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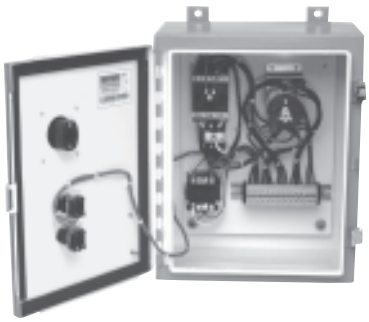

***IBYSS*® - Starter Control with Motor Overload Protection Type 12 Enclosure**

***IBYSS*® Direct Control with Motor Overload Protection Type 12 Enclosure**

***IBYSS*® Open Switch Direct Control with Panel Mount Handle Assembly**

it's a different bird®

THE IBYSS

Inverter Bypass Safety Switch

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THE IBYSS

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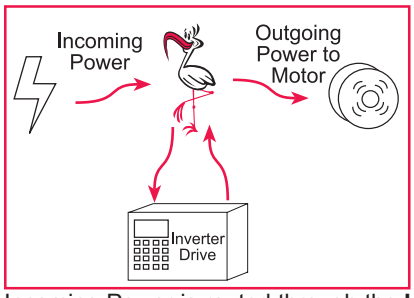
1 - Inverter Bypass Safety Switch

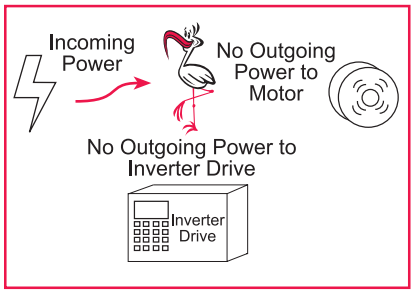
Operation

"DRIVE" (Normal) Position



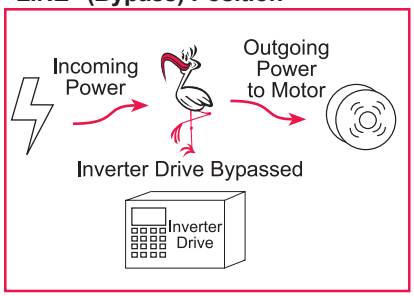
Incoming Power is routed through the **Inverter Bypass Safety Switch** to the inverter drive, from the inverter drive back through the switch and then to the application.

"OFF" Position



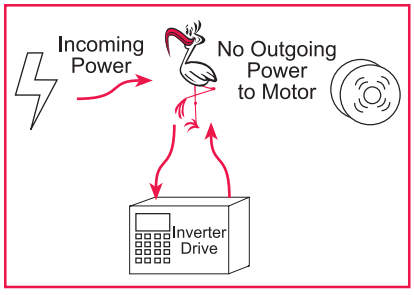
Incoming Power is stopped at the **Inverter Bypass Safety Switch**. No power is routed to either the inverter drive or the application.

"LINE" (Bypass) Position



Incoming Power is routed through the **Inverter Bypass Safety Switch** directly to the application (motor). In the "bypass" position, no power is routed to the inverter drive from either the incoming power line to the switch or from the outgoing power line to the application. In the "bypass" position, power is completely removed from the inverter drive. The application continues receiving full direct power.

"TEST" Position



Incoming Power is routed through the **Inverter Bypass Safety Switch** to the Inverter Drive. No power is allowed from the switch to the application. The "TEST" position allows calibration, adjustments and diagnostics to be performed on the inverter drive without allowing the power to flow on to the application. This position allows easy setup for the inverter drive.

General Information

Inverters (Variable Frequency Drives or VFD's) provide an economical means of regulating the speed and performance of motors. Inverters have gained a prominent place in today's industrial and commercial arena. But as dependable as modern inverters are, they still malfunction and cease operation, often at the worst possible moment. For this reason, several methods of isolating the inverter have been developed. Until now these methods involved expensive and unreliable contactors, relays, and timers. **Advance Controls, Inc.'s Patented *IBYSS*®** (Inverter Bypass Safety Switch) eliminates all of these unreliable methods of removing the power from the inverter drive.

The ***IBYSS***® is a manually operated "Positive Break" switch. It does not rely on relays, contactors or timers; all of which can burn out and stop the application from running. The "Positive Break" feature mechanically ramps the contacts open. The ***IBYSS***® does not use springs (as used in contactors and relays) to open the contacts.

Should the inverter malfunction, the ***IBYSS***® is manually switched from the "DRIVE" to the "LINE" position. This redirects power around the inverter straight to the motor and completely removes all power from the inverter. This provides total isolation of the inverter from both the incoming power line and the outgoing line to the motor. Since the power to the inverter is completely cut off, the inverter can be serviced or even removed while the application is operating at full speed / full power. The ***IBYSS***® is the answer for a low cost, direct acting, straight forward and reliable means of providing total isolation of the inverter during a malfunction while still providing full power directly to the application.

The ***IBYSS***® is also furnished with a "TEST" position. This "TEST" position allows power into the inverter for setup and diagnostics, but does not allow power to the application. The "TEST" position simplifies the installation and maintenance of the inverter.

The ***IBYSS***® can be customized for specific applications. Enclosures, switching patterns, connections, etc. can be customized to meet your unique needs.

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Features:

- ***"OFF" Position*** functions as a UL508 Motor Disconnect
- ***Manual operation with positive break contacts*** for reliable circuit transfer
- ***No contactors, relays, solenoids or coils*** to consume power, stick or burn out
- ***Complete isolation of the Inverter*** from both the incoming and outgoing power
- ***Full voltage across the line motor starting*** up to 50 HP
- ***Full voltage Contactor / Starter starting*** up to 400 HP
- ***Gold Flash auxiliary contacts*** for reliable control signals to PLC's and other logic level devices
  Furnished with either 1 or 2 auxiliary contacts
  With 1 auxiliary the contact closes in the "LINE" position
  With 2 auxiliaries, one contact closes in the "LINE position and one contact closes in the "DRIVE" position
- ***"TEST" Position*** **- Standard** - allows power into the inverter without allowing power to flow to the application
- Switches can be ***door mounted*** or ***sub panel mounted***
- **3 styles of *Handle Assemblies*** are available:
  Selector Style - non-lockable Lockout style - meets OSHA 1910 requirements
  Panel Mount Disconnect Style - meets OSHA 1910 requirements and locks enclosure door closed
- ***Basic open switch*** for inclusion in customer's panel
- ***Factory assembled*** in an enclosure with easy to wire Terminal Strip for simple field installation
- ***UL, cUL Listed*** through 125 Amps and 125 HP
- ***UR, cUR Recognized*** through 200 Amps
- ***U.S. Patent #5,721,449***

Technical Data

- Maximum Voltage = 600 VAC
- 17 - 100 Series can MAKE/BREAK under Load
- 200 Series CANNOT MAKE/BREAK under Load

HORSEPOWER - Direct Control in "LINE" position

MOTOR VOLTAGE	SWITCH SERIES					
	17	32	40	63	100	200
200 / 208 VOLT	5 HP	10 HP	15 HP	20 HP	20 HP	Suitable for carrying full load current at rated voltage and for switching unloaded circuits. NOT SUITABLE for switching Loaded Circuits
240 VOLT	7 1/2 HP	15 HP	20 HP	20 HP	25 HP	
480 VOLT	10 HP	20 HP	30 HP	30 HP	40 HP	
575 VOLT	10 HP	20 HP	30 HP	40 HP	50 HP	

HORSEPOWER - Starter Control in "LINE" position

SWITCH SERIES	17	32	40	63	100	200
Amp RATING	20	40	60	85	125	200
200 / 208 VOLT	5 HP	10 HP	15 HP	25 HP	40 HP	60 HP
240 VOLT	5 HP	15 HP	20 HP	30 HP	50 HP	75 HP
480 VOLT	10 HP	30 HP	40 HP	60 HP	100 HP	150 HP
575 VOLT	15 HP	30 HP	50 HP	75 HP	125 HP	200 HP

Wire Size (AWG)

SWITCH SERIES	17	32	40	63	100	200
MAXIMUM	12	10	6	3	1	Bus Bar with nut & bolt
MINIMUM	18	16	14	10	6	

Approvals - UL508

c UL us 17, 32, 40, 63, 100 Series c UL us 200 Series **UL FILE NUMBER: E101686** CE

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Open Switch for Direct Control

- ***Open Switch*** can be ***door mounted*** or ***sub panel mounted***
- ***Direct control*** of motor in "LINE" position
- ***Complete isolation*** of the Inverter in the "LINE" position
- ***Gold Flash auxiliary contacts***
- ***UL Listed / CE***
- ***U.S. Patent #5,721,449***
- ***Handle assembly*** - Sold Separate - See Below

Open *IBYSS* Switch

Ordering Information: Order **OPEN SWITCH** by the **Catalog Number**.

IBYSS® SWITCH SERIES	HORSEPOWER 200/208 VOLT	HORSEPOWER 240 VOLT	HORSEPOWER 460 VOLT	HORSEPOWER 575 VOLT	AMPS	AUX. CONTACT	LENGTH	DIA.	MAX WIRE (AWG)	3 POSITION LINE / DRIVE / TEST WT Lbs	3 POSITION LINE / DRIVE / TEST CATALOG NUMBER	4 POSITION LINE / OFF / DRIVE / TEST WT Lbs	4 POSITION LINE / OFF / DRIVE / TEST CATALOG NUMBER
17	1/2 - 5	1/2 - 7.5	1/2 - 10	1/2 - 10	20	2 NO	4.3"	1.8"	12	0.6	**111568**	0.6	**102168**
17	1/2 - 5	1/2 - 7.5	1/2 - 10	1/2 - 10	20	1 NO	3.8"	1.8"	12	0.6	**111567**	0.6	**111565**
17	1/2 - 5	1/2 - 7.5	1/2 - 10	1/2 - 10	20	NONE	3.8"	1.8"	12	0.6	**111566**	0.6	**111564**
32	7.5 - 10	10 - 15	15 - 20	15 - 20	40	2 NO	5.5"	2.3"	10	1.1	**111573**	1.1	**102183**
32	7.5 - 10	10 - 15	15 - 20	15 - 20	40	1 NO	4.8"	2.3"	10	1.1	**111572**	1.1	**111570**
32	7.5 - 10	10 - 15	15 - 20	15 - 20	40	NONE	4.8"	2.3"	10	1.1	**111571**	1.1	**111569**
40	15	20	25 - 30	25 - 30	60	2 NO	6.5"	2.9"	6	2.7	**111574**	2.7	**102186**
63	20	20	25 - 30	25 - 30	85	2 NO	7.9"	3.3"	3	3.5	**111575**	3.5	**102191**
100	20	25	40	50	125	2 NO	9.4"	4.3"	1	6.9	**111576**	6.9	**102195**

Handle Assembly for Open Switch

- **Selector style -** Handle mounts directly to ***IBYSS***®; non-lockable
- **Lockout style -** Handle mounts directly to ***IBYSS***®; meets OSHA 1910 requirements
- **Panel mount disconnect style -** Handle mounts to door, ***IBYSS***® mounts to sub panel; meets OSHA 1910 requirements for lockout / tagout; locks enclosure door

Selector style consists of a black handle, black backplate and a legend plate with white letters. This style handle assembly does not have provisions for lockout and does not meet OSHA lockout requirements. This style handle assembly mounts directly to the ***IBYSS***®. The ***IBYSS***® can mount either directly to the door of the enclosure or on the internal panel of the enclosure for "open door" operation. The enclosure door is not locked and can be opened in any operating position.

Lockout style consists of a red handle, yellow backplate, and legend plate. The assembly meets Type 4X (IP65) environmental requirements and OSHA 1910 requirements for a lockout type operator. It has holes for mounting up to three padlocks (not supplied) to lock the handle in the "OFF" position. The handle is lockable in all positions. This style handle assembly mounts directly to the ***IBYSS***®. The ***IBYSS***® can mount either directly to the door of the enclosure or on the internal panel of the enclosure for "open door" operation. The enclosure door is not locked and can be opened in any operating position.

Panel mount disconnect style consists of a red handle / yellow backplate (alternate black handle / gray backplate), legend plate, extension shaft and extension shaft coupling. The assembly meets Type 4X (IP65) environmental requirements and OSHA 1910 requirements for a lockout type operator. It has holes for mounting up to three padlocks (not supplied) to lock the handle in the "OFF" position. The handle is lockable in all positions. This style handle assembly allows the switch to be mounted on the internal panel of the enclosure. The handle assembly is mounted on the door of the enclosure and the extension shaft joins the two when the enclosure door is closed. This style handle assembly will not allow the enclosure door to be opened unless the handle is in the "OFF" position.

Ordering Information: Order **HANDLE ASSEMBLY** for the OPEN SWITCH by the **Catalog Number**.

IBYSS® SWITCH SERIES	SIZE OF BACKPLATE Inch (mm)	SELECTOR STYLE BLACK WT Lbs	SELECTOR STYLE BLACK CATALOG NUMBER	LOCKOUT STYLE YELLOW / RED WT Lbs	LOCKOUT STYLE YELLOW / RED CATALOG NUMBER	PANEL MOUNT STYLE RED / YELLOW WT Lbs	PANEL MOUNT STYLE RED / YELLOW CATALOG NUMBER	PANEL MOUNT STYLE BLACK / GREY WT Lbs	PANEL MOUNT STYLE BLACK / GREY CATALOG NUMBER
17 & 32	2.9" x 2.9"	0.2	**102134**	0.2	**102131**	0.3	**102138**	0.3	**117532**
40 & 63	4.1" x 4.1"	0.3	**102135**	0.4	**102132**	0.8	**102129**	0.8	**117533**
100 & 200	5.1" x 5.1"	0.7	**102136**	0.6	**102133**	1.3	**102130**	1.3	**117534**

Note: Panel Mount Style Handle Assembly is not available for 3 position switch.

Direct Control with Motor Overload Protection • Type 12, Type 4 Metal & 4X Non Metallic Enclosure

- *4 Position IBYSS* **(LINE - OFF - DRIVE - TEST)**
- *DIRECT CONTROL* **in the "LINE" position with 2 NO Auxiliary Contacts on Switch**
  - *Full speed / full power* **in the "LINE" position**
  - *Motor Overload* **in the "LINE" position**
  - *Manual operation* **with** *positive break IBYSS ® contacts*
- *No contactors, relays or coils* **to consume power or burn out**
- *Panel mount disconnect* **style handle assembly meets OSHA 1910**
- *Terminal strip* **included for easy field wiring**
- *Factory assembled* **in an enclosure for easy field installation**
- *Complete isolation* **of the Inverter in the "LINE" position**
- *Gold flash auxiliary contacts* **for reliable control signals**
- **Components** *UL cUL Listed / CE*
- *U.S. Patent #5,721,449*

IBYSS **- DIRECT CONTROL TYPE 12 ENCLOSURE**

NOTE: Weights shown are APPROXIMATE and do NOT include packing materials

Direct Control with Motor Overload Protection **starts the motor using the** *IBYSS ®* **as a manual motor controller complete with a UL Listed Class 10 Motor Overload Device in the "LINE" position.**
Ordering Information: **Order by the** Catalog Number **shown below.**

200 / 208 Volt Three Phase

MOTOR HP	OVERLOAD Amp RANGE	MAX WIRE SIZE	TYPE 12 METAL ENCLOSURE WITH HINGED DOOR			TYPE 4 METAL ENCLOSURE WITH HINGED DOOR			TYPE 4X NON METALLIC ENCLOSURE WITH HINGED DOOR		
			ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER	ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER	ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER
1/2	1.6 - 2.5	#8	12x10x8	22	136144	12x10x8	19	136000	12x10x8	17	136009
3/4	2.5 - 4.0	#8	12x10x8	22	136145	12x10x8	19	136001	12x10x8	17	136010
1	4.0 - 6.3	#8	12x10x8	22	136146	12x10x8	19	136002	12x10x8	17	136011
1 1/2	6.3 - 10	#8	12x10x8	22	136147	12x10x8	19	136003	12x10x8	17	136012
2	6.3 - 10	#8	12x10x8	22	136147	12x10x8	19	136003	12x10x8	17	136012
3	10 - 16	#8	12x10x8	22	136148	12x10x8	19	136004	12x10x8	17	136013
5	16 - 20	#8	12x10x8	22	136149	12x10x8	19	136005	12x10x8	17	136014
7 1/2	20 - 25	#8	12x10x8	22	136150	12x10x8	19	136006	12x10x8	17	136015

230 Volt Three Phase

MOTOR HP	OVERLOAD Amp RANGE	MAX WIRE SIZE	TYPE 12 METAL ENCLOSURE WITH HINGED DOOR			TYPE 4 METAL ENCLOSURE WITH HINGED DOOR			TYPE 4X NON METALLIC ENCLOSURE WITH HINGED DOOR		
			ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER	ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER	ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER
1/2	1.6 - 2.5	#8	12x10x8	22	136144	12x10x8	19	136000	12x10x8	17	136009
3/4	2.5 - 4.0	#8	12x10x8	22	136145	12x10x8	19	136001	12x10x8	17	136010
1	4.0 - 6.3	#8	12x10x8	22	136146	12x10x8	19	136002	12x10x8	17	136011
1 1/2	4.0 - 6.3	#8	12x10x8	22	136146	12x10x8	19	136002	12x10x8	17	136011
2	6.3 - 10	#8	12x10x8	22	136147	12x10x8	19	136003	12x10x8	17	136012
3	6.3 - 10	#8	12x10x8	22	136147	12x10x8	19	136003	12x10x8	17	136012
5	10 - 16	#8	12x10x8	22	136148	12x10x8	19	136004	12x10x8	17	136013
7 1/2	20 - 25	#8	12x10x8	22	136150	12x10x8	19	136006	12x10x8	17	136015

460 Volt Three Phase

MOTOR HP	OVERLOAD Amp RANGE	MAX WIRE SIZE	TYPE 12 METAL ENCLOSURE WITH HINGED DOOR			TYPE 4 METAL ENCLOSURE WITH HINGED DOOR			TYPE 4X NON METALLIC ENCLOSURE WITH HINGED DOOR		
			ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER	ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER	ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER
1/2	1.0 - 1.6	#8	12x10x8	22	136152	12x10x8	19	136008	12x10x8	17	136017
3/4	1.6 - 2.5	#8	12x10x8	22	136144	12x10x8	19	136000	12x10x8	17	136009
1	1.6 - 2.5	#8	12x10x8	22	136144	12x10x8	19	136000	12x10x8	17	136009
1 1/2	2.5 - 4.0	#8	12x10x8	22	136145	12x10x8	19	136001	12x10x8	17	136010
2	2.5 - 4.0	#8	12x10x8	22	136145	12x10x8	19	136001	12x10x8	17	136010
3	4.0 - 6.3	#8	12x10x8	22	136146	12x10x8	19	136002	12x10x8	17	136011
5	6.3 - 10	#8	12x10x8	22	136147	12x10x8	19	136003	12x10x8	17	136012
7 1/2	10 - 16	#8	12x10x8	22	136148	12x10x8	19	136004	12x10x8	17	136013
10	10 - 16	#8	12x10x8	22	136148	12x10x8	19	136004	12x10x8	17	136013
15	20 - 25	#8	12x10x8	22	136150	12x10x8	19	136006	12x10x8	17	136015

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Starter Control with Motor Overload Protection • Type 12, 4 & 4X Enclosures

IBYSS - Starter Control
Type 12 Enclosure

- *4 position IBYSS* ® **(LINE / OFF / DRIVE / TEST)**
- *Starter Control* **in the "LINE" position with 2NO Auxiliary Contacts:**
  - *Full speed / Full power*
  - *Remote operation* **(requires separate START / STOP station - optional)**
  - *Motor overload* **- manual reset**
- **Door mounted** *"LINE START"* **and** *"LINE STOP"* **pushbuttons**
- *Control circuit transformer* **with fused 120 volt secondary**
- *Panel mount disconnect* **style handle assembly meets OSHA 1910**
- *Terminal strip* **included for easy field wiring**
- *Factory assembled* **in various** *enclosures*
- *Manual operation* **with** *positive break IBYSS* ® *contacts*
- *Complete isolation* **of the Inverter in the "LINE" position**
- *Gold flash auxiliary contacts* **for reliable control signals**
- **Components** *UL cUL Listed / CE*
- *U.S. Patent #5,721,449*

THE IBYSS

NOTE: Weights shown are APPROXIMATE and do NOT include packing materials

Starter Control with Motor Overload starts the motor and provides motor overload protection when the ***IBYSS*** ® is in the "LINE" osition. Motor Overload Protection is provided by a UL Listed Class 10 Overload. "LINE START" and "LINE STOP" pushbuttons are provided in the enclosure door. A Control Circuit Transformer with 120 volt fused secondary is provided for control power. All field wiring connects to the factory installed Terminal Strip.
Ordering Information: Order by the Catalog Number shown below.

