

JENKINS

Electric Motor Starters & Contactors



INDEX

	Page
Sales Terms / Shipping.....	1
Relays: Field Loss, Unit Pole and Lighting	3
Definite Duty DC Contactors, Type 5DP	4
NEMA Duty DC Contactors, and Parts	5
DC Reduced Voltage Starters	6
Contactor Dimensions, Joslyn Clark	7
AC Contactors, Joslyn Clark	10
AC Starters, Joslyn Clark	11
Heaters for Overload Relays	12
Coils, Contacts, and Overload Relays	13
IEC Controls, Springer And Agut	14
Mill Duty Products and Feeler Switches	13
AC/DC Clapper-Type Contactors	15
Surge Suppressors and Replacement Coils	16

PHONE

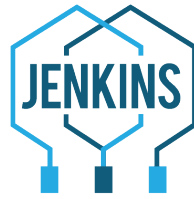
(704) 392-7371
(800) 438-3003

FAX

(704) 392-7373
(800) 392-2612

SHIPPING: 5933 BROOKSHIRE BOULEVARD, CHARLOTTE, NC 28216
MAILING: PO BOX 32127, CHARLOTTE, NC 28232-2127

www.jenkins.com
www.jenkinselectric.com
email: answers@jenkins.com



TERMS & CONDITIONS

Our parts have a 12-month warranty, our systems have an 18- month warranty. Below is what we have in our catalog.

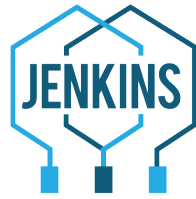
Cooling fans and Motor Parts supplied by Jenkins Electric Company are guaranteed to operate within designed parameters under the specifics of our following limited warranty. Design parameters are as specified in either our written quotation or as specified in this catalog. All assembly and /or related workmanship are guaranteed to be free from defect for a period of 12 months. This warranty does not cover equipment that has been damaged in shipment, current overloads, improper voltage supply, improper frequency, excessive duty cycle, water/dirt damage, and lightening or employee abuse.

Jenkins Electric Company will only accept returns for credit and/or exchange on any standard catalog item if accompanied by applicable invoice copy. A 10% restocking fee applies. Fans custom machined to nonstandard customer specifications, special order or non-stock items specifically purchased and/or manufactured for a customer cannot be returned for credit or exchange. Defective parts or parts requiring corrective machine work can be returned for an expedited repair or exchange. Any related shipping charges incurred are not credited.

Jenkins Electric Company will not be liable for any consequential, special, contingent or incidental damages and/or penalties occurred. We disclaim liability for any losses or damages outside of this equipment, for any transportation charges or for any labor claims. Jenkins Electric Company specifically denies liability for any personal injury produced as a result of improper application, used and/or improper safety procedures during operation.

Jenkins utilizes UPS shipping, which is available for orders with delivery addresses within the United States and U.S. territories, excluding P.O. boxes and rural routes. The UPS shipping method selected is dependent upon customer need. If you prefer shipping via another provider, your collect account information will be needed prior to shipment. Any additional charges or fees from your select carrier will be passed along to you. Please feel free to contact us with any questions at answers@jenkins.com or 800-438-3003. F.O.B. shipping point, freight not allowed. Costs associated with packaging, handling, and shipping of project equipment are not included in this proposal unless otherwise stated. These costs will be prepaid and added to invoice unless otherwise specified or alternate shipping/billing method is requested.

There will be an extra charge involved for Priority Mail, Special Delivery, UPS Red, Blue or 3-Day Service, Air Express, COD or International Shipments, based on the extra cost incurred. An



emergency shipment after 5:00 pm or on weekends will be charged up to \$100.00 extra. On average, machined fans ship in 3 to 5 days. Fans can be machined as a rush order for an extra \$25.00 expedite fee.

Invoices are payable Net 30 days following the invoice date unless otherwise noted. Our normal terms for customers with established credit. All others, credit cards, or COD. All prices F.O.B. Charlotte, in U.S. Dollars. Fan orders and other small part orders are normally shipped by United

Parcel Service. We have standard shipping and handling charge of \$8.00 per order. There is no minimum billing charge.

We accept the following:

Visa, Master Card, American Express



UL, FM, & CSA APPROVAL



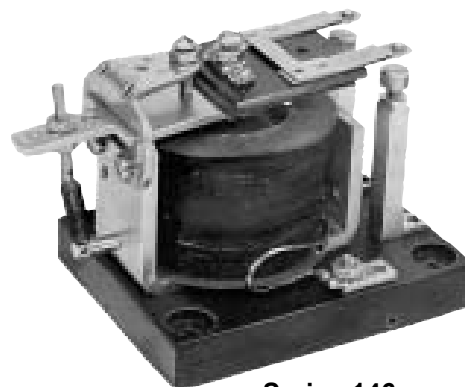
PRODUCT CERTIFICATION is provided on a number of the items we distribute. An Underwriters Laboratory symbol, a Factory Mutual symbol, or a Canadian Standards symbol may be displayed near a product listing. This means that most products in this category have been approved. There may be some specific items which have not been approved. If certification is required on your control order, ask us to check the items on your order.

Joslyn Clark Field Loss and Unit Pole Relays

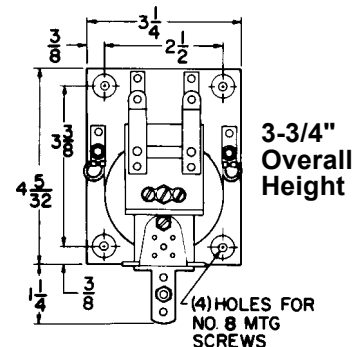
DC Field Loss Relays (JC-21)



Catalog Number	Rated Field Current (Amperes)		Drop-Out Current
	Maximum	Minimum	
146-25	0.25	0.02	0.015
146-50	0.50	0.05	0.031
146-100 *	1.00	0.10	0.062
146-150 *	1.50	0.15	0.093
146-200 *	2.00	0.20	0.124
146-250 *	2.50	0.25	0.155
146-300 *	3.00	0.30	0.186
146-400 *	4.00	0.40	0.248
146-500 *	5.00	0.50	0.310
146-600	6.00	0.60	0.372
146-700 *	7.00	0.70	0.434
146-800 *	8.00	0.80	0.496
146-900	9.00	0.90	0.559
146-1050 *	10.50	1.05	0.651
146-1200 *	12.00	1.20	0.744
146-1350	13.50	1.35	0.836
146-1500 *	15.00	1.50	0.930
146-2200 *	22.00	2.20	1.320
146-2700	27.00	2.70	1.620
146-3500 *	35.00	3.50	2.100
146-6500	65.00	6.50	4.000



Series 146 Field Loss Relay



*Normal stock items at Jenkins Electric.

