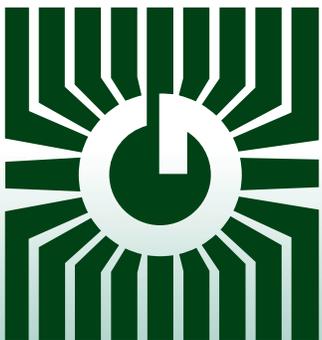


GREYSTONE ENERGY SYSTEMS INC



MINI-CURRENT SENSOR CS-6XX Series



Precision power control/sensing

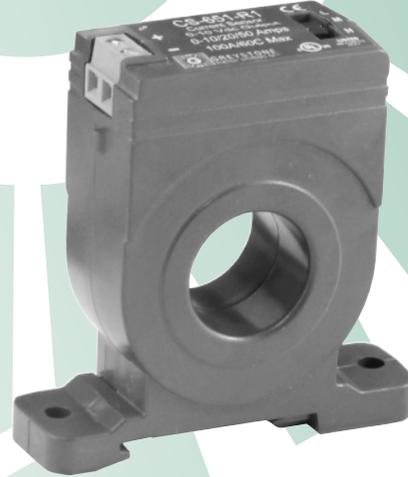
FEATURES:

- Solid Core
- Analog Output
- Up to 100 amps input current
- Small, Compact Design

*Peace of mind
through reliable
current sensors*

GREYSTONE ENERGY SYSTEMS INC

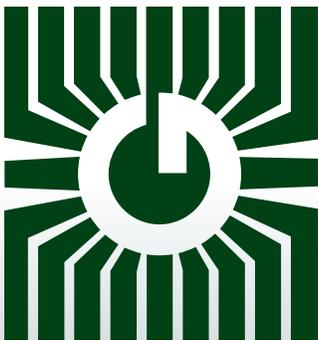
SOLID CORE CURRENT SENSOR CS-6XX Series



Precision Power control/sensing

FEATURES:

- Solid Core
- 0-5, 0-10 Vdc or 4-20 mA Output
- Selectable or Fixed Range Models
- Self-powered and Loop-powered Models
- Up to 200 amps Input Current
- Small Compact Size



*Peace of mind
through reliable
power monitoring*

AC CURRENT SENSORS CS-650 Series

DESCRIPTION:

The CS-650 Series current sensors monitor line current for electrical loads such as pumps, conveyors, machine tools, or fans and output a 0-5 Vdc signal to represent the load current.

The CS-650 require no external power as they are totally powered by induction from the AC line being monitored.

The sensors are typically used to monitor motor operation and can be used to determine motor failure, belt loss, machine feed rates or tool wear.

SPECIFICATION:

Measurement Range:.....	Up to 200 Amps - See ordering information
Maximum Input Current:.....	CS-650-R1: 100 Amps Continuous CS-650-R2: 150 Amps Continuous CS-650-200: 250 Amps Continuous
Accuracy:.....	± 2% FSO (5-100% of range)
Signal Output:.....	0-5 Vdc
Sensor Power:.....	Self-powered
Insulation Class:.....	600 Vac, insulated conductors
Frequency:.....	50/60 Hz
Response Time:.....	200 mS Typical, 0-90 %
Output Load:.....	1 MΩ typical
Loading Error:.....	add 5% error with 100KΩ
Operating Temperature:.....	-15 to 60 °C (5 to 140 °F)
Operating Humidity:.....	5 to 90% RH non-condensing
Terminal Block:.....	14 to 22 AWG
Dimensions:.....	67 x 68.6 x 24.1 mm (2.65 x 2.7 x 0.95 in)
Sensor Aperture:.....	20.3 mm (0.8 in)
Enclosure Material:.....	ABS/PC, UL94 V-0
Agency Approvals:.....	cULus Listed

FEATURES:

- No field adjustment necessary, factory calibrated
- Input / Output isolation via current transformer
- Solid-state reliability
- Small compact size
- Solid, reliable mounting method

PRODUCT ORDERING INFORMATION

MODEL	Output Signal
CS-650	0-5 Vdc, Self-powered

CODE	Sensing Range	Maximum Input Current
R1	0-10/20/50 Amps - Switch Selectable	100 Amps Continuous
R2	0-50/100/150 Amps - Switch Selectable	150 Amps Continuous
200	0-200 Amps	250 Amps Continuous

CS-650 - R1	Current Sensor, 0-5 Vdc Output, 0-10/20/50 Amp Input
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Greystone Energy Systems, Inc. reserves the right to make design modifications without prior notice.

