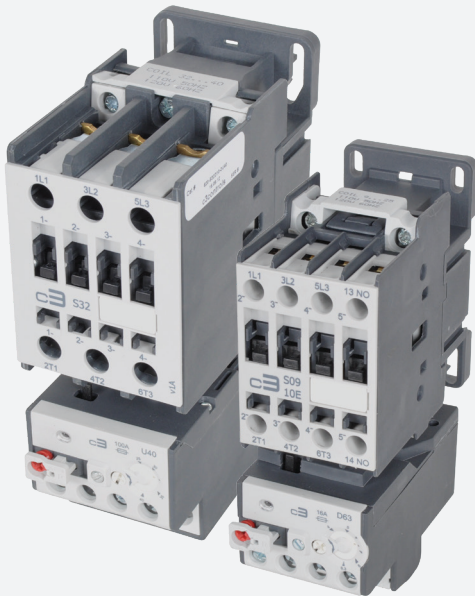


CONTACTOR & OVERLOAD RELAY ASSEMBLIES

series
620

c3controls' Series 620 assembled starters are compact in size, are easy to install, and provide reliable and accurate protection against overload and phase loss conditions. Power and control circuit terminals are readily accessible for easy wiring, while shared accessories enable starters to be customized for virtually any application. c3controls' starters will help reduce your costs and enhance the features and performance of your equipment.



Section 7

| | |
|--|----|
| Direct-On-Line Starters | 6 |
| Contactor + Overload Relay | |
| Accessories, Replacement Components & Circuit Diagrams | 9 |
| Specifications | 10 |
| Dimensions | 11 |

PROVEN



Conformity to Standards:

CONTACTORS

UL 508, 60947-4-1

CSA C22.2 No. 14

IEC 60947-1, 60947-4-1

OVERLOAD RELAYS

UL 508, 60947-4-1

CSA C22.2 No. 14

IEC 60947-1, 60947-4-1

Visit www.c3controls.com to download product certifications.

Certifications:

UL File #: E236197 (Guide NLDX, NLDX7), E68568 (Guide NKCR, NKCR7)

CE Marked (per EU Low Voltage Directive 2006/95/EC and RoHS Directive 2011/65/EU)


UL File #: E68568 (Guide NKCR, NKCR7)

CE Marked (per EU Low Voltage Directive 2006/95/EC and RoHS Directive 2011/65/EU)

CONTACTOR & OVERLOAD RELAY ASSEMBLIES

c3controls offers a comprehensive line of Motor Control products designed and manufactured to meet the needs of the machine builder. We promise durable products at a price that gives you an edge, and we guarantee same-day shipping. Check out all the features of our Series 620 Contactor and Overload Relay Assemblies below!

DELIVERING SUPERIOR PRODUCT QUALITY AND MANUFACTURING EXCELLENCE

| | |
|--|--|
| ✓ Proven | Our Series 620 DOL Starters are UL Listed and CE marked meeting global standards requirements.  |
| ✓ Compact Size | Four (4) frame sizes for devices rated from 9A to 105A. Starter rated 15HP @ 460V (11kW @ 400V) are only 45mm (1-49/64") wide reducing panel area requirements – smaller enclosures can be used for lower installed costs. |
| ✓ Lower Cost | Snap-on front mounted and side mounted auxiliary contacts install without the use of tools for lower installed costs. |
| ✓ Visible Markings | High-visibility labels and markings. Dual IEC and NEMA terminal markings for easy wiring anywhere in the world. |
| ✓ Easy to Install | 35mm DIN rail mounting for all contactors from 9A to 105A for fast and easy installation and removal, or panel mounting for more secure installation in high shock and vibration applications. |
| ✓ Visible Certifications | Our product certifications and electrical ratings are clearly marked on the outside of the devices for easy reference during installation. |
| ✓ Added Safety | IP20 guarded terminals with dual terminal markings prevent accidental contact with live parts. |
| ✓ Limited Lifetime Warranty* | Every product is backed by our limited lifetime warranty—unmatched in the industry—bringing you quality components that perform in the most demanding applications. |
| ✓ Guaranteed Same-Day Shipping* | Product availability reduces inventory, and improves cash-flow—saving you money. With c3controls any order for standard catalog items received by 6:00pm ET is guaranteed to ship same-day. |
| ✓ Advantage Pricing | Our approach to product development, manufacturing, and focus on servicing the OEM and Electrical Equipment Builder reduces cost. The result—the best value in the industry. |

*See c3controls Terms & Conditions

“We look to c3controls first for all our standard controls. c3controls has always given us the best mix of value, product selection, and lead times.”

Pete Adam, Technical Sales Agent • **Energy Management Consultants**

620-S09, -S12, -S18, -S25



620-S32, -S40



620-S50, -S65, -S80



620-S95, -S105



UNIQUE PRODUCT LINE FEATURES

CONVENIENCE



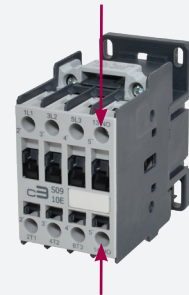
Factory assembly of a Series 300 Contactor and Series 320 Overload Relay provides the convenience of a single catalog number and shorter control panel bill of material.

HIGH FAULT SCCR



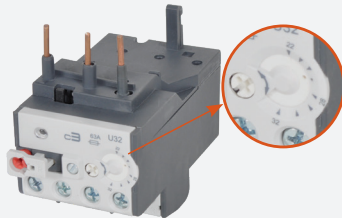
High fault short circuit current rating of 100kA @ 480V and 600V with Class J fuses, provides safety and reliability in high fault applications.

INTEGRAL AUXILIARY



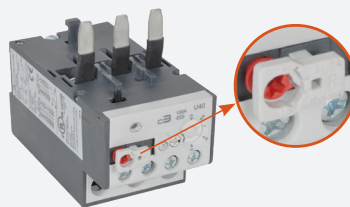
Integral auxiliary contacts, 3 power poles + 1 auxiliary, are standard on all c3controls 9A to 25A non-reversing contactors.

ADJUSTABLE CURRENT SETTINGS



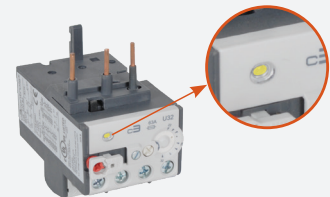
Full load current adjustment ratio of approximately 1:1.5 enables overload relay to be set to exact Full Load Ampere (FLA) of motor.

SELECTABLE RESET MODE



Manual or automatic reset and test modes, and stop button all in a single device for convenient control circuit wiring.

TRIP TEST FUNCTION



Trip test function comes standard on all c3controls Series 320-B2 to 320-B5 overload relays and allows for easier installation, testing, and troubleshooting.

FIND IT FAST

Contactor and Overload Relay
Assemblies



- Certifications
- Specifications
- Dimension Drawings
- Installation Instructions
- Easy to Buy

www.c3controls.com

Motor Control Device Solutions

c3controls motor control devices are the perfect solution for manufacturers who want proper motor control and superior motor protection without having to overpay or compromise on quality. In fact, we engineer so much performance and flexibility into our products, we can deliver a remarkably better value than our competitors.

c3controls
products deliver
like no other.



