

series  
**300**  
miniature

series  
**310**  
miniature

When you need reliable motor control and control relays for your control panel, but standard size devices are just too big, look to c3controls. Our Series 300 and Series 310 IEC Mini Contactors and Series 300 Control Relays are compact in size, available with AC or DC coils, and offer a wide variety of accessories including auxiliary contacts, electronic timers, reversing contactor modules, and more.

Small in size, big in performance! It's just another c3 advantage!

# IEC MINI CONTACTORS & CONTROL RELAYS

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NOTE: The scope (range, description, price, specifications, dimensions, etc.) of the product featured in this section is subject to change without notice. Refer to [www.c3controls.com](http://www.c3controls.com) for product updates.

## Conformity to Standards: Certifications:

### MINIATURE CONTACTORS

UL 508  
CSA C22.2 No. 14  
IEC 60947-1, 60947-4-1

UL File #: E236197 (Guide NLDX, NLDX7)

CE Marked (per EU Low Voltage Directive 2006/95/EC and 93/68/EEC)

### MINIATURE CONTROL RELAYS

UL 508  
CSA C22.2 No. 14  
IEC 60947-1, 60947-5-1

UL File #: E68568 (Guide NKCR, NKCR7)

CE Marked (per EU Low Voltage Directive 2006/95/EC and 93/68/EEC)



Visit [www.c3controls.com](http://www.c3controls.com) to download product certifications.

## IT'S EASY TO BUILD YOUR OWN IEC MINI CONTACTOR

Simply pick the code number from each of the sections below and combine them to build your part number. See page 6 for more detailed directions.

### IEC Mini Non-Reversing Contactors



I      II      III

Example: To build one of our most popular Mini Contactors, the part number would be **I + II + III** or **300-M09N30D10**



#### I. MINI NON-REVERSING CONTACTORS (3 NORMALLY OPEN POLES)

CODE	MAX. Ie (A)		RATINGS FOR SWITCHING AC MOTORS - AC-3										PRICE
			kW (50Hz)				HP (60Hz)						
			3 PHASE				1 PHASE		3 PHASE				
			230V	400/415V	500V	690V	115V	230V	200V	230V	460V	575V	
300-M07N30	7	18	1.5	3	3	3	1/3	3/4	1-1/2	1-1/2	5	5	\$ 8.50
300-M09N30	9	20	2.2	4	5.5	5.5	1/3	1	2	3	5	7-1/2	\$10.00
300-M12N30	12	22	3	5.5	7.5	7.5	1/2	2	3	3	7-1/2	7-1/2	\$15.00
300-M16N30	16	22	4	7.5	7.5	7.5	1	2	3	5	10	10	\$20.00

#### II. COIL VOLTAGE

##### AC COIL VOLTAGE CODES

VOLTAGE	24	48	110	120	230	240	400	480	600
50Hz	—	—	D	—	—	—	—	—	—
60Hz	—	—	—	D	—	F	—	R	T
50/60Hz	XC	XJ	—	—	XN	—	XAM	—	—

##### DC COIL VOLTAGE CODES

VOLTAGE	12	24	110	125	250	PRICE
	ZB	ZC	ZD	ZQ	ZP	\$ 6.00

#### III. AUXILIARY CONTACT CONFIGURATION

CODE	DESCRIPTION	PRICE
10	1 Normally Open (Integral Right Side Mounted)	\$ 4.00
01	1 Normally Closed (Integral Right Side Mounted)	\$ 4.00

DISCOUNT  
SCHEDULE **C**

## SOME OF OUR POPULAR CONFIGURATIONS:

#### IEC MINI NON-REVERSING CONTACTORS

CATALOG NUMBER	DESCRIPTION	PRICE
300-M07N30D10	Mini Non-Reversing, 7A, 3 Pole, 120V AC Coil, 1 NO Auxiliary Contact	\$12.50
300-M09N30D10	Mini Non-Reversing, 9A, 3 Pole, 120V AC Coil, 1 NO Auxiliary Contact	\$14.00
300-M12N30D10	Mini Non-Reversing, 12A, 3 Pole, 120V AC Coil, 1 NO Auxiliary Contact	\$19.00
300-M16N30D10	Mini Non-Reversing, 16A, 3 Pole, 120V AC Coil, 1 NO Auxiliary Contact	\$24.00
300-M07N30ZC10	Mini Non-Reversing, 7A, 3 Pole, 24V DC Coil, 1 NO Auxiliary Contact	\$18.50
300-M09N30ZC10	Mini Non-Reversing, 9A, 3 Pole, 24V DC Coil, 1 NO Auxiliary Contact	\$20.00
300-M12N30ZC10	Mini Non-Reversing, 12A, 3 Pole, 24V DC Coil, 1 NO Auxiliary Contact	\$25.00
300-M16N30ZC10	Mini Non-Reversing, 16A, 3 Pole, 24V DC Coil, 1 NO Auxiliary Contact	\$30.00

## IT'S EASY TO BUILD YOUR OWN IEC MINI CONTACTOR

Simply pick the code number from each of the sections below and combine them to build your part number. See page 6 for more detailed directions.

