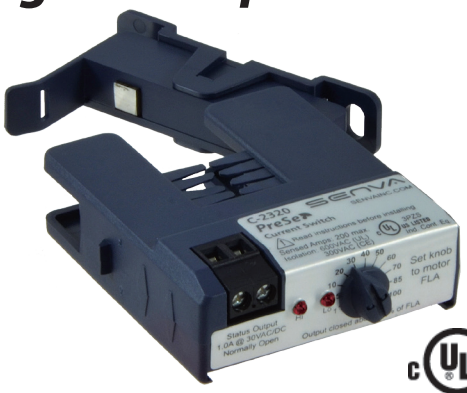
INSTALLATION INSTRUCTIONS

C-2320HV, Adjustable Mini Split-Core Digital Output



3PZS
US LISTED

DANGER

Failure to follow these instructions will result in death or serious injury.

Hazard of electrical shock, explosion, and arc flash

- Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product
- Only qualified electrical personnel should install this product
- Read, understand, and follow all instructions thoroughly
- Install only on insulated conductors
- Lock out and tag out all power sources prior to installation. Use properly rated voltage sensing instrument to determine no voltage is present

WARNING

Failure to follow these instructions could result in death or serious injury.

Automated equipment may start without warning

- Equipment monitored/operated by this device may start without warning. Keep clear of apparatus at all times

IMPORTANT WARNINGS

- Only qualified trade installers should install this product
- This product is not intended for life-safety applications
- Do not install in hazardous or classified locations
- The installer is responsible for all applicable codes
- This product must be installed in a suitable electrical enclosure

INSTALLATION

Disconnect, lock out and tag out all power supplies during installation

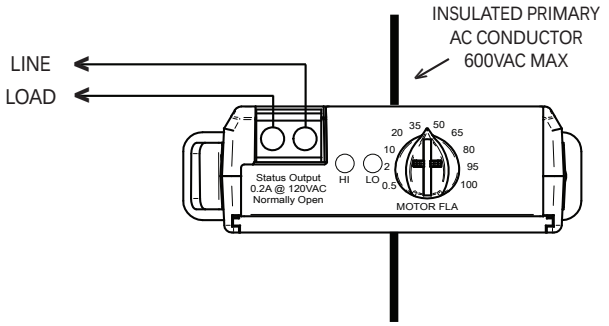
1. Determine mounting location for the sensor near the conductor to be monitored. The sensor should be located AT LEAST 1/2" from any uninsulated conductor.
2. Sensor features a flexible iris which allows the sensor to hang on the conductor if local codes permit. A bracket is included for screw mounting or attaching to DIN rail. For screw mounting, drill two 3/32" pilot holes using the bracket as a template; ensure no drill shavings are present in enclosure. Attach bracket with screws provided.
3. Clamp sensor around INSULATED CONDUCTOR ONLY, 600VAC MAX to be monitored.
4. Snap the sensor into the mounting bracket.
5. Wire the output of the sensor in series with a contactor coil not to exceed 120VAC @ 0.2 Amp. Tighten terminals to 3.5 in-lb.

CALIBRATION

1. Adjust knob on sensor to motor full load amperage (FLA) as indicated on motor nameplate or overload protection device. (See Tech Tips for precise calibration procedure.)

WIRING EXAMPLES

NOTE: Device is NOT polarity sensitive.

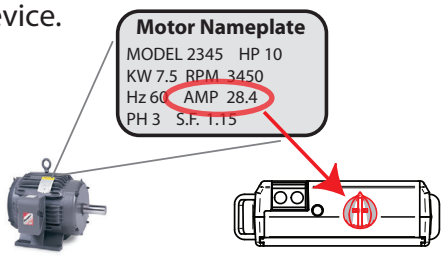


PRODUCT APPLICATION LIMITATION:
Senva products are not designed for life or safety applications. Senva products are not intended for use in critical applications such as nuclear facilities, human implantable device or life support. Senva is not liable, in whole or in part, for any claims or damages arising from such uses.

152-0022-0C

PRESET CALIBRATION (Typical)

Adjust knob on sensor to motor full load amperage (FLA) as indicated on motor nameplate or overload protection device.



The sensor scale is pre-calibrated for motors operating at a **minimum of 75% FLA**.

On startup, the sensor output will close when monitored current exceeds 70% FLA, and open if current is below 60% FLA to indicate load loss (broken belt, coupling shear, etc.)

For lightly loaded (oversized) motors operating below 75% FLA, the sensor should be set to a proportionally lower FLA to ensure positive status detection and avoid nuisance alarms.

Smaller (less than 5HP) motors and/or lightly loaded motors may not have sufficient reduction in amperage (below 60% FLA) for the sensor to detect belt loss immediately. The sensor will detect the belt loss when the motor is restarted, as long as the unloaded motor current is below 70% FLA.

For improved performance on small and lightly loaded motors, consider the following options:

1. Use lower current models C-2320HV-L or C-1220HV for improved calibration resolution The self-calibrating, microcontroller based sensor model C-2330HV is also recommended.

2. Perform conventional calibration.

Part Number	C-2320HV
Amperage Range	0.5A (on)~100A (200A Max.)
Output Type	NO, solid-state FET
Output Rating	0.2A (200mA) @120VAC Max
Temperature Rating	-15~60 ° C
Insulation Class	600V RMS. For use on insulated conductors only! Use minimum 75 ° C insulated conductor
Sensor Power	Induced
Frequency Range	50/60Hz
Dimensions (LxWxH)	2.94" x 2.23" x 0.82" (1.4" H with optional relay module)
Sensor Aperture	0.75"

Conventional Calibration (High Accuracy)

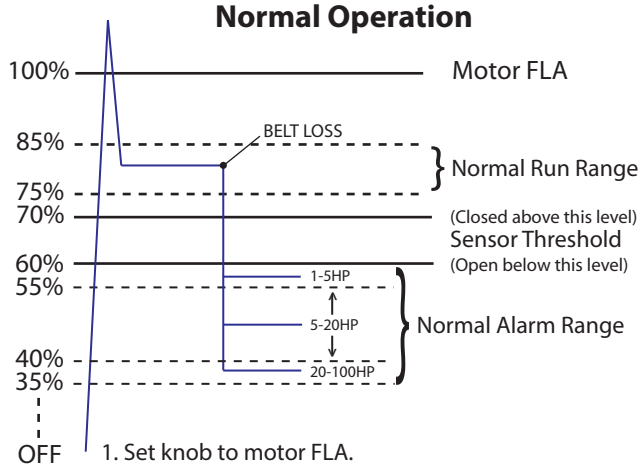
Follow all safety precautions outlined in this manual. Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product. **Read all warnings carefully.**

1. Adjust knob on sensor to maximum FLA. (Fully clockwise)

2. With motor operating normally, adjust knob SLOWLY counter-clockwise until Hi LED is lit.

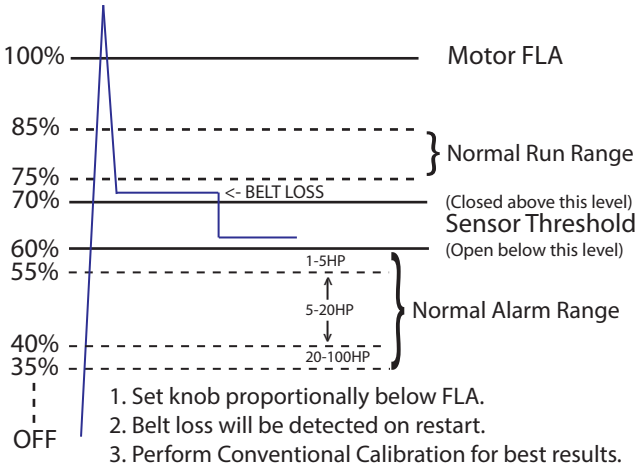
3. Adjust knob a few degrees more to prevent nuisance alarms.

Normal Operation



1. Set knob to motor FLA.

Small / Lightly Loaded Motor Operation



1. Set knob proportionally below FLA.
2. Belt loss will be detected on restart.
3. Perform Conventional Calibration for best results.

Maximum surrounding air ambient, 60 ° C.

For use in Pollution Degree 2 Environment.

Troubleshooting		
Symptom	**Causes**	**Remedy**
Sensor output does not change state	Amperage is below sensor minimum threshold	Wrap monitored conductor turns through sensor. See Tech Tips
	Adjustment incorrect	See Conventional Calibration procedure
	Testing with ohm meter yields incorrect results	Solid state output may show approx. 1 ohm or less
	Incorrect control wiring	Ensure control loop voltage is present

INSTALLATION INSTRUCTIONS

C-2320, Adjustable Mini Split-Core Digital Output

3PZS
c UL US LISTED

DANGER

Failure to follow these instructions will result in death or serious injury.

Hazard of electrical shock, explosion, and arc flash

- Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product
- Only qualified electrical personnel should install this product
- Read, understand, and follow all instructions thoroughly
- Install only on insulated conductors
- Lock out and tag out all power sources prior to installation. Use properly rated voltage sensing instrument to determine no voltage is present

WARNING

Failure to follow these instructions could result in death or serious injury.

Automated equipment may start without warning

- Equipment monitored/operated by this device may start without warning. Keep clear of apparatus at all times

IMPORTANT WARNINGS

- Only qualified trade installers should install this product
- This product is not intended for life-safety applications
- Do not install in hazardous or classified locations
- The installer is responsible for all applicable codes
- This product must be installed in a suitable electrical enclosure

INSTALLATION

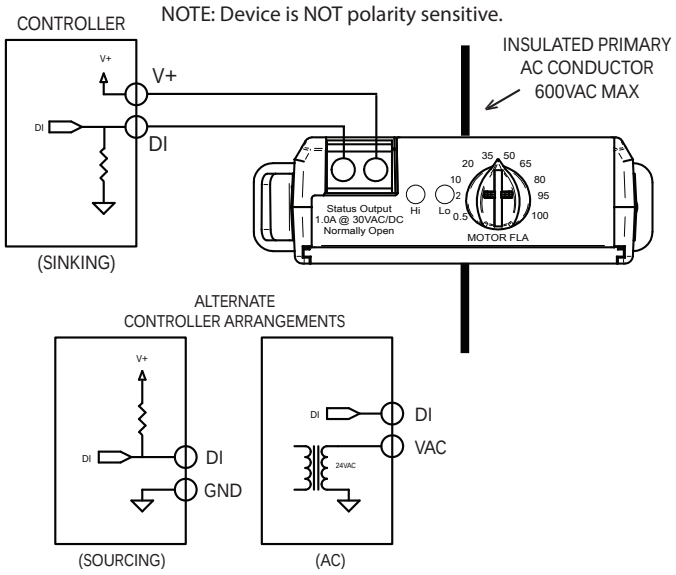
Disconnect, lock out and tag out all power supplies during installation

1. Determine mounting location for the sensor near the conductor to be monitored. The sensor should be located AT LEAST 1/2" from any uninsulated conductor.
2. Sensor features a flexible iris which allows the sensor to hang on the conductor if local codes permit. A bracket is included for screw mounting or attaching to DIN rail. For screw mounting, drill two 3/32" pilot holes using the bracket as a template; ensure no drill shavings are present in enclosure. Attach bracket with screws provided.
3. Clamp sensor around INSULATED CONDUCTOR ONLY, 600VAC MAX to be monitored.
4. Snap the sensor into the mounting bracket.
5. Wire the output of the sensor to a control panel digital input loop not to exceed 30VAC/DC wetting voltage. Tighten terminals to 3.5 in-lb.

CALIBRATION

1. Adjust knob on sensor to motor full load amperage (FLA) as indicated on motor nameplate or overload protection device. (See Tech Tips for precise calibration procedure.)

WIRING EXAMPLES

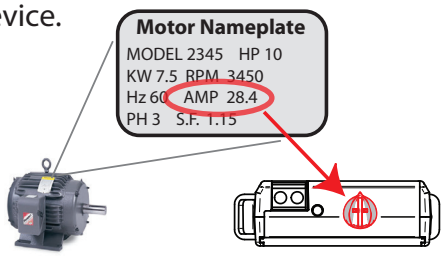


PRODUCT APPLICATION LIMITATION:
Senva products are not designed for life or safety applications. Senva products are not intended for use in critical applications such as nuclear facilities, human implantable device or life support. Senva is not liable, in whole or in part, for any claims or damages arising from such uses.

SENVA senvainc.com 1-866-660-8864 (F)1-503-296-2529 9290 SW Nimbus Ave. Beaverton Oregon 97008

PRESET CALIBRATION (Typical)

Adjust knob on sensor to motor full load amperage (FLA) as indicated on motor nameplate or overload protection device.



The sensor scale is pre-calibrated for motors operating at a **minimum of 75% FLA**.

On startup, the sensor output will close when monitored current exceeds 70% FLA, and open if current is below 60% FLA to indicate load loss (broken belt, coupling shear, etc.)

For lightly loaded (oversized) motors operating below 75% FLA, the sensor should be set to a proportionally lower FLA to ensure positive status detection and avoid nuisance alarms.

Smaller (less than 5HP) motors and/or lightly loaded motors may not have sufficient reduction in amperage (below 60% FLA) for the sensor to detect belt loss immediately. The sensor will detect the belt loss when the motor is restarted, as long as the unloaded motor current is below 70% FLA.

