



# KILOVAC KCS03 Current-Sensing High-Voltage Contactor

600 A/28 VDC - 600 VDC Bi-Directional Power Switching in a Rugged, Compact Package with Integrated Current Sensor and Current Trip Function





### AUXILIARY CONTACTS

- **Auxiliary Contacts Contact Arrangement:** SPST-NO (Form A)
- **Auxiliary Contact Rating:** 1 A/ 30VDC, 3 A/125 Vac
- **Switching Life at Max. Rating:** 100,000 cycles min.
- **Minimum Load:** 5 VDC/5 mA

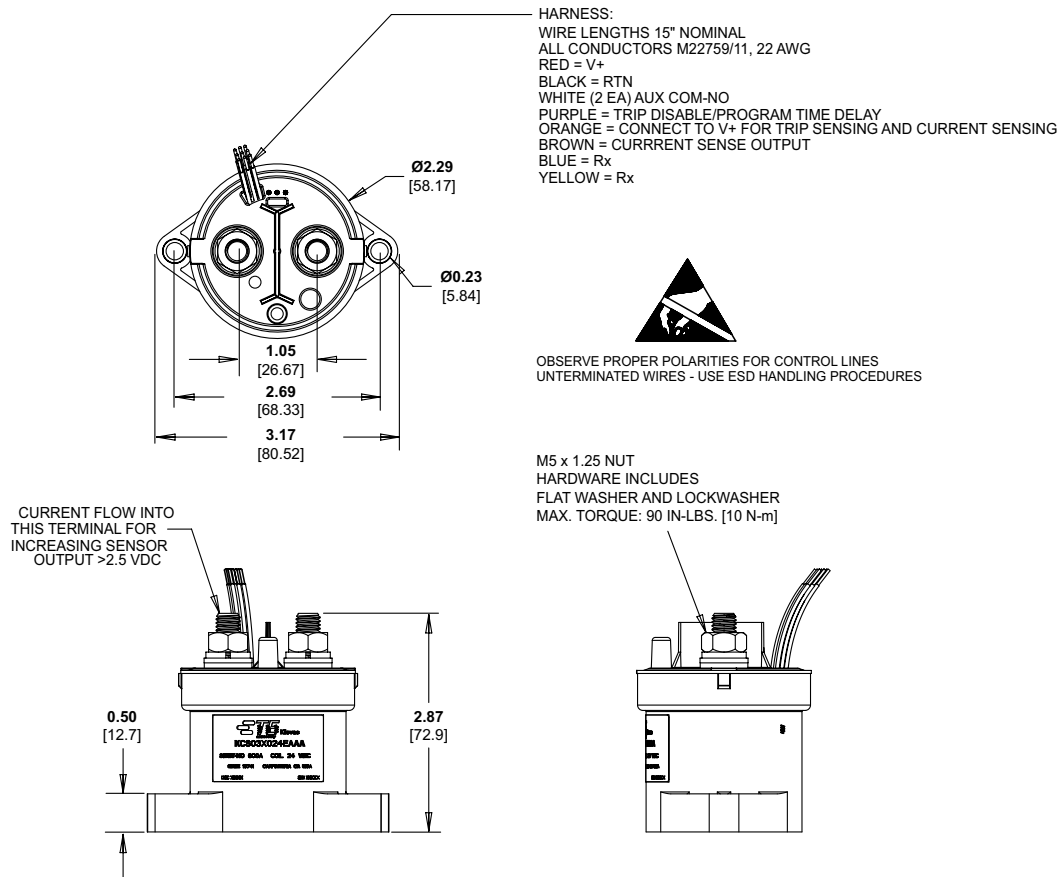
### MECHANICAL/ENVIRONMENTAL

- **Mechanical Life:** 1,000,000 cycles
- **Shock:** 11 ms 1/2 sine (operating), 20 g peak
- **Sine Vibration:** 20 g peak (operating), 55-2000 Hz
- **Operating Temperature Range:** -40 to +105 °C
- **RoHS Compliant**
- **Weight, Nominal:** 500 grams
- **Hermetically Sealed:** Safe for harsh/corrosive environments
- **Nonoxidizing:** No contact oxidation over periods of nonuse
- **Mounting:** Not position-sensitive
- **Noise Emission (at 100 mm distance):** 70 dBa

