AC MANUAL STARTERS — LINE VOLTAGE TYPE

With Melting Alloy Type Thermal Overload Relays

Non-Reversing — CLASS 2510

600 VOLTS MAX.

No. of Poles	NEMA Size	Ratings: Volts	Ratings: Max. HP● Poly-phase	Ratings: Max. HP● Single Phase	General Purpose Surface Mounting Enclosure **NEMA Type 1**: Type	Price	General Purpose Enclosure **Flush Mounting with Pullbox †**: Type	Price	Dust-tight Industrial Use Enclosure **NEMA Type 12**: Type	Price	Water-tight Stainless Steel Enclosure **NEMA Type 4**: Type	Price	For Hazardous Locations Class I Group D and Class II Groups E, F and G **NEMA Types 7 & 9**: Type	Price	**Open Type** with Square Buttons ‡: Type	Price
2 Pole	M-0	115 230	... ...	1 2	BG-1	$ 20.	BF-1	$ 28.	BA-1	$ 27.	BW-11	$ 52.	BR-1	$ 66.	BO-1	$ 18.
	M-1	115 230	... ...	2 3	CG-1	25.	CF-1	33.	CA-1	32.	CW-11	64.	CR-1	78.	CO-1	23.
	M-1P	115 230	... ...	3 5	CG-2	36.	CF-2	44.	CA-2	43.	CW-12	78.	CR-2	90.	CO-2	34.
3 Pole	M-0	110 208–220 440–550	2 3 5	1 2 ...	BG-2	25.	BF-2	33.	BA-2	32.	BW-12	57.	BR-2	71.	BO-2	23.
	M-1	110 208–220 440–550	3 7½ 10	2 3 ...	CG-3	30.	CF-3	38.	CA-3	37.	CW-13	69.	CR-3	83.	CO-3	28.
4 Pole	M-0	110 208–220 440–550	2 3 5	... ...	BG-3	35.	BF-3	43.●	BA-3	42.	BW-13	72.	BR-3	86.	BO-3	33.
	M-1	110 208–220 440–550	3 7½ 10	... ...	CG-4	42.	CF-4	50.●	CA-4	49.	CW-14	90.	CR-4	104.	CO-4	40.

Prices of 2 pole starters include 1 overload relay thermal unit. Prices of 3 and 4 pole starters include 2 thermal units. Deduct **$1.50** each if thermal units are omitted.

†Also available with two different modifications: (1), without a pullbox, but with a strap for cavity mounting at a **$1. deduction;** and (2), with pullbox and plaster adjustment feature at **$5.00 additional.**

‡Suitable for replacement in all enclosed devices. Also available with extended round buttons for control panel mounting.

Reversing — CLASS 2511

600 VOLTS MAX.

No. of Poles	NEMA Size	Volts	Max. HP Poly-phase●	General Purpose Enclosure **NEMA Type 1**: Type	Price	Water-tight Stainless Steel Enclosure **NEMA Type 4**: Type	Price	For Hazardous Locations Class I, Group D and Class II Groups E, F & G **NEMA 7 & 9**: Type	Price	**Open Type** with Square Buttons: Type	Price
3 Pole	M-0	208–220 440–550	3 5	BG-1	$ 75.	BW-11	$ 122.	BR-1	$ 158.	BO-1	$ 69.
	M-1	208–220 440–550	7½ 10	CG-1	90.	CW-11	154.	CR-1	163.	CO-1	84.

Prices include four overload relay thermal units. Deduct **$1.50** each if thermal units are omitted.

Two Speed — CLASS 2512

600 VOLTS MAX. **FOR WYE-CONNECTED SEPARATE WINDING MOTORS ONLY**

No. of Poles	NEMA Size	Volts	Max. HP Polyphase● Constant Horse-power	Max. HP Polyphase● Constant Torque or Variable Torque	General Purpose Enclosure **NEMA Type 1**: Type	Price	Water-tight Stainless Steel Enclosure **NEMA Type 4**: Type	Price	For Hazardous Locations Class I, Group D and Class II Groups E, F & G **NEMA 7 & 9**: Type	Price	**Open Type** with Square Buttons: Type	Price
3 Pole	M-0	208–220 440–550	2 3	3 5	BG-1	$ 75.	BW-11	$122.	BR-1	$158.	BO-1	$ 69.
	M-1	208–220 440–550	5 7½	7½ 10	CG-1	90.	CW-11	154.	CR-1	163.	CO-1	84.

Prices include four overload relay thermal units. Deduct **$1.50** each if thermal units are omitted.

Thermal Units — Refer to Tab "Overload Relay Selection"
Additions and Special Features — See Page 4

ORDERING INFORMATION REQUIRED

1—Specify class and type number of starter; give horsepower, voltage, phase, and full load current rating of motor.

2—For starters in NEMA types 4, 7 and 9 enclosures, specify conduit entry size and location if other than standard.

3—If special features are desired, specify form number or order as "Class 2510 similar to Type . . . . ." and state clearly the features required.

●Changed since previous issue.

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SEPTEMBER, 1967
Supersedes Price Sheet 2510, Page 4, dated July, 1967

DC MANUAL STARTERS — LINE VOLTAGE TYPE

With Melting Alloy Type Thermal Overload Relays

Non-Reversing — CLASS 2510

250 VOLTS MAX.

No. of Poles	NEMA Size	Ratings		General Purpose Surface Mounting Enclosure **NEMA Type 1**		General Purpose Enclosure **Flush Mounting with Pullbox†**		Water-tight Stainless Steel Enclosure **NEMA Type 4**		For Hazardous Locations Class I, Group D and Class II, Groups E, F & G **NEMA Types 7 and 9**		**Open Type** with Square Buttons‡	
		Volts	Max. HP	Type	Price	Type	Price	Type	Price	Type	Price	Type	Price
2	M-0	115 230	1 1½	BG-4	**$ 20.**	BF-4	**$ 28.**	BW-14	**$ 52.**	BR-4	**$ 66.**	BO-4	**$ 18.**
	M-1	115 230	1½ 2	CG-5	**25.**	CF-5	**33.**	CW-15	**64.**	CR-5	**78.**	CO-5	**23.**

Prices include one overload relay thermal unit. Deduct **$1.50** if thermal unit is omitted.

†Also available with two different modifications: (1), without a pullbox, but with a strap for cavity mounting at a **$1. deduction;** and (2), with pullbox and plaster adjustment feature at **$5.00 additional.**

‡Suitable for replacement in all enclosed devices. Also available with extended round buttons for control panel mounting.

Thermal Units — Refer to Tab "Overload Relay Selection"

ADDITIONS AND SPECIAL FEATURES — CLASS 2510	Form	Price
Third overload relay with thermal unit, available only on Types BG-2 and CG-3 without pilot light	J	**$ 4.**
Red pilot light in cover (specify voltage), available on Types BG-1, 2 or 4, and CG-1, 3 or 5 only *	P11	**8.**

*Kits are available for addition of pilot light in the field. See Class 9999 catalog section.

ORDERING INFORMATION REQUIRED — See Page 3.

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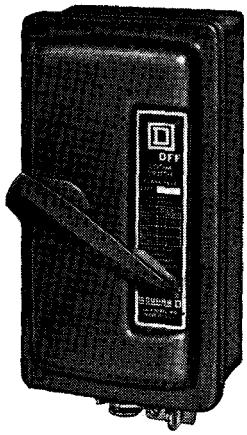
AC MANUAL STARTERS (TOGGLE ACTION)

With Protected Type Melting Alloy Thermal Overload Relays

FOR TEXTILE LOOMS AND OTHER GROUP FUSED MOTORS

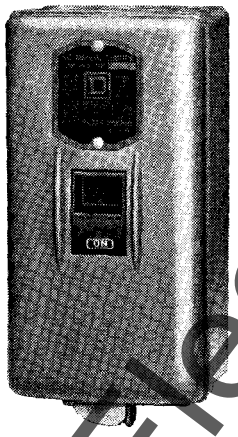


Type RA-5

NEMA 12 — Lint-Tight Enclosure

600 VOLTS MAX. A.C. **CLASS 2510**

No. of Poles	● Size	Ratings: Volts	Ratings: Max. H. P. Poly-phase	Ratings: Max. H. P. Single phase	Enclosed Type: Location of Line Terminals: Top	Enclosed Type: Location of Line Terminals: Bottom	Enclosed Type: Price	Interior Only: Type	Interior Only: Price
2 Pole	M-0	115 230	....	1 1½	RA-1	RA-4	$ 27.	RO-7	$ 18.
	M-1	115 230	....	1½ 3	SA-1	SA-4	32.	SO-9	23.
3 Pole	M-0	110 208-220 440-550	1½ 2 3	1 1½ 2	RA-2	RA-5	32.	RO-8	23.
	M-1	110 208-220 440-550	3 5 7½	1½ 3 5	SA-2	SA-5	37.	SO-10	28.
4 Pole	M-0	110 208-220 440-550	1½ 2 3	....	RA-3	RA-6	42.	RO-9	33.
	M-1	110 208-220 440-550	3 5 7½	....	SA-3	SA-6	49.	SO-11	40.



Type RG-2

NEMA 1 — General Purpose Enclosure

600 VOLTS MAX. A.C. **CLASS 2510**

No. of Poles	● Size	Ratings: Volts	Ratings: Max. H.P. Poly-phase	Ratings: Max. H.P. Single phase	Enclosed Type: Location of Line Terminals: Top	Enclosed Type: Location of Line Terminals: Bottom	Enclosed Type: Price	Open Type or Interior Only: Location of Line Terminals: Top	Open Type or Interior Only: Location of Line Terminals: Bottom	Open Type or Interior Only: Price
2 Pole	M-0	115 230	....	1 1½	RG-1	RG-4	$ 20.	RO-1	RO-4	$ 18.
	M-1	115 230	....	1½ 3	SG-1	SG-4	25.	SO-1	SO-4	23.
	M-1½	115 230	....	3 5	SG-7	SG-8	36.	SO-7	SO-8	34.
3 Pole	M-0	110 208-220 440-550	1½ 2 3	1 1½ 2	RG-2	RG-5	25.	RO-2	RO-5	23.
	M-1	110 208-220 440-550	3 5 7½	1½ 3 5	SG-2	SG-5	30.	SO-2	SO-5	28.
4 Pole	M-0	110 208-220 440-550	1½ 2 3	....	RG-3	RG-6	35.	RO-3	RO-6	33.
	M-1	110 208-220 440-550	3 5 7½	....	SG-3	SG-6	42.	SO-3	SO-6	40.

ORDERING INSTRUCTIONS

Specify Class and Type number of starter; give horsepower, voltage, phase, cycles, and full load current rating of motor.

Select Thermal Relay Units from Table 1 on Page 18 of General Information Catalog Section.

