



Contactors Overview (C-2000)	5-2		
Mini Contactors (C-2000)			
Overview.....	5-4		
Features and Benefits.....	5-4		
Accessory Features.....	5-5		
Product Offering.....	5-6		
Product Number Selection Instructions	5-6		
Product Descriptions.....	5-7		
AC 3-Pole, Up to 230 VAC Coil, Nonreversing	5-8		
AC 3-Pole, Up to 600 VAC Coil, Nonreversing	5-9		
AC 3-Pole, Up to 250 VDC Coil, Nonreversing.....	5-10		
AC 4-Pole, Up to 600 VAC Coil, Nonreversing.....	5-11		
AC 4-Pole, Up to 250 VDC Coil, Nonreversing.....	5-12		
AC 3-Pole, Up to 600 VAC Coil, Reversing	5-13		
AC 3-Pole, Up to 250 VDC Coil, Reversing.....	5-14		
AC 3-Pole, Up to 24 VDC Coil, Nonreversing.....	5-15		
Accessories.....	5-16		
Overload Relays.....	5-20		
Overload Relays Accessories.....	5-20		
Control Relays	5-21		
Control Relay Accessories	5-23		
Outlines and Dimensions.....	5-24		
Technical Information.....	5-31		
Application Information	5-34		
Application Information - Overload Relay Performance Curves.....	5-35		
Contactors and Starters (C-2000)			
Introduction.....	5-36		
Product Number Selection Instructions.....	5-37		
Contactors with Electronic Modules Overview.....	5-38		
Contactors - Nonreversing and Reversing, AC Controlled, 3-Pole	5-40		
Contactors - Nonreversing and Reversing, DC Controlled, 3-Pole.....	5-41		
Contactors - Nonreversing and Reversing, AC/DC Controlled, 3-Pole	5-42		
Contactors - Nonreversing, AC, DC, AC/DC Controlled, 4-Pole	5-44		
Contactors - Nonreversing, AC/DC Controlled, 4-Pole.....	5-45		
Contactors Accessories	5-46		
Contactor Coils	5-50		
Contactor Enclosures.....	5-51		
Contactor Enclosure Accessories	5-52		
Contactors Thermal Overload Relays.....	5-53		
Contactors Thermal Overload Relays Accessories.....	5-57		
Contactors Thermal Overload Relays Technical Characteristics.....	5-58		
Contactors Electronic Overload Relays.....	5-59		
Control Relays Selection Guide	5-63		
Control Relays Accessories.....	5-64		
Contactors for Capacitors Switching CSCN Series.....	5-67		
Specifications - Contactors, Starters, and Relays.....	5-72		
Contactors Technical Data.....	5-73		
Overload Relays Technical Data.....	5-76		
Contactors Accessories Technical Data	5-77		
Contactors Lifetime Curves	5-78		
Contactors Application Ratings-DC	5-81		
Contactors Application Ratings-AC.....	5-82		
Contactors Application Ratings-KVA.....	5-83		
Contactors and Starters Type 2 Coordination.....	5-84		
Contactors and Starters Wiring Diagrams.....	5-85		
Contactors Dimensions	5-86		



IEC Power Devices

Contactors Overview

C-2000

Section 5

This Control Catalog section brings together products that conform to the International Electrical Commission (IEC) standards for worldwide markets. GE provides several complementary lines to meet the requirements of these standards:

C-2000 Control Contactors and Starters

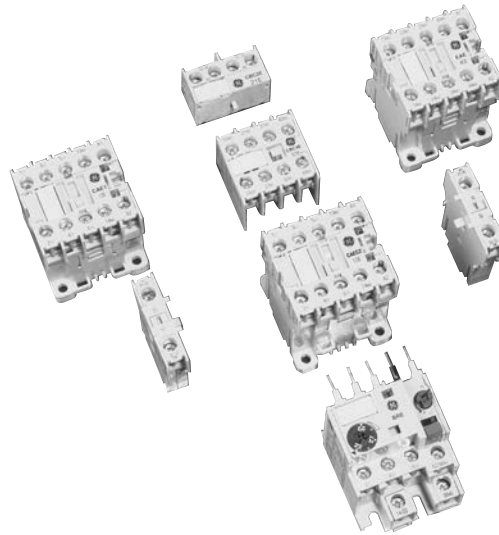
GE's C-2000 Control Contactors and Starters offer a wide array of contactors, relays, accessories, enclosures, and assembled starters to give you greater design versatility. C-2000 components are loaded with features that make them easier to install, allow more flexible configurations, lower inventory requirements, and make better use of panelboard space. These components conform to international standards (UL, cUL and IEC-947) and have dual (U.S./European) markings to ensure global acceptance. A single nomenclature system allows simple sourcing worldwide. AC coils (both 50 Hertz and 60 Hertz versions) and dc coils are available for a wide range of voltages for flexibility.

Mini-Contactors

GE's C-2000 Control Mini-Contactors are compact, convenient and compatible with most installation requirements. Various configurations can be created by combining the MC contactors and MCR control relays with a wide selection of modular accessories. The high-performance Mini-Contactors are ideal for even highly demanding conditions. With a mechanical life rated at 10 million operations, and electrical life (AC-3) rated in excess of 1 million operations at rated current, they are ideal for many applications including pumps, fans, hoists, conveyors, and irrigation systems.

Positive Guided Contacts

All GE C-2000 contactors and relays offer positive guided contacts. This complies with the requirements of EH 60947-5-1. Except for auxiliary contacts BCLF10G and BCLF01G, NO and NC auxiliary contacts and main contacts will **not overlap**. BCLF10G and BCLF01G are intentionally designed to be overlapping.



C-2000 Mini-Contactors



IEC Power Devices

Mini Contactors Overview

C-2000

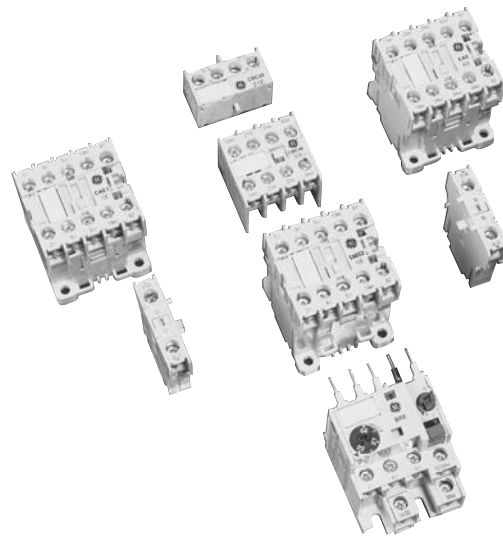
Application

The MC family of mini-contactors and the MCR family of control relays offer the user and equipment designer a compact, reliable and versatile solution to today's demanding requirement of high performance in a confined space. In such applications, PLC compatibility is playing an ever increased role.

Contactors and control relays are available in either ac or dc controlled forms, and offer application flexibility through a wide variety of modular accessories. These devices are CE Marked and dual-rated for worldwide acceptance by complying to UL, cUL, and IEC 947 standards. Contactors and control relays may be conveniently mounted using a 35mm DIN rail or by affixing with screws to a base plate.

Featuring a conveniently compact size, a mechanical life rated at 10 million operations, and an electrical life (AC-3) rated in excess of 1 million operations at rated current, the MC/MCR mini-contactor family is suitable for a wide variety of applications—including pumps, fans, door operators, hoists, conveyers, commercial laundry equipment, machine tools, food mixing equipment, irrigation systems, and other utilizations.

Low coil power consumption greatly expands application flexibility. Standard ac coils require only 1.4 watts and standard dc coils require 3 watts; this translates into low control power supply requirements and low heat losses inside the enclosure. Two special 24 volt PLC interface coil versions are also available to allow coils to be directly operated by PLC outputs.



The MC/MCR family of contactors and control relays offers compact size, performance and features typically found in larger contactors and relays. This combination expands application flexibility which is only limited by the imagination of the designer.

Accessories

A wide variety of accessories allows application flexibility to meet most installation requirements. Accessories include:

- overload relays,
- overload relay signal contact,
- overload relay separate mounting base,
- 2-pole front auxiliary contacts,
- 4-pole front auxiliary contacts,
- 1-pole side auxiliary contacts,
- surge suppressor,
- mechanical interlock,
- electronic timer

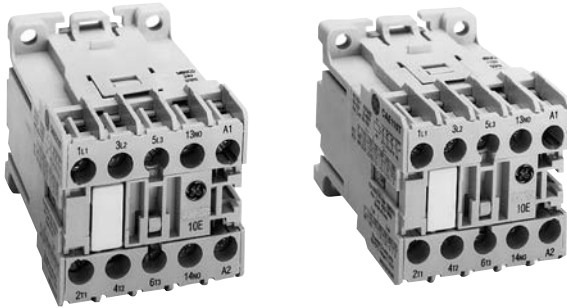
Accessories are designed for quick and easy installation to either the front or side of the contactors or control relays.



IEC Power Devices

Mini Contactors Features and Benefits

C-2000



Modular Design—One of the most attractive features of this product family is its modularity. Various configurations can be created by combining the MC contactors and MCR control relays with the wide selection of available accessories.

Compact Size—The contactor/relay mounting profile is approximately 1 3/4" x 1 7/8".

Long Life—The MC/MCR family of contactors and relays offers superior performance. Mechanical life is rated at 10,000,000 operations. Contactor motor ratings (AC-3) are in excess of 1,000,000 electrical operations.

Reliable Operation—These products are manufactured with the latest advancements in materials technology and designed to ensure long, dependable operation. (Coils are designed for protection against burnout during demanding brownout conditions.)

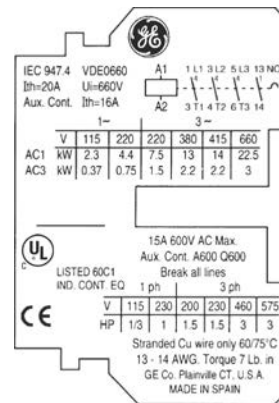
Flexible Mounting—Mounting is not restricted for contactor and relay applications; contactors may be horizontal-, tabletop-, or ceiling-mounted. Mounting flexibility is provided by a dual mounting system using either 35mm DIN rail or two #8 screws in opposite diagonal corners. The DIN rail release is located at the top, providing easy access when configured as a starter. Accessories are easily assembled to the MC/MCR contactors and relays, saving time while affording maximum versatility.

High Short Circuit Current Ratings for UL508A—MC/MCR family of contactors UL rated to withstand 50,000 AIC fault when protected by Class H, L, J, CC or RK-5 fuses providing added performance to use within UL508A control panels.

Easy Installation—Captive universal slot screws are standard on all contactors, relays, overloads, and accessories allowing installation with flat, star, and Phillips screwdrivers. All terminals are in the open position for production line and installation efficiency. Accessories are designed for fast installation on either contactors or relays.

Safety Features—Finger and back-of-hand protection are provided. All screw and quick-connect type terminals are clearly marked with dual markings where applicable, for easy identification and wiring convenience.

International Acceptance—Devices are listed and certified to international standards. Nameplate carries both IEC and North American standards.



Dual markings are provided.

Special Orders—For OEMs and higher-volume applications, special terminal configurations are available, including quick-connect terminals (one 6.3mm Faston or two Faston 2.8mm) and pin terminals for printed circuit boards. Four-pole contactors with 4NO, 2NO/2NC or 4NC contacts can be ordered. Lower wattage 1.2w 24 Vdc and 2w 24 Vdc PLC contactor/relay versions also are available. (See Special PLC-Compatible Products, page 5-15.)

Bulk pack—In order to save time in higher volume applications, stock management and facilitate the shipments, bulk packs are available.

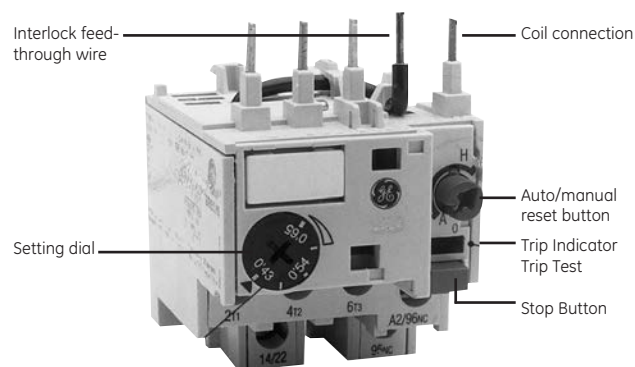


Overload Relays—The Class 10 overload relay features include loss of phase sensitivity, ambient temperature compensation, choice of automatic or manual reset, trip indication (tripped “O”, operational “I”), trip test, separate stop (red), and reset (blue) buttons. Installation and wiring is simplified; the contactor coil connection A2 is fed directly into terminal 96 (NC contact) of the overload relay, making external coil/contact connecting wire unnecessary. The contactor holding interlock terminal (14) is fed through the overload relay for additional wiring convenience and simplification.

Optional overload relay accessories include an addable snap-on NO signaling contact and a separate mount base/terminal assembly for applications where in-line installation is not convenient. The separate mounting base is suitable for either screw or DIN rail mounting.

Auxiliary Contact Blocks—Front-mounted auxiliary blocks easily snap on the front of the MC/MCR contactors and relays. Front-mounted auxiliary contact blocks are available in either 3- or 4-pole versions. When mounting depth is critical, side auxiliary contact blocks may be easily assembled to each side of the contactor or control relay, using unique U-shaped keys. Up to two side auxiliary contact blocks may be added to each side of the contactor or relay. This unique family of front and side auxiliary contact blocks allows installation flexibility and also convenient mounting of additional accessories such as timers and surge suppressors. Control relays may be assembled with up to a maximum of ten contacts by using both front and side auxiliary contacts. Three-pole contactors may be assembled with up to seven auxiliary contacts, including the NO holding interlock.

Surge Suppressor—Affords transient spike protection and assures proper control circuit operations through suppression of unwanted noise. Easily plugs into the contactor/relay front, making a wireless connection with the coil circuit. Quick, simple installation.



Mechanical Interlock—Designed for either ac or dc contactors. Allows field assembly of components into reversing contactors or starters. The mechanical interlock design is simple, easy to install, and allows a quick two-step conversion of components into reversing configurations.

Electronic Timer—Adjustable from 0.5-60 seconds. The timer is available with wide ac/dc voltage (24-240 V) range, and is wired in series with the contactor or control relay coil. The electronic timer provides accurate, repeatable time delay upon energization. The timer block easily snaps onto the front of the contactor or relay, or may be fitted on the side, or may be panel/DIN rail mounted using the optional mounting base. Quick, efficient, simple and versatile.

Coils—AC and DC coils may be changed to accommodate various voltages at distributor, OEM and user locations to allow inventory management and flexibility to serve a wide range of voltage/frequency requirements.



IEC Power Devices Mini Contactors Product Offering C-2000

Section 5



Surge Suppressor
MPOAAE



Mechanical Interlock
MMH0



Electronic Timer
MREB



Optional Timer Base
MVB0R



1-Pole, Side-Mounted
Auxiliary Contact Block
MARL/MACL



Auxiliary Contact
MATV10AT



Overload Relay
MT0



Base For Separate Mount
MVB0T



Input Terminals for
Separate Mount MVE0T



4-Pole, Front-Mounted
Auxiliary Contact Block
MARN4/MACN4



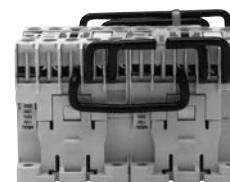
2-Pole, Front-Mounted
Auxiliary Contact Block
MARN2/MACN2



Contactor 5hp @ 460V
MC1



Control Relay
MCR



Reversing Mini
Contactor

Mini-Contactors (up to 5 HP) Product Number Selection Instructions

Pages 5-7 to 5-35 in this catalog include ordering and pricing information for the following product offerings, with **GO-10A1** discount schedule:

- Contactors, AC- or DC-controlled,
- Overload relays,
- Reversing contactors,
- Control relays,
- Accessories, including:
 - Contactor auxiliary contact adder blocks,
 - Control relay auxiliary contact adder blocks,
 - Overload relay auxiliary contact adder blocks,
 - Mechanical interlock,
 - Reverser power wiring kit,
 - Electronic timing element,
 - Mounting adapter for electronic timing element,
 - Surge suppressors.

Information includes product numbers, list prices, package quantities, and applicable rating data for proper selection.

1. Be sure to include coil suffix letter in product number where indicated for contactors, reversing contactors, and control relays.
2. For motor starter requirements, select the proper contactor and overload relay to meet your needs.
3. Order by complete product number. **Example:** For a 3.0 hp, 460 V, 3-phase, 60 Hertz motor with full-load amperes, AC-3 type duty current of 4.4 amperes and 120V control power... select open contactor with 120 V, 60 Hertz coil, MCOA310ATJ and overload relays MT03L. For an extra NO auxiliary contact on the overload, also order MATV10AT adder block.

MCOA310ATJ1	\$40.00 ea. GO-10A1
MT03L	\$40.00 ea. GO-10A1
MATV10AT	\$ 8.00 ea. GO-10A1

¹J was added to the end of the product number to get a 120 V coil.

4. Contactors and accessories are packaged in multiple quantities for handling convenience. Order in quantities of 10 whenever possible.

Additional Information

Field-Installed Accessories	pages 5-16
Outlines and Dimensions	pages 5-24
Technical Information	pages 5-31



Product Number Selection Instructions: See page 5-6

IEC Power Devices

Mini Contactors Product Descriptions

C-2000

Full Voltage Mini Contactors - Nonreversing

- Contactors are suitable for use on alternating current (ac) control circuits up to 600 volts and dc control circuits up to 240 volts.
- All terminals are dual marked in accordance to EN50012, and U.S. marking standards.
- Contactor may be mounted on 35mm DIN rail EN50022-35, or may be panel-mounted using two #8 screws in diagonal corners.
- Screw and quick-connect terminals are protected against accidental contact in accordance with VDE0106T.100 and VBG4.
- Low-coil wattage requirement makes contactors ideal for most applications. 24 Vdc PLC interface versions are available. (See Special PLC-Compatible Products, page 5-15.)
- A wide range of accessories, including front-mounted auxiliary contact blocks, side-mounted auxiliary contact blocks, timer, and surge suppressors, are easily installed on contactors.



Nonreversing Mini Contactor



Screw Terminal EA07

EA07 is a more compact Mini Contactor without accessories that provides alternative solutions capabilities for equipment design when space is the major constraint.

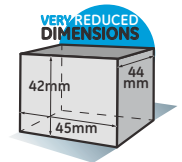
Full Voltage Mini Contactors - Reversing

- Reversing contactor configuration includes two 3-pole contactors, mechanical interlock, power wiring, with a 1NO or 1NC auxiliary contact on each contactor. An optional auxiliary contact block for each contactor may be required for holding interlock or cross electrical interlock, depending upon the control circuit. Side auxiliary NO contacts may be easily added in the field. These must be added as a separate item, when required.
- Reversing contactors are suitable for use on alternating current (ac) control circuits up to 600 volts, and dc control circuits up to 240 volts.
- All terminals are dual marked in accordance to EN50012, and U.S. marking standards.
- Reversing contactor may be mounted on 35mm DIN rail EN50022-35, or may be panel-mounted using two #8 screws in diagonal corners.
- Optional quick-connect type or PC board terminal configurations are available.
- Screw and quick-connect terminals are protected against accidental contact in accordance with VDE0106T.100 and VBG4.
- A wide range of accessories are available.

Full Voltage Mini Contactors - PLC Compatible

Three-Pole—Low Coil Wattage Contactors

- While the standard line of MCOC dc operated contactors requires only 3 watts coil holding current, some PLC applications require lower wattage coils to efficiently interface with the PLC. Special contactors are available with 24 VDC coils, which only require 1.2 or 2 watts for pull in and holding. These contactors are available with screw terminal configuration.
- All terminals are dual marked in accordance to EN50012, and U.S. marking standards.
 - Contactor may be mounted on 35mm DIN rail EN50022-35, or may be panel mounted using two #8 screws in diagonal corners.
 - Screw-type terminals are protected against accidental contact in accordance with VDE0106T.100 and VBG4.
 - Timer and surge suppressors are easily installed on contactors. A maximum of two auxiliary contacts are permissible on the 2 volt PLC version. Auxiliary contacts may not be utilized on the 1.2 watt version.



Three Pole Minicontactors - EA07 Series

7A (AC3)

16A (AC1)

- Control circuit:
 - Alternating current up to 230VAC at 50/60Hz
 - Direct current up to 110VDC
- Low consumption:
 - Only 1.2 WDC
 - 2.4 VA In AC
- Power circuit: Up to 400VAC
- Very reduced dimensions: 42/45/44mm (HxWxD)
- Lateral carrier
- Terminal numbering in accordance with EN 50012
- Fixing by clipping onto 35mm DIN rail (EN 50022-35) or by screws
- Terminal versions:
 - Screws as standard
 - Solder pin for circuit board application
- Integrated one auxiliary contact block: 1NO or 1NC
- No accessories
 - No available additional auxiliary contacts
 - Stand-alone thermal protection
- cULus approval

Reference Publications

Instructions

- GEH-5475 MC Mini-Contactor/MTO Thermal-Overload Relay, U.S. version.
- GEH-5931 MC Mini-Contactor Global Instructions
- GEH-5932 MTO Thermal-Overload Relay Global Instructions



IEC Power Devices

Mini Contactors

Series EA

AC 3-Pole, Up to 230 VAC Coil

Nonreversing

AC Contactors

Power rating AC3(KW)		Auxiliary contacts					Control circuit	Voltage	Product Number	List Price GO-10A1	Pack
230V	400V	Terminal	Poles	NO	NC						
1.5	3	Screw	3	1	0	AC	24	EA07A310S024	\$34.00	10	
1.5	3	Screw	3	0	1	AC	24	EA07A301S024	\$34.00	10	
1.5	3	Screw	3	1	0	AC	48	EA07A310S048	\$34.00	10	
1.5	3	Screw	3	0	1	AC	48	EA07A301S048	\$34.00	10	
1.5	3	Screw	3	1	0	AC	110	EA07A310S110	\$34.00	10	
1.5	3	Screw	3	0	1	AC	110	EA07A301S110	\$34.00	10	
1.5	3	Screw	3	1	0	AC	230	EA07A310S230	\$34.00	10	
1.5	3	Screw	3	0	1	AC	230	EA07A301S230	\$34.00	10	
1.5	3	Screw	3	1	0	DC	24	EA07D310S024	\$34.00	10	
1.5	3	Screw	3	0	1	DC	24	EA07D301S024	\$34.00	10	
1.5	3	Screw	3	1	0	DC	110	EA07D310S110	\$34.00	10	
1.5	3	Screw	3	0	1	DC	110	EA07D301S110	\$34.00	10	
0.75	1.5	Solder pin	3	1	0	AC	24	EA07A310I024	\$34.00	10	
0.75	1.5	Solder pin	3	0	1	AC	24	EA07A301I024	\$34.00	10	
0.75	1.5	Solder pin	3	1	0	DC	24	EA07D310I024	\$34.00	10	
0.75	1.5	Solder pin	3	0	1	DC	24	EA07D301I024	\$34.00	10	
0.75	1.5	Solder pin	3	1	0	DC	110	EA07D310I110	\$34.00	10	
0.75	1.5	Solder pin	3	0	1	DC	110	EA07D301I110	\$34.00	10	
0.75	1.5	Solder pin	3	1	0	AC	230	EA07A310I230	\$34.00	10	
0.75	1.5	Solder pin	3	0	1	AC	230	EA07A301I230	\$34.00	10	

Note: All alternating current coils are bi-frequency (50/60Hz)



Product Number Selection Instructions: See page 5-6

IEC Power Devices

Mini Contactors

C-2000

AC 3-Pole, Up to 600 VAC Coil

Nonreversing

Line Voltage - 600 VAC Maximum
HP Ratings AC-3 Duty

Standard Screw-Type Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NC	MCOA301AT*	\$40.00	6 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NO	MCOA310AT*	\$40.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NC	MC1A301AT*	\$44.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NO	MC1A310AT*	\$44.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	1NO	MC2A310AT*	\$51.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	1NC	MC2A301AT*	\$51.00	6 oz.

Faston (2 x 2.8 mm) Quick Connection Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NC	MCOA301AF*	\$43.00	6 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NO	MCOA310AF*	\$43.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NC	MC1A301AF*	\$47.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NO	MC1A310AF*	\$47.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	1NO	MC2A310AF*	\$54.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	1NC	MC2A301AF*	\$54.00	6 oz.

Faston (1 x 6.3 mm) Quick Connection Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NC	MCOA301AH*	\$43.00	6 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NO	MCOA310AH*	\$43.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NC	MC1A301AH*	\$47.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NO	MC1A310AH*	\$47.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	1NO	MC2A310AH*	\$54.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	1NC	MC2A301AH*	\$54.00	6 oz.

Printed Circuit Board Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NC	MCOA301AI*	\$43.00	6 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NO	MCOA310AI*	\$43.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NC	MC1A301AI*	\$47.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NO	MC1A310AI*	\$47.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	1NO	MC2A310AI*	\$54.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	1NC	MC2A301AI*	\$54.00	6 oz.

¹Complete product number reference by replacing the "*" with the letter corresponding to the voltage and frequency of the control circuit.

(Replace asterisk (*) in product number with coil product number suffix.)

Mini Contactors Coil Voltage Selection

AC Coil Voltages											
50/60Hz	24	42	48	110-115		220-230	240				
50 Hz					115-127			380-400	415-440	500	
60Hz				120		208		440	480	600	
Product Number Suffix	1	2	9	J	K	M	6	7	U	W	Y



IEC Power Devices

Mini Contactors

C-2000

AC 3-Pole, Up to 250 VDC Coil

Nonreversing

Line Voltage - 600 VAC Maximum
HP Ratings AC-3 Duty

Section 5

Standard Screw-Type Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NC	MC0C301AT**	\$50.00	8 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NO	MC0C310AT**	\$50.00	8 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NC	MC1C301AT**	\$54.00	8 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NO	MC1C310AT**	\$54.00	8 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	1NO	MC2C310AT*	\$61.00	8 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	1NC	MC2C301AT*	\$61.00	8 oz.

Faston (2 x 2.8 mm) Quick Connection Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NC	MC0C301AF**	\$53.00	8 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NO	MC0C310AF**	\$53.00	8 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NC	MC1C301AF**	\$57.00	8 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NO	MC1C310AF**	\$57.00	8 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	1NO	MC2C310AF*	\$64.00	8 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	1NC	MC2C301AF*	\$64.00	8 oz.

Faston (1 x 6.3 mm) Quick Connection Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NC	MC0C301AH**	\$53.00	8 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NO	MC0C310AH**	\$53.00	8 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NC	MC1C301AH**	\$57.00	8 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NO	MC1C310AH**	\$57.00	8 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	1NO	MC2C310AH*	\$64.00	8 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	1NC	MC2C301AH*	\$64.00	8 oz.

Printed Circuit Board Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NC	MC0C301AI**	\$53.00	8 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NO	MC0C310AI**	\$53.00	8 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NC	MC1C301AI**	\$57.00	8 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NO	MC1C310AI**	\$57.00	8 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	1NO	MC2C310AI*	\$64.00	8 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	1NC	MC2C301AI*	\$64.00	8 oz.

¹Complete product number reference by replacing the "***" with the letter corresponding to the voltage and frequency of the control circuit.

(Replace asterisks (**)) in product number with coil product number suffix.)

Coil Voltage Selection

DC Coil Voltages

Voltage DC	12	24	48	110	125	250
Product Number Suffix	B	D	G	J	L	S

DC Wide Range Coil Voltages

Voltage DC	24	48	72	110
Product Number Suffix	WD	WG	WI	WJ



Product Number Selection Instructions: See page 5-6

IEC Power Devices

Mini Contactors

C-2000

AC 4-Pole, Up to 600 VAC Coil

Nonreversing

Line Voltage - 600 VAC Maximum
HP Ratings AC-3 Duty

Standard Screw-Type Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	4NO	MC0A400AT*	\$40.00	6 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	4NC	MC0AA00AT*	\$45.00	6 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	2NO-2NC	MC0AB00AT*	\$44.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	4NO	MC1A400AT*	\$44.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	4NC	MC1AA00AT*	\$49.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	2NO-2NC	MC1AB00AT*	\$48.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	4NO	MC2A400AT*	\$56.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	2NO-2NC	MC2AB00AT*	\$56.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	4NC	MC2AA00AT*	\$56.00	6 oz.

Faston (2 x 2.8 mm) Quick Connection Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	4NO	MC0A400AF*	\$43.00	6 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	4NC	MC0AA00AF*	\$48.00	6 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	2NO-2NC	MC0AB00AF*	\$47.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	4NO	MC1A400AF*	\$47.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	4NC	MC1AA00AF*	\$52.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	2NO-2NC	MC1AB00AF*	\$51.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	4NO	MC2A400AF*	\$59.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	2NO-2NC	MC2AB00AF*	\$59.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	4NC	MC2AA00AF*	\$59.00	6 oz.

Faston (1 x 6.3 mm) Quick Connection Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	4NO	MC0A400AH*	\$43.00	6 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	4NC	MC0AA00AH*	\$48.00	6 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	2NO-2NC	MC0AB00AH*	\$47.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	4NO	MC1A400AH*	\$47.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	4NC	MC1AA00AH*	\$52.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	2NO-2NC	MC1AB00AH*	\$51.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	4NO	MC2A400AH*	\$59.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	2NO-2NC	MC2AB00AH*	\$59.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	4NC	MC2AA00AH*	\$59.00	6 oz.

Printed Circuit Board Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	4NO	MC0A400AI*	\$43.00	6 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	4NC	MC0AA00AI*	\$48.00	6 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	2NO-2NC	MC0AB00AI*	\$47.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	4NO	MC1A400AI*	\$47.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	4NC	MC1AA00AI*	\$52.00	6 oz.
9.0A	3	3	5	5	4	1/2	1.5	2NO-2NC	MC1AB00AI*	\$51.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	4NO	MC2A400AI*	\$59.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	2NO-2NC	MC2AB00AI*	\$59.00	6 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	4NC	MC2AA00AI*	\$59.00	6 oz.

¹Complete product number reference by replacing the "*" with the letter corresponding to the voltage and frequency of the control circuit.

(Replace asterisk (*) in product number with coil product number suffix.)

Mini Contactors Coil Voltage Selection

AC Coil Voltages	24	42	48	110-115	115-127	208	220-230	240	380-400	415-440	500
50/60Hz											
50 Hz											
60Hz				120		208			440	480	600
Product Number Suffix	1	2	9	J	K	M	6	7	U	W	Y



IEC Power Devices

Mini Contactors

C-2000

AC 4-Pole, Up to 250 VDC Coil

Nonreversing

Line Voltage - 600 VAC Maximum
HP Ratings AC-3 Duty

Section 5

Standard Screw-Type Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	4NO	MC0C400AT**	\$50.00	8 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	2NO-2NC	MC0CB00AT**	\$54.00	8 oz.
9.0A	3	3	5	5	4	1/2	1.5	4NO	MC1C400AT**	\$54.00	8 oz.
9.0A	3	3	5	5	4	1/2	1.5	2NO-2NC	MC1CB00AT**	\$58.00	8 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	4NO	MC2C400AT*	\$65.00	8 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	2NO-2NC	MC2CB00AT*	\$65.00	8 oz.

Faston (2 x 2.8 mm) Quick Connection Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	4NO	MC0C400AF**	\$53.00	8 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	2NO-2NC	MC0CB00AF**	\$57.00	8 oz.
9.0A	3	3	5	5	4	1/2	1.5	4NO	MC1C400AF**	\$57.00	8 oz.
9.0A	3	3	5	5	4	1/2	1.5	2NO-2NC	MC1CB00AF**	\$61.00	8 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	4NO	MC2C400AF*	\$68.00	8 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	2NO-2NC	MC2CB00AF*	\$68.00	8 oz.

Faston (1 x 6.3 mm) Quick Connection Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	4NO	MC0C400AH**	\$53.00	8 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	2NO-2NC	MC0CB00AH**	\$57.00	8 oz.
9.0A	3	3	5	5	4	1/2	1.5	4NO	MC1C400AH**	\$57.00	8 oz.
9.0A	3	3	5	5	4	1/2	1.5	2NO-2NC	MC1CB00AH**	\$61.00	8 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	4NO	MC2C400AH*	\$68.00	8 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	2NO-2NC	MC2CB00AH*	\$68.00	8 oz.

Printed Circuit Board Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	4NO	MC0C400AI**	\$53.00	8 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	2NO-2NC	MC0CB00AI**	\$57.00	8 oz.
9.0A	3	3	5	5	4	1/2	1.5	4NO	MC1C400AI**	\$57.00	8 oz.
9.0A	3	3	5	5	4	1/2	1.5	2NO-2NC	MC1CB00AI**	\$61.00	8 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	4NO	MC2C400AI*	\$68.00	8 oz.
12.0A	3	3	7.5	7.5	5.5	1/2	2.0	2NO-2NC	MC2CB00AI*	\$68.00	8 oz.

¹Complete product number reference by replacing the "***" with the letter corresponding to the voltage and frequency of the control circuit.

(Replace asterisks (**)) in product number with coil product number suffix.)

Coil Voltage Selection

DC Coil Voltages

Voltage DC	12	24	48	110	125	250
Product Number Suffix	B	D	G	J	L	S

DC Wide Range Coil Voltages

Voltage DC	24	48	72	110
Product Number Suffix	WD	WG	WI	WJ



Product Number Selection Instructions: See page 5-6

IEC Power Devices

Mini Contactors

C-2000

AC 3-Pole, Up to 600 VAC Coil

Reversing

Line Voltage - 600 VAC Maximum
HP Ratings AC-3 Duty

Standard Screw-Type Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NO	TLIE1T*	\$112.00	13 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NC	TLIE1U*	\$112.00	13 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NO	TLIE2T*	\$120.00	13 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NC	TLIE2U*	\$120.00	13 oz.

Faston (2 x 2.8 mm) Quick Connection Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NC	TLIE1E*	\$118.00	13 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NO	TLIE1F*	\$118.00	13 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NC	TLIE2E*	\$126.00	13 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NO	TLIE2F*	\$126.00	13 oz.

Faston (1 x 6.3 mm) Quick Connection Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NC	TLIE1G*	\$118.00	13 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NO	TLIE1H*	\$118.00	13 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NC	TLIE2G*	\$126.00	13 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NO	TLIE2H*	\$126.00	13 oz.

Printed Circuit Board Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NO	TLIE1I*	\$118.00	13 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NC	TLIE1J*	\$118.00	13 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NO	TLIE2I*	\$126.00	13 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NC	TLIE2J*	\$126.00	13 oz.

¹Complete product number reference by replacing the "*" with the letter corresponding to the voltage and frequency of the control circuit.

(Replace asterisk (*) in product number with coil product number suffix.)

Mini Contactors Coil Voltage Selection

AC Coil Voltages											
50/60Hz	24	42	48	110-115			220-230	240			
50 Hz					115-127			380-400	415-440	500	
60Hz			120		208			440	480	600	
Product Number Suffix	1	2	9	J	K	M	6	7	U	W	Y



IEC Power Devices

Mini Contactors

C-2000

AC 3-Pole, Up to 250 VDC Coil

Reversing

Line Voltage - 600 VAC Maximum
HP Ratings AC-3 Duty

Standard Screw-Type Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NO	TLICE1T**	\$132.00	16 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NC	TLICE1U**	\$132.00	16 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NO	TLICE2T**	\$140.00	16 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NC	TLICE2U**	\$140.00	16 oz.

Faston (2 x 2.8 mm) Quick Connection Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NC	TLICE1E**	\$138.00	16 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NO	TLICE1F**	\$138.00	16 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NC	TLICE2E**	\$146.00	16 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NO	TLICE2F**	\$146.00	16 oz.

Faston (1 x 6.3 mm) Quick Connection Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NC	TLICE1G**	\$138.00	16 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NO	TLICE1H**	\$138.00	16 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NC	TLICE2G**	\$146.00	16 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NO	TLICE2H**	\$146.00	16 oz.

Printed Circuit Board Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Auxiliary Contacts	Product Number ¹	List Price GO-10A1	Approx. Weight Each
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NO	TLICE1I**	\$138.00	16 oz.
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NC	TLICE1J**	\$138.00	16 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NO	TLICE2I**	\$146.00	16 oz.
9.0A	3	3	5	5	4	1/2	1.5	1NC	TLICE2J**	\$146.00	16 oz.

¹Complete product number reference by replacing the "***" with the letter corresponding to the voltage and frequency of the control circuit.

(Replace asterisks (**)) in product number with coil product number suffix.)

Coil Voltage Selection

DC Coil Voltages						
Voltage DC	12	24	48	110	125	250
Product Number Suffix	B	D	G	J	L	S

DC Wide Range Coil Voltages				
Voltage DC	24	48	72	110
Product Number Suffix	WD	WG	WI	WJ



Product Number Selection Instructions: See page 5-6

IEC Power Devices

Mini Contactors

C-2000

AC 3-Pole, Up to 24 VDC Coil

Nonreversing

Line Voltage - 600 VAC Maximum
 HP Ratings AC-3 Duty

24 VDC PLC Contactors Standard Screw Type Terminals

Maximum Current @ 460 V (A)	3-Phase HP @60 Hz, 200-208V	3-Phase HP, @60 Hz, 220-240V	3-Phase HP @60 Hz, 460-480V	3-Phase HP @60 Hz, 550-600V	kW @ 50 Hz, 380/415V	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	Contact Configuration	Coil Wattage	Product Number	List Price GO-10A1
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NO	1.2w	MC0I310ATD	\$50.00
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NC	1.2w	MC0I301ATD	\$50.00
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NO	2w	MC0K310ATD	\$50.00
6.0A	1.5	1.5	3	3	2.2	1/3	1	1NC	2w	MC0K301ATD	\$50.00
9.0A	3	3	5	5	4	1/2	1.5	1NO	1.2w	MC1I310ATD	\$54.00
9.0A	3	3	5	5	4	1/2	1.5	1NC	1.2w	MC1I301ATD	\$54.00
9.0A	3	3	5	5	4	1/2	1.5	1NO	2w	MC1K310ATD	\$54.00
9.0A	3	3	5	5	4	1/2	1.5	1NC	2w	MC1K301ATD	\$54.00

Minimum order is 140 pieces. Packaged in multiples of 10 units. Each product number represents one unit.

Select the Mini-Contactor product number that corresponds to the desired Contactor Rating.



IEC Power Devices Mini Contactors Accessories

Section 5

C-2000

Contact Rating A600, Q300

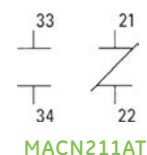
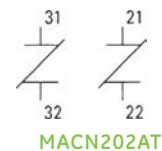


2-Pole Front-Mounted Auxiliary Contact Block MARN2/MACN2



4-Pole Front-Mounted Auxiliary Contact Block MARN4/MACN4

Contact Arrangement/ Terminal Numbers per EN 50005

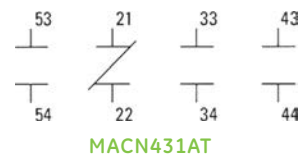
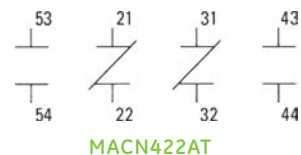
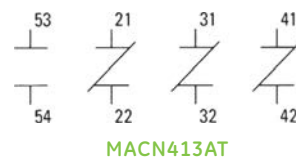


Front-Mounted Auxiliary Contact Blocks

Contact Configuration	For Use With	Product Number	List Price GO-10A1	Approx. Weight Each
2NC	Contactors	MACN202AT	\$12.00	1 oz.
1NO-1NC	Contactors	MACN211AT	\$12.00	1 oz.
1NO-3NC	Contactors	MACN413AT	\$22.00	2 oz.
2NO-2NC	Contactors	MACN422AT	\$22.00	2 oz.
3NO-1NC	Contactors	MACN431AT	\$22.00	2 oz.

Packaged in multiples of 10 units. Each product number represents one unit.

Front-mounted contacts may be combined with side auxiliary contacts for a total maximum number of six added auxiliary contacts.



Product Number Selection Instructions: See page 5-6

IEC Power Devices Mini Contactors Accessories

C-2000

Contact Rating A600, Q300



Side-Mounted Auxiliary Contact Block

Side-Mounted Auxiliary Contact Blocks

Contact Configuration	For Use With	Product Number	List Price	
			GO-10A1	Approx. Weight Each
1NC	Contactors	MACL101AT	\$8.00	1 oz.
1NC	Reversers	MACL101ATS	\$8.00	1 oz.
1NO	Contactors	MACL110AT	\$8.00	1 oz.
1NO	Reversers	MACL110ATS	\$8.00	1 oz.
1NC	Not Used in Combination w/ Top Auxiliary	MARL101AT	\$8.00	1 oz.
1NC	In Combination w/ Top Auxiliary	MARL101ATS	\$8.00	1 oz.
1NO	Not Used in Combination with Top Auxiliary	MARL110AT	\$8.00	1 oz.
1NO	In Combination w/ Top Auxiliary	MARL110ATS	\$8.00	1 oz.

Packaged in multiples of 10 units. Each product number represents one unit.

For quick-connect version 2 x 2.8 mm, replace the "T" with an "F" and add **\$2.00 (GO-10A1)** to the list price.

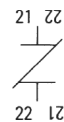
Up to four side auxiliary contacts may be installed on contactors or relays with standard coils with a maximum of two contacts per side. Optimum performance is obtained when the contact configuration is balanced.

Side contacts may be combined with front-mount auxiliary contacts for a total maximum number of six added auxiliary contacts.

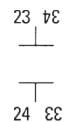
Contact Arrangement/ Terminal Numbers per EN 50005



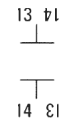
MACL101AT



MACL101ATS



MACL110AT



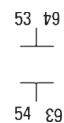
MACL110ATS



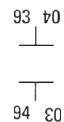
MARL101AT



MARL101ATS



MARL110AT



MARL110ATS



IEC Power Devices

Mini Contactors Accessories

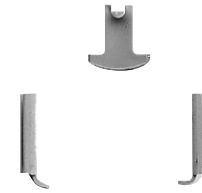
C-2000

Section 5

Mechanical Interlock

Used for field assembly of reversing contactors and starters. Kit contains operating lever and 2 keys for joining either AC or DC contactors.

Product Number	List Price GO-10A1	Approx. Weight Each	Packing Quantity (No. Per Set)
MMH0	\$8.00	0.1 oz.	10

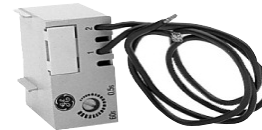


Mechanical Interlock

Electronic Timer

Attaches either to the top or side of contactor or relay. Wired in series with the coil. May be used either with AC or DC coils. Timer operation range .5-60 seconds.

Coil Voltage	Product Number	List Price GO-10A1	Approx. Weight Each	Packing Quantity (No. Per Set)
24-240V	MREBC10AC2	\$75.00	2 oz.	10



Electronic Timer

Electronic Timer Base

Allows timer to be either DIN rail- or panel-mounted.