AC CURRENT SENSORS CS-651 Series

DESCRIPTION:

The CS-651 Series current sensors monitor line current for electrical loads such as pumps, conveyors, machine tools, or fans and output a 0-10 Vdc signal to represent the load current.

The CS-651 require no external power as they are totally powered by induction from the AC line being monitored.

The sensors are typically used to monitor motor operation and can be used to determine motor failure, belt loss, machine feed rates or tool wear.

SPECIFICATION:

Measurement Range:.....
Maximum Input Current:.....

Accuracy:.....

Signal Output:.....

Sensor Power:.....

Insulation Class:.....

Frequency:.....

Response Time:.....

Output Load:.....

Loading Error:.....

Operating Temperature:.....

Operating Humidity:.....

Terminal Block:.....

Dimensions:.....

Sensor Aperture:.....

Enclosure Material:.....

Agency Approvals:.....

Up to 200 Amps - See ordering information

CS-651-R1: 100 Amps Continuous

CS-651-100: 150 Amps Continuous

CS-651-200: 225 Amps Continuous

± 2% FSO (5-100% of range)

0-10 Vdc

Self-powered

600 Vac, insulated conductors

50/60 Hz

200 mS Typical, 0-90 %

1 MΩ typical

add 5% error with 100KΩ

-15 to 60 °C (5 to 140 °F)

5 to 90% RH non-condensing

14 to 22 AWG

67 x 68.6 x 24.1 mm

(2.65 x 2.7 x 0.95 in)

20.3 mm (0.8 in)

ABS/PC, UL94 V-0

cULus Listed

FEATURES:

- No field adjustment necessary, factory calibrated
- Input / Output isolation via current transformer
- Solid-state reliability
- Small compact size
- Solid, reliable mounting method

PRODUCT ORDERING INFORMATION

MODEL	Output Signal
CS-651	0-10 Vdc, Self-powered

CODE	Sensing Range	Maximum Input Current
R1	0-10/20/50 Amps - Switch Selectable	100 Amps Continuous
100	0-100 Amps	150 Amps Continuous
200	0-200 Amps	225 Amps Continuous

CS-651 - R1	Current Sensor, 0-10 Vdc Output, 0-10/20/50 Amp Input
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Greystone Energy Systems, Inc. reserves the right to make design modifications without prior notice.

AC CURRENT SENSORS CS-652 Series

DESCRIPTION:

The CS-652 Series current sensors monitor line current for electrical loads such as pumps, conveyors, machine tools, or fans and output a 4-20 mA Vdc signal to represent the load current.

The CS-652 is loop-powered and requires a 15-30 Vdc supply.

The sensors are typically used to monitor motor operation and can be used to determine motor failure, belt loss, machine feed rates or tool wear.

SPECIFICATION:

Measurement Range:.....	Up to 200 Amps - See ordering information
Maximum Input Current:.....	CS-652-R1: 100 Amps Continuous CS-652-R2: 150 Amps Continuous CS-652-200: 250 Amps Continuous
Accuracy:.....	± 2% FSO (5-100% of range)
Signal Output:.....	4-20 mA
Sensor Power:.....	15 to 30 Vdc (Loop-powered)
Insulation Class:.....	600 Vac, insulated conductors
Frequency:.....	50/60 Hz
Response Time:.....	250 mS Typical, 0-90 %
Output Load:.....	250 Ω typical
Maximum Load:.....	<600 Ω at 24 Vdc
Operating Temperature:.....	-15 to 60 °C (5 to 140 °F)
Operating Humidity:.....	5 to 90% RH non-condensing
Terminal Block:.....	14 to 22 AWG
Dimensions:.....	67 x 68.6 x 24.1 mm (2.65 x 2.7 x 0.95 in)
Sensor Aperture:.....	20.3 mm (0.8 in)
Enclosure Material:.....	ABS/PC, UL94 V-0
Agency Approvals:.....	cULus Listed

