Solid-State Contactor
SCP3-CC Series

3-Pole Solid-State Contactors



Description

The SCP3-CC series of 3-pole solid-state contactors (SSCs) offers a dependable solution for 3-Phase applications. Designed to meet industry standards, the Littelfuse SCP3-CC series provides consistent performance for everyday use.

With a broad voltage range and practical design, these 3-pole Contactors are suitable for a variety of heating and motor control applications in markets such as packaging, plastics, and HVAC.

- Reliable Operation: The SCP3-CC series ensures stable performance, making it a solid choice for general 3-phase applications.
- IP20 Connection Options: available with push-in connection for faster, tool-free wiring, or with screw terminals featuring removable protection. Both ensure IP20 safety for secure and reliable installation.
- 3-Leg Switching: Optimized for Grounded Wye (Star, 4-wire) and Open Delta (6-wire) configurations, where switching all three phases ensures safe and effective control of 3-phase loads with neutral connection or independent loads.

Features & Benefits

FEATURES	BENEFITS
Zero Cross Switching (Resistive & Inductive-Adapted)	Minimizes noise and voltage spikes. Not only for resistive loads, but also available in an inductive-adapted version
Compliance with International Standards (cЯUus, CE, UKCA)	Ensures that the Solid-State Contactor (SSC) has undergone rigorous testing, providing enhanced safety and product quality
Broad Application Spectrum	Engineered to accommodate a diverse range of applications and load types, offering flexibility and utility in various engineering projects

Applications

- Packaging & plastic machinery such as shrink tunnels, sealing machines, injection molding, and blow molding
- Industrial ovens such as reflow ovens, climatic chambers, and drying ovens
- HVAC systems such as commercial units with independent phase–neutral heaters, ventilation fans, and compressors
- Medical & laboratory equipment such as autoclaves, sterilizers, and test chambers
- Food & beverage equipment such as fryers, ovens, coffee machines, and mixers
- General industrial equipment with grounded wye (star) or open delta wiring

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Ordering Information

FOR RESISTIVE LOADS CONTROL

CATALOG NUMBER	OUTPUT MAX CURRENT	OUTPUT VOLTAGE	OUTPUT SWITCHING STYLE	OUTPUT OVERVOLTAGE PROTECTION	INPUT VOLTAGE RANGE	COMPLIANCE	CONNECTORS
SCP3-CCDZH-025TC-N	25 A	24-660 V ac	Resistive Zero Cross	TVS	4-30 V dc	cЯUus, CE, UKCA	Screws
SCP3-CCDZH-040TP-N	40 A	24-660 V ac	Resistive Zero Cross	TVS	4-30 Vdc	cЯUus, CE, UKCA	Push-In
SCP3-CCDZM-050TC-N	50 A	24-660 V ac	Resistive Zero Cross	TVS	4-30 V dc	cЯUus, CE, UKCA	Screws

FOR INDUCTIVE LOADS CONTROL

CATALOG NUMBER	OUTPUT MAX CURRENT	OUTPUT VOLTAGE	OUTPUT SWITCHING STYLE	OUTPUT OVERVOLTAGE PROTECTION	INPUT VOLTAGE RANGE	COMPLIANCE	CONNECTORS
SCP3-CCUZM-025VC-N	25 A	24-520 V ac	Inductive Zero Cross	Varistor	24-255 V ac/dc	cЯUus, CE, UKCA	Screws
SCP3-CCDZM-040VP-N	40 A	24-520 V ac	Inductive Zero Cross	Varistor	4-30 V dc	cЯUus, CE, UKCA	Push-In
SCP3-CCUZM-050VC-N	50 A	24-520 V ac	Inductive Zero Cross	Varistor	24-255 V ac/dc	cЯUus, CE, UKCA	Screws

Input/Control Specifications[1]

GENERAL DATA

SYMBOL	PARAMETER	RANGE	VALUE FOR DC INPUT VERSIONS	UNIT	VALUE FOR AC/DC INPUT VERSIONS	UNIT
Uc	Input (Control) Voltage*	Maximum	30	V dc	255	V ac / dc
		Nominal	5 – 12 – 24	V dc	48 - 120 - 240	V ac / dc
		Minimum	4	V dc	24	V ac / dc
Urv	Reverse Voltage	Maximum	-30	V dc	-	-
Uc on	Turn-On Voltage (Pick-up/Engage/ Activation Voltage)	Minimum	4	V dc	24	V ac / dc
Uc off	Turn-Off Voltage (Drop Out/Release/ Deactivation Voltage)	Nominal	2	V dc	2	V ac / dc
Ic	Input (Control) Current	Maximum	<25	mA	<7	mA
		Minimum	-	mA	5 (AC) / 4 (DC)	mA
-	Input Impedance	Nominal	Current Regulated	-	Current Regulated	-
Ton	Turn-On Time (Ue typ, 50Hz)	Maximum	10ms	1/2 Cycle	10ms	1/2 Cycle
Toff	Turn-Off Time (Ue typ, 50Hz)	Maximum	10ms	1/2 Cycle	10ms	1/2 Cycle

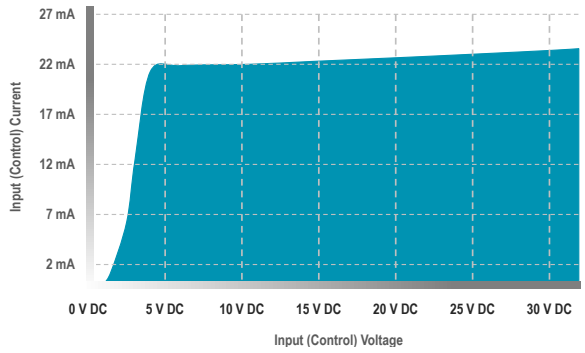
* Increase Min voltage by 1V for operations from -20 to -40 °C.