Product Number	List Price GO-10A1	Approx. Weight Each	Packing Quantity (No. Per Set)
MVB0R	\$10.00	0.2 oz.	10

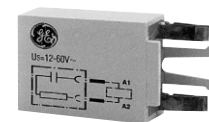


Electronic Timer Base

Surge Suppressor

Used to protect control circuits from voltage transients. Plugs into front of contactor, no external wiring required. RC type for AC and diode for DC.

Coil Voltage Range	Product Number	List Price GO-10A1	Approx. Weight Each	Packing Quantity (No. Per Set)
12-60V 50/60 Hz	MP0AAE1	\$16.00	0.5 oz.	10
72-240V 50/60 Hz	MP0AAE2	\$16.00	0.5 oz.	10
6-240 Vdc	MP0CAE3	\$16.00	0.5 oz.	10



Surge Suppressor



IEC Power Devices Mini Contactors Accessories C-2000

Section 5

AC Replacement Coils for Contactors and Control Relays

Coil Voltage @ 50/60Hz	Coil Voltage @ 50Hz	Coil Voltage @ 60Hz	Product Number	List Price GO-10A1	Approx. Weight Each	Packing Quantity
24			MBOA1	\$14.00	2 oz.	10
42			MBOA2	\$14.00	2 oz.	10
48			MBOA9	\$14.00	2 oz.	10
110-115			MBOAJ	\$14.00	2 oz.	10
220-230			MBOA6	\$14.00	2 oz.	10
240			MBOA7	\$14.00	2 oz.	10
	115-127		MBOAK	\$14.00	2 oz.	1
	380-400		MBOAU	\$14.00	2 oz.	1
	415-440		MBOAW	\$14.00	2 oz.	1
	500		MBOAY	\$14.00	2 oz.	1
		120	MBOAJ	\$14.00	2 oz.	1
		208	MBOAM	\$14.00	2 oz.	1
		440	MBOAU	\$14.00	2 oz.	1
		480	MBOAW	\$14.00	2 oz.	1
		600	MBOAY	\$14.00	2 oz.	1

DC Replacement Coils for Contactors and Control Relays

DC Coil Voltage	Coil Power Consumption	Product Number	List Price GO-10A1	Approx. Weight Each	Packing Quantity (minimum/multiples) ¹
12	3	MBOCB	\$18.00	3 oz.	1
24	3	MBOCD	\$18.00	3 oz.	1
48	3	MBOCG	\$18.00	3 oz.	1
110	3	MBOCJ	\$18.00	3 oz.	10
125	3	MBOCL	\$18.00	3 oz.	1
250	3	MBOCS	\$18.00	3 oz.	1

¹Coils listed in package quantities of 10 are available in minimum quantities of 10 and in multiples of 10.

DC Wide Range Coil Voltage

DC Coil Voltage	Coil Power Consumption	Product Number	List Price GO-10A1	Approx. Weight Each	Packing Quantity (minimum/multiples) ¹
24	3	MBOCWD	\$18.00	3 oz.	1
48	3	MBOCWG	\$18.00	3 oz.	1
72	3	MBOCWI	\$18.00	3 oz.	1
110	3	MBOCWJ	\$18.00	3 oz.	1



IEC Power Devices

Mini Contactors Overload Relays

C-2000

Section 5

Overload Relays

Fixed Heater

C2000 overload relays provide motor overload protection through fixed bimetal heaters. These relays are ambient compensated and utilize a differential mechanism for single-phase sensitivity. The trip setting is adjustable for the range listed.

Overload relays may be set for 2 different operational modes—manual reset only or automatic reset only. Stop is initiated by pushing the red stop button.

- Class 10A trip
- Ambient temperature compensation
- Differential phase loss sensitivity
- Trip indication
- Manual trip test
- Stop button (red)
- Reset button (blue), two positions: manual (H) and automatic (A)
- Pre-wired coil and NC contact connection
- Auxiliary contact feed-through wire, to facilitate installation
- Direct mounting or panel mount with base



Mini Contactor Overload Relay

Reference Publications

Instructions

- GEH-5475 MC Mini-Contactor/MT03 Thermal-Overload Relay, U.S. version.
- GEH-5931 MC Mini-Contactor Global Instructions
- GEH-5932 MT03 Thermal-Overload Relay Global Instructions

Overload Relays

Current Range Amps (min-max)	Maximum Fuse Rating HRC11	Maximum Fuse Rating K5	Product Number	List Price GO-10A1	Approx. Weight Each
0.11-0.17			MT03A	\$40.00	4 oz.
0.17-0.26			MT03B	\$40.00	4 oz.
0.26-0.43	2	1	MT03C	\$40.00	4 oz.
0.43-0.65	4	1	MT03D	\$40.00	4 oz.
0.65-1.0	6	3	MT03E	\$40.00	4 oz.
0.85-1.3	6	3	MT03F	\$40.00	4 oz.
1.1-1.6	10	6	MT03G	\$40.00	4 oz.
1.35-2.0	10	6	MT03H	\$40.00	4 oz.
1.7-2.4	16	6	MT03I	\$40.00	4 oz.
2.2-3.2	16	10	MT03J	\$40.00	4 oz.
3.0-4.7	16	15	MT03K	\$40.00	4 oz.
4.0-6.3	20	20	MT03L	\$40.00	4 oz.
5.5-8.0	25	30	MT03M	\$40.00	4 oz.
7.5-10.5	35	40	MT03N	\$40.00	4 oz.
10.0-14.0	50	50	MT03P	\$40.00	4 oz.

Fixed Heater With Differential Protection for Direct Mounting to Contactor. Packaged in multiples of 10 units. Each product number represents one unit.

Overload Relay Accessories

Type	Product Number	List Price GO-10A1	Approx. Weight Each	Packing Quantity ¹
Base for Separate Panel/Rail Mount of Overload Relay (Requires Power Input Terminals)	MVB0T	\$3.00	1 oz.	5
Power Input Terminals Used in Conjunction with Base	MVE0T	\$9.00	2 oz.	5
Instantaneous Auxiliary Contact Block for Relay, 1NO Contact	MATV10AT ²	\$8.00	1 oz.	10

¹Pack quantity multiples. Each product number represents one unit. May be ordered in quantities less than 10.

²Adder block may be used with manual operation only.



Base



Power Input Terminal



Instantaneous Auxiliary Contact Block



IEC Power Devices

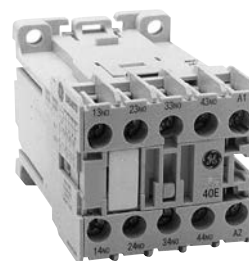
Mini Control Relays Overview

C-2000

Contact Rating A600, Q300

Control Relays

- Relays are suitable for use on alternating current (ac) control circuits up to 600 volts, and dc control circuits up to 240 Volts.
- All terminals are marked in accordance to EN50011.
- Control relays may be mounted on 35mm DIN rail EN50022-35, or may be panel-mounted using two or four #8 screws in diagonal corners.
- Screw and quick-connect terminals are protected against accidental contact in accordance with VDE0106T.100 and VBG4.
- Low-coil wattage requirement makes relay ideal for most applications. (24 Vdc PLC interface versions are available.)
- A wide range of accessories, including front-mounted auxiliary contact blocks, side-mounted auxiliary contact blocks, a timer, and surge suppressors, are easily installed on relays.



AC Operated Control Relay

PLC Compatible Control Relays

Low Coil Wattage Control Relays

While the standard line of MCRC dc operated relays requires only 3 watts coil holding current, some PLC applications require lower wattage coils to efficiently interface with the PLC. Special relays are available with 24 Vdc coils which only require 1.2 or 2 watts for pull in and holding. These relays are available with screw terminal configuration.

- All terminals are dual marked in accordance to EN50012, and U.S. marking standards.
- Relay may be mounted on 35mm DIN rail EN50022-35, or may be panel-mounted using two #8 screws in diagonal corners.
- Screw-type terminals are protected against accidental contact in accordance with VDE0106T.100 and VBG4.

Reference Publications

Instructions

GEH-5475 MC Mini-Contactor/MTO Thermal-Overload Relay. U.S. version.

GEH-5931 MC Mini-Contactor Global Instructions

GEH-5932 MTO Thermal-Overload Relay Global Instructions



IEC Power Devices

Mini Control Relays Selection

C-2000

Contact Rating A600, Q300

Section 5

AC Operated Control Relays

Contact Configuration	Mounting Type	Product Number ^{1,2}	List Price GO-10A1	Approx. Weight Each
4NO	Standard Screw	MCRA040AT*	\$38.00	6 oz.
4NO	2x2.8mm Faston	MCRA040AF*	\$41.00	6 oz.
4NO	1x6.3mm Faston	MCRA040AH*	\$41.00	6 oz.
4NO	PC Board	MCRA040AI*	\$41.00	6 oz.
3NO-1NC	Standard Screw	MCRA031AT*	\$38.00	6 oz.
3NO-1NC	2x2.8mm Faston	MCRA031AF*	\$41.00	6 oz.
3NO-1NC	1x6.3mm Faston	MCRA031AH*	\$41.00	6 oz.
3NO-1NC	PC Board	MCRA031AI*	\$41.00	6 oz.
2NO-2NC	Standard Screw	MCRA022AT*	\$38.00	6 oz.
2NO-2NC	2x2.8mm Faston	MCRA022AF*	\$41.00	6 oz.
2NO-2NC	1x6.3mm Faston	MCRA022AH*	\$41.00	6 oz.
2NO-2NC	PC Board	MCRA022AI*	\$41.00	6 oz.
1NO-3NC	Standard Screw	MCRA013AT*	\$38.00	6 oz.
1NO-3NC	2x2.8mm Faston	MCRA013AF*	\$41.00	6 oz.
1NO-3NC	1x6.3mm Faston	MCRA013AH*	\$41.00	6 oz.
1NO-3NC	PC Board	MCRA013AI*	\$41.00	6 oz.
4NC	Standard Screw	MCRA004AT*	\$38.00	6 oz.
4NC	2x2.8mm Faston	MCRA004AF*	\$41.00	6 oz.
4NC	1x6.3mm Faston	MCRA004AH*	\$41.00	6 oz.
4NC	PC Board	MCRA004AI*	\$41.00	6 oz.

¹Complete product number reference by replacing the "*" with the letter corresponding to the voltage and frequency of the control circuit.

²Packaged in multiples of 20 units. Each product number represents one unit.

(Replace asterisk (*) in product number with coil product number suffix.)

Mini Contactors Coil Voltage Selection

AC Coil Voltages	24	42	48	110-115	220-230	240
50/60Hz						
50 Hz				115-127	380-400	415-440 500
60Hz			120	208	440	480 600
Product Number Suffix	1	2	9	J	K	M 6 7 U W Y

DC Operated Control Relays

Contact Configuration	Mounting Type	Product Number ^{2,3}	List Price GO-10A1	Approx. Weight Each
4NO	Standard Screw	MCRC040AT**	\$48.00	6 oz.
4NO	2x2.8mm Faston	MCRC040AF**	\$51.00	6 oz.
4NO	1x6.3mm Faston	MCRC040AH**	\$51.00	6 oz.
4NO	PC Board	MCRC040AI**	\$51.00	6 oz.
3NO-1NC	Standard Screw	MCRC031AT**	\$48.00	6 oz.
3NO-1NC	2x2.8mm Faston	MCRC031AF**	\$51.00	6 oz.
3NO-1NC	1x6.3mm Faston	MCRC031AH**	\$51.00	6 oz.
3NO-1NC	PC Board	MCRC031AI**	\$51.00	6 oz.
2NO-2NC	Standard Screw	MCRC022AT**	\$48.00	6 oz.
2NO-2NC	2x2.8mm Faston	MCRC022AF**	\$51.00	6 oz.
2NO-2NC	1x6.3mm Faston	MCRC022AH**	\$51.00	6 oz.
2NO-2NC	PC Board	MCRC022AI**	\$51.00	6 oz.

²Packaged in multiples of 20 units. Each product number represents one unit.

³Complete product number reference by replacing the "**" with the letter corresponding to the voltage and frequency of the control circuit.

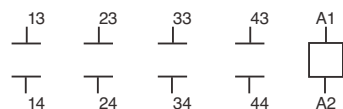
(Replace asterisks (**)) in product number with coil product number suffix.)

Coil Voltage Selection

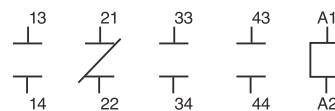
DC Coil Voltages	12	24	48	110	125	250
Voltage	DC					
Product Number Suffix		B	D	G	J	L S

DC Wide Range Coil Voltages	24	48	72	110
Voltage	DC			
Product Number Suffix		WD	WG	WI WJ

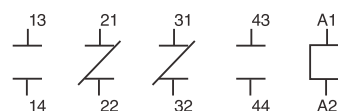
Contact Arrangement/ Terminal Numbers per EN 50011



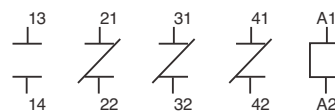
4 NO



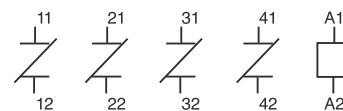
3 NO - 1 NC



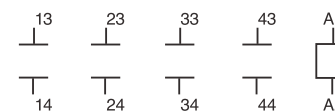
2 NO - 2 NC



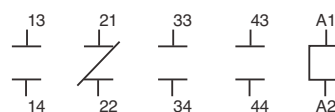
1 NO - 3 NC



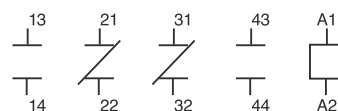
4 NC



4 NO



3 NO - 1 NC



2 NO - 2 NC



IEC Power Devices Mini Control Relays and Accessories

Section 5

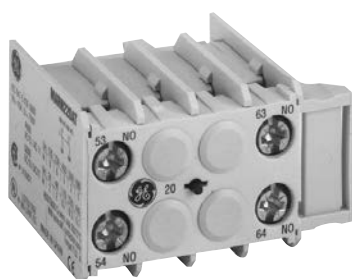
C-2000

Contact Rating A600, Q300

PLC Control Relays—Standard Screw Type Terminals

Contact Configuration	Coil Voltage	Coil Wattage	Product Number	List Price GO-10A1
2NO-2NC	24 VDC	1.2w	MCRI022ATD	\$48.00
3NO-1NC	24 VDC	1.2w	MCRI031ATD	\$48.00
4 NO	24 VDC	1.2w	MCRI040ATD	\$48.00
2NO-2NC	24 VDC	2w	MCRK022ATD	\$48.00
3NO-1NC	24 VDC	2w	MCRK031ATD	\$48.00
4NO	24 VDC	2w	MCRK040ATD	\$48.00

Minimum order is 140 pieces. Packaged in multiples of 10 units. Each product number represents one unit.



2-Pole Front-mounted Auxiliary Contact Block MARN2/MACN2



4-Pole Front-mounted Auxiliary Contact Block MARN4/MACN4

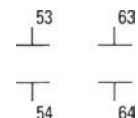
Front-mounted Auxiliary Contact Blocks

Contact Configuration	For Use With	Product Number	List Price GO-10A1	Approx. Weight Each
2NO	Relays	MARN220AT	\$12.00	1 oz.
1NO-1NC	Relays	MARN211AT	\$12.00	1 oz.
2NC	Relays	MARN202AT	\$12.00	1 oz.
4NO	Relays	MARN440AT	\$22.00	2 oz.
3NO-1NC	Relays	MARN431AT	\$22.00	2 oz.
2NO-2NC	Relays	MARN422AT	\$22.00	2 oz.
1NO-3NC	Relays	MARN413AT	\$22.00	2 oz.
4NC	Relays	MARN404AT	\$22.00	2 oz.

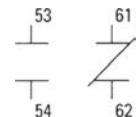
Packaged in multiples of 10 units. Each product number represents one unit.

Front-mounted contacts may be combined with side auxiliary contacts for a total maximum number of six added auxiliary contacts.

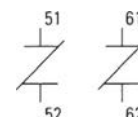
Contact Arrangement/ Terminal Numbers per EN 50005



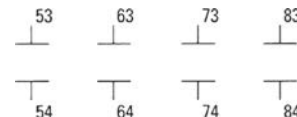
MARN220AT



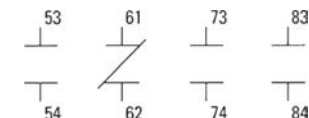
MARN211AT



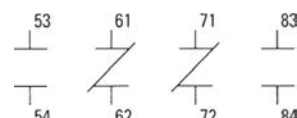
MARN202AT



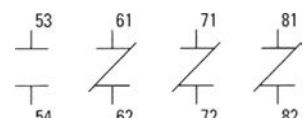
MARN440AT



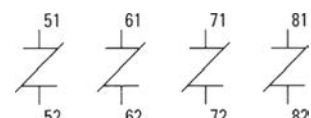
MARN431AT



MARN422AT



MARN413AT



MARN404AT

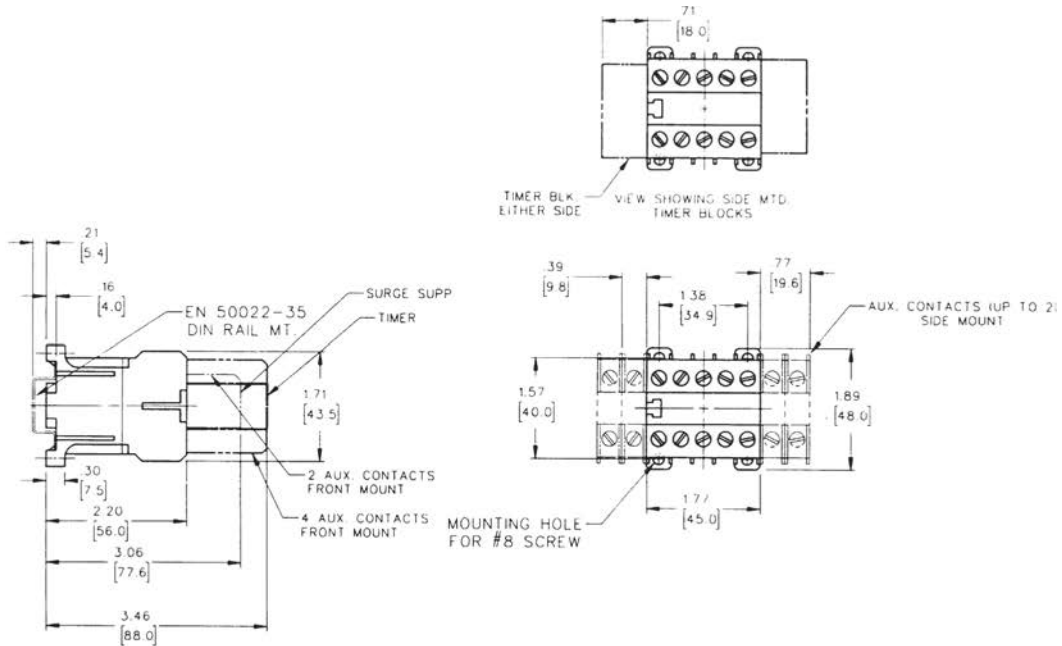


IEC Power Devices Mini Contactors Dimensions

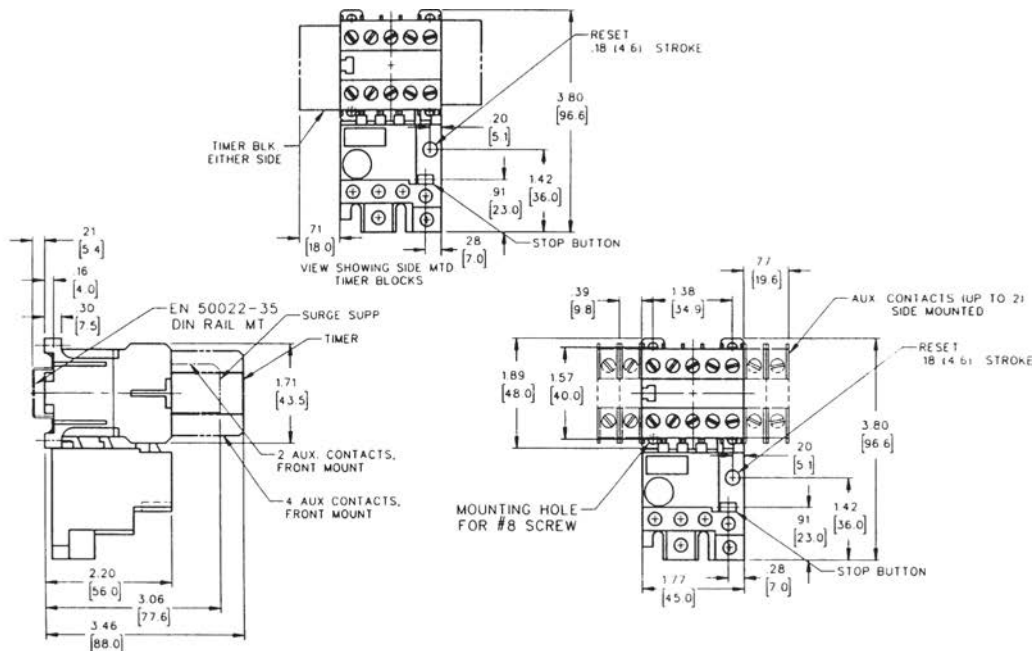
Section 5

C-2000

Outlines and Dimensions (in mm) For Estimating Only



Open-Type, AC-Controlled Contactors and Control Relays, STD and Quick-Connect Terminal



Open-Type, AC-Controlled Starter, STD and Quick-Connect Terminal



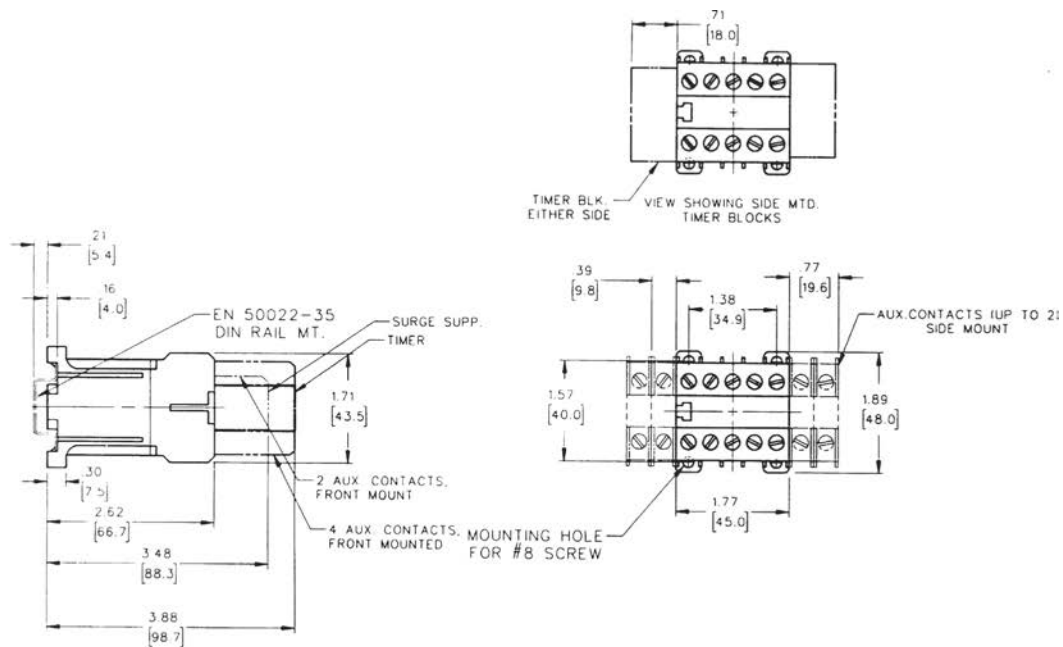
Product Number Selection Instructions: See page 5-6

IEC Power Devices

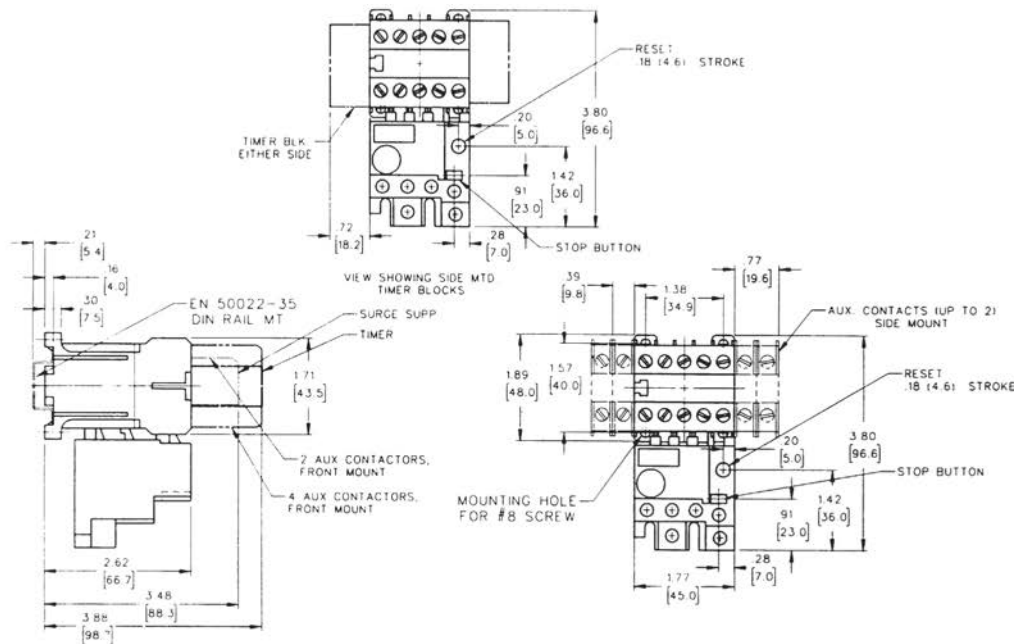
Mini Contactors Dimensions

C-2000

Outlines and Dimensions ($\frac{\text{in}}{\text{mm}}$) For Estimating Only



Open-Type, DC-Controlled Contactors and Control Relays, STD and Quick-Connect Terminal



Open-Type, DC-Controlled Starter, STD and Quick-Connect Terminal

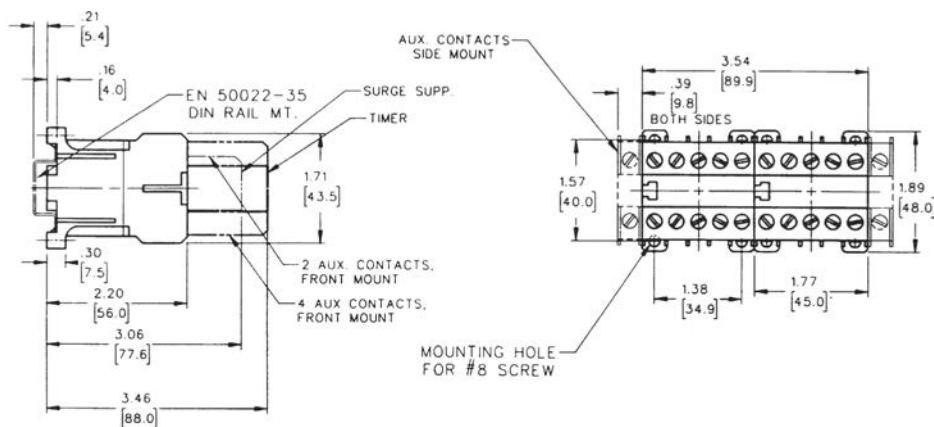


IEC Power Devices Mini Contactors Dimensions

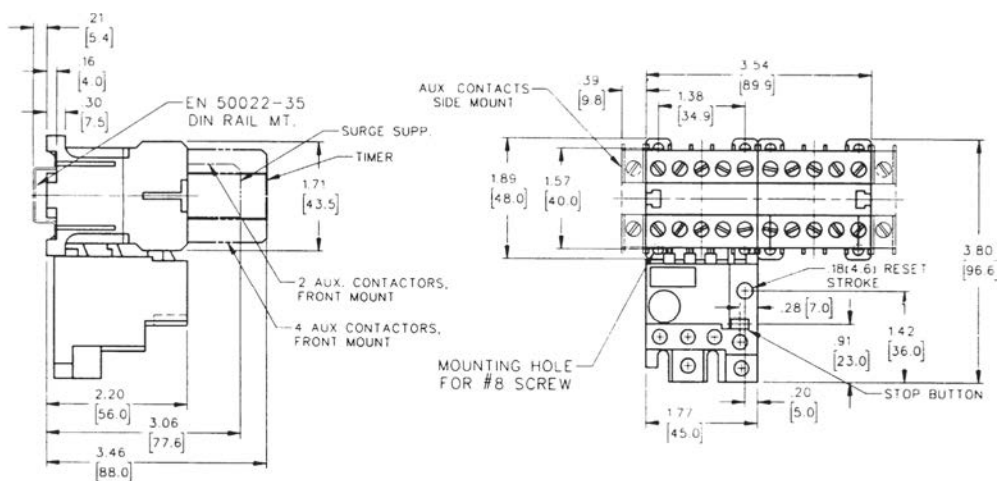
Section 5

C-2000

Outlines and Dimensions ($\frac{in}{mm}$) For Estimating Only



Open-Type, AC-Controlled Reversing Contactors, STD and Quick-Connect Terminal



Open-Type, AC-Controlled Reversing Starter, STD and Quick-Connect Terminal



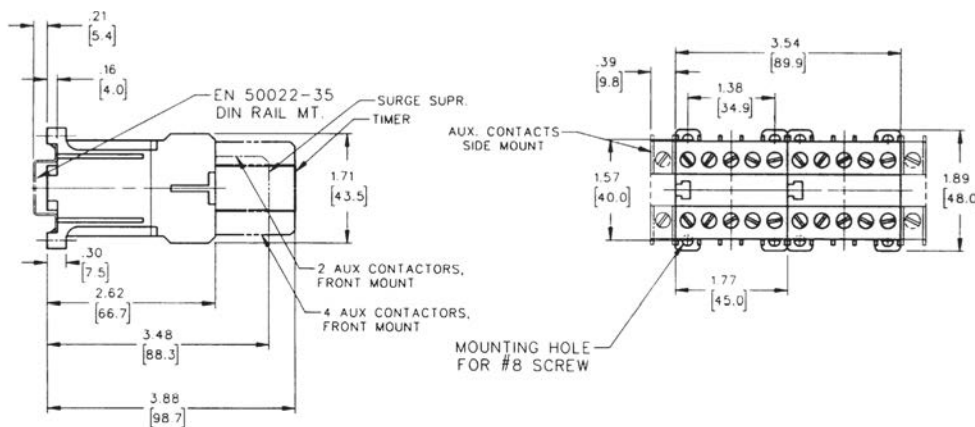
Product Number Selection Instructions: See page 5-6

IEC Power Devices

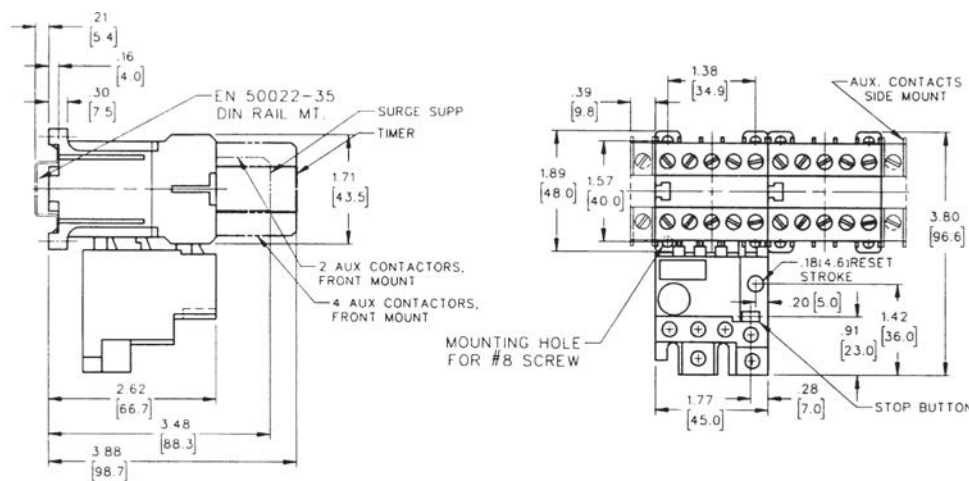
Mini Contactors Dimensions

C-2000

Outlines and Dimensions ($\frac{\text{in}}{\text{mm}}$) For Estimating Only



Open-Type, DC-Controlled Reversing Contactors, STD and Quick-Connect Terminal



Open-Type, DC-Controlled Reversing Starter, STD and Quick-Connect Terminal

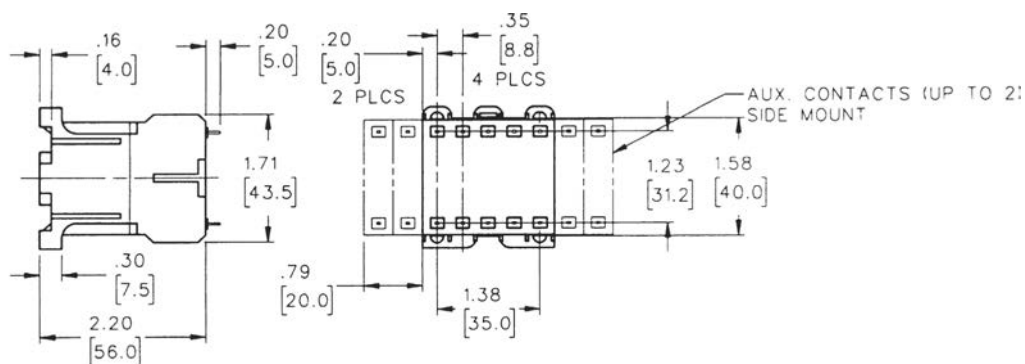


IEC Power Devices Mini Contactors Dimensions

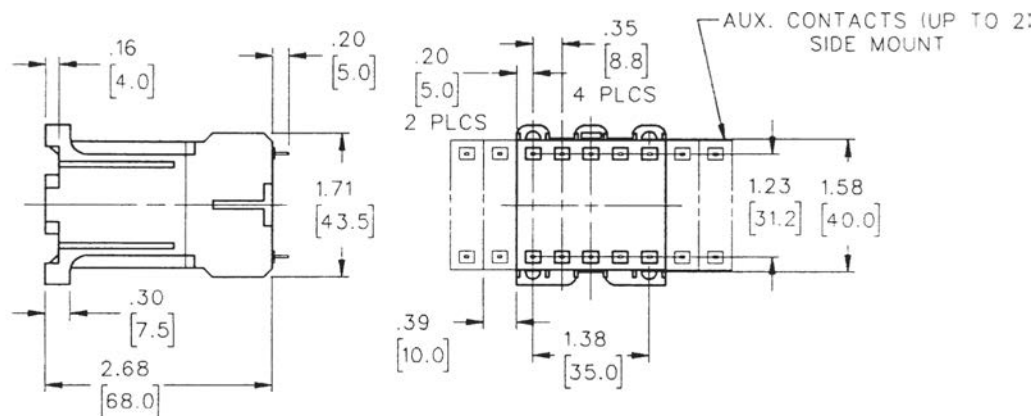
Section 5

C-2000

Outlines and Dimensions ($\frac{in}{mm}$) For Estimating Only



Open-Type, AC-Controlled Contactors and Control Relays, PC Board Terminals



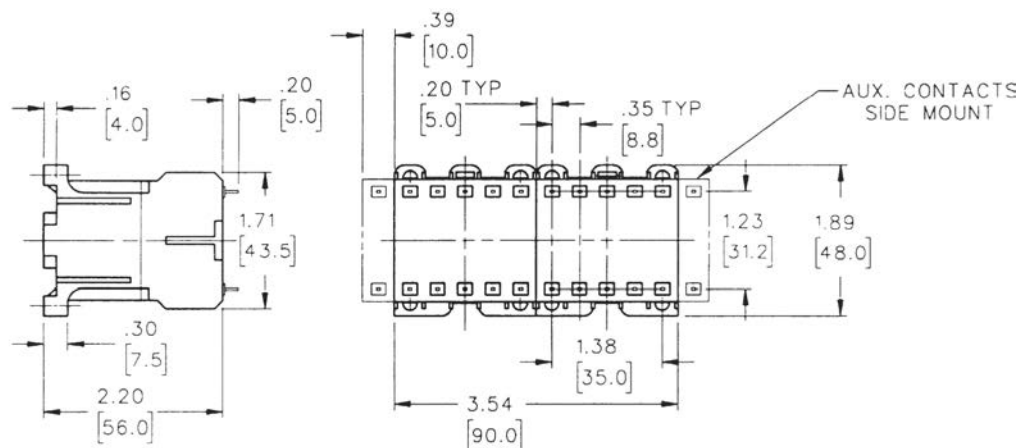
Open-Type, DC-Controlled Contactors and Control Relays, PC Board Terminals



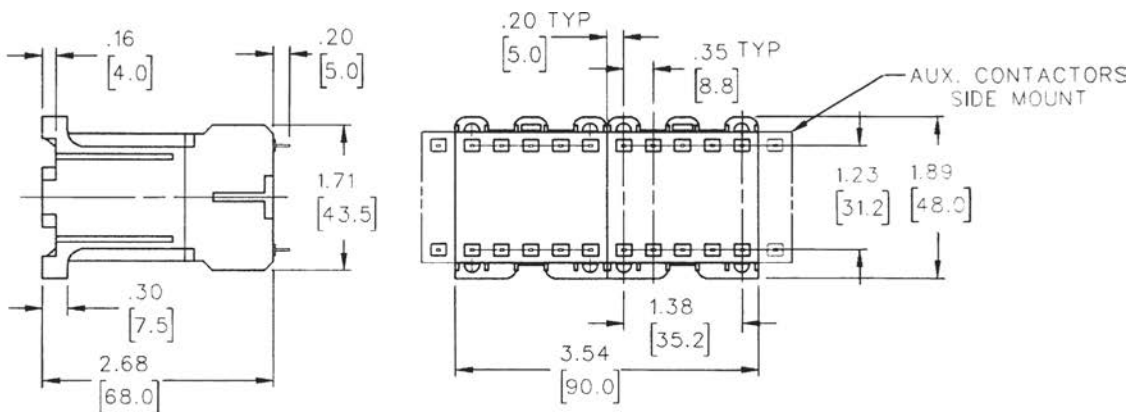
Product Number Selection Instructions: See page 5-6

IEC Power Devices
 Mini Contactors Dimensions
 C-2000
 Outlines and Dimensions ($\frac{\text{in}}{\text{mm}}$) For Estimating Only

Section 5



Open-Type, AC-Controlled Reversing Contactors, PC Board Terminals



Open-Type, DC-Controlled Reversing Contactors, PC Board Terminals

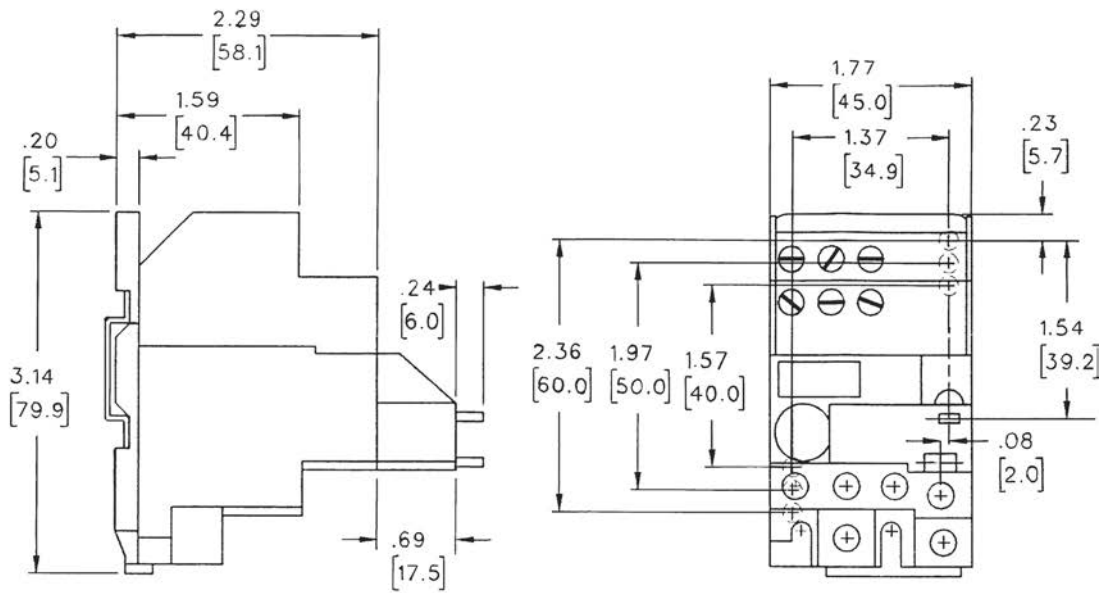


IEC Power Devices Mini Contactors Dimensions

Section 5

C-2000

Outlines and Dimensions ($\frac{\text{in.}}{\text{mm}}$) For Estimating Only



Panel-Mount Overload Relay



IEC Power Devices Mini Contactors Technical Information

C-2000

Mini Contactors and Control Relays

Standards and Listings

International Certification Marks: In addition to stating the product number, the contactor nameplate also lists the international certification marks. All contactors, control relays, overload relays, and accessories are UL and cUL listed.

Contactors and relays also conform to International Standards:

- UL listed (Underwriters Laboratories, U.S. -UL 508, cUL);
- CE Mark;
- IEC 947-1,4 (International Electrotechnical Commission);
- BS 5424 (British Standards, UK);
- VDE 0660 (Verband Deutscher Elektotechniker, Federal Republic of Germany);
- (S) (SEV, Switzerland-SEV 10254);
- (D) (DEMCO, Denmark);
- (N) (NEMCO, Norway);
- (FI) (SETI, Finland);

plus other specifications approvals...

- CEI 17-3, 17-7 (Comitato Elettrotecnico Italiano, Italy);
- Bureau Veritas, France;
- SEMKO, Sweden.

Operating Characteristics/Technical Data: Contactors and Control Relays

Ambient Conditions

Operating Temperature	-20 to +55°C (-4 to +131°F)
Storage Temperature	-30 to +80°C (-22 to +176°F)

Altitude

Derating Up to 10,000 ft. (3,000 m)	Rated current
Derating 10,000 to 13,200 ft. (3,000 to 4,000 m)	.9 x's rated current
Derating 13,200 to 16,000 ft. (4,000 to 5,000 m)	.8 x's rated current

Shock Resistance (All Axis)

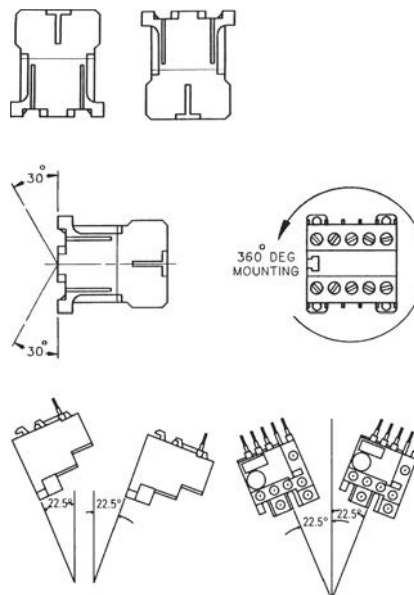
Closed 80% voltage - Admissible accel.	30g
Closed 80% voltage - Impulse duration	11 ms
Open no voltage - Admissible acceleration	10g
Open no voltage - Impulse duration	11 ms

Vibration Resistance

Closed 80% voltage-Admissible accel.	10g
Closed 80% voltage - Sweep between	10-200 hz
Open No voltage-Admissible accel.	5g
Open No voltage - Impulse duration	10-200 hz

Terminal Capacity

Screw Terminal Wire size	(2) #14-18 AWG max.
Screw Terminal Wire temperature class	60°C/75°C wire
Quick connect (Faston 2.8mm) Wire size	(2) 1mm ²
Quick connect (Faston 2.8mm) Max. thermal current	8 amps
Printed circuit terminal - Hole size	1.8mm
Tightening Torque	7 inch lbs.