For improved performance on small and lightly loaded motors, consider the following options:

1. Use lower current models C-2320-L or C-1220 for improved calibration resolution. The self-calibrating, microcontroller based sensor model C-2330 is also recommended.

2. Perform conventional calibration.

Part Number	C-2320
Amperage Range	0.5A (on)~100A (200A Max.)
Output Type	NO, solid-state FET
Output Rating	1.0A@30VAC/DC Max.
Temperature Rating	-15~60 ° C
Insulation Class	600V RMS. For use on insulated conductors only! Use minimum 75 ° C insulated conductor
Sensor Power	Induced
Frequency Range	50/60Hz
Dimensions (LxWxH)	2.94" x 2.23" x 0.82" (1.4" H with optional relay module)
Sensor Aperture	0.75"

Conventional Calibration (High Accuracy)

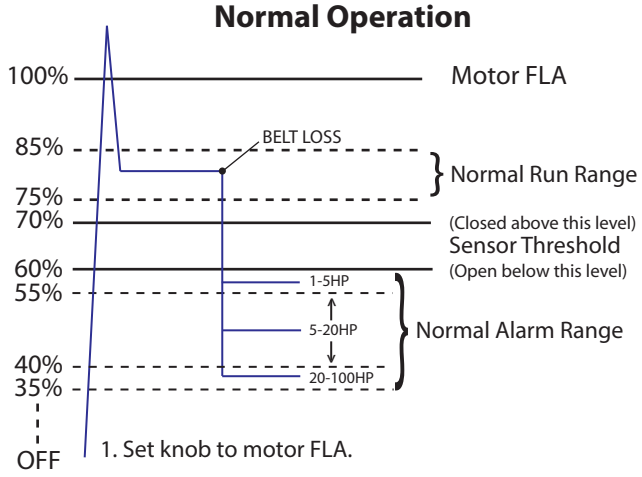
Follow all safety precautions outlined in this manual. Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product. **Read all warnings carefully.**

1. Adjust knob on sensor to maximum FLA. (Fully clockwise)

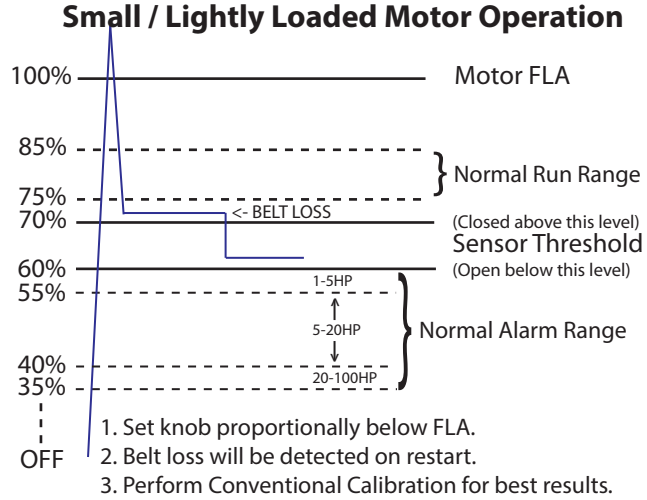
2. With motor operating normally, adjust knob SLOWLY counter-clockwise until "Hi" LED is lit.

3. Adjust knob a few degrees more to prevent nuisance alarms.

Normal Operation



Small / Lightly Loaded Motor Operation



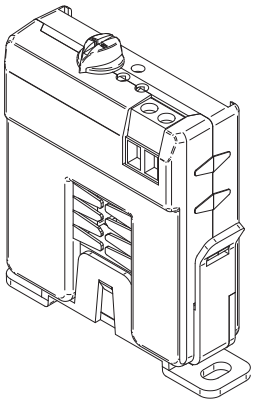
Maximum surrounding air ambient, 60 ° C.

For use in Pollution Degree 2 Environment.

Troubleshooting		
Symptom	**Causes**	**Remedy**
Sensor output does not change state	Amperage is below sensor minimum threshold	Wrap monitored conductor turns through sensor. See Tech Tips
	Adjustment incorrect	See Conventional Calibration procedure
	Testing with ohm meter yields incorrect results	Solid state output may show approx. 1 ohm or less
	Incorrect control wiring	Ensure control loop voltage is present

INSTALLATION INSTRUCTIONS

C-2320HV-L, Adjustable Mini Split-Core Digital Output



3PZS
c UL US LISTED

DANGER

Failure to follow these instructions will result in death or serious injury.

Hazard of electrical shock, explosion, and arc flash

- Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product
- Only qualified electrical personnel should install this product.
- Read, understand, and follow all instructions thoroughly
- Install only on insulated conductors
- Lock out and tag out all power sources prior to installation. Use properly rated voltage sensing instrument to determine no voltage is present

WARNING

Failure to follow these instructions could result in death or serious injury.

Automated equipment may start without warning

- Equipment monitored/operated by this device may start without warning. Keep clear of apparatus at all times

IMPORTANT WARNINGS

- Only qualified trade installers should install this product
- This product is not intended for life-safety applications
- Do not install in hazardous or classified locations
- The installer is responsible for all applicable codes
- This product must be installed in a suitable electrical enclosure

INSTALLATION

Disconnect, lock out and tag out all power supplies during installation

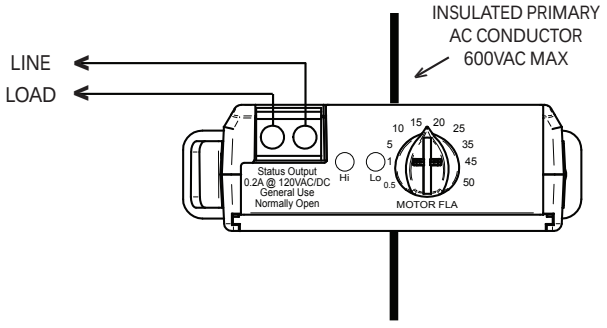
1. Determine mounting location for the sensor near the conductor to be monitored. The sensor should be located AT LEAST 1/2" from any uninsulated conductor.
2. Sensor features a flexible iris which allows the sensor to hang on the conductor if local codes permit. A bracket is included for screw mounting or attaching to DIN rail. For screw mounting, drill two 3/32" pilot holes using the bracket as a template; ensure no drill shavings are present in enclosure. Attach bracket with screws provided.
3. Clamp sensor around INSULATED CONDUCTOR ONLY, 600VAC MAX to be monitored.
4. Snap the sensor into the mounting bracket.
5. Wire the output of the sensor in series with a contactor coil not to exceed 120VAC @ 0.2 Amp. Tighten terminals to 3.5 in-lb.

CALIBRATION

1. Adjust knob on sensor to motor full load amperage (FLA) as indicated on motor nameplate or overload protection device. (See Tech Tips for precise calibration procedure.)

WIRING EXAMPLES

NOTE: Device is NOT polarity sensitive.

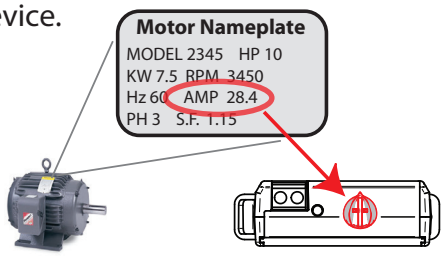


Revised 9/15/2015 Document #152-0023-0B

senvainc.com 1-866-660-8864 (F)1-503-296-2529 9290 SW Nimbus Ave. Beaverton Oregon 97008

PRESET CALIBRATION (Typical)

Adjust knob on sensor to motor full load amperage (FLA) as indicated on motor nameplate or overload protection device.



The sensor scale is pre-calibrated for motors operating at a **minimum of 75% FLA**.

On startup, the sensor output will close when monitored current exceeds 70% FLA, and open if current is below 60% FLA to indicate load loss (broken belt, coupling shear, etc.)

For lightly loaded (oversized) motors operating below 75% FLA, the sensor should be set to a proportionally lower FLA to ensure positive status detection and avoid nuisance alarms.

Smaller (less than 5HP) motors and/or lightly loaded motors may not have sufficient reduction in amperage (below 60% FLA) for the sensor to detect belt loss immediately. The sensor will detect the belt loss when the motor is restarted, as long as the unloaded motor current is below 70% FLA.

For improved performance on small and lightly loaded motors, consider the following options:

1. Use model C-2330HV self-calibrating, microcontroller based sensor.

2. Perform conventional calibration.

Conventional Calibration (High Accuracy)

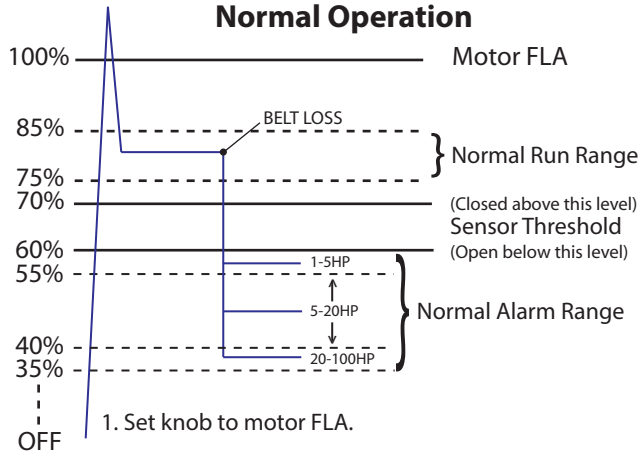
Follow all safety precautions outlined in this manual. Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product. **Read all warnings carefully.**

1. Adjust knob on sensor to maximum FLA. (Fully clockwise)

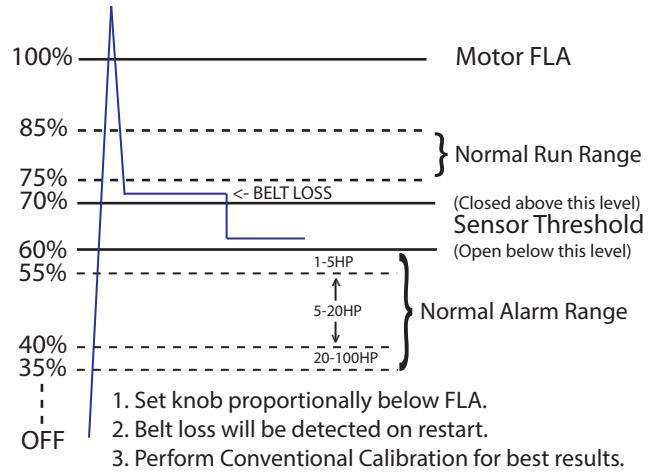
2. With motor operating normally, adjust knob SLOWLY counter-clockwise until Hi LED is lit.

3. Adjust knob a few degrees more to prevent nuisance alarms.

Normal Operation



Small / Lightly Loaded Motor Operation



Maximum surrounding air ambient, 60 ° C.

For use in Pollution Degree 2 Environment.

Part Number	C-2320HV-L
Amperage Range	0.45A (on)~50A (200A Max.)
Output Type	NO, solid-state FET
Output Rating	0.2A (200mA) @120VAC Max
Temperature Rating	-15~60 ° C
Insulation Class	600V RMS. For use on insulated conductors only! Use minimum 75 ° C insulated conductor
Sensor Power	Induced
Frequency Range	50/60Hz
Dimensions (LxWxH)	2.94" x 2.23" x 0.82" (1.4" H with optional relay module)
Sensor Aperture	0.75"

Troubleshooting		
Symptom	**Causes**	**Remedy**
Sensor output does not change state	Amperage is below sensor minimum threshold	Wrap monitored conductor turns through sensor. See Tech Tips
	Adjustment incorrect	See Conventional Calibration procedure
	Testing with ohm meter yields incorrect results	Solid state output may show approx. 1 ohm or less
	Incorrect control wiring	Ensure control loop voltage is present

Revised 9/15/2015 Document #152-0023-0B

INSTALLATION INSTRUCTIONS

C-2320-H, Adjustable Mini Split-Core Digital Output

3PZS
c UL US LISTED

DANGER

Failure to follow these instructions will result in death or serious injury.

Hazard of electrical shock, explosion, and arc flash

- Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product
- Only qualified electrical personnel should install this product
- Read, understand, and follow all instructions thoroughly
- Install only on insulated conductors
- Lock out and tag out all power sources prior to installation. Use properly rated voltage sensing instrument to determine no voltage is present

WARNING

Failure to follow these instructions could result in death or serious injury.