200 / 208 Volt Three Phase			TYPE 12 METAL ENCLOSURE WITH HINGED DOOR			TYPE 4 METAL ENCLOSURE WITH HINGED DOOR			TYPE 4X NON METALLIC ENCLOSURE WITH HINGED DOOR		
MOTOR HP	OVERLOAD Amp RANGE	MAX WIRE SIZE	ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER	ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER	ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER
1/2	1.8 - 2.7	#10	12x10x8	25	**136222**	12x10x8	22	**136018**	12x10x8	20	**136045**
3/4	3.5 - 5.0	#10	12x10x8	25	**136223**	12x10x8	22	**136019**	12x10x8	20	**136046**
1	4.0 - 6.0	#10	12x10x8	25	**136224**	12x10x8	22	**136020**	12x10x8	20	**136047**
1 1/2	5.5 - 8.5	#10	12x10x8	25	**136225**	12x10x8	22	**136021**	12x10x8	20	**136048**
2	5.5 - 8.5	#10	12x10x8	25	**136226**	12x10x8	22	**136022**	12x10x8	20	**136049**
3	8.5 - 12.5	#10	12x10x8	25	**136227**	12x10x8	22	**136023**	12x10x8	20	**136050**
5	12.5 - 18	#10	12x10x8	25	**136228**	12x10x8	22	**136024**	12x10x8	20	**136051**
7 1/2	22 - 30	#10	14x12x8	29	**136229**	14x12x8	26	**136025**	14x12x8	24	**136052**
10	30 - 40	#8	14x12x8	31	**136230**	14x12x8	28	**136026**	14x12x8	26	**136053**
15	37 - 50	#6	16x14x10	42	**136231**	20x20x10	50	**136027**	24x20x12	49	**136054**
20	48 - 65	#3	20x16x12	64	**136232**	20x16x12	64	**136028**	24x20x12	53	**136055**
25	63 - 80	#3	24x20x12	80	**136233**	24x20x12	80	**136029**	24x20x12	54	**136056**
30	65 - 95	#2	30x24x16	119	**136234**	30x24x16	119	**136030**	36x30x16	114	**136057**

230 Volt Three Phase			TYPE 12 METAL ENCLOSURE WITH HINGED DOOR			TYPE 4 METAL ENCLOSURE WITH HINGED DOOR			TYPE 4X NON METALLIC ENCLOSURE WITH HINGED DOOR		
MOTOR HP	OVERLOAD Amp RANGE	MAX WIRE SIZE	ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER	ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER	ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER
1/2	1.8 - 2.7	#10	12x10x8	25	**136235**	12x10x8	22	**136031**	12x10x8	20	**136058**
3/4	2.4 - 3.6	#10	12x10x8	25	**136236**	12x10x8	22	**136032**	12x10x8	20	**136059**
1	3.5 - 5.0	#10	12x10x8	25	**136237**	12x10x8	22	**136033**	12x10x8	20	**136060**
1 1/2	5.5 - 8.5	#10	12x10x8	25	**136238**	12x10x8	22	**136034**	12x10x8	20	**136061**
2	5.5 - 8.5	#10	12x10x8	25	**136239**	12x10x8	22	**136035**	12x10x8	20	**136062**
3	8.5 - 12.5	#10	12x10x8	25	**136240**	12x10x8	22	**136036**	12x10x8	20	**136063**
5	12.5 - 18	#10	12x10x8	25	**136241**	12x10x8	22	**136037**	12x10x8	20	**136064**
7 1/2	17 - 24	#10	14x12x8	29	**136242**	14x12x8	26	**136038**	14x12x8	24	**136065**
10	22 - 30	#8	14x12x8	30	**136243**	14x12x8	27	**136039**	14x12x8	25	**136066**
15	37 - 50	#6	16x14x10	33	**136244**	20x12x10	30	**136040**	24x20x12	28	**136067**
20	48 - 65	#3	16x14x10	47	**136245**	20x20x10	55	**136041**	24x20x12	54	**136068**
25	63 - 80	#3	20x16x12	65	**136246**	20x16x12	65	**136042**	24x20x12	54	**136069**
30	77 - 97	#2	20x16x12	69	**136247**	20x16x12	69	**136043**	24x20x12	58	**136070**
40	85 - 125	#2	30x24x16	119	**136248**	30x24x16	119	**136044**	30x30x16	114	**136071**

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Starter Control with Motor Overload Protection • Type 12, 4 & 4X Enclosures (cont.)

- *4 position IBYSS* ® **(LINE / OFF / DRIVE / TEST)**
- *Starter Control* **in the "LINE" position with 2NO Auxiliary Contacts**
- **Door mounted** *"LINE START"* **and** *"LINE STOP"* **pushbuttons**
- *Control circuit transformer* **with fused 120 volt secondary**
- *Panel mount disconnect* **style handle assembly meets OSHA 1910**
- *Terminal strip* **included for easy field wiring**
- *Factory assembled* **in a** *Type 12 metal enclosure*
- *Manual operation* **with** *positive break IBYSS* ® *contacts*
- *Complete isolation* **of the Inverter in the "LINE" position**
- *Gold flash auxiliary contacts* **for reliable control signals**
- **Components** *UL cUL Listed / CE*
- *U.S. Patent #5,721,449*

IBYSS **- Starter Control Type 12 Enclosure**

THE IBYSS

NOTE: Weights shown are APPROXIMATE and do NOT include packing materials

Ordering Information **Order by the** Catalog Number **shown below.**

460 Volt Three Phase			TYPE 12 METAL ENCLOSURE WITH HINGED DOOR			TYPE 4 METAL ENCLOSURE WITH HINGED DOOR			TYPE 4X NON METALLIC ENCLOSURE WITH HINGED DOOR		
MOTOR HP	OVERLOAD Amp RANGE	MAX WIRE SIZE	ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER	ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER	ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER
1/2	1.0 - 1.5	#10	12x10x8	25	**136249**	12x10x8	22	**136072**	12x10x8	20	**136108**
3/4	1.4 - 2.1	#10	12x10x8	25	**136250**	12x10x8	22	**136073**	12x10x8	20	**136109**
1	1.8 - 2.7	#10	12x10x8	25	**136251**	12x10x8	22	**136074**	12x10x8	20	**136110**
1 1/2	2.4 - 3.6	#10	12x10x8	25	**136252**	12x10x8	22	**136075**	12x10x8	20	**136111**
2	2.4 - 3.6	#10	12x10x8	25	**136253**	12x10x8	22	**136076**	12x10x8	20	**136112**
3	4.0 - 6.0	#10	12x10x8	25	**136254**	12x10x8	22	**136077**	12x10x8	20	**136113**
5	5.5 - 8.5	#10	12x10x8	25	**136255**	12x10x8	22	**136078**	12x10x8	20	**136114**
7 1/2	8.5 - 12.5	#10	12x10x8	25	**136256**	12x10x8	22	**136079**	12x10x8	20	**136115**
10	12.5 - 18	#10	12x10x8	25	**136257**	12x10x8	22	**136080**	12x10x8	24	**136116**
15	17 - 24	#10	14x12x8	29	**136258**	14x12x8	26	**136081**	14x12x8	24	**136117**
20	22 - 30	#10	14x12x8	30	**136259**	14x12x8	27	**136082**	14x12x8	25	**136118**
25	30 - 40	#8	14x12x8	31	**136260**	14x12x8	28	**136083**	14x12x8	26	**136119**
30	30 - 40	#6	14x12x8	32	**136261**	14x12x8	29	**136084**	14x12x8	48	**136120**
40	48 - 65	#3	16x14x10	47	**136262**	20x20x10	55	**136085**	24x20x12	54	**136121**
50	63 - 80	#3	20x16x12	65	**136263**	20x16x12	65	**136086**	24x20x12	54	**136122**
60	63 - 80	#3	20x16x12	65	**136264**	20x16x12	65	**136087**	24x20x12	54	**136123**
75	85 - 125	#1	30x24x16	119	**136265**	30x24x16	119	**136088**	36x30x16	114	**136124**
100	110 - 160	#1	30x24x16	119	**136266**	30x24x16	119	**136089**	36x30x16	114	**136125**

575 Volt Three Phase			TYPE 12 METAL ENCLOSURE WITH HINGED DOOR			TYPE 4 METAL ENCLOSURE WITH HINGED DOOR			TYPE 4X NON METALLIC ENCLOSURE WITH HINGED DOOR		
MOTOR HP	OVERLOAD Amp RANGE	MAX WIRE SIZE	ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER	ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER	ENCLOSURE SIZE	WEIGHT	CATALOG NUMBER
1/2	0.67 - 1.0	#10	12x10x8	25	**136267**	12x10x8	22	**136090**	12x10x8	20	**136126**
3/4	1.0 - 1.5	#10	12x10x8	25	**136268**	12x10x8	22	**136091**	12x10x8	20	**136127**
1	1.4 - 2.1	#10	12x10x8	25	**136269**	12x10x8	22	**136092**	12x10x8	20	**136128**
1 1/2	1.8 - 2.7	#10	12x10x8	25	**136270**	12x10x8	22	**136093**	12x10x8	20	**136129**
2	2.4 - 3.6	#10	12x10x8	25	**136271**	12x10x8	22	**136094**	12x10x8	20	**136130**
3	3.5 - 5.0	#10	12x10x8	25	**136272**	12x10x8	22	**136095**	12x10x8	20	**136131**
5	5.5 - 8.5	#10	12x10x8	25	**136273**	12x10x8	22	**136096**	12x10x8	20	**136132**
7 1/2	8.5 - 12.5	#10	12x10x8	25	**136274**	12x10x8	22	**136097**	12x10x8	20	**136133**
10	8.5 - 12.5	#10	12x10x8	25	**136275**	12x10x8	22	**136098**	12x10x8	20	**136134**
15	12.5 - 18	#10	12x10x8	25	**136276**	12x10x8	22	**136099**	12x10x8	20	**136135**
20	17 - 24	#10	14x12x8	29	**136277**	14x12x8	22	**136100**	14x12x8	24	**136136**
25	22 - 30	#10	14x12x8	31	**136278**	14x12x8	28	**136101**	14x12x8	26	**136137**
30	30 - 40	#8	14x12x8	31	**136279**	14x12x8	28	**136102**	14x12x8	26	**136138**
40	37 - 50	#6	16x14x10	42	**136280**	20x20x10	30	**136103**	24x20x12	49	**136139**
50	48 - 65	#3	20x16x12	65	**136281**	20x16x12	65	**136104**	24x20x12	54	**136140**
60	48 - 65	#3	20x16x12	65	**136282**	20x16x12	65	**136105**	24x20x12	41	**136141**
75	63 - 80	#3	30x24x16	113	**136283**	30x24x16	113	**136106**	36x30x16	108	**136142**
100	85 - 125	#1	30x24x16	119	**136284**	30x24x16	119	**136107**	36x30x16	114	**136143**

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IBYSS - OPTIONS AND MODIFICATIONS

NOTE:
IF THE *IBYSS*® PANEL HAS ANY OPTION OR MODIFICATION, THE ACI CATALOG NUMBER WILL CHANGE. CONSULT FACTORY FOR CORRECT CATALOG NUMBER FOR ALL PANELS WITH OPTIONS OR MODIFICATIONS.

IBYSS® - OPTIONAL ENCLOSURES

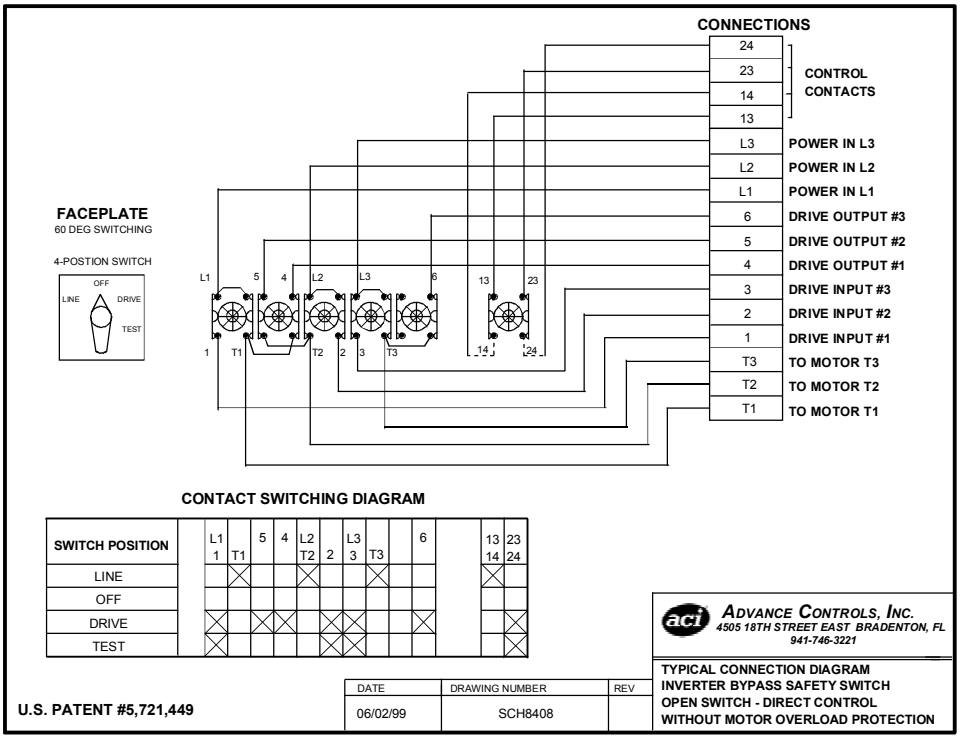
Type 1 Metal	For Protection against Incidental Electrical Contact	**Consult Factory**
Type 3R Metal	Type 1 Protection PLUS Protection against Windblown Rain	**Consult Factory**
Type 4X Stainless Steel	Type 4 Protection PLUS Protection against Corrosion	**Consult Factory**

IBYSS® - PANEL MODIFICATIONS

UL Panel Shop Label	UL508 Approval of the *IBYSS* Panel Assembly	**ADD $ 60 to LIST PRICE**
Power Input Disconnect Switch with Input Power Fuse Block	Input Power Fuses are NOT Included	**Consult Factory**
Phase Monitor (3 Phase)	Electronic in the "LINE" position to protect against: Low Voltage, Phase Reversal, Loss of Phase	**ADD $ 261 to LIST PRICE**
24 VAC Control:	To replace standard 120 vac control	**SAME LIST PRICE**
"LINE" Position Motor Starter Auxiliary Contacts	1 Normally OPEN + 1 Normally CLOSED TOP MOUNTED on "LINE" Contactor - Not Wired SIDE MOUNTED on "LINE" Contactor – Not Wired	 **ADD $ 15 to LIST PRICE (each)** **ADD $ 21 to LIST PRICE (each)**
Class 20 Motor Overload	ONLY for *IBYSS* with STARTER CONTROL VERSIONS. For "LINE" Starter applications with long (>5 sec) starting time	**Consult Factory**

ADDITIONAL OPTIONS AND MODIFICATIONS ARE AVAILABLE CONSULT FACTORY WITH YOUR REQUIREMENTS

TYPICAL CONNECTION DIAGRAM
IBYSS® OPEN SWITCH - DIRECT CONTROL NO MOTOR OVERLOAD PROTECTION
NOTE: THE TERMINAL STRIP IS NOT INCLUDED WITH THE OPEN IBYSS SWITCH



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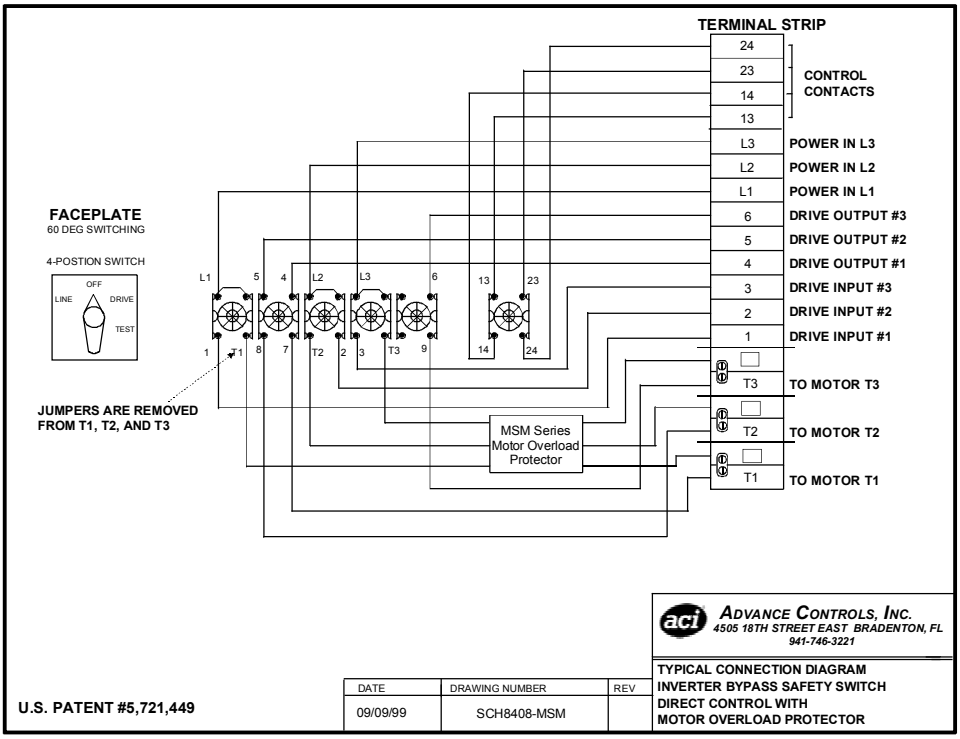
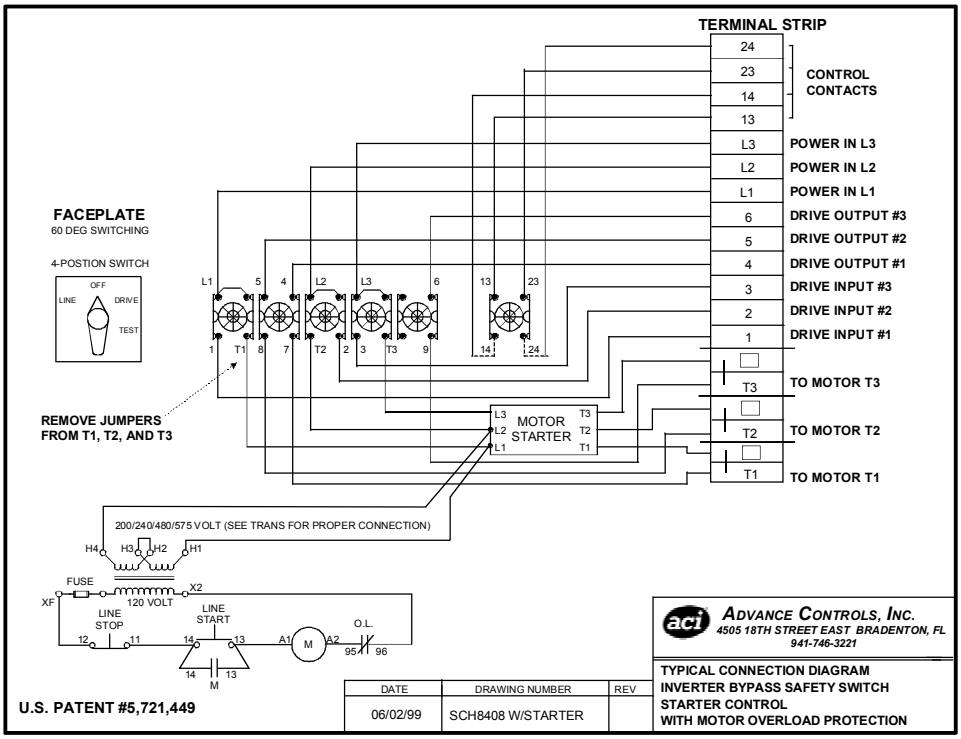
TYPICAL CONNECTION DIAGRAM
IBYSS® DIRECT CONTROL WITH MOTOR OVERLOAD PROTECTION
NOTE: TERMINAL STRIP IS INCLUDED IN ENCLOSED UNIT



TYPICAL CONNECTION DIAGRAM
IBYSS® STARTER CONTROL WITH MOTOR OVERLOAD PROTECTION
NOTE: TERMINAL STRIP IS INCLUDED WITH ENCLOSED UNIT



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IBYSS® TYPICAL INSTALLATION INSTRUCTIONS

WARNING:

INSTALLING THE IBYSS® REQUIRES WORKING WITH HAZARDOUS VOLTAGE THAT CAN RESULT IN SERIOUS INJURY, DEATH OR EQUIPMENT DAMAGE.

DISCONNECT ALL LINES AND CHECK VOLTAGE PRIOR TO SERVICING OR INSTALLING EQUIPMENT.

ALL ELECTRICAL WORK SHOULD BE PERFORMED BY A QUALIFIED ELECTRICIAN.

1. Inspect the ***IBYSS***® to make sure it was not damaged during shipment.
2. Decide on a suitable mounting location for the ***IBYSS***®.
3. Decide where you wish to locate the entry and exit points in the ***IBYSS***® enclosure.
   ACI recommends the leads be brought into the bottom of the enclosure.
   *Wire sizes must be in accordance with the National Electrical Code and/or local electrical codes.
4. Drill or punch holes in the enclosure for the conduit connectors. Remove all foreign material, created during punching or drilling holes, from the enclosure.
5. Mount the ***IBYSS***® enclosure.
6. Mount the conduit. Run the 12 wires and make proper connections per ACI schematic.
   3 leads – from power source
   3 leads – from the output of the VFD
   3 leads – to the motor
   3 leads – to the input of the VFD
7. Verify all connections are in the proper locations and all connections are secure.
8. Close and lock ***IBYSS***® enclosure door.
   Note: With the panel mount disconnect style handle assembly, the ***IBYSS***® handle and switch must be in the "OFF" position to open and / or close the enclosure door.
9. Verify Operation
   a. ***IBYSS***® "DRIVE" Position
   Rotate *IBYSS*® handle clockwise from "OFF" position to the "DRIVE" position.
   You have now provided power to the VFD and connected the VFD to the motor.
   b. ***IBYSS***® "LINE" (Bypass) Position
   To bypass the VFD, rotate the ***IBYSS***® switch handle counter clockwise from the "DRIVE" position, through the "OFF" position, to the "LINE" position. When the handle is in the "LINE" position, the motor will run at full speed / full power.
   1. Starter Control (with the ***IBYSS***® handle in the "LINE" position)
      To START the motor, press the "LINE START" pushbutton.
      To STOP the motor, press the "LINE STOP" pushbutton.
   2. Direct Control with Motor Overload
      Set the motor overload to the Full Load Amps shown on the motor nameplate.
      When the *IBYSS*® handle is rotated to the "LINE" position, the motor immediately starts.
      To STOP the motor, rotate the ***IBYSS***® handle clockwise to the "OFF" position.

      Note: If the motor does not operate in the "LINE" position the overload relay may have tripped. To locate the overload relay, rotate the ***IBYSS***® handle from "LINE" to "OFF" and open the enclosure door. Overload relay is in the lower left corner. To reset overload press the red button, then press the black button. Close the enclosure door and rotate the handle from "OFF" to "LINE". If the motor does not start consult a qualified electrician to diagnose the system.