### IEC Mini Reversing Contactors

**I** **II** **III** - **IV**

Example: To build one of our most popular Contactors, the part number would be **I + II + III + IV** or **310-M09N30D42**



#### I. MINI REVERSING CONTACTORS (3 NORMALLY OPEN POLES)

CODE	MAX. I <sub>e</sub> (A)		RATINGS FOR SWITCHING AC MOTORS - AC-3										PRICE
			kW (50Hz)				HP (60Hz)						
			3 PHASE				1 PHASE		3 PHASE				
			230V	400/415V	500V	690V	115V	230V	200V	230V	460V	575V	
310-M07N30	7	18	1.5	3	3	3	1/3	3/4	1-1/2	1-1/2	5	5	\$ 58.00
310-M09N30	9	20	2.2	4	5.5	5.5	1/3	1	2	3	5	7-1/2	\$ 61.00
310-M12N30	12	22	3	5.5	7.5	7.5	1/2	2	3	3	7-1/2	7-1/2	\$ 71.00
310-M16N30	16	22	4	7.5	7.5	7.5	1	2	3	5	10	10	\$ 81.00

#### II. COIL VOLTAGE

##### AC COIL VOLTAGE CODES

VOLTAGE	24	48	110	120	230	240	400	480	600
50Hz	—	—	D	—	—	—	—	—	—
60Hz	—	—	D	—	—	F	—	R	T
50/60Hz	XC	XJ	—	—	XN	—	XAM	—	—

##### DC COIL VOLTAGE CODES

VOLTAGE	12	24	110	125	250	PRICE
	ZB	ZC	ZD	ZQ	ZP	\$ 12.00

#### III. AUXILIARY CONTACT CONFIGURATION

CODE	DESCRIPTION	PRICE
02	2 Normally Closed①	\$ —
42	4 Normally Open② (2 NO on Forward Contactor and 2 NO on Reverse Contactor) and 2 Normally Closed① (1 NC on Forward Contactor and 1 NC on Reverse Contactor)	\$ 16.00

①Integral right side mounted auxiliary contacts.  
②Front mounted auxiliary contacts.

#### IV. OPTIONS

CODE	DESCRIPTION	PRICE (deduct)
(Blank)	With Power Wires	—
WW	Without Interconnecting Power Wires	-\$ 12.00

DISCOUNT  
SCHEDULE

**C**

## SOME OF OUR POPULAR CONFIGURATIONS:

#### IEC MINI REVERSING CONTACTORS

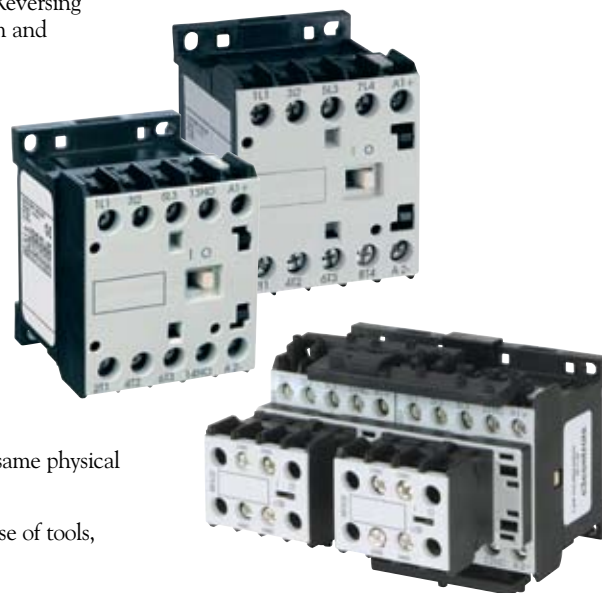
CATALOG NUMBER	DESCRIPTION	PRICE
310-M07N30D42	Mini Reversing, 7A, 3 Pole, 120V AC Coil, 4 NO and 2 NC Auxiliary Contacts	\$ 74.00
310-M09N30D42	Mini Reversing, 9A, 3 Pole, 120V AC Coil, 4 NO and 2 NC Auxiliary Contacts	\$ 77.00
310-M12N30D42	Mini Reversing, 12A, 3 Pole, 120V AC Coil, 4 NO and 2 NC Auxiliary Contacts	\$ 87.00
310-M16N30D42	Mini Reversing, 16A, 3 Pole, 120V AC Coil, 4 NO and 2 NC Auxiliary Contacts	\$ 97.00
310-M07N30ZC42	Mini Reversing, 7A, 3 Pole, 24V DC Coil, 4 NO and 2 NC Auxiliary Contacts	\$ 86.00
310-M09N30ZC42	Mini Reversing, 9A, 3 Pole, 24V DC Coil, 4 NO and 2 NC Auxiliary Contacts	\$ 89.00
310-M12N30ZC42	Mini Reversing, 12A, 3 Pole, 24V DC Coil, 4 NO and 2 NC Auxiliary Contacts	\$ 99.00
310-M16N30ZC42	Mini Reversing, 16A, 3 Pole, 24V DC Coil, 4 NO and 2 NC Auxiliary Contacts	\$109.00