Seamless Compatibility

Contactors, overload relays and motor protection circuit breakers are designed by c3controls to work together, with common connections and accessories, resulting in a high functioning compact starter.

LEADING THE INDUSTRY
with our compact miniature 10HP
contactors and control relays.
One frame size (AC or DC)—28%
reduction in panel area.

Compact

The small size of c3controls motor control devices, plus features like common accessories, enable assembly into smaller control panels for lower installed costs.

Reliable Protection

Contactors provide the repeated on/off switching for the motor and are designed for motor, actuator, solenoid, and other power switching applications. Overload relays provide Trip Class 10 protection against overload and phase-loss conditions, and have ambient temperature compensation for motor protection in high temperature environments.

Ensures the protection of
equipment and user.

Motor protection circuit breakers provide overload, phase-loss and short circuit protection, can be used by themselves as manual motor controllers or with contactors in group motor installations, and can achieve Type 2 coordination for optimum performance.

Type E self-protected combination manual motor controllers provide disconnecting means, branch circuit protection, motor control and motor overload protection all in a single device.




















Proven

Our motor control devices are UL Listed and CE marked, meeting global standards requirements for use anywhere in the world.

NFPA 70 - National Electrical Code (NEC)

Understanding what functions are needed in your motor control circuit is critical when selecting motor control devices. Engineers benefit from the standards and codes established to ensure safety and protection to personnel and equipment.

More than just knowing the standards, c3controls, as a manufacturer of motor control products, has the application expertise you need to select the right products.

| c3controls & Article 430 - Motors, Motor Circuits and Controllers | | | | | |
|---|---|----------|---|---|---|
| | To Supply | NEC Part | c3controls Product Series | | |
| Motor disconnecting means |  | Part IX |  |  |  |
| | | | 330 | 630 | Type E: 330 630 |
| Motor branch-circuit, short circuit, and ground-fault protection |  | Part IV | | |  |
| | | | | | Type E: 330 630 |
| Motor circuit conductor | | Part II | | | |
| Motor controller |  | Part VII |  |  |  |
| | | | 300/310 | 330 | 620 |
| Motor control circuits | | Part VI | | |  |
| | | | | | Type E: 330 630 |
| Motor overload protection |  | Part III |  |  |  |
| | | | 320 | 330 | 620 |
| Motor |  | Part I | | |  |
| | | | | | Type E: 330 630 |

Our motor control products align with Article 430 Part VII, Motor Controller, of the NFPA 70, the National Electrical Code.

IT'S EASY TO BUILD YOUR OWN DIRECT-ON-LINE (DOL) STARTER

Simply pick the code number from each of the sections below and combine them to build your part number.

Direct-On-Line Starters (Contactor + Overload Relay)

620 - I II III IV V

Example: To build one of our most popular DOL Starters, the part number would be **620 + II + III + IV + V** or **620-S09D10-2D63**



I. STARTER TYPE

| CODE | DESCRIPTION | LIST |
|------|--|----------|
| 620 | Direct-On-Line (DOL) Starter: Series 300 Contactor + Series 320 Overload Relay | \$ 25.00 |

II. NON-REVERSING CONTACTOR (3 NORMALLY OPEN POLES)

| CODE | MAX. I _e (A) | | RATINGS FOR SWITCHING AC MOTORS - AC-2, AC-3 | | | | | | | | | | | CONTACTOR CAT. NO. | LIST |
|------|-------------------------|------|--|----------|------|------|-----------|-------|---------|-------|-------|-------|-------------|-----------------------|------|
| | | | kW (50Hz) | | | | HP (60Hz) | | | | | | | | |
| | | | 3 PHASE | | | | 1 PHASE | | 3 PHASE | | | | | | |
| | AC-3 | AC-1 | 230V | 400/415V | 500V | 690V | 115V | 230V | 200V | 230V | 460V | 575V | PREFIX | | |
| S09 | 9 | 25 | 2.2 | 4 | 5.5 | 5.5 | 1/2 | 1-1/2 | 3 | 3 | 5 | 7-1/2 | 300-S09N30 | \$ 53.00 | |
| S12 | 12 | 25 | 3 | 5.5 | 7.5 | 7.5 | 3/4 | 2 | 3 | 3 | 7-1/2 | 10 | 300-S12N30 | \$ 79.00 | |
| S18 | 18 | 32 | 4 | 7.5 | 10 | 10 | 1 | 3 | 5 | 5 | 10 | 15 | 300-S18N30 | \$ 87.00 | |
| S25 | 25 | 45 | 7.5 | 11 | 15 | 15 | 2 | 3 | 7-1/2 | 7-1/2 | 15 | 15 | 300-S25N30 | \$ 99.00 | |
| S32 | 32 | 60 | 9 | 15 | 18.5 | 18.5 | 3 | 5 | 10 | 10 | 20 | 25 | 300-S32N30 | \$130.00 | |
| S40 | 40 | 60 | 11 | 18.5 | 25 | 30 | 3 | 5 | 10 | 15 | 30 | 25 | 300-S40N30 | \$178.00 | |
| S50 | 50 | 90 | 15 | 22 | 30 | 35 | 3 | 7-1/2 | 15 | 15 | 40 | 40 | 300-S50N30 | \$284.00 | |
| S65 | 65 | 110 | 18.5 | 30 | 40 | 45 | 5 | 10 | 20 | 20 | 50 | 50 | 300-S65N30 | \$350.00 | |
| S80 | 80 | 110 | 22 | 37 | 45 | 45 | 7-1/2 | 15 | 20 | 25 | 50 | 60 | 300-S80N30 | \$405.00 | |
| S95 | 95 | 140 | 25 | 45 | 55 | 55 | 7-1/2 | 15 | 25 | 30 | 60 | 75 | 300-S95N30 | \$500.00 | |
| S105 | 105 | 140 | 30 | 55 | 65 | 65 | 10 | 20 | 30 | 40 | 75 | 75 | 300-S105N30 | \$545.00 | |

III. CONTACTOR COIL VOLTAGE CODE

AC COIL VOLTAGE CODES

| VOLTAGE | 12 | 24 | 48 | 110 / 120 | 208 | 220 | 230 | 240 | 277 | 400 | 400 ~ 415 | 480 | 500 | 550 | 600 |
|---------|----|----|----|-----------|-----|-----|-----|-----|-----|-----|-----------|-----|-----|-----|-----|
| 50Hz | — | — | — | D | — | — | — | — | — | — | R | — | T | U | — |
| 60Hz | — | — | — | D | L | — | — | F | P | — | — | R | — | — | T |
| 50/60Hz | XB | XC | XJ | — | — | XAJ | XN | — | — | XAM | — | — | — | — | — |

DC COIL VOLTAGE CODES

| VOLTAGE | 12 | 24 | 24 ~ 28 | 125 | 110 ~ 130 | 208 ~ 240 | 250 | LIST |
|---------------|----|----|---------|-----|-----------|-----------|-----|----------|
| -S09 to -S25 | ZB | ZC | — | ZQ | — | — | ZP | \$ 35.00 |
| -S32 to -S40 | ZB | ZC | — | ZQ | — | — | ZP | \$ 78.00 |
| -S50 to -S105 | — | — | EC | — | EL | EE | — | \$282.00 |

IV. CONTACTOR AUXILIARY CONTACT CONFIGURATION

| CODE | DESCRIPTION | LIST |
|------|--|----------|
| 00 | Without Auxiliary Contacts (Contactors 300-S32 to 300-S105 only) | \$ — |
| 10 | 1 Normally Open* | \$ 18.00 |
| 01 | 1 Normally Closed* | \$ 18.00 |

*NOTE: Integral right side mounted on 9A ~ 25A contactors, front mounted on 32A ~ 105A contactors.

