

SIEMENS

ESP100 Solid-State Overloads Product Catalog



FURNAS

ESP100 offers proven motor protection... at no extra cost

Hundreds of thousands of motors are now fully protected by ESP100, the first starter to combine the rugged reliability of a NEMA contactor with the cost saving performance of a heaterless solid-state overload. Moreover, ESP100 delivers all this protection at a price that is comparable to conventional starters with heaters.

ESP100 trips within three seconds on loss of phase

That's true phase loss protection. Protection that is not merely "sensitive" to phase loss, but trips in three seconds or less — well before any possibility of motor damage, but long enough to prevent nuisance tripping if phase loss is just momentary.

Why is this protection so important?

In the event of branch phase loss, the response times of conventional thermal overload relays are slow when compared to ESP100. It simply takes too long for these mechanical devices to detect a phase loss and react. Seconds become minutes, as your motor's windings overheat and begin to break-down... as your motor repair costs begin to mount.

2:1 FLA adjustment range; 4:1 below 10 amps

A single ESP100 solid-state overload, with its 2:1 FLA adjustment range, replaces at least six sets of heaters. That's how many heater sizes you would need to stock to cover the same range as an ESP100 overload. And for ESP100 sizes below 10 amps, the FLA adjustment range is

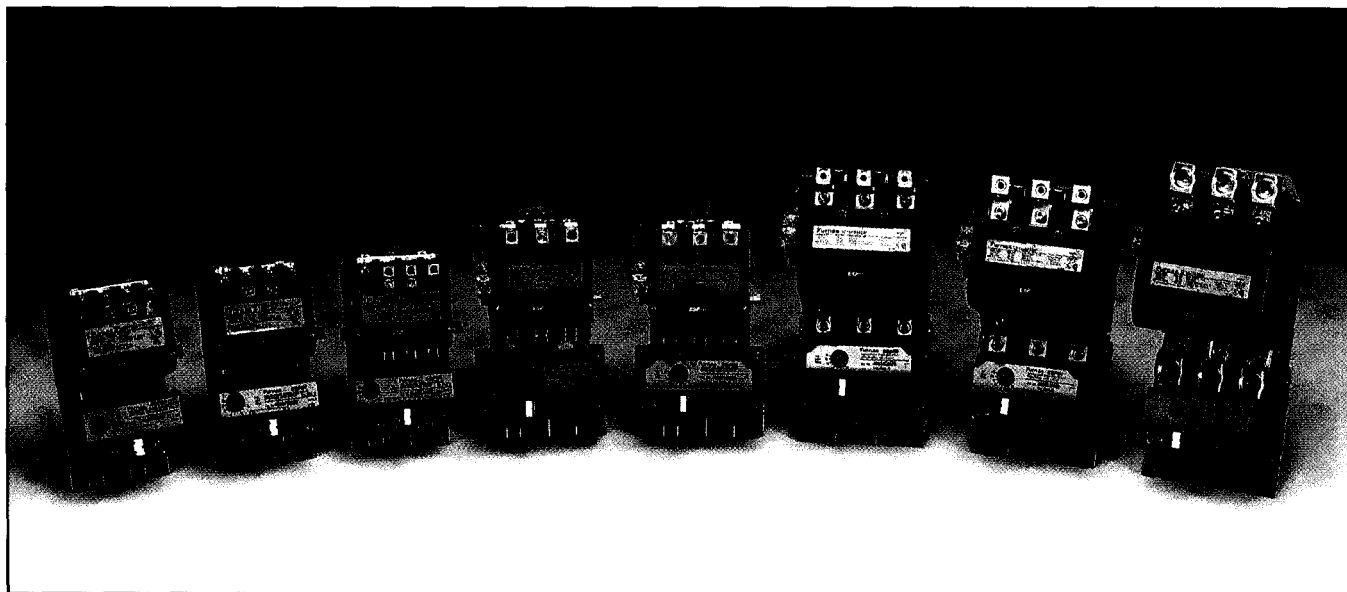
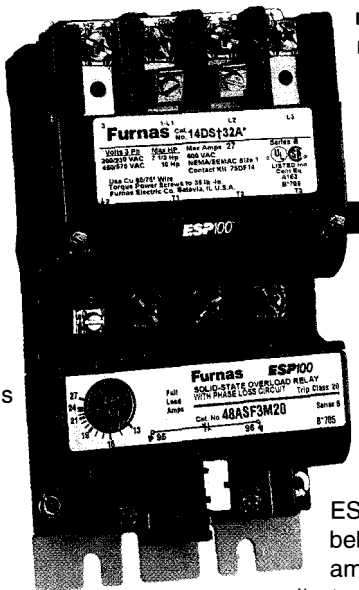
an even higher 4:1!

±2% repeat tripping accuracy

The solid-state overload has a repeat tripping accuracy of ±2%. Under the same conditions the trip time will be the same, within ±2% every time. That's because each overload is individually calibrated to maintain superior protection. Optimum overload trip curves have been designed into ESP100 by motor protection specialists. No complex settings or field adjustments are needed.

Labor-saving installation

Just mount it, wire it, and dial in the FLA. ESP100 comes with a universal mounting plate enabling direct replacement of most NEMA starters, sizes 0 to 1.



Exclusive "half sizes"

Choose from the broadest lineup of general purpose starters available - including our exclusive "half sizes," all fully tested to NEMA standards.



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The information contained herein is general in nature and is not intended for specific construction, installation, or application purposes. It does not relieve the user of responsibility to use sound practices in application, installation, operation and maintenance of the equipment purchased. Siemens Energy & Automation, Inc. reserves the right to make changes in the specifications shown herein or to make improvements at any time without notice or obligations. Should a conflict arise between the general information contained in the publication and the contents of drawings or supplementary material or both, the latter shall take precedence.

Magnetic Motor Starters Solid State Overload with Phase Loss Protection

■ Heavy Duty

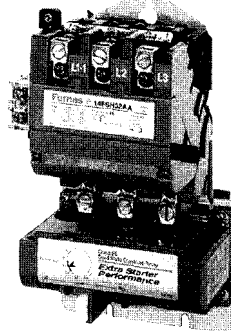
- Rugged Industrial Design
- Dual Voltage, Dual Frequency Coils
- Overload Test Feature
- Front Removable Auxiliary Interlocks
- Wide Range of Accessories
- Easy Coil Access
- High Accuracy Solid State Overload Protection
- Class 10, 20, 30 Trip Available
- Wide Overload Current Adjustment Range
- Siemens-Furnas Exclusive Half Sizes
- Straight Thru Wiring
- Gravity Dropout
- Large Silver Cadmium Contacts
- UL Listed 508 File #E14900
- CSA Certified File #LR6535
- Universal Mounting Plate



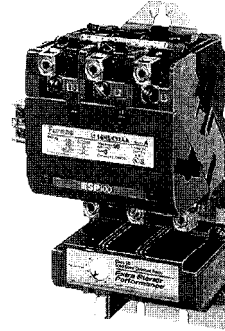
Size 0-1
With Low Amp ESP100
Solid State Overload



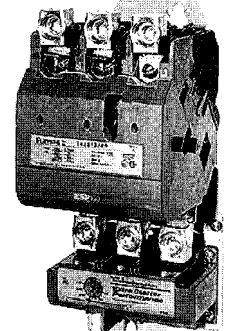
Size 0-1 1/4
With ESP100
Solid State Overload



Size 2-2 1/2
With ESP100
Solid State Overload



Size 3-3 1/2
With ESP100
Solid State Overload



Size 4
With ESP100
Solid State Overload

APPLICATION

Class 14 industrial magnetic starters are designed for across the line starting of single phase and polyphase motors.

ESP100 starters combine the rugged characteristics of a NEMA rated contactor with a solid state overload which provides phase loss protection. It offers the industrial user greater protection and added life for motors in heavy duty applications. The inherent benefits of the ESP100 result in cost savings as well.

ESP100 starters are available in NEMA sizes 0 through 6. In addition to the usual NEMA starter sizes, Siemens-Furnas offers four exclusive **M•M** Motor Matched Half Sizes; 1 3/4, 2 1/2, 3 1/2, and 4 1/2. These integral sizes offer the same rugged, industrial construction as our NEMA sizes and ensure efficient operating performance. **M•M** Motor Matched Half Sizes provide a real cost savings by cutting down on over capacity when NEMA sizes exceed the motor Hp ratings.

Across the line or full voltage starting is used when motor starting torque can be applied safely and current inrush does not produce an objectional voltage drop. All starters are supplied with a normally open (NO) holding contact that, in conjunction with an appropriate pilot device, will provide low voltage protection or release.

Siemens-Furnas magnetic starters are ideal for applications requiring dependability and durability. Typical applications include use with machine tools, air conditioning equipment, material handling equipment, compressors, hoists, and various production and industrial equipment as well as in demanding automotive applications.

Class 14 starter sizes 0-6 are available as an open type or in NEMA 1, 3, 4, 4X, 7 & 9, and 12 enclosures.

The self-reset overload is ideal for cranes, hoists, and other applications where the controls are mounted in a remote location that may be difficult to access. The NC overload contact opens for a short duration (50-75 msec) on an overload or phase loss condition. The unit provided can be applied in one of three ways: 1) Three wire control circuit using Furnas Size 0-4 contactor. The self-reset overload can be retrofitted and applied in a three wire control application as a remote reset overload without additional components or wiring. 2) PLC - (assuming initiating starter coil via PLC) Timers and counters can be used to determine time between restarts and maximum number of restarts. 3) Use NC overload contact to drop out a control relay. See page 75 for wiring diagrams.

Magnetic Motor Starters Solid State Overload with Phase Loss Protection

■ Heavy Duty

FEATURES

Siemens-Furnas size 0-6 magnetic starters include the following standard features.

Molded Coil-Magnetic coils are carefully wound and then sealed in epoxy. Encapsulation helps seal out moisture, promotes heat transfer, and resists electrical, mechanical, and thermal stresses.

Dual Voltage/Frequency Coil-Siemens-Furnas starters are available with dual voltage, dual frequency coils. They are designed to operate on either 50 or 60 Hertz.

Molded Contact Board-Thermoset materials resist arc tracking and the stresses of heat and severe impact.

Field Modification Kits-All starters can be modified in the field with a complete range of accessories. These include push buttons, selector switches, pilot lights, auxiliary contacts, and surge suppressors. See page 45.

ESP100 Solid State Overload Relays-These standard features of the ESP100 provide Extra Starter Performance.

- True phase loss protection; trips within 3 seconds.
- High accuracy trip curves; $\pm 2\%$ repeat trip accuracy.
- Ease of use. Mount, wire, and set FLA. (See Fig. 1.)
- Overload is self protected against short circuits.
- Overload is self powered and requires no hard wiring or separate power source.
- Simple, versatile adjustment; minimum of 2:1 FLA adjustment range. (4:1 in lower FLA ranges.)
- Heaterless construction minimizes energy costs and the costs of cabinet ventilation or cooling.
- Class 20 protection is standard. Class 10 and 30 protection are available.
- Provides motor protection for 50/60 Hertz.

ESP100 FLA Adjustment Dial – Set the adjustment dial on the overload to the FLA of the motor.

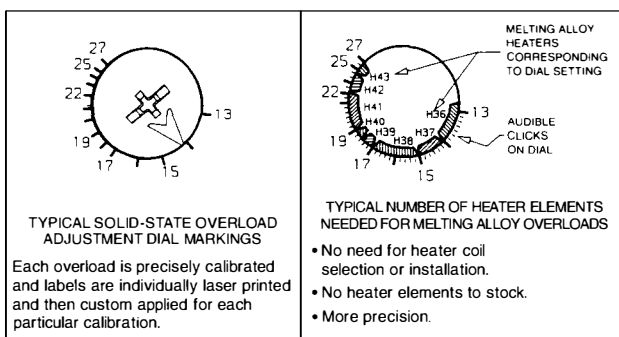
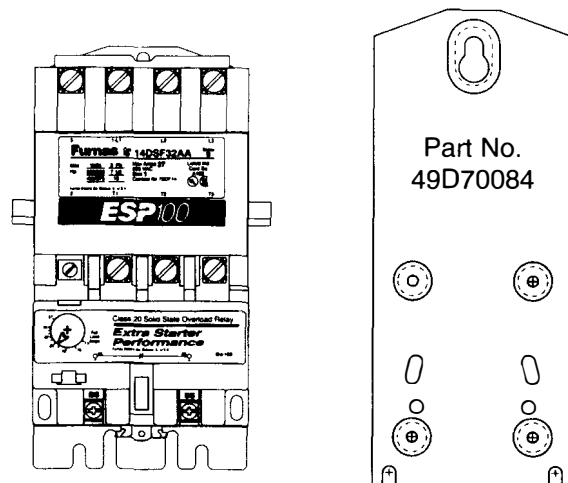
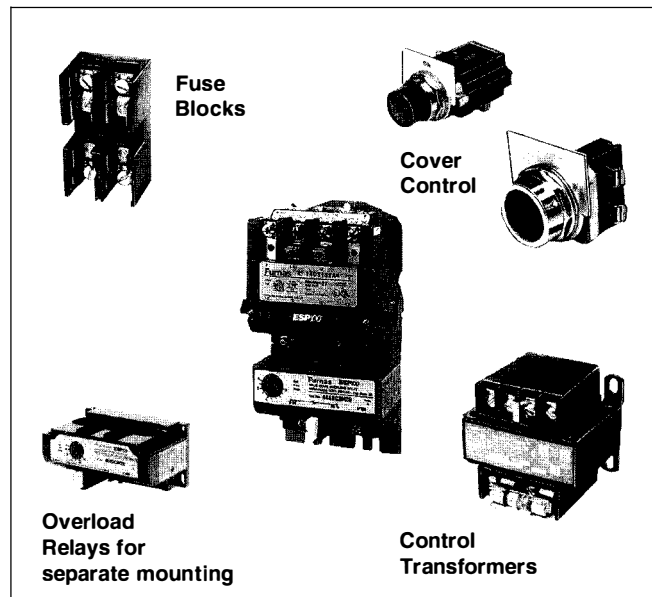


Fig. 1

ESP100 FLA Adjustment Dial – Set the adjustment dial on the overload to the FLA of the motor.



The Siemens-Furnas ESP100 FVNR size 0-1 $\frac{3}{4}$ have as standard, universal mounting which fits the following:

Cutler Hammer-

Citation Series
Freedom Series

GE- 300-Line

Square D- Type S

The ESP100 with its existing backplate mounts onto the piggyback mounting plate and is secured in place with three mounting screws.

Allen-Bradley- Bulletin 509
Bulletin 709

Westinghouse-Series A200

Magnetic Motor Starters Solid State Overload with Phase Loss Protection

■ Heavy Duty

AUXILIARY EQUIPMENT

- Siemens-Furnas starters are available with built-in START-STOP push buttons for 3 wire control or a HAND-OFF-AUTO selector switch for 2 wire control.
- Field modifications such as auxiliary contacts, pilot lights, push buttons, selector switches, and fuse blocks are available to meet particular application requirements.
- Normally open or normally closed auxiliary power pole kits are available for sizes 0 through 1½.
- Transformers and pneumatic timers can be ordered as either factory or field modifications. In some cases these may require a larger enclosure.
- A full line of replacement parts are available including contact kits, coils, and overload relays.

SIZE 0 THRU 4

The following features are characteristic of sizes 0 through 4.

Gravity Dropout-For added reliability, the gravity dropout of the armature and contacts is assisted by stainless steel springs which help provide quick, precise opening of the contacts. Also provides straight through wiring.

45 Degree, Wedge

Action-The 45 degree, wedge action contacts reduce tracking and provide faster arc quenching. The resulting self cleaning and reduced contact bounce mean cooler operation and longer life for the large silver cadmium oxide contacts.

Terminal Design-Control terminals are self rising pressure type.

Auxiliary Contacts-Front mounted as well as side mounted auxiliary contacts are available. A maximum of four can be mounted on sizes 0 thru 1½, three on sizes 2 thru 6.

SIZE 4½ THRU 6

In addition to the standard features, size 4½ through 6 starters incorporate many of the additional features listed for size 0 through 4 including a **M•M** Motor Matched Half Size 4½ and side mounted auxiliary contacts. Siemens-Furnas size 4½ through 6 magnetic starters use vertical lift magnetic action which provides long life and reliability.

ORDERING INFORMATION

- Field Modification Kits page 45
- Factory Assembled Modifications page 50.
- Wiring Diagrams & Dimensions page 54.
- Other information see Application Data Section in Catalog 294.

COIL DATA

Size	Watts	Volts 60Hz	Inrush (Open Magnet) Amps VA	Normal (Sealed Magnet) Amps VA
0 thru 2½	8.6	24	9.08	1.04
		120	1.82	.21
		208	1.05	.12
		240	.91	.105
		277	.79	.090
		480	.45	.052
3, 3½	14	600	.36	.042
		24	12.9	1.08
		120	2.58	.217
		208	1.49	.125
		240	1.29	.108
		277	1.12	.094
4	22	480	.646	.054
		600	.516	.043
		120	4.25	.425
		208	2.45	.245
		240	2.14	.215
		277	1.77	.183
4½, 5	63	480	1.08	.112
		600	.85	.085
		120	12.65	.96
		240	6.32	.48
		480	3.16	.24
		600	2.53	.193
6	40	240	1.45	.25
		480	.73	.12
		600	.58	.10

REFERENCE LITERATURE – Class 14,17,18

Instruction Sheets and Replacement Parts

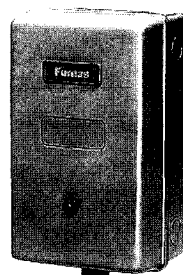
NEMA Size	M•M Half Size	ESP100 Instruction Sheet	ESP100 Replacement Parts
0-1 (.25-10A)	—	14-HES1	14-GES
0-1 (9-40A)	1¾	14-HES	14-GES
2	2½	14-HES	14-GGS
3	3½	14-HES	14-GIS
4	—	14-HES	14-GJT
5	4½	14-HMS	14-GRS
6	—	14-HMS	14-GMS

- ESP100 Cross Reference
- Product Comparison Size 1 Starters
- Protecting Your Motor With ESP100
- ESP100 Technical Bulletin
- Product Worksheets Sheets
- ESP100 Descriptive Bulletin
- Siemens-Furnas The Right Choice
- Specifying a NEMA Rated Starter
- Motor Starter Comparison

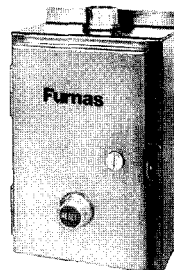
- SFXR-14010
- SFXR-14030
- SFSA-14010
- SFSA-14020
- SFWS-14030, SFWS-14040, SFWS-14080, SFWS-14050
- SFBR-14110
- Form 1485
- Form 1555
- Form 1744



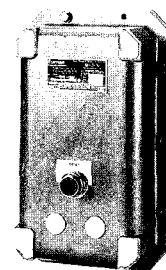
Open Type



NEMA 1
General Purpose



NEMA 4
Watertight
304 Stainless Steel



NEMA 7 & 9
Class I Groups C & D
Class II Groups E, F & G



NEMA 12
NEMA 3/3R
Industrial Use Watertight
304 Stainless Steel

Magnetic Motor Starters-Heavy Duty Solid State Overload with Phase Loss Protection

- Full Voltage Non Reversing
- 400 Hp 60 Hz 600VAC Max
- Class 20 Overload Protection, Manual Reset

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ESP100
STARTER

3 Phase, 3 Pole

Max Hp							Enclosure							
							Open Type		NEMA 1 General Purpose	NEMA 4/4X Watertight, Dusttight Corrosion Resistant ♦304 Stainless Steel	NEMA 7 & 9 Class I Groups C & D Class II Groups E, F & G	NEMA 12 NEMA 3/3R Industrial Use Weatherproof		
200 Volts	230 Volts	460 Volts	575 Volts	NEMA Size	Amp Range		Cat No	Price	Cat No	Price	Cat No	Price	Cat No	Price
1/6	1/6	1/3	1/2	0	0.25-1		14CSA32A*	\$231	14CSA32B*	\$243	14CSA32W*	\$453	14CSA32H*	\$999
1/2	3/4	1 1/2	2	0	0.75-3		14CSB32A*	231	14CSB32B*	243	14CSB32W*	453	14CSB32H*	999
2	2	5	5	0	2.5-10		14CSD32A*	231	14CSD32B*	243	14CSD32W*	453	14CSD32H*	999
3	3	—	—	0	9-18		14CSE32A*	231	14CSE32B*	243	14CSE32W*	453	14CSE32H*	999
1/6	1/6	1/3	1/2	1	0.25-1		14DSA32A*	261	14DSA32B*	273	14DSA32W*	489	14DSA32H*	1029
1/2	3/4	1 1/2	2	1	0.75-3		14DSB32A*	261	14DSB32B*	273	14DSB32W*	489	14DSB32H*	1029
2	2	5	5	1	2.5-10		14DSD32A*	261	14DSD32B*	273	14DSD32W*	489	14DSD32H*	1029
3	3	10	10	1	9-18		14DSE32A*	261	14DSE32B*	273	14DSE32W*	489	14DSE32H*	1029
7 1/2	7 1/2	—	—	1	13-27		14DSF32A*	261	14DSF32B*	273	14DSF32W*	489	14DSF32H*	1029
—	—	15	15	M•M			See table below							
10	10	—	—	M•M			See table below							
—	—	15	20	2	13-27		14FSF32A*	453	14FSF32B*	513	14FSF32W*	945	14FSF32H*	1413
10	15	25	25	2	22-45		14FSH32A*	453	14FSH32B*	513	14FSH32W*	945	14FSH32H*	1413
—	—	30	30	M•M			See table below							
15	20	—	—	M•M			See table below							
—	—	30	40	3	30-60		14HSJ32A*	717	14HSJ32B*	837	14HSJ32W*	1449	14HSJ32H*	2526
25	30	50	50	3	45-90		14HSK32A*	717	14HSK32B*	837	14HSK32W*	1449	14HSK32H*	2526
30	40	75	75	M•M			See table below							
40	50	100	100	4	67-135		14JTM32A*	1605	14JTM32B*	1857	14JTM32W*	2901	14JTM32H*	3387
50	75	150	150	M•M			See table below							
75	100	200	200	5	100-270		14KSU32A*	3882	14KSU32B*	4344	14KSU32W*	5664	14KSU32H*	7848
150	200	400	400	6	200-540		14MSX32A*	9192	14MSX32B*	12192	14MSX32W*	15192	—	—

M•M Motor Matched Half Sizes

—	—	15	15	1 1/4	13-27		14ESF32A*	\$351	14ESF32B*	\$363	14ESF32W*	\$579	14ESF32H*	\$1119
10	10	—	—	1 1/4	20-40		14ESG32A*	351	14ESG32B*	363	14ESG32W*	579	14ESG32H*	1119
—	—	30	30	2 1/2	22-45		14GSH32A*	585	14GSH32B*	675	14GSH32W*	1197	14GSH32H*	1761
15	20	—	—	2 1/2	30-60		14GSJ32A*	585	14GSJ32B*	675	14GSJ32W*	1197	14GSJ32H*	1761
30	40	75	75	3 1/2	57-115		14ISL32A*	1365	14ISL32B*	1617	14ISL32W*	2661	14ISL32H*	3147
50	75	150	150	4 1/2	100-210		14RSS32A*	3462	14RSS32B*	3924	14RSS32W*	5244	14RSS32H*	7428

For Single Phase, 2 Pole, Size 0 & 1 ESP100 Starters (Hp ratings 1Hp -115V, 2Hp 230V) change 6th character from "3" to "1". \$39 price deduction. 16 Amps Maximum.

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors.

All starter sizes carry one maximum Hp rating. For higher Hp single phase motors, use 3 phase starters, wire and set per diagram on page 54.

†To order starter sizes 0-1 1/4 in NEMA 3/3R enclosure change 8th character of Cat No to D. Example 14CSD32D*. Price same as NEMA 12. For all other sizes see page 49.

♦For NEMA 4X fiberglass enclosure change 8th character of Cat No to F. Example: 14CSD32F*. Price addition see page 50.

Ordering Instructions

- Use complete catalog number. Replace the (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- For Class 10 or 30 Overload Protection add suffix "51" or "53" to catalog number. Example for Class 10: 14CSD32B*51. Example for Class 30: 14CSD32B*53. No price addition.
- Field Modification Kits page 45. Factory Modifications page 50.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A
200-208	D
220-240	G
220-240/440-480	C
440-480	H

For other voltages and frequencies see Factory Modifications.

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ESP100
STARTER

Magnetic Motor Starters-Heavy Duty Solid State Overload with Phase Loss Protection

- Full Voltage Non Reversing
- 400 Hp 60 Hz 600VAC Max
- Self-Reset Version Class 20 Overload Protection

3 Phase, 3 Pole

Max Hp						Enclosure									
						Open Type		NEMA 1 General Purpose		NEMA 4/4X Watertight, Dusttight Corrosion Resistant ♦304 Stainless Steel		NEMA 7 & 9 Class I Groups C & D Class II Groups E, F & G		NEMA 12 Industrial Use Weatherproof NEMA 3/3R	
200 Volts	230 Volts	460 Volts	575 Volts	NEMA Size	Amp Range	Cat No	Price	Cat No	Price	Cat No	Price	Cat No	Price	Cat No	Price
1/6	1/6	1/3	1/2	0	0.25-1	14CRA32A*	\$231	14CRA32B*	\$243	14CRA32W*	\$453	14CRA32H*	\$999	14CRA320*	\$315
1/2	3/4	1 1/2	2	0	0.75-3	14CRB32A*	231	14CRB32B*	243	14CRB32W*	453	14CRB32H*	999	14CRB320*	315
2	2	5	5	0	2.5-10	14CRD32A*	231	14CRD32B*	243	14CRD32W*	453	14CRD32H*	999	14CRD320*	315
3	3	—	—	0	9-18	14CRE32A*	231	14CRE32B*	243	14CRE32W*	453	14CRE32H*	999	14CRE320*	315
1/6	1/6	1/3	1/2	1	0.25-1	14DRA32A*	261	14DRA32B*	273	14DRA32W*	489	14DRA32H*	1029	14DRA320*	345
1/2	3/4	1 1/2	2	1	0.75-3	14DRB32A*	261	14DRB32B*	273	14DRB32W*	489	14DRB32H*	1029	14DRB320*	345
2	2	5	5	1	2.5-10	14DRD32A*	261	14DRD32B*	273	14DRD32W*	489	14DRD32H*	1029	14DRD320*	345
3	3	10	10	1	9-18	14DRE32A*	261	14DRE32B*	273	14DRE32W*	489	14DRE32H*	1029	14DRE320*	345
7 1/2	7 1/2	—	—	1	13-27	14DRF32A*	261	14DRF32B*	273	14DRF32W*	489	14DRF32H*	1029	14DRF320*	345
—	—	15	15	M•M		See table below									
10	10	—	—	M•M		See table below									
—	—	15	20	2	13-27	14FRF32A*	453	14FRF32B*	513	14FRF32W*	945	14FRF32H*	1413	14FRF320*	645
10	15	25	25	2	22-45	14FRH32A*	453	14FRH32B*	513	14FRH32W*	945	14FRH32H*	1413	14FRH320*	645
—	—	30	30	M•M		See table below									
15	20	—	—	M•M		See table below									
—	—	30	40	3	30-60	14HRJ32A*	717	14HRJ32B*	837	14HRJ32W*	1449	14HRJ32H*	2526	14HRJ320*	993
25	30	50	50	3	45-90	14HRK32A*	717	14HRK32B*	837	14HRK32W*	1449	14HRK32H*	2526	14HRK320*	993
30	40	75	75	M•M		See table below									
40	50	100	100	4	67-135	14JRM32A*	1605	14JRM32B*	1857	14JRM32W*	2901	14JRM32H*	3387	14JRM320*	2373
50	75	150	150	M•M		See table below									
75	100	200	200	5	100-270	14KRU32A*	3882	14KRU32B*	4344	14KRU32W*	5664	14KRU32H*	7848	14KRU320*	5664

M•M Motor Matched Half Sizes

—	—	15	15	1 3/4	13-27	14ERF32A*	\$351	14ERF32B*	\$363	14ERF32W*	\$579	14ERF32H*	\$1119	14ERF320*	\$435
10	10	—	—	1 3/4	20-40	14ERG32A*	351	14ERG32B*	363	14ERG32W*	579	14ERG32H*	1119	14ERG320*	435
—	—	30	30	2 1/2	22-45	14GRH32A*	585	14GRH32B*	675	14GRH32W*	1197	14GRH32H*	1761	14GRH320*	819
15	20	—	—	2 1/2	30-60	14GRJ32A*	585	14GRJ32B*	675	14GRJ32W*	1197	14GRJ32H*	1761	14GRJ320*	819
30	40	75	75	3 1/2	57-115	14IRL32A*	1365	14IRL32B*	1617	14IRL32W*	2661	14IRL32H*	3147	14IRL320*	2133
50	75	150	150	4 1/2	100-210	14RRS32A*	3462	14RRS32B*	3924	14RRS32W*	5244	14RRS32H*	7428	14RRS320*	5244

For Single Phase, 2 Pole, Size 0 & 1 ESP100 Starters (Hp ratings 1Hp -115V, 2Hp 230V) change 6th character from "3" to "1". \$39 price deduction. 16 Amps Maximum.

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors.

All starter sizes carry one maximum Hp rating. For higher Hp single phase motors, use 3 phase starters, wire and set per diagram on page 54.

†To order starter sizes 0-1 3/4 in NEMA 3/3R enclosure change 8th character of Cat No to D. Example 14CRD32D*. Price same as NEMA 12. For all other sizes see page 49

♦For NEMA 4X fiberglass enclosure change 8th character of Cat No to F. Example: 22CRD32F. Price addition see page 50.

Ordering Instructions

- Use complete catalog number. Replace the (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- For Class 10 or 30 Overload Protection add suffix "51" or "53" to catalog number. Example for Class 10: 14CRD32B*51. Example for Class 30: 14CRD32B*53. No price addition.
- Field Modification Kits page 45. Factory Modifications page 50.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A
200-208	D
220-240	G

For other voltages and frequencies see Factory Modifications.

Combination Magnetic Starters-Heavy Duty Solid State Overload with Phase Loss Protection

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- Non Fusible Disconnect, Field Convertible to Fusible Disconnect
- 400 Hp 60 Hz 600VAC Max, 3 Phase 3 Pole
- Class 20 Overload Protection

ESP100
COMBINATION STARTER

Standard Width Enclosure

Max Hp							Enclosure						
200 Volts	230 Volts	460 Volts	575 Volts	Disc Amp Rating	NEMA Size	Overload Amp Range	NEMA 1 General Purpose		NEMA 4/4X Watertight, Dusttight Corrosion Resistant †304 Stainless Steel		††NEMA 12 †NEMA 3/3R Industrial Use Weatherproof		
							Cat No	Price	Cat No	Price	Cat No	Price	
1/6	1/6	1/3	1/2	30	0	0.25-1	17CSA92B*	\$573	17CSA92W*	\$1149	17CSA92N*	\$717	
1/2	3/4	1 1/2	2	30	0	0.75-3**	17CSB92B*	573	17CSB92W*	1149	17CSB92N*	717	
2	2	5	5	30	0	2.5-10	17CSD92B*	573	17CSD92W*	1149	17CSD92N*	717	
3	3	—	—	30	0	9-18	17CSE92B*	573	17CSE92W*	1149	17CSE92N*	717	
1/6	1/6	1/3	1/2	30	0	0.25-1	17CSA92B*	573	17CSA92W*	1149	17CSA92N*	717	
1/2	3/4	1 1/2	2	30	1	0.75-3	17DSB92B*	603	17DSB92W*	1179	17DSB92N*	747	
2	2	5	5	30	1	2.5-10	17DSD92B*	603	17DSD92W*	1179	17DSD92N*	747	
3	3	10	10	30	1	9-18	17DSE92B*	603	17DSE92W*	1179	17DSE92N*	747	
7 1/2	7 1/2	—	—	30	1	13-27	17DSF92B*	603	17DSF92W*	1179	17DSF92N*	747	
—	—	15	15	60	M•M		See table below						
10	10	—	—	60	M•M		See table below						
—	—	15	20	60	2	13-27	17FSF92B*	939	17FSF92W*	1827	17FSF92N*	1143	
10	15	25	25	60	2	22-45	17FSH92B*	939	17FSH92W*	1827	17FSH92N*	1143	
—	—	30	30	100	M•M		See table below						
15	20	—	—	100	M•M		See table below						
—	—	30	40	100	3	30-60	17HSJ92B*	1545	17HSJ92W*	3093	17HSJ92N*	1809	
25	30	50	50	100	3	45-90	17HSK92B*	1545	17HSK92W*	3093	17HSK92N*	1809	
30	40	75	75	200	M•M		See table below						
40	50	100	100	200	4	67-135	17JTM92B*	2955	17JTM92W*	4935	17JTM92N*	3687	
50	75	150	150	400	M•M		See table below						
75	100	200	200	400	5	100-270	17KSU92B*	6600	17KSU92W*	11652	17KSU92N*	8376	
150	200	400	400	600	6	200-540	17MSX92B*	17370	17MSX92W*	20370	17MSX92N*	18990	

M•M Motor Matched Half Sizes

—	—	15	15	60	1 3/4	13-27		17ESF92B*	\$693	17ESF92W*	\$1269	17ESF92N*	\$837
10	10	—	—	60	1 3/4	20-40		17ESG92B*	693	17ESG92W*	1269	17ESG92N*	837
—	—	30	30	100	2 1/2	22-45		17GSH92B*	1269	17GSH92W*	2817	17GSH92N*	1533
15	20	—	—	100	2 1/2	30-60		17GSJ92B*	1269	17GSJ92W*	2817	17GSJ92N*	1533
30	40	75	75	200	3 1/2	57-115		17ISL92B*	2715	17ISL92W*	4695	17ISL92N*	3447
50	75	150	150	400	4 1/2	100-210		17RSS92B*	6180	17RSS92W*	11232	17RSS92N*	7956

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors.

All starter sizes carry one maximum Hp rating.

††For NEMA 12 enclosures with vault hardware (in place of quarter turn fasteners) replace "N" with "O" in 8th position of catalog number. Example: 17CSD92O*. No price addition.

†NEMA 12 may be field modified for NEMA 3/3R, see page 49.

♦For NEMA 4X fiberglass enclosure change 8th character of catalog number to F. Example: 17CSD92F*. Price same as stainless steel. Available in standard width through size 4.

Ordering Instructions

- Use complete catalog number. Replace the (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- For Class 10 or 30 Overload Protection add suffix "51" or "53" to catalog number. Example for Class 10: 17CSD92B*51. Example for Class 30: 17CSD92B*53. No price addition.
- Field Modification Kits page 45. Factory Modifications page 50.
- For fusible combination starters, see page 50 for factory modified suffix.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A①
200-208	D
220-240	G
220-240/440-480*	C①
440-480*	H

For other voltages and frequencies see Factory Modifications.

*Not available with self-reset option.

①Dual voltage coils NA in stocked or modified starters.

Combination Magnetic Starters-Heavy Duty
Solid State Overload with Phase Loss Protection

- Non Fusible Disconnect, Field Convertible to Fusible Disconnect
- 100 Hp 60 Hz 600VAC Max, 3 Phase 3 Pole
- Class 20 Overload Protection

Extra Wide Enclosure

Max Hp							Enclosure			
200 Volts	230 Volts	460 Volts	575 Volts	Disc Amp Rating	NEMA Size	Overload Amp Range	NEMA 1 General Purpose	NEMA 4/4X Watertight, Dusttight Corrosion Resistant 304 Stainless Steel	††NEMA 12 NEMA 3/3R Industrial Use Weatherproof	
							Cat No	Price	Cat No	Price
1/6	1/6	1/6	1/2	30	0	0.25-1	17CSA92B*	\$573	17CSA92W*	\$1149
1/2	3/4	1 1/2	2	30	0	0.75-3**	17CSB82B*	723	17CSB82W*	1599
2	2	5	5	30	0	2.5-10	17CSD82B*	723	17CSD82W*	1599
3	3	—	—	30	0	9-18	17CSE82B*	723	17CSE82W*	1599
1/6	1/6	1/6	1/2	30	0	0.25-1	17CSA92B*	573	17CSA92W*	1149
1/2	3/4	1 1/2	2	30	1	0.75-3	17DSB82B*	753	17DSB82W*	1629
2	2	5	5	30	1	2.5-10	17DSD82B*	753	17DSD82W*	1629
3	3	10	10	30	1	9-18	17DSE82B*	753	17DSE82W*	1629
7 1/2	7 1/2	—	—	—	1	13-27	17DSF82B*	753	17DSF82W*	1629
—	—	15	15	60	M•M		See table below			
10	10	—	—	60	M•M		See table below			
—	—	15	20	60	2	13-27	17FSF82B*	1089	17FSF82W*	2277
10	15	25	25	60	2	22-45	17FSH82B*	1089	17FSH82W*	2277
—	—	30	30	100	M•M		See table below			
15	20	—	—	100	M•M		See table below			
—	—	30	40	100	3	30-60	17HSJ82B*	1845	17HSJ82W*	3993
25	30	50	50	100	3	45-90	17HSK82B*	1845	17HSK82W*	3993
30	40	75	75	200	M•M		See table below			
40	50	100	100	200	4	67-135	17JTM82B*	3255	17JTM82W*	5835

M•M Motor Matched Half Sizes

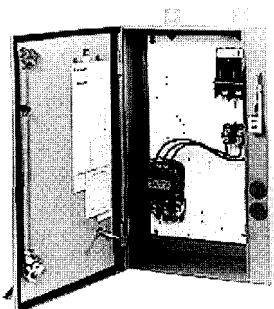
—	—	15	15	60	1 3/4	13-27	17ESF82B*	\$843	17ESF82W*	\$1719	17ESF82N*	\$1107
10	10	—	—	60	1 3/4	20-40	17ESG82B*	843	17ESG82W*	1719	17ESG82N*	1107
—	—	30	30	100	2 1/2	22-45	17GSH82B*	1569	17GSH82W*	3717	17GSH82N*	2073
15	20	—	—	100	2 1/2	30-60	17GSJ82B*	1569	17GSJ82W*	3717	17GSJ82N*	2073
30	40	75	75	200	3 1/2	57-115	17ISL82B*	3015	17ISL82W*	5595	17ISL82N*	3987

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors. All starter sizes carry one maximum Hp rating.

†NEMA 12 may be field modified for NEMA 3/3R, see page 49.

††For NEMA 12 enclosures with vault hardware (in place of quarter turn fasteners) replace "N" with "O" in 8th position of catalog number. Example: 17CSD82O*. No price addition.

Extra Wide NEMA 12 size 1 FVNR starter with a **fusible disconnect**. The extra wide enclosure has ample space for mounting additional components. For example, this space can accommodate MT/46 relays or a programmable controller and a 100VA extra capacity transformer.



NEMA 3/12 Extra Wide

Ordering Instructions

- Use complete catalog number. Replace the (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- For Class 10 or 30 Overload Protection add suffix "51" or "53" to catalog number. Example for Class 10: 17CSD92B*51. Example for Class 30: 17CSD92B*53. No price addition.
- Field Modification Kits page 45. Factory Modifications page 50.
- For fusible combination starters, see page 50 for factory modified suffix.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A①
200-208	D
220-240	G
220-240/440-480*	C①
440-480*	H

For other voltages and frequencies see Factory Modifications.
*Not available with self-reset option.
① Dual voltage coils NA in stocked or modified starters.

Combination Magnetic Starters Solid State Overload with Phase Loss Protection

- Non Fusible Disconnect, Field Convertible to Fusible Disconnect
- 25 Hp 60 Hz 600VAC Max, 3 Phase 3 Pole
- Class 20 Overload Protection

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ESP100
COMBINATION STARTER

Horizontal Compact Enclosure

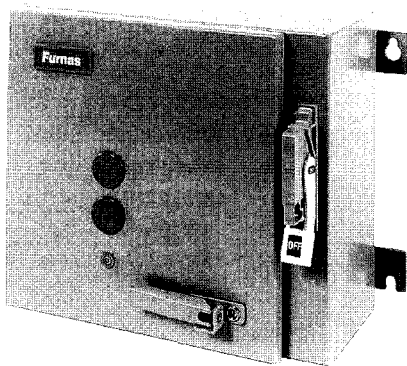
Max Hp							Enclosure			
200 Volts	230 Volts	460 Volts	575 Volts	Disc Amp Rating	NEMA Size	Overload Amp Range	NEMA 1 General Purpose	NEMA 4/4X Watertight, Dusttight Corrosion Resistant 304 Stainless Steel	NEMA 12 †NEMA 3/3R Industrial Use Weatherproof	
							Cat No	Price	Cat No	Price
1/6	1/6	1/3	1/2	30	0	0.25-1	17CSA92B*	\$573	17CSA92W*	\$1149
1/2	3/4	1 1/2	2	30	0	0.75-3	17CSB72B*	573	17CSB72W*	1149
2	2	5	5	30	0	2.5-10	17CSD72B*	573	17CSD72W*	1149
3	3	—	—	30	0	9-18	17CSE72B*	573	17CSE72W*	1149
1/6	1/6	1/3	1/2	30	0	0.25-1	17CSA92B*	573	17CSA92W*	1149
1/2	3/4	1 1/2	2	30	1	0.75-3	17DSB72B*	603	17DSB72W*	1179
2	2	5	5	30	1	2.5-10	17DSD72B*	603	17DSD72W*	1179
3	3	10	10	30	1	9-18	17DSE72B*	603	17DSE72W*	1179
7 1/2	7 1/2	—	—	—	1	13-27	17DSF72B*	603	17DSF72W*	1179
—	—	15	15	60	M•M		See table below			
10	10	—	—	60	M•M		See table below			
—	—	15	20	60	2	13-27	17FSF72B*	939	17FSF72W*	1827
10	15	25	25	60	2	22-45	17FSH72B*	939	17FSH72W*	1827

M•M Motor Matched Half Sizes

—	—	15	15	60	1 3/4	13-27	17ESF72B*	\$693	17ESF72W*	\$1269	17ESF72N*	\$837
10	10	—	—	60	1 3/4	20-40	17ESG72B*	693	17ESG72W*	1269	17ESG72N*	837

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors.
All starter sizes carry one maximum Hp rating.

