

# Manual Control

## Fractional HP Starters, Class SMF

General

### Class SMF

Class SMF fractional horsepower starters provide overload protection as well as manual on-off control for small horsepower motors in a variety of industrial and commercial applications. Available in one or two pole versions, these devices are suitable for use with AC single phase motors up to 1 HP. Two pole starters can also be used with DC motors up to 3/4 HP. Typical applications include fans, conveyors, pumps, and small machine tools.

#### Continuous Current Rating

16 amperes.

#### Overload Trip Assembly

Motor protection is provided by a Class SMFH heater element which must be installed before the starter will operate.

#### Two Speed Starters

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. Surface mounting devices, and those with a gray flush plate, utilize a mechanical interlock which allows direct control of the motor by means of the toggle operators.

#### Enclosures

Class SMF, NEMA Type 1 surface mounting enclosures are sheet steel with a thermo-plastic wrap-around cover for convenience in wiring. The NEMA Type 1 enclosure is also available in an oversized version which allows more wiring space. A zinc alloy die casting is used for NEMA Type 4 enclosures.

#### Pilot Lights

Red or green neon pilot light units are available for flush mounting plates, NEMA Type 1 enclosures, and NEMA Type 4 enclosures. Pilot lights may be either factory or field installed. (For starters that contain a pilot light, a Red light is standard. For a Green pilot light add "G" to the end of the catalogue number.)

#### Terminals

Binding 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 lights, are suitable for wall mounting in a standard switch box or for machine cavity mounting without a box.

#### Operation

Available with toggle handle or with removable key type operator to discourage unauthorized operation.



**Class SMF Starter**  
In a NEMA Type 1 Enclosure with Pilot Light

#### Emergency Off Actuator

A toggle operator extender is available for Class SMF, NEMA Type 1 surface mounted units. The extender has a red vinyl button that provides a fast and easy method for locating and switching the device's toggle operator into the OFF position. The Emergency Off Actuator is available in kit form only for field installation.


#### Handle Guard/Lock-Off

An optional handle guard on Class SMF, NEMA Type 1 enclosed starters prevents accidental operation of the toggle operator and also allows the toggle operator to be padlocked in either the "ON" or "OFF" position. This handle guard can be factory installed on NEMA Type 1 enclosed starters and is also available in kit form for field installation on NEMA Type 1 surface and flush mounting enclosures. Standard NEMA Type 4 metallic enclosures include provisions for padlocking the device in the OFF position.

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## Fractional HP Starters, Class SMF

Selection

 <p><b>Class SMF Starter</b> In a NEMA Type 1 Enclosure with Pilot Light</p>	<b>Ordering Information</b> <ul style="list-style-type: none"> <li>▶ Heater Elements see page 17-7.</li> <li>▶ Technical Data see <a href="http://www.sea.siemens.com/controls">www.sea.siemens.com/controls</a></li> <li>▶ Field Modification Kits see page 17-6.</li> </ul>	<b>Horsepower Ratings</b>			
		Volts	Maximum Horsepower		
			AC Single Phase		DC
			1 Pole	2 Pole	2 Pole
	115-230	1	1	3/4	
	277	1	1	—	

### Starter - Class SMF, Single Phase<sup>①</sup>

Type of Operator	No. of Poles	Starter Features <sup>⑤</sup>	Open Type Catalogue Number	General Purpose Flush Mounting Open Starter with Flush Plate - (No Enclosure Provided)			NEMA Type 1 General Purpose Enclosure, Surface Mounting		NEMA Type 3R, 4 & 12 Watertight, Dust-tight, Metallic Enclosure with Clear Cover	NEMA Type 4 Watertight, Dust-tight, Metallic Enclosure	NEMA Type 7 & 9 Class I Groups B, C, D & Class II Groups E, F, G Enclosures
				Gray Flush Plate Catalogue Number	Standard Stainless Steel Flush Plate Catalogue Number	Jumbo Stainless Steel Flush Plate Catalogue Number	Standard Catalogue Number	Oversized Catalogue Number			
Toggle	1	Standard	SMFF01	SMFFF1	SMFFS1	—	SMFFG1	SMFFGJ1	SMFFWN1	—	—
		Red Pilot Light	SMFF01P	SMFFF1P	SMFFS1P	SMFFSJ1P	SMFFG1P	SMFFGJ1P	SMFFWN1P	—	—
	2	Standard	SMFF02	SMFFF2	SMFFS2	—	SMFFG2	SMFFGJ2	SMFFWN2	—	—
		Red Pilot Light	SMFF02P	SMFFF2P	SMFFS2P	SMFFSJ2P	SMFFG2P	SMFFGJ2P	SMFFWN2P	—	—
Key	1	Standard	SMFF03	SMFFF3	SMFFS3	—	SMFFG3	SMFFGJ3	SMFFWN3	—	—
		Red Pilot Light	SMFF03P	SMFFF3P	SMFFS3P	SMFFSJ3P	SMFFG3P	SMFFGJ3P	SMFFWN3P	—	—
	2	Standard	SMFF04	SMFFF4	SMFFS4	—	SMFFG4	SMFFGJ4	SMFFWN4	—	—
		Red Pilot Light	SMFF04P	SMFFF4P	SMFFS4P	SMFFSJ4P	SMFFG4P	SMFFGJ4P	SMFFWN4P	—	—