**SEE OPPOSITE PAGE FOR
PART BUILDER CHART V.**

DISCOUNT
SCHEDULE

F

SOME OF OUR MOST POPULAR DOL STARTER CONFIGURATIONS

| RATINGS FOR SWITCHING AC MOTORS, AC-2, AC-3 | | | | | | | | | | | | |
|---|-----------|-------|---------|-------|-------|---------------------|---------------------|----------------------------|------------|-------------------------------------|------------------|----------|
| MAX. IE (A) AC-3 | HP (60HZ) | | | | | | COIL VOLTAGE | CONTACTOR AUX. CONTACTS | | CURRENT ADJUSTMENT RANGE (A)* | CAT. NO. | LIST |
| | 1 PHASE | | 3 PHASE | | | | | | | | | |
| | 115V | 230V | 200V | 230V | 460V | 575V | | NO | NC | | | |
| 9 | | | | | 1/2 | 1/2 | 120V 60Hz/110V 50Hz | 1 | 0 | 0.8 ~ 1.2 | 620-S09D10-2D12 | \$158.00 |
| | | | | | 3/4 | 3/4 | 120V 60Hz/110V 50Hz | 1 | 0 | 1.2 ~ 1.8 | 620-S09D10-2D18 | \$158.00 |
| | | | | | | 1 | 120V 60Hz/110V 50Hz | 1 | 0 | | | |
| | | 1/6 | 1/2 | 1/2 | 1 | 1-1/2 | 120V 60Hz/110V 50Hz | 1 | 0 | 1.8 ~ 2.8 | 620-S09D10-2D28 | \$158.00 |
| | | | | | | 2 | 120V 60Hz/110V 50Hz | 1 | 0 | | | |
| | | 1/4 | 3/4 | 3/4 | 1-1/2 | 3 | 120V 60Hz/110V 50Hz | 1 | 0 | 2.8 ~ 4.0 | 620-S09D10-2D40 | \$158.00 |
| | | 1/3 | | | 2 | | 120V 60Hz/110V 50Hz | 1 | 0 | | | |
| | 1/6 | 1/2 | 1 | 1 | 3 | | 120V 60Hz/110V 50Hz | 1 | 0 | 4.0 ~ 6.3 | 620-S09D10-2D63 | \$158.00 |
| | 1/4 | | | | | | 120V 60Hz/110V 50Hz | 1 | 0 | | | |
| | 1/3 | 3/4 | 1-1/2 | 1-1/2 | | 5 | 120V 60Hz/110V 50Hz | 1 | 0 | 5.6 ~ 8.0 | 620-S09D10-2D80 | \$158.00 |
| | 1 | 2 | 2 | 5 | 7-1/2 | 120V 60Hz/110V 50Hz | 1 | 0 | 7.0 ~ 10.0 | 620-S09D10-2U10 | \$158.00 | |
| 12 | 1/2 | 1-1/2 | 3 | 3 | | | 120V 60Hz/110V 50Hz | 1 | 0 | 8 ~ 12.5 | 620-S09D10-2U12 | \$158.00 |
| | | | | | 7-1/2 | 10 | 120V 60Hz/110V 50Hz | 1 | 0 | 8 ~ 12.5 | 620-S12D10-2U12 | \$184.00 |
| | 3/4 | 2 | | | | | 120V 60Hz/110V 50Hz | 1 | 0 | 10 ~ 15 | 620-S12D10-2U15 | \$184.00 |
| 18 | 1 | | | 5 | 10 | | 120V 60Hz/110V 50Hz | 1 | 0 | 11 ~ 17 | 620-S18D10-2U17 | \$192.00 |
| | | 3 | 5 | | | 15 | 120V 60Hz/110V 50Hz | 1 | 0 | 15 ~ 23 | 620-S18D10-2U23 | \$192.00 |
| 25 | | | | 7-1/2 | 15 | | 120V 60Hz/110V 50Hz | 1 | 0 | 15 ~ 23 | 620-S25D10-2U23 | \$204.00 |
| | 2 | 5 | 7-1/2 | | | | 120V 60Hz/110V 50Hz | 1 | 0 | 22 ~ 32 | 620-S25D10-2U32 | \$204.00 |
| 32 | | | | 10 | 20 | 20 | 120V 60Hz/110V 50Hz | 1 | 0 | 15 ~ 23 | 620-S32D10-2U23 | \$235.00 |
| | | 5 | | | | 25 | 120V 60Hz/110V 50Hz | 1 | 0 | 22 ~ 32 | 620-S32D10-2U32 | \$235.00 |
| | 3 | | 10 | | | | 120V 60Hz/110V 50Hz | 1 | 0 | 25 ~ 40 | 620-S32D10-3U40 | \$267.00 |
| 40 | | 5 | | 10 | | 25 | 120V 60Hz/110V 50Hz | 1 | 0 | 22 ~ 32 | 620-S40D10-2U32 | \$283.00 |
| | 3 | | | | 30 | | 120V 60Hz/110V 50Hz | 1 | 0 | 25 ~ 40 | 620-S40D10-3U40 | \$315.00 |
| 50 | 3 | 7-1/2 | | 15 | 30 | 30 | 120V 60Hz/110V 50Hz | 1 | 0 | 32 ~ 50 | 620-S50D10-4U50 | \$434.00 |
| | | | | | | 40 | 120V 60Hz/110V 50Hz | 1 | 0 | | | |
| | | | 15 | | 40 | | 120V 60Hz/110V 50Hz | 1 | 0 | 40 ~ 57 | 620-S50D10-4U57 | \$434.00 |
| 65 | | 10 | | | 40 | 50 | 120V 60Hz/110V 50Hz | 1 | 0 | 40 ~ 57 | 620-S65D10-4U57 | \$500.00 |
| | 5 | | | 20 | | | 120V 60Hz/110V 50Hz | 1 | 0 | 50 ~ 63 | 620-S65D10-4U63 | \$500.00 |
| | | | 20 | | 50 | | 120V 60Hz/110V 50Hz | 1 | 0 | 57 ~ 70 | 620-S65D10-4U70 | \$500.00 |
| 80 | 5 | | | | | | 120V 60Hz/110V 50Hz | 1 | 0 | 50 ~ 63 | 620-S80D10-4U63 | \$555.00 |
| | | 15 | | 25 | 50 | 60 | 120V 60Hz/110V 50Hz | 1 | 0 | 57 ~ 70 | 620-S80D10-4U70 | \$555.00 |
| 95 | | | 25 | | 60 | 75 | 120V 60Hz/110V 50Hz | 1 | 0 | 63 ~ 80 | 620-S95D10-5U80 | \$668.00 |
| | 7-1/2 | | | 30 | | | 120V 60Hz/110V 50Hz | 1 | 0 | 78 ~ 97 | 620-S95D10-5U97 | \$668.00 |
| 105 | | | | | | 75 | 120V 60Hz/110V 50Hz | 1 | 0 | 63 ~ 80 | 620-S105D10-5U80 | \$713.00 |
| | | 20 | 30 | | | | 120V 60Hz/110V 50Hz | 1 | 0 | 78 ~ 97 | 620-S105D10-5U97 | \$713.00 |
| | 10 | | | 40 | 75 | | 120V 60Hz/110V 50Hz | 1 | 0 | 90 ~ 112 | 620-S105D10-5X11 | \$713.00 |

*NOTE: HP ratings shown in the table above are for reference. The final selection of the overload relay must be based on the actual motor full load current.