Sub-Assemblies For Interchangeable Pole Relays (JC-55)

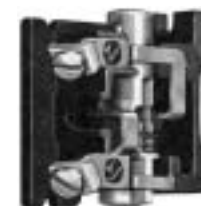
Description Unit Poles	Ward Leonard HR	Clark Type PM
	Catalog No	Catalog No
10 AMP, AC, N.O.	447-9046	KPM-1A
10 AMP, AC, N.C.	447-9047	KPM-2A
20 AMP, AC, N.O.	447-9048	KPM-31A
20 AMP, AC, N.C.	447-9049	KPM-32A
30 AMP, AC, N.O. (Tungsten)	447-9071	KLC-31A
30 AMP, AC, N.C. (277V)	447-9072	KLC-32A
Low power, AC, N.O. (Gold Bonded)	—	KPM-41
Low power, AC, N.C. (Gold Bonded)	—	KPM-42
20 AMP, DC, N.O. (One Blowout)	447-9019	
20 AMP, DC, N.O. (Two Blowouts)	447-9020	
20 AMP, DC, N.C. (One Blowout)	447-9021	
20 AMP, DC, N.C. (Two Blowouts)	447-9022	
10 AMP, AC, 2 N.O. (Duplex Pole)	—	KPMF-1
10 AMP, AC, 1 N.O./1 N.C. (Duplex Pole)	—	KPMA-1
10 AMP, AC, N.O./N.C. Overlapping (Dup. Pole)	—	KPMA-21
10 AMP, AC, N.O. Overlapping (Duplex Pole)	—	KPM-21A
10 AMP, AC, N.C. Overlapping (Duplex Pole)	—	KPM-22A
Low power, AC, N.O. (Noble Metal)	—	KPM-13
Low power, AC, N.C. (Noble Metal)	—	KPM-14
Solid State Interface	—	KPM-60
Bases and Power Plants		
2 Pole, AC, 115V Coil	—	5S-76
4 Pole, AC, 115V Coil	447-9402-11	5U4B-76
8 Pole, AC, 115V Coil	447-9801-11	5U8B-76
4 Pole, DC, 230V Coil	447-9405-23	4U4B-240
8 Pole, DC, 230V Coil	447-9805-23	4U8B-240
Electromechanical Latch Kit	447-9108-11	KPMH12-76
Enclosure for Relay, NEMA-1	5999-5011	EPM 1-101
Timing Head, Pneumatic	447-9710	KPMT-12
Timed Pole Mount, R.H.	—	KPMT-3
Timed Head Mount, L.H.	—	KPMT-4



6-Pole AC Base Type HR



Type HR Unit Pole



Type PM Unit Pole



Definite Purpose DC Contactors, 500 Volt

Description

5000DP Definite Purpose Contactors are designed for dc adjustable speed drive circuits using silicon controlled rectifier switching where the power contacts are only occasionally required to break rated current. Contactors with blowouts will interrupt 200% current under abnormal conditions.

DC Drive Contactors* (JC-20)

Size Amps	Poles		Wiring Fig. No.	Catalog Number
	N.O.	N.C.		
40	—	1	7A	7001-5150-11
40	1	—	1	7001-6050-11
40	2	—	3	7001-7030-11
40	2	1	10	7001-7140-11
30	—	1	8	5DP1-01100
30	1	—	1	5DP1-10100
30	1	1	5	5DP1-11100
30	2	—	2	5DP1-20100
30	2	1	6	5DP1-21100
30	2	—	3	5DP1-5021-11
30	2	1	7	5DP1-5051-11
56	—	1	8	5DP2-01100
56	1	—	1	5DP2-10100
56	1	1	5	5DP2-11100
56	2	—	2	5DP2-20100
56	2	1	6	5DP2-21100
56	2	—	3	5DP2-5021-11
56	2	1	7	5DP2-5051-11
75	—	1	7A	5DP7-5150-11
75	1	—	1	5DP7-6050-11
75	2	—	3	5DP7-7030-11
75	2	1	10	5DP7-7140-11
110	1	—	1	5DP3A4011-11
110	2	—	3	5DP3A5021-11
110	2	1	15	5DP3A5091-11
110	—	1	8	5DP3-01100
110	1	—	1	5DP3-10100
110	1	1	5	5DP3-11100
110	2	—	2	5DP3-20100
110	2	1	6	5DP3-21100
110	2	—	3	5DP3-5021-11
110	2	1	7	5DP3-5051-11
180	—	1	8	5DP4-01100
180	—	2	9	5DP4-02100

DC Drive Contactors (cont.)

Size Amps	Poles		Wiring Fig. No.	Catalog Number
	N.O.	N.C.		
180	1	—	1	5DP4-10100
180	1	1	5	5DP4-11100
180	2	—	2	5DP4-20100
180	2	1	6	5DP4-21100
180	2	—	3	5DP4-5021-11
180	2	1	7	5DP4-5051-11
180	2	1	15	5DP4-5091-11
260	—	1	8	5DP9-4001-11
260	—	1	8	5DP9-01100
260	—	2	9	5DP9-3071-11
260	—	2	9	5DP9-02100
260	1	—	1	5DP9-4011-11
260	1	—	1	5DP9-10100
260	1	1	5	5DP9-11100
260	2	—	2	5DP9-20100
260	2	1	6	5DP9-21100
260	2	—	3	5DP9-5021-11
260	2	1	7	5DP9-5051-11
260	2	1	15	5DP9-5091-11
360	—	1	8	5DP5-4001-11
360	—	1	8	5DP5-01100
360	—	2	9	5DP5-3071-11
360	1	—	1	5DP5-10100
360	1	1	5	5DP5-11100
360	2	—	2	5DP5-20100
360	2	—	3	5DP5-5021-11
360	2	1	6	5DP5-21100
360	2	1	7	5DP5-5051-11
535	—	1	8	5DP8-4001-11
535	—	1	8	5DP8-01100
535	—	2	9	5DP8-02100
535	1	—	1	5DP8-4011-11
535	1	1	5	5DP8-11100
535	2	—	2	5DP8-20100
535	2	—	3	5DP8-5021-11
535	2	1	6	5DP8-21100
535	2	1	7	5DP8-5051-11
700	—	1	8	5DP6-01100
700	—	2	9	5DP6-3071-11
700	1	—	1	5DP6-4011-11
700	1	1	5	5DP6-11100
700	2	—	3	5DP6-5021-11
700	2	1	6	5DP6-21100
700	2	1	15	5DP6-5051-11
700	2	—	9	5DP6-02100

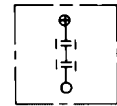


FIG. 1

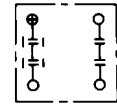


FIG. 2

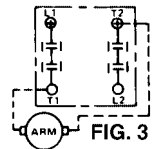


FIG. 3

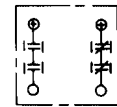


FIG. 5

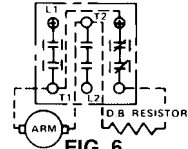


FIG. 6

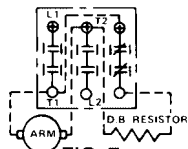


FIG. 7

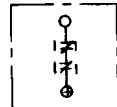


FIG. 7A

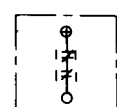


FIG. 8

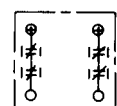


FIG. 9

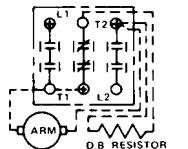


FIG. 10

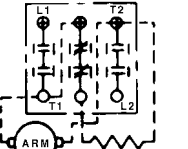


FIG. 15

Replacement Contacts and Coils - In Stock

Contactor Size Amps.	N.O. Kit Nos.	N.C. Kit Nos.	Coils Kit Nos.
10/40,40	5M19	5M20	344L1
25,30	5M55	5M57	319L1
50,56	5M52	5M58	319L1
75	5999-2521	5M48	343L1
110(5DP3A)	5M80	5M58	319L1
100,110	5M53	5M49	320L1
150,180	5M54	5M49	320L1
260	5M56	5M49	320L1
300,360	5999-0045	5999-2461	335L1
535	5999-2371	5999-2461	335L1
700	5999-2381	5999-2481	347L1



Symbols

- ⊢ N.O. Contact
- ⊣ N.C. Contact
- ⊕ Positive Polarity
- ⊢| Contact with Blowout

General Purpose DC Contactors, 250 Volt



Series 7400

NEMA DC Contactors (JC 20)



D.C. Contactors for use as main line, reversing or accelerating contactors in motor starters and controllers. Other applications involve switching resistive heating and battery loads.