Prices of 2 pole starters include 1 thermal relay unit and prices of 3 and 4 pole starters include 2 thermal relay units. Deduct **$1.50** each if thermal units are omitted.

Fusing: Enclosed starters may be group fused if all motors are 2 horsepower or less. Maximum allowable fuse sizes are listed in Table 1 on Page 18 of General Information Catalog Section.

Mounting Pedestals—For one starter, order #2559-C9-G2..... **$ 6.00**
For two starters, order #2559-C10-G2..... **12.00**

Additional Thermal Units—each..... **1.50**

● Revised.

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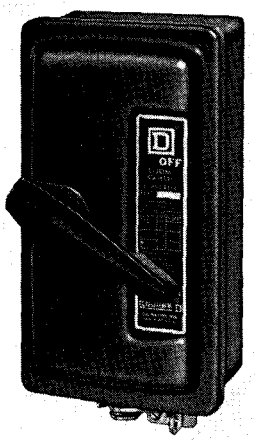
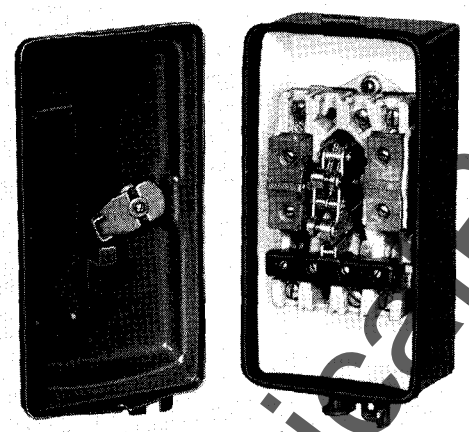
JUNE, 1952

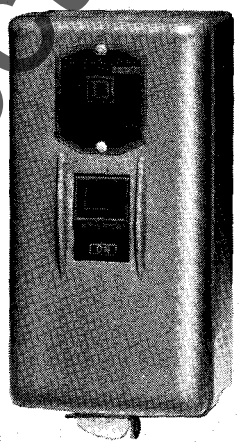
MANUAL LINE VOLTAGE STARTERS (TOGGLE ACTION)



Loom motor starter in lint tight enclosure



Loom motor starter with cover removed showing neoprene gasket and mechanism



Manual starter in general purpose enclosure

APPLICATION

For many applications, particularly in the textile industry, a manual starter having toggle action is preferable to a push-button operated unit for reasons of convenience or custom. The toggle operation may be particularly useful where it is necessary to mount the starter in a high or low position, or other out of the way location.

The design throughout has been based on the severe requirements of textile mill service, where lint accumulations are common, humidifiers create excessive dampness, and floor level mounting necessitates construction to withstand accidental impact and other forms of mechanical abuse, as well as vibration. Both sturdy and compact, these starters are adaptable to mounting on the driven machine, wall, pedestal, or any other location convenient to the hand of the operator. First cost is low, motor overload protection is included, and operation is both safe and economical.

CONSTRUCTION

The Sturdy Toggle Mechanism is not affected by vibration and is suitable for operation in any position. A direct mechanical linkage permits the contacts to be forced open in the event of accidental "freezing." All steel parts are treated to resist corrosion.

•**Poles**—Starters having either two, three or four poles are available for two wire single phase or for three or four wire polyphase systems up to 600 volts A.C. or 250 volts D.C. Type R, Size M-O starters are rated 15 A. and Type S, Size M-1 starters are rated 25 A. (Open ratings).

Unit Base Construction is used. The base is a cold molded material which has a high dielectric strength and does not carbonize. The contacts and other live parts are deeply recessed in the base, which forms an effective barrier between poles.

Double Break Silver Contacts have high rupturing capacity and eliminate the necessity for flexible connectors. They require no dressing and can be replaced with the aid of an ordinary screw driver.

Ample Wiring Space is provided at both ends of the box, and terminals are raised to facilitate connection. Type R starters are equipped with binder head screws while Type S have solderless connectors.

THERMAL OVERLOAD RELAYS

Protected Type Overload Relays are supplied as standard on all toggle action type manual starters. This feature is provided by a molded composition relay base which fits into the starter base to completely enclose the heater unit in a fireproof housing that will not carbonize from the extreme heat of a relay burnout that might occur under circuit fault conditions where several small motors are protected by a single set of fuses. Fire hazard is eliminated and the enclosed starters are suitable for group fused applications.

Melting Alloy Type Thermal Units protect the connected motor against continued operation when the line current drawn is dangerously high. Such undesirable operation may result from overloading of the driven machine, excessively low line voltage or single phase operation of polyphase motors.

Inverse Time Operating Characteristics provide protection against continued high currents while preventing the relays from tripping on normal motor starting currents or harmless momentary overloads.

Unit Construction of heater and melting pot insures a permanently fixed relationship between the line current and the temperature of the melting pot. Possible variations in trip point due to distortion of the heater element or misalignment of the

•Revised

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MANUAL LINE VOLTAGE STARTERS (TOGGLE ACTION) — JUNE, 1952

melting pot are eliminated and each completed relay is tested at the factory before shipment. The units are non-adjustable, thus discouraging unauthorized tampering and rendering overload protection more reliable.

Detachable Thermal Units each consist of a heater, melting pot and ratchet wheel and are so mounted that latches in the starter mechanism engage the ratchet wheels. Continued overcurrent through the heater unit raises the temperature of the alloy to the melting point, allowing the ratchet wheel to rotate. The latch engaging the ratchet is then released, tripping the switch mechanism and opening all lines to the motor. Handle of the starter moves to center position as a trip indication. After the relay has been allowed to cool a minute or so the starter can be reset by pushing the handle to the extreme "off" position and then to the "on" position. No replacement parts are needed and no deterioration follows repeated tripping. The switch is trip free so that it is impossible to hold the contacts closed while an overload condition exists.

A Variety of Relay Ratings is available to permit selection of a proper unit to protect any motor on the basis of the full load motor current. Type GF thermal units are interchangeable within their design group and will fit either Type R or Type S starters. Relays are readily accessible and may be changed by merely removing two screws. Rating is plainly marked on the outside surface.

Two pole, single phase starters have a single overload relay. Three and four pole starters have two overload relays, either of which in tripping opens the switch mechanism and disconnects all lines to the motor.

Enclosed starters may be group fused if all motors are rated 2 H.P. or less. For individually fused starters, use fuses not larger than 4 times the full load motor current.

ENCLOSURE

Enclosures are of heavy gauge sheet steel formed to provide an exceptionally strong housing for better protection against accidental impact. Finish consists of baked aluminum inside and an attractive baked gray enamel outside. Sharp corners and projections have been avoided as much as practical to prevent injury to fabrics and personnel and to lessen accumulation of dust or lint.

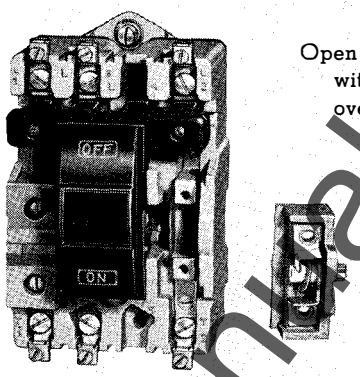
Lint Tight Enclosures Type RA and SA for Loom Motors are fitted with a neoprene gasket which effectively seals the device against lint and dust. To further exclude lint and dust a rotary type handle is employed. The flush handle protrudes only $\frac{5}{8}$" beyond the cover and is, therefore, less susceptible to damage or accidental operation.

The cam type cover latch hooks on a stud riveted to the box and when engaged aids in clamping the cover against the neoprene gasket. A mechanical interlock prevents the box from being opened while the starter is in the "on" position. The device can be locked "off" and the cover can be locked closed.

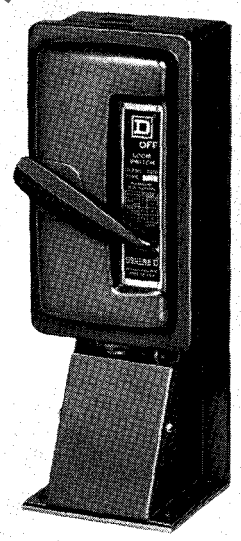
NEMA 1 — General Purpose Enclosures Type RG and SG are provided with a recessed handle with smooth guards to prevent accidental operation. The tight fitting slip-on cover hooks at the top and overlaps the box on all sides.

The cover latch hooks on a stud riveted to the box and is held by a spring to prevent accidental loosening of the cover. A mechanical interlock prevents the box from being opened while the starter is in the "on" position. Only one padlock is required to either lock box closed or lock box closed and starter in "off" position, depending upon the point at which it is installed.

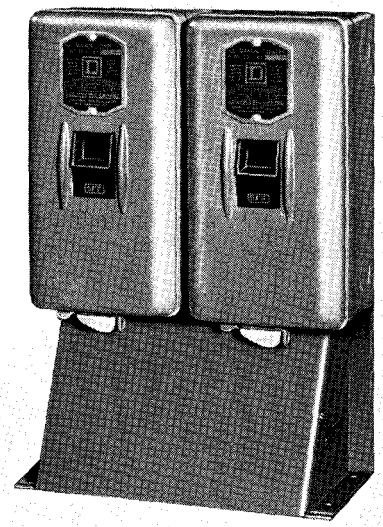
Mounting Pedestals extensively used in the textile industry can be supplied for mounting the starters either singly or in pairs.