FEATURES:

- No field adjustment necessary, factory calibrated
- Average measurement is equivalent to True RMS for pure sine waves
- Input / Output isolation via current transformer
- Solid-state reliability
- Small compact size
- Solid, reliable mounting method

PRODUCT ORDERING INFORMATION

MODEL	Output Signal
CS-652	4-20 mA , Loop-powered

CODE	Sensing Range	Maximum Input Current
R1	0-10/20/50 Amps - Switch Selectable	100 Amps Continuous
R2	0-50/100/150 Amps - Switch Selectable	150 Amps Continuous
200	0-200 Amps	250 Amps Continuous

CS-652 - R1	Current Sensor, 4-20 mA Output, 0-10/20/50 Amp Input
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Greystone Energy Systems, Inc. reserves the right to make design modifications without prior notice.

AC CURRENT SENSORS CS-675 Series

DESCRIPTION:

The CS-675 Series current sensors monitor line current for electrical loads such as pumps, conveyors, machine tools, or fans and output an analog signal to represent the load current. The CS-675 is loop-powered and requires 15 to 30 Vdc to power the device

The CS-675 series features True RMS current measurement suitable to measure complex waveforms such as those found in VFD controlled loads. They are also suitable for accurate measurement of phase angled controlled or time proportional SCR controlled load currents. The CS-675 Series contain a precision RMS-to-DC converter circuit which will measure load current accurately for complex, distorted or noisy waveforms as opposed to "average reading" devices that will only accurately measure pure sine waveforms .

SPECIFICATION:

Measurement Range:.....	See Ordering Information below
Maximum Input Current:.....	See Ordering Information below
Accuracy:.....	± 2% FSO (5-100% of range)
Signal Output:.....	4-20 mA
Sensor Power:.....	15 to 30 Vdc (Loop -powered)
Insulation Class:.....	600 Vac, insulated conductors
Frequency:.....	20-400 Hz
Response Time:.....	500 mS Typical, 0-90 %
Output Load:.....	250 Ω typical
Maximum Load:.....	>600 Ω Max. @ 24 Vdc
Operating Temperature:.....	-15 to 50 °C (5 to 122 °F)
Operating Humidity:.....	5 to 90% RH non-condensing
Terminal Block:.....	14 to 22 AWG
Dimensions:.....	66 x 67.3 x 24.9 mm (2.6 x 2.65 x 0.98 in)
Sensor Aperture:.....	0.8 in (20.3 mm)
Enclosure Material:.....	ABS/PC, UL94 V-0
Agency Approvals:.....	cULus Listed

FEATURES:

- True RMS for complex waves
- Input / Output isolation via current transformer
- Solid-state reliability
- Small compact size
- Solid, reliable mounting method

PRODUCT ORDERING INFORMATION

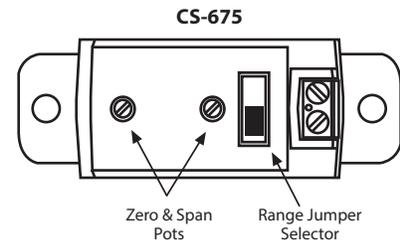
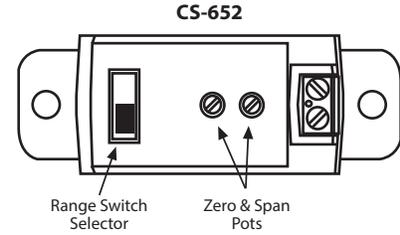
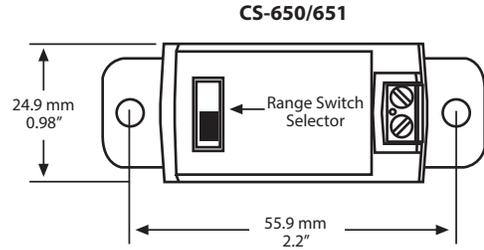
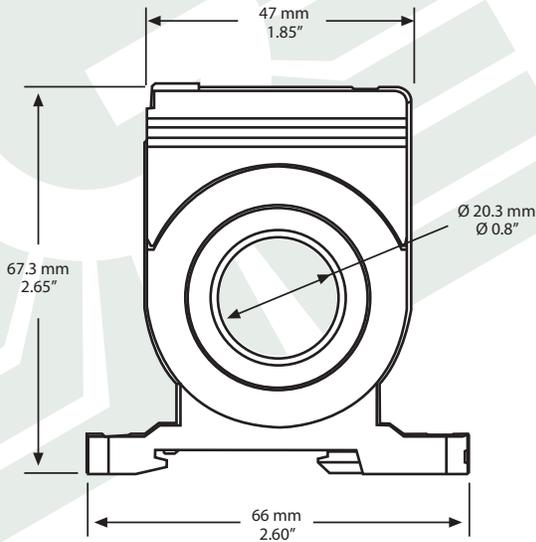
MODEL	Output Signal
CS-675	4-20 mA, Loop-powered