Nema Size	Current Rating A	Poles		With 230 V DC Coils	With 120 V AC Coils
		N.O.	N.C.	Catalog Number	Catalog Number
1	25	1	—	7401-4010-22	7441-4010-11
1	25	2	—	7401-1020-22	7441-1020-11
1	25	2	1	7401-3050-22	7441-3050-11
2	50	1	—	7402-4010-22	7442-4010-11
2	50	2	—	7402-1020-22	7442-1020-11
2	50	2	1	7402-3050-22	7442-3050-11
3	100	2	—	7403-1020-22	7443-1020-11
3	100	2	1	7403-3050-22	7443-3050-11
4	150	2	—	7404-1020-22	7444-1020-11
4	150	2	1	7404-3050-22	7444-3050-11
5	300	1	—	7405-4010-22	7445-4010-11
5	300	2	—	7405-1020-22	7445-1020-11
5	300	2	1	7405-3050-22	7445-3050-11

Notes:

- (1) Contactor with DC coil includes economizing resistor and normally closed late break auxiliary for inserting resistor.
- (2) Price does not include N.O. auxiliary.
- (3) These contactors are functional replacement for Reliance 41820X-XX contactors. **Call us for cross reference.**
- (4) **Reversing contactors** are also available from stock.

Kits (JC 20)

Auxiliary Kits Description	Kit Nos.
Auxiliary Interlock: N.O./N.C., RH, 10/40A	5999-3504
N.O./N.C., LH, 10/40A	5999-3604
N.O./N.C., Multiple, 10/40A	5999-3704
N.O. Standard	5M63
N.O. Low Power	5M63L
N.C. Standard	5M64
N.C. Standard Late Break	5M64E
N.C. Low Power	5M64L
N.C. Low Power Late Break	5M64LE
N.O./N.C. Standard	5M65
N.O./N.C. Low Power	5M65L
N.O. Low Power, N.C. Standard	5M65LO
N.O. Standard, N.C. Low Power	5M66
N.O. Standard, N.C. Low Power Late Break	5M67
N.O. Standard, N.C. Standard Late Break	5M68
N.O. Low Power, N.C. Low Power Late Break	5M69
Tandem Mounting Insulator	5M60DA
For 700 Amp.:	
N.O. Low Power	5999-3361
N.C. Low Power	5999-3362
N.O./N.C. Standard	5999-3163
N.O. Standard, N.C. Late Break	5M46
Tandem Mounting Auxiliary	5999-3969
DC Operation: (JC 27) Power Plant Adder, Series 7400 and 5DP-	Sizes 1-4, 7 Size 5, 9
Size 1 & 2 Coil Kit, 120 V dc	5999-2921
Size 1 & 2 Coil Kit, 240 V dc	5999-2922
Size 3 & 4 Coil Kit, 120 V dc	5999-2941
Size 3 & 4 Coil Kit, 240 V dc	5999-2942

Kits (cont.) - JC 20

Auxiliary Kits Description	Kit Nos.
Mechanical Interlock: 10/40A	5M115
75A	5999-4717
Other Sizes to 260A 360, 535 Amp. 700 Amp.	5999-4737 5999-4757 5M96
Reversing Baseplate: 10/40A	5999-8568
Sizes 1 & 2 (& 75A)	5999-8569
Sizes 3 & 4 360, 535 Amp. 700 Amp.	5999-8570 5999-8571 5999-8572

Other DC Contactors

Catalog Number	Poles	
	N.O.	N.C.
7000-0150-11	—	1
7000-2149-11	—	—
7000-7030-*	2	—
7000-7140-*	2	1
7000-7146-11	—	—
7000-8050-81	—	—
7000-9003-11	2	1
7001-0340-11	—	3
7001-8040-11	3	—
5DP2-9006-11	2	1
5DP1-5050-11	2	1
5DP2-03100	—	3

*Use Series 7001

NOTE:

The 7400 Series Contactors are physically the same as the 5DP Series with blowouts on (1) N.O. pole. The reduced voltage rating enables them to break line current.

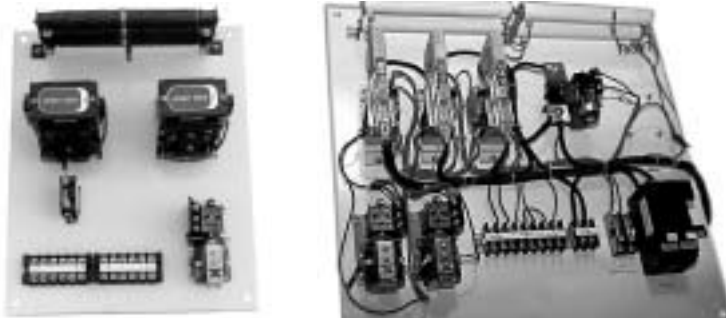
**VOLUME PRICING
FOR OEM'S
AVAILABLE.**

DC Reduced Voltage Magnetic Starters

Series 7450 DC Motor Starters

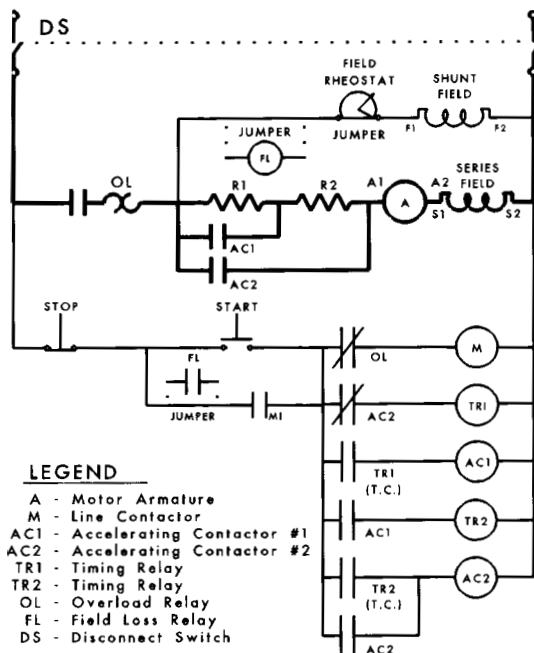
Series 7450 DC Motor Starters are designed for industrial and marine use with constant speed or field controlled motors. The basic starter consists of a single pole line contactor and one or more accelerating contactors with associated timers and starting resistors. All components used are Ward Leonard design, assembled at Jenkins Electric Company. The basic starter listed and illustrated is the open type. Enclosures are available at additional cost. Other options include auxiliary relays, push buttons, field loss relays, and field rheostats. Please specify the optional features you need when requesting a quotation.