Open type starter with protected overload relay removed



Pedestal mounting for loom motor starter



Pedestal mounting for two manual starters

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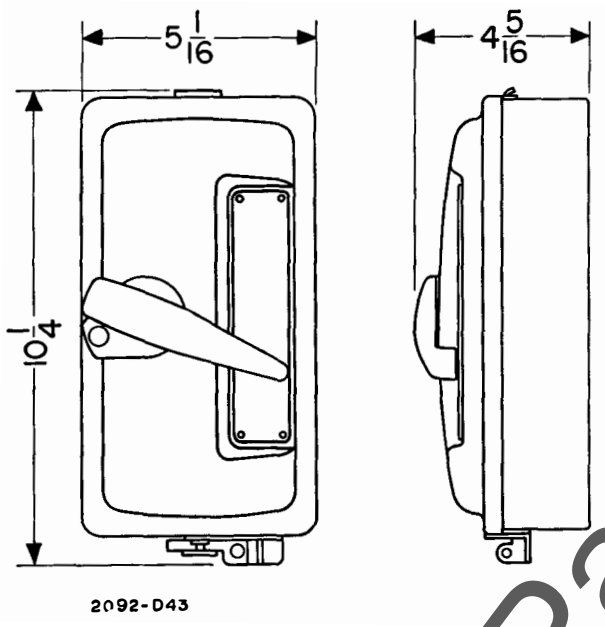
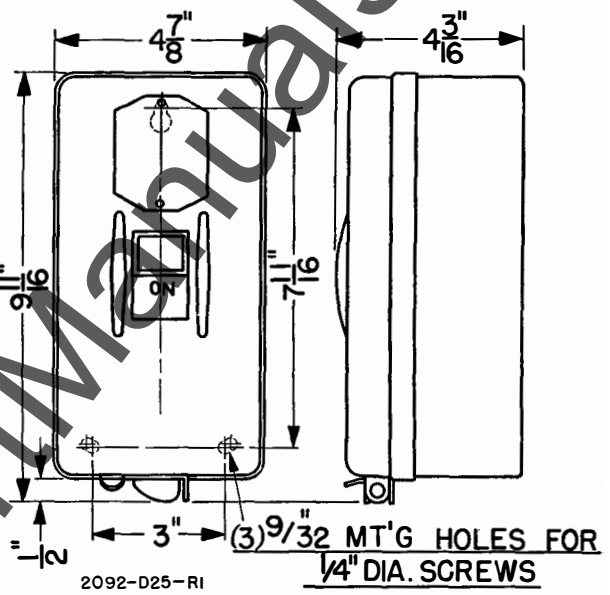
MANUAL STARTERS — LINE VOLTAGE TYPE TOGGLE ACTION

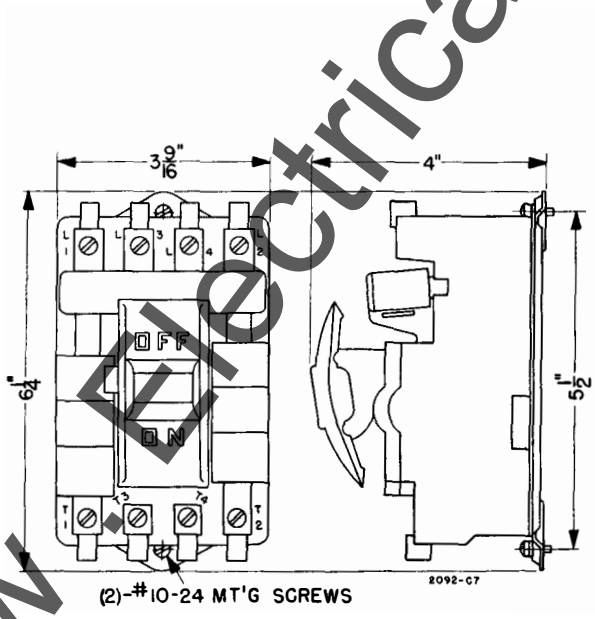
Approximate Dimensions — Not for Construction



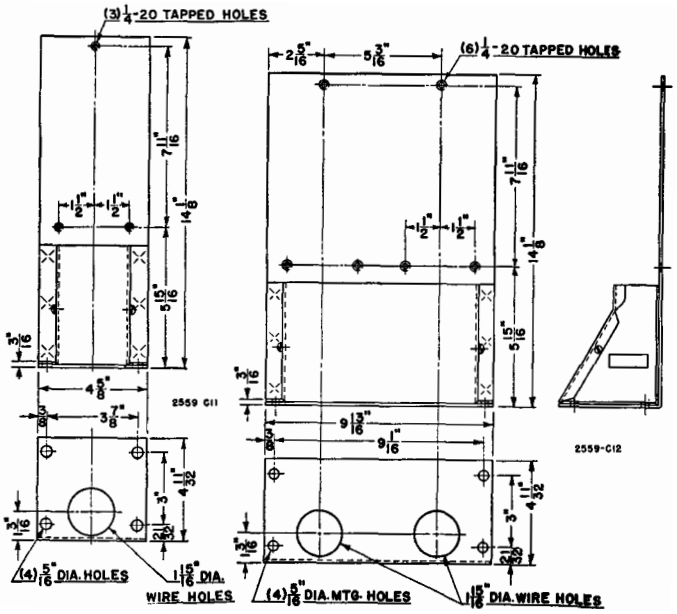
Types RA and SA Lint Tight Enclosure



Types RG and SG General Purpose Enclosure



Types RO1-RO6 and SO1-SO8 Open Types



Mounting Pedestals

Change of Page Number.

Dimensions Subject to Change without Notice.

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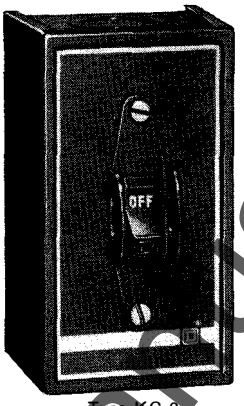
AC MANUAL MOTOR STARTING SWITCHES

Without Overload Protection

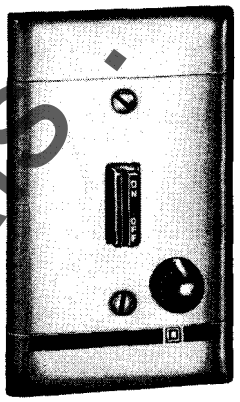
Type K motor starting switches provide manual "on-off" control of single or three phase ac motors, where overload protection is not required or is provided separately. Compact construction and a 600 volt rating make these switches suitable for a wide range of industrial and commercial uses. Typical applications include small machine tools, pumps, fans, conveyors, and many other types of electrical machinery. They can also be used on non-motor loads such as resistance heaters.

ORDERING INFORMATION REQUIRED
Class and type number.

PILOT LIGHT KITS
Refer to Class 9999 catalog section.



Type KG-2


Type KS-3A
(Key Removed)

2 OR 3 POLE **CLASS 2510** **600 VOLTS MAX. AC**

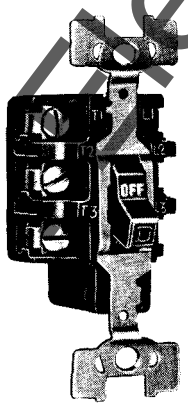
No. of Poles	Features	General Purpose Enclosure Surface Mounting NEMA Type 1		General Purpose Flush Mounting (Without Pull Box)						Water-tight and Dust-tight Enclosure NEMA Types 4 & 5★		Class I Groups B, C & D & Class II Groups E, F & G Enclosure NEMA Types 7 & 9★		Open Type ▲	
				Gray Flush Plate		Standard Stainless Steel Flush Plate		Jumbo Stainless Steel Flush Plate							
		Type	Price	Type	Price	Type	Price	Type	Price	Type	Price	Type	Price	Type	Price
TOGGLE OPERATED															
2	Standard	KG-1	$ 4.60	KF-1	$ 4.10	KS-1	$ 4.60	....	...	KW-1	$22.00	KR-1	$22.00	KO-1‡	$ 3.60
	With Pilot Light:														
	115v. ac.	KG-1A	9.60	KF-1A	9.10	KS-1A	9.60	KSJ-1A	$11.10	KW-1A	57.00	....	...	KO-1A	8.60
	230v. ac.	KG-1B	9.60	KF-1B	9.10	KS-1B	9.60	KSJ-1B	11.10	KW-1B	57.00	....	...	KO-1B	8.60
3	Standard	KG-2	10.50	KF-2	10.00	KS-2	10.50	....	...	KW-2	27.00	KR-2	27.00	KO-2‡	9.50
	With Pilot Light:														
	208-240v. ac.	KG-2B	15.50	KF-2B	15.00	KS-2B	15.50	KSJ-2B	17.00	KW-2B	62.00	....	...	KO-2B	14.50
	440-600v. ac.	KG-2C	15.50	KF-2C	15.00	KS-2C	15.50	KSJ-2C	17.00	KW-2C	62.00	....	...	KO-2C	14.50
KEY OPERATED †															
2	Standard	KG-3	6.60	KF-3	6.10	KS-3	6.60	....	...	....	...	....	...	KO-3‡	5.60
	With Pilot Light:														
	115v. ac.	KG-3A	11.60	KF-3A	11.10	KS-3A	11.60	KSJ-3A	13.10	....	...	....	...	KO-3A	10.60
	230v. ac.	KG-3B	11.60	KF-3B	11.10	KS-3B	11.60	KSJ-3B	13.10	....	...	....	...	KO-3B	10.60
3	Standard	KG-4	12.50	KF-4	12.00	KS-4	12.50	....	...	....	...	....	...	KO-4‡	11.50
	With Pilot Light:														
	208-240v. ac.	KG-4B	17.50	KF-4B	17.00	KS-4B	17.50	KSJ-4B	19.00	....	...	....	...	KO-4B	16.50
	440-600v. ac.	KG-4C	17.50	KF-4C	17.00	KS-4C	17.50	KSJ-4C	19.00	....	...	....	...	KO-4C	16.50

▲Open types with pilot light are for replacement use only. To order switch for replacement in Class 2511 or 2512 device, add suffix letter "T" to type number of toggle operated switch and add **$1.00** to price. (Example: Class 2512 Type KG-11 contains two 2510 KO-1T switches, **$4.60** each.)

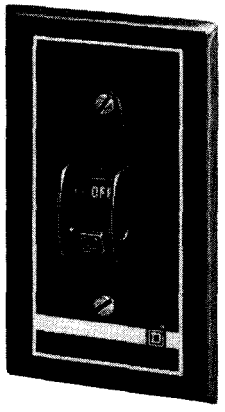
†Two keys included with switch. Additional keys can be ordered as Class 2510 Type FK-1, **$0.30** each.

‡Includes Type FN-1 nameplate. No deduction for omission.

★Furnished with ¾" P.T. bottom only (reversible for top feed.) To obtain ¾" P.T. top and bottom, add suffix letter "H" to type number and add **$2.00** to price.



Type KO-2
(Nameplate not Shown)



Type KF-1

APPLICATION DATA

Poles — 2 or 3 poles, single throw, double break.
Voltage Rating — 600 volts maximum ac, no dc rating.

Horsepower Ratings —

Volts	Maximum Horsepower	
	Single Phase (2 pole)	Three Phase (3 pole)
110	1	2
220	2	3
440-600	....	5

Continuous Current Rating — 30 amperes at 250 volts max., 20 amperes at 600 volts max., based on a power factor of 75 to 100%.

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NEW SHEET

AC MANUAL MOTOR STARTING SWITCHES

Without Overload Protection

APPLICATION DATA

Operator — Available with toggle handle or with removable key type operator to discourage unauthorized operation. Toggle handle and housing for key operated versions are gray with ON-OFF in recessed white letters. An external rocker arm operates the toggle on NEMA 4-5 and NEMA 7-9 versions.

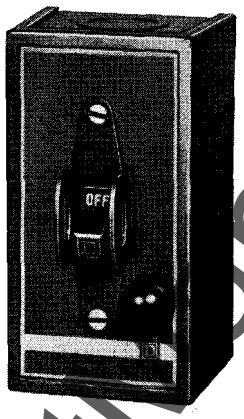
Contact Mechanism — The silver alloy contacts are visible from sides of switch. Contacts are opened by a direct mechanical linkage for positive break.