V. OVERLOAD RELAY CURRENT ADJUSTMENT

| CODE | INSTALLS ON CONTACTOR | CURRENT ADJUST. RANGE (A) | OVERLOAD RELAY CAT. NO. | LIST |
|------|--|------------------------------|----------------------------|----------|
| 2C40 | -S09, -S12, -S18, -S25, -S32, -S40 | 0.28 ~ 0.40 | 320-B2C40 | \$ 62.00 |
| 2C63 | | 0.40 ~ 0.63 | 320-B2C63 | \$ 62.00 |
| 2C80 | | 0.56 ~ 0.80 | 320-B2C80 | \$ 62.00 |
| 2D12 | | 0.80 ~ 1.2 | 320-B2D12 | \$ 62.00 |
| 2D18 | | 1.2 ~ 1.8 | 320-B2D18 | \$ 62.00 |
| 2D28 | | 1.8 ~ 2.8 | 320-B2D28 | \$ 62.00 |
| 2D40 | | 2.8 ~ 4.0 | 320-B2D40 | \$ 62.00 |
| 2D63 | | 4.0 ~ 6.3 | 320-B2D63 | \$ 62.00 |
| 2D80 | | 5.6 ~ 8.0 | 320-B2D80 | \$ 62.00 |
| 2U10 | | 7.0 ~ 10.0 | 320-B2U10 | \$ 62.00 |
| 2U12 | | 8 ~ 12.5 | 320-B2U12 | \$ 62.00 |
| 2U15 | | 10 ~ 15 | 320-B2U15 | \$ 62.00 |
| 2U17 | | 11 ~ 17 | 320-B2U17 | \$ 62.00 |
| 2U23 | | 15 ~ 23 | 320-B2U23 | \$ 62.00 |
| 2U32 | | 22 ~ 32 | 320-B2U32 | \$ 62.00 |
| 3U40 | | 25 ~ 40 | 320-B3U40 | \$ 94.00 |
| 4U50 | -S50, -S65, -S80 | 32 ~ 50 | 320-B4U50 | \$107.00 |
| 4U57 | | 40 ~ 57 | 320-B4U57 | \$107.00 |
| 4U63 | | 50 ~ 63 | 320-B4U63 | \$107.00 |
| 4U70 | | 57 ~ 70 | 320-B4U70 | \$107.00 |
| 5U80 | -S95, -S105 | 63 ~ 80 | 320-B5U80 | \$125.00 |
| 5U97 | | 78 ~ 97 | 320-B5U97 | \$125.00 |
| 5X11 | | 90 ~ 112 | 320-B5X11 | \$125.00 |

**AVAILABLE FRAME SIZES FOR
DOL STARTERS**

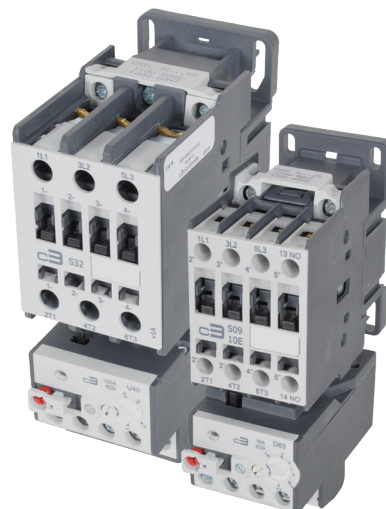


DIRECT-ON-LINE (DOL) STARTERS

c3controls Series 620 Direct-On-Line (DOL) Starters are assemblies of a Series 300 Contactor and a Series 320 Overload Relay. The contactor provides the repeated On/Off switching for the motor. The overload relay includes Class 10 thermal trip elements for overload protection of the motor and motor branch circuit conductors. Small size, IP20 guarded terminals with dual terminal markings, and shared accessories will help reduce your total installed costs and enhance the features and performance of your equipment. Just look and see what our Series 620 assembled starters have to offer.

Product features include:

- High fault short circuit rating of 100kA @ 480V and 600V with Class J fuses, provides safety and reliability in high fault applications.
- Compact size – devices rated 25A include 3 power poles that are 45mm (1.49/64”) wide reducing panel area requirements – smaller enclosures can be used for lower installed costs.
- Trip test function standard on Series 320-B2 to 320-B5 Overload Relays, allows for easier testing and troubleshooting.
- Modular design and common accessories including auxiliary contacts and surge suppressors.
- Snap-on accessories are easily installed without the use of tools, lowering assembly and installation costs.
- IP20 guarded terminals with dual terminal markings prevent accidental contact with live parts.
- Device identification marker for labeling the starter simplifies trouble shooting in panels with many devices.
- Universal ratings and markings: A, kW, and HP ratings as well as applicable 3rd party certification markings.
- Single phase sensitivity to protect motors against damaging phase loss conditions.
- Stop button for convenient and economical control circuit wiring.
- Ambient temperature compensation ensures reliable motor protection even in high temperature environments.
- Compact size – four (4) frame sizes for devices rated from 9A to 105A. Starters rated 15HP @ 460V (11kW @ 400V) are only 45mm (1.49/64”) wide reducing panel area requirements – smaller enclosures can be used for lower installed costs.
- AC and DC operating coils for control circuit application flexibility. 50A to 105A DC operated devices feature electronic coil control.
- Single 35mm DIN rail mounting for all starters from 9A to 105A for fast and easy installation and removal or panel mounting for more secure installation in high shock and vibration applications. Our 9A to 25A starters are easily installed or removed without the use of tools.
- Unobstructed access to the two contactor coil terminals on the line-side of the starter makes control circuit wiring simple.
- All Series 300 Contactor and Series 320 Overload Relay features.



UNIQUE PRODUCT FEATURES

MULTI-FUNCTION RELAYS

c3controls Series 320 Bimetallic Overload Relays feature a multi-function reset button enabling the user to select the reset mode – manual or automatic and whether or not to enable the test function.

When the reset button is pressed, with the test function enabled, the Normally Open (NO) contact closes and the Normally Closed (NC) contact opens to verify the control circuit functionality. In addition, the NC contact can be used in a “Stop” circuit. With the test function disabled, the NO and NC contacts do not change state when the reset button is pressed – preventing unauthorized personnel from operating the control circuit.

Multiple functions in a single device help you to reduce inventory and customize the overload relay operation to provide the performance and features you need for your specific application.