Automated equipment may start without warning

- Equipment monitored/operated by this device may start without warning. Keep clear of apparatus at all times

IMPORTANT WARNINGS

- Only qualified trade installers should install this product
- This product is not intended for life-safety applications
- Do not install in hazardous or classified locations
- The installer is responsible for all applicable codes
- This product must be installed in a suitable electrical enclosure

INSTALLATION

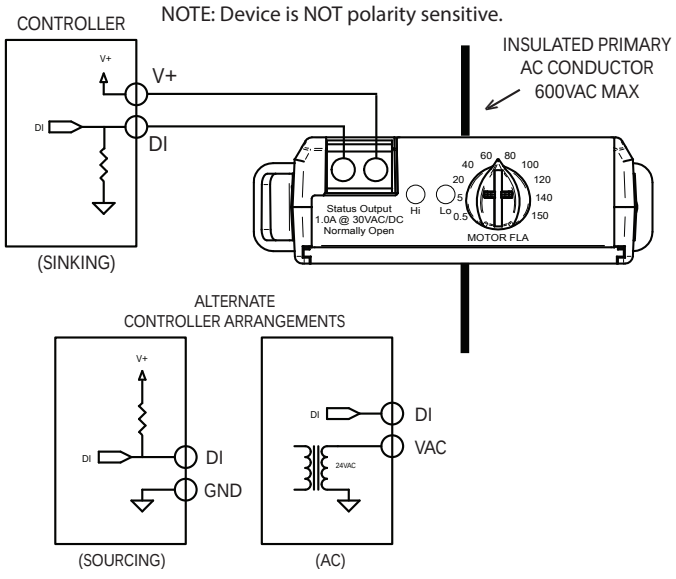
Disconnect, lock out and tag out all power supplies during installation

1. Determine mounting location for the sensor near the conductor to be monitored. The sensor should be located AT LEAST 1/2" from any uninsulated conductor.
2. Sensor features a flexible iris which allows the sensor to hang on the conductor if local codes permit. A bracket is included for screw mounting or attaching to DIN rail. For screw mounting, drill two 3/32" pilot holes using the bracket as a template; ensure no drill shavings are present in enclosure. Attach bracket with screws provided.
3. Clamp sensor around INSULATED CONDUCTOR ONLY, 600VAC MAX to be monitored.
4. Snap the sensor into the mounting bracket.
5. Wire the output of the sensor to a control panel digital input loop not to exceed 30VAC/DC wetting voltage. Tighten terminals to 3.5 in-lb.

CALIBRATION

1. Adjust knob on sensor to motor full load amperage (FLA) as indicated on motor nameplate or overload protection device. (See Tech Tips for precise calibration procedure.)

WIRING EXAMPLES

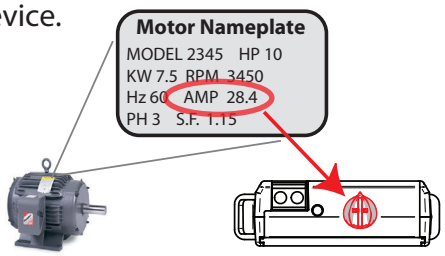


PRODUCT APPLICATION LIMITATION:
Senva products are not designed for life or safety applications. Senva products are not intended for use in critical applications such as nuclear facilities, human implantable device or life support. Senva is not liable, in whole or in part, for any claims or damages arising from such uses.

SENVA senvainc.com 1-866-660-8864 (F)1-503-296-2529 9290 SW Nimbus Ave. Beaverton Oregon 97008

PRESET CALIBRATION (Typical)

Adjust knob on sensor to motor full load amperage (FLA) as indicated on motor nameplate or overload protection device.



The sensor scale is pre-calibrated for motors operating at a **minimum of 75% FLA**.

On startup, the sensor output will close when monitored current exceeds 70% FLA, and open if current is below 60% FLA to indicate load loss (broken belt, coupling shear, etc.)

For lightly loaded (oversized) motors operating below 75% FLA, the sensor should be set to a proportionally lower FLA to ensure positive status detection and avoid nuisance alarms.

Smaller (less than 5HP) motors and/or lightly loaded motors may not have sufficient reduction in amperage (below 60% FLA) for the sensor to detect belt loss immediately. The sensor will detect the belt loss when the motor is restarted, as long as the unloaded motor current is below 70% FLA.

For improved performance on small and lightly loaded motors, consider the following options:

1. Use model C-2330 self-calibrating, microcontroller based sensor.

2. Perform conventional calibration.

Conventional Calibration (High Accuracy)

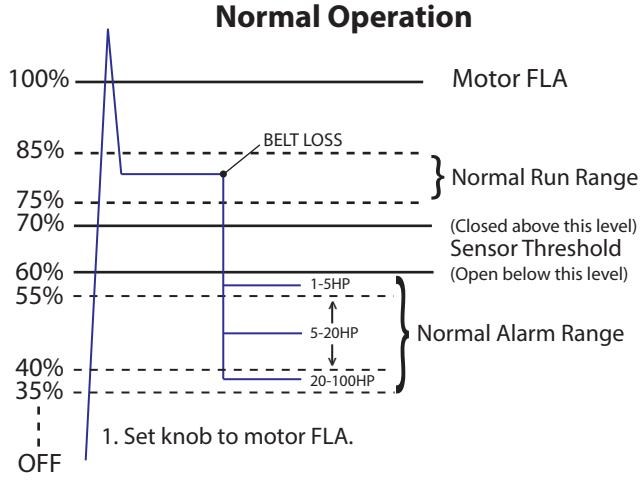
Follow all safety precautions outlined in this manual. Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product. **Read all warnings carefully.**

1. Adjust knob on sensor to maximum FLA. (Fully clockwise)

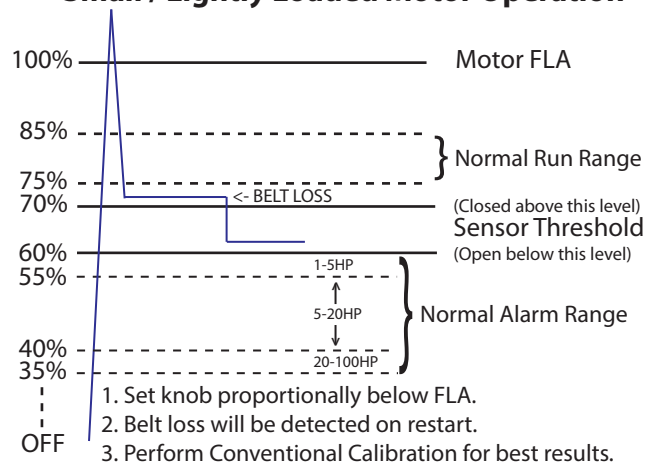
2. With motor operating normally, adjust knob SLOWLY counter-clockwise until Hi LED is lit.

3. Adjust knob a few degrees more to prevent nuisance alarms.

Normal Operation



Small / Lightly Loaded Motor Operation



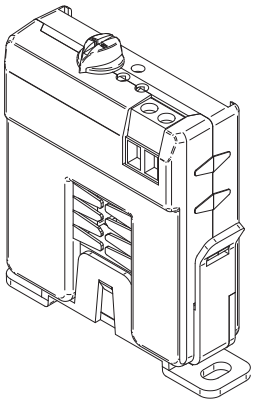
Maximum surrounding air ambient, 60 ° C. For use in Pollution Degree 2 Environment.

Part Number	C-2320-H
Amperage Range	0.5A (on)~150A (200A Max.)
Output Type	NO, solid-state FET
Output Rating	1.0A@30VAC/DC Max.
Temperature Rating	-15~60 ° C
Insulation Class	600V RMS. For use on insulated conductors only! Use minimum 75 ° C insulated conductor
Sensor Power	Induced
Frequency Range	50/60Hz
Dimensions (LxWxH)	2.94" x 2.23" x 0.82" (1.4" H with optional relay module)
Sensor Aperture	0.75"

Troubleshooting		
Symptom	**Causes**	**Remedy**
Sensor output does not change state	Amperage is below sensor minimum threshold	Wrap monitored conductor turns through sensor. See Tech Tips
	Adjustment incorrect	See Conventional Calibration procedure
	Testing with ohm meter yields incorrect results	Solid state output may show approx. 1 ohm or less
	Incorrect control wiring	Ensure control loop voltage is present

INSTALLATION INSTRUCTIONS

C-2320-L, Adjustable Mini Split-Core Digital Output



3PZS
c UL US LISTED

DANGER

Failure to follow these instructions will result in death or serious injury.

Hazard of electrical shock, explosion, and arc flash

- Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product
- Only qualified electrical personnel should install this product.
- Read, understand, and follow all instructions thoroughly
- Install only on insulated conductors
- Lock out and tag out all power sources prior to installation. Use properly rated voltage sensing instrument to determine no voltage is present

WARNING

Failure to follow these instructions could result in death or serious injury.

Automated equipment may start without warning

- Equipment monitored/operated by this device may start without warning. Keep clear of apparatus at all times

IMPORTANT WARNINGS

- Only qualified trade installers should install this product
- This product is not intended for life-safety applications
- Do not install in hazardous or classified locations
- The installer is responsible for all applicable codes
- This product must be installed in a suitable electrical enclosure

INSTALLATION

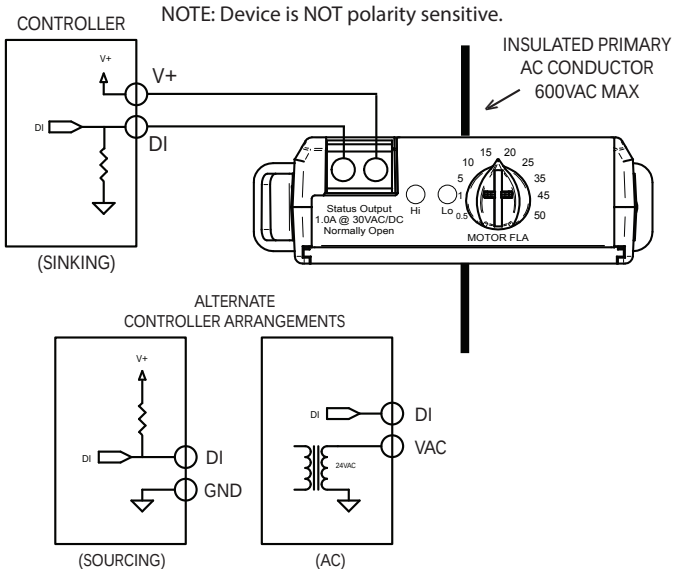
Disconnect, lock out and tag out all power supplies during installation

1. Determine mounting location for the sensor near the conductor to be monitored. The sensor should be located AT LEAST 1/2" from any uninsulated conductor.
2. Sensor features a flexible iris which allows the sensor to hang on the conductor if local codes permit. A bracket is included for screw mounting or attaching to DIN rail. For screw mounting, drill two 3/32" pilot holes using the bracket as a template; ensure no drill shavings are present in enclosure. Attach bracket with screws provided.
3. Clamp sensor around INSULATED CONDUCTOR ONLY, 600VAC MAX to be monitored.
4. Snap the sensor into the mounting bracket.
5. Wire the output of the sensor to a control panel digital input loop not to exceed 30VAC/DC wetting voltage. Tighten terminals to 3.5 in-lb.

CALIBRATION

1. Adjust knob on sensor to motor full load amperage (FLA) as indicated on motor nameplate or overload protection device. (See Tech Tips for precise calibration procedure.)

WIRING EXAMPLES

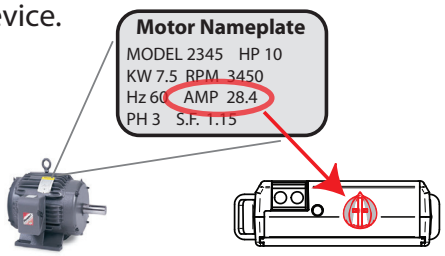


PRODUCT APPLICATION LIMITATION:
Senva products are not designed for life or safety applications. Senva products are not intended for use in critical applications such as nuclear facilities, human implantable device or life support. Senva is not liable, in whole or in part, for any claims or damages arising from such uses.

Revised 9/15/2015 Document #152-0021-0B

PRESET CALIBRATION (Typical)

Adjust knob on sensor to motor full load amperage (FLA) as indicated on motor nameplate or overload protection device.



The sensor scale is pre-calibrated for motors operating at a **minimum of 75% FLA**.

On startup, the sensor output will close when monitored current exceeds 70% FLA, and open if current is below 60% FLA to indicate load loss (broken belt, coupling shear, etc.)

For lightly loaded (oversized) motors operating below 75% FLA, the sensor should be set to a proportionally lower FLA to ensure positive status detection and avoid nuisance alarms.

Smaller (less than 5HP) motors and/or lightly loaded motors may not have sufficient reduction in amperage (below 60% FLA) for the sensor to detect belt loss immediately. The sensor will detect the belt loss when the motor is restarted, as long as the unloaded motor current is below 70% FLA.

For improved performance on small and lightly loaded motors, consider the following options:

1. Use model C-2330 self-calibrating, microcontroller based sensor.

2. Perform conventional calibration.

Conventional Calibration (High Accuracy)

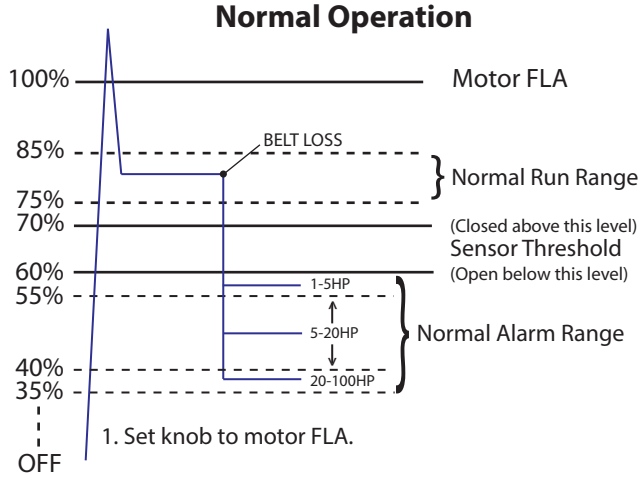
Follow all safety precautions outlined in this manual. Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product. **Read all warnings carefully.**

1. Adjust knob on sensor to maximum FLA. (Fully clockwise)

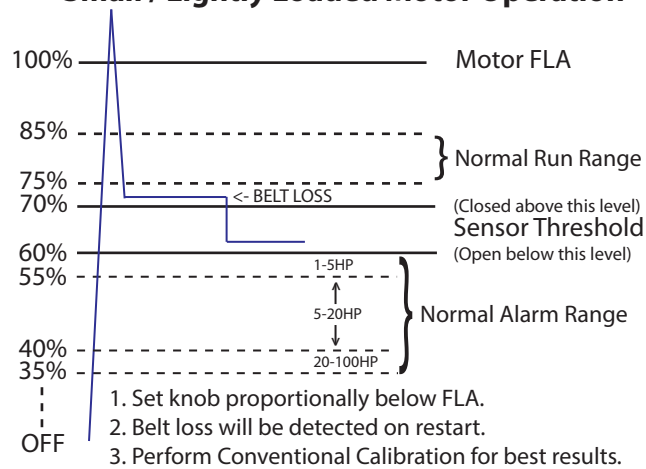
2. With motor operating normally, adjust knob SLOWLY counter-clockwise until Hi LED is lit.