†NEMA 12 may be field modified for NEMA 3/3R, see page 49.



NEMA 3/12
Horizontal Compact

Ordering Instructions

- Use complete catalog number. Replace the (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- For Class 10 or 30 Overload Protection add suffix "51" or "53" to catalog number. Example for Class 10: 17CSD62B*51. Example for Class 30: 17CSD62B*53. No price addition.
- Field Modification Kits page 45. Factory Modifications page 50.
- For fusible combination starters, see page 50 for factory modified suffix.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A ^①
200-208	D
220-240	G
220-240/440-480*	C●
440-480*	H

For other voltages and frequencies see Factory Modifications.
*Not available with self-reset option.
①Dual voltage coils NA in stocked or modified starters.

Combination Magnetic Starters-Heavy Duty Solid State Overload with Phase Loss Protection

- Circuit Breaker Type
- 400 Hp 60 Hz 600VAC Max, 3 Phase 3 Pole
- Class 20 Overload Protection

ESP100
COMBINATION STARTER

Standard Width Enclosure

Max Hp							Enclosure							
200	230	460	575	NEMA	Overload		NEMA 1		NEMA 4/4X		NEMA 7 & 9		††NEMA 12	
Volts	Volts	Volts	Volts	Size	Amp Range		General Purpose		Watertight, Dusttight Corrosion Resistant *304 Stainless Steel		Class II Groups E, F & G *Bolted Enclosure		†NEMA 3/3R Industrial Use Weatherproof	
							Cat No	Price	Cat No	Price	Cat No	Price	Cat No	Price
1/2	1/2	1	1	0	0.75-3**		18CSB92B*	\$789	18CSB92W*	\$1365	18CSB92H*	\$1644	18CSB92N*	\$933
1	1	3	3	0	2.5-10		18CSC92B*	789	18CSC92W*	1365	18CSC92H*	1644	18CSC92N*	933
2	2	5	5	0	2.5-10		18CSD92B*	789	18CSD92W*	1365	18CSD92H*	1644	18CSD92N*	933
3	3	—	—	0	9-18		18CSE92B*	789	18CSE92W*	1365	18CSE92H*	1644	18CSE92N*	933
1/2	1/2	1	1	1	0.75-3		18DSB92B*	819	18DSB92W*	1395	18DSB92H*	1683	18DSB92N*	963
1	1	3	3	1	2.5-10		18DSC92B*	819	18DSC92W*	1395	18DSC92H*	1683	18DSC92N*	963
2	2	5	5	1	2.5-10		18DSD92B*	819	18DSD92W*	1395	18DSD92H*	1683	18DSD92N*	963
3	3	7 1/2	10	1	9-18		18DSE92B*	819	18DSE92W*	1395	18DSE92H*	1683	18DSE92N*	963
7 1/2	7 1/2	10	—	1	13-27		18DSF92B*	819	18DSF92W*	1395	18DSF92H*	1683	18DSF92N*	963
—	—	15	15	M•M			See table below							
10	10	—	—	M•M			See table below							
—	—	15	20	2	13-27		18FSF92B*	1149	18FSF92W*	2037	18FSF92H*	2238	18FSF92N*	1353
10	15	25	25	2	22-45		18FSH92B*	1149	18FSH92W*	2037	18FSH92H*	2238	18FSH92N*	1353
—	—	30	30	M•M			See table below							
15	20	—	—	M•M			See table below							
—	—	30	40	3	30-60		18HSJ92B*	1659	18HSJ92W*	3207	18HSJ92H*	3681	18HSJ92N*	1923
25	30	50	50	3	45-90		18HSK92B*	1659	18HSK92W*	3207	18HSK92H*	3681	18HSK92N*	1923
30	40	75	75	M•M			See table below							
40	50	100	100	4	67-135		18JTM92B*	3609	18JTM92W*	5589	18JTM92H*	5721	18JTM92N*	4341
50	75	150	150	M•M			See table below							
50	75	150	200	5	100-270		18KST92B*	8334	18KST92W*	13386	18KST92H*	12402	18KST92N*	9654
75	100	200	—	5	100-270		18KSU92B*	8334	18KSU92W*	13386	18KSU92H*	12402	18KSU92N*	9654
100	125	250	300	6	200-540		18MSW92B*	17655	18MSW92W	20655	—	—	18MSW92N*	19275
150	200	400	400	6	200-540		18MSX92B*	18066	18MSX92W	21066	—	—	18MSX92N*	19686

M•M Motor Matched Half Sizes

—	—	15	15	1 1/4	13-27		18ESF92B*	\$909	18ESF92W*	\$1485	18ESF92H*	\$2136	18ESF92N*	\$1053
10	10	—	—	1 1/4	20-40		18ESG92B*	909	18ESG92W*	1485	18ESG92H*	2136	18ESG92N*	1053
—	—	30	30	2 1/2	22-45		18GSH92B*	1527	18GSH92W*	3075	18GSH92H*	2960	18GSH92N*	1791
15	20	—	—	2 1/2	30-60		18GSJ92B*	1527	18GSJ92W*	3075	18GSJ92H*	2960	18GSJ92N*	1791
30	40	75	75	3 1/2	57-115		18ISL92B*	3369	18ISL92W*	5349	18ISL92H*	4701	18ISL92N*	4101
50	75	150	150	4 1/2	100-210		18RSS92B*	7914	18RSS92W*	12966	18RSS92H*	11982	18RSS92N*	9234

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors.

All starter sizes carry one maximum Hp rating.

**For amp range 0.25-1.0 Amps change the 5th Character in the Cat No from "B" to "A".

††For NEMA 12 enclosures with vault hardware (in place of quarter turn fasteners) replace "N" with "O" in 8th position of catalog number. Example: 18CSC92O*. No price addition.

†NEMA 12 may be field modified for NEMA 3/3R, see page 49.

◆For NEMA 4X fiberglass enclosure change 8th character of catalog number to F. Example: 18CSC92F*. Price same as stainless steel. Available in standard width through size 4.

♣To order threaded enclosure change "H" to "L". Example: 18CSC92L*. No price addition.

Ordering Instructions

- Use complete catalog number. Replace the (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- For Class 10 and 30 Overload Protection add suffix "51" or "53" to catalog number. Example for Class 10: 18CSD92B*51. Example for Class 30: 18CSD92B*53. No price addition.
- Field Modification Kits page 45. Factory Modifications page 50.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A①
200-208	D
220-240	G
220-240/440-480*	C①
440-480*	H

For other voltages and frequencies see Factory Modifications.

*Not available with self-reset option.

①Dual voltage coils NA in stocked or modified starters.

Combination Magnetic Starters-Heavy Duty Solid State Overload with Phase Loss Protection

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ESP100
COMBINATION STARTER

- Circuit Breaker Type
- 100 Hp 60 Hz 600VAC Max, 3 Phase 3 Pole
- Class 20 Overload Protection

Extra Wide Enclosure

Max Hp						Enclosure					
200 Volts	230 Volts	460 Volts	575 Volts	NEMA Size	Overload Amp Range	NEMA 1 General Purpose Cat No	Price	NEMA 4/4X Watertight, Dusttight Corrosion Resistant 304 Stainless Steel Cat No	Price	NEMA 12 †NEMA 3/3R Industrial Use Weatherproof Cat No	Price
1/2	1/2	1	1	0	0.75-3**	18CSB82B*	\$939	18CSB82W*	\$1815	18CSB82N*	\$1203
1	1	3	3	0	2.5-10	18CSC82B*	939	18CSC82W*	1815	18CSC82N*	1203
2	2	5	5	0	2.5-10	18CSD82B*	939	18CSD82W*	1815	18CSD82N*	1203
3	3	—	—	0	9-18	18CSE82B*	939	18CSE82W*	1815	18CSE82N*	1203
1/2	1/2	1	1	1	0.75-3	18DSB82B*	969	18DSB82W*	1845	18DSB82N*	1233
1	1	3	3	1	2.5-10	18DSC82B*	969	18DSC82W*	1845	18DSC82N*	1233
2	2	5	5	1	2.5-10	18DSD82B*	969	18DSD82W*	1845	18DSD82N*	1233
3	3	7 1/2	10	1	9-18	18DSE82B*	969	18DSE82W*	1845	18DSE82N*	1233
7 1/2	7 1/2	10	—	1	13-27	18DSF82B*	969	18DSF82W*	1845	18DSF82N*	1233
—	—	15	15	M•M	See table below						
10	10	—	—	M•M	See table below						
—	—	15	20	2	13-27	18FSF82B*	1299	18FSF82W*	2487	18FSF82N*	1623
10	15	25	25	2	22-45	18FSH82B*	1299	18FSH82W*	2487	18FSH82N*	1623
—	—	30	30	M•M	See table below						
15	20	—	—	M•M	See table below						
—	—	30	40	3	30-60	18HSJ82B*	1959	18HSJ82W*	4107	18HSJ82N*	2463
25	30	50	50	3	45-90	18HSK82B*	1959	18HSK82W*	4107	18HSK82N*	2463
30	40	75	75	M•M	See table below						
40	50	100	100	4	67-135	18JTM82B*	3909	18JTM82W*	6489	18JTM82N*	4881

M•M Motor Matched Half Sizes

—	—	15	15	1 1/4	13-27	18ESF82B*	\$1059	18ESF82W*	\$1935	18ESF82N*	\$1323
10	10	—	—	1 1/4	20-40	18ESG82B*	1059	18ESG82W*	1935	18ESG82N*	1323
—	—	30	30	2 1/2	22-45	18GSH82B*	1827	18GSH82W*	3975	18GSH82N*	2331
15	20	—	—	2 1/2	30-60	18GSJ82B*	1827	18GSJ82W*	3975	18GSJ82N*	2331
30	40	75	75	3 1/2	57-115	18ISL82B*	3669	18ISL82W*	6249	18ISL82N*	4641

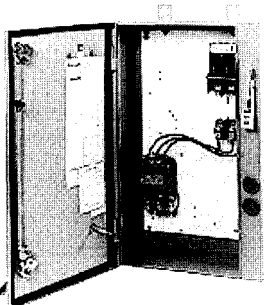
Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors.

All starter sizes carry one maximum Hp rating.

**For amp range 0.25-1.0 Amps change the 5th Character in the Cat No from "B" to "A".

†NEMA 12 may be field modified for NEMA 3/3R, see page 49.

Extra Wide NEMA 12 size 1 FVNR starter with a **fusible disconnect**. The extra wide enclosure has ample space for mounting additional components. For example, this space can accommodate MT/46 relays or a programmable controller and a 100VA extra capacity transformer.



NEMA 3/12 Extra Wide

Ordering Instructions

- Use complete catalog number. Replace the (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- For Class 10 or 30 Overload Protection add suffix "51" or "53" to catalog number. Example for Class 10: 18CSD82B*51. Example for Class 30: 18CSD82B*53. No price addition.
- Field Modification Kits page 45. Factory Modifications page 50.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A①
200-208	D
220-240	G
220-240/440-480*	C①
440-480*	H

For other voltages and frequencies see Factory Modifications.

*Not available with self-reset option.

①Dual voltage coils NA in stocked or modified starters.

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**ESP100
COMBINATION STARTER**

Combination Magnetic Starters-Heavy Duty Solid State Overload with Phase Loss Protection

- Circuit Breaker Type
- 25 Hp 60 Hz 600VAC Max, 3 Phase 3 Pole
- Class 20 Overload Protection

Horizontal Compact Enclosure

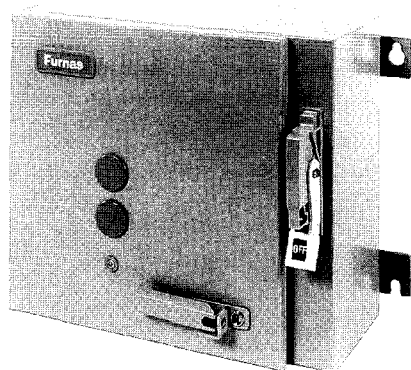
Max Hp						Enclosure					
200 Volts	230 Volts	460 Volts	575 Volts	NEMA Size	Overload Amp Range	NEMA 1 General Purpose Cat No	Price	NEMA 4/4X Watertight, Dusttight Corrosion Resistant 304 Stainless Steel Cat No	Price	NEMA 12 †NEMA 3/3R Industrial Use Weatherproof Cat No	Price
½	½	1	1	0	0.75-3**	18CSB72B*	\$789	18CSB72W*	\$1365	18CSB72N*	\$933
1	1	3	3	0	2.5-10	18CSC72B*	789	18CSC72W*	1365	18CSC72N*	933
2	2	5	5	0	2.5-10	18CSD72B*	789	18CSD72W*	1365	18CSD72N*	933
3	3	—	—	0	9-18	18CSE72B*	789	18CSE72W*	1365	18CSE72N*	933
½	½	1	1	1	0.75-3	18DSB72B*	819	18DSB72W*	1395	18DSB72N*	963
1	1	3	3	1	2.5-10	18DSC72B*	819	18DSC72W*	1395	18DSC72N*	963
2	2	5	5	1	2.5-10	18DSD72B*	819	18DSD72W*	1395	18DSD72N*	963
3	3	7½	10	1	9-18	18DSE72B*	819	18DSE72W*	1395	18DSE72N*	963
7½	7½	10	—	1	13-27	18DSF72B*	819	18DSF72W*	1395	18DSF72N*	963
—	—	15	15	1¾	M•M	See table below					
10	10	—	—	1¾	M•M	See table below					
—	—	15	20	2	13-27	18FSF72B*	1149	18FSF72W*	2037	18FSF72N*	1353
10	15	25	25	2	22-45	18FSH72B*	1149	18FSH72W*	2037	18FSH72N*	1353
M•M Motor Matched Half Sizes											
—	—	15	15	1¾	13-27	18ESF72B*	\$909	18ESF72W*	\$1485	18ESF72N*	\$1053
10	10	—	—	1¾	20-40	18ESG72B*	909	18ESG72W*	1485	18ESG72N*	1053

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors.

All starter sizes carry one maximum Hp rating.

**For amp range 0.25-1.0 Amps change the 5th Character in the Cat No from "B" to "A".

†NEMA 12 may be field modified for NEMA 3/3R see page 49.



**NEMA 3/12
Horizontal Compact**

Ordering Instructions

- Use complete catalog number. Replace the (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- For Class 10 or 30 Overload Protection add suffix "51" or "53" to catalog number. Example for Class 10: 18CSD72B*51. Example for Class 30: 18CSD72B*53. No price addition.
- Field Modification Kits page 45. Factory Modifications page 50.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A①
200-208	D
220-240	G
220-240/440-480*	C①
440-480*	H

For other voltages and frequencies see Factory Modifications.

*Not available with self-reset option.

① Dual voltage coils NA in stocked or modified starters.

Magnetic Reversing Motor Starters-Heavy Duty Solid State Overload with Phase Loss Protection

- Full Voltage Reversing
- 400 Hp 60 Hz 600VAC Max
- Class 20 Overload Protection

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ESP100
REVERSING STARTER

3 Phase, 3 Pole

Max Hp						Enclosure											
						Open Type		NEMA 1 General Purpose		NEMA 4/4X Watertight, Dusttight Corrosion Resistant ♦304 Stainless Steel		NEMA 7 & 9 Class I Groups C & D Class II Groups E, F & G		NEMA 12 †NEMA 3/3R Industrial Use Weatherproof			
200 Volts	230 Volts	460 Volts	575 Volts	NEMA Size	Amp Range	Cat No	Price	Cat No	Price	Cat No	Price	Cat No	Price	Cat No	Price		
⅙	⅙	⅓	½	0	0.25-1	22CSA32A*	\$489	22CSA32B*	\$513	22CSA32W*	\$789	22CSA32H*	\$1623	22CSA32O*	\$621		
½	¾	1½	2	0	0.75-3	22CSB32A*	489	22CSB32B*	513	22CSB32W*	789	22CSB32H*	1623	22CSB32O*	621		
2	2	5	5	0	2.5-10	22CSD32A*	489	22CSD32B*	513	22CSD32W*	789	22CSD32H*	1623	22CSD32O*	621		
3	3	—	—	0	9-18	22CSE32A*	489	22CSE32B*	513	22CSE32W*	789	22CSE32H*	1623	22CSE32O*	621		
⅙	⅙	⅓	½	1	0.25-1	22DSA32A*	549	22DSA32B*	585	22DSA32W*	969	22DSA32H*	1701	22DSA32O*	693		
½	¾	1½	2	1	0.75-3	22DSB32A*	549	22DSB32B*	585	22DSB32W*	969	22DSB32H*	1701	22DSB32O*	693		
2	2	5	5	1	2.5-10	22DSD32A*	549	22DSD32B*	585	22DSD32W*	969	22DSD32H*	1701	22DSD32O*	693		
3	3	10	10	1	9-18	22DSE32A*	549	22DSE32B*	585	22DSE32W*	969	22DSE32H*	1701	22DSE32O*	693		
7½	7½	—	—	1	13-27	22DSF32A*	549	22DSF32B*	585	22DSF32W*	969	22DSF32H*	1701	22DSF32O*	693		
—	—	15	15	M•M		See table below											
10	10	—	—	M•M		See table below											
—	—	15	20	2	13-27	22FSF32A*	1017	22FSF32B*	1113	22FSF32W*	1737	22FSF32H*	2823	22FSF32O*	1293		
10	15	25	25	2	22-45	22FSH32A*	1017	22FSH32B*	1113	22FSH32W*	1737	22FSH32H*	2823	22FSH32O*	1293		
—	—	30	30	M•M		See table below											
15	20	—	—	M•M		See table below											
—	—	30	40	3	30-60	22HSJ32A*	1671	22HSJ32B*	1839	22HSJ32W*	2763	22HSJ32H*	4521	22HSJ32O*	2235		
25	30	50	50	3	45-90	22HSK32A*	1671	22HSK32B*	1839	22HSK32W*	2763	22HSK32H*	4521	22HSK32O*	2235		
30	40	75	75	M•M		See table below											
40	50	100	100	4	67-135	22JTM32A*	4041	22JTM32B*	4353	22JTM32W*	5985	22JTM32H*	8649	22JTM32O*	4965		
50	75	150	150	M•M		See table below											
75	100	200	200	5	100-270	22KSU32A*	7740	22KSU32B*	9546	22KSU32W*	11658	—	—	22KSU32O*	11658		
150	200	400	400	6	200-540	22MSX32A*	18228	22MSX32B*	21228	22MSX32W*	24228	—	—	22MSX32O*	22848		

M•M Motor Matched Half Sizes

—	—	15	15	1 3/4	13-27		22ESF32A*	\$729	22ESF32B*	\$765	22ESF32W*	\$1149	22ESF32H*	\$1881	22ESF32O*	\$873
10	10	—	—	1 3/4	20-40		22ESG32A*	729	22ESG32B*	765	22ESG32W*	1149	22ESG32H*	1881	22ESG32O*	873
—	—	30	30	2 1/2	22-45		22GSH32A*	1341	22GSH32B*	1473	22GSH32W*	2247	22GSH32H*	3597	22GSH32O*	1761
15	20	—	—	2 1/2	30-60		22GSJ32A*	1341	22GSJ32B*	1473	22GSJ32W*	2247	22GSJ32H*	3597	22GSJ32O*	1761
30	40	75	75	3 1/2	57-115		22ISL32A*	3561	22ISL32B*	3873	22ISL32W*	5505	22ISL32H*	8169	22ISL32O*	4485
50	75	150	150	4 1/2	100-210		22RSS32A*	6900	22RSS32B*	8706	22RSS32W*	10818	—	—	22RSS32O*	10818

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors.

All starter sizes carry one maximum Hp rating.

†NEMA 12 may be field modified for NEMA 3/3R see page 49.

♦For NEMA 4X fiberglass enclosure change 8th character of Cat No to F. Example: 22CSD32F*. Price addition see page 50.

Ordering Instructions

- Use complete catalog number Replace the (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- For Class 10 and 30 Overload Protection add suffix "51" or "53" to catalog number. Example for Class 10: 22CSD32A*51. Example for Class 30: 22CSD32A*53. No price addition.
- Open vertical reversing starters are available in sizes 0-2 1/2. Contact Sales Office for more information.
- Field Modification Kits page 45. Factory Modifications page 50.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A
200-208	D
220-240	G
220-240/440-480*	C
440-480*	H

For other voltages and frequencies see Factory Modifications.

*Not available with self-reset option.

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ESP100 COMBINATION
REVERSING STARTERCombination Reversing Magnetic Starters
Solid State Overload with Phase Loss Protection

- Non Fusible Disconnect, Field Convertible to Fusible Disconnect
- 200 Hp 60 Hz 600VAC Max, 3 Phase 3 Pole
- Class 20 Overload Protection

Standard Width Enclosure

Max Hp							Enclosure					
200 Volts	230 Volts	460 Volts	575 Volts	Disc Amp Rating	NEMA Size	Overload Amp Range	NEMA 1 General Purpose		NEMA 4/4X Watertight, Dusttight Corrosion Resistant *304 Stainless Steel		††NEMA 12 Industrial Use Weatherproof	
							Cat No	Price	Cat No	Price	Cat No	Price
½	¾	1½	2	30	0	0.75-3**	25CSB92B*	\$921	25CSB92W*	\$1653	25CSB92N*	\$1125
2	2	5	5	30	0	2.5-10	25CSD92B*	921	25CSD92W*	1653	25CSD92N*	1125
3	3	—	—	30	0	9-18	25CSE92B*	921	25CSE92W*	1653	25CSE92N*	1125
½	¾	1½	2	30	1	0.75-3	25DSB92B*	981	25DSB92W*	1713	25DSB92N*	1185
2	2	5	5	30	1	2.5-10	25DSD92B*	981	25DSD92W*	1713	25DSD92N*	1185
3	3	10	10	30	1	9-18	25DSE92B*	981	25DSE92W*	1713	25DSE92N*	1185
7½	7½	—	—	30	1	13-27	25DSF92B*	981	25DSF92W*	1713	25DSF92N*	1185
—	—	15	15	60	M•M		See table below					
10	10	—	—	60	M•M		See table below					
—	—	15	20	60	2	13-27	25FSF92B*	1623	25FSF92W*	2739	25FSF92N*	1887
10	15	25	25	60	2	22-45	25FSH92B*	1623	25FSH92W*	2739	25FSH92N*	1887
—	—	30	30	100	M•M		See table below					
15	20	—	—	100	M•M		See table below					
—	—	30	40	100	3	30-60	25HSJ92B*	2673	25HSJ92W*	4629	25HSJ92N*	3021
25	30	50	50	100	3	45-90	25HSK92B*	2673	25HSK92W*	4629	25HSK92N*	3021
30	40	75	75	200	M•M		See table below					
40	50	100	100	200	4	67-135	25JTM92B*	5571	25JTM92W*	8043	25JTM92N*	6525
50	75	150	150	400	M•M		See table below					
75	100	200	200	400	5	100-270	25KSU92B*	10848	25KSU92W*	17160	25KSU92N*	13116

M•M Motor Matched Half Sizes

—	—	15	15	60	1¼	13-27	25ESF92B*	\$1161	25ESF92W*	\$1893	25ESF92N*	\$1365
10	10	—	—	60	1¼	20-40	25ESG92B*	1161	25ESG92W*	1893	25ESG92N*	1365
—	—	30	30	100	2½	22-45	25GSH92B*	2343	25GSH92W*	4299	25GSH92N*	2691
15	20	—	—	100	2½	30-60	25GSJ92B*	2343	25GSJ92W*	4299	25GSJ92N*	2691
30	40	75	75	200	3½	57-115	25ISL92B*	5091	25ISL92W*	7563	25ISL92N*	6045
50	75	150	150	400	4½	100-210	25RSS92B*	10008	25RSS92W*	16320	25RSS92N*	12276

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors.
All starter sizes carry one maximum Hp rating.

**For amp range 0.25-1.0 Amps change the 5th Character in the Cat No from "B" to "A".

††For NEMA 12 enclosures with vault hardware (in place of quarter turn fasteners) replace "N" with "O" in 8th position of catalog number. Example: 25CSD92O*. No price addition.

†NEMA 12 may be modified for NEMA 3/3R, see page 49.

◆For NEMA 4X fiberglass enclosure change 8th character of catalog number to F. Example: 25CSD92F*. Price same as stainless steel. Available in standard width through size 4.

Ordering Instructions

- Use complete catalog number. Replace the (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- For Class 10 or 30 Overload Protection add suffix "51" or "53" to catalog number. Example for Class 10: 25CSD72B*51. Example for Class 30: 25CSD72B*53. No price addition.
- Field Modification Kits page 45. Factory Modifications page 50.
- Sizes 3½-5 are not field convertible. To order fusible disconnect see Factory Assembled Fuse Clips page 50.
- For fusible combination starters, see page 50 for factory modified suffix.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A①
200-208	D
220-240	G
220-240/440-480*	C①
440-480*	H

For other voltages and frequencies see Factory Modifications.

*Not available with self-reset option.

①Dual voltage coils NA in stocked or modified starters.

Combination Reversing Magnetic Starters Solid State Overload with Phase Loss Protection

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- Non Fusible Disconnect, Field Convertible to Fusible Disconnect
- 25 Hp 60 Hz 600VAC Max, 3 Phase 3 Pole
- Class 20 Overload Protection

**ESP100 COMBINATION
REVERSING STARTER**

Horizontal Compact Enclosure

Max Hp							Enclosure					
200 Volts	230 Volts	460 Volts	575 Volts	Disc Amp Rating	NEMA Size	Overload Amp Range	NEMA 1 General Purpose		NEMA 4/4X Watertight, Dusttight 304 Stainless Steel Corrosion Resistant		NEMA 12 Industrial Use Weatherproof	
							Cat No	Price	Cat No	Price	Cat No	Price
1/2	3/4	1 1/2	2	30	0	0.75-3**	25CSB72B*	\$921	25CSB72W*	\$1653	25CSB72N*	\$1125
2	2	5	5	30	0	2.5-10	25CSD72B*	921	25CSD72W*	1653	25CSD72N*	1125
3	3	—	—	30	0	9-18	25CSE72B*	921	25CSE72W*	1653	25CSE72N*	1125
1/2	3/4	1 1/2	2	30	1	0.75-3	25DSB72B*	981	25DSB72W*	1713	25DSB72N*	1185
2	2	5	5	30	1	2.5-10	25DSD72B*	981	25DSD72W*	1713	25DSD72N*	1185
3	3	10	10	30	1	9-18	25DSE72B*	981	25DSE72W*	1713	25DSE72N*	1185
7 1/2	7 1/2	—	—	—	1	13-27	25DSF72B*	981	25DSF72W*	1713	25DSF72N*	1185
—	—	15	15	60	M•M		See table below					
10	10	—	—	60	M•M		See table below					
—	—	15	20	60	2	13-27	25FSF72B*	1623	25FSF72W*	2739	25FSF72N*	1887
10	15	25	25	60	2	22-45	25FSH72B*	1623	25FSH72W*	2739	25FSH72N*	1887

M•M Motor Matched Half Sizes

—	—	15	15	60	1 3/4	13-27	25ESF72B*	\$1161	25ESF72W*	\$1893	25ESF72N*	\$1365
10	10	—	—	60	1 3/4	20-40	25ESG72B*	1161	25ESG72W*	1893	25ESG72N*	1365

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors.

All starter sizes carry one maximum Hp rating.

**For amp range 0.25-1.0 Amps change the 5th Character in the Cat No from "B" to "A".

†NEMA 12 may be modified for NEMA 3/3R, see page 49.

Ordering Instructions

- Use complete catalog number. Replace the (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- For Class 10 or 30 Overload Protection add suffix "51" or "53" to catalog number. Example for Class 10: 25CSD72B*51. Example for Class 30: 25CSD72B*53. No price addition.
- Field Modification Kits page 45. Factory Modifications page 50.
- Sizes 3 1/2-5 are not field convertible. To order fusible disconnect see Factory Assembled Fuse Clips page 50.
- For fusible combination starters, see page 50 for factory modified suffix.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A ^①
200-208	D
220-240	G
220-240/440-480*	C ^①
440-480*	H

For other voltages and frequencies see Factory Modifications.

*Not available with self-reset option.

①Dual voltage coils NA in stocked or modified starters.

Combination Reversing Magnetic Starters Solid State Overload with Phase Loss Protection

- Circuit Breaker Type
- 200 Hp 60 Hz 600VAC Max, 3 Phase 3 Pole
- Class 20 Overload Protection

Standard Width Enclosure

Max Hp						Enclosure							
						NEMA 1 General Purpose		NEMA 4/4X Watertight, Dusttight Corrosion Resistant ♦304 Stainless Steel		NEMA 7 & 9 Class II Groups E, F & G ♣Bolted Enclosure		††NEMA 12 Industrial Use Weatherproof Cat No	
200 Volts	230 Volts	460 Volts	575 Volts	NEMA Size	Overload Amp Range	Cat No	Price	Cat No	Price	Cat No	Price	Cat No	Price
½	½	1	1	0	0.75-3**	26CSB92B*	\$1101	26CSB92W*	\$1833	26CSB92H*	\$2258	26CSB92N*	\$1305
1	1	3	3	0	2.5-10	26CSC92B*	1101	26CSC92W*	1833	26CSC92H*	2258	26CSC92N*	1305
2	2	5	5	0	2.5-10	26CSD92B*	1101	26CSD92W*	1833	26CSD92H*	2258	26CSD92N*	1305
3	3	—	—	0	9-18	26CSE92B*	1101	26CSE92W*	1833	26CSE92H*	2258	26CSE92N*	1305
½	½	1	1	1	0.75-3	26DSB92B*	1173	26DSB92W*	1905	26DSB92H*	2339	26DSB92N*	1377
1	1	3	3	1	2.5-10	26DSC92B*	1173	26DSC92W*	1905	26DSC92H*	2339	26DSC92N*	1377
2	2	5	5	1	2.5-10	26DSD92B*	1173	26DSD92W*	1905	26DSD92H*	2339	26DSD92N*	1377
3	3	7½	10	1	9-18	26DSE92B*	1173	26DSE92W*	1905	26DSE92H*	2339	26DSE92N*	1377
7½	7½	10	—	1	13-27	26DSF92B*	1173	26DSF92W*	1905	26DSF92H*	2339	26DSF92N*	1377
—	—	15	15	M•M		See table below							
10	10	—	—	M•M		See table below							
—	—	15	20	2	13-27	26FSF92B*	1857	26FSF92W*	2973	26FSF92H*	3461	26FSF92N*	2121
10	15	25	25	2	22-45	26FSH92B*	1857	26FSH92W*	2973	26FSH92H*	3461	26FSH92N*	2121
—	—	30	30	M•M		See table below							
15	20	—	—	M•M		See table below							
—	—	30	40	3	30-60	26HSJ92B*	2763	26HSJ92W*	4719	26HSJ92H*	5756	26HSJ92N*	3111
25	30	50	50	3	45-90	26HSK92B*	2763	26HSK92W*	4719	26HSK92H*	5756	26HSK92N*	3111
30	40	75	75	M•M		See table below							
40	50	100	100	4	67-135	26JTM92B*	6225	26JTM92W*	8697	26JTM92H*	11036	26JTM92N*	7179
50	75	150	150	M•M		See table below							
50	75	150	200	5	100-270	26KST92B*	12582	26KST92W*	18894	26KST92H*	—	26KST92N*	14850
75	100	200	—	5	100-270	26KSU92B*	12582	26KSU92W*	18894	26KSU92H*	—	26KSU92N*	14850

M•M Motor Matched Half Sizes

—	—	15	15	1¾	13-27	26ESF92B*	\$1353	26ESF92W*	\$2085	26ESF92H*	\$2429	26ESF92N*	\$1557
10	10	—	—	1¾	20-40	26ESG92B*	1353	26ESG92W*	2085	26ESG92H*	2429	26ESG92N*	1557
—	—	30	30	2½	22-45	26GSH92B*	2433	26GSH92W*	4389	26GSH92H*	3593	26GSH92N*	2781
15	20	—	—	2½	30-60	26GSJ92B*	2433	26GSJ92W*	4389	26GSJ92H*	3593	26GSJ92N*	2781
30	40	75	75	3½	57-115	26ISL92B*	5745	26ISL92W*	8217	26ISL92H*	6404	26ISL92N*	6699
50	75	150	150	4½	100-210	26RSS92B*	11742	26RSS92W*	18054	26RSS92H*	—	26RSS92N*	14010

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors.

All starter sizes carry one maximum Hp rating.

**For amp range 0.25-1.0 Amps change the 5th Character in the Cat No from "B" to "A".

††For NEMA 12 enclosures with vault hardware (in place of quarter turn fasteners) replace "N" with "O" in 8th position of catalog number. Example: 26CSC92O*.

†NEMA 12 may be modified for NEMA 3/3R, see page 49.

♦For NEMA 4X fiberglass enclosure change 8th character of catalog number to F. Example: 26CSC92F*. Price same as stainless steel. Available in standard width through size 4.

♣To order threaded enclosure (through size 2½ only) change "H" to "L". Example: 26CSC92L. No price addition.

Ordering Instructions

- Use complete catalog number. Replace the (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- For Class 10 or 30 Overload Protection add suffix "51" or "53" to catalog number. Example for Class 10: 26CSD82B*51. Example for Class 30: 26CSD92B*53. No price addition.
- Field Modification Kits page 45. Factory Modifications page 50.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A①
200-208	D
220-240	G
220-240/440-480*	C①
440-480*	H

For other voltages and frequencies see Factory Modifications.
*Not available with self-reset option.
①Dual voltage coils NA in stocked or modified starters.

Combination Reversing Magnetic Starters Solid State Overload with Phase Loss Protection

26

- Circuit Breaker Type
- 25 Hp 60 Hz 600VAC Max, 3 Phase 3 Pole
- Class 20 Overload Protection

ESP100 COMBINATION
REVERSING STARTER

Horizontal Compact Enclosure

Max Hp						Enclosure					
200 Volts	230 Volts	460 Volts	575 Volts	NEMA Size	Overload Amp Range	NEMA 1 General Purpose	Price	NEMA 4/4X Watertight, Dusttight Corrosion Resistant 304 Stainless Steel	Price	NEMA 12 †NEMA 3/3R Industrial Use Weatherproof	Price
1/2	1/2	1	1	0	0.75-3**	26CSB72B*	\$1101	26CSB72W*	\$1833	26CSB72N*	\$1305
1	1	3	3	0	2.5-10	26CSC72B*	1101	26CSC72W*	1833	26CSC72N*	1305
2	2	5	5	0	2.5-10	26CSD72B*	1101	26CSD72W*	1833	26CSD72N*	1305
3	3	—	—	0	9-18	26CSE72B*	1101	26CSE72W*	1833	26CSE72N*	1305
1/2	1/2	1	1	1	0.75-3	26DSB72B*	1173	26DSB72W*	1905	26DSB72N*	1377
1	1	3	3	1	2.5-10	26DSC72B*	1173	26DSC72W*	1905	26DSC72N*	1377
2	2	5	5	1	2.5-10	26DSD72B*	1173	26DSD72W*	1905	26DSD72N*	1377
3	3	7 1/2	10	1	9-18	26DSE72B*	1173	26DSE72W*	1905	26DSE72N*	1377
7 1/2	7 1/2	10	—	1	13-27	26DSF72B*	1173	26DSF72W*	1905	26DSF72N*	1377
—	—	15	15	M•M	See table below						
10	10	—	—	M•M	See table below						
—	—	15	20	2	13-27	26FSF72B*	1857	26FSF72W*	2973	26FSF72N*	2121
10	15	25	25	2	22-45	26FSH72B*	1857	26FSH72W*	2973	26FSH72N*	2121

M•M Motor Matched Half Sizes

—	—	15	15	1 1/4	13-27	26ESF72B*	\$1353	26ESF72W*	\$2085	26ESF72N*	\$1557
10	10	—	—	1 1/4	20-40	26ESG72B*	1353	26ESG72W*	2085	26ESG72N*	1557

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors.

All starter sizes carry one maximum Hp rating.

**For amp range 0.25-1.0 Amps change the 5th Character in the Cat No from "B" to "A".

†NEMA 12 may be modified for NEMA 3/3R, see page 49.

Ordering Instructions

- Use complete catalog number. Replace the (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- For Class 10 or 30 Overload Protection add suffix "51" or "53" to catalog number. Example for Class 10: 26CSD82B*51. Example for Class 30: 26CSD92B*53. No price addition.
- Field Modification Kits page 45. Factory Modifications page 50.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A①
200-208	D
220-240	G
220-240/440-480*	C①
440-480*	H

For other voltages and frequencies see Factory Modifications.

*Not available with self-reset option.

①Dual voltage coils NA in stocked or modified starters.

30

ESP100 MULTI SPEED
STARTERMulti Speed Magnetic Starters
2 Speed Constant or Variable Torque

- Solid State Overload with Phase Loss Protection
- 3 Phase 200 Hp 60 Hz 600VAC Max
- Full Voltage

1 Winding Consequent Pole-3 Phase

Max Hp					Enclosure							
					Open Type		NEMA 1 General Purpose		NEMA 4/4X Watertight, Dusttight Corrosion Resistant 304 Stainless Steel		NEMA 12 Industrial Use Weatherproof	
200 Volts	230 Volts	460/ 575 Volts	NEMA Size	Overload Amp Range	Cat No	Price	Cat No	Price	Cat No	Price	Cat No	Price
1/2	3/4	1 1/2	0	0.75-3	30CSB†32A2V*	\$954	30CSB†32B2V*	\$978	30CSB†32W2V*	\$1554	30CSB†32O2V*	\$1164
2	2	5	0	2.5-10	30CSD†32A2V*	954	30CSD†32B2V*	978	30CSD†32W2V*	1554	30CSD†32O2V*	1164
3	3	—	0	9-18	30CSE†32A2V*	954	30CSE†32B2V*	978	30CSE†32W2V*	1554	30CSE†32O2V*	1164
1/2	3/4	1 1/2	1	0.75-3	30DSB†32A2V*	1014	30DSB†32B2V*	1050	30DSB†32W2V*	1614	30DSB†32O2V*	1236
2	2	5	1	2.5-10	30DSD†32A2V*	1014	30DSD†32B2V*	1050	30DSD†32W2V*	1614	30DSD†32O2V*	1236
3	3	10	1	9-18	30DSE†32A2V*	1014	30DSE†32B2V*	1050	30DSE†32W2V*	1614	30DSE†32O2V*	1236
7 1/2	7 1/2	—	1	13-27	30DSF†32A2V*	1014	30DSF†32B2V*	1050	30DSF†32W2V*	1614	30DSF†32O2V*	1236
—	—	15	M•M		See table below							
10	10	—	M•M		See table below							
—	—	15	2	13-27	30FSF†32A2V*	1758	30FSF†32B2V*	1866	30FSF†32W2V*	2562	30FSF†32O2V*	2130
10	15	25	2	22-45	30FSH†32A2V*	1758	30FSH†32B2V*	1866	30FSH†32W2V*	2562	30FSH†32O2V*	2130
—	—	30	M•M		See table below							
15	20	—	M•M		See table below							
—	—	40	3	30-60	30HSJ†32A2V*	2622	30HSJ†32B2V*	2790	30HSJ†32W2V*	3822	30HSJ†32O2V*	3390
25	30	50	3	45-90	30HSK†32A2V*	2622	30HSK†32B2V*	2790	30HSK†32W2V*	3822	30HSK†32O2V*	3390
30	40	75	M•M		See table below							
40	50	100	4	67-135	30JTM†32A2V*	6702	30JTM†32B2V*	7362	30JTM†32W2V*	9474	30JTM†32O2V*	8550
50	75	150	M•M		See table below							
75	100	200	5	100-270	30KSU†32A2V*	13194	30KSU†32B2V*	14496	30KSU†32W2V*	19434	30KSU†32O2V*	19434

M•M Motor Matched Half Sizes

—	—	15	1 3/4	13-27	30ESF†32A2V*	\$1284	30ESF†32B2V*	\$1320	30ESF†32W2V*	\$1884	30ESF†32O2V*	\$1506
10	10	—	1 3/4	20-40	30ESG†32A2V*	1284	30ESG†32B2V*	1320	30ESG†32W2V*	1884	30ESG†32O2V*	1506
—	—	30	2 1/2	22-45	30GSH†32A2V*	2190	30GSH†32B2V*	2328	30GSH†32W2V*	3204	30GSH†32O2V*	2760
15	20	—	2 1/2	30-60	30GSJ†32A2V*	2190	30GSJ†32B2V*	2328	30GSJ†32W2V*	3204	30GSJ†32O2V*	2760
30	40	75	3 1/2	57-115	30ISL†32A2V*	5982	30ISL†32B2V*	6642	30ISL†32W2V*	8754	30ISL†32O2V*	7830
50	75	150	4 1/2	100-210	30RSS†32A2V*	12354	30RSS†32B2V*	13656	30RSS†32W2V*	18594	30RSS†32O2V*	18594

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors.
All starter sizes carry one maximum Hp rating.