A – Automatic Reset Only
AUTO – Automatic Reset and Test
H – Manual Reset Only
HAND – Manual Reset and Test

Modular contactor accessories can be installed in the field on all starters. Front and side mounted auxiliary contacts are common to all starter sizes. Surge suppressors install easily and securely to the contactor coil terminals.

FRONT MOUNTED AUXILIARY CONTACTS



Our front mounted auxiliary contacts feature IP20 guarded terminals to protect against accidental contact with live parts. The device identification marker simplifies trouble shooting in panels with many contactors. These contacts snap-on and install without the use of tools. NOTE: See chart below for maximum number of front mounted auxiliary contacts. See Contactor Section 4 Page 10 for front mounted auxiliary contact part number and ordering information.

MAXIMUM NUMBER OF FRONT OR SIDE MOUNTED AUXILIARY CONTACTS

| CONTACTOR | MAXIMUM NUMBER |
|--------------------------|----------------|
| S09, S12, S18, S25 | 4 |
| S32, S40 | 6 |
| S50, S65, S80, S95, S105 | 8 |

SURGE SUPPRESSORS



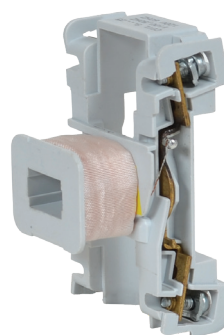
Coil mounted surge suppressors protect sensitive electronic components in control circuits from damaging line voltage spikes. See Contactor Section 4 Page 11 for surge suppressor part number and ordering information.

SIDE MOUNTED AUXILIARY CONTACTS



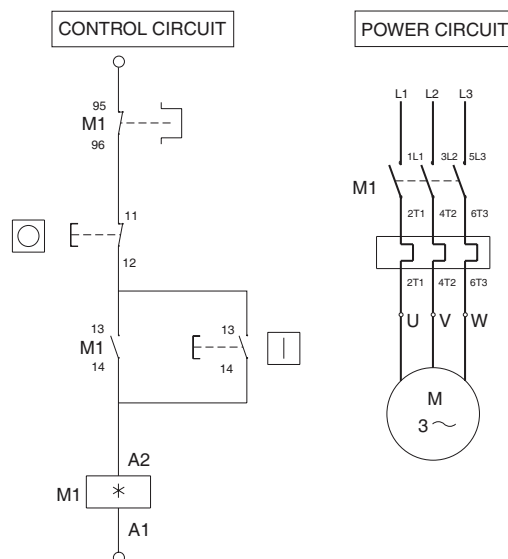
Side mounted auxiliary contacts feature IP20 guarded terminals to protect against accidental contact with live parts. NOTE: See chart at left for maximum number of side mounted auxiliary contacts. See Contactor Section 4 Page 10 for side mounted auxiliary contact part number and ordering information.

OPERATING COILS



Replacement coils for use with S09 - S105 Contactors. See Contactor Section 4 Page 12 for operating coil part number and ordering information.

SERIES 620 DOL STARTER CIRCUIT DIAGRAMS



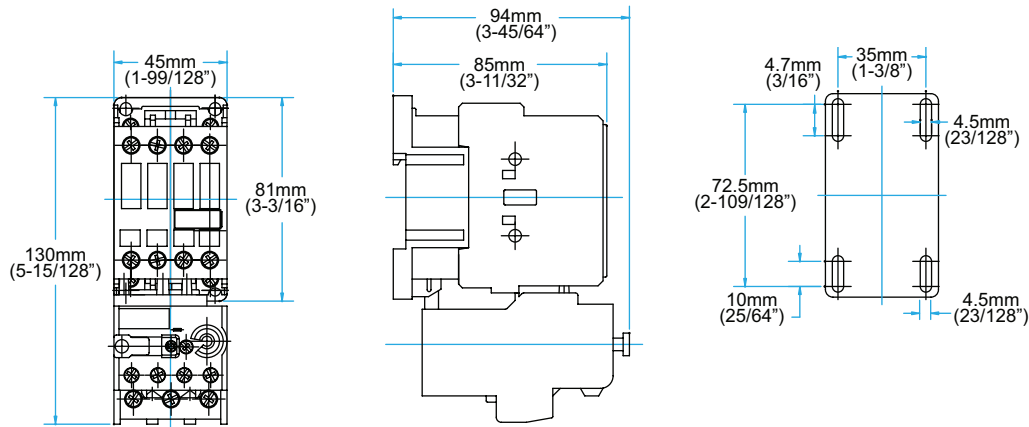
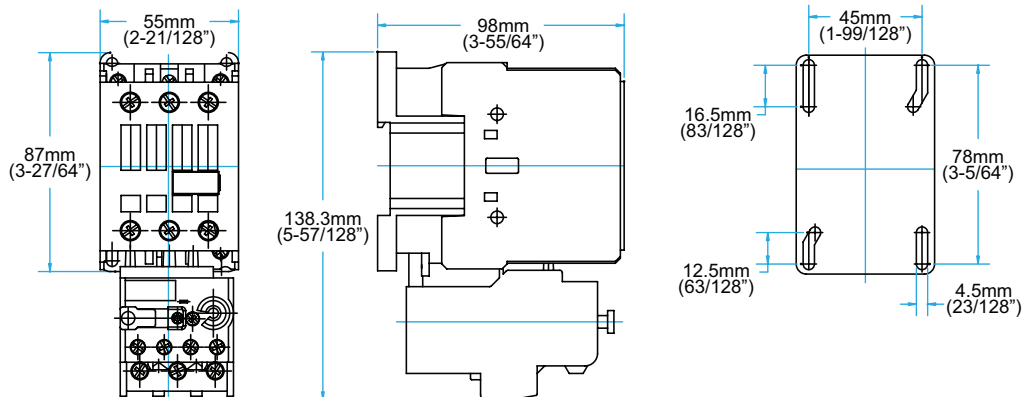
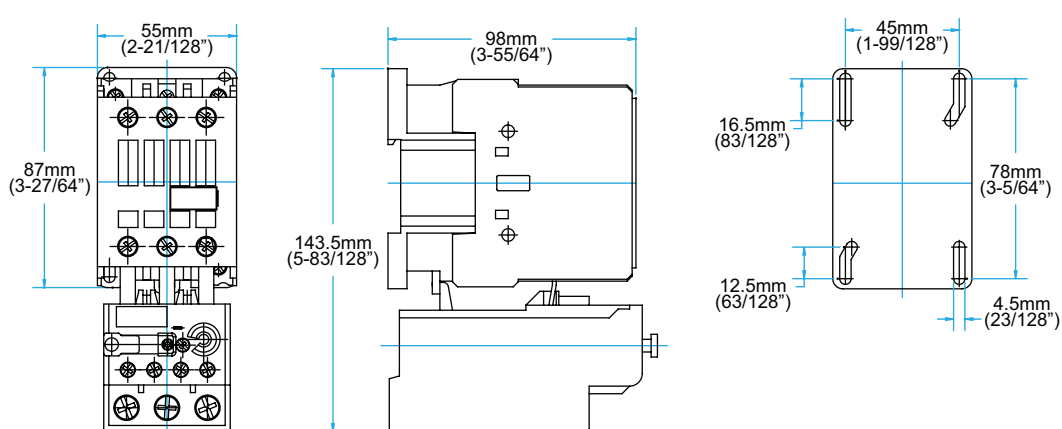
I = Start Push Button
O = Emergency Stop Push Button
95/96 = Overload Relay ~ Trip Contact
* = Coil Voltage Code

