 2uF
.5,000V. 2 second
.30A-500A
.220- 380Vac

25 years
KTI

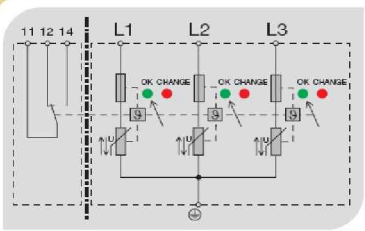
Optimum section of high mu materials
. 30 A- 500A
. Insulation resistance
. Internal magnetic shield

High voltage protector design
. Response time
. Heavy duty transient current
. Monitoring functions of MOV
. Easy replacement

Optimum mechanic design & passed the PCI tests.



HEMP PROTECTOR SPECIFICATIONS



	Primary protector	2nd protector
IEC 61643-A		Class I, II
Intermediate pulse worst test 1.5/3,000 , 250A. 50 times repeated test	No damages & degradation over 100kA	No degradation
Rated leakage current at 8/20us		20kA
Max. leakage current at 8/20us		70kA
Response time	few μs	10 ns
Back up fuse, max.	None	125A
Protection level Up(typ.)	800V +/-20%	1.3kV
MTBF at 1.5/3,000us, 250A	Minimum 3 years at 20 times lightning per year	
Monitoring contact	None	Press in/out
Visual indicator	None	Green: ok Red : replace

ISO 17025 CERTIFICTIONS, PCI TEST

YOUR PARTNER FOR THE BEST QUALITY

TEST REPORT

성적서번호 : R-D2012-0001
페이지(1) / (총 13)

1. 의 뢰 자
   - 업 체 명 : ㈜한국기술연구소
   - 주 소 : 경기도 광주시 도척면 상림리 51-19
   - 의뢰일자 : 2012. 01. 06

2. 시험성적서의 용도 : PCI 시험에 대한 필터 성능평가용

3. 시험대상품목 또는 물질, 시료명
   - 시험품명 : HEMP Power Line Filter
   - 모 델 명 : HEM38P300
   - 제 조 사 : ㈜한국기술연구소
   - 주 소 : 경기도 광주시 도척면 상림리 51-19

4. 시험기간 : 2012. 01. 16 ~ 2012. 01. 17

5. 시험방법 : MIL-STD-188-125-1 : 2005

6. 시험환경 : 온도 (20.5 ± 1.0) ℃, 습도 (36.0 ± 1.0) % R.H., 기압 (101.0 ± 0.5) kPa

7. 시험결과 : 합 격

확 인	시험자 : 지 성 원	기술책임자 : 임 욱 조

2012. 02. 01

한국인정기구 인정 KTR 한국화학융합시험연구원장

위 성적서는 국제시험기관인정협력체(International Laboratory Accreditation Cooperation) 상호인정협정(Mutual Recognition Arrangement)에 서명한 한국인정기구(KOLAS)로부터 공인받은 분야에 대한 시험결과입니다.

KTR KOREA TESTING & RESEARCH INSTITUTE KTR-WI-ETRF001-05 Rev.No.3

발행번호 : R-D2012-0001
6 / 13

3.1.4 시험결과

1) 단펄스(Short pulse) 시험

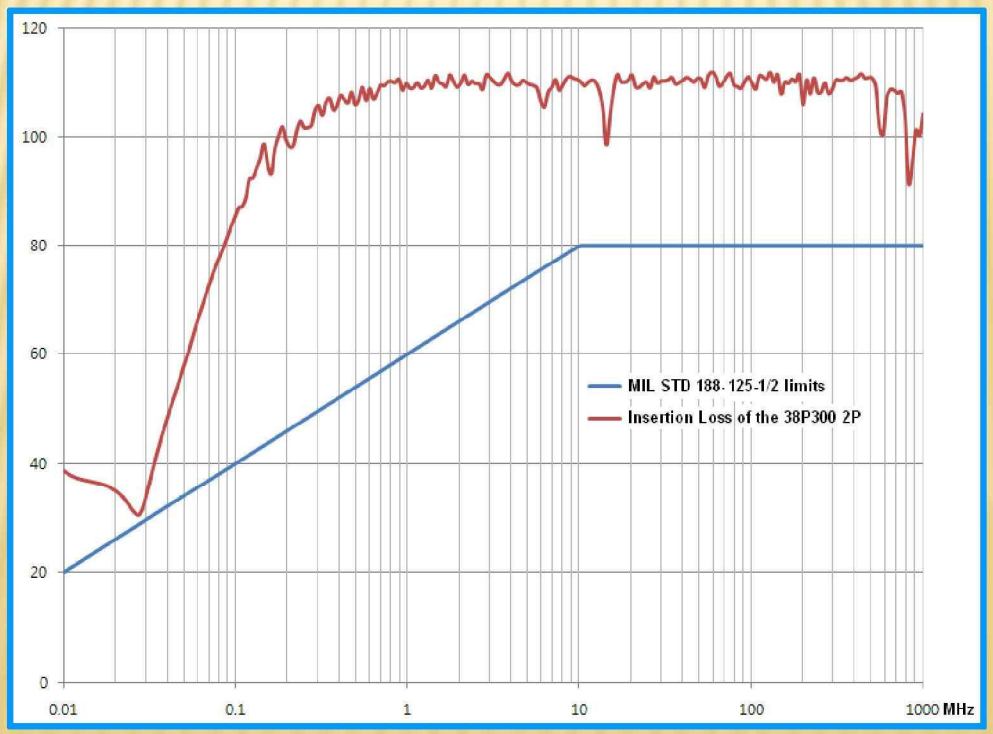
- 시험일 : 2012년 01월 16일
- 주입 형태 : 선/그라운드(직접 결합)

