







General Safety Instructions

	Warning Be sure to read, understand, and follow all safety instructions.
	Warning Only qualified electricians should carry out all electrical installation and maintenance work on V1K drive output filters.
	Warning All wiring must be in accordance with the National Electrical Code (NEC) and/or any other codes that apply to the installation site.
	Warning Disconnect all power before working on the equipment. Do not attempt any work on a powered V1K output filter.
	Warning The V1K, VFD, motor, and other connected equipment must be properly grounded.
	Warning The VFD terminals and connected cables are at a dangerously high voltage when power is applied to the VFD, regardless of motor operation.

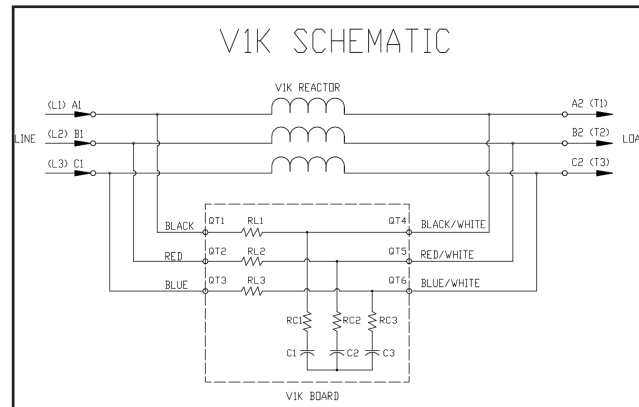
All electrical connections must be re-torqued annually.

Installation Checklist

- Access V1K installation drawings on the TCI website for unit dimensions, mounting hole pattern, mounting orientation, wire locations, unit weights, and other unit specific installation notes.
- Ensure installation location is not exposed to direct sunlight, rain or dripping liquids, corrosive liquids or gases, explosive or combustible gases or dust, excessive airbourne dirt and dust, or excessive vibration.
- Select mounting area that allows adequate cooling air and maintenance access.
- Ensure all wiring conforms to requirements of the National Electric Code (NEC) and/or other applicable electrical codes.
- Ground V1K output filter to a dedicated system ground to ensure safety and filter performance. Use properly sized grounding conductor.
- Wire output power terminals of the VFD, T1(U), T2(V), & T3(W) to input terminals of the V1K, A1, B1 & C1.
- Wire output power terminals, of V1K, A2, B2 & C2 to the motor power connections.
- Ensure VFD is set for operating modes and ranges that are compatible with the V1K Output Filter.
- Check entire system thoroughly before energizing and operating any equipment.

After receiving the unit, immediately inspect the shipping container and report any damage to the shipping carrier who delivered the unit.

Wiring Diagram



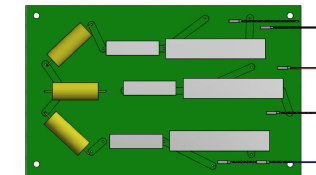
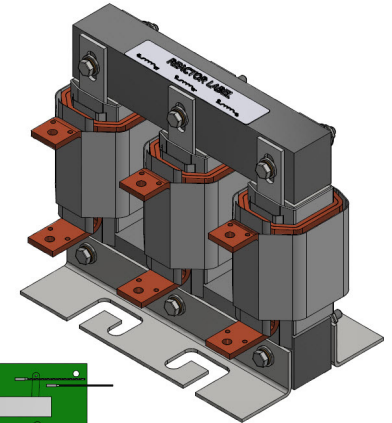
Field Wiring Connection Terminals

Compression type terminals are available for all line wiring connections. The wire size capacity ranges and tightening torque for the power terminals are listed in the table.

Reactor Part Numbers	Input and Output Motor Power		Available Board	Available Lug Kit
	Wire Size	Torque (in.-lb.)		
KDRA3R	12 - 14	10	25009	N/A
KDRA4R	12 - 14	10	25009	N/A
KDRA5R	12 - 14	10	25009	N/A
KDRA6R	12 - 14	10	25009	N/A
KDRA7R	12 - 14	10	25009	N/A
KDRA8R	12 - 14	10	25009	N/A
KDRB3R	4 - 12	20	25009	N/A
KDRB4R	4 - 12	20	25009	N/A
KDRB5R	4 - 12	20	25009	N/A
KDRB6R	4 - 8	20	25009	N/A
KDRB7R	4 - 8	20	25009	N/A
KDRD2R	6 - 8	30	25011	N/A
KDRD3R	6	30	25011	N/A
KDRD4R	1 - 4	35	25011	N/A
KDRE3R	1 - 3	35	25011	N/A
KDRF2R	2/0 - 1/0	50	25011	SLK10
KDRH2R	2/0	50	25011	SLK10
KDRI2R	250 MCM - 3/0	375	25012	SLK21
KDRI3R	Two 2/0 - 1	50	25012	SLK22
KDRI4R	Two 2/0	50	25012	SLK22
KDRG2R	Two 350 MCM - 3/0	375	25012	SLK13
KDRG3R	Two 350 MCM - 4/0	375	25012	SLK13
KDRJ3R	Two 600 - 300 MCM	500	25012	SLK14
KDRJ4R	Two 600 - 350 MCM	500	25012	SLK14
KDRL3R	Two 600 - 500 MCM	500	25012	SLK14
KDRL4R	Three 600 - 400 MCM	500	25012	SLK16



V1K Kit Installation Instructions



Product Specifications

- Current Rating: 2 - 750 Amps, 240 V - 600 V, .75 - 600 HP
- UL Listed
- Efficiency > 98%
- Insulation Rating: 600V Class
- Insulation Class: Class H (180°C or better)
- Maximum Altitude: 2000 m (6,000 ft) Derating necessary above 2000 m
- Lead Length: 1,000 ft (Specific applications could reach longer lead lengths.)
- Ambient Temp: Max 40°C

See transcoil.com/products-V1K-drawings-htm/ for component drawings and dimensions. Please contact TCI Technical Support or your TCI distributor for application information regarding the use of V1K output filters on the output side of the VFD.