DISCOUNT
SCHEDULE

F

SPECIFICATIONS:

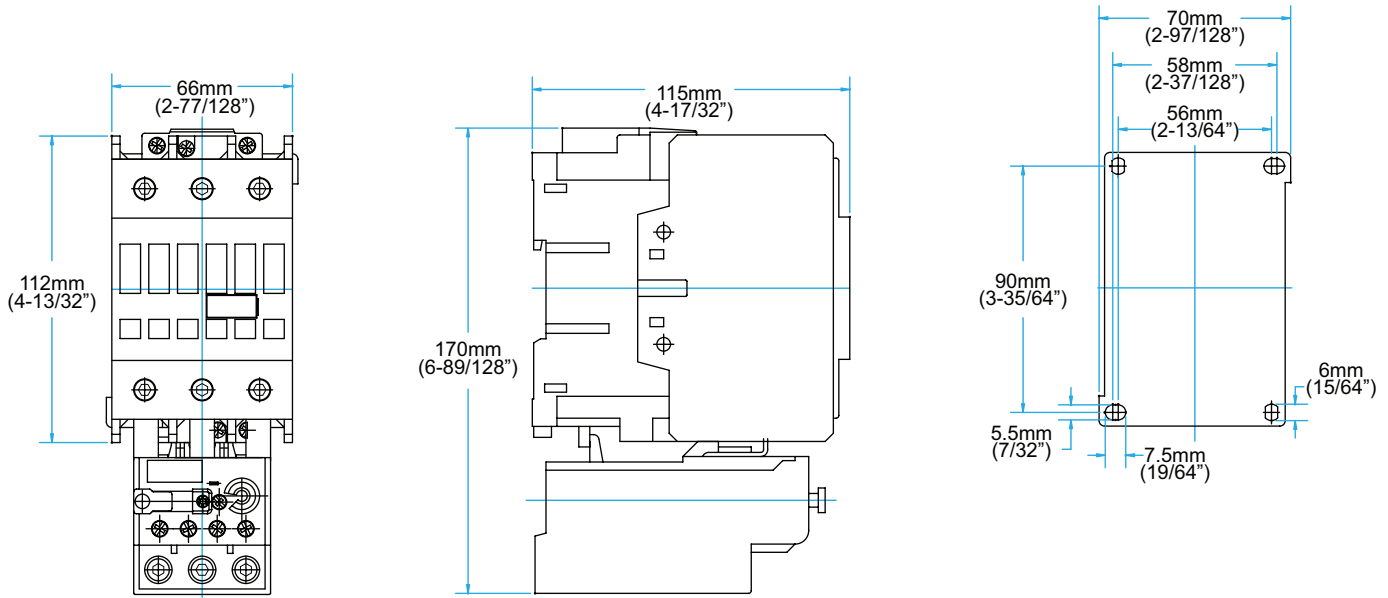
| SERIES 620 DIRECT-ON-LINE (DOL) STARTER SPECIFICATIONS | | | | | | | | | | | | |
|--|---------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| | | STARTER CURRENT RATING CODE | | | | | | | | | | |
| | UNITS | S09 | S12 | S18 | S25 | S32 | S40 | S50 | S65 | S80 | S95 | S105 |
| ELECTRICAL GENERAL | | | | | | | | | | | | |
| | | For detailed contactor specifications by starter rating code, see Section 4 Page 13 | | | | | | | | | | |
| | | For detailed overload relay specifications by catalog number prefix, see Section 6 Page 8 | | | | | | | | | | |
| Rated Operating Frequency | Hz | 25 ~ 400 | | | | | | | | | | |
| Rated Control Frequencies | Hz | AC: 50Hz, 60Hz, 50/60Hz and DC | | | | | | | | | | |
| ELECTRICAL UL/CSA APPLICATIONS | | | | | | | | | | | | |
| | | For detailed contactor specifications by starter rating code, see Section 4 Page 13 | | | | | | | | | | |
| | | For detailed overload relay specifications by catalog number prefix, see Section 6 Page 8 | | | | | | | | | | |
| Rated Operating Voltage, Ue | VAC | 600 | | | | | | | | | | |
| Standard Short Circuit Current @ 600V AC | kA | 5 | | | | | | 10 | | | | |
| Maximum Fuse Size - varies by current adjustment range of overload relay | A | 30 | 30 | 60 | 60 | 60 | 60 | 100 | 125 | 150 | 175 | 200 |
| High Fault Short Circuit Current @ 600V AC | kA | 100 | | | | | | | | | | |
| Maximum Fuse Size (Class J) - varies by current adjustment range of overload relay | A | 25 | 25 | 40 | 40 | 50 | 60 | 90 | 100 | 125 | 150 | 175 |
| ELECTRICAL IEC APPLICATIONS | | | | | | | | | | | | |
| | | For detailed contactor specifications by starter rating code, see Section 4 Page 13 | | | | | | | | | | |
| | | For detailed overload relay specifications by catalog number prefix, see Section 6 Page 8 | | | | | | | | | | |
| Rated Insulation Voltage, Ui | V | 1,000 | | | | | | | | | | |
| Rated Impulse Voltage, Uimp | kV | 6 | | | | | | 8 | | | | |
| Rated Operating Voltage, Ue | VAC | 690 | | | | | | | | | | |
| COIL CHARACTERISTICS | | | | | | | | | | | | |
| | | For detailed contactor specifications by starter rating code, see Section 4 Page 14 | | | | | | | | | | |
| Rated Insulation Voltage, Ui | V | 1,000 | | | | | | | | | | |
| Operating Limits | | 80 ~ 110% of Rated Coil Voltage | | | | | | | | | | |
| MECHANICAL | | | | | | | | | | | | |
| | | For detailed contactor specifications by starter rating code, see Section 4 Page 15 | | | | | | | | | | |
| ENVIRONMENTAL | | | | | | | | | | | | |
| | | For detailed contactor specifications by starter rating code, see Section 4 Page 15 | | | | | | | | | | |
| | | For detailed overload relay specifications by catalog number prefix, see Section 6 Page 8 | | | | | | | | | | |
| Ambient Operating Temperature | °C / °F | -25 to +55 / -13 to +131 | | | | | | | | | | |
| Ambient Storage Temperature | °C / °F | -40 to +70 / -104 to +158 | | | | | | | | | | |
| Altitude | m / ft. | 2,000 / 6,528 | | | | | | | | | | |
| CONSTRUCTION - GENERAL | | | | | | | | | | | | |
| | | For detailed contactor specifications by starter rating code, see Section 4 Page 15 | | | | | | | | | | |
| | | For detailed overload relay specifications by catalog number prefix, see Section 6 Page 9 | | | | | | | | | | |
| Number of Poles | | 3 | | | | | | | | | | |
| Pollution Degree | | 3 | | | | | | | | | | |
| Trip Class | | 10 | | | | | | | | | | |
| INGRESS PROTECTION | | | | | | | | | | | | |
| Main Terminals (with conductors connected) | | IP20 | | | | | | | | | | |
| Coil Terminals | | IP20 | | | | | | | | | | |
| Auxiliary Contact Terminals | | IP20 | | | | | | | | | | |
| CONSTRUCTION - CONDUCTOR CROSS SECTIONS | | | | | | | | | | | | |
| | | For detailed contactor specifications by starter rating code, see Section 4 Page 15 | | | | | | | | | | |
| | | For detailed overload relay specifications by catalog number prefix, see Section 6 Page 9 | | | | | | | | | | |
| ROHS COMPLIANCE | | For RoHS compliance documentation by product, refer to www.c3controls.com . | | | | | | | | | | |