(Ward Leonard Designed - Jenkins Manufacture)



NEMA Size 1 Starter
250V, Unwired

Size 2 Starter, 750V, Wired



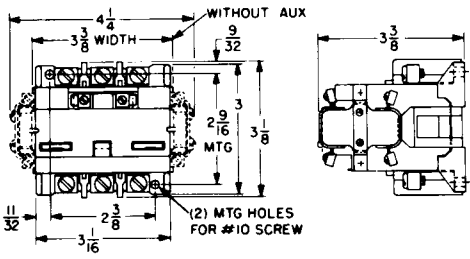
Typical schematic diagram of D.C. Magnetic Starter with non-fusible disconnect switch

DC Reduced Voltage Starters (JC 20)

Features	NEMA Size Catalog Number	0 7450-	1 7451-	2 7452-	3 7453-	4 7454-	5 7455-	6 7456-
BASIC OPEN STARTER	List Price HP Rating, 115/230 V dc Number of Accelerating Contactors	1/2 1	3/5 1	5/10 2	10/25 2	20/40 2	40/50 3	60/100 4
CONTROL CIRCUIT OPTIONS	Additional Electrical Interlocks, Each Fused Control Circuit Control Circuit Transformer	Call	Call	Call	Call	Call	Call	Call
PILOT DEVICES IN COVER	Start-Stop Push Button Hand-Off-Auto Selector Switch Pilot Light (Indicate Color)	Call	Call	Call	Call	Call	Call	Call
METERS	Ammeter in Cover (Includes Shunt) Voltmeter	Call	Call	Call	Call	Call	Call	Call
AUXILIARY RELAYS	Control Relay Timing Relay Power Contactor (Accelerating)	Call	Call	Call	Call	Call	Call	Call
DISCONNECT SWITCHES & CIRCUIT BREAKERS	Disconnect Switch, Non-fusible Disconnect Switch, Fusible Circuit Breaker (Molded Case) Fuses and Fuse Block Only	Call	Call	Call	Call	Call	Call	Call
FIELD CONTROL	Accelerating Relay Field Loss Relay Field Rheostat, Ring Type	Call	Call	Call	Call	Call	Call	Call
ENCLOSURE	NEMA 1 - Ventilated NEMA 12 - Dust Tight NEMA 3R - Rain Resistant NEMA 4 - Watertight NEMA 4X - Corrosion Resistant Approximate Enclosure Sizes, NEMA 1 Ditto, NEMA 12, 3R, 4, 4X (W"x H"x D)	Call	Call	Call	Call	Call	Call	Call
			20x20x8 20x24x10	20x30x8 20x36x12	30x30x10 30x36x16	30x36x10 36x48x16	30x60x20 30x72x24	30x90x24 36x90x24
BRAKING	Increase Enclosure 1 Size Non-Reversing With Dynamic Braking Reversing (With Dynamic Braking)		Call	Call	Call	Call	Call	Call

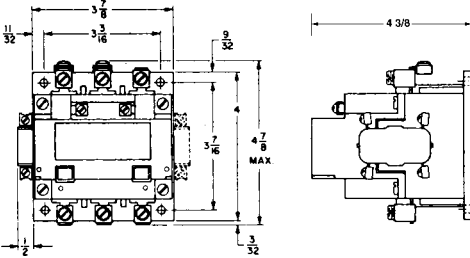
Joslyn Clark Contactor Dimensions

Ward Leonard Design



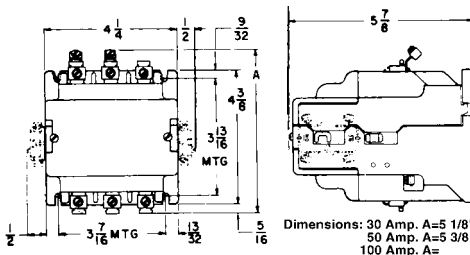
**10/40 and
40 Amp. DC**

Size 00, 0, &
Size 1 AC
with side
mounted
auxiliary
interlock



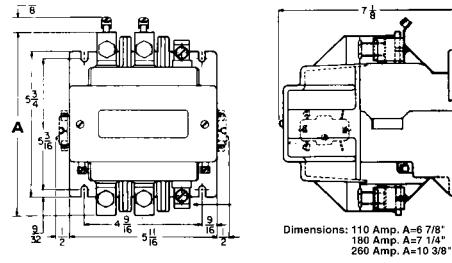
75 Amp DC

Size 2 AC



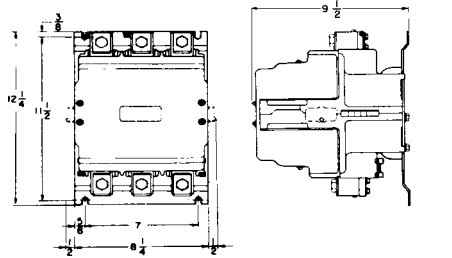
**25, 30,
50, 56, &
110 Amp DC**

Size 3 AC



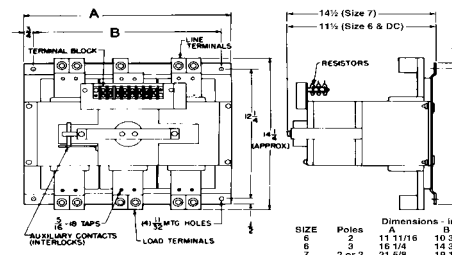
**100, 110,
150, 180, &
260 Amp DC**

Size 4 AC



**300, 360, &
535 Amp DC**

Size 5 AC



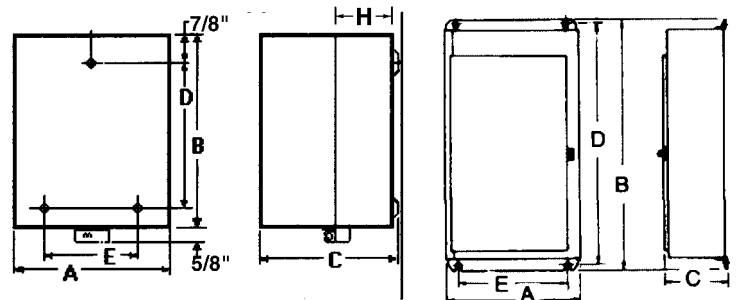
700 Amp DC

Size 6 & 7
AC Contactor

TM - NEMA AC Control

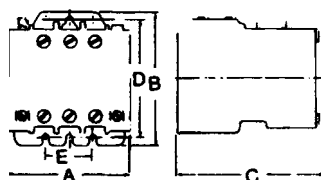
Open Type		Dimensions - Inches				
NEMA Size	Poles	Wide A	High B	Deep C	Mounting D E	
00	3	3-7/8	4-1/4	4-5/8	3-3/4	1-1/2
0-1	1-3	3-7/8	4-1/4	4-5/8	3-3/4	1-1/2
0-1	4	4-7/8	4-1/4	4-13/16	3-3/4	1-1/2
2	2-3	3-7/8	4-1/4	4-15/16	3-3/4	1-1/2
2	4	4-7/8	4-1/4	4-15/16	3-3/4	1-1/2
3-4	2-3	5-7/16	8-1/8	7-1/16	6-7/8	3-1/2
3-4	4	6-15/16	8-1/8	7-1/16	6-7/8	3-1/2
5	2-3	8-3/4	12-1/4	9-1/2	11-1/2	7
6		See Vacuum Contactors				
Type 1						
00	3	6-3/4	9-1/2	6-1/4	7-3/4	5
0-2	1-4	6-3/4	9-1/2	6-1/4	7-3/4	5
3-4	2-4	12	20	9	19	9
5	2-3	22	49	11-3/8	47-1/2	18
Type 12						
00	3	7-1/4	11	6-15/16	10-1/2	4
0-2	1-4	7-1/4	11	6-15/16	10-1/2	4
3-4	2-4	12	24-5/8	9-3/16	23-1/2	7
5	2-3	22	49	11-3/8	47-1/2	18