## IEC MINI CONTACTORS AND CONTROL RELAYS

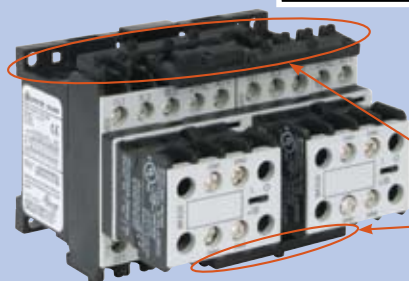
IEC Controls Series 300 IEC Mini Contactors and Control Relays are a compact family of control devices for switching motors and other logic control circuits. Our Series 310 IEC Mini Reversing Contactors are ideal for reversing motors in applications where panel space is a premium and device modularity is required to satisfy virtually any application requirement. Common accessories enable the devices to be customized for each application. For motor overload protection, Series 320 Overload Relays can be directly mounted to mini contactors. Just look and see what the Series 300 Mini Non-Reversing Contactors and Control Relays and Series 310 Mini Reversing Contactors have to offer.

Product features include:

- Compact size – one (1) frame size for devices rated up to 16A, 10HP @ 460V (7.5kW @ 400V). Mini Non-Reversing Contactors and Control Relays device dimensions are only 45mm (1-49/64") wide x 58mm (2-9/32") high x 52mm (2-3/64") deep and our Mini Reversing Contactors device dimensions are 91mm (3-37/64") wide x 61mm (2-13/32") high x 59mm (2-21/64") deep, reducing panel area requirements – smaller enclosures can be used for lower installed costs.
- AC and DC operating coils for control circuit application flexibility - device is the same physical size with an AC or DC coil.
- Modular design and common snap-on accessories are easily installed without the use of tools, lowering assembly and installation costs.
- A wide variety of common accessories including:
  - 2 and 4 circuit front mounted auxiliary contacts with NO and NC configurations
  - Surge suppressors - RC, varistor, and diode
  - Electronic timers - On-Delay and Off-Delay with timing ranges up to 30 seconds
  - Reversing contactor accessories - mechanical interlock and interconnecting wiring modules
  - Printed circuit board link module
- Front mounted auxiliary contacts and surge suppressors install directly on top of the single front mounted mechanical interlock when used with our Mini Reversing Contactors.
- Miniature contactors compatible with directly mounted Series 320 overload relays with current ratings from 0.28 to 17A. Overload relays are Class 10 with selectable manual or automatic reset, and provide phase loss sensitivity.
- IP20 guarded terminals with dual terminal markings prevent accidental contact with live parts.
- Device identification marker for labeling the contactor or control relay simplifies trouble shooting in panels with many devices.
- Universal ratings and markings: A, kW, and HP ratings as well as applicable 3rd party certification markings.
- 35mm DIN rail mounting for fast and easy installation and removal without the use of tools, panel mounting for more secure installation in high shock and vibration applications. Mini Non-Reversing Contactors and Control Relays feature printed circuit board mounting with an accessory link module.
- Control relay includes bifurcated contacts, rated 16A AC-1, A600, and Q600 for high current switching applications up to 600V.
- Four pole control relays with NO and NC contact configurations.



### UNIQUE PRODUCT FEATURES



The Printed Circuit Board Link Module installs directly on the terminals of standard mini contactors and control relays enabling them to be directly mounted on an electronic printed circuit board. The module is rated 16A AC-3 and 22A AC-1 to take full advantage of the maximum switching capability of the mini contactor and control relay.

The insulated, over-molded wiring modules provide error free interconnections for reversing the power poles, and provide the electrical interlock through the integrated normally closed auxiliary contacts.



## IT'S EASY TO BUILD YOUR OWN IEC MINI CONTROL RELAY

Simply pick the code number from each of the sections below and combine them to build your part number. See page 6 for more detailed directions.

### IEC Mini Control Relays

**300-C16N**

I

II

III

Example: To build one of our most popular Mini Control Relays, the part number would be **300-C16N + II + III** or **300-C16N22D**



#### I. MINI CONTROL RELAYS

CODE	DESCRIPTION	CONTACT RATINGS	PRICE
300-C16N	Four (4) Pole Control Relay	16A AC-1, A600, Q600	\$12.50

#### II. CONTACT CONFIGURATION

CODE	DESCRIPTION
22	2 NO and 2 NC
31	3 NO and 1 NC
40	4 NO
13	1 NO and 3 NC
04	4 NC