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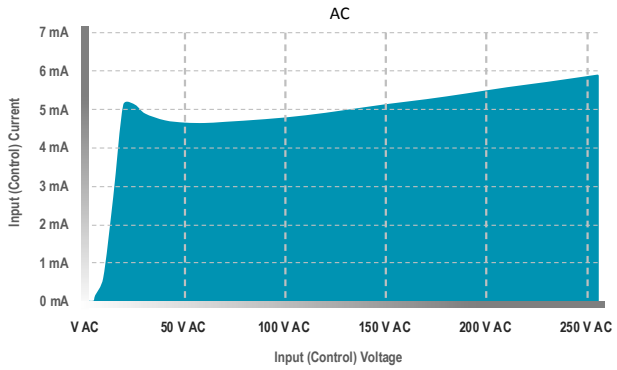
Input Current vs Input Voltage Graphs (For Power Supply Selection)

To ensure the Solid-State Contactor (SSC) operates efficiently and reliably, it is essential to understand the relationship between input voltage and input current. The following input current graphs provide detailed information on the current consumption of our SSCs across the specified input voltage range (4-30 V dc). This data is crucial for selecting an appropriate power supply and ensuring the Contactor functions within its safe operating limits. Proper understanding of current consumption is vital for the optimal performance of your application.

4-30 VDC Input



24-255 VAC/DC Input



Output/Load Specifications[1]

FOR RESISTIVE LOADS VERSIONS

SYMBOL	PARAMETER	CONDITION	RANGE	VALUE FOR 25A VERSIONS	VALUE FOR 40A VERSIONS	VALUE FOR 50A VERSIONS	UNIT
-	Output Configuration	-	-	SPST-NO	SPST-NO	SPST-NO	-
f	Operating Frequency	-	Minimum Nominal Maximum	0.1 50 – 60 200	0.1 50 – 60 200	0.1 50 – 60 200	Hz
Ue	Operating Voltage	47-63Hz	Minimum Nominal Maximum	24 120 - 240 - 400 660	24 120 - 240 - 400 660	24 120 - 240 - 400 660	Vrms
Usync	Zero Cross Level (Zero Voltage Turn-on)	-	Maximum	35	35	35	V
Ua	Latching Voltage	At Ue Nominal	Minimum	10	10	10	V
V	On-State Voltage Drop	At Rated Current	Maximum	0,9 + 0,014 x Ie	0 + 0,0075 x Ie	1 + 0,0075 x Ie	Vrms
Vto	Threshold Voltage (Power Loss Calculations only)	Tvj = 150 °C	Maximum	0.90	1.00	1.00	V
rt	On state dynamic resistance (Power Loss Calculations only)	Tvj = 150 °C	Maximum	14.0	7.5	7.5	mΩ
Up	Transient Over-Voltage* (Peak/Blocking/Non-Repetitive Voltage)	-	Maximum	1600	1600	1600	Vpk
Itsm	Transient Over-Current (Surge/Overload/Non-Repetitive Current)	Max 1 Cycle Tp = 10ms	Minimum Nominal	380 500	700 750	700 750	Apk
Ilk	Leakage Current (Off-State)	At Rated Voltage	Maximum	1	1	1	mArms

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Output/Load Specifications[1] (Continued)

FOR RESISTIVE LOADS VERSIONS

SYMBOL	PARAMETER	CONDITION	RANGE	VALUE FOR 25A VERSIONS	VALUE FOR 40A VERSIONS	VALUE FOR 50A VERSIONS	UNIT
dv/dt	Critical dV/dt (Off-State)	At Maximum Rated Voltage	Minimum	500	500	500	V/µsec
di/dt	Non-repetitive di/dt	-	Maximum	50	50	50	A/µsec
I²t	I²t Value for Fusing	½ Cycle at 50/60Hz (Tvj=45 °C)	Minimum Nominal	720 1250	2450 2800	2450 2800	A² sec
Pf	Minimum Power Factor	At Maximum Load	Minimum	0.8	0.8	0.8	-
Pd	Power Dissipation	@ Rated Current	Maximum	0,81 x Ie + 0,014 x Ie²	0,9 x Ie + 0,0075 x Ie129	0,9 x Ie + 0,0075 x Ie²	W
Rthj/c	Thermal Resistance Junction to Case (Rjc)	-	Maximum	1.1	0.4	0.45	°C/W

* Output will self trigger between 450-600Vpk not suitable for capacitive loads.