††NEMA 12 may be field modified for NEMA 3/3R, see page 49.

†Pick Low speed overload relay from Table 1. If motor FLA are unknown, select overload on the basis that low speed FLA will be no greater than 50% of high speed FLA.

Table 1

Replace † with the letter that corresponds to the correct low speed FLA.

Size	FLA	†
0, 1	0.25-1	A
0, 1	0.75-3	B
0, 1	2.5-10	D
0-1 3/4	9-18	E
1-4	13-27	F
1 3/4	20-40	G
2-4	22-45	H
2 1/2-4	30-60	J
3-4	45-90	K
3 1/2-4	57-115	L
4	67-135	M
4 1/2	100-210	S
5	100-270	U

Ordering Instructions

- Use complete catalog number. Replace the (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- Contact Sales Office for 3 or 4 speed starters.
- Field Modification Kits page 45. Factory Modifications page 50.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A
200-208	D
220-240	G
220-240/440-480*	C
440-480*	H

For other voltages and frequencies see Factory Modifications.
*Not available with self-reset option.

Multi Speed Magnetic Starters 2 Speed Constant or Variable Torque

- Solid State Overload with Phase Loss Protection
- 3 Phase 200 Hp 60 Hz 600VAC Max
- Full Voltage

30

ESP100 MULTI SPEED
STARTER

2 Separate Windings-3 Phase

Max Hp					Enclosure							
					Open Type		NEMA 1 General Purpose		NEMA 4/4X Watertight, Dusttight Corrosion Resistant 304 Stainless Steel		NEMA 12 Industrial Use Weatherproof	
200 Volts	230 Volts	460/ 575 Volts	NEMA Size	Overload Amp Range	Cat No	Price	Cat No	Price	Cat No	Price	Cat No	Price
1/2	3/4	1 1/2	0	0.75-3	30CSB†32A1V*	\$690	30CSB†32B1V*	\$714	30CSB†32W1V*	\$1290	30CSB†32O1V*	\$900
2	2	5	0	2.5-10	30CSD†32A1V*	690	30CSD†32B1V*	714	30CSD†32W1V*	1290	30CSD†32O1V*	900
3	3	—	0	9-18	30CSE†32A1V*	690	30CSE†32B1V*	714	30CSE†32W1V*	1290	30CSE†32O1V*	900
1/2	3/4	1 1/2	1	0.75-3	30DSB†32A1V*	762	30DSB†32B1V*	798	30DSB†32W1V*	1362	30DSB†32O1V*	984
2	2	5	1	2.5-10	30DSD†32A1V*	762	30DSD†32B1V*	798	30DSD†32W1V*	1362	30DSD†32O1V*	984
3	3	10	1	9-18	30DSE†32A1V*	762	30DSE†32B1V*	798	30DSE†32W1V*	1362	30DSE†32O1V*	984
7 1/2	7 1/2	—	1	13-27	30DSF†32A1V*	762	30DSF†32B1V*	798	30DSF†32W1V*	1362	30DSF†32O1V*	984
—	—	15	M•M	See table below								
10	10	—	M•M	See table below								
—	—	15	2	13-27	30FSF†32A1V*	1290	30FSF†32B1V*	1386	30FSF†32W1V*	2094	30FSF†32O1V*	1650
10	15	25	2	22-45	30FSH†32A1V*	1290	30FSH†32B1V*	1386	30FSH†32W1V*	2094	30FSH†32O1V*	1650
—	—	30	M•M	See table below								
15	20	30	M•M	See table below								
—	—	40	3	30-60	30HSJ†32A1V*	1974	30HSJ†32B1V*	2142	30HSJ†32W1V*	3174	30HSJ†32O1V*	2724
25	30	50	3	45-90	30HSK†32A1V*	1974	30HSK†32B1V*	2142	30HSK†32W1V*	3174	30HSK†32O1V*	2724
30	40	75	M•M	See table below								
40	50	100	4	67-135	30JTM†32A1V*	4866	30JTM†32B1V*	5178	30JTM†32W1V*	7290	30JTM†32O1V*	6366
50	75	150	M•M	See table below								
75	100	200	5	100-270	30KSU†32A1V*	11424	30KSU†32B1V*	12150	30KSU†32W1V*	17088	30KSU†32O1V*	17088

M•M Motor Matched Half Sizes

—	—	15	1 3/4	13-27	30ESF†32A1V*	\$942	30ESF†32B1V*	\$978	30ESF†32W1V*	\$1542	30ESF†32O1V*	\$1164
10	10	—	1 3/4	20-40	30ESG†32A1V*	942	30ESG†32B1V*	978	30ESG†32W1V*	1542	30ESG†32O1V*	1164
—	—	30	2 1/2	22-45	30GSH†32A1V*	1632	30GSH†32B1V*	1764	30GSH†32W1V*	2634	30GSH†32O1V*	2196
15	20	30	2 1/2	30-60	30GSJ†32A1V*	1632	30GSJ†32B1V*	1764	30GSJ†32W1V*	2634	30GSJ†32O1V*	2196
30	40	75	3 1/2	57-115	30ISL†32A1V*	4386	30ISL†32B1V*	4698	30ISL†32W1V*	6810	30ISL†32O1V*	5886
50	75	150	4 1/2	100-210	30RSS†32A1V*	10584	30RSS†32B1V*	11310	30RSS†32W1V*	16248	30RSS†32O1V*	16248

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors.

All starter sizes carry one maximum Hp rating.

††NEMA 12 may be field modified for NEMA 3/3R, see page 49.

†Pick Low speed overload relay from Table 1. If motor FLA are unknown, select overload on the basis that low speed FLA will be no greater than 50% of high speed FLA.

Table 1

Replace † with the letter that corresponds to the correct low speed FLA.

Size	FLA	†
0, 1	0.25-1	A
0, 1	0.75-3	B
0, 1	2.5-10	D
0-1 3/4	9-18	E
1-4	13-27	F
1 3/4	20-40	G
2-4	22-45	H
2 1/2-4	30-60	J
3-4	45-90	K
3 1/2-4	57-115	L
4	67-135	M
4 1/2	100-210	S
5	100-270	U

Ordering Instructions

- Use complete catalog number. Replace the (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- Contact Sales Office for 3 or 4 speed starters.
- Field Modification Kits page 45. Factory Modifications page 50.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A
200-208	D
220-240	G
220-240/440-480*	C
440-480*	H

For other voltages and frequencies see Factory Modifications.
*Not available with self-reset option.

Multi Speed Magnetic Starters

2 Speed Constant Horsepower

- Solid State Overload with Phase Loss Protection
- 3 Phase 150 Hp 60 Hz 600VAC Max
- Full Voltage

1 Winding Consequent Pole-3 Phase

Max Hp				Enclosure							
				Open Type		NEMA 1 General Purpose		NEMA 4/4X Watertight, Dusttight Corrosion Resistant 304 Stainless Steel		NEMA 12 **NEMA 3/3R Industrial Use Weatherproof	
200 Volts	230 Volts	460/ 575 Volts	NEMA Size	Cat No	Price	Cat No	Price	Cat No	Price	Cat No	Price
2	2	3	0	30CS††32A2H*	\$954	30CS††32B2H*	\$978	30CS††32W2H*	\$1554	30CS††32O2H*	\$1164
5	5	7½	1	30DS††32A2H*	1014	30DS††32B2H*	1050	30DS††32W2H*	1614	30DS††32O2H*	1236
7½	10	20	2	30FS††32A2H*	1758	30FS††32B2H*	1866	30FS††32W2H*	2562	30FS††32O2H*	2130
20	25	40	3	30HS††32A2H*	2622	30HS††32B2H*	2790	30HS††32W2H*	3822	30HS††32O2H*	3390
30	40	75	4	30JT††32A2H*	6702	30JT††32B2H*	7362	30JT††32W2H*	9474	30JT††32O2H*	8550
60	75	150	5	30KS††32A2H*	13194	30KS††32B2H*	14496	30KS††32W2H*	19434	30KS††32O2H*	19434
M•M Motor Matched Half Sizes											
7½	7½	10	1¾	30ES††32A2H*	\$1284	30ES††32B2H*	\$1320	30ES††32W2H*	\$1884	30ES††32O2H*	\$1506
10	15	25	2½	30GS††32A2H*	2190	30GS††32B2H*	2328	30GS††32W2H*	3204	30GS††32O2H*	2760
25	30	50	3½	30IS††32A2H*	5982	30IS††32B2H*	6642	30IS††32W2H*	8754	30IS††32O2H*	7830
40	60	100	4½	30RS††32A2H*	12354	30RS††32B2H*	13656	30RS††32W2H*	18594	30RS††32O2H*	18594

2 Separate Windings-3 Phase

2	2	3	0	30CS††32A1H*	\$690	30CS††32B1H*	\$714	30CS††32W1H*	\$1290	30CS††32O1H*	\$900
5	5	7½	1	30DS††32A1H*	762	30DS††32B1H*	798	30DS††32W1H*	1362	30DS††32O1H*	984
7½	10	20	2	30FS††32A1H*	1290	30FS††32B1H*	1386	30FS††32W1H*	2094	30FS††32O1H*	1650
20	25	40	3	30HS††32A1H*	1974	30HS††32B1H*	2142	30HS††32W1H*	3174	30HS††32O1H*	2742
30	40	75	4	30JT††32A1H*	4866	30JT††32B1H*	5178	30JT††32W1H*	7290	30JT††32O1H*	6366
60	75	150	5	30KS††32A1H*	11424	30KS††32B1H*	12150	30KS††32W1H*	17088	30KS††32O1H*	17088
M•M Motor Matched Half Sizes											
7½	7½	10	1¾	30ES††32A1H*	\$942	30ES††32B1H*	\$978	30ES††32W1H*	\$1542	30ES††32O1H*	\$1164
10	15	25	2½	30GS††32A1H*	1632	30GS††32B1H*	1764	30GS††32W1H*	2634	30GS††32O1H*	2196
25	30	50	3½	30IS††32A1H*	4386	30IS††32B1H*	4698	30IS††32W1H*	6810	30IS††32O1H*	5886
40	60	100	4½	30RS††32A1H*	10584	30RS††32B1H*	11310	30RS††32W1H*	16248	30RS††32O1H*	16248

**NEMA 12 may be field modified for NEMA 3/3R, see page 49.

†Pick High and Low speed overload relay from table 1. Use motor nameplate information to select FLA.

Table 1

Replace † with the letter that corresponds to the correct FLA.
(First † for High speed, second † for Low speed.)

Size	FLA	†
0, 1	0.25-1	A
0, 1	0.75-3	B
0, 1	2.5-10	D
0-1¾	9-18	E
1-4	13-27	F
1¾	20-40	G
2-4	22-45	H
2½-4	30-60	J
3-4	45-90	K
3½-4	57-115	L
4	67-135	M
4½	100-210	S
5	100-270	U

Note: See page 7 to determine overload range for specific Hp rating.

Ordering Instructions

- Use complete catalog number. Replace the (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- Contact Sales Office for 3 or 4 speed starters.
- Field Modification Kits page 44. Factory Modifications page 49.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A①
200-208	D
220-240	G
220-240/440-480*	C①
440-480*	H

For other voltages and frequencies see Factory Modifications.

*Not available with self-reset option.

●Dual voltage coils NA in stocked or modified starters.

Combination Multi Speed Magnetic Starters 2 Speed Constant or Variable Torque

- Solid State Overload with Phase Loss Protection
- Full Voltage 3 Phase
- 200 Hp 60 Hz 600VAC Max

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ESP100 COMBINATION
MULTI SPEED STARTER

1 Winding Consequent Pole-Disconnect Type

Max Hp						Enclosure					
						NEMA 1 General Purpose		NEMA 4/4X Watertight, Dusttight Corrosion Resistant 304 Stainless Steel		NEMA 12 Industrial Use Weatherproof ††NEMA 3/3R	
200 Volts	230 Volts	460/ 575 Volts	NEMA Size	Overload Amp Range	Disc Size Amps	Cat No	Price	Cat No	Price	Cat No	Price
½	¾	1½	0	0.75-3	30	32CSB†92B2V2*	\$1542	32CSB†92W2V2*	\$2466	32CSB†92N2V2*	\$1740
2	2	5	0	2.5-10	30	32CSD†92B2V2*	1542	32CSD†92W2V2*	2466	32CSD†92N2V2*	1740
3	3	—	0	9-18	30	32CSE†92B2V2*	1542	32CSE†92W2V2*	2466	32CSE†92N2V2*	1740
½	¾	1½	1	0.75-3	30	32DSB†92B2V2*	1614	32DSB†92W2V2*	2538	32DSB†92N2V2*	1812
2	2	5	1	2.5-10	30	32DSD†92B2V2*	1614	32DSD†92W2V2*	2538	32DSD†92N2V2*	1812
3	3	10	1	9-18	30	32DSE†92B2V2*	1614	32DSE†92W2V2*	2538	32DSE†92N2V2*	1812
7½	7½	—	1	13-27	30	32DSF†92B2V2*	1614	32DSF†92W2V2*	2538	32DSF†92N2V2*	1812
—	—	15	M•M			See table below					
10	10	—	M•M			See table below					
—	—	15	2	13-27	60	32FSF†92B2V2*	2586	32FSF†92W2V2*	3738	32FSF†92N2V2*	2898
10	15	25	2	22-45	60	32FSH†92B2V2*	2586	32FSH†92W2V2*	3738	32FSH†92N2V2*	2898
—	—	30	M•M			See table below					
15	20	—	M•M			See table below					
—	—	40	3	30-50	100	32HSJ†92B2V2*	3702	32HSJ†92W2V2*	5670	32HSJ†92N2V2*	4386
25	30	50	3	45-90	100	32HSK†92B2V2*	3702	32HSK†92W2V2*	5670	32HSK†92N2V2*	4386
30	40	75	M•M			See table below					
40	50	100	4	67-135	200	32JTM†92B2V2*	8622	32JTM†92W2V2*	11718	32JTM†92N2V2*	10530
50	75	150	M•M			See table below					
75	100	200	5	100-270	400	32KSU†92B2V2*	16572	32KSU†92W2V2*	25542	32KSU†92N2V2*	21954

M•M Motor Matched Half Sizes

—	—	15	1¾	13-27	60	32ESF†92B2V2*	\$2040	32ESF†92W2V2*	\$2964	32ESF†92N2V2*	\$2238
10	10	—	1¾	20-40	60	32ESG†92B2V2*	2040	32ESG†92W2V2*	2964	32ESG†92N2V2*	2238
—	—	30	2½	22-45	100	32GSH†92B2V2*	3240	32GSH†92W2V2*	4392	32GSH†92N2V2*	3552
15	20	—	2½	30-60	100	32GSJ†92B2V2*	3240	32GSJ†92W2V2*	4392	32GSJ†92N2V2*	3552
30	40	75	3½	57-115	200	32ISL†92B2V2*	7902	32ISL†92W2V2*	10998	32ISL†92N2V2*	9810
50	75	150	4½	100-210	400	32RSS†92B2V2*	15912	32RSS†92W2V2*	24702	32RSS†92N2V2*	21114

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors.
All starter sizes carry one maximum Hp rating.

††NEMA 12 may be field modified for NEMA 3/3R, see page 49.

†Pick Low speed overload relay from Table 1. If motor FLA are unknown, select overload on the basis that low speed FLA will be no greater than 50% of high speed FLA.

Table 1

Replace † with the letter that corresponds to the correct low speed FLA.

Size	FLA	†
0, 1	0.25-1	A
0, 1	0.75-3	B
0, 1	2.5-10	D
0-1¾	9-18	E
1-4	13-27	F
1¾	20-40	G
2-4	22-45	H
2½-4	30-60	J
3-4	45-90	K
3½-4	57-115	L
4	67-135	M
4½	100-210	S
5	100-270	U

Ordering Instructions

- Use complete catalog number. Replace (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- Field Modification Kits page 45. Factory Modifications page 50.
- Contact Sales Office for 3 and 4 speed starters.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.
- Units listed are furnished with non fusible disconnects. Fuse clip kits are available as factory or field modifications, see page 45 or 50.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A●
200-208	D
220-240	G
220-240/440-480*	C①
440-480*	H

For other voltages and frequencies see Factory Modifications.
*Not available with self-reset option.
●Dual voltage coils NA in stocked or modified starters.

Combination Multi Speed Magnetic Starters 2 Speed Constant or Variable Torque

- Solid State Overload with Phase Loss Protection
- Full Voltage 3 Phase
- 200 Hp 60 Hz 600VAC Max

ESP100 COMBINATION
MULTI SPEED STARTER

2 Separate Windings-Disconnect Type

Max Hp						Enclosure					
						NEMA 1 General Purpose		NEMA 4/4X Watertight, Dusttight Corrosion Resistant 304 Stainless Steel		NEMA 12 ††NEMA 3/3R Industrial Use Weatherproof	
200 Volts	230 Volts	460/ 575 Volts	NEMA Size	Overload Amp Range	Disc Size Amps	Cat No	Price	Cat No	Price	Cat No	Price
1/2	3/4	1 1/2	0	0.75-3	30	32CSB†92B1V2*	\$1278	32CSB†92W1V2*	\$2202	32CSB†92N1V2*	\$1476
2	2	5	0	2.5-10	30	32CSD†92B1V2*	1278	32CSD†92W1V2*	2202	32CSD†92N1V2*	1476
3	3	—	0	9-18	30	32CSE†92B1V2*	1278	32CSE†92W1V2*	2202	32CSE†92N1V2*	1476
1/2	3/4	1 1/2	1	0.75-3	30	32DSB†92B1V2*	1362	32DSB†92W1V2*	2286	32DSB†92N1V2*	1560
2	2	5	1	2.5-10	30	32DSD†92B1V2*	1362	32DSD†92W1V2*	2286	32DSD†92N1V2*	1560
3	3	10	1	9-18	30	32DSE†92B1V2*	1362	32DSE†92W1V2*	2286	32DSE†92N1V2*	1560
7 1/2	7 1/2	—	1	13-27	30	32DSF†92B1V2*	1362	32DSF†92W1V2*	2286	32DSF†92N1V2*	1560
—	—	15	M•M			See table below					
10	10	—	M•M			See table below					
—	—	15	2	13-27	60	32FSF†92B1V2*	2106	32FSF†92W1V2*	3258	32FSF†92N1V2*	2418
10	15	25	2	22-45	60	32FSH†92B1V2*	2106	32FSH†92W1V2*	3258	32FSH†92N1V2*	2418
—	—	30	M•M			See table below					
15	20	—	M•M			See table below					
—	—	40	3	30-50	100	32HSJ†92B1V2*	3056	32HSJ†92W1V2*	5022	32HSJ†92N1V2*	3738
25	30	50	3	45-90	100	32HSK†92B1V2*	3056	32HSK†92W1V2*	5022	32HSK†92N1V2*	3738
30	40	75	M•M			See table below					
40	50	100	4	67-135	200	32JTM†92B1V2*	9438	32JTM†92W1V2*	9534	32JTM†92N1V2*	8346
50	75	150	M•M			See table below					
75	100	200	5	100-270	400	32KSU†92B1V2*	14406	32KSU†92W1V2*	23196	32KSU†92N1V2*	19608

M•M Motor Matched Half Sizes

—	—	15	1 3/4	13-27	60	32ESF†92B1V2*	\$1698	32ESF†92W1V2*	\$2622	32ESF†92N1V2*	\$1896
10	10	—	1 3/4	20-40	60	32ESG†92B1V2*	1698	32ESG†92W1V2*	2622	32ESG†92N1V2*	1896
—	—	30	2 1/2	22-45	100	32GSH†92B1V2*	2676	32GSH†92W1V2*	3828	32GSH†92N1V2*	2988
15	20	—	2 1/2	30-60	100	32GSJ†92B1V2*	2676	32GSJ†92W1V2*	3828	32GSJ†92N1V2*	2988
30	40	75	3 1/2	57-115	200	32ISL†92B1V2*	5958	32ISL†92W1V2*	9054	32ISL†92N1V2*	7866
50	75	150	4 1/2	100-210	400	32RSS†92B1V2*	13566	32RSS†92W1V2*	22354	32RSS†92N1V2*	18768

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors.

All starter sizes carry one maximum Hp rating.

††NEMA 12 may be field modified for NEMA 3/3R, see page 49.

†Pick Low speed overload relay from Table 1. If motor FLA are unknown, select overload on the basis that low speed FLA will be no greater than 50% of high speed FLA.

Table 1

Replace † with the letter that corresponds to the correct low speed FLA.

Size	FLA	†
0, 1	0.25-1	A
0, 1	0.75-3	B
0, 1	2.5-10	D
0-1 3/4	9-18	E
1-4	13-27	F
1 3/4	20-40	G
2-4	22-45	H
2 1/2-4	30-60	J
3-4	45-90	K
3 1/2-4	57-115	L
4	67-135	M
4 1/2	100-210	S
5	100-270	U

Ordering Instructions

- Use complete catalog number. Replace (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- Field Modification Kits page 45. Factory Modifications page 50.
- Contact Sales Office for 3 and 4 speed starters.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.
- Units listed are furnished with non fusible disconnects. Fuse clip kits are available as factory or field modifications, see page 45 or 50.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A●
200-208	D
220-240	G
220-240/440-480*	C①
440-480*	H

For other voltages and frequencies see Factory Modifications.
*Not available with self-reset option.
●Dual voltage coils NA in stocked or modified starters.

Combination Multi Speed Magnetic Starters 2 Speed Constant or Variable Torque

- Solid State Overload with Phase Loss Protection
- Full Voltage 3 Phase
- 200 Hp 60 Hz 600VAC Max

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ESP100 COMBINATION
MULTI SPEED STARTER

1 Winding Consequent Pole-Circuit Breaker Type

Max Hp					Enclosure								
					NEMA 1 General Purpose			NEMA 4/4X Watertight, Dusttight Corrosion Resistant 304 Stainless Steel		NEMA 12 ††NEMA 3/3R Industrial Use Weatherproof			
200 Volts	230 Volts	460 Volts	575 Volts	Overload Amp Range	NEMA Size	Cat No	Price	Cat No	Price	Cat No	Price		
½	½	1	1	0.75-3	0	32CSB†92B2V*	\$1824	32CSB†92W2V*	\$2748	32CSB†92N2V*	\$2022		
1	1	3	3	2.5-10	0	32CSC†92B2V*	1824	32CSC†92W2V*	2748	32CSC†92N2V*	2022		
2	2	5	5	2.5-10	0	32CSD†92B2V*	1824	32CSD†92W2V*	2748	32CSD†92N2V*	2022		
3	3	—	—	9-18	0	32CSE†92B2V*	1824	32CSE†92W2V*	2748	32CSE†92N2V*	2022		
½	½	1	1	0.75-3	1	32DSB†92B2V*	1896	32DSB†92W2V*	2820	32DSB†92N2V*	2094		
1	1	3	3	2.5-10	1	32DSC†92B2V*	1896	32DSC†92W2V*	2820	32DSC†92N2V*	2094		
2	2	5	5	2.5-10	1	32DSD†92B2V*	1896	32DSD†92W2V*	2820	32DSD†92N2V*	2094		
3	3	7½	10	9-18	1	32DSE†92B2V*	1896	32DSE†92W2V*	2820	32DSE†92N2V*	2094		
7½	7½	10	—	13-27	1	32DSF†92B2V*	1896	32DSF†92W2V*	2820	32DSF†92N2V*	2094		
—	—	15	15	13-27	M•M	See table below							
10	10	—	—	20-40	M•M	See table below							
—	—	15	20	13-27	2	32FSF†92B2V*	2898	32FSF†92W2V*	4050	32FSF†92N2V*	3210		
10	15	25	25	22-45	2	32FSH†92B2V*	2898	32FSH†92W2V*	4050	32FSH†92N2V*	3210		
—	—	30	30	22-45	M•M	See table below							
15	20	—	—	30-60	M•M	See table below							
—	—	30	40	30-60	3	32HSJ†92B2V*	3912	32HSJ†92W2V*	5880	32HSJ†92N2V*	4596		
25	30	50	50	45-90	3	32HSK†92B2V*	3912	32HSK†92W2V*	5880	32HSK†92N2V*	4596		
30	40	75	75	57-115	M•M	See table below							
40	50	100	100	67-135	4	32JTM†92B2V*	9414	32JTM†92W2V*	12510	32JTM†92N2V*	11322		
50	75	150	150	100-210	M•M	See table below							
75	100	200	—	100-270	5	32KSU†92B2V*	18486	32KSU†92W2V*	27276	32KSU†92N2V*	26688		

M•M Motor Matched Half Sizes

—	—	15	15	13-27	1 3/4		32ESF†92B2V*	\$2352	32ESF†92W2V*	\$3276		32ESF†92N2V*	\$2550	
10	10	—	—	20-40	1 3/4		32ESG†92B2V*	2352	32ESG†92W2V*	3276		32ESG†92N2V*	2550	
—	—	30	30	22-45	2 1/2		32GSH†92B2V*	3450	32GSH†92W2V*	4602		32GSH†92N2V*	3762	
15	20	—	—	30-60	2 1/2		32GSJ†92B2V*	3450	32GSJ†92W2V*	4602		32GSJ†92N2V*	3762	
30	40	75	75	57-115	3 1/2		32ISL†92B2V*	8694	32ISL†92W2V*	11790		32ISL†92N2V*	10602	
50	75	150	150	100-210	4 1/2		32RSS†92B2V*	17646	32RSS†92W2V*	26436		32RSS†92N2V*	22848	

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors.

All starter sizes carry one maximum Hp rating.

††NEMA 12 may be field modified for NEMA 3/3R, see page 49.

†Pick Low speed overload relay from Table 1. If motor FLA are unknown, select overload on the basis that low speed FLA will be no greater than 50% of high speed FLA.

Table 1

Replace † with the letter that corresponds to the correct low speed FLA.

Size	FLA	†
0, 1	0.25-1	A
0, 1	0.75-3	B
0, 1	2.5-10	D
0-1 3/4	9-18	E
1-4	13-27	F
1 3/4	20-40	G
2-4	22-45	H
2 1/2-4	30-60	J
3-4	45-90	K
3 1/2-4	57-115	L
4	67-135	M
4 1/2	100-210	S
5	100-270	U

Ordering Instructions

- Use complete catalog number. Replace (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- Field Modification Kits page 45. Factory Modifications page 50.
- Contact Sales Office for 3 and 4 speed starters.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A①
200-208	D
220-240	G
220-240/440-480*	C●
440-480*	H

For other voltages and frequencies see Factory Modifications.
*Not available with self-reset option.
●Dual voltage coils NA in stocked or modified starters.

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ESP100 COMBINATION
MULTI SPEED STARTERCombination Multi Speed Magnetic Starters
2 Speed Constant or Variable Torque

- Solid State Overload with Phase Loss Protection
- Full Voltage 3 Phase
- 200 Hp 60 Hz 600VAC Max

2 Separate Windings-Circuit Breaker Type

Max Hp					Enclosure							
					NEMA 1 General Purpose			NEMA 4/4X Watertight, Dusttight Corrosion Resistant 304 Stainless Steel		NEMA 12 ††NEMA 3/3R Industrial Use Weatherproof		
200 Volts	230 Volts	460 Volts	575 Volts	Overload Amp Range	NEMA Size	Cat No	Price	Cat No	Price	Cat No	Price	
½	½	1	1	0.75-3	0	32CSB†92B1V*	\$1560	32CSB†92W1V*	\$2484	32CSB†92N1V*	\$1758	
1	1	3	3	2.5-10	0	32CSC†92B1V*	1560	32CSC†92W1V*	2484	32CSC†92N1V*	1758	
2	2	5	5	2.5-10	0	32CSD†92B1V*	1560	32CSD†92W1V*	2484	32CSD†92N1V*	1758	
3	3	—	—	9-18	0	32CSE†92B1V*	1560	32CSE†92W1V*	2484	32CSE†92N1V*	1758	
½	½	1	1	0.75-3	1	32DSB†92B1V*	1644	32DSB†92W1V*	2568	32DSB†92N1V*	1842	
1	1	3	3	2.5-10	1	32DSC†92B1V*	1644	32DSC†92W1V*	2568	32DSC†92N1V*	1842	
2	2	5	5	2.5-10	1	32DSD†92B1V*	1644	32DSD†92W1V*	2568	32DSD†92N1V*	1842	
3	3	7½	10	9-18	1	32DSE†92B1V*	1644	32DSE†92W1V*	2568	32DSE†92N1V*	1842	
7½	7½	10	—	13-27	1	32DSF†92B1V*	1644	32DSF†92W1V*	2568	32DSF†92N1V*	1842	
—	—	15	15	13-27	M•M	See table below						
10	10	—	—	20-40	M•M	See table below						
—	—	15	20	13-27	2	32FSF†92B1V*	2418	32FSF†92W1V*	3570	32FSF†92N1V*	2730	
10	15	25	25	22-45	2	32FSH†92B1V*	2418	32FSH†92W1V*	3570	32FSH†92N1V*	2730	
—	—	30	30	22-45	M•M	See table below						
15	20	—	—	30-60	M•M	See table below						
—	—	30	40	30-60	3	32HSJ†92B1V*	3264	32HSJ†92W1V*	5232	32HSJ†92N1V*	3948	
25	30	50	50	45-90	3	32HSK†92B1V*	3264	32HSK†92W1V*	5232	32HSK†92N1V*	3948	
30	40	75	75	57-115	M•M	See table below						
40	50	100	100	67-135	4	32JTM†92B1V*	7230	32JTM†92W1V*	10326	32JTM†92N1V*	13086	
50	75	150	150	100-210	M•M	See table below						
75	100	200	—	100-270	5	32KSU†92B1V*	16140	32KSU†92W1V*	24930	32KSU†92N1V*	21342	
M•M Motor Matched Half Sizes												
—	—	15	15	13-27	1¼	32ESF†92B1V*	\$2010	32ESF†92W1V*	\$2934	32ESF†92N1V*	\$2208	
10	10	—	—	20-40	1¼	32ESG†92B1V*	2010	32ESG†92W1V*	2934	32ESG†92N1V*	2208	
—	—	30	30	22-45	2½	32GSH†92B1V*	2886	32GSH†92W1V*	4038	32GSH†92N1V*	3198	
15	20	—	—	30-60	2½	32GSJ†92B1V*	2886	32GSJ†92W1V*	4038	32GSJ†92N1V*	3198	
30	40	75	75	57-115	3½	32ISL†92B1V*	6750	32ISL†92W1V*	9846	32ISL†92N1V*	8658	
50	75	150	150	100-210	4½	32RSS†92B1V*	15300	32RSS†92W1V*	24090	32RSS†92N1V*	20502	

Note: Hp's shown above are based on the overload amp range for the FLA's (per the National Electric Code) of typical industrial motors.
All starter sizes carry one maximum Hp rating.

††NEMA 12 may be field modified for NEMA 3/3R, see page 49.

†Pick Low speed overload relay from Table 1. If motor FLA are unknown, select overload on the basis that low speed FLA will be no greater than 50% of high speed FLA.

Table 1

Replace † with the letter that corresponds to the correct low speed FLA.

Size	FLA	†
0, 1	0.25-1	A
0, 1	0.75-3	B
0, 1	2.5-10	D
0-1 1/4	9-18	E
1-4	13-27	F
1 1/4	20-40	G
2-4	22-45	H
2 1/2-4	30-60	J
3-4	45-90	K
3 1/2-4	57-115	L
4	67-135	M
4 1/2	100-210	S
5	100-270	U

Ordering Instructions

- Use complete catalog number. Replace (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- Field Modification Kits page 45. Factory Modifications page 50.
- Contact Sales Office for 3 and 4 speed starters.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A①
200-208	D
220-240	G
220-240/440-480*	C①
440-480*	H

For other voltages and frequencies see Factory Modifications.
*Not available with self-reset option.
●Dual voltage coils NA in stocked or modified starters.

Combination Multi Speed Magnetic Starters 2 Speed Constant Horsepower

- Solid State Overload with Phase Loss Protection
- Full Voltage 3 Phase
- 150 Hp 60 Hz 600VAC Max

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ESP100 COMBINATION
MULTI SPEED STARTER

1 Winding Consequent Pole-Disconnect Type

Max Hp					Enclosure					
					NEMA 1 General Purpose		NEMA 4/4X Watertight, Dusttight Corrosion Resistant 304 Stainless Steel		NEMA 12 **NEMA 3/3R Industrial Use Weatherproof	
200 Volts	230 Volts	460/ 575 Volts	NEMA Size	Disc Size Amps	Cat No	Price	Cat No	Price	Cat No	Price
2	2	3	0	30	32CS††92B2H2*	\$1542	32CS††92W2H2*	\$2466	32CS††92N2H2*	\$1740
5	5	7½	1	30	32DS††92B2H2*	1614	32DS††92W2H2*	2538	32DS††92N2H2*	1812
7½	10	20	2	60	32FS††92B2H2*	2586	32FS††92W2H2*	3738	32FS††92N2H2*	2898
20	25	40	3	100	32HS††92B2H2*	3702	32HS††92W2H2*	5670	32HS††92N2H2*	4386
30	40	75	4	200	32JT††92B2H2*	8622	32JT††92W2H2*	11718	32JT††92N2H2*	10530
60	75	150	5	400	32KS††92B2H2*	16752	32KS††92W2H2*	25542	32KS††92N2H2*	21954

M•M Motor Matched Half Sizes

7½	7½	10	1¾	60	32ES††92B2H2*	\$2040	32ES††92W2H2*	\$2964	32ES††92N2H2*	\$2238
10	15	25	2½	60	32GS††92B2H2*	3240	32GS††92W2H2*	4392	32GS††92N2H2*	3552
25	30	50	3½	200	32ISL††92B2H2*	7902	32IS††92W2H2*	10998	32IS††92N2H2*	9810
40	60	100	4½	400	32RS††92B2H2*	15912	32RS††92W2H2*	24702	32RS††92N2H2*	21114

2 Separate Windings-Disconnect Type

2	2	3	0	30	32CS††92B1H2*	\$1278	32CS††92W1H2*	\$2202	32CS††92N1H2*	\$1476
5	5	7½	1	30	32DS††92B1H2*	1362	32DS††92W1H2*	2286	32DS††92N1H2*	1560
7½	10	20	2	60	32FS††92B1H2*	2106	32FS††92W1H2*	3258	32FS††92N1H2*	2418
20	25	40	3	100	32HS††92B1H2*	3054	32HS††92W1H2*	5022	32HS††92N1H2*	3738
30	40	75	4	200	32JT††92B1H2*	6438	32JT††92W1H2*	9534	32JT††92N1H2*	8346
60	75	150	5	400	32KS††92B1H2*	14406	32KS††92W1H2*	23196	32KS††92N1H2*	19608

M•M Motor Matched Half Sizes

7½	7½	10	1¾	60	32ES††92B1H2*	\$1698	32ES††92W1H2*	\$2622	32ES††92N1H2*	\$1896
10	15	25	2½	100	32GS††92B1H2*	2676	32GS††92W1H2*	3828	32GS††92N1H2*	2988
25	30	50	3½	200	32ISL††92B1H2*	5958	32IS††92W1H2*	9054	32IS††92N1H2*	7866
40	60	100	4½	400	32RS††92B1H2*	13566	32RS††92W1H2*	22356	32RS††92N1H2*	18768

Units listed are furnished with non fusible disconnects. Fuse clip kits are available as factory or field modifications, see page 46 or 50.

**NEMA 12 may be field modified for NEMA 3/3R, see page 49.

†Pick High and Low speed overload relay from table 1. Use motor nameplate information to select FLA.

Table 1

Replace † with the letter that corresponds to the correct FLA.
(First † for High speed, second † for Low speed.)

Size	FLA	†
0, 1	0.25-1	A
0, 1	0.75-3	B
0, 1	2.5-10	D
0-1¾	9-18	E
1-4	13-27	F
1¾	20-40	G
2-4	22-45	H
2½-4	30-60	J
3-4	45-90	K
3½-4	57-115	L
4	67-135	M
4½	100-210	S
5	100-270	U

Ordering Instructions

- Use complete catalog number. Replace (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- Field Modification Kits page 45. Factory Modifications page 50.
- Contact Sales Office for 3 and 4 speed starters.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A①
200-208	D
220-240	G
220-240/440-480*	C①
440-480*	H

For other voltages and frequencies see Factory Modifications.

*Not available with self-reset option.

①Dual voltage coils NA in stocked or modified starters.

Combination Multi Speed Magnetic Starters 2 Speed Constant Horsepower

- Solid State Overload with Phase Loss Protection
- Full Voltage 3 Phase
- 150 Hp 60 Hz 600VAC Max

ESP100 COMBINATION MULTI SPEED STARTER

1 Winding Consequent Pole-Circuit Breaker Type

Max Hp					Enclosure					
					NEMA 1 General Purpose		NEMA 4/4X Watertight, Dusttight Corrosion Resistant 304 Stainless Steel		NEMA 12 **NEMA 3/3R Industrial Use Weatherproof	
200 Volts	230 Volts	460 Volts	575 Volts	NEMA Size	Cat No	Price	Cat No	Price	Cat No	Price
2	2	3	3	0	32CS††92B2H*	\$1824	32CS††92W2H*	\$2748	32CS††92N2H*	\$2022
5	5	7½	7½	1	32DS††92B2H*	1896	32DS††92W2H*	2820	32DS††92N2H*	2094
7½	10	20	20	2	32FS††92B2H*	2898	32FS††92W2H*	4050	32FS††92N2H*	3210
20	25	40	40	3	32HS††92B2H*	3912	32HS††92W2H*	5880	32HS††92N2H*	4596
30	40	75	75	4	32JT††92B2H*	9414	32JT††92W2H*	12510	32JT††92N2H*	11322
60	75	150	150	5	32KS††92B2H*	18486	32KS††92W2H*	27276	32KS††92N2H*	26688

M•M Motor Matched Half Sizes

7½	7½	10	10	1¾	32ES††92B2H*	\$2352	32ES††92W2H*	\$3276	32ES††92N2H*	\$2550
10	15	25	25	2½	32GS††92B2H*	3450	32GS††92W2H*	4602	32GS††92N2H*	3762
25	30	50	50	3½	32IS††92B2H*	8694	32IS††92W2H*	11790	32IS††92N2H*	10602
40	60	100	100	4½	32RS††92B2H*	17646	32RS††92W2H*	26436	32RS††92N2H*	22848

2 Separate Windings-Circuit Breaker Type

2	2	3	3	0	32CS††92B1H*	\$1560	32CS††92W1H*	\$2484	32CS††92N1H*	\$1758
5	5	7½	7½	1	32DS††92B1H*	1644	32DS††92W1H*	2568	32DS††92N1H*	1842
7½	10	20	20	2	32FS††92B1H*	2418	32FS††92W1H*	3570	32FS††92N1H*	2730
20	25	40	40	3	32HS††92B1H*	3264	32HS††92W1H*	5232	32HS††92N1H*	3948
30	40	75	75	4	32JT††92B1H*	7230	32JT††92W1H*	10326	32JT††92N1H*	9138
60	75	150	150	5	32KS††92B1H*	16140	32KS††92W1H*	24930	32KS††92N1H*	21342

M•M Motor Matched Half Sizes

7½	7½	10	10	1¾	32ES††92B1H*	\$2010	32ES††92W1H*	\$2934	32ES††92N1H*	\$2208
10	15	25	25	2½	32GS††92B1H*	2886	32GS††92W1H*	4038	32GS††92N1H*	3198
10	30	50	50	3½	32IS††92B1H*	6750	32IS††92W1H*	9846	32IS††92N1H*	8658
40	60	100	100	4½	32RS††92B1H*	15300	32RS††92W1H*	24090	32RS††92N1H*	29052

**NEMA 12 may be field modified for NEMA 3/3R, see page 49.

†Pick High and Low speed overload relay from table 1. Use motor nameplate information to select FLA.

Table 1

Replace † with the letter that corresponds to the correct FLA. (First † for High speed, second † for Low speed.)

Size	FLA	†
0, 1	0.25-1	A
0, 1	0.75-3	B
0, 1	2.5-10	D
0-1¾	9-18	E
1-4	13-27	F
1¾	20-40	G
2-4	22-45	H
2½-4	30-60	J
3-4	45-90	K
3½-4	57-115	L
4	67-135	M
4½	100-210	S
5	100-270	U

Ordering Instructions

- Use complete catalog number. Replace (*) with letter from the coil table. Dual voltage coils are wired on high voltage unless specified on order.
- Field Modification Kits page 45. Factory Modifications page 50.
- Contact Sales Office for 3 and 4 speed starters.
- For self-reset overload option on Sizes 0-5, change 4th character from "S" or "T" to "R". No price addition.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A①
200-208	D
220-240	G
220-240/440-480*	C①
440-480*	H

For other voltages and frequencies see Factory Modifications.

*Not available with self-reset option.
①Dual voltage coils NA in stocked or modified starters.

Note: See page 7 to determine overload range for specific Hp rating.

