

Installation & Operation Manual

The tekmar Transformer 009 is a 40 VA, 24 V (ac) transformer for use with products that require an external transformer. The Transformer Kit 009K includes a 4" x 4" electrical J-Box.

Basic Installation

Mount the Electrical Box

- Mount the electrical box securely in the location where the transformer is to be installed.
- Mount the transformer to the electrical box. Figure 1 shows how the transformer could be mounted.

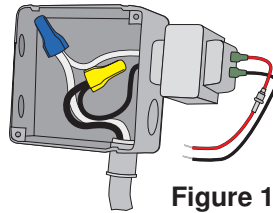


Figure 1

- Connect 120 V (ac) neutral (N) to the White (N) wire on the transformer.

Low Voltage Side:

- The low voltage terminals have male spade connectors and are labelled R and C.
- Connect the red lead (with the in-line fuse) provided with the Transformer 009 to the R spade connector on the secondary side of the transformer. Note: The fuse is rated at 250 V (ac) 2.0 A.
- Connect the black lead provided with the Transformer 009 to the C spade connector on the secondary side of the transformer.

Wiring the Transformer

High Voltage Side:

- The high voltage side of the transformer can be determined by locating the two permanently connected, black and white wires, which are factory-installed.
- Connect 120 V (ac) hot (L) to the black (L) wire on the transformer.

Sizing the Transformer Load

When sizing a transformer it is important to know the load that it will be operating. Transformers are sized based on the VA (Volt X Amps) power that they can provide. Use the sizing chart below to calculate the required VA. The tekmar Transformer 009 can supply a total of 40 VA. For loads requiring more than 40 VA you can connect multiple tekmar Transformer 009's together. The next page illustrates how to use multiple 009's to satisfy loads larger than 40 VA.

| Zone | 1 | 2 | 3 | 4 | 5 | 6 | | |
|-----------------|---------|---------|---------|---------|---------|---------|---------------------|-----------------------------------|
| Thermostat Load | | | | | | | | |
| Zone Valve Load | | | | | | | | |
| Other Load | | | | | | | | |
| Total Zone Load | + _____ | + _____ | + _____ | + _____ | + _____ | + _____ | Control Load (VA) → | |
| | | | | | | | = | Transformer must exceed: _____ VA |

Sample VA Capacities Using Multiple Transformers:

| Number of 009 Transformers | VA Capacity |
|----------------------------|-------------|
| 1 | 0 - 40 VA |
| 2 | 41 - 80 VA |
| 3 | 81 - 120 VA |

Phasing

Connecting Multiple Transformers Together

If the load exceeds 40 VA, it is possible to connect multiple tekmar Transformer 009's in order to increase the VA available and meet the requirements of the load. It is important to keep the transformers in phase when wiring multiple transformers together. Use the instructions below to wire multiple tekmar Transformer 009's in phase. Each time a transformer is added the VA capacity is increased by 40 VA. (ie. If 120 VA is required, connect 3 tekmar Transformer 009's together in phase). Figure 2 illustrates how to connect multiple transformers in phase.

High Voltage Side (Multiple transformers):

- Connect 115 V (ac) hot (L) to the Black (L) wire on all transformers.
- Connect 115 V (ac) neutral (N) to the White (N) wire on all transformers.

Phasing (continued)

Low Voltage Side (Multiple transformers):

- Connect the red leads provided with the Transformer 009 to the R spade connector on the secondary side of the transformer. Connect the tinned end of the red leads together to provide a 24 V (ac) hot location.
- Connect the black leads provided with the Transformer 009 to the C spade connector on the secondary side of the transformer. Connect the tinned end of the black leads together to provide a 24 V (ac) common location.