FOR INDUCTIVE LOADS VERSIONS

SYMBOL	PARAMETER	CONDITION	RANGE	VALUE FOR 25A VERSIONS	VALUE FOR 40A VERSIONS	VALUE FOR 50A VERSIONS	UNIT
-	Output Configuration	-	-	SPST-NO	SPST-NO	SPST-NO	-
f	Operating Frequency	-	Minimum Nominal Maximum	0.1 50 – 60 400	0.1 50 – 60 400	0.1 50 – 60 400	Hz
Ue	Operating Voltage	47-63Hz	Minimum Nominal Maximum	24 120 - 240 - 400 520	24 120 - 240 - 400 520	24 120 - 240 - 400 520	Vrms
Usync	Zero Cross Level (Zero Voltage Turn-on)	-	Maximum	10	10	25	V
Ua	Latching Voltage	At Ue Nominal	Minimum	10	10	10	V
V	On-State Voltage Drop	At Rated Current	Maximum	0,9 + 0,014 x Ie	1 + 0,0045 x Ie	0,9 + 0,002 x Ie	Vrms
Vto	Threshold Voltage (Power Loss Calculations only)	Tvj = 150 °C	Maximum	0.90	1.00	0.90	V
rt	On state dynamic resistance (Power Loss Calculations only)	Tvj = 150 °C	Maximum	14.0	4.5	2.0	mΩ
Up	Transient Over-Voltage* (Peak/Blocking/Non-Repetitive Voltage)	-	Maximum	1600	1600	1600	Vpk
Itsm	Transient Over-Current (Surge/Overload/Non-Repetitive Current)	Max 1 Cycle Tp = 10ms	Minimum Nominal	380 500	1100 1200	2000 2100	Apk
Ilk	Leakage Current (Off-State)	At Rated Voltage	Maximum	1	1	1	mArms
dv/dt	Critical dV/dt (Off-State)	At Maximum Rated Voltage	Minimum	500	500	500	V/µsec
di/dt	Non-repetitive di/dt	-	Maximum	50	50	50	A/µsec

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Output/Load Specifications[1] (Continued)

FOR INDUCTIVE LOADS VERSIONS

SYMBOL	PARAMETER	CONDITION	RANGE	VALUE FOR 25A VERSIONS	VALUE FOR 40A VERSIONS	VALUE FOR 50A VERSIONS	UNIT
I^2t	I^2t Value for Fusing	½ Cycle at 50/60Hz (Tvj=45 °C)	Minimum	720	6000	20000	A^2 sec
			Nominal	1250	7200	22000	
Pf	Minimum Power Factor	At Maximum Load	Minimum	0.5	0.5	0.5	-
Pd	Power Dissipation	@ Rated Current	Maximum	0,81 x Ie + 0,014 x Ie^2	0,9 x Ie + 0,0045 x Ie^2	0,81 x Ie + 0,002 x Ie^2	W
Rthj/c	Thermal Resistance Junction to Case (Rjc)	-	Maximum	1.1	0.5	0.25	°C/W

* Output will self trigger between 450-600Vpk not suitable for capacitive loads.

The maximum continuous current values given in this datasheet are specified for resistive loads (AC-1), which are mainly used for heating control. In addition, AC-3 values are provided for motor control, which apply specifically to the Inductive Zero Cross versions designed for inductive loads.

SYMBOL	PARAMETER	CONDITION	RANGE	VALUE FOR 25A VERSIONS	VALUE FOR 40A VERSIONS	VALUE FOR 50A VERSIONS	UNIT
Ie (AC-51 // AC-1)	Load Current (Continuous) – Heating Elements (AC-1)	At 40 °C	Maximum*	25	40	50	Arms
			Minimum	0.005	0.005	0.05	Arms

* Heat sinking required, see derating curves.

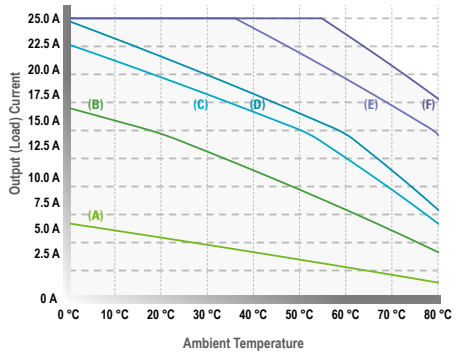
SYMBOL	PARAMETER	CONDITION	RANGE	VALUE FOR 25A VERSIONS	VALUE FOR 40A VERSIONS	VALUE FOR 50A VERSIONS	UNIT
Ie (AC-53 // AC-3)	Load Current (Continuous) – Motor Loads (AC-3)	At 40 °C	Maximum*	5	16	32	Arms
			Minimum	0.005	0.005	0.005	Arms

* Heat sinking required, see derating curves.

Thermal Derating Curves (For Heatsink Selection)

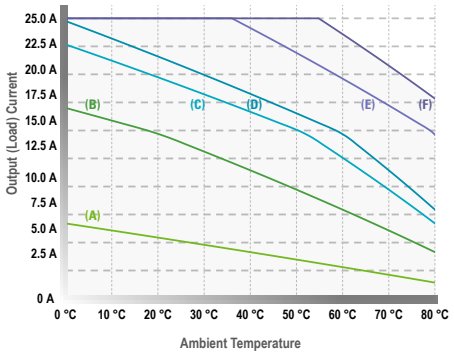
To operate the Solid-State Contactor (SSC) at its specified ratings, the use of a heatsink is mandatory. The following thermal derating curves illustrate the maximum load current that our SSCs can manage under varying ambient temperatures and heatsink sizes. It is crucial to select a heatsink that is most suitable for your specific application.

