MANUAL FOR

ULTRA ISOLATION TRANSFORMER

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1.1 INTRODUCTION

Reliance Electrical's Isoline power Line Noise Isolator is an ultra-isolation Transformer which prevents passage of line voltage transient, spikes and galvanic leakage from reaching sensitive or critical equipments like computers and its peripherals , Signalling Instruments, digital communication and Telemetry systems, etc.

Isoline range employs a unique multiple shielding technique that reduce the inter winding capacitance to below 0.1 pf and DC Isolation to over 100M ohms. Attenuation of common mode noise is around 120dB. Regulation at 230V AC is about 5%.

1.2 OPERATING INSTRUCTION

The Isolation Transformer can be used from 230V AC line. The primary of the Isoline is terminated on a terminal block. The Secondary is also terminated on similar terminal block. The primary and Secondary shields are also brought on their respective TB.

In the diagram provided,the'p'correspond to the input side and the'S' correspond to the output side. SH1 & SH2 are the input and output shields respectively.

1.3 SHIELDS

Both the input and output along with the cabinet should be properly grounded. In this condition best results are obtained of isolating the input and output. However the shields may be connected to their respective neutrals. In this case Isolation is much more inferior than that mentioned above.

1.4 INSTALLATION

1) The Isoline should be physically located as near to the load as Possible. If this is not practical, then use a 2 core shielded/Armoured cable to connect the Ultra-Isolation Transformer output to the load. The shield (depending on capacity) / Armour should be grounded only at the transformer end & left open at the load end.

2) The incoming should not be connected to ground.

3) It must be ensured that Isoline both and shield SH1 & SH2 are connected to the real true ground.

4) While making electrical wiring layout, care must be taken to eliminate parallel running input and output cables of transformer, even along small length. If at all wires are needed to be crossed, they should cross each other at right angles.

5) It must be ensured that mis-operation of the equipment is not due to radiated interference generated by arcing, sparking and such like, which is taking place near to the unit.

6) It should be ensured that the noise is not entering the unit from other wires connected to it and which may be susceptible to pickup radiated interference from disturbances as mentioned above.

7) Connect 0.01 mfd. 1000V cap across the secondary of transformer if required.

8) The input and output wires should be passed through the entry holes provided on the cabinet.

9) If there is some voltage present between output neutral and ground then connect 0.1 mfd/1000V cap. between output neutral and ground or otherwise short the output neutral & ground.

1.5 VOLTAGE REGULATION

Input voltage 230V constant
Output voltage at No load Vn
Output voltage at Full load Vf
Regulation of Transformer $= \frac{Vn - Vf}{Vn} \times 100\%$

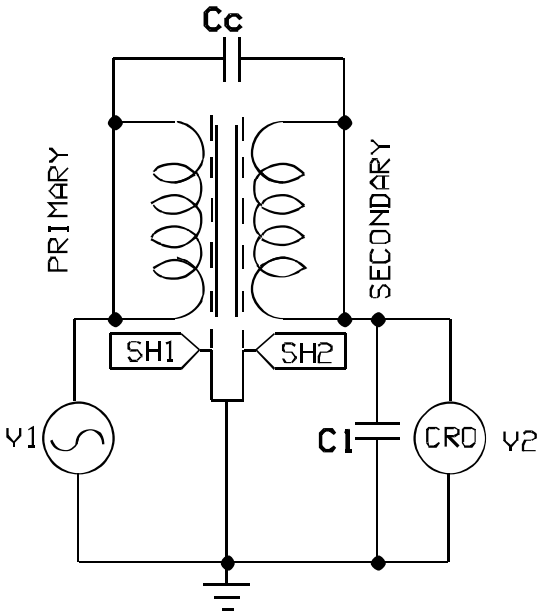
1.6 BREAK DOWN STRENGTH

For two minutes at 2.5KV AC
Between Primary & Ground
Between Secondary & Ground
Between Primary & Secondary

1.7 DC GALVANIC ISOLATION

More than 100 Magaohms (1000V Megger)
Between Prim & Ground
Between Secondary & Ground
Between Primary & Secondary

1.8 **COUPLING CAPACITANCE :** Typically 0.1 pf



Primary are shorted on input side
Secondary are shorted on output side.
Both input and output shields are grounded

Voltage of approx. 1000V rms/400Hz are applied between input winding and ground.

As oscilloscope with good sensitive and capacitor 100Kpf connected across output winding and ground.

Using the formula given below coupling capacitance is calculated.

$$Cc = \frac{V2}{V1} \times 100 \text{ Kpf}$$

Where V2 = CRO Reading (rms)

Note : It should be ensured while measuring V2 that 50Hz Pick up is completely eliminated by proper fitting of both cover of Isoline

Common Mode Noise Rejection : Over 120dB.

$$20 \text{ Log } \frac{V1}{V2} \text{ dBs}$$

2.0 TECHNICAL SPECIFICATIONS

2.1	Input Voltage	: 230V AC nominal
2.2	Acceptance Input Range	: +/- 15%
2.3	Output Voltage	: 230V AC
2.4	Mode of Operation	: 1 : 1 Isolation Transformer
2.5	Common Mode Noise Rejection (Transient Spikes, surges)	: Over 100dB
2.6	Coupling Capacitance	: < 0.1 pf
2.7	DC Galvanic Isolation	: Over 100M ohms between any winding of winding to ground at 50% R.H. & 25°C
2.8	Breakdown Strength	: 2000V AC for 1 min. as per IS-6297 (part-I)
2.9	Acceptance Line Freq.	: 47 to 63 Hz
2.10	Load Regulation	: Within 5%
2.11	Termination	: On terminal Block