

Multi-Pak Group Control

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Multi-Pak Group

Product Family Overview



Multi-Pak Grouping

Product Description

Eaton's Cutler-Hammer Multi-Pak Group Control provides a convenient and economical method of grouping a number of starters and/or control devices. They are an effective solution for applications where the quantity of equipment required or the floor space available does not permit application of control centers or the use of individual starters. The result is a lower field installation cost and a less cluttered appearance. The Multi-Pak is ideally suited for wall mount installations, requiring only 32"L x 26"H space for four compartments or 48"L x 26"H for six compartments. Combinations of 4, 6, 8, 10, 12, 14, etc. compartments can be easily made. Multi-Pak is available in module form or can be completely factory assembled.

Application Description

Multi-Pak starters are designed to save time, space and expense in installing motor control devices — whether for residential, commercial or industrial buildings. The modular assembly allows versatile, on-the-job arrangement of Sizes 1 – 4 combination starters with ambient compensated relays, incoming or feeder circuit breakers or fusible disconnect switches, pushbuttons, control transformers, timers, relays and fuses. The enclosures and separate, prewired modules are field-stocked and can be ordered individually permitting field tailoring to suit the application.

Features

Enclosures

The Type 1 enclosures are partitioned into either four or six compartments to hold combination starter modules, incoming or feeder circuit breakers, fusible switches or other auxiliary devices. The barriers can be removed to provide oversized spaces. Each enclosure holds up to four Size 1 or 2 full voltage, non-reversing combination starter modules; up to two Size 3 or 4 starter modules, or a combination of both size ranges.

The compartments have hinged doors interlocked to prevent opening when the breaker switch is in the ON position. The disconnect operating mechanism can be padlocked in the OFF position.

In addition to the barriered compartments, the enclosure contains two wiring troughs. The top section is a wireway fitted with three power terminal straps, each having terminals for extension to adjoining enclosures and to all four compartments. The incoming line and extension terminals are suitable for either copper or aluminum conductors from No. 6 to 350 MCM. At the bottom of the enclosure is another wiring trough for interconnecting wiring and outgoing cables.

The Multi-Pak enclosure adapts easily to installation requirements. Multiple units can be arranged to suit the space available — horizontally on a single line or two-high. Knockouts are provided at the top, bottom and sides of the enclosures for conduit connection. Conduit can be installed and cables pulled as dictated by the construction schedule. Combination starter modules and incoming or feeder devices can be installed days, months or years later.

Hinged front doors provide easy access to each module. The doors are gasketed with fire retardant material. Knockouts on the doors provide pushbuttons and indicating light mountings.

Combination Starter Modules

Starter modules consist of an A200 magnetic line-starter prewired with a motor circuit protector or a fusible DS disconnect switch on a panel. Full voltage non-reversing and reversing combination starters are available. An external RESET button is mounted on the starter module door. With its versatile modular design, the Multi-Pak starter permits a variety of motor control groupings. One module can contain many different arrangements of devices such as combination linestarters with control transformers, and/or relays, two-feeder circuit breakers or fusible switches.



Feeder Modules

Feeder Modules

Like combination starter modules, breaker/switch modules are factory assembled on a formed steel panel. They are shipped complete with a door for field mounting. The module and door for feeder breakers through 100A or 30A and 60A fusible switches are normally furnished with a single breaker or switch in the top position with provisions for field mounting a second device in the lower position. A kit contains the operator, spacers, insulation and necessary hardware for adding a second device. Feeder modules for higher ratings are single units only.

Standards and Certifications

Note: See Page 18-2 for additional information on Standards and Certifications that apply to all Cutler-Hammer Enclosed Control products.

- UL Listed
- cUL Listed
- ABS Type Approved

Accessories

Transformer Kits

Includes transformer, fuse clip mounting and fuse clip.

Table 12-1. Transformer Sizes ①

Size	VA Capacity	
	Freedom	Vacuum
0	50	—
1, 2	100	—
3	150	—
4	200	100
5	200	150
6	250	350

① Non-reversing, single contactor only.