SCP3-CCDZH-025TC-N



(A) 6,0°C/W: Heatsink (C) 1,2 °C/W: Heatsink (E) 0,5 °C/W: Heatsink
(B) 2,0°C/W: Heatsink (D) 1,0 °C/W: Heatsink (F) 0,3 °C/W: Heatsink

SCP3-CCUZM-025VC-N

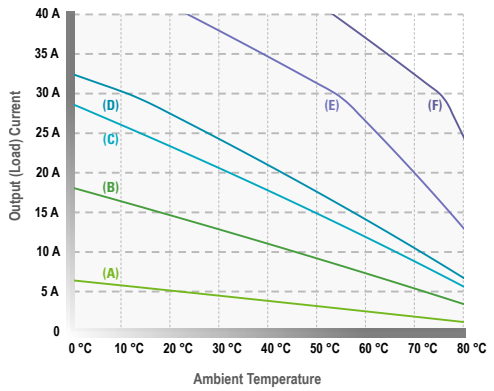


(A) 6,0°C/W: Heatsink (C) 1,2 °C/W: Heatsink (E) 0,5 °C/W: Heatsink
(B) 2,0°C/W: Heatsink (D) 1,0 °C/W: Heatsink (F) 0,3 °C/W: Heatsink

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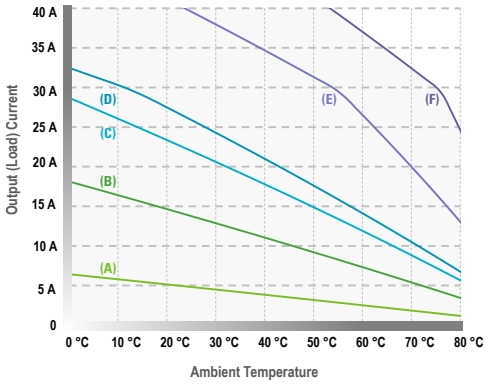
Thermal Derating Curves (For Heatsink Selection) (Continued)

SCP3-CCDZH-040TP-N



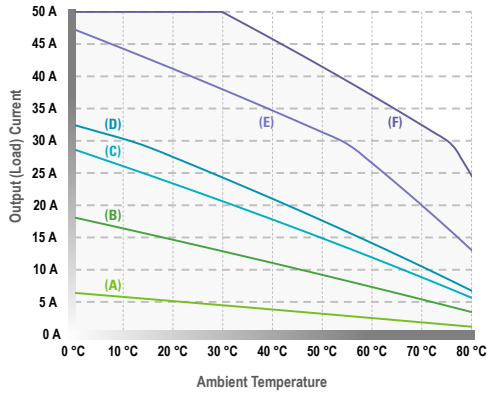
(A) 6,0°C/W: Heatsink (C) 1,2 °C/W: Heatsink (E) 0,5 °C/W: Heatsink
(B) 2,0°C/W: Heatsink (D) 1,0 °C/W: Heatsink (F) 0,3 °C/W: Heatsink

SCP3-CCDZM-040VP-N



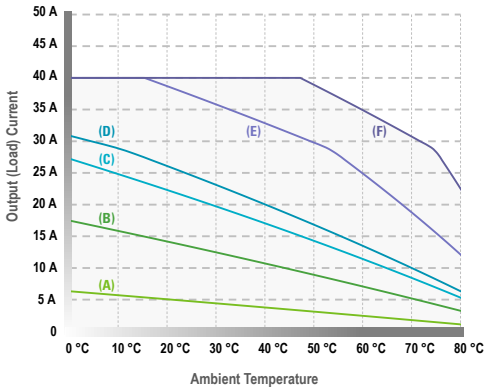
(A) 6,0°C/W: Heatsink (C) 1,2 °C/W: Heatsink (E) 0,5 °C/W: Heatsink
(B) 2,0°C/W: Heatsink (D) 1,0 °C/W: Heatsink (F) 0,25 °C/W: Heatsink

SCP3-CCDZM-050TC-N



(A) 6,0°C/W: Heatsink (C) 1,2 °C/W: Heatsink (E) 0,5 °C/W: Heatsink
(B) 2,0°C/W: Heatsink (D) 1,0 °C/W: Heatsink (F) 0,3 °C/W: Heatsink

SCP3-CCUZM-050VC-N



(A) 6,0°C/W: Heatsink (C) 1,2 °C/W: Heatsink (E) 0,5 °C/W: Heatsink
(B) 2,0°C/W: Heatsink (D) 1,0 °C/W: Heatsink (F) 0,3 °C/W: Heatsink

Considerations – Switching Type

Heating Elements (AC-1): In applications requiring precise temperature management, solid-state contactors (SSCs) play a crucial role. Specifically, the Resistive Zero Cross Switching type of SSC is commonly employed to regulate heaters based on signals from a temperature controller.

This technology proves particularly valuable in scenarios where high-frequency switching occurs—such as when a heater cycles on and off frequently over short intervals for extended periods.

Motors (AC-3): In applications requiring the control of motors or other inductive loads, solid-state contactors (SSCs) designed for AC-3 loads are essential. Specifically, the Zero Cross Switching type of SSC optimized for Inductive loads is recommended for motor applications, as it ensures smooth operation and reduces wear on motor windings. This technology is particularly valuable in scenarios where inductive loads require frequent on/off cycling, such as in conveyor belts, pumps, or fans.