   Caution: You ***must*** press the "STOP" button before rotating the handle from the "LINE" position.

   c. ***IBYSS***® "TEST" Position
   This position is used to set up the VFD parameters without operating the motor. Rotate the *IBYSS*® handle clockwise from the "OFF" position through "DRIVE" to "TEST". This allows power to the VFD input but no power to the motor. After you have set the VFD parameters, rotate the *IBYSS*® handle counter clockwise from the "TEST" position to the "DRIVE" position.

   Note: The normal operating position of the *IBYSS*® is the "DRIVE" position. The "DRIVE" position allows full control of the motor by the VFD.

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Bradenton, FL 34203
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e-mail*: *aci@HVACiSpec.com

TYPICAL BID SPECIFICATION

ACI's *IBYSS*® *SYSTEM* (Inverter Bypass Safety Switch)

ITEM #1

All variable frequency drives (VFDs) are to be furnished complete with a manually operated, single cam switch style bypass system. Two and three contactor type bypass systems are not allowed.

ITEM #2

The manually operated bypass system is to be the ***IBYSS***® system as manufactured by ACI, Bradenton, Florida. The system is to have 4 positions: ***"LINE", "OFF", "DRIVE"*** and ***"TEST"***.

"LINE "*(BYPASS)* position completely bypasses the drive. All power is to be directed straight to the application so the application receives full line power. No power is to be on either the drive input or drive output terminals. In the ***"LINE"*** position the VFD is physically and electrically isolated, allowing the VFD to be safely repaired or replaced.

"OFF" position disconnects all power to both the drive and the application.

"DRIVE" position connects the drive to the incoming power and to the application. All drive functions are to be available to the application when in the "DRIVE" position.

"TEST" position connects the incoming power to the input of the drive. No power is to be allowed from the drive to the motor application.

ITEM #3

The ***IBYSS***® system shall be packaged in a separate enclosure from the VFD. The ***IBYSS***® system shall be furnished complete with a terminal strip for field wiring connections. The degree of environmental protection furnished by the enclosure shall be Type 12, Type 4 or Type 4X.

ITEM #4

The ***IBYSS***® system is to be equipped with two auxiliary contacts.* Contacts must be suitable to signal Building Automation Systems (BAS, DDC), PLCs or other logic / indicating devices.

** 1 Contact closes in the "LINE" position*
1 Contact closes in the "DRIVE" and "TEST" positions

ITEM #5

The ***IBYSS***® system is to be specified, sized and installed per ACI's recommendations.

Advance Controls, Inc.
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http://www.HVACiSpec.com • aci@HVACiSpec.com

IBYSS® (Inverter Bypass Safety Switch) Submittal

Project Name: _____ Number: _____
Location: _____ Tag Number: _____ Date: _____
Rep / Distributor: _____
Contractor: _____ Engineer: _____

Design Data:

Motor HP: _____ Voltage: _____ Phase: _____
Handle Assembly: ☐ External – Lockable ☐ Internal – Non-Lockable
☐ Internal – Lockable

IBYSS® System:

☐ Direct Control ☐ Direct Control with Motor Overload Protection
☐ Starter Control with Motor Overload Protection

Two auxiliary contacts are supplied standard on the ***IBYSS***® Switch:
1 Closes in the "LINE" position, 1 Closes in the "DRIVE" / "TEST" positions.

Direct Control with Motor Overload Protection:

Overload Amp Range (Amps): _____

Starter Control with Motor Overload Protection:

Contactor Rating (HP): ___ Overload Amp Range (Amps): _____
"LINE START" / "LINE STOP" Pushbuttons: ☐ Yes ☐ No
Interface for Remote Start-Stop: ☐ Yes ☐ No
Control Transformer ☐ Yes ☐ No
(Fused secondary standard. Fused primary required above 50 Amps)
Primary Fuse furnished: Type: _____ Size (Amps): _____
Secondary Fuse furnished: Type: _____ Size (Amps): _____

Terminal Strip Maximum Wire Size:

Power: _____ AWG Control: 12 AWG

Enclosure:

☐ Hinged Cover ☐ Screw Cover Type: _____ Size: _____

Special Features:

_____

_____

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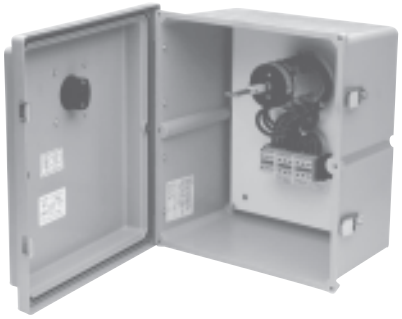


Transfer Switch
for
Variable Frequency Drives

Table of Contents

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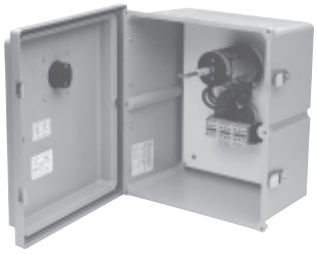
2 - VFD Transfer Switch

Enclosed • 20 thru 125 Amps • 1/4 thru 100 HP



To CONNECT
***Multiple* motors with *One* Variable Frequency Drive (Mode A)**
OR
***One* motor with *Multiple* Variable Frequency Drives (Mode B)**

Features:

- Manually switch multiple motors controlled by one VFD (Mode A)
- Manually switch multiple VFD's to control one motor Mode B)
- Positive Force Break - Double Make Contacts
- For Single or Three Phase applications
- Maximum voltage = 600 VAC
- Metal Type 12 Enclosures have a Hinged Door
- Non-Metallic Type 4X Enclosure include stainless steel hardware
- 2 position switch, no "OFF". Legend marked "1 - 2"
- Factory Wired to Terminal Strip, ready for field wiring
- Easy to install
- Lockable and Non-Lockable Handle Assemblies
- Components UL, cUL Listed

Applications

HVAC:
Condensate Pumps, Recirculating Pumps, Chillers, Boiler Feed Pumps,Booster Pumps, Cooling Towers, Air Handlers, etc.

Waste Water Treatment:
Lift Stations, Effluent Pumps,Chemical Pumps, etc.

Industrial:
Process Pumps, Chemical Pumps, Mixers, Conveyors, Concentrators, Separators, etc.

Refer to Factory for:

- Transfer Panels for Three or more VFD's
- Switch and Handle Assembly only - no enclosure
- 3 position VFD Transfer Switch (1 - OFF - 2)
- Type 1 or Type 4 Enclosure
- UL 508 Panel Shop Label for the complete Assembly
- Other Options or Modifications

60 Amp Transfer Switch
Non-Lockable Handle
Type 4X Non Metal Enclosure

20 Amp Transfer Switch
Lockable Handle
Type 4X Non Metal Enclosure

PANEL with NON-LOCKABLE HANDLE

AMP RATING	TYPE 12 METAL ENCLOSURE					TYPE 4X NON METAL ENCLOSURE				
	LENGTH	WIDTH	DEPTH	WIRE SIZE (AWG)	CATALOG NUMBER	LENGTH	WIDTH	DEPTH	WIRE SIZE (AWG)	CATALOG NUMBER
20	8	6	6	12	**136285**	8.6	5.9	5.9	12	**136290***
40	8	6	6	10	**136286**	8.6	5.9	5.9	10	**136291***
60	12	10	8	6	**136287**	12	10	8	6	**136292**
85	16	14	8	3	**136288**	16	14	8	3	**136293**
125	20	16	12	2	**136289**	24	20	11.75	2	**136294**

* Lift-Off Cover

PANEL with LOCKABLE HANDLE

AMP RATING						TYPE 4X NON METAL ENCLOSURE				
	LENGTH	WIDTH	DEPTH	WIRE SIZE (AWG)	CATALOG NUMBER	LENGTH	WIDTH	DEPTH	WIRE SIZE (AWG)	CATALOG NUMBER
20	8	6	6	12	**136295**	8.6	5.9	5.9	12	**136300***
40	8	6	6	10	**136296**	8.6	5.9	5.9	10	**136301***
60	12	10	8	6	**136297**	12	10	8	6	**136302**
85	16	14	8	3	**136298**	16	14	8	3	**136303**
125	20	16	12	2	**136299****	24	20	11.75	2	**136304****

* Lift-Off Cover **Yellow / Red handle Assembly

SIZING THE TRANSFER SWITCH

1. Determine Motor Full Load Amperage from motor nameplate.
2. Select Switch with Amp Rating above Full Load Motor Amp (FLA) rating.
3. Determine Type of Enclosure and Handle.

Select correct **CATALOG NUMBER** based on 1 - 3 above.

Example:

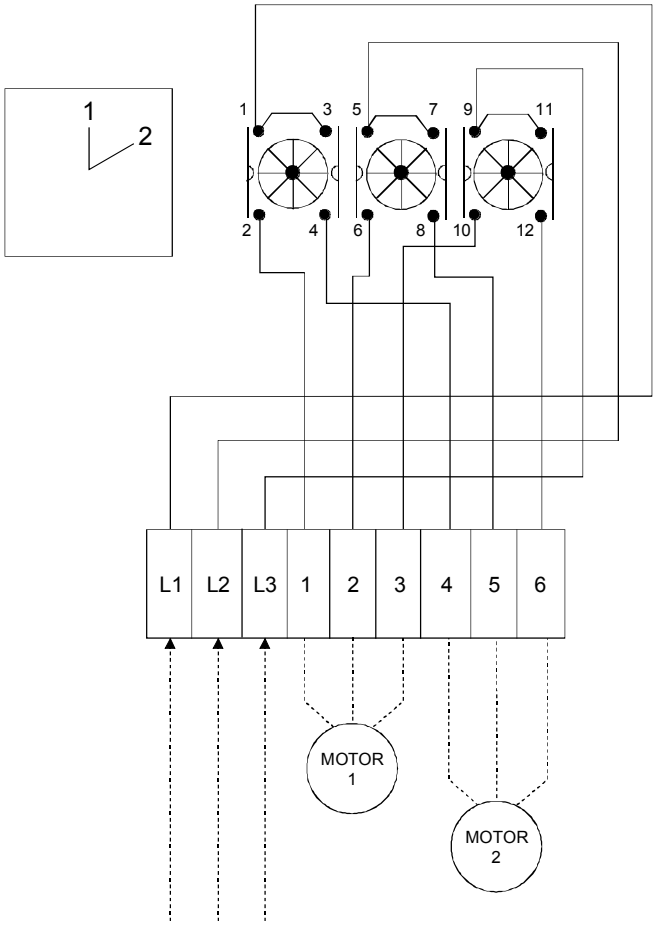
25 HP @ 460 VAC,
Three Phase - (34 FLA)
Lockable Handle.
Non-Metallic Enclosure

Select - 40 Amp unit

CATALOG NUMBER: 136301

TYPICAL CONNECTION DIAGRAM • VFD TRANSFER SWITCH
MODE A - ONE DRIVE WITH TWO MOTORS

VFD TRANSFER SWITCH



VFD OUTPUT

SWITCH POSITION	2						
	1						
CONTACTS		1	3	5	7	9	11
		2	4	6	8	10	12
STAGES		1		2		3	

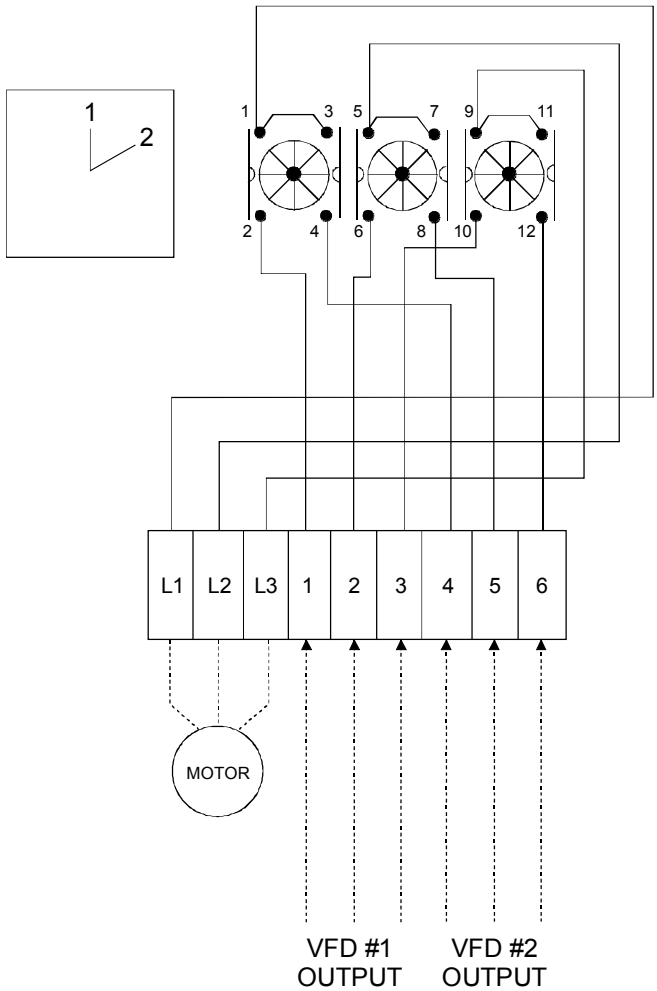
ADVANCE CONTROLS, INC.
4505 18TH STREET EAST BRADENTON, FL
941-746-3221

TYPICAL CONNECTION DIAGRAM
VFD TRANSFER SWITCH
ONE DRIVE WITH TWO MOTORS

SCALE	DRAWN	DATE	DRAWING NUMBER	REV
	PJF	01/25/01	Connection Diagram	

TYPICAL CONNECTION DIAGRAM • VFD TRANSFER SWITCH
MODE B - ONE MOTOR WITH TWO DRIVES

VFD TRANSFER SWITCH



SWITCH POSITION	2						
	1						
CONTACTS		1	3	5	7	9	11
		2	4	6	8	10	12
STAGES		1		2		3	

ADVANCE CONTROLS, INC.
4505 18TH STREET EAST BRADENTON, FL
941-746-3221

TYPICAL CONNECTION DIAGRAM
VFD TRANSFER SWITCH
TWO DRIVES WITH ONE MOTOR

SCALE	DRAWN	DATE	DRAWING NUMBER	REV
	PJF	01/25/01	Connection Diagram	

Advance Controls, Inc.
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TYPICAL BID SPECIFICATION

Advance Controls, Inc.
VFD Transfer Switch

DESCRIPTION

The Advance Controls, Inc. VFD Transfer Switch System can operate in either of two (2) reversible modes.

MODE A
Transfer Switch connects either the main drive or the backup drive to the motor.

MODE B
Transfer Switch connects either the main motor or the backup motor to the drive.

TYPICAL SPECIFICATION

ITEM #1
All multiplex installations are to be furnished complete with a manually operated cam style transfer switch system with positive opening contacts. Contactor or other types of transfer systems are not allowed.

ITEM #2
The manually operated cam switch style transfer switch shall be manufactured by Advance Controls, Inc., Bradenton, Florida. The switch shall have 2 positions, “1” and “2”.

ITEM #3
The switch shall be packaged in an enclosure separate from the VFD.
The degree of environmental protection furnished by the enclosure shall be Type 12, Type 4 or Type 4X.

ITEM #4
The transfer system shall be specified, sized and installed per Advance Controls, Inc.’s recommendations.

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http://www.HVACiSpec.com • aci@HVACiSpec.com

VFD Transfer Switch Submittal

Project Name: _____ Number: _____
Location: _____ Tag Number: _____ Date: _____
Rep / Distributor: _____
Contractor: _____ Engineer: _____

Design Data:

Amperage: _____ Voltage: _____ Phase: _____
Handle Assembly: ☐ External – Lockable ☐ External – Non-Lockable

Terminal Strip Maximum Wire Size: _____ AWG

Enclosure:

☐ Hinged Cover ☐ Screw Cover Type: _____ Size: _____

Special Features:

_____
_____
_____
_____
_____
_____

Advance Controls, Inc.
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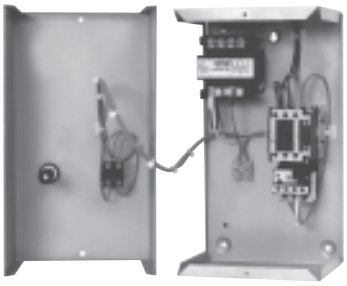
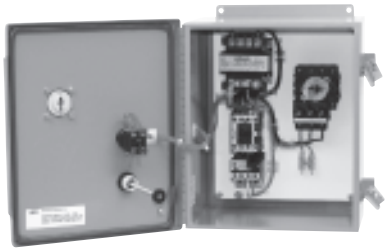


Motor Starters
Combination Starters

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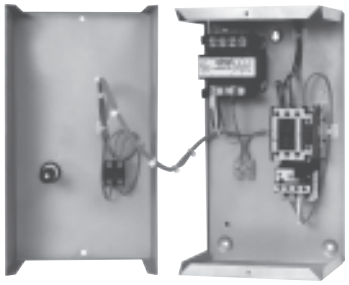
HVAC Motor Starters FULL VOLTAGE - ACROSS THE LINE • 1/4 - 7 1/2 HP • SINGLE PHASE

- For quick starting applications (<2 Sec)
- Adjustable UL Class 10 Thermal Overload
- Control Transformer (208/230/460 - 120 VAC) with fused secondary (fused primary above 50 Amps) - fuses furnished (NO Control Transformer on 120 Volt units)
- HAND - OFF - AUTO (HOA) Selector Switch
- 2-Point Terminal Block for “AUTO” position
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL

NOTE: Weights shown are APPROXIMATE and do NOT include packing materials



Typical HVAC Motor Starter in Type 1 Metal Enclosure with Lift Off Cover

How to Choose a Starter

- Determine the Motor Starter by the MOTOR VOLTAGE and MOTOR HP as shown below
- Motor FULL LOAD AMPS must fall within the OVERLOAD AMP RANGE
- Consult Factory if required OVERLOAD AMP RANGE is other than shown.

120 Volt Single Phase Motor

(no control transformer)

MOTOR HP	CONT.	OVERLOAD Amp RANGE	AUXILIARY CONTACTS	MAX WIRE SIZE	TYPE 1 METAL ENCLOSURE LIFT OFF COVER ENCLOSURE SIZE	WT	CATALOG NUMBER	TYPE 1 METAL ENCLOSURE HINGED DOOR ENCLOSURE SIZE	WT	CATALOG NUMBER
1/4	C9	5.5 - 8.5	1NO	#10	9 1/2 x 6 x 5 1/2	8	**136305**	10 X 8 X 6	11	**136314**
1/3	C9	5.5 - 8.5	1NO	#10	9 1/2 x 6 x 5 1/2	8	**136306**	10 X 8 X 6	11	**136315**
1/2	C12	8.5 - 12.5	1NO	#10	9 1/2 x 6 x 5 1/2	8	**136307**	10 X 8 X 6	11	**136316**
3/4	C16	12.5 - 18	1NO	#10	9 1/2 x 6 x 5 1/2	8	**136308**	10 X 8 X 6	11	**136317**
1	C23	17 - 24	1NO/1NC	#8	9 1/2 x 6 x 5 1/2	8	**136309**	10 X 8 X 6	11	**136318**
1 1/2	C23	17 - 24	1NO/1NC	#8	9 1/2 x 6 x 5 1/2	8	**136310**	10 X 8 X 6	11	**136319**
2	C23	22 - 30	1NO/1NC	#8	9 1/2 x 6 x 5 1/2	8	**136311**	10 X 8 X 6	11	**136320**
3	C32	30 - 40	1NO/1NC	#6	13 3/8 x 7 3/8 x 6 1/2	11	**136312**	12 X 12 X 8	22	**136321**
5	C65	48 - 65	2NO/2NC	#1	13 3/8 x 7 3/8 x 6 1/2	13	**136313**	12 X 12 X 8	24	**136322**

MOTOR HP	CONT.	OVERLOAD Amp RANGE	AUXILIARY CONTACTS	MAX WIRE SIZE	TYPE 12 METAL ENCLOSURE HINGED DOOR ENCLOSURE SIZE	WT	CATALOG NUMBER	TYPE 4 METAL ENCLOSURE HINGED DOOR ENCLOSURE SIZE	WT	CATALOG NUMBER
1/4	C9	5.5 - 8.5	1NO	#10	10 X 8 X 6	15	**136323**	10 X 8 X 6	12	**136332**
1/3	C9	5.5 - 8.5	1NO	#10	10 X 8 X 6	15	**136324**	10 X 8 X 6	12	**136333**
1/2	C12	8.5 - 12.5	1NO	#10	10 X 8 X 6	15	**136325**	10 X 8 X 6	12	**136334**
3/4	C16	12.5 - 18	1NO	#10	10 X 8 X 6	15	**136326**	10 X 8 X 6	12	**136335**
1	C23	17 - 24	1NO/1NC	#8	10 X 8 X 6	15	**136327**	10 X 8 X 6	12	**136336**
1 1/2	C23	17 - 24	1NO/1NC	#8	10 X 8 X 6	15	**136328**	10 X 8 X 6	12	**136337**
2	C23	22 - 30	1NO/1NC	#8	10 X 8 X 6	15	**136329**	10 X 8 X 6	12	**136338**
3	C32	30 - 40	1NO/1NC	#6	12 X 10 X 8	23	**136330**	12 X 10 X 8	20	**136339**
5	C65	48 - 65	2NO/2NC	#1	12 X 10 X 8	25	**136331**	12 X 10 X 8	22	**136340**

Options and Modifications are available:

See Page 39

HVAC Motor Starters FULL VOLTAGE - ACROSS THE LINE • 1/4 - 7 1/2 HP • SINGLE PHASE

200/208 Volt Single Phase Motor (with control transformer)

MOTOR HP	CONT.	OVERLOAD Amp RANGE	AUXILIARY CONTACTS	MAX WIRE SIZE
1/4	C9	2.4 - 3.6	1NO	#10
1/3	C9	3.5 - 5.0	1NO	#10
1/2	C9	4.0 - 6.0	1NO	#10
3/4	C9	5.5 - 8.5	1NO	#10
1	C9	8.5 - 12.5	1NO	#10
1 1/2	C12	8.5 - 12.5	1NO	#10
2	C16	12.5 - 18	1NO	#10
3	C23	17 - 24	1NO/1NC	#8
5	C32	23 - 32	1NO/1NC	#6
7 1/2	C50	37 - 50	2NO/2NC	#1