Table 12-2. Control Transformer Kits

Continuous VA	Primary 208/277V Secondary 120V, 60 Hz	Primary 240/480V, 60 Hz 220/440V, 50 Hz Secondary 120V, 60 Hz 110V, 50 Hz	Primary 380V Secondary 110V, 50 Hz	Primary 600V, 60 Hz 550V, 50 Hz Secondary 120V, 60 Hz 110V, 50 Hz	Primary 240/480V, 60 Hz Secondary 24V, 60 Hz
	Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number
50	C341AE	C341AC	C341AL	C341AD	C341AS
75	C341BE	C341BC	C341BL	C341BD	C341BS
100	C341CE	C341CC	C341CL	C341CD	C341CS
150	C341DE	C341DC	C341DL	C341DD	C341DS
200	C341EE	C341EC	C341EL	C341ED	C341ES
250	C341FE	C341FC	C341FL	C341FD	C341FS
300	C341GE	C341GC	C341GL	C341GD	C341GS
350	C341HE	C341HC	C341HL	C341HD	C341HS
500	C341JE	C341JC	C341JL	C341JD	C341JS

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Breaker/Switch Modification Kits

Kit includes all necessary hardware for mounting Type T 30 or 60 ampere Visi-Flex Switch or any Type FD or HMCP circuit breaker in the lower blank location in any of the switch or breaker modules as noted. The switch or breaker is not included with the kit.

Table 12-3. Breaker/Switch Kits

Description	Catalog Number
Modification kit for 2nd fusible switch	6263A18G01
Modification kit for 2nd circuit breaker	6263A18G02

Terminal Kits

Table 12-4. Terminal Kits

Description	Catalog Number
Neutral or replacement kit	6263A18G08

Modification Codes

Table 12-5. Factory Installed Modifications

Description	Modification Number
Pushbutton ②	
2 Unit	1
3 Unit	1
2 or 3 Unit Selector Switch ②	2
Indicating Light (specify color) ②	3
Push-to-Test Indicating Light ②	4
Extra Auxiliary Contact (per contact)	5
Control Relay (D15) ③	
2 Pole	6
4 Pole	6
Timing Relay ③	7
Substitute Mark 75 Breaker for standard or feeder unit	8
Control Transformer ④	
Size 1	9
Size 2	9
Size 3	9
Size 4	9

② Three devices per module maximum.

③ Refer to factory for spacing.

④ Primary and secondary fusing supplied.

Note: For more Modification Codes, see **Page 16-40**.

Starter Modules

Product Selection

When Ordering Specify

- Orders for modules, kits, etc. for field assembly should be ordered by Catalog Number.
- Orders for factory assembled units should be placed on the Customer Support Center. All modules, kits, etc. should be ordered by Catalog Number with a written description of desired modifications. (Use the modification number where possible).
- Provide a sketch or written description to define the desired locations of the modules in each enclosure along with your order.

Starter Modules with Fusible Disconnect

Table 12-6. Starter Modules with Fusible Disconnect Product Selection ③

NEMA Size	Maximum Horsepower				NEC Fuse Clip Rating		Compartment Required	Catalog Number			
	208/230 Volts		460 – 575 Volts		Volts	Amps		Coil Voltage			
	NEC Fuses	Dual Element	NEC Fuses	Dual Element				120	240	480	550

Class 204 — Three-Phase Non-reversing Combination Starters

1	3	7-1/2	5	10	600 ②	30	1	6263A08G05	6263A08G01 ①	6263A08G01 ①	6263A08G09
1	7-1/2	—	10	—	600 ②	60	1	6263A08G06	6263A08G02 ①	6263A08G02 ①	6263A08G10
2	7-1/2	15	15	25	600 ②	60	1	6263A08G07	6263A08G03 ①	6263A08G03 ①	6263A08G11
2	15	—	—	—	250	100	1	6263A08G08	6263A08G04 ①	6263A08G04 ①	—
3	15	30	—	—	250	100	2	6263A09G01	6263A09G02	—	—
3	30	—	—	—	250	200	2	6263A09G03	6263A09G04	—	—
3	—	—	30	50	600	100	2	6263A09G05	—	6263A09G06	6263A09G07
3	—	—	50	—	600	200	2	6263A09G08	—	6263A09G09	6263A09G10

Class 214 — Three-Phase Reversing Combination Starters

1	3	7-1/2	—	—	250	30	2	6263A10G01	6263A10G02	—	—
1	—	—	5	10	600	30	2	6263A10G03	—	6263A10G04	6263A10G05
1	7-1/2	—	—	—	250	60	2	6263A10G06	6263A10G07	—	—
1	—	—	10	—	600	60	2	6263A10G08	—	6263A10G09	6263A10G10
2	7-1/2	15	—	—	250	60	2	6263A10G11	6263A10G12	—	—
2	—	—	15	25	600	60	2	6263A10G13	—	6263A10G14	6263A10G15
2	15	—	—	—	250	100	2	6263A10G16	6263A10G17	—	—

- ① Dual voltage coil wired for 480 volts; can be field converted to 240 volts.
- ② 600 volt clips are factory installed. A conversion kit for 250 volt fuses is included with starter modules.
- ③ Does not include heaters. See Pages 12-7 and 12-8.