Reduced Voltage Starters Solid State Overload

- Auto Transformer-Closed Transition
- 400 Hp 60 Hz 600VAC Max

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ESP100 REDUCED
VOLTAGE STARTERS

NEMA 1 General Purpose Enclosure

Motor Volts	Max Hp	Overload Amp Range	Size	Starter Only Cat No	Price	Non Fusible Disconnect Cat No	Price	Fusible Disconnect Cat No	Price	Motor Circuit Protector Cat No	Price
200	10	22-45	2	36FSHT6B*	\$3429	37FSHT6B*D	\$4149	37FSHT6B*F	\$4323	37FSHT6B*P	\$4461
	25	45-90	3	36HSKT6B*	4029	37HSKT6B*D	4941	37HSKT6B*F	5253	37HSKT6B*P	5166
	40	67-135	4	36JSMT6B*	7785	37JSMT6B*D	9045	37JSMT6B*F	9957	37JSMT6B*P	9837
	75	135-270	5	36KSUT6B*	13308	37KSUT6B*D	15564	37KSUT6B*F	15780	37KSUT6B*P	17298
	150	270-540	6	36MSXT6B*	23832	37MSXT6B*D	29010	37MSXT6B*F	32748	37MSXT6B*P	29706
230	15	22-45	2	36FSHT2B*	3429	37FSHT2B*D	4149	37FSHT2B*F	4323	37FSHT2B*P	4461
	30	45-90	3	36HSKT2B*	4029	37HSKT2B*D	4941	37HSKT2B*F	5253	37HSKT2B*P	5166
	50	67-135	4	36JSMT2B*	7785	37JSMT2B*D	9045	37JSMT2B*F	9957	37JSMT2B*P	9837
	100	135-270	5	36KSUT2B*	13308	37KSUT2B*D	15564	37KSUT2B*F	15780	37KSUT2B*P	17298
	200	270-540	6	36MSXT2B*	24684	37MSXT2B*D	29862	37MSXT2B*F	33600	37MSXT2B*P	30558
460	25	22-45	2	36FSHT4B*	3429	37FSHT4B*D	4149	37FSHT4B*F	4227	37FSHT4B*P	4461
	50	45-90	3	36HSKT4B*	4341	37HSKT4B*D	5253	37HSKT4B*F	5565	37HSKT4B*P	5463
	100	67-135	4	36JSMT4B*	7929	37JSMT4B*D	9189	37JSMT4B*F	10101	37JSMT4B*P	9981
	200	135-270	5	36KSUT4B*	14472	37KSUT4B*D	16728	37KSUT4B*F	16944	37KSUT4B*P	18462
	400	270-540	6	36MSXT4B*	26148	37MSXT4B*D	31326	37MSXT4B*F	35064	37MSXT4B*P	32022
575	25	22-45	2	36FSHT5B*	3429	37FSHT5B*D	4149	37FSHT5B*F	4227	37FSHT5B*P	4461
	50	45-90	3	36HSKT5B*	4341	37HSKT5B*D	5253	37HSKT5B*F	5565	37HSKT5B*P	5463
	100	67-135	4	36JSMT5B*	7929	37JSMT5B*D	9189	37JSMT5B*F	10101	37JSMT5B*P	9981
	200	135-270	5	36KSUT5B*	14472	37KSUT5B*D	16728	37KSUT5B*F	16944	37KSUT5B*P	18462
	400	270-540	6	36MSXT5B*	26148	37MSXT5B*D	31326	37MSXT5B*F	35064	37MSXT5B*P	32022

M•M Motor Matched Half Sizes

200	10	20-40	1¾	36ESGT6B*	\$3219	37ESGT6B*D	\$3939	37ESGT6B*F	\$4035	37ESGT6B*P	\$4173
	15	30-60	2½	36GSJT6B*	3729	37GSJT6B*D	4641	37GSJT6B*F	4953	37GSJT6B*P	4851
	30	57-115	3½	36ISLT6B*	7209	37ISLT6B*D	8469	37ISLT6B*F	8733	37ISLT6B*P	9261
	50	108-210	4½	36RSST6B*	11940	37RSST6B*D	14196	37RSST6B*F	14412	37RSST6B*P	15930
230	10	20-40	1¾	36ESGT2B*	3219	37ESGT2B*D	3939	37ESGT2B*F	4035	37ESGT2B*P	4173
	20	30-60	2½	36GSJT2B*	3729	37GSJT2B*D	4641	37GSJT2B*F	4953	37GSJT2B*P	4851
	40	57-115	3½	36ISLT2B*	7209	37ISLT2B*D	8469	37ISLT2B*F	8733	37ISLT2B*P	9261
	75	108-210	4½	36RSST2B*	11940	37RSST2B*D	14196	37RSST2B*F	14412	37RSST2B*P	15930
460	15	13-27	1¾	36ESFT4B*	3156	37ESFT4B*D	3939	37ESFT4B*F	4035	37ESFT4B*P	4173
	30	22-45	2½	36GSHT4B*	3885	37GSHT4B*D	4797	37GSHT4B*F	4869	37GSHT4B*P	5007
	75	57-115	3½	36ISLT4B*	7209	37ISLT4B*D	8469	37ISLT4B*F	8733	37ISLT4B*P	9261
	150	108-210	4½	36RSST4B*	12384	37RSST4B*D	14640	37RSST4B*F	14856	37RSST4B*P	16374
575	15	13-27	1¾	36ESFT5B*	3156	37ESFT5B*D	3939	37ESFT5B*F	4035	37ESFT5B*P	4173
	30	22-45	2½	36GSHT5B*	3885	37GSHT5B*D	4797	37GSHT5B*F	4869	37GSHT5B*P	5007
	75	57-115	3½	36ISLT5B*	7209	37ISLT5B*D	8469	37ISLT5B*F	8733	37ISLT5B*P	9261
	150	108-210	4½	36RSST5B*	12384	37RSST5B*D	14640	37RSST5B*F	14856	37RSST5B*P	16374

Ordering Instructions

- Use complete catalog number. Replace (*) with letter from coil table. Dual voltage coils are wired on high voltage unless specified on order.
- Field Modification Kits page 45. Factory Modifications page 50.
- Enclosure Modifications page 50.
- For self-reset option on 0-5 starters, change 4th character from "S" to "R". No price adder.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A
200-208	D
220-240	G
220-240/440-480	C
440-480	H

For other voltages and frequencies
see Factory Modifications.

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ESP100 REDUCED
VOLTAGE STARTERS

Reduced Voltage Starters Solid State Overload

- Part Winding, Two Step
- 600 Hp 60 Hz 600VAC Max

NEMA 1 General Purpose Enclosure

Motor Volts	Max Hp	Overload Amp Range	Size	Starter Only Cat No	Price	Non Fusible Disconnect Cat No	Price	Fusible Disconnect Cat No	Price	Motor Circuit Protector Cat No	Price
200	7½	9-18	0	36CSEP6B*	\$1284	37CSEP6B*D	\$2004	37CSEP6B*F	\$2022	37CSEP6B*P	\$2316
	10	9-18	1	36DSEP6B*	1368	37DSEP6B*D	2088	37DSEP6B*F	2262	37DSEP6B*P	2400
	20	22-45	2	36FSHP6B*	1926	37FSHP6B*D	2838	37FSHP6B*F	3150	37FSHP6B*P	3048
	40	45-90	3	36HSKP6B*	2694	37HSKP6B*D	3954	37HSKP6B*F	4218	37HSKP6B*P	4746
	75	67-135	4	36JSMP6B*	5700	37JSMP6B*D	7956	37JSMP6B*F	8172	37JSMP6B*P	9690
230	150	135-270	5	36KSUP6B*	11880	37KSUP6B*D	17058	37KSUP6B*F	17694	37KSUP6B*P	17754
	7½	9-18	0	36CSEP2B*	1284	37CSEP2B*D	2004	37CSEP2B*F	2022	37CSEP2B*P	2316
	10	9-18	1	36DSEP2B*	1368	37DSEP2B*D	2088	37DSEP2B*F	2262	37DSEP2B*P	2403
	25	22-45	2	36FSHP2B*	1926	37FSHP2B*D	2838	37FSHP2B*F	3150	37FSHP2B*P	3048
	50	45-90	3	36HSKP2B*	2694	37HSKP2B*D	3954	37HSKP2B*F	4218	37HSKP2B*P	4746
460	75	67-135	4	36JSMP2B*	5700	37JSMP2B*D	7956	37JSMP2B*F	8172	37JSMP2B*P	9690
	150	135-270	5	36KSUP2B*	11880	37KSUP2B*D	17058	37KSUP2B*F	17694	37KSUP2B*P	17754
	300	270-540	6	36MSXP2B*	24780	37MSXP2B*D	30258	-	-	-	-
	10	5-10	0	36CSDP4B*	1284	37CSDP4B*D	2004	37CSDP4B*F	2022	37CSDP4B*P	2316
	15	9-18	1	36DSEP4B*	1368	37DSEP4B*D	2088	37DSEP4B*F	2106	37DSEP4B*P	2400
575	40	22-45	2	36FSHP4B*	1926	37FSHP4B*D	2838	37FSHP4B*F	2910	37FSHP4B*P	3048
	75	30-60	3	36HSJP4B*	2694	37HSJP4B*D	3954	37HSJP4B*F	4218	37HSJP4B*P	4746
	150	67-135	4	36JSMP4B*	5700	37JSMP4B*D	7956	37JSMP4B*F	8172	37JSMP4B*P	9690
	350	135-270	5	36KSUP4B*	11880	37KSUP4B*D	17058	37KSUP4B*F	17691	37KSUP4B*P	17754
	600	270-540	6	36MSXP4B*	24780	37MSXP4B*D	30258	-	-	-	-
575	10	3-6	0	36CSCP5B*	1284	37CSCP5B*D	2004	37CSCP5B*F	2022	37CSCP5B*P	2316
	15	5-10	1	36DSDP5B*	1368	37DSDP5B*D	2088	37DSDP5B*F	2106	37DSDP5B*P	2400
	40	13-27	2	36FSFP5B*	1926	37FSFP5B*D	2838	37FSFP5B*F	2910	37FSFP5B*P	3048
	75	30-60	3	36HSJP5B*	2694	37HSJP5B*D	3954	37HSJP5B*F	4218	37HSJP5B*P	4746
	150	67-135	4	36JSMP5B*	5700	37JSMP5B*D	7956	37JSMP5B*F	8172	37JSMP5B*P	9690
575	350	135-270	5	36KSUP5B*	11880	37KSUP5B*D	17058	37KSUP5B*F	17694	37KSUP5B*P	17754
	600	270-540	6	36MSXP5B*	24780	37MSXP5B*D	30258	-	-	-	-

M•M Motor Matched Half Sizes

200	15	20-40	1¼	36ESGP6B*	\$1608	37ESGP6B*D	\$2328	37ESGP6B*F	\$2742	37ESGP6B*P	\$2640
	30	30-60	2½	36GSJP6B*	2310	37GSJP6B*D	3570	37GSJP6B*F	3834	37GSJP6B*P	4362
	50	57-115	3½	36ISLP6B*	5220	37ISLP6B*D	7476	37ISLP6B*F	7686	37ISLP6B*P	9210
	100	108-210	4½	36RSSP6B*	10809	37RSSP6B*D	16218	37RSSP6B*F	16854	37RSSP6B*P	16914
230	20	20-40	1¼	36ESGP2B*	1608	37ESGP2B*D	2328	37ESGP2B*F	2742	37ESGP2B*P	2640
	40	30-60	2½	36GSJP2B*	2310	37GSJP2B*D	3570	37GSJP2B*F	3834	37GSJP2B*P	4362
	60	57-115	3½	36ISLP2B*	5220	37ISLP2B*D	7476	37ISLP2B*F	7686	37ISLP2B*P	9210
	125	108-210	4½	36RSSP2B*	10809	37RSSP2B*D	16218	37RSSP2B*F	16854	37RSSP2B*P	16914
460	30	13-27	1¼	36ESFP4B*	1608	37ESFP4B*D	2328	37ESFP4B*F	2592	37ESFP4B*P	2640
	60	30-60	2½	36GSJP4B*	2310	37GSJP4B*D	3570	37GSJP4B*F	3834	37GSJP4B*P	4362
	100	57-115	3½	36ISLP4B*	5220	37ISLP4B*D	11019	37ISLP4B*F	7686	37ISLP4B*P	9210
	250	108-210	4½	36RSSP4B*	10809	37RSSP4B*D	16218	37RSSP4B*F	17694	37RSSP4B*P	16914
575	30	13-27	1¼	36ESFP5B*	1608	37ESFP5B*D	2328	37ESFP5B*F	2592	37ESFP5B*P	2640
	60	22-45	2½	36GSHP5B*	2310	37GSHP5B*D	3570	37GSHP5B*F	3834	37GSHP5B*P	4362
	100	57-115	3½	36ISKP5B*	5220	37ISKP5B*D	11019	37ISKP5B*F	7696	37ISKP5B*P	9210
	250	108-210	4½	36RSSP5B*	10809	37RSSP5B*D	16218	37RSSP5B*F	17694	37RSSP5B*P	16914

Ordering Instructions

- Use complete catalog number. Replace (*) with letter from coil table. Dual voltage coils are wired on high voltage unless specified on order.
- Field Modification Kits page 45. Factory Modifications page 50.
- Enclosure Modifications page 50.
- For self-reset option on 0-5 starters, change 4th character from "S" to "R". No price adder.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A
200-208	D
220-240	G
220-240/440-480	C
440-480	H

For other voltages and frequencies
see Factory Modifications.

Reduced Voltage Starters Solid State Overload**

- Wye Delta-Open Transition
- 700 Hp 60 Hz 600VAC Max

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ESP100 REDUCED
VOLTAGE STARTERS

NEMA 1 General Purpose Enclosure

Motor Volts	Max Hp	Overload Amp Range	Size	Starter Only Cat No	Price	Non Fusible Disconnect Cat No	Price	Fusible Disconnect Cat No	Price	Motor Circuit Protector Cat No	Price
200	10	13-27	1	36DSF06B*	\$2088	37DSF06B*D	\$2808	37DSF06B*F	\$2856	37DSF06B*P	\$3120
	20	22-45	2	36FSH06B*	2466	37FSH06B*D	3378	37FSH06B*F	3690	37FSH06B*P	3588
	40	45-90	3	36HSK06B*	3576	37HSK06B*D	4836	37HSK06B*F	5100	37HSK06B*P	5628
	60	67-135	4	36JSM06B*	7428	37JSM06B*D	9684	37JSM06B*F	9900	37JSM06B*P	11418
	150	135-270	5	36KSU06B*	13332	37KSU06B*D	18084	37KSU06B*F	19146	37KSU06B*P	30624
	300	270-540	6	36MSX06B*	28500	Use MCP Type		Use MCP Type		37MSX06B*P	36642
230	10	13-27	1	36DSF02B*	2088	37DSF02B*D	2808	37DSF02B*F	2856	37DSF02B*P	3120
	25	22-45	2	36FSH02B*	2466	37FSH02B*D	3378	37FSH02B*F	3690	37FSH02B*P	3588
	50	45-90	3	36HSK02B*	3576	37HSK02B*D	4836	37HSK02B*F	5100	37HSK02B*P	5628
	75	67-135	4	36JSM02B*	7428	37JSM02B*D	9684	37JSM02B*F	9900	37JSM02B*P	11418
	150	135-270	5	36KSU02B*	13332	37KSU02B*D	18084	37KSU02B*F	19146	37KSU02B*P	19206
	350	270-540	6	36MSX02B*	28500	Use MCP Type		Use MCP Type		37MSX02B*P	36642
460	15	9-18	1	36DSE04B*	2088	37DSE04B*D	2808	37DSE04B*F	2856	37DSE04B*P	3120
	40	22-45	2	36FSH04B*	2466	37FSH04B*D	3378	37FSH04B*F	3450	37FSH04B*P	3588
	75	45-90	3	36HSK04B*	3576	37HSK04B*D	4836	37HSK04B*F	5100	37HSK04B*P	5628
	150	67-135	4	36JSM04B*	7428	37JSM04B*D	9684	37JSM04B*F	9900	37JSM04B*P	11418
	300	135-270	5	36KSU04B*	13332	37KSU04B*D	18084	37KSU04B*F	19146	37KSU04B*P	19206
	700	270-540	6	36MSX04B*	28500	Use MCP Type		Use MCP Type		37MSX04B*P	36642
575	15	9-18	1	36DSE05B*	2088	37DSE05B*D	2808	37DSE05B*F	2856	37DSE05B*P	3120
	40	13-27	2	36FSF05B*	2466	37FSF05B*D	3378	37FSF05B*F	3450	37FSF05B*P	3588
	75	30-60	3	36HSJ05B*	3576	37HSJ05B*D	4836	37HSJ05B*F	5100	37HSJ05B*P	5628
	150	67-135	4	36JSM05B*	7428	37JSM05B*D	9684	37JSM05B*F	9900	37JSM05B*P	11418
	300	135-270	5	36KSU05B*	13332	37KSU05B*D	18084	37KSU05B*F	19146	37KSU05B*P	19206
	700	270-540	6	36MSX05B*	28500	Use MCP Type		Use MCP Type		37MSX05B*P	36642

M•M Motor Matched Half Sizes

200	15	20-40	1¾	36ESG06B*	\$2274	37ESG06B*D	\$3204	37ESG06B*F	\$3252	37ESG06B*P	\$3330
	30	30-60	2½	36GSJ06B*	3024	37GSJ06B*D	3636	37GSJ06B*F	4788	37GSJ06B*P	5076
	50	57-115	3½	36ISL06B	6708	37ISL06B*D	7968	37ISL06B*F	9480	37ISL06B*P	10698
	75	108-210	4½	36RSS06B*	12723	37RSS06B*D	14979	37RSS06B*F	15435	37RSS06B*P	18885
230	15	20-40	1¾	36ESG02B*	2274	37ESG02B*D	3204	37ESG02B*F	3252	37ESG02B*P	3330
	30	30-60	2½	36GSJ02B*	3024	37GSJ02B*D	3636	37GSJ02B*F	4788	37GSJ02B*P	5076
	60	57-115	3½	36ISL02B*	6708	37ISL02B*D	7968	37ISL02B*F	9480	37ISL02B*P	10698
	100	108-210	4½	36RSS02B*	12723	37RSS02B*D	14979	37RSS02B*F	15435	37RSS02B*P	18885
460	30	13-27	1¾	36ESF04B*	2268	37ESF04B*D	3204	37ESF04B*F	3252	37ESF04B*P	3330
	60	22-45	2½	36GSJ04B*	3024	37GSJ04B*D	3636	37GSJ04B*F	4548	37GSJ04B*P	5076
	100	57-115	3½	36IS04B*	6708	37IS04B*D	7968	37IS04B*F	8232	37IS04B*P	10698
	200	108-210	4½	36RSS04B*	12723	37RSS04B*D	14979	37RSS04B*F	15435	37RSS04B*P	18885
575	30	13-27	1¾	36ESF05B*	2268	37ESF05B*D	3204	37ESF05B*F	3252	37ESF05B*P	3330
	60	22-45	2½	36GSH05B*	3024	37GSH05B*D	3636	37GSH05B*F	4548	37GSH05B*P	5076
	100	57-115	3½	36ISK05B*	6708	37ISK05B*D	7968	37ISK05B*F	8232	37ISK05B*P	10698
	200	108-210	4½	36RSS05B*	12723	37RSS05B*D	14979	37RSS05B*F	15435	37RSS05B*P	18885

**For phase loss protection order factory modification "Phase Failure Relay," suffix R6. See page 53.

Ordering Instructions

- Use complete catalog number. Replace (*) with letter from coil table.
Dual voltage coils are wired on high voltage unless specified on order.
- Field Modification Kits page 45. Factory Modifications page 50.
- Enclosure Modifications page 50.
- For self-reset option on 0-5 starters, change 4th character from "S" to "R". No price adder.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A
200-208	D
220-240	G
220-240/440-480	C
440-480	H

For other voltages and frequencies
see Factory Modifications.

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ESP100 REDUCED
VOLTAGE STARTERS

Reduced Voltage Starters Solid State Overload**

- Wye Delta-Closed Transition
- 700 Hp 60 Hz 600VAC Max

NEMA 1 General Purpose Enclosure

Motor Volts	Max Hp	Overload Amp Range	Size	Starter Only Cat No	Price	Non Fusible Disconnect Cat No	Price	Fusible Disconnect Cat No	Price	Motor Circuit Protector Cat No	Price
200	10	13-27	1	36DSFC6B*	3174	37DSFC6B*D	3894	37DSFC6B*F	3942	37DSFC6B*P	4206
	20	22-45	2	36FSHC6B*	3588	37FSHC6B*D	4500	37FSHC6B*F	4578	37FSHC6B*P	4710
	40	45-90	3	36HSC6B*	4944	37HSC6B*D	6204	37HSC6B*F	6468	37HSC6B*P	6996
	60	67-135	4	36JSMC6B*	9714	37JSMC6B*D	11970	37JSMC6B*F	12186	37JSMC6B*P	13704
	150	135-270	5	36KSUC6B*	16332	37KSUC6B*D	21510	37KSUC6B*F	22146	37KSUC6B*P	22206
	300	270-540	6	36MSXC6B*	35844	Use MCP Type		Use MCP Type		37MSXC6B*P	43986
230	10	13-27	1	36DSFC2B*	3174	37DSFC2B*D	3894	37DSFC2B*F	3942	37DSFC2B*P	4206
	25	22-45	2	36FSHC2B*	3588	37FSHC2B*D	4500	37FSHC2B*F	4578	37FSHC2B*P	4710
	50	45-90	3	36HSC2B*	4944	37HSC2B*D	6204	37HSC2B*F	6468	37HSC2B*P	6996
	75	67-135	4	36JSMC2B*	9714	37JSMC2B*D	11970	37JSMC2B*F	12186	37JSMC2B*P	13704
	150	135-270	5	36KSUC2B*	16332	37KSUC2B*D	21510	37KSUC2B*F	22146	37KSUC2B*P	22206
	350	270-540	6	36MSXC2B*	35844	Use MCP Type		Use MCP Type		37MSXC2B*P	43986
460	15	9-18	1	36DSEC4B*	3174	37DSEC4B*D	7761	37DSEC4B*F	3942	37DSEC4B*P	4206
	40	22-45	2	36FSHC4B*	3720	37FSHC4B*D	4632	37FSHC4B*F	4704	37FSHC4B*P	4842
	75	45-90	3	36HSC4B*	5886	37HSC4B*D	6846	37HSC4B*F	7110	37HSC4B*P	7638
	150	67-135	4	36JSMC4B*	10242	37JSMC4B*D	12498	37JSMC4B*F	12714	37JSMC4B*P	14232
	300	135-270	5	36KSUC4B*	17634	36KSUC4B*D	22812	37KSUC4B*F	23421	37KSUC4B*P	23508
	700	270-540	6	36MSXC4B*	35844	Use MCP Type		Use MCP Type		37MSXC4B*P	43986
575	15	9-18	1	36DSEC5B*	3174	37DSEC5B*D	3894	37DSEC5B*F	3942	37DSEC5B*P	4206
	40	13-27	2	36FSFC5B*	3720	37FSFC5B*D	4632	37FSFC5B*F	4704	37FSFC5B*P	4842
	75	30-60	3	36HSJC5B*	5886	37HSJC5B*D	6846	37HSJC5B*F	7110	37HSJC5B*P	7638
	150	67-135	4	36JSMC5B*	10248	37JSMC5B*D	12498	37JSMC5B*F	12714	37JSMC5B*P	14232
	300	135-270	5	36KSUC5B*	17634	37KSUC5B*D	22812	37KSUC5B*F	23448	37KSUC5B*P	23508
	700	270-540	6	36MSXC5B*	35844	Use MCP Type		Use MCP Type		37MSXC5B*P	43986

M•M Motor Matched Half Sizes

200	15	20-40	1¾	36ESGC6B*	\$3384	37ESGC6B*D	\$4104	37ESGC6B*F	\$4152	37ESGC6B*P	\$4446
	30	30-60	2½	36GSJC6B*	4326	37GSJC6B*D	5586	37GSJC6B*F	5850	37GSJC6B*P	6378
	50	57-115	3½	36ISLC6B*	13032	37ISLC6B*D	10962	37ISLC6B*F	11178	37ISLC6B*P	12696
	75	108-210	4½	36RSSC6B*	15579	37RSSC6B*D	20757	37RSSC6B*F	21393	37RSSC6B*P	21777
230	15	20-40	1¾	36ESGC2B*	3384	37ESGC2B*D	4104	37ESGC2B*F	4152	37ESGC2B*P	4446
	30	30-60	2½	36GSJC2B*	4326	37GSJC2B*D	5586	37GSJC2B*F	5850	37GSJC2B*P	6378
	60	57-115	3½	36ISLC2B*	13032	37ISLC2B*D	10962	37ISLC2B*F	11178	37ISLC2B*P	12696
	100	108-210	4½	36RSSC2B*	15579	37RSSC2B*D	20757	37RSSC2B*F	21393	37RSSC2B*P	21777
460	30	13-27	1¾	36ESFC4B*	3384	37ESFC4B*D	4104	37ESFC4B*F	4152	37ESFC4B*P	4446
	60	30-60	2½	36GSJC4B*	4458	37GSJC4B*D	5718	37GSJC4B*F	5982	37GSJC4B*P	6510
	100	57-115	3½	36ISLC4B*	9378	37ISLC4B*D	11634	37ISLC4B*F	11850	37ISLC4B*P	13368
	200	108-210	4½	36RSSC4B*	16119	37RSSC4B*D	20297	37RSSC4B*F	21933	37RSSC4B*P	22317
575	30	13-27	1¾	36ESFC5B*	3384	37ESFC5B*D	4104	37ESFC5B*F	4152	37ESFC5B*P	4446
	60	22-45	2½	36GSHC5B*	4458	37GSHC5B*D	5718	37GSHC5B*F	5982	37GSHC5B*P	6510
	100	57-115	3½	36ISKC5B*	9378	37ISKC5B*D	11634	37ISKC5B*F	11850	37ISKC5B*P	13368
	200	108-210	4½	36RSSC5B*	16119	37RSSC5B*D	20297	37RSSC5B*F	21933	37RSSC5B*P	22317

**For phase loss protection order factory modification "Phase Failure Relay," suffix R6. See page 53.

Ordering Instructions

- Use complete catalog number. Replace (*) with letter from coil table. Dual voltage coils are wired on high voltage unless specified on order.
- Field Modification Kits page 45. Factory Modifications page 50.
- Enclosure Modifications page 50.
- For self-reset option on 0-5 starters, change 4th character from "S" to "R". No price adder.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A
200-208	D
220-240	G
220-240/440-480	C
440-480	H

For other voltages and frequencies see Factory Modifications.

Reduced Voltage Starters

■ Enclosure Modifications

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REDUCED VOLTAGE STARTERS

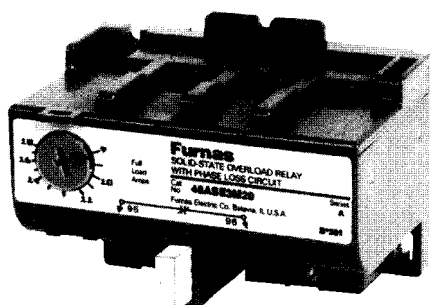
Enclosure Type	Change 8th character Of Cat No to	Size	Price Addition		
			Auto Transformer	Part Winding	Wye Delta
NEMA 1A Gasketed Door	S	0-5 6	\$240 — 600 —	\$240 600	\$240 600
NEMA 4 Watertight Enclosure (Painted)	E	0-1¾	1860	720	720
		2, 2½	1860	810	810
		3	1860	1170	1170
		3½,4	3420	1842	1842
		4½,5	3420	3420	3420
		6	4500	3642	4500
NEMA 4 Watertight Enclosure 304 Stainless Steel	W	0-1¾	2580	—	—
		2, 2½	2580	—	—
		3	2580	—	—
		3½,4	4860	—	—
		4½,5	5430	5430	5430
		6	8100	7242	8100
NEMA 7 & 9		Contact Factory			
NEMA 12 Enclosure	0	0-1¾	900	600	600
		2, 2½	1080	750	750
		3	1140	900	900
		3½, 4	1440	1200	1200
		4½, 5	1620	1620	1620
NEMA 12 may be field modified for NEMA 3/3R page L6.		6	2250	3000	2250
Open Type Starter (Deduct price shown from NEMA 1 price)	A	0-1¾	60	36	60
		2, 2½	144	96	144
		3	456	168	456
		3½, 4	660	312	660

Enclosure modification example: 36CSEP6BD becomes 36CSEP6ED, a part winding starter in a NEMA 4 enclosure.

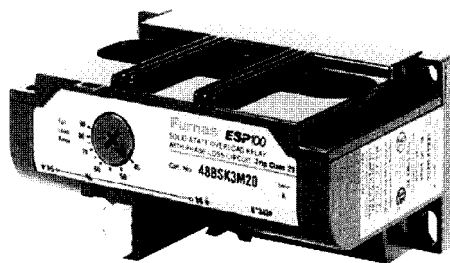
Solid State Overload Relays

- Phase Loss Protection
- For Separate Mounting or Replacement Parts

- Phase Loss Protection
- Heaterless Design
- Ambient Insensitive
- FLA Adjustment Dial with Wide Adjustment Range
- $\pm 2\%$ Repeat Trip Accuracy
- Trip Free Design
- Manual Reset or Self-Reset Option
- NEMA Class 10, 20, and 30 Trip Curves
- -22°F to 159°F (-30°C to 70°C)
- Rated 50/60 Hz
- Output Contact Rated NEMA A600, P600 (10 Amps 600VAC Max, 5 Amps 600VDC Max)
- Self-Reset Output Contact Rated NEMA B300, P150 (5 Amps, 300VAC Max, 5 Amps, 150VDC Max)
- UL Listed File #E22655
- CSA Certified File #LR6535



A1 Frame Solid State Overload



B Frame Solid State Overload

APPLICATION

ESP100 solid state overload relays are self powered requiring no separate source to power the circuit board. They provide phase loss protection, fewer connection points and high repeat trip accuracy which results in longer motor life and cost savings. NEMA Class 10, 20 and 30 trip curves are available for a variety of applications.

These panel mounted overloads can be used to upgrade existing starter applications where panel mounted manual reset thermal overloads are used. In addition, ESP100 overloads can be panel mounted when used with other types of controllers, such as DP and IEC contactors.

ESP100 overloads can be used on high voltage applications, making them ideal for use with vacuum contactors and other high voltage control.

Overloads can be retrofitted on existing Siemens-Furnas starters using the retrofit plate suffixes or on other brands using the plates listed in the universal retrofit plates table on this page.

The self-reset overload option is ideal for cranes, hoists, and other applications where the controls are mounted in a remote location that may be difficult to access. The NC overload contact opens for a short duration (50-75 msec) on an overload or phase loss condition. The unit provided can be applied in one of three ways: 1) Three wire control circuit using Furnas Size 0-4 contactor. The self-reset overload can be retrofitted and applied in a three wire control application as a remote reset overload without additional components or wiring. 2) PLC - (assuming initiating starter coil via

PLC) Timers and counters can be used to determine time between restarts and maximum number of restarts. 3) Use NC overload contact to drop out a control relay. See wiring diagrams on page 75.

FEATURES

The **solid state overload** provides phase loss protection for the motor by tripping in three seconds upon complete loss of one phase of a three phase motor branch circuit.

Each overload has a minimum 2:1 current adjustment range with the adjustment dial reading out in full load amps. In addition to the markings on the dial, there are audible clicks which allow for extremely fine tuning.

The heaterless construction of these overloads minimizes energy costs and the costs of cabinet ventilation or cooling. Solid state overloads can be used at temperatures from -30°C to 70°C and are rated for 50 Hz and 60 Hz applications.

REFERENCE LITERATURE

Instruction Sheets

48-HASA3M
48-HBSF3M
48-HARA3R
48-HBRF3R

Universal Retrofit
Overload Plates

Mfr.	NEMA Size	Plate Part #	Price
A-B	0,1	49D57090	\$10
A-B	2	49D57161	10
Sq. D	0,1	49D57091	10

Solid State Overload Relays

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ESP100
OVERLOAD RELAY

- Phase Loss Protection
- For Separate Mounting or Replacement Parts
- Manual Reset and Self-Reset Options

Solid State – 3 Phase

Current Range Full Load Amps	Phase	Frame Size	Manual Reset Class 10 Cat No	Price	Manual Reset Class 20 Cat No	Price	Manual Reset Class 30 Cat No	Price	Self-Reset Class 10 Cat No	Price	Self-Reset Class 20 Cat No	Price	Self-Reset Class 30 Cat No	Price
0.25-1	3	A	48ASA3M10	\$81	48ASA3M20	\$81	48ASA3M30	\$81	48ARA3R10	\$81	48ARA3R20	\$81	48ARA3R30	\$81
0.75-3	3	A	48ASB3M10	81	48ASB3M20	81	48ASB3M30	81	48ARB3R10	81	48ARB3R20	81	48ARB3R30	81
2.5-10	3	A	48ASD3M10	81	48ASD3M20	81	48ASD3M30	81	48ARD3R10	81	48ARD3R20	81	48ARD3R30	81
9-18	3	A1	48ASE3M10	81	48ASE3M20	81	48ASE3M30	81	48ARE3R10	81	48ARE3R20	81	48ARE3R30	81
13-27	3	A1	48ASF3M10	81	48ASF3M20	81	48ASF3M30	81	48ARF3R10	81	48ARF3R20	81	48ARF3R30	81
20-40	3	A1	48ASG3M10	105	48ASG3M20	105	48ASG3M30	105	48ARG3R10	105	48ARG3R20	105	48ARG3R30	105
13-27	3	B	48BSF3M10	114	48BSF3M20	114	48BSF3M30	114	48BRF3R10	114	48BRF3R20	114	48BRF3R30	114
22-45	3	B	48BSH3M10	114	48BSH3M20	114	48BSH3M30	114	48BRH3R10	114	48BRH3R20	114	48BRH3R30	114
30-60	3	B	48BSJ3M10	138	48BSJ3M20	138	48BSJ3M30	138	48BRJ3R10	138	48BRJ3R20	138	48BRJ3R30	138
45-90	3	B	48BSK3M10	138	48BSK3M20	138	48BSK3M30	138	48BRK3R10	138	48BRK3R20	138	48BRK3R30	138
57-115	3	B	48BSL3M10	201	48BSL3M20	201	48BSL3M30	201	48BRL3R10	201	48BRL3R20	201	48BRL3R30	201
67-135	3	B	48BSM3M10	201	48BSM3M20	201	48BSM3M30	201	48BRM3R10	201	48BRM3R20	201	48BRM3R30	201
81-162††	3	B	48BSN3M10	201	48BSN3M20	201	48BSN3M30	201	48BRN3R10	201	48BRN3R20	201	48BRN3R30	201
100-210*	3	A	48ASS3M10	100	48ASS3M20	100	48ASS3M30	100	—	—	—	—	—	—
100-270*	3	A	48ASU3M10	100	48ASU3M20	100	48ASU3M30	100	—	—	—	—	—	—
200-540†	3	A	48ASX3M10	100	48ASX3M20	100	48ASX3M30	100	—	—	—	—	—	—
250-750**	3	A	48CSH3M10	100	48CSH3M20	100	48CSH3M30	100	—	—	—	—	—	—
500-1000◆	3	A	48CSJ3M10	100	48CSJ3M20	100	48CSJ3M30	100	—	—	—	—	—	—

*Requires use of 300:5 Current Transformers—3 of 97CT005 \$110 each. **Requires 750:5 Current Transformers—3 of 97CT010 \$110 each

†Requires use of 600:5 Current Transformers—3 of 97CT008 \$110 each. ◆Requires 1200:5 Current Transformers—3 of 97CT012 \$110 each

††Temperature rating -20° to 60°C

Note: See page 7 to determine overload range for specific Hp rating.

Solid State – Single Phase

0.25-1	1	A	48ASA1M10	\$75	48ASA1M20	\$75	48ASA1M30	\$75	48ARA1R10	\$75	48ARA1R20	\$75	48ARA1R30	\$75
0.75-3	1	A	48ASB1M10	75	48ASB1M20	75	48ASB1M30	75	48ARB1R10	75	48ARB1R20	75	48ARB1R30	75
2.5-10	1	A	48ASD1M10	75	48ASD1M20	75	48ASD1M30	75	48ARD1R10	75	48ARD1R20	75	48ARD1R30	75
5-16	1	A	48ASE1M10	75	48ASE1M20	75	48ASE1M30	75	48ARE1R10	75	48ARE1R20	75	48ARE1R30	75

Field Modification Kits

Description		Frame Size	Cat No	Price
Auxiliary Contact Kit ***	NO Contact	All	49ASNO	\$24
	NC Contact	All	49ASNC	24
Reset Extender ***	For use with Furnas System/89 MCC's and and other extra deep enclosures.	All	49ASRE	10
Overload Tamper Resistant Cover	Can be closed with wire seals to deter tampering of overload FLA adjustment dial.	A1, B	49ASTC (Bag of 10)	20
Dust Seal ***	Can be used when overload auxiliary contact kit not used.	All	49ASDS (Bag of 10)	20
Overload Tamper Resistant Cover	Can be removed to deter tampering of overload FLA adjustment dial.	A	49ASDL (Bag of 10)	20

Replacement Parts and Retrofit Plates

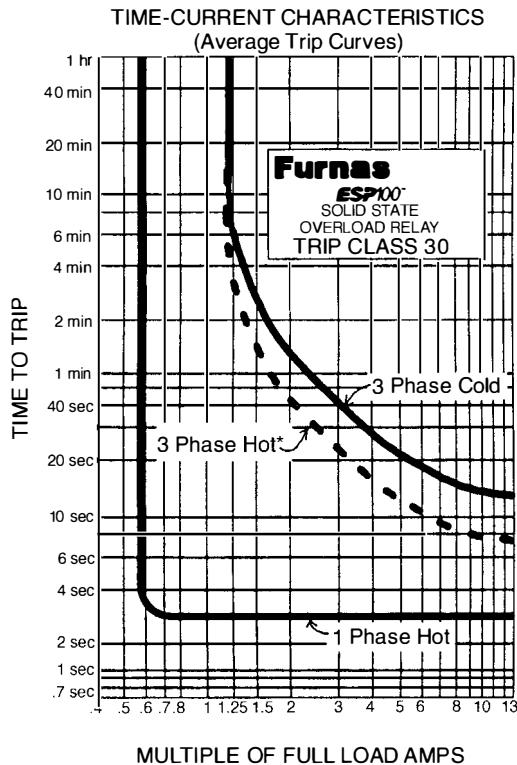
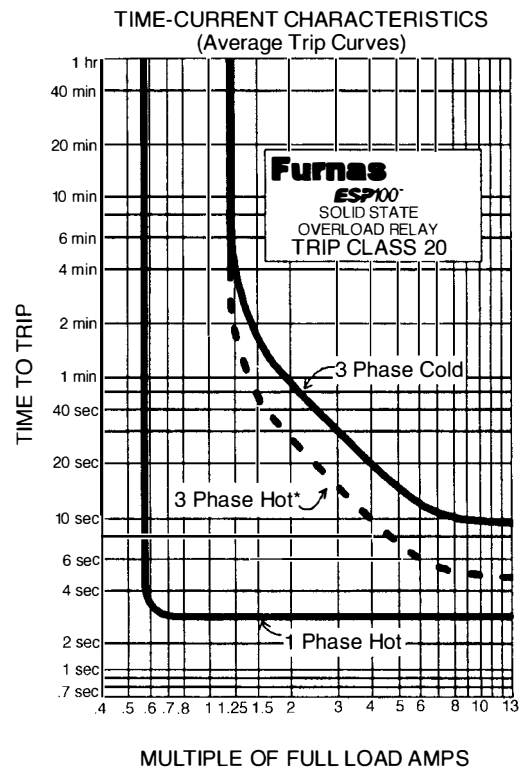
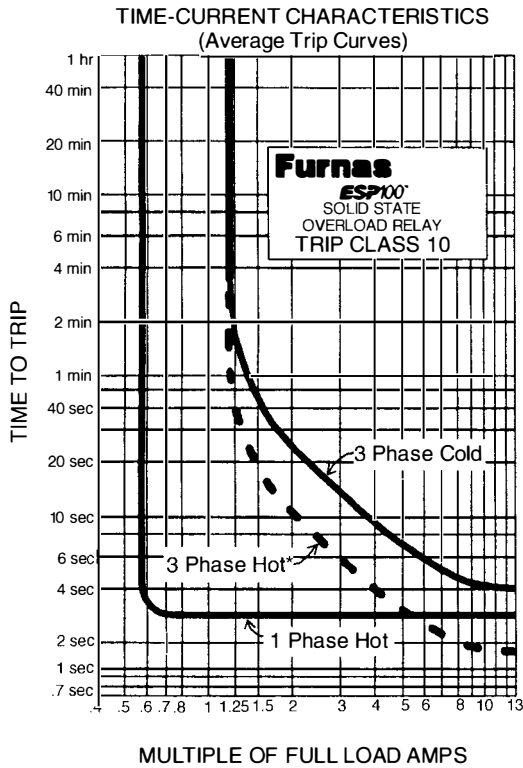
Replacement for Starter Sizes	ESP100 Overload Frame Size	Retrofit Plate Suffix	Price Adder
Size 0,1	A	1P	\$10
Size 0-1¼	A1	1P	10
Size 2,2½	B	2P	10
Size 3, 3½	B	3P	10
Size 4	B	4P	10
Size 4½, 5	A	5P	10
Size 6	A	6P	10

***Not available on self-reset versions.

■ Solid State Overload Trip Curves

ESP100 OVERLOAD RELAY

Solid State Overload Trip Curves (Time-Current Characteristics)



For wiring Diagrams and Dimensions See Pages 74 & 75.

(*) Hot trip times will vary depending on previous running condition, duty cycle, and length of "OFF" time.