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Considerations – Inrush Current

Heating Elements (AC-1): It's essential to recognize that variations exist between different types of heating elements, especially in hot or cold conditions. While it is generally expected that heating elements exhibit no inrush current, in certain heating elements cold conditions can lead to an inrush current equivalent to 1.4 times the nominal current. To mitigate this, we highly recommend oversizing the current rating and ensuring an appropriately sized heatsink. Doing so improves the Contactor's thermal endurance and extends its operational lifespan. So, when selecting an SSC, consider using one with a capacity approximately 1.4 times that of the heater or operating the SSC at only 75%-80% of its maximum capacity.

NOMINAL SSC CURRENT RATING	MAXIMUM RECOMMENDED HEATER CURRENT	HEATER POWER AT 120 VAC	HEATER POWER AT 240 VAC	HEATER POWER AT 400 VAC	HEATER POWER AT 480 VAC	HEATER POWER AT 600 VAC
25 A	20 A	~4.2 kW	~8.3 kW	~13.9 kW	~16.6 kW	~20.8 kW
40 A	32 A	~6.7 kW	~13.3 kW	~22.2 kW	~25.6 kW	~33.3 kW
50 A	40 A	~8.3 kW	~16.6 kW	~27.7 kW	~33.3 kW	~41.6 kW

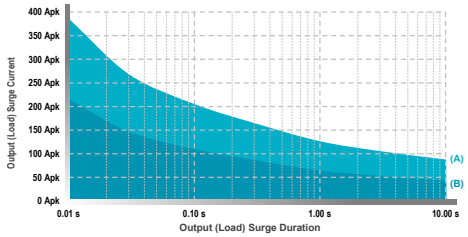
Motors (AC-3): Motors and other inductive loads are characterized by high inrush currents during startup, often several times higher than the nominal running current. To simplify the selection process and avoid oversizing errors, the continuous load current values specified under the AC-3 ratings in the previous table already account for these conditions. By using the AC-3 values, users ensure that the solid-state contactor is properly rated to handle the inrush and provide reliable operation for motor loads.

Output Surge Current Withstand Graphs (For Transient Protection)

To ensure the Solid-State Contactor (SSC) can handle sudden increases in current without damage, it is essential to understand its surge current capacity. The following surge current graphs illustrate the maximum surge current that our SSCs can withstand over various durations. This information is crucial for selecting an SSC that can endure transient overcurrent events, ensuring the reliability and safety of your electrical system. Proper understanding of surge current capacity helps in preventing equipment failure and maintaining optimal performance in your application.

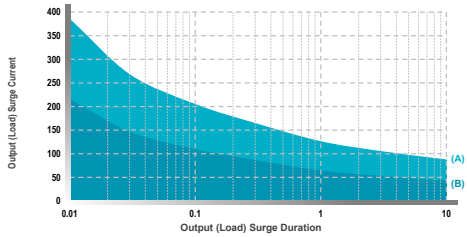
The graphs include a Single Pulse Surge Current curve used to define the protection offered by fuses, helping in the selection of appropriate protective devices. Additionally, is important to ensure that the Repetitive Surge Current curve is not exceeded during normal operation, as frequent overload currents can decrease the life expectancy of the SSC. Therefore, caution is advised to maintain the longevity and reliability of the SSC.

SCP3-CCDZH-025TC-N



(A) Single Pulse Surge: Initial SSC internal temperature at 25°C (cooler state from minimal or no operation).
(B) Repetitive Surges: Initial SSC internal temperature 90°C (warmer state from continuous operation).

SCP3-CCUZM-025VC-N

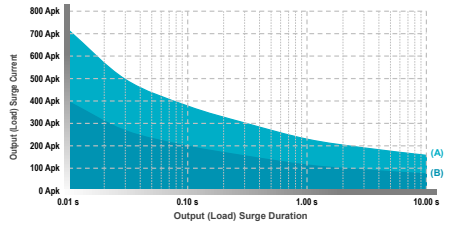


(A) Single Pulse Surge: Initial SSC internal temperature at 25°C (cooler state from minimal or no operation).
(B) Repetitive Surges: Initial SSC internal temperature 90°C (warmer state from continuous operation).

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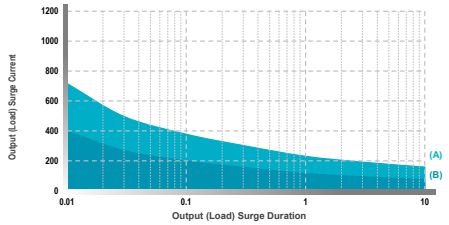
Output Surge Current Withstand Graphs (For Transient Protection) (Continued)

SCP3-CCDZH-040TP-N



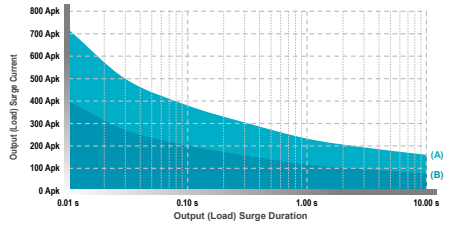
(A) Single Pulse Surge: Initial SSC internal temperature at 25°C (cooler state from minimal or no operation).
(B) Repetitive Surges: Initial SSC internal temperature 121°C (warmer state from continuous operation).

SCP3-CCDZM-040VP-N



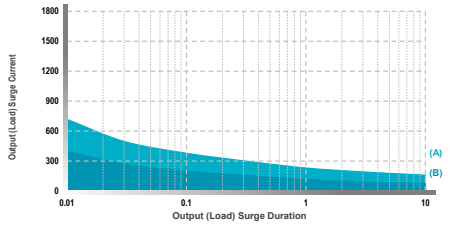
(A) Single Pulse Surge: Initial SSC internal temperature at 25°C (cooler state from minimal or no operation).
(B) Repetitive Surges: Initial SSC internal temperature 70°C (warmer state from continuous operation).