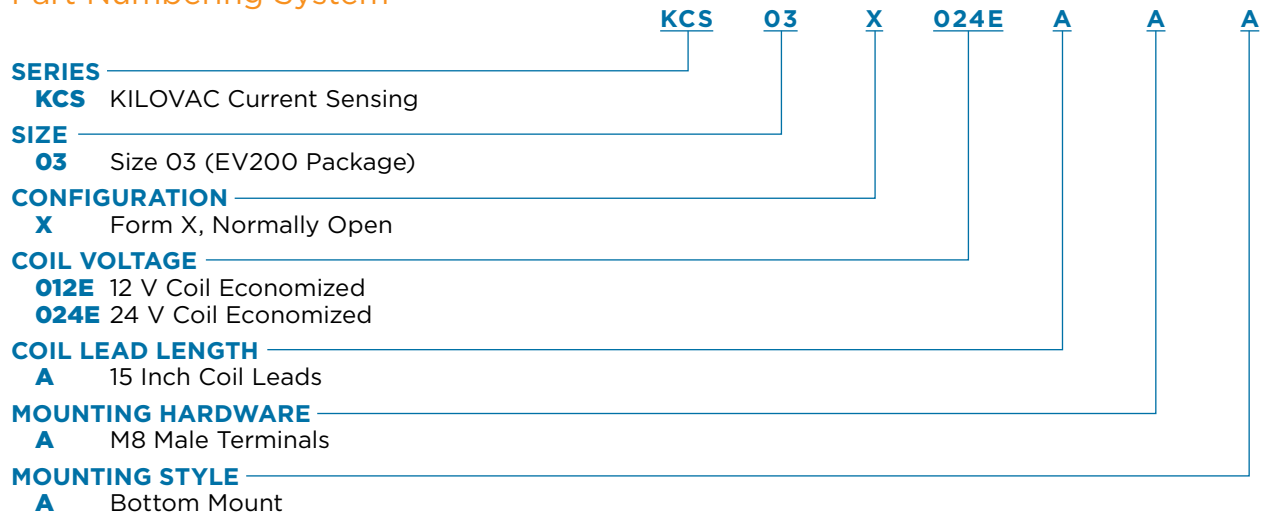
## Coil Data

At 20°C (Internal Two-Coil Economizer)

	12 V Coil	24/28 V Coil
<b>Coil Voltage Range</b>	9-14 VDC	18-28 VDC
<b>Nominal Pickup Current</b>	4.5 A	4.5 A
<b>Nominal Holding Current</b>	0.26 A	0.23 A
<b>Pickup Voltage</b>	≥9 VDC	≥16 VDC
<b>Dropout Voltage</b>	≤3.5 VDC	≤10 VDC
<b>Pickup Pulse (max)</b>	50 ms	50 ms
<b>Coil Resistance ±5%</b>	2.0 Ω Pickup/45 Ω Hold	5.7 Ω Pickup/120 Ω Hold
<b>Coil Holding Power</b>	3.2 W	5.5 W
<b>Main Contacts:</b>		
Operate Time (max)	20 ms	20 ms
Operate Bounce (max)	3 ms	3 ms
Release Time	5 ms	5 ms
<b>Current Sensing</b>		
<b>Sensing Range (5% accurate -40°C to +105°C)</b>	±50 - 630 A	±50 - 630 A
<b>Null Output @ I = 0</b>	2.5 (±0.04) VDC	2.5 (±0.04) VDC
<b>Output Voltage vs. Current (VDC)</b>	$V(I) = \pm I (.0034) + 2.50$	
<b>Current Trip Point vs. Setpoint Resistance</b>	See Pages 5 and 6	
<b>Hysteresis (-40°C to + 105°C)</b>	1% of Full Scale Output	



