

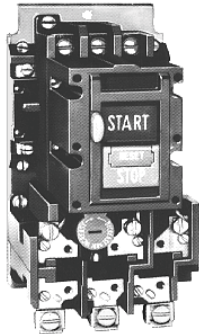
3.1

NEMA Manual Starters

Starters and Switches

3

Type B100, Single- and Three-Phase Starters



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Type B100, Single- and Three-Phase Starters

Product Description

The B100 Manual Motor Starters can be used in single-phase applications rated 3 hp at 240 Vac or 2 hp at 230 Vdc. The starter can also be rated for three-phase applications up to 10 hp at 600 Vac.

There are two methods of operation for the B100 Manual Starter. It can be ordered with a toggle switch operator or a START/STOP pushbutton operator.

Application Description

The B100 family of Manual Motor Starters provides manual control, as well as overload protection, to both single-phase and three-phase motors. The starter protects motors up to 38.9A single-phase and 26.8A three-phase with the appropriate heater selection.

Features

- Includes three-pole bimetallic overload relay
- Straight-through wiring
- Field mounted auxiliary contacts
- Available in NEMA 1, 4, 7, 9 and 12 enclosures with toggle operation (NEMA 1 enclosure for pushbutton operator)
- Standard with a lockout device to lock motor in the OFF position

Standards and Certifications

- UL File No. E19222, Category NLRV
- CSA File No. LR39402-6, Class 3211-05 (Open Starters)
- CSA File No. LR54517-1, Class 3211-05 (Closed Starters)



Instructional Leaflet
IL14890

Product Selection

When Ordering Specify

- Catalog number of Starter with application modifications
- Heater pack selection— a three-phase starter requires three heaters, and a single-phase starter requires two heaters
- Any required accessories

Toggle Operated



Type 1 Enclosure



Toggle and Pushbutton Operated Starters

NEMA Size	Enclosed				
	Open Type Toggle Handle Catalog Number ^④	NEMA 1 General Purpose Catalog Number ^④	NEMA 4 Watertight, Stainless Steel ^① Catalog Number ^④	NEMA 7D, 9E, 9F and 9G for Hazardous Locations ^{②③} Catalog Number ^④	NEMA 12 Dust-Tight Catalog Number ^④
Type B100 Non-Reversing Two-Pole (For Single-Phase Motors and DC)					
M-0	B100M0B	B100S0B	B100W0B	B100U0B	B100J0B
M-1	B100M1B	B100S1B	B100W1B	B100U1B	B100J1B
Type B100 Non-Reversing Three-Pole (For Polyphase Motors) ^④					
M-0	B100M0C	B100S0C	B100W0C	B100U0C	B100J0C
M-1	B100M1C	B100S1C	B100W1C	B100U1C	B100J1C

Heater Selection—Single-Phase Enclosed Starters ^⑤

Motor Full Load Current	Maximum Fuse Amps	Catalog Number	Motor Full Load Current	Maximum Fuse Amps	Catalog Number	Motor Full Load Current	Maximum Fuse Amps	Catalog Number
0.28–0.29	1	FH03	1.90–2.10	7	FH22	9.59–10.40	35	FH40
0.30–0.33	1	FH04	2.11–2.32	8	FH23	10.41–11.30	35	FH41
0.34–0.36	1	FH05	2.33–2.54	8	FH24	11.40–12.20	40	FH42
0.37–0.40	1	FH06	2.55–2.79	9	FH25	12.30–13.50	45	FH43
0.41–0.45	1	FH07	2.80–3.07	10	FH26	13.60–14.90	50	FH44
0.46–0.50	1	FH08	3.08–3.36	10	FH27	15.00–16.00	50	FH45
0.51–0.56	1	FH09	3.37–3.68	10	FH28	16.10–17.10	60	FH46
0.57–0.63	2	FH10	3.69–4.03	10	FH29	17.20–18.30	60	FH47
0.64–0.70	2	FH11	4.04–4.40	15	FH30	18.40–19.70	70	FH48
0.71–0.78	2	FH12	4.41–4.81	15	FH31	19.80–21.20	70	FH49
0.79–0.86	2	FH13	4.82–5.26	15	FH32	21.30–22.80	80	FH50
0.87–0.95	3	FH14	5.27–5.74	15	FH33	22.90–24.50	88	FH51
0.96–1.04	3	FH15	5.75–6.26	20	FH34	24.60–26.40	90	FH52
1.05–1.14	3	FH16	6.27–6.83	20	FH35	26.50–28.50	90	FH53
1.15–1.25	4	FH17	6.84–7.45	25	FH36	28.60–30.80	100	FH54
1.26–1.39	4	FH18	7.46–8.11	25	FH37	30.90–33.30	110	FH55
1.40–1.54	5	FH19	8.12–8.81	30	FH38	33.40–36.00	125	FH56
1.55–1.71	5	FH20	8.82–9.58	30	FH39	36.10–38.90	125	FH57
1.72–1.89	6	FH21	—	—	—	—	—	—