SCP3-CCDZM-050TC-N



(A) Single Pulse Surge: Initial SSC internal temperature at 25°C (cooler state from minimal or no operation).
(B) Repetitive Surges: Initial SSC internal temperature 70°C (warmer state from continuous operation).

SCP3-CCUZM-050VC-N:



(A) Single Pulse Surge: Initial SSC internal temperature at 25°C (cooler state from minimal or no operation).
(B) Repetitive Surges: Initial SSC internal temperature 121°C (warmer state from continuous operation).

General Specifications[1]

GENERAL DATA

SYMBOL	PARAMETER	CONDITION	RANGE	VALUE	UNIT
-	LED for Input (Control) Status Indicator	-	-	Continuously ON Green LED, when control input is applied	-
Ui	Isolation (Dielectric Strength)	Input to Output (50/60 HZ)	Nominal	4000	Vrms
		Input/Output to Ground (50/60 HZ)	Nominal	4000	
Ri	Insulation Resistance	@ 500 V DC	Minimum	1	GΩ
-	Coupling Capacitance	Input/Output	Maximum	0.8	pF
Uimp	Impulse Withstand Voltage	-	Nominal	4000	Vrms
-	Short Circuit Current Rating (SCCR)	-	-	5	kA
-	Endurance according to American Standard UL508	-	Typical	6,000	Cycles
-	MTTFd (Mean Time to Dangerous Failure) (Calculated in accordance with the guidelines for safety-related parts of control systems, as specified by the international standard ISO 13849-1)	-	-	37	Years
-	MTBF* (Mean Time Between Failures) (Calculated in accordance with the Military Handbook Guidelines for Reliability Prediction of Electronic Equipment, as specified by the US Department of Defense Standard MIL-HDBK-217)	@ 40 °C ambient	-	28	Years
		@ 60 °C ambient	-	21	

*All parameters at 50% power rating and 100% duty cycle.

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General Specifications[1] (Continued)

ENVIRONMENTAL DATA

SYMBOL	PARAMETER	CONDITION	RANGE	VALUE	UNIT
-	Vibration (Test conducted in accordance with the Vibration Environmental Testing Guidelines of the International Standard IEC 60068-2-6)	5-100Hz	Nominal	10	g
-	Shock (Test conducted in accordance with the Shock Environmental Testing Guidelines of the International Standard IEC 60068-2-27)	11ms	Nominal	30 / 50	g
Tamb	Ambient Temperature - Operating (Working)*	No icing, no condensation	Maximum Minimum	100 (212) -40 (-40)	°C (°F) °C (°F)
Tstg	Ambient Temperature - Storage	No icing, no condensation	Maximum Minimum	125 (257) -40 (-40)	°C (°F) °C (°F)
HR	Relative Ambient Humidity (Per international standard IEC/EN 60068-2-78)	Non-condensing @ 40 °C	Nominal	40 to 85	%
-	Pollution Degree	Non-conductive pollution with condensation possibilities	Nominal	2	-

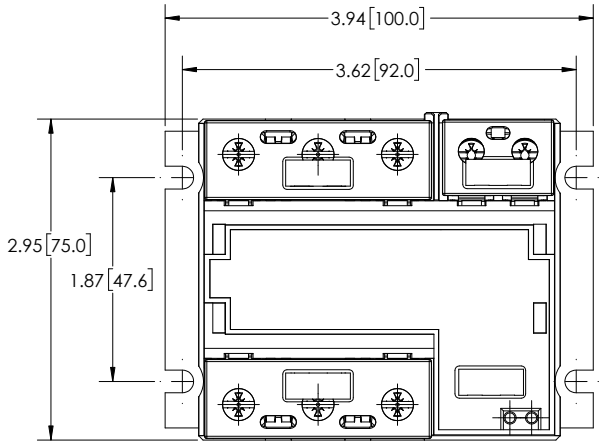
* AC input option minimum operating temperature is -20 to 80 °C (-4 to 176 °F).

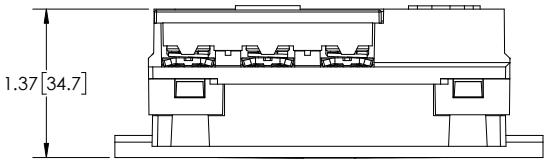
MECHANICAL DATA

SYMBOL	PARAMETER	CONDITION	RANGE	VALUE	UNIT
-	Product Weight	-	Typical	200 (0.44)	g (lbs)
-	Housing Material (In accordance with the American Standard UL- 94 for Safety of Flammability of Plastic Materials for Parts in Devices and Appliances)	-	-	Plastic UL 94 V-0	-
-	Baseplate Material	-	-	Aluminum, Tinned-plated	-
-	Touch Protection Level (Test conducted in accordance with the IP Code of Degrees of Protection Testing Guidelines of the International Standard IEC 60529)	-	-	IP20	-
-	Screw Torque Range	Input (Control) Terminals	Minimum Maximum	1.2 (11) 2.0 (18)	Nm (in-lb)
		Output (Load) Terminals	Minimum Maximum	2 (18) 3 (26)	Nm (in-lb)
		SSC Mounting	Minimum Maximum	1.2 (11) 1.8 (16)	Nm (in-lb)
-	Screw Thread Size	Input Terminals	-	M4 x 12mm	-
		Output Terminals	-	M5 x 13mm	-
		SSC Mounting	-	M4 x 12mm or #8-32 Pan Head	-