Clark Control Design



NEMA Type 1

NEMA Type 12



Open Type

Conduit Hub Size			
Encls. Size	Top & Bottom	Bottom Only	H
00-1	3/4	3/4	3
2	1-1/2	3/4	3
3	2	3/4	3
4	2-1/2	3/4	3
5	3	3/4	5

AC Contactors Vacuum Contactors



Series 5000 Contactor



KTM-10 Auxiliary



TM Series Contactor



KTM-42-1 Power Pole

AC Contactors (JC 10)



NEMA Size	Ward Leonard Type Open - 3-Pole Catalog No.	Joslyn Clark Open - 3-Pole Catalog No.	Joslyn Clark Open - 4-Pole Catalog No.	Joslyn Clark NEMA-1, 3-Pole Catalog No.	NEMA-12, 3-Pole Catalog No.
00	5009A3001-1	T77U03A-76	—	T77A03A-76	Use Size 0
0	5000A3001-1	T77U030-76	T77U040-76	T77A030-76	T77T030-76
1	5001A3001-1	T77U031-76	T77U041-76	T77A031-76	T77T031-76
2	5002A3001-1	T77U032-76	T77U042-76	T77A032-76	T77T032-76
3	5003A3001-1	T77U033-76	T77U043-76	T77A033-76	T77T033-76
4	5004-3001-1	T77U034-76	T77U044-76	T77A034-76	T77T034-76
5	5005-3001-1	T77U035-76	U77U045-76	U77A035-76	U77T035-76
6	—	VC77U03615-76	—	—	—

Vacuum Contactors

Special Pricing Available To Panel Builders



Low Voltage



Medium Voltage



Voltages Up To 1500V (JC 11)

Rating Amps	2 Pole - Open Catalog No.	3 Pole - Open Catalog No.	3-Pole Reversing Catalog No.
160	VC77U02415-76	VC77U03415-76	VC31U03415-76-43
320	VC77U02515-76	VC77U03515-76	VC31U03515-76-43
600	VC77U02615-76	VC77U03615-76	VC31U03615-76-43
1000	SVC77U021015-76	SVC77U031015-76	—

Voltages Above 1500V (JC 11)

Rating Amps	3600 Volt Rating		6600 Volt Rating	
	3 Pole - Open Catalog No.	3-Pole Reversing Catalog No.	3 Pole - Open Catalog No.	3 Pole Reversing Catalog No.
160	VC77U03436-76	VC31U03436-76-43	MVC77U032A72-76	MVC31U032A72-76
320	VC77U03536-76	VC31U03536-76-43	MVC77U034A72-76	MVC31U034A72-76
600	VC77U03636-76	VC31U03636-76-43	MVC77U036A72-76	MVC31U036A72-76
1000	SVC77U031036-76	(Not Wired)	SVC77U031272-76	(Not Wired)

AC Starters Vacuum Starters



**Size 4
Starter
Series
8000**

Requires
Three
FH-Series
Heaters



**Nema 12
Enclosure**



Requires
Three
2400
Series
Heaters

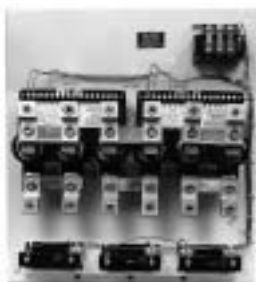
Starters (JC 10)

TM Series Starters



NEMA Size	Ward Leonard Design Open Type Three Phase	Joslyn Clark TM Design Open Type	Joslyn Clark NEMA-1 General Purpose Enclosure	Joslyn Clark NEMA-12 Dust Tight Enclosure	Joslyn Clark NEMA-4 Watertight Enclosure
Size	Catalog No.	Catalog No.	Catalog No.	Catalog No.	Catalog No.
00	8019B3951-11	T13U03A-76*	T13AA3A-76	Use Size 0	Use Size 0
0	8010B3951-11	T13U030-76*	T13AA30-76	T13TA30-76	T13WA30-76
1	8011B3951-11	T13U031-76*	T13AA31-76	T13TA31-76	T13WA31-76
2	8012B3951-11	T13U032-76	T13AA32-76	T13TA32-76	T13WA32-76
3	8013B3951-11	T13U033-76	T13AA33-76	T13TA33-76	T13WA33-76
4	8014-3951-11	T13U034-76	T13AA34-76	T13TA34-76	T13WA34-76
5	8015-3951-11	U13U035-76	U13AA35-76	U13TA35-76	U13WA35-76
6	—	VS13U03615-76	VS13AA3615	VS13TA3615-76	—

* 00-1 TM Adapter Plate is available to replace AB(1), CH, Clark (CY), G.E., Sq.D, Sylvania, and Westinghouse Starters AGO-300999



**1600 hp
1500V
Starter**



**New Designs
available in
Sizes 4, 5 and 6
(Call For Quote)**



**Compact Vacuum
Contactor**

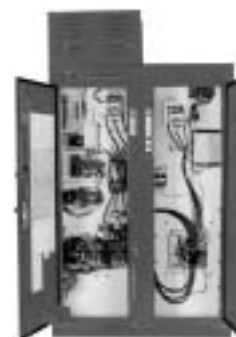
**NEMA-4 150A 600V
IEC 200A 600V
IEC 160A 1500V**

**Small Size, Lower Cost,
Higher Performance**

Vacuum Starters Reversing (JC 11)

Ampere Rating	NEMA Size	Open 1500V Catalog No.	Open 3300V Catalog No.
135	4	VS30U03406-76	—
160	4	VS30U03E15-76	VS30U03E36-76
320	5	VS30U03515-76	VS30U03536-76
600	6	VS30U03615-76	—

**Joslyn Clark is
the number one
supplier of fire
pump controls in
the USA.**



Vacuum Starters-Across The Line (JC 11)

Ampere Ratings	NEMA Size	Open 1500V Catalog No.	Nema-1 1500V Catalog No.	Nema-12 1500V Catalog No.	Open 3300V Catalog No.
135	4	VS13U03406-76	VS13AA3406-76	VS13TA3406-76	—
160	4	VS13U03E15-76	VS13AA3E15-76	VS13TA3E15-76	VS13U03436-76
320	5	VS13U03515-76	VS13AA3515-76	VS13TA3515-76	VS13U03536-76
600	6	VS13U03615-76	VS13AA3615-76	VS13TA3615-76	VS13U03636-76