Operating Position



IEC Power Devices Mini Contactors Technical Information C-2000

Section 5

Main Contacts Data - Contactors

Rated insulation voltage (IEC 947-1)	660V
Rated thermal current (UL 508)	16 amps
Frequency limits	25-400 Hz
Impedance per pole	1.76 m ohm
Power dissipation AC-1	0.7 W
Power dissipation AC-3	.13W
Insulation resistance	>10 m ohm
No overlap between NO and NC contacts - Space	1mm
No overlap between NO and NC contacts - Time	>2ms

Main Contacts Data - Control Relays

Rated insulation voltage (IEC 947-1)	660V
Rated thermal current (UL 508)	10 amps
Contact Rating	A600, Q600
Frequency limits	25-400 Hz
Impedance per pole	2.4 m ohm
No overlap between NO and NC contacts - Space	1.1mm
No overlap between NO and NC contacts - Time	>2ms

Instantaneous Auxiliary Contact Data

Rated insulation voltage (IEC 947-1)	660V
Rated thermal current (UL 508)	10 amps
Contact Rating	A600, Q600
Frequency limits	25-400 Hz
Impedance per pole	2.4 m ohm
Insulation resistance	>10 m ohm
No overlap between NO and NC contacts - Space	1mm
No overlap between NO and NC contacts - Time	>2ms

Overload Relay Auxiliary Contact Data

Rated insulation voltage (IEC 947-1)	660V
Rated thermal current (UL 508)	6 amps
Contact Rating	B600, R300
Frequency limits	25-400 Hz

Control Circuit Ratings

120 Vac, 125 Vdc

Time	Rating	Carry Continuous	Make Momentary	Break Amperes
		Amperes	Amperes	
A600	AC	10	60	6
B600	AC	5	30	3
Q600	DC	2.5	0.55	0.55
R300	DC	1.0	0.22	0.22

For other voltages, reference NEMA ICS 3-125 or contact your nearest GE Energy Representative.

Control Circuit Data: Pickup/Dropout % Coil Voltage

Type Coil	Pick-up	Drop-out
AC Controlled	80%-110%	35%-55%
DC Controlled	80%-110%	20%-40%
PLC interface (1.2w)	80%-125%	20%-30%
PLC interface (2w)	70%-125%	20%-35%

Opening/Closing Time

Type Coil	Voltage	Making (on Energization) (ms)		Breaking (on De-energization) (ms)	
		NO Contact	NC Contact	NO Contact	NC Contact
AC Controlled (ms)	+10-15%	6-13	8-16	5-11	6-13
	Nominal	7-12	8-16	6-10	6-13
DC Controlled (ms)	+10-15%	22-36	9-12	18-27	5-7
	Nominal	24-27	9-11	20-26	5-8
PLC Interface (1.2w) (ms)	+25-20%	30-70	9-16	20-45	5-9
	Nominal	25-45	9-16	25-35	5-9
PLC Interface (2w) (ms)	+25-30%	20-50	9-16	18-35	5-9
	Nominal	25-40	9-16	20-30	5-9

Maximum Operating Rate

	Operations per Hour
No load	9000 OPS/H
AC1 and AC3 at rated power	1200 OPS/H
AC4 at rated power	300 OPS/H

Coil Consumption

Type Coil	Pick-up (Watts)	Pick-up (VA)	Holding (Watts)	Holding (VA)	Power Dissipation (Watts)
AC Controlled		26		4	1.4
DC Controlled	3		3		
PLC Interface (1.2w)	1.2		1.2		
PLC Interface (2w)	2		2		



Operating Characteristics/Technical Data: Electronic Timer

For use with all AC- and DC-controlled mini contactors and control relays.

Time Setting	0.5-60 seconds (adjustable)
Reset Time	<100 milliseconds
Repeatability	± 1 percent
Voltage Range (AC/DC)	24-240V
Voltage Operating Limits	80-110%
Ambient Operating Temperature	-20°C to +55°C (-4°F to +131°F)
Ambient Storage Temperature	-30°C to +80°C (-22°F to +176°F)
Voltage Drop	3 volts maximum
Load Current	10 mA minimum
Load (maximum) @ 20° C	.9 amps
Load (maximum) @ 40° C	.72 amps
Load (maximum) @ 60° C	.55 amps
Leakage Current	<5mA@240 volts

Performance Characteristics

Contactors Electrical Life Utilization Categories

Utilization categories are used to describe the type of motor load and duty cycle. Life/Load curves are then used to estimate electrical life of a specific controller.

The most common utilization categories are described below. (Each category has full-load current ratings defined to meet IEC standard requirements.)

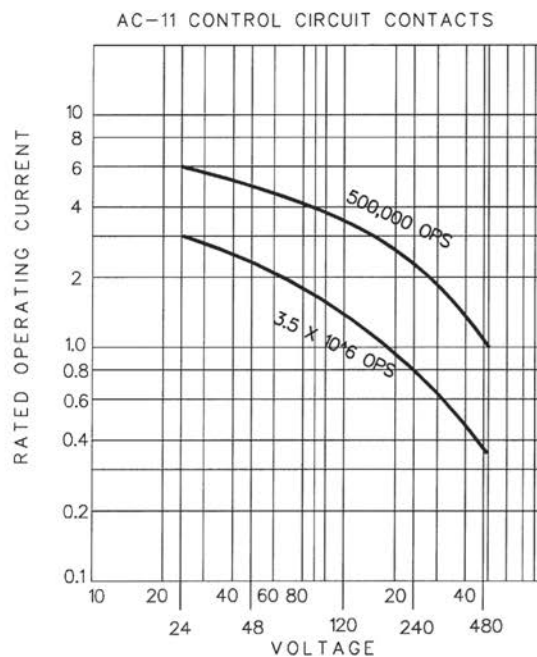
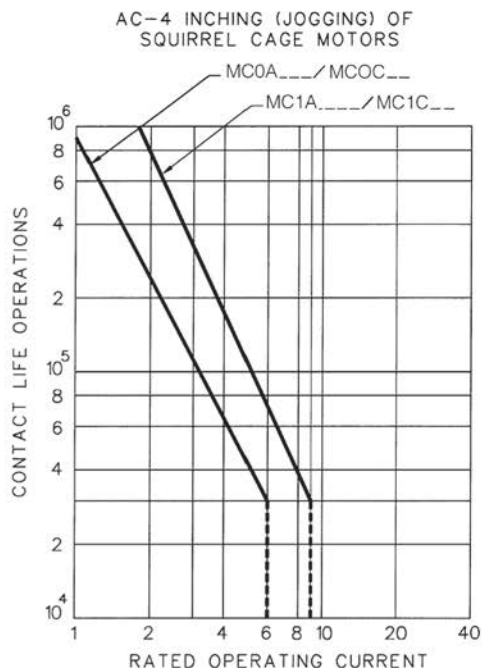
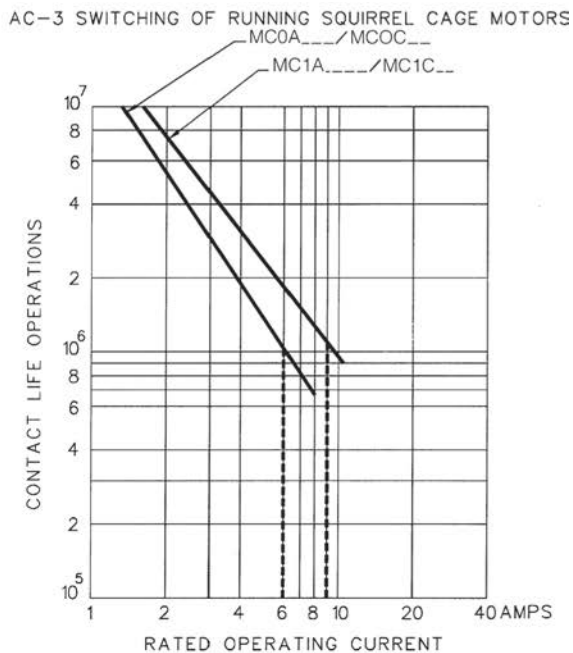
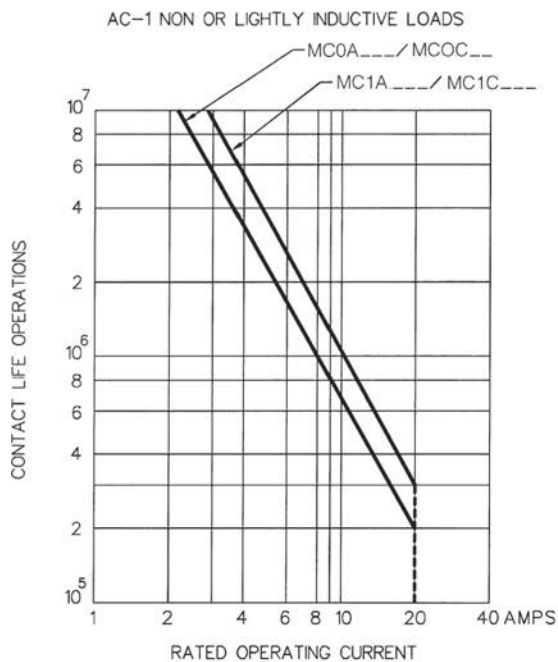
- AC-1-noninductive or slightly inductive loads, e.g., resistance furnaces.
- AC-2-starting of slip ring motors without plugging.
- AC-3-starting and stopping of squirrel-cage motors, i.e., this utilization category is typical of the standard type of motor duty encountered in most industrial applications.
- AC-4-starting of squirrel-cage motors in inching, plugging, and reversing applications, i.e., this means continuous inching, plugging, and reversing.
- AC-11-control circuit contact characteristics.

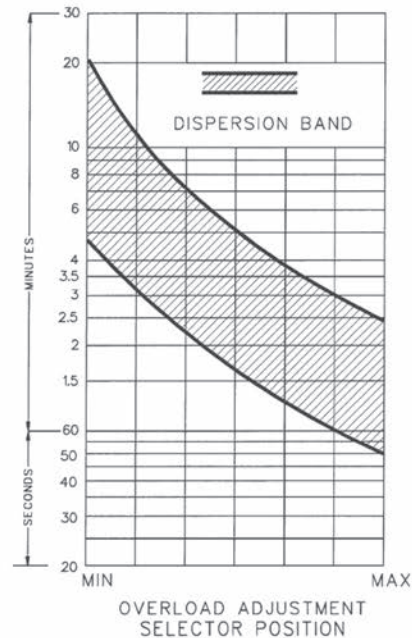
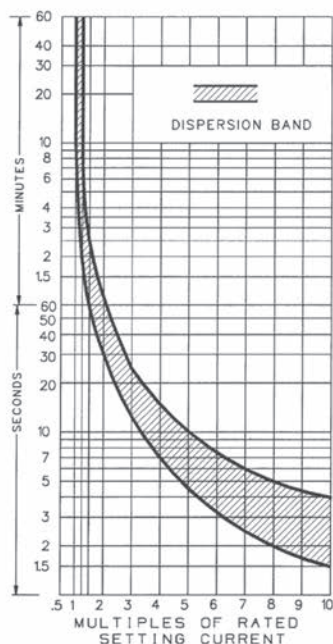
Life/Load Curves

Life/Load curves are used to estimate contact electrical life (millions of operations), based on rated operating current.

First, determine the appropriate utilization category for which the contactor will be used. Select appropriate mini-contactor, based on motor horsepower, voltage, and full-load current to meet application needs. Estimated contact life (millions of operations) can then be determined by locating the point of intersection on the appropriate contactor curve of the rated operating current and contact life axes. (Curves are valid for up to 600 volt, 600 Hz operation.)

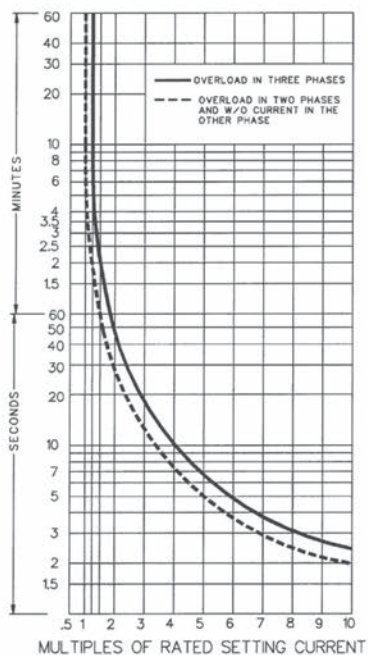






- Typical overload relay time-current trip curve
- Balanced 3 phase from cold state

- Phase failure differential tripping from warm state (IEC292-1,2)
- Two phases with 1.32 x current setting, third phase without current



- Typical overload relay
- Tripping curve from cold state
- Average values



IEC Power Devices

Contactors & Starters Introduction

C-2000

Section 5

Broad Line

A wide array of contactors, relays, accessories, enclosures, and assembled starters give you greater design versatility.

Broad Features

C-2000 Control components are loaded with features that make them easier to install, allow more flexible configurations, lower inventory requirements, and make better use of panel space. And their performance is second to none.

Broad Applications

C-2000 components conform to international standards (UL, cUL, and IEC-947) and have dual (U.S./European) markings to ensure global acceptance. A single nomenclature system allows simple sourcing worldwide. AC coils (both 50 Hz and 60 Hz versions) and DC coils are available for a wide range of voltages for flexibility.

For more information, refer to these other publications:

DEA-016 Promotional Brochure

DEP-070 Selection Guide

DET-034 Technical Information



IEC Power Devices

Contactor & Starters Selection Instructions

C-2000

Components

The C-2000 Starters & Contactors line offers ordering flexibility. Below are detailed instructions for ordering individual components—contactors, overloads, control relays, and accessories.



Contactor

When the phase, horsepower, voltage, frequency, and full-load amps have been established (assuming AC-3 motor duty category¹), use the following steps as a guide to ordering:

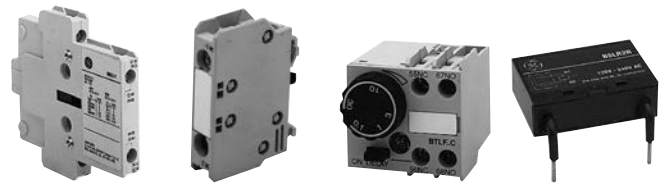
- Step 1. Refer to contactor selection tables on pages 5-38 to 5-45. Select the correct table based upon number of poles (3 or 4), nonreversing or reversing, and coil operation (ac or dc).
- Step 2. Using the above motor characteristics, select the appropriate contactor product number.
- Step 3. Select correct coil suffix digit or letter from corresponding **Coil Selection** table.
- Step 4. To complete product number, replace asterisk (*) or crosshatch (#) with the selected coil suffix.

¹If the motor duty is other than category AC-3, refer to the application life curves on pages 5-78 to 5-80 for selection of contactor.



Overload Relays

- Step 1. Using the Overload Relay selection tables on pages 5-54 to 5-56, select the correct Overload Relay based on the following criteria:
 - Manual/Automatic with/without Stop or Manual Only
 - Class 10, 20, or Class 30
 - Contactor frame size
 - Motor full-load amps (Select the overload in which the motor FLA falls within the overload current range.)
- Step 2. Select necessary accessories from the Accessories section, page 5-57.



Accessories

Select any required accessories from the Accessories section, pages 5-46 to 5-50.



Enclosures

For field installation of an enclosed contactor or starter, select the proper enclosure from the Enclosures section (pages 5-51 to 5-52) based on the following criteria:

- Type of enclosure: NEMA 1, NEMA 12/3R, or NEMA 4
- Contactor frame size



Control Relays

- Step 1. Select control relay from selection table on page 5-63. Selection is based upon:
 - Contact arrangement (number of normally open and normally closed contacts)
 - AC or DC coil controlled
- Step 2. Select correct coil suffix symbol from corresponding **Coil Selection** table.
- Step 3. To complete product number, replace asterisk (*) with the selected coil suffix.
- Step 4. Select control relay accessories from Control Relay Accessories section on pages 5-64 to 5-66.



IEC Power Devices

IEC Contactors

C-2000

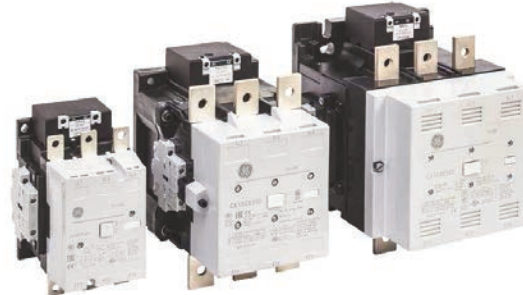
Section 5

Three and four poles contactors with electronic modules
150 to 780A (AC3) - 200 to 1000A (AC1)

Introduction

The focus of GE Industrial Solutions' engineers when upgrading the electronic module for CK was Reliability and Simplification. They collected all field experience of the successful CK contactor range to keep improving specifications and performance in the most demanding applications for contactors.

Cover a greater range with less references. With only 4 coils the new electronic module covers a range from 24V -30% up to 500V +10% (AC 50/60Hz and DC). The 4 new coils cover the same range that was previously done with 20. This means a reduction in stock, easier management of inventory for distributors and better service which will ensure increased availability to the end customer. The electronic module has been designed to support customer requests to perform successfully in the most difficult applications.



24-60V (AC 50/60Hz and DC):

With special reinforce of the lower range (-30%) solving typical application issues when using big contactors with 24V supply.

48-130V (AC 50/60Hz and DC):

Covers the most common voltages used in transportation segment with only one contactor.

100-250V (AC 50/60Hz and DC):

This range replaces the most popular automation voltages; 110-120VAC, 125VDC (MV application) and 220-240VAC, allowing OEM, Distributors and PB to optimize their stocks and service the end customer.

250-500V (AC 50/60Hz and DC):

Typical voltage for Power Switching application. This contactor helps OEMs in UPS, Data Centers and Power Quality applications to standardize their machines to be sold worldwide.



IEC Power Devices

IEC Contactors

Section 5

C-2000

Three and four poles contactors with electronic modules
150 to 780A (AC3) - 200 to 1000A (AC1)

Application

The new electronic module redesign from GE provides much better reliability versus any previous electronic modules or pure mechanical systems. This will help customers to reduce production shortages and keep maintenance downtimes to a minimum. This new range will be the preferred solution for Original Equipment Manufacturers because they can standardize the Bill Of Materials of their machines to be used worldwide. The CK contactor series with electronic module is the perfect fit for OEMs working on Renewals (Wind, Solar, ATS, UPS), HVAC, Marine, Medium Voltage, Oil & Gas and Transportation. CK is approved UL, CCC and CE.



Features and Benefits

- Increases **mechanical life** of the contactor improving reliability of end customer equipment
- Suitable for weak networks application by including a **protecting software to avoid chattering and contactor coil burning**
- Better performance in high vibration application; wind, marine, transportation
- Increased contact pressure reduces resistance per phase and thermal load
- Noise reduction** even in hard environments with dust and corrosion
- Transient voltage suppressor built-in
- Wider temperature range operation: -40° to +70°C
- Application up to 3000m without derating
- Conversion kit for installed CK base with electronic module
- No dimensions change to facilitate exchange of products
- Energy efficiency**: reduce on hold consumption
- Compliant with REACH and RoHS directives



cULus



CE



RINA



Lloyd's
Register



Bureau
Veritas



IEC Power Devices IEC Contactors

C-2000

Nonreversing and Reversing

AC Controlled, 3-Pole

HP Ratings AC-3 Duty



Section 5

5-75 Hp (460V) Nonreversing Standard Terminals

Maximum Current @ 460 V (A) AC-3	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	3-Phase HP @60 Hz, 200V	3-Phase HP @60 Hz, 230V	3-Phase HP @60 Hz, 460V	3-Phase HP @60 Hz, 575V	kW @ 50 Hz, 380/415V	Auxiliary Contacts	Product Number ¹	List Price GO-10C2
10A	0.5	1.5	3	3	5	7.5	4	1NO	CL00A310T*	\$86.00
13.8A	0.75	2	3	3	7.5	10	5.5	1NO	CL01A310T*	\$109.00
17.5A	1	3	5	5	10	15	7.5	1NO	CL02A310T*	\$124.00
22A	1.5	3	5	7.5	15	15	11	-	CL25A300T*	\$138.00
32A	2	5	10	10	20	25	16	1NO	CL04A310M*	\$157.00
34A	3	5	10	10	25	25	18.5	-	CL45A300M*	\$173.00
48A	3	7.5	15	15	30	40	22	-	CL06A300M*	\$200.00
62A	5	10	20	20	40	50	30	-	CL07A300M*	\$240.00
68A	5	15	20	25	50	60	37	-	CL08A300M*	\$295.00
80A	7.5	15	25	30	60	75	45	-	CL09A300M*	\$333.00
96A	10	20	30	40	75	75	55	-	CL10A300M*	\$475.00

¹To complete the contactor product number, replace * in the product number with the appropriate digit from the Coil Selection table.

5-75 Hp (460V) Reversing Standard Terminals

Maximum Current @ 460 V (A) AC-3	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	3-Phase HP @60 Hz, 200V	3-Phase HP @60 Hz, 230V	3-Phase HP @60 Hz, 460V	3-Phase HP @60 Hz, 575V	kW @ 50 Hz, 380/415V	Auxiliary Contacts	Product Number ¹	List Price GO-10C2
10A	0.5	1.5	3	3	5	7.5	4	1NO	LAR00A*	\$247.00
13.8A	0.75	2	3	3	7.5	10	5.5	1NO	LAR01A*	\$293.00
17.5A	1	3	5	5	10	15	7.5	1NO	LAR02A*	\$323.00
22A	1.5	3	5	7.5	15	15	11	1NO	LAR25A* ²	\$351.00
32A	2	5	10	10	20	25	16	1NO	LAR04A*	\$419.00
34A	3	5	10	10	25	25	18.5	1NO	LAR45A* ²	\$451.00
48A	3	7.5	15	15	30	40	22	1NO-1NC	LAR06A* ³	\$545.00
62A	5	10	20	20	40	50	30	1NO-1NC	LAR07A* ³	\$625.00
68A	5	15	20	25	50	60	37	1NO-1NC	LAR08A* ³	\$735.00
80A	7.5	15	25	30	60	75	45	1NO-1NC	LAR09A* ³	\$861.00
96A	10	20	30	40	75	75	55	1NO-1NC	LAR10A* ³	\$1145.00

¹To complete the contactor product number, replace * in the product number with the appropriate digit from the Coil Selection table.

²Reversing contactors with prefixes LAR25 and LAR45 supplied with 1NO front-mounted holding interlock mounted on each contactor.

³Reversing contactors with prefixes LAR06, LAR07, LAR08, LAR09, and LAR10 supplied with 1NO and 1NC front-mounted auxiliary on each contactor.

t(Replace asterisk (*) in product number with coil product number suffix.)

CL Contactor Coil Selection Table

AC Coil Voltages											
50/60Hz	24	42	48	110-115	220-230			240			
50 Hz					127			380-400		500	
60Hz					120	208	277	480		600	
Product Number Suffix	1	2	9	J	K	L	6	N	7	U	Y

Note: Additional coils available, see page 5-50.



Product Number Selection Instructions: See page 5-37

IEC Power Devices IEC Contactors

Section 5

C-2000

Nonreversing and Reversing

DC Controlled, 3-Pole

HP Ratings AC-3 Duty

5-25 Hp (460V) Nonreversing Standard Terminals

Maximum Current @ 460 V (A) AC-3	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	3-Phase HP @60 Hz, 200V	3-Phase HP @60 Hz, 230V	3-Phase HP @60 Hz, 460V	3-Phase HP @60 Hz, 575V	kW @ 50 Hz, 380/415V	Auxiliary Contacts	Product Number ¹	List Price GO-10C2
10A	0.5	1.5	3	3	5	7.5	4	1NO	CL00D310T#	\$109.00
13.8A	0.75	2	3	3	7.5	10	5.5	1NO	CL01D310T#	\$133.00
17.5A	1	3	5	5	10	15	7.5	1NO	CL02D310T#	\$147.00
22A	1.5	3	5	7.5	15	15	11	1NO	CL25D300T#	\$166.00
32A	2	5	10	10	20	25	16	1NO	CL04D310M#	\$195.00
34A	3	5	10	10	25	25	18.5	-	CL45D300M#	\$252.00

¹To complete the contactor product number, replace the # in the product number with the appropriate digit from the Coil Selection table.

5-25 Hp (460V) Reversing² Standard Terminals

Maximum Current @ 460 V (A) AC-3	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	3-Phase HP @60 Hz, 200V	3-Phase HP @60 Hz, 230V	3-Phase HP @60 Hz, 460V	3-Phase HP @60 Hz, 575V	kW @ 50 Hz, 380/415V	Auxiliary Contacts	Product Number ¹	List Price GO-10C2
10A	0.5	1.5	3	3	5	7.5	4	1NO	LDR00A#	\$290.00
13.8A	0.75	2	3	3	7.5	10	5.5	1NO	LDR01A#	\$337.00
17.5A	1	3	5	5	10	15	7.5	1NO	LDR02A#	\$366.00
22A	1.5	3	5	7.5	15	15	11	1NO	LDR25A# ³	\$399.00
32A	2	5	10	10	20	25	16	1NO	LDR04A#	\$495.00
34A	3	5	10	10	25	25	18.5	1NO	LDR45A# ³	\$609.00

¹To complete the contactor product number, replace the # in the product number with the appropriate digit from the Coil Selection table.

²Reversing contactor consists of two (2) contactors, a mechanical interlock (BEL02) with built-in NC cross electrical contact, power wiring and cross electrical wiring and holding interlock.

³Reversing contactors with prefixes LDR25A and LDR45A supplied with 1NO front-mounted holding interlock mounted on each contactor.

(Replace crosshatch (#) in product number with appropriate digit from table below.)

CL Contactors Coil Selection Table

(CL00, CL01, CL02, CL25, CL04, CL45)

DC Voltage	#Coil Suffix
12	B
24	D
48	G
60	H
110	J
125	K
220	N
250	T

Note: Additional coils available, see page 5-50.

DC Wide Range Voltage	#Coil Suffix
24	WD
33	WE
48	WG
72	WI
110	WJ



IEC Power Devices

IEC Contactors

C-2000

Nonreversing and Reversing

AC/DC Controlled, 3-Pole

HP Ratings AC-3 Duty

Section 5

30-75 Hp (460V) Nonreversing Standard Terminals

Maximum Current @ 460 V (A) AC-3	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	3-Phase HP @60 Hz, 200V	3-Phase HP @60 Hz, 230V	3-Phase HP @60 Hz, 460V	3-Phase HP @60 Hz, 575V	kW @ 50 Hz, 380/415V	Auxiliary Contacts	Product Number ¹	List Price GO-10C2
48A	3	7.5	15	15	30	40	22	-	CL06E300M† ²	\$265.00
62A	5	10	20	20	40	50	30	-	CL07E300M† ²	\$279.00
68A	5	15	20	25	50	60	37	-	CL08E300M† ²	\$364.00
80A	7.5	15	25	30	60	75	45	-	CL09E300M† ²	\$404.00
96A	10	20	30	40	75	75	55	-	CL10E300M† ²	\$520.00

¹To complete the contactor product number, replace the † in the product number with the appropriate digit from the Coil Selection table.

²**Nonreversing:** A 1NO and 1NC front-mounted auxiliary contact block are supplied (unassembled) with contactors that begin with CL06, CL07, CL08, CL09 and CL10.

30-75 Hp (460V) Reversing Standard Terminals

Maximum Current @ 460 V (A) AC-3	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	3-Phase HP @60 Hz, 200V	3-Phase HP @60 Hz, 230V	3-Phase HP @60 Hz, 460V	3-Phase HP @60 Hz, 575V	kW @ 50 Hz, 380/415V	Auxiliary Contacts	Product Number ¹	List Price GO-10C2
48A	3	7.5	15	15	30	40	22	1NO 1NC	LER06A† ³	\$675.00
62A	5	10	20	20	40	50	30	1NO 1NC	LER07A† ³	\$703.00
68A	5	15	20	25	50	60	37	1NO 1NC	LER08A† ³	\$873.00
80A	7.5	15	25	30	60	75	45	1NO 1NC	LER09A† ³	\$1003.00
96A	10	20	30	40	75	75	55	1NO 1NC	LER10A† ³	\$1235.00

¹To complete the contactor product number, replace the † in the product number with the appropriate digit from the Coil Selection table.

³**Reversing:** Reversing contactors with prefixes LER06, LER07, LER08, LER09, and LER10 supplied with 1NO and 1NC front-mounted auxiliary on each contactor.

(Replace dagger (†) in product number with appropriate digit from table below.)

Coil Selection Table

(CL06, CL07, CL08, CL09, CL10)

AC/DC Voltage	†Coil Suffix
24-28	D
110-127	J
220-250	N
Wide Range AC/DC Voltage	†Coil Suffix
72	WH
110	WJ



Product Number Selection Instructions: See page 5-37

IEC Contactors

C-2000

Nonreversing and Reversing

AC/DC Controlled, 3-Pole

HP Ratings AC-3 Duty

Three Pole Contactors with Electronic Module - Nonreversing

Noninductive loads	Max. oper. current Motors <440V, 3 ~ 50/60Hz	Power AC3					Electrical endurance Cat. AC3 Operations	Control circuit voltage: AC (50/60Hz)/DC				List Price GO-10C2
		220V 230V	380V 400V	415V 440V	440V 500V	500V		24-60 V Product Number	48-130 V Product Number	100-250 V Product Number	250-500 V Product Number	
AC1 A	AC3 A	kW HP	kW HP	kW HP	kW HP	kW HP						
250	150	45 60	75 100	80 108	80 108	100 135	1.7x10 ⁶	CK75CE311W24-60	CK75CE311W48-130	CK75CE311W100-250	CK75CE311W250-500	\$725.00
250	185	55 75	90 125	100 135	100 135	110 150	1.2x10 ⁶	CK08CE311W24-60	CK08CE311W48-130	CK08CE311W100-250	CK08CE311W250-500	\$945.00
315	205	65 88	110 150	125 170	125 170	132 180	1.7x10 ⁶	CK85BE311W24-60	CK85BE311W48-130	CK85BE311W100-250	CK85BE311W250-500	\$1115.00
315	250	75 100	132 180	132 180	132 180	160 220	1.5x10 ⁶	CK09BE311W24-60	CK09BE311W48-130	CK09BE311W100-250	CK09BE311W250-500	\$1325.00
450	309	90 125	160 220	160 220	185 250	200 270	1.1x10 ⁶	CK95BE311W24-60	CK95BE311W48-130	CK95BE311W100-250	CK95BE311W250-500	\$1800.00
600	420	125 170	220 300	230 312	230 312	300 405	1x10 ⁶	CK10CE311W24-60	CK10CE311W48-130	CK10CE311W100-250	CK10CE311W250-500	\$2700.00
700	550	160 220	280 380	315 425	315 425	400 540	0.8x10 ⁶	CK11CE311W24-60	CK11CE311W48-130	CK11CE311W100-250	CK11CE311W250-500	\$4200.00
1000	700	220 300	375 510	400 540	425 580	480 650	0.7x10 ⁶	CK12BE311W24-60	CK12BE311W48-130	CK12BE311W100-250	CK12BE311W250-500	\$5700.00

100-500 Hp (460V) Reversing¹ Bus Bar Terminals without Lugs

Maximum Current @ 460 V (A) AC-3	3-Phase HP				kW @ 50 Hz, 380/415V	Auxiliary Contacts ²	24-60 V Product Number	48-130 V Product Number	100-250 V Product Number	250-500 V Product Number	List Price GO-10C2
	@60 Hz, 200V	@60 Hz, 230V	@60 Hz, 460V	@60 Hz, 575V							
140A	40	50	100	125	75	1NO-1NC	KAR75CD	KAR75CF	KAR75CJ	KAR75CY	\$2035.00
156A	50	60	125	125	90	1NO-1NC	KAR08CD	KAR08CF	KAR08CJ	KAR08CY	\$2475.00
192A	60	75	150	150	132	1NO-1NC	KAR09BD	KAR09BF	KAR09BJ	KAR09BY	\$3105.00
302A	100	100	250	300	160	1NO-1NC	KAR95BD	KAR95BF	KAR95BJ	KAR95BY	\$4165.00
398A	125	150	300	400	220	1NO-1NC	KAR10CD	KAR10CF	KAR10CJ	KAR10CY	\$6365.00
398A	125	150	300	400	220	1NO-1NC	KAR10BD	KAR10BF	KAR10BJ	KAR10BY	\$6905.00
480A	150	200	400	500	280	1NO-1NC	KAR11CD	KAR11CF	KAR11CJ	KAR11CY	\$9365.00
480A	150	200	400	500	280	1NO-1NC	KAR11BD	KAR11BF	KAR11BJ	KAR11BY	\$10205.00
602A	200	250	500	600	375	1NO-1NC	KAR12BD	KAR12BF	KAR12BJ	KAR12BY	\$12665.00

¹Reversing contactor consists of two (2) contactors, a mechanical interlock, baseplate, power bus bars, cross electrical wiring, and 1NO/1NC side-mounted auxiliary contact for cross electrical and holding interlock. Completely assembled. Note: KAR09 and KAR95 baseplate not suitable for starter assembly.

²NO-1NC side auxiliary contact shipped unassembled (A600, Q600).



IEC Power Devices

IEC Contactors

C-2000

Nonreversing

AC, DC, AC/DC Controlled, 4-Pole

HP Ratings AC-3 Duty

7.5-60 Hp (460 V) Standard Terminals AC Controlled

Maximum Current @ 460 V (A) AC-3	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	3-Phase HP @60 Hz, 200V	3-Phase HP @60 Hz, 230V	3-Phase HP @60 Hz, 460V	3-Phase HP @60 Hz, 575V	Auxiliary Contacts	Coil Type	Contact Configuration	Product Number ¹	List Price GO-10C2
13.8A	0.75	2	3	3	7.5	10	None	AC	4NO	CL01A400T*	\$109.00
13.8A	0.75	2	3	3	7.5	10	None	AC	2NO-2NC	CL01AB00T*	\$109.00
17.5A	1	3	5	5	10	15	None	AC	4NO	CL02A400T*	\$143.00
17.5A	1	3	5	5	10	15	None	AC	2NO-2NC	CL02AB00T*	\$143.00
25A	2	3	7.5	7.5	15	20	None	AC	4NO	CL03A400M*	\$176.00
25A	2	3	7.5	7.5	15	20	None	AC	2NO-2NC	CL03AB00M*	\$176.00
32A	2	5	10	10	20	25	None	AC	4NO	CL04A400M*	\$225.00
32A	2	5	10	10	20	25	None	AC	2NO-2NC	CL04AB00M*	\$225.00
42A	3	7.5	10	15	30	30	None	AC	4NO	CL05A400M*	\$340.00
42A	3	7.5	10	15	30	30	None	AC	2NO-2NC	CL05AB00M*	\$340.00
62A	5	10	20	20	40	50	None	AC	4NO	CL07A400M*	\$425.00
62A	5	10	20	20	40	50	None	AC	2NO-2NC	CL07AB00M*	\$425.00
68A	5	10	20	25	50	60	None	AC	2NO-2NC	CL08AB00M*	\$447.00
80A	7.5	15	25	30	60	75	None	AC	4NO	CL09A400M*	\$475.00

(Replace asterisk (*) in product number with appropriate digit from table below.)

CL Contactor Coils

AC Coil Voltages	24	42	48	110	127	208	277	380-400	500		
50/60Hz											
50 Hz											
60Hz				120		208		480	600		
Product Number Suffix	1	2	9	J	K	L	6	N	7	U	Y

Additional Coils Available, see page 5-50.

7.5-20 Hp (460 V) Standard Terminals DC Controlled

Maximum Current @ 460 V (A) AC-3	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	3-Phase HP @60 Hz, 200V	3-Phase HP @60 Hz, 230V	3-Phase HP @60 Hz, 460V	3-Phase HP @60 Hz, 575V	Auxiliary Contacts	Coil Type	Contact Configuration	Product Number ¹	List Price GO-10C2
13.8A	0.75	2	3	3	7.5	10	None	DC	4NO	CL01D400T#	\$132.00
13.8A	0.75	2	3	3	7.5	10	None	DC	2NO-2NC	CL01DB00T#	\$132.00
17.5A	1	3	5	5	10	15	None	DC	4NO	CL02D400T#	\$166.00
17.5A	1	3	5	5	10	15	None	DC	2NO-2NC	CL02DB00T#	\$166.00
25A	2	3	7.5	7.5	15	20	None	DC	4NO	CL03D400M#	\$232.00
25A	2	3	7.5	7.5	15	20	None	DC	2NO-2NC	CL03DB00M#	\$232.00
32A	2	5	10	10	20	25	None	DC	4NO	CL04D400M#	\$263.00
32A	2	5	10	10	20	25	None	DC	2NO-2NC	CL04DB00M#	\$263.00

(Replace crosshatch (#) in product number with appropriate digit from table below.)

CL Contactors Coil Selection Table

DC Voltage	#Coil Suffix	DC Wide Range Voltage	#Coil Suffix
12	B	24	WD
24	D	33	WE
48	G	48	WG
60	H	72	WI
110	J	110	WJ
125	K		
220	N		
250	T		

30-60 Hp (460 V) Standard Terminals AC/DC Controlled

Maximum Current @ 460 V (A) AC-3	1-Phase HP @60 Hz, 115V	1-Phase HP @60 Hz, 230V	3-Phase HP @60 Hz, 200V	3-Phase HP @60 Hz, 230V	3-Phase HP @60 Hz, 460V	3-Phase HP @60 Hz, 575V	Auxiliary Contacts	Coil Type	Contact Configuration	Product Number ¹	List Price GO-10C2
48A	3	7.5	10	15	30	30	None	AC/DC	4NO	CL05E400M†	\$405.00
48A	3	7.5	10	15	30	30	None	AC/DC	2NO-2NC	CL05EB00M†	\$405.00
62A	5	10	20	20	40	50	None	AC/DC	4NO	CL07E400M†	\$484.00
62A	5	10	20	20	40	50	None	AC/DC	2NO-2NC	CL07EB00M†	\$484.00
68A	5	10	20	25	50	60	None	AC/DC	2NO-2NC	CL08EB00M†	\$516.00
80A	7.5	15	25	30	60	75	None	AC/DC	4NO	CL09E400M†	\$544.00

(Replace dagger (†) in product number with appropriate digit from table below.)

Coil Selection Table

AC/DC Voltage	†Coil Suffix
24-28	D
110-127	J
220-250	N
Wide Range AC/DC Voltage	†Coil Suffix
72	WH
110	WJ

¹To complete the contactor product number, replace the *, # or † in the product number with the appropriate digit from the Coil Selection table. Auxiliary contact shipped unassembled.



Product Number Selection Instructions: See page 5-37

IEC Power Devices
 IEC Contactors
 C-2000
 Nonreversing
 AC/DC Controlled, 4-Pole
 HP Ratings AC-3 Duty

Section 5

Four Pole Contactors with Electronic Module

Max. oper.current	Power							Electrical endurance	Control circuit: Alternating current					List Price
	AC3			AC1					Cat. AC3 Operations	24-60V	48-130V	100-250V	250-500V	
Noninductive loads	380V		220V	380V	415V	440V	500V	GO-10C2		Product No.	Product No.	Product No.	Product No.	
AC1	400V		230V	400V										
A	kW	A	kW	kW	kW	kW	kW							
200	55	105	76	131	143	151	173	1x10 ⁶	CK07BE411W24-60	CK07BE411W48-130	CK07BE411W100-250	CK07BE411W250-500	\$920.00	
325	100	185	123	214	233	247	281	0.6x10 ⁶	CK08BE411W24-60	CK08BE411W48-130	CK08BE411W100-250	CK08BE411W250-500	\$1375.00	
400	132	250	152	263	287	304	346	0.6x10 ⁶	CK09BE411W24-60	CK09BE411W48-130	CK09BE411W100-250	CK09BE411W250-500	\$1750.00	
500	160	309	191	329	359	380	415	0.6x10 ⁶	CK95BE411W24-60	CK95BE411W48-130	CK95BE411W100-250	CK95BE411W250-500	\$2250.00	
600	220	408	228	395	431	456	519	0.5x10 ⁶	CK10CE411W24-60	CK10CE411W48-130	CK10CE411W100-250	CK10CE411W250-500	\$3520.00	
700	280	530	266	460	503	533	606	0.4x10 ⁶	CK11CE411W24-60	CK11CE411W48-130	CK11CE411W100-250	CK11CE411W250-500	\$5250.00	
1000	375	680	381	658	719	762	866	0.4x10 ⁶	CK12BE411W24-60	CK12BE411W48-130	CK12BE411W100-250	CK12BE411W250-500	\$6900.00	



IEC Power Devices

IEC Contactors Accessories

C-2000

Section 5

Front-Mount Auxiliary Contact Blocks

Front-mount auxiliary contact blocks clip onto front face of contactor.
Contact Rating: A600, Q600.

For Use With	Terminal Type	Contact Configuration	Product Number	List Price GO-10C2
CL Contactors	Standard	1NO	BCLF10	\$11.00
CL Contactors	Standard	1NC	BCLF01	\$11.00
CL Contactors	Standard	1NO	BCLF10G ¹	\$15.00
CL Contactors	Standard	1NC	BCLF01G ¹	\$15.00
CL Contactors	Ring	1NO	BCRF10	\$13.00
CL Contactors	Ring	1NC	BCRF01	\$13.00

¹Overlapping contacts.

Side-Mount Auxiliary Contact Blocks

Side-mount auxiliary contact blocks can be mounted on either left or right sides of contactor. Positive displacement contacts are designed to prevent simultaneous closing of NO and NC contacts to avoid overlapping between opposing functions. Contact Rating: A600, Q600.

For Use With	Terminal Type	Type	Contact Configuration	Product Number	List Price GO-10C2
CL/CK Contactors	Standard	Base Block	1NO-1NC	BCLL11	\$19.00
CL/CK Contactors	Standard	Base Block	1NO-1NC	BCLL11-K ²	\$19.00
CL/CK Contactors	Standard	Base Block	2NO	BCLL20	\$19.00
CL/CK Contactors	Standard	Adder Block	1NO-1NC	BRLL11	\$19.00
CL/CK Contactors	Standard	Adder Block	2NO	BRLL20	\$19.00
CL/CK Contactors	Standard	Adder Block	2NC	BRLL02	\$19.00

²For high shock/vibration environments.