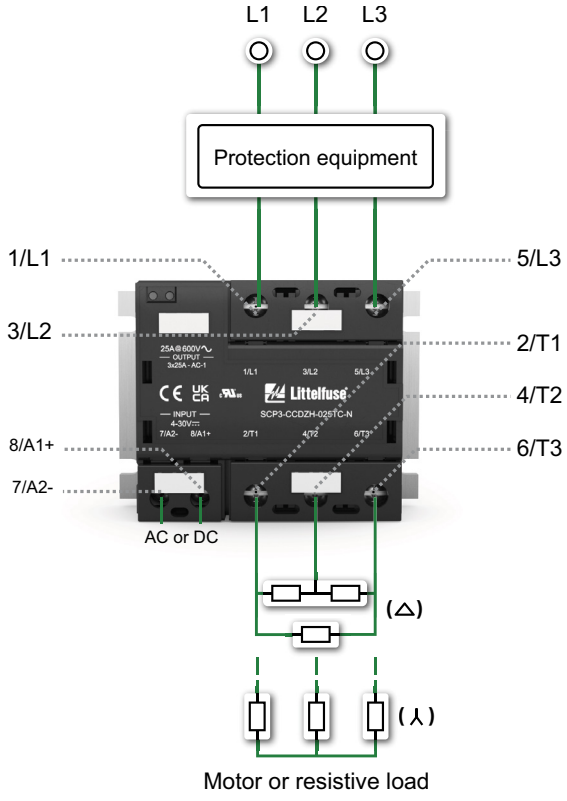
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Product Dimensions [Millimeters]

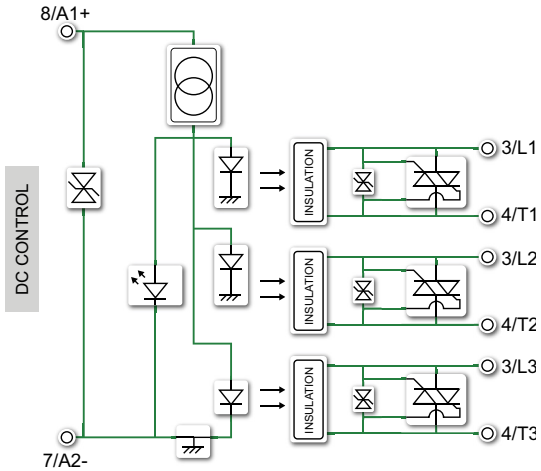


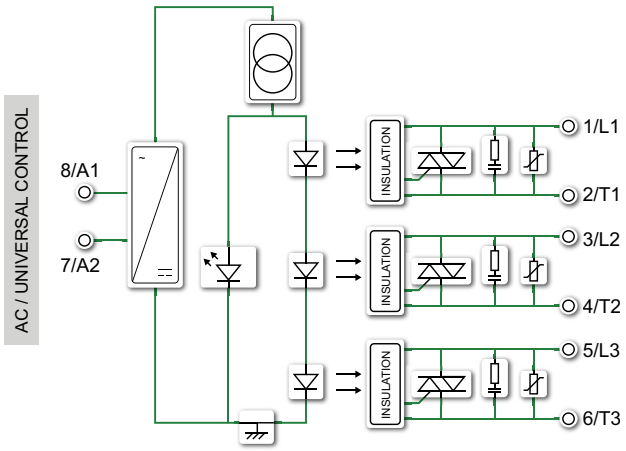


Wiring Diagram



Equivalent Circuit Block





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Short-Circuit Protection by Fuse

To safeguard solid-state Contactors (SSCs) against load short circuits, the use of fuses is essential, especially fast-acting ones. Here are the key considerations:



- Fuse Selection: The I^2t value (energy withstand capability) of the fuse should be less than half of the I^2t value of the Contactor. Standard fuses are inadequate because they cannot react swiftly enough to prevent fault currents from exceeding the maximum levels that thyristors (used in SSCs) can handle. Therefore, we strongly recommend employing ultra-fast fuses.
- Fuse Placement: Position the fuse in front of the SSC in the circuit. In 2-leg SSCs, protection is normally provided on the two controlled phases (two fuses in total). This strategic placement ensures that if the Contactor must unexpectedly break the earth insulation (due to overheating, case damage, or leakage with the heatsink), the fuse will protect the entire circuit from firing.
- Resource for Fuse Options: For the most suitable fuse options, consider checking the Littelfuse website.

Standards Conformity & Certifications

Product Safety Certifications

Products tested, compliant and certified to the following standards that states the requirements for electrical products to ensure they are safe for consumers to use.