주입 위치	주입 전류		잔류 전류			결 과 (Pass/Fail)	비 고
	주입률 [%]	최대값 [A]	최대값[A]	상승률[MA/s]	Root action [mA√s]		
			≤ 10	≤ 10	≤ 180		
Hot	10	250	0.4	0.1	2.7	Pass	
	20	500	0.5	0.1	3.3	Pass	
	40	1 000	0.5	0.1	3.3	Pass	
	80	2 000	0.5	0.1	3.3	Pass	
	100	2 500	0.7	0.1	4.6	Pass	
Neu	10	250	0.4	0.1	2.8	Pass	
	20	500	0.5	0.1	3.5	Pass	
	40	1 000	0.6	0.1	3.8	Pass	
	80	2 000	0.5	0.1	3.6	Pass	
	100	2 500	0.7	0.1	5.0	Pass	

2) 중펄스(Intermediate pulse) 시험

- 시험일 : 2012년 01월 17일
- 주입 형태 : 선/그라운드(직접 결합)

주입 위치	주입 전류		성능 평가	결 과 (Pass/Fail)	비 고
	주입률 [%]	최대값 [A]	손상 또는 성능저하가 없을 것		
Hot	10	25	손상 또는 성능저하 없음	Pass	
	20	50			
	40	100			
	80	200			
	100	250			
Neu	10	25			
	20	50			
	40	100			
	80	200			
	100	250			



Insertion loss tested by the KTI, MIL 220C

HEMP POWER LINE FILTER SPECIFICATIONS

Product model	Current rating	Voltage rating	Phase	Max.dc break* down(V)	Dimension(mm)			Weight (kg)
					Lengths**	Width	Depth	
HEM	35	380/	3P	5,000	500	500	120	30
22P35		220ac	2P	2,250	500	250	120	15
HEM	65	380/	3P	5,000	750	640	170	60
22P65		220ac	2P	2,250	750	320	170	30
HEM	100	380/	3P	5,000	800	700	230	80
22P100		220ac	2P	2,250	800	350	230	40
HEM	200	380/	3P	5,000	950	900	250	130
38P200		220ac	2P	2,250	950	450	250	70
HEM	300	380/	3P	5,000	1200	900	250	200
38P300		220ac	2P	2,250	1200	450	250	120
HEM	400	380/	3P	5,000	1600	960	250	230
38P400		220ac	2P	2,250	1600	480	250	130

All of the parameter could be changed depending upon the user requirements

* Tested voltage for 3 phase 380Vac : by EN 132400 at 5,000Vdc, 2 second

Tested voltage for 220Vc : 2250Vdc

** Length is depend on the filter performance, here is a nominal length

- Delivery : 1-2 months after the 30% prepayment

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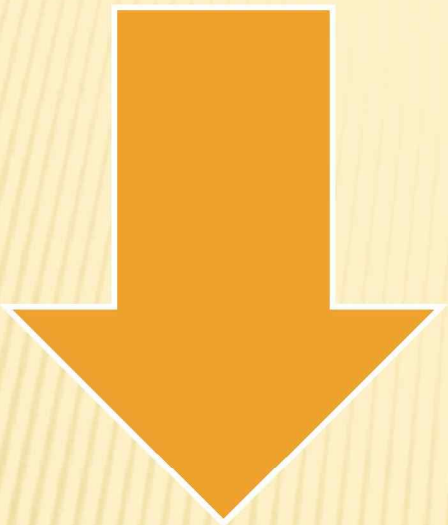
KTI 제품과 외국제품간의 성능비교

외제보다 성능이 떨어지면 국산을 사용하지 마십시오



???

- 2단 보호회로 채택
- 100kA 이상 전류 내량을 갖도록 설계
- 최소 3년 이상 품질보증, 20회/년 낙뢰 및 EMP인가 시
-낙뢰에도 동작하여 성능이 저하되는 바리스터의 치명적 결함에 의한 화재, 주계전기 동작을 사전 방지하는 기능
-과전압 보호소자의 교체 및 시험의 편리성
-과전압 보호소자 교체시 작업자 안전성
-과전압 보호소자의 성능감시 기능
- 장펄스(Long pulse) 대책기능(Option)