TYPE 1 METAL ENCLOSURE LIFT OFF COVER		
ENCLOSURE SIZE	WT	CATALOG NUMBER
13 3/8 x 7 3/8 x 6 1/2	11	136341
13 3/8 x 7 3/8 x 6 1/2	11	136342
13 3/8 x 7 3/8 x 6 1/2	11	136343
13 3/8 x 7 3/8 x 6 1/2	11	136344
13 3/8 x 7 3/8 x 6 1/2	11	136345
13 3/8 x 7 3/8 x 6 1/2	11	136346
13 3/8 x 7 3/8 x 6 1/2	11	136347
13 3/8 x 7 3/8 x 6 1/2	12	136348
13 3/8 x 7 3/8 x 6 1/2	14	136349
NA	NA	NA

TYPE 1 METAL ENCLOSURE HINGED DOOR		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 X 12 X 8	22	136350
12 X 12 X 8	22	136351
12 X 12 X 8	22	136352
12 X 12 X 8	22	136353
12 X 12 X 8	22	136354
12 X 12 X 8	22	136355
12 X 12 X 8	22	136356
12 X 12 X 8	23	136357
14 X 12 X 8	26	136358
14 X 12 X 8	30	136359

MOTOR HP	CONT.	OVERLOAD Amp RANGE	AUXILIARY CONTACTS	MAX WIRE SIZE
1/4	C9	2.4 - 3.6	1NO	#10
1/3	C9	3.5 - 5.0	1NO	#10
1/2	C9	4.0 - 6.0	1NO	#10
3/4	C9	5.5 - 8.5	1NO	#10
1	C9	8.5 - 12.5	1NO	#10
1 1/2	C12	8.5 - 12.5	1NO	#10
2	C16	12.5 - 18	1NO	#10
3	C23	17 - 24	1NO/1NC	#8
5	C32	23 - 32	1NO/1NC	#6
7 1/2	C50	37 - 50	2NO/2NC	#1

TYPE 12 METAL ENCLOSURE HINGED DOOR		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 X 10 X 8	23	136360
12 X 10 X 8	23	136361
12 X 10 X 8	23	136362
12 X 10 X 8	23	136363
12 X 10 X 8	23	136364
12 X 10 X 8	23	136365
12 X 10 X 8	23	136366
12 X 10 X 8	24	136367
12 X 10 X 8	26	136368
14 X 12 X 8	34	136369

TYPE 4 METAL ENCLOSURE HINGED DOOR		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 X 10 X 8	20	136370
12 X 10 X 8	20	136371
12 X 10 X 8	20	136372
12 X 10 X 8	20	136373
12 X 10 X 8	20	136374
12 X 10 X 8	20	136375
12 X 10 X 8	20	136376
12 X 10 X 8	21	136377
12 X 10 X 8	23	136378
14 X 12 X 8	31	136379

230 Volt Single Phase Motor (with control transformer)

MOTOR HP	CONT.	OVERLOAD Amp RANGE	AUXILIARY CONTACTS	MAX WIRE SIZE
1/4	C9	2.4 - 3.6	1NO	#10
1/3	C9	3.5 - 5.0	1NO	#10
1/2	C9	4.0 - 6.0	1NO	#10
3/4	C9	5.5 - 8.5	1NO	#10
1	C9	5.5 - 8.5	1NO	#10
1 1/2	C12	8.5 - 12.5	1NO	#10
2	C12	8.5 - 12.5	1NO	#10
3	C23	12.5 - 18	1NO/1NC	#8
5	C28	22 - 30	1NO/1NC	#8
7 1/2	C40	37 - 50	1NO/1NC	#6

TYPE 1 METAL ENCLOSURE LIFT OFF COVER		
ENCLOSURE SIZE	WT	CATALOG NUMBER
13 3/8 x 7 3/8 x 6 1/2	11	136380
13 3/8 x 7 3/8 x 6 1/2	11	136381
13 3/8 x 7 3/8 x 6 1/2	11	136382
13 3/8 x 7 3/8 x 6 1/2	11	136383
13 3/8 x 7 3/8 x 6 1/2	11	136384
13 3/8 x 7 3/8 x 6 1/2	11	136385
13 3/8 x 7 3/8 x 6 1/2	11	136386
13 3/8 x 7 3/8 x 6 1/2	12	136387
13 3/8 x 7 3/8 x 6 1/2	12	136388
13 3/8 x 7 3/8 x 6 1/2	14	136389

TYPE 1 METAL ENCLOSURE HINGED DOOR		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 X 12 X 8	22	136390
12 X 12 X 8	22	136391
12 X 12 X 8	22	136392
12 X 12 X 8	22	136393
12 X 12 X 8	22	136394
12 X 12 X 8	22	136395
12 X 12 X 8	22	136396
12 X 12 X 8	23	136397
12 X 12 X 8	23	136398
12 X 12 X 8	25	136399

MOTOR HP	CONT.	OVERLOAD Amp RANGE	AUXILIARY CONTACTS	MAX WIRE SIZE
1/4	C9	2.4 - 3.6	1NO	#10
1/3	C9	3.5 - 5.0	1NO	#10
1/2	C9	4.0 - 6.0	1NO	#10
3/4	C9	5.5 - 8.5	1NO	#10
1	C9	5.5 - 8.5	1NO	#10
1 1/2	C12	8.5 - 12.5	1NO	#10
2	C12	8.5 - 12.5	1NO	#10
3	C23	12.5 - 18	1NO/1NC	#8
5	C28	22 - 30	1NO/1NC	#8
7 1/2	C40	37 - 50	1NO/1NC	#6

TYPE 12 METAL ENCLOSURE HINGED DOOR		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 X 10 X 8	23	136400
12 X 10 X 8	23	136401
12 X 10 X 8	23	136402
12 X 10 X 8	23	136403
12 X 10 X 8	23	136404
12 X 10 X 8	23	136405
12 X 10 X 8	23	136406
12 X 10 X 8	24	136407
12 X 10 X 8	24	136408
14 X 12 X 8	30	136409

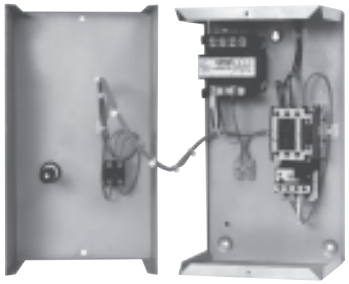
TYPE 4 METAL ENCLOSURE HINGED DOOR		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 X 10 X 8	20	136410
12 X 10 X 8	20	136411
12 X 10 X 8	20	136412
12 X 10 X 8	20	136413
12 X 10 X 8	20	136414
12 X 10 X 8	20	136415
12 X 10 X 8	20	136416
12 X 10 X 8	21	136417
12 X 10 X 8	21	136418
14 X 12 X 8	27	136419

HVAC2007

HVAC Motor Starters FULL VOLTAGE - ACROSS THE LINE • 1/3 - 100 HP • THREE PHASE

- For quick starting applications (<2 Sec)
- Adjustable UL Class 10 Thermal Overload
- Control Transformer (208/230/460 - 120 VAC) with fused secondary (fused primary above 50 Amps) - fuses furnished
- HAND - OFF - AUTO (HOA) Selector Switch
- 2-Point Terminal Block for “AUTO” position
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL

NOTE: Weights shown are APPROXIMATE and do NOT include packing materials



Typical HVAC Motor Starter in Type 1 Enclosure with Lift Off Cover

How to Choose a Starter

- Determine the Motor Starter by the MOTOR VOLTAGE and MOTOR HP as shown below
- Motor FULL LOAD AMPS must fall within the OVERLOAD AMP RANGE
- Consult Factory if required OVERLOAD AMP RANGE is other than shown.

200/208 Volt Three Phase Motor

MOTOR HP	CONT.	OVERLOAD Amp RANGE	AUXILIARY CONTACTS	MAX WIRE SIZE	TYPE 1 METAL ENCLOSURE LIFT OFF COVER ENCLOSURE SIZE	WT	CATALOG NUMBER	TYPE 1 METAL ENCLOSURE HINGED DOOR ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	C9	1.4 - 2.1	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	**136420**	12 X 12 X 8	22	**136431**
1/2	C9	1.8 - 2.7	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	**136421**	12 X 12 X 8	22	**136432**
3/4	C9	2.4 - 3.6	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	**136422**	12 X 12 X 8	22	**136433**
1	C9	3.5 - 5.0	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	**136423**	12 X 12 X 8	22	**136434**
1 1/2	C9	5.5 - 8.5	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	**136424**	12 X 12 X 8	22	**136435**
2	C9	5.5 - 8.5	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	**136425**	12 X 12 X 8	22	**136436**
3	C12	8.5 - 12.5	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	**136426**	12 X 12 X 8	22	**136437**
5	C23	12.5 - 18	1NO/1NC	#8	13 3/8 x 7 3/8 x 6 1/2	12	**136427**	12 X 12 X 8	23	**136438**
7 1/2	C28	22 - 30	1NO/1NC	#8	13 3/8 x 7 3/8 x 6 1/2	12	**136428**	12 X 12 X 8	23	**136439**
10	C32	23 - 32	1NO/1NC	#6	13 3/8 x 7 3/8 x 6 1/2	14	**136429**	12 X 12 X 8	25	**136440**
15	C50	37 - 50	2NO/2NC	#1	13 3/8 x 7 3/8 x 6 1/2	18	**136430**	12 X 12 X 8	29	**136441**
20	C65	48 - 65	2NO/2NC	#1	NA	NA	**NA**	14 X 12 X 8	30	**136442**
25	C80	63 - 80	2NO/2NC	#1	NA	NA	**NA**	14 X 12 X 8	30	**136443**
30	C95	65 - 95	2NO/2NC	LUG	NA	NA	**NA**	20 X 16 X 8	47	**136444**
40	C130	85 - 125	2NO/2NC	LUG	NA	NA	**NA**	20 X 16 X 8	47	**136445**

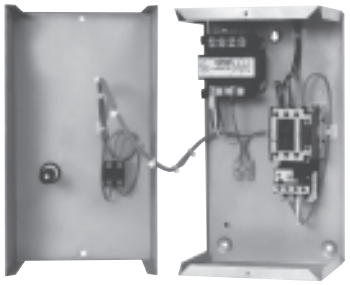
MOTOR HP	CONT.	OVERLOAD Amp RANGE	AUXILIARY CONTACTS	MAX WIRE SIZE	TYPE 12 METAL ENCLOSURE HINGED DOOR ENCLOSURE SIZE	WT	CATALOG NUMBER	TYPE 4 METAL ENCLOSURE HINGED DOOR ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	C9	1.4 - 2.1	1NO	#10	12 X 10 X 8	23	**136446**	12 X 10 X 8	20	**136461**
1/2	C9	1.8 - 2.7	1NO	#10	12 X 10 X 8	23	**136447**	12 X 10 X 8	20	**136462**
3/4	C9	2.4 - 3.6	1NO	#10	12 X 10 X 8	23	**136448**	12 X 10 X 8	20	**136463**
1	C9	3.5 - 5.0	1NO	#10	12 X 10 X 8	23	**136449**	12 X 10 X 8	20	**136464**
1 1/2	C9	5.5 - 8.5	1NO	#10	12 X 10 X 8	23	**136450**	12 X 10 X 8	20	**136465**
2	C9	5.5 - 8.5	1NO	#10	12 X 10 X 8	23	**136451**	12 X 10 X 8	20	**136466**
3	C12	8.5 - 12.5	1NO	#10	12 X 10 X 8	23	**136452**	12 X 10 X 8	20	**136467**
5	C23	12.5 - 18	1NO/1NC	#8	12 X 10 X 8	24	**136453**	12 X 10 X 8	21	**136468**
7 1/2	C28	22 - 30	1NO/1NC	#8	12 x 10 x 8	24	**136454**	12 x 10 x 8	21	**136469**
10	C32	23 - 32	1NO/1NC	#6	12 x 10 x 8	26	**136455**	12 x 10 x 8	23	**136470**
15	C50	37 - 50	2NO/2NC	#1	12 x 10 x 8	30	**136456**	12 x 10 x 8	27	**136471**
20	C65	48 - 65	2NO/2NC	#1	14 X 12 X 8	34	**136457**	14 X 12 X 8	31	**136472**
25	C80	63 - 80	2NO/2NC	#1	14 X 12 X 8	34	**136458**	14 X 12 X 8	31	**136473**
30	C95	65 - 95	2NO/2NC	LUG	20 x 16 x 9	55	**136459**	20 x 16 x 8	49	**136474**
40	C130	85 - 125	2NO/2NC	LUG	20 x 16 x 9	55	**136460**	20 x 16 x 8	49	**136475**

Options and Modifications are available: See Page 39

HVAC Motor Starters FULL VOLTAGE - ACROSS THE LINE • 1/2 - 100 HP • THREE PHASE

- For quick starting applications (<2 Sec)
- Adjustable UL Class 10 Thermal Overload
- Control Transformer (208/230/460 - 120 VAC) with fused secondary (fused primary above 50 Amps) - fuses furnished
- HAND - OFF - AUTO (HOA) Selector Switch
- 2-Point Terminal Block for “AUTO” position
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL

NOTE: Weights shown are APPROXIMATE and do NOT include packing materials



Typical HVAC Motor Starter in Type 1 Enclosure with Lift Off Cover

How to Choose a Starter

- Determine the Motor Starter by the MOTOR VOLTAGE and MOTOR HP as shown below
- Motor FULL LOAD AMPS must fall within the OVERLOAD AMP RANGE
- Consult Factory if required OVERLOAD AMP RANGE is other than shown.

230 Volt Three Phase Motor

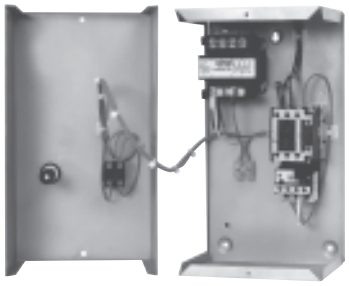
MOTOR HP	CONT.	OVERLOAD Amp RANGE	AUXILIARY CONTACTS	MAX WIRE SIZE	TYPE 1 METAL ENCLOSURE LIFT OFF COVER			TYPE 1 METAL ENCLOSURE HINGED DOOR		
					ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	C9	1.0 - 1.5	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	**136476**	12 X 12 X 8	22	**136487**
1/2	C9	1.8 - 2.7	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	**136477**	12 X 12 X 8	22	**136488**
3/4	C9	2.4 - 3.6	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	**136478**	12 X 12 X 8	22	**136489**
1	C9	3.5 - 5.0	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	**136479**	12 X 12 X 8	22	**136490**
1 1/2	C9	5.5 - 8.5	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	**136480**	12 X 12 X 8	22	**136491**
2	C9	5.5 - 8.5	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	**136481**	12 X 12 X 8	22	**136492**
3	C12	8.5 - 12.5	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	**136482**	12 X 12 X 8	22	**136493**
5	C16	12.5 - 18	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	**136483**	12 X 12 X 8	22	**136494**
7 1/2	C23	17 - 24	1NO/1NC	#8	13 3/8 x 7 3/8 x 6 1/2	12	**136484**	12 X 12 X 8	23	**136495**
10	C28	22 - 30	1NO/1NC	#8	13 3/8 x 7 3/8 x 6 1/2	12	**136485**	12 X 12 X 8	23	**136496**
15	C50	37 - 50	2NO/2NC	#1	13 3/8 x 7 3/8 x 6 1/2	18	**136486**	12 X 12 X 8	29	**136497**
20	C65	48 - 65	2NO/2NC	#1	NA	NA	**NA**	14 X 12 X 8	30	**136498**
25	C80	63 - 80	2NO/2NC	#1	NA	NA	**NA**	14 X 12 X 8	30	**136499**
30	C80	77 - 97	2NO/2NC	#1	NA	NA	**NA**	14 X 12 X 8	30	**136500**
40	C105	85 - 125	2NO/2NC	LUG	NA	NA	**NA**	20 X 16 X 8	47	**136501**
50	C130	110 - 160	2NO/2NC	LUG	NA	NA	**NA**	20 X 16 X 8	48	**136502**

MOTOR HP	CONT.	OVERLOAD Amp RANGE	AUXILIARY CONTACTS	MAX WIRE SIZE	TYPE 12 METAL ENCLOSURE HINGED DOOR			TYPE 4 METAL ENCLOSURE HINGED DOOR		
					ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	C9	1.0 - 1.5	1NO	#10	12 X 10 X 8	23	**136503**	12 X 10 X 8	20	**136519**
1/2	C9	1.8 - 2.7	1NO	#10	12 X 10 X 8	23	**136504**	12 X 10 X 8	20	**136520**
3/4	C9	2.4 - 3.6	1NO	#10	12 X 10 X 8	23	**136505**	12 X 10 X 8	20	**136521**
1	C9	3.5 - 5.0	1NO	#10	12 X 10 X 8	23	**136506**	12 X 10 X 8	20	**136522**
1 1/2	C9	5.5 - 8.5	1NO	#10	12 X 10 X 8	23	**136507**	12 X 10 X 8	20	**136523**
2	C9	5.5 - 8.5	1NO	#10	12 X 10 X 8	23	**136508**	12 X 10 X 8	20	**136524**
3	C12	8.5 - 12.5	1NO	#10	12 X 10 X 8	23	**136509**	12 X 10 X 8	20	**136525**
5	C16	12.5 - 18	1NO	#10	12 X 10 X 8	23	**136510**	12 X 10 X 8	20	**136526**
7 1/2	C23	17 - 24	1NO/1NC	#8	12 x 10 x 8	24	**136511**	12 x 10 x 8	21	**136527**
10	C28	22 - 30	1NO/1NC	#8	12 x 10 x 8	24	**136512**	12 x 10 x 8	21	**136528**
15	C50	37 - 50	2NO/2NC	#1	12 x 10 x 8	30	**136513**	12 x 10 x 8	27	**136529**
20	C65	48 - 65	2NO/2NC	#1	14 X 12 X 8	34	**136514**	14 X 12 X 8	31	**136530**
25	C80	63 - 80	2NO/2NC	#1	14 X 12 X 8	34	**136515**	14 X 12 X 8	31	**136531**
30	C80	77 - 97	2NO/2NC	#1	14 X 12 X 8	34	**136516**	14 X 12 X 8	31	**136532**
40	C105	85 - 125	2NO/2NC	LUG	20 x 16 x 9	55	**136517**	20 x 16 x 8	49	**136534**
50	C130	110 - 160	2NO/2NC	LUG	20 x 16 x 9	56	**136518**	20 x 16 x 8	50	**136535**

HVAC Motor Starters FULL VOLTAGE - ACROSS THE LINE • 1/3 - 100 HP • THREE PHASE

- For quick starting applications (<2 Sec)
- Adjustable UL Class 10 Thermal Overload
- Control Transformer (208/230/460 - 120 VAC) with fused secondary (fused primary above 50 Amps) - fuses furnished
- HAND - OFF - AUTO (HOA) Selector Switch
- 2-Point Terminal Block for “AUTO” position
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL

NOTE: Weights shown are APPROXIMATE and do NOT include packing materials



Typical HVAC Motor Starter in Type 1 Enclosure with Lift Off Cover

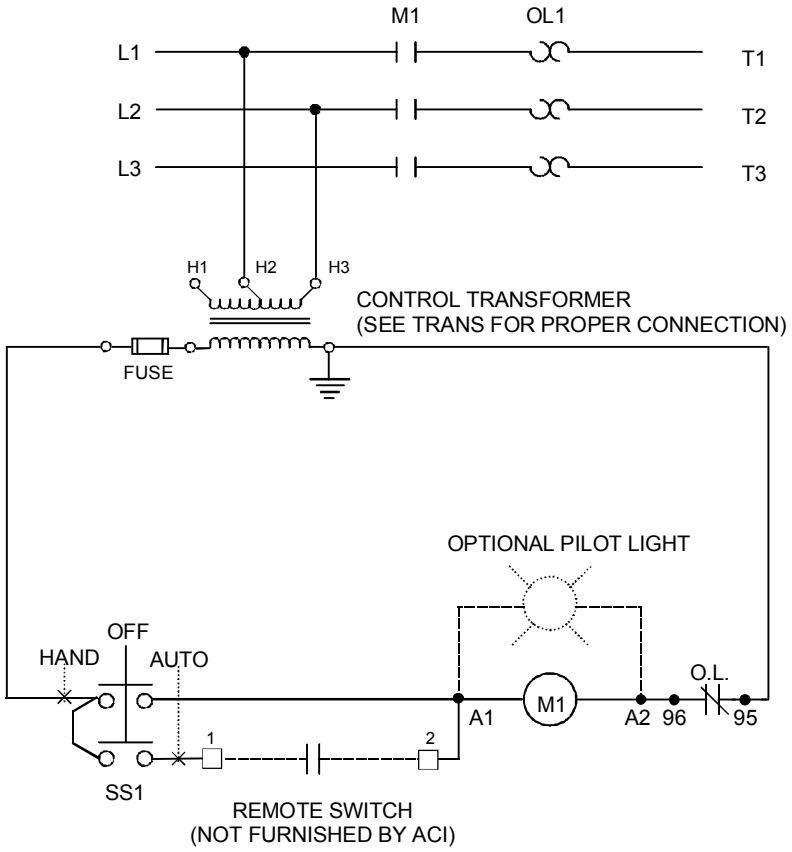
460 Volt Three Phase Motor

MOTOR HP	CONT.	OVERLOAD Amp RANGE	AUXILIARY CONTACTS	MAX WIRE SIZE	TYPE 1 METAL ENCLOSURE LIFT OFF COVER ENCLOSURE SIZE	WT	CATALOG NUMBER	TYPE 1 METAL ENCLOSURE HINGED DOOR ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	C9	0.67 - 1.0	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	136536	12 X 12 X 8	22	136550
1/2	C9	1.0 - 1.5	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	136537	12 X 12 X 8	22	136551
3/4	C9	1.4 - 2.1	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	136538	12 X 12 X 8	22	136552
1	C9	1.8 - 2.7	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	136539	12 X 12 X 8	22	136553
1 1/2	C9	2.4 - 3.6	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	136540	12 X 12 X 8	22	136554
2	C9	2.4 - 3.6	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	136541	12 X 12 X 8	22	136555
3	C9	4.0 - 6.0	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	136542	12 X 12 X 8	22	136556
5	C9	5.5 - 8.5	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	136543	12 X 12 X 8	22	136557
7 1/2	C12	8.5 - 12.5	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	136544	12 X 12 X 8	22	136558
10	C16	12.5 - 18	1NO	#10	13 3/8 x 7 3/8 x 6 1/2	11	136545	12 X 12 X 8	22	136559
15	C23	17 - 24	1NO/1NC	#8	13 3/8 x 7 3/8 x 6 1/2	12	136546	12 X 12 X 8	23	136560
20	C28	22 - 30	1NO/1NC	#8	13 3/8 x 7 3/8 x 6 1/2	12	136547	12 X 12 X 8	23	136561
25	C40	30 - 40	1NO/1NC	#6	13 3/8 x 7 3/8 x 6 1/2	14	136548	12 X 12 X 8	25	136562
30	C40	37 - 50	1NO/1NC	#6	13 3/8 x 7 3/8 x 6 1/2	14	136549	12 X 12 X 8	25	136563
40	C65	48 - 65	2NO/2NC	#1	NA	NA	NA	14 X 12 X 8	30	136564
50	C65	63 - 80	2NO/2NC	#1	NA	NA	NA	14 X 12 X 8	30	136565
60	C80	63 - 80	2NO/2NC	#1	NA	NA	NA	14 X 12 X 8	30	136566
75	C95	85 - 125	2NO/2NC	LUG	NA	NA	NA	20 X 16 X 8	47	136567
100	C130	110 - 160	2NO/2NC	LUG	NA	NA	NA	20 X 16 X 8	48	136568