CODE	Sensing Range	Maximum Input Current
2	0-2 Amps	10 Amps Continuous
5	0-5 Amps	15 Amps Continuous
R1	0-10/20/50 Amps - Jumper Selectable	100 Amps Continuous
R2	0-50/100/150 Amps - Jumper Selectable	150 Amps Continuous
200	0-200 Amps	250 Amps Continuous

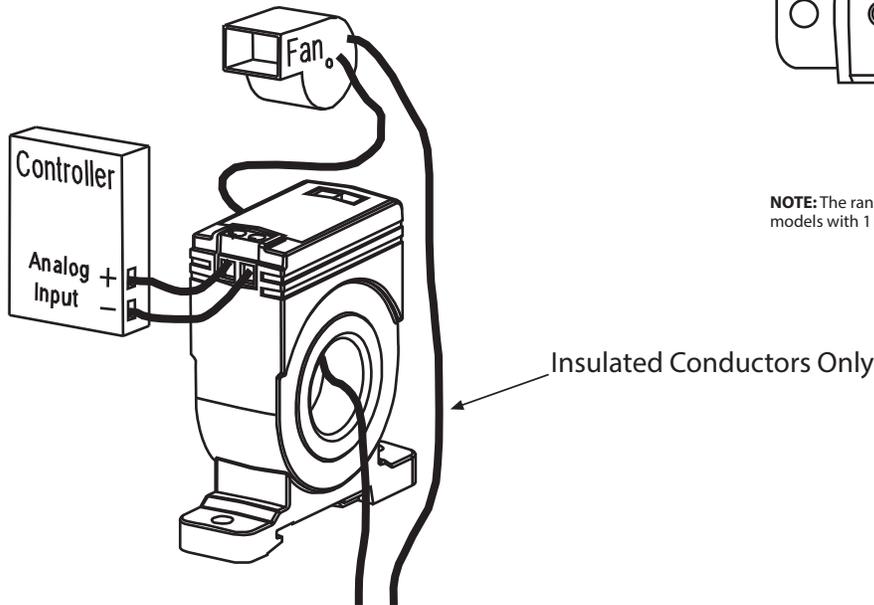
CS-675 - R1	Current Sensor, 4-20mA Output, 0-10/20/50 Amp Input
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Greystone Energy Systems, Inc. reserves the right to make design modifications without prior notice.

DIMENSIONS



NOTE: The range switch/jumper is not applicable for models with 1 fixed range.



600 Vac max
200 Amps max



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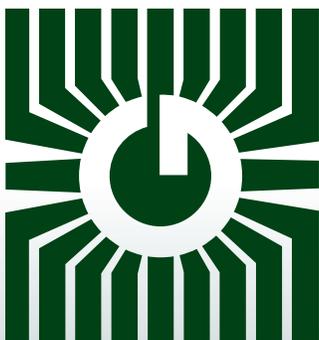


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GREYSTONE HAS AN ISO 9001 REGISTERED QUALITY SYSTEM

GREYSTONE ENERGY SYSTEMS INC



SPLIT CORE CURRENT SENSOR SC-6XX Series



Precision Power control/sensing

FEATURES:

- Split Core
- 0-5, 0-10 Vdc or 4-20 mA Output
- Selectable or Fixed Range Models
- Self-powered and Loop-powered Models
- Up to 200 amps Input Current
- Small Compact Size

*Peace of mind
through reliable
power monitoring*

AC CURRENT SENSORS SC-650 Series

DESCRIPTION:

The SC-650 Series current sensors monitor line current for electrical loads such as pumps, conveyors, machine tools, or fans and output a 0-5 Vdc signal to represent the load current.