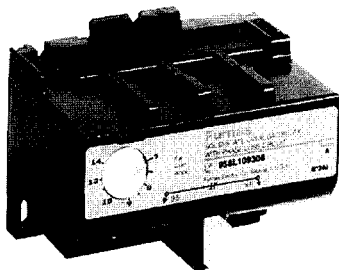
Solid State Overload Relays Special Use

- Phase Loss Protection
- Heaterless Design
- Ambient Insensitive

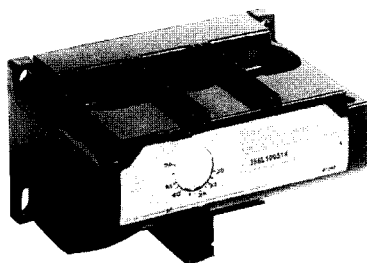
958

SOLID STATE OVERLOAD RELAY

- Hermetically Sealed Compressor Motor Applications
- 958L Available for Oil Pump Motor Applications
- Phase Loss Protection – Trips Within 3 Seconds
- $\pm 2\%$ Repeat Trip Accuracy
- Manual Reset or Self-Reset
- “Must Hold Amps” Adjustment Dial
- Wide Adjustment Range
- Self Powered Overload
- Heaterless Design
- Rated 50/60 Hz
- -22°F to 159°F (-30°C to 70°C)
- Output Contact Rated NEMA A600, P600 (10 Amps 600VAC Max, 5 Amps 600VDC Max)
- Self-Reset Output Contact Rated NEMA B300, P150 (5 Amps, 300VAC Max, 5 Amps, 150VDC Max)
- UL Listed File #E22655
- CSA Certified File #LR6535



A1 Frame 958 Series



B Frame 958 Series

APPLICATION

Siemens-Furnas solid state overload relays are self powered requiring no separate source to power the circuit board. They provide excellent protection of hermetically sealed compressors and artificially cooled motors which require ambient insensitivity and quick trip response. Combined with a series lockout relay, they can provide unsurpassed protection for hermetically sealed compressor motors in air conditioning applications. The combination of high trip speed, current adjustment, and ease of installation makes it suitable for these applications. The trip curves have been custom tailored to provide proper overload protection on such loads without nuisance tripping.

The self-reset overload option is ideal for cranes, hoists, and other applications where the controls are mounted in a remote location that may be difficult to access. The NC overload contact opens for a short duration (50-75 msec) on an overload or phase loss condition. The unit provided can be applied in one of three ways: 1) Three wire control circuit using Size 0-4 contactor. The self-reset overload can be retrofitted and applied in a three wire control application as a remote reset overload without additional components or wiring. 2) PLC - (assuming initiating starter coil via PLC) Timers and counters can be used to determine time between restarts and maximum number of restarts. 3) Use NC overload contact to drop out a control relay. See wiring diagrams on page 75.

FEATURES

The overload provides phase loss protection for the motor by tripping in three seconds upon complete loss of one phase of a three phase motor branch circuit.

The heaterless construction of these overloads minimizes energy costs and the costs of cabinet ventilation or cooling. While thermal overloads require a heater selection based on a relatively wide range, these overloads have many clicks covering the same ampere range (see Fig. 1 below).

ORDERING INFORMATION

- Dimensions page and Wiring Diagrams page 74 & 75.
- Other information see Application Data Section in Catalog 294.

REFERENCE LITERATURE

Instruction Sheet

958-HAA32
958-HCA32
958-HAA31
958-HCA31

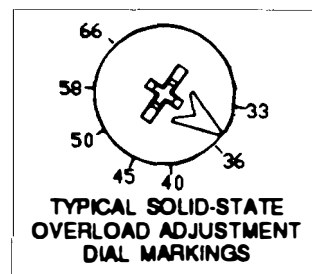


Fig. 1

Each overload has a 2:1 current adjustment range with the adjustment dial reading out must hold amps. Must trip amps are 112% of the must hold setting. In addition to the markings on the dial there are audible clicks which allow for extremely fine tuning.

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SOLID STATE OVERLOAD RELAY

Solid State Overload Relays Special Use

- Phase Loss Protection
- Heaterless Design
- Ambient Insensitive

Trip Curve A

Amp Range	Frame Size	Manual Reset Cat No	Price	Self-Reset Cat No	Price
15-30	A1	958AA32A	\$225	958AA31A	\$225
22-44	A1	958BA32A	225	958BA31A	225
33-66	B	958CA32A	260	958CA31A	260
50-100	B	958DA32A	260	958DA31A	260
75-150	B	958EA32A	285	958EA31A	285
90-180	B	958FA32A*	300	958FA31A*	300

*Temperature rating -20° to 60°C.

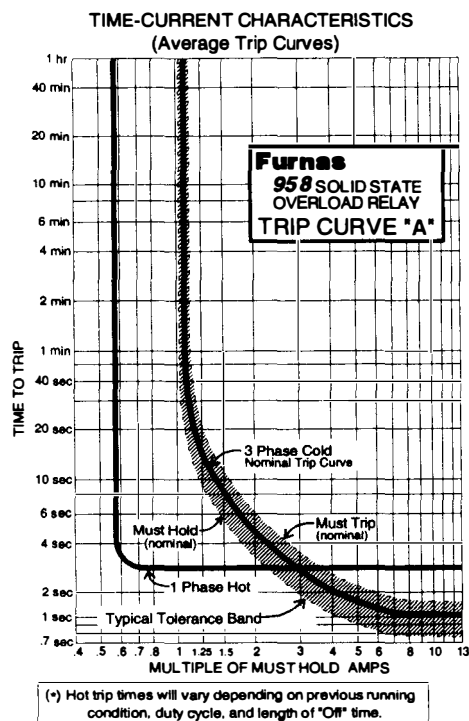
Trip Curve B

Amp Range	Frame Size	Manual Reset Cat No	Price	Self-Reset Cat No	Price
15-30	A1	958AA32B	\$225	958AA31B	\$225
22-44	A1	958BA32B	225	958BA31B	225
33-66	B	958CA32B	260	958CA31B	260
50-100	B	958DA32B	260	958DA31B	260
75-150	B	958EA32B	285	958EA31B	285
90-180	B	958FA32B*	300	958FA31B*	300

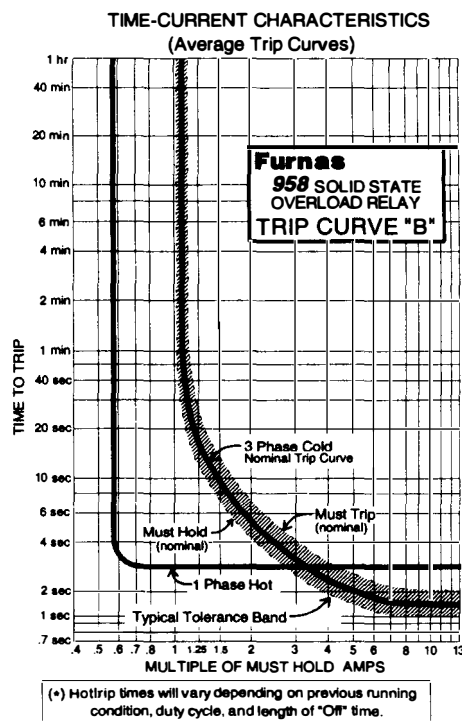
*Temperature rating -20° to 60°C.

Adapter plate for replacing 948C through F styles with 958C through F styles – 49D57124 \$10.

Trip Curve A



Trip Curve B



For Wiring Diagrams and Dimensions see page 74 & 75.

Ordering Instructions

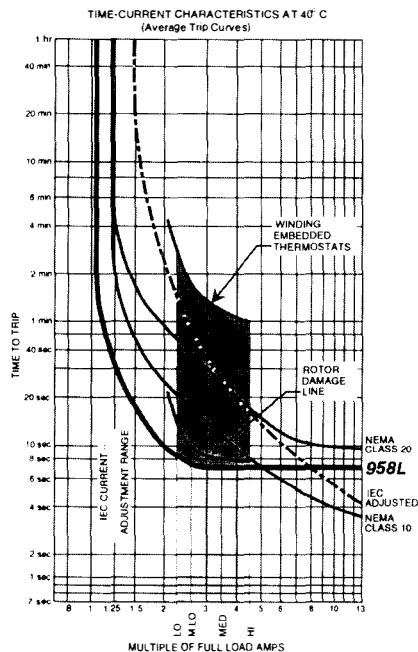
- For other trip curves and special settings contact Siemens-Furnas Controls Sales Office.

Solid State Overload Relays Special Use

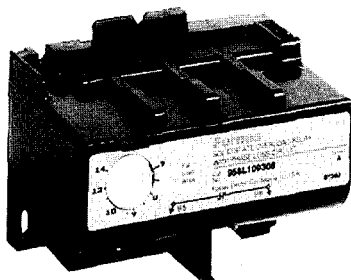
■ Oil Field Starters and Overloads

958L
SOLID STATE
OVERLOAD RELAY

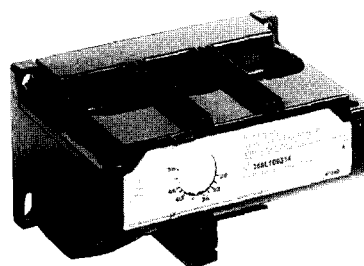
- Phase Loss Protection
- Thermal Memory Circuitry
- Self-Powered
- Short Circuit Self Protection
- Wide -30°C to 70°C Operating Range
- Coated Circuit Board
- Ambient Insensitive
- Easy Installation
- 2:1 FLA Adjustment Range
- Heaterless Construction
- ±2% Repeat Trip Accuracy
- High-Accuracy Trip Curve Settings
- UL Listed and CSA Certified
- Output Contact Rated NEMA A600, P600 (10 Amps 600VAC Max, 5 Amps 600VDC Max)
- Self-Reset Output contact rated NEMA B300, P150 (5 Amps, 300VAC Max, 5 Amps, 150VDC Max)



958L Trip Curve



"A1" Frame 958L Series



"B" Frame 958L Series

APPLICATION

Siemens-Furnas offers the 958L Series solid state overload – designed specifically for the oil market to prevent rotor damage.

Rotors can be damaged in 8 to 15 seconds during motor stall conditions if electrical power is not removed. To prevent damage during motor stall, the 958L solid-state overload provides the solution.

As indicated on the time-current characteristics graph below left, the 958L curve shows power will be removed in 7 seconds starting at 250% locked rotor current. Therefore, die cast or fabricated rotors will be protected from damage, saving lost time and money.

The 958L gives full protection on all standard motors, oil well pump motors, multi-torque connections, and ultra-high slip motors.

Furnas NEMA starters with the 958L series overload combine the rugged characteristics of a NEMA contactor with the custom overload which provides phase loss protection. It offers the user greater protection and added life for motors in heavy duty oilfield applications. The inherent benefits of the NEMA starters with the 958L

series overload result in unsurpassed reliability and performance.

The 958L series overload relays are self-powered solid-state overload relays. They generate their own running power and do not need a separate source of 120V to power the circuit board. They are wired just like a traditional thermal overload relay. These overload relays are designed specifically for the cyclical loads experienced with oil well pumps.

The self-reset overload is ideal for applications where the controls are mounted in a remote location that may be difficult to access. The NC overload contact opens for a short duration (50-75 msec) on an overload or phase loss condition. The unit provided can be applied in one of three ways: 1) Three wire control circuit using Size 0-4 contactor. The self-reset overload can be retrofitted and applied in a three wire control application as a remote reset overload without additional components or wiring. 2) PLC - (assuming initiating starter coil via PLC) Timers and counters can be used to determine time between restarts and maximum number of restarts. 3) Use NC overload contact to drop out a control relay. See wiring diagrams on page 75.

REFERENCE LITERATURE

Instruction Sheet

958-HL109307
958-HR109307
958-HL109314
958-HR109314

958L

**SOLID STATE
OVERLOAD RELAY**

Solid State Overload Relays Special Use

- Oil Field Starters and Overloads
- Manual Reset

Heavy Duty Magnetic Starter With Oil Field Overload Manual Reset*

200 Volts	Max HP 230 Volts	460/575 Volts	Starter Size	FLA Range	Manual Reset Starter Cat No	Price
3	3	5	0	5.6-11.6	14CS109307*U	\$ 246
7½	7½	10	1	7-14	14DS109308*U	276
7½	7½	10	1	11-22	14DS109309*U	276
10	10	15	1¾	5.6-11.6	14ES109307*U	366
10	10	15	1¾	7-14	14ES109308*U	366
10	10	15	1¾	11-22	14ES109309*U	366
10	10	15	1¾	14-28	14ES109330*U	366
10	10	15	1¾	18-36	14ES109331*U	366
10	10	15	1¾	20-40	14ES109332*U	366
10	15	25	2	18-36	14FS109313*U	468
15	20	30	2½	28-56	14GS109314*U	600
25	30	50	3	28-56	14HS109314*U	732
25	30	50	3	35-70	14HS109329*U	732
25	30	50	3	43-86	14HS109315*U	732
25	30	50	3	50-90	14HS109311*U	732
30	40	75	3½	43-86	14IS109315*U	1380
40	50	100	4	60-126	14JT109316*U	1625
50	75	150	4½	75-150	++	
50	75	150	4½	84-174	14RS109327*U	3487
50	75	150	4½	105-210	14RS109328*U	3487
75	100	200	5	132-264	14KS109522*U	3907
150	200	400	6	264-528	14MS109523*U	9217

HP ratings listed are Max HP. Refer to motor nameplate data to choose proper FLA range.

++ Use size 40RB32A* or 49D46100190 contactor and 958L109312U overload.

* For Self-Reset option on 5.6-126A range change 4th character to "R" (Ex. 14CR109307U or 958R109307U).

Oil Field Overload With Phase Loss Protection

OL Frame Size	For Use On Controller Sizes	FLA Range	Manual Reset OL Cat No	Price
A1	0-1¾	5.6-11.6	958L109307U	\$110
A1	0-1¾	7-14	958L109308U	110
A1	1, 1¾	11-22	958L109309U	110
A1	1, 1¾	14-28	958L109330U	110
A1	1¾	18-36	958L109331U	135
A1	1¾	20-40	958L109332U	135
B	2-4	18-36	958L109313U	143
B	2½-4	28-56	958L109314U	167
B	3-4	35-70	958L109329U	167
B	3-4	43-86	958L109315U	167
B	3-4	50-90	958L109311U	167
B	4	60-126	958L109316U	230
B	4½	75-150	958L109312U	129
A1	4½	84-174	958L109327U•	129
A1	4½	105-210	958L109328U••	129
A1	5	132-264	958L109522U•	129
A1	6	264-528	958L109523U+	129

•• Requires (3) 300:5 current transformers (97CT005) and (3) loops.

• Requires (3) 300:5 current transformers (97CT005) and (4) loops.

+ Requires (3) 600:5 current transformers (97CT008) and (4) loops.

Vacuum Contactors-120V Coil

200V	230V	460/575V	Contactor Size	Cat No	Price
40	50	100	4	49D46100190	\$1670
75	100	200	5	49D46100182	3372
150	200	400	6	49D46100333	9429

Vacuum Contactors-Auxiliary Contact

Type	Cat No	Price
1NO/1NC	D46100181	\$48

For Wiring Diagrams and Dimensions see page 74 & 75.

Coil Table

60 Hz Voltage	Letter
24 Separate Control	J
120 Separate Control	F
110-120/220-240	A
200-208	D
220-240	G
220-240/440-480*	C
440-480*	H

For other voltages and frequencies see Factory Modifications.

*Not available with self-reset option.

Solid State Overload Relay

3RB12

**SOLID STATE
OVERLOAD RELAY**

- Phase Loss Protection
- Ground Fault Protection
- Adjustable Trip Class

- Ground Fault Protection: Equipment or Low-level.
- Overload Warning Contact Option.
- Selectable Trip Class: 5, 10, 15, 20, 25, 30.
- Three LED Displays: Ready, Ground Fault, and Overload.
- 2 NO / 2 NC Electrically Isolated Auxiliary Contacts are Standard.
- Remote and Automatic Reset by Means of External Wiring.
- Combined Test/Reset button with function test.
- Monostable or Bistable Output Versions Available.
- Self Monitoring.
- UL Listed.
- CSA Certified.

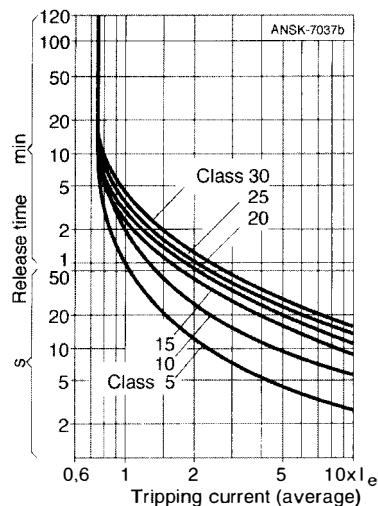


Fig. 1 Three Phase Trip Curves

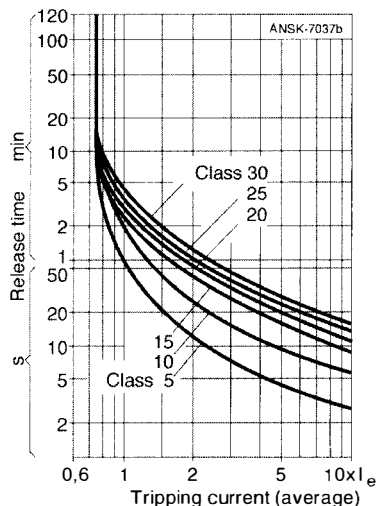


Fig. 2 Trip Curves for Phase Loss/Unbalance

APPLICATION

The 3RB12 solid state overload feature adjustable trip class, ground fault protection, phase unbalance, and phase loss protection.

An optional overload warning contact provides status from which to take action in advance of a shut down. These and many other functions were designed to meet the specific needs of equipment protection.

TRIPPING CHARACTERISTICS

The three phase trip curves (Fig. 1) show the dependence of the tripping time from a cold state on the multiple of the current setting. If the unit is pre-loaded with 100% of the current, the tripping times are shortened. In the event of a phase loss or a current unbalance >40% of the current setting, the characteristic in phase loss/unbalance trip curve (Fig. 2) applies.

MODE OF OPERATION

The motor current is detected in each phase via current transformers and continuously monitored by a micro-processor.

If an overload >110% of the current setting occurs, if there is a current unbalance >40%, or if a phase loss occurs, tripping is initiated by the switching of two auxiliary contacts, 1 NO/1 NC, (numeral 6 in Front View diagram on page 42).

Resetting is possible after a recovery time of 5 minutes has elapsed, either by pressing the Test/Reset button on the unit or by remote or automatic reset.

In the event of a ground-fault, the unit trips via separate (1 NO/1 NC) output without a time delay.

(Numeral 12 in Front View diagram on page 42). Resetting after a ground fault is possible without a time delay.

A test of the unit's functions, namely current detection, thermistor and ground-fault input, and tripping functions of the auxiliary contacts can be initiated by pressing the TEST/ RESET button. A test of the unit's functions can be carried out during operation without the contacts changing state. The test is verified by LED signals.

A self-monitoring feature causes the unit to trip when an internal fault occurs.

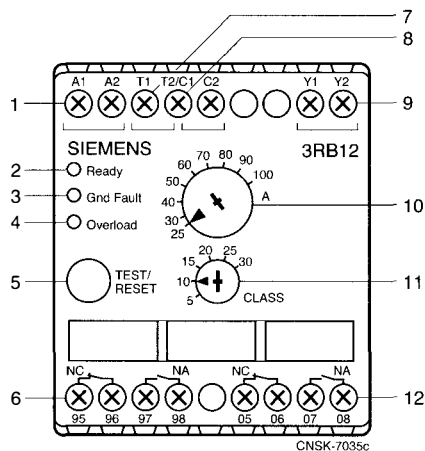
Function of the output relays In case of:	Monostable 3RB12...-...0	Bistable 3RB12...-...1
Dropout of the control voltage without trip	Unit trips	No change in the switching state of the auxiliary contacts
Return of the control voltage without trip	Unit resets	
Return of the control voltage after trip	Unit remains tripped	
	Resetting:	
	Overload trip, after 5 min.	
	Thermistor trip when 5° K below the operating temperature.	
	Ground-fault trip, immediately.	

3RB12

SOLID STATE OVERLOAD RELAY

Solid State Overload Relay

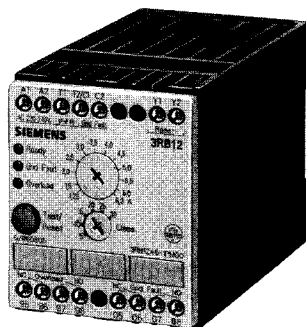
- Phase Loss Protection
- Ground Fault Protection
- Adjustable Trip Class



Front View

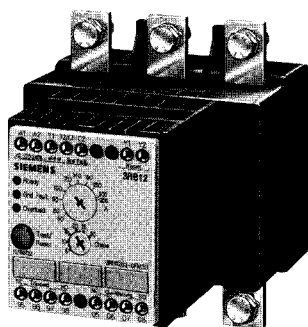
1. Control supply voltage terminals A1/A2
2. Green "Ready" LED
3. Red "Ground Fault" LED
4. Red "Overload" LED
5. TEST/RESET button
6. 1 NO/1 NC for overload/thermistor trip
7. Terminals for thermistor T1/T2
8. Terminals for external summation current transformer C1/C2
9. Terminals for remote or auto RESET Y1/Y2
10. Current FLA dial
11. Trip Class dial
12. 1 NO/1 NC for ground fault trip or overload warning option

Selection and Ordering Data



3RB1246

Rated control supply voltage	Setting range A	Width mm	Contactor fitting	Cat No	Price
24 VDC	1.25 to 6.3	70	single/panel mount	3RB1246-1PB	\$300
	6.3 to 25	70	single/panel mount	3RB1246-1QB	300
	25 to 100	70	single/panel mount	3RB1246-1EB	300
	50 to 205	120	3TF50/51/52	3RB1253-0FB	450
	125 to 500	145	3TF53/54/55/56/57	3RB1257-0FB	600
	200 to 820	230	3TF68/69	3RB1262-0FB	750
110-120 VAC (1)	1.25 to 6.3	70	single/panel mount	3RB1246-1PG	300
	6.3 to 25	70	single/panel mount	3RB1246-1QG	300
	25 to 100	70	single/panel mount	3RB1246-1EG	300
	50 to 205	120	3TF50/51/52	3RB1253-0FG	450
	125 to 500	145	3TF53/54/55/56/57	3RB1257-0FG	600
	200 to 820	230	3TF68/69	3RB1262-0FG	750
220-240 VAC	1.25 to 6.3	70	single/panel mount	3RB1246-1PM	300
	6.3 to 25	70	single/panel mount	3RB1246-1QM	300
	25 to 100	70	single/panel mount	3RB1246-1EM	300
	50 to 205	120	3TF50/51/52	3RB1253-0FM	450
	125 to 500	145	3TF53/54/55/56/57	3RB1257-0FM	600
	200 to 820	230	3TF68/69	3RB1262-0FM	750



3RB12453

Order Options

Version	3RB1246-1PG	Price Adder
Without internal summation current transformer for low-level ground-fault protection ¹ for motors with 3 and 4-conductor connection (ground-fault protection in the event of fault currents of 0.3 A, 0.5A, and 1A) with separate output for "ground-fault", next to the "overload/thermistor" output.	0	None
Without internal summation current transformer for ground-fault protection ¹ for motors with 3 and 4-conductor connection (ground-fault protection in the event of fault currents of 0.3A, 0.5A and 1A) with separate output for "overload-warning", next to the "overload/thermistor"/"ground-fault" output.	1	None
With internal summation current transformer for ground-fault protection ² for motors with 3-conductor connection (ground-fault detection in the event of fault currents >30% from the set current ...) with separate output for "ground-fault", next for the "overload/thermistor" output.	2	None
With internal summation current transformer for ground fault protection ² for motors with 3-conductor connection (ground-fault detection in the event of fault currents >30% from the set current...) with separate output for "overload-warning", next to the "overload/thermistor"/"ground-fault" output.	3	None
Function of the outputs in the case of control-voltage failure: monostable	0 ³	None
(For an explanation, see Table on page 41) bistable	1 ⁴	125

Footnotes

- 1 Require external current transformer for low-level ground-fault detection. See page 43.
- 2 Can also be used with external transformer. See page 43.
- 3 Item normally in stock.
- 4 Switching statuses are retained.

Solid State Overload Relay

■ Accessories

3RB12

SOLID STATE
OVERLOAD RELAY



Accessories for 3RB Overload Relay		For Type	Cat No	Packing	Price Per Pkg
	Sealable cap for current-setting knob and CLASS-selector	3RB12	3RB1900-0A	1 Piece	\$12
	Push-in lugs (2 items required for each relay) for screw mounting on a mounting plate	3RB1246	3RB1900-0B	1 Set (10 pieces)	10
	Terminal cover between the contactor and overload relay when directly mounted	3RB1253	3TX7506-0A	10 Pieces	29
		3RB1257	3TX7536-0A	2 Pieces	42
		3RB1262 with 3TF68	3TX7686-0A	2 Pieces	75
		3RB1262 with 3TF69	3TX7696-0A	2 Pieces	80
	Terminal cover for installation as a single unit or in outgoing circuit when directly mounted	3RB1253	3TX7506-0B	5 Pieces	25
		3RB1257	3TX7536-0B	1 Piece	38
		3RB1262 with 3TF68	3TX7686-0B	1 Piece	70
		3RB1262 with 3TF69	3TX7696-0B	1 Piece	75
	Baseplate for screw mounting on 75mm standard rail	3RB1253	3UF1900-0JA00	1 Piece	57

Selection and Ordering Data	Window	Rated fault current		Price
	mm	I Δ ⁿ A	Cat No	
Ground Fault Current Transformer	40	0.3	3UL2201-1A	\$368
		0.5	3UL2201-2A	368
		1	3UL2201-3A	368
	65	0.5	3UL2202-2A	475
		1	3UL2202-2A	475
	120	0.5	3UL2203-2A	1245
		1	3UL2203-3A	1245



SOLID STATE OVERLOAD RELAY

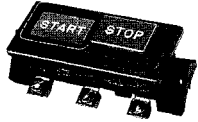
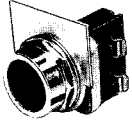
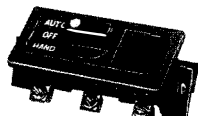
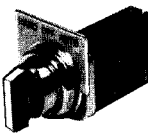
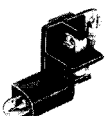
Solid State Overload Relay

■ Technical Data

General Data	
Tripping	On overload, phase failure, and current unbalance as well as on response of thermistor motor protection and on ground fault
Release time classification	Selectable: CLASS 5, 10, 15, 20, 25, 30
Operation	Combined TEST/RESET button with function test; auto and remote RESET possible: Dial for current setting I_n ; 6 step dial for trip class setting
Indicators	Green "Ready" LED On: "Ready" OFF: "No control supply voltage" or "Function test negative: unit disabled" Red "Overload" LED Continuous On: "Overload trip due to current and/or thermistor" Flashing: "Overload warning" Red "Ground Fault" LED On: "Ground Fault"
Perm. ambient/storage temperature	-25°C to +70°C/-40°C to +85°C
Installation altitude	Up to 2000 meters above sea level
Degree of protection (per IEC529)	3RB1246 - IP20 3RB1253,57,62 - IP00
Shock resistance (sine-wave)	15g/11ms
Design	sensing current transformers are integrated in all sizes
Mounting position	Any position
Mounting	3RB1246: snap-on mounting onto 35mm DIN rail or panel mounting with accessory 3RB1253, 57, 62: panel mounting
EMC noise immunity	Conducted disturbance injection, burst per IEC 801-4: 2k (corresponds to Severity 3) Conducted disturbance injection, surge per IEC 801-5: 2k (corresponds to Severity 3) Electrostatic discharge per IEC 801-2: 8kV (corresponds to Severity 3) Field disturbance injection per IEC 801-3: 10V/m (corresponds to Severity 3)
EMC emitted interference	Limit value Class B per DIN VDE 0875 Part 11/EN 55011
Main / Power circuit	
Rated insulation voltage U_i	690 V (with Pollution Severity 3)
Rated operational voltage U_n	690 V
Rated impulse withstand voltage U_{imp}	6 kV
Rated frequency and type of current	50/60 Hz; three-phase AC
Dia. of CT Windows (3RB1246)	10mm (units with 25A max. current setting I_n) 15mm (units with 100A max. current setting I_n)
Bus connection (100 A max. I_n)	3RB 1253 3RB 1257 3RB 1262
Tightening torque (lb in)/(Nm)	M8: 89 to 124 / 10 to 14 M10: 124 to 210 / 14 to 24 M12: 177 to 310 / 20 to 35
Fine-stranded with cable lug (AWG)/(mm ²)	2 to 4/0 / 35 to 95 1/0 to 500 MCM / 50 to 240 1/0 to 500 MCM / 50 to 240
Stranded with cable lug (AWG)/(mm ²)	1/0 to 250 MCM / 50 to 120 2/0 to 500 MCM / 70 to 240 2/0 to 500 MCM / 70 to 240
Auxiliary / Control circuit	
Auxiliary contacts (met. separated)	1 NO / 1 NC for overload trip due to current and/or thermistor; 1 NO / 1 NC for ground fault trip
Recovery time	5 min (fixed), after trip by overcurrent
Rated insulation voltage U_i	3000 V (with Pollution Severity 3)
Rated impulse withstand voltage U_{imp}	4 kV
Rated continuous current	5 A
Switching capacity	AC = B300 AC-15: 6 A/24V; 6A/120V; 3 A/230 V DC = R300 DC-13: 2 A/24 V; 0.55A/60 V; 0.25A/125V
Rated control supply voltage U_c	AC 50/60 Hz: 110V-220V-240V; DC: 24V
Operating range	AC 50/60 Hz: 0.85 to 1.1 x U_c ; 2 VA 24 VDC: 0.85 to 1.2 x U_c (DIN 19 240); 2W
Mains buffering range	200 ms
Thermistor motor protection (PTC thermistor detector)	Total cold resistance: 1.5k Ω Response value: 2.7k Ω to 3.1k Ω ; release value: 1.5k Ω to 1.75k Ω
Short circuit protection	Fuse-links Utilization Category gLgA 6A, UL: 6A; Circuit-breaker 2A, C characteristic
Conductor sizes	Tightening torque lb-in/(Nm) 7 to 11 / 0.8 to 1.2 solid and stranded (AWG)/(mm ²) 1 (12 to 20); 2 (14 to 20) / 1 x (0.5 to 4.0); 2 x (0.5 to 2.5) fine-stranded with/without end sleeve(AWG)/(mm ²) 1 (14 to 20); 2 (15 to 20) / 1 x (0.5 to 2.5); 2 x (0.5 to 1.5)

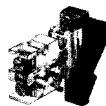
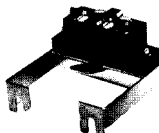
Modifications

■ Field Modification Kits

Description		Class	Controller Size	Enclosure Type	Cat No	Price
Push Button  	Start, Stop	14, 40	0-3½	1, Open	49SAPB5	\$48
	B600	14, 40	0-2½	4X	49SAPS5	111
	NEMA A600	14, 40	0-3½	3, 4, 12	49SAPO5	48
	Start, Stop	14, 40	4-6	1, 4, 12	49SAPO5	48
		14, 40	3-4	4X	49SAPT5	132
		17, 18, 25	All	1, 3, 4, 12	49SAPO5	48
		26, 32, 36, 37				
	NEMA A600					
	Forward, Reverse, Stop	22, 25, 26, 43	All	1, 4, 12	49SAPO2	90
	NEMA A600					
	High, Low, Stop	30, 32	All	1, 4, 12	49SAPO3	90
Selector Switch  	NEMA B600	14, 40	00	1	49SBSB1	40
	Hand-Off-Auto	14, 40	0-3½	1, Open	49SASB1	48
	NEMA B600	14, 40	00	1	49SBSB4	40
	Off-On	14, 40	0-3½	1, Open	49SASB4	48
	NEMA A600	14, 40	0-3½	3, 4, 12		
	Hand-Off-Auto	14, 40,	4-6	1, 4, 12	49SASO1	48
		17, 18, 25, 26, 32, 36, 37	All	1, 4, 12		
	NEMA A600	14, 40	0-3½	3, 4, 12		
	Off-On	14, 40, 17, 18	4-6	1, 4, 12	49SASO4	48
		17, 18, 25, 26, 32, 36, 37	All	1, 4, 12		
	NEMA B600	22	00	1	49SBSB2	40
	Forward-Off-Reverse	22	0-3½	Open	49SASB2	48
		22	0-1¾	1		
	NEMA A600	22	2-6	1		
	Forward-Off-Reverse	22	All	3, 4, 12	49SASO2	48
		25, 26	All	1, 4, 12		
	NEMA B600	30	0-1¾	1		
	High-Off-Low	30	0-3½	Open	49SASB3	48
	NEMA A600	30	All	3, 4, 12		
	High, Off, Low	30	2-6	1	49SASO3	48
		32	All	1, 4, 12		
	NEMA A600	17, 18, 25	All	1, 4, 12		
		26, 32, 36, 37			49SASO9	90
	Keyed Selector Hand-Off-Auto	14, 40,	All	3, 4, 12		
Description		Class	Controller Size	Enclosure Type	Cat No	Price
Pilot Light Red Lens  	120, 240, 480, 600V	14, 40	00-2½	1	50D24999	\$90.00
	Neon Type		3, 3½	1	50D55072	90.00
	24V Incandescent		00-2½	1	50D24999J	90.00
	Optional Green Lens				D25002002	1.50
	120VAC	14, 40	4-6	1		
	Transformer Type, Red		All	3, 4, 12	49SPLOBRF	90.00
	See Class 52 for other voltages and colors.	17, 18, 22, 25				
		26, 30, 32	All	1, 4, 12		
		87	All	3R		
	120VAC Push To Test		All	1, 4, 12	49SPLPBRF	180.00

Modifications

■ Field Modification Kits

Description		Class	Controller Size	Enclosure Type	Cat No	Price		
Auxiliary Contact		NEMA A600 Front Mtg SPST	NO NC	All	0-4	All	49AAFO 49AAFC	\$36.00 36.00
Max additional Non Reversing		NEMA B60						
4 for sizes 0-1¾ 3 for sizes 2-6								
Max additional Reversing & Multi Speed Per Contactor		Vert Lift SPDT	Left Side				49L100103	36.00
		NO & NC	Right Side	All	4½-6	All	49L100102	36.00
		Tandem Kit	(required when mounting 2nd Contact on right or left side.)				49L107267	3.00
Auxiliary Contact for Disconnect		NEMA A600						
		Mounts on left hand side of	17					
		Fusible or	25	30 & 60	1, 4, 12	49ABDA	80.00	
		Non Fusible Switch	32, 87					
		2 NO – 2 NC		100	1, 4, 12	49ABDB	80.00	
				200		49ABDC	120.00	
		Circuit Breaker	18	3-150	1, 3, 4, 12	49AADG	60.00	
		or	26					
		Motor Circuit Protector	32, 87	250-600	1, 3, 4, 12	49AADF	60.00	

Fuse Clip Field Kits Classes 17, 25, 32

Disc Size	Fuse Amps	Fuse Clip Amps	Volts	Kit No	Price
30/60	30	250		75P1045	\$12.00
	30	600		75P1046	15.00
	60	250		75P1046	15.00
	60	600		75P1047	18.00
	100	250/600		75P1038	63.00
100	100	250/600		75P1048	63.00
100	200	Factory Assembled Only			
200	200	Factory Assembled Only			
400	400	Factory Assembled Only			
600	600	Factory Assembled Only			

Kits contain 6 clips and mounting hardware and rejection members for Class R fusing.

Recommended Transformer Size

Control Size	0-2 $\frac{1}{2}$	3, 3 $\frac{1}{2}$	4	4 $\frac{1}{2}$, 5
Transformer VA	45 or 50	100	150	250
45VA manufactured to Siemens-Furnas Controls specifications.				

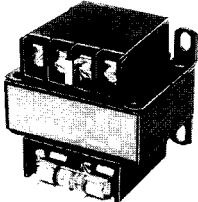
Breaker Kits

Class	Size	Max Hp					Breaker Amps	Cat No	Price
		200 Volts	230 Volts	460 Volts	575 Volts				
18, 26, 32, 37,87	0	½	½	1	1	3	ED63A003L	*	
		1	1	3	3	10	ED63A010L	*	
		3	3	5	5	25	ED63A025L	*	
	1	½	½	1	1	3	ED63A003L	*	
		1	1	3	3	10	ED63A010L	*	
		3	3	7½	7½	25`	ED63A025L	*	
		7½	7½	10	10	30	ED63A030L	*	
		1¾	—	—	15	15	30	ED63A030L	*
			10	10	—	—	50	ED63A050L	*
	2	7½	10	20	20	40	ED63A040L	*	
		10	15	25	25	50	ED63A050L	*	
	2½	—	—	30	30	50	ED63A050L	*	
		15	20	—	—	100	ED63A100L	*	
	3	—	—	30	30	50	ED63A050L	*	
		25	30	50	50	100	ED63A100L	*	
	3½	30	40	75	75	125	ED63A125L	*	
	4	40	50	100	100	150	FXD63A150L	*	
	4½	50	75	150	150	250	FXD63A250L	*	
5	50	75	150	200	250	FXD63A250L	*		
	75	100	200	—	400	JDX63A400L	*		
6	100	125	250	300	400	JDX63A400L	*		
	150	200	400	400	600	LXD63H600L	*		

* Consult factory for pricing.