Starter Modules with HMCP Circuit Breaker

Table 12-7. Starter Modules with HMCP Circuit Breaker Product Selection ⑥

NEMA Size	Maximum Horsepower		HMCP Trip Rating in Amperes	Compartments Required	Catalog Number			
	208/230 Volts	460 – 575 Volts			Coil Voltage			
					120	240	480	550

Class 206 — Three-Phase Non-reversing Combination Starters

1	—	1	.69 – 2.5	1	6263A01G08	6263A01G07	6263A01G07	6263A01G09
1	1	2	1.5 – 5.7	1	6263A01G11	6263A01G10	6263A01G10	6263A01G12
1	3	5	3.4 – 12.6	1	6263A01G14	6263A01G13	6263A01G13	6263A01G15
1	7-1/2	10	6.9 – 25.2	1	6263A01G03	6263A01G01 ④	6263A01G01 ④	6263A01G05
2	15	25	11.5 – 42.1	1	6263A01G04	6263A01G02 ④	6263A01G02 ④	6263A01G06
3	30	50	23 – 84.5	2	6362A02G01	6362A02G02	6362A02G03	6362A02G04
4	50	100	34.6 – 126.7	2	6263A03G01	6263A03G02	6263A03G03	6263A03G04

Class 216 — Three-Phase Reversing Combination Starters

1	3 – 7-1/2 ⑤	5 – 10 ⑤	3.4 – 25.2	2	6263A04G01	6263A04G02	6263A04G03	6263A04G04
2	10 – 15	15 – 25	6.9 – 42.1	2	6263A04G05	6263A04G06	6263A04G07	6263A04G08

- ④ Dual voltage coil wired for 480 volts; can be field converted to 240 volts.
- ⑤ For smaller hp, order by description for proper selection of MCP.
- ⑥ Does not include heaters. See Pages 12-7 and 12-8.

Heater Selection Pages 12-7, 12-8
 Modifications Page 12-3
 Dimensions Page 12-9

Product Selection

When Ordering Specify

- Orders for modules, kits, etc. for field assembly should be ordered by Catalog Number.
- Orders for factory assembled units should be placed on the Customer Support Center. All modules, kits, etc.

should be ordered by style number with a written description of desired modifications. (Use the modification number where possible).

- Provide a sketch or written description to define the desired locations of the modules in each enclosure along with your order.

Fusible Main and Feeder Switch Modules (Three-Pole)

Table 12-8. Fusible Main and Feeder Switch Modules Product Selection (Three-Pole) ①

Volts	Switch Amperes	Fuse Clip Amperes	Compartments Required	Catalog Number
Fusible Switch with NEC Fuse Clips — Module with One Switch				
250	30	30	1	6263A14G01
600	30	30	1	6263A14G02
250	60	60	1	6263A14G03
600	60	60	1	6263A14G04
250	60	100	1	6263A14G05
250	100	100	2	6263A15G01
600	100	100	2	6263A15G02
250	100	200	2	6263A15G03
600	100	200	2	6263A15G04

① Includes door.

Note: Two switches 60 amperes and below can be mounted in one compartment. Order by description. If second fusible switch is to be mounted in the field, order modification kit Catalog Number **6263A18G01**, as shown on **Page 12-3**. Doors for fusible switch modules have cutout for second operating handle.

Main and Feeder Air Circuit Breaker Modules

Table 12-9. Main and Feeder Air Circuit Breaker Modules Product Selection ②

Amperes	Poles	Compartments Required	Module with One 600 Volt Therm./Mag. Breaker
			Catalog Number
Type HFD			
15	3	1	6263A16G01
20	3	1	6263A16G02
30	3	1	6263A16G03
40	3	1	6263A16G04
50	3	1	6263A16G05
70	3	1	6263A16G06
90	3	1	6263A16G07
100	3	1	6263A16G08
Type HJD			
125	3	2	6263A17G01
150	3	2	6263A17G02
175	3	2	6263A17G03
200	3	2	6263A17G04
225	3	2	6263A17G05

② Includes door.

Note: Two breakers 100 amperes and below can be mounted in one compartment. Order by description. If second breaker is to be mounted in the field, order modification kit Catalog Number **6263A18G02**, from **Page 12-3**. Doors for breaker modules have cutout for second operating handle.