TCI, LLC
W132 N10611 Grant Drive
Germantown, Wisconsin 53022
800-824-8282
www.transcoil.com

Verify the Application

Ensure V1K drive output filter is correct for the application. Current rating of V1K should be sized to handle FLA rating of motor but not exceed 110% of the drive output current rating. The V1K is best applied matched closely to the load. The V1K is not selected by the drive input current rating. Properly sized and applied, TCI guarantees V1K will limit motor terminal peak input voltage to 150% of bus voltage with wire lead length of 1,000 feet and carrier frequency of 4kHz. For best performance, V1K should be installed within 10 ft of drive.

Power Wiring

Conduit and wiring from output of VFD to motor must be routed to V1K and then to motor. TCI recommends a separate dedicated conduit run for each drive/filter/motor run unless properly shielded and segregated wiring procedures are practiced. Parasitic and induced capacitance can greatly reduce the effectiveness of filter performance. Never wire both control and power wire in same conduit unless the wire way is specifically designed for this practice. Line reactor temperature is sensitive to lead wire oversizing. Avoid lead wires more than five times oversized by copper cross sectional area regardless of material used. Use 75°C copper conductors only or the equivalent, unless the wire connector is marked for Al/Cu, then using aluminum wire is permitted. Use only copper conductor on units rated above 80 amps.

Grounding

V1K must be connected to ground of the premise's wiring system. Do so by identifying a known premise's ground near filter or running special ground dedicated for the application. Ground connection must be made using wire conductor. Metallic conduit is not suitable grounding conductor. The integrity of all ground connections should be periodically checked.

Variable Frequency Drive Settings

Ensure VFD will be set for operation modes and ranges that are compatible with V1K:

Maximum output frequency: 60 Hz

PWM switching frequency: 2 kHz - 4 kHz

Mode of operation: Do not use with DC braking unless the drive application has been confirmed by TCI. Do not use on overhauling loads without bus voltage control.



Figure 1

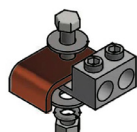


Figure 2

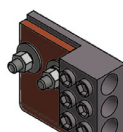


Figure 3

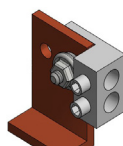


Figure 4

KDR Reactor Lug Kits

Follow NEC guidelines to determine acceptable wire ampacity requirements.

Lug Kit	Figure Number	Lug Wire Range	For Lug Torque	Bolt Assembly Torque	See Website For Lug On Reactor Drawings
SLK10	1	2/0 - 14AWG	See Table S2/0	66in-lb (7.5 N-m)	See Drawing (LK10-DWG)
SLK13	2	(2) 350MCM-6AWG	See Table 2S350	450 in-lb (50.8 N-m)	See Drawing (LK13-DWG)
SLK14	2	(2) 600MCM-4AWG	See Table 2S600	450 in-lb (50.8 N-m)	See Drawing (LK14-DWG)
SLK16	3	(3) 600MCM-2AWG	See Table T3A2-600N	450 in-lb (50.8 N-m)	See Drawing (LK16-DWG)
SLK21	1	250MCM-6AWG	See Table S250	66 in-lb (7.5 N-m)	See Drawing (LK21-DWG)
SLK22	4	(2) 2/0-14AWG	See Table S2/0	66 in-lb (7.5 N-m)	See Drawing (LK2-DWG)

Lug Torque Tables

Table S2/0		IHI Connectors		
Wire Size Copper (solid to semi-rigid stranded and metric mm, ##)	Rating C	Wire Size FLEX Copper (#)	Wire Size Aluminum	Torque (all drive means)
N/A	90	1/0-1	N/A	75 in-lb (8.5 N-m)
N/A	90	1-4	N/A	55 in-lb (6.2 N-m)
2/0-3	90	4-8	2/0-3	50 in-lb (5.6 N-m)
4-6	90	8-10	4-6	45 in-lb (5.1 N-m)
8	90	10-14	8	40 in-lb (4.5 N-m)
10-14	90	N/A	10-12	35 in-lb (4.0 N-m)
Table S250		IHI Connectors		
250 kcmil-2	90	3/0-2 AWG; 70-50 mm ²	250-2	375 in-lb (42.4 N-m)
(1),(2) 25-16 mm ² (1) 35 mm ²	90	2-6 AWG; 35-16 mm ²	2-6	275 in-lb (31.1 N-m)
Table S2/0		IHI Connectors		
Wire Size Copper (solid to semi-rigid stranded and metric mm, ##)	Rating C	Wire Size FLEX Copper (#)	Wire Size Aluminum	Torque (all drive means)
350kvmil-2	90	262-2	350-2	375 in-lb (42.4 N-m)
2-6	90	2-4	2-6	275 in-lb (31.1 N-m)
Table S250		IHI Connectors		
600 kcmil-4	90	444-2	600-4	500 in-lb (56.5 N-m)
CSA, 200116 UL Listed 84JM ZMVV E129884		(#) FLEX-covers stranding classes within G, H, I/DLO, Metric class 5 and K/MTW, (##) mm ² sizes within AWG/kcmil ranges are included		

Table T3A2-600N

- T3A2-600N
- CSA Certified
- UL 486A/B Listed, UL File E6207
- Must be mounted with a minimum of 2 bolts

Item ID	Conductor Range	Bolt/Stud Size	Hex Size	Tightening Torque
T3A2-600N	600kcmil-2AWG	1/2	1/2	500 in-lb (56.5 N-m)