Mechanical Interlock

Mechanical interlocks, used for horizontal interlocking of two contactors mounted side-by-side, prevent the closing of one contactor (as long as the other remains closed). BEL02 includes two built-in NC contacts. Contact Rating: A600, Q600.

For Use With	Product Number	List Price GO-10C2
5-75 Hp contactors (All CL Contactors)	BELA02	\$35.00
100-500 Hp contactors (All CK Contactors)	BEKH	\$65.00

Pneumatic Timer

Pneumatic timers are adjustable time-delayed auxiliary contacts. They come equipped with two time-delayed contacts: 1NO and 1NC, electrically separated. Setting is scaled over a 350° rotation by means of a knurled knob with timing guide marks. To mount a pneumatic timer, simply clip it on front face of contactor. Contact Rating: A600, Q600.

For Use With	Terminal Type	Type	Time range	Contact Configuration	Product Number	List Price GO-10C2
CL Contactors	Standard	Time Delay On	1-30 sec	1NO-1NC	BTLF30C	\$120.00
CL Contactors	Standard	Time Delay On	1-60 sec	1NO-1NC	BTLF60C	\$120.00
CL Contactors	Standard	Time Delay Off	1-30 sec	1NO-1NC	BTRF30D	\$120.00
CL Contactors	Standard	Time Delay Off	1-60 sec	1NO-1NC	BTRF60D	\$120.00
CL Contactors	Ring	Time Delay On	1-30 sec	1NO-1NC	BTRF30C	\$124.00
CL Contactors	Ring	Time Delay On	1-60 sec	1NO-1NC	BTRF60C	\$124.00
CL Contactors	Ring	Time Delay Off	1-30 sec	1NO-1NC	BTRF30D	\$124.00
CL Contactors	Ring	Time Delay Off	1-60 sec	1NO-1NC	BTRF60D	\$124.00

Electronic Timers

Time-on delay and time-off delay modules for sequencing control of contactors. They deliver high repeatability, ±3% in ambient temperatures from 32° to 104°F. A red LED provides indication during time-delay operation.

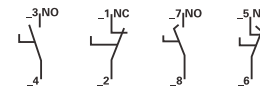
For Use With	Type	Time-Delay Range	Product Number	List Price GO-10C2
CL00-CL10 with ac coils 24-250 V	On delay	0.1-2 s	BETL02C	\$75.00
CL00-CL10 with dc coils 24-250 V	On delay	1.5-45 s	BETL45C	\$75.00
CL00-CL10 with ac coils 24-250 V	Off delay	0.1-2 s	BETL02D	\$85.00
CL00-CL10 with dc coils 24-250 V	Off delay	1.5-45 s	BETL45D	\$85.00



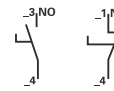
Product Number Selection Instructions: See page 5-37



Front-Mounted Block



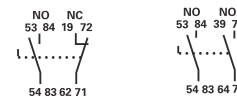
BCLF10/BCLF01/BCLF10G/BCLF01G



BCRF10/BCRF01



Side-Mounted Block



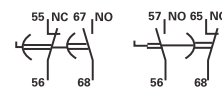
BRLL11/BRLL20



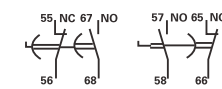
Mechanical Interlock



Pneumatic Timer



BTRF30C/BTRF60C/BTRF30D/BTRF60D



BTLF30C/BTLF60C/BTLF30D/BTLF60D



Electronic Timer

IEC Power Devices

IEC Contactors Accessories

C-2000

Section 5

Surge Suppressor

For suppression of disturbances in circuit voltage occurring upon opening of the contactor. Mounts directly on the top of the coil.

Note: Surge suppression is built into CK electronic coil module.

For Use With	Surge Suppressor Type	Voltage	Product Number	List Price GO-10C2
CL00, CL01, CL02, CL25, CL04, CL45	RC	24-48 VAC	BSLR2G	\$24.00
CL00, CL01, CL02, CL25, CL04, CL45	RC	50-127 VAC	BSLR2K	\$24.00
CL00, CL01, CL02, CL25, CL04, CL45	RC	130-240 VAC	BSLR2R	\$24.00
CL06, CL07, CL08, CL09, CL10	RC	24-48 VAC	BSLR3G	\$24.00
CL06, CL07, CL08, CL09, CL10	RC	50-127 VAC	BSLR3K	\$24.00
CL06, CL07, CL08, CL09, CL10	RC	130-240 VAC	BSLR3R	\$24.00
All CL contactors	Diode	12-600 VDC	BSLDZ	\$24.00
All CL contactors	Varistor	24-48 VAC, DC	BSLV3G	\$24.00
All CL contactors	Varistor	50-127 VAC, DC	BSLV3K	\$24.00
All CL contactors	Varistor	130-250 VAC, DC	BSLV3R	\$24.00
All CL contactors	Varistor	380-500 VAC, DC	BSLV3U	\$32.00
CK75CE	Varistor	250-500 VAC/DC	BSLV4U	\$32.00
CK08CE-CK12BE	Varistor	250-500 VAC/DC	BSLV5U	\$35.00

Mechanical Latch Block

Mechanical latch block is used to convert a standard contactor into a latched contactor. Easy to mount, it clips onto front face of contactor. Contact Rating: A600, Q600.

For Use With	Voltage Application	Release Voltage Range	Product Number	List Price GO-10C2
All CL Contactors	50/60 Hz and DC	24-32	RMLFD	\$70.00
All CL Contactors	50/60 Hz and DC	42-48	RMLFG	\$70.00
All CL Contactors	50/60 Hz and DC	110-125	RMLFJ	\$70.00
All CL Contactors	50/60 Hz and DC	208-277	RMLFN	\$70.00
All CL Contactors	50/60 Hz and DC	380-480	RMLFU	\$70.00
All CL Contactors	50/60 Hz and DC	500-600	RMLFY	\$70.00

Unlatching coil is rated for intermittent duty. The latch block features an integral coil contact to clear the circuit after unlatching.

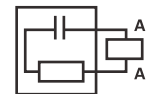
References

Instructions

GEH-5517 Amplifier CLXA01



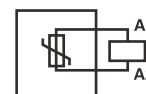
Surge Suppressor



BSLR __ RC



BSLDZ Diode



BSLV __ Varistor



Mechanical Latch Block



RMLF



IEC Power Devices

IEC Contactors Accessories

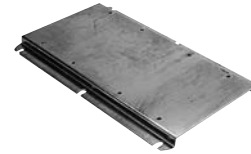
C-2000

Section 5

Starter Mounting Base

For use with overload requiring jumpers.

For Use With	Overload	Product Number	List Price GO-10C2
CK08, CK09, CK95 contactors	RT4, RT4L	CKXB01	\$40.00



Starter Mounting Base

Overload Jumpers

Overload jumpers allow an overload to be mounted to a contactor. Each product number represents a set of three overload jumpers.

CKXJ02 consists of three insulated bus bar straps. Overloads and contactors are panel mounted.

CKXJ10/CKXJ11 consist of three insulated bus bar straps, mounting brackets and mounting bracket hardware.

For Use With	Overload	Packing Quantity (No. Per Set)	Product Number	List Price GO-10C2
CK09B, CK95B contactors	RT4	3	CKXJ02 ¹	\$50.00
CK10C, CK11C contactors	RT5	3	CKXJ10	\$60.00
CK10B, 11B, 12B contactors	RT5	3	CKXJ11	\$60.00

¹CK95B uses 2 straps per terminal (2x CKXJ02) above 192 Amps.



Overload Jumper

Reversing Wiring Kits

These kits provide interconnecting power wires for 3-phase squirrel-cage reversing contactors.

For Use With	Product Number	List Price GO-10C2
CL00, CL01, CL02 contactors	CLXC01	\$18.00
CL25 contactors	CLXC11	\$20.00
CL04 contactors	CLXC21	\$30.00
CL45 contactors	CLXC31	\$32.00
CL06, CL07, CL08 contactors	CLXC41	\$48.00
CL09, CL10 contactors	CLXC51	\$60.00



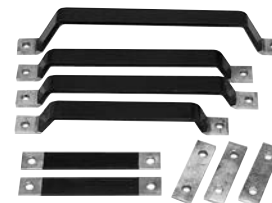
Reversing Wiring Kit

Reversing Bus Bar Kits

Connection set for main power poles for assembly of reversing contactors.

Note: The CKXC01, CKXC04, CKXC10, and CKXC11 are universal reversing contactor and starter bus bar kits consisting of three (3) line side and three (3) load side insulated bus bars plus six (6) power terminal extenders with bolts and hardware. When assembling reversing starters only three (3) power terminal extenders are required. Three (3) load side terminal extenders are replaced by overload connection straps purchased separately.

For Use With	Product Number	List Price GO-10C2
CK75C, CK08C contactors	CKXC04	\$105.00
CK09B, CK95B contactors	CKXC01	\$125.00
CK10C, CK11C contactors	CKXC10	\$195.00
CK12B contactors	CKXC11	\$205.00



Reversing Bus Bar Kit



Product Number Selection Instructions: See page 5-37

IEC Power Devices

IEC Contactors Accessories

C-2000

Section 5

Wye-Delta Wiring Kits

Wiring kit consists of incoming terminal block and power wires.

Delta Contactor M1	Delta Contactor M2	Wye Contactor S1	Product Number	Motor Hp - 60 Hz, Three-Phase				List Price GO-10C2
				200-208	230	460	575	
CL01, CL02	CL01, CL02	CL00, CL01	CLXC02	-	-	15	20	\$58.00
CL25	CL25	CL01	CLXC12	-	-	25	25	\$63.00
CL04	CL04	CL04	CLXC22	15	20	40	50	\$63.00
CL06	CL06	CL04	CLXC42	25	30	60	75	\$125.00
CL07	CL07	CL06	CLXC43	30	40	75	100	\$125.00
CL09, CL10	CL09, CL10	CL07	CLXC52	40, 60	50, 60	100, 125	125	\$160.00

Wye-Delta Bus Bar Kits

Connection set for main power poles for assembling wye-delta starters. Includes straps for connection to overload relay.

For Use With	Product Number	List Price GO-10C2
CK75C, CK08C contactors, with RT3 overload	CKXC05	\$150.00
CK09B, CK95B contactors, with RT4 overload	CKXC03	\$180.00
CK10C, CK11C contactors, with RT5 overload	CKXC13	\$255.00
CK10B, CK11B, CK12B contactors, with RT5 overload	CKXC12	\$295.00

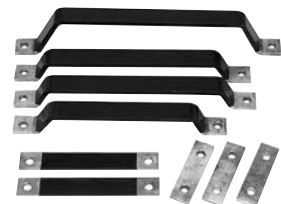


Wye-Delta Wiring Kit

Lugs

Connector lugs with anti-turn feature. Suitable for copper wire only. Each lug kit contains three lugs.

For Use With	Wire Size	Product Number	List Price GO-10C2
CK10, CK11, CK12 contactors w/wo RT5 Overload	6-500 kcmil 2/0-600 kcmil (2 wire lug)	CKX01	\$80.00



Wye-Delta Bus Bar Kit

Contact Sets

For Use With	Packing Quantity (No. of Contact Sets)	Contact Configuration	Product Number	List Price GO-10C2
CK75C contactors	3	NO	V31175CA	\$242.00
CK08C contactors	3	NO	V31108CA	\$380.00
CK09B, CK08B contactors	3	NO	V31109BA	\$450.00
CK95B contactors	3	NO	V31195BA	\$620.00
CK10C contactors	3	NO	V31110CA	\$900.00
CK11C contactors	3	NO	V31111CA	\$1300.00
CK12B, CK10B, CK11B contactors	3	NO	V31112BA	\$1925.00

Each set consists of 2 fixed contacts, 1 moving contact, and accessory parts.



Lugs

Pole Terminal Protection

For Use With	Product Number	List Price GO-10C2
CK75 - CK08	PTPCK75	\$120.00



Contact Set



IEC Power Devices

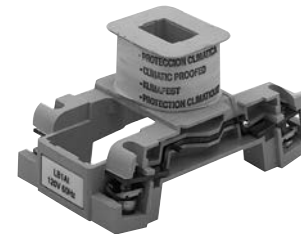
IEC Contactor Coils

C-2000

Section 5

AC Coils

For Use With	Coil Frequency	Product Number	List Price GO-10C2
CL00, CL01, CL02, CL25 contactors	AC	LB1A*	\$24.00
CL04, CL45 contactors	AC	LB3A*	\$33.00
CL06, CL07, CL08, CL09, CL10 contactors	AC	LB4A*	\$38.00



Coil

AC Voltage Selection

AC Coil Voltages	24	42	48	110-115	127	220-230	240	380-400	500		
50/60Hz											
50 Hz											
60Hz				120	208	277		480	600		
Product Number Suffix	1	2	9	J	K	L	6	N	7	U	Y

DC Coils

For Use With	Coil Frequency	Product Number	List Price GO-10C2
CL00, CL01, CL02, CL25 contactors	DC	LB1D#	\$36.00
CL04, CL45 contactors	DC	LB3D#	\$50.00

DC Voltage Selection

DC Voltage	#Coil Suffix
12	B
24	D
48	G
60	H
110	J
125	K
220	N
250	T

Note: Additional coils available, see page 5-50.

DC Wide Range Voltage Selection

DC Wide Range Voltage	#Coil Suffix
24	WD
33	WE
48	WG
72	WI
110	WJ

To complete coil product number, replace the *, or # with the appropriate "Designation Letter/Digit" (from AC Voltage Selection and DC Voltage Selection tables above) corresponding to the voltage and frequency of the control circuit.

Special order coils (shaded in gray):

Minimum order, LB1A*: 20 units; all others: 10 units

Conversion Kit: Electronic Module and Coil

	W24-60 Product Number	List Price GO-10C2	W48-130 Product Number	List Price GO-10C2	W100-250 Product Number	List Price GO-10C2	W250-500 Product Number	List Price GO-10C2	
3 poles	CK75CE311	KKIT4E24-60	\$472.00	KKIT4E48-130	\$553.00	KKIT4E100-250	\$650.00	KKIT4E250-500	\$718.00
	CK08CE311	KKIT4E24-60	\$472.00	KKIT4E48-130	\$553.00	KKIT4E100-250	\$650.00	KKIT4E250-500	\$718.00
	CK85BE311	KKIT5E24-60	\$472.00	KKIT5E48-130	\$553.00	KKIT5E100-250	\$650.00	KKIT5E250-500	\$718.00
	CK09BE311	KKIT5E24-60	\$472.00	KKIT5E48-130	\$553.00	KKIT5E100-250	\$650.00	KKIT5E250-500	\$718.00
	CK95BE311	KKIT5E24-60	\$472.00	KKIT5E48-130	\$553.00	KKIT5E100-250	\$650.00	KKIT5E250-500	\$718.00
	CK10CE311	KKIT7E24-60	\$472.00	KKIT7E48-130	\$553.00	KKIT7E100-250	\$650.00	KKIT7E250-500	\$718.00
	CK11CE311	KKIT7E24-60	\$472.00	KKIT7E48-130	\$553.00	KKIT7E100-250	\$650.00	KKIT7E250-500	\$718.00
	CK12BE311	KKIT8E24-60	\$472.00	KKIT8E48-130	\$553.00	KKIT8E100-250	\$650.00	KKIT8E250-500	\$718.00
	CK07BE411	KKIT5E24-60	\$472.00	KKIT5E48-130	\$553.00	KKIT5E100-250	\$650.00	KKIT5E250-500	\$718.00
	CK08BE411	KKIT8E24-60	\$472.00	KKIT8E48-130	\$553.00	KKIT8E100-250	\$650.00	KKIT8E250-500	\$718.00
4 poles	CK09BE411	KKIT8E24-60	\$472.00	KKIT8E48-130	\$553.00	KKIT8E100-250	\$650.00	KKIT8E250-500	\$718.00
	CK95BE411	KKIT8E24-60	\$472.00	KKIT8E48-130	\$553.00	KKIT8E100-250	\$650.00	KKIT8E250-500	\$718.00
	CK10CE411	KKIT7E24-60	\$472.00	KKIT7E48-130	\$553.00	KKIT7E100-250	\$650.00	KKIT7E250-500	\$718.00
	CK11CE411	KKIT7E24-60	\$472.00	KKIT7E48-130	\$553.00	KKIT7E100-250	\$650.00	KKIT7E250-500	\$718.00
	CK12BE411	KKIT8E24-60	\$472.00	KKIT8E48-130	\$553.00	KKIT8E100-250	\$650.00	KKIT8E250-500	\$718.00



Product Number Selection Instructions: See page 5-37

IEC Power Devices IEC Contactor Enclosures C-2000

Section 5

NEMA Enclosures¹

Enclosure type	For Use With	Contactors Size	Product Number	List Price GO-10C2
NEMA Type 1	Contactors and Starters, No CPT, Lift-Off Cover	CL00, CL01, CL02, CL25, CL04, CL45 contactors	CLXE1A	\$42.00
NEMA Type 1	Contactors and Starters, No CPT, Lift-Off Cover	CL06, CL07, CL08 contactors	CLXE1B	\$60.00
NEMA Type 1	Contactors and Starters, No CPT, Lift-Off Cover	CL09, CL10 contactors	CLXE1C	\$96.00
NEMA Type 1	Contactors and Starters, With CPT ² , Lift-Off Cover	CL00, CL01, CL02, CL25, CL04, CL45 contactors	CLXE1D	\$29.00
NEMA Type 1	Contactors and Starters, With CPT, Lift-Off Cover	CL06, CL07, CL08 contactors	CLXE1E	\$47.00
NEMA Type 1	Contactors and Starters With CPT ² , Lift-Off Cover	CL09, CL10 contactors	CLXE1F	\$69.00
NEMA Type 1	Reversing Contactors and Starters, Wye-Delta Starters With/ Without CPT ² , Hinged Cover	CL00, CL01, CL02, CL25, CL04, CL45 contactors	CLXE1G	\$140.00
NEMA Type 1	Reversing Contactors and Starters With/Without CPT ² , Hinged Cover	CL06, CL07, CL08, CL09, CL10 contactors	CLXE1H	\$192.00
NEMA Type 1	Wye-Delta Starters With/ Without CPT ² , Hinged Cover	CL06, CL07, CL08, CL09, CL10 contactors	CLXE1L	\$268.00
NEMA Type 12/3R ³	Contactors and Starters No CPT, Lift-Off Cover	CL00, CL01, CL02, CL25, CL04, CL45 contactors	CLXE2A	\$90.00
NEMA Type 12/3R ³	Contactors and Starters No CPT, Lift-Off Cover	CL06, CL07, CL08, CL09, CL10 contactors	CLXE2B	\$122.00
NEMA Type 12/3R ³	Contactors and Starters With CPT Hinged Cover, Reversing Contactors and Starters No CPT, Hinged Cover	CL00, CL01, CL02, CL25, CL04, CL45 contactors	CLXE2C	\$142.00
NEMA Type 12/3R ³	Contactors and Starters With CPT Hinged Cover, Reversing Contactors and Starters No CPT, Hinged Cover	CL06, CL07, CL08, CL09, CL10 contactors	CLXE2D	\$168.00
NEMA Type 12/3R ³	Reversing Contactors and Starters With CPT, Hinged Cover	CL00, CL01, CL02, CL25, CL04, CL45 contactors	CLXE2E	\$159.00
NEMA Type 12/3R ³	Reversing Contactors and Starters With CPT, Hinged Cover	CL06, CL07, CL08, CL09, CL10 contactors	CLXE2F	\$213.00
NEMA Type 12/3R ³	Wye-Delta Starters With/ Without CPT, Hinged Cover	CL00, CL01, CL02, CL25, CL04, CL45 contactors	CLXE2G	\$211.00
NEMA Type 12/3R ³	Wye-Delta Starters With/ Without CPT, Hinged Cover	CL06, CL07, CL08, CL09, CL10 contactors	CLXE2H	\$388.00
NEMA Type 4	Contactors and Starters No CPT, Hinged Cover	CL00, CL01, CL02, CL25, CL04, CL45 contactors	CLXE4A	\$326.00
NEMA Type 4	Contactors and Starters No CPT, Hinged Cover	CL06, CL07, CL08, CL09, CL10 contactors	CLXE4B	\$346.00
NEMA Type 4	Contactors and Starters With CPT Hinged Cover, Reversing Contactors and Starters No CPT, Hinged Cover	CL00, CL01, CL02, CL25, CL04, CL45 contactors	CLXE4C	\$343.00
NEMA Type 4	Contactors and Starters With CPT Hinged Cover, Reversing Contactors and Starters No CPT, Hinged Cover	CL06, CL07, CL08, CL09, CL10 contactors	CLXE4D	\$478.00
NEMA Type 4	Reversing Contactors and Starters With CPT Hinged Cover, Wye-Delta Starters, With/Without CPT ² , Hinged Cover	CL00, CL01, CL02, CL25, CL04, CL45 contactors	CLXE4E	\$537.00
NEMA Type 4	Reversing Contactors and Starters With CPT ² , Hinged Cover	CL06, CL07, CL08, CL09, CL10 contactors	CLXE4F	\$589.00
NEMA Type 4	Wye-Delta Starters With/ Without CPT ² , Hinged Cover	CL06, CL07, CL08, CL09, CL10 contactors	CLXE4H	\$994.00

¹Enclosures are suitable for AC controlled contactors, starters and reversers, and wye-delta starters. For devices with front-mounted accessories and DC control, contact GE Customer Service at 1-800-GE-1-STOP. Enclosures are not sized for front-mounted accessories. Includes externally operated reset button kit to be field installed as required.

²Standard capacity (50 VA) product number CR308XT1**A and extra capacity (150 VA) product number CR308XT1**B (listed on page 5-52)

³Type 12/3R enclosures have hole locators for both pilot devices and reset. For 3R, application plug must be removed.

Reference Publications

Instructions	
GEH-5521	Enclosures CLXE1G-CLXE1L
GEH-5522	NEMA 1 Lift-Off Enclosures
GEH-5523	CLXR11, 12 Reset Push Button
GEH-5524	CLXR21, CKXR11, 12 Reset Button
GEH-5525	CLXP-B, C Start/Stop Push Button
GEH-5526	CL NEMA 12/3R Enclosures
GEH-5527	CL NEMA 4 Enclosures



NEMA Type 1



NEMA Type 12/3R



NEMA Type 4



IEC Power Devices Contactor Enclosures Accessories C-2000

Section 5

Enclosure Accessories

Enclosure Accessory Type	For Use With	Product Number	List Price GO-10C2
Start-Stop Push Button Without Light	CL00, CL01, CL02, CL25, CL04, CL45 starters with or without CPT	CLXP1B	\$39.00
Start-Stop Push Button Without Light	CL06, CL07, CL08 starters with or without CPT	CLXP2B	\$39.00
Start-Stop Push Button Without Light	CL09, CL10 starters with or without CPT	CLXP3B	\$39.00
Start/Stop Push Button With Light	CL00, CL01, CL02, CL25, CL04, CL45 starters with or without CPT	CLXP1C*	\$112.00
Start/Stop Push Button With Light	CL06, CL07, CL08 starters with or without CPT	CLXP2C*	\$112.00
Start/Stop Push Button With Light	CL09, CL10 starters with or without CPT	CLXP3C*	\$112.00
H-O-A Switch	CL00, CL01, CL02, CL25, CL04, CL45 starters with or without CPT	CLXP1D	\$39.00
H-O-A Switch	CL06, CL07, CL08 starters with or without CPT	CLXP2D	\$39.00
H-O-A Switch	CL09, CL10 starters with or without CPT	CLXP3D	\$39.00
On-off Switch	CL00, CL01, CL02, CL25, CL04, CL45 starters with or without CPT	CLXP1E	\$39.00
On-off Switch	CL06, CL07, CL08 starters with or without CPT	CLXP2E	\$39.00
On-off Switch	CL09, CL10 starters with or without CPT	CLXP3E	\$39.00
Red Indicating Light	CL00, CL01, CL02, CL25, CL04, CL45 starters with or without CPT	CLXP1F	\$67.00
Red Indicating Light	CL06, CL07, CL08 starters with or without CPT	CLXP2F	\$67.00
Red Indicating Light	CL09, CL10 starters with or without CPT	CLXP3F	\$67.00
Reset Kit	CL00-45 Starters with and without CPT, Type 1 (CLXE1A, 1D)	CLXR11	\$8.00
Reset Kit	CL05-10 Starters, CL00-10 Reverser and Wye-Delta Type 1 (CLXE1B-1C, CLXE1E-1L)	CLXR12	\$8.00
Reset Kit	CL00-10 Starters, Reverser and Wye-Delta Type 12/3R and 4 (CLXE2A-2H, CLXE4A-4H)	CLXR21	\$8.00
Reset Kit	CK75-12 Starters, Reverser and Wye-Delta Type 1	CKXR11	\$10.00
Reset Kit	CK75-12 Starter, Reverser and Wye-Delta Type 12/3R and 4	CKXR12	\$10.00
Control Power Transformer (CPT)	Standard capacity (50 VA)	CR308XT1**A	\$108.00
Control Power Transformer (CPT)	Extra capacity (150 VA)	CR308XT1**B	\$180.00

Replace asterisk (*) in product number for Start/Stop Push Button With Light with appropriate voltage code.

Voltage Selection*

*Code	Voltage
1	115 Volts
2	230 Volts
4	460 Volts
5	575 Volts

**To complete product number, replace ** with the appropriate digits from below:

Control Power Transformer Voltage Selection**

Digit	Voltage	Frequency
04	Dual Primary Reconnectable 220/230/240 and 440/460/480 Volt Primary, 110/115/120 Volt Secondary	60 Hz
05	550/575/600 Volt Primary, 110/115/120 Volt Secondary	60 Hz
23	200/208 Volt Primary, 115/120 Volt Secondary	60 Hz

Reference Publications

Instructions

GEH-5521	Enclosures CLXE1G-CLXE1L
GEH-5522	NEMA 1 Lift-Off Enclosures
GEH-5523	CLXR11, 12 Reset Push Button
GEH-5524	CLXR21, CKXR11, 12 Reset Button
GEH-5525	CLXP-B, C Start/Stop Push Button
GEH-5526	CL NEMA 12/3R Enclosures
GEH-5527	CL NEMA 4 Enclosures



Product Number Selection Instructions: See page 5-37

IEC Power Devices

IEC Contactors Thermal Overload Relays

C-2000

Overload Relays

Fixed Heater

C2000 RT overload relays provide motor overload protection through fixed bimetal heaters. These relays are ambient compensated and utilize a differential mechanism for single-phase sensitivity. The trip setting is adjustable for the range listed.

Overload relays may be set for 4 different operational modes—manual reset only, automatic reset only, manual reset/stop, or automatic reset/stop. Stop is initiated by pushing the reset button which interrupts the holding circuit in the latter two listed modes.

Overload relays feature visible trip indication, reset on the upstroke, weld check, and trip test.

Reference Publications

Instructions

GEH-6237	RT1* (Class 10) Overload
DEH-040	RT12* (Class 20) Overload
GEH-6238	RT2* (Class 10) Overload
DEH-041	RT22* (Class 20) Overload
GEH-6239	RT3* (Class 10) Overload
DEH-042	RT32* (Class 20) Overload
GEH-6240	RT4* (Class 10, 30) Overload
GEH-6241	RT5* (Class 10, 30) Overload
GEH-5520	RT5 Overload Connection Kit
DEH-055	Remote Electrical Reset



RT1 Overload Relay



RT2 Overload Relay



RT3 Overload Relay



RT4 Overload Relay



RT5 Overload Relay



IEC Power Devices

IEC Contactors Thermal Overload Relays

C-2000

Section 5

RT1 - Direct Mount Manual

Overload Relay for use with Contactors ¹	Current Range Amps (min-max)	Reset Type	Trip Class	Maximum Fuse Rating Amps	Maximum Circuit Breaker Rating Amps	Product Number	List Price GO-10C2
CL00, CL01, CL02, CL25, CL04, CL45	0.16-0.26	Manual	Class 10	1	15	RTN1B	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	0.25-0.41	Manual	Class 10	1	15	RTN1C	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	0.4-0.65	Manual	Class 10	3	15	RTN1D	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	0.65-1.1	Manual	Class 10	6	15	RTN1F	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	1-1.5	Manual	Class 10	6	15	RTN1G	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	1.3-1.9	Manual	Class 10	6	15	RTN1H	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	1.8-2.7	Manual	Class 10	10	15	RTN1J	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	2.5-4.1	Manual	Class 10	15	15	RTN1K	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	4-6.3	Manual	Class 10	20	15	RTN1L	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	5.5-8.5	Manual	Class 10	25	15	RTN1M	\$57.00
CL00, CL01, CL02, CL25, CL04, CL45	8.0-12.0	Manual	Class 10	40	30	RTN1N	\$57.00
CL01, CL02, CL25, CL04, CL45	10.0-16.0	Manual	Class 10	50	35	RTN1P	\$57.00
CL02, CL25, CL04, CL45	14.5-18	Manual	Class 10	60	40	RTN1S	\$57.00
CL25, CL04, CL45	17.5-22	Manual	Class 10	70	50	RTN1T	\$57.00
CL04, CL45	21-26	Manual	Class 10	80	60	RTN1U	\$57.00
CL04, CL45	25-32	Manual	Class 10	100	80	RTN1V	\$65.00
CL45	30-40	Manual	Class 10	100	80	RTN1W	\$78.00

RT1 - Direct Mount Manual/Auto

Overload Relay for use with Contactors ¹	Current Range Amps (min-max)	Reset Type	Trip Class	Maximum Fuse Rating Amps	Maximum Circuit Breaker Rating Amps	Product Number	List Price GO-10C2
CL00, CL01, CL02, CL25, CL04, CL45	0.16-0.26	Manual/Auto w/wo stop	Class 10	1	15	RT1B	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	0.25-0.41	Manual/Auto w/wo stop	Class 10	1	15	RT1C	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	0.4-0.65	Manual/Auto w/wo stop	Class 10	3	15	RT1D	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	0.65-1.1	Manual/Auto w/wo stop	Class 10	6	15	RT1F	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	1-1.5	Manual/Auto w/wo stop	Class 10	6	15	RT1G	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	1.3-1.9	Manual/Auto w/wo stop	Class 10	6	15	RT1H	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	1.8-2.7	Manual/Auto w/wo stop	Class 10	10	15	RT1J	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	2.5-4.1	Manual/Auto w/wo stop	Class 10	15	15	RT1K	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	4-6.3	Manual/Auto w/wo stop	Class 10	20	15	RT1L	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	5.5-8.5	Manual/Auto w/wo stop	Class 10	25	15	RT1M	\$57.00
CL00, CL01, CL02, CL25, CL04, CL45	8.0-12.0	Manual/Auto w/wo stop	Class 10	40	30	RT1N	\$57.00
CL01, CL02, CL25, CL04, CL45	10.0-16.0	Manual/Auto w/wo stop	Class 10	50	35	RT1P	\$57.00
CL02, CL25, CL04, CL45	14.5-18	Manual/Auto w/wo stop	Class 10	60	40	RT1S	\$57.00
CL25, CL04, CL45	17.5-22	Manual/Auto w/wo stop	Class 10	70	50	RT1T	\$57.00
CL04, CL45	21-26	Manual/Auto w/wo stop	Class 10	80	60	RT1U	\$57.00
CL04, CL45	25-32	Manual/Auto w/wo stop	Class 10	100	80	RT1V	\$65.00
CL45	30-40	Manual/Auto w/wo stop	Class 10	100	80	RT1W	\$78.00
CL00, CL01, CL02, CL25, CL04, CL45	0.4-0.65	Manual/Auto w/wo stop	Class 20	3	15	RT12D	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	0.65-1.1	Manual/Auto w/wo stop	Class 20	6	15	RT12F	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	1-1.5	Manual/Auto w/wo stop	Class 20	6	15	RT12G	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	1.3-1.9	Manual/Auto w/wo stop	Class 20	6	15	RT12H	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	1.8-2.7	Manual/Auto w/wo stop	Class 20	15	15	RT12J	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	2.5-4.1	Manual/Auto w/wo stop	Class 20	15	15	RT12K	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	4-6.3	Manual/Auto w/wo stop	Class 20	20	15	RT12L	\$55.00
CL00, CL01, CL02, CL25, CL04, CL45	5.5-8.5	Manual/Auto w/wo stop	Class 20	25	15	RT12M	\$57.00
CL00, CL01, CL02, CL25, CL04, CL45	8.0-12.0	Manual/Auto w/wo stop	Class 20	40	30	RT12N	\$57.00
CL01, CL02, CL25, CL04, CL45	10.0-16.0	Manual/Auto w/wo stop	Class 20	50	35	RT12P	\$57.00
CL02, CL25, CL04, CL45	14.5-18	Manual/Auto w/wo stop	Class 20	60	40	RT12S	\$57.00
CL25, CL04, CL45	17.5-22	Manual/Auto w/wo stop	Class 20	70	50	RT12T	\$57.00
CL04, CL45	21-26	Manual/Auto w/wo stop	Class 20	80	60	RT12U	\$57.00
CL04, CL45	25-32	Manual/Auto w/wo stop	Class 20	100	80	RT12V	\$65.00
CL45	30-40	Manual/Auto w/wo stop	Class 20	100	80	RT12W	\$78.00

¹Do not exceed contactor current rating when selecting and adjusting overload relays. For panel mount use base adapter RTX.P.



Product Number Selection Instructions: See page 5-37

IEC Power Devices

IEC Contactors Thermal Overload Relays

C-2000

RT2 - Direct Mount Manual

Overload Relay for use with Contactors ¹	Current Range Amps (min-max)	Reset Type	Trip Class	Maximum Fuse Rating Amps	Maximum Circuit Breaker Rating Amps	Product Number	List Price GO-10C2
CL06, CL07, CL08, CL09, CL10	11.5-15	Manual	Class 10	35	25	RTN2A	\$98.00
CL06, CL07, CL08, CL09, CL10	14.5-19	Manual	Class 10	50	45	RTN2B	\$98.00
CL06, CL07, CL08, CL09, CL10	18.5-25	Manual	Class 10	70	60	RTN2C	\$98.00
CL06, CL07, CL08, CL09, CL10	24-32	Manual	Class 10	90	80	RTN2D	\$98.00
CL06, CL07, CL08, CL09, CL10	30-43	Manual	Class 10	100	100	RTN2E	\$98.00
CL06, CL07, CL08, CL09, CL10	42-55	Manual	Class 10	150	125	RTN2G	\$98.00
CL07, CL08, CL09, CL10	54-65	Manual	Class 10	175	150	RTN2H	\$98.00
CL08, CL09, CL10	64-82	Manual	Class 10	225	200	RTN2J	\$117.00
CL10	78-97	Manual	Class 10	225	225	RTN2L	\$143.00
CL10	90-110	Manual	Class 10	225	250	RTN2M	\$143.00

RT2 - Direct Mount Manual/Auto

Overload Relay for use with Contactors ¹	Current Range Amps (min-max)	Reset Type	Trip Class	Maximum Fuse Rating Amps	Maximum Circuit Breaker Rating Amps	Product Number	List Price GO-10C2
CL06, CL07, CL08, CL09, CL10	11.5-15	Manual/Auto w/wo stop	Class 10	35	25	RT2A	\$98.00
CL06, CL07, CL08, CL09, CL10	14.5-19	Manual/Auto w/wo stop	Class 10	50	45	RT2B	\$98.00
CL06, CL07, CL08, CL09, CL10	18.5-25	Manual/Auto w/wo stop	Class 10	70	60	RT2C	\$98.00
CL06, CL07, CL08, CL09, CL10	24-32	Manual/Auto w/wo stop	Class 10	90	80	RT2D	\$98.00
CL06, CL07, CL08, CL09, CL10	30-43	Manual/Auto w/wo stop	Class 10	100	100	RT2E	\$98.00
CL06, CL07, CL08, CL09, CL10	42-55	Manual/Auto w/wo stop	Class 10	150	125	RT2G	\$98.00
CL07, CL08, CL09, CL10	54-65	Manual/Auto w/wo stop	Class 10	175	150	RT2H	\$98.00
CL08, CL09, CL10	64-82	Manual/Auto w/wo stop	Class 10	225	200	RT2J	\$117.00
CL10	78-97	Manual/Auto w/wo stop	Class 10	225	225	RT2L	\$143.00
CL10	90-110	Manual/Auto w/wo stop	Class 10	225	250	RT2M	\$143.00
CL06, CL07, CL08, CL09, CL10	24-32	Manual/Auto w/wo stop	Class 20	90	80	RT22D	\$98.00
CL06, CL07, CL08, CL09, CL10	30-43	Manual/Auto w/wo stop	Class 20	100	100	RT22E	\$98.00
CL06, CL07, CL08, CL09, CL10	42-55	Manual/Auto w/wo stop	Class 20	150	125	RT22G	\$98.00
CL07, CL08, CL09, CL10	54-65	Manual/Auto w/wo stop	Class 20	175	150	RT22H	\$98.00
CL08, CL09, CL10	64-82	Manual/Auto w/wo stop	Class 20	225	200	RT22J	\$117.00
CL10	78-97	Manual/Auto w/wo stop	Class 20	225	225	RT22L	\$143.00
CL10	90-110	Manual/Auto w/wo stop	Class 20	225	250	RT22M	\$143.00

¹Do not exceed contactor current rating when selecting and adjusting overload relays. For panel mount use base adapter RT2XP.



IEC Power Devices

IEC Contactors Thermal Overload Relays

C-2000

Section 5

RT3 - Direct or Panel Mount

Overload Relay for use with Contactors ¹	Current Range Amps (min-max)	Reset Type	Trip Class	Maximum Fuse Rating Amps	Maximum Circuit Breaker Rating Amps	Product Number	List Price GO-10C2
CK75, CK08	55-80	Manual	Class 10	225	200	RTN3B	\$185.00
CK75, CK08	63-90	Manual	Class 10	250	225	RTN3C	\$185.00
CK75, CK08	90-120	Manual	Class 10	350	300	RTN3D	\$185.00
CK75, CK08	110-140	Manual	Class 10	400	350	RTN3E	\$225.00
CK08	140-190	Manual	Class 10	450	500	RTN3F	\$225.00
CK75, CK08	55-80	Manual/Auto	Class 10	225	200	RT3B	\$185.00
CK75, CK08	63-90	Manual/Auto	Class 10	250	225	RT3C	\$185.00
CK75, CK08	90-120	Manual/Auto	Class 10	350	300	RT3D	\$185.00
CK75, CK08	110-140	Manual/Auto	Class 10	400	350	RT3E	\$225.00
CK08	140-190	Manual/Auto	Class 10	450	500	RT3F	\$225.00
CK75, CK08	63-90	Manual/Auto	Class 20	250	225	RT32C	\$185.00
CK75, CK08	90-120	Manual/Auto	Class 20	350	300	RT32D	\$185.00
CK75, CK08	110-140	Manual/Auto	Class 20	400	350	RT32E	\$225.00
CK08	140-190	Manual/Auto	Class 20	450	500	RT32F	\$225.00

¹Do not exceed contactor current rating when selecting and adjusting overload relays.

RT4 - Separate Mount

Overload Relay for use with Contactors ¹	Current Range Amps (min-max)	Reset Type	Trip Class	Terminal Type	Maximum Fuse Rating Amps	Maximum Circuit Breaker Rating Amps	Product Number	List Price GO-10C2
CK09, CK95	120-190	Manual	Class 10	Bus bar ²	600	500	RTN4N	\$285.00
CK09, CK95	175-280	Manual	Class 10	Bus bar ²	800	700	RTN4P	\$285.00
CK95	200-310	Manual	Class 10	Bus bar ²	900	800	RTN4R	\$380.00
CK09, CK95	120-190	Manual/Auto	Class 10	Bus bar ²	600	500	RT4N	\$285.00
CK09, CK95	175-280	Manual/Auto	Class 10	Bus bar ²	800	700	RT4P	\$285.00
CK95	200-310	Manual/Auto	Class 10	Bus bar ²	900	800	RT4R	\$380.00
CK09, CK95	45-70	Manual/Auto	Class 30	Clamp	225	175	RT4LK	\$285.00
CK09, CK95	60-90	Manual/Auto	Class 30	Clamp	300	225	RT4LL	\$285.00
CK09, CK95	80-125	Manual/Auto	Class 30	Clamp	400	350	RT4LM	\$285.00
CK09, CK95	120-190	Manual/Auto	Class 30	Bus bar ²	600	500	RT4LN	\$285.00
CK09, CK95	175-280	Manual/Auto	Class 30	Bus bar ²	800	700	RT4LP	\$285.00
CK95	200-310	Manual/Auto	Class 30	Bus bar ²	900	800	RT4LR	\$380.00

¹Do not exceed contactor current rating when selecting and adjusting overload relays.

²Can be mounted to contactor with Overload Jumpers (listed on page 5-48) and Base Plate (CKXB01) (listed on page 5-48).

RT5 - Separate Mount²

Overload Relay for use with Contactors ¹	Current Range Amps (min-max)	Reset Type	Trip Class	Maximum Fuse Rating Amps	Maximum Circuit Breaker Rating Amps	Product Number	List Price GO-10C2
CK10, CK11, CK12	175-280	Manual	Class 10	1200	700	RTN5B ³	\$641.00
CK10, CK11, CK12	250-400	Manual	Class 10	1200	1000	RTN5C ³	\$641.00
CK10, CK11, CK12	315-500	Manual	Class 10	1200	1200	RTN5D ³	\$903.00
CK11, CK124	30-650	Manual	Class 10	1200	1200	RTN5E ³	\$903.00
CK10, CK11, CK12	120-190	Manual/Auto	Class 10	800	500	RT5A	\$641.00
CK10, CK11, CK12	175-280	Manual/Auto	Class 10	1200	700	RT5B ³	\$641.00
CK10, CK11, CK12	250-400	Manual/Auto	Class 10	1200	1000	RT5C ³	\$641.00
CK10, CK11, CK12	315-500	Manual/Auto	Class 10	1200	1200	RT5D ³	\$903.00
CK11, CK124	30-650	Manual/Auto	Class 10	1200	1200	RT5E ³	\$903.00
CK10, CK11, CK12	120-190	Manual/Auto	Class 30	800	500	RT5LA	\$641.00
CK10, CK11, CK12	175-280	Manual/Auto	Class 30	1200	700	RT5LB	\$641.00
CK10, CK11, CK12	250-400	Manual/Auto	Class 30	1200	1000	RT5LC	\$641.00
CK10, CK11, CK12	315-500	Manual/Auto	Class 30	1200	1200	RT5LD	\$903.00
CK11, CK12	430-650	Manual/Auto	Class 30	1200	1200	RT5LE	\$903.00

¹Do not exceed contactor current rating when selecting and adjusting overload relays.

²Can be mounted to contactor with Overload Jumpers (listed on page 5-48).

³Maximum fuse rating of 1000 amps/maximum circuit breaker rating of 600 amps when used with CK10CE or CK11CE contactors. Use CK10BE or CK11BE with higher rated protective devices indicated. CK12BE suitable for all ratings listed.



Product Number Selection Instructions: See page 5-37

IEC Power Devices

IEC Contactors Thermal Overload Relays Accessories

C-2000

Section 5

Remote Electrical Reset

Remote electrical resets are used in applications where the motor starter is inaccessible or in automated control systems where it is required to reset the overload relay remotely after the fault has been cleared. Electrical reset coils are rated for intermittent duty and for use with momentary contacts. Minimum time .2 sec. on for reliable operation.

