

## Isolation Transformers

With ever increasing use of precision electrical equipment, the requirement for clean and regulated power is a must. Autoronica has designed a complete line of Power Conditioning Products to ensure that your electrical equipment is protected from sags, surges, spikes, ground noise and other electrical problems that can destroy sensitive electrical equipment. Our Power Conditioning products range from 1000VA up to 50 KVA and feature: tight voltage regulation, high line and ground noise attenuation, harmonic attenuation and tight load regulation.

**Description:** The isolation transformer is an all copper wound, K-Rated, multi-shielded, high efficiency, computer grade, low impedance, isolation transformer. The isolation transformer provides voltage transformation as well as harmonic handling and attenuation plus a new ground-neutral reference for isolating equipment in buildings with high ground noise. Autoronica Isolation Transformer, with its high common mode and transverse mode noise attenuation, fits perfectly in environments where there is a need for spike and ground noise protection.



### Features & Benefits

- ✓ Energy Conservator
- ✓ Multiple K-rating selection, K4, K7, K13, K20
- ✓ All copper windings and conductors
- ✓ Designed for linear and non-linear loads
- ✓ Double Sized Neutral
- ✓ Multi-Tapped
- ✓ Attenuates triple harmonic currents from the line
- ✓ Double or triple shielded for high common mode noise attenuation
- ✓ Excellent transverse mode noise attenuation
- ✓ Optional filter for additional high frequency noise attenuation
- ✓ K13 or higher capable of handling 100% non-linear load
- ✓ Solves 88% of all typical power disturbance problems
- ✓ Low Impedance and Temperature Rise
- ✓ Category B3 load transient protection with optional TVSS
- ✓ Optional input/output breakers on single phase units
- ✓ Integral Power Distribution available (single phase)
- ✓ Remote Power Distribution available (three phase)
- ✓ International Voltage Options
- ✓ Heavy duty cabinet construction



### Applications:

- ✓ Recording Studios
- ✓ Commercial / Residential Movie Theatres
- ✓ Server Rooms
- ✓ Diode and SCR Rectifiers
- ✓ Variable Speed Drives
- ✓ Inverters
- ✓ UPSs
- ✓ Frequency Converters
- ✓ Arc Welders
- ✓ Induction Heaters
- ✓ Printing Presses
- ✓ Non-Linear Loads
- ✓ HID Lighting
- ✓ Fluorescent Lighting
- ✓ Voltage Transformation



## **K-FACTOR**

✓ **What is a K-factor?**

It is a value used to determine how much harmonic current a transformer can handle without exceeding its maximum temperature rise level. K-factor values range from 1 to 50. K-factor of 1 is used for linear loads only, and a K-factor of 50 is used for the harshest harmonic environment possible. A K-factor of 13 is typical. When transformers use a K-factor value, they are said to be K-rated.

✓ **What is a K-rated transformer?**

A K-rated transformer is one which is used to deal with harmonic generating loads. Harmonics generate additional heat in the transformer and cause non-K-rated transformers to overheat possibly causing a fire, also reducing the life of the transformer. K-rated transformers are sized appropriately to handle this additional heat and tested to UL 1561 rigid standards for K-factor rated transformers.

✓ **How does a K-rated transformer deal with the heat generated by harmonics?**

K-rated transformers use a double sized neutral conductor and either change the geometry of their conductors or use multiple conductors for the coils. Quality transformers are manufactured with a high grade silicon steel, copper windings, and more air ducts.

✓ **Where would I use a K-rated transformer?**

Anywhere non-linear loads are present. New construction, renovations, factory automation, computer rooms, and office buildings are prime locations for K-rated transformers because of the high harmonic content in these areas.

✓ **How much K-rating do I need?**

Typically a K-13 rated transformer is sufficient for most applications. Loads approaching 100% non-linear or more than 75% THD should incorporate a K-20 rated transformer.

✓ **Why are copper wound transformers better than aluminum?**

Aluminum has a tendency to creep due to change in temperature. Creeping is the contraction and expansion of the aluminum conductors. When they creep: the terminal connections loosen, creating a hazard; they eventually burn clear; and shorten the life of the transformer. Copper is more efficient than aluminum. Copper wound transformers general save money; in many cases they pay for themselves over time.

✓ **Can the Autoronica Isolation Transformer improve harmonic distortion?**

Yes. There is a 30° phase shift between input and output waveforms. When this shifted waveform is applied against a non-shifted waveform, the 5th and 7th harmonics are greatly reduced. Also, in three phase applications, the triple harmonics are trapped in the primary of the transformer and are not reflected through the building's distribution grid. The properly coordinated impedance of the **Autoronica Isolation Transformer** makes it a perfect solution for THD reduction and coordination of fault clearing devices.

✓ **How efficient is the Ultra-K?**

The **Autoronica Isolation Transformer** is 98% efficient. This high efficiency results in a low operating cost and the transformer is capable of convection cooling eliminating any cost and maintenance needed for fans or any other cooling devices.

✓ **How does the Autoronica Isolation Transformer help in distribution?**

In single phase applications, the **Autoronica Isolation Transformer** has three distribution options: Top panel receptacles, flexible extension cord with receptacle termination, and flexible extension cord with field wired termination. The three phase **Autoronica Isolation Transformer** is hardwired in and out. Power distribution is accomplished by means of a Remote Power Distribution Center (RPD) which incorporates a 42 pole board, input circuit breaker, and bottom access for flexible conduit.

**SPECIFICATIONS :-**

**Rating in KVA: -**

**Single Phase Sizes:**

1 kVA, 2 kVA, 3 kVA, 4 kVA,  
5kVA, 7.5kVA, 10kVA, 12  
kVA, 15kVA, 20kVA, 25kVA  
and 30 kVA

**Three Phase Sizes:**

10 kVA, 15kVA, 30kVA, 50kVA,  
75kVA, 100kVA, 112kVA, 125kVA,  
150kVA, 225kVA, 300kVA and  
500kVA

**Input:**

(Depending on connection) 110 Volt;  
110/250 Volt; 208 Volt or 250 Volts

**Output:**

(Depending on connection) 110 V; 110/250  
V; 208 or 250 Volts for any listed input Now  
supplied with taps permitting 208 Volt  
configurations

**Operating frequency:**

50 / 60 Hertz

**Common Mode Noise**

146dB (with triple shielding)

**Attenuation:**

**Isolated Secondary:**

Completely separate, isolated secondary  
output winding. Faraday Shield between  
primary and secondary to reduce common  
mode noise conduction.

**Efficiency**

98% or higher

**Load Regulation**

+ / 2%

**Output Impedance:**

3% to 4% (size dependent)

**Ambient :**

0°C to 40°C ambient

**Output Harmonic Distortion:**

<1% Added

**Overload:**

500% for 10 sec, 1000% for 1 cycle

**K Ratings**

K4, K7, K13 & K20 Ratings

Represented By:

**Other Products:-**

UPS

Inverters

Servo Voltage Stabilizers

Contant Voltage Transformer

Battery Chargers

Composite Power Supply System

Static Voltage Regulator/Controller

Float cum Boost Chargers

Auto-Transformers

Lightning Towers & Earthing Solutions

Surge Protection Devices