Heaters For Thermal Overload Relays

Joslyn Clark, Westinghouse, and Ward Leonard

For Sizes 00, 0, 1, 1P, and 2 Relays

Min. Current Rating For Heaters				List Prices:		
Three Phase Relays		Single Pole Relays		Joslyn Clark Heater	Westinghouse Heater	Ward Leonard Heater
Enclosed Type	Open Type	Enclosed Type	Open Type	Number	Number	Number
0.25	—	0.29	—	—	FH03	—
0.28	0.30	0.32	0.32	—	FH04	A11
0.32	—	0.36	—	—	FH05	—
0.35	—	0.40	—	—	FH06	—
0.39	—	0.44	—	—	FH07	—
0.42	0.44	0.53	0.55	2411	FH08	A12
0.47	0.49	0.58	0.60	2412	FH09	—
0.52	0.55	0.64	0.66	2413	FH10	—
0.57	0.60	0.68	0.70	2414	FH11	A13
0.65	0.68	0.78	0.84	2415	FH12	—
0.71	0.74	0.83	0.85	2416	FH13	A14
0.78	0.82	0.94	0.97	2417	FH14	—
0.88	0.92	1.04	1.07	2418	FH15	A1
0.94	0.99	1.12	1.15	2419	FH16	—
1.03	1.08	1.26	1.30	2420	FH17	A2
1.11	1.17	1.34	1.38	2421	FH18	—
1.22	1.28	1.44	1.48	2422	FH19	A3
1.38	1.45	1.64	1.69	2423	FH20	A4
1.48	—	1.72	—	—	FH21	—
1.56	1.64	1.88	1.94	2424	FH22	A15
1.80	1.89	2.12	2.18	2425	FH23	A5
1.96	2.06	2.32	2.39	2426	FH24	A6
2.16	2.27	2.56	2.64	2427	FH25	A7
2.44	2.56	2.88	2.97	2429	FH26	A16
2.64	2.77	3.12	3.21	2430	FH27	A8
2.96	3.11	3.48	3.58	2431	FH28	A17
3.20	3.36	3.80	3.91	2432	FH29	—
3.56	3.76	4.16	4.28	2433	FH30	—
3.88	4.07	4.40	4.53	2434	FH31	—
4.08	—	4.72	—	—	FH32	—
4.44	4.65	4.96	5.11	2435	FH33	B2
5.00	5.24	5.35	5.51	2436	FH34	B3
5.52	5.80	5.76	5.93	2437	FH35	B4
5.92	6.21	6.40	6.59	2438	FH36	B5
6.72	6.97	7.04	7.25	2439	FH37	—
7.36	7.72	8.00	8.24	2441	FH38	B7
7.76	8.16	8.80	9.06	2442	FH39	B9
8.48	8.80	9.76	10.10	2443	FH40	B11
9.20	9.66	10.40	10.70	2444	FH41	B13
10.20	10.70	12.00	12.40	2445	FH42	B14
11.70	12.30	13.10	13.50	2446	FH43	B16
13.10	13.80	14.40	14.80	2447	FH44	B17
13.60	14.20	15.80	15.20	—	FH45	B19
15.00	15.80	16.40	16.90	2448	FH46	B21
16.90	17.70	18.80	19.40	2450	FH47	B22
18.30	19.20	20.60	21.20	2451	FH48	—
20.00	21.00	23.60	24.30	2452	FH49	B24
23.20	24.40	25.00	26.00	2453	FH50	B23
24.80	26.10	27.20	28.60	2454	FH51	—
26.30	—	30.40	—	—	FH52	—
28.00	29.40	32.30	33.90	2455	FH53	B27
30.00	31.50	36.00	38.00	2456	FH54	B28
33.20	34.90	39.00	42.00	2457	FH55	B29
38.40	40.20	—	42.10	2459	FH56	B30
41.60	43.70	—	44.50	2460	FH57	B31

For Sizes 3 & 4 Relays (JC 16)

Min. Current Rating For Heaters				List Prices:		
Three Phase Relays		Single Pole Relays		Joslyn Clark Heater	Westinghouse Heater	Ward Leonard Heater
Enclosed Type	Open Type	Enclosed Type	Open Type	Number	Number	Number
7.40	7.50	—	—	2514	—	—
8.00	8.30	—	—	2515	—	—
10.00	10.20	—	—	2516	—	—
10.60	10.90	—	—	2517	—	—
12.00	12.20	—	—	2518	—	—
13.60	13.80	—	—	2519	—	—
16.80	17.10	—	—	2520	—	—
18.90	19.30	19.00	—	2521	FH72	—
20.40	20.80	20.90	—	2522	FH73	—
22.80	23.30	23.00	—	2523	FH74	—
24.80	25.30	25.30	—	2524	FH75	C1
28.60	29.20	27.90	—	2525	FH76	C2
31.70	32.40	30.70	—	2526	FH77	C3
35.30	36.10	33.60	—	2527	FH78	C5
39.20	40.00	37.60	—	2528	FH79	C8
42.40	43.50	41.60	—	2529	FH80	C10
46.50	47.70	46.40	—	2530	FH81	C12
50.90	52.50	51.00	—	2531	FH82	C15
57.40	59.30	56.00	—	2532	FH83	C17
63.80	66.10	62.00	—	2533	FH84	C19
70.80	73.40	67.00	—	2534	FH85	C21
74.00	—	74.00	—	—	FH86	—
77.40	80.50	79.00	—	2535	FH87	C22
83.20	88.00	85.00	—	2536	FH88	C23
91.00	95.10	93.00	—	2537	FH89	C24
97.70	102.80	102.00	—	2538	FH90	C25
106.10	112.00	111.00	—	2539	FH91	C26
115.50	123.00	—	—	2540	—	C27
124.00	134.00	123.00	—	2541	FH92	—
130.00	144.00	130.00	—	—	FH93	C28

Note 1: The ampere ratings in this table are those applicable to the Joslyn Clark Heaters listed. They are the approximate values of the Westinghouse and Ward Leonard heaters listed.

Note 2: The ultimate trip of the heater is approximately 125% of the minimum current shown in a 40 C ambient.

Note 3: The current ratings for "Enclosed Type" refer to enclosed starters and ambient compensated relays. Use this value for Westinghouse heaters.

Note 4: Use the open type current rating for Ward Leonard heaters. These relays are obsolete, and some heater sizes are not available.

Note 5: The overload relay should be mounted vertically with the control terminals at the bottom of the relay.



Joslyn Clark Heaters

Parts: Coils, Contacts, Overloads Joslyn Clark & Ward Leonard



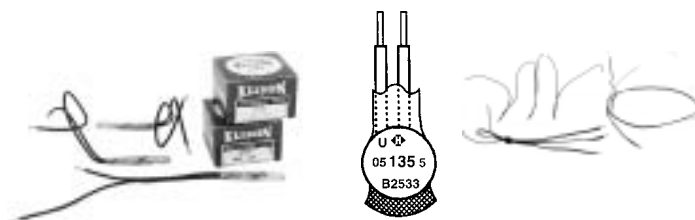
Main Pole (N.O.) Replacement Contact & Coils — WL Type (JC 80)

Contactors Series		1-Pole Normally Open Kit*	Replacement Coils
Basic Cat. No.	NEMA Size	Contact Kit No.	Catalog No.
5009	00	5M59	344L1
5009A,B	00	5M87	344L1
5000A,B	0	5M87	344L1
5000	0	5M50	344L1
5001A,B	1	5M19	344L1
5001	1	5M51	344L1
5002A,B	2	5999-2521	343L1
5002	2	5M52	319L1
5003A,B	3	5M80	319L1
5003	3	5M53	320L1
5004	4	5M54	320L1
5005	5	5M45	335L1
5006	6	5999-2161	347L1
5007	7	5999-2171	352L1

Renewal Parts for TM Contactors & Starters (JC 80)

3-Pole Normally Open Kit		Replacement Coils							
NEMA Size	Contact Kit No.	Basic Coil No.	Suffix Code-AC Voltage						
			120	208	240	277	480	600	
00,0,1	KTM31-1	TB159	-1	-10	-2	-13	-3	-4	
2	KTM32-1	TB159	-1	-10	-2	-13	-3	-4	
3	KTM33-1	TB162	-7	-14	-8	-13	-9	-10	
4	KTM34-1	TB162	-1	-16	-2	-18	-3	-4	
5	KTM35-1	TB161	-1	-5	-2	-12	-3	-4	

* Kit contains stationary contacts, movable contact and contact spring. These kits also fit 5010 and 8010 series starters.
Coil Voltage XXXL1=120 V, 60 Hz XXXL2=240 V, 60 Hz
Codes: XXXL3=480 V, 60 Hz XXXL4=600 V, 60 Hz



Klixon® Thermostats & IEC Thermistors also available.