Terminals — Binder head screw type terminals are suitable for #10 or smaller copper wire, and are accessible from the front. All terminals are clearly marked.

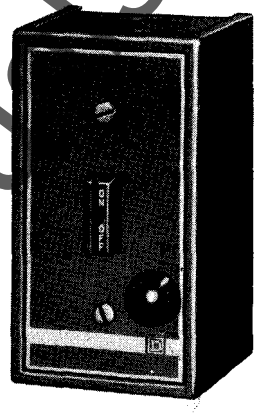
Mounting — Open types without a pilot light fit standard single gang switch boxes, and can be used with any cover plate having a standard toggle cutout. Flush mounting types, including those with pilot light, are suitable for wall mounting in a standard switch box or for machine cavity mounting without a box. For difficult wall surfaces such as concrete block or tile, a jumbo size flush plate is recommended. See dimension drawings for additional details and for mounting provisions of enclosed types.

Enclosures — NEMA 1 surface mounting enclosures are sheet steel, with a wrap-around cover for convenience in wiring. The box is notched to provide automatic alignment of the interior. A zinc alloy die casting is used for NEMA 4-5 enclosures, and a cast aluminum enclosure is offered for NEMA 7-9 applications.

Lockout — Except for key operated versions, all enclosed and flush mounting types are furnished with a handle guard having padlock provision.



Type KG-1A


Type KG-4B
(Key Removed)

Pilot Light — Neon pilot light unit, available in general purpose and NEMA 4-5 versions, does not increase enclosure size. A red lens and a tamper-proof bulb with rated life of 25,000 hours are utilized. This pilot light can also be added in the field to switches with NEMA 1 enclosure or gray flush plate by using one of the following kits. (Refer to Class 9999 catalog section for prices.)

NEON PILOT LIGHT KITS

Application	Voltage	Class & Type
For field addition to any Class 2510 Type KF or KG switch.	110-120 V.	9999 PL-11
	208-240 V.	9999 PL-12
	440-600 V.	9999 PL-13

REPLACEMENT NAMEPLATES FOR TYPE K SWITCHES AND TYPE F STARTERS

CLASS 2510

Description	Application	Nameplate Marking	Nameplate Type Number				Price
			For Type K Switch		For Type F Starter ‡		
			Without Pilot Light	With Pilot Light	Without Pilot Light	With Pilot Light	
1¾" x 2 13/16" Nameplate with Embossed Mounting Holes for #6 Oval Head Screws	Standard commercial switch box cover or flush plate, including Square D stainless steel plates	(Blank)	FN-1	.....	FN-2	.....	$0.50
		(Special Marking ◐)	FN-5	.....	FN-6	.....	1.50
1 29/32" x 3 27/32" Flat Nameplate with Mounting Holes for #6 Pan Head Screws	Square D NEMA 1 enclosure or gray flush plate	(Blank)	FN-10	FN-20	FN-30	FN-40	.50
		High	FN-11	FN-21	FN-31	FN-41	.50
		Low	FN-12	FN-22	FN-32	FN-42	.50
		Forward	FN-13	.....	.....	.....	.50
		Reverse	FN-14	FN-24	.....	.....	.50
		(Special Marking ●)	FN-15	FN-25	FN-35	FN-45	1.50

●**Special nameplate marking:** Order by type number shown and specify marking desired.

‡ These nameplates include "reset" indication.

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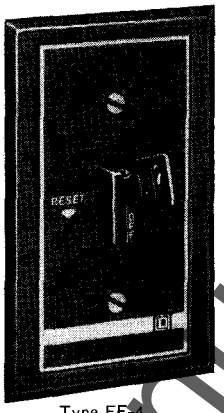
FRACTIONAL HORSEPOWER MANUAL STARTERS

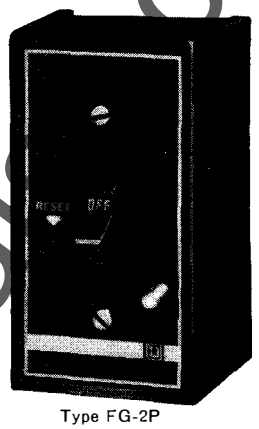
With Melting Alloy Type Thermal Overload Relay

Type F fractional horsepower starters provide overload protection as well as manual "on-off" control for small motors in a variety of industrial and commercial installations. Available in one or two pole versions, these devices are suitable for use with ac single phase motors to 1 hp. Two pole starters can also be used with dc motors to ¾ hp. Typical applications include fans, conveyors, pumps, and small machine tools.

Open type starters are listed on next page. For enclosed and flush mounting versions see table below.



Type FF-4



Type FG-2P

ENCLOSED AND FLUSH MOUNTING TYPES — **CLASS 2510** — **115-230 VOLTS**

Type of Operator	No. of Poles	Features	General Purpose Enclosure Surface Mounting NEMA Type 1		General Purpose Flush Mounting (Without Pull Box)‡						Water-tight and Dust-tight Enclosure NEMA Types 4 & 5		Class I Groups B, C & D & Class II Groups E, F & G Enclosure NEMA Types 7 & 9	
					Gray Flush Plate		Standard Stainless Steel Flush Plate		Jumbo Stainless Steel Flush Plate					
			Type	* Price	Type	* Price	Type	* Price	Type	* Price	Type	* Price	Type	* Price
BASIC STARTER														
Toggle	1	Standard	FG-1	$ 7.50	FF-1	$ 7.	FS-1	$ 7.50						
		With Pilot Light	FG-1P	10.50	FF-1P	10.	FS-1P	10.50	FSJ-1P	$12.				
	2	Standard	FG-2	8.50	FF-2	8.	FS-2	8.50						
		With Pilot Light	FG-2P	11.50	FF-2P	11.	FS-2P	11.50	FSJ-2P	13.				
		In 2-Unit Size Enclosure	FG-02	12.50										
		In 2-Unit Size Encl. with Pilot Light	FG-02P	15.50										
Key†	1	Standard	FG-3	9.50	FF-3	9.	FS-3	9.50						
		With Pilot Light	FG-3P	12.50	FF-3P	12.	FS-3P	12.50	FSJ-3P	14.				
	2	Standard	FG-4	10.50	FF-4	10.	FS-4	10.50						
		With Pilot Light	FG-4P	13.50	FF-4P	13.	FS-4P	13.50	FSJ-4P	15.				
		In 2-Unit Size Encl. with Pilot Light	FG-04P	17.50										
STARTER WITH HANDLE GUARD/LOCKOUT														
Toggle	1	Standard	FG-5	8.50	◐		◐		◐		FW-1	$24.	FR-1	$24.
		With Pilot Light	FG-5P	11.50	◐		◐		◐		FW-1P	59.		
		With (2) ¾" P.T.									FW-1H	26.	FR-1H	26.
		With (2) ¾" P.T. and Pilot Light									FW-1PH	61.		
	2	Standard	FG-6	9.50	◐		◐		◐		FW-2	25.	FR-2	25.
		With Pilot Light	FG-6P	12.50	◐		◐		◐		FW-2P	60.		
		With (2) ¾" P.T.									FW-2H	27.	FR-2H	27.
		With (2) ¾" P.T. and Pilot Light									FW-2PH	62.		
TWO STARTERS IN ONE ENCLOSURE														
Toggle	2 Each Str.	Standard	FG-22	20.00	▲FF-22	19.								
		With Pilot Light on Each	FG-22P	31.00	▲FF-22P	30.	★FS-22P	31.00	★FSJ-22P	34.				
Key†	2 Ea. Str.	With Pilot Light on Each	FG-44P	35.00	▲FF-44P	34.	★FS-44P	35.00	★FSJ-44P	38.				
STARTER AND "AUTO-OFF-HAND" SPDT SELECTOR SWITCH (AC ONLY)														
Toggle	1	Standard	FG-71	17.00	▲FF-71	16.								
		With Pilot Light	FG-71P	20.00	▲FF-71P	19.	★FS-71P	20.00	★FSJ-71P	23.				
	2	Standard	FG-72	18.00	▲FF-72	17.								
		With Pilot Light	FG-72P	21.00	▲FF-72P	20.	★FS-72P	21.00	★FSJ-72P	24.				
Key†	2	With Pilot Light	FG-74P	23.00	▲FF-74P	22.	★FS-74P	23.00	★FSJ-74P	26.				

*Prices include one overload relay thermal unit per starter. Deduct **$1.50** each if thermal units are omitted.
◐Order basic starter from listing above plus separate handle guard kit from next page.
†Two keys included with each starter.
‡Unless otherwise noted, flush mounting types fit standard single gang switch box.
★Fits standard 2-gang switch box.
▲Suitable for cavity mounting only, does not fit standard box.

ORDERING INFORMATION REQUIRED
1—Class and type number of device.
2—Quantity and type number of thermal units.

THERMAL UNITS
Refer to tab "Overload Relay Selection".

PILOT LIGHT KIT
Refer to Class 9999 catalog section.

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FRACTIONAL HORSEPOWER MANUAL STARTERS

With Melting Alloy Type Thermal Overload Relay

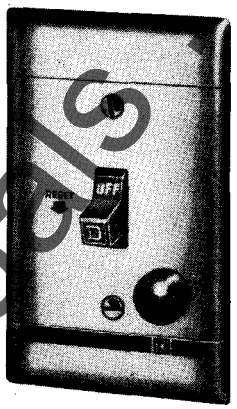
OPEN TYPE STARTERS — **CLASS 2510** — **115-230 VOLTS**

Features	Type of Operator	Application	No. of Poles	Type	Price *
Standard	Toggle	For mounting in standard switch box, or for replacement in any of the following: 2510 AF, AG, AR, AW; 2510 FF, FG, FR, FS, FSJ, FW; 2512 FS, FSJ	1	FO-1 ‡	$ 6.50
			2	FO-2 ‡	7.50
		For replacement in 2512 FF or FG	1	FO-1T	7.50
			2	FO-2T	8.50
	Key †	For mounting in standard switch box, or for replacement in any of the following: 2510 AF, AG; 2510 FF, FG, FS, FSJ	1	FO-3 ‡	8.50
			2	FO-4 ‡	9.50
With Pilot Light (Includes Threaded Red Lens) ◐	Toggle	For replacement in any of the following: 2510 FF, FG, FS, FSJ; 2512 FS, FSJ	1	FO-1P	9.50
			2	FO-2P	10.50
		For replacement in 2512 FF or FG	1	FO-1PT	10.50
			2	FO-2PT	11.50
	Key †	For replacement in any of the following: 2510 FF, FG, FS, FSJ	1	FO-3P	11.50
			2	FO-4P	12.50

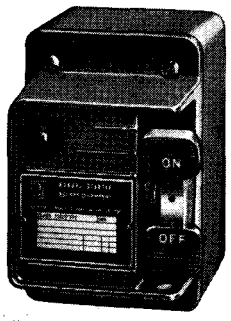
*Prices include one overload relay thermal unit. Deduct **$1.50** if thermal unit is omitted.
†Two keys included with each starter.
‡Includes Type FN-2 nameplate. No deduction for omission.
◐Not suitable for replacement of old design Type A devices. Type FF or FS starter with pilot light, however, can be used to replace cover and interior of Type AG device (single unit only).