MOTOR HP	CONT.	OVERLOAD Amp RANGE	AUXILIARY CONTACTS	MAX WIRE SIZE	TYPE 12 METAL ENCLOSURE HINGED DOOR ENCLOSURE SIZE	WT	CATALOG NUMBER	TYPE 4 METAL ENCLOSURE HINGED DOOR ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	C9	0.67 - 1.0	1NO	#10	12 X 10 X 8	23	136569	12 X 10 X 8	20	136588
1/2	C9	1.0 - 1.5	1NO	#10	12 X 10 X 8	23	136570	12 X 10 X 8	20	136589
3/4	C9	1.4 - 2.1	1NO	#10	12 X 10 X 8	23	136571	12 X 10 X 8	20	136590
1	C9	1.8 - 2.7	1NO	#10	12 X 10 X 8	23	136572	12 X 10 X 8	20	136591
1 1/2	C9	2.4 - 3.6	1NO	#10	12 X 10 X 8	23	136573	12 X 10 X 8	20	136592
2	C9	2.4 - 3.6	1NO	#10	12 X 10 X 8	23	136574	12 X 10 X 8	20	136593
3	C9	4.0 - 6.0	1NO	#10	12 X 10 X 8	23	136575	12 X 10 X 8	20	136594
5	C9	5.5 - 8.5	1NO	#10	12 X 10 X 8	23	136576	12 X 10 X 8	20	136595
7 1/2	C12	8.5 - 12.5	1NO	#10	12 x 10 x 8	23	136577	12 x 10 x 8	20	136596
10	C16	12.5 - 18	1NO	#10	12 x 10 x 8	23	136578	12 x 10 x 8	20	136597
15	C23	17 - 24	1NO/1NC	#8	12 x 10 x 8	24	136579	12 x 10 x 8	21	136598
20	C28	22 - 30	1NO/1NC	#8	12 x 10 x 8	24	136580	12 x 10 x 8	21	136599
25	C40	30 - 40	1NO/1NC	#6	12 x 10 x 8	26	136581	12 x 10 x 8	23	136600
30	C40	37 - 50	1NO/1NC	#6	12 x 10 x 8	26	136582	12 x 10 x 8	23	136601
40	C65	48 - 65	2NO/2NC	#1	14 X 12 X 8	34	136583	14 X 12 X 8	31	136602
50	C65	63 - 80	2NO/2NC	#1	14 X 12 X 8	34	136584	14 X 12 X 8	31	136603
60	C80	63 - 80	2NO/2NC	#1	14 X 12 X 8	34	136585	14 X 12 X 8	31	136604
75	C95	85 - 125	2NO/2NC	LUG	20 x 16 x 9	55	136586	20 x 16 x 8	49	136605
100	C130	110 - 160	2NO/2NC	LUG	20 x 16 x 9	56	136587	20 x 16 x 8	50	136606

Options and Modifications are available: See Page 39

TYPICAL WIRING DIAGRAM - THREE PHASE MOTOR STARTER



ADVANCE CONTROLS, INC.
4505 18TH STREET EAST BRADENTON, FL
941-746-3221

TYPICAL WIRING DIAGRAM
3 PHASE STARTER
WITH CONTROL TRANSFORMER AND
H-O-A CONTROL

SCALE	DRAWN	DATE	DRAWING NUMBER	PAGE	REV
NONE	MJK	6/23/92	1001-10	1 OF 1	

C Series Combination Starters with FUSIBLE DISCONNECT (LOCKABLE HANDLE) • 1/4 - 5 HP • SINGLE PHASE

7.5 HP 200/208/60/1 TYPE 12

- For quick starting applications (<2 Sec)
- UL 508 Type Disconnect with Fuseblock
- Disconnect Handle lockable in the “OFF” position with up to three (3) padlocks. Padlocks not furnished
- Control Transformer (208/230/460 - 120 VAC) with fused secondary (fused primary above 50 Amps) - fuses furnished (NO Control Transformer on 120 Volt Units)
- HAND - OFF - AUTO (HOA) Selector Switch
- 2-Point Terminal Block for “AUTO” position
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL
- Power fuses optional - See page 37

NOTE: Weights shown are APPROXIMATE and do NOT include packing materials

How to Choose a Combination Starter

- Determine the Motor Starter by the MOTOR VOLTAGE and MOTOR HP as shown below
- Motor FULL LOAD AMPS must fall within the OVERLOAD AMP RANGE
- Consult Factory if required OVERLOAD AMP RANGE is other than shown.

120 Volt Single Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER	
					SIZE	TYPE
1/4	C9	5.5 - 8.5	30	#10	30	CC
1/3	C9	5.5 - 8.5	30	#10	30	CC
1/2	C12	8.5 - 12.5	30	#10	30	CC
3/4	C16	12.5 - 18	30	#10	30	CC
1	C23	17 - 24	40	#10	30	J
1 1/2	C23	17 - 24	40	#10	30	J
2	C23	22 - 30	40	#8	60	J
3	C32	30 - 40	63	#6	60	J
5	C65	48 - 65	100	#1	100	J

TYPE 1 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 12 x 8	21	**136607**
12 x 12 x 8	21	**136608**
12 x 12 x 8	21	**136609**
12 x 12 x 8	21	**136610**
16 x 12 x 8	24	**136611**
16 x 12 x 8	24	**136612**
16 x 16 x 8	29	**136613**
16 x 16 x 8	31	**136614**
24 x 20 x 8	52	**136615**

TYPE 12 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 8	22	**136616**
12 x 10 x 8	22	**136617**
12 x 10 x 8	22	**136618**
12 x 10 x 8	22	**136619**
14 x 12 x 8	26	**136620**
14 x 12 x 8	26	**136621**
16 x 14 x 8	32	**136622**
16 x 14 x 8	34	**136623**
24 x 20 x 9	65	**136624**

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER	
					SIZE	TYPE
1/4	C9	5.5 - 8.5	30	#10	30	CC
1/3	C9	5.5 - 8.5	30	#10	30	CC
1/2	C12	8.5 - 12.5	30	#10	30	CC
3/4	C16	12.5 - 18	30	#10	30	CC
1	C23	17 - 24	40	#10	30	J
1 1/2	C23	17 - 24	40	#10	30	J
2	C23	22 - 30	40	#8	60	J
3	C32	30 - 40	63	#6	60	J
5	C65	48 - 65	100	#1	100	J

TYPE 4 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 8	19	**136625**
12 x 10 x 8	19	**136626**
12 x 10 x 8	19	**136627**
12 x 10 x 8	19	**136628**
14 x 12 x 8	23	**136629**
14 x 12 x 8	23	**136630**
16 x 14 x 8	29	**136631**
16 x 14 x 8	31	**136632**
24 x 20 x 8	56	**136633**

TYPE 4X FIBERGLASS ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 8	17	**136634**
12 x 10 x 8	17	**136635**
12 x 10 x 8	17	**136636**
12 x 10 x 8	17	**136637**
14 x 12 x 8	21	**136638**
14 x 12 x 8	21	**136639**
16 x 14 x 8	22	**136640**
16 x 14 x 8	24	**136641**
24 x 20 x 10	46	**136642**

Options and Modifications are available: See Page 39

C Series Combination Starters with FUSIBLE DISCONNECT (LOCKABLE HANDLE) • 1/4 - 7 1/2 HP • SINGLE PHASE

200/208 Volt Single Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER	
					SIZE	TYPE
1/4	C9	2.4 - 3.6	30	#10	30	CC
1/3	C9	3.5 - 5.0	30	#10	30	CC
1/2	C9	4.0 - 6.0	30	#10	30	CC
3/4	C9	5.5 - 8.5	30	#10	30	CC
1	C9	8.5 - 12.5	30	#10	30	CC
1 1/2	C12	8.5 - 12.5	30	#10	30	CC
2	C16	12.5 - 18	30	#10	30	CC
3	C23	17 - 24	40	#8	30	J
5	C32	30 - 40	40	#6	60	J
7 1/2	C50	37 - 50	63	#1	100	J

TYPE 1 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 8	24	136643
14 x 12 x 8	24	136644
14 x 12 x 8	24	136645
14 x 12 x 8	24	136646
14 x 12 x 8	24	136647
14 x 12 x 8	24	136648
14 x 12 x 8	24	136649
16 x 12 x 8	27	136650
16 x 16 x 8	34	136651
20 x 20 x 8	55	136652

TYPE 12 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 8	28	136653
14 x 12 x 8	28	136654
14 x 12 x 8	28	136655
14 x 12 x 8	28	136656
14 x 12 x 8	28	136657
14 x 12 x 8	28	136658
14 x 12 x 8	28	136659
16 x 14 x 8	35	136660
16 x 14 x 8	37	136661
24 x 20 x 9	70	136662

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER	
					SIZE	TYPE
1/4	C9	2.4 - 3.6	30	#10	30	CC
1/3	C9	3.5 - 5.0	30	#10	30	CC
1/2	C9	4.0 - 6.0	30	#10	30	CC
3/4	C9	5.5 - 8.5	30	#10	30	CC
1	C9	8.5 - 12.5	30	#10	30	CC
1 1/2	C12	8.5 - 12.5	30	#10	30	CC
2	C16	12.5 - 18	30	#10	30	CC
3	C23	17 - 24	40	#8	30	J
5	C32	30 - 40	40	#6	60	J
7 1/2	C50	37 - 50	63	#1	100	J

TYPE 4 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 8	25	136663
14 x 12 x 8	25	136664
14 x 12 x 8	25	136665
14 x 12 x 8	25	136666
14 x 12 x 8	25	136667
14 x 12 x 8	25	136668
14 x 12 x 8	25	136669
16 x 14 x 8	30	136670
16 x 14 x 8	32	136671
24 x 20 x 8	61	136672

TYPE 4X FIBERGLASS ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 X 12 X 7.75	23	136673
14 X 12 X 7.75	23	136674
14 X 12 X 7.75	23	136675
14 X 12 X 7.75	23	136676
14 X 12 X 7.75	23	136677
14 X 12 X 7.75	23	136678
14 X 12 X 7.75	23	136679
16 x 14 x 9.75	26	136680
16 x 14 x 9.75	28	136681
24 x 20 x 9.75	51	136682

230 Volt Single Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER	
					SIZE	TYPE
1/4	C9	2.4 - 3.6	30	#10	30	CC
1/3	C9	3.5 - 5.0	30	#10	30	CC
1/2	C9	4.0 - 6.0	30	#10	30	CC
3/4	C9	5.5 - 8.5	30	#10	30	CC
1	C9	5.5 - 8.5	30	#10	30	CC
1 1/2	C12	8.5 - 12.5	30	#10	30	CC
2	C12	8.5 - 12.5	30	#10	30	CC
3	C23	12.5 - 18	40	#8	30	J
5	C28	22 - 30	40	#8	60	J
7 1/2	C40	37 - 50	63	#6	60	J

TYPE 1 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 8	24	136683
14 x 12 x 8	24	136684
14 x 12 x 8	24	136685
14 x 12 x 8	24	136686
14 x 12 x 8	24	136687
14 x 12 x 8	24	136688
14 x 12 x 8	24	136689
16 x 12 x 8	27	136690
16 x 16 x 8	34	136691
16 x 16 x 8	55	136692

TYPE 12 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 8	28	136693
14 x 12 x 8	28	136694
14 x 12 x 8	28	136695
14 x 12 x 8	28	136696
14 x 12 x 8	28	136697
14 x 12 x 8	28	136698
14 x 12 x 8	28	136699
16 x 14 x 8	35	136700
16 x 14 x 8	37	136701
16 x 14 x 8	70	136702

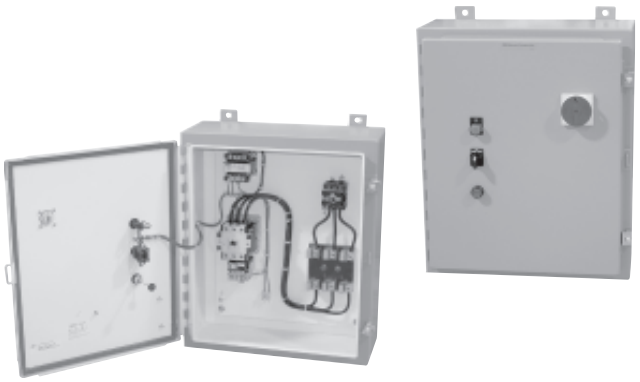
MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER	
					SIZE	TYPE
1/4	C9	2.4 - 3.6	30	#10	30	CC
1/3	C9	3.5 - 5.0	30	#10	30	CC
1/2	C9	4.0 - 6.0	30	#10	30	CC
3/4	C9	5.5 - 8.5	30	#10	30	CC
1	C9	5.5 - 8.5	30	#10	30	CC
1 1/2	C12	8.5 - 12.5	30	#10	30	CC
2	C12	8.5 - 12.5	30	#10	30	CC
3	C23	12.5 - 18	40	#8	30	J
5	C28	22 - 30	40	#8	60	J
7 1/2	C40	37 - 50	63	#6	60	J

TYPE 4 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 X 12 X 8	25	136703
14 X 12 X 8	25	136704
14 X 12 X 8	25	136705
14 X 12 X 8	25	136706
14 X 12 X 8	25	136707
14 X 12 X 8	25	136708
14 X 12 X 8	25	136709
16 X 14 X 8	30	136710
16 X 14 X 8	32	136711
16 X 14 X 8	61	136712

TYPE 4X FIBERGLASS ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 7.75	23	136713
14 x 12 x 7.75	23	136714
14 x 12 x 7.75	23	136715
14 x 12 x 7.75	23	136716
14 x 12 x 7.75	23	136717
14 x 12 x 7.75	23	136718
14 x 12 x 7.75	23	136719
16 x 14 x 9.75	26	136720
16 x 14 x 9.75	28	136721
16 x 14 x 9.75	51	136722

HVAC2007

C Series Combination Starters with FUSIBLE DISCONNECT (LOCKABLE HANDLE) • 1/3 - 25 HP • THREE PHASE



25 HP 208/60/3 TYPE 12

- For quick starting applications (<2 Sec)
- UL 508 Type Disconnect with Fuseblock
- Disconnect Handle lockable in the “OFF” position with up to three (3) padlocks. Padlocks not furnished
- Control Transformer (208/230/460 - 120 VAC) with fused secondary (fused primary above 50 Amps) - fuses furnished (NO Control Transformer on 120 Volt Units)
- HAND - OFF - AUTO (HOA) Selector Switch
- 2-Point Terminal Block for “AUTO” position
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL
- Power fuses optional - See page 37

NOTE: Weights shown are APPROXIMATE and do NOT include packing materials

How to Choose a Combination Starter

- Determine the Motor Starter by the MOTOR VOLTAGE and MOTOR HP as shown below
- Motor FULL LOAD AMPS must fall within the OVERLOAD AMP RANGE
- Consult Factory if required OVERLOAD AMP RANGE is other than shown.

200/208 Volt Three Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	C9	1.4 - 2.1	30	#10	30	CC	14 x 12 x 8	24	**136723**	14 x 12 x 8	28	**136735**
1/2	C9	1.8 - 2.7	30	#10	30	CC	14 x 12 x 8	24	**136724**	14 x 12 x 8	28	**136736**
3/4	C9	3.5 - 5.0	30	#10	30	CC	14 x 12 x 8	24	**136725**	14 x 12 x 8	28	**136737**
1	C9	4.0 - 6.0	30	#10	30	CC	14 x 12 x 8	24	**136726**	14 x 12 x 8	28	**136738**
1 1/2	C9	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	24	**136727**	14 x 12 x 8	28	**136739**
2	C9	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	24	**136728**	14 x 12 x 8	28	**136740**
3	C12	8.5 - 12.5	40	#8	30	J	14 x 12 x 8	25	**136729**	14 x 12 x 8	29	**136741**
5	C23	12.5 - 18	40	#8	30	J	16 x 12 x 8	27	**136730**	16 x 14 x 7	35	**136742**
7 1/2	C28	22 - 30	40	#8	60	J	16 x 16 x 8	32	**136731**	16 x 14 x 8	35	**136743**
10	C32	30 - 40	40	#8	60	J	16 x 16 x 8	34	**136732**	16 x 14 x 8	37	**136744**
15	C50	37 - 50	63	#3	100	J	20 x 20 x 8	55	**136733**	20 x 20 x 9	62	**136745**
20	C65	48 - 65	100	#1	100	J	24 x 20 x 8	57	**136734**	24 x 20 x 9	70	**136746**
25	C80	63 - 80	100	#1	200	J	NA	NA	**NA**	30 x 24 x 9	93	**136747**

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	C9	1.4 - 2.1	30	#10	30	CC	14 x 12 x 8	25	**136748**	14 x 12 x 7.75	23	**136761**
1/2	C9	1.8 - 2.7	30	#10	30	CC	14 x 12 x 8	25	**136749**	14 x 12 x 7.75	23	**136762**
3/4	C9	3.5 - 5.0	30	#10	30	CC	14 x 12 x 8	25	**136750**	14 x 12 x 7.75	23	**136763**
1	C9	4.0 - 6.0	30	#10	30	CC	14 x 12 x 8	25	**136751**	14 x 12 x 7.75	23	**136764**
1 1/2	C9	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	25	**136752**	14 x 12 x 7.75	23	**136765**
2	C9	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	25	**136753**	14 x 12 x 7.75	23	**136766**
3	C12	8.5 - 12.5	40	#8	30	J	14 x 12 x 8	26	**136754**	14 x 12 x 7.75	24	**136767**
5	C23	12.5 - 18	40	#8	30	J	16 x 14 x 8	32	**136755**	16 x 14 x 9.75	26	**136768**
7 1/2	C28	22 - 30	40	#8	60	J	16 x 14 x 8	32	**136756**	16 x 14 x 9.75	26	**136769**
10	C32	30 - 40	40	#8	60	J	16 x 14 x 8	34	**136757**	16 x 14 x 9.75	28	**136770**
15	C50	37 - 50	63	#3	100	J	20 x 20 x 8	56	**136758**	24 x 20 x 9.75	51	**136771**
20	C65	48 - 65	100	#1	100	J	24 x 20 x 8	61	**136759**	24 x 20 x 9.75	51	**136772**
25	C80	63 - 80	100	#1	200	J	30 x 24 x 8	88	**136760**	30 x 24 x 9.75	66	**136773**

Options and Modifications are available: See Page 39

C Series Combination Starters with FUSIBLE DISCONNECT (LOCKABLE HANDLE) • 1/3 - 30 HP • THREE PHASE

25 HP 208/60/3 TYPE 12

- For quick starting applications (<2 Sec)
- UL 508 Type Disconnect With Fuseblock
- Disconnect Handle lockable in the "OFF" position with up to three (3) padlocks. Padlocks not furnished
- Control Transformer (208/230/460 - 120 VAC) with fused secondary (fused primary above 50 Amps) - fuses furnished (NO Control Transformer on 120 Volt Units)
- HAND - OFF - AUTO (HOA) Selector Switch
- 2-Point Terminal Block for "AUTO" position
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL
- Power fuses optional - See page 37

NOTE: Weights shown are APPROXIMATE and do NOT include packing materials

How to Choose a Combination Starter

- Determine the Motor Starter by the MOTOR VOLTAGE and MOTOR HP as shown below
- Motor FULL LOAD AMPS must fall within the OVERLOAD AMP RANGE
- Consult Factory if required OVERLOAD AMP RANGE is other than shown.