## Part Numbering System

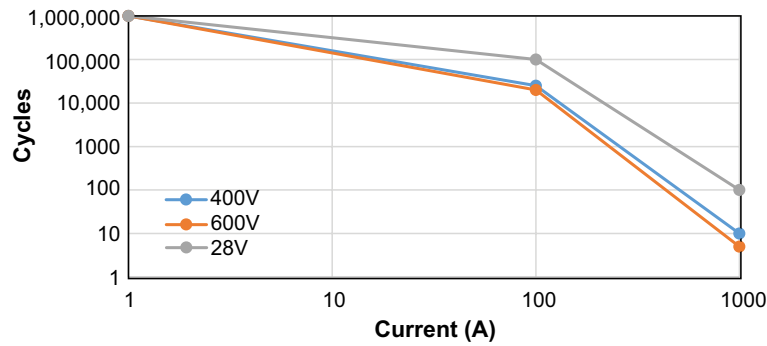


## Part Numbers

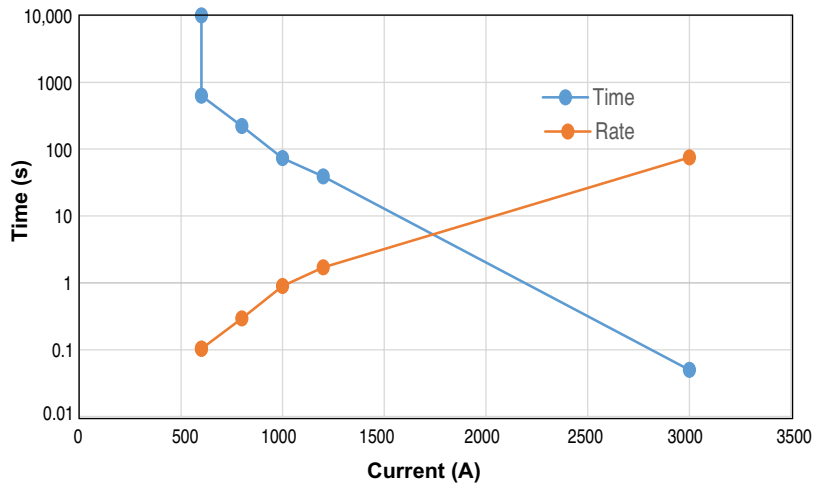
Coil Voltage	Part No.
12 VDC	KCS03X012EAAA
24 VDC	KCS03X024EAAA



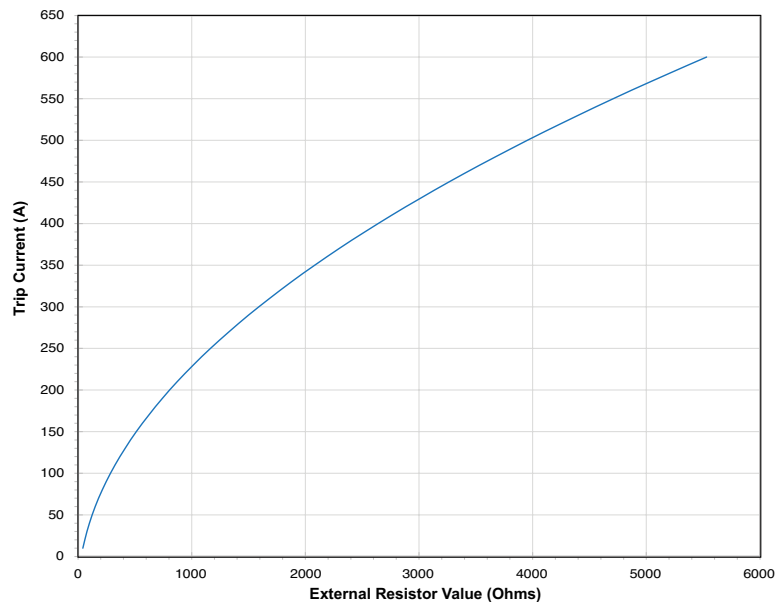
### Load Life: Resistive Load Switching



### Current Carry vs. Time



### Trip Function/Trip Delay





## Trip Setpoint Resistor (10 A to 150 A)

Connect Rx across Blue and Yellow for Trip Setpoint

Connect Purple to RTN to Disable Trip Function or Connect Purple to External Capacitor Tied to RTN to Delay Trip, 7 ms/ $\mu$ F

Connect Orange to V+ To Enable Trip and Current Sensing

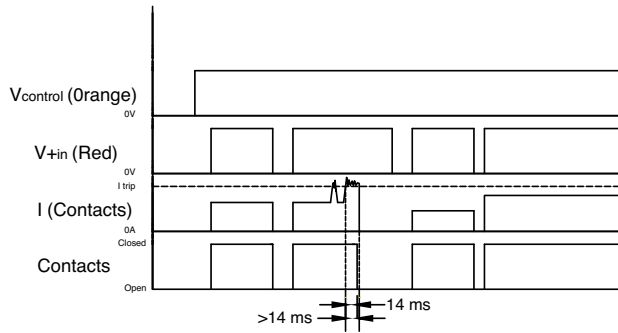
Reset Tripped Contacts by Cycling V+ Off to On