Maximum time 1 sec. on/30 sec. off, 5 sec. on/90 sec. off, 10 sec. on/180 sec. off. Power consumption is 100VA/100 watts.

For Use With	Voltage 50/60 Hz AC or DC	Product Number	List Price GO-10C2
All RT overload relays	12	RTXRRB	\$55.00
All RT overload relays	24	RTXRRD	\$55.00
All RT overload relays	48	RTXRRG	\$55.00
All RT overload relays	110-120	RTXRRJ	\$55.00
All RT overload relays	220-240	RTXRRN	\$55.00
All RT overload relays	380-415	RTXRRU	\$55.00
All RT overload relays	440-480	RTXRRX	\$55.00



RTXRR__Remote Electrical Reset

Overload Base Adapter

Permits mounting of RT1 or RT2 overload on panel or DIN rail.

For Use With	Product Number	List Price GO-10C2
RT1	RTXP	\$12.00
RT2	RT2XP	\$24.00



RT__Overload Base Adapter

Transparent Cover for Range Adjustment Dial

Deters tampering with dial.

For Use With	Product Number	List Price GO-10C2
All Overload Relays	RTX3 ¹	\$19.00

¹Product number represents a quantity of 10 pieces.



RTX3 Transparent Cover

Locking Plug for Manual/Auto Selector

Prevents changing reset mode after installation.

For Use With	Product Number	List Price GO-10C2
All Overload Relays	RTXL ¹	\$10.00

¹Product number represents a quantity of 10 pieces.



RTXL Locking Plug

Flexible Cable Reset Button

Allows manual reset of overload when overload is mounted in a special or inaccessible position. Fits standard 22.5 mm panel hole.

For Use With	Cable Length	Product Number	List Price GO-10C2
All Overloads	.5 meter	RTXS	\$55.00
All Overloads	1.0 meter	RTXSL	\$80.00



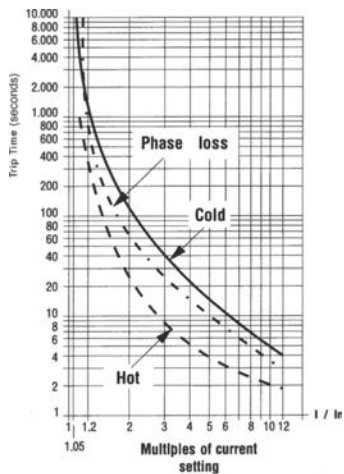
IEC Power Devices

IEC Contactors Thermal Overload Relays

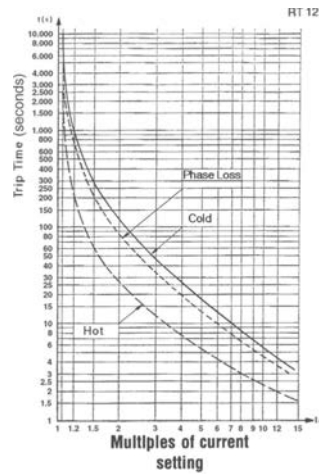
Technical Characteristics

C-2000

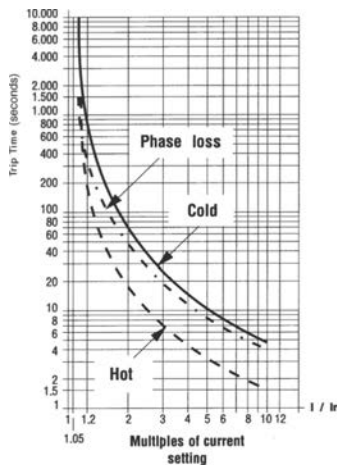
Section 5



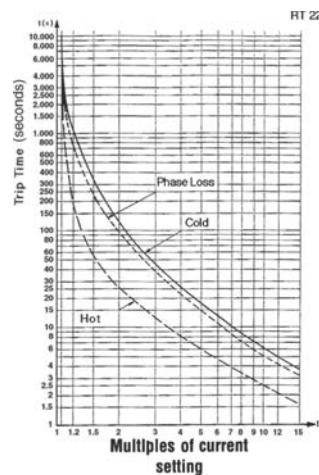
Class 10 RT1



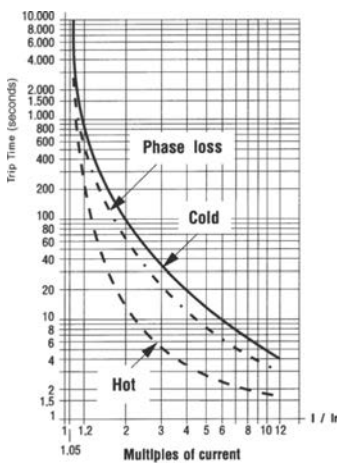
Class 20 RT12



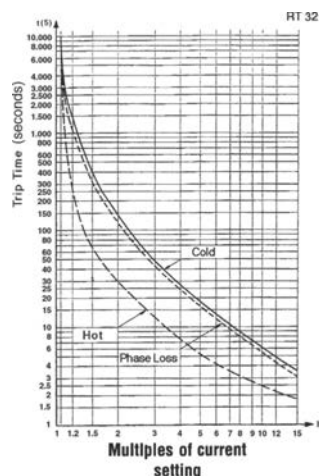
Class 10 RT2



Class 20 RT22



Class 10 RT3



Class 20 RT32



Product Number Selection Instructions: See page 5-37

IEC Power Devices

IEC Contactors Electronic Overload Relays

C-2000

Features

- Self powered
- Great accuracy
- Full reliability
- Phase unbalance protection
- Direct mount to IEC contactors, C-2000
- Panel mount adapter for NEMA contactors
- Interchangeable with thermal overload relay
- Multiple trip class selection; class 5-10-20-30
- Manual / Auto reset
- Setting range from 0.1 up to 150A
- Thermal memory
- Phase loss protection
- Increased flexibility; fewer product numbers; less stock required
- UL 508 certified

Electronic Overload Relays

	Setting Range (A)		Product Number	Reference Number	List Price GO-10GS
	Min.	Max.			
Frame 1	0.1	0.5	RE1D	101866	\$155.00
	0.4	2	RE1H	101867	\$155.00
	1	5	RE1K	101868	\$155.00
	1.6	8	RE1M	101869	\$155.00
	6.4	32	RE1S	101870	\$155.00
Frame 2	9	45	RE1W	101871	\$155.00
	15	75	RE2H	101872	\$275.00
Frame 3	22	110	RE2M	101873	\$275.00
	30	150	RE3E	101874	\$450.00

Accessories

Size	Description	Product Number	Reference Number	List Price GO-10GS
Size 1	Panel Mount Adapter	RE1XP	247302	\$24.00
Size 2	Remote Reset Button Cover	RE2XP RETC	247303 247795	\$24.00 \$4.00



Frame 1



Frame 2



Frame 3



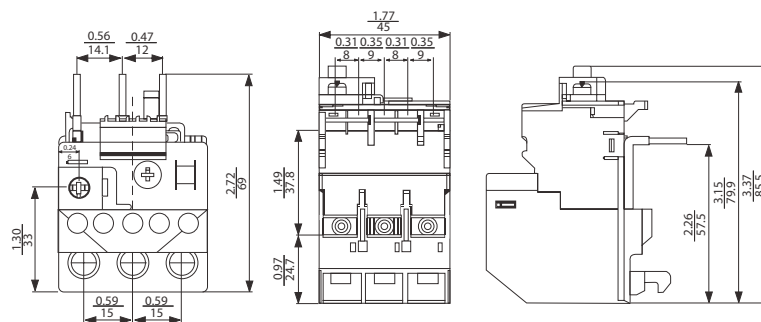
IEC Power Devices

IEC Contactors Electronic Overload Relays

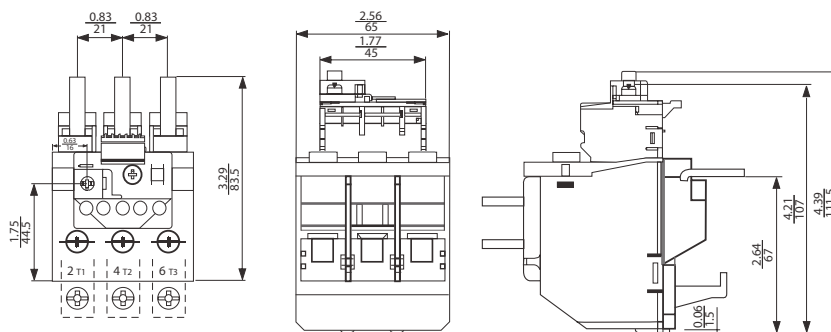
C-2000

Outlines, Dimensions (in, mm)

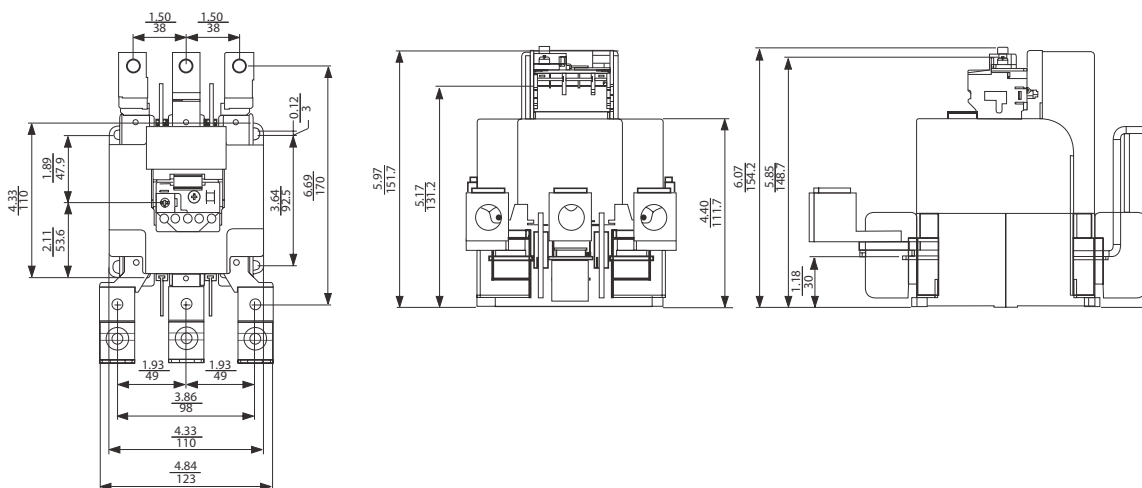
Section 5



Frame 1



Frame 2



Frame 3



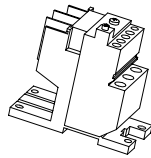
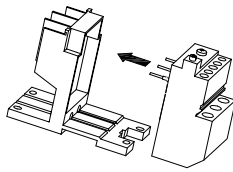
IEC Power Devices

IEC Contactors Electronic Overload Relays

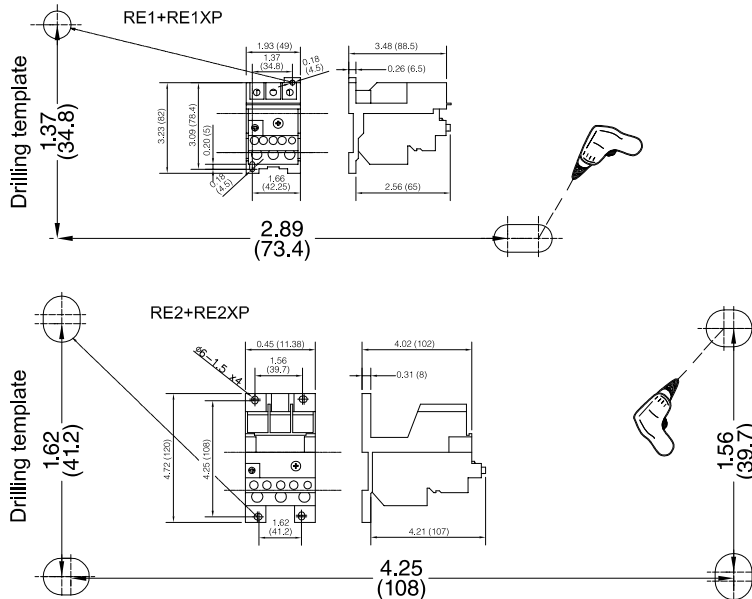
C-2000

Outlines, Dimensions in. (mm), Trip Curves

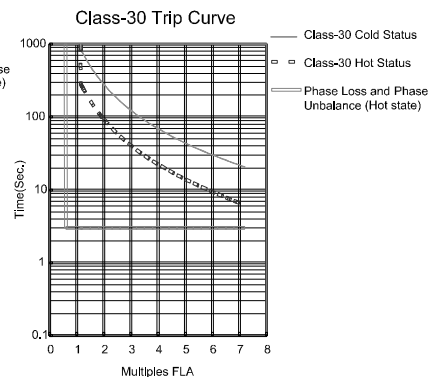
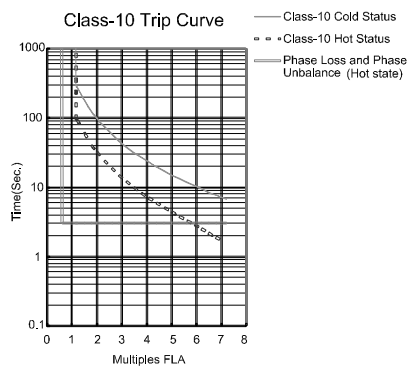
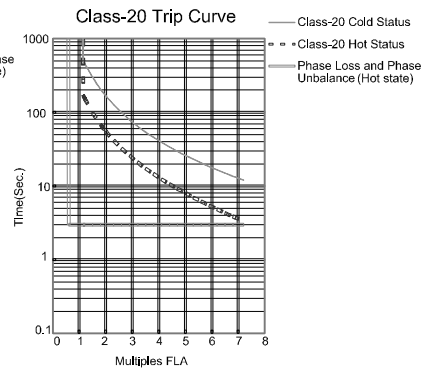
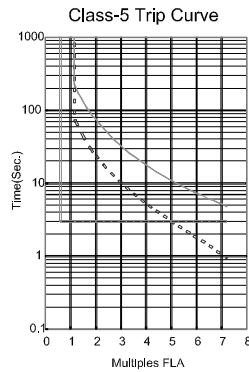
Section 5



RE3: USE LUG KIT CKX03



Panel Mount

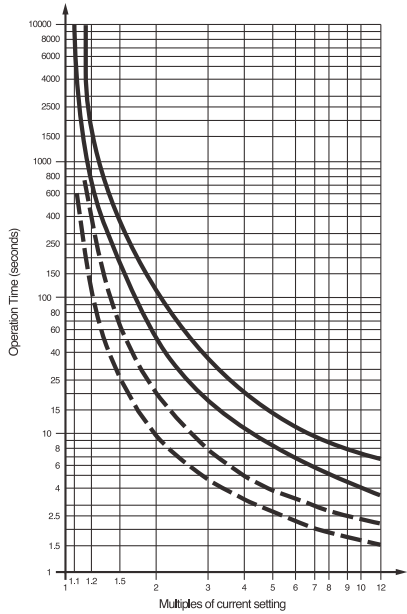


Trip Curves

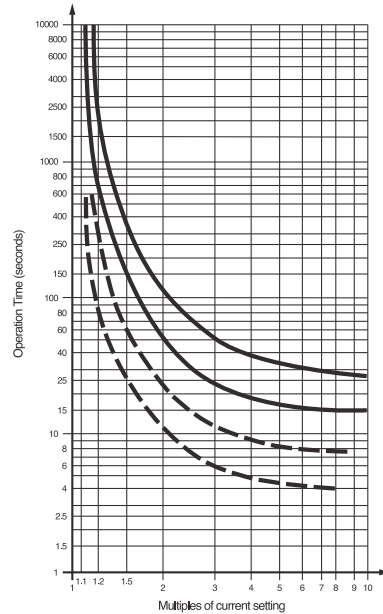


IEC Power Devices
 IEC Contactors Thermal Overload Relays
 Technical Characteristics
 C-2000

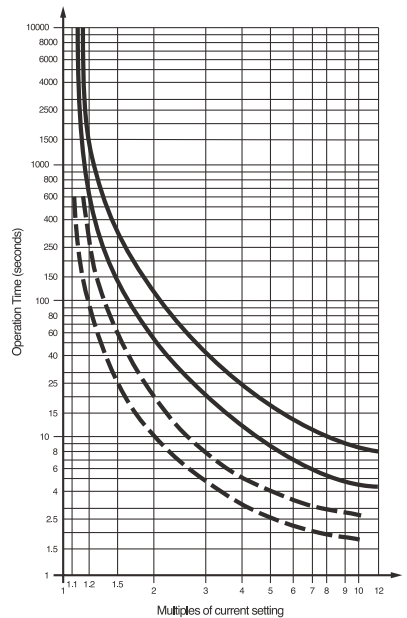
Section 5



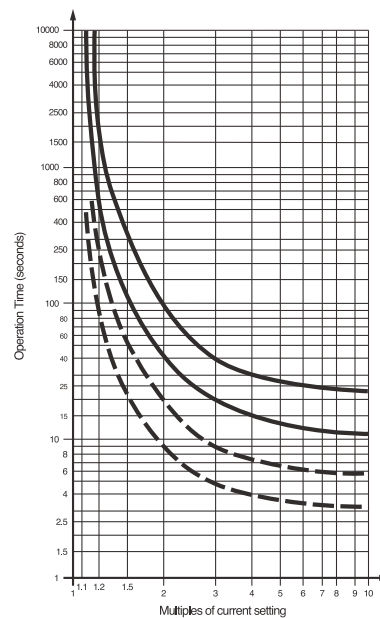
RT4



RT4L



RT5



RT5L



IEC Power Devices IEC Control Relays Selection Guide C-2000

AC Operated Standard Terminals

Contact Configuration	Product Number	List Price GO-10C2
4NO	RL4RA040T*	\$57.00
3NO-1NC	RL4RA031T*	\$57.00
2NO-2NC	RL4RA022T*	\$57.00
4NC	RL4RA004T*	\$57.00

AC Operated with Ring Terminal Capacity

Contact Configuration	Product Number	List Price GO-10C2
4NO	RL4RA040R*	\$65.00
3NO-1NC	RL4RA031R*	\$65.00
2NO-2NC	RL4RA022R*	\$65.00
4NC	RL4RA004R*	\$65.00

To complete the product number, replace the asterisk (*) with the appropriate digit from the Coil Selection table. Contact Rating: A600, P600.

AC Coil Selection

AC Coil Voltages	24	42	48	110	127	208	220-230	277	480	500	600
50/60Hz											
50 Hz									380-400	500	
60Hz				120		208		277	480	600	
Product Number Suffix	1	2	9	J	K	L	6	N	7	U	Y

DC Operated Standard Terminals

Contact Configuration	Product Number	List Price GO-10C2
4NO	RL4RD040T#	\$100.00
3NO-1NC	RL4RD031T#	\$100.00
2NO-2NC	RL4RD022T#	\$100.00
4NC	RL4RD004T#	\$100.00

DC Operated with Ring Terminal Capacity

Contact Configuration	Product Number	List Price GO-10C2
4NO	RL4RD040R#	\$108.00
3NO-1NC	RL4RD031R#	\$108.00
2NO-2NC	RL4RD022R#	\$108.00
4NC	RL4RD004R#	\$108.00

To complete the product number, replace the crosshatch (#) with the appropriate digit from the Coil Selection table. Contact Rating: A600, P600.

DC Coil Selection

DC Voltage	#Coil Suffix
12	B
24	D
48	G
60	H
110	J
125	K
220	N
250	T

Note: Additional coils available, see page 5-50.

DC Wide Range Voltage Selection

DC Wide Range Voltage	#Coil Suffix
24	WD
33	WE
48	WG
72	WI
110	WJ

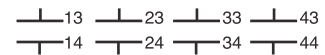
Reference Publications

Instructions	
GEH-6248	RL Relay

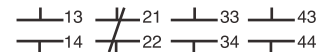


Control Relay

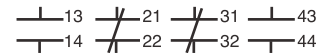
Control Terminal Relay Markings



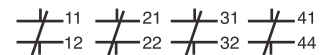
RL4R_040_



RL4R_031_



RL4R_022_



RL4R_004_



IEC Power Devices

IEC Control Relays Accessories

C-2000

Section 5

Front-Mount Auxiliary Contact Blocks

Front-mount auxiliary contact blocks clip onto front face of relay.
Contact Rating: A600, Q600.

For Use With	Terminal Type	Contact Configuration	Product Number	List Price GO-10C2
RL Control Relays	Standard	1NO	BCLF10	\$11.00
RL Control Relays	Standard	1NC	BCLF01	\$11.00
RL Control Relays	Standard	1NO	BCLF10G ¹	\$15.00
RL Control Relays	Standard	1NC	BCLF01G ¹	\$15.00
RL Control Relays	Ring	1NO	BCRF10	\$13.00
RL Control Relays	Ring	1NC	BCRF01	\$13.00

¹Overlapping contacts.

Side-Mount Auxiliary Contact Blocks

Side-mount auxiliary contact blocks can be mounted on either left or right sides of relay.
Positive displacement contacts are designed to prevent simultaneous closing of NO and NC contacts to avoid overlapping between opposing functions. Contact Rating: A600, Q600.

For Use With	Terminal Type	Type	Contact Configuration	Product Number	List Price GO-10C2
RL4 Control Relays	Standard	Adder Block	1NO-1NC	BRLL11	\$19.00
RL4 Control Relays	Standard	Adder Block	2NO	BRLL20	\$19.00

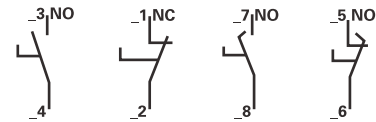
Pneumatic Timer

Pneumatic timers are adjustable time-delayed auxiliary contacts. They come equipped with two time-delayed contacts: 1NO and 1NC, electrically isolated. Setting is scaled over a 350° rotation by means of a knurled knob with timing guide marks. To mount a pneumatic timer, simply clip it on front face of contactor. Contact Rating: A600, Q600.

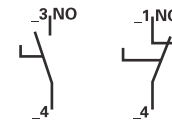
For Use With	Terminal Type	Type	Time range	Contact Configuration	Product Number	List Price GO-10C2
RL4 Control Relays	Standard	Time Delay On	1-30 sec	1NO-1NC	BTLF30C	\$120.00
RL4 Control Relays	Standard	Time Delay On	1-60 sec	1NO-1NC	BTLF60C	\$120.00
RL4 Control Relays	Standard	Time Delay Off	1-30 sec	1NO-1NC	BTLF30D	\$120.00
RL4 Control Relays	Standard	Time Delay Off	1-60 sec	1NO-1NC	BTLF60D	\$120.00
RL4 Control Relays	Ring	Time Delay On	1-30 sec	1NO-1NC	BTRF30C	\$124.00
RL4 Control Relays	Ring	Time Delay On	1-60 sec	1NO-1NC	BTRF60C	\$124.00
RL4 Control Relays	Ring	Time Delay Off	1-30 sec	1NO-1NC	BTRF30D	\$124.00
RL4 Control Relays	Ring	Time Delay Off	1-60 sec	1NO-1NC	BTRF60D	\$124.00



Front-Mounted Block



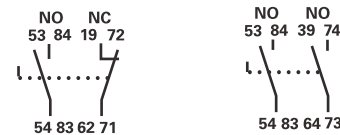
BCLF10/BCLF01/BCLF10G/BCLF01G



BCRF10/BCRF01



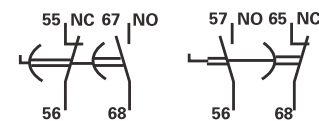
Side-Mounted Block



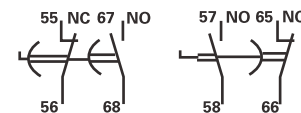
BRLL11/BRLL20



Pneumatic Timer



BTRF30C/BTRF60C/BTRF30D/BTRF60D



BTLF30C/BTLF60C BTLF30D/BTLF60D



IEC Power Devices

IEC Control Relays Accessories

C-2000

Section 5

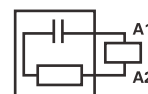
Surge Suppressor

For suppression of disturbances in circuit voltage occurring upon opening of the relay. Mounts directly on the top of the coil.

For Use With	Terminal Type	Surge Suppressor Type	Voltage	Product Number	List Price GO-10C2
RL4 Control Relays	Standard and Ring	RC	24-48 VAC	BSLR2G	\$24.00
RL4 Control Relays	Standard and Ring	RC	50-127 VAC	BSLR2K	\$24.00
RL4 Control Relays	Standard and Ring	RC	130-240 VAC	BSLR2R	\$24.00
RL4 Control Relays	Standard and Ring	Diode	12-600 VDC	BSLDZ	\$24.00
RL4 Control Relays	Standard and Ring	Varistor	24-48 VAC, DC	BSLV3G	\$24.00
RL4 Control Relays	Standard and Ring	Varistor	50-127 VAC, DC	BSLV3K	\$24.00
RL4 Control Relays	Standard and Ring	Varistor	130-250 VAC, DC	BSLV3R	\$24.00
RL4 Control Relays	Standard and Ring	Varistor	380-500 VAC, DC	BSLV3U	\$32.00



BSLR_ _Surge Suppressor



BSLR_ _RC

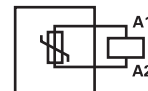
Mechanical Latch Block

Mechanical latch block is used to convert a standard relay into a latched relay. Easy to mount, it clips onto front face of contactor. Contact Rating: A600, Q600.

For Use With	Terminal Type	Voltage Application	Coil Voltage Range	Product Number	List Price GO-10C2
RL4 Control Relays	Standard	50/60 Hz and DC	24-32 Vdc	RMLFD	\$70.00
RL4 Control Relays	Standard	50/60 Hz and DC	42-48 Vdc	RMLFG	\$70.00
RL4 Control Relays	Standard	50/60 Hz and DC	110-125 Vdc	RMLFJ	\$70.00
RL4 Control Relays	Standard	50/60 Hz and DC	208-277 Vdc	RMLFN	\$70.00
RL4 Control Relays	Standard	50/60 Hz and DC	380-480 Vdc	RMLFU	\$70.00
RL4 Control Relays	Standard	50/60 Hz and DC	500-600 Vdc	RMLFY	\$70.00



BSLDZ Diode



BLSV_ _Varistor



RMLF_Mechanical Latch Block



RMLF_



IEC Power Devices

IEC Control Relays Accessories

Section 5

C-2000

Electronic Timer and Interface Modules

These modules add flexibility to C-2000 relays, providing time-delay functions, and interface for low voltage PLC applications or contactor-mounted manual-auto functions. Easily installed, these modules plug right into the contactor coil terminals. All modules include a status indicating LED and accept plug-in voltage surge suppressors.

Timers

Time-on delay and time-off delay modules for sequencing control of contactors. They deliver high repeatability, $\pm 3\%$ in ambient temperatures from 32° to 104°F. A red LED provides indication during time-delay operation.

For Use With	Type	Time-Delay Range	Product Number	List Price GO-10C2
All RL4 Control Relays	On delay	0.1-2 s	BETL02C	\$75.00
All RL4 Control Relays	On delay	1.5-45 s	BETL45C	\$75.00
All RL4 Control Relays	Off delay	0.1-2 s	BETL02D	\$85.00
All RL4 Control Relays	Off delay	1.5-45 s	BETL45D	\$85.00



BETL__Timer

Interface Modules

Interface modules allow relay operation from 24 Volt sources (such as a PLC output). Current consumption is 15 mA @ 24 Vdc. A red LED provides indication when voltage is applied to E1-E2.

For Use With	Input Voltage	Type	Product Number	List Price GO-10C2
All RL4 Control Relays	24 VDC	Relay	IMRD	\$50.00



IM__Interface Module

Voltage Surge Suppressors

Voltage surge suppressors plug into timer, interface, or auto-stop-manual modules.

Coil Voltage	Surge Suppressor Type	Product Number	List Price GO-10C2
24-48 VAC	Resistive/Capacitive (R/C)	IMRC2G	\$24.00
50-127 VAC	Resistive/Capacitive (R/C)	IMRC2K	\$24.00
130-240 VAC	Resistive/Capacitive (R/C)	IMRC2R	\$24.00
24-48 VAC	Resistive/Capacitive (R/C)	IMRC3G	\$24.00
130-240 VAC	Resistive/Capacitive (R/C)	IMRC3R	\$24.00
24-48 VAC or DC	Varistor	IMV3G	\$24.00
50-127 VAC or DC	Varistor	IMV3K	\$24.00



IM__Voltage Surge Suppressor



IEC Power Devices

IEC Contactors

Series CSCN

Section 5

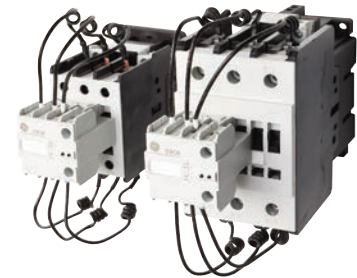
Contactors for Capacitors Switching

With built-in resistance to switch three phase capacitor banks

Introduction

“CSCN” contactors incorporate a front block with three early-make auxiliary contacts together with 6 quick discharge resistors (two per phase) through which the capacitors are switched to the network, reducing the current peak. Once the resistors have damped the current peak, the main contacts short-circuit the resistors, carrying the uninterrupted current.

A few milliseconds later the early-make auxiliary contact closes to guarantee that all current flows through the main contacts.



Standards

IEC/EN 60947-1
IEC/EN 60947-4-1
IEC/EN 60947-5-1
EN 50005
UL 508
CSA C22.2/14
CENELEC HD 419
VDE 0660/102
NFC 63-110
ASE 1025
UNE 20109

Approvals/Marking



IEC Power Devices

IEC Contactors

Series CSCN

Section 5

Contactors for Capacitors Switching

Ith	Ambient Temperature										Contacts		Product Number	List Price GO-10C2
	230V 240V kvar	400V 240V kvar	$\Theta \leq 55^\circ\text{C}$ 415V kvar	500V kvar	660V 690V kvar	230V 240V kvar	400V kvar	415V kvar	$\Theta \leq 70^\circ\text{C}$ 500V kvar	660V 690V kvar	Fuse gl - gG	3 4 1 2		
25	7.5	12.5	13	16	15	3.7	7.5	8	9.5	10	25	2 0 1 1 0 2	CSCN12A320† CSCN12A311† CSCN12A302†	\$92.00 \$92.00 \$92.00
32	10	16.7	17	21	20	5	10	11	12.5	12.5	35	2 0 1 1 0 2	CSCN16A320† CSCN16A311† CSCN16A302†	\$116.00 \$116.00 \$116.00
45	12.5	20	21	25	25	7.5	12.5	13	16	15	40	1 0 0 1 2 1 1 2	CSCN20A310† CSCN20A301† CSCN20A321† CSCN20A312†	\$135.00 \$135.00 \$135.00 \$135.00
45	15	25	26	31	30	10	15	16	18	20	50	1 0 0 1 2 1 1 2	CSCN25A310† CSCN25A301† CSCN25A321† CSCN25A312†	\$153.00 \$153.00 \$153.00 \$153.00
60	20	30	31	38	35	16	22	23	27	25	63	1 0 0 1 2 1 1 2	CSCN30A310† CSCN30A301† CSCN30A321† CSCN30A312†	\$231.00 \$231.00 \$231.00 \$231.00
90	25	45	47	56	55	20	35	36	44	40	80	1 0 0 1 2 0 1 1 1 2	CSCN45A310† CSCN45A301† CSCN45A320† CSCN45A311† CSCN45A312†	\$379.00 \$379.00 \$379.00 \$379.00 \$379.00
110	35	55	57	69	65	30	45	47	56	50	125	1 0 0 1 2 0 1 1 1 2	CSCN55A310† CSCN55A301† CSCN55A320† CSCN55A311† CSCN55A312†	\$453.00 \$453.00 \$453.00 \$453.00 \$453.00
140	45	70	73	88	85	35	60	62	75	70	160	1 0 0 1 2 0 1 1 1 2	CSCN70A310† CSCN70A301† CSCN70A320† CSCN70A311† CSCN70A312†	\$547.00 \$547.00 \$547.00 \$547.00 \$547.00

Spare Coils

Description	Product Number	List Price GO-10C2
For series CSCN12 ... CSCN25	LB1A†	\$24.00
For series CSCN30	LB3A†	\$33.00
For series CSCN45 ... CSCN70	LB4A†	\$38.00

To complete the Product Number, replace the dagger (†) with the code corresponding to the voltage and frequency of the control circuit, other voltages on request.

CL Contactor Coils

AC Coil Voltages	24		42	48	110-115	127	220-230	240	380-400	500	
50/60Hz											
50 Hz											
60Hz					120	208		277	480	600	
Product Number Suffix	1	2	9	J	K	L	6	N	7	U	Y



IEC Power Devices

IEC Contactors Technical Information


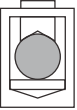
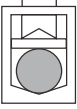
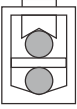
Series CSCN

Section 5

Technical Characteristics

Main Circuit (poles)			CSCN12	CSCN16	CSCN20	CSCN25	CSCN30	CSCN45	CSCN55	CSCN70
Rated operational voltage	(V)		690	690	690	690	690	690	690	690
Rated insulation voltage according to IEC947	(V)		1000	1000	1000	1000	1000	1000	1000	1000
Rated thermal current	(A)		25	32	45	45	60	90	110	140
Max. power utilization at 55°C	230/240V	(kvar)	7.5	10	12.5	15	20	25	35	45
	380/400V	(kvar)	12.5	16.7	20	25	30	45	55	70
	660/690V	(kvar)	15	20	25	30	35	55	65	85
Electrical endurance	(ops.)		280,000	280,000	280,000	250,000	200,000	150,000	120,000	90,000
Max. ops./hour	(ops./hour)		350	350	350	240	240	150	150	150
Control Circuit										
Standard voltages	50Hz	(V)	24-690	24-690	24-690	24-690	24-690	24-690	24-690	24-690
	60Hz	(V)	24-600	24-600	24-600	24-600	24-600	24-600	24-600	24-600
Consumption										
Single frequency	Mar. circuit open	(VA)	45	45	48	48	88	191	191	198
	Mar. circuit closed	(VA)	6	6	7	7	9	15.5	15.5	17
Dual frequency	Mar. circuit open	(VA)	54	54	58	58	125	245	245	250
	Mar. circuit closed	(VA)	7	7	8	8	11.5	20	20	23
50Hz	Mar. circuit open	(VA)	35	35	39	39	110	215	215	220
	Mar. circuit closed	(VA)	5	5	6	6	11	15	15	19
60Hz	Mar. circuit open	(VA)								
	Mar. circuit closed	(VA)								
Instantaneous Auxiliary Contact Blocks										
Rated insulation voltage Ui	(V)					1000				
Rated thermal current Ith	(A)					10				
Ambient Conditions										
Storage temperature	(°C)					-50 ... +80				
Operating temperature	(°C)					-25 to +55 (without derating)				
Altitude up to 3000m						Nominal values				
Mounting positions						Vertical mounting +/- 30°				

Terminal Capacity and Tightening Torque

		CSCN12	CSCN16	CSCN20	CSCN25	CSCN30	CSCN45	CSCN55	CSCN70
	Solid, stranded and finely stranded without end sleeve (mm ²)	1 x 0.5 ... 2.5		1 x 0.5 ... 2.5		-	-	-	-
	Finely stranded with or without end sleeve (mm ²)	1 x 1 ... 2.5		1 x 1 ... 2.5		-	-	-	-
	AWG wires	1 x 20 ... 12		1 x 20 ... 8		-	-	-	-
	Tightening torque (Nm)	1.6		2.2		-	-	-	-
	Tightening torque (Lb x in.)	15		20		-	-	-	-
	Solid, stranded and finely stranded without end sleeve (mm ²)	-		-		0.75 ... 16	1 ... 35	1.5 ... 50	
	Finely stranded with end sleeve (mm ²)	-		-		0.75 ... 16	1 ... 35	1.5 ... 50	
	Finely stranded without end sleeve (mm ²)	-		-		1 ... 16	1 ... 35	1.5 ... 50	
	AWG wires	-		-		18 ... 6	16 ... 2	16 ... 2	
	Tightening torque (Nm)	-		-		1.8	4	5.6	
	Solid (mm ²)	-		-		0.75 ... 16	1 ... 16	4 ... 35	
	Stranded (mm ²)	-		-		0.75 ... 16	1 ... 25	4 ... 35	
	Finely stranded without end sleeve (mm ²)	-		-		0.75 ... 16	1 ... 25	4 ... 35	
	Finely stranded with end sleeve (mm ²)	-		-		1 ... 16	1 ... 25	4 ... 35	
	AWG wires	-		-		18 ... 6	16 ... 4	10 ... 1	
	Solid, stranded and finely stranded without end sleeve (mm ²)	-		-		Max. 16	Max. 50 ... 4	Max. 35	
	Finely stranded without end sleeve (mm ²)	-		-		Max. 16	Max. 25 ... 16	50 ... 35	
	Finely stranded with end sleeve (mm ²)	-		-		Max. 16	Max. 35 ... 2.5	Max. 35	
	AWG wires	-		-		Max. 6	Max. 25 ... 16	Max. 35 ... 2.5	
	Tightening torque (Nm)	-		-		1.8	4	5.6	
Tightening torque (Lb x in.)	-		-		16	35	50		



IEC Power Devices

IEC Contactors Technical Information

Series CSCN

Section 5

Standard Contactors

Series "CL" and "CK" Contactors, to Switch Three-Phase Capacitor Banks

Electrical endurance: >100,000 operations

Type ¹	Contactor Ith	$\Theta \leq 55^{\circ}\text{C}$					$\Theta \leq 70^{\circ}\text{C}$					Fuse gl - gG	I max. (peak)
		220V 230V 240V	400V	415V	500V	690V 660V	220V 230V 240V	400V	415V	500V	690V 660V		
	A	kvar	kvar	kvar	kvar	kvar	kvar	kvar	kvar	kvar	kvar	A	A
CL00A	25	3	5	5.5	6.5	5.7	2.4	4	4.5	5.2	4.5	10	1000
CL01A	25	4.5	9.5	10.5	12.5	11	3.6	6	6.5	10	7	16	1000
CL02A	32	6.5	11	12	14.5	12.5	5.2	8.5	9	11.5	10	25	1000
CL25A	45	7.5	12.5	14	16	15	6.5	10	11	13	12	25	1000
CL03A	45	9	15	16.5	20	17.5	7.2	12	13	16	14	35	2500
CL04A	60	12.5	21	23	27.5	24	10	17	18	22	19.5	40	2500
CL45A	60	16.5	25	27	32	30	13	20	22	25	22	50	2500
CL06A	90	22	40	43	52	50	17	30	33	41	35	80	3500
CL07A	110	25	45	48	58	65	19	35	37	46	40	125	3500
CL08A	110	30	50	54	65	70	22	40	43	52	50	125	3500
CL09A	140	40	65	70	85	95	35	58	62	75	85	160	3500
CL10A	140	50	80	85	105	120	43	70	75	90	105	160	3500
CK75C	250	60	110	118	145	150	48	88	94	116	120	250	5000
CK08C	250	70	125	135	162	170	56	100	107	130	136	250	5000
CK85B	315	80	150	160	195	200	64	120	130	156	160	315	5000
CK09B	315	95	165	177	215	230	85	148	160	192	205	315	5000
CK95B	450	105	190	205	250	288	95	175	188	230	265	450	5500
CK10C	600	135	260	280	340	370	120	235	252	375	330	630	10000
CK11C	700	190	325	350	425	450	152	260	280	340	360	800	10000
CK12B	1000	250	400	430	520	600	200	320	344	416	480	1000	12000
CK13B	1250	315	525	565	685	650	252	420	452	548	520	1250	15000

¹ To complete contactor reference, see pages 5-40 to 5-42 for CL and pages 5-43 and 5-45 for CK.



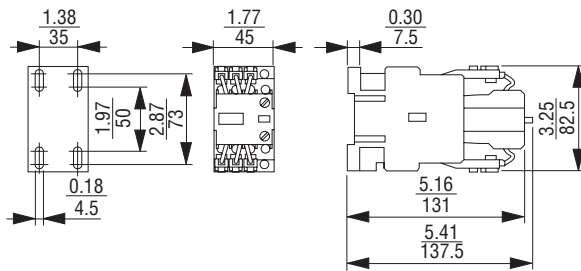
IEC Power Devices

IEC Contactors Dimensions

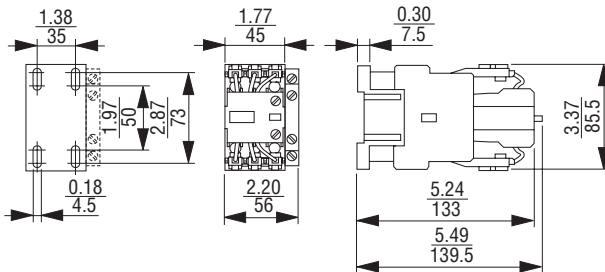
Series CSCN

Outlines and Dimensions (mm) For Estimating Only

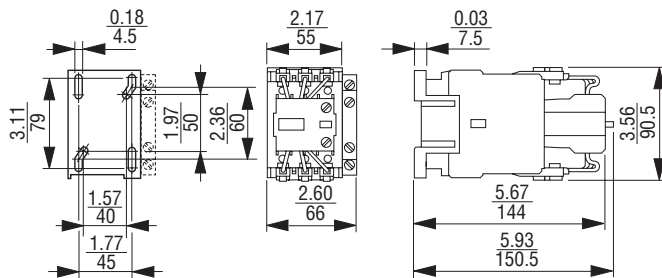
Contactors for Capacitors Switching



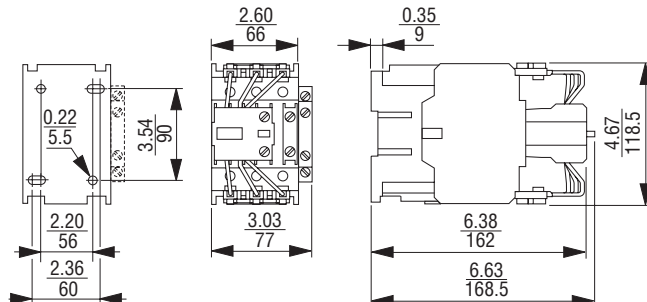
CSCN12..., CSCN16...



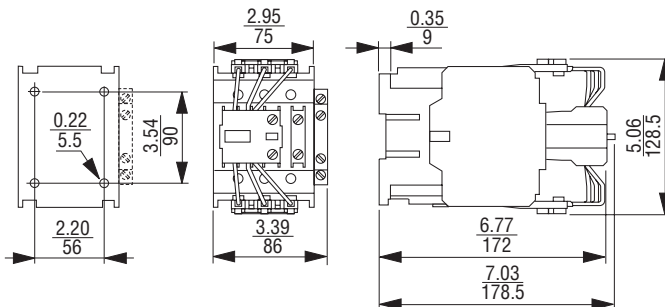
CSCN20..., CSCN25...



CSCN30...



CSCN45..., CSCN55...



CSCN70...