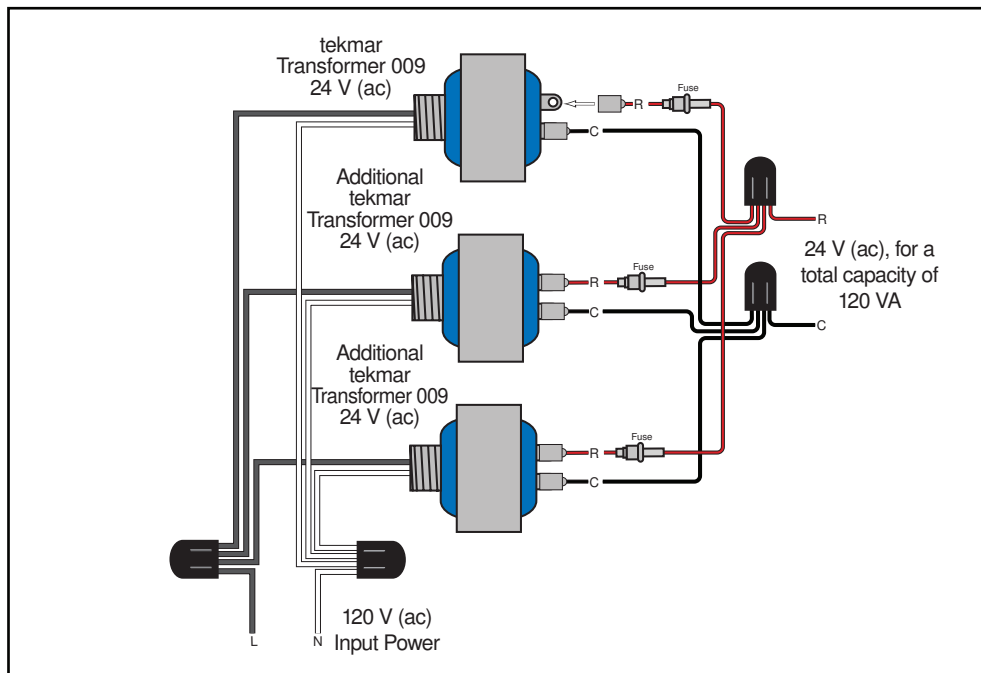


Figure 2

Technical Data

tekmar 40 VA Transformer 009

| | |
|------------------------|---|
| Approvals | CSA standard C22.2 #66 part B & UL 5085 |
| Ambient conditions | Indoor use only, 32 to 221 °F (0 to 105 °C) |
| Input Power Supply | 120 V (ac) ±10% 60 Hz |
| Output Power Available | 24 V (ac) ±10% 60 Hz, 1.67A, 40 VA, Class 2 |
| Supplied Fuse Rating | 250 V (ac), 2.0A |

Limited Warranty and Product Return Procedure

Limited Warranty The liability of tekmar under this warranty is limited. The Purchaser, by taking receipt of any tekmar product ("Product"), acknowledges the terms of the Limited Warranty in effect at the time of such Product sale and acknowledges that it has read and understands same.

The tekmar Limited Warranty to the Purchaser on the Products sold hereunder is a manufacturer's pass-through warranty which the Purchaser is authorized to pass through to its customers. Under the Limited Warranty, each tekmar Product is warranted against defects in workmanship and materials if the Product is installed and used in compliance with tekmar's instructions, ordinary wear and tear excepted. The pass-through warranty period is for a period of twenty-four (24) months from the production date if the Product is not installed during that period, or twelve (12) months from the documented date of installation if installed within twenty-four (24) months from the production date.

The liability of tekmar under the Limited Warranty shall be limited to, at tekmar's sole discretion: the cost of parts and labor provided by tekmar to repair defects in materials and/or workmanship of the defective product; or to the exchange of the defective product for a warranty replacement product; or to the granting of credit limited to the original cost of the defective product, and such repair, exchange or credit shall be the sole remedy available from tekmar, and, without limiting the foregoing in any way, tekmar is not responsible, in contract, tort or strict product liability, for any other losses, costs, expenses, inconveniences, or damages, whether direct, indirect, special, secondary, incidental or consequential, arising from ownership or use of the product, or from defects in workmanship or materials, including any liability for fundamental breach of contract.

The pass-through Limited Warranty applies only to those defective Products returned to tekmar during the warranty period. This Limited Warranty does not cover the cost of the parts or labor to remove or transport the defective Product, or to reinstall the repaired or replacement Product, all such costs and expenses being subject to Purchaser's agreement and warranty with its customers.

Any representations or warranties about the Products made by Purchaser to its customers which are different from or in excess of the tekmar Limited Warranty are the Purchaser's sole responsibility and

obligation. Purchaser shall indemnify and hold tekmar harmless from and against any and all claims, liabilities and damages of any kind or nature which arise out of or are related to any such representations or warranties by Purchaser to its customers.

The pass-through Limited Warranty does not apply if the returned Product has been damaged by negligence by persons other than tekmar, accident, fire, Act of God, abuse or misuse; or has been damaged by modifications, alterations or attachments made subsequent to purchase which have not been authorized by tekmar; or if the Product was not installed in compliance with tekmar's instructions and/or the local codes and ordinances; or if due to defective installation of the Product; or if the Product was not used in compliance with tekmar's instructions.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHICH THE GOVERNING LAW ALLOWS PARTIES TO CONTRACTUALLY EXCLUDE, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, DURABILITY OR DESCRIPTION OF THE PRODUCT, ITS NON-INFRINGEMENT OF ANY RELEVANT PATENTS OR TRADEMARKS, AND ITS COMPLIANCE WITH OR NON-VIOLATION OF ANY APPLICABLE ENVIRONMENTAL, HEALTH OR SAFETY LEGISLATION; THE TERM OF ANY OTHER WARRANTY NOT HEREBY CONTRACTUALLY EXCLUDED IS LIMITED SUCH THAT IT SHALL NOT EXTEND BEYOND TWENTY-FOUR (24) MONTHS FROM THE PRODUCTION DATE, TO THE EXTENT THAT SUCH LIMITATION IS ALLOWED BY THE GOVERNING LAW.

Product Warranty Return Procedure All Products that are believed to have defects in workmanship or materials must be returned, together with a written description of the defect, to the tekmar Representative assigned to the territory in which such Product is located. If tekmar receives an inquiry from someone other than a tekmar Representative, including an inquiry from Purchaser (if not a tekmar Representative) or Purchaser's customers, regarding a potential warranty claim, tekmar's sole obligation shall be to provide the address and other contact information regarding the appropriate Representative.

tekmar Control Systems Ltd., Canada, tekmar Control Systems, Inc., U.S.A.

Head Office: 5100 Silver Star Road, Vernon, B.C. Canada V1B 3K4, 250-545-7749, Fax. 250-545-0650 Web Site: www.tekmarcontrols.com