CONTACTOR + OVERLOAD RELAY ASSEMBLIES - AC COIL**300-S09, 300-S12, 300-S18 OR 300-S25 CONTACTOR WITH 320-B2*** OVERLOAD RELAY****300-S32 OR 300-S40 CONTACTOR WITH 320-B2*** OVERLOAD RELAY****300-S32 OR 300-S40 CONTACTOR WITH 320-B3U40 OVERLOAD RELAY**

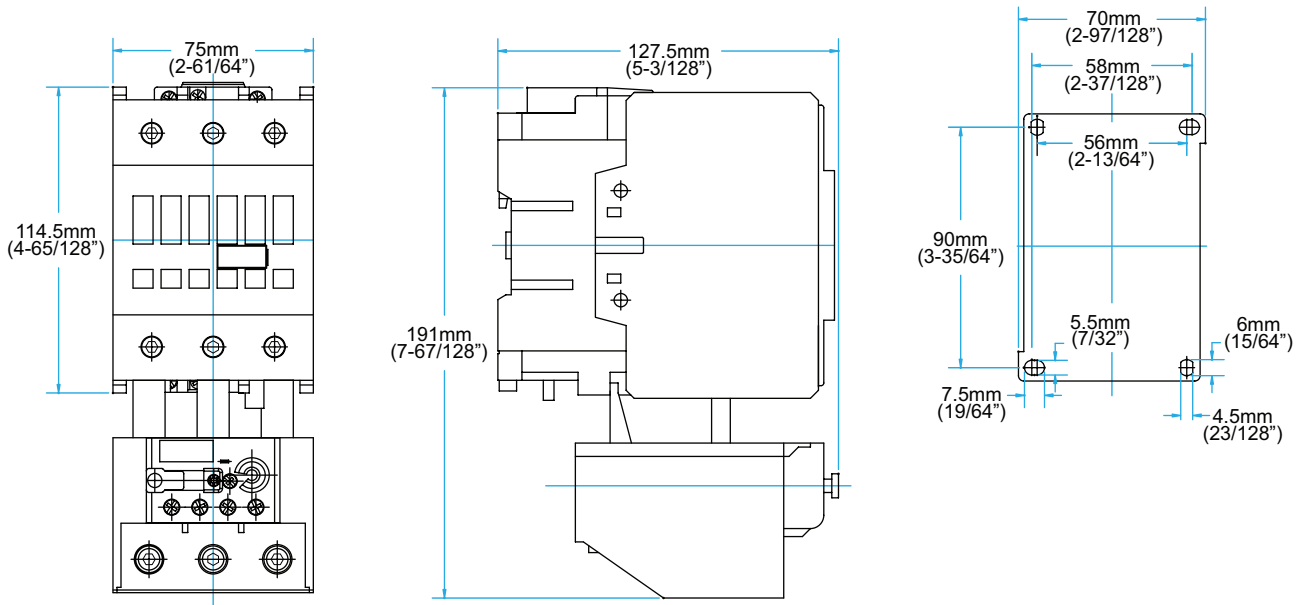
NOTE: *** Represents the overload relay current adjustment code. Refer to page 7.

CONTACTOR + OVERLOAD RELAY ASSEMBLIES - AC COIL (CONT.)

300-S50, 300-S65 OR 300-S80 CONTACTOR WITH 320-B4*** OVERLOAD RELAY



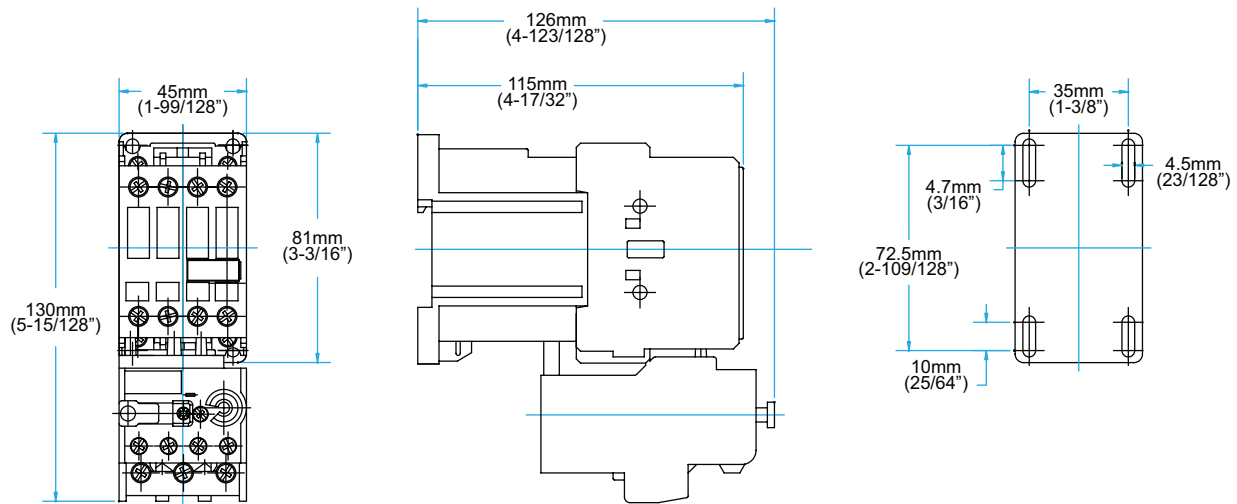
300-S95 OR 300-S105 CONTACTOR WITH 320-B5*** OVERLOAD RELAY



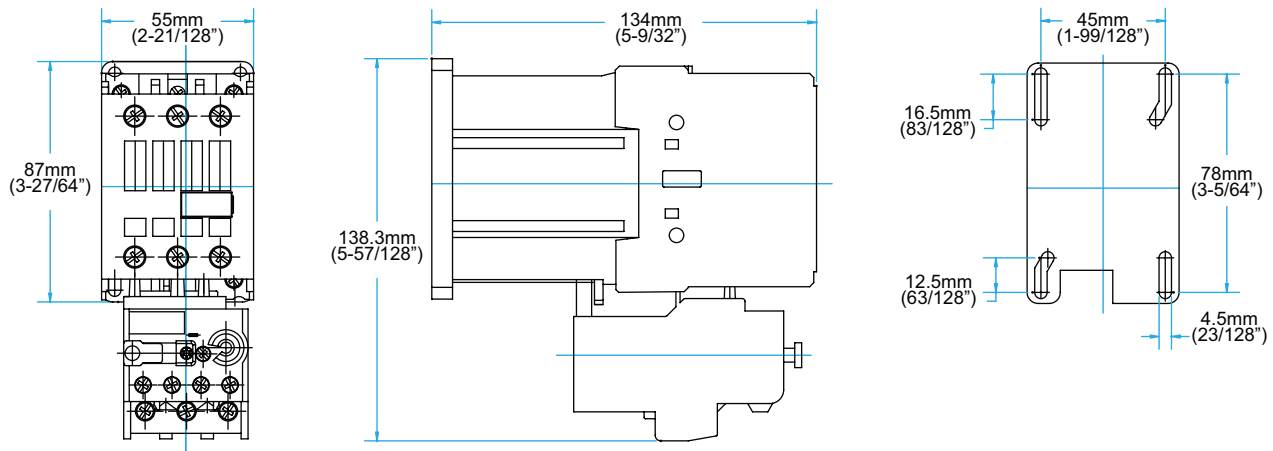
NOTE: *** Represents the overload relay current adjustment code. Refer to page 7.