Enclosures and Blank Doors

Product Selection

When Ordering Specify

- Total number of compartments required.
- Quantity of four compartment and/or six compartment enclosures required. (Include future space requirements.)

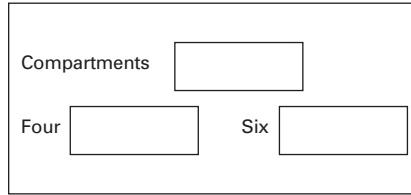


Figure 12-1. Compartments

Table 12-10. Enclosures and Blank Doors Product Selection

Description	Catalog Number
Type 1 Enclosure ① with four compartments with six compartments	6262A70G01 6262A70G02
Dust and Weather Resistant Enclosure to House Type 1 Enclosure with four compartments with six compartments	6262A70G05 6262A70G06
Blank Door for One Compartment Blank Door for Two Compartments and Blank Back Pan for Two Compartments	6262A70G03 6262A70G04

① Incoming line and extension terminals included are suitable for either copper or aluminum conductors from 6 – 350 kcmil.

Heater Selection

Heater Selection

The full load current shown on each motor nameplate should be checked with the heater application tables to assure that the heaters chosen with each starter unit agree with this table and with the actual motor protection requirements. Do not rely on code marking on the heater to indicate current rating. In making this check the following Notes 1 – 3 regarding special conditions should be considered.

Notes on Overload Heater Application

1. The Heater Application Tables provide 115 to 125% protection for motors rated 40°C having a service factor of 1.15 and 1.25.
2. Use one smaller heater when:
 - a. The motor is rated 50° or 55°C.
 - b. The motor has a service factor of 1.00.
 - c. A maximum of 115 protection is desired.
3. Overload relays are ambient compensated, therefore base heater selection on motor current, and disregard ambient temperature differences.

The relay will provide protection against abnormal load conditions to current values exceeding normal locked rotor current. The relay should be protected against short circuits by providing branch circuit protection per National Electric Code, but not to exceed the maximum fuse ratings listed in the Heater tables.

Note: To provide continued protection against fire and shock hazard the complete overload relay must be replaced if burn out of the current element occurs.

Overload Relays, 3-Pole Protection

Table 12-11. Heater Selection — Starter Size 1 ①

Motor Full Load Current in Amperes ②	Style Number	Max. Breaker or Fuse	Catalog Number
0.51 – 0.55	117C524G10	2	FH10
0.56 – 0.62	117C524G11	2	FH11
0.63 – 0.68	117C524G12	2.5	FH12
0.69 – 0.75	117C524G13	3	FH13
0.76 – 0.83	117C524G14	3	FH14
0.84 – 0.91	117C524G15	3	FH15
0.92 – 1.00	117C524G16	3	FH16
1.01 – 1.11	117C524G17	4	FH17
1.12 – 1.22	117C524G18	4	FH18
1.23 – 1.34	117C524G19	5	FH19
1.35 – 1.47	117C524G20	5	FH20
1.48 – 1.62	117C524G21	5	FH21
1.63 – 1.78	117C524G22	6	FH22
1.79 – 1.95	117C524G23	6	FH23
1.96 – 2.15	117C524G24	8	FH24

- ① Use in fusible starters only. Do not use with circuit breakers.
 ② Ambient compensated.

Table 12-12. Heater Selection — Starter Size 1 & 2

Motor Full Load Current in Amperes ④	Style Number	Max. Breaker or Fuse	Catalog Number
2.16 – 2.35 ③	117C524G25	8	FH25
2.36 – 2.58 ③	117C524G26	8	FH26
2.59 – 2.83 ③	117C524G27	10	FH27
2.84 – 3.11 ③	117C524G28	10	FH28
3.12 – 3.42 ③	117C524G29	12	FH29
3.43 – 3.73 ③	117C524G30	12	FH30
3.74 – 4.07	117C524G31	15	FH31
4.08 – 4.39	117C524G32	15	FH32
4.40 – 4.87	117C524G33	15	FH33
4.88 – 5.3	117C524G34	20	FH34
5.4 – 5.9	117C524G35	20	FH35
6.0 – 6.4	117C524G36	20	FH36
6.5 – 7.1	117C524G37	25	FH37
7.2 – 7.8	117C524G38	25	FH38
7.9 – 8.5	117C524G39	30	FH39
8.6 – 9.4	117C524G40	30	FH40
9.5 – 10.3	117C524G41	35	FH41
10.4 – 11.3	117C524G42	35	FH42
11.4 – 12.4	117C524G43	40	FH43
12.5 – 13.5	117C524G44	45	FH44
13.6 – 14.9	117C524G45	45	FH45
15.0 – 16.3	117C524G46	50	FH46
16.4 – 18.0	117C524G47	60	FH47
18.1 – 19.8	117C524G48	60	FH48
19.9 – 21.7	117C524G49	70	FH49
21.8 – 23.9	117C524G50	80	FH50
24.0 – 26.2	117C524G51	80	FH51
26.3 – 28.7	117C524G52	90	FH52