#### III. COIL VOLTAGE

##### AC COIL VOLTAGE CODES

VOLTAGE	24	48	110	120	230	240	400	480	600
50Hz	—	—	D	—	—	—	—	—	—
60Hz	—	—	—	D	—	F	—	R	T
50/60Hz	XC	XJ	—	—	XN	—	XAM	—	—

##### DC COIL VOLTAGE CODES

VOLTAGE	12	24	110	125	250	PRICE
	ZB	ZC	ZD	ZQ	ZP	\$ 6.00

DISCOUNT  
SCHEDULE **C**

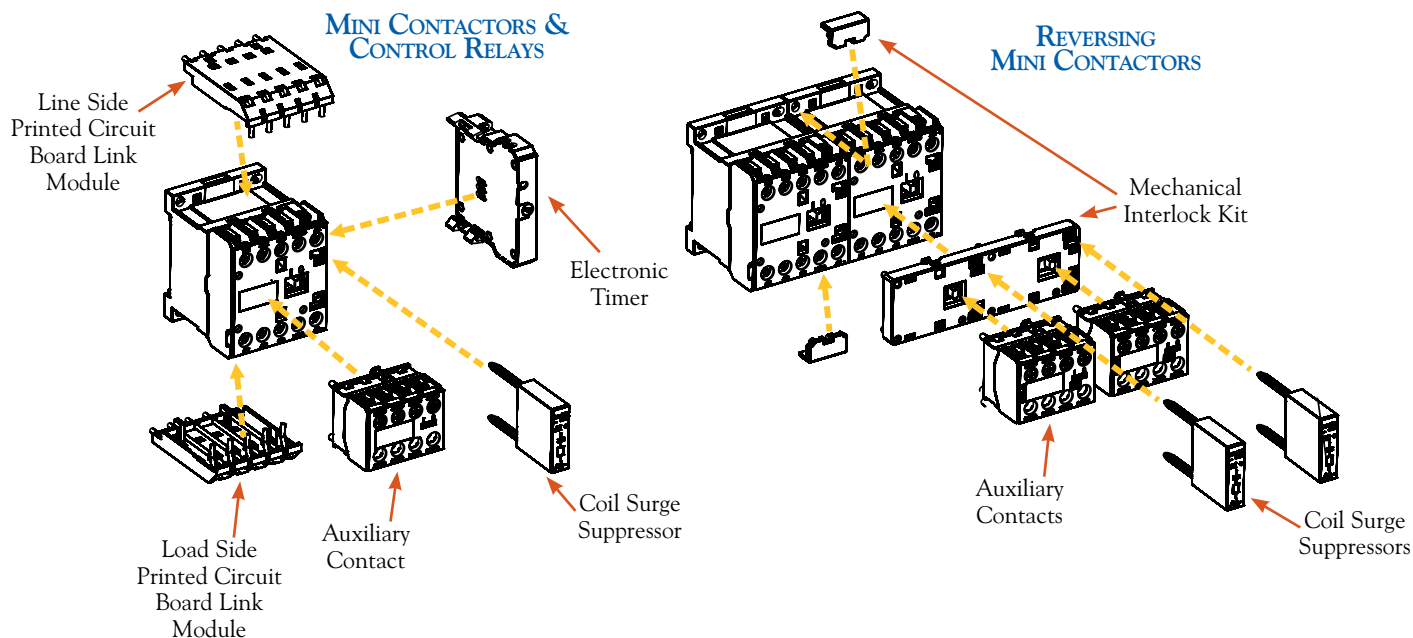
## SOME OF OUR POPULAR CONFIGURATIONS:

#### IEC MINI CONTROL RELAYS

CATALOG NUMBER	DESCRIPTION	PRICE
300-C16N22D	Mini Control Relay, 2 NO and 2 NC, 120V AC Coil	\$12.50
300-C16N22ZC	Mini Control Relay, 2 NO and 2 NC, 24V DC Coil	\$18.50
300-C16N40D	Mini Control Relay, 4 NO, 120V AC Coil	\$12.50
300-C16N40ZC	Mini Control Relay, 4 NO, 24V DC Coil	\$18.50

## ACCESSORIES FOR IEC MINI CONTACTORS AND CONTROL RELAYS

The complete range of Series 300 IEC Mini Contactors and Control Relays share common accessories including auxiliary contacts, electronic timers, reversing contactor modules, surge suppressors and a printed circuit board link module if you don't want to mount these devices on a panel or 35mm DIN rail. Designing starter assemblies and panels is easy – you don't have to remember which auxiliary is required for each contactor or control relay, they all work together. Installation is easy too – once you learn how to install each accessory, it's always the same no matter what contactor or control relay it's being installed on. If simple design and assembly isn't enough – you'll also reduce your inventory and maximize its flexibility, because unique accessories are not required for each size contactor or control relay.



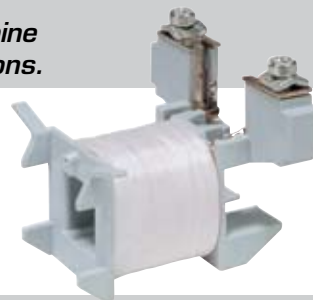
### IT'S EASY TO BUILD YOUR OWN OPERATING COIL

Simply pick the code number from each of the sections below and combine them to build your part number. See page 6 for more detailed directions.