Ambient Compensated, Size 2, Thermal Overload Relay, 1-Pole



Westinghouse Overload Relay Heater



Westinghouse 3-Pole Overload Relay



Joslyn Clark TM Overload Relay

Thermal Overload Relays (JC 16)

(See page 14 for Magnetic Overloads)

NEMA Size	Ampere Rating	1-Pole		3-Pole		Standard	Ambient Comp.
		Joslyn	West.	Joslyn	West.	Joslyn 3-Pole	Joslyn 3-Pole
1	25	8990-1101	AA11P	8990-1301	AA13P	KTM31-12	KTMA31-12
2	50	8990-2101	AA21P	8990-2301	AA23P	KTM32-12	KTMA32-12
3	100	8990-3101	AA31P	8990-3301	AA33P		
4	150	8990-4101	AA41P	8990-4301	AA43P		
5	Use current transformers & Size 1 overload for higher currents, ac. Use parallel poles for higher currents, dc.						

Bimetallic type, manual or automatic reset, +/- 15% adjustment, rated for 600 Vac, 1, 2, or 3 phase, and for 250 Vdc Class 20.

* List prices do not include overload relay heaters. Order one heater per pole from Tables on page 10.

AGUT / Springer-IEC AC Contactors Compact Design (JC 70)



**JC12A310T
Contactor**



**JC09A310T
+ Overload**



**J185BA311
Contactor**



**JC0906P1G
Starter**

Catalog Number	Ampere Rating AC3 AC1		Horsepower Rating				
			1-Phase		3-Phase		
			115V	230V	230V	460V	575V
JM6A310AT-J	6	15	0.33	1	1.5	3	3
JM9A310AT-J	9	15	0.5	1	2	5	5
JC12A310T-J	12	25	0.75	2	3	7.5	10
JC18A310T-J	18	32	1	3	5	10	15
JC25A310M-J	25	45	2	3	7.5	15	20
JC32A310M-J	32	54	2	5	10	20	25
JC50A311M-J	50	80	3	7.5	15	30	40
JC65A311M-J	65	100	5	10	20	40	50
JC80A311M-J	80	102	5	15	25	50	60
JC95A311M-J	95	120	7.5	15	30	60	75
JCC5A3AAM-J	105	120	10	20	40	75	75
J185BA311-I	156	175	---	25	60	125	125
J250BA311-I	192	200	---	30	75	150	150
J309BE311-I	302	310	---	50	100	250	300
J420BE311-I	398	500	---	---	150	300	400
J550BE311-I	480	650	---	---	200	400	500
J700BE311-I	602	750	---	---	250	500	600



**JSCR2G
Surge
Suppressor**

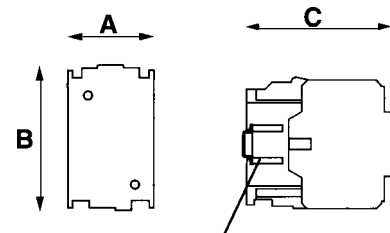


**JL1
Overload
Relay**

Type	Dimensions - Approximate Inches and (Millimeters)		
	A	B	C
JM	1.77 (45)	1.89 (48)	2.68 (68)
JC12 & 18	1.77 (45)	3.00 (78)	4.57 (85)
JC25	2.17 (55)	3.43 (87)	3.86 (98)
JC50 & 80	2.6 (66)	4.63 (118)	4.57 (116)
JC95 & C5	2.95 (75)	4.63 (118)	4.96 (126)
J185 & 309	5.9 (150)	8.33 (212)	8.12 (206)
J420 & 700	9.06 (230)	9.84 (250)	10.31 (262)



**JCAL11
Side Mount**



Outline Drawing

Auxiliary Contacts

**Modifications available:
Pneumatic Timer, Surge
Suppressor, Mechanical
Interlock, DIN rail base,
Motor Protection Switch,
DC Coil, Enclosures.**



**JCAF10
Top Mount**



**JRAA02
Mechanical
Interlock**



**PF2C Rotary
Limit Switch**

Mill Duty Products Crane & Hoist Controls



Model RFS-100
Jenkins
Feeler Switch



Type H form RN
Unprotected for
Palm or Foot
Operation
Push Button



**Rowan
Hazardous
Location
Switch**

2080-AF11

Device Description	Type	Poles	Catalog Number
Jenkins Tenter Rail Switches (JE-6)			
Edge Feeler Switch or Textile Guider	Pipe Mt. Bracket	2	RFS-100
Stainless Steel Encl.	Rt. Hand	2	SFS-300SS
Joslyn Clark Mill Duty (JC 32)			
Hatchway Limit Switch (Single-Acting)	HLA-1	1	A102-41252A-1
Hatchway Limit Switch (Double-Acting)	HLA-2	3	A102-41251A-1
Track Limit Switch	HLD-2	2	A102-277625
Track Limit Switch	TLF-22	2	A102-80577A-1
Rubber Calendar Safety	RS-22	2	A102-66750A
Crane Hook Limit	CHL-22	2	A102-80886A
Belt Side Travel Limit	BST-22-R	2	A102-351409A-1
Foot Operated Master Hand Master Switch	FSA-22	2	A101-55172A
Hand Master Switch	SD-2	2	A101-88359A
Palm Push Button	1RN-1	1	(Specify Name Plate Marking)
Palm Push Button	1RN-2	2	(Specify Name Plate Marking)
Springer Controls (JC 85)			
Rowan Oil-Immersed Hazardous Duty PB	604	2	2080-AF11
Rowan Oil-Immersed Hazardous Duty PB	675	2	2080-AF8
Pendant Station for Crane Control	NPA	4	PF0304-
Rotary Gear Limit	SPA	20	20/SPA-
Rotary Gear Limit	PF2C	2	PF2C/-



SPA



PPA



NPA

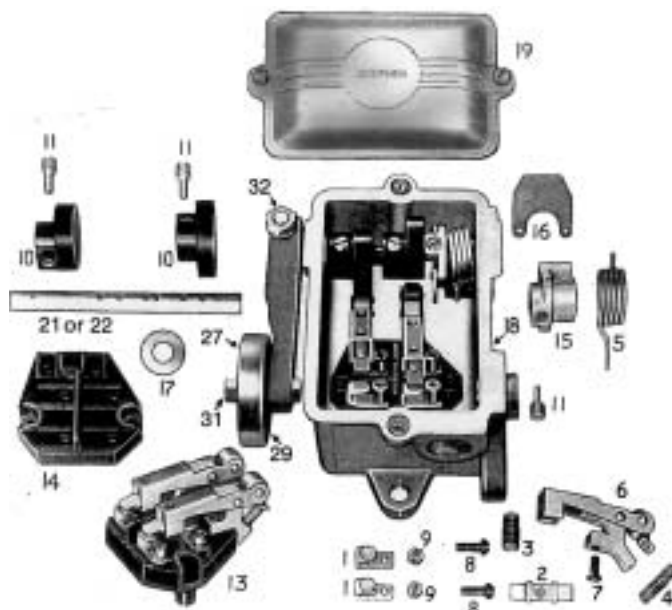
Pendant Stations



FRSA-44, 4 Pole
3 Position Foot Switch



CHL-22
Crane Hook Limit



Hatchway Limit Switches

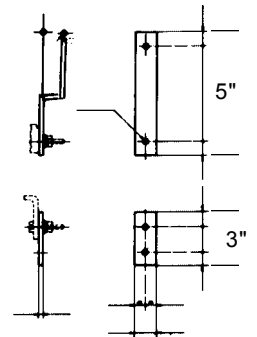
High Current Contactors AC & DC Rated Bar Type