- ③ Use in fusible starters only. Do not use with circuit breakers.
 ④ Ambient compensated.

Table 12-13. Heater Selection — Starter Size 2

Motor Full Load Current in Amperes ⑤	Style Number	Max. Breaker or Fuse	Catalog Number
28.8 – 31.4	117C524G53	100	FH53
31.5 – 34.5	117C524G54	125	FH54
34.6 – 37.9	117C524G55	125	FH55
38.0 – 41.5	117C524G56	125	FH56
41.6 – 45.5	117C524G57	150	FH57

- ⑤ Ambient compensated.

Heater Selection

Table 12-14. Heater Selection — Starter Size 3 & 4

Motor Full Load Current in Amperes ^①	Style Number	Max. Breaker or Fuse	Catalog Number
19.0 – 20.8	179C319G02	80	FH72
20.9 – 22.9	179C319G03	90	FH73
23.0 – 25.2	179C319G04	100	FH74
26.3 – 27.8	179C319G05	100	FH75
27.9 – 30.6	179C319G06	110	FH76
30.7 – 33.5	179C319G07	125	FH77
33.6 – 37.5	179C319G08	150	FH78
37.6 – 41.5	179C319G09	150	FH79
41.6 – 46.3	179C319G10	175	FH80
46.4 – 50.0	179C319G11	200	FH81
51.0 – 55.0	179C319G12	200	FH82
56.0 – 61.0	179C319G13	225	FH83
62.0 – 66.0	179C319G14	250	FH84
67.0 – 73.0	179C319G15	250	FH85
74.0 – 79.0	179C319G16	250	FH86
80.0 – 87.0	179C319G17	300	FH87
88.0 – 90.0	179C319G18	350	FH88

^① Ambient compensated.

Table 12-15. Heater Selection — Starter Size 4

Motor Full Load Current in Amperes ^②	Style Number	Max. Breaker or Fuse	Catalog Number
88.0 – 95.0	179C319G18	350	FH88
96.0 – 105.0	179C319G19	300	FH89
106.0 – 116.0	179C319G20	300	FH90
117.0 – 128.0	179C319G21	350	FH91

^② Ambient compensated.

Dimensions

Dimensions

Dimension and Wiring Arrangements

Type 1 enclosures are 32 or 48 inches (813 or 1219 mm) wide, 26 inches (660 mm) high and 7 inches (178 mm) deep, with provisions for four-bolt wall mounting. Enclosures may be grouped together by nippingling through the knockouts provided.

Load and control conduits may enter at the top or bottom. Instructions for overload heater installation are attached to each starter door.

Dust and weather resistant enclosures for 4 or 6 module units are available. These enclosures are 34 or 50 inches (864 or 1270 mm) wide, 31 inches (787 mm) high and 11.75 inches (298 mm) deep.