The SC-650 require no external power as they are totally powered by induction from the AC line being monitored.

The sensors are typically used to monitor motor operation and can be used to determine motor failure, belt loss, machine feed rates or tool wear.

SPECIFICATION:

Measurement Range:.....	Up to 200 Amps - See ordering information
Maximum Input Current:.....	SC-650-R1: 100 Amps Continuous SC-650-R2: 150 Amps Continuous SC-650-200: 250 Amps Continuous
Accuracy:.....	± 2% FSO (10-100% of range)
Signal Output:.....	0-5 Vdc
Sensor Power:.....	Self-powered
Insulation Class:.....	600 Vac, insulated conductors
Frequency:.....	50/60 Hz
Response Time:.....	200 mS Typical, 0-90 %
Output Load:.....	1 MΩ typical
Loading Error:.....	add 0.5% error with 100KΩ
Operating Temperature:.....	-15 to 60 °C (5 to 140 °F)
Operating Humidity:.....	5 to 90% RH non-condensing
Terminal Block:.....	14 to 22 AWG
Dimensions:.....	76 x 79 x 24.9 mm (3.0 x 3.1 x 0.98 in)
Sensor Aperture:.....	20.3 mm (0.8 in)
Enclosure Material:.....	ABS/PC, UL94 V-0
Agency Approvals:.....	cULus Listed

FEATURES:

- No field adjustment necessary factory calibrated
- Input / Output isolation via current transformer
- Solid-state reliability
- Small compact size
- Solid, reliable mounting method

PRODUCT ORDERING INFORMATION

MODEL	Output Signal
SC-650	0-5 Vdc, Self-powered

CODE	Sensing Range	Maximum Input Current
R1	0-10/20/50 Amps - Switch Selectable	100 Amps Continuous
R2	0-50/100/150 Amps - Switch Selectable	150 Amps Continuous
200	0-200 Amps	250 Amps Continuous

SC-650 - R1 **Split Core Current Sensor, 0-5 Vdc Output, 0-10/20/50 Amp Input**

Greystone Energy Systems, Inc. reserves the right to make design modifications without prior notice.

AC CURRENT SENSORS SC-675 Series

DESCRIPTION:

The SC-675 Series current sensors monitor line current for electrical loads such as pumps, conveyors, machine tools, or fans and output an analog signal to represent the load current. The SC-675 is loop-powered and requires 15 to 30 Vdc to power the device

The SC-675 series features True RMS current measurement suitable to measure complex waveforms such as those found in VFD controlled loads. They are also suitable for accurate measurement of phase angled controlled or time proportional SCR controlled load currents. The SC-675 Series contain a precision RMS-to-DC converter circuit which will measure load current accurately for complex, distorted or noisy waveforms as opposed to "average reading" devices that will only accurately measure pure sine waveforms.

SPECIFICATION:

Measurement Range:.....	See Ordering Information below
Maximum Input Current:.....	See Ordering Information below
Accuracy:.....	± 2% FSO (5-100% of range)
Signal Output:.....	4-20 mA
Sensor Power:.....	15 to 30 Vdc (Loop -powered)
Insulation Class:.....	600 Vac, insulated conductors
Frequency:.....	20-400 Hz
Response Time:.....	500 mS Typical, 0-90 %
Output Load:.....	250 Ω typical
Maximum Load:.....	>600 Ω Max. @ 24 Vdc
Operating Temperature:.....	-15 to 50 °C (5 to 122 °F)
Operating Humidity:.....	5 to 90% RH non-condensing
Terminal Block:.....	14 to 22 AWG
Dimensions:.....	66 x 67.3 x 24.9 mm (2.6 x 2.65 x 0.98 in)
Sensor Aperture:.....	0.8 in (20.3 mm)
Enclosure Material:.....	ABS/PC, UL94 V-0
Agency Approvals:.....	cULus Listed

FEATURES:

- True RMS for pure sine waves
- Input / Output isolation via current transformer
- Solid-state reliability
- Small compact size
- Solid, reliable mounting method