3. Adjust knob a few degrees more to prevent nuisance alarms.

Normal Operation



Small / Lightly Loaded Motor Operation



Maximum surrounding air ambient, 60 ° C. For use in Pollution Degree 2 Environment.

Part Number	C-2320-L
Amperage Range	0.45A (on)~50A (200A Max.)
Output Type	NO, solid-state FET
Output Rating	1.0A@30VAC/DC Max.
Temperature Rating	-15~60 ° C
Insulation Class	600V RMS. For use on insulated conductors only! Use minimum 75 ° C insulated conductor
Sensor Power	Induced
Frequency Range	50/60Hz
Dimensions (LxWxH)	2.94" x 2.23" x 0.82" (1.4" H with optional relay module)
Sensor Aperture	0.75"

Troubleshooting		
Symptom	**Causes**	**Remedy**
Sensor output does not change state	Amperage is below sensor minimum threshold	Wrap monitored conductor turns through sensor. See Tech Tips
	Adjustment incorrect	See Conventional Calibration procedure
	Testing with ohm meter yields incorrect results	Solid state output may show approx. 1 ohm or less
	Incorrect control wiring	Ensure control loop voltage is present

Revised 9/15/2015 Document #152-0021-0B

INSTALLATION INSTRUCTIONS

C-2220, Adjustable Mini Split-Core Digital Output

3PZS
c UL US LISTED

DANGER

Failure to follow these instructions will result in death or serious injury.

Hazard of electrical shock, explosion, and arc flash

- Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product
- Only qualified electrical personnel should install this product.
- Read, understand, and follow all instructions thoroughly
- Install only on insulated conductors
- Lock out and tag out all power sources prior to installation. Use properly rated voltage sensing instrument to determine no voltage is present

WARNING

Failure to follow these instructions could result in death or serious injury.

Automated equipment may start without warnng

- Equipment monitored/operated by this device may start without warning. Keep clear of apparatus at all times

IMPORTANT WARNINGS

- Only qualified trade installers should install this product
- This product is not intended for life-safety applications
- Do not install in hazardous or classified locations
- The installer is responsible for all applicable codes
- This product must be installed in a suitable electrical enclosure

INSTALLATION

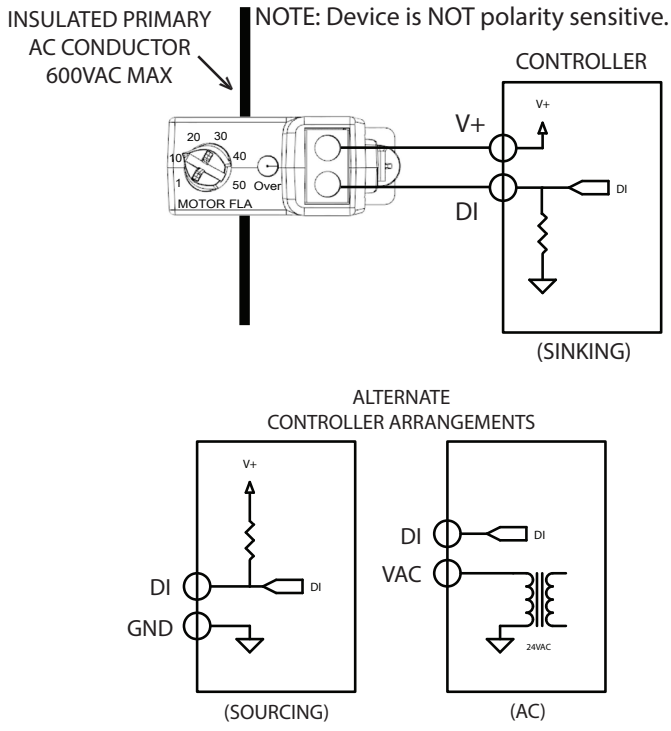
Disconnect, lock out and tag out all power supplies during installation

1. Determine mounting location for the sensor near the conductor to be monitored. The sensor should be located AT LEAST 1/2" from any uninsulated conductor.
2. Sensor features a flexible iris which allows the sensor to hang on the conductor if local codes permit. A bracket is included for screw mounting or attaching to DIN rail. For screw mounting, drill two 3/32" pilot holes using the bracket as a template; ensure no drill shavings are present in enclosure. Attach bracket with screws provided.
3. Clamp sensor around INSULATED CONDUCTOR ONLY, 600VAC MAX to be monitored.
4. Snap the sensor into the mounting bracket.
5. Wire the output of the sensor to a control panel digital input loop not to exceed 30VAC/DC wetting voltage. Tighten terminals to 3.5 in-lb.

CALIBRATION

1. Adjust knob on sensor to motor full load amperage (FLA) as indicated on motor nameplate or overload protection device. (See Tech Tips for precise calibration procedure.)

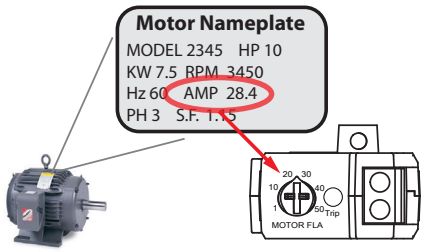
WIRING EXAMPLES



PRODUCT APPLICATION LIMITATION:
Senva products are not designed for life or safety applications. Senva products are not intended for use in critical applications such as nuclear facilities, human implantable device or life support. Senva is not liable, in whole or in part, for any claims or damages arising from such uses.

PRESET CALIBRATION (Typical)

Adjust knob on sensor to motor full load amperage (FLA) as indicated on motor nameplate or overload protection device.



The sensor scale is pre-calibrated for motors operating at a **minimum of 87% FLA**.

On startup, the sensor output will close when monitored current exceeds 80% FLA, and open if current is below 55% FLA to indicate load loss (broken belt, coupling shear, etc.)

For lightly loaded (oversized) motors operating below 87% FLA, the sensor should be set to a proportionally lower FLA to ensure positive status detection and avoid nuisance alarms.

Smaller (less than 5HP) motors and/or lightly loaded motors may not have sufficient reduction in amperage (below 55% FLA) for the sensor to detect belt loss immediately. The sensor will detect the belt loss when the motor is restarted, as long as the unloaded motor current is below 80% FLA.

For improved performance on small and lightly loaded motors, the following options are recommended:

1. Consider using model C-1220L, low-range model (0.75-5 amps)

2. Perform conventional calibration.

Conventional Calibration (High Accuracy)

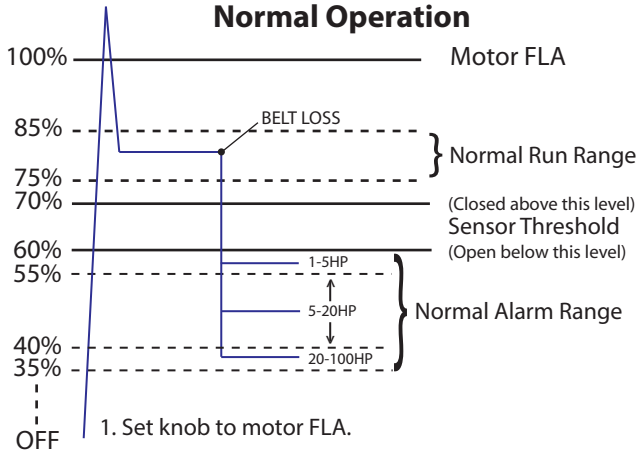
Follow all safety precautions outlined in this manual. Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product. **Read all warnings carefully.**

1. Adjust knob on sensor to maximum FLA. (Fully clockwise)

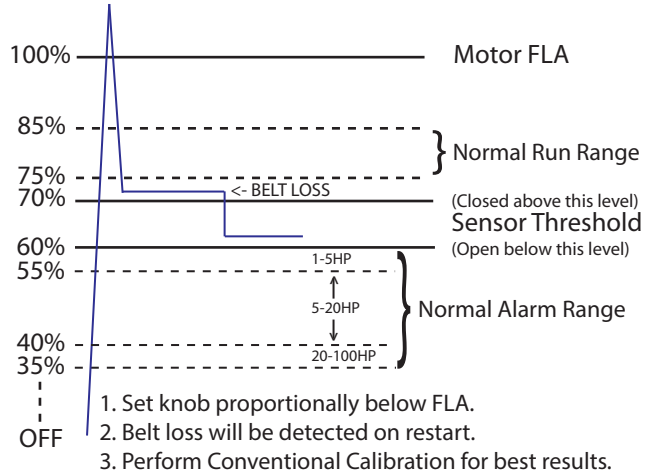
2. With motor operating normally, adjust knob SLOWLY counter-clockwise until LED is lit.

3. Adjust knob a few degrees more to prevent nuisance alarms.

Normal Operation



Small / Lightly Loaded Motor Operation



Maximum surrounding air ambient, 60 ° C. For use in Pollution Degree 2 Environment.

Part Number	C-2220
Amperage Range	1.0A (on)~50A (50A Max.)
Output Type	NO, solid-state FET
Output Rating	1.0A@30VAC/DC Max.
Temperature Rating	-15~60 ° C
Insulation Class	600V RMS. For use on insulated conductors only! Use minimum 75 ° C insulated conductor
Sensor Power	Induced
Frequency Range	50/60Hz
Dimensions (LxWxH)	1.9" x 1.35" x 0.6" (2.0" x 1.6" x 0.6" with bracket)
Sensor Aperture	0.375"

Troubleshooting		
Symptom	**Causes**	**Remedy**
Sensor output does not change state	Amperage is below sensor minimum threshold	Wrap monitored conductor turns through sensor. See Tech Tips
	Adjustment incorrect	See Conventional Calibration procedure
	Testing with ohm meter yields incorrect results	Solid state output may show approx. 1 ohm or less
	Incorrect control wiring	Ensure control loop voltage is present

Revised 6/4/2014 Document #152-0040 -0A

INSTALLATION INSTRUCTIONS

C-1320, Adjustable Solid-Core Digital Output

3PZS
c UL US LISTED

DANGER

Failure to follow these instructions will result in death or serious injury.

Hazard of electrical shock, explosion, and arc flash

- Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product
- Only qualified electrical personnel should install this product.
- Read, understand, and follow all instructions thoroughly
- Install only on insulated conductors
- Lock out and tag out all power sources prior to installation. Use properly rated voltage sensing instrument to determine no voltage is present

WARNING

Failure to follow these instructions could result in death or serious injury.

Automated equipment may start without warnng

- Equipment monitored/operated by this device may start without warning. Keep clear of apparatus at all times

IMPORTANT WARNINGS

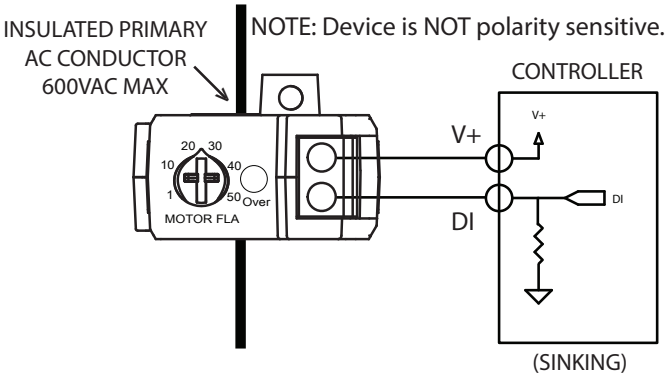
- Only qualified trade installers should install this product
- This product is not intended for life-safety applications
- Do not install in hazardous or classified locations
- The installer is responsible for all applicable codes
- This product must be installed in a suitable electrical enclosure

INSTALLATION

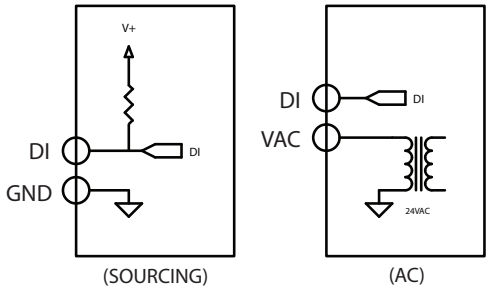
Disconnect, lock out and tag out all power supplies during installation

1. Determine mounting location for the sensor near the conductor to be monitored. The sensor should be located AT LEAST 1/2" from any uninsulated conductor.
2. Drill a single 3/32" pilot hole for mounting the sensor; ensure no drill shavings are present in enclosure.
3. Thread INSULATED CONDUCTOR ONLY, 600VAC MAX to be monitored through the iris of the sensor.
4. Reconnect the conductor and torque appropriately.
5. Screw mount the sensor to the enclosure.
6. Wire the output of the sensor to a control panel digital input loop not to exceed 30VAC/DC wetting voltage. Tighten terminals to 3.5 in-lb.
7. Follow directions for CALIBRATION.