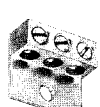
Modifications

■ Field Modification Kits

Description	Class	Controller Size	Enclosure	Cat No	Price
Overload Auxiliary Contact Kits					
	NO Contact NC Contact	0-6	All	49ASNO	\$24.00
				49ASNC	24.00
On Delay Pneumatic Timer 0.2-180 sec 	NEMA B600	14, 40	0-2½ 3, 3½	Open All	49SAT 126.00
	Enclosure Only (Extra depth to accommodate timer)	14	0-1¾ 2, 2½	1	49EA14EFBT 46.50 49EA14GFBT 93.00
		40	0-1¾ 2, 2½	1	49EA40EFBT 46.50 49EA40GFBT 93.00
Transformer 50/60 Hz 	Transformer Table		All	KT*050	108.00
				KT*050P	144.00
Class 14 starters require extra wide enclosures.	Primary Volts	Secondary Volts	KT Designation	45 VA	KT*100 150.00
	120	24	1	50 VA	KT*150 201.00
	208	24	G	100 VA	KT*200 225.00
	208	120	H	150 VA	KT*300 277.00
	240/480	24	4	200 VA	KT*500 330.00
	240/480	120	8	350 VA	
	277	24	5	500 VA	
	277	120	7		
	600	24	6		
	600	120	9		
			Replace () with letter from the Transformer Table.		
			See page 46 for recommended transformer sizes.		
			Extra capacity transformers may require larger enclosures, contact factory for dimensions.		
			Kits 50VA and larger include primary fuseblocks and fuses.		
Fuse Block 30A Max Fuses not included. 	For ½ X 1½ fuses.	1 Fuse	All	All	49MAFB1 12.00
		2 Fuses			49MAFB2 18.00
	For rejection type fuses.	2 Fuses	All	All	49MAFB4 18.00
Overload Reset					
	Miniature Reset	Class	Size	Enclosure	Cat No
		14	0-2½	1	49MARTG \$19.50
		22	0-1¾	1	
	Single Reset	14	3-4	1	49MARTI 19.50
		Red	All	0-6	49MARSR 19.50
	Red Buttons Engraved Reset	Black	All	1, 3, 12	49MARSB 19.50
		Red	All	4 model B	49MARUR 22.50
	Oil Tight Boot	Black	All	1, 3, 12	49MARUB 22.50
		For Single & Multi Unit Resets		4, 4X	52AABA 12.00
	ESP100 Reset Extender	For use with Furnas System/89 MCC's and other deep enclosures			49ASRE 10.00
	Miniature Universal Reset	For use in any manufacturer's enclosure – 8 inches		1, 3, 12	49MARB 12.00
Mounting Adapter Plate					
	Fits Allen Bradley 509 & 709, Westinghouse A200	14	0-1	Open	49D70084 10.00
Overload Lug Extender					
	Includes terminal block and stabs for connection to contactor terminals, to provide connection at bottom of overload.		0-1 9-40A Ranges	All	49ASLE 15.00
Overload Tamper Resistant Cover					
	Can be closed with wire seal to deter tampering of overload FLA adjustment dial.(Clear cover)		0-4 9-135A Ranges	All	49ASTC 20.00 (Bag of 10)

Modifications

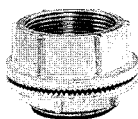
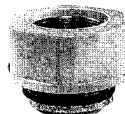
■ Field Modification Kits

Description	Class	Controller Size	Enclosure Type	Cat No	Price	
Dust Seal 	All	0-6	All (Bag of 10)	49ASDS	\$20.00	
Replacement Dial Cover 	All	0-1 (.25-10A), All 4½-6 (100-540A)		49ASDL (Bag of 10)	20.00	
Replacement Separate Mounting Kit 	48AS	(.25-10A), All 4½-6 (100-540A)		49ASMS	10.00	
Mechanical Interlock Innova 	Horizontal Includes wire 14, 40	0-1 1¾ 2, 2½ 3, 3½ 4	Open	49CCF22H	42.00	
		49EEF22H		42.00		
		49GGF22H		42.00		
		49HHP22H		54.00		
		49JJG22H		80.00		
	Includes wire & mounting plate 14, 40	0-1 1¾ 2, 2½ 3, 3½ 4	Open	49CCF22HP	48.00	
		49EEF22HP		48.00		
		49GGF22HP		48.00		
		49HHP22HP		66.00		
		49JJG22HP		100.00		
	Includes mounting plate (different frame sizes) 14, 40	Left 2, 2½ 3, 3½	Right 3, 3½ 2, 2½	Open	49L107944	66.00
					49L107945	66.00
Surge Suppressor 	Surge Suppressor for 120VAC coil. Limits transient voltage produced by the coil to 220% maximum peak line volts.		0-3½	All	49D26344	24.00
Auxiliary Power Pole 	NO 36A at 600VAC Max NC 25A at 600VAC Max	0-1¾	All	49SAFO 49SAFC	66.00 66.00	
Fuse Holder  6A Max Fuses not included.	For Bussmann type KTK or Economy type MCL fuses MCL fuses. For Bussmann rejection type KTKR.	1 Fuse	All	All	49MAFH1	24.00
		2 Fuses			49MAFH2	36.00
		1 Fuse	All	All	49MAFH3	24.00
		2 Fuses			49MAFH4	36.00
Load Side Power Take Off Kit 	Includes 3 power lugs for making extra connections to the load side of the contactor.		0-1	All	49SAE	21.00
Lug Kit for Contactors & Starters with Melting Alloy Overload						
Includes 3 line and 3 load lugs 	For Aluminum Wire	0-1	All	49SAAD	24.00	
		2		49SAAF	30.00	
		3		49SAAH	36.00	
	For Copper Wire	5		49SAKK	435.00	
		6		49SAKM	525.00	
Aluminum Lug Kit for Disconnect Switch						
Includes 3 line lugs 			0-2½		49SADG	12.00
			3		49SADH	30.00
Ground Lug Kit						
Meets CSA Standard 222 No 14-1973 Ground Wire Range 2-14 Al-CU 	1 Conductor			49D11960001	5.50	
	2 Conductor			49D28179001	7.50	
	3 Conductor			49D28180001	9.50	

Modifications

■ Field Modification Kits

■ Enclosures

Description		Size (inches)	Class	Controller Size	Enclosure	Cat No	Price	
Conduit Hubs For Enclosures Furnas NEMA 12 may be field modified for outdoor use. NEMA 3 requires the use of water tight conduit hubs. NEMA 3R requires the use of water tight conduit hubs at a level above the lowest live part and drain holes of 1/8" diameter shall be added at the bottom of the enclosure.		Metal Hub	3/4			49MACML	\$13.50	
			1			49MACMD	15.00	
			1 1/2	All	All	3, 4	49MACMN	18.00
			2				49MACMF	22.50
			2 1/2				49MACMG	51.00
		Fiberglass Hub with Metal Insert	3/4				49MACFL	22.50
			1				49MACFD	30.00
			1 1/2	All	All	3, 4, 4X	49MACFN	67.50
			2				49MACFF	93.00
			2 1/2				49MACFG	204.00
		PVC Hub	3/4				49MACPL	7.50
			1				49MACPD	9.00
			1 1/2	All	All	3, 4, 4X	49MACPN	13.50
			2				49MACPF	18.00
			2 1/2				49MACPG	27.00
		Ground Bushing	3/4				49MACGL	12.00
			1				49MACGD	15.00
			1 1/2	All	All	3, 4, 4X	49MACGN	24.00
			2				49MACGF	30.00
			2 1/2				49MACGG	43.50
	Mounting Feet Kit			11, 14, 0-4 22, 40	4X	49MAM	12.00	
Includes 4 feet For external slot mounting using 1/4 or 5/16 screws								
	Hinge Kit			14, 22, 0-4 40	4X	49MAHF	36.00	
Includes 2 hinges Two kits required for sizes 3-4								
	Hinge Kit			14, 40, 0-4 18, 22	7 & 9	49MAHH	97.50	
Includes 2 hinges								

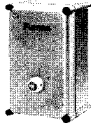
Enclosure Kits - Non-Combination

NEMA1 General Purpose			NEMA 3/12 Weatherproof Industrial Use		NEMA 4/4X Watertight Stainless Steel	
Size	Cat No	Price	Cat No	Price	Cat No	Price
Non-Reversing						
0-1 3/4	49EB14EB110705R*	\$36	49EB14ED130806R	\$156	49EB14EW130806R	\$288
2-2 1/2	49EB14GB140805R*	108	49EB14GD160907R	246	49EB14GW160907R	612
3-3 1/2	49EB14IB191207R*	252	49EB14JD261408R	768	49EB14JW261408R	1296
4	49EB14JB261408R	252	49EB14JD261408R	768	49EB14JW261408R	1296
Reversing, Non-Reversing w/ 45-150VA Transformer						
0-1 3/4	49EB22EB111205R*	162	49EB22EO131306R	204	49EB22EW131306R	480
2-2 1/2	49EB22GB161406R	294	49EB22GO161406R	420	49EB22GW161406R	906
3-4	49EB22IB261808R	312	49EB22IO261808R	924	49EB22IW261808R	1944

* Clamshell NEMA 1 enclosure accepts 1-49SA*B* pilot device, and 1-50D24999 pilot light.

Modifications

■ Factory Assembled Modifications

Description	Cat No Change	Class	Enclosures Type	Controller Size							
				00-1¾	2	2½	3	3½, 4	4½, 5	6	
NEMA 4X Enclosure Hubs for NEMA 4X see page 49.		8th char F Example: 14CSD32FA	14, 22 Open	Price Addition							
				\$228	\$492	\$780	\$1065	\$1980	N/A	N/A	
				(Price addition to open style)							
Control Circuit	Suffix										
Wired for Separate Control Voltage	A	All	All	NC	NC	NC	NC	NC	NC	NC	

Description		Cat No Suffix	Class	Enclosures Type	Controller Size					
					0-1 3/4	2, 2 1/2	3, 3 1/2	4	4 1/2, 5	6
Push Buttons	Start, Stop	A1	14, 40	1, Open	\$60	\$60	\$60	\$60	\$60	\$60
Selector Switch	Hand-Off-Auto	A3		4, 4X,	132	132	132	132	132	132
	Off-On	A4		7 & 9, 12						
Push Buttons	Forward, Reverse, Stop	A2	22, 43	All	240	240	240	240	240	–
Selector Switch	Forward-Off-Reverse	A5	25, 26							
	Off-On	A4	22, 25, 26, 43	All	132	132	132	132	132	–
Push Buttons	High, Low, Stop	A2	30		240	240	240	240	240	–
Selector Switch	Off-On	A4	32	All						
	High-Off-Low	A5	38, 32		132	132	132	132	132	132
Push Buttons	Start, Stop	A1								
Selector Switch	Hand-Off-Auto	A3	36, 37	All	132	132	132	132	132	132
	Hand-Off-Auto (Keyed)	A9								
	Off-On	A4								

Factory Assembled Fuse Clips - Class 17, 25, 32

Fuse Clip Amps	Volts	Rejection Clip Number*	Price Addition
30	250	10	\$18
30	600	11	30
60	250	12	30
60	600	13	42
100	250	14	96
100	600	15	96
200	250	16	216
200	600	17	216
400	250	18	444
400	600	19	444
600	250	20	636
600	600	21	636

* Add rejection clip number to end of base style catalog number. The newly formed catalog number is considered a base style for order entry purposes.

Ordering Instructions

- Catalog Number Suffixes indicate numbers or letters added to the end of a catalog number.
Example 14DSD32BA becomes 14DSD32BAA.
- Multiple Modification Suffixes are added in numerical, alphabetical sequence.

Modifications

■ Factory Assembled Modifications

Pilot Lights (Light supplied at controller coil voltage)

		Price Addition, All Controller Sizes \$											
		Transformer Type								Push-to-Test			
Product	Enclosure	Color	Red	Red	Green	Red	Green	Red	Green	Red	Green	Green	Amber
Class	Enclosure	Legend	On	On	On	Run	Run	Off	Off	On	On	Off	O/L Trip
		Suffix	FA	FE	FB	FC	FD	FJ	FK	FS	FT	FU	FL
14, 40 (neon light)①	1			90									
14, 40, 17, 18, 36, 37	1, 3, 4, 4X, 12		141		141	141	141	207	207	180	180	180	207
	7 & 9		162		162	162	162	228	228	—	—	—	207
22, 25, 26, 30, 32	1, 3, 4, 4X, 12												
2 lights, 1 per starter	7 & 9		282		282	282	282	414	414	360	360	360	207
87	3		162		162	162	162	228	228	180	180	180	207
88	3		180		180	180	180	246	246	180	180	180	207

Description			Cat No Suffix	Class	Controller Size						
					0-1 ¾	2, 2 ½	3, 3 ½	4	4 ½, 5	6	
Auxiliary	Size				Price Addition						
Contact	0-4	NO, SPST	1 NO	G10	14, 17, 18,	\$66	\$66	\$66	\$66	N/A	N/A
Starter			2 NO	G20	22, 25, 26,	132	132	132	132	N/A	N/A
N/A			3 NO	G30	30, 32, 36, 37	198	198	198	198	198	198
or			4 NO	G40		264	N/A	N/A	N/A	N/A	N/A
Contactor											
Max additional	Size	NC, SPST	1 NC	G01		66	66	66	66	N/A	N/A
Non Reversing	0-4		2 NC	G02	14, 17, 18,	132	132	132	132	N/A	N/A
4 for sizes 0-1 ¾			3 NC	G03	22, 25, 26,	198	198	198	198	198	198
3 for sizes 2-6			4 NC	G04	30, 32, 36, 37	264	264	264	264	264	264
Max additional		NO/ NC, SPDT	1 SPDT	GB	14, 17, 18,	N/A	N/A	N/A	N/A	66	66
Reversing &	Size		2 SPDT	GC	22, 25, 26	N/A	N/A	N/A	N/A	132	132
Multi Speed	4 ½-6		3 SPDT	GE	30, 32, 36, 37	N/A	N/A	N/A	N/A	198	198
Per Contactor											
3 for sizes 0-1 ¾											
2 for sizes 2-6											
Auxiliary Contact											
Disconnect Switch	2 NO-2 NC	DPDT	GY	17, 18, 25,	88	88	88	88	174	174	
Motor Circuit Protector	NO/NC	SPDT	GY	26, 32, 36, 37	174	174	174	174	174	174	

① Full voltage type. 24V units use incandescent bulb.

Modifications

■ Factory Assembled Modifications

Overload Relays Substitute for each starter

Trip Class	Phase	Contacts	Cat No Suffix	Controller Size					
				00-1¾	2, 2½	3, 3½	4	4½, 5	6

Classes 14, 17, 18, 22, 25, 26, 30, 32

Price Addition

Trip Class Option	Class 10 Class 30	3 Phase	NC NC	51 53	NC NC	NC NC	NC NC	NC NC	NC NC	NC NC
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ESP100 Single Phase

Phase	Contacts	Cat No Suffix	Controller Size	Cat No Change†
1 Phase	NC	X359U	0-1	A 0.25-1.0 Amps B 0.75-3.0 Amps D 2.5-10 Amps E 5-16 Amps

†Change 5th Character of Catalog Number for correct ampere range

Control Circuit Transformer

Description	Catalog Suffix	Class	Enclosure Type	Controller Size - Price Addition \$					
				0-¾	2, 2½	3	3½, 4	4½, 5	6
Standard Capacity with 2-Primary and 1-secondary fuse	B*	14, 17, 18, 22 25, 26, 30, 32	1, 3, 4, 12	162	162	—	—	—	—
		40, 43, 87	7 & 9	186	186	—	—	—	—
		36, 37, 88	All	288	288	—	—	—	—
		83, 84	All	324	324	—	—	—	—
Standard Capacity with 2-Primary and 1-secondary fuse	D*	14, 17, 18, 22 25, 26, 30, 32	1, 3, 4, 12	294	294	468	540	594	—
		40, 43, 88	7 & 9	300	300	570	690	774	—
		36, 37, 88	All	420	420	600	660	720	—
		83, 84	All	456	456	804	948	—	—
100 VA Extra Capacity with 2-Primary and 1-secondary fuse	C*	14, 17, 18, 22 25, 26, 30, 32	1, 3, 4, 12	420	420	600	660	720	720
		40, 43, 87	7 & 9	444	444	702	810	900	900
		36, 37, 88	All	546	546	711	786	846	—
		83, 84	All	708	708	708	1188	—	—
150 VA Extra Capacity with 2-Primary and 1-secondary fuse	C*1	14, 17, 18, 22 25, 26, 30, 32	1, 3, 4, 12	522	522	714	744	774	774
		40, 43, 87							
		36, 37, 88	All	648	648	846	894	960	—
		83, 84	All	912	912	1296	1296	—	—
Dual Voltage on Secondary of Transformer				Contact Siemens-Furnas Controls Sales Office for further information.					

The standard control transformer supplied for starters NEMA sizes 0 thru 2½ will be rated 45VA and have the appropriate secondary fuse. Primary fuses will not be supplied as standard. For primary fuse options select appropriate suffix from table. According to N.E.C. 430-72, 450-3, and UL 508, section 32, primary fuses are not required for control transformers rated less than 50VA and are inherently protected. Size 6 starters standard with 100VA transformer for DC rectifier circuit.

Ordering Instructions

- Replace (*) with letter from Transformer Table.
- Catalog Number Suffixes indicate numbers or letters added to the end of a catalog number. Example: 14DSD32BF becomes 14DSD32BFBA.
- Multiple Modification Suffixes are added in numerical, alphabetical sequence.

Transformer Table

Primary Volts	Secondary Volts	Letter
120	24	B
208	24	S
208	120	T
240/480	24	D
240/480	120	A
277	24	N
277	120	P
600	24	E
600	120	C

Modifications

■ Factory Assembled Modifications

Description	Cat No Change	Cat No Suffix	Class	Enclosure Type	Controller Size					
					0-1¾	2, 2½	3, 3½	4	4½, 5	6
Surge Suppression for 120VAC Coil AC Coil		SS		All	\$54	\$54	\$54	–	–	–
DC Coil	12V	R								
Includes normally closed	24V	S								
late break auxiliary contact	32V	T								
	48V	U	All	All	102	102	198	264	330	–
	125V	V								
	250V	W								
DC Coil and AC-DC Rectifier	120VAC	VY	All	All	228	228	240	240	456	–
	240VAC	WY	All	All	294	294	306	390	522	–
Control Circuit Fuse and Holder	1 Fuse	F1			132	132	132	132	132	–
	2 Fuses	F2			132	132	132	132	132	–
Control Circuit Fused Disconnect Internally Operated		F3	All	1, 3, 4, 12	324	324	324	324	324	324
Control Circuit Circuit Breaker Internally Operated		F4			522	522	522	522	522	522
Voltage Monitor (Class 47)		R1			1500	1500	1500	1500	1500	1500
Under Voltage Relay		R2			306	306	306	306	306	306
Lockout Relay for Inherently Protected Motors		R3	All	1, 3,	180	180	180	180	180	180
Over Voltage Relay		R4		4, 12	1200	1200	1200	1200	1200	1200
Phase Failure & Reverse Relay		R6			1056	1056	1056	1056	1056	1056
Control Relay†	4 Poles max	RC	All	1, 12 4, 7 & 9	306 468	306 468	306 468	480 636	552 708	552 –
Control Relay for remote reset on self-reset overload option	4 poles-2NO/2NC	RR			306	306	306	306	306	306
Timing Relay†		RT	All	1, 12 4, 7 & 9	504 660	504 660	504 660	504 660	504 660	504 –
Motor Operated Timer		TM	All	1, 3, 4, 12	1056	1056	1056	1056	1056	1056
Alarm Package includes bell or horn, light, relay & push button		M7	All	1, 3, 4, 12	900	900	900	900	900	900
Alarm Package without light		M8			810	810	810	810	810	810
Compelling Relay		A6	30, 32	1, 4, 12	396	396	396	396	396	–
Acceleration Control		A7	30, 32	1, 3, 4, 12	924	924	924	924	924	924
Deceleration Control		A8								
Pneumatic Timer	0.2-180 Sec	T	14	1, Open	330	330	330	–	–	–

†Supplied unwired as standard, or per customer supplied wiring diagram.

Description	Cat No Suffix	Class	Enclosure Type	Controller Size								
				0-1¾	2, 2½	3, 3½	4	4½, 5	6			
Meters Mounted on enclosure				Price Addition								
Ammeter (includes a C.T. if necessary)	M1	All	1, 12	\$420	\$840	\$1188	\$1188	\$1188	\$1188			
Voltmeter	M3			1188	1188	1188	1188	1188	1188			
Ammeter and Switch (3 Phase with 3 C.T.'s)	M2			1800	1800	1800	1800	1800	1800			
Voltmeter and Switch (3 Phase)	M4			1800	1800	1800	1800	1800	1800			
Elapsed Time Meter	M5			348	348	348	348	348	348			
Wattmeter	M6			2436	2436	2436	2436	2436	2754			
Convenience Receptacle Mounted on Side of Enclosure				RE		1, 12	120	120	120	120	120	120
Cylinder Lock on Cover	LC		12	144	144	144	144	144	144	144		
Drip Hood	DP	All	1	108	132	396	396	528	720			
Space Heater	SH		1, 3, 4, 12	420	420	420	420	420	420			
Space Heater Thermostat	ST		1, 3, 4, 12	450	450	450	450	450	450			

Modifications

■ Factory Assembled Modifications

■ Class 14 Magnetic Motor Starters

Solid State Overload Wiring Diagrams

Description	Cat No	Class	Controller Size							
	Suffix		0	1	1¾	2	2½	3	3½	4
	Price Addition									
Reversing in one speed only 2 speed 1 winding	X439U	30, 32	\$720	\$774	\$877	\$1032	\$1275	\$1500	\$1721	\$2025
Reversing in one speed only 2 speed 2 winding	X440U		696	748	894	1052	1316	1548	1776	2090
Reversing in both speeds 2 speed 1 winding	X441U		972	1056	1418	1668	2111	2484	3274	3852
Reversing in both speeds 2 speed 2 winding	X442U		1080	1164	1654	1946	2377	2796	3244	3816

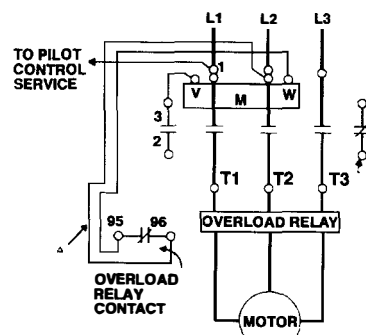
Description	Cat No Suffix	Class	Controller Size						
			0-1 3/4	2	2 1/2	3	3 1/2, 4	4 1/2, 5	6
Function identification plate, with marking as specified	N1	All	\$18	\$18	\$18	\$18	\$18	\$18	\$18
Non-standard markings for oil tight pilot device	N2	All	6	6	6	6	6	6	6
Service Entrance Labels	N3	17, 18, 25, 26, 32, 37	NC	NC	NC	NC	NC	NC	NC
Ground Fault Protection	R5	All	2250	2250	2250	2250	2250	2250	2250
Control Terminal Block (Order in multiples of 3)	TC*	All	144	144	144	144	144	144	144
*Insert 3, 6, 9, etc. to specify number of terminal blocks.			(price for three terminal points)						
Solid State Electronic Timer 120V Required	TS	All	189	189	189	189	189	189	189

Omissions

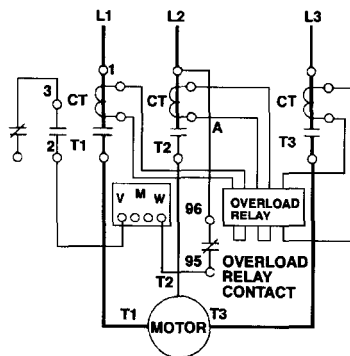
Description			Price Deduction						
			Controller Size						
			0-1 3/4	2	2 1/2	3	3 1/2, 4	4 1/2, 5	6
Omit Overload and Reset Button	R		\$30	\$54	\$72	\$90	\$138	\$717	\$597
Omit Reset Button	KR		NC	NC	NC	NC	NC	NC	NC
Omit Overload and Reset Button & Change MCP to Thermal Magnetic Circuit Breaker	TR	All	30	54	72	90	138	717	597

Wiring Diagrams

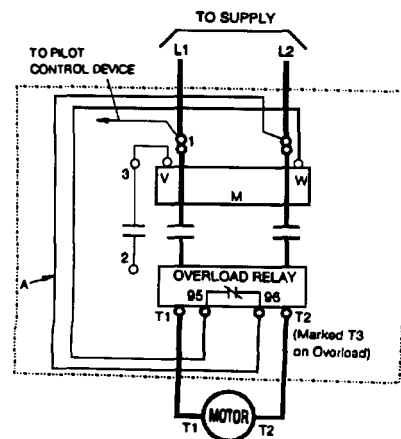
Solid State Overload



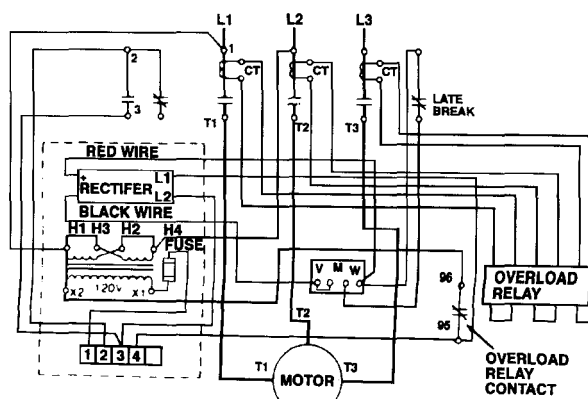
Three Phase Size 0-4



Three Phase Sizes 4 1/2, 5

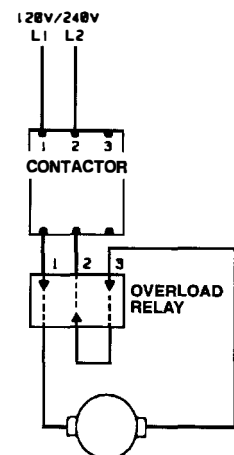


Single Phase Size 0-1 (0.25 to 16A)



Three Phase Size 6

3 Phase Size 1 3/4-3 Applied on Single Phase



For an approximate setting of a Single Phase motor application, multiply the motor name-plate by .75 and set the dial on the overload to the resulting value.

The device must be wired with polarity as shown. Neutral and L1 wires must be wired as indicated on the drawing, polarity is indicated by ↓ ↑.

- Dimensions (Inches)
■ Open Style

Fig. 1

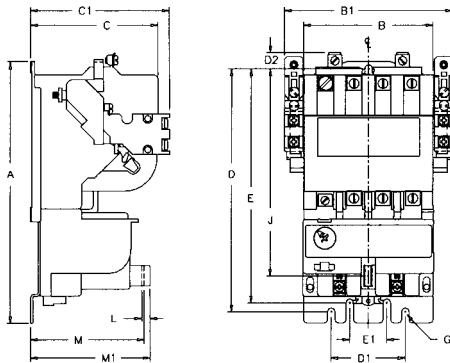


Fig. 2

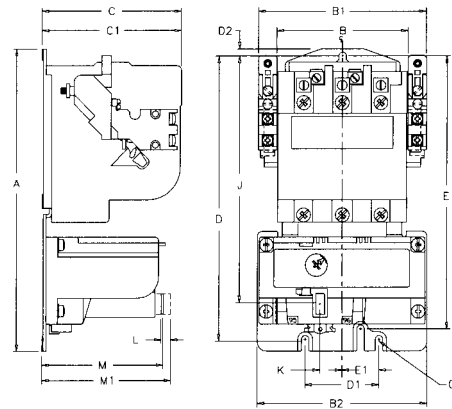


Fig. 3

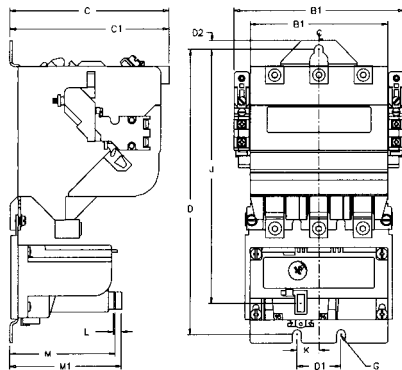


Fig. 4

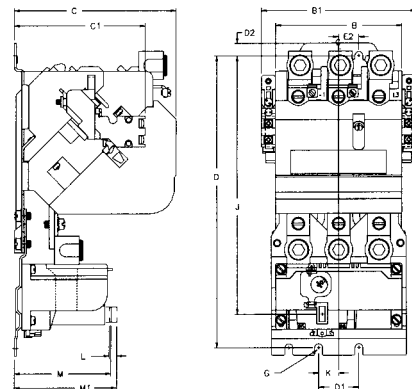


Fig. 5

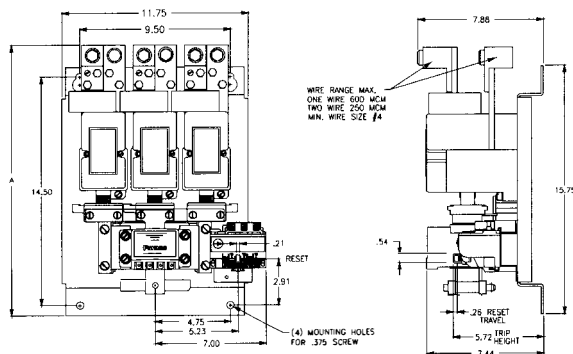
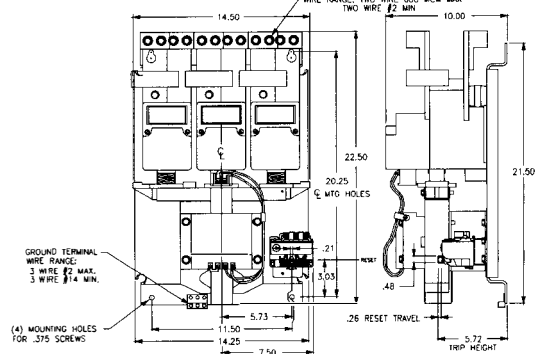


Fig. 6



Open Type Solid State Overload	Outline Dimensions							Mtg Dimensions						Mtg Screw Reset Dimensions						Max Wire Size	Approx Ship Wt Lbs	Ref Dwg	
	Size	Fig	A	B	B1	B2	C	C1	D	D1	D2	E	E1	E2	G	J	K	L	M				M1
	0-1	1	7	3½	4½	—	3½	3¾	6½	2	7/16	6¼	1	—	10	5⅝	—	¼	3⅛	¾	8	4	D56839
	1¾	1	7	3½	4½	—	3½	3¾	6½	2	7/16	6¼	1	—	10	5⅝	—	¼	3⅛	¾	6	4	D56840
	2	2	8⅞	3½	4½	4⅝	3¾	3⅞/16	7¾	2	3/16	7⅜	½	—	10	6⅞/16	⅝	¼	3⅝	3½	4	5	D56841
	2½	2	8⅞	3½	4½	4⅝	3¾	3⅞/16	7¾	2	3/16	7⅜	½	—	10	6⅞/16	⅝	¼	3⅝	3½	2	5	D56841
	3	3	9¾	4½	5½	—	5⅞/16	4⅞/16	9¼	1½	¼	—	—	—	¼	8⅜/16	⅝	¼	3⅞	3⅝	0	8	D70119
	3½	3	9¾	4½	5½	—	5⅞/16	4⅞/16	9¼	1½	¼	—	—	—	¼	8⅜/16	⅝	¼	3⅞	3⅝	00	8	D70119
	4	4	11⅞/16	4½	5½	—	5¾	4⅝	10⅜	1½	7/16	—	—	¾	¼	9⅜/16	⅝	¼	3⅞	3⅝	250MCM	11	D70100
	4½	5	17⅜	11¾	12⅞	—	7⅞	—	14½	9½	—	—	—	—	¾	11⅝	5¼	¼	—	5¾	600MCM	53	D56811
5	5	17⅜	11¾	12⅞	—	7⅞	—	14½	9½	—	—	—	—	¾	11⅝	5¼	¼	—	5¾	600MCM	53	D56811	
6	6	22½	14½	14⅞/16	—	10	—	20¼	11½	—	—	—	—	¾	17¼	5¾	¼	—	5¾	2X 600MCM	70	D56812	

Magnetic Motor Starters

- Dimensions (Inches)
- Enclosures

Fig. 1

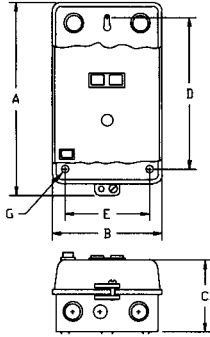


Fig. 2

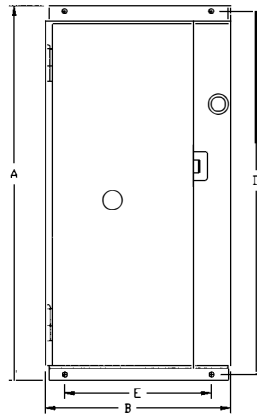


Fig. 3

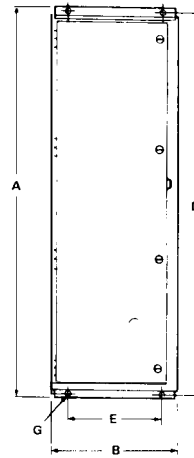


Fig. 4

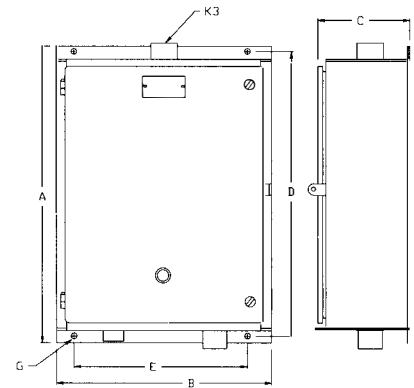


Fig. 1a

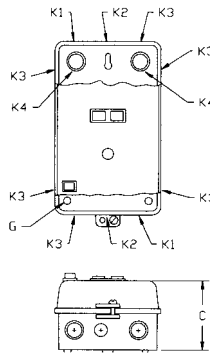


Fig. 2a

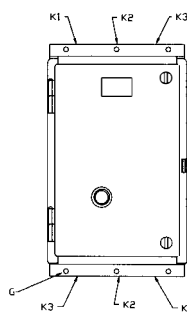


Fig. 5

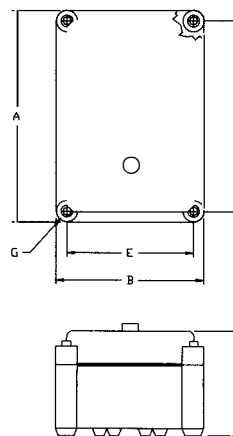


Fig. 6

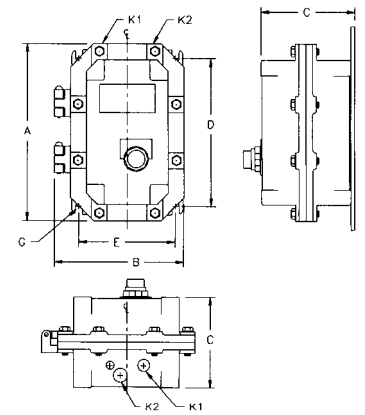


Fig. 1b

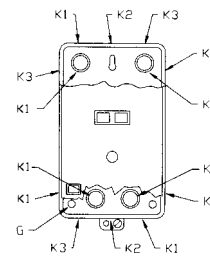


Fig. 2b

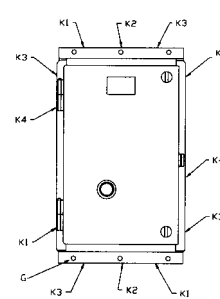


Fig. 7

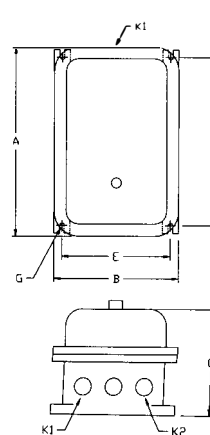
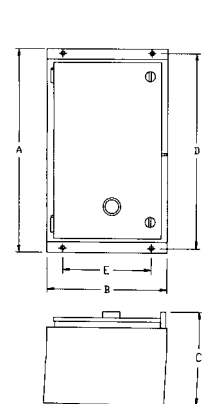


Fig. 8



Magnetic Motor Starters

14

**ESP100
STARTER**

- Dimensions (Inches)
- Enclosures

	Size	Fig	Outline Dimensions			Mtg Dimensions		Mtg Screw G	Conduit Size				Approx Ship Wt Lbs	Ref Dwg
			A	B	C	D	E		K1	K2	K3	K4		
NEMA 1 General Purpose Enclosures	0-1 3/4	1, 1a	11	6 1/4	4 3/8	8 5/8	4 5/8	1/4	3/4-1	1/2	1/2-3/4	1/2-3/4	10	D56214
	2, 2 1/2	1, 1a	13 1/2	7 13/16	4 11/16	10 1/2	6	1/4	1-1 1/4	1/2-3/4	1-1 1/4	3/4-1	18	D56215
	3, 3 1/2	1, 1b	19	11 1/4	6 1/8	15 5/8	8 3/4	5/16	1 1/4-1 1/2	1/2-3/4	1 1/2-2	—	29	D29108
	4	2, 2b	26	13 3/8	7 9/16	25 1/4	10	1/4	2-2 1/2	1/2-3/4	1 1/4-1 1/2	1/2	48	D18065
	4 1/2, 5	2, 2a	39 9/16	17 9/16	10 9/16	38 5/16	14	3/8	3	1/2-3/4	3	—	133	D41828
	6	2	45 13/16	21 1/16	11 1/16	44 5/16	18	3/8	—	—	—	—	185	D42543
NEMA 3 Weatherproof Enclosures	0-1 3/4	3	13	7 3/4	5 1/2	12 1/4	5	1/4	1				14	D41541
	2, 2 1/2	3	16	8 1/8	6 1/8	15 1/4	5	1/4	1 1/2				18	D41541
	3	3	26	13 3/8	7 13/16	25 1/4	10	1/4	2				48	D41553
	3 1/2-4	3	26	13 3/8	7 13/16	25 1/4	10	1/4	2 1/2				48	D41553
	4 1/2-5	3	39 13/16	17 9/16	10 5/8	38 5/16	14	3/8	3				135	D41553
	6	3	45 13/16	21 1/16	12 1/4	44 5/16	18	3/8	—				185	D41553
NEMA 4 Watertight Enclosures														
	Size	Fig	Outline Dimensions			Mtg Dimensions		Mtg Screw	Conduit Size			Approx Ship Wt Lbs	Ref Dwg	
			A	B	C	D	E	G	K1	K2	K3			
	0-1 3/4	4	13	7 3/4	5 1/8	12 1/4	5	1/4	3/4	1	1	17 1/2	D41546	
	2, 2 1/2	4	16	8 1/8	6 1/8	15 1/4	5	1/4	3/4	1 1/2	1 1/2	36	D41546	
	3	4	26	13 3/8	7 9/16	25 1/4	10	1/4	3/4	2	2	67	D41551	
NEMA 4X Watertight Corrosion Resistant Enclosures	3 1/2-4	4	26	13 3/8	7 9/16	25 1/4	10	1/4	3/4	2 1/2	2 1/2	67	D41551	
	4 1/2, 5	4	39 13/16	17 9/16	10 9/16	38 5/16	14	3/8	3/4	3	3	150	D41551	
	6	4	45 13/16	21 1/16	11 1/16	44 5/16	18	3/8	—	—	—	195	D41551	
NEMA 7 & 9 Hazardous Location Enclosures	0-2	5	11 7/8	7 5/16	6 7/8	11 1/8	6 3/16	10				16	D26243	
	2 Bimetal													
	2 1/2	5	14 1/16	11 7/8	6 7/8	13 7/8	11 1/8	10				34	D26243	
	3, 3 1/2	5	23 3/4	11 7/8	6 7/8	22 7/8	11	10				36	D26243	
NEMA 12 Industrial Use Enclosures	4	5	23 3/4	11 7/8	9 1/4	22 7/8	11	10				47	D26243	
	0-2 1/2	6	14 5/8	9 1/8	8 1/2	12 7/8	7 3/4	3/8	3/4	1 1/2		26	D56049	
	3, 3 1/2	6	22 3/4	13 1/4	9 1/4	22	11 1/2	3/8	3/4	2		44	D56049	
NEMA 12 Industrial Use Enclosures	4	6	28 1/2	17 1/2	11 1/4	27 1/2	15 1/2	3/8	3/4	2 1/2		110	D56049	
	4 1/2, 5	7	43	19	12 1/4	35 1/2	18	1/2	3	3/4		240	D19364	
NEMA 12 Industrial Use Enclosures														
	0-1 3/4	8	13	7 3/4	5 1/8	12 1/4	5	1/4				12	D41547	
	2, 2 1/2	8	16	8 1/8	6 1/8	15 1/4	5	1/4				18	D41547	
	3-4	8	26	13 3/8	7 9/16	25 1/4	10	1/4				49	D41552	
	4 1/2, 5	8	39 13/16	17 9/16	10 9/16	38 5/16	14	3/8				133	D41552	
	6	8	45 13/16	21 1/16	11 1/16	44 5/16	18	3/8				185	D41551	

Dimensions for reference not for construction.

Contact Siemens-Furnas Controls Sales Office for dimensions not listed.

For Class 14 starters utilizing control power transformers, see reversing starter enclosures, page 64-65.