230 Volt Three Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER	
					SIZE	TYPE
1/3	C9	1.0 - 1.5	30	#10	30	CC
1/2	C9	1.8 - 2.7	30	#10	30	CC
3/4	C9	2.4 - 3.6	30	#10	30	CC
1	C9	3.5 - 5.0	30	#10	30	CC
1 1/2	C9	5.5 - 8.5	30	#10	30	CC
2	C9	5.5 - 8.5	30	#10	30	CC
3	C12	8.5 - 12.5	30	#10	30	CC
5	C16	12.5 - 18	40	#10	30	J
7 1/2	C23	17 - 24	40	#8	60	J
10	C28	22 - 30	40	#8	60	J
15	C50	37 - 50	63	#1	100	J
20	C65	48 - 65	100	#1	100	J
25	C80	63 - 80	100	#1	200	J
30	C80	77 - 97	100	#1	200	J

TYPE 1 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 8	24	**136774**
14 x 12 x 8	24	**136775**
14 x 12 x 8	24	**136776**
14 x 12 x 8	24	**136777**
14 x 12 x 8	24	**136778**
14 x 12 x 8	24	**136779**
14 x 12 x 8	24	**136780**
16 x 12 x 8	27	**136781**
16 x 16 x 8	32	**136782**
16 x 16 x 8	32	**136783**
20 x 20 x 8	55	**136784**
24 x 20 x 8	57	**136785**
24 x 20 x 8	59	**136786**
NA	NA	**NA**

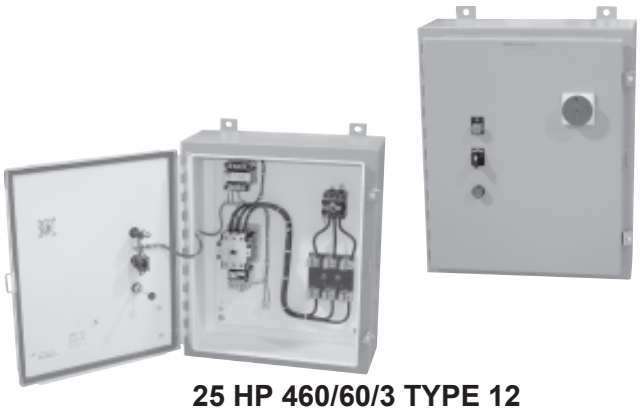
TYPE 12 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 8	28	**136787**
14 x 12 x 8	28	**136788**
14 x 12 x 8	28	**136789**
14 x 12 x 8	28	**136790**
14 x 12 x 8	28	**136791**
14 x 12 x 8	28	**136792**
14 x 12 x 8	28	**136793**
16 x 14 x 8	35	**136794**
16 x 14 x 8	35	**136795**
16 x 14 x 8	35	**136796**
20 x 20 x 9	62	**136797**
24 x 20 x 9	70	**136798**
24 x 20 x 9	72	**136799**
30 x 24 x 9	93	**136800**

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER	
					SIZE	TYPE
1/3	C9	1.0 - 1.5	30	#10	30	CC
1/2	C9	1.8 - 2.7	30	#10	30	CC
3/4	C9	2.4 - 3.6	30	#10	30	CC
1	C9	3.5 - 5.0	30	#10	30	CC
1 1/2	C9	5.5 - 8.5	30	#10	30	CC
2	C9	5.5 - 8.5	30	#10	30	CC
3	C12	8.5 - 12.5	30	#10	30	CC
5	C16	12.5 - 18	40	#10	30	J
7 1/2	C23	17 - 24	40	#8	60	J
10	C28	22 - 30	40	#8	60	J
15	C50	37 - 50	63	#1	100	J
20	C65	48 - 65	100	#1	100	J
25	C80	63 - 80	100	#1	200	J
30	C80	77 - 97	100	#1	200	J

TYPE 4 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 8	25	**136801**
14 x 12 x 8	25	**136802**
14 x 12 x 8	25	**136803**
14 x 12 x 8	25	**136804**
14 x 12 x 8	25	**136805**
14 x 12 x 8	25	**136806**
14 x 12 x 8	25	**135807**
16 x 14 x 8	32	**136808**
16 x 14 x 8	32	**136809**
16 x 14 x 8	32	**136810**
20 x 20 x 8	56	**136811**
24 x 20 x 8	61	**136812**
24 x 20 x 8	63	**136813**
30 x 24 x 8	88	**136814**

TYPE 4X FIBERGLASS ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 7.75	23	**136815**
14 x 12 x 7.75	23	**136816**
14 x 12 x 7.75	23	**136817**
14 x 12 x 7.75	23	**136818**
14 x 12 x 7.75	23	**136819**
14 x 12 x 7.75	23	**136820**
14 x 12 x 7.75	23	**136821**
16 x 14 x 9.75	26	**136822**
16 x 14 x 9.75	26	**136823**
16 x 14 x 9.75	26	**136824**
24 x 20 x 9.75	51	**136825**
24 x 20 x 9.75	51	**136826**
24 x 20 x 9.75	53	**136827**
30 x 24 x 9.75	66	**136828**

C Series Combination Starters with FUSIBLE DISCONNECT (LOCKABLE HANDLE) • 1/3 - 60 HP • THREE PHASE



25 HP 460/60/3 TYPE 12

- For quick starting applications (<2 Sec)
- UL 508 Type Disconnect with Fuseblock
- Disconnect Handle lockable in the “OFF” position with up to three (3) padlocks. Padlocks not furnished
- Control Transformer (208/230/460 - 120 VAC) with fused secondary (fused primary above 50 Amps) - fuses furnished (NO Control Transformer on 120 Volt Units)
- HAND - OFF - AUTO (HOA) Selector Switch
- 2-Point Terminal Block for “AUTO” position
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL
- Power fuses optional - See page 37

NOTE: Weights shown are APPROXIMATE and do NOT include packing materials

460 Volt Three Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	C9	0.67 - 1.0	30	#10	30	CC	14 x 12 x 8	24	**136829**	14 x 12 x 8	28	**136845**
1/2	C9	1.0 - 1.5	30	#10	30	CC	14 x 12 x 8	24	**136830**	14 x 12 x 8	28	**136846**
3/4	C9	1.4 - 2.1	30	#10	30	CC	14 x 12 x 8	24	**136831**	14 x 12 x 8	28	**136847**
1	C9	1.8 - 2.7	30	#10	30	CC	14 x 12 x 8	24	**136832**	14 x 12 x 8	28	**136848**
1 1/2	C9	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	24	**136833**	14 x 12 x 8	28	**136849**
2	C9	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	24	**136834**	14 x 12 x 8	28	**136850**
3	C9	4.0 - 6.0	30	#10	30	CC	14 x 12 x 8	24	**136835**	14 x 12 x 8	28	**136851**
5	C9	5.5 - 8.5	30	#10	30	CC	16 x 12 x 8	26	**136836**	16 x 14 x 8	34	**136852**
7 1/2	C12	8.5 - 12.5	30	#10	30	CC	16 x 16 x 8	31	**136837**	16 x 14 x 8	34	**136853**
10	C16	12.5 - 18	30	#10	30	CC	16 x 16 x 8	31	**136838**	16 x 14 x 8	34	**136854**
15	C23	17 - 24	40	#10	60	J	16 x 16 x 8	32	**136839**	16 x 14 x 8	35	**136855**
20	C28	22 - 30	40	#8	60	J	16 x 16 x 8	32	**136840**	16 x 14 x 8	35	**136856**
25	C40	30 - 40	63	#8	60	J	16 x 16 x 8	34	**136841**	16 x 14 x 8	37	**136857**
30	C40	37 - 50	63	#6	60	J	16 x 16 x 8	34	**136842**	16 x 14 x 8	37	**136858**
40	C65	48 - 65	63	#1	100	J	24 x 20 x 8	57	**136843**	24 x 20 x 9	70	**136859**
50	C65	63 - 80	80	#1	100	J	24 x 20 x 8	57	**136844**	24 x 20 x 9	70	**136860**
60	C80	63 - 80	100	#1	200	J	NA	NA	**NA**	30 x 24 x 9	93	**136861**

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	C9	0.67 - 1.0	30	#10	30	CC	14 x 12 x 8	25	**136862**	14 x 12 x 7.75	23	**136879**
1/2	C9	1.0 - 1.5	30	#10	30	CC	14 x 12 x 8	25	**136863**	14 x 12 x 7.75	23	**136880**
3/4	C9	1.4 - 2.1	30	#10	30	CC	14 x 12 x 8	25	**136864**	14 x 12 x 7.75	23	**136881**
1	C9	1.8 - 2.7	30	#10	30	CC	14 x 12 x 8	25	**136865**	14 x 12 x 7.75	23	**136882**
1 1/2	C9	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	25	**136866**	14 x 12 x 7.75	23	**136883**
2	C9	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	25	**136867**	14 x 12 x 7.75	23	**136884**
3	C9	4.0 - 6.0	30	#10	30	CC	14 x 12 x 8	25	**136868**	14 x 12 x 7.75	23	**136885**
5	C9	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	25	**136869**	14 x 12 x 7.75	23	**136886**
7 1/2	C12	8.5 - 12.5	30	#10	30	CC	14 x 12 x 8	25	**136870**	14 x 12 x 7.75	23	**136887**
10	C16	12.5 - 18	30	#10	30	CC	14 x 12 x 8	25	**136871**	14 x 12 x 7.75	23	**136888**
15	C23	17 - 24	40	#10	60	J	16 x 16 x 8	39	**136872**	16 x 14 x 9.75	26	**136889**
20	C28	22 - 30	40	#8	60	J	16 x 16 x 8	39	**136873**	16 x 14 x 9.75	26	**136890**
25	C40	30 - 40	63	#8	60	J	16 x 16 x 8	41	**136874**	16 x 14 x 9.75	28	**136891**
30	C40	37 - 50	63	#6	60	J	16 x 16 x 8	41	**136875**	16 x 14 x 9.75	28	**136892**
40	C65	48 - 65	63	#1	100	J	24 x 20 x 8	61	**136876**	24 x 20 x 9.75	51	**136893**
50	C65	63 - 80	80	#1	100	J	24 x 20 x 8	61	**136877**	24 x 20 x 9.75	51	**136894**
60	C80	63 - 80	100	#1	200	J	30 x 24 x 8	88	**136878**	30 x 24 x 9.75	66	**136895**

Fuse Sizing Guide for Combination Starters with Fusible Disconnect

Please Note:

- This is a basic ***guide*** for sizing fuses. Specific installations may require different sizes
- ALL information shown is for standard duty, low inertia motors (<2 seconds Start Up Time)
- ALL fusing is to be installed in accordance with NEC and local codes
- ALL information contained in this document is derived from fuse manufacturer's information and industry practice
- Advance Controls, Inc. makes no claim concerning the accuracy or completeness of this Guide

Class CC Fuse – Time Delay

1. Determine the Full Load Amps (FLA) from the motor nameplate
2. Locate the Motor FLA in the chart below
3. Choose ACI Catalog Number for the fuse

EXAMPLE:

3 Horsepower, 230 Volt 3 Phase Motor
with an Acceleration Time = 5 Seconds.
Motor Full Load = 9.6 Amps.
At 10 Amp Full Load - 5 Sec column = 20 Amp Fuse
CATALOG NUMBER = 107600

FULL LOAD MOTOR AMPS (MAX)
BASED UPON ACCELERATION TIME

2 Sec	5 Sec	8 Sec	AMP SIZE	CATALOG NUMBER
0.2	0.2	0.2	1/4	**107594**
0.4	0.4	0.3	1/2	**107593**
0.6	0.5	0.5	8/10	**107615**
0.7	0.6	0.6	1	**107589**
1.0	0.9	0.8	1 1/4	**107591**
1.1	1.0	0.9	1 1/2	**107590**
1.3	1.1	1.0	1 8/10	**107592**
1.4	1.2	1.1	2	**107598**
2.1	2.1	1.8	2 1/2	**107599**
2.6	2.6	2.3	3	**107602**
3.4	3.2	2.8	4	**107605**
4.3	3.4	2.8	5	**107608**
5.2	4.0	3.4	6	**107610**
5.7	4.2	3.7	7	**107612**
6.2	4.6	4.2	8	**107614**
6.9	5.2	4.5	9	**107616**
7.7	5.8	4.9	10	**107595**
8.9	6.6	5.5	12	**107596**
10	7.7	6.7	15	**107597**
13.5	10	--	20	**107600**
15.8	11.8	--	25	**107601**
17.8	13.3	--	30	**107604**

Note: Fuses are sold in package quantities of 10
List Price is for **ONE** single fuse.

Class J Fuse – Time Delay

1. Determine the Full Load Amps (FLA) from the motor nameplate
2. Locate the Motor FLA in the chart below
3. Choose ACI Catalog Number for the fuse

EXAMPLE:

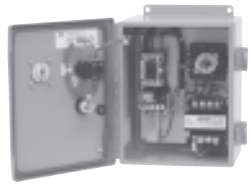
3 Horsepower, 230 Volt 3 Phase Motor.
Motor Full Load = 9.6 Amps.
At 8.01 - 9.80 Amp Full Load column = 12 Amp Fuse
CATALOG NUMBER 118866

FULL LOAD MOTOR AMPS (MAX)

MOTOR FLA	AMP SIZE	CATALOG NUMBER
0 - 0.6	8/10	**118848**
0.61 - 0.80	1	**118849**
0.81 - 1.00	1 1/4	**118850**
1.01 - 1.20	1 1/2	**118851**
1.21 - 1.65	2	**118854**
1.66 - 2.00	2 1/2	**118856**
2.01 - 2.40	3	**118858**
2.41 - 3.30	4	**118861**
3.31 - 4.10	5	**118862**
4.11 - 4.90	6	**118863**
4.91 - 6.40	8	**118864**
6.41 - 8.00	10	**118865**
8.01 - 9.80	12	**118866**
9.81 - 12.0	15	**118867**
12.1 - 14.5	17 1/2	**118868**
14.6 - 17.0	20	**117045**
17.1 - 21.0	25	**118869**
21.1 - 25.0	30	**107096**
25.1 - 28.5	35	**118870**
28.6 - 34.0	40	**107098**
34.1 - 37.0	45	**118871**
37.1 - 41.0	50	**118872**
41.1 - 48.0	60	**117044**
48.1 - 52.0	70	**107104**
52.1 - 59.0	80	**118873**
59.1 - 66.0	90	**118874**
66.1 - 76.0	100	**118875**
76.1 - 84.0	125	**118877**

Note: Fuses are sold in package quantities of 10
List Price is for **ONE** single fuse.

C Series Combination Starters with NON FUSIBLE DISCONNECT (LOCKABLE HANDLE) • 1/4 - 5 HP • SINGLE PHASE



1/2 HP 230/60/1 TYPE 12

- For quick starting applications (<2 Sec)
- UL 508 Type Disconnect – NO Short Circuit Protection
- Disconnect Handle lockable in the "OFF" position with up to three (3) padlocks. Padlocks not furnished
- Control Transformer (208/230/460 - 120 VAC) with fused secondary (fused primary above 50 Amps) - fuses furnished (NO Control Transformer on 120 Volt Units)
- HAND - OFF - AUTO (HOA) Selector Switch
- 2-Point Terminal Block for "AUTO" position
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL

NOTE: Weights shown are APPROXIMATE and do NOT include packing materials

How to Choose a Combination Starter

- Determine the Motor Starter by the MOTOR VOLTAGE and MOTOR HP as shown below
- Motor FULL LOAD AMPS must fall within the OVERLOAD AMP RANGE
- Consult Factory if required OVERLOAD AMP RANGE is other than shown.

NOTE: C Series Combination Starters with NON FUSIBLE Disconnect do NOT contain provisions for protection against SHORT CIRCUIT. Short Circuit Protection MUST be furnished and remotely installed by others

120 Volt Single Phase Motor

MOTOR HP	CONT.	OverLoad Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE
1/4	C9	5.5 - 8.5	40	#10
1/3	C9	5.5 - 8.5	40	#10
1/2	C12	8.5 - 12.5	40	#10
3/4	C16	12.5 - 18	40	#10
1	C23	17 - 24	40	#8
1 1/2	C23	17 - 24	40	#8
2	C23	22 - 30	40	#8
3	C32	30 - 40	63	#6
5	C65	48 - 65	100	#1

TYPE 1 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 8	24	**142320**
14 x 12 x 8	24	**142321**
14 x 12 x 8	24	**142322**
14 x 12 x 8	24	**142323**
14 x 12 x 8	24	**142324**
14 x 12 x 8	24	**142325**
16 x 12 x 8	27	**142326**
16 x 12 x 8	28	**142327**
20 x 16 x 8	45	**142328**

TYPE 12 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 8	24	**142329**
12 x 10 x 8	24	**142330**
12 x 10 x 8	24	**142331**
12 x 10 x 8	24	**142332**
12 x 10 x 8	24	**142333**
12 x 10 x 8	24	**142334**
14 x 12 x 8	29	**142335**
14 x 12 x 8	30	**142336**
16 x 14 x 8	40	**142337**

MOTOR HP	CONT.	OverLoad Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE
1/4	C9	5.5 - 8.5	40	#10
1/3	C9	5.5 - 8.5	40	#10
1/2	C12	8.5 - 12.5	40	#10
3/4	C16	12.5 - 18	40	#10
1	C23	17 - 24	40	#8
1 1/2	C23	17 - 24	40	#8
2	C23	22 - 30	40	#8
3	C32	30 - 40	63	#6
5	C65	48 - 65	100	#1

TYPE 4 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 8	21	**142338**
12 x 10 x 8	21	**142339**
12 x 10 x 8	21	**142340**
12 x 10 x 8	21	**142341**
12 x 10 x 8	21	**142342**
12 x 10 x 8	21	**142343**
14 x 12 x 8	26	**142344**
16 x 14 x 8	33	**142345**
16 x 14 x 8	37	**142346**

TYPE 4X FIBERGLASS ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 7.75	19	**142347**
12 x 10 x 7.75	19	**142348**
12 x 10 x 7.75	19	**142349**
12 x 10 x 7.75	19	**142350**
12 x 10 x 7.75	19	**142351**
12 x 10 x 7.75	19	**142352**
14 x 12 x 7.75	24	**142353**
14 x 12 x 7.75	25	**142354**
16 x 14 x 9.75	31	**142355**

Options and Modifications are available: See Page 39

C Series Combination Starters with NON FUSIBLE DISCONNECT (LOCKABLE HANDLE) • 1/4 - 7.5 HP • SINGLE PHASE
200/208 Volt Single Phase Motor

MOTOR HP	CONT.	OverLoad Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE
1/4	C9	2.4 - 3.6	40	#10
1/3	C9	3.5 - 5.0	40	#10
1/2	C9	4.0 - 6.0	40	#10
3/4	C9	5.5 - 8.5	40	#10
1	C9	8.5 - 12.5	40	#10
1 1/2	C12	8.5 - 12.5	40	#10
2	C16	12.5 - 18	40	#10
3	C23	17 - 24	40	#8
5	C32	30 - 40	40	#6
7 1/2	C50	37 - 50	63	#1

TYPE 1 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 8	24	142356
14 x 12 x 8	24	142357
14 x 12 x 8	24	142358
14 x 12 x 8	24	142359
14 x 12 x 8	24	142360
14 x 12 x 8	24	142361
14 x 12 x 8	24	142362
14 x 12 x 8	25	142363
16 x 12 x 8	28	142364
16 x 12 x 8	32	142365

TYPE 12 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 8	24	142366
12 x 10 x 8	24	142367
12 x 10 x 8	24	142368
12 x 10 x 8	24	142369
12 x 10 x 8	24	142370
12 x 10 x 8	24	142371
12 x 10 x 8	24	142372
12 x 10 x 8	25	142373
14 x 12 x 8	30	142374
16 x 14 x 8	40	142375

MOTOR HP	CONT.	OverLoad Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE
1/4	C9	2.4 - 3.6	40	#10
1/3	C9	3.5 - 5.0	40	#10
1/2	C9	4.0 - 6.0	40	#10
3/4	C9	5.5 - 8.5	40	#10
1	C9	8.5 - 12.5	40	#10
1 1/2	C12	8.5 - 12.5	40	#10
2	C16	12.5 - 18	40	#10
3	C23	17 - 24	40	#8
5	C32	30 - 40	40	#6
7 1/2	C50	37 - 50	63	#1

TYPE 4 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 8	21	142376
12 x 10 x 8	21	142377
12 x 10 x 8	21	142378
12 x 10 x 8	21	142379
12 x 10 x 8	21	142380
12 x 10 x 8	21	142381
12 x 10 x 8	21	142382
12 x 10 x 8	22	142383
16 x 14 x 8	33	142384
16 x 14 x 8	37	142385

TYPE 4X FIBERGLASS ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 7.75	19	142386
12 x 10 x 7.75	19	142387
12 x 10 x 7.75	19	142388
12 x 10 x 7.75	19	142389
12 x 10 x 7.75	19	142390
12 x 10 x 7.75	19	142391
12 x 10 x 7.75	19	142392
12 x 10 x 7.75	20	142393
14 x 12 x 7.75	25	142394
16 x 14 x 9.75	31	142395

230 Volt Single Phase Motor

MOTOR HP	CONT.	OverLoad Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE
1/4	C9	2.4 - 3.6	40	#10
1/3	C9	3.5 - 5.0	40	#10
1/2	C9	4.0 - 6.0	40	#10
3/4	C9	5.5 - 8.5	40	#10
1	C9	5.5 - 8.5	40	#10
1 1/2	C12	8.5 - 12.5	40	#10
2	C12	8.5 - 12.5	40	#10
3	C23	12.5 - 18	40	#8
5	C28	22 - 30	40	#8
7 1/2	C40	37 - 50	63	#6

TYPE 1 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 8	24	142396
14 x 12 x 8	24	142397
14 x 12 x 8	24	142398
14 x 12 x 8	24	142399
14 x 12 x 8	24	142400
14 x 12 x 8	24	142401
14 x 12 x 8	24	142402
14 x 12 x 8	25	142403
16 x 12 x 8	27	142404
16 x 12 x 8	28	142405

TYPE 12 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 8	24	142406
12 x 10 x 8	24	142407
12 x 10 x 8	24	142408
12 x 10 x 8	24	142409
12 x 10 x 8	24	142410
12 x 10 x 8	24	142411
12 x 10 x 8	24	142412
12 x 10 x 8	25	142413
14 x 12 x 8	29	142414
16 x 14 x 8	36	142415

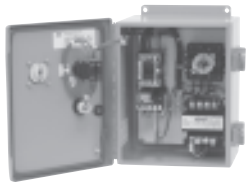
MOTOR HP	CONT.	OverLoad Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE
1/4	C9	2.4 - 3.6	40	#10
1/3	C9	3.5 - 5.0	40	#10
1/2	C9	4.0 - 6.0	40	#10
3/4	C9	5.5 - 8.5	40	#10
1	C9	5.5 - 8.5	40	#10
1 1/2	C12	8.5 - 12.5	40	#10
2	C12	8.5 - 12.5	40	#10
3	C23	12.5 - 18	40	#8
5	C28	22 - 30	40	#8
7 1/2	C40	37 - 50	63	#6