MISCELLANEOUS UNITS AND ACCESSORIES — **CLASS 2510**

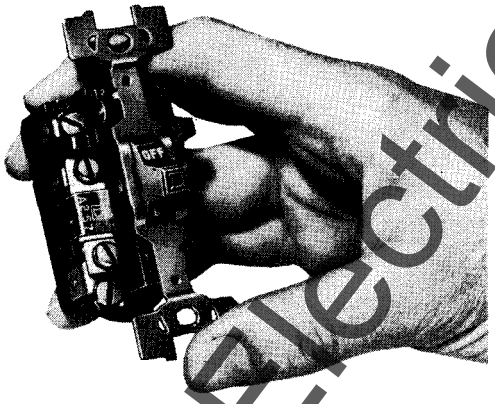
Description	Application	Type	Price
Handle Guard Kit with Padlock Provision	For field addition to any Class 2510 or 2512 Type FF, FG, FS, or FSJ toggle operated starter. (Two kits required for use with Class 2512.)	FL-1	$1.00
Additional Key	For use with Type F key operated starters.	FK-1	.30



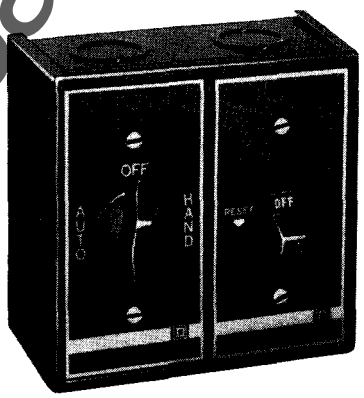
Type FS-2P



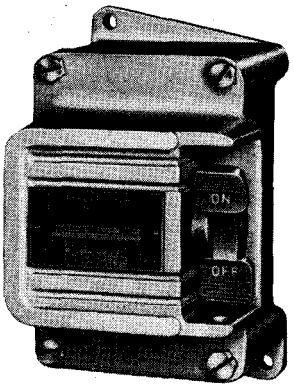
Type FW-2P



Type FO-2
(Nameplate not Shown)



Type FG-72



Type FR-2

ORDERING INFORMATION REQUIRED

1—Class and type number of device.

2—Quantity and type number of thermal units.

THERMAL UNITS

Refer to tab "Overload Relay Selection".

PILOT LIGHT KIT

Refer to Class 9999 catalog section.

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SUPERSEDES:
Class 2510
Descriptive Sheet, Pages 0.1-0.2
January, 1962

FRACTIONAL HORSEPOWER MANUAL STARTERS

With Melting Alloy Type Thermal Overload Relay

APPLICATION DATA

Poles — 1 or 2 poles, single throw, double break.

Voltage Rating — 300 volts maximum ac (1 or 2 pole) or dc (2 pole only).

Horsepower Ratings —

Volts	Maximum Horsepower		
	AC Single Phase		DC 2 Pole Only
	1 Pole	2 Pole	
115-230	1	1	¾

Continuous Current Rating — 16 amperes.

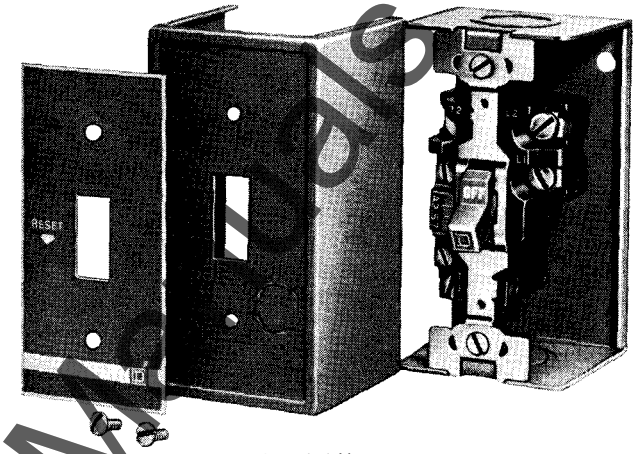
Operator — Available with toggle handle or with removable key type operator to discourage unauthorized operation. Toggle handle and housing for key operated versions are gray with ON-OFF in recessed white letters. An external rocker arm operates the toggle on NEMA 4-5 and NEMA 7-9 versions.

Contact Mechanism — Quick make, quick break toggle action. The silver alloy contacts are visible from sides of starter.

Overload Trip Assembly — Motor protection is provided by a unique one-piece thermal unit which must be installed before the starter will operate. The thermal unit incorporates a heater winding through which the load current flows, a solder pot, and a ratchet wheel. Melting of the eutectic solder on a prolonged overload condition releases the ratchet wheel, actuating a trip mechanism which opens the starter contacts. This mechanism is trip-free, so that the contacts will open even if the handle is held in the ON position. After the solder has cooled the mechanism can be reset by pushing the handle to its extreme OFF position.

Terminals — Binder head screw type terminals are suitable for #10 or smaller copper wire, and are accessible from the front. All terminals are clearly marked.

Mounting — Open types without a pilot light fit standard single gang switch boxes, and can be used with any cover plate having a standard toggle cutout. Single-unit flush mounting types, including those with pilot light, are suitable for wall mounting in a standard switch box or for machine cavity mounting without a box. Flush mounting types incorporating two starters, or one starter and a selector switch, are available in two basic styles — with stainless steel flush plate for wall or cavity mounting, or with gray flush plate designed for cavity mounting only. For difficult wall surfaces such as concrete block or tile, a jumbo size flush plate is recommended. See dimension drawings for additional details and for mounting provisions of enclosed types.



Exploded View of Type FG-2

Enclosures — NEMA 1 surface mounting enclosures are sheet steel, with a wrap-around cover for convenience in wiring. A zinc alloy die casting is used for NEMA 4-5 enclosures, and a cast aluminum enclosure is offered for NEMA 7-9 applications.

Handle Guard — Optional handle guard on NEMA 1 enclosed starters prevents accidental operation of a toggle handle and includes provision for padlocking. A kit is also available for addition of this guard in the field to any general purpose or flush mounting device. Standard NEMA 4-5 and NEMA 7-9 enclosures include provision for padlocking in the OFF position.

Pilot Light — Neon pilot light unit, available in general purpose and NEMA 4-5 versions, does not increase enclosure size. An NE-51 bulb and a red lens are utilized. This pilot light can also be added in the field to starters with NEMA 1 enclosure or gray flush plate by using the following kit. (Refer to Class 9999 catalog section for pricing information.)

NEON PILOT LIGHT KIT

Application	Voltage	Class & Type
For field addition to any Class 2510 Type FF or FG starter.	115-230 V.	9999 PL-10

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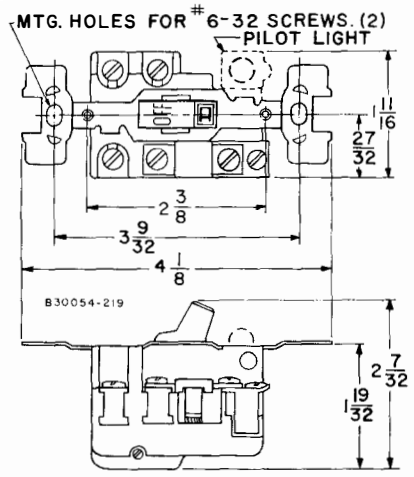
SUPERSEDES:
Class 2510
Descriptive Sheet, Pages 0.3-0.4
September, 1964

MANUAL MOTOR STARTING SWITCHES AND FRACTIONAL HORSEPOWER STARTERS

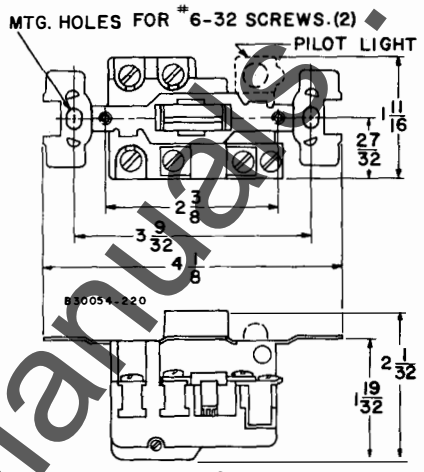
Approximate Dimensions and Shipping Weights
Single-unit Types

OPEN TYPE FRACTIONAL HP STARTERS

Weight — ½ lb.



Types FO-1, 1P, 2, 2P

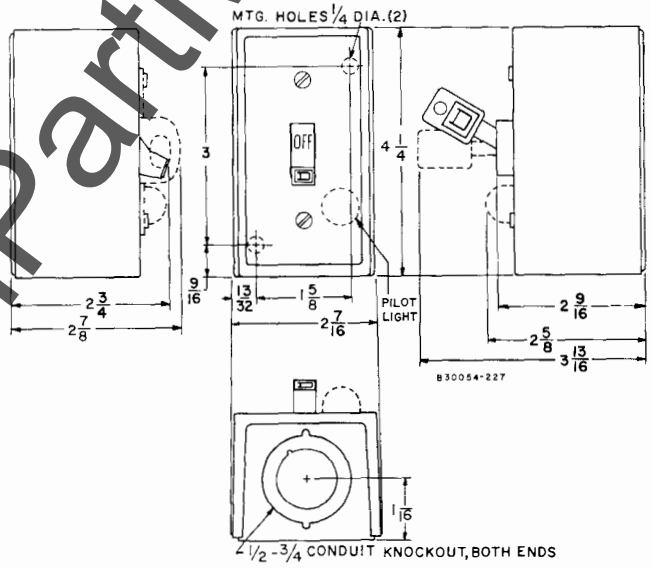


Types FO-3, 3P, 4, 4P

NEMA TYPE 1 SURFACE MOUNTING ENCLOSURE

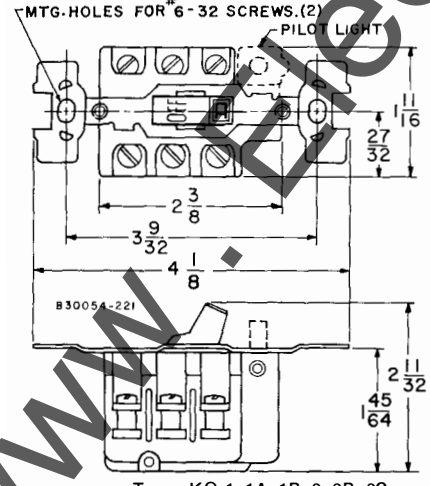
Weight — 1 lb.