### One Starter in Duplex Enclosure - Class SMF, Single Phase<sup>①</sup>

Type of Operator	No. of Poles	Starter Features <sup>⑤</sup>	General Purpose Flush Mounting Open Starter with Flush Plate - (No Enclosure Provided)		NEMA Type 1 General Purpose Enclosure, Surface Mounting	Replacement Starters
			Gray Flush Plate For Wall or Cavity Mounting Catalogue Number	Stainless Steel Flush Plate For Wall or Cavity Mounting Catalogue Number		
Toggle	2	Standard	—	—	SMFFG02	—
		Red Pilot Light	—	—	SMFFG02P	—
Key	2	Red Pilot Light	—	—	SMFFG04P	—

### Two Starters In Duplex Enclosure - Class SMF, Single Phase<sup>③</sup>

Toggle	2 Per Starter	Standard	SMFFF222	—	SMFFG222	—
		Red Pilot Light on Each Starter	SMFFF222P	SMFFS222P	SMFFG222P	—
Key	2 Per Starter	Red Pilot Light on Each Starter	SMFFF44P	SMFFS44P	SMFFG44P	—

### Starter And "Auto-Off-Hand" SPDT Selector Switch (AC Only) - Class SMF, Single Phase<sup>①</sup>

Toggle	1	Standard	SMFFF71	—	SMFFG71	—
		Red Pilot Light	SMFFF71P	SMFFS71P	SMFFG71P	—
	2	Standard	SMFFF72	—	SMFFG72	—
		Red Pilot Light	SMFFF72P	SMFFS72P	SMFFG72P	—
Key	2	Red Pilot Light	SMFFF74P	SMFFS74P	SMFFG74P	—

### Two Speed Starters (AC Only) - Class SMF, Single Phase<sup>③</sup>

Toggle	1	Mechanical Interlock	SMFFF11	—	SMFFG11	SMFF01T
		Mechanical Interlock and (2) Red Pilot Lights	SMFFF11P	—	SMFFG11P	SMFF01PT
		Mechanical Interlock, HIGH-OFF-LOW Selector Switch and (2) Red Pilot Lights	—	SMFFS101P	—	SMFF01PT
	2	Mechanical Interlock	SMFFF22	—	SMFFG22	SMFF02T
		Mechanical Interlock and (2) Red Pilot Lights	SMFFF22P	—	SMFFG22P	SMFF02PT
		Mechanical Interlock, HIGH-OFF-LOW Selector Switch and (2) Red Pilot Lights	—	SMFFS202P	—	SMFF02PT

① One heater element required.  
② Furnished with (1) 3/4" NPT Outlet in bottom (reversible for top feed).

③ Two heater elements required.  
④ Order Open Type starter plus separate handle guard kit.

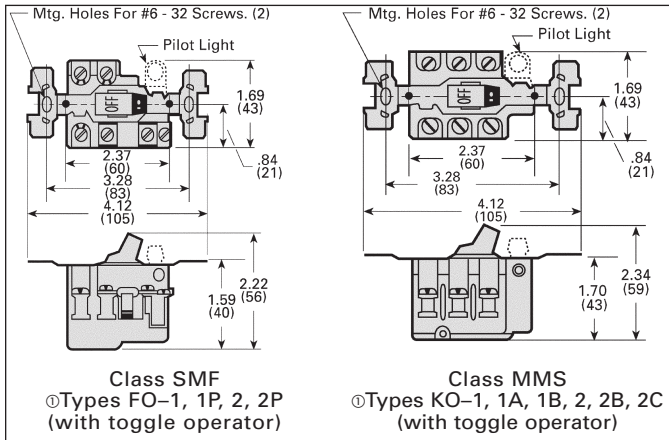
⑤ For starters that contain a pilot light, a Red light is standard. For a Green pilot light add "G" to the end of the catalogue number.