CERTIFICATION BODY MARK	CERTIFICATION BODY NAME	CERTIFICATION DESCRIPTION	STANDARDS COVERED BY THE CERTIFICATION
c UL us No. E183688	cRUus	North American certificate of compliance with the Safety requirements for Industrial Control Equipment	**UL508** American Standard of Safety for Industrial Control Equipment. **CAN/CSA C22.2 No.14-18** Canadian Standard of Safety for Industrial Control Equipment.
CE	CE	Conformity with the European safety, health, and environmental protection requirements	**LVD Directive 2014/35/EU** EU Directive of Safety for Low Voltage Gear Equipment. In accordance with the Low Voltage Gear Testing Guidelines of the International Standard IEC 60947-4-3
			EMC Directive 2014/30/EU EU Directive of Electromagnetic Compatibility. In accordance with the Low Voltage Gear Testing Guidelines of the International Standard IEC 60947-4-3
			RoHS Directive 2015/863/EU EU Directive of Hazardous Substances Restriction. In accordance with the Assessment of electrical and electronic products with respect to the restriction of Hazardous substances Guidelines of the International Standard IEC 63000
UK CA	UKCA	Conformity with the UK product safety regulations	**SI 1101** UK Regulations of Safety for Electrical Equipment In accordance with the Low Voltage Gear Testing Guidelines of the International Standard IEC 60947-4-3
			SI 1091 UK Regulations of Electromagnetic Compatibility. In accordance with the Low Voltage Gear Testing Guidelines of the International Standard IEC 60947-4-3
			SI 3032 UK Regulations of Hazardous Substances Restriction. In accordance with the Assessment of electrical and electronic products with respect to the restriction of Hazardous substances Guidelines of the International Standard IEC 63000

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EMC Compliance (Electro-Magnetic Compatibility)

Radiated Emissions

-	STANDARD NAME	STANDARD DESCRIPTION	STANDARD NUMBER	LEVELS
IEC	Radiated RF	Radio interference field emission (radiated)	International Standard CISPR 11	Class A: 30M – 1GHz
IEC	Conducted RF	Radio interference voltage emissions (conducted)	International Standard CISPR 11	Class A (with external filter): 150k – 30MHz

Immunity

-	STANDARD NAME	STANDARD DESCRIPTION	STANDARD NUMBER	LEVELS
IEC	ESD	Immunity to Electrostatic Discharge (ESD)	International Standard IEC 61000-4-2	Level 3: -Contact Discharge: ± 6 kV -Air Discharge: ± 8 kV -Performance Criteria: A
IEC	Radiated RF	Immunity to Radiated Radio Frequency	International Standard IEC 61000-4-3	Level 3: 10 V/m (80MHz-2GHz) Level 2 3 V/m (2GHz-6GHz) Performance Criteria: A
IEC	Burst	Immunity Electrical Fast Transients (Burst)	International Standard IEC 61000-4-4	2 kV Performance Criteria: B
IEC	Surge	Immunity to Electrical Surges	International Standard IEC 61000-4-5	2 kV Performance Criteria: B
IEC	Conducted RF	Immunity to Conducted Radio Frequency	International Standard IEC 61000-4-6	Level 3: 10V/m (0.15 - 80 MHz) Performance Criteria: A
IEC	Dips	Immunity to Voltage Dips	International Standard IEC61000-4-11	-0% for 0.5, 1 cycle, Performance Criteria A -40% for 10/12 cycles, Performance Criteria A -70% for 25/30 cycles, Performance Criteria A -80% for 250/300 cycles, Performance Criteria A
IEC	Interruptions	Immunity to Voltage Interruptions	International Standard IEC 61000-4-11	0% for 250/300 cycles, Performance Criteria B

While these products are designed to meet high industrial standards for Class A equipment, ensuring robust performance in demanding environments, they may cause radio interference when used in domestic settings. To mitigate this, additional noise reduction measures, such as filters or shielding, may be necessary. Ensure that the entire setup where the SSR is installed complies with all relevant EMC regulations required by the application.

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Environmental Compliance[2]

Products comply to the following environmental standard requirements for electrical products to ensure they are safe for consumers to use.

-	STANDARD NAME	STANDARD DESCRIPTION	STANDARD NUMBER
RoHS	RoHS	Conformity with the European Restriction of Hazardous Substances in electrical and electronic products	European Directive 2015/863/EU (IEC 63000)
REACH	REACH	Conformity with the Registration, Evaluation, Authorization and Restriction of Chemicals regulation to ensure safe use of chemicals	European Directive 1907/2006
WEEE	WEEE	Conformity with the Waste Electrical and Electronic Equipment regulation to ensure proper disposal and recycling of e-waste	Regulation 2002/96/EC

Accessories

IMAGE	CATALOG NUMBER	TYPE	DESCRIPTION
	SADH-NN120	Heatsink	1.2 °C/W Thermal Resistance
	SADH-NN100	Heatsink	1.0 °C/W Thermal Resistance
	SADH-ND030	Heatsink	0.3 °C/W Thermal Resistance, 24 VDC
	SADH-NA030	Heatsink	0.3 °C/W Thermal Resistance, 230 VAC
	SANG-CNN090	Thermal Interface	Thermal Paste

Notes:

[1]All parameters at 25 °C unless otherwise specified.

[2]The environmental compliance data reflects the most current information available and adheres to our rigorous standards for quality and sustainability. These specifications are valid from the product's initial release and are subject to change with ongoing improvements.

Warning Information

Caution: Material Damage, Electric Shock, and Arc Flash Hazard. Before installing or working with this equipment, take the following precautions:

1. **Disconnect all power:** Ensure that all power sources are disconnected.
2. **Verify connections:** Double-check all connections.

Failure to adhere to these instructions may lead to **serious injury or damage** of equipment.

Disclaimer Notice – Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at **www.littelfuse.com/product-disclaimer.**

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