Device	Type of Operator	Class 2510 Type
Fractional HP Starter	Toggle	FG-1, 1P, 2, 2P, 5, 5P, 6, 6P
	Key	FG-3, 3P, 4, 4P
Motor Starting Switch	Toggle	KG-1, 1A, 1B, 2, 2B, 2C
	Key	KG-3, 3A, 3B, 4, 4B, 4C

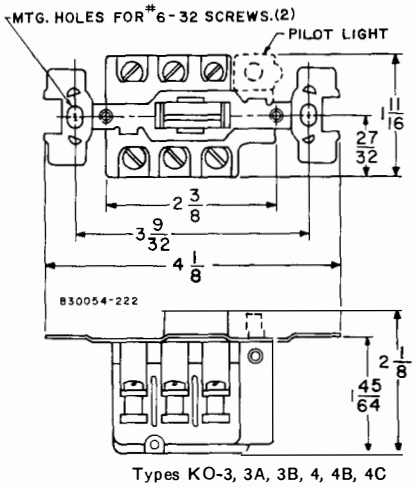


OPEN TYPE MOTOR STARTING SWITCHES

Weight — ½ lb.



Types KO-1, 1A, 1B, 2, 2B, 2C



Types KO-3, 3A, 3B, 4, 4B, 4C

All dimensions are in inches.

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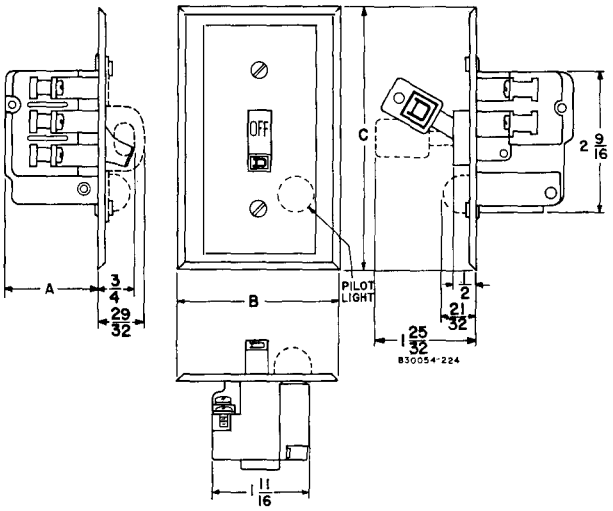
MANUAL MOTOR STARTING SWITCHES AND FRACTIONAL HORSEPOWER STARTERS

Approximate Dimensions and Shipping Weights

Single-unit Types

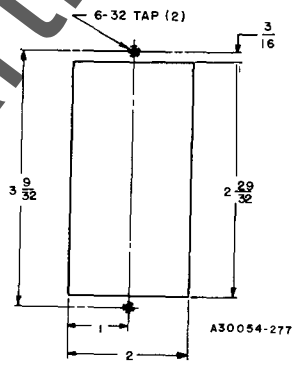


Device	Type of Operator	Class 2510 Type	Dimension A	B	C
Fractional HP Starter	Toggle	FF-1, 1P, 2, 2P FS-1, 1P, 2, 2P	1 15/32	2¾	4½
		FSJ-1P, 2P	1 15/32	3½	5¼
	Key	FF-3, 3P, 4, 4P FS-3, 3P, 4, 4P	1 15/32	2¾	4½
		FSJ-3P, 4P	1 15/32	3½	5¼
Motor Starting Switch	Toggle	KF-1, 1A, 1B, 2, 2B, 2C KS-1, 1A, 1B, 2, 2B, 2C	1 19/32	2¾	4½
		KSJ-1A, 1B, 2B, 2C	1 19/32	3½	5¼
	Key	KF-3, 3A, 3B, 4, 4B, 4C KS-3, 3A, 3B, 4, 4B, 4C	1 19/32	2¾	4½
		KSJ-3A, 3B, 4B, 4C	1 19/32	3½	5¼

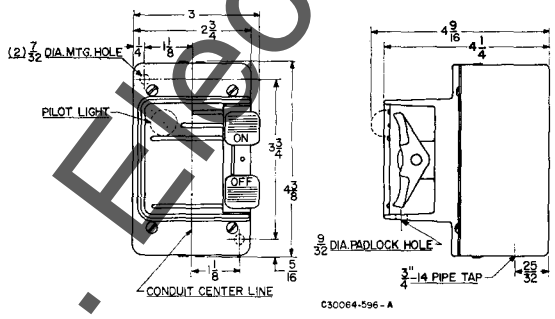
GENERAL PURPOSE FLUSH MOUNTING

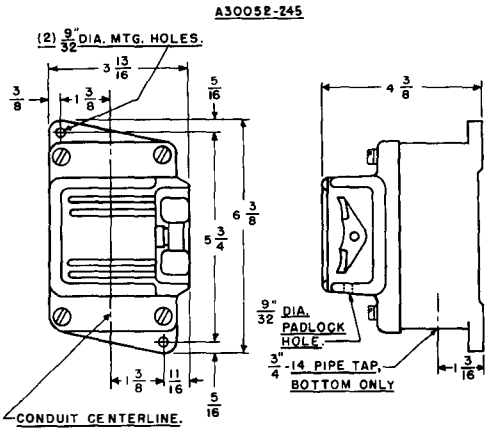
Weight — ½ lb.

NOTE: Flush mounting types fit standard single gang switch box.



Recommended Cutout for Cavity Mounting





NEMA TYPE 4 & 5 ENCLOSURE ‡

Device	Type	Weight
Fractional HP Starter	FW-1, 1P, 2, 2P	3 lbs.
Motor Starting Switch	KW-1, 1A, 1B, 2, 2B, 2C	

NEMA TYPE 7 & 9 ENCLOSURE ‡

Device	Type	Weight
Fractional HP Starter	FR-1, 2	10 lbs.
Motor Starting Switch	KR-1, 2	

‡Box is reversible to allow conduit entry at top. Types with suffix letter "H" have ¾" P.T. top and bottom.

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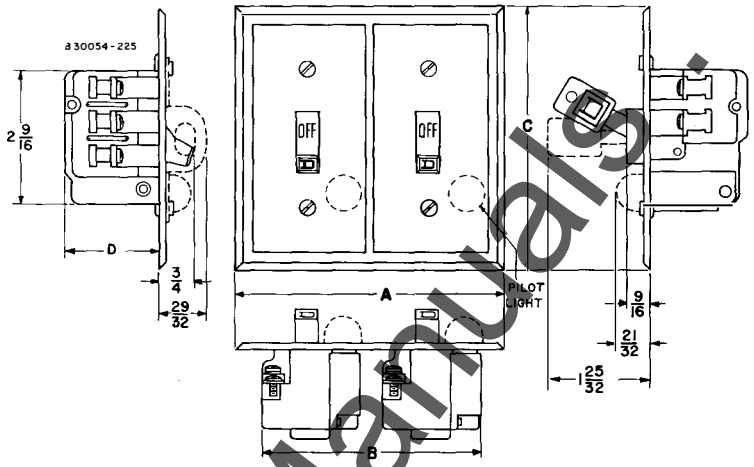
SUPERSEDES:
Class 2510
Dimension Sheet, Page 0.2
September, 1964

FRACTIONAL HORSEPOWER MANUAL STARTERS

Approximate Dimensions and Shipping Weights

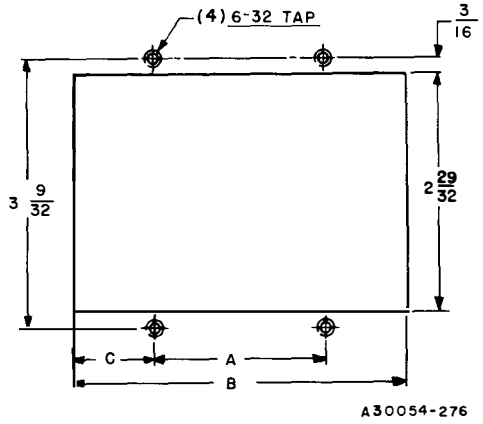
Two-unit Types



GENERAL PURPOSE FLUSH MOUNTING

Weight — 1¼ lbs.

NOTE: Type FS and FSJ starters fit standard 2-gang switch box. Type FF starters are for cavity mounting only and do not fit standard box.



Recommended Cutout for Cavity Mounting

For Use With	Dimensions		
	A	B	C
Type FF Starters	2 1/16	4 1/16	1
Type FS or FSJ Starters	1 13/16	3 13/16	1

Device	Type of Operator	Class 2510 Type	Dimension			
			A	B	C	D
Two Starters	Toggle	FF-22, 22P	4 9/16	3 3/4	4 1/2	1 15/32
		FS-22P	4 9/16	3 1/2	4 1/2	1 15/32
		FSJ-22P	5 5/16	3 1/2	5 1/4	1 15/32
	Key	FF-44P	4 9/16	3 3/4	4 1/2	1 15/32
		FS-44P	4 9/16	3 1/2	4 1/2	1 15/32
		FSJ-44P	5 5/16	3 1/2	5 1/4	1 15/32
One Starter and One Selector Switch ★	Toggle	FF-71, 71P, 72, 72P	4 9/16	3 3/4	4 1/2	1 15/32
		FS-71P, 72P	4 9/16	3 1/2	4 1/2	1 15/32
		FSJ-71P, 72P	5 5/16	3 1/2	5 1/4	1 15/32
	Key	FF-74P	4 9/16	3 3/4	4 1/2	1 15/32
		FS-74P	4 9/16	3 1/2	4 1/2	1 15/32
		FSJ-74P	5 5/16	3 1/2	5 1/4	1 15/32

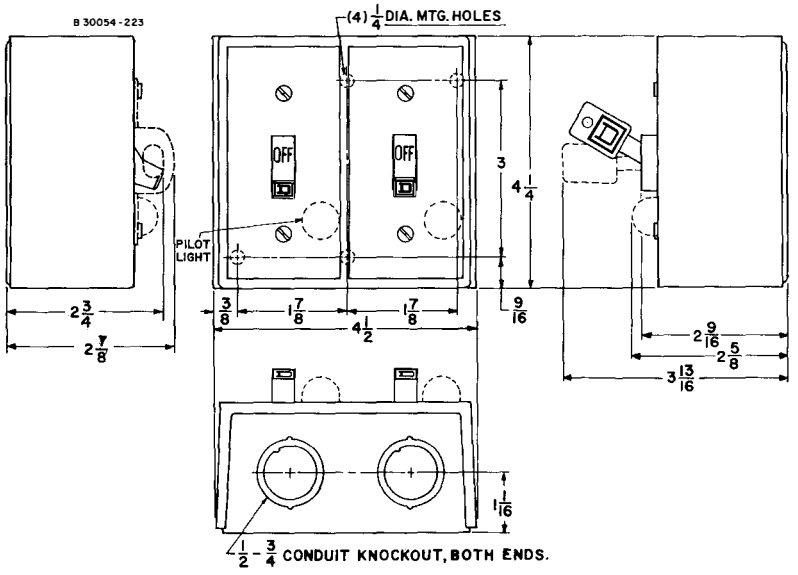
★Selector switch is on left, extends 7/8" from mounting surface.