Notes

- ① One 1 in chrome hub supplied on each end.
- ② NEMA 7D = NEMA 7, Class I, Group D. NEMA 9E, 9F and 9G = NEMA 9, Class II, Groups E, F and G.
- ③ Tapped for 1 in conduit on each end.
- ④ Starter does not include heaters. Select catalog numbers of heaters from table on Page V5-T3-12.
- ⑤ Single-phase starters require two overload heaters.

Heater Selection—Three-Phase Enclosed Starters ^②

Motor Full Load Current	Maximum Fuse Amps	Catalog Number	Motor Full Load Current	Maximum Fuse Amps	Catalog Number	Motor Full Load Current	Maximum Fuse Amps	Catalog Number
0.25–0.26	1	FH03	1.51–1.66	5	FH21	7.12–7.73	25	FH38
0.27–0.29	1	FH04	1.67–1.84	6	FH22	7.74–8.40	25	FH39
0.30–0.32	1	FH05	1.85–2.03	7	FH23	8.41–9.12	30	FH40
0.33–0.35	1	FH06	2.04–2.23	7	FH24	9.13–9.89	35	FH41
0.36–0.39	1	FH07	2.24–2.45	8	FH25	9.90–10.70	35	FH42
0.40–0.44	1	FH08	2.46–2.69	9	FH26	10.80–11.80	40	FH43
0.45–0.49	1	FH09	2.70–2.95	10	FH27	11.90–13.00	45	FH44
0.50–0.55	1	FH10	2.96–3.23	10	FH28	13.10–14.00	50	FH45
0.56–0.61	2	FH11	3.24–3.53	10	FH29	14.10–15.00	50	FH46
0.62–0.68	2	FH12	3.54–3.85	10	FH30	15.10–16.10	50	FH47
0.69–0.75	2	FH13	3.86–4.22	10	FH31	16.20–17.30	60	FH48
0.78–0.83	2	FH14	4.23–4.61	15	FH32	17.40–18.60	60	FH49
0.84–0.91	3	FH15	4.62–5.03	15	FH33	18.70–20.00	70	FH50
0.92–1.00	3	FH16	5.04–5.49	15	FH34	20.10–21.50	70	FH51
1.01–1.10	3	FH17	5.50–5.99	20	FH35	21.60–23.20	80	FH52
1.11–1.22	4	FH18	6.00–6.53	20	FH36	23.30–25.00	80	FH53
1.23–1.3	4	FH19	6.54–7.11	25	FH37	25.10–26.80	90	FH54
1.36–1.50	5	FH20	—	—	—	—	—	—

Accessories

Type B100 Starters

Description	Catalog Number
Field Mounting Kits	
1NO elect. auxiliary	B1A
1NC elect. auxiliary	B1B
Red pilot light 120/60 (NEMA 1 enclosure only)	LK-21
Red pilot light 208-240/6 (NEMA 1 enclosure only)	LK-22
Red pilot light 480-600/60 (NEMA 1 enclosure only)	LK-26

Options

Modifications

Description	Catalog Number Suffix ^③
Pushbutton operator (open and NEMA 1 only)	A
Without lockoff (open only)	X

Notes

- ① Single-phase starters require two overload heaters.
- ② Three-phase starters require three overload heaters.
- ③ Add suffix letter to starter catalog number Example: B100MOCA.

FH Series heaters are for Type B100 manual motor starters. Heater element selection is based on motor nameplate's listed full load amperes. Trip rating of this series of elements is 125% of minimum motor full load amperes listed for the element. When motor and overload relay are in the same ambient and the service factor of the motor is 1.15 to 1.25, select heaters from the heater selection table. If the service factor is 1.0 or less (including zero), or a maximum of 115% protection is desired, select a heater one size smaller than indicated for the amperage range required.