IEC Power Devices Specifications C-2000 Contactors, Starters and Relays

Section 5

Standards And Listings

- IEC 947-1
- BS 5424
- IEC 947-4
- BS 775
- EN 50005
- IEC 158-1
- CEI 17-3/252
- UNE 20109
- CENELEC HD419
- ASE 1025
- VDE 0660/102
- NFC 63-110
- UL 508, cUL
- CE Mark
- ZH1/457 (Positive Guided Contacts)

Pending Standards And Listings

- SEMKO, NEMKO, DEMKO, Lloyds Register

Ambient Temperature

Operating	-13° to +131°F/-25° to +55°C
Storage	58° to +176°F/50° to 80°C

Altitude Derating

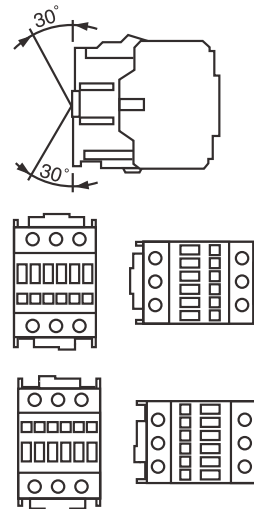
Altitude	Nominal Values
Up to 10,000 ft. (3,000 m)	90% rated current
10,000 to 13,200 ft. (3,000 to 4,000 m)	90% rated current
13,200 to 16,000 ft. (4,000 to 5,000 m)	80% rated current

Rated Insulation Voltage

- 600 Vac. $U_i = 1000V$ (per IEC 947)

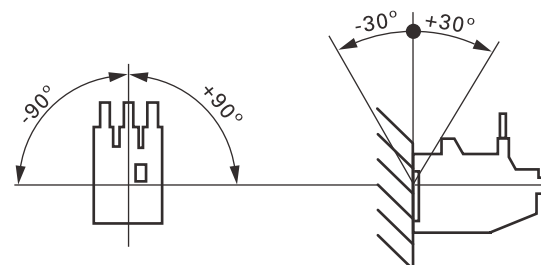
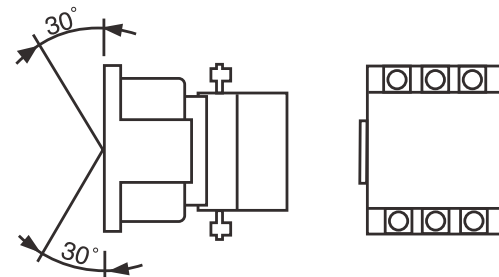
Mounting Position—3-Pole and 4-Pole CL Contactors (5-75 Hp) and RL4 Relays

To maintain operating integrity, the contactor must be mounted in one of the positions shown below:



3-Pole and 4-Pole CK Contactors (100-55 Hp)

The contactor must be installed vertically or tilted a maximum of 30° from vertical, as shown below:



Overload Relays Mounting Positions



IEC Power Devices

IEC Contactors Technical Data

C-2000

CL/CK Contactors

		CL00A310**, CL00D310**, LAR00A*, LDR00A*	CL01A310**, CL01D310**, LAR01A*, LDR01A*	CL02A310**, CL02D310**, LAR02A*, LDR02A*	CL25A310**, CL25D310**, LAR25A*, LDR25A*	CL04A310**, CL04D310**, LAR04A*, LDR04A*	CL45A310**, CL45D310**, LAR45A*, LDR45A*	
Main Contacts								
Continuous Amp Rating (UL508)		25	25	32	32	54	55	
AC-1 Amps (IEC 947)		25	25	32	45	60	60	
AC-2/AC3 FLA (max)	200 Volts	10	13.8	17.5	22	32	34	
	460 Volts	10	13.8	17.5	22	32	34	
	575 Volts	10	13.8	17.5	17.5	32	27	
AC-2/AC-3 HP(max) 1 Phase	115 Volts	0.5	0.75	1	1.5	2	3	
	230 Volts	1.5	2	3	3	5	5	
AC-2/AC-3 HP(max) 3 Phase	200 Volts	3	3	5	5	10	10	
	230 Volts	3	3	5	7.5	10	10	
	460 Volts	5	7.5	10	15	20	25	
	575 Volts	7.5	10	15	15	25	25	
AC2/3 kW	380/400 Volts	4	5.5	7.5	11	16	18.5	
AC2/3 Amps IEC 947	380/400 Volts	9	12	18	25	32	40	
AC-4 HP (max) 3 Phase	200 Volts	3	3	5	5	10	10	
	230 Volts	3	3	5	7.5	10	10	
	460 Volts	5	7.5	10	15	20	25	
	575 Volts	7.5	10	15	15	25	25	
Maximum Operational Current 460V and below	AC-1 < 300 ops/hour	25	25	32	32	54	55	
	AC-1 < 600 ops/hour	25	25	32	32	54	55	
	AC-1 < 1200 ops/hour	25	25	32	32	54	55	
	AC-1 3000 ops/hour	12.5	12.5	16	16	27	27.5	
	AC-3 < 300 ops/hour	10	13.8	17.5	22	32	34	
	AC-3 < 600 ops/hour	10	13.8	17.5	22	32	34	
	AC-3 < 1200 ops/hour	10	13.8	17.5	22	32	34	
	AC-3 3000 ops/hour	3.5	4.8	6.1	7.7	11.2	11.9	
	AC-4 200 ops/hour max	10	13.8	17.5	22	32	34	
	AC-4 300 ops/hour max	10	13.8	17.5	22	32	34	
	AC-4 360 ops/hour max	10	13.8	17.5	22	32	34	
	Wire size - Power Terminals 75C(Cu)		14-10 AWG	14-10 AWG	14-10 AWG	14-10 AWG	14-10 AWG	14-10 AWG
	Torque (Main) in.-lb.		15	15	15	20	16	16
Terminal Type		Clamp	Clamp	Clamp	Clamp	Clamp	Clamp	
Terminal Hole (Contactor Bar)	Diameter	-	-	-	-	-	-	
	Bolt Size	-	-	-	-	-	-	
Noise	dba	25	25	25	25	25	35	
Coil and Switching Data Coil Burden	Inrush (AC Voltage)	45 va	45 va	45 va	45 va	88 va	88 va	
	Holding (AC Voltage)	6 va	6 va	6 va	6 va	9 va	9 va	
	Inrush (DC Voltage)	5.5 w	5.5 w	5.5 w	5.5 w	7.5 w	7.5 w	
	Holding (DC Voltage)	5.5 w	5.5 w	5.5 w	5.5 w	7.5 w	7.5 w	
	Inrush (AC/DC Module)							
	Holding (AC/DC Module)							
Pick-up (% coil voltage)	AC Voltage	85-110	85-110	85-110	85-110	85-110	85-110	
	DC Voltage	80-110	80-110	80-110	80-110	80-110	80-110	
	AC/DC Module	-	-	-	-	-	-	
Drop-out (% coil voltage)	AC Voltage	40-55	40-55	40-55	40-55	40.55	40.55	
	DC Voltage	20-40	20-40	20-40	20-40	15-30	15-30	
	AC/DC Module	-	-	-	-	-	-	
Switching Delay ON (ms)	AC Voltage (at rated voltage)	8-20	8-20	8-20	8-20	10-19	10-19	
	AC Voltage (at +10% to -20%)	6-25	6-25	6-25	6-25	7-25	7-25	
	DC Voltage (at rated voltage)	40-50	40-50	40-50	40-50	40-65	40-65	
	DC Voltage (at +10% to -20%)	35-65	35-65	35-65	35-65	35-70	35-70	
	AC/DC Module (at rated voltage)	-	-	-	-	-	-	
	AC/DC Module (at +10% to -20%)	-	-	-	-	-	-	
Switching Delay OFF (ms)	AC Voltage (at rated voltage)	6-13	6-13	6-13	6-13	5-25	5-25	
	AC Voltage (at +10% to -20%)	6-13	6-13	6-13	6-13	5-25	5-25	
	DC Voltage (at rated voltage)	30-60	30-60	30-60	30-60	40-65	40-65	
	DC Voltage (at +10% to -20%)	30-60	30-60	30-60	30-60	40-65	40-65	
	AC/DC Module (at rated voltage)	-	-	-	-	-	-	
	AC/DC Module (at +10% to -20%)	-	-	-	-	-	-	
Maximum Operations per Hour	AC Voltage (No Load)	9000	9000	9000	9000	9000	9000	
	AC Voltage (Rated Load -AC1, AC3)	1200	1200	1200	1200	1200	1200	
	AC Voltage (Rated Load -AC4)	360	360	360	360	360	360	
	DC Voltage (No Load)	3600	3600	3600	3600	3600	3600	
	DC Voltage (Rated Load -AC1, AC3)	1200	1200	1200	1200	1200	1200	
	DC Voltage (Rated Load -AC4)	360	360	360	360	360	360	
	AC/DC(Module) Voltage (No Load)	-	-	-	-	-	-	
	AC/DC(Module) Module (Rated Load -AC1, AC3)	-	-	-	-	-	-	
	AC/DC(Module) Module (Rated Load -AC4)	-	-	-	-	-	-	
			-	-	-	-	-	
Mechanical Life (millions of Operations)		20	20	20	20	20	20	
Aux. Contacts Std Product	Rating A600, Q300	1NO (Built-in)	1NO (Built-in)	1NO (Built-in)	1NO Front	1NO (Built-in)	1NO Front	
Aux. Contacts	Maximum Number of Aux. Contacts	4	4	4	4	6	6	
	Maximum Aux. Block Configuration	4 front or 1 side-mount each side	4 front or 1 side-mount each side	4 front or 1 side-mount each side	4 front or 1 side-mount each side	4 front plus 1 side or 2 front plus 1 side mount each side	4 front plus 1 side or 2 front plus 1 side mount each side	



IEC Power Devices

IEC Contactors Technical Data

C-2000

Section 5

CL/CK Contactors

		CL06A311**, CL06E311**, LAR06A*, LER06A*	CL07A311**, CL07E311**, LAR07A*, LER07A*	CL08A311**, CL08E311**, LAR08A*, LER08A*	CL09A311**, CL09E311**, LAR09A*, LER09A*	CL10A311**, CL10E311**, LAR10A*, LER10A*	CK75CE311*, KAR75C*
Main Contacts							
Continuous Amp Rating (UL508)		80	100	110(O),102(E)	140(O),120(E)	140(O),120(E)	150
AC-1 Amps (IEC 947)		80	100	110	140	140	200
AC-2/AC3 FLA (max)	200 Volts	48	62	68	80	104	140
	460 Volts	48	62	68	80	96	140
	575 Volts	48	62	68	80	80	140
AC-2/AC-3 HP(max) 1 Phase	115 Volts	3	3	5	7.5	10	10
	230 Volts	7.5	7.5	15	15	20	25
AC-2/AC-3 HP(max) 3 Phase	200 Volts	15	20	20	25	30	40
	230 Volts	15	20	25	30	40	50
	460 Volts	30	40	50	60	75	100
	575 Volts	40	50	60	75	75	125
AC2/3 kW	380/400 Volts	22	30	37	45	55	75
AC2/3 Amps IEC 947	380/400 Volts	50	65	80	95	105	150
AC-4 HP (max) 3 Phase	200 Volts	15	20	20	25	30	40
	230 Volts	15	20	25	30	40	50
	460 Volts	30	40	50	60	75	100
	575 Volts	40	50	60	75	75	125
Maximum Operational Current 460V and below	AC-1 < 300 ops/hour	80	100	110			
	AC-1 < 600 ops/hour	80	100	110	120	140(O), 120(E)	150
	AC-1 < 1200 ops/hour	80	100	110	96	112(O), 96(E)	125
	AC-1 3000 ops/hour	40	50	55	48	56(O), 48(E)	50
	AC-3 < 300 ops/hour	48	62	68			
	AC-3 < 600 ops/hour	48	62	68	80	96	140
	AC-3 < 1200 ops/hour	48	62	68	60	72	100
	AC-3 3000 ops/hour	16.8	21.7	23.8	20	24	30
	AC-4 200 ops/hour max	48	62	68	80	96	140
	AC-4 300 ops/hour max	48	62	68	-	-	-
	AC-4 360 ops/hour max	48	62	68	-	-	-
	Wire size - Power Terminals 75C(Cu)		14-10 AWG	14-10 AWG	14-10 AWG	10-2/0 AWG	10-2/0 AWG
Torque (Main) in.-lb.		40	40	40	60	60	275
Terminal Type		Box Lug	Box Lug	Box Lug	Box Lug	Box Lug	Optional Lug CKX03
Terminal Hole (Contactor Bar)	Diameter	-	-	-	-	-	0.32
	Bolt Size	-	-	-	-	-	M-8
Noise	dba	45	45	45	45	45	45
Coil and Switching Data Coil Burden	Inrush (AC Voltage)	191 va	191 va	191 va	191 va	191 va	
	Holding (AC Voltage)	17 va	17 va	17 va	17 va	17 va	
	Inrush (DC Voltage)						
	Holding (DC Voltage)						
	Inrush (AC/DC Module)	125 w	125 w	125 w	125 w	125 w	230 va
	Holding (AC/DC Module)	2.5 w	2.5 w	2.5 w	2.5 w	2.5 w	2.8 va
Pick-up (% coil voltage)	AC Voltage	85-110	85-110	85-110	85-110	85-110	
	DC Voltage	-	-	-	-	-	-
	AC/DC Module	80-110	80-110	80-110	80-110	80-110	80-110
Drop-out (% coil voltage)	AC Voltage	40-60	40-60	40-60	40-60	40-60	
	DC Voltage	-	-	-	-	-	-
	AC/DC Module	40-60	40-60	40-60	40-60	40-60	40-60
Switching Delay ON (ms)	AC Voltage (at rated voltage)	15-30	15-30	15-30	15-30	15-30	
	AC Voltage (at +10% to -20%)	9-35	9-35	9-35	9-35	9-35	
	DC Voltage (at rated voltage)	-	-	-	-	-	-
	DC Voltage (at +10% to -20%)	-	-	-	-	-	-
	AC/DC Module (at rated voltage)	50-60	50-60	50-60	55-60	55-60	60-70
	AC/DC Module (at +10% to -20%)	60-80	60-80	60-80	40-50	40-50	-
Switching Delay OFF (ms)	AC Voltage (at rated voltage)	9-15	9-15	9-15	9-15	9-15	
	AC Voltage (at +10% to -20%)	9-15	9-15	9-15	9-15	9-15	
	DC Voltage (at rated voltage)	55-60	-	-	-	-	-
	DC Voltage (at +10% to -20%)	40-50	-	-	-	-	-
	AC/DC Module (at rated voltage)	55-60	55-60	55-60	55-60	55-60	13-17
	AC/DC Module (at +10% to -20%)	40-50	40-50	40-50	40-50	40-50	-
Maximum Operations per Hour	AC Voltage (No Load)	9000	9000	9000	5000	5000	-
	AC Voltage (Rated Load -AC1, AC3)	1200	1200	1200	1200	1200	-
	AC Voltage (Rated Load -AC4)	200	200	200	200	200	-
	DC Voltage (No Load)	-	-	-	-	-	-
	DC Voltage (Rated Load -AC1, AC3)	-	-	-	-	-	-
	DC Voltage (Rated Load -AC4)	-	-	-	-	-	-
	AC/DC(Module) Voltage (No Load)	2500	2500	2500	2500	2500	1200
	AC/DC(Module) Module (Rated Load -AC1, AC3)	1200	1200	1200	1200	1200	600
	AC/DC(Module) Module (Rated Load -AC4)	200	200	200	200	200	150
			15	15	15	15	15
Mechanical Life (millions of Operations)	Rating A600, Q300	1N0, 1NC Front	1N0, 1NC Front	1N0, 1NC Front	1N0, 1NC Front	1N0, 1NC Front	1N0, 1NC Side
	Maximum Number of Aux. Contacts	8	8	8	8	8	8
	Maximum Aux. Block Configuration	6 front plus 1 side mount or 2 side mount each side	6 front plus 1 side mount or 2 side mount each side	6 front plus 1 side mount or 2 side mount each side	6 front plus 1 side mount or 2 side mount each side	6 front plus 1 side mount or 2 side mount each side	2 side mount each side



IEC Power Devices

IEC Contactors Technical Data

C-2000

CL/CK Contactors

		CK08CE311*, KAR08C*	CK09BE311*, KAR09B*	CK95BE311*, KAR95B*	CK10CE311*, KAR10C*	CK11CE311*, KAR11C*	CK12BE311*, KAR12B*	
Main Contacts								
Continuous Amp Rating (UL508)		175	200	310	500	600	750 (O), 650(E)	
AC-1 Amps (IEC 947)		250	315	500	600	700	1000	
AC-2/AC3 FLA (max)	200 Volts	156	192	302	398	480	602	
	460 Volts	156	192	302	398	480	602	
	575 Volts	156	192	302	398	480	602	
AC-2/AC-3 HP(max) 1 Phase	115 Volts	15						
	230 Volts	30						
AC-2/AC-3 HP(max) 3 Phase	200 Volts	50	60	100	125	150	200	
	230 Volts	60	75	100	150	200	250	
	460 Volts	125	150	250	300	400	500	
	575 Volts	150	150	300	400	500	600	
AC2/3 kW	380/400 Volts	90	132	160	220	280	375	
AC2/3 Amps IEC 947	380/400 Volts	185	250	310	420	550	700	
AC-4 HP (max) 3 Phase	200 Volts	50	60	100	125	150	200	
	230 Volts	60	75	100	150	200	250	
	460 Volts	125	150	250	300	400	500	
	575 Volts	150	150	250	400	500	600	
Maximum Operational Current 460V and below	AC-1 < 300 ops/hour				500	600	810	
	AC-1 < 600 ops/hour	175	200	310	400	500	648	
	AC-1 < 1200 ops/hour	140	160	250	-	-	-	
	AC-1 3000 ops/hour	70	80	120	-	-	-	
	AC-3 < 300 ops/hour				398	480	602	
	AC-3 < 600 ops/hour	156	192	302	299	360	452	
	AC-3 < 1200 ops/hour	115	144	227	-	-	-	
	AC-3 3000 ops/hour	39	48	76	-	-	-	
	AC-4 200 ops/hour max	156	192	302	398	480	602	
	AC-4 300 ops/hour max	-	-	-	398	480	602	
	AC-4 360 ops/hour max	-	-	-	-	-	-	
	Wire size - Power Terminals 75C(Cu)		6 AWG - 250kcmil	6 AWG - 350kcmil	6 AWG - 350kcmil	2 AWG - 500kcmil ; 2/0 AWG - 600kcmil	2 AWG - 500kcmil ; 2/0 AWG - 600kcmil	2 AWG - 500kcmil ; 2/0 AWG - 600kcmil
	Torque (Main) in.-lb.		275	200	200	375	375	375
Terminal Type		Optional Lug CKX03	Optional Lug CKX02	Optional Lug CKX02	Optional Lug CKX01	Optional Lug CKX01	Optional Lug CKX01	
Terminal Hole (Contactor Bar)	Diameter	0.32	0.43	0.43	0.43	0.43	0.43	
	Bolt Size	M-8	M-10	M-10	M-10	M-10	M-10	
Noise	dba	45	45	45	45	45	45	
Coil and Switching Data Coil Burden	Inrush (AC Voltage)							
	Holding (AC Voltage)							
	Inrush (DC Voltage)							
	Holding (DC Voltage)							
	Inrush (AC/DC Module)	230 va	360 va	360 va	570 va	570 va	560 va	
	Holding (AC/DC Module)	2.8 va	5.3 va	5.3 va	8.8 va	8.8 va	6.7 va	
Pick-up (% coil voltage)	AC Voltage							
	DC Voltage	-	-	-	-	-	-	
	AC/DC Module	80-110	80-110	80-110	80-110	80-110	80-110	
Drop-out (% coil voltage)	AC Voltage							
	DC Voltage	-	-	-	-	-	-	
	AC/DC Module	40-60	40-60	40-60	40-60	40-60	40-60	
Switching Delay ON (ms)	AC Voltage (at rated voltage)	-	-	-	-	-	-	
	AC Voltage (at +10% to -20%)	-	-	-	-	-	-	
	DC Voltage (at rated voltage)	-	-	-	-	-	-	
	DC Voltage (at +10% to -20%)	-	-	-	-	-	-	
	AC/DC Module (at rated voltage)	60-70	60-70	60-70	110-115	110-115	70-80	
	AC/DC Module (at +10% to -20%)	-	-	-	-	-	-	
Switching Delay OFF (ms)	AC Voltage (at rated voltage)	-	-	-	-	-	-	
	AC Voltage (at +10% to -20%)	-	-	-	-	-	-	
	DC Voltage (at rated voltage)	-	-	-	-	-	-	
	DC Voltage (at +10% to -20%)	-	-	-	-	-	-	
	AC/DC Module (at rated voltage)	13-17	13-17	13-17	70-80	70-80	70-80	
	AC/DC Module (at +10% to -20%)	-	-	-	-	-	-	
Maximum Operations per Hour	AC Voltage (No Load)	-	-	-	-	-	-	
	AC Voltage (Rated Load -AC1, AC3)	-	-	-	-	-	-	
	AC Voltage (Rated Load -AC4)	-	-	-	-	-	-	
	DC Voltage (No Load)	-	-	-	-	-	-	
	DC Voltage (Rated Load -AC1, AC3)	-	-	-	-	-	-	
	DC Voltage (Rated Load -AC4)	-	-	-	-	-	-	
	AC/DC(Module) Voltage (No Load)	1200	1200	1200	900	900	900	
	AC/DC(Module) Module (Rated Load -AC1, AC3)	600	600	600	300	300	300	
	AC/DC(Module) Module (Rated Load -AC4)	150	150	150	120	120	120	
	Mechanical Life (millions of Operations)		10	10	10	10	10	
Aux. Contacts Std Product	Rating A600, Q300	1NO,1NC Side	1NO,1NC Side	1NO,1NC Side	1NO,1NC Side	1NO,1NC Side	1NO,1NC Side	
Aux. Contacts	Maximum Number of Aux. Contacts	8	8	8	8	8	8	
	Maximum Aux. Block Configuration	2 side mount each side	2 side mount each side	2 side mount each side	2 side mount each side	2 side mount each side	2 side mount each side	



IEC Power Devices

IEC Overload Relays Technical Data

C-2000

Section 5

RT Overload Relays

	RT1	RT2	RT3	RT4 Suffix K-M	RT4 Suffix N-R	RT5
Trip Class	10/20	10/20	10/20	10/30	10/30	10/30
Contact Size	CL00	CL06	CK75	CK09	CK09	CK10
	CL01	CL07	CK08	CK95	CK95	CK11
	CL02	CL08				CK12
	CL25	CL09				
	CL04	CL10				
	CL45					
Rated Insulation Voltage	690V	1000V	1000V	1000V	1000V	1000V
Frequency Limits	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz
Terminal Capacity	14-8 AWG	14-1/0 AWG	6 AWG-250kcmil	14-2/0 AWG	6 AWG-350kcmil	8 AWG-500 kcmil 2/0 AWG-600 kcmil
Terminal Type	Clamp	Box	Optional Lug CKX03	Box	Optional Lug CKX02	Optional Lug CKXC01
Torque (in.-lb.)	24-14	50	275	105	200	375
Auxiliary Contact 1NO-1NC	B660/Q600	B660/Q600	B660/Q600	B660/Q600	B660/Q600	B660/Q600
Terminal Capacity	22-12 AWG	22-12 AWG	22-12 AWG	22-12 AWG	22-12 AWG	22-12 AWG
Terminal Torque (lb.-in.)	7-12 AWG solid or stranded 75°C copper wire	7-12 AWG solid or stranded 75°C copper wire	7-12 AWG solid or stranded 75°C copper wire	7-12 AWG solid or stranded 75°C copper wire	7-12 AWG solid or stranded 75°C copper wire	7-12 AWG solid or stranded 75°C copper wire



IEC Power Devices

IEC Contactors Accessories Technical Data

C-2000

Electronic Timer and Interface Modules
Wiring Diagrams/Operation Characteristics

Standards

- UL508, UL listed
- cUL listed
- IEC 60947-1, 60947-5-1
- CE Marked, EMC and LV Directives

Ambient Temperature

Operating	-13°F to 140°F
Storage	-40°F to 176°F

Relative Humidity

—95% without condensation

Wire Size/Torque

14-10 AWG, Cu wire
60°-75°C/Torque 7 lbs./in.

Voltage Input

IMRD	17-30 Vdc
------	-----------

Switching Rate (200 VA @ 50% PF)

—1000 ops/hr

Minimum Pulse BETL *D

—40ms

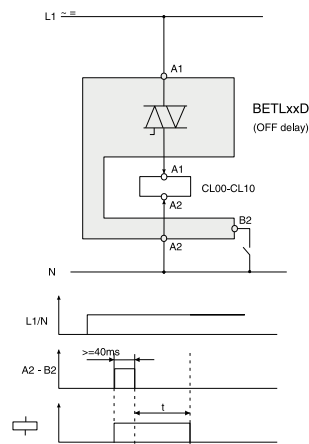
Electrical Endurance (200 VA @ 50% PF)

BETL*	15 million operations
IMR*	3 million operations

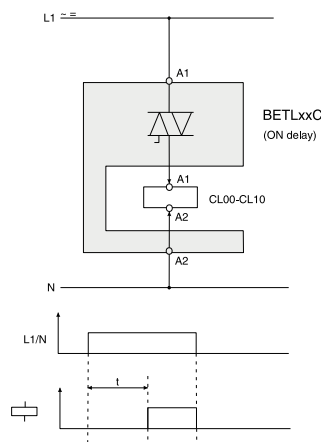
Reference Publications

Instructions

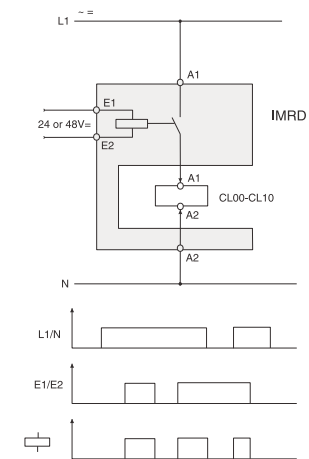
Interface Modules (IMR*)	DEH-174
Surge Suppressors (IMRC*, IMV*)	DEH-175
Timers (BETL*)	DEH-175



Time Delay Off



Time Delay On



Interface Module Relay Type



Utilization Categories

Utilization categories are used to describe the type of motor load and duty cycle. Each category has a unique life/load curve which is used to estimate expected electrical life of a specific controller.

Following are descriptions of the most common ac utilization categories:

Utilization Category	Description
AC-1	Noninductive or slightly inductive loads, such as resistance furnaces.
AC-2	Starting of slip-ring motors without plugging.
AC-3	Starting and stopping of squirrel-cage motors. This utilization category is typical of the standard type of motor duty encountered in most industrial applications.
AC-4	Starting of squirrel-cage motors in inching, plugging, and reversing applications.

Life Curves . . . how to use

To determine estimated electrical life for a specific contactor, follow these guidelines:

1. Determine appropriate utilization category. The illustrations below show typical life curves for C-2000 contactors, which will operate the AC-1 utilization categories. AC-2, AC-3, AC-4, and AC-3/AC-4 (mixed-duty) life curves are shown on pages 5-79, 5-80.
2. Once the appropriate utilization category has been determined, then using the appropriate curve, it is easy to determine the expected contactor's life by reading the figure (in millions of operations) to the left of the intersection of the rated operating current and the contactor curve.

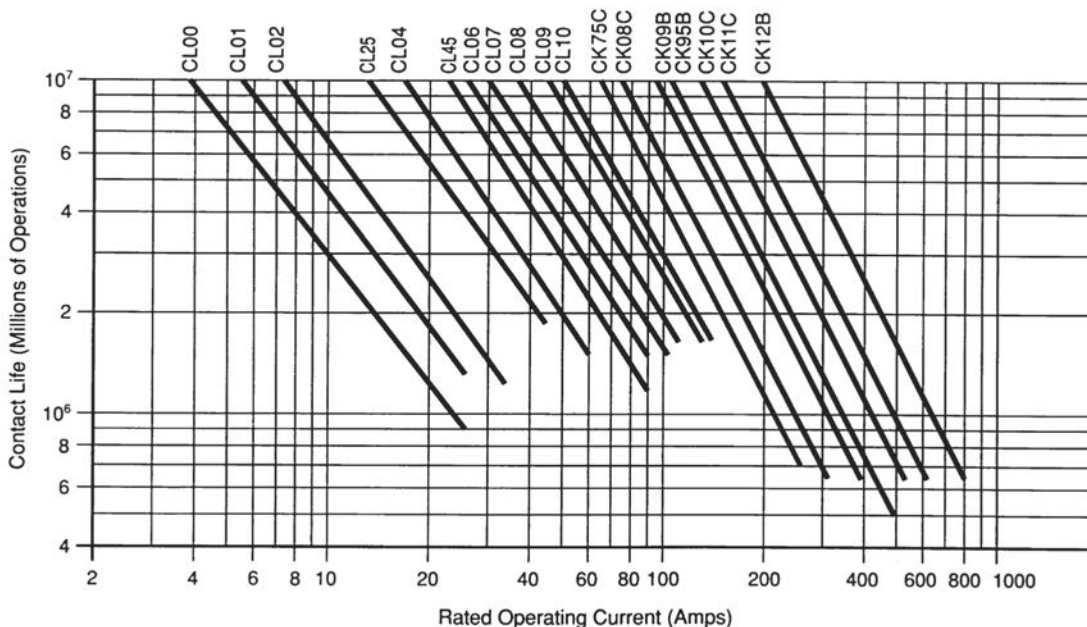
Example: Using a motor duty cycle of starting and stopping (standard) for a three-phase squirrel-cage motor rated 15 horsepower at 460 V with an operating current of 19.6 amperes, choose utilization curve AC-3 and take the following action:

- A. Locate rated operating current on bottom (horizontal) scale and draw a vertical line to intersect the first heavy line which will indicate contactor size. In this example, the drawn vertical line for 19.6 amperes will intersect the CL25 contactor line.
- B. Reading the vertical scale to the left of the intersection point denotes an expected life of approximately 3 million operations for the selected size of contactor (CL25).
- C. If greater contactor life is required, continue the drawn vertical line to intersect with a larger size contactor line.

Caution note: Do not apply a contactor for use on a motor which has greater horsepower rating than shown in the Data Summary table on pages 5-73 through 5-75.

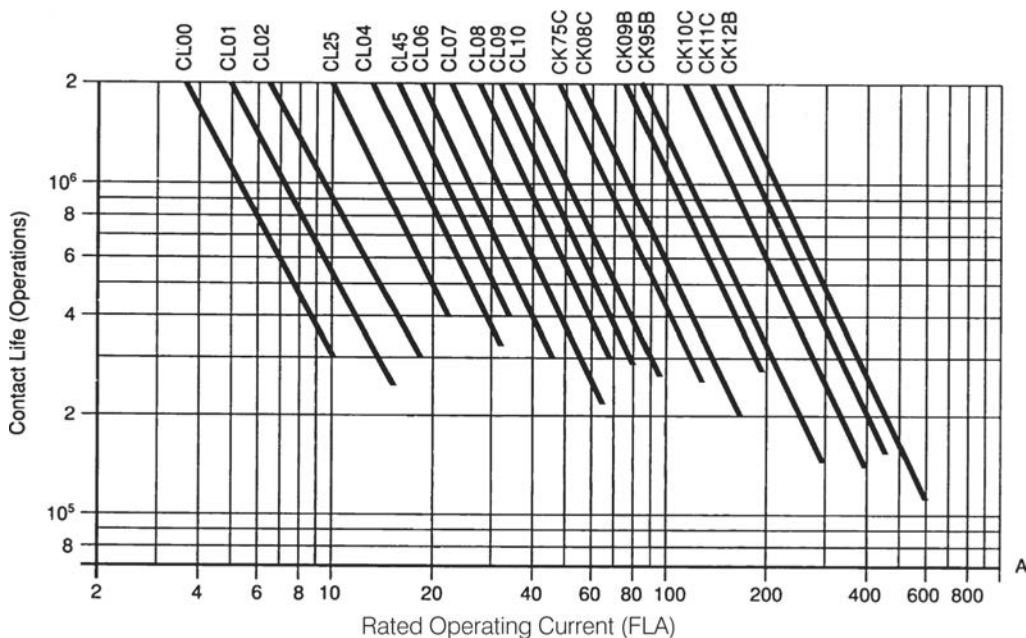
Life Curves

AC-1: Noninductive, or lightly inductive loads, e.g., resistance furnaces



IEC Power Devices IEC Contactors Lifetime Curves C-2000

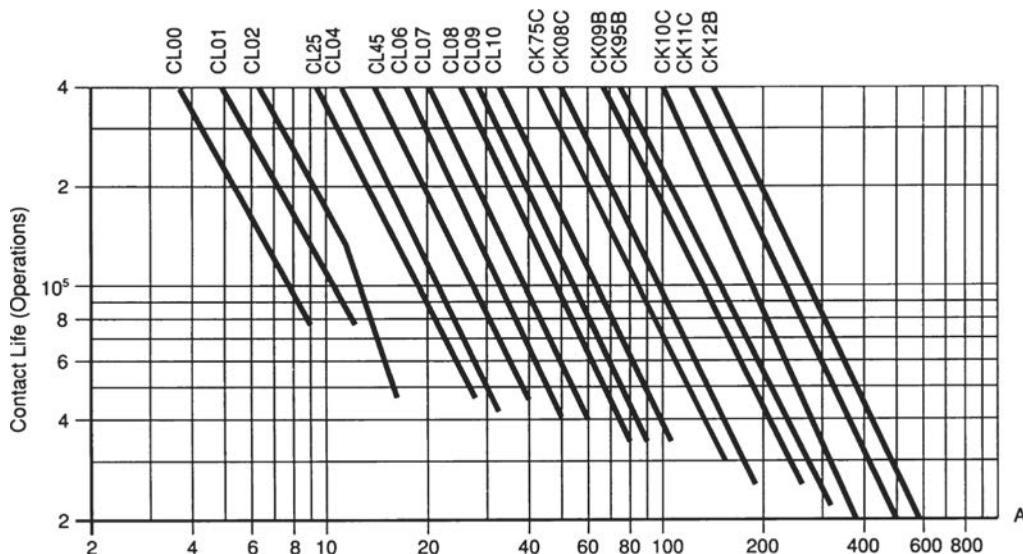
AC-2: Starting of Slip-Ring Motors Without Plugging



AC-3: Interruption of Running Squirrel-Cage Motors

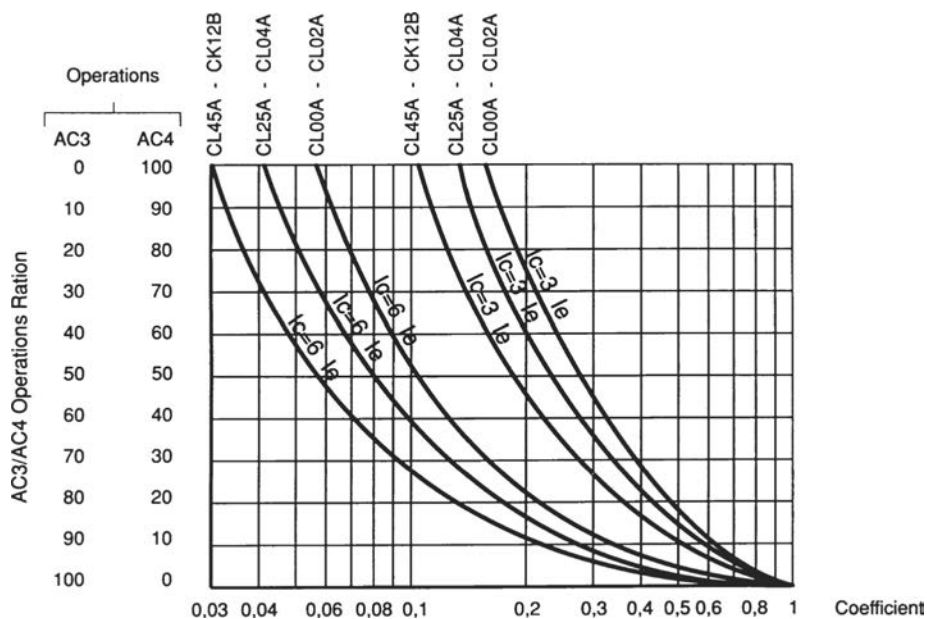


AC-4: Inching (Jogging) of Squirrel-Cage Motors



AC-3/AC-4: Mixed-Duty with Squirrel-Cage Motors

To calculate mixed AC-3/AC-4 life: Find the ratio of AC-3/AC-4 operations on the left side, read across to the appropriate curve for the contactor and breaking current expected (3 times FLA or 6 times FLA). Then read corresponding coefficient from the bottom of the curve. The product of this coefficient and the AC-3 life from the previous page is the expected life under mixed AC-3/AC-4 conditions.



IEC Power Devices

IEC Contactors Application Ratings-DC

C-2000

C-2000 Controls can be used as DC contactors in many industrial applications. These include: DC load banks, loop contactors and dynamic braking contactors in adjustable speed DC drives and other special motor control applications. Contact the motor manufacturer as to the starting requirements of a particular motor. Only small motors can be started at full voltage. Medium and large-sized DC motors require resistance in series with armature during acceleration when connected to a constant potential DC system.

AC contactors are conditionally suitable for switching DC. The switching capacity for DC, using AC contactors, is decreased as the voltage increases, and also as inductance is added to the circuit.

Utilization Categories have been assigned to the more popular loads where contactors are required. They include:

DC-1

DC-1 applications involve switching noninductive loads such as resistive load banks.

DC-2

DC-2 applications involve starting and switching off shunt wound DC motors. Shunt wound DC motors are those most frequently used in adjustable voltage, adjustable speed DC drives. Even DC motors with permanent magnet fields are usually considered to be shunt wound.

DC-3

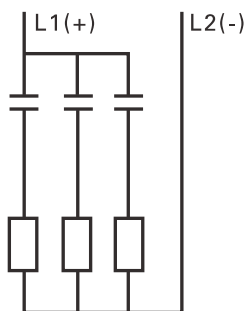
DC-3 applications involve starting, stopping, plugging and jogging shunt wound DC motors. Jogging is an inexpensive and frequently ordered DC drive modification. Care must be taken to determine when jogging is required, since it is more severe than duties covered by category DC-2.

DC-4 and DC-5

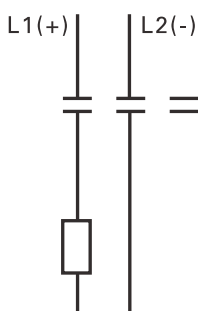
DC-4 and DC-5 applications cover use with series wound, traction-type DC motors. Traction motor requirements are application intensive and should involve factory review.