#### Operating Coils



Example: To build one of our most popular Operating Coils, the part number would be **I + II** or **ACM16D**



#### I. OPERATING COIL TYPE

CODE	DESCRIPTION	FOR USE WITH	PRICE
ACM16	AC Operating Coil	M07, M09, M12, M16, C16	\$ 5.00
DCM16	DC Operating Coil	M07, M09, M12, M16, C16	\$11.00

DISCOUNT SCHEDULE **C**

#### II. COIL VOLTAGE

##### AC COIL VOLTAGE CODES

VOLTAGE	24	48	110	120	230	240	400	480	600
50Hz	—	—	D	—	—	—	—	—	—
60Hz	—	—	—	D	—	F	—	R	T
50/60Hz	XC	XJ	—	—	XN	—	XAM	—	—

##### DC COIL VOLTAGE CODES

VOLTAGE	12	24	110	125	250
	ZB	ZC	ZD	ZQ	ZP



## AUXILIARY CONTACTS



Our front mounted auxiliary contact modules feature IP20 guarded terminals to protect against accidental contact with live parts. The modules are available in 2 and 4 circuit configurations. The device identification marker simplifies trouble shooting in panels with many devices. These modules snap-on and install without the use of tools. NOTE: See chart below for maximum number of front mounted auxiliary contacts.

### CONTACT CONFIGURATION

CODE	NO	NC	FOR USE WITH CONTACTORS	PRICE
300-MFA20	2	0	M07, M09, M12, M16	\$ 8.00
300-MFA11	1	1		\$ 8.00
300-MFA02	0	2		\$ 8.00
300-MFA40	4	0		\$14.00
300-MFA22	2	2		\$14.00
300-MFA04	0	4		\$14.00
300-MFA31	3	1		\$14.00
300-MFA13	1	3		\$14.00
CODE	NO	NC	FOR USE WITH RELAYS	PRICE
300-CFA20	2	0	C16	\$ 8.00
300-CFA11	1	1		\$ 8.00
300-CFA02	0	2		\$ 8.00
300-CFA40	4	0		\$14.00
300-CFA22	2	2		\$14.00
300-CFA04	0	4		\$14.00
300-CFA31	3	1		\$14.00
300-CFA13	1	3		\$14.00

### MAXIMUM NUMBER OF FRONT MOUNTED AUXILIARY CONTACTS

COIL CODE	MAXIMUM NUMBER
D, F, R, T	Up to four (4) additional poles
ZB, ZC, ZD, ZQ, ZP	Up to two (2) additional poles

## PRINTED CIRCUIT BOARD LINK MODULE



The printed circuit board module enables mini contactors and control relays to be mounted directly on electronic printed circuit boards. The module is rated 16A AC-3 and 22A AC-1.

CODE	DESCRIPTION	PRICE
300-MPCLM	Printed Circuit Board Link Module	\$ 4.00

## WIRING MODULE



Reversing contactor power wiring modules make field assembly of reversing contactors easy.

CODE	FOR USE WITH CONTACTORS	PRICE
300-RWM16	M07, M09, M12, M16	\$12.00

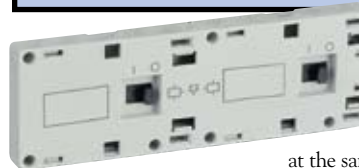
## ELECTRONIC TIMERS



Right side mounted electronic timers are available in On-Delay and Off-Delay configurations with timing ranges up to 30 seconds. The modules install without the use of tools, and can be used in conjunction with all other accessories.

CODE	FUNCTION	TIMING RANGE (Secs.)	VOLTAGE	PRICE
300-MTDD3M	On-Delay	0.3 ~ 3	24 ~ 240V AC/DC	\$43.00
300-MTDD10M		1 ~ 10		\$43.00
300-MTDD30M		3 ~ 30		\$43.00
300-MTDD3	Off-Delay	0.3 ~ 3	24 ~ 60V AC/DC	\$43.00
300-MTDD10		1 ~ 10		\$43.00
300-MTDD30		3 ~ 30		\$43.00
300-MTDD3M	Off-Delay	0.3 ~ 3	100 ~ 240V AC/DC	\$43.00
300-MTDD10M		1 ~ 10		\$43.00
300-MTDD30M		3 ~ 30		\$43.00

## MECHANICAL INTERLOCK



Our front mounted mechanical interlock is for reversing contactors. The interlock prevents the forward and reverse contactors from being actuated at the same time. Auxiliary contact modules, surge suppressors, and timers can be used in conjunction with the mechanical interlock.

CODE	DESCRIPTION	PRICE
300-MMI	Front Mounted Mechanical Interlock	\$12.00

## SURGE SUPPRESSORS



Front mounted surge suppressors protect sensitive electronic components from damaging line voltage spikes. The modules install without the use of tools, and can be used in conjunction with all other accessories.