TYPE 4 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 8	21	142416
12 x 10 x 8	21	142417
12 x 10 x 8	21	142418
12 x 10 x 8	21	142419
12 x 10 x 8	21	142420
12 x 10 x 8	21	142421
12 x 10 x 8	21	142422
12 x 10 x 8	22	142423
14 x 12 x 8	26	142424
16 x 14 x 8	33	142425

TYPE 4X FIBERGLASS ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 7.75	19	142426
12 x 10 x 7.75	19	142427
12 x 10 x 7.75	19	142428
12 x 10 x 7.75	19	142429
12 x 10 x 7.75	19	142430
12 x 10 x 7.75	19	142431
12 x 10 x 7.75	19	142432
12 x 10 x 7.75	20	142433
14 x 12 x 7.75	24	142434
16 x 14 x 9.75	27	142435

HVAC2007

C Series Combination Starters with NON FUSIBLE DISCONNECT (LOCKABLE HANDLE) • 1/3 - 25 HP • THREE PHASE



1/2 HP 230/60/3 TYPE 12

- For quick starting applications (<2 Sec)
- UL 508 Type Disconnect – NO Short Circuit Protection
- Disconnect Handle lockable in the "OFF" position with up to three (3) padlocks. Padlocks not furnished
- Control Transformer (208/230/460 - 120 VAC) with fused secondary (fused primary above 50 Amps) - fuses furnished (NO Control Transformer on 120 Volt Units)
- HAND - OFF - AUTO (HOA) Selector Switch
- 2-Point Terminal Block for "AUTO" position
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL

NOTE: Weights shown are APPROXIMATE and do NOT include packing materials

NOTE: C Series Combination Starters with NON FUSIBLE Disconnect do NOT contain provisions for protection against SHORT CIRCUIT. Short Circuit Protection MUST be furnished and remotely installed by others

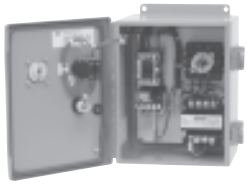
200/208 Volt Three Phase Motor

MOTOR HP	CONT.	OverLoad Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	C9	1.4 - 2.1	40	#10	14 x 12 x 8	24	**141000**	12 x 10 x 8	24	**141013**
1/2	C9	1.8 - 2.7	40	#10	14 x 12 x 8	24	**141001**	12 x 10 x 8	24	**141014**
3/4	C9	3.5 - 5.0	40	#10	14 x 12 x 8	24	**141002**	12 x 10 x 8	24	**141015**
1	C9	4.0 - 6.0	40	#10	14 x 12 x 8	24	**141003**	12 x 10 x 8	24	**141016**
1 1/2	C9	5.5 - 8.5	40	#10	14 x 12 x 8	24	**141004**	12 x 10 x 8	24	**141017**
2	C9	5.5 - 8.5	40	#10	14 x 12 x 8	24	**141005**	12 x 10 x 8	24	**141018**
3	C12	8.5 - 12.5	40	#8	14 x 12 x 8	24	**141006**	12 x 10 x 8	24	**141019**
5	C23	12.5 - 18	40	#8	14 x 12 x 8	25	**141007**	12 x 10 x 8	25	**141020**
7 1/2	C28	22 - 30	40	#8	16 x 12 x 8	27	**141008**	14 x 12 x 8	29	**141021**
10	C32	30 - 40	40	#8	16 x 12 x 8	28	**141009**	14 x 12 x 8	30	**141022**
15	C50	37 - 50	63	#3	16 x 12 x 8	32	**141010**	14 x 12 x 8	34	**141023**
20	C65	48 - 65	100	#1	20 x 16 x 8	45	**141011**	16 x 14 x 8	40	**141024**
25	C80	63 - 80	100	#1	20 x 16 x 8	46	**141012**	20 x 16 x 9	54	**141025**

MOTOR HP	CONT.	OverLoad Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	C9	1.4 - 2.1	40	#10	12 x 10 x 8	21	**141026**	12 x 10 x 7.75	19	**141039**
1/2	C9	1.8 - 2.7	40	#10	12 x 10 x 8	21	**141027**	12 x 10 x 7.75	19	**141040**
3/4	C9	3.5 - 5.0	40	#10	12 x 10 x 8	21	**141028**	12 x 10 x 7.75	19	**141041**
1	C9	4.0 - 6.0	40	#10	12 x 10 x 8	21	**140129**	12 x 10 x 7.75	19	**141042**
1 1/2	C9	5.5 - 8.5	40	#10	12 x 10 x 8	21	**141030**	12 x 10 x 7.75	19	**141043**
2	C9	5.5 - 8.5	40	#10	12 x 10 x 8	21	**141031**	12 x 10 x 7.75	19	**141044**
3	C12	8.5 - 12.5	40	#8	14 x 12 x 8	25	**141032**	12 x 10 x 7.75	19	**141045**
5	C23	12.5 - 18	40	#8	14 x 12 x 8	26	**141033**	12 x 10 x 7.75	21	**141046**
7 1/2	C28	22 - 30	40	#8	14 x 12 x 8	26	**141034**	14 x 12 x 7.75	24	**141047**
10	C32	30 - 40	40	#8	16 x 14 x 8	33	**141035**	14 x 12 x 7.75	25	**141048**
15	C50	37 - 50	63	#3	16 x 14 x 8	37	**141036**	14 x 12 x 7.75	29	**141049**
20	C65	48 - 65	100	#1	16 x 14 x 8	37	**141037**	16 x 14 x 9.75	31	**141050**
25	C80	63 - 80	100	#1	20 x 16 x 8	48	**141038**	20 x 16 x 9.75	40	**141051**

Options and Modifications are available: See Page 39

C Series Combination Starters with NON FUSIBLE DISCONNECT (LOCKABLE HANDLE) • 1/3 - 30 HP • THREE PHASE



1/2 HP 230/60/3 TYPE 12

- For quick starting applications (<2 Sec)
- UL 508 Type Disconnect – NO Short Circuit Protection
- Disconnect Handle lockable in the "OFF" position with up to three (3) padlocks. Padlocks not furnished
- Control Transformer (208/230/460 - 120 VAC) with fused secondary (fused primary above 50 Amps) - fuses furnished (NO Control Transformer on 120 Volt Units)
- HAND - OFF - AUTO (HOA) Selector Switch
- 2-Point Terminal Block for "AUTO" position
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL

NOTE: Weights shown are APPROXIMATE and do NOT include packing materials

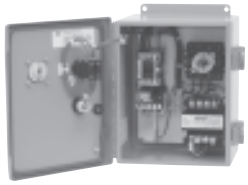
NOTE: C Series Combination Starters with NON FUSIBLE Disconnect do NOT contain provisions for protection against SHORT CIRCUIT. Short Circuit Protection MUST be furnished and remotely installed by others

230 Volt Three Phase Motor

MOTOR HP	CONT.	OverLoad Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	C9	1.0 - 1.5	30	#10	14 x 12 x 8	24	**141052**	12 x 10 x 8	24	**141066**
1/2	C9	1.8 - 2.7	30	#10	14 x 12 x 8	24	**141053**	12 x 10 x 8	24	**141067**
3/4	C9	2.4 - 3.6	30	#10	14 x 12 x 8	24	**141054**	12 x 10 x 8	24	**141068**
1	C9	3.5 - 5.0	30	#10	14 x 12 x 8	24	**141055**	12 x 10 x 8	24	**141069**
1 1/2	C9	5.5 - 8.5	30	#10	14 x 12 x 8	24	**141056**	12 x 10 x 8	24	**141070**
2	C9	5.5 - 8.5	30	#10	14 x 12 x 8	24	**141057**	12 x 10 x 8	24	**141071**
3	C12	8.5 - 12.5	30	#10	14 x 12 x 8	24	**141058**	12 x 10 x 8	24	**141072**
5	C16	12.5 - 18	40	#10	14 x 12 x 8	24	**141059**	12 x 10 x 8	24	**141073**
7 1/2	C23	17 - 24	40	#8	16 x 12 x 8	27	**141060**	12 x 10 x 8	25	**141074**
10	C28	22 - 30	40	#8	16 x 12 x 8	27	**141061**	14 x 12 x 8	29	**141075**
15	C50	37 - 50	63	#1	16 x 12 x 8	32	**141062**	14 x 12 x 8	34	**141076**
20	C65	48 - 65	80	#1	20 x 16 x 8	45	**141063**	16 x 14 x 8	40	**141077**
25	C80	63 - 80	80	#1	20 x 16 x 8	46	**141064**	16 x 14 x 8	41	**141078**
30	C80	77 - 97	100	#1	20 x 16 x 8	46	**141065**	20 x 16 x 9	54	**141079**

MOTOR HP	CONT.	OverLoad Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	C9	1.0 - 1.5	30	#10	12 x 10 x 8	21	**141080**	12 x 10 x 7.75	19	**141094**
1/2	C9	1.8 - 2.7	30	#10	12 x 10 x 8	21	**141081**	12 x 10 x 7.75	19	**141095**
3/4	C9	2.4 - 3.6	30	#10	12 x 10 x 8	21	**141082**	12 x 10 x 7.75	19	**141096**
1	C9	3.5 - 5.0	30	#10	12 x 10 x 8	21	**141083**	12 x 10 x 7.75	19	**141097**
1 1/2	C9	5.5 - 8.5	30	#10	12 x 10 x 8	21	**141084**	12 x 10 x 7.75	19	**141098**
2	C9	5.5 - 8.5	30	#10	12 x 10 x 8	21	**141085**	12 x 10 x 7.75	19	**141099**
3	C12	8.5 - 12.5	30	#10	12 x 10 x 8	21	**141086**	12 x 10 x 7.75	19	**141100**
5	C16	12.5 - 18	40	#10	12 x 10 x 8	21	**141087**	12 x 10 x 7.75	19	**141101**
7 1/2	C23	17 - 24	40	#8	14 x 12 x 8	26	**141088**	14 x 12 x 7.75	24	**141102**
10	C28	22 - 30	40	#8	14 x 12 x 8	26	**141089**	14 x 12 x 7.75	24	**141103**
15	C50	37 - 50	63	#1	14 x 12 x 8	31	**141090**	14 x 12 x 7.75	29	**141104**
20	C65	48 - 65	80	#1	16 x 14 x 8	37	**141091**	16 x 14 x 9.75	31	**141105**
25	C80	63 - 80	80	#1	20 x 16 x 8	48	**141092**	16 x 14 x 9.75	32	**141106**
30	C80	77 - 97	100	#1	20 x 16 x 8	48	**141093**	20 x 16 x 9.75	40	**141107**

C Series Combination Starters with NON FUSIBLE DISCONNECT (LOCKABLE HANDLE) • 1/3 - 60 HP • THREE PHASE



1/2 HP 460/60/3 TYPE 12

- For quick starting applications (<2 Sec)
- UL 508 Type Disconnect – NO Short Circuit Protection
- Disconnect Handle lockable in the "OFF" position with up to three (3) padlocks. Padlocks not furnished
- Control Transformer (208/230/460 - 120 VAC) with fused secondary (fused primary above 50 Amps) - fuses furnished (NO Control Transformer on 120 Volt Units)
- HAND - OFF - AUTO (HOA) Selector Switch
- 2-Point Terminal Block for "AUTO" position
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL

NOTE: Weights shown are APPROXIMATE and do NOT include packing materials

NOTE: C Series Combination Starters with NON FUSIBLE Disconnect do NOT contain provisions for protection against SHORT CIRCUIT. Short Circuit Protection MUST be furnished and remotely installed by others

460 Volt Three Phase Motor

MOTOR HP	CONT.	OverLoad Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE
1/3	C9	0.67 - 1.0	30	#10
1/2	C9	1.0 - 1.5	30	#10
3/4	C9	1.4 - 2.1	30	#10
1	C9	1.8 - 2.7	30	#10
1 1/2	C9	2.4 - 3.6	30	#10
2	C9	2.4 - 3.6	30	#10
3	C9	4.0 - 6.0	30	#10
5	C9	5.5 - 8.5	30	#10
7 1/2	C12	8.5 - 12.5	30	#10
10	C16	12.5 - 18	30	#10
15	C23	17 - 24	40	#10
20	C28	22 - 30	40	#8
25	C40	30 - 40	63	#8
30	C40	37 - 50	63	#6
40	C63	48 - 65	63	#1
50	C63	63 - 80	100	#1
60	C80	63 - 80	100	#1

TYPE 1 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 8	24	**141108**
14 x 12 x 8	24	**141109**
14 x 12 x 8	24	**141110**
14 x 12 x 8	24	**141111**
14 x 12 x 8	24	**141112**
14 x 12 x 8	24	**141113**
14 x 12 x 8	24	**141114**
14 x 12 x 8	24	**141115**
14 x 12 x 8	24	**141116**
14 x 12 x 8	24	**141117**
14 x 12 x 8	24	**141118**
16 x 12 x 8	27	**141119**
16 x 12 x 8	28	**141120**
16 x 12 x 8	28	**141121**
20 x 16 x 8	45	**141122**
20 x 15 x 8	45	**141123**
20 x 16 x 8	46	**141124**

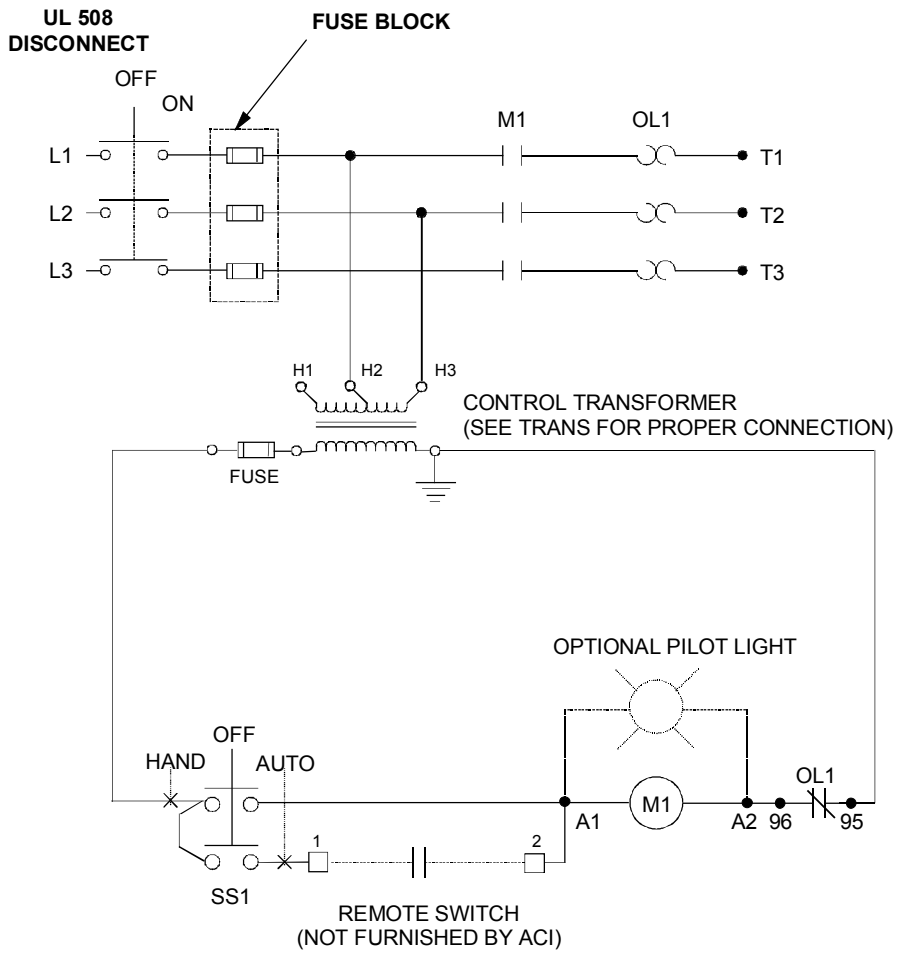
TYPE 12 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 8	24	**141125**
12 x 10 x 8	24	**141126**
12 x 10 x 8	24	**141127**
12 x 10 x 8	24	**141128**
12 x 10 x 8	24	**141129**
12 x 10 x 8	24	**141130**
12 x 10 x 8	24	**141131**
12 x 10 x 8	24	**141132**
12 x 10 x 8	24	**141133**
12 x 10 x 8	24	**141134**
14 x 12 x 8	28	**141135**
14 x 12 x 8	29	**141136**
14 x 12 x 8	30	**141137**
14 x 12 x 8	30	**141138**
16 x 14 x 8	40	**141139**
16 x 14 x 8	40	**141140**
20 x 16 x 9	54	**141141**

MOTOR HP	CONT.	OverLoad Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE
1/3	C9	0.67 - 1.0	30	#10
1/2	C9	1.0 - 1.5	30	#10
3/4	C9	1.4 - 2.1	30	#10
1	C9	1.8 - 2.7	30	#10
1 1/2	C9	2.4 - 3.6	30	#10
2	C9	2.4 - 3.6	30	#10
3	C9	4.0 - 6.0	30	#10
5	C9	5.5 - 8.5	30	#10
7 1/2	C12	8.5 - 12.5	30	#10
10	C16	12.5 - 18	30	#10
15	C23	17 - 24	40	#10
20	C28	22 - 30	40	#8
25	C40	30 - 40	63	#8
30	C40	37 - 50	63	#6
40	C63	48 - 65	63	#1
50	C63	63 - 80	100	#1
60	C80	63 - 80	100	#1

TYPE 4 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 8	21	**141142**
12 x 10 x 8	21	**141143**
12 x 10 x 8	21	**141144**
12 x 10 x 8	21	**141145**
12 x 10 x 8	21	**141146**
12 x 10 x 8	21	**141147**
12 x 10 x 8	21	**141148**
12 x 10 x 8	211	**141149**
12 x 10 x 8	21	**141150**
12 x 10 x 8	21	**141151**
14 x 12 x 8	25	**141152**
14 x 12 x 8	26	**141153**
14 x 12 x 8	27	**141154**
14 x 12 x 8	27	**141155**
16 x 14 x 8	37	**141156**
16 x 14 x 8	37	**141157**
20 x 16 x 8	48	**141158**

TYPE 4X FIBERGLASS ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 7.75	19	**141159**
12 x 10 x 7.75	19	**141160**
12 x 10 x 7.75	19	**141161**
12 x 10 x 7.75	19	**141162**
12 x 10 x 7.75	19	**141163**
12 x 10 x 7.75	19	**141164**
12 x 10 x 7.75	19	**141165**
12 x 10 x 7.75	19	**141166**
12 x 10 x 7.75	19	**141167**
12 x 10 x 7.75	19	**141168**
14 x 12 x 7.75	23	**141169**
14 x 12 x 7.75	24	**141170**
14 x 12 x 7.75	25	**141171**
14 x 12 x 7.75	25	**141172**
16 x 14 x 7.75	31	**141173**
16 x 14 x 7.75	31	**141174**
20 x 16 x 9.75	40	**141175**

TYPICAL WIRING DIAGRAM - COMBINATION STARTER with FUSED DISCONNECT

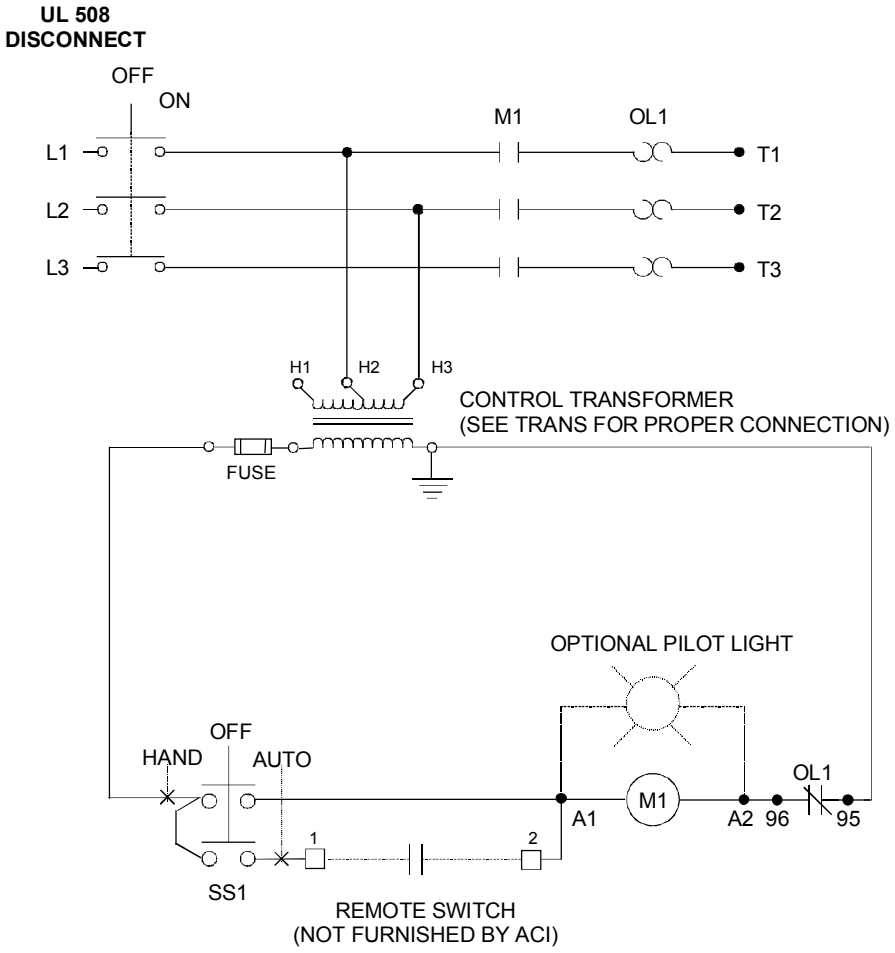


ADVANCE CONTROLS, INC.
4505 18TH STREET EAST BRADENTON, FL
941-746-3221

TYPICAL WIRING DIAGRAM
3 PHASE COMBINATION STARTER
WITH FUSED DISCONNECT
CONTROL TRANSFORMER AND
H-O-A CONTROL

SCALE	DRAWN	DATE	DRAWING NUMBER	PAGE	REV
NONE	MJK	6/23/92	1013-2	1 OF 1	

TYPICAL WIRING DIAGRAM - COMBINATION STARTER with NON FUSED DISCONNECT



ADVANCE CONTROLS, INC.
4505 18TH STREET EAST BRADENTON, FL
941-746-3221

TYPICAL WIRING DIAGRAM
3 PHASE COMBINATION STARTER
WITH NON FUSED DISCONNECT
CONTROL TRANSFORMER AND
H-O-A CONTROL

SCALE	DRAWN	DATE	DRAWING NUMBER	PAGE	REV
NONE	MJK	6/23/92	1013-2	1 OF 1	

C Series Motor Starters and Combination Starters

OPTIONS AND MODIFICATIONS

NOTE: IF THE STARTER HAS ANY OPTION OR MODIFICATION – THE ACI CATALOG NUMBER WILL CHANGE. CONSULT FACTORY FOR CORRECT CATALOG NUMBER FOR ALL PANELS WITH OPTIONS OR MODIFICATIONS.