Microelettrica Scientifica Series "N" Contactors (JE-4)

Type (N)	AC & DC Rating Amperes	Dimensions (Inches)		
		W. (A)*	H. (B)	D. (C)
N85	75	13	7	8
N125	110	13	7	8
N270	250	15	11	10
N550	500	17	12	12
N1000	900	21	15	14
N2000	1800	23	17	19
N3000	2500	27	17	21



Front Connection & Plate Mounting Accessories



Front Connection Accessories (N85-650)

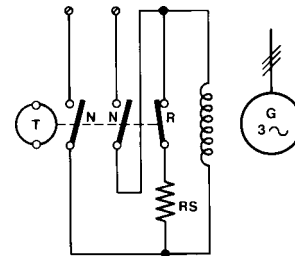
NOTES: * The width dimension is given for a 2-pole contactor.
Adding poles makes the contactor wider (4 to 16 inches).

Tropicalization is available at a 20% premium.

The ratings given are for AC or DC operation at 660V, (AC3 & DC3 rating)
Operation is possible to 1,000V with factory set-up and instructions.

Available with Mechanical Latch, Electrical Release.

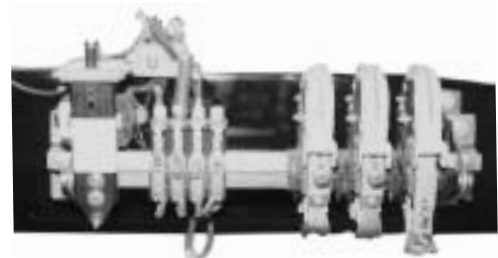
Overlapping Operation of N/O and N/C Poles available; suitable for Field Discharge Duty.



Overlapping Contacts



Bar Type Contactor
With Auxiliary Contacts
(sizes N125 to N550)



Field Discharge Contactor

Magnetic Trip, Overload Relays

Cin Relay Size	Continuous Current (Amps)	Dim. In.			Setting Range			
		W. (A)	H. (B)	D. (C)	AC (60hz)		DC	
					Min.	Max.	Min.	Max.
10	72	3	6	5	65	295	40	146
12	160	4	6	6		590	80	292
14	300	4	6	6	260	1180	160	583
16	480	5	6	6	770	3530	480	1900
18	1000	7	6	6	1280	3000	1100	3200

NOTE: Single-Pole, Inverse, Short-time Trip Overload Relays.
With 1-N/C contact, rated 5A, 220Vac, Automatic Reset.
Trip ranges will be lower with 50-Hz excitation.
Suitable for Panel Mount.



Magnetic Trip Overload Relay

High Current Contactors AC & DC Rated - Panel Mount

Microelettrica Scientifica Series "LTN" Contactors (JE-4)

Type LTNS	AC & DC Rating Amperes	Dimensions (Inches)		
		(A)*	(B)	(C)
60	40	3	8	6
125	90	4	11	8
320	180	5	14	11
450	250	5	15	11
650	500	5	16	11
800	600	5	16	11
1000	750	6	18	14
1250	900	6	18	14

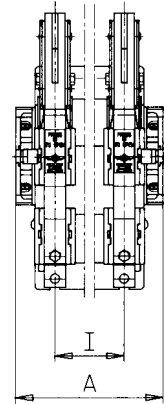
NOTES:

* The width dimension is given for a 1-pole contactor. Adding poles makes the contactor wider (1 to 8 inches).

Tropicalization is available at a 20% premium.

The current ratings given are for AC or DC operation at 750V, (AC3 or DC3). Operation is possible to 1,000V with factory set-up and instructions.

All contactors have DC operating coils. The AC coil adder provides a rectifier to produce DC control voltage.



Other Contactor Types



LTHH
High Voltage
5KV

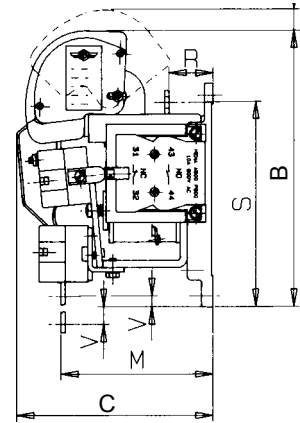


LTHS
Medium Voltage
2.4KV



LTC250
Low Cost
1.2KV

**LTN
Dimension
Drawing**



**LTC Ratings up to 250A
\$335.00 Net (In Quantity)**



LTNS1000/1250



LTNS60/125



LTNS320/450

Replacement Coils & Contacts

Surge Suppressors

Data needed to identify Contacts:

- Manufacturer of Control
 - Number of Poles
 - Contact Kit Part Number, if available
 - NEMA Size
 - Control Catalog Number
 - Screws and Spring required?
- In some cases we will need to have a sample.

We have the following GE, Joslyn Clark and Ward Leonard coils in stock. Coils not listed can be provided if you send a sample. Typical AC Coils are rewound for \$200 (below size 4.)

Obsolete Coils For GE & WL Controls (JE-3)

Catalog No.	Voltages	Coil Usage
1D38G00X	110 Vac	60 Hz. AC Coils
22D2G00X	110 Vac	CR9503- GE
22D15G00X	110 Vac	IC2810- GE
22D23G00X	110 Vac	CR7006 Sz. 2
22D26G00X	110 Vac	CR1034- GE
22D82G00X	110 Vac	CR7006 Sz. 1
22D112G00X	110 Vac	CR7006 Old Sz. 2
30277XX	115 Vac	Size 5-.GE
22D103G00X	120 Vac	Obsolete GE
220L2	230 Vdc	Sz. 0 & 1- WL
221L2	230 Vdc	Sz. 2 & 3- WL
271L1	115 Vac	Type 447- WL
272L1	115 Vdc	Ward Leonard
272L2	230 Vdc	Unit Pole Relays



22D26

22D15



22D112

22D2

1D38



271L1

220L2

221L2

272L2

3027743

Surge Protectors - Joslyn Electronic Systems (JE-4)

Catalog Number	Description of Suppressors	Circuit Voltage			Peak Current (8x20us)
		Vrms	Vdc	Joules	
9RV3A12	Thyrite Disk, 3" Diameter	135	150	5100	10
9RV3A14	(Silicon Carbide)	270	300	5100	10
9RV3A15	(Two disks)	540	600	10200	5
9RV6A2	Thyrite Disks, 6" Diameter	135	150	45000	100
9RV6A5	(Two disks) for	270	300	45000	35
9RV6A10	DC Field Discharge Protection	495	550	45000	11
Z2175	Two-Pole, 1-Phase MOV	175	AC		10000
Z3-650	Three-Pole, 3-Phase MOV	650	Service Entrance		10000
J9200-9	Four-Wire, Silicon Carbide	650	Protectors		
JE1250-32	One-Pole, Two-Wire MOV	120	AC		20000
JE1260-45	(Single-Phase)	120	Circuit		100000
JE1255-45	Three-Pole, 3-Phase, 4-Wire	208	Protectors		100000
JE1669-06	Data Line Protector, 1/2" Pipe	28	28		10000
JE1810-28	Data Line Protector, DIN Rail	28	28		10000



AC Surge Protector JE 1250



Data Line Protector on DIN Rail JE 1810