CODE	VOLTAGE RANGE	TYPE	PRICE
300-MRCXC	12 ~ 24V 50/60Hz	RC	\$10.00
300-MRCXJ	24 ~ 48V 50/60Hz		\$10.00
300-MRCAH	48 ~ 127V 50/60Hz		\$10.00
300-MRCXF	127 ~ 250V 50/60Hz		\$10.00
300-MRCQ	250 ~ 380V 50/60Hz		\$10.00
300-MRCT	380 ~ 510V 50/60Hz		\$10.00
300-MVXSJ	12 ~ 48VAC / 12 ~ 60VDC	Varistor	\$10.00
300-MVSAH	50 ~ 127VAC / 60 ~ 180VDC		\$10.00
300-MVSP	130 ~ 275VAC / 180 ~ 300VDC		\$10.00
300-MVSQ	277 ~ 380VAC / 300 ~ 510VDC		\$10.00
300-MVST	400 ~ 510VAC	Diode	\$10.00
300-MDST	12 ~ 600VDC		\$10.00

DISCOUNT SCHEDULE C

## SPECIFICATIONS:

ELECTRICAL SPECIFICATIONS						
		M07	M09	M12	M16	
ELECTRICAL GENERAL						
	UNITS					
Rated Operating Frequency	Hz	25 ~ 400				
Rated Coil Frequencies		AC: 50Hz, 60Hz, 50/60Hz and DC				
ELECTRICAL UL/CSA APPLICATIONS						
Rated Operating Voltage, Ue	VAC	600				
General Purpose Current Rating	A	18	20	22	22	
RATED 1 PHASE OPERATING CURRENT, Ie						
115V	A	7.2	7.2	9.8	16	
230V	A	6.9	8	12	12	
RATED 1 PHASE OPERATING POWER, PE						
115V	HP	1/3	1/3	1/2	1	
230V	HP	3/4	1	2	2	
RATED 3 PHASE OPERATING CURRENT, Ie						
200V	A	6.9	7.8	11	11	
230V	A	6	6.8	9.6	9.6	
460V	A	7.6	7.6	11	14	
575V	A	6.1	9	9	11	
RATED 3 PHASE OPERATING POWER, Pe						
200V	HP	1-1/2	2	3	3	
230V	HP	1-1/2	3	3	5	
460V	HP	5	5	7-1/2	10	
575V	HP	5	7-1/2	7-1/2	10	
Short Current Circuit Rating	kA	5	5	5	5	
Maximum Fuse Size	A	25	25	25	32	
ELECTRICAL IEC APPLICATIONS						
Rated Insulation Voltage, Ui	V	690				
Rated Operating Voltage, Ue	VAC	690				
Rated Thermal Current, Ith	A	18	20	22	22	
RATED AC-1 OPERATING CURRENT, Ie						
At 55° C (131° F)	A	18	20	22	22	
RATED AC-3 OPERATING CURRENT, Ie						
220 ~ 240V	A	6.8	9.6	—	—	
380 ~ 400V	A	6.3	8.1	11	14.8	
415 ~ 440V	A	7	9	12	16	
500V	A	5	9	12	12	
660 ~ 690V	A	3.5	6.7	9	9	
RATED AC-3 OPERATING POWER, Pe						
220 ~ 240V	kW	1.5	2.2	3	4	
380 ~ 400V	kW	3	4	5.5	7.5	
415 ~ 440V	kW	3	4	5.5	7.5	
500V	kW	3	5.5	7.5	7.5	
660 ~ 690V	kW	3	5.5	7.5	7.5	
RATED AC-4 OPERATING CURRENT, Ie						
220 ~ 240V	A	2.5	4	4	5	
380 ~ 400V	A	2.5	4	4	5	
415 ~ 440V	A	2.5	4	4	5	
MAXIMUM ELECTRICAL SWITCHING RATE						
AC-1	Ops./Hr.	300				
AC-3	Ops./Hr.	600				
AC-4	Ops./Hr.	300				
Electrical Endurance, AC-3 at Maximum Rated 3 Phase Operating Power (@400V)	Ops. (mil.)	1.4	1.3	1.2	1.1	

## COIL CHARACTERISTICS, MECHANICAL & ENVIRONMENTAL SPECIFICATIONS

<b>COIL CHARACTERISTICS</b>		
	<b>UNITS</b>	
Rated Insulation Voltage, Ui	V	690
<b>OPERATING LIMITS</b>		
<b>50 HZ, 60 HZ, 50/60 HZ</b>		
Operating	xUc	0.8 ~ 1.1
Pick-Up	xUc	0.8 ~ 1.1
Sealed	xUc	0.8 ~ 1.1
<b>DC</b>		
Operating	xUc	0.8 ~ 1.1
Pick-Up	xUc	0.8 ~ 1.1
Sealed	xUc	0.8 ~ 1.1
<b>COIL CONSUMPTION</b>		
<b>50 HZ, 60 HZ, 50/60 HZ</b>		
Pick-Up	VA	16
Hold-In	VA	2 ~ 3
<b>DC</b>		
Pick-Up	W	1.74 ~ 2.5
Hold-In	W	1.74 ~ 2.5
<b>OPERATING TIMES</b>		
<b>AC</b>		
Pick-Up	msec.	20 ~ 30
Drop-Out	msec.	20 ~ 30
<b>DC</b>		
Pick-Up	msec.	25 ~ 35
Drop-Out	msec.	25 ~ 35
<b>POWER DISSIPATION</b>		
50 Hz, 60 Hz, 50/60 Hz	W	3
<b>POWER FACTOR</b>		
Closed	cosφ	0.27
Open	cosφ	0.8
<b>MECHANICAL</b>		
Mechanical Endurance	Ops. (mil.)	10
Maximum Mechanical Switching Rate	Ops./Hr.	2000
<b>ENVIRONMENTAL</b>		
Ambient Operating Temperature	°C/°F	-25 to +55 (-13 to +131)
Ambient Storage Temperature	°C/°F	-55 to +80 (-67 to +176)
Altitude	m/ft	3,000/9,792
<b>CONSTRUCTION</b>		
<b>INGRESS PROTECTION</b>		
Main Circuits	—	IP20
Control Circuit Terminations	—	IP20
Weight	kg./lbs.	0.18/0.40
<b>TERMINAL CAPACITY</b>		
AWG Wire		18 ~ 14
Solid	mm <sup>2</sup>	2 x 1 ~ 2.5
Stranded	mm <sup>2</sup>	2 x 0.75 ~ 1.5
Tightening Torque	lb-in.	8.8 ~ 13.3
	Nm	1.0 ~ 1.5