PRODUCT ORDERING INFORMATION

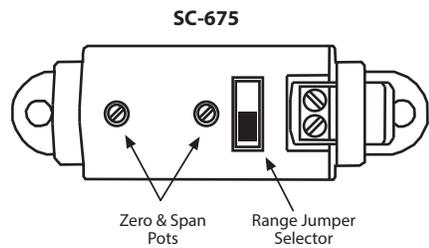
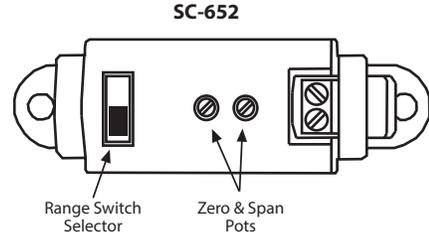
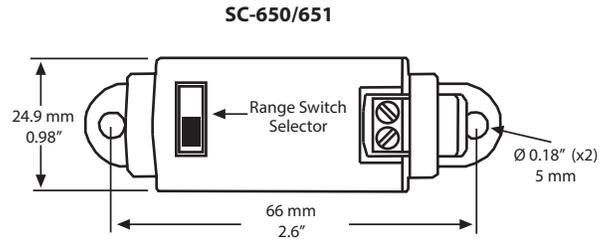
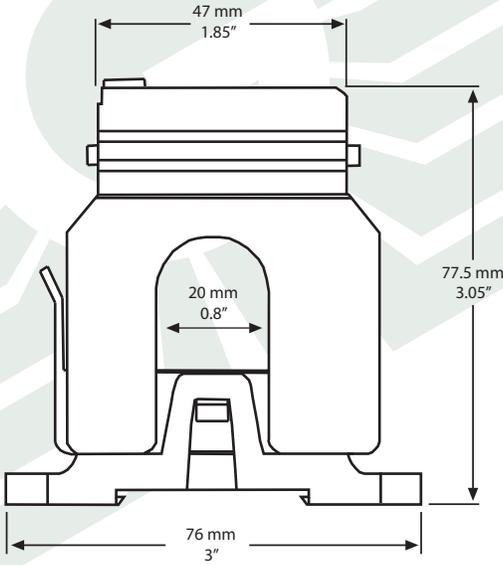
MODEL	Output Signal
SC-675	4-20 mA, Loop-powered

CODE	Sensing Range	Maximum Input Current
2	0-2 Amps	10 Amps Continuous
5	0-5 Amps	15 Amps Continuous
R1	0-10/20/50 Amps - Jumper Selectable	3X Range Selected Continuous
R2	0-50/100/150 Amps - Jumper Selectable	2X Range Selected Continuous
200	0-200 Amps	300 Amps Continuous

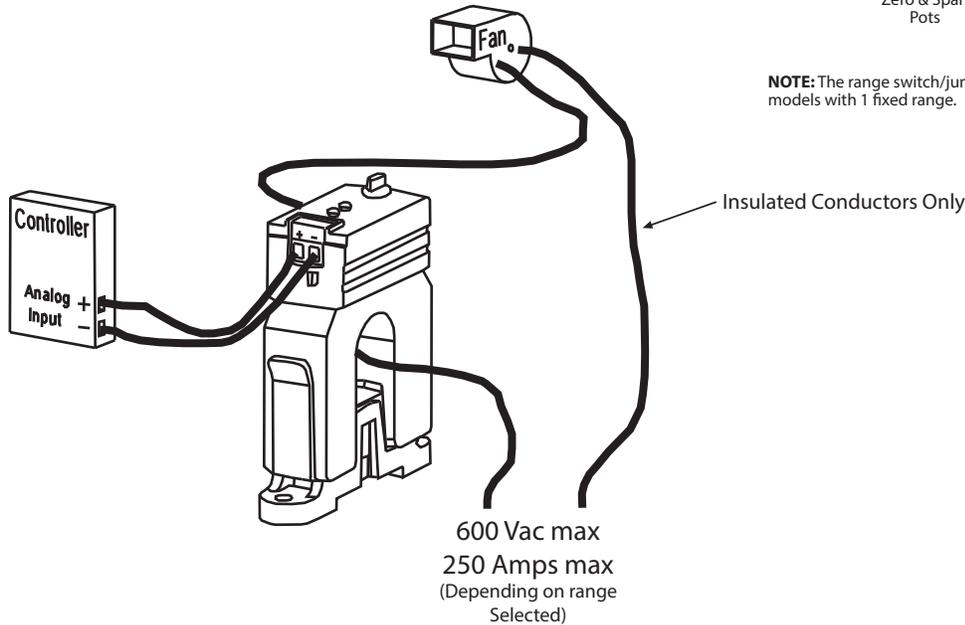
SC-675 - R1	Current Sensor, 4-20mA Output, 0-10/20/50 Amp Input
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Greystone Energy Systems, Inc. reserves the right to make design modifications without prior notice.