Ratings for DC Applications (AMPS)

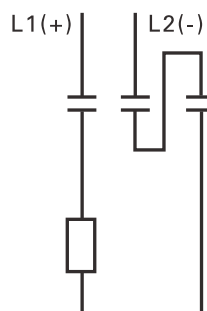
Rated Voltage Ue	DC-1 (LR ≤ 15 ms)												DC-3 (LR ≤ 2.5 ms)												DC-5 (LR ≤ 15 ms)														
	24V				125V				220V				440V				24V				125V				220V				440V										
Poles in Series	1	2	3	4	1	2	3	4	2	3	4	3	4	1	2	3	4	2	3	4	3	4	1	2	3	4	1	2	3	4	2	3	4	3	4				
CL00	18	25	25	—	6	18	25	—	7.5	25	—	8	—	12	18	18	—	2	10	15	—	2	12	—	1.5	—	12	18	18	—	0.8	5	15	—	0.8	3	—	0.5	—
CL01	18	25	25	25	6	18	25	25	7.5	25	25	8	15	12	18	18	18	2	10	15	—	12	15	6	1.5	6	12	18	18	18	0.8	5	15	15	0.8	3	10	0.5	2
CL02	18	32	32	32	6	18	25	32	7.5	25	32	8	15	12	18	18	18	2	12	18	18	2	12	18	1.5	6	12	18	18	0.8	5	15	18	0.8	3	10	0.5	2	
CL25	25	45	45	—	8	25	32	—	8	32	—	10	—	18	25	25	—	2	18	25	—	2	18	—	1.5	—	18	25	25	—	0.8	5	20	—	0.8	3	—	0.5	—
CL04	32	60	60	60	8	45	60	60	8	50	60	10	25	25	40	40	40	3	25	32	32	2	25	32	3	6	25	40	40	32	1.2	5	25	32	0.8	3	15	0.7	4
CL45	40	60	60	—	8	45	60	—	8	50	—	10	—	32	40	40	—	3	32	40	—	2	32	—	3	—	32	40	40	—	1.2	5	32	—	0.8	3	—	0.7	—
CL06	50	90	90	—	16	80	90	—	20	90	—	15	—	40	65	65	—	3	50	65	—	7	50	—	3	—	40	65	65	—	1.2	50	60	—	3	7	—	1	—
CL07	65	110	110	110	16	90	110	110	20	110	110	15	90	50	80	80	80	3	60	80	80	7	65	80	3	65	50	80	80	80	1.2	60	70	80	3	7	75	1	50
CL08	65	110	110	—	16	90	110	—	20	110	—	15	—	50	80	80	—	3	60	80	—	7	65	—	3	—	50	80	80	—	1.2	60	70	—	3	7	—	1	—
CL09	80	140	140	140	16	110	140	140	20	140	140	15	110	65	105	105	105	3	80	105	105	7	95	150	3	75	65	105	105	105	1.2	85	95	105	4	7	95	1	60
CL10	80	140	140	—	16	110	140	—	20	140	—	15	—	65	105	105	—	3	80	105	—	7	95	—	3	—	65	105	105	—	1.2	85	95	—	4	7	—	1	—
CK75	200	250	250	—	25	200	250	—	110	250	250	120	—	150	150	150	—	25	150	150	—	60	150	—	50	—	150	150	150	—	20	95	150	—	50	95	—	40	—
CK08	200	250	250	250	25	200	250	250	110	250	250	120	200	185	185	185	185	25	185	185	185	70	185	185	55	105	185	185	185	185	20	105	185	185	55	105	185	40	95
CK09	250	315	315	315	30	250	315	315	150	315	315	150	250	250	250	250	250	30	250	250	250	85	250	250	70	185	250	250	250	25	185	250	250	70	185	250	50	150	
CK95	350	450	450	450	50	300	500	500	200	500	500	180	315	309	309	309	309	50	309	309	309	95	309	309	80	205	309	309	309	40	205	309	309	80	205	309	60	185	
CK10	500	600	600	600	60	400	600	600	250	600	600	240	400	420	420	420	420	60	420	420	420	140	420	420	120	250	420	420	420	50	250	420	420	120	250	420	90	205	
CK11	600	700	700	700	70	500	700	700	250	700	700	300	500	550	550	550	550	70	550	550	550	185	550	550	150	300	550	550	550	60	300	550	550	150	300	500	100	250	
CK12	800	1000	1000	1000	100	600	1000	1000	300	1000	1000	400	700	700	700	700	700	100	700	700	700	225	700	700	180	400	700	700	700	80	400	700	700	180	400	700	100	300	



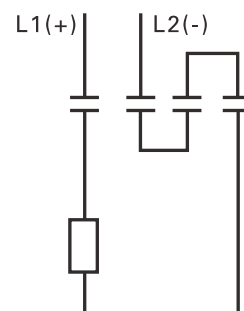
Single-pole operation



Two poles in series



Three poles in series



Four poles in series



IEC Power Devices

IEC Contactors Application Ratings-AC

C-2000

Section 5

Maximum Three-Phase KVAR Rating for Switching Capacitors

Product Number	10,000 Amp RMS				22,000 Amp RMS			
	Maximum Available Fault Current				Maximum Available Fault Current			
	200V	230V	460V	575V	200V	230V	460V	575V
CL00	3	3	5	5.7	1.5	1.5	2.5	2.8
CL01	4.5	4.5	9.5	11	2.2	2.2	4.5	5.5
CL02	6.5	6.5	11	12.5	3.2	3.2	5.5	6.2
CL25	9	9	15	17.5	4.5	4.5	7.5	8.2
CL04	12.5	12.5	21	24	6.2	6.2	10.5	12
CL45	17	17	30	35	8.5	8.5	15	17.5
CL06	22	22	40	50	11	11	20	25
CL07	25	25	45	65	12.5	12.5	22.5	32.5
CL08	30	30	50	70	15	15	25	35
CL09	40	40	65	95	20	20	32.5	47.5
CL10	50	50	80	120	25	25	40	60
CK75	60	60	100	150	60	60	100	150
CK08	70	70	130	175	70	70	130	175
CK09	95	95	165	230	95	95	165	230
CK95	105	105	190	288	105	105	190	288
CK10	135	135	260	370	135	135	260	370
CK11	190	190	325	450	190	190	325	450
CK12	250	250	400	600	250	250	400	600

Utilization in Category AC-1, General Use

3-Pole Contactors			CL Contactors										CK Contactors							
			00	01	02	25	04	45	06	07	08	09	10	75	08	09	95	10	11	12
Max. operational																				
current at ambient	40°C	A	25	25	32	32	54	55	80	100	102	120	120	150	175	200	310	500	600	650
temperature of:	55°C	A	25	25	32	32	54	55	80	100	102	120	120	150	175	200	310	425	510	546
(for all voltages)	70°C	A	20	20	25	25	41	44	62	78	81	80	80	130	155	175	270	335	432	468

4-Pole Contactors			CL Contactors							CK Contactors						
			01	02	03	04	06	07	08	09	08	09	95	10	11	12
Max. operational																
current at ambient	40°C	A	25	32	40	54	70	100	110	120	175	200	310	500	550	650
temperature of:	55°C	A	25	32	40	54	70	100	110	120	175	200	310	425	462	543
(for all voltages)	70°C	A	20	25	28	41	52	78	88	80	155	175	270	335	462	468

UL/cUL Elevator Duty Rating

Product Number	Max Hp (1-phase)				Max Hp (3-phase)		
	Maximum FLA	115 Volts HP (A)	230 Volts HP (A)	200 Volts HP (A)	230 Volts HP (A)	480 Volts HP (A)	
CL00	7.8	0.33 (7.2)	0.75 (6.9)	2 (7.8)	2 (6.8)	5 (7.6)	
CL01	11	0.5 (9.8)	1.5 (10)	3 (11)	3 (9.6)	7.5 (11)	
CL02	15.2	0.75 (13.8)	2 (12)	3 (11)	3 (15.2)	10 (14)	
CL25	22	1.5 (20)	3 (17)	5 (17.5)	7.5 (22)	15 (21)	
CL04	27	2 (24)	3 (17)	7.5 (25)	7.5 (22)	20 (27)	
CL06	34	3 (34)	5 (28)	10 (32)	10 (28)	25 (34)	
CL07	42	3 (34)	7.5 (40)	10 (32)	15 (42)	30 (40)	
CL08	56	5(56)	10 (50)	15 (48)	20 (54)	40 (52)	
CL09	65	5 (56)	10 (50)	20 (62)	20 (54)	50 (65)	



IEC Power Devices

IEC Contactors Application Ratings-KVA

C-2000

Section 5

Maximum KVA of Transformer for Primary Switching (50/60 Hz)

Product Number	Max. Peak Closing Current	Phase	Inrush = 20 x Normal					Inrush = 40 x Normal				
			120V	208V	240V	480V	600V	120V	208V	240V	480V	600V
CL00	450 Amps	1	0.6	1	1.2	1.7	2.1	0.3	0.5	0.6	0.8	1
CL00	450 Amps	3	1.1	1.9	2.2	3.1	3.8	0.5	0.9	1.1	1.5	1.9
CL01	450 Amps	1	0.8	1.4	1.7	2.4	3.0	0.4	0.7	0.8	1.2	1.5
CL01	450 Amps	3	1.5	2.6	3.0	4.2	5.2	0.7	1.3	1.5	2.1	2.6
CL02	450 Amps	1	1.2	2.0	2.5	3.5	4.4	0.6	1.0	1.2	1.7	2.2
CL02	450 Amps	3	2.2	3.8	4.5	6.3	7.7	1.1	1.9	2.2	3.1	3.8
CL25	550 Amps	1	1.8	3.1	3.7	5.2	6.4	0.9	1.5	1.8	2.6	3.2
CL25	550 Amps	3	3.2	5.5	6.5	9.1	11.2	1.6	2.7	3.2	4.5	5.6
CL04	550 Amps	1	2.2	3.8	4.5	6.3	7.8	1.1	1.9	2.2	3.1	3.9
CL04	550 Amps	3	4.0	7.0	8.0	11.2	13.7	2.0	3.5	4.0	5.6	6.8
CL45	550 Amps	1	2.8	4.8	5.7	8.0	9.7	1.4	2.4	2.8	4.0	4.8
CL45	550 Amps	3	5	8.6	10	14.0	17	2.5	4.3	5	7.0	8.5
CL06	1000 Amps	1	3.4	5.9	6.8	9.5	12	1.7	2.9	3.4	4.7	6
CL06	1000 Amps	3	6	10.4	12	16.8	21	3	5.2	6	8.4	10.5
CL07	1000 Amps	1	4.2	7.2	8.5	12	14.2	2.1	3.6	4.2	6.0	7.1
CL07	1000 Amps	3	7.5	13	15	21	25	3.7	6.5	7.5	10.5	12.5
CL08	1000 Amps	1	5.7	10	11.4	16	20	2.8	5.0	5.7	8.0	10
CL08	1000 Amps	3	10	17.3	20	28	35	5	8.6	10	14	16
CL09	1280 Amps	1	7.1	12.3	14.2	20	22.8	3.5	6.1	7.1	10	11.4
CL09	1280 Amps	3	12.5	21.6	25	35	40	6.2	10.8	12.5	17.5	20
CL10	1280 Amps	1	8.5	14.7	17.1	24	28.5	4.2	7.3	8.5	12	14.2
CL10	1280 Amps	3	15	26	30	42	50	7.5	13	15	21	25
CK75	1850 Amps	1	10	17.2	20	28	31.3	5	8.6	10	14	15.6
CK75	1850 Amps	3	17.5	30.3	35	49	55	8.75	15.1	17.5	24.5	27.5
CK08	1850 Amps	1	11.4	19.7	22.8	32	34.2	5.7	9.8	11.4	16	17.1
CK08	1850 Amps	3	20	34.6	40	56	60	10	17.3	20	28	30
CK09	2500 Amps	1	14.2	24.6	28.5	40	48.5	7.1	12.3	14.2	20	24.2
CK09	2500 Amps	3	25	43.3	50	70	85	12.5	21.6	25	35	42.5
CK95	3700 Amps	1	18.5	32.0	37.1	52	62.8	9.2	16.0	18.5	26	31.4
CK95	3700 Amps	3	32	55.4	65	91	110	16	27.7	32	45	55
CK10	7000 Amps	1	22.8	39.5	45.7	64	85.7	11.4	19.7	22.8	32	42.8
CK10	7000 Amps	3	40	69.3	80	112	150	20	34.6	40	56	75
CK11	7000 Amps	1	28.5	49.4	57.1	80	97.1	14.2	24.7	28.5	40	48.5
CK11	7000 Amps	3	50	86.6	100	140	170	25	43.3	50	70	85
CK12	8400 Amps	1	45.7	79.2	91.4	128	160	22.8	39.6	45.7	64	80
CK12	8400 Amps	3	80	138.6	160	224	280	40	69.3	80	112	140



IEC Power Devices IEC Contactors & Starters Type 2 Coordination C-2000

C-2000 contactors and starters have been tested and certified to meet IEC 947.4 Type 2 coordination when protected with the type “J” fuses shown in tables.

“Type 2 coordination requires that, under short-circuit conditions, the contactor or starter shall cause no danger to persons or installation and shall be suitable for further use. The risk of contact welding is recognized, in which case the manufacturer shall indicate the measures to be taken as regards the maintenance of the equipment.” (IEC 947.4)

Short Circuit Test Condition.....100,000 Amps (maximum)
Fuse TypeJ
Fuse Manufacturer Product Number or Type
Bussmann.....LPJ-SP
Gould Shawmut.....AJT

Note: Use of short circuit protective device not in compliance with the above manufacturer’s type may invalidate the coordination.

Type 2 - Maintenance Procedure, C-2000 Products

Before working on contactor/starter, make sure all electrical power is turned off, including the control voltage.

Step 1. Tighten down all terminals, on the CL00 thru CL45, (including 4th pole auxiliary contacts), securing them in place.

Step 2. Remove outer cover, with screwdriver:

CL Products: The cover has a snap fit design. Pry the ends of the cover loose from the contactor with screwdriver, releasing the snaps.

CK Products: The cover is held with two screws. Loosen the screws and remove.

Step 3. Remove inner cover, CL03 thru CL10 only, which is held by 2 or 4 screws. Loosen screws and remove.

Step 4. Examine contacts for welding. If a contact is welded, gently pry the contacts apart using a screwdriver.

Step 5. Reassemble by reversing the above procedure (Steps 4, 3, 2).

To ensure contactor is operating correctly, operate at least ten times with main power off. Confirm that all poles are correctly opening and closing with a continuity meter.

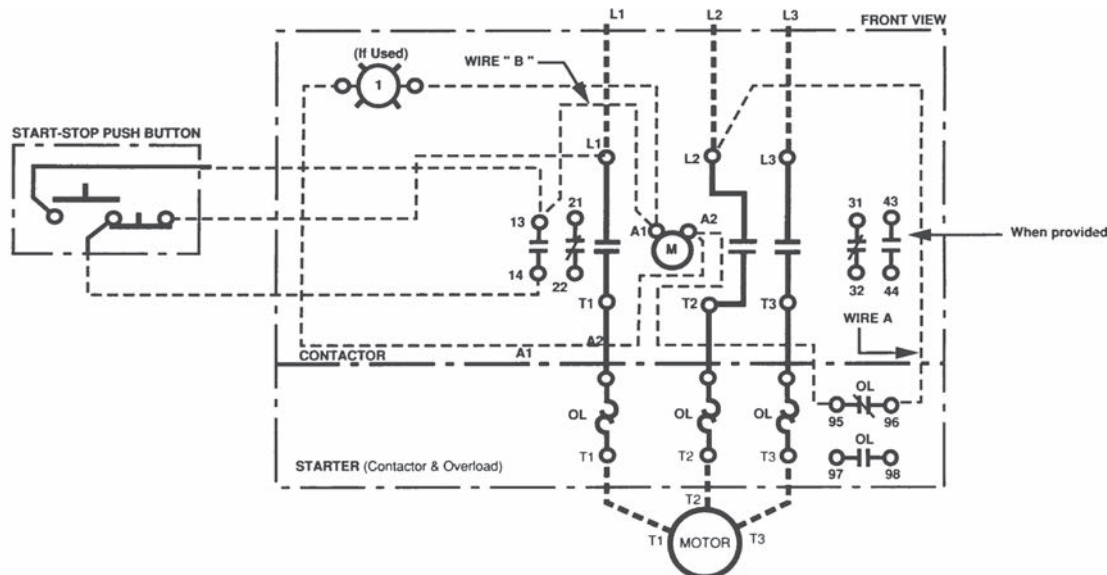
C-2000 Contactors

Product Type	Maximum Amps	Type LPJ-SP or AJT Maximum Fuse
CL00	10	25
CL01	13.8	35
CL02	17.5	40
CL25	22	45
CL03	25	60
CL04	32	60
CL45	34	70
CL05	42	90
CL06	48	100
CL07	62	125
CL08	68	125
CL09	80	150
CL10	104	200
CK08	156	300
CK09	192	400
CK95	302	450
CK10	398	800
CK11	480	900
CL12	602	1000

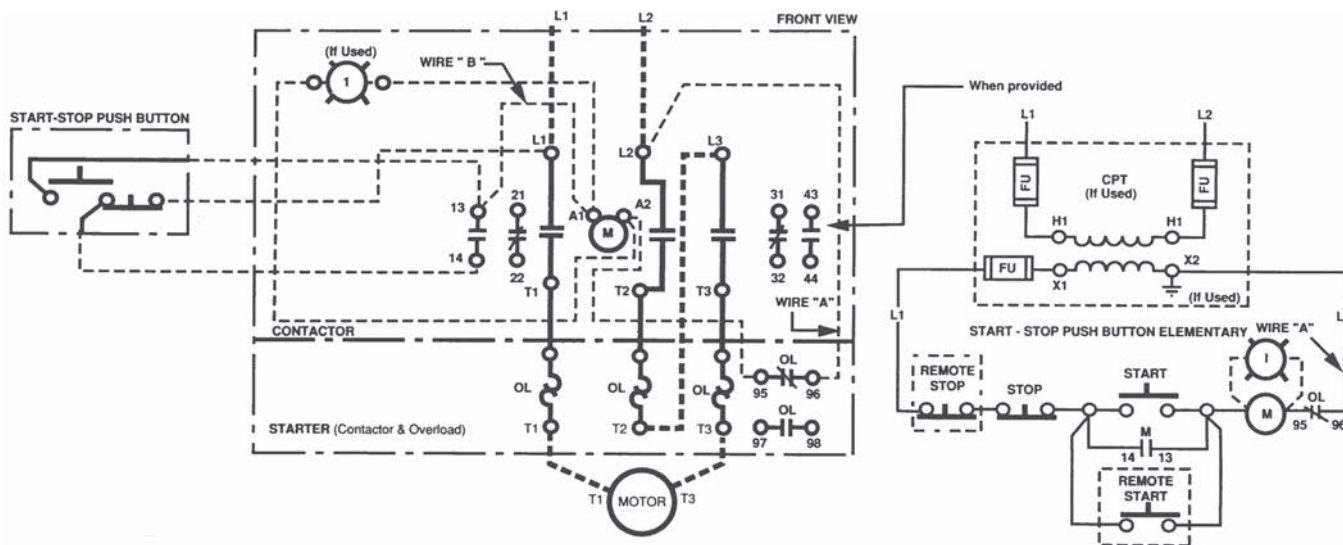
C-2000 Starters

Overload Type	Maximum Amps	Type LPJ-SP or AJT Maximum Fuse
RT1F	0.65 - 1.1	1.5
RT1G	1 - 1.5	2
RT1H	1.3 - 1.9	4
RT1J	1.8 - 2.7	4
RT1K	2.5 - 4.1	8
RT1L	4 - 6.3	10
RT1M	5.5 - 8.5	12
RT1N	8 - 12	20
RT1P	10 - 16	25
RT1S	14.5 - 18	35
RT1T	17.5 - 22	45
RT1U	21 - 26	45
RT1V	25 - 35	60
RT1W	30 - 40	70
RT2A	11.5 - 15	30
RT2B	14.5 - 19	35
RT2C	18.5 - 25	45
RT2D	24 - 32	60
RT2E	30 - 43	70
RT2G	42 - 45	100
RT2H	54 - 65	125
RT2J	64 - 82	150
RT2L	78 - 97	200
RT2M	90 - 110	200
RT3B	55 - 80	125
RT3C	63 - 90	150
RT3D	90 - 120	200
RT3E	110 - 140	250
RT3F	140 - 190	300
RT4N	120 - 190	350
RT4P	175 - 280	450
RT4R	200 - 310	450
RT5A	120 - 190	400
RT5B	175 - 280	600
RT5C	250 - 400	800
RT5D	315 - 500	900
RT5E	430 - 650	1000





Typical Schematic Diagram For C-2000 Three-Phase AC Motor Starters/Contactors Showing Start-Stop Push Button Connections



Typical Schematic Diagram For C-2000 Single-Phase AC Motor Starters/
 Contactors Showing Start-Stop Push Button Connections

Start-Stop Push Button/Control
 Transformer Elementary

Notes: Holding interlock is numbered 13 and 14 on some forms and the normally closed auxiliary contact is not standard on all forms.



IEC Power Devices

IEC Contactors & Starters Wiring Diagrams

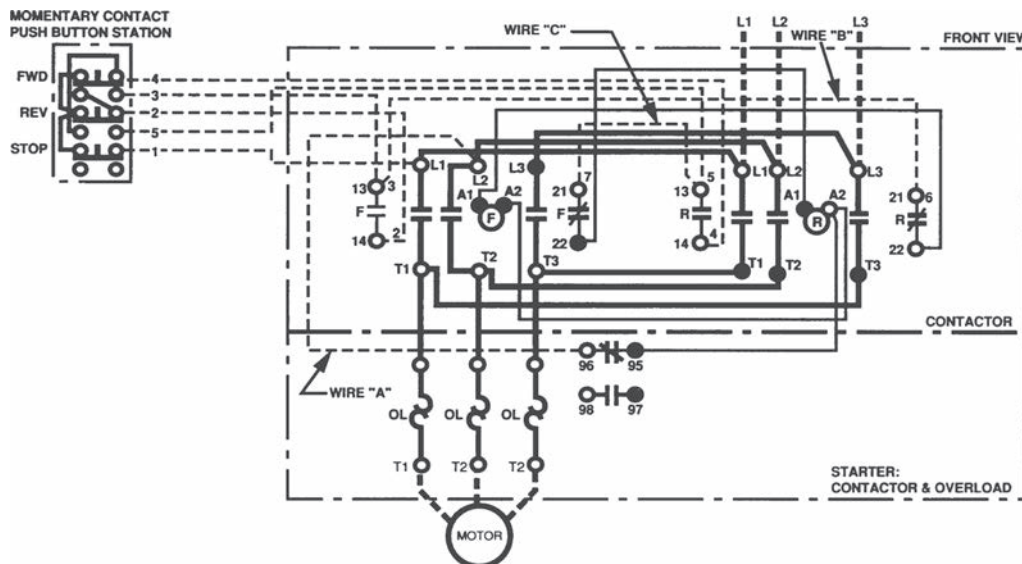
C-2000

Section 5

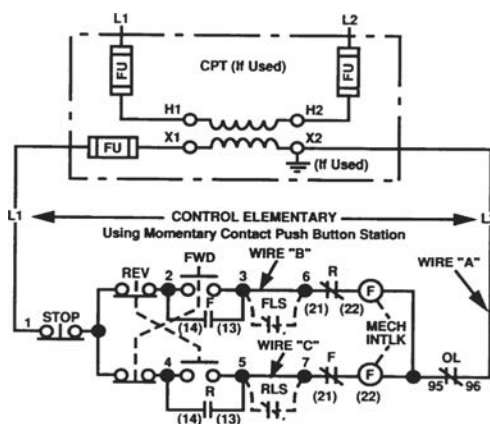
Legend

F and R	Forward and Reverse Line Contactors, Mechanically and Electronically Interlocked
FLS	Forward Limit Switch
RLS	Reverse Limit Switch
OL	Thermal Overload Relay

Notes: Cross Electrical interlocks may be marked 01 and 02. Wires "B" and "C" are omitted. These wires must be added if limit switches are not used.
 ● Factory wired terminals
 ○ Field wired terminals



Typical Schematic Drawing for C-2000 Three-Phase AC Reversing Motor Starter/Contactors Showing Momentary Contact Push Button Station Connections



Momentary Contact Push Button Station/Control Transformer Elementary



IEC Power Devices

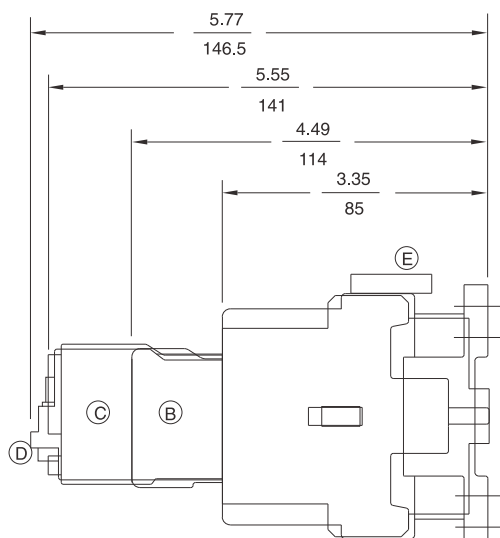
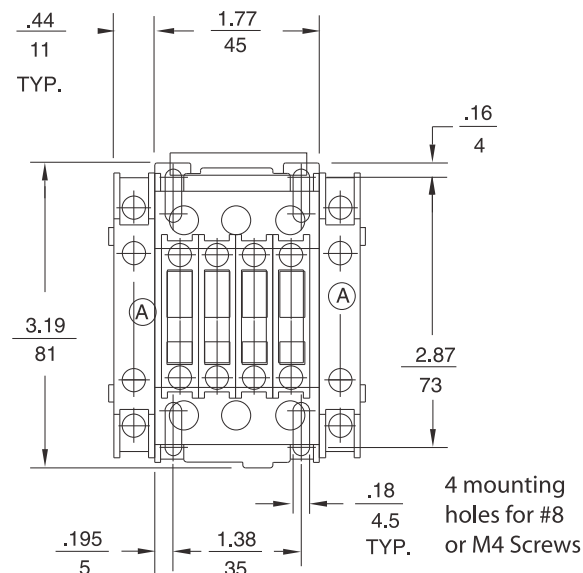
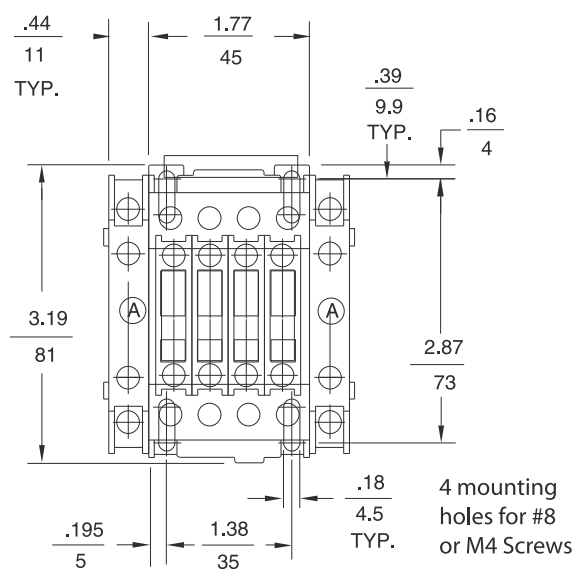
IEC Contactors Dimensions

C-2000

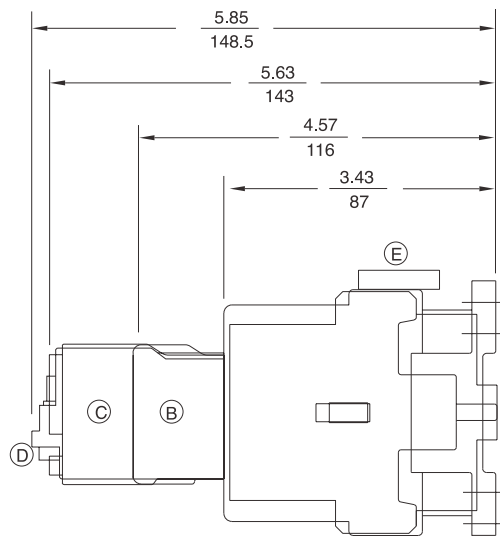
Section 5

Outlines and Dimensions ($\frac{\text{in}}{\text{mm}}$) For Estimating Only

Contactor Front View and AC Contactor Side View



CL00A310T, CL01A310T, CL02A310T and RL4 Relays



CL25A310T*

Legend and Notes

- A Extra Auxiliary Contacts, Side Mounted (if used)
 - B Extra Auxiliary Contacts, Front Mounted (if used)
 - C Pneumatic Timer (if used)
 - D Mechanical Latch (if used)
 - E Transient Voltage Suppressor
- Add 1/2 inch for electrical clearance to enclosure.



IEC Power Devices

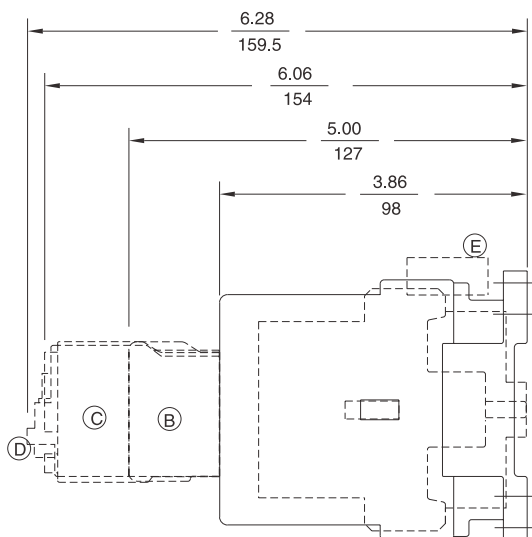
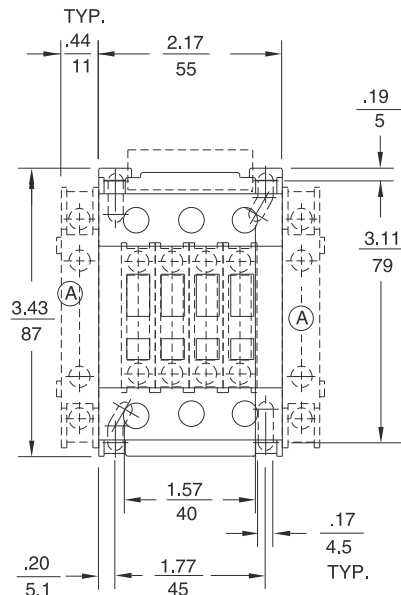
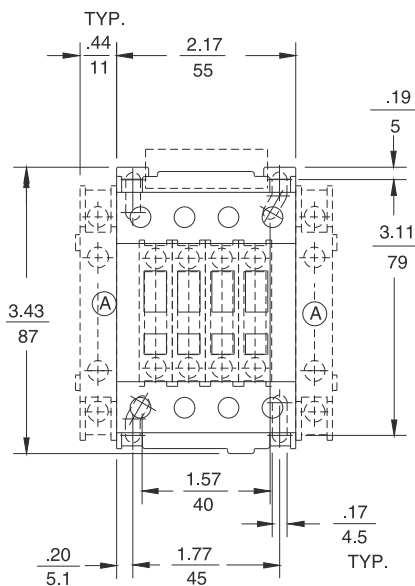
IEC Contactors Dimensions

C-2000

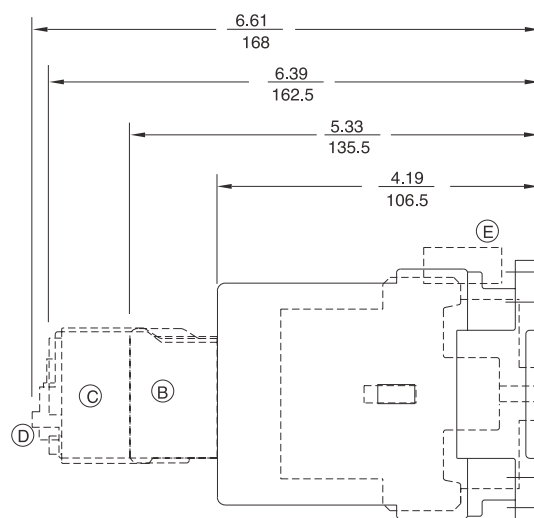
Outlines and Dimensions ($\frac{\text{in.}}{\text{mm}}$) For Estimating Only

Section 5

Contactor Front View and AC Contactor Side View



CL04A310M*



CL45A310M*

Legend and Notes

- A Extra Auxiliary Contacts, Side Mounted (if used)
 - B Extra Auxiliary Contacts, Front Mounted (if used)
 - C Pneumatic Timer (if used)
 - D Mechanical Latch (if used)
 - E Transient Voltage Suppressor
- Add 1/2 inch for electrical clearance to enclosure.



IEC Power Devices

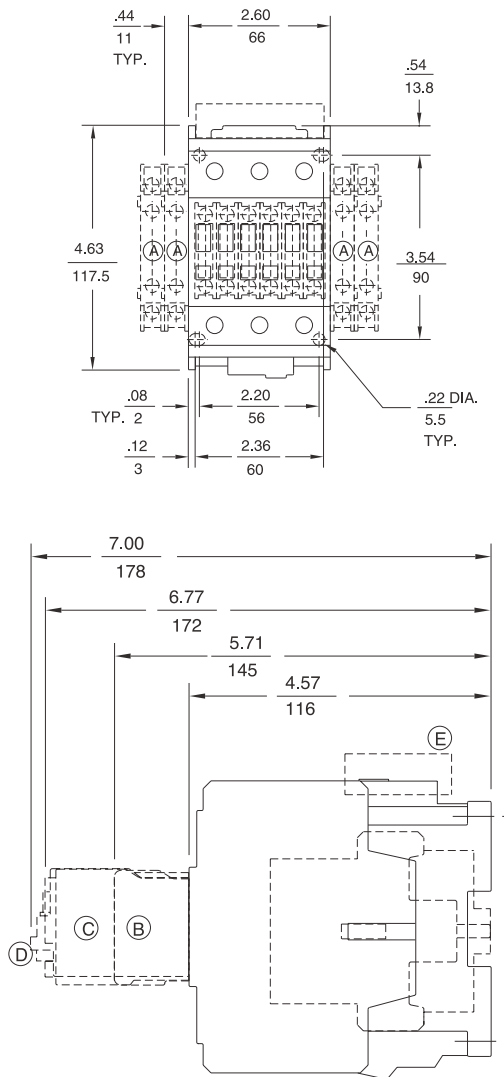
IEC Contactors Dimensions

C-2000

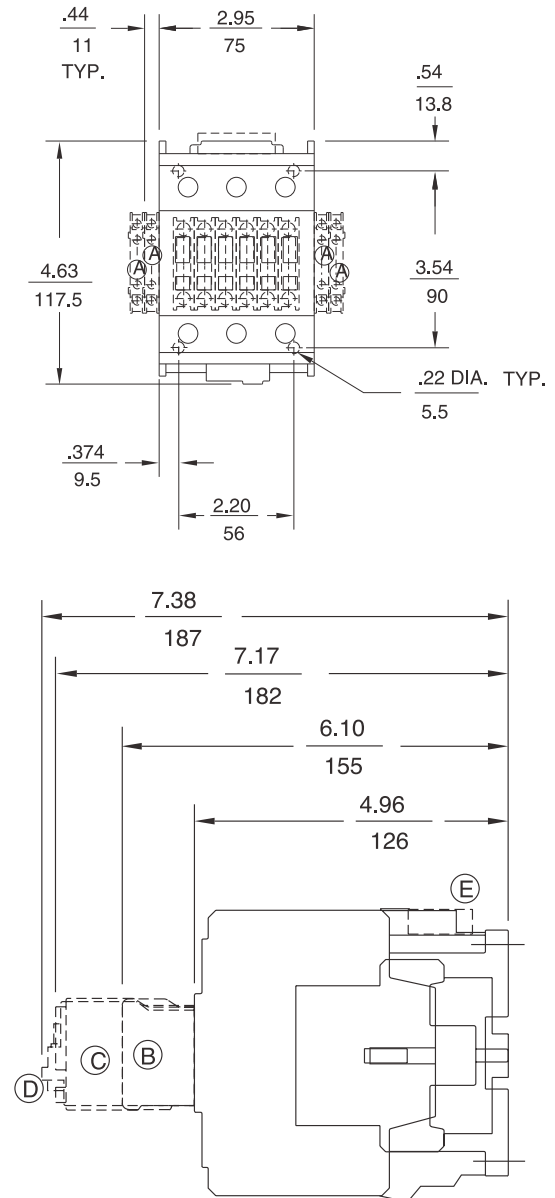
Section 5

Outlines and Dimensions ($\frac{\text{in}}{\text{mm}}$) For Estimating Only

Contactor Front View and AC Contactor Side View



CL06A311M*, CL07A311M*, CL08A311M*



CL09A311M*, CL10A311M*

Legend and Notes

- A Extra Auxiliary Contacts, Side Mounted (if used)
 - B Extra Auxiliary Contacts, Front Mounted (if used)
 - C Pneumatic Timer (if used)
 - D Mechanical Latch (if used)
 - E Transient Voltage Suppressor
- Add 1/2 inch for electrical clearance to enclosure.



IEC Power Devices

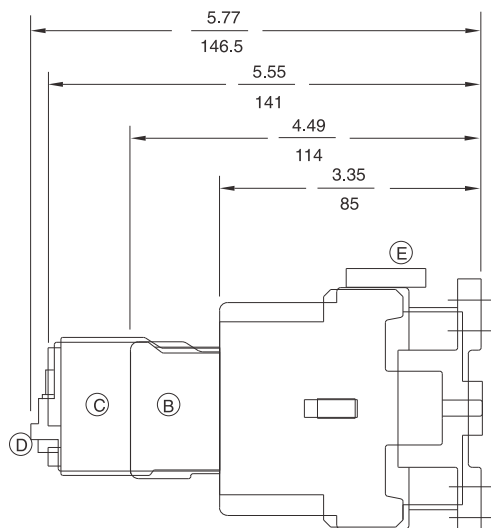
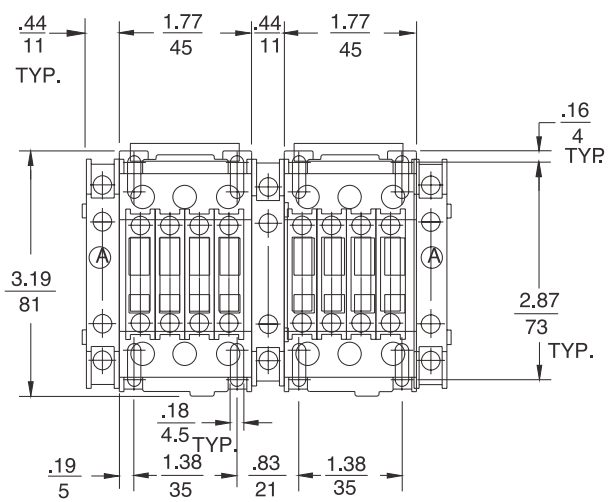
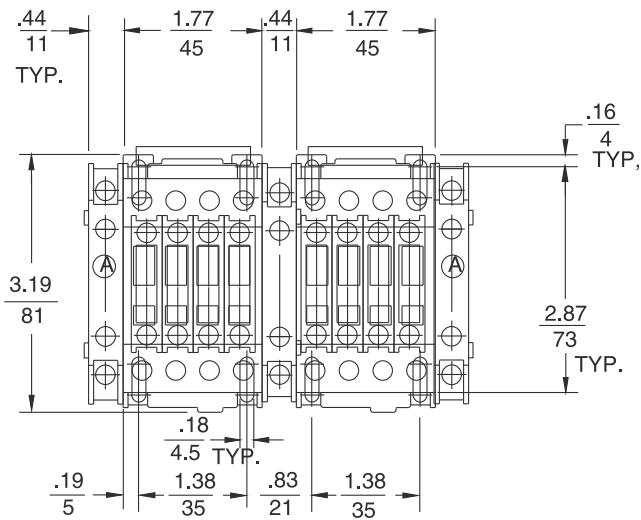
IEC Contactors Dimensions

Section 5

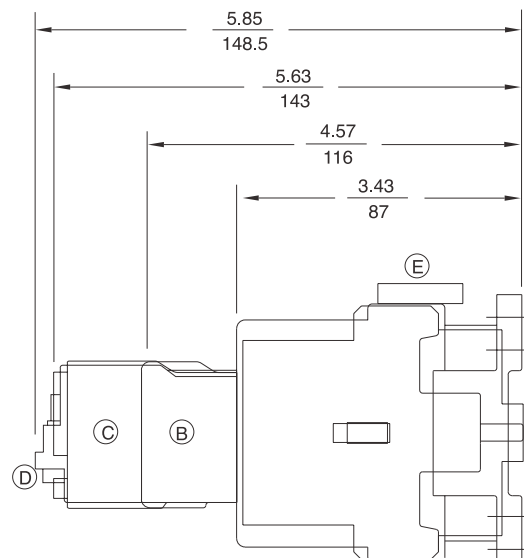
C-2000

Outlines and Dimensions ($\frac{\text{in}}{\text{mm}}$) For Estimating Only

Reversing Contactor Front View and AC Contactor Side View



LAR00A*, LAR01A*, LAR02A*



LAR25*

Legend and Notes

- A Extra Auxiliary Contacts, Side Mounted (if used)
 - B Extra Auxiliary Contacts, Front Mounted (if used)
 - C Pneumatic Timer (if used)
 - D Mechanical Latch (if used)
 - E Transient Voltage Suppressor
- Add 1/2 inch for electrical clearance to enclosure.



IEC Power Devices

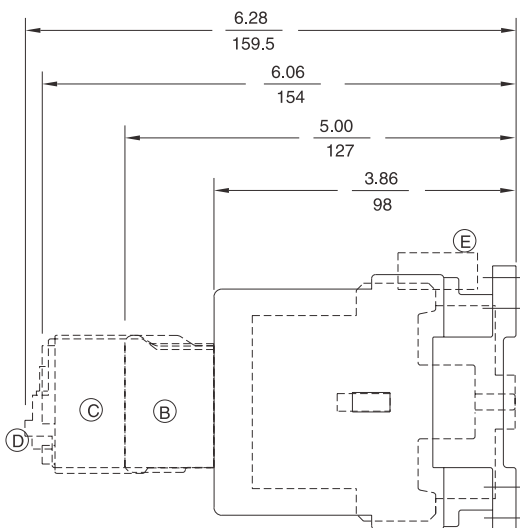
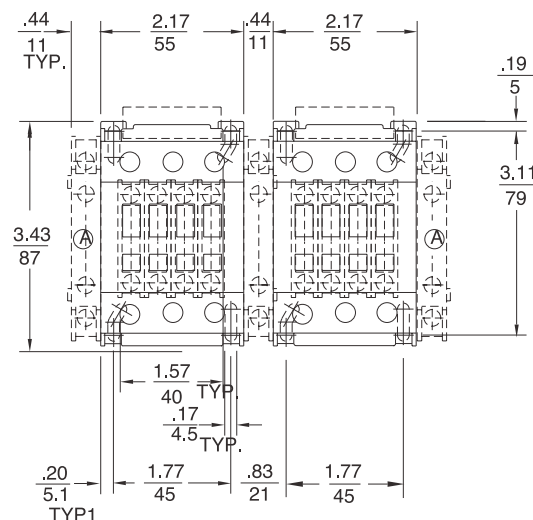
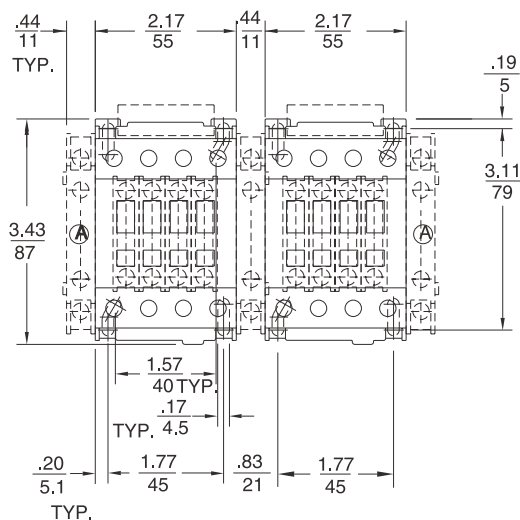
IEC Contactors Dimensions

C-2000

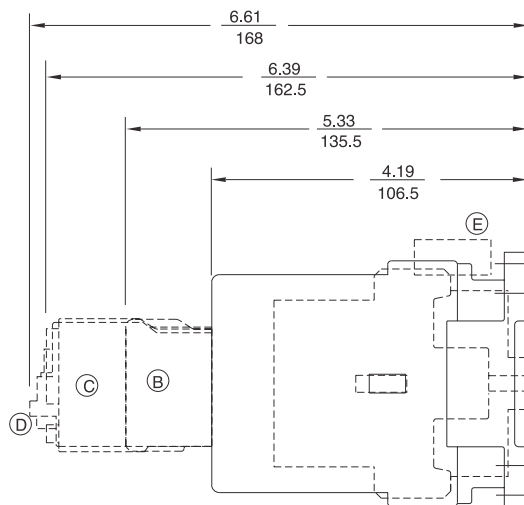
Section 5

Outlines and Dimensions ($\frac{\text{in}}{\text{mm}}$) For Estimating Only

Contactor Front View and DC Contactor Side View



LAR04A*



LAR45A*

Legend and Notes

- A Extra Auxiliary Contacts, Side Mounted (if used)
 - B Extra Auxiliary Contacts, Front Mounted (if used)
 - C Pneumatic Timer (if used)
 - D Mechanical Latch (if used)
 - E Transient Voltage Suppressor
- Add 1/2 inch for electrical clearance to enclosure.