WIRING EXAMPLES



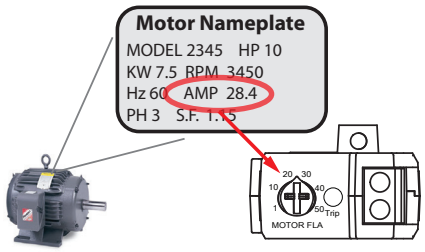
ALTERNATE
CONTROLLER ARRANGEMENTS



PRODUCT APPLICATION LIMITATION:
Senva products are not designed for life or safety applications. Senva products are not intended for use in critical applications such as nuclear facilities, human implantable device or life support. Senva is not liable, in whole or in part, for any claims or damages arising from such uses.

PRESET CALIBRATION (Typical)

Adjust knob on sensor to motor full load amperage (FLA) as indicated on motor nameplate or overload protection device.



The sensor scale is pre-calibrated for motors operating at a **minimum of 75% FLA**.

On startup, the sensor output will close when monitored current exceeds 70% FLA, and open if current is below 60% FLA to indicate load loss (broken belt, coupling shear, etc.)

For lightly loaded (oversized) motors operating below 75% FLA, the sensor should be set to a proportionally lower FLA to ensure positive status detection and avoid nuisance alarms.

Smaller (less than 5HP) motors and/or lightly loaded motors may not have sufficient reduction in amperage (below 60% FLA) for the sensor to detect belt loss immediately. The sensor will detect the belt loss when the motor is restarted, as long as the unloaded motor current is below 70% FLA.

For improved performance on small and lightly loaded motors, the following options are recommended:

1. Consider using model C-2330, self-calibrating, microcontroller based sensor.

2. Perform conventional calibration.

Conventional Calibration (High Accuracy)

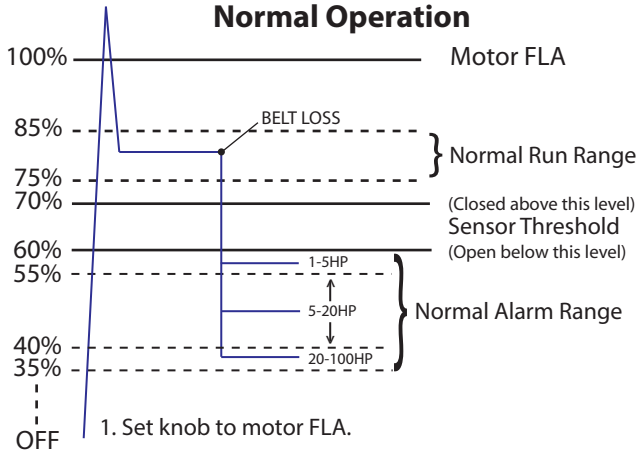
Follow all safety precautions outlined in this manual. Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product. **Read all warnings carefully.**

1. Adjust knob on sensor to maximum FLA. (Fully clockwise)

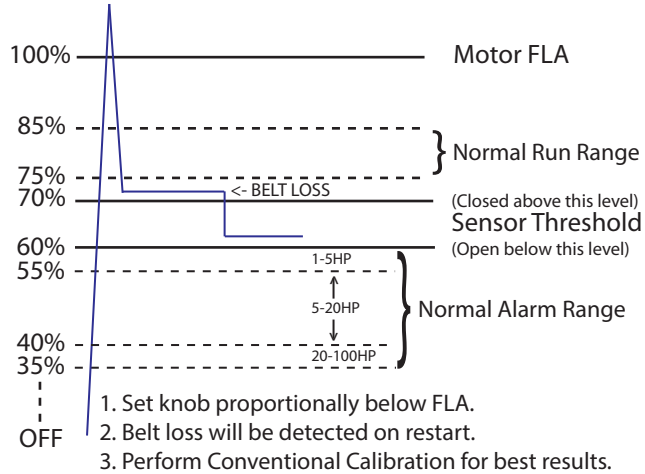
2. With motor operating normally, adjust knob SLOWLY counter-clockwise until LED is lit.

3. Adjust knob a few degrees more to prevent nuisance alarms.

Normal Operation



Small / Lightly Loaded Motor Operation



Maximum surrounding air ambient, 60 ° C. For use in Pollution Degree 2 Environment.

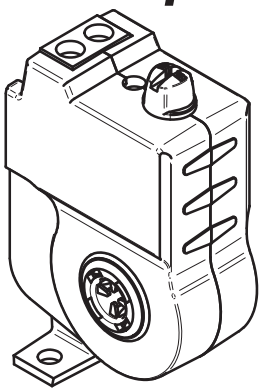
Part Number	C-1320
Amperage Range	0.75A (on)~50A (50A Max.)
Output Type	NO, solid-state FET
Output Rating	1.0A@30VAC/DC Max.
Temperature Rating	-15~60 ° C
Insulation Class	600V RMS. For use on insulated conductors only! Use minimum 75 ° C insulated conductor
Sensor Power	Induced
Frequency Range	50/60Hz
Dimensions (LxWxH)	2.27" x 1.61" x 0.69"
Sensor Aperture	0.5"

Troubleshooting		
Symptom	**Causes**	**Remedy**
Sensor output does not change state	Amperage is below sensor minimum threshold	Wrap monitored conductor turns through sensor. See Tech Tips
	Adjustment incorrect	See Conventional Calibration procedure
	Testing with ohm meter yields incorrect results	Solid state output may show approx. 1 ohm or less
	Incorrect control wiring	Ensure control loop voltage is present

Revised 5/30/2014 Document #152-0030-0A

INSTALLATION INSTRUCTIONS

C-1220HV-L, Adjustable Mini Solid-Core Digital Output



3PZS
c UL US LISTED

DANGER

Failure to follow these instructions will result in death or serious injury.

Hazard of electrical shock, explosion, and arc flash

- Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product
- Only qualified electrical personnel should install this product.
- Read, understand, and follow all instructions thoroughly
- Install only on insulated conductors
- Lock out and tag out all power sources prior to installation. Use properly rated voltage sensing instrument to determine no voltage is present

WARNING

Failure to follow these instructions could result in death or serious injury.

Automated equipment may start without warnng

- Equipment monitored/operated by this device may start without warning. Keep clear of apparatus at all times

IMPORTANT WARNINGS

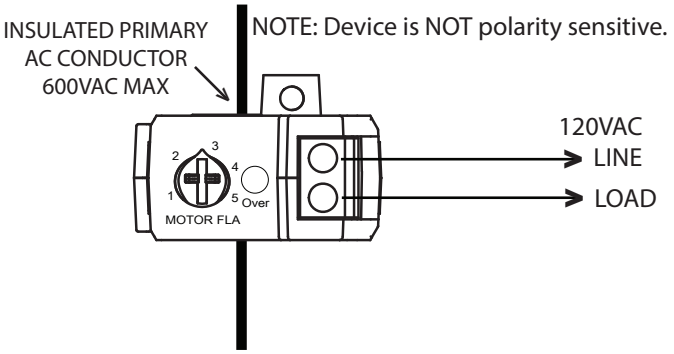
- Only qualified trade installers should install this product
- This product is not intended for life-safety applications
- Do not install in hazardous or classified locations
- The installer is responsible for all applicable codes
- This product must be installed in a suitable electrical enclosure

INSTALLATION

Disconnect, lock out and tag out all power supplies during installation

1. Determine mounting location for the sensor near the conductor to be monitored. The sensor should be located AT LEAST 1/2" from any uninsulated conductor.
2. Drill a single 3/32" pilot hole for mounting the sensor; ensure no drill shavings are present in enclosure.
3. Thread INSULATED CONDUCTOR ONLY, 600VAC MAX to be monitored through the iris of the sensor.
4. Reconnect the conductor and torque appropriately.
5. Screw mount the sensor to the enclosure.
6. Wire the output of the sensor in series with a contactor coil not to exceed 120VAC @ 0.2 Amp. Tighten terminals to 3.5 in-lb.
7. Follow directions for CALIBRATION.

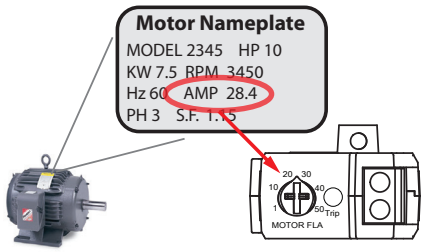
WIRING EXAMPLES



PRODUCT APPLICATION LIMITATION:
Senva products are not designed for life or safety applications. Senva products are not intended for use in critical applications such as nuclear facilities, human implantable device or life support. Senva is not liable, in whole or in part, for any claims or damages arising from such uses.

PRESET CALIBRATION (Typical)

Adjust knob on sensor to motor full load amperage (FLA) as indicated on motor nameplate or overload protection device.



The sensor scale is pre-calibrated for motors operating at a **minimum of 75% FLA**.

On startup, the sensor output will close when monitored current exceeds 70% FLA, and open if current is below 60% FLA to indicate load loss (broken belt, coupling shear, etc.)

For lightly loaded (oversized) motors operating below 75% FLA, the sensor should be set to a proportionally lower FLA to ensure positive status detection and avoid nuisance alarms.

Smaller (less than 5HP) motors and/or lightly loaded motors may not have sufficient reduction in amperage (below 60% FLA) for the sensor to detect belt loss immediately. The sensor will detect the belt loss when the motor is restarted, as long as the unloaded motor current is below 70% FLA.

For improved performance on small and lightly loaded motors, the following options are recommended:

1. Consider using model C-2330HV-L, self-calibrating, microcontroller based sensor.

2. Perform conventional calibration.

Part Number	C-1220HV-L
Amperage Range	0.75A (on)~5A (5A Max.)
Output Type	NO, solid-state FET
Output Rating	0.2A (200mA) @120VAC Max
Temperature Rating	-15~60 ° C
Insulation Class	600V RMS. For use on insulated conductors only! Use minimum 75 ° C insulated conductor
Sensor Power	Induced
Frequency Range	50/60Hz
Dimensions (LxWxH)	1.78" x 1.32" x 0.66"
Sensor Aperture	0.3"

Conventional Calibration (High Accuracy)

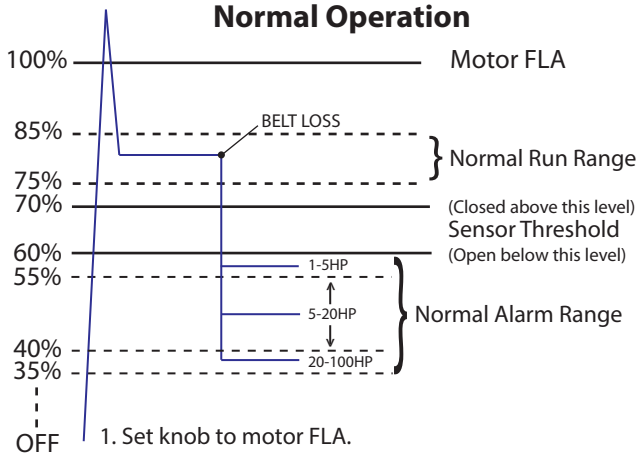
Follow all safety precautions outlined in this manual. Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product. **Read all warnings carefully.**

1. Adjust knob on sensor to maximum FLA. (Fully clockwise)

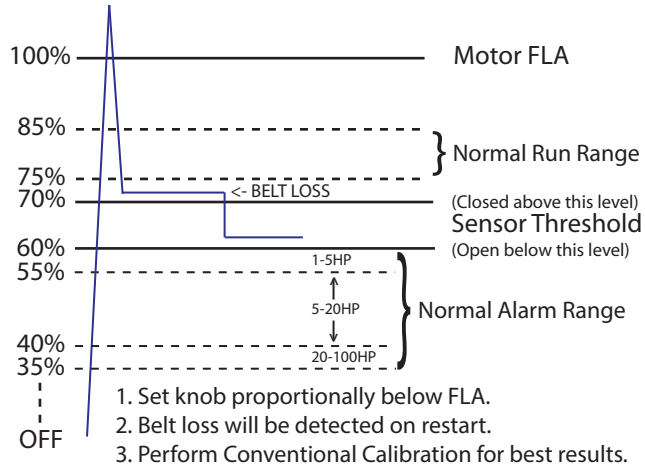
2. With motor operating normally, adjust knob SLOWLY counter-clockwise until LED is lit.

3. Adjust knob a few degrees more to prevent nuisance alarms.

Normal Operation



Small / Lightly Loaded Motor Operation



Maximum surrounding air ambient, 60 ° C.

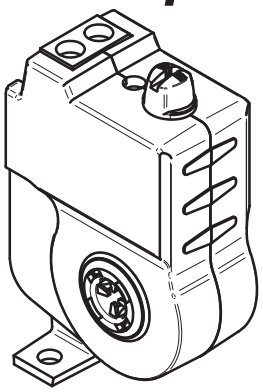
For use in Pollution Degree 2 Environment.