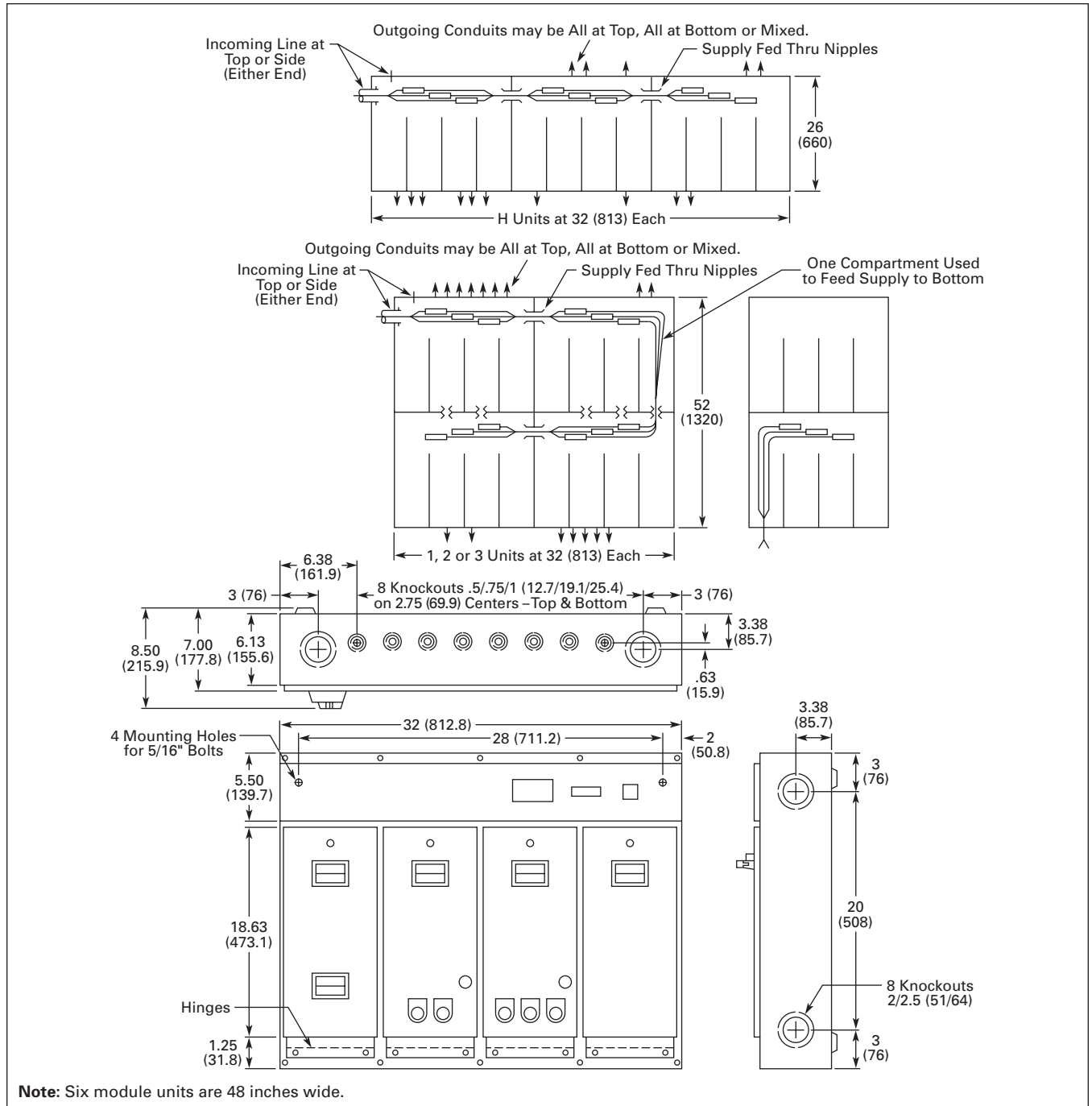


Figure 12-2. Approximate Dimensions and Wiring Arrangements, Four Module Unit

Dimensions

Table 12-16. Enclosures and Blank Doors

Description	Approximate Dimensions in Inches (mm)			Shipping Weight Lbs. (kg)
	Width	Height	Depth	
Type 1 Enclosure ^① with four compartments with six compartments	32 (813) 48 (1219)	26 (660) 26 (660)	7 (178) 7 (178)	50 (23) 70 (32)
Dust and Weather Resistant Enclosure to House Type 1 Enclosure with four compartments with six compartments	34 (864) 50 (1270)	31 (787) 31 (787)	11.75 (298) 11.75 (298)	35 (16) 50 (23)
Blank Door for One Compartment Blank Door for Two Compartments and Blank Back Pan for Two Compartments	— —	— —	— —	3 (1.4) 8 (3.6)

^① Incoming line and extension terminals included are suitable for either copper or aluminum conductors from 6 to 350 kcmil.

Shipping Weights

Table 12-17. Module Weights

Description	Weight Lbs. (kg)	Description	Weight Lbs. (kg)
Fusible Switches 30 – 60 Amperes 100 Amperes	10 (4.5) 15 (6.8)	Starters — A204, A206 Sizes 1, 2 Sizes 3, 4	15 (6.8) 25 (11.4)
Circuit Breakers 15 – 100 Amperes 125 – 225 Amperes	10 (4.5) 20 (9.1)	Starters — A214 Sizes 1, 2 Starters — A216 Sizes 1, 2	15 (6.8) 20 (9.1)