Intrinsic Trip Delay (Blue/Yellow Not Connected to Rx) = 14 ms

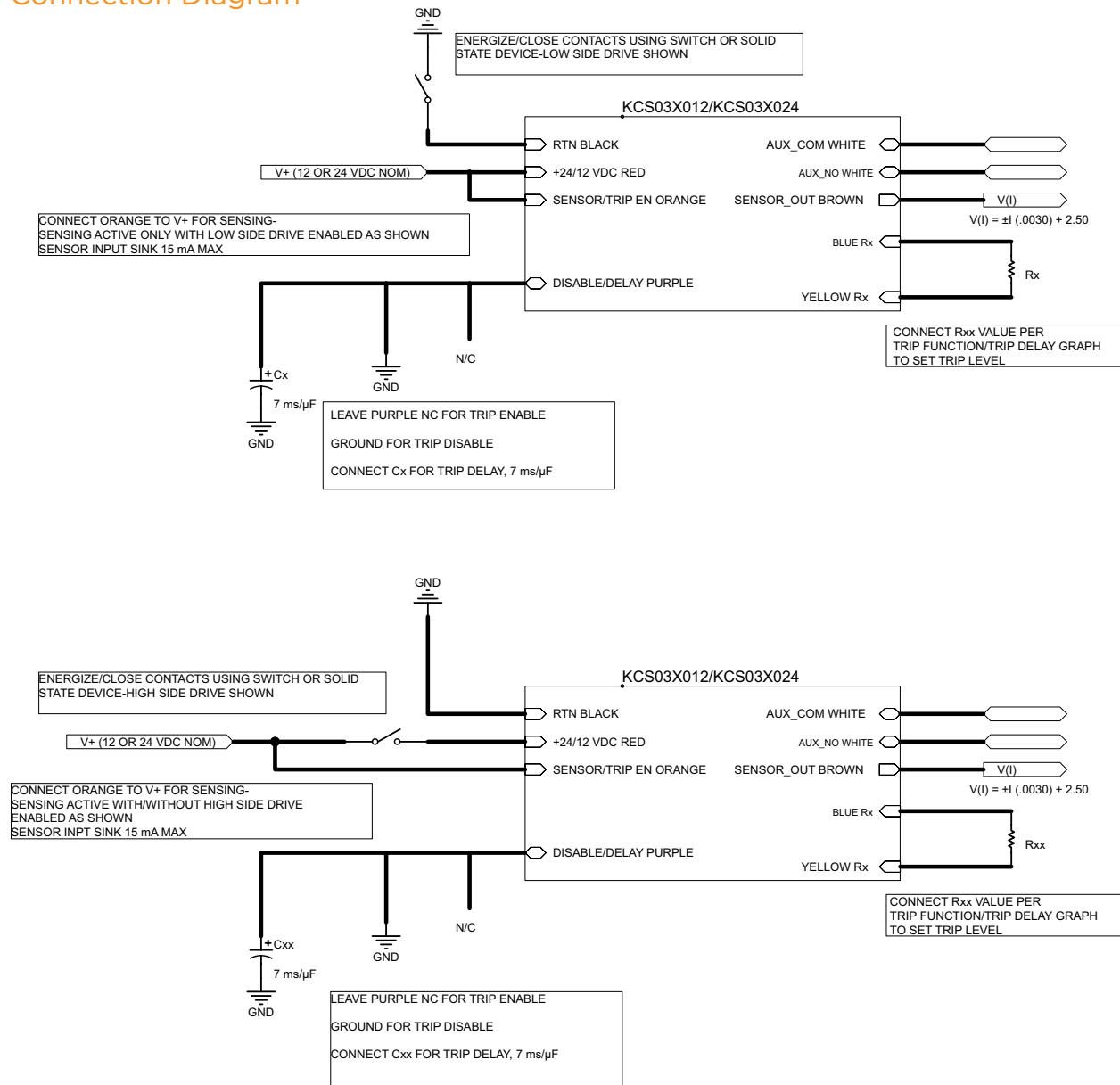
Input					Output		
Control (Orange)	V+ (Red)	RTN (Black)	Main Contact Current (A)	Trip Disable/ Time Delay (Purple)	Trip Set Rx (Blue) Trip Set Ax (Yellow)	Hall Output (V) ( White)	Main Contacts Top Post
0	Vnom	0	0	NON-ACTIVE	NON-ACTIVE	0	ON (NO TD)
0	0	0	0	NON-ACTIVE	NON-ACTIVE	0	OFF(NO TD)
1	0	0	0	OPEN	OPEN	2.5	OFF
1	Vnom	0	180 A $\pm$ 7%	OPEN	30K	4.84 (2.5 when relay trip)	RELAY TRIP OPEN <b>AFTER 14 ms</b>
1	0 then 1 remove and re-apply power	0	$\leq$ 167 A	OPEN	30K	2.5	ON (NO TD)
1	Vnom	0	0	GND (TRIP DISABLE)	X	2.5	ON (NO TD)
1	Vnom	0	180 A $\pm$ 7%	GND (TRIP DISABLE)	X	4.84	ON (NO TD)
1	0	0	0	GND (TRIP DISABLE)	X	2.5	OFF(NO TD)
1	Vnom	0	0	1 $\mu$ F is added between Purple and RTN	30K	2.5	ON (NO TD)
1	Vnom	0	180 A $\pm$ 7%	10 $\mu$ F is added between Purple and RTN	30K	4.84 (2.5 when relay trip)	RELAY TRIP OPEN AFTER 82 ms
1	Vnom	0	180 A $\pm$ 7%	10 $\mu$ F is added between Purple and RTN	30K	4.84 (2.5 when relay trip)	RELAY TRIP OPEN AFTER 720 ms
1	0 then Vnom remove and re-apply power	0	$\leq$ 167 A	10 $\mu$ F is added between Purple and RTN	30K	2.5	ON (NO TD)



### Timing Diagram



### Connection Diagram



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