Troubleshooting		
Symptom	**Causes**	**Remedy**
Sensor output does not change state	Amperage is below sensor minimum threshold	Wrap monitored conductor turns through sensor. See Tech Tips
	Adjustment incorrect	See Conventional Calibration procedure
	Testing with ohm meter yields incorrect results	Solid state output may show approx. 1 ohm or less
	Incorrect control wiring	Ensure control loop voltage is present

Revised 5/30/2014 Document #153-0013-0A

INSTALLATION INSTRUCTIONS

C-1220HV, Adjustable Mini Solid-Core Digital Output



3PZS
c UL US LISTED

DANGER

Failure to follow these instructions will result in death or serious injury.

Hazard of electrical shock, explosion, and arc flash

- Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product
- Only qualified electrical personnel should install this product.
- Read, understand, and follow all instructions thoroughly
- Install only on insulated conductors
- Lock out and tag out all power sources prior to installation. Use properly rated voltage sensing instrument to determine no voltage is present

WARNING

Failure to follow these instructions could result in death or serious injury.

Automated equipment may start without warnng

- Equipment monitored/operated by this device may start without warning. Keep clear of apparatus at all times

IMPORTANT WARNINGS

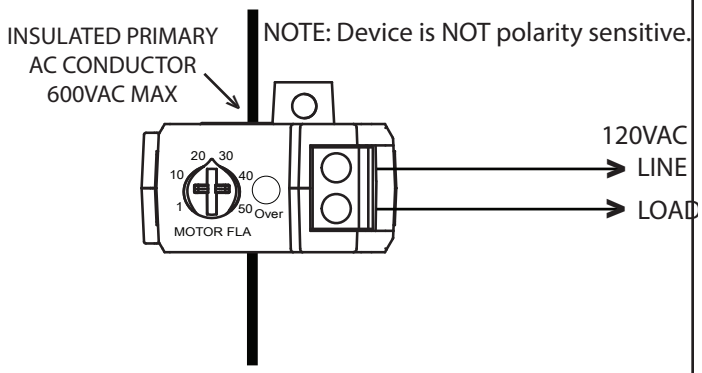
- Only qualified trade installers should install this product
- This product is not intended for life-safety applications
- Do not install in hazardous or classified locations
- The installer is responsible for all applicable codes
- This product must be installed in a suitable electrical enclosure

INSTALLATION

Disconnect, lock out and tag out all power supplies during installation

1. . Determine mounting location for the sensor near the conductor to be monitored. The sensor should be located AT LEAST 1/2" from any uninsulated conductor.
2. . Drill a single 3/32" pilot hole for mounting the sensor; ensure no drill shavings are present in enclosure.
3. . Thread INSULATED CONDUCTOR ONLY, 600VAC MAX to be monitored through the iris of the sensor.
4. . Reconnect the conductor and torque appropriately.
5. . Screw mount the sensor to the enclosure.
6. . Wire the output of the sensor in series with a contactor coil not to exceed 120VAC @ 0.2 Amp. Tighten terminals to 3.5 in-lb.
7. 7 Follow directions for CALIBRATION.

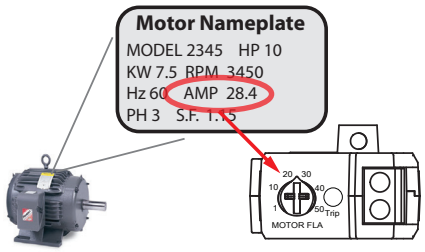
WIRING EXAMPLES



PRODUCT APPLICATION LIMITATION:
Senva products are not designed for life or safety applications. Senva products are not intended for use in critical applications such as nuclear facilities, human implantable device or life support. Senva is not liable, in whole or in part, for any claims or damages arising from such uses.

PRESET CALIBRATION (Typical)

Adjust knob on sensor to motor full load amperage (FLA) as indicated on motor nameplate or overload protection device.



The sensor scale is pre-calibrated for motors operating at a **minimum of 75% FLA**.

On startup, the sensor output will close when monitored current exceeds 70% FLA, and open if current is below 60% FLA to indicate load loss (broken belt, coupling shear, etc.)

For lightly loaded (oversized) motors operating below 75% FLA, the sensor should be set to a proportionally lower FLA to ensure positive status detection and avoid nuisance alarms.

Smaller (less than 5HP) motors and/or lightly loaded motors may not have sufficient reduction in amperage (below 60% FLA) for the sensor to detect belt loss immediately. The sensor will detect the belt loss when the motor is restarted, as long as the unloaded motor current is below 70% FLA.

For improved performance on small and lightly loaded motors, the following options are recommended:

1. Consider using model C-2330HV, self-calibrating, microcontroller based sensor.

2. Perform conventional calibration.

Part Number	C-1220HV
Amperage Range	0.75A (on)~50A (50A Max.)
Output Type	NO, solid-state FET
Output Rating	0.2A (200mA) @120VAC Max
Temperature Rating	-15~60 ° C
Insulation Class	600V RMS. For use on insulated conductors only! Use minimum 75 ° C insulated conductor
Sensor Power	Induced
Frequency Range	50/60Hz
Dimensions (LxWxH)	1.78" x 1.32" x 0.66"
Sensor Aperture	0.3"

Conventional Calibration (High Accuracy)

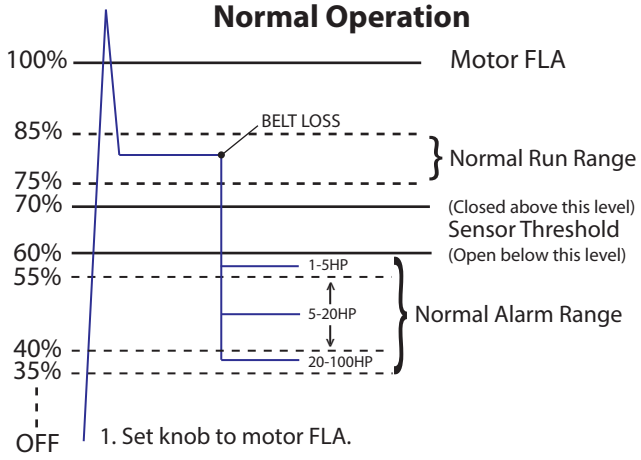
Follow all safety precautions outlined in this manual. Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product. **Read all warnings carefully.**

1. Adjust knob on sensor to maximum FLA. (Fully clockwise)

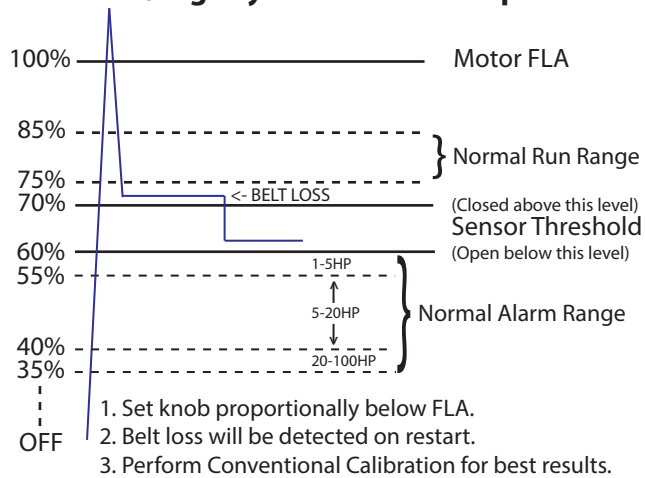
2. With motor operating normally, adjust knob SLOWLY counter-clockwise until LED is lit.

3. Adjust knob a few degrees more to prevent nuisance alarms.

Normal Operation



Small / Lightly Loaded Motor Operation



Maximum surrounding air ambient, 60 ° C.

For use in Pollution Degree 2 Environment.

Troubleshooting		
Symptom	**Causes**	**Remedy**
Sensor output does not change state	Amperage is below sensor minimum threshold	Wrap monitored conductor turns through sensor. See Tech Tips
	Adjustment incorrect	See Conventional Calibration procedure
	Testing with ohm meter yields incorrect results	Solid state output may show approx. 1 ohm or less
	Incorrect control wiring	Ensure control loop voltage is present

Revised 5/30/2014 Document #152-0012-0A

INSTALLATION INSTRUCTIONS

C-1220-L, Adjustable Mini Solid-Core Digital Output

3PZS
c UL US LISTED

DANGER

Failure to follow these instructions will result in death or serious injury.

Hazard of electrical shock, explosion, and arc flash

- Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product
- Only qualified electrical personnel should install this product.
- Read, understand, and follow all instructions thoroughly
- Install only on insulated conductors
- Lock out and tag out all power sources prior to installation. Use properly rated voltage sensing instrument to determine no voltage is present

WARNING

Failure to follow these instructions could result in death or serious injury.

Automated equipment may start without warnng

- Equipment monitored/operated by this device may start without warning. Keep clear of apparatus at all times

IMPORTANT WARNINGS

- Only qualified trade installers should install this product
- This product is not intended for life-safety applications
- Do not install in hazardous or classified locations
- The installer is responsible for all applicable codes
- This product must be installed in a suitable electrical enclosure

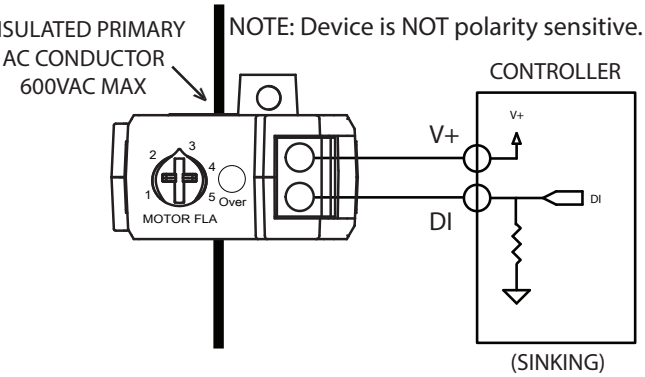
SENVA

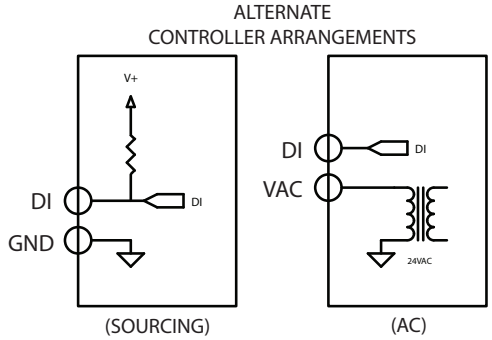
INSTALLATION

Disconnect, lock out and tag out all power supplies during installation

1. Determine mounting location for the sensor near the conductor to be monitored. The sensor should be located AT LEAST 1/2" from any uninsulated conductor.
2. Drill a single 3/32" pilot hole for mounting the sensor; ensure no drill shavings are present in enclosure.
3. Thread INSULATED CONDUCTOR ONLY, 600VAC MAX to be monitored through the iris of the sensor.
4. Reconnect the conductor and torque appropriately.
5. Screw mount the sensor to the enclosure.
6. Wire the output of the sensor to a control panel digital input loop not to exceed 30VAC/DC wetting voltage. Tighten terminals to 3.5 in-lb.
7. Follow directions for CALIBRATION.

WIRING EXAMPLES

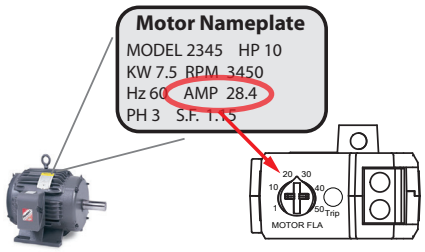




PRODUCT APPLICATION LIMITATION:
Senva products are not designed for life or safety applications. Senva products are not intended for use in critical applications such as nuclear facilities, human implantable device or life support. Senva is not liable, in whole or in part, for any claims or damages arising from such uses.

PRESET CALIBRATION (Typical)

Adjust knob on sensor to motor full load amperage (FLA) as indicated on motor nameplate or overload protection device.



The sensor scale is pre-calibrated for motors operating at a **minimum of 75% FLA**.

On startup, the sensor output will close when monitored current exceeds 70% FLA, and open if current is below 60% FLA to indicate load loss (broken belt, coupling shear, etc.)

For lightly loaded (oversized) motors operating below 75% FLA, the sensor should be set to a proportionally lower FLA to ensure positive status detection and avoid nuisance alarms.

Smaller (less than 5HP) motors and/or lightly loaded motors may not have sufficient reduction in amperage (below 60% FLA) for the sensor to detect belt loss immediately. The sensor will detect the belt loss when the motor is restarted, as long as the unloaded motor current is below 70% FLA.