For RoHS compliance documentation by product, refer to [www.c3controls.com](http://www.c3controls.com).



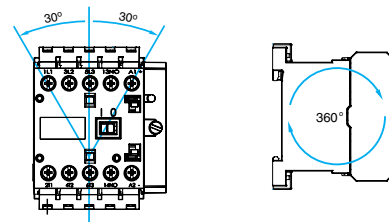
## SPECIFICATIONS:

ELECTRICAL & COIL CHARACTERISTICS SPECIFICATIONS		
		C16
ELECTRICAL GENERAL		
	UNITS	
Rated Operating Frequency	Hz	25 ~ 400
Rated Coil Frequencies		AC: 50Hz, 60Hz, 50/60Hz and DC
RATED AC-1 OPERATING CURRENT, I <sub>e</sub>		
At 55° C (131° C)	A	16
CONTACT RATINGS		
Rated Voltage, U <sub>e</sub>		
IEC	V	690
UL/CSA	V	600
Pilot Duty Rating		
	AC	A600
	DC	Q600
Make/Break		
AC-15		
@240V AC	A	10
@415V AC	A	5
@500V AC	A	5
DC-13		
@24V DC	A	2.5
@60V DC	A	1.5
@110V DC	A	0.7
@220V DC	A	0.35
Electrical Life		
	mil. Ops.	1
COIL CHARACTERISTICS		
Rated Insulation Voltage, U <sub>i</sub>	V	690
OPERATING LIMITS		
50 HZ, 60 HZ, 50/60 HZ		
Operating	xU <sub>c</sub>	0.8 ~ 1.1
Pick-Up	xU <sub>c</sub>	0.8 ~ 1.1
Sealed	xU <sub>c</sub>	0.8 ~ 1.1
DC		
Operating	xU <sub>c</sub>	0.8 ~ 1.1
Pick-Up	xU <sub>c</sub>	0.8 ~ 1.1
Sealed	xU <sub>c</sub>	0.8 ~ 1.1
COIL CONSUMPTION		
50 HZ, 60 HZ, 50/60 HZ		
Pick-Up	VA	16
Hold-In	VA	2 ~ 3
DC		
Pick-Up	W	1.74 ~ 2.5
Hold-In	W	1.74 ~ 2.5
OPERATING TIMES		
AC		
Pick-Up	msec.	20 ~ 30
Drop-Out	msec.	20 ~ 30
DC		
Pick-Up	msec.	25 ~ 35
Drop-Out	msec.	25 ~ 35
POWER DISSIPATION		
50 Hz, 60 Hz, 50/60 Hz	W	3
POWER FACTOR		
Closed	cosφ	0.27
Open	cosφ	0.8

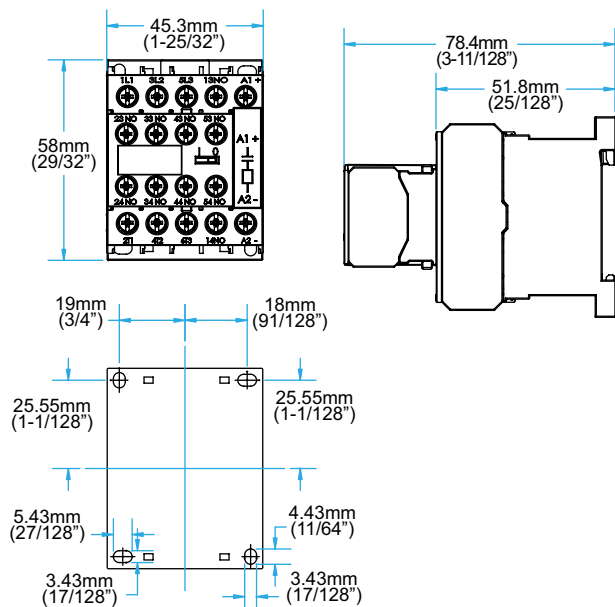
MECHANICAL, ENVIRONMENTAL & CONSTRUCTION RELAY SPECIFICATIONS		
		C16
MECHANICAL		
	UNITS	
Mechanical Life	Ops. (mil.)	10
ENVIRONMENTAL		
Ambient Operating Temperature	°C/°F	-25 to +55 (-13 to +131)
Ambient Storage Temperature	°C/°F	-55 to +80 (-67 to +176)
Altitude	m/ft	3,000/9,792
CONSTRUCTION		
INGRESS PROTECTION		
Protection Class		IP20
Weight	kg./lb.	0.18/0.42
TERMINAL CAPACITY		
AWG Wire		18 ~ 14
Solid	mm <sup>2</sup>	2 x 1 ~ 2.5
Stranded	mm <sup>2</sup>	2 x 0.75 ~ 1.5
Tightening Torque	lb-in.	8.8 ~ 13.3
	Nm	1.0 ~ 1.5
For RoHS compliance documentation by product, refer to <a href="http://www.c3controls.com">www.c3controls.com</a> .		