17,18

Combination Magnetic Starters

■ Dimensions (Inches)

ESP100
COMBINATION STARTER

Fig. 1

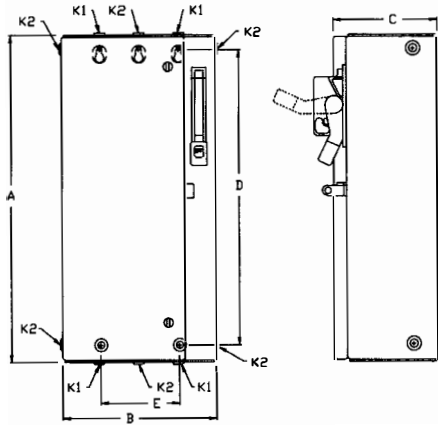


Fig. 2

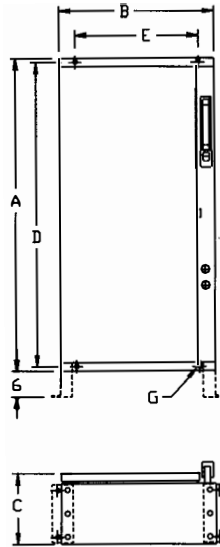


Fig. 3

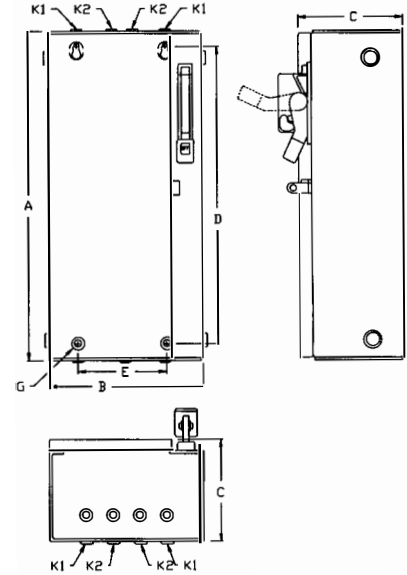


Fig. 4

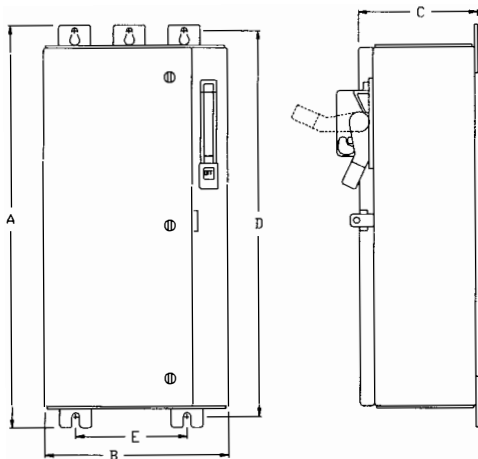
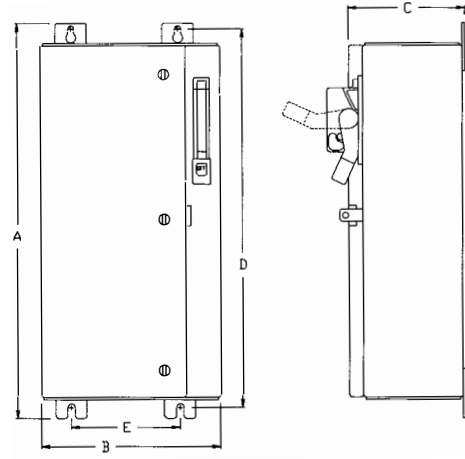


Fig. 5



Combination Magnetic Starters

17,18

- NEMA 1 Standard, Extra Wide Enclosures
- NEMA 4 Standard, Extra Wide Enclosures
- Wiring Diagrams

**ESP100
COMBINATION STARTER**

NEMA 1 General Purpose Standard Width 0-3	Size	Max Fuse Clip Amps	Fig	Outline Dimensions			Mtg Dimensions		Mtg Screw G	Conduit Size		Approx Ship Wt Lbs	Ref Dwg
				A	B	C	D	E		K1	K2		
	0-1 $\frac{3}{4}$	60	1	23 $\frac{3}{4}$	11	7 $\frac{5}{8}$	20 $\frac{3}{4}$	5 $\frac{3}{4}$	$\frac{1}{4}$	1-1 $\frac{1}{4}$	$\frac{1}{2}$ - $\frac{3}{4}$	35	D56033
	2, 2 $\frac{1}{2}$	60	1	26 $\frac{3}{4}$	12 $\frac{1}{8}$	7 $\frac{5}{8}$	24 $\frac{1}{4}$	5 $\frac{1}{2}$	$\frac{1}{4}$	1-1 $\frac{1}{4}$	$\frac{1}{2}$ - $\frac{3}{4}$	48	D56033
	3	100	1	31 $\frac{1}{2}$	12 $\frac{1}{2}$	7 $\frac{5}{8}$	29	6 $\frac{1}{2}$	$\frac{1}{4}$	1 $\frac{1}{4}$ -1 $\frac{1}{2}$	$\frac{1}{2}$ - $\frac{3}{4}$	101	D56033

NEMA 1 General Purpose Standard Width 3 $\frac{1}{2}$ -6	Size	Fig	Outline Dimensions			Mtg Dimensions		Mtg Screw G	Approx Ship Wt Lbs	Ref Dwg
			A	B	C	D	E			
	3 $\frac{1}{2}$, 4	2	48 $\frac{31}{32}$	19 $\frac{1}{8}$	9 $\frac{5}{16}$	47 $\frac{13}{16}$	15	$\frac{3}{8}$	127	D56032
	4 $\frac{1}{2}$, 5	2	72 $\frac{5}{32}$	20	9 $\frac{5}{16}$	71	16	$\frac{3}{8}$	765	D56032
	6	2	79 $\frac{1}{8}$	22	12 $\frac{15}{16}$	78	18	$\frac{3}{8}$	805	D56032

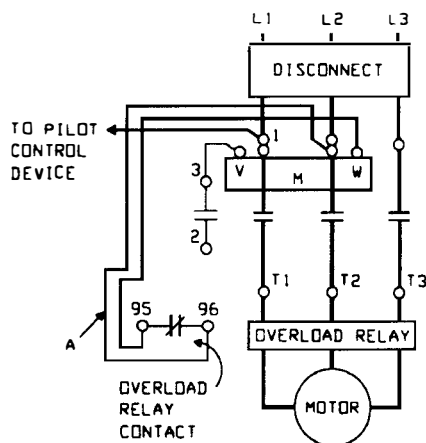
NEMA 1 General Purpose Extra Wide 0-4	Size	Fig	Outline Dimensions			Mtg Dimensions		Mtg Screw G	Conduit Size		Approx Ship Wt Lbs	Ref Dwg
			A	B	C	D	E		K1	K2		
	0-1 $\frac{3}{4}$	3	25 $\frac{3}{4}$	16	7 $\frac{5}{8}$	23 $\frac{3}{4}$	8	$\frac{1}{4}$	1-1 $\frac{1}{4}$	$\frac{1}{2}$ - $\frac{3}{4}$	48	D56139
	2-3	3	31 $\frac{1}{2}$	19	7 $\frac{5}{8}$	29	12	$\frac{1}{4}$	1 $\frac{1}{4}$ -1 $\frac{1}{2}$	$\frac{1}{2}$ - $\frac{3}{4}$	101	D56139
	3 $\frac{1}{2}$, 4	2	55 $\frac{3}{32}$	24 $\frac{3}{8}$	9 $\frac{5}{16}$	54 $\frac{13}{16}$	20 $\frac{1}{4}$	$\frac{3}{8}$	—	—	136	D56141

NEMA 4 Watertight Standard Width 0-4	Size	Max Fuse Clip Amps	Fig	Outline Dimensions			Mtg Dimensions		Mtg Screw G	Approx Ship Wt Lbs	Ref Dwg
				A	B	C	D	E			
	0-1 $\frac{3}{4}$	60	4	28 $\frac{1}{2}$	11	7 $\frac{1}{16}$	27 $\frac{1}{2}$	5 $\frac{3}{4}$	$\frac{3}{8}$	39	D56041
	2, 2 $\frac{1}{2}$	60	4	29 $\frac{1}{2}$	12 $\frac{1}{8}$	7 $\frac{1}{16}$	28 $\frac{1}{2}$	7	$\frac{3}{8}$	51	D56041
	3	100	4	34 $\frac{1}{4}$	12 $\frac{1}{2}$	7 $\frac{1}{16}$	33 $\frac{1}{4}$	7 $\frac{1}{2}$	$\frac{3}{8}$	80	D56041
	3 $\frac{1}{2}$, 4	100	4	48 $\frac{31}{32}$	19 $\frac{1}{8}$	9 $\frac{5}{16}$	47 $\frac{13}{16}$	15	$\frac{3}{8}$	150	D56041

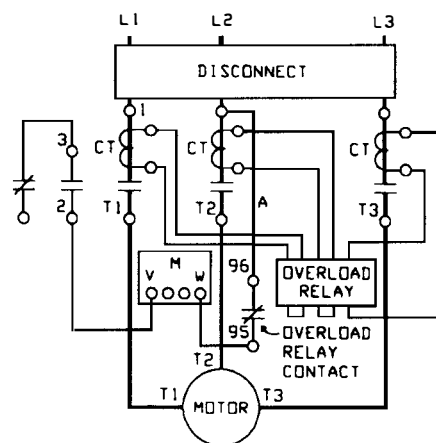
NEMA 4 Watertight Extra Wide 0-4	Size	Fig	Outline Dimensions			Mtg Dimensions		Mtg Screw G	Approx Ship Wt Lbs	Ref Dwg
			A	B	C	D	E			
	0-1 $\frac{3}{4}$	5	28 $\frac{1}{2}$	16	7 $\frac{1}{16}$	27 $\frac{1}{2}$	8	$\frac{3}{8}$	51	D56140
	2-3	5	34 $\frac{1}{4}$	19	7 $\frac{1}{16}$	33 $\frac{1}{4}$	12	$\frac{3}{8}$	104	D56140
	3 $\frac{1}{2}$, 4	5	56	24 $\frac{3}{8}$	9 $\frac{5}{16}$	54 $\frac{1}{4}$	20 $\frac{1}{4}$	$\frac{3}{8}$	158	D56140

Dimensions for reference, not for construction.

Contact Siemens-Furnas Controls Sales Office for dimensions not list-



Size 0-4



Size 4 $\frac{1}{2}$, 5

17,18

Combination Magnetic Starters

■ Dimensions (Inches)

ESP100
COMBINATION STARTER

Fig. 1

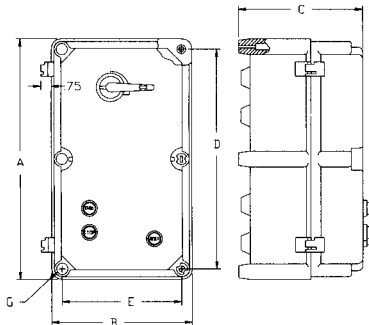


Fig. 2

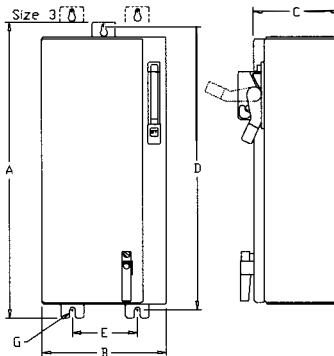


Fig. 3

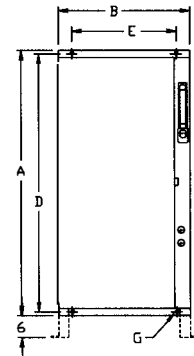


Fig. 4

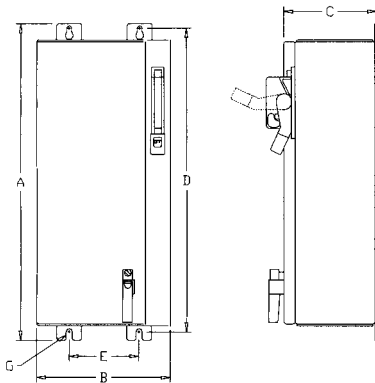


Fig. 5

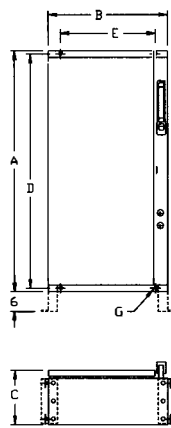


Fig. 6

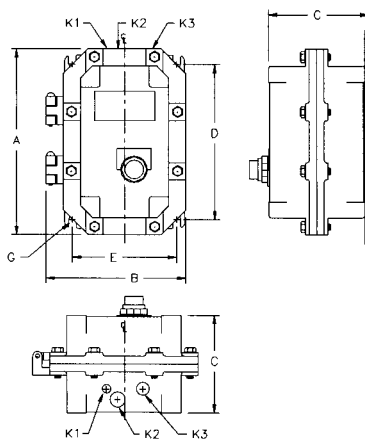


Fig. 7

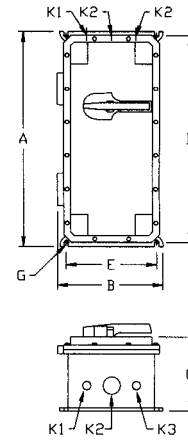


Fig. 8

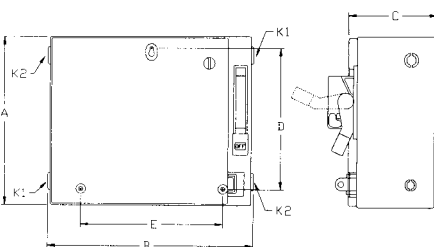


Fig. 9

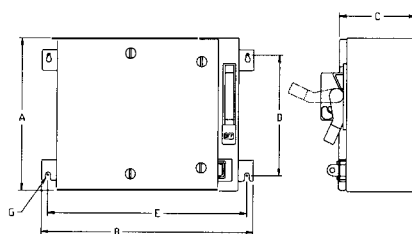
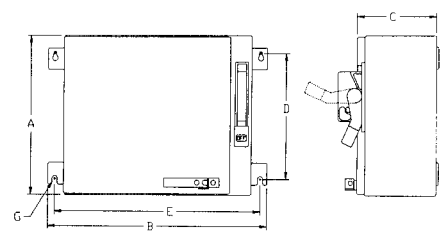


Fig. 10



Combination Magnetic Starters

17,18

- NEMA 1, 4X, 7 & 9, 12 Enclosures
- Column Width Enclosures
- Horizontal Compact Enclosures

ESP100
COMBINATION STARTER

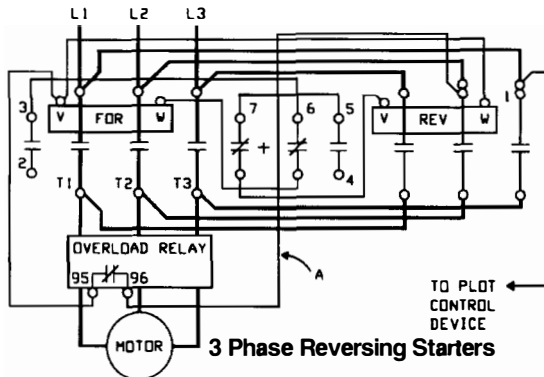
NEMA 4X Watertight Corrosion Resistant Standard Width 0-4	Size	Fig	Outline Dimensions			Mtg Dimensions			Mtg Screw	Approx Ship Wt	Ref		
			A	B	C	D	E		G	Lbs	Dwg		
	0-2½	1	23¾	11⅞	6⅞	22⅞	11⅞		10	42	D55228		
	3,3½	1	23¾	23¾	6⅞	22⅞	22⅞		10	44	D55228		
4	1	23¾	23¾	9¼	22⅞	22⅞		10	55	D55228			
NEMA 12 Industrial Use Standard Width 0-3	Size	Max Fuse Clip Amps	Fig	Outline Dimensions			Mtg Dimensions		Mtg Screw	Approx Ship Wt	Ref		
				A	B	C	D	E	G	Lbs	Dwg		
	0-1¾	60	2	28½	11	7⅞	27½	5¾	¾	37	D56032		
	2, 2½	60	2	29½	12⅞	7⅞	28½	7	¾	49	D56032		
3	100	2	34¼	12½	7⅞	33¼	7½	¾	78	D56032			
NEMA 12 Industrial Use Standard Width 3½-6	Size	Fig	Outline Dimensions			Mtg Dimensions			Mtg Screw	Approx Ship Wt	Ref		
			A	B	C	D	E		G	Lbs	Dwg		
	3½,4	3	48⅝	19⅞	9⅝	47⅞	15		¾	127	D56032		
	4½,5	3	72⅝	20	9⅝	71	16		¾	765	D56032		
6	3	79⅞	22	12⅝	78	18		¾	805	D56032			
NEMA 12 Industrial Use Extra Wide 0-4	Size	Fig	Outline Dimensions			Mtg Dimensions			Mtg Screw	Approx Ship Wt	Ref		
			A	B	C	D	E		G	Lbs	Dwg		
	0-1¾	4	28½	16	7⅞	27½	8		¾	49	D56141		
	2-3	4	34¼	19	7⅞	33¼	12		¾	102	D56141		
3½,4	5	55⅝	24⅝	9⅝	54⅞	20¼		¾	132	D56141			
NEMA 7 & 9 Hazardous Gas And Explosive Dust 0-5	Size	Fig	Outline Dimensions			Mtg Dimensions		Mtg Screw	Conduit Size		Approx Ship Wt	Ref	
			A	B	C	D	E	G	K1	K2	K3	Lbs	Dwg
	0-2½	6	28	9¼	9¼	26⅞	7¾	¾	¾	2	½	60	D56049
	3, 3½	6	29	18½	11¼	27½	15½	¾	¾	2½	½	160	D56049
4	7	39⅞	15¾	13	29	15¾	⅝	¾	2½	½	250	D44893	
4½,5	7	45⅝	24½	13¾	27½	22½	⅝	¾	4	½	415	—	
NEMA 1 Horizontal Compact 0-2½		Max Fuse Clip	Outline Dimensions			Mtg Dimensions		Mtg Screw	Conduit Size		Approx Ship Wt	Ref	
	Size	Amps	Fig	A	B	C	D	E	G	K1	K2	Lbs	Dwg
	0-2½	60	10	14½	16	7⅝	12	8	¼	¾-1	½-¾	32	D56039
NEMA 4 Horizontal Compact 0-2½	Size	Amps	Fig	A	B	C	D	E	G	K1	K2	Lbs	Dwg
	0-2½	60	11	14½	19	7⅞	11½	17½	¾	—	—	35	D56040
NEMA 12 Horizontal Compact 0-2½	Size	Amps	Fig	A	B	C	D	E	G	K1	K2	Lbs	Dwg
	0-2½	60	12	14½	19	7⅞	11½	17½	¾	—	—	33	D56038

Magnetic Reversing Starters

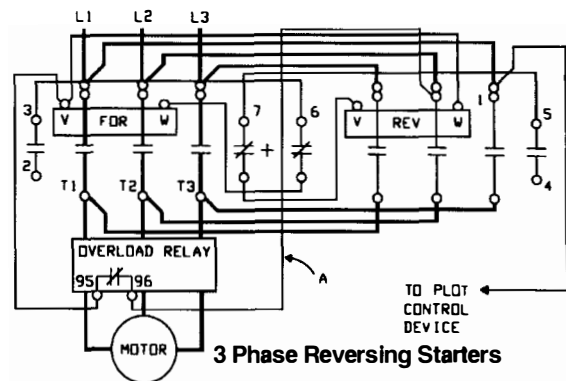
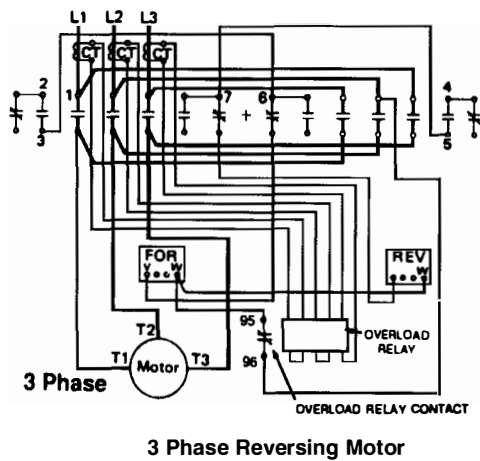
- Wiring Diagrams
- Open Type Solid State Overload

Wiring Diagrams

Three Phase Solid State Overload

Sizes 0-1 $\frac{3}{4}$ 

Sizes 2-4

Sizes 4 $\frac{1}{2}$ -5

Magnetic Motor Starters Solid State Overload

- Dimension (Inches)
- Open Type

22

ESP100
REVERSING STARTER

Fig. 1

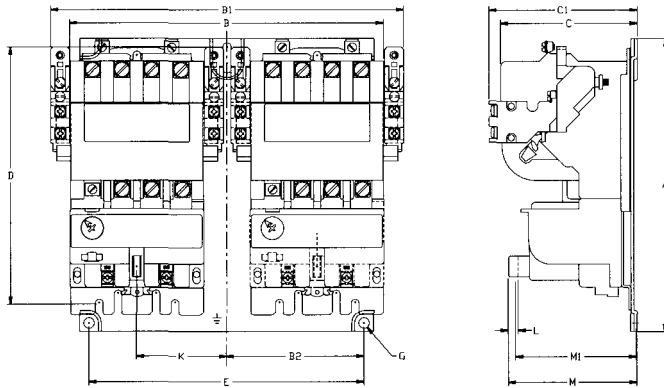


Fig. 2

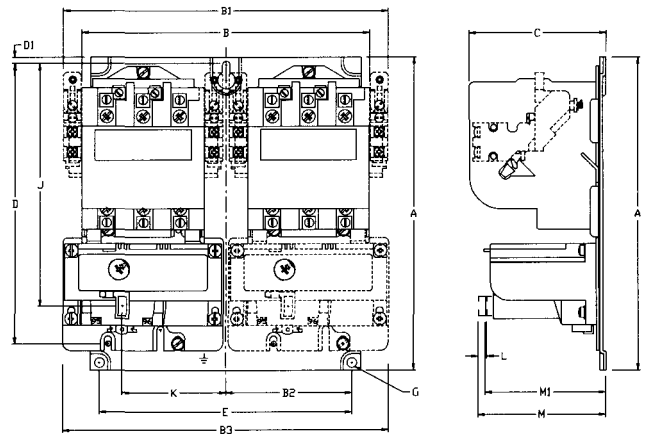


Fig. 3

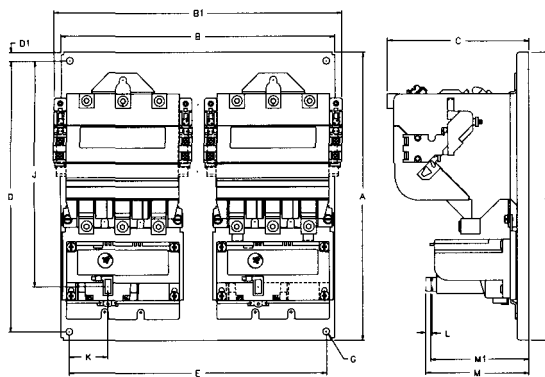


Fig. 3a

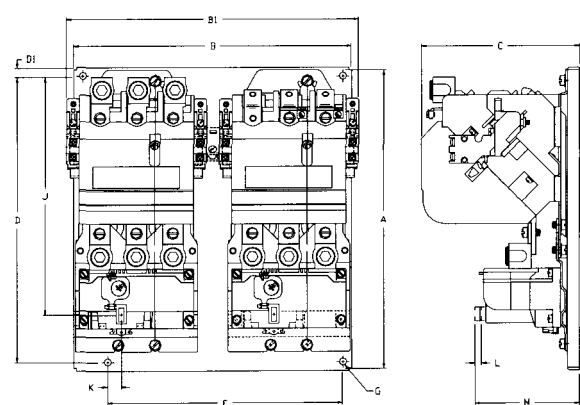
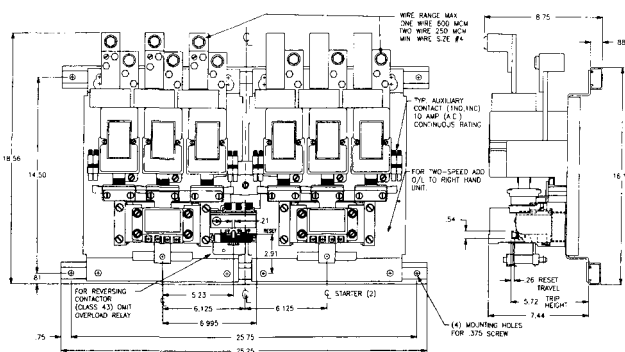


Fig. 4



Open Type Solid State Overload			Outline Dimensions							Mtg Dimensions			Mtg Screw	Reset Dimensions				Max Wire Size	Approx Ship Wt Lbs	Ref Dwg
	Size	Fig	A	B	B1	B2	B3	C	D	D1	E	G	J	K	L	M				
	0-1	1	7 ¹ / ₁₆	8 ⁵ / ₁₆	9 ⁵ / ₁₆	3 ³ / ₈	—	3 ³ / ₈	7 ¹ / ₄	1 ¹ / ₄	7 ¹ / ₄	10	5 ³ / ₄	2 ³ / ₈	1 ¹ / ₄	3 ³ / ₈	8	9	D70125	
	1 ³ / ₄	1	7 ¹ / ₁₆	8 ⁵ / ₁₆	9 ⁵ / ₁₆	3 ³ / ₈	—	3 ³ / ₈	7 ¹ / ₄	1 ¹ / ₄	7 ¹ / ₄	10	5 ³ / ₄	2 ³ / ₈	1 ¹ / ₄	3 ³ / ₈	6	9	D70125	
	2-2 ¹ / ₂	2	8 ¹⁵ / ₁₆	8 ⁵ / ₁₆	9 ⁵ / ₁₆	3 ³ / ₈	9 ³ / ₈	3 ¹⁵ / ₁₆	8 ¹ / ₂	1 ¹ / ₄	7 ¹ / ₄	10	6 ⁷ / ₈	3 ¹ / ₈	1 ¹ / ₄	3 ¹⁵ / ₁₆	2	13	D70126	
	3	3	11 ⁷ / ₁₆	10 ¹⁵ / ₁₆	11 ¹ / ₂	—	—	5 ¹ / ₁₆	10 ³ / ₄	3 ³ / ₈	10 ³ / ₄	1 ¹ / ₄	8 ¹⁵ / ₁₆	1 ¹ / ₂	1 ¹ / ₄	4 ¹ / ₈	0	33	D70127	
	3 ¹ / ₂	3	11 ⁷ / ₁₆	10 ¹⁵ / ₁₆	11 ¹ / ₂	—	—	5 ¹ / ₁₆	10 ³ / ₄	3 ³ / ₈	10 ³ / ₄	1 ¹ / ₄	8 ¹⁵ / ₁₆	1 ¹ / ₂	1 ¹ / ₄	4 ¹ / ₈	00	33	D70127	
	4	3a	11 ¹⁵ / ₁₆	10 ¹⁵ / ₁₆	11 ¹ / ₂	—	—	6 ¹ / ₄	11 ¹ / ₄	3 ³ / ₈	9 ¹ / ₄	1 ¹ / ₄	9 ³ / ₈	1 ¹ / ₂	1 ¹ / ₄	4 ¹ / ₈	250MCM	59	D74686	
	4 ¹ / ₂ -5	4	18 ³ / ₄	—	27 ¹ / ₄	—	—	8 ³ / ₄	14 ¹ / ₂	1 ³ / ₁₆	12 ⁷ / ₁₆	3 ³ / ₈	3 ³ / ₈	7 ³ / ₈	1 ¹ / ₄	5 ⁵ / ₈	600MCM	110	D56862	

Fig. 1

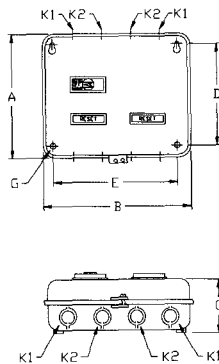


Fig. 2

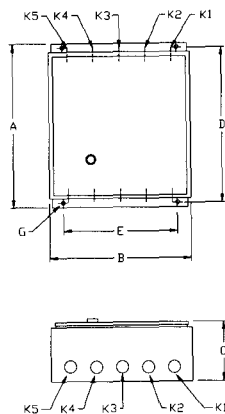


Fig. 3

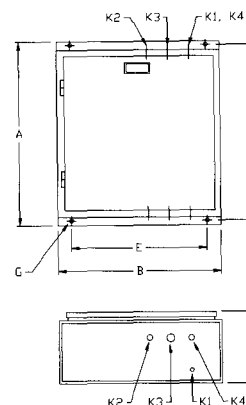


Fig. 4

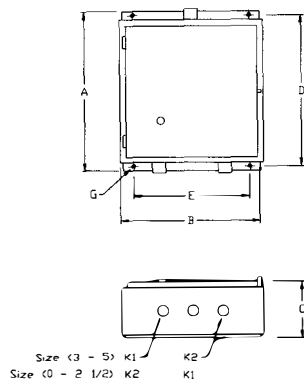


Fig. 5

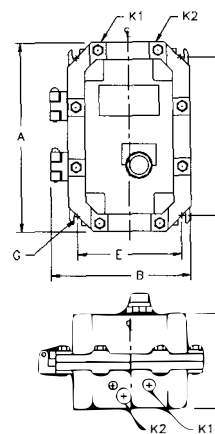


Fig. 6

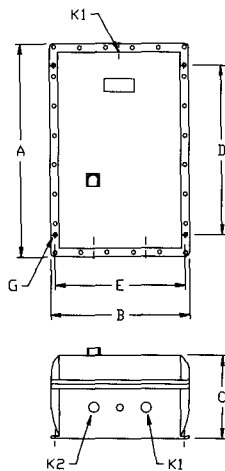
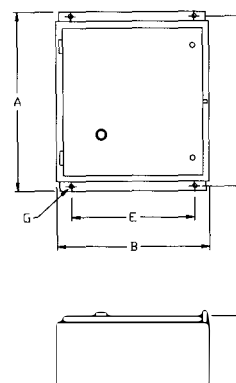


Fig. 7



Magnetic Reversing Starters

22

ESP100
REVERSING STARTER

- Dimension (Inches)
- Enclosures
- Open Type Melting Alloy

	Size	Fig	Outline Dimensions			Mtg Dimensions		Mtg Screw	Conduit Size					Approx Ship Wt Lbs	Ref Dwg
			A	B	C	D	E		K1	K2	K3	K4	K5		
NEMA 1 General Purpose Enclosures	0-1¾	1	10⅜	11⅝	4⅞	8⅞	10⅞	¼	¾-1	½-¾	—	—	—	15	D25616
	2, 2½	2	16	13¼	6	15¼	11	¼	1¼-1½	—	1¼-1½	—	½-¾	33	D42931
	3, 3½	2	25⅞	17⅞	7⅞	24⅞	14	¼	1½-2	1¼-1½	½-¾	½-¾	1¼-1½	53	D17324
	4	2	29⅞	23⅞	9¼	27⅞	20	⅝	2-2½-3	1½-1½	½-¾	1¼-1½	2-2½	64	D17877
	4½, 5	3	40¾	29¾	13¼	39¾	25	⅝	½	½-¾	2-2½	1¼-1½	—	168	D43895
NEMA 4 Watertight Enclosures	0-1¾	4	13	12⅝	5⅞	12¼	10	¼	¾	1				30	D41917
	2, 2½	4	16	13¼	6	15¼	11	¼	¾	1½				33	D42935
	3, 3½	4	25⅞	17⅞	7⅞	24⅞	14	¼	¾	2				53	D17423
	4	4	29⅞	23⅞	9¼	27⅞	20	⅝	¾	2½				64	D18254
	4½, 5	4	40¾	29¾	13¼	39¾	25	⅝	¾	3				168	D43897

	Size	Fig	Outline Dimensions			Mtg Dimensions		Mtg Screw	Conduit Size		Approx Ship Wt Lbs	Ref Dwg
			A	B	C	D	E		K1	K2		
NEMA 7 & 9 Hazardous Location Enclosures	0-2½	5	15¼	15¼	9	15½	11	¾	¾	1½	64	D56049
	3, 3½	5	28½	17½	11¼	27½	15½	¾	¾	2½	144	D56049
	4	6	27	27	10¾	19½	25½		2½	¾	181	D18430
NEMA 12 Industrial Use Enclosures	0-1¾	7	13	12⅝	5⅞	12¼	10	¼			30	D17150
	2, 2½	7	16	13¼	6⅞	15¼	11	¼			33	D17150
	3, 3½	7	25⅞	17⅞	7⅞	24⅞	14	¼			53	D17150
	4	7	29⅞	23⅞	9¼	27⅞	20	⅝			64	D17150
	4½, 5	7	40¾	29¾	13¼	39¾	25	⅝			168	D17150

Class 14 starters in extra wide enclosures for use with CPT and other options	Starter Size	Enclosure Type		
		1	4	12
	0-1¾	Fig. 1	Fig. 4	Fig. 7
	2, 2½	Fig. 2	Fig. 4	Fig. 7
	3, 3½	Fig. 2	Fig. 4	Fig. 7
	4	Fig. 2	Fig. 4	Fig. 7

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Combination Reversing Magnetic Starters

■ Dimensions (Inches)

ESP100 COMBINATION REVERSING STARTERS

Fig. 1

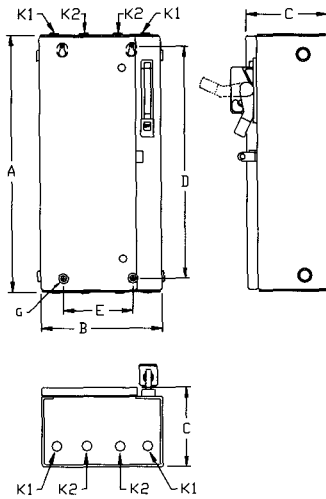


Fig. 2

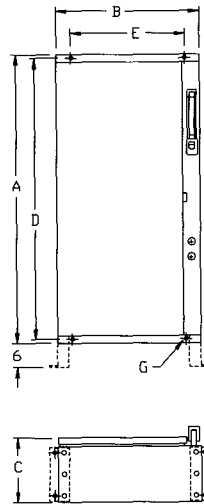


Fig. 3

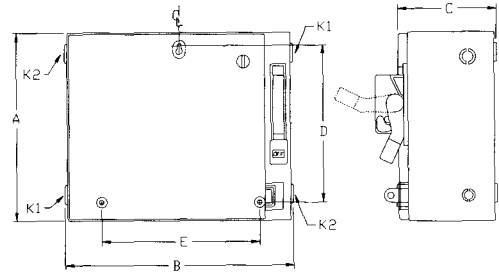


Fig. 4

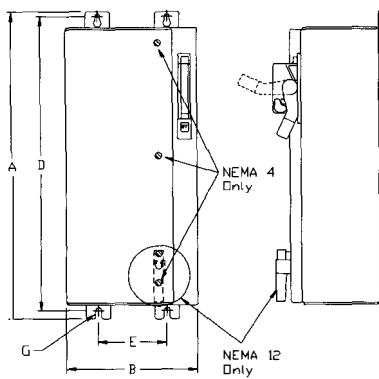


Fig. 5

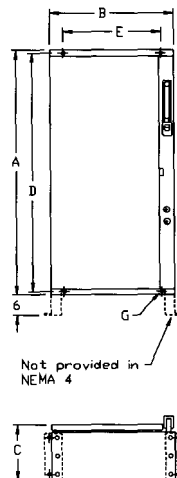
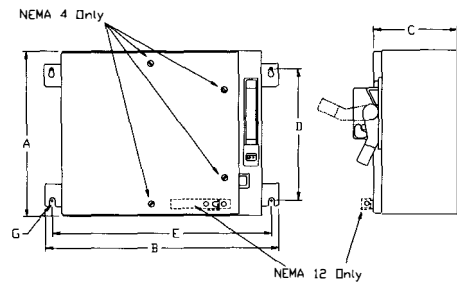


Fig. 6



Combination Reversing Magnetic Starters

■ Dimensions (Inches)

■ Wiring Diagrams

25,26

**ESP100 COMBINATION
REVERSING STARTERS**

	Size	Max Fuse Clip Amps	Fig	Outline Dimensions			Mtg Dimensions		Mtg Screw G	Conduit Size		Approx Ship Wt Lbs	Ref Dwg
				A	B	C	D	E		K1	K2		
NEMA 1 General Purpose	0-1 $\frac{3}{4}$	60	1	25 $\frac{3}{4}$	16	7 $\frac{5}{8}$	23 $\frac{3}{4}$	8	$\frac{1}{4}$	1-1 $\frac{1}{4}$	$\frac{1}{2}$ - $\frac{3}{4}$	60	D56139
	2-3	100	1	31 $\frac{1}{2}$	19	7 $\frac{5}{8}$	29	12	$\frac{1}{4}$	1 $\frac{1}{4}$ -1 $\frac{1}{2}$	$\frac{1}{2}$ - $\frac{3}{4}$	121	D56139
	3 $\frac{1}{2}$, 4	200	2	56	24 $\frac{3}{8}$	9 $\frac{5}{8}$	54 $\frac{13}{16}$	20 $\frac{1}{4}$	$\frac{3}{8}$	—	—	156	D56141
NEMA 1 Horizontal Compact	0-2	60	3	14 $\frac{1}{2}$	19	7 $\frac{5}{8}$	12	11	$\frac{1}{4}$	$\frac{3}{4}$ -1	$\frac{1}{2}$ - $\frac{3}{4}$	44	D56039
NEMA 4 Watertight NEMA 12 Industrial Use	0-1 $\frac{3}{4}$	60	4	28 $\frac{1}{2}$	16	7 $\frac{1}{8}$	27 $\frac{1}{2}$	8	$\frac{3}{8}$			63	D56140 D56141
	2-3	100	4	34 $\frac{1}{4}$	19	7 $\frac{1}{8}$	33 $\frac{1}{4}$	12	$\frac{3}{8}$			124	D56140 D56141
	3 $\frac{1}{2}$, 4	200	5	56	24 $\frac{3}{8}$	9 $\frac{5}{8}$	54 $\frac{13}{16}$	20 $\frac{1}{4}$	$\frac{3}{8}$			158	D56140 D56141
NEMA 4 & NEMA 12 Horizontal Compact	0-2	60	6	14 $\frac{1}{2}$	22	7 $\frac{1}{8}$	11 $\frac{1}{2}$	20 $\frac{1}{2}$	$\frac{3}{8}$			44	D56040 D56038

Dimensions for reference, not for construction.

Contact Siemens-Furnas Controls Sales Office for dimensions not listed.

Wiring Diagrams

3 Phase Combination Reversing Magnetic Starters

Size 0-4

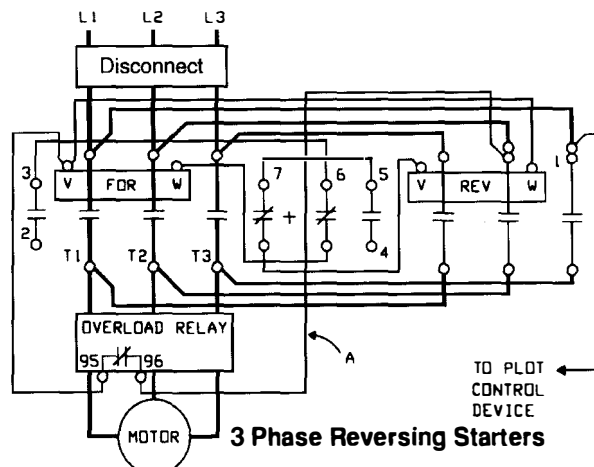


Fig. 1

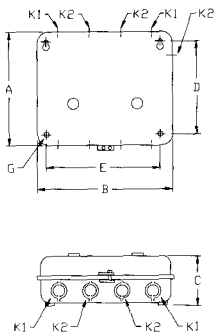


Fig. 2

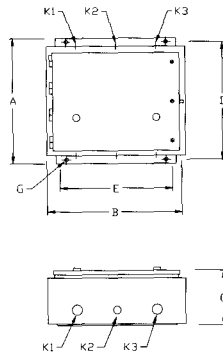


Fig. 3

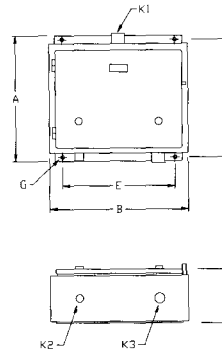


Fig. 4

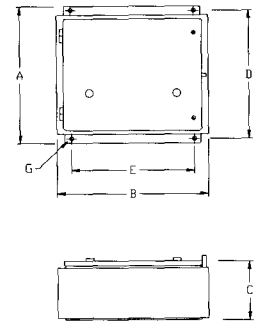


Fig. 5

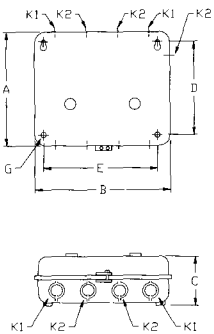


Fig. 6

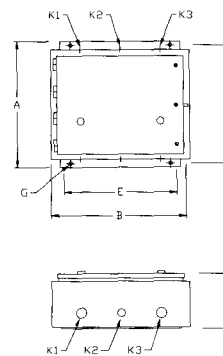


Fig. 7

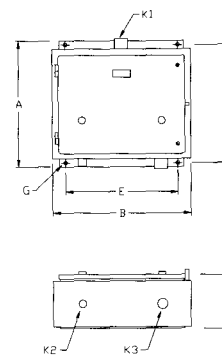


Fig. 8

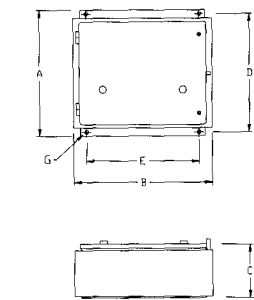


Fig. 9

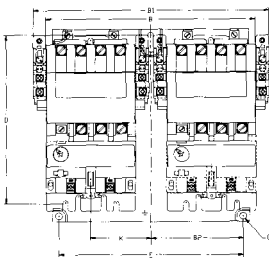


Fig. 10

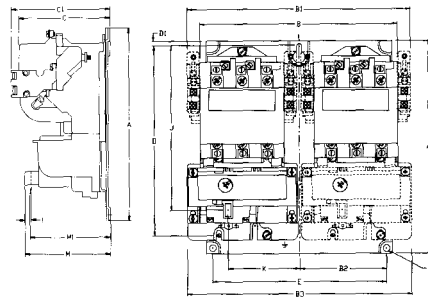


Fig. 11

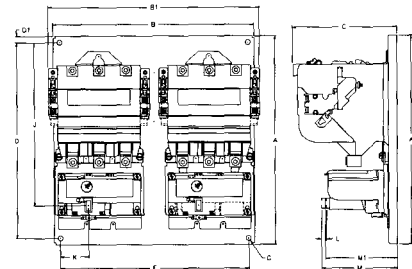


Fig. 11a

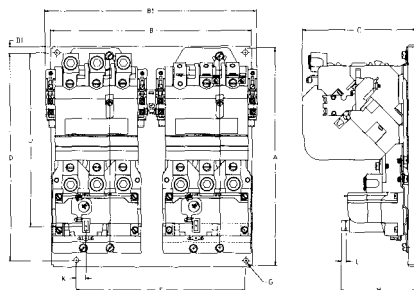
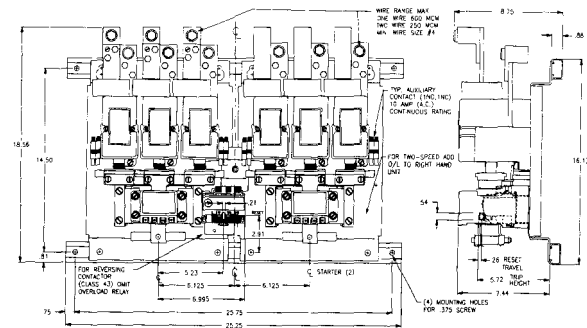


Fig. 12



Multi Speed Magnetic Starters

■ Dimensions (Inches)

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ESP100 MULTI
SPEED STARTER

2 Speed 1 Winding

NEMA 1 General Purpose Enclosures	Size	Fig	Outline Dimensions			Mtg Dimensions		Mtg Screw	Conduit Size			Approx Ship Wt Lbs	Ref Dwg
			A	B	C	D	E	G	K1	K2	K3		
	0-1¾	1	10¾	11⅝	4⅞	8⅞	10⅞	¼	¾-1	½-¾	—	15	D25616
	2, 2½	2	16	17⅞	7⅞	15¼	14	¼	½-¾	1¼-1½	1¼-1½	39	D42932
	3, 3½	2	18⅝	21⅜	7⅞	17⅞	18	¼	1¼-1½	½-¾	1 ½-2	60	D17857
NEMA 4 Watertight Enclosures	0-1¾	3	13	12⅝	5⅜	12¼	10	¼	1	1	¾	34	D41917
	2, 2½	3	16	17⅞	7⅞	15¼	14	¼	1½	1½	¾	47	D42936
	3, 3½	3	29	23⅜	9¼	27½	20	⅝	2	¾	2	61	D43292
NEMA 12 Industrial Use Enclosures	0-1¾	4	13	12⅝	5⅜	12¼	10	¼				34	D17150
	2, 2½	4	16	17⅞	7⅞	15¼	14	¼				47	D17150
	3, 3½	4	29⅞	23⅜	9¼	27⅞	20	⅝				61	D17150