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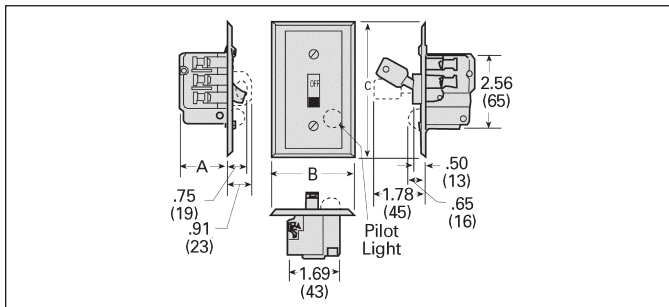
## Class SMF, MMS

### Dimensions

#### Class SMF and MMS Open Type

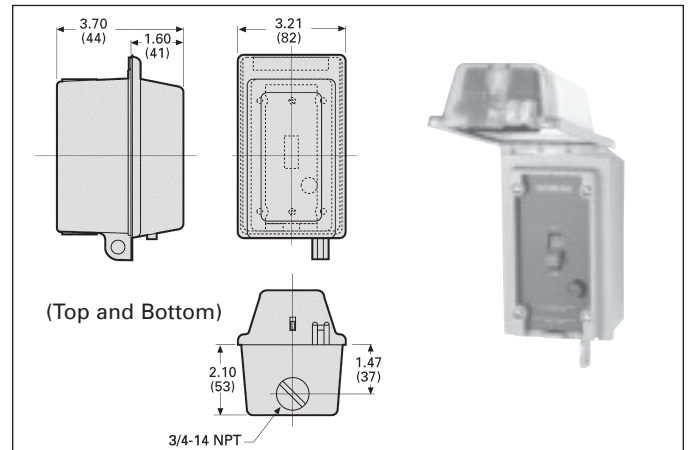


#### NEMA Type 1B General Purpose Flush Mounting



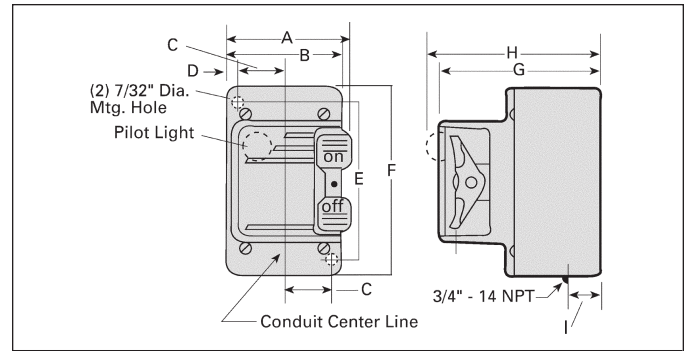
Device	Type of Operator	Type	Dimensions in Inches (mm)		
			A	B	C
Class SMF Fractional HP Starter	Toggle	FF1, 1P, 2, 2P	1.44 (37)	2.75 (70)	4.50 (114)
		FS1, 1P, 2, 2P	1.44 (37)	3.50 (89)	5.25 (133)
	Key	FF3, 3P, 4, 4P	1.44 (37)	2.75 (70)	4.50 (114)
		FS3, 3P, 4, 4P	1.44 (37)	3.50 (89)	5.25 (133)
Class MMS Motor Starting Switch	Toggle	KF1, 1A, 1B, 2, 2B, 2C	1.75 (44)	2.75 (70)	4.50 (114)
		KS1, 1A, 1B, 2, 2B, 2C	1.75 (44)	3.50 (89)	5.25 (133)
	Key	KF3, 3A, 3B, 4, 4B, 4C	1.75 (44)	2.75 (70)	4.50 (114)
		KS3, 3A, 3B, 4, 4B, 4C	1.75 (44)	3.50 (89)	5.25 (133)