AUXILIARY CONTACTS SPECIFICATIONS		
		300-MFA, 300-CFA
ELECTRICAL GENERAL		
	UNITS	
ELECTRICAL UL/CSA APPLICATIONS		
Rated Operating Voltage, U <sub>e</sub>	VAC	600
PILOT DUTY RATING		
AC		A600
DC		Q600
ELECTRICAL IEC APPLICATIONS		
Rated Insulation Voltage, U <sub>i</sub>	V	690
Rated Operating Voltage, U <sub>e</sub>	VAC	690
Rated Thermal Current, I <sub>th</sub>	A	10
RATED AC-15 OPERATING CURRENT, I <sub>e</sub>		
220V	A	10
380 ~ 400V	A	5
RATED DC-13 OPERATING CURRENT, P <sub>e</sub>		
24V	A	1.5
CONSTRUCTION		
TERMINAL CAPACITY		
AWG Wire		22 ~ 12
Solid	mm <sup>2</sup>	2 x 0.5 ~ 2.5
Stranded	mm <sup>2</sup>	2 x 0.5 ~ 2.5
Tightening Torque	lb-in.	7.1 ~ 13.3
	Nm	0.8 ~ 1.5
For RoHS compliance documentation by product, refer to <a href="http://www.c3controls.com">www.c3controls.com</a> .		

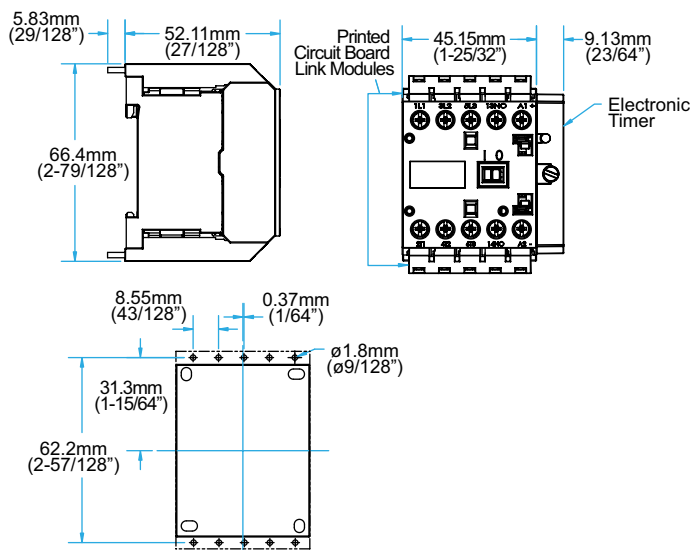
## MOUNTING POSITIONS FOR IEC MINI CONTACTORS AND CONTROL RELAYS



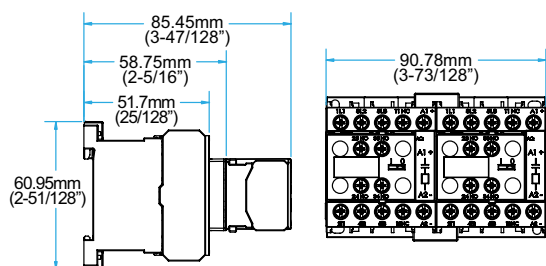
**MINI NON-REVERSING CONTACTOR & CONTROL RELAY WITH AUXILIARY CONTACTS & SURGE SUPPRESSOR**



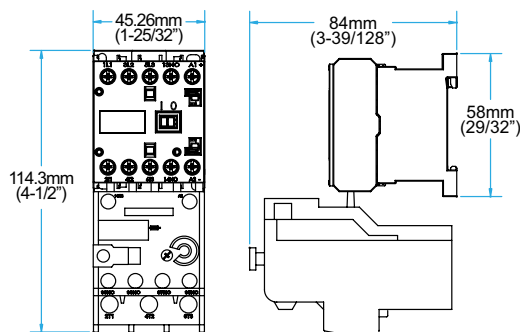
**MINI NON-REVERSING CONTACTOR & CONTROL RELAY WITH PRINTED CIRCUIT BOARD LINK MODULE AND ELECTRONIC TIMER**



**MINI REVERSING CONTACTOR WITH AUXILIARY CONTACTS & SURGE SUPPRESSOR**



**MINI NON-REVERSING CONTACTOR WITH OVERLOAD RELAY ASSEMBLY**



**VISIT [WWW.C3CONTROLS.COM](http://WWW.C3CONTROLS.COM) TO DOWNLOAD CAD DRAWINGS**