NEMA TYPE 1 SURFACE MOUNTING ENCLOSURE

Weight — 2 lbs.

Device	Type of Operator	Class 2510 Type
One Starter	Toggle	FG-02, 02P
	Key	FG-04P
Two Starters	Toggle	FG-22, 22P
	Key	FG-44P
One Starter and One Sel. Sw. ◐	Toggle	FG-71, 71P, 72, 72P
	Key	FG-74P

◐Selector switch is on left, increases overall depth to 2 7/8".



All dimensions are in inches.

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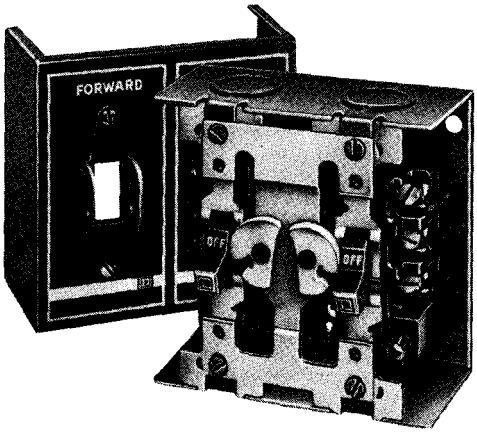
CLASS 2511 AC REVERSING MANUAL MOTOR STARTING SWITCHES

Without Overload Protection



Class 2511 Type KG-22B
(Cover Removed)

Type K reversing manual switches provide a compact means of starting, stopping, and reversing ac motors, where overload protection is not required or is provided separately. They are suitable for use with three phase squirrel cage motors and for single phase motors which can be reversed by reconnecting motor leads. Two switches are used, one to connect the motor for forward rotation and one for reverse.

A mechanical interlock, operated by a pin in the toggle handle of each switch, makes it impossible for the FORWARD and REVERSE switches to be closed at the same time. It also imposes a definite time delay in changing motor direction, since one handle must be in its extreme OFF position before the other handle can be moved to ON.

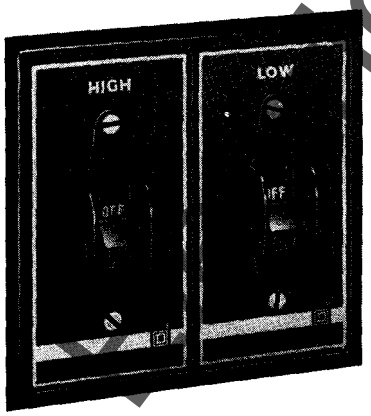
2 OR 3 POLE — CLASS 2511 — 600 VOLTS MAX. AC

No. of Poles	Motor Types for Which Suitable	Features	General Purpose Enclosure Surface Mounting **NEMA Type 1** Type	Price	With Flush Plate for **Cavity Mounting** (Without Pull Box) ‡ Type	Price
2	Single Phase 3-Lead Repulsion-Induction	Standard	KG-11	$20.	KF-11	$19.
		With Pilot Light:				
		115 V. ac.	KG-11A	28.	KF-11A	27.
		230 V. ac.	KG-11B	28.	KF-11B	27.
3	Three Phase; Also Single Phase Capacitor, Split Phase, or 4-Lead Repulsion-Induction	Standard	KG-22	31.	KF-22	30.
		With Pilot Light:				
		110-120 V. ac.	KG-22A	39.	KF-22A	38.
		208-220 V. ac.	KG-22B	39.	KF-22B	38.
		440-600 V. ac.	KG-22C	39.	KF-22C	38.

‡ Not suitable for wall mounting — pull box not available.

CLASS 2512 AC TWO SPEED MANUAL MOTOR STARTING SWITCHES

Without Overload Protection



Class 2512 Type KF-11

Type K two speed manual switches may be used with separate winding three phase or single phase ac motors, where overload protection is not required or is provided separately. Two switches are employed to give "on-off" control in each speed. A mechanical interlock, operated by a pin in the toggle handle of each switch, makes it impossible for the HIGH and LOW switches to be closed at the same time.

2 OR 3 POLE — CLASS 2512 — 600 VOLTS MAX. AC

No. of Poles	Motor Types for Which Suitable	Features	General Purpose Enclosure Surface Mounting **NEMA Type 1** Type	Price	With Flush Plate for **Cavity Mounting** (Without Pull Box) ‡ Type	Price
2	Single Phase Two Winding (3-Lead)	Standard	KG-11	$20.	KF-11	$19.
		With 2 Pilot Lights:				
		115 V. ac.	KG-11A	36.	KF-11A	35.
		230 V. ac.	KG-11B	36.	KF-11B	35.
3	Three Phase Separate Winding (Wye-Connected)	Standard	KG-22	31.	KF-22	30.
		With 2 Pilot Lights:				
		208-240 V. ac.	KG-22B	47.	KF-22B	46.
		440-600 V. ac.	KG-22C	47.	KF-22C	46.

‡ Not suitable for wall mounting — pull box not available.

FOR HORSEPOWER RATINGS SEE NEXT PAGE

ORDERING INFORMATION REQUIRED
Class and type number.

PILOT LIGHT KITS
Refer to Class 9999 catalog section.

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SUPERSEDES:
Class 2511, 2512
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AC MANUAL MOTOR STARTING SWITCHES

Class 2511 — Reversing
Class 2512 — Two Speed

APPLICATION DATA

Poles — 2 or 3 poles on each switch.

Voltage Rating — 600 volts maximum ac.

Horsepower Ratings —

Device	No. of Poles	Motor Type	Maximum HP		
			110 Volts	220 Volts	400-600 Volts
Class 2511	2-3	Single Phase	1	2	...
	3	Three Phase	2	3	5
Class 2512	2	Single Phase	1	2	...
	3	3 Phase, Constant or Variable Torque	2	3	5
		3 Phase, Constant Horsepower	1	2	3

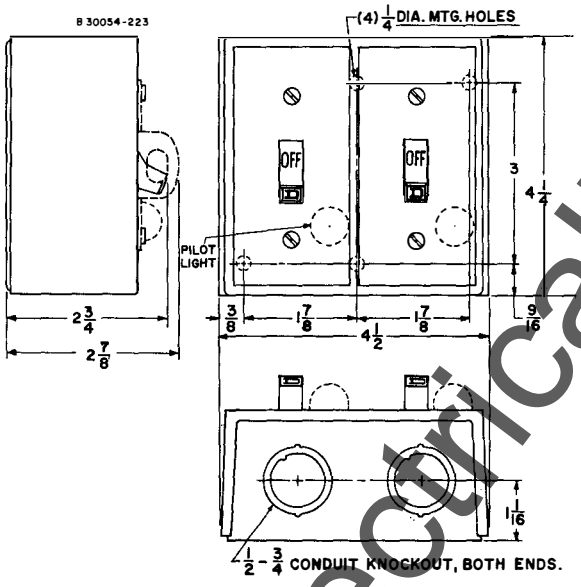
Basic Switch — Devices utilize two Class 2510 Type K switches, as described in the Class 2510 catalog section, except with a special toggle handle.

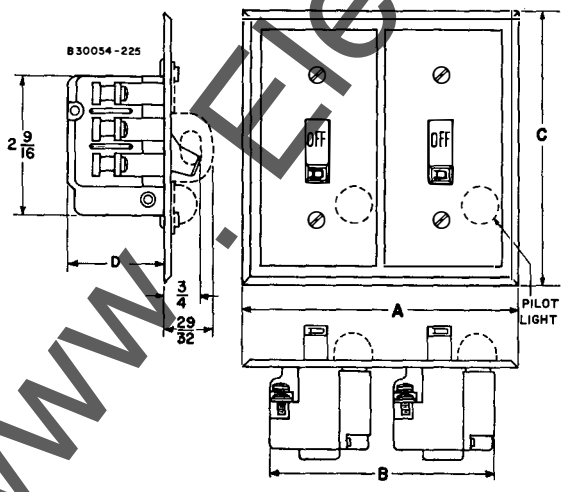
Wiring — Switches are furnished with necessary interwiring and a complete wiring diagram. Only line and load leads need be installed by the user.

Pilot Light — A neon pilot light is available on reversing devices, and for each speed on two speed devices. This unit, which includes a red lens and a tamper-proof bulb with rated life of 25,000 hours, can also be added in the field — refer to Class 9999 catalog section for listing of pilot light kits.

Enclosures — Available in NEMA 1 surface mounting enclosure or with gray flush plate for machine cavity mounting. Both types are provided with handle guards having provision for padlocking.

Approximate Dimensions and Shipping Weights



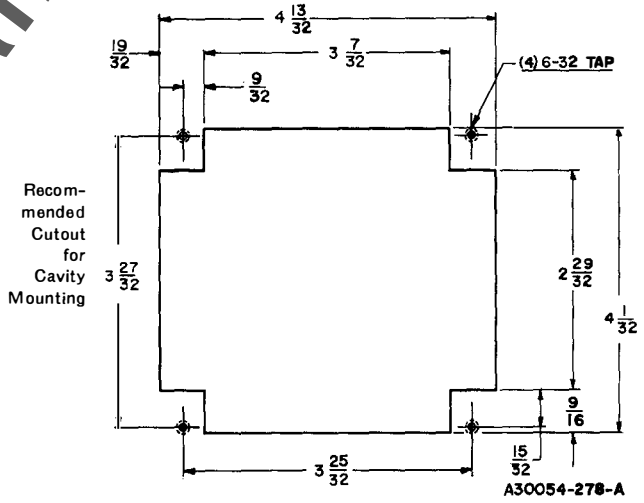


NEMA TYPE 1 ENCLOSURE

Weight — 2 lbs.

Class	Type
2511★	KG-11, 11A, 11B, 22, 22A, 22B, 22C
2512	KG-11, 11A, 11B, 22, 22B, 22C

★Only one pilot light (located on right) is used on Class 2511 switches.



CAVITY MOUNTING

Weight — 1¼ lbs.