DIMENSIONS



NOTE: The range switch/jumper is not applicable for models with 1 fixed range.



GREYSTONE

ENERGY SYSTEMS INC

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**COMMAND RELAY
CSR-112 / CSR-124**



SPECIFICATIONS:

Coil Voltage:.....	CSR-112: 12 Vdc ±10% CSR-124: 24 Vac/dc ±10%
Coil Current:.....	CSR-112: 25 mA maximum CSR-124: 13 mA maximum
Relay Contacts:.....	SPDT Form C (NO + NC)
Contact Rating:.....	5A @ 250 Vac/30 Vdc Resistive 2A @ 250 Vac/30 Vdc Inductive
Contact Resistance:.....	30 mΩ maximum
Operating Temperature:.....	-15 to 60 °C (5 to 140 °F)
Operating Humidity:.....	5 to 90 % RH, non-condensing
Wiring Connection:.....	Terminal block (14 to 22 AWG)
Dimensions:.....	50.8 x 35.6 x 21.1 mm (2 x 1.4 x 0.83")
Enclosure Material:.....	ABS/PC, UL94 V-0

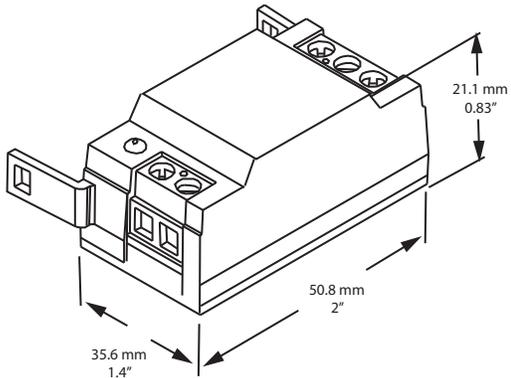
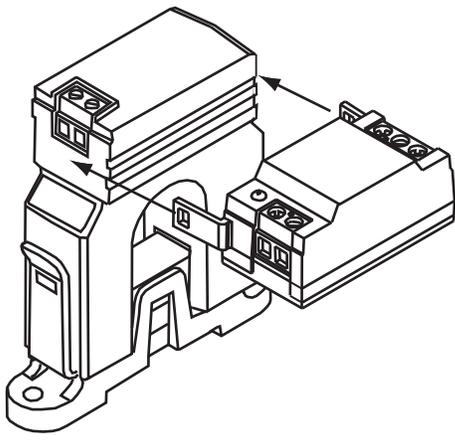
DESCRIPTION:

The **CSR-112** and **CSR-124** command relay attaches to the side of any full-size CS or SC type sensor or switch and adds a form C relay function. It provides line voltage switching with control either from an automation system digital output or from a CS/SC current switch. A status LED indicates the relay state and the relay output features both a normally-open and a normally-closed contact.

The CSR-CS/SC combination provides a convenient solution when status indication and motor control are needed at a single location. The CSR can accept a digital control signal from the controller to activate the relay contacts which can be used to provide power to the motor contactor to start the motor. The CS/SC switch will then provide a digital proof-of-flow signal to the controller to indicate motor status

FEATURES:

- Can be mounted to any CS or SC product for easier installation
- Convenient Relay Status LED
- Can be factory assembled with any CS or SC product
- SPDT Form C relay contacts
- Environmentally-friendly cadmium-free contacts
- Ideal for switching contactors, solenoids and motors
- Small compact size




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