#### NEMA Type 3R, 4 and 12



Device	Class	Type
Fractional HP Starter	SMF	FWN1, 1P, FWN2, 2P FWN3, 3P, FW4, 4P
Motor Starting Switch	MMS	KWN1, 1A, 1B, KWN2, 2B, 2C KWN3, 3A, 3B, KWN4, 4B, 4C

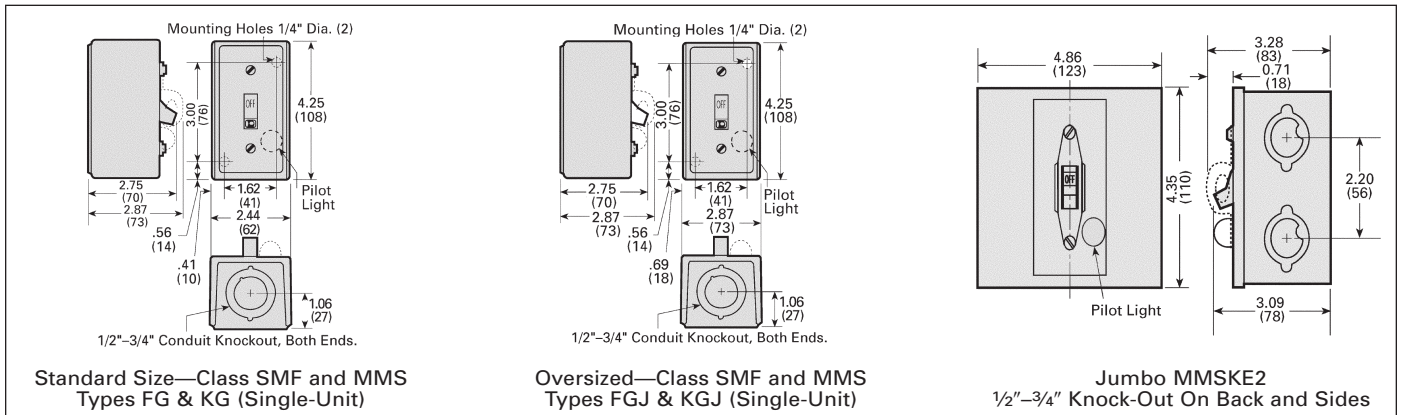
#### NEMA Type 4 Watertight Die Cast Zinc Enclosure



Dimensions in Inches (mm)								
A	B	C	D	E	F	G	H	I
3.00 (76)	2.75 (70)	1.13 (28)	0.25 (6)	3.75 (95)	4.69 (119)	4.25 (108)	4.56 (116)	0.78 (20)

Device	Class	Type
Fractional HP Starter	SMF	FW1, 1P, 2, 2P
Motor Starting Switch	MMS	KW1, 1A, 1B, 2, 2B, 2C

#### NEMA Type 1 General Purpose Surface Mounting Enclosures



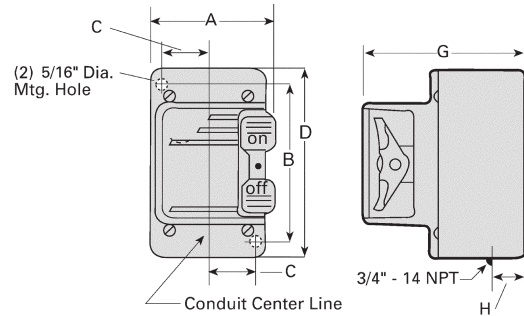
Note: Dimensions for reference, not for construction. Dimensions are in inches (mm).

Ⓞ Dimensions typical for key operator devices.

### NEMA Type 7 and 9 Cast Aluminum Enclosure

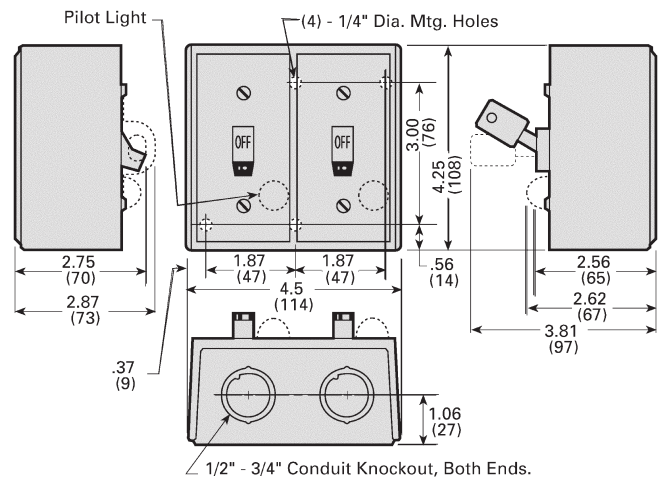
Dimensions in Inches (mm)					
A	B	C	D	G	H
4.00 (101)	5.75 (146)	1.38 (35)	6.36 (161)	4.38 (111)	1.20 (30)