OPTIONAL ENCLOSURES

Type 3R Metal	For Protection against Windblown Rain
Type 4X Non Metallic	For Protection against Chemicals and Corrosion
Type 4X Stainless Steel	For Protection against Corrosion

PANEL MODIFICATIONS

UL Panel Shop Label	UL508 Approval of the Starter Assembly
Phase Monitor (3 Phase)	Electronic, for Protection Against: Low Voltage Phase Reversal Loss of Phase
24 VAC Control:	To replace standard 120 volt control
Pilot Light	120 Volt Incandescent
Selector Switch	2 or 3 Position (specify function – specify Legend Plate)
Auxiliary Contacts	1 Normally OPEN + 1 Normally CLOSED TOP MOUNTED on Contactor - Not Wired SIDE MOUNTED on Contactor – Not Wired
UL Class 20 Motor Overload	For Applications with Long (>5 seconds) Starting Time
Unit ID Tag	Mounted on Enclosure Door

ADDITIONAL OPTIONS AND MODIFICATIONS ARE AVAILABLE CONSULT FACTORY WITH YOUR REQUIREMENTS

Work Sheet - Quote Request for ACI HVAC Motor Starter

Requesting a Quote for ACI Starters, Combination Starters & Disconnects has never been easier - follow the steps:

1. Fax, e-mail of call us with the Project Equipment Schedule, Pump Schedule, Cooling Tower requirements or any other Motor Control Specifications for your Fans, Pumps, Air Handlers, etc.
2. Please indicate specific date when you need the quotation: i.e., "this Friday, 11/4, in the morning", etc.
3. Indicate if Submittal Date, Drawings, etc. are needed at the time of quotation.
4. If there are questions concerning EXACTLY what is required, ACI will contact you for any additional information.
5. If you do not have an Equipment Schedule and / or Specifications, please provide the following data: (Please circle/indicate information and send to ACI).
6. If there is any question concerning EXACTLY what is required, contact ACI and we can step you through the process to quote the proper Motor Starter.

TYPES OF MOTOR STARTERS AVAILABLE

The following is a list of commonly available types of Motor Starters. This WORKSHEET is designed to describe one STARTER for ONE Motor mounted in the Enclosure. If your application requires more than ONE Starter to be mounted within the enclosure, ACI will need to know the same information for ALL of the Starters that are to be included within the Enclosure

a. NON REVERSING STARTER
The MOTOR will only rotate in ONE direction

b. REVERSING STARTER
The MOTOR will rotate in EITHER direction depending upon the direction selected by the Controls

c. MOTOR STARTER – SINGLE SPEED MOTOR:
Contactor, Overload and Controls mounted in an Enclosure

d. MOTOR STARTER – TWO SPEED / ONE WINDING MOTOR:
3 Contactors, 2 Overloads, Mechanical Interlock and Controls mounted in an Enclosure.

e. MOTOR STARTER – TWO SPEED / TWO WINDING MOTOR:
2 Contactors, 2 Overloads, Mechanical Interlock and Controls mounted in an Enclosure

f. MOTOR STARTER – WYE / DELTA MOTOR - Open Transition:
3 Contactors, 1 Overload, Mechanical Interlock, Switchover Timer and Controls mounted in an Enclosure

g. NON FUSED COMBINATION TYPE MOTOR STARTER
Includes ALL of the items for the specific type of Starter as shown above
PLUS the ADDITION of a Motor Disconnect Switch and Through the Door Handle Assembly mounted in an Enclosure

h. FUSED COMBINATION TYPE MOTOR STARTER
Includes ALL of the items for the specific type of Starter as shown above
PLUS the ADDITION of a Motor Disconnect Switch, Through the Door Handle Assembly and Fuse Block mounted in an Enclosure

i. CIRCUIT BREAKER COMBINATION TYPE MOTOR STARTER
Includes ALL of the items for the specific type of Starter as shown above
PLUS the ADDITION of a Motor Circuit Breaker and Through the Door Handle Assembly mounted in an Enclosure

TYPE OF MOTOR STARTER REQUIRED (Place an X in the box)

	NON REVERSING	REVERSING
MOTOR STARTER – SINGLE SPEED MOTOR	☐	☐
MOTOR STARTER – TWO SPEED / ONE WINDING MOTOR	☐	☐
MOTOR STARTER – TWO SPEED / TWO WINDING MOTOR	☐	☐
MOTOR STARTER – WYE / DELTA MOTOR	☐	☐
NON FUSED COMBINATION TYPE MOTOR STARTER	☐	☐
FUSED COMBINATION TYPE MOTOR STARTER	☐	☐
CIRCUIT BREAKER TYPE MOTOR STARTER	☐	☐

MOTOR DATA (Circle the needed item)

Motor Horsepower _____

Motor Voltage (Circle the Phase / Voltage): Single Phase *120 Volt* *200/208 Volt* *230 Volt*

Three Phase *200/208 Volt* *230 Volt* *460 Volt* *575 Volt*

CONTROLS (Circle the needed item)

CONTROL POWER

External Source? If so, circle Control Voltage = *24 VAC* *120 VAC*

Internal Source (Control Transformer)? If so, circle Control Voltage = *24 VAC* *120 VAC*

(Fused Control Transformer Secondary is STANDARD)

Fused Transformer Primary Required? *YES* *NO*

CONTROL ITEMS (Circle the needed item)

Pilot Light(s)? *YES* *NO*

If YES, specify: Color: *RED* *GREEN* *YELLOW* *BLUE* *WHITE*

Function: _____

Legend Marking: _____

HOA (Hand-Off-Auto) Selector Switch (2 point Terminal Block included)? *YES* *NO*

Other Types of Selector Switches needed? *YES* *NO*

If YES, specify: Number of switch positions: *2 POS* *3 POS*

Function: _____

Legend Marking: _____

START / STOP Push Buttons? *INDIVIDUAL BUTTONS*

DUAL START/STOP (Type 1 Enclosure ONLY!)

BOOTED DUAL START/STOP

Phase/Voltage Monitor? *YES.* *NO*

Additional Auxiliary Contacts are available (specify type and number): *N.O.___* *N.C.__*

1 Normally Open (N.O.) is standard - N.O. = Normally OPEN N.C. = Normally CLOSED

Do you need the Auxiliary Contacts wired to a Terminal Strip? *YES* *NO*

ENCLOSURE (Circle the needed item)

Indoor Use? *TYPE 1* *TYPE 12* *TYPE 4* *TYPE 4X* *TYPE 4X STAINLESS*

Outdoor Use? *TYPE 3R* *TYPE 4* *TYPE 4X* *TYPE 4X STAINLESS*

The "X" indicates Corrosion Resistant

NOTE: the LOWEST Environmental Rating of either the Enclosure or the Wiring Connector dictates the Final Environmental Rating of the TOTAL Motor Starter Enclosure. Example: If the Enclosure Environmental Rating is Type 12 and the Wiring Connector Environmental Rating is Type 1, the Final Motor Starter Environmental Rating then becomes Type 1

APPROVALS (Circle the needed item)

All Motor Starters are assembled using UL Approved Components. As an ADDITIONAL COST FACTORY ONLY OPTION, Advance Controls can also UL 508 List the Motor Starter as a COMPLETE STARTER ASSEMBLY.

Do you require a UL Label for the COMPLETE STARTER PANEL ASSEMBLY? *YES* *NO*

Advance Controls, Inc.
4505 18th Street East • Bradenton, FL 34203
800.559.9ACI (9224) • Fax: 941.746.3466
http://www.HVACiSpec.com • aci@HVACiSpec.com

TYPICAL BID SPECIFICATION

ADVANCE CONTROLS, INC.

MOTOR STARTER

ITEM #1
All Motor Starters are to be furnished by Advance Controls, Inc., Bradenton, Florida.

ITEM #2
All Motor Starters are to be IEC Style, UL Listed with adjustable, bimetallic, UL Class 10 ambient compensated overload relays. Units that require replaceable heaters are not allowed. Starters with UL Recognition (c UL us) are not allowed.

ITEM #3
All Motor Starters shall have a wide range coil with a minimum +10% to -30% voltage range. All coils are to be 60/50 Hz.

ITEM #4
All Motor Starters must be furnished in a Type 1, 12, 4 or 4X enclosure as required.

ITEM #5
All Motor Starters are to be specified, sized and installed per ACI recommendations.

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http://www.HVACiSpec.com • aci@HVACiSpec.com

TYPICAL BID SPECIFICATION

ADVANCE CONTROLS, INC.

COMBINATION MOTOR STARTER

ITEM #1
All Combination Motor Starters are to be furnished by Advance Controls, Inc., Bradenton, Florida.

ITEM #2
All Combination Motor Starters are to be furnished with a UL508 style Disconnect Switch. Non-Fused versions shall not be furnished with a motor fuse block. Fused versions are to be furnished with either Class CC or Class J fuse block(s).

ITEM #3
All Disconnect Switches are to be furnished with a Through the Door Lockable Handle Assembly. The Handle Assembly must be able to be padlockable in the “OFF” position with up to three (3) padlocks (not furnished). The Handle Assembly shall have a door interlock that locks the enclosure door “closed” in all positions except “OFF”. Enclosure door interlock defeater is not acceptable. Side mount style disconnect switches are not allowed.

ITEM #4
All Combination Motor Starters are to be IEC Style, UL Listed with adjustable, bimetallic, UL Class 10 ambient compensated overload relays. Units that require replaceable heaters element are not allowed. Starters with UL Recognition (c UL us) are not allowed.

ITEM #5
All Combination Motor Starters shall have a wide range coil with a minimum +10% -30% voltage range. All coils are to be 60/50 Hz.

ITEM #6
All Combination Motor Starters are to be furnished in a Type 1, 12, 4 or 4X enclosure as required.

ITEM #7
All Combination Motor Starters are to be specified, sized and installed per ACI recommendations.

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http://www.HVACiSpec.com • aci@HVACiSpec.com

Motor Starter or Combination Motor Starter Submittal

Project Name: _____ Number: _____
Location: _____ Tag Number: _____ Date: _____
Rep / Distributor: _____
Contractor: _____ Engineer: _____

Design Data:

Motor HP: _____ Voltage: _____ Phase: _____
Disconnect with Lockable Handle: ☐ None ☐ Non-Fused ☐ Fused
Disconnect Fuses: ☐ Not Included ☐ Included Type: _____
Amps: _____

Starter:

Contactor Inductive Amps: _____ Overload Amp Range (Amps): _____
Auxiliary Contacts supplied on Contactor (standard) NO: _____ NC: _____

Control Transformer: ☐ Yes ☐ No

Fused Secondary Standard • Fused Primary Required above 50 Amps

Primary Fuse Furnished: Type: _____ Size: _____ Amps
Secondary Fuse Furnished: Type: _____ Size: _____ Amps

Accessories:

☐ H-O-A ☐ 2 Point Terminal Block for Auto position of H-O-A
☐ Run Light - Red ☐ Stop Light - Green

Enclosure:

☐ Hinged Cover ☐ Screw Cover Type: _____ Size: _____

Special Features:

_____

_____

_____

_____

_____

_____

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Load Break Disconnect Switch

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Ordering Information	46
Typical Wiring Diagrams	47
Fuses for Fused Disconnect Switch	48
Typical Bid Specification	49
Submittal	50

Load Break Disconnect Switch Mounted in Enclosure

Advance Controls Inc. Enclosed Fusible and Non-Fusible IEC Style Load Break Disconnect Switches are used to disconnect a single or three phase power source when the power is required to be turned "OFF".
Examples: motor disconnect switches, air conditioner safety switches, pump safety switches, compressor safety switches, power input switches, lighting panel disconnects, etc.

The ACI Fusible And Non-Fusible Load Break Switches are UL 508 Listed and CSA Certified, and conform to IEC 408; CEI 17-11; CEE 24; VDE 0660T107; and BS 5419, and CE.

THESE LOAD BREAK DISCONNECT SWITCHES ARE NOT FOR SERVICE ENTRANCE.

The Load Break Disconnect Switches have a patented, modern, compact design that utilizes state of the art technology to minimize space and maximize switching capability. The 30 Amp Fusible Load Break Disconnect Switch incorporates a unique integral enclosed fuse holder within the body of the switch. This eliminates the need for a separate fuse block. The enclosed fuse holder is totally finger safe, minimizing the risk to the operator due to any accidental contact with live parts and accepts Class CC rejection style fuses.

The standard Lockable Handle Assembly is rated IP65 (Type 4X) and accept up to three (3) padlocks in the "OFF" position. Thus meeting the requirements of OSHA Standard 1910.147 (Lockout) for the control of hazardous energy sources.

Load Break Disconnect Switch mounted in a Type 4X Non Metallic Enclosure with LIFT OFF style cover

Features

ALL NON-FUSED UNITS

- Load Break Disconnect Switch has easily accessible, finger safe, oversized box lug style terminals with combination
- screw heads that are furnished open, ready to wire.
- Compact space saving design
- Straight line wiring
- Long Life Double Break Contacts (Ag Ni)
- One piece internal Operating Assembly provides positive contact movement
- Lockable Handle Assembly Type IP65 (4X) accepts up to three (3) padlocks – NOT FURNISHED
- Operating Shaft is center mounted for easy - balanced operation
- ADD-ON Auxiliary Contact Block available (Consult Factory)
- ADD-ON Non Fused 30 Amp Power Poles available (Consult Factory)
- All Enclosures have a LIFT OFF Style Cover

30, 40 AND 60 AMP NON-FUSED UNITS

- 4 Power Poles - 3 Fused and 1 Non-Fused
- NO SAG SHAFT – Shaft goes completely through the switch to provide maximum shaft rigidity

63 AND 100 AMP NON-FUSED UNITS

- 3 Power Poles
- Shaft inserts 1.14" into switch providing maximum shaft rigidity

Non Fused Load Break Disconnect Switch Panel

Amp RATING	Switch Type	Max Wire Size	Type 1 Metal Enclosure			Type 12 Metal Enclosure			Type 4X Non Metal Enclosure		
			ENCLOSURE SIZE H x W x D	WT Lbs	CATALOG NUMBER	ENCLOSURE SIZE H x W x D	WT Lbs	CATALOG NUMBER	ENCLOSURE SIZE H x W x D	WT Lbs	CATALOG NUMBER
30	KZ	#8	10 x 8 x 4	8	**141179**	6 x 6 x 4	9	**141185**	5.9 x 4.3 x 3.9	1.0	**141191**
40	XA	#8	10 x 8 x 4	8	**141180**	6 x 6 x 4	9	**141186**	5.9 x 4.3 x 3.9	1.3	**141192**
60	XB	#8	10 x 8 x 4	8	**141181**	6 x 6 x 4	9	**141187**	5.9 x 4.3 x 3.9	1.3	**141193**
63	XA	#3	10 x 8 x 6	9	**141182**	8 x 6 x 6	10	**141188**	8.6 x 5.9 x 5.9	1.4	**141194**
100	XA	#1	10 x 8 x 6	9	**141184**	8 x 6 x 6	10	**141190**	8.6 x 5.9 x 5.9	1.4	**141196**

Note: Type 1 Enclosure = Hinged Door | Type 12 Enclosure = Hinged Door | Type 4X Enclosure = Lift Off Cover

Notes:

1) To maintain enclosure UL/CSA rating, all connectors must have the same (or higher) UL/CSA rating as the enclosure.
   EXAMPLE: If a Type 1 connector is used, the enclosure rating becomes Type 1.
2) Type 4X Non-metallic enclosures are UL listed Type 4, 4X, 12, 3R and 1; CSA Certified Type 12, 12K, 3R and 1.

Features

ALL FUSED UNITS

- Load Break Disconnect Switch has easily accessible, finger safe, oversized box lug style terminals with combination screw heads that are furnished open, ready to wire.
- Compact space saving design
- Straight line wiring
- Long Life Double Break Contacts (Ag Ni)
- One piece internal Operating Assembly provides positive contact movement
- Lockable Handle Assembly Type IP65 (4X) accepts up to three (3) padlocks – NOT FURNISHED
- Operating Shaft is center mounted for easy - balanced operation
- ADD-ON Auxiliary Contact Block available (Consult Factory)
- ADD-ON Non Fused 30 Amp Power Poles available (Consult Factory)
- All Enclosures have a LIFT OFF Style Cover

30 AMP CLASS CC FUSED UNITS

- 4 Power Poles - 3 Fused and 1 Non-Fused
- NO SAG SHAFT – Shaft goes completely through the switch to provide maximum shaft rigidity
- Unique *patented* Fuse Holder is completely enclosed within the switch body for operator safety
- Fuses are retained by a removable, insulated safety cap
- Accepts Class CC rejection style fuse (30 Amp max)

30 AMP CLASS J FUSED UNITS

- 4 Power Poles
- NO SAG SHAFT – Shaft goes completely through the switch to provide maximum shaft rigidity
- Accept Class J rejection style fuse (30 Amp Max)

60 AND 100 AMP CLASS J FUSED UNITS

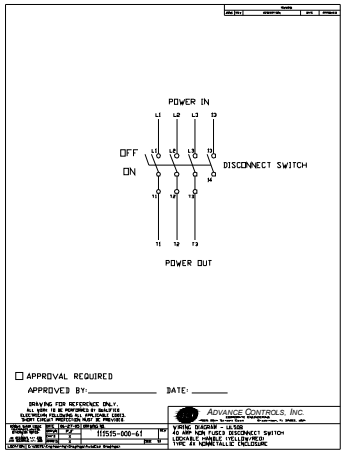
- 3 Power Poles
- Shaft inserts 1.14" into switch providing maximum shaft rigidity
- Accept Class J rejection style fuse (30 Amp Max)

Fused Load Break 30 Amp Class CC Disconnect Switch Panel

Amp RATING	Switch Type	Max Wire Size	Type 1 Metal Enclosure ENCLOSURE SIZE H x W x D	WT Lbs	CATALOG NUMBER	Type 12 Metal Enclosure ENCLOSURE SIZE H x W x D	WT Lbs	CATALOG NUMBER	Type 4X Non Metal Enclosure ENCLOSURE SIZE H x W x D	WT Lbs	CATALOG NUMBER
30	XF	#8	10 x 8 x 6	9	141176	6 x 6 x 4	8	141177	5.9 x 4.3 x 3.9	1.5	141178

Note: Type 1 Enclosure = Hinged Door | Type 12 Enclosure = Hinged Door | Type 4X Enclosure = Lift Off Cover

Fused Load Break 30, 60, 100 Amp Class J Disconnect Switch Panel

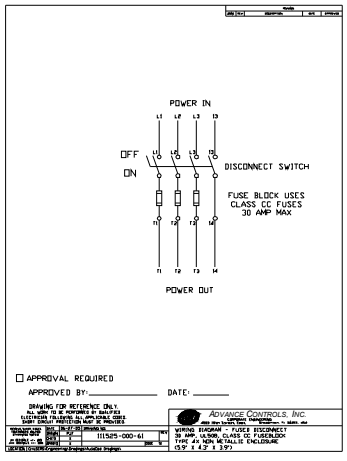


Type 1 Metal Enclosure ENCLOSURE SIZE H x W x D	WT Lbs	CATALOG NUMBER	Type 12 Metal Enclosure ENCLOSURE SIZE H x W x D	WT Lbs	CATALOG NUMBER	Type 4X Non Metal Enclosure ENCLOSURE SIZE H x W x D	WT Lbs	CATALOG NUMBER
12 x 12 x 6	15	142437	10 x 10 x 6	16	142439	12 x 10 x 6	16	142442
16 x 16 x 6	22	124178	16 x 14 x 6	29	142440	16 x 14 x 8	28	123391
16 x 16 x 6	23	142438	16 x 14 x 6	30	142441	16 x 14 x 8	29	142443

Type 1 Enclosure = Hinged Door | Type 12 Enclosure = Hinged Door | Type 4X Enclosure = Hinged Door

e UL/CSA rating, all connectors must have the same (or higher) UL/CSA rating as the enclosure.
pe 1 connector is used, the enclosure rating becomes Type 1.
enclosures are UL listed Type 4, 4X, 12, 3R and 1; CSA Certified Type 12, 12K, 3R and 1.

TYPICAL WIRING DIAGRAM NON FUSED



TYPICAL WIRING DIAGRAM FUSED

HVAC2007

FUSES for FUSED VERSION - LOAD BREAK DISCONNECT SWITCH

CLASS CC TIME DELAY FUSES ARE USED with ACI XF SERIES FUSIBLE LOAD BREAK DISCONNECT SWITCH.

Class CC fuses are specifically designed to provide motor branch circuit protection up to 15 HP. They provide Type 2 (no damage) protection for motor circuit components with high short circuit interrupt (200,000 amps) and superior current limiting characteristics, all in a small package size. These features allow the Class CC fuse to be a viable alternative to the older and physically larger Class RK fuses. For specific applications consult factory.
Fuse size: 13/32" x 1 1/2"

Fuses are furnished in packages of 10 pieces. List Prices are per **EACH.** Order by **CATALOG NUMBER.**

EXAMPLE:
3 Horsepower, 230 volt 3 Phase Motor
with an Acceleration Time = 5 Seconds.
Motor Full Load = 9.6 Amps.
At 10