For improved performance on small and lightly loaded motors, the following options are recommended:

1. Consider using model C-2330L, self-calibrating, microcontroller based sensor.

2. Perform conventional calibration.

Conventional Calibration (High Accuracy)

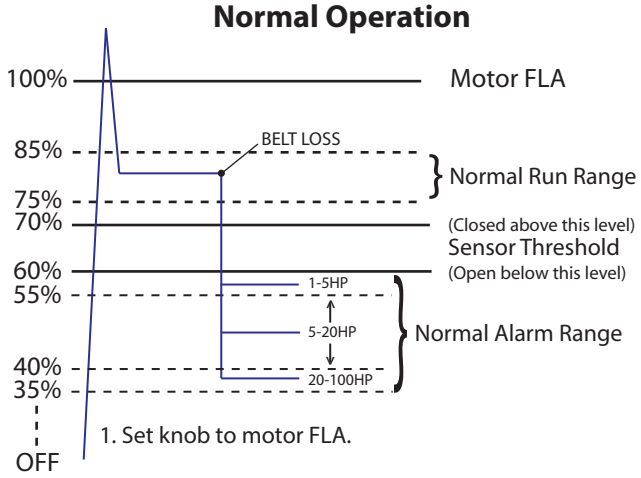
Follow all safety precautions outlined in this manual. Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product. **Read all warnings carefully.**

1. Adjust knob on sensor to maximum FLA. (Fully clockwise)

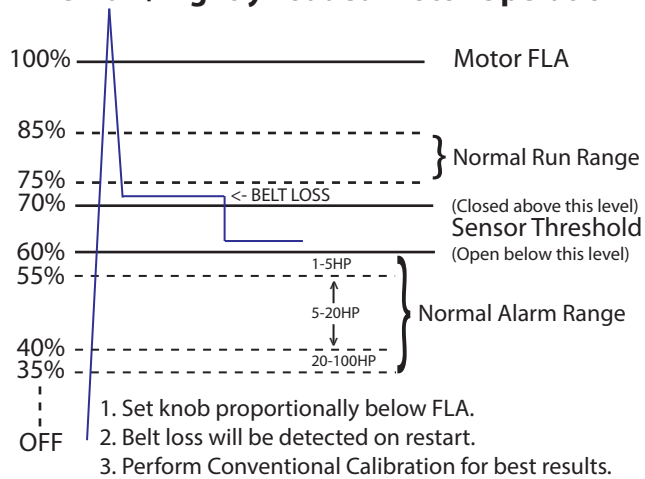
2. With motor operating normally, adjust knob SLOWLY counter-clockwise until LED is lit.

3. Adjust knob a few degrees more to prevent nuisance alarms.

Normal Operation



Small / Lightly Loaded Motor Operation



Maximum surrounding air ambient, 60 ° C. For use in Pollution Degree 2 Environment.

Part Number	C-1220L
Amperage Range	0.75A (on)~5A (5A Max.)
Output Type	NO, solid-state FET
Output Rating	1.0A@30VAC/DC Max.
Temperature Rating	-15~60 ° C
Insulation Class	600V RMS. For use on insulated conductors only! Use minimum 75 ° C insulated conductor
Sensor Power	Induced
Frequency Range	50/60Hz
Dimensions (LxWxH)	1.78" x 1.32" x 0.66"
Sensor Aperture	0.3"

Troubleshooting		
Symptom	**Causes**	**Remedy**
Sensor output does not change state	Amperage is below sensor minimum threshold	Wrap monitored conductor turns through sensor. See Tech Tips
	Adjustment incorrect	See Conventional Calibration procedure
	Testing with ohm meter yields incorrect results	Solid state output may show approx. 1 ohm or less
	Incorrect control wiring	Ensure control loop voltage is present

Revised 5/30/2014 Document #152-0011-0A

INSTALLATION INSTRUCTIONS

C-1220, Adjustable Mini Solid-Core Digital Output

3PZS
c UL US LISTED

DANGER

Failure to follow these instructions will result in death or serious injury.

Hazard of electrical shock, explosion, and arc flash

- Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product
- Only qualified electrical personnel should install this product.
- Read, understand, and follow all instructions thoroughly
- Install only on insulated conductors
- Lock out and tag out all power sources prior to installation. Use properly rated voltage sensing instrument to determine no voltage is present

WARNING

Failure to follow these instructions could result in death or serious injury.

Automated equipment may start without warnng

- Equipment monitored/operated by this device may start without warning. Keep clear of apparatus at all times

IMPORTANT WARNINGS

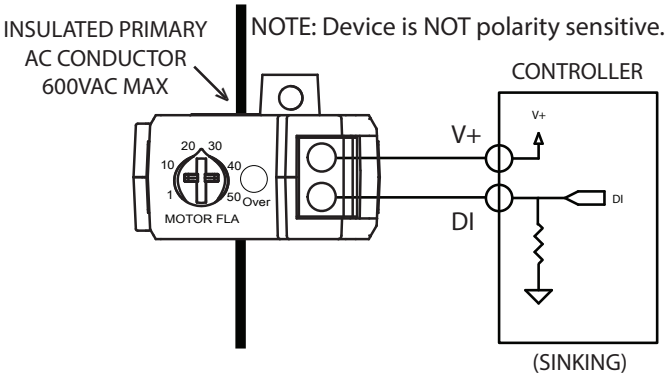
- Only qualified trade installers should install this product
- This product is not intended for life-safety applications
- Do not install in hazardous or classified locations
- The installer is responsible for all applicable codes
- This product must be installed in a suitable electrical enclosure

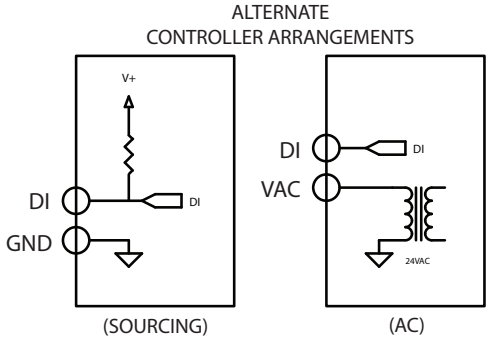
INSTALLATION

Disconnect, lock out and tag out all power supplies during installation

1. Determine mounting location for the sensor near the conductor to be monitored. The sensor should be located AT LEAST 1/2" from any uninsulated conductor.
2. Drill a single 3/32" pilot hole for mounting the sensor; ensure no drill shavings are present in enclosure.
3. Thread INSULATED CONDUCTOR ONLY, 600VAC MAX to be monitored through the iris of the sensor.
4. Reconnect the conductor and torque appropriately.
5. Screw mount the sensor to the enclosure.
6. Wire the output of the sensor to a control panel digital input loop not to exceed 30VAC/DC wetting voltage. Tighten terminals to 3.5 in-lb.
7. Follow directions for CALIBRATION.

WIRING EXAMPLES

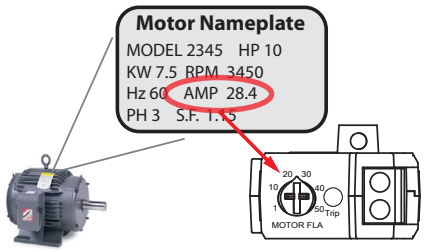




PRODUCT APPLICATION LIMITATION:
Senva products are not designed for life or safety applications. Senva products are not intended for use in critical applications such as nuclear facilities, human implantable device or life support. Senva is not liable, in whole or in part, for any claims or damages arising from such uses.

PRESET CALIBRATION (Typical)

Adjust knob on sensor to motor full load amperage (FLA) as indicated on motor nameplate or overload protection device.



The sensor scale is pre-calibrated for motors operating at a **minimum of 75% FLA**.

On startup, the sensor output will close when monitored current exceeds 70% FLA, and open if current is below 60% FLA to indicate load loss (broken belt, coupling shear, etc.)

For lightly loaded (oversized) motors operating below 75% FLA, the sensor should be set to a proportionally lower FLA to ensure positive status detection and avoid nuisance alarms.

Smaller (less than 5HP) motors and/or lightly loaded motors may not have sufficient reduction in amperage (below 60% FLA) for the sensor to detect belt loss immediately. The sensor will detect the belt loss when the motor is restarted, as long as the unloaded motor current is below 70% FLA.

For improved performance on small and lightly loaded motors, the following options are recommended:

1. Consider using model C-2330, self-calibrating, microcontroller based sensor.

2. Perform conventional calibration.

Conventional Calibration (High Accuracy)

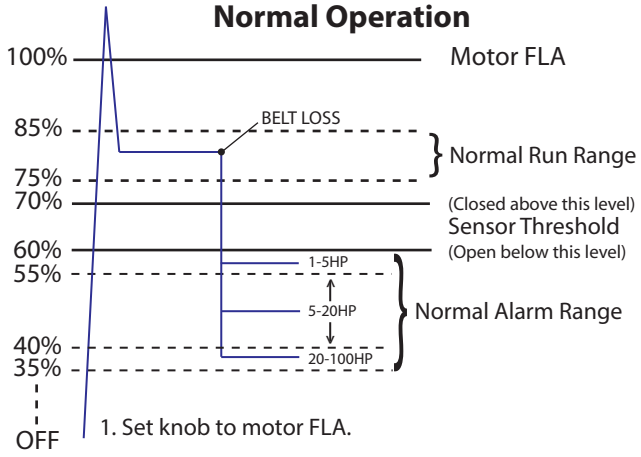
Follow all safety precautions outlined in this manual. Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product. **Read all warnings carefully.**

1. Adjust knob on sensor to maximum FLA. (Fully clockwise)

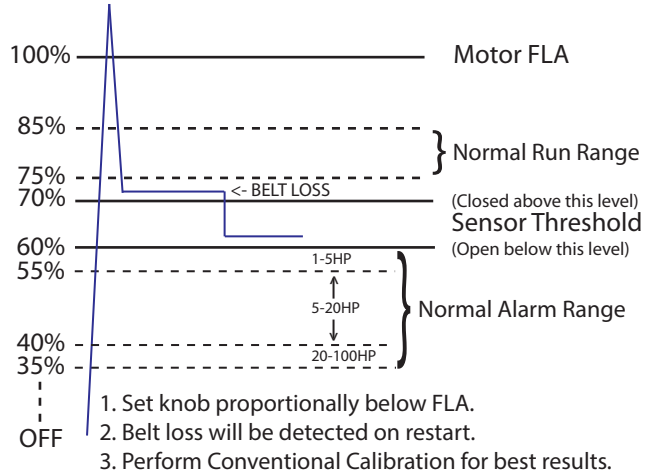
2. With motor operating normally, adjust knob SLOWLY counter-clockwise until LED is lit.

3. Adjust knob a few degrees more to prevent nuisance alarms.

Normal Operation



Small / Lightly Loaded Motor Operation



Maximum surrounding air ambient, 60 ° C. For use in Pollution Degree 2 Environment.

Part Number	C-1220
Amperage Range	0.75A (on)~50A (50A Max.)
Output Type	NO, solid-state FET
Output Rating	1.0A@30VAC/DC Max.
Temperature Rating	-15~60 ° C
Insulation Class	600V RMS. For use on insulated conductors only! Use minimum 75 ° C insulated conductor
Sensor Power	Induced
Frequency Range	50/60Hz
Dimensions (LxWxH)	1.78" x 1.32" x 0.66"
Sensor Aperture	0.3"

Troubleshooting		
Symptom	**Causes**	**Remedy**
Sensor output does not change state	Amperage is below sensor minimum threshold	Wrap monitored conductor turns through sensor. See Tech Tips
	Adjustment incorrect	See Conventional Calibration procedure
	Testing with ohm meter yields incorrect results	Solid state output may show approx. 1 ohm or less
	Incorrect control wiring	Ensure control loop voltage is present

Revised 5/30/2014 Document #152-0010-0A

INSTALLATION INSTRUCTIONS

CR3-12V Relay Module, 1 x N.O. Fits C23xx series

3PZS
c UL US LISTED

DANGER

Failure to follow these instructions will result in death or serious injury.

Hazard of electrical shock, explosion, and arc flash

- Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product
- Only qualified electrical personnel should install this product.
- Read, understand, and follow all instructions thoroughly
- Install only on insulated conductors
- Lock out and tag out all power sources prior to installation. Use properly rated voltage sensing instrument to determine no voltage is present

WARNING

Failure to follow these instructions could result in death or serious injury.

Automated equipment may start without warnng

- Equipment monitored/operated by this device may start without warning. Keep clear of apparatus at all times

IMPORTANT WARNINGS

- Only qualified trade installers should install this product
- This product is not intended for life-safety applications
- Do not install in hazardous or classified locations
- The installer is responsible for all applicable codes
- This product must be installed in a suitable electrical enclosure

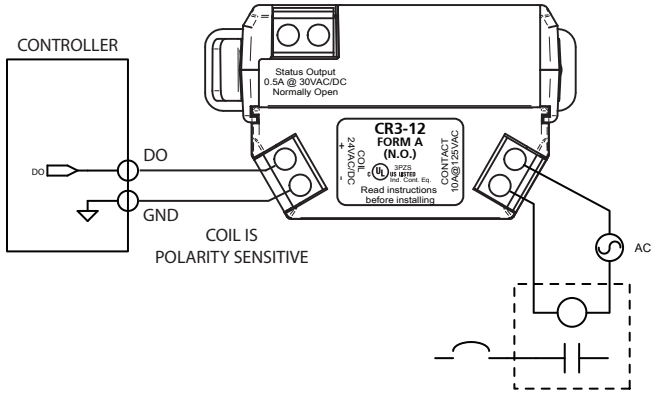
PRODUCT APPLICATION LIMITATION:
Senva products are not designed for life or safety applications. Senva products are not intended for use in critical applications such as nuclear facilities, human implantable device or life support. Senva is not liable, in whole or in part, for any claims or damages arising from such uses.