Device	Class	Type
Fractional HP Starter	SMF	FR1, FR2
Motor Starting Switch	MMS	KR1, KR2



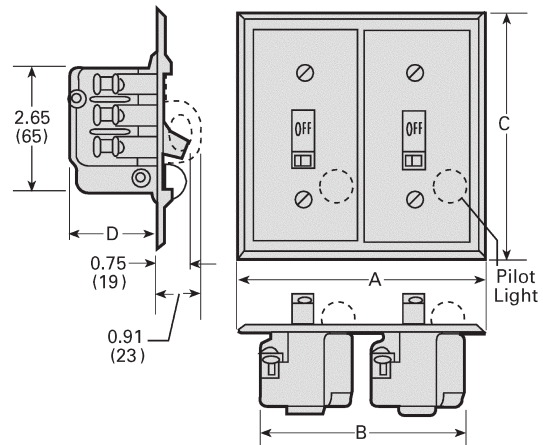
### NEMA Type 1 General Purpose Enclosure For Two Unit Devices

Device	Type of Operator	Class	Type
One Starter	Toggle	SMF	FG02, 02P
	Key	SMF	FG04P
Two Starters	Toggle	SMF	FG22, 222P
	Key	SMF	FG44P
One Starter and One Sel. Switch <sup>①</sup>	Toggle	SMF	FG71, 71P, 72, 72P
	Key	SMF	FG74P
Reversing Switch <sup>②</sup>	Toggle	MRS	KG11, 11A, 11B, 22, 22A, 22B, 22C
Two Speed Starter	Toggle	SMF	FG11, 11P, 22, 22P
Two Speed Switch	Toggle	MMS	KG11, 11A, 11B, 22, 22B, 22C



### NEMA Type 1B General Purpose Flush Mounting For Two Unit Devices

Device <sup>③</sup>	Type of Operator	Class	Type	A	B	C	D
Two Starters	Toggle	SMF	FF22, 22P	5.25 (133)	3.75 (95)	5.25 (133)	1.44 (37)
			FS22P	4.56 (116)	3.50 (89)	4.50 (114)	1.44 (37)
	Key	SMF	FF44P	5.25 (133)	3.75 (95)	5.25 (133)	1.44 (37)
			FS44P	4.56 (116)	3.50 (89)	4.50 (114)	1.44 (37)
One Starter and One Selector Switch <sup>④</sup>	Toggle	SMF	FF71, 71P, 72, 72P	5.25 (133)	0.75 (19)	5.25 (133)	2.00 (51)
			FS71P, 72P	4.56 (116)	3.50 (89)	4.50 (114)	2.00 (51)
	Key	SMF	FF74P	5.25 (133)	3.75 (95)	5.25 (133)	2.00 (51)
			FS74P	4.56 (116)	3.50 (89)	4.50 (114)	2.00 (51)
Reversing Switch	Toggle	MRS	KF11, 11A, 11B KF22, 22A 22B, 22C	5.25 (133)	3.75 (95)	5.25 (133)	1.75 (44)
Two Speed Switch	Toggle	SMF	FF11, 11P, 22, 22P	5.25 (133)	3.75 (95)	5.25 (133)	1.44 (37)
Two Speed Switch	Toggle	MMS	KF11, 11A, 11B 22, 22B, 22C	5.25 (133)	3.75 (95)	5.25 (133)	1.44 (37)



**Note:** Dimensions for reference, not for construction. Dimensions are in inches (mm).

① Selector switch is on the left, increases overall depth to 3.50 in. (89 mm).

② Only one pilot light (located on right) is used on MRS switches.

③ Dimensions include factory wired power connections.

④ Selector switch is on the left, extends 1.62 in. (41 mm) from mounting surface.