IEC Power Devices

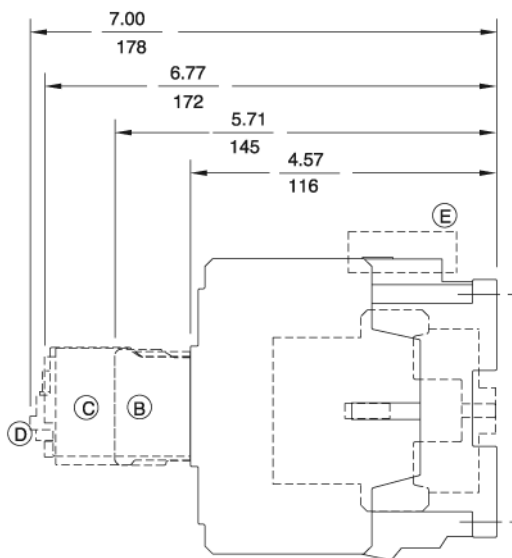
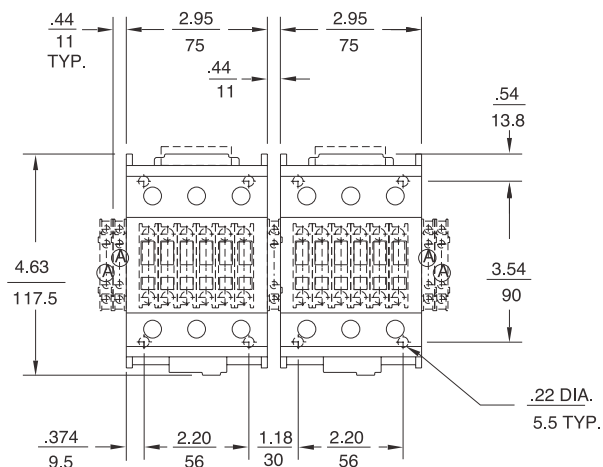
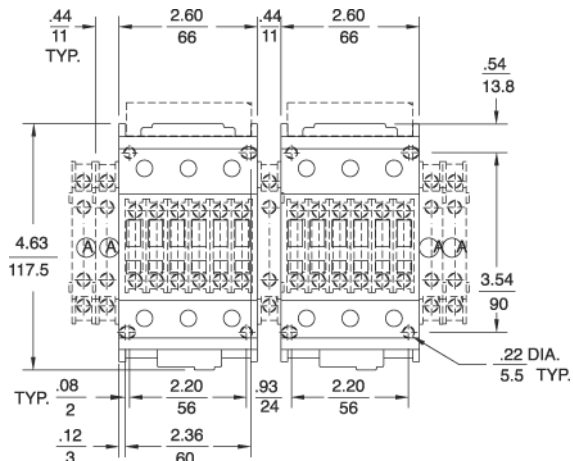
IEC Contactors Dimensions

C-2000

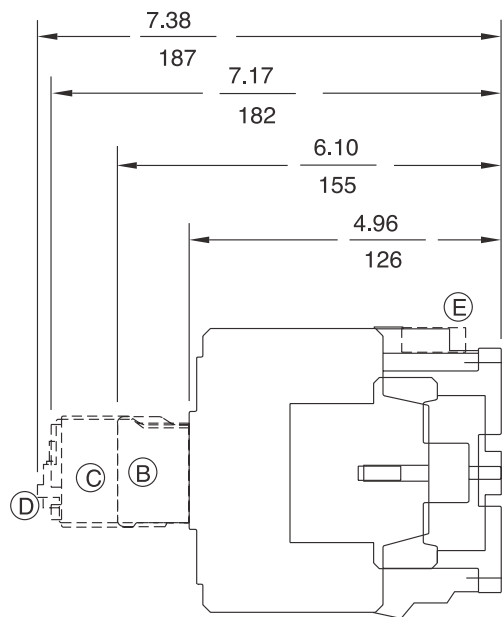
Outlines and Dimensions ($\frac{\text{in.}}{\text{mm}}$) For Estimating Only

Section 5

Contactor Front View and DC Contactor Side View



LAR06A*, LAR07A*, LAR08A*



LAR09A*, LAR10A*

Legend and Notes

- A Extra Auxiliary Contacts, Side Mounted (if used)
 - B Extra Auxiliary Contacts, Front Mounted (if used)
 - C Pneumatic Timer (if used)
 - D Mechanical Latch (if used)
 - E Transient Voltage Suppressor
- Add 1/2 inch for electrical clearance to enclosure.



IEC Power Devices

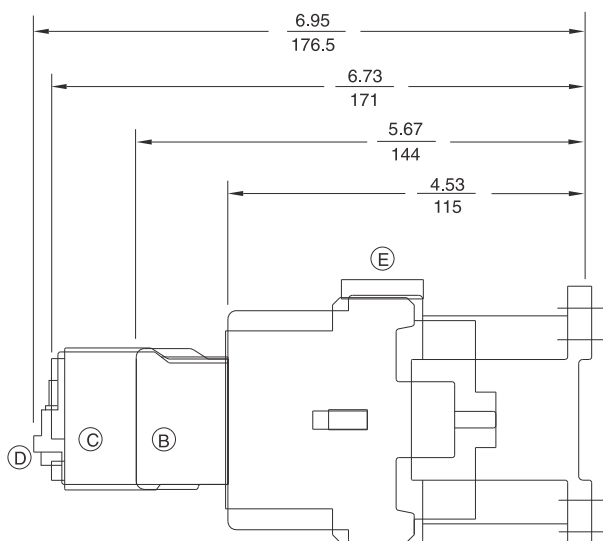
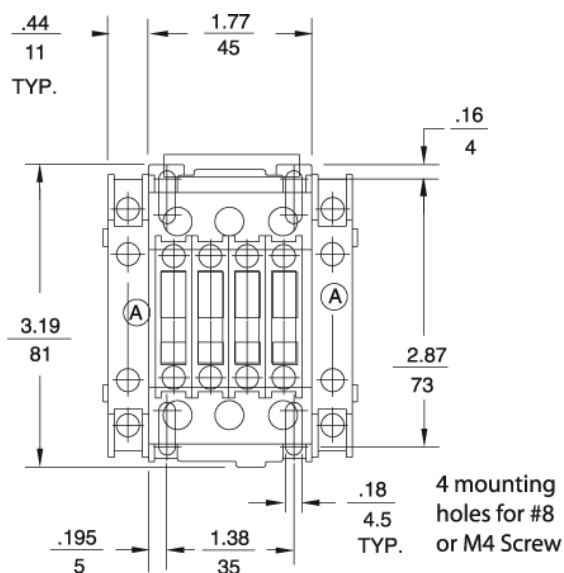
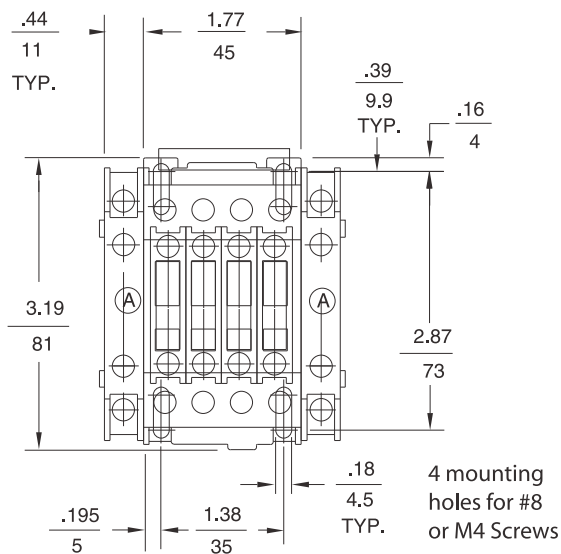
IEC Contactors Dimensions

C-2000

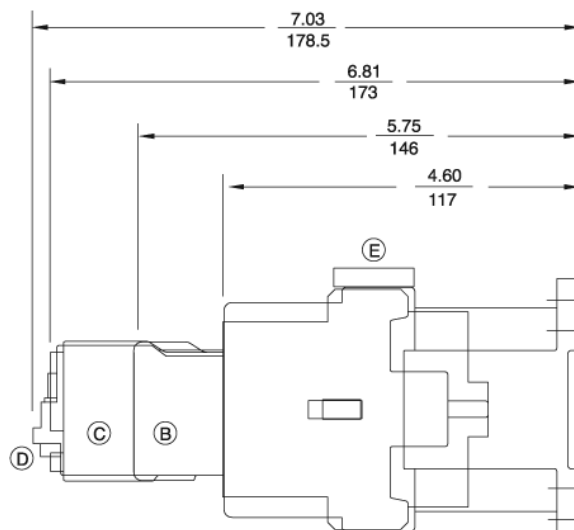
Section 5

Outlines and Dimensions ($\frac{\text{in}}{\text{mm}}$) For Estimating Only

Contactor Front View and DC Contactor Side View



CL00D310T*, CL01D310T*, CL02D310T*



CL25D310T*

Legend and Notes

- A Extra Auxiliary Contacts, Side Mounted (if used)
 - B Extra Auxiliary Contacts, Front Mounted (if used)
 - C Pneumatic Timer (if used)
 - D Mechanical Latch (if used)
 - E Transient Voltage Suppressor
- Add 1/2 inch for electrical clearance to enclosure.



IEC Power Devices

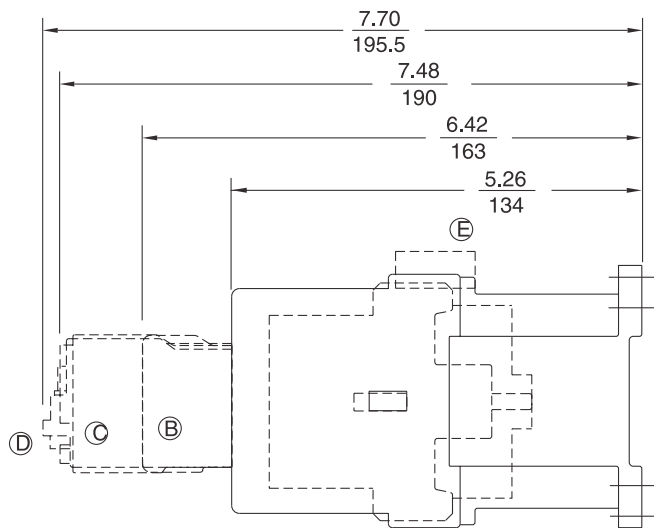
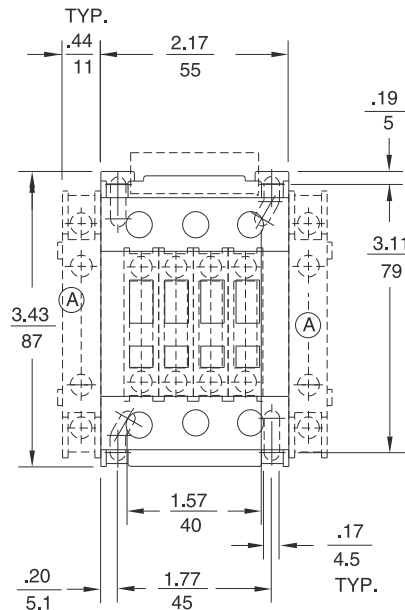
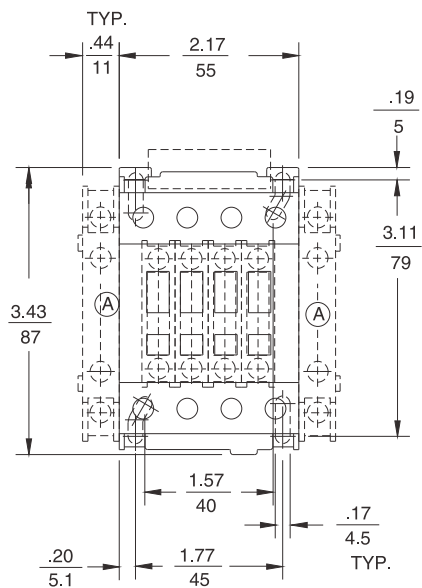
IEC Contactors Dimensions

C-2000

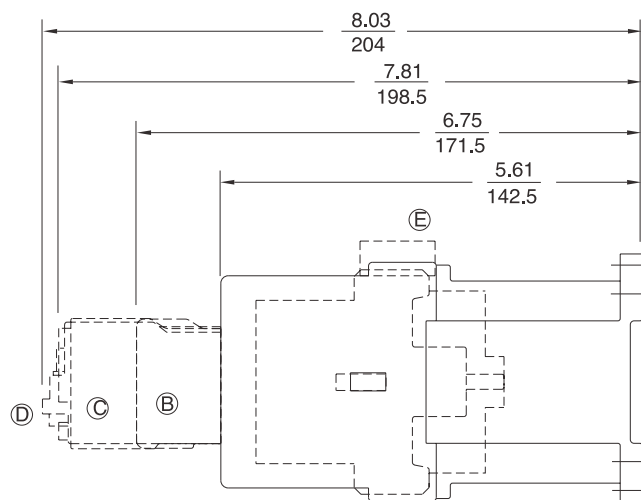
Outlines and Dimensions ($\frac{\text{in}}{\text{mm}}$) For Estimating Only

Section 5

Contactor Front View and DC Contactor Side View



CL04D310M*



CL45D310M*

Legend and Notes

- A Extra Auxiliary Contacts, Side Mounted (if used)
 - B Extra Auxiliary Contacts, Front Mounted (if used)
 - C Pneumatic Timer (if used)
 - D Mechanical Latch (if used)
 - E Transient Voltage Suppressor
- Add 1/2 inch for electrical clearance to enclosure.



IEC Power Devices

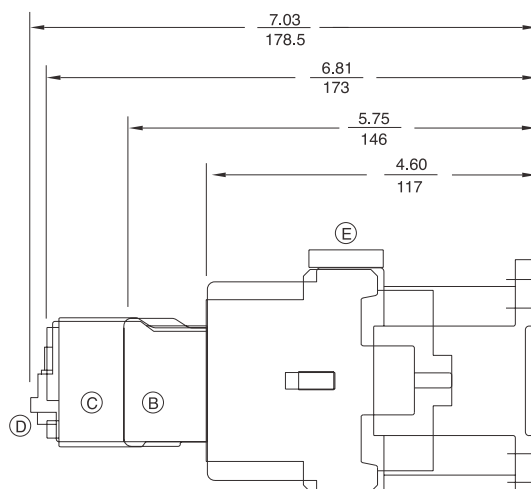
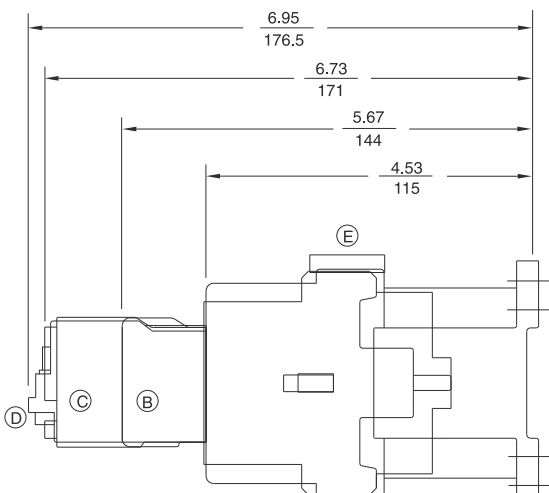
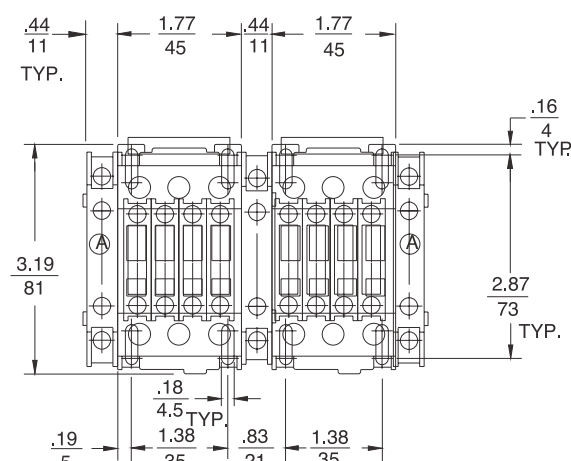
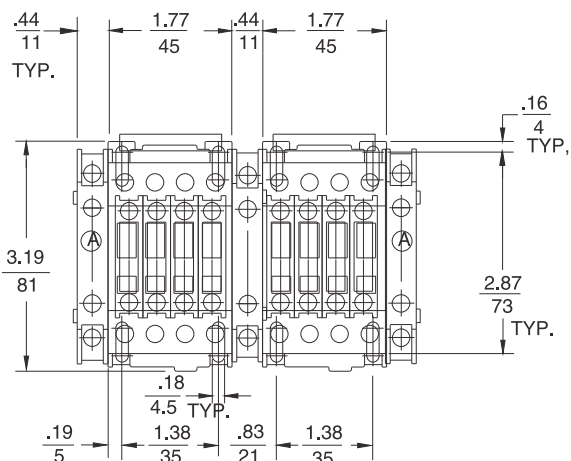
IEC Contactors Dimensions

C-2000

Section 5

Outlines and Dimensions ($\frac{\text{in}}{\text{mm}}$) For Estimating Only

Reversing Contactor Front View and DC Contactor Side View



LDR00A*, LDR01A*, LDR02A*

LDR25A*

Legend and Notes

- A Extra Auxiliary Contacts, Side Mounted (if used)
 - B Extra Auxiliary Contacts, Front Mounted (if used)
 - C Pneumatic Timer (if used)
 - D Mechanical Latch (if used)
 - E Transient Voltage Suppressor
- Add 1/2 inch for electrical clearance to enclosure.



IEC Power Devices

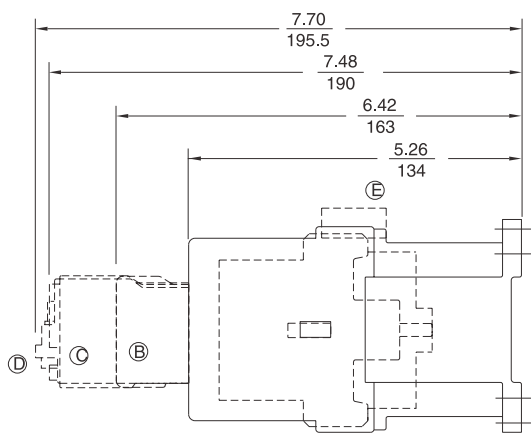
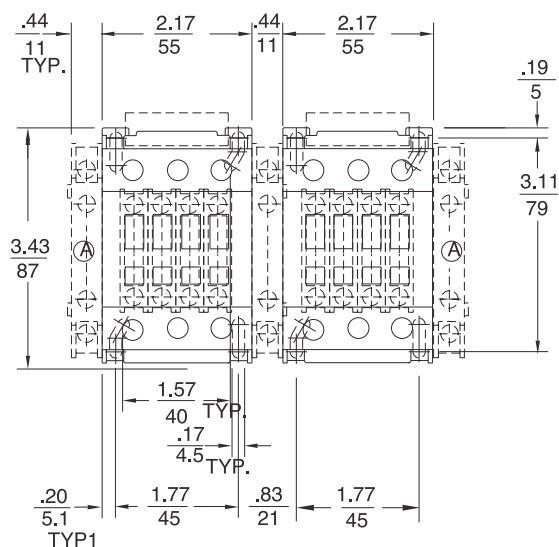
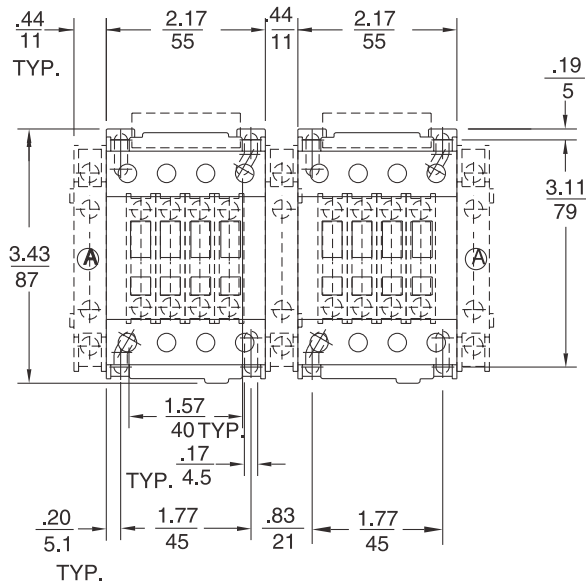
IEC Contactors Dimensions

C-2000

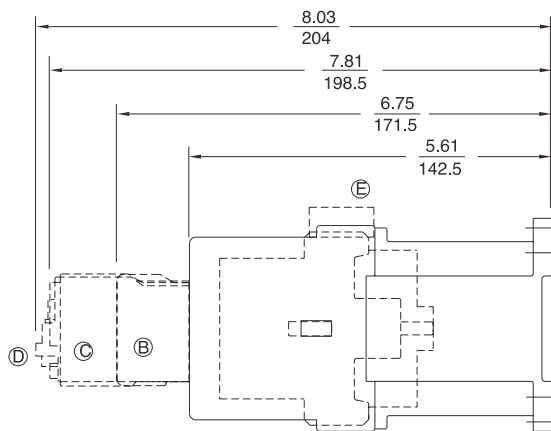
Outlines and Dimensions ($\frac{\text{in}}{\text{mm}}$) For Estimating Only

Section 5

Reversing Contactor Front View and DC Contactor Side View



LDR04A*



LDR45A*

Legend and Notes

- A Extra Auxiliary Contacts, Side Mounted (if used)
 - B Extra Auxiliary Contacts, Front Mounted (if used)
 - C Pneumatic Timer (if used)
 - D Mechanical Latch (if used)
 - E Transient Voltage Suppressor
- Add 1/2 inch for electrical clearance to enclosure.



IEC Power Devices

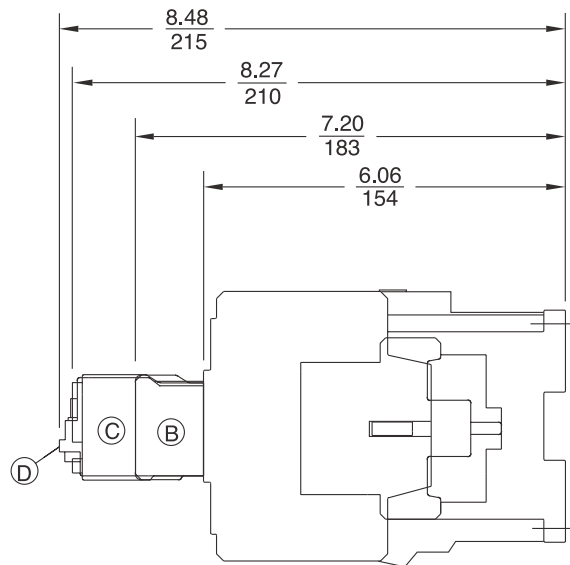
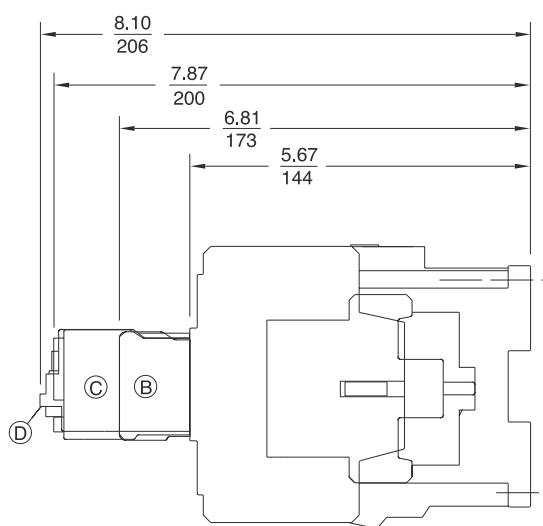
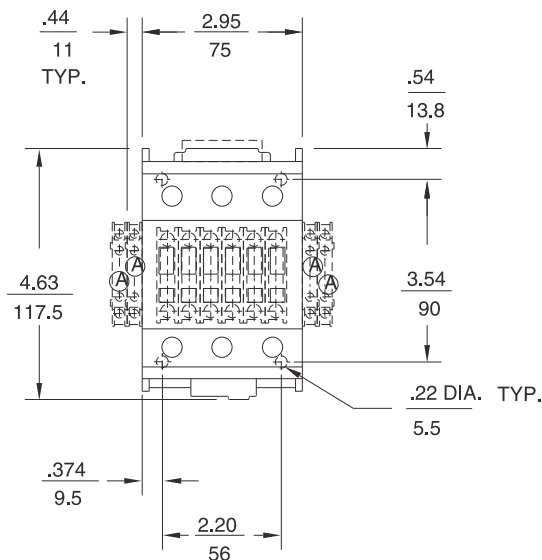
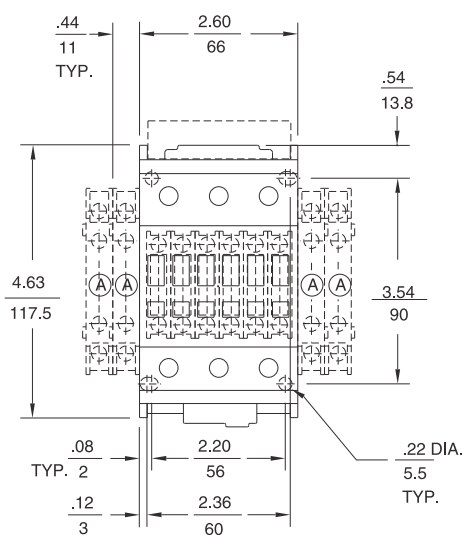
IEC Contactors Dimensions

C-2000

Section 5

Outlines and Dimensions ($\frac{\text{in}}{\text{mm}}$) For Estimating Only

Contactor Front View and AC/DC Contactor Side View



CL06E311M† CL07E311M†, CL08E311M†

CL09E311M†, CL10E311M†

Legend and Notes

- A Extra Auxiliary Contacts, Side Mounted (if used)
- B Extra Auxiliary Contacts, Front Mounted (if used)
- C Pneumatic Timer (if used)
- D Mechanical Latch (if used)
- E Transient Voltage Suppressor
- Add 1/2 inch for electrical clearance to enclosure.



IEC Power Devices

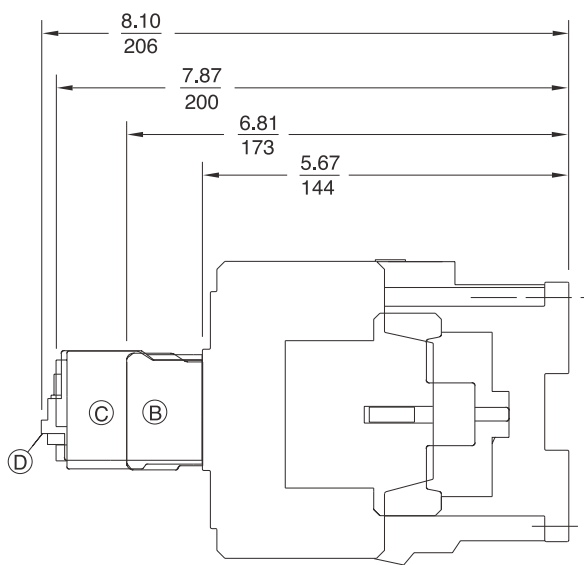
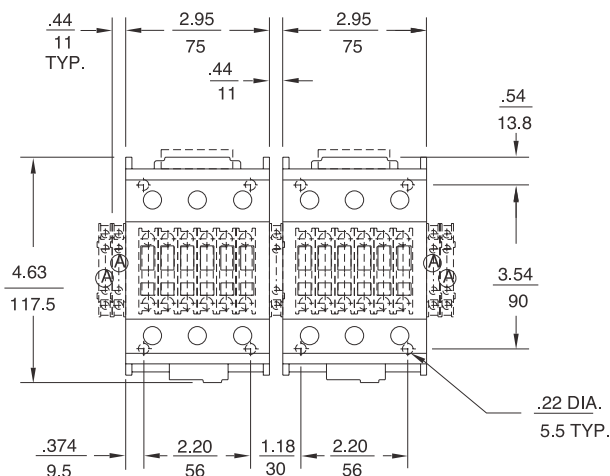
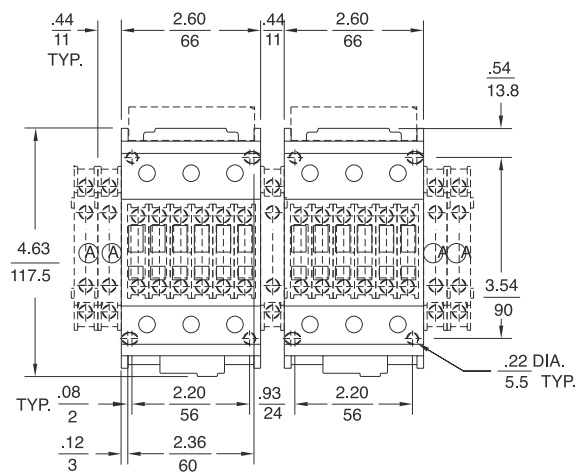
IEC Contactors Dimensions

Section 5

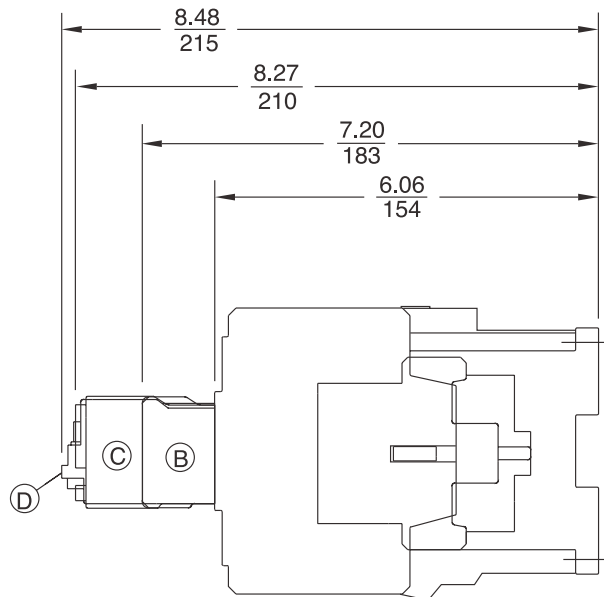
C-2000

Outlines and Dimensions ($\frac{\text{in}}{\text{mm}}$) For Estimating Only

Reversing Contactor Front View and AC/DC Contactor Side View



LER06A†, LER07A†, LER08A†



LER09A†, LER10A†

Legend and Notes

- A Extra Auxiliary Contacts, Side Mounted (if used)
 - B Extra Auxiliary Contacts, Front Mounted (if used)
 - C Pneumatic Timer (if used)
 - D Mechanical Latch (if used)
 - E Transient Voltage Suppressor
- Add 1/2 inch for electrical clearance to enclosure.



IEC Power Devices

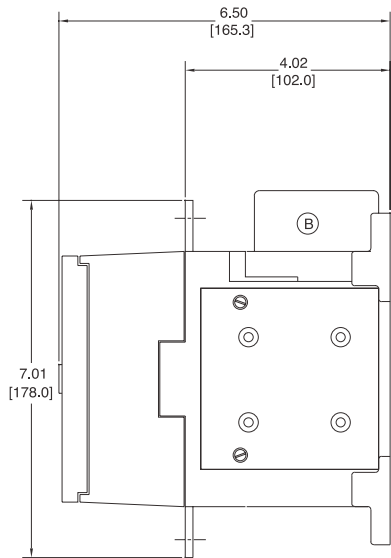
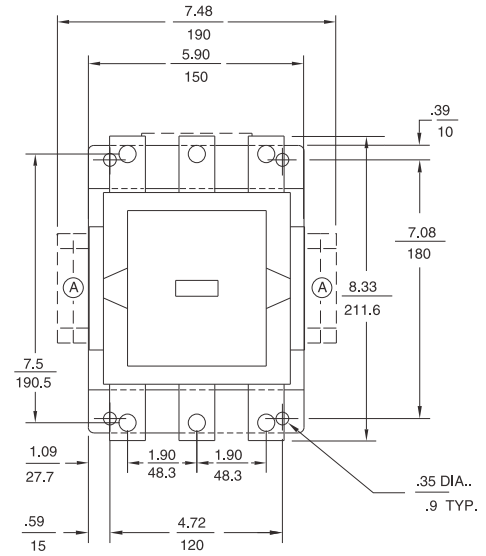
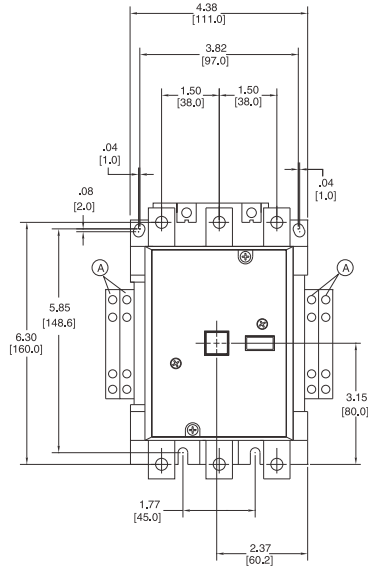
IEC Contactors Dimensions

C-2000

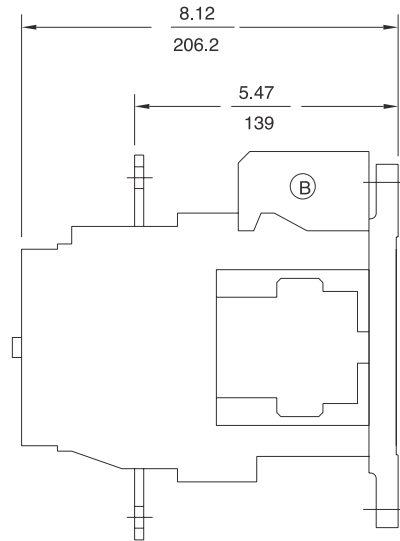
Outlines and Dimensions ($\frac{\text{in}}{\text{mm}}$) For Estimating Only

Section 5

Contactor Front View and AC Contactor Side View



CK75CE311*, CK08CE311*



CK09BE311*, CK95BE311*

Legend and Notes

- A Extra Auxiliary Contacts, Side Mounted (if used) (1 Standard)
- B Electronic Actuator Modulator



IEC Power Devices

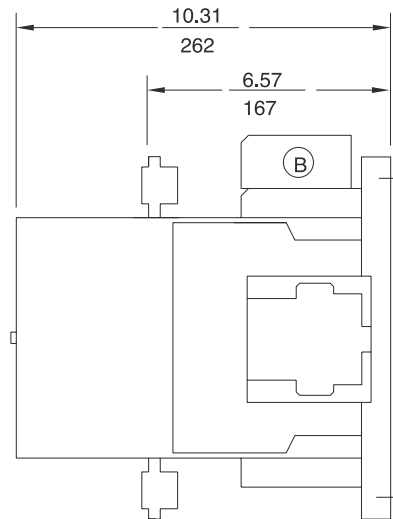
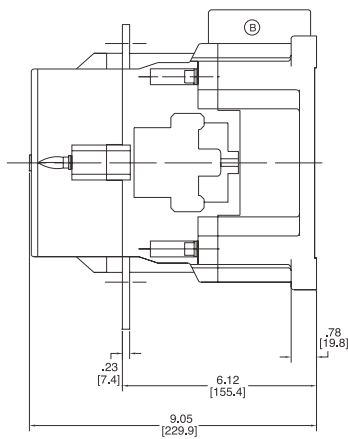
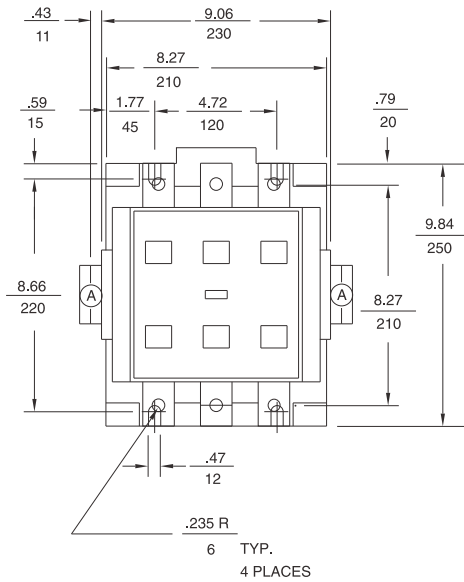
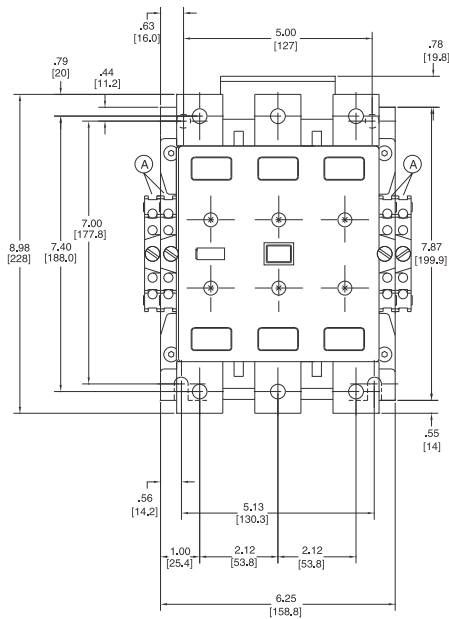
IEC Contactors Dimensions

C-2000

Outlines and Dimensions ($\frac{\text{in.}}{\text{mm}}$) For Estimating Only

Section 5

Contactor Front View and AC Contactor Side View



CK10CE311*, CK10BE311*, CK11CE311*, CK11BE311*

CK12BE311*

Legend and Notes

- A Extra Auxiliary Contacts, Side Mounted (if used) (1 Standard)
- B Electronic Actuator Modulator



IEC Power Devices

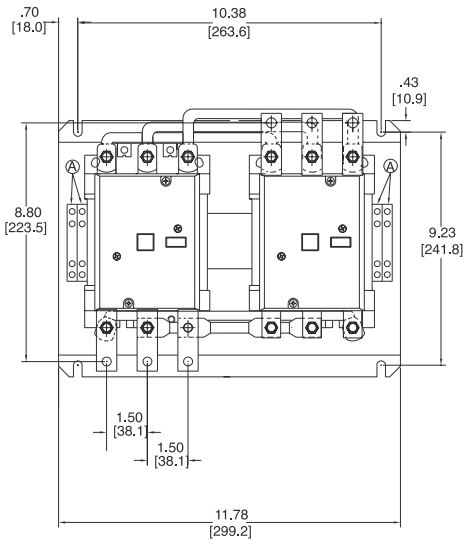
IEC Contactors Dimensions

C-2000

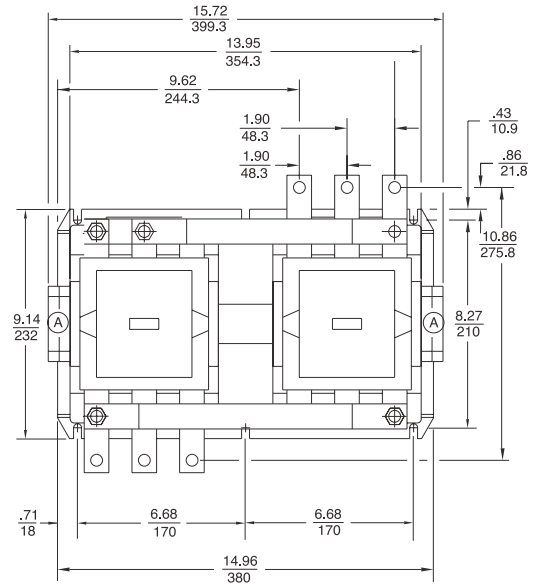
Section 5

Outlines and Dimensions ($\frac{\text{in}}{\text{mm}}$) For Estimating Only

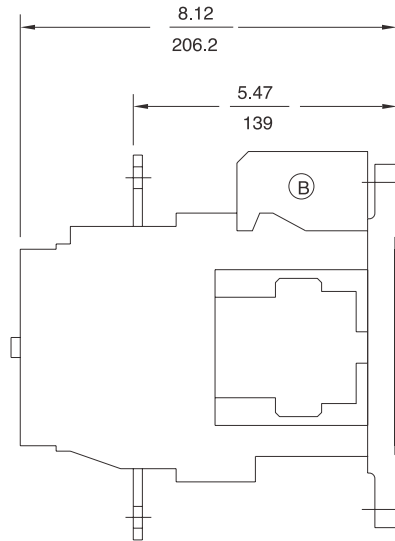
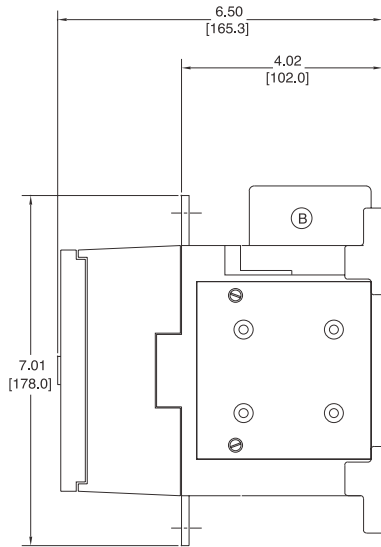
Contactor Front View and AC Contactor Side View



KAR75C*, KAR08C*



KAR09B*, KAR95B*



Legend and Notes

- A Extra Auxiliary Contacts, Side Mounted (if used) (1 Standard)
- B Electronic Actuator Modulator



IEC Power Devices

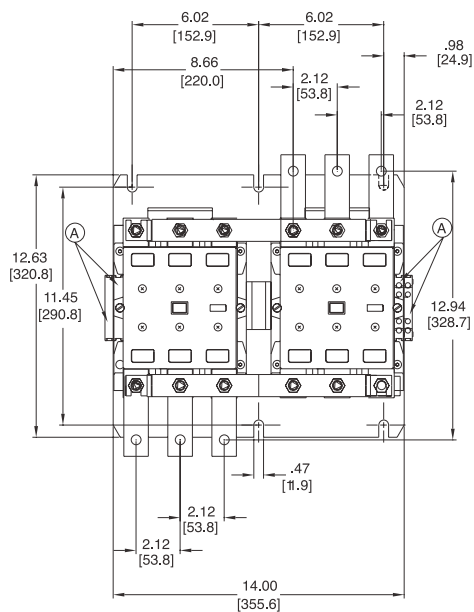
IEC Contactors Dimensions

C-2000

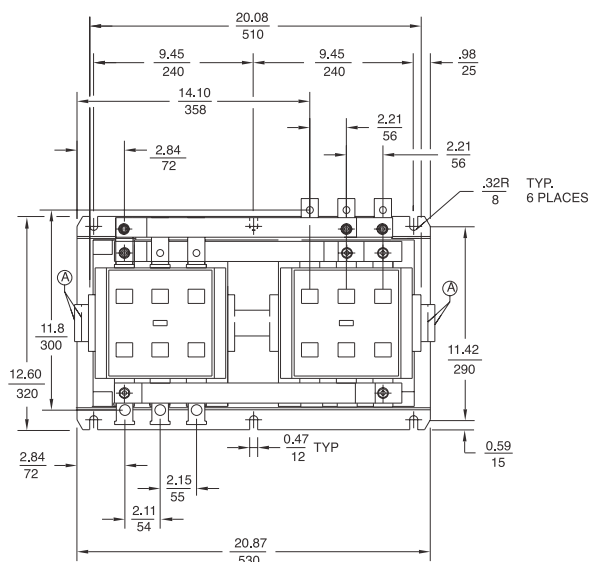
Outlines and Dimensions ($\frac{\text{in.}}{\text{mm}}$) For Estimating Only

Section 5

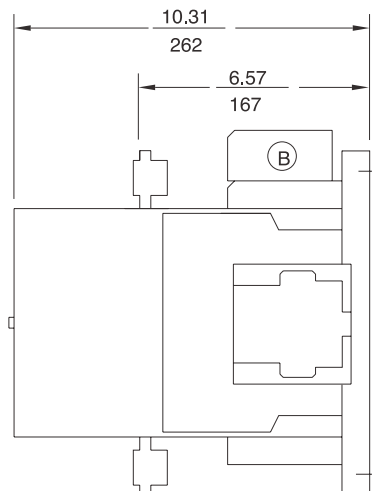
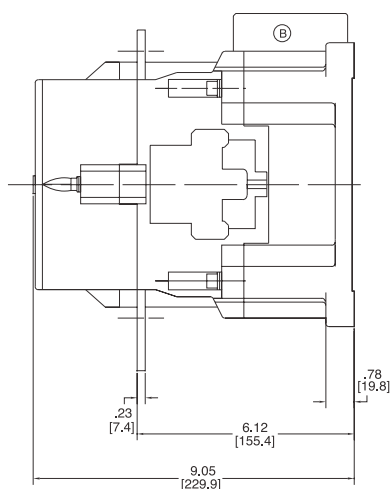
Contactor Front View and AC Contactor Side View



KAR10C*, KAR10B*, KAR11C*, KAR11B*



KAR12B*



Legend and Notes

- A Extra Auxiliary Contacts, Side Mounted (if used) (1 Standard)
- B Electronic Actuator Modulator