INSTALLATION

Disconnect, lock out and tag out all power supplies during installation

1. Slide relay module onto any C23xx series mini split-core sensor.
2. Wire relay module to control panel and to motor starter. Tighten terminals to 3.5 in-lb.
3. Observe polarity of relay coil terminals.

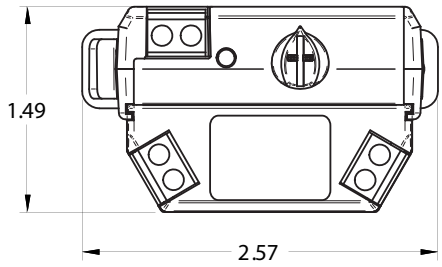
WIRING EXAMPLES



OPERATION

The CR3 command relay module slides onto any C23xx series sensor, providing a convenient means of controlling line-voltage devices such as motor starters from low-voltage control signals.

DIMENSIONS



Troubleshooting

Symptom	Causes	Remedy
Relay not energized	Coil wiring incorrect	Check polarity
	Coil voltage too low	Check coil voltage

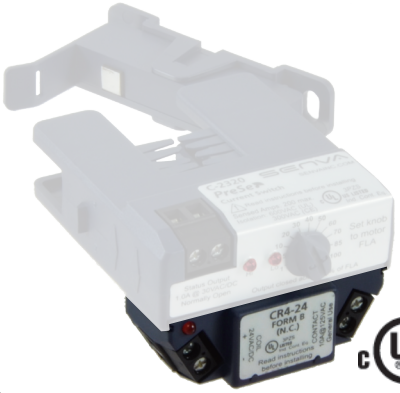
Maximum surrounding air ambient, 60 ° C.

For use in Pollution Degree 2 Environment.

Part Number	CR3-12	CR3-24
Coil	9-12VDC, 30mA nom.	24VAC/DC, 15mA nom.
Contact Arrangement	N.O. (1 form A)	
Contact Rating	10A@125VAC (UL C300 RATED)	
Temperature Rating	-15~60 ° C	
Dimensions (LxWxH)	2.94" x 2.23" x 0.82" (1.4" H with relay module)	

INSTALLATION INSTRUCTIONS

CR3-24V
Relay Module, 1 x N.O.
Fits C23xx series



3PZS
c UL US LISTED

DANGER

Failure to follow these instructions will result in death or serious injury.

Hazard of electrical shock, explosion, and arc flash

- Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product
- Only qualified electrical personnel should install this product.
- Read, understand, and follow all instructions thoroughly
- Install only on insulated conductors
- Lock out and tag out all power sources prior to installation. Use properly rated voltage sensing instrument to determine no voltage is present

WARNING

Failure to follow these instructions could result in death or serious injury.

Automated equipment may start without warnng

- Equipment monitored/operated by this device may start without warning. Keep clear of apparatus at all times

IMPORTANT WARNINGS

- Only qualified trade installers should install this product
- This product is not intended for life-safety applications
- Do not install in hazardous or classified locations
- The installer is responsible for all applicable codes
- This product must be installed in a suitable electrical enclosure

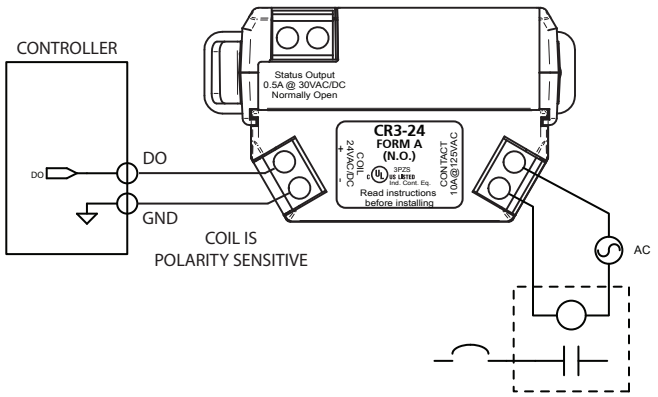
PRODUCT APPLICATION LIMITATION:
Senva products are not designed for life or safety applications. Senva products are not intended for use in critical applications such as nuclear facilities, human implantable device or life support. Senva is not liable, in whole or in part, for any claims or damages arising from such uses.

INSTALLATION

Disconnect, lock out and tag out all power supplies during installation

1. Slide relay module onto any C23xx series mini split-core sensor.
2. Wire relay module to control panel and to motor starter. Tighten terminals to 3.5 in-lb.
3. Observe polarity of relay coil terminals.

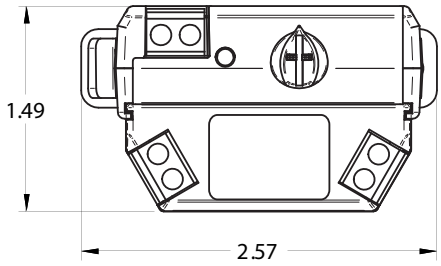
WIRING EXAMPLES



OPERATION

The CR3 command relay module slides onto any C23xx series sensor, providing a convenient means of controlling line-voltage devices such as motor starters from low-voltage control signals.

DIMENSIONS



Troubleshooting

Symptom	Causes	Remedy
LED not lit, relay not energized	Coil wiring incorrect	Check polarity
	Coil voltage too low	Check coil voltage

Maximum surrounding air ambient, 60 ° C.

For use in Pollution Degree 2 Environment.

Part Number	CR3-12	CR3-24
Coil	9-12VDC, 30mA nom.	24VAC/DC, 15mA nom.
Contact Arrangement	N.O. (1 form A)	
Contact Rating	10A@125VAC (UL C300 RATED)	
Temperature Rating	-15~60 ° C	
Dimensions (LxWxH)	2.94" x 2.23" x 0.82" (1.4" H with relay module)	

INSTALLATION INSTRUCTIONS

CR4-12V Relay Module, 1 x N.C. Fits C23xx series

DANGER

Failure to follow these instructions will result in death or serious injury.

Hazard of electrical shock, explosion, and arc flash

- Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product
- Only qualified electrical personnel should install this product.
- Read, understand, and follow all instructions thoroughly
- Install only on insulated conductors
- Lock out and tag out all power sources prior to installation. Use properly rated voltage sensing instrument to determine no voltage is present

WARNING

Failure to follow these instructions could result in death or serious injury.

Automated equipment may start without warnng

- Equipment monitored/operated by this device may start without warning. Keep clear of apparatus at all times

IMPORTANT WARNINGS

- Only qualified trade installers should install this product
- This product is not intended for life-safety applications
- Do not install in hazardous or classified locations
- The installer is responsible for all applicable codes
- This product must be installed in a suitable electrical enclosure

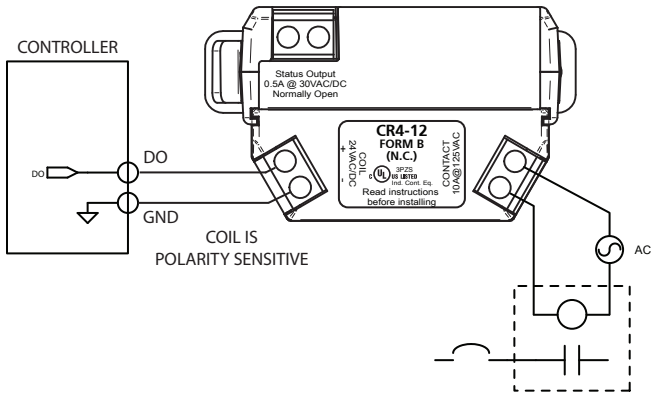
PRODUCT APPLICATION LIMITATION:
Senva products are not designed for life or safety applications. Senva products are not intended for use in critical applications such as nuclear facilities, human implantable device or life support. Senva is not liable, in whole or in part, for any claims or damages arising from such uses.

INSTALLATION

Disconnect, lock out and tag out all power supplies during installation

1. Slide relay module onto any C23xx series mini split-core sensor.
2. Wire relay module to control panel and to motor starter.
3. Observe polarity of relay coil terminals. Tighten terminals to 3.5 in-lb.

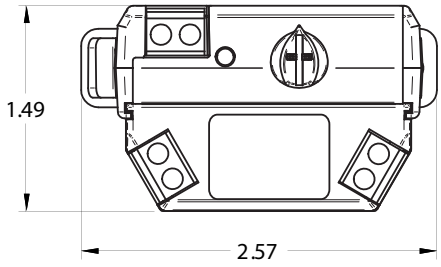
WIRING EXAMPLES



OPERATION

The CR4 command relay module slides onto any C23xx series sensor, providing a convenient means of controlling line-voltage devices such as motor starters from low-voltage control signals.

DIMENSIONS



Troubleshooting

Symptom	Causes	Remedy
Relay not energized	Coil wiring incorrect	Check polarity
	Coil voltage too low	Check coil voltage

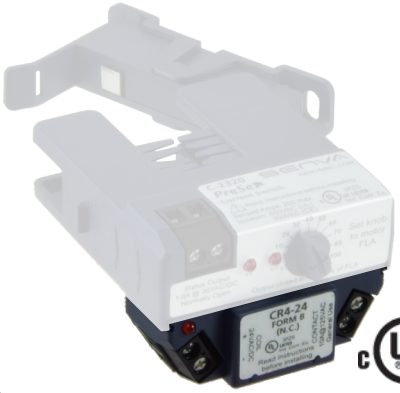
Maximum surrounding air ambient, 60 ° C.

For use in Pollution Degree 2 Environment.

Part Number	CR4-12	CR4-24
Coil	9-12VDC, 30mA nom.	24VAC/DC, 15mA nom.
Contact Arrangement	N.C. (1 form B)	
Contact Rating	10A@125VAC (UL C300 RATED)	
Temperature Rating	-15~60 ° C	
Dimensions (LxWxH)	2.94" x 2.23" x 0.82" (1.4" H with optional relay module)	

INSTALLATION INSTRUCTIONS

CR4-24V Relay Module, 1 x N.C. Fits C23xx series



3PZS
US LISTED

DANGER

Failure to follow these instructions will result in death or serious injury.

Hazard of electrical shock, explosion, and arc flash

- Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (USA) and other applicable local codes when installing this product
- Only qualified electrical personnel should install this product.
- Read, understand, and follow all instructions thoroughly
- Install only on insulated conductors
- Lock out and tag out all power sources prior to installation. Use properly rated voltage sensing instrument to determine no voltage is present

WARNING

Failure to follow these instructions could result in death or serious injury.

Automated equipment may start without warnng

- Equipment monitored/operated by this device may start without warning. Keep clear of apparatus at all times

IMPORTANT WARNINGS

- Only qualified trade installers should install this product
- This product is not intended for life-safety applications
- Do not install in hazardous or classified locations
- The installer is responsible for all applicable codes
- This product must be installed in a suitable electrical enclosure

PRODUCT APPLICATION LIMITATION:

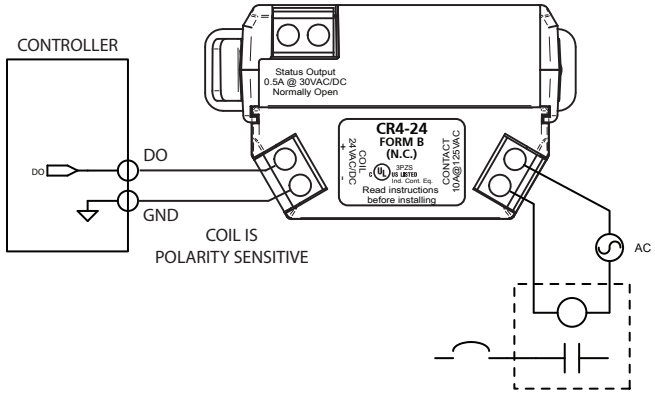
Senva products are not designed for life or safety applications. Senva products are not intended for use in critical applications such as nuclear facilities, human implantable device or life support. Senva is not liable, in whole or in part, for any claims or damages arising from such uses.

INSTALLATION

Disconnect, lock out and tag out all power supplies during installation

1. Slide relay module onto any C23xx series mini split-core sensor.
2. Wire relay module to control panel and to motor starter. Tighten terminals to 3.5 in-lb.
3. Observe polarity of relay coil terminals.

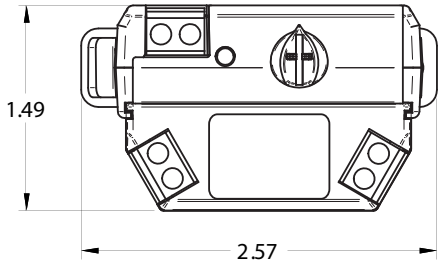
WIRING EXAMPLES



OPERATION

The CR4 command relay module slides onto any C23xx series sensor, providing a convenient means of controlling line-voltage devices such as motor starters from low-voltage control signals.

DIMENSIONS



Troubleshooting		
Symptom	**Causes**	**Remedy**
LED not lit, relay not energized	Coil wiring incorrect	Check polarity
	Coil voltage too low	Check coil voltage

Maximum surrounding air ambient, 60 ° C.

For use in Pollution Degree 2 Environment.

Part Number	CR4-12	CR4-24
Coil	9-12VDC, 30mA nom.	24VAC/DC, 30mA nom.
Contact Arrangement	N.C. (1 form B)	
Contact Rating	10A@125VAC (UL C300 RATED)	
Temperature Rating	-15~60 ° C	
Dimensions (LxWxH)	2.94" x 2.23" x 0.82" (1.4" H with optional relay module)	