CONTACTOR + OVERLOAD RELAY ASSEMBLIES - DC COIL

300-S09, 300-S12, 300-S18 OR 300-S25 CONTACTOR WITH 320-B2*** OVERLOAD RELAY



300-S32 OR 300-S40 CONTACTOR WITH 320-B2*** OVERLOAD RELAY

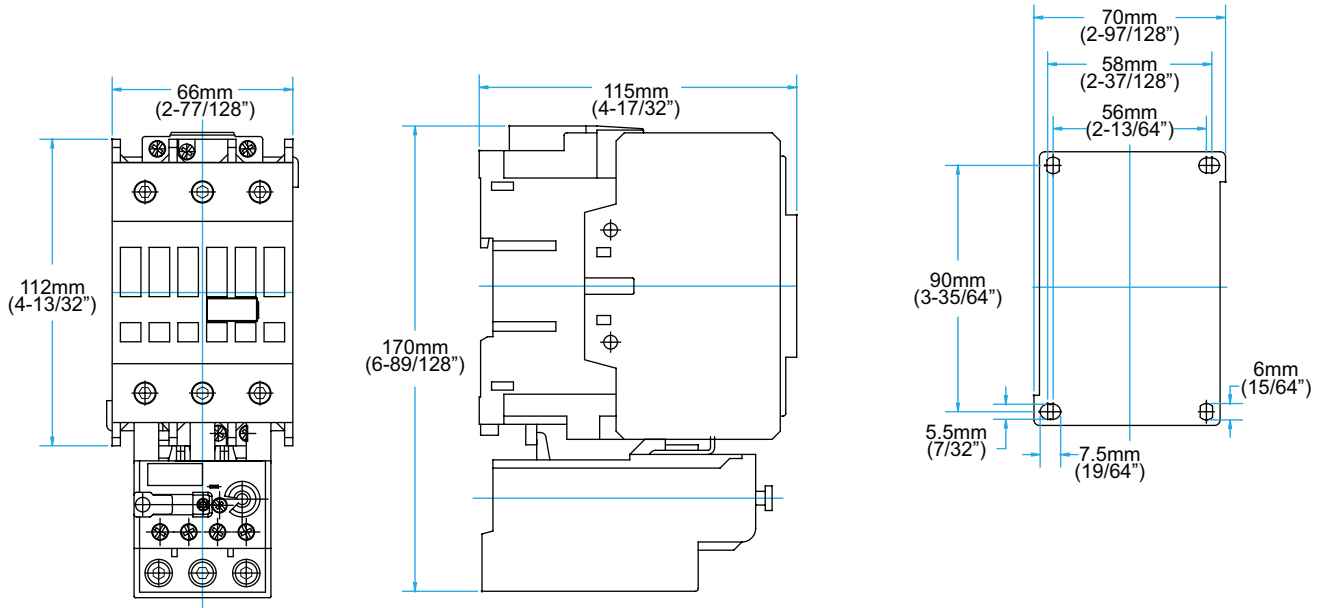


NOTE: *** Represents the overload relay current adjustment code. Refer to page 7.

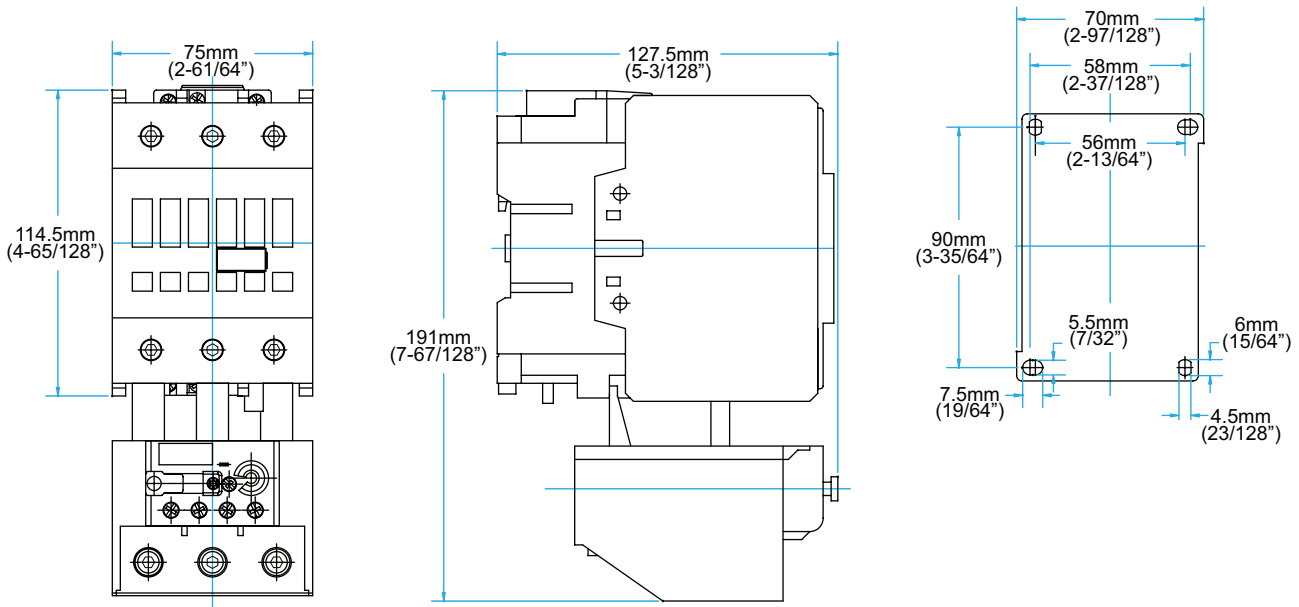
**VISIT WWW.C3CONTROLS.COM
TO DOWNLOAD CAD DRAWINGS**

CONTACTOR + OVERLOAD RELAY ASSEMBLIES - DC COIL (CONT.)

300-S50, 300-S65 OR 300-S80 CONTACTOR WITH 320-B4*** OVERLOAD RELAY



300-S95 OR 300-S105 CONTACTOR WITH 320-B5*** OVERLOAD RELAY



NOTE: *** Represents the overload relay current adjustment code. Refer to page 7.