Class	Type	Dimension			
		A	B	C	D
2511◐	KF-11, 11A, 11B KF-22, 22A, 22B, 22C	4 9/16	3¾	4½	1⅞ †
2512	KF-11, 11A, 11B KF-22, 22B, 22C				

◐Only one pilot light (located on right) is used on Class 2511 switches.
†Dimension includes factory wired power connections.

All dimensions are in inches.

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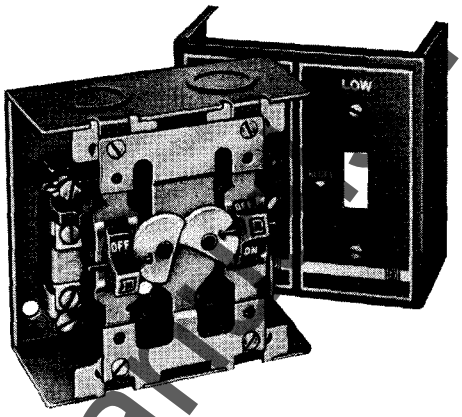
CLASS 2512 AC TWO SPEED FRACTIONAL HORSEPOWER MANUAL STARTERS

With Melting Alloy Type Thermal Overload Relays

Type F two speed manual starters are designed for control of small single phase ac motors having separate windings for high and low speed operation. Two toggle operated starters are used, with overload protection included for each motor winding. On devices with stainless steel flush plate the toggle operators are normally left ON, and are used only for resetting the overload trip mechanism. A HIGH-OFF-LOW selector switch on these versions is used to stop the motor or run it in the desired speed. Surface mounting devices, and those with gray flush plate, utilize a mechanical interlock which allows direct control of the motor by means of the toggle operators.

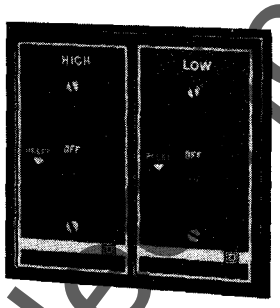


Type FG-22 (Cover Removed)

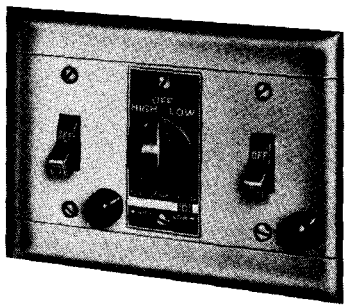
FOR TWO WINDING (3-LEAD) MOTORS — **CLASS 2512** — **115-230 VOLTS AC SINGLE PHASE**

Number of Poles	Features	General Purpose Enclosure Surface Mounting NEMA Type 1		General Purpose Flush Mounting (Without Pull Box)▲					
				Gray Flush Plate for Cavity Mounting Only		Stainless Steel Flush Plate for Wall or Cavity Mounting		Jumbo Stainless Steel Flush Plate for Wall or Cavity Mounting †	
		Type	Price *	Type	Price *	Type	Price *	Type	Price *
1	With Mechanical Interlock:								
	Standard	FG-11	$25.	FF-11	$24.	.....	....	.....	....
	With 2 Pilot Lights	FG-11P	36.	FF-11P	35.	.....	....	.....	....
	With HIGH-OFF-LOW Selector Switch:								
	With 2 Pilot Lights	.....	....	.....	....	FS-101P	$36.	FSJ-101P	$39.
2	With Mechanical Interlock:								
	Standard	FG-22	27.	FF-22	26.	.....	....	.....	....
	With 2 Pilot Lights	FG-22P	38.	FF-22P	37.	.....	....	.....	....
	With HIGH-OFF-LOW Selector Switch:								
	With 2 Pilot Lights	.....	....	.....	....	FS-202P	38.	FSJ-202P	41.

*Prices include two overload relay thermal units. Deduct $1.50 each if thermal units are omitted.
†Jumbo flush plate is recommended for difficult wall surfaces such as concrete block or tile.
▲Stainless steel versions fit standard 3-gang switch box. Type FF starters are not suitable for wall mounting — pull box not available.



Type FF-22



Type FS-202P

APPLICATION DATA

Poles — 1 or 2 poles on each speed.

Voltage Rating — 115-230 volts ac.

Horsepower Rating — 1 hp maximum (1 or 2 pole).

Basic Starter — Devices employ two Class 2510 Type F starters, as described in the Class 2510 catalog section. Special toggle handles are used on those devices having a mechanical interlock.

Wiring — Starters are furnished with necessary interwiring and a complete wiring diagram. Only line and load leads need be installed by the user.

Pilot Light — Neon pilot lights (one for each speed) are available on all devices. Each unit utilizes an NE-51 (ASA B1A) bulb and a red lens. Kits are available for field addition of these pilot lights to starters with NEMA 1 enclosure or gray flush plate — refer to Class 9999 catalog section for kit listing.

Lockout — Handle guards with provision for padlocking can be added in the field — use two Class 2510 Type FL-1 kits.

ORDERING INFORMATION REQUIRED
1—Class and type number of device.
2—Quantity and type number of thermal units.

THERMAL UNITS
Refer to tab "Overload Relay Selection".

PILOT LIGHT KITS
Refer to Class 9999 catalog section.

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SUPERSEDES:
Class 2512
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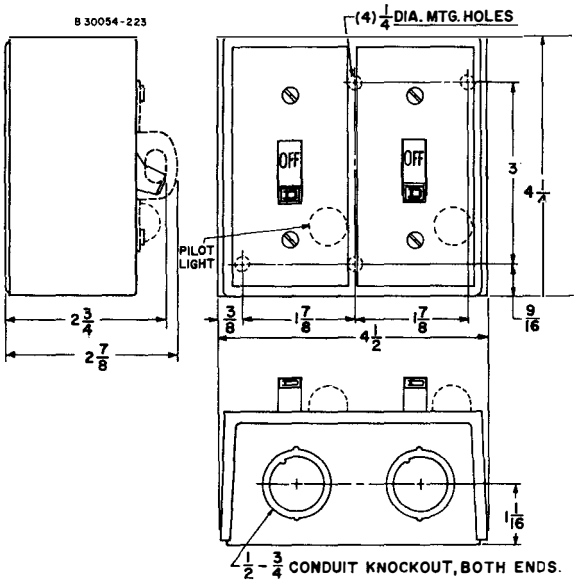
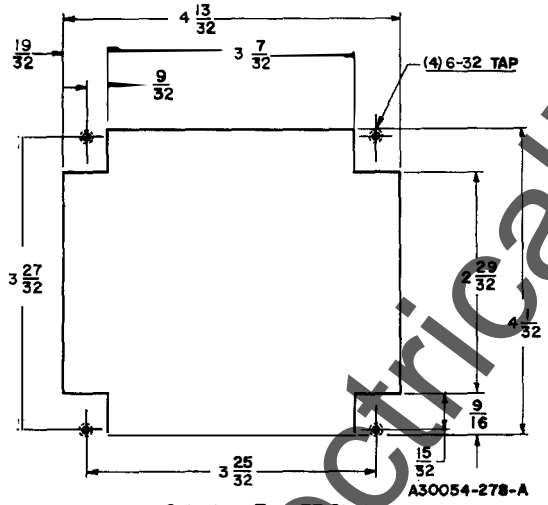
CLASS 2512 AC TWO SPEED FRACTIONAL HORSEPOWER MANUAL STARTERS

Approximate Dimensions and Shipping Weights

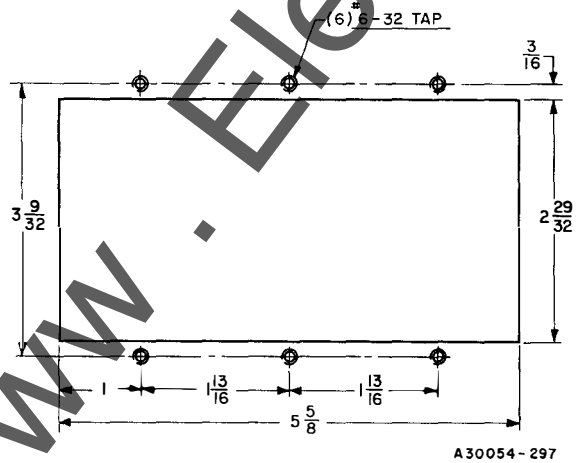


NEMA TYPE 1 ENCLOSURE

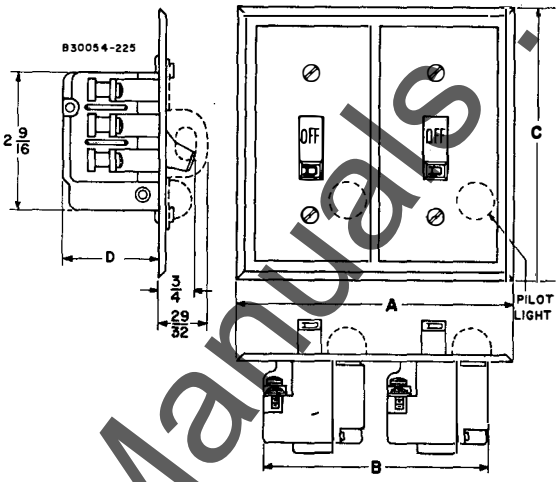
Types FG-11, 11P, 22, 22P — Weight 2 lbs.



Cutout for Type FF Starters



Cutout for Type FS or FSJ Starters when Cavity Mounted

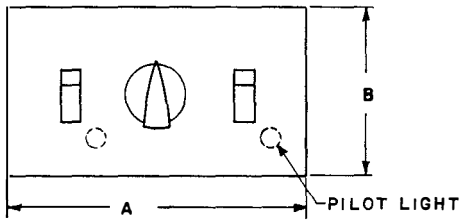


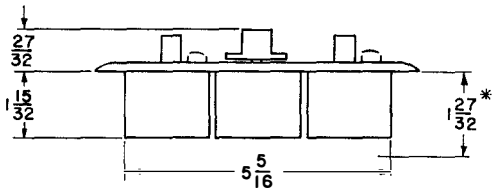
WITH GRAY FLUSH PLATE★

Type	Dimension				Weight
	A	B	C	D	
FF-11, 11P, 22, 22P	4 9/16	3 3/4	4 1/2	1 3/4 †	1 1/4 lbs.

★Type FF starters do not fit standard switch box. Recommended cutout for cavity mounting is shown at left.

†Dimension includes factory wired power connections.





* DIM. IS OVER FACTORY WIRED POWER CONNECTIONS

WITH STAINLESS STEEL FLUSH PLATE◐

Type	Dimension		Weight
	A	B	
FS-101P, 202P	6 3/8	4 1/2	1 1/2 lbs.
FSJ-101P, 202P	7 1/8	5 1/4	

◐Type FS and FSJ starters fit standard 3-gang switch box. Recommended cutout for cavity mounting is shown at left.

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