2 Speed 2 Winding

	Size	Fig	Outline Dimensions			Mtg Dimensions		Mtg Screw	Conduit Size			Approx Ship Wt Lbs	Ref Dwg
			A	B	C	D	E	G	K1	K2	K3		
NEMA 1 General Purpose Enclosures	0-1¾	5	10¾	11 5⁄8	4 9⁄16	8 1⁄8	10 1⁄16	¼	¾-1	½-¾		15	D25616
	2, 2½	6	16	13¾	6	15¾	11	¼	½-¾	1¼-1½	1¼-1½	33	D42931
	3, 3½	6	25 5⁄16	17 3⁄16	7 3⁄8	24 5⁄16	14	¼	1¼-1½	½-¾	1 ½-2	53	D17324
NEMA 4 Watertight Enclosures	0-1¾	7	13	16 3⁄8	7 5⁄8	12 ¼	12	¼	1	1	¾	34	D41947
	2, 2½	7	16	13¾	6	15¾	11	¼	1½	1½	¾	41	D42935
	3, 3½	7	25 5⁄16	17 3⁄16	7 3⁄8	24 5⁄16	14	¼	2	2	¾	55	D17423
NEMA 12 Industrial Use Enclosures	0-1¾	8	13	12 5⁄8	5 3⁄8	12 ¼	10	¼				34	D17150
	2, 2½	8	16	13¾	6 7⁄8	15¾	11	¼				41	D17150
	3, 3½	8	25 5⁄16	17 3⁄16	7 3⁄8	24 5⁄16	14	¼				55	D17150

2 Speed 2 Winding

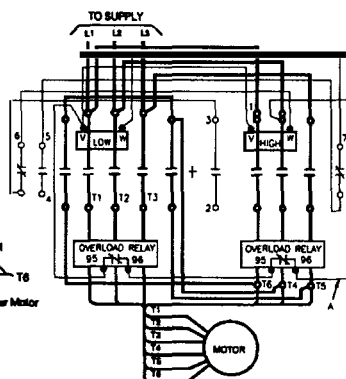
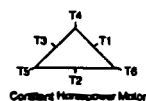
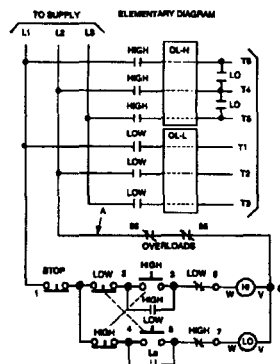
Open Type	Size	Fig	Outline Dimensions						Mtg Dimensions			Mtg Screw G	Reset Dimensions				Max Wire Size	Approx Ship Wt Lbs	Ref Dwg
			A	B	B1	B2	B3	C	D	D1	E		J	K	L	M			
Open Type	0-1	9	7⅞	8⅞	9⅞	3⅞	—	3⅞	7¼	¼	7¼	10	5¾	2⅞	¼	3⅞	8	9	D70125
	1¾	9	7⅞	8⅞	9⅞	3⅞	—	3⅞	7¼	¼	7¼	10	5¾	2⅞	¼	3⅞	6	9	D70125
	2-2½	10	8⅞	8⅞	9⅞	3⅞	9⅞	3⅞	8½	¼	7¼	10	6⅞	3⅞	¼	3⅞	2	13	D70126
	3	11	11⅞	10⅞	11½	—	—	5⅞	10¾	⅜	10¼	¼	8⅞	1½	¼	4⅞	0	33	D70127
	3½	11	11⅞	10⅞	11½	—	—	5⅞	10¾	⅜	10¼	¼	8⅞	1½	¼	4⅞	00	33	D70127
	4	11a	11⅞	10⅞	11½	—	—	6¼	11¼	⅜	9¼	¼	9⅞	½	¼	4⅞	250MCM	59	D74686
	4½-5	12	18¾	—	27¼	—	—	8¾	14½	⅞	12⅞	⅜	3⅞	⅞	¼	5⅞	600MCM	110	D56862

Multi Speed Magnetic Starters

■ Wiring Diagrams

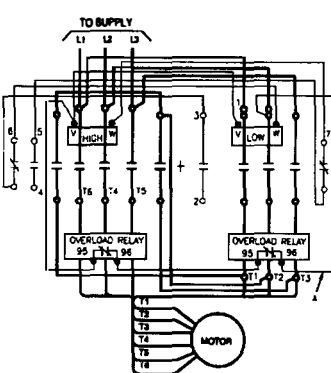
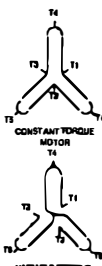
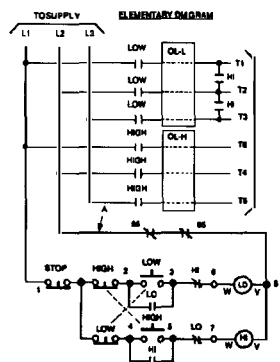
1 Winding

Constant Horsepower



Position	L1	L2	L3	Together
Low Speed	T1	T2	T3	T4, T5, T6
High Speed	T6	T4	T5	

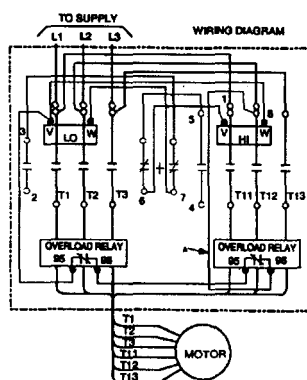
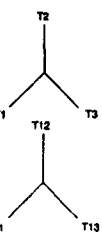
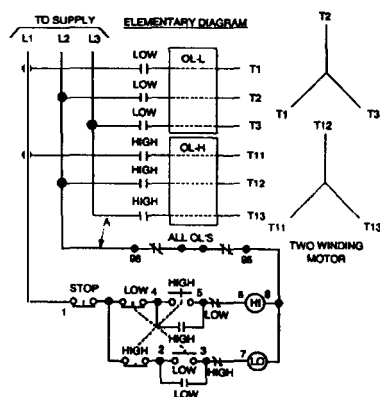
Constant or Variable Torque



Position	L1	L2	L3	Together
Low Speed	T1	T2	T3	
High Speed	T6	T4	T5	T1, T2, T3

2 Winding

Constant Horsepower



Position	L1	L2	L3	Together
Low Speed	T1	T2	T3	T11, T12, T13
High Speed	T6	T4	T5	T1, T2, T3

Combination Multi Speed

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ESP100 MULTI
SPEED STARTER

- Dimensions (Inches)
- 2 Speed 2 Winding

Fig. 1

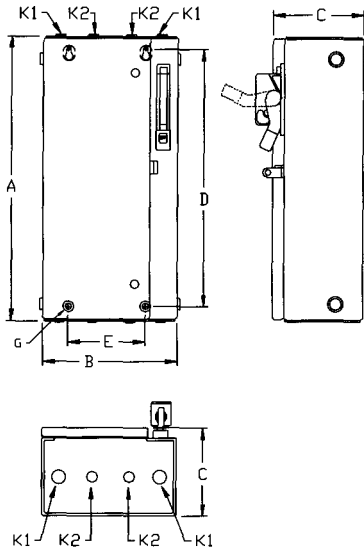


Fig. 2

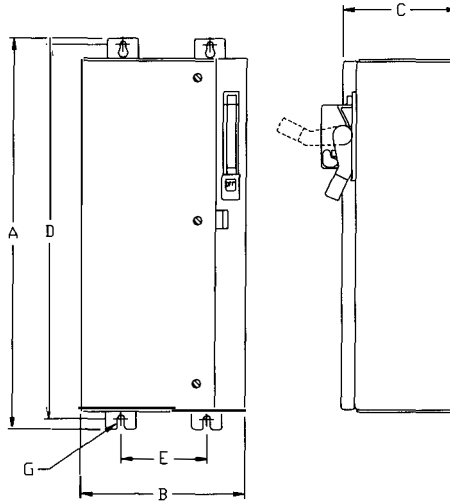
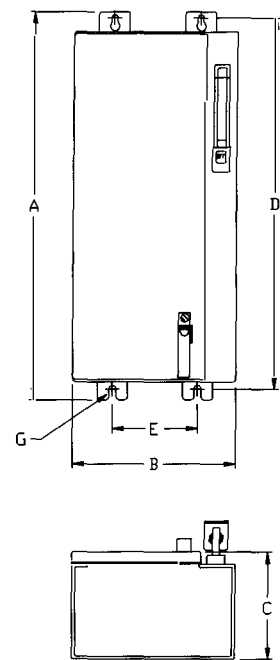


Fig. 3



NEMA 1 General Purpose Enclosures	Max Fuse		Fig	Outline Dimensions			Mtg Dimensions		Mtg Screw	Conduit Size		Approx Ship Wt Lbs	Ref Dwg
	Size	Clip Amps		A	B	C	D	E		K1	K2		
	0-1 3/4	60	1	25 3/4	16	7 5/8	23 3/4	8	1/4	1-1 1/4	1/2-3/4	68	D56139
	2-3	200	1	31 1/2	19	7 5/8	29	12	1/4	1 1/4-1 1/2	1/2-3/4	135	D56139
NEMA 4 Watertight Enclosures	0-1 3/4	60	2	28 1/2	16	7 1/16	27 1/2	8	3/8	-	-	71	D56140
	2-3	200	2	34 1/4	19	7 1/16	33 3/4	12	3/8	-	-	138	D56140
NEMA 12 Industrial Use Enclosures	0-1 3/4	60	3	28 1/2	16	7 1/16	27 1/2	8	3/8	-	-	69	D56141
	2-3	200	3	34 1/4	19	7 1/16	33 3/4	12	3/8	-	-	136	D56141
Dimensions for reference, not for construction				Contact Siemens-Furnas Controls Sales Office for dimensions not listed.									

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REDUCED VOLTAGE STARTERS

Reduced Voltage Starters

■ Dimensions (Inches)

■ Non-Combination and Combination Type

	Size									Approx
	Fusible	Starter Only Non Fusible & MCP	Fig	Outline Dimensions			Mtg Dimensions		Mtg Screw	Ship Wt
				A	B	C	D	E	G	Lbs
Auto Transformer	0-2½	0-2½	1	43 ⁵ / ₁₆	24 ⁵ / ₃₂	11	42 ¹¹ / ₃₂	20	¼	380
	3-3½	3-3½	1	55 ⁵ / ₁₆	28 ⁹ / ₃₂	11	54 ¹¹ / ₃₂	24	¼	640
	4	4	1	74 ² / ₃₂	28 ⁹ / ₃₂	11	73 ¹³ / ₃₂	24	¼	740
	4½-6	4½-6	2	90	29 ³¹ / ₃₂	20	16	24 ⁷ / ₁₆	⁵ / ₈	875
Part Winding	0-2	0-2½	1	43 ⁵ / ₁₆	24 ⁵ / ₃₂	11	42 ¹¹ / ₃₂	20	¼	380
	2½-3½	200A 3-3½	1	55 ⁵ / ₁₆	28 ⁹ / ₃₂	11	54 ¹¹ / ₃₂	24	¼	640
	4	400A 4	1	74 ² / ₃₂	28 ⁹ / ₃₂	11	73 ¹³ / ₃₂	24	¼	740
	4½-5	4½-5	2	90	29 ³¹ / ₃₂	20	16	24 ⁷ / ₁₆	⁵ / ₈	875
Wye Delta	0-2	0-2½	1	43 ⁵ / ₁₆	24 ⁵ / ₃₂	11	42 ¹¹ / ₃₂	20	¼	380
	2½-3½	200A 3-3½	1	55 ⁵ / ₁₆	28 ⁹ / ₃₂	11	54 ¹¹ / ₃₂	24	¼	640
	4	400A 4	1	74 ² / ₃₂	28 ⁹ / ₃₂	11	73 ¹³ / ₃₂	24	¼	740
	4½-5	4½-5	2	90	29 ³¹ / ₃₂	20	16	24 ⁷ / ₁₆	⁵ / ₈	875

Dimensions for reference, not for construction.

Contact Siemens-Furnas Controls Sales Office for dimensions not listed.

Fig. 1

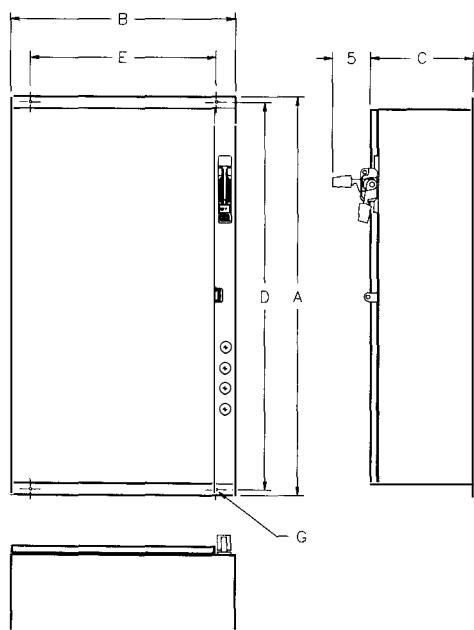
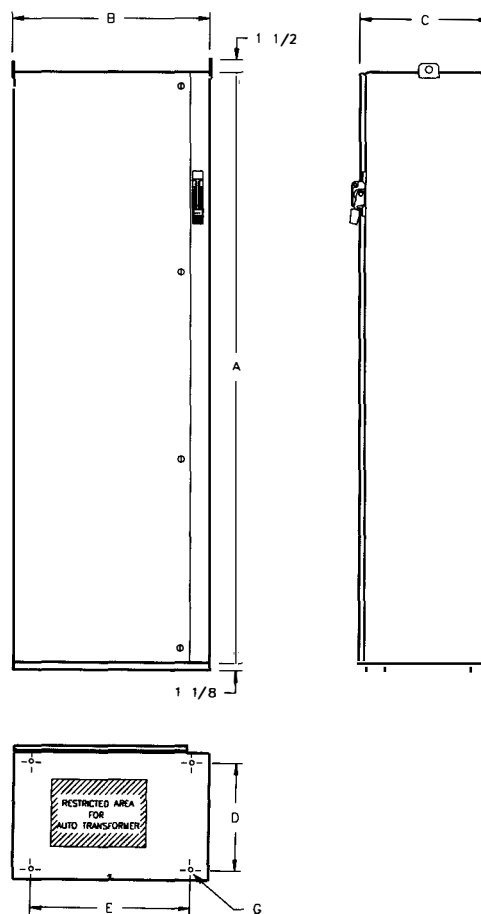


Fig. 2



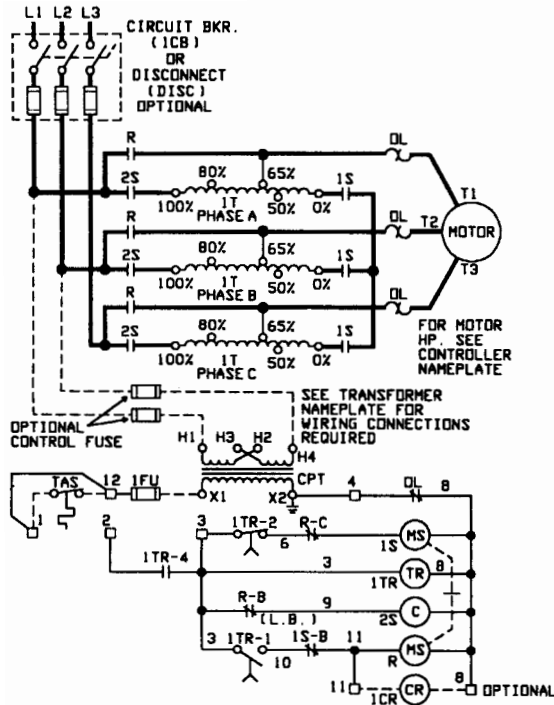
Reduced Voltage Starters

■ Wiring Diagrams (Typical)

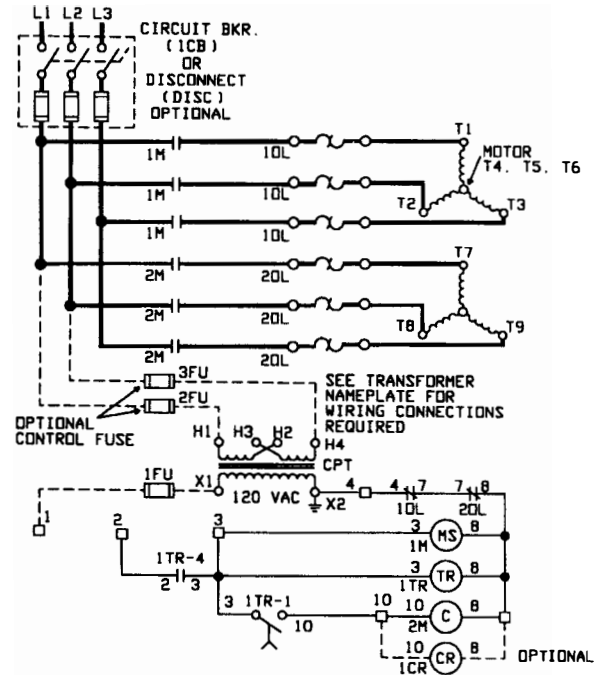
36,37

REDUCED VOLTAGE STARTERS

Auto Transformer Starter

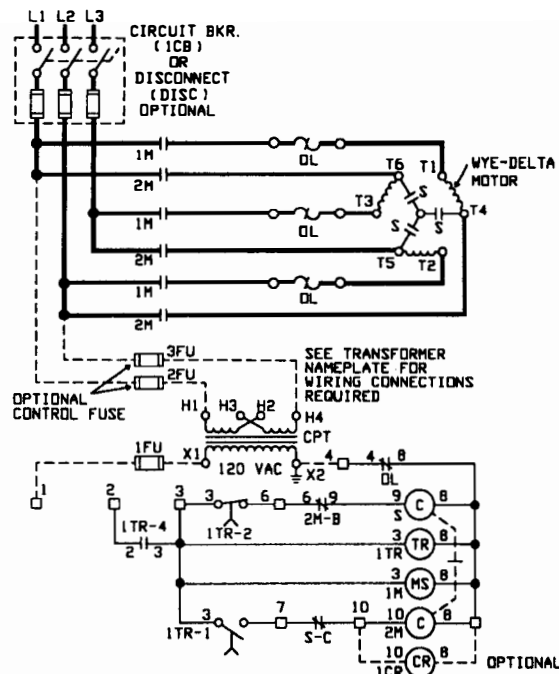


Two Step Part Winding

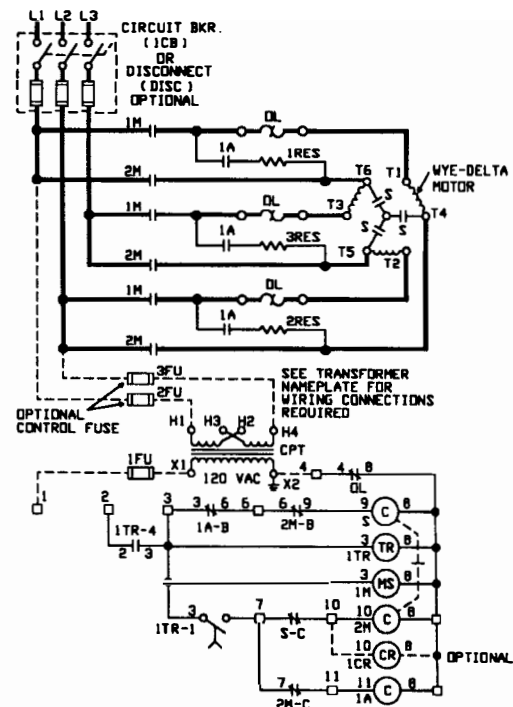


Wye Delta Starter

Open Transition



Closed Transition



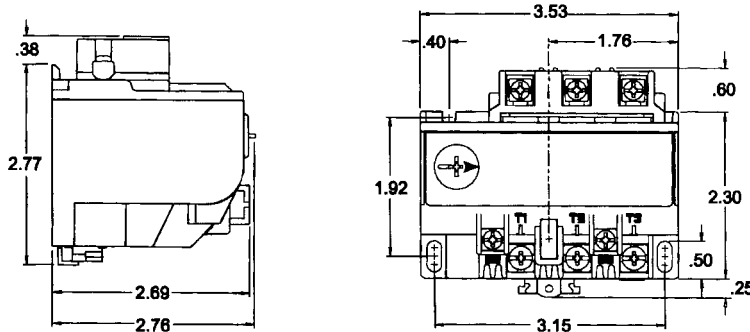
**48,
958,
958L**

**ESP100
OVERLOAD RELAY**

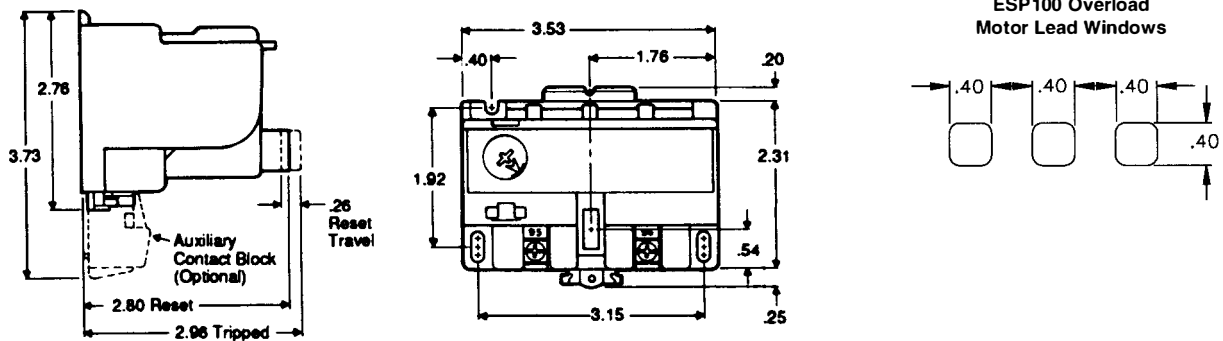
Manual Reset Overload Relays

- Dimensions
- Wiring Diagram

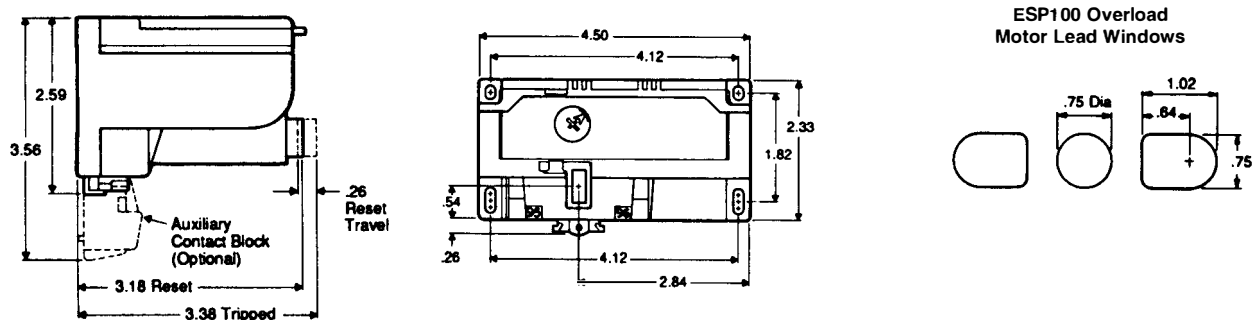
Dimensions "A" Frame – Solid State Overload (0.25-10 Amps, 100-540 Amps 3 Phase, 0.25-16 Amps Single Phase)



Dimensions "A1" Frame – ESP100 Solid State Overload (9-40 Amps), 958 (15-44 Amps), 958L (5.6-40 Amps, 84-528 Amps)



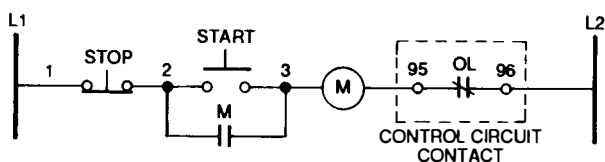
Dimensions "B" Frame – Solid State Overload (13-135 Amps), 958 (33-180 Amps), 958L (18-150 Amps)



Dimensions for reference, not for construction.

Contact Siemens-Furnas Controls Sales Office for dimensions not listed.

Manual Reset Wiring Diagram



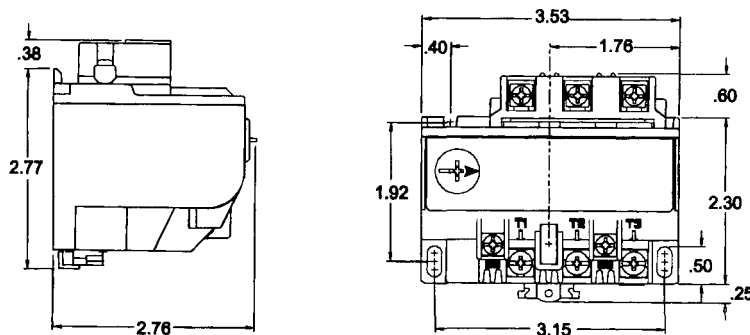
Self-Reset Overload Relays

- Dimensions
- Wiring Diagram

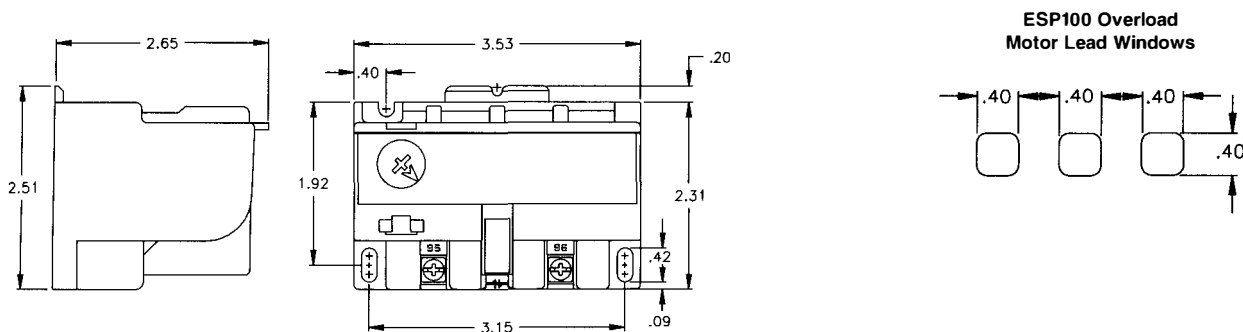
48,
958,
958L

ESP100
OVERLOAD RELAY

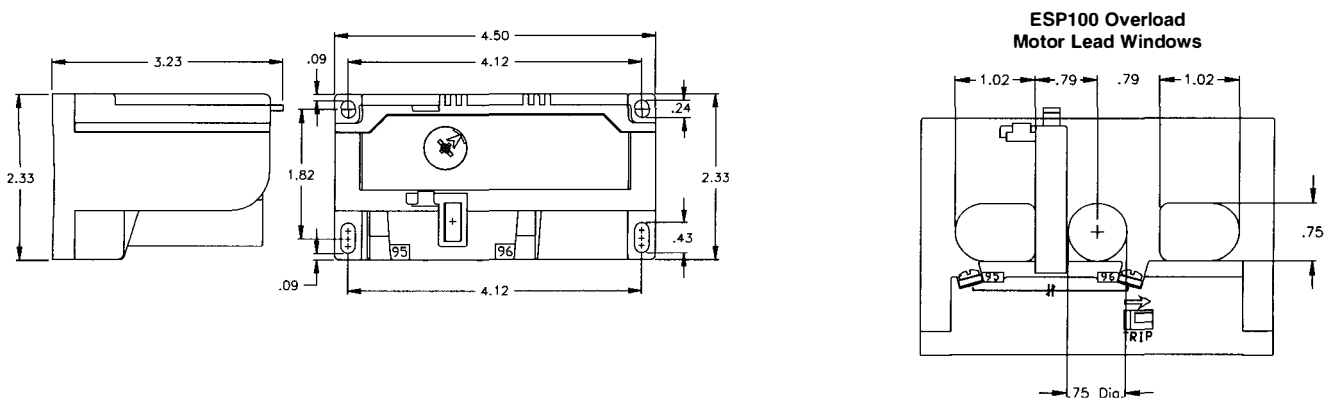
Dimensions "A" Frame – Solid State Overload (0.25-10 Amps, 100-540 Amps 3 Phase, 0.25-16 Amps Single Phase)



Dimensions "A1" Frame – Solid State Overload (0.25-10 Amps, 100-540 Amps 3 Phase, 0.25-16 Amps Single Phase)



Dimensions "B" Frame – Solid State Overload (13-135 Amps), 958 (50-180 Amps), 958L (18-150 Amps)



Dimensions for reference, not for construction.

Contact Siemens-Furnas Controls Sales Office for dimensions not listed.

Self-Reset Wiring Diagrams

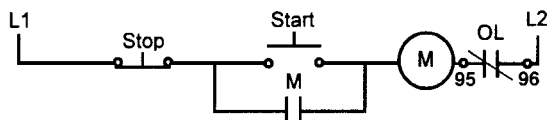


Fig. 1
3 Wire Control

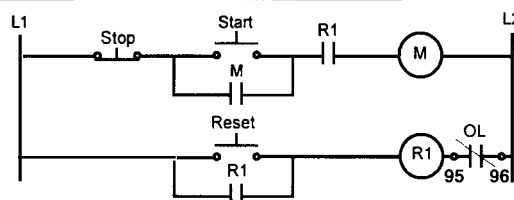


Fig. 2
Remote Reset Via Control Relay

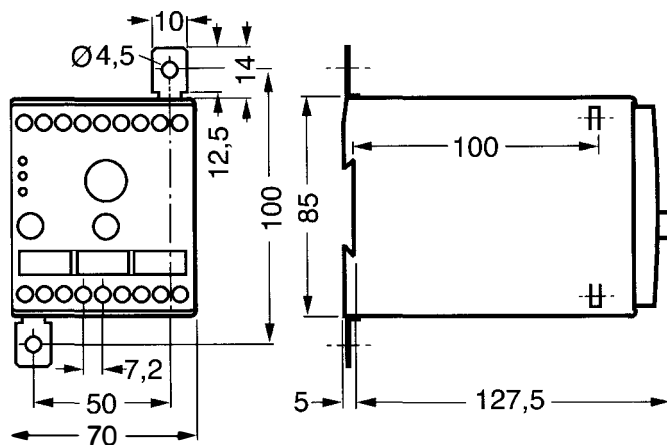
3RB12

SOLID STATE
OVERLOAD RELAY

Solid State Overload Relay

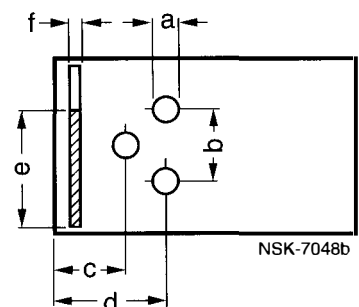
- Dimension
- Single Phase Wiring Diagram

Dimensions 3RB1246



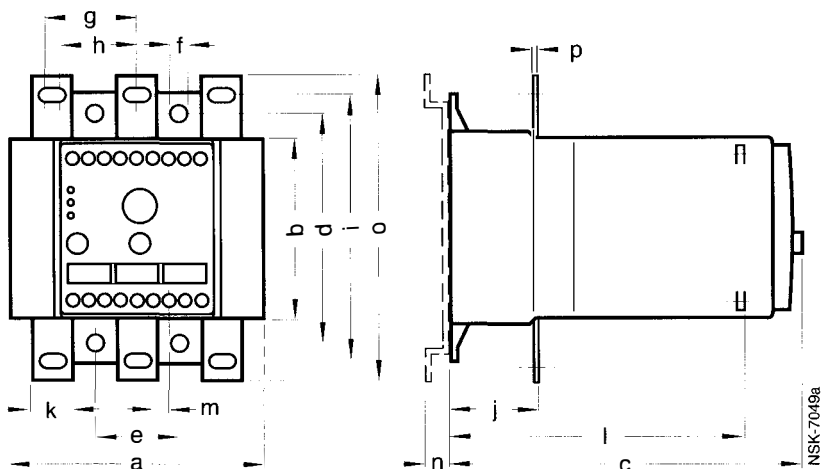
	3RB1246-1E	3RB1246-1P	3RB1246-1Q
a	15	10	10
b	29	34	34
c	24	29	29
d	47	46	46
e	-	48	48
f	-	4	4

Dimensions in mm



NSK-7048b

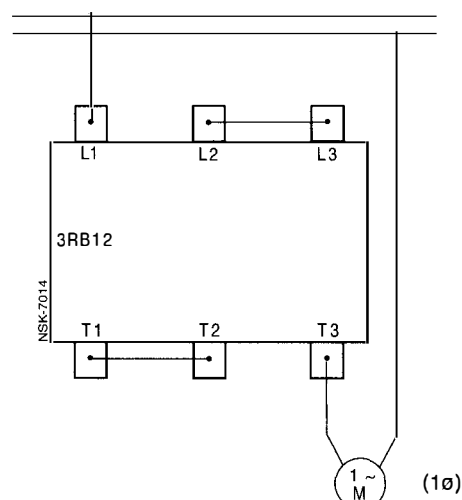
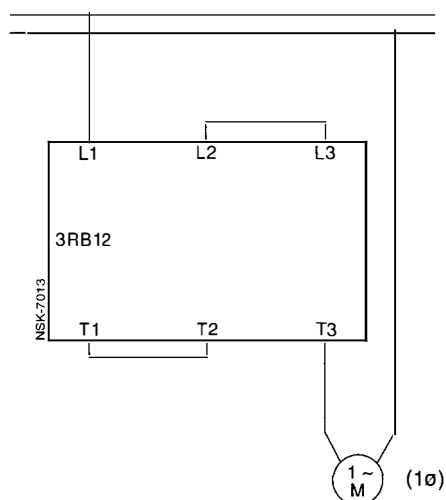
Dimensions 3RB1253, 57, 62



	3RB1253-OF	3RB1257-OK	3RB1262-OL
a	120	145	230
b	85	85	85
c	155	175	190
d	110	105	120
e	40	50	70
f	ø7	ø9	ø11
g	42	52	70
h	37	48	NA
i	125	130	135
j	41	46	55
k	20	30	40
l	131	151	166
m	7,2	7,2	7,2
n	13	NA	NA
o	145	160	175

Dimensions in mm

3RB12 Wiring Diagrams for Single Phase Applications



Combination Magnetic Starters

■ Motor Circuit Protector Information

I-T-E MSCP Type ETI Breakers Instantaneous Trip Breakers: Recommended Settings

Max Settings								
230Volts			460Volts			575Volts		
Hp	A	Set	A	Set		A	Set	
¼	2	2	1	3		1	2	
½	2	3	1	3		1	3	
¾	3	3	2	2		2	2	
1	5	3	3	2		2	2	
1.0	5	4	3	3		2	3	
1½	10	2	3	4		3	3	
2	10	4	5	3		5	2	
3	25	3	10	2		5	4	
5	30	3	10	4		10	3	
7½	40	3	25	3		25	2	
10	40	4	30	3		25	3	
15	50	4	30	4		30	3	
20	100	3	40	4		40	3	
25	100	4	50	3		40	4	
30	100	4	50	4		50	3	
40	150	4	100	3		50	4	
50	250	2	100	4		100	3	
60	250	4	100	4		100	3	
75	250	6	150	4		100	4	
100	400	4	250	3		150	4	
125	400	6	250	4		250	3	
150	600	4	250	5		250	3	
200	600	7	400	4		250	6	
250	—	—	400	6		400	4	
300	—	—	600	4		400	5	
350	—	—	600	4		400	5	
400	—	—	600	6		600	4	

A=Continuous amps

Breaker Kits

Class	Size Max HP	200 Volts	230 Volts	460 Volts	575 Volts	Breaker Amps	Cat No	Price
18, 26, 32, 37,87	0	½	½	1	1	3	ED63A003L	*
		1	1	3	3	10	ED63A010L	*
		3	3	5	5	25	ED63A025L	*
	1	½	½	1	1	3	ED63A003L	*
		1	1	3	3	10	ED63A010L	*
		3	3	7½	7½	25	ED63A025L	*
		7½	7½	10	10	30	ED63A030L	*
	1¾	—	—	15	15	30	ED63A030L	*
		10	10	—	—	50	ED63A050L	*
	2	7½	10	20	20	40	ED63A040L	*
		10	15	25	25	50	ED63A050L	*
	2½	—	—	30	30	50	ED63A050L	*
		15	20	—	—	100	ED63A100L	*
	3	—	—	30	30	50	ED63A050L	*
		25	30	50	50	100	ED63A100L	*
	3½	30	40	75	75	125	ED63A125L	*
	4	40	50	100	100	150	FXD63A150L	*
	4½	50	75	150	150	250	FXD63A250L	*
	5	50	75	150	200	250	FXD63A250L	*
		75	100	200	—	400	JDX63A400L	*
	6	100	125	250	300	400	JDX63A400L	*
150		200	400	400	600	LXD63H600L	*	

* Consult factory for pricing

Combination Magnetic Starters

■ Recommended Fuse, Fuse Clip Size

Recommended Fuse, Fuse Clip Size

Single Element Fuse

Hp	250V Fuse		Clip Size	600V Fuse		Clip Size
	200V	230V		460V	575V	
3	30	25	30	15	15	30
5	45	40	60	20	20	30
7½	—	60	60	30	25	30
	70	—	100	—	—	—
10	80	70	100	—	30	30
	—	—	—	35	—	60
15	125	110	200	60	45	60
20	175	150	200	—	55	60
	—	—	—	70	—	100
25	200	175	200	90	70	100
30	—	200	200	100	80	100
	250	—	400	—	—	—
40	300	300	400	150	110	200
50	400	350	400	175	150	200
60	—	400	400	200	175	200
	450	—	600	—	—	—
75	—	500	600	—	200	200
	—	—	—	250	—	400
100	—	—	—	350	250	400
125	—	—	—	400	350	400
150	—	—	—	450	400	600
200	—	—	—	—	500	600

Dual Element Fuse

Hp	250V Fuse		Clip Size	600V Fuse		Clip Size
	200V	230V		460V	575V	
3	15	15	30	8	7	30
5	25	25	30	15	10	30
7½	35	35	60	20	15	30
10	45	40	60	20	20	30
	60	60	30	25	30	—
15	70	—	100	—	—	—
20	90	80	100	—	30	30
	—	—	—	40	—	60
25	100	100	100	50	40	60
30	125	125	200	60	50	60
40	175	150	200	—	60	60
	—	—	80	—	100	—
50	200	200	200	100	80	100
60	250	250	400	—	100	100
	—	—	—	125	—	200
75	300	300	400	150	125	200
100	400	400	400	200	150	200
125	500	450	600	—	200	200
	—	—	—	250	—	400
150	600	500	600	300	250	400
200	—	—	—	400	300	400

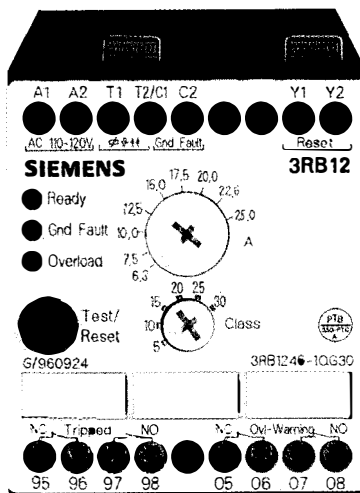
Introducing the 3RB12... advanced overload relays for added control



Introducing the new Siemens line of 3RB12 solid-state overloads. These panel mounted overloads feature adjustable trip class, ground fault protection, phase unbalance and phase loss protection.

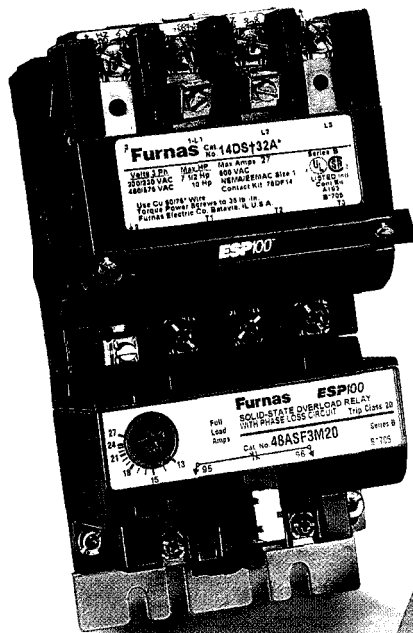
An optional overload warning contact provides status from which to take action in advance of a shut down. These and many other functions were designed to meet the specific needs of equipment protection.

- Ground fault protection, equipment or low-level.
- Overload warning circuit option. Separate output contacts warn of impending overload for critical applications.
- Selectable trip class:
5, 10, 15, 20, 25 and 30.
- Three LED displays.
Ready, Ground Fault, and Overload.
- Monostable or bistable output versions are available.

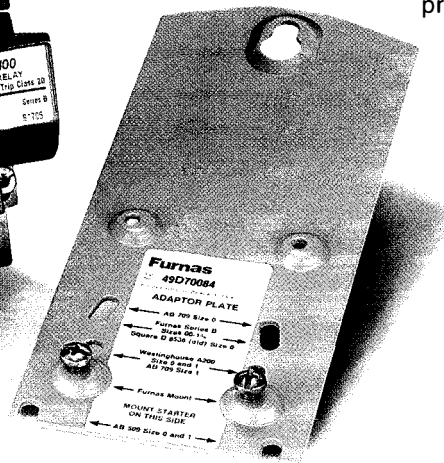


- Self monitoring.
Unit trips in the event of an internal fault.
- 2NO/2NC electronically isolated auxiliary contacts are standard. 1NO/1NC for overload trip, 1NO/1NC for ground fault trip; or, 1NO/1NC for overload trip and/or ground fault trip, 1NO/1NC for overload warning.
- Remote and automatic reset by means of external wiring.
- Combined Test/Reset button with function test.

Universal mounting plate makes upgrading easy.



ESP100 is equipped with a
unique mounting plate that permits it to
replace most NEMA size 0 and 1 starters without
modification. You can simply update your
controls to ESP100 as part of your routine maintenance



program, without having to
change your existing
cabinets or panels,
or having to
drill and tap new
mounting holes.

Siemens-Furnas Controls
Siemens Energy & Automation, Inc.
1000 McKee Street
Batavia, IL 60510
Tel: 630/879-6000
Tel: 800/323-5450
<http://www.furnas.com>