Technical Data and Specifications

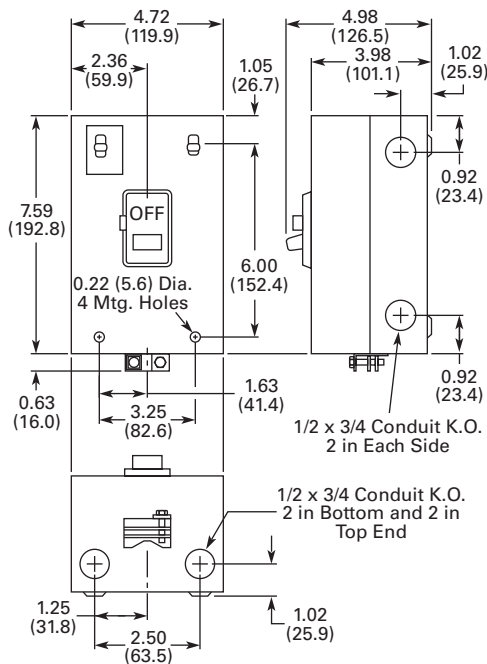
Type B100 Starters

NEMA Size	Maximum hp for AC Ratings ^①			Maximum hp for DC Ratings	
	120 Vac	208-240 Vac	480-600 Vac	115 Vdc	230 Vdc
Two-Pole, Single-Phase					
M-0	1	2	—	1	1-1/2
M-1	2	3	—	1-1/2	2
Three-Pole, Three-Phase					
M-0	2	3	5	—	—
M-1	3	7-1/2	10	—	—

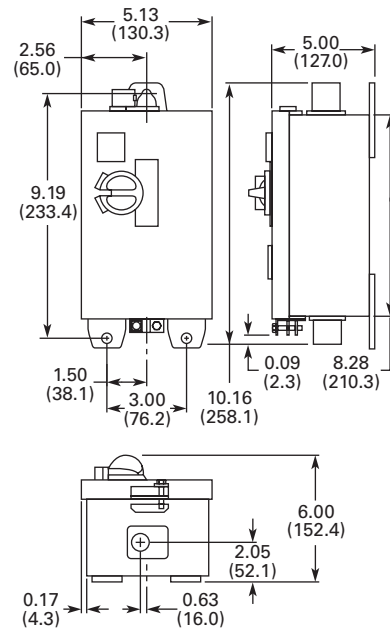
Dimensions

Approximate Dimensions in Inches (mm)

Type 1 Enclosed



Type 4 Enclosed



Note

^① Ratings up to 3 hp, three-phase are suitable for group fusing.

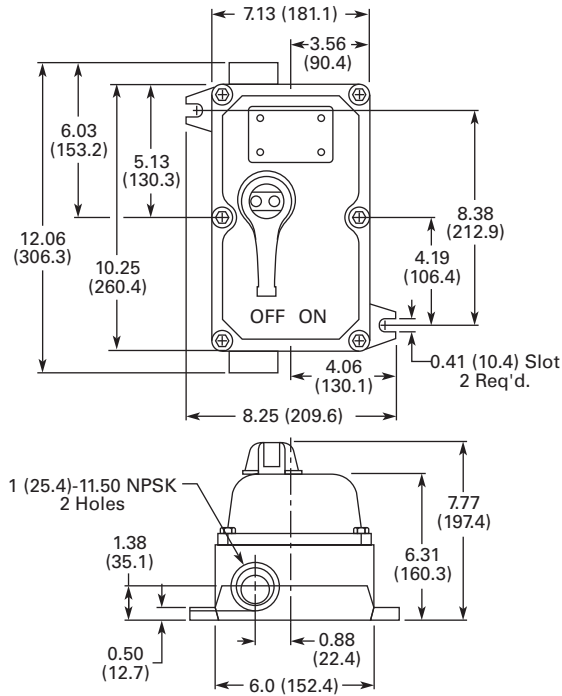
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NEMA Manual Starters

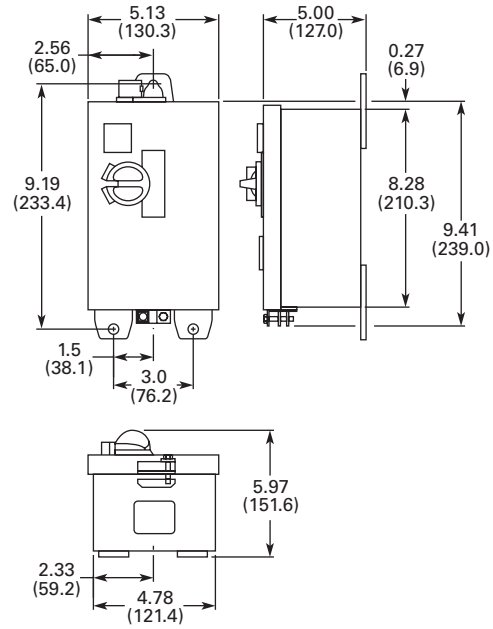
Starters and Switches

Approximate Dimensions in Inches (mm)

Type 7 and 9 Enclosed



Type 12 Enclosed



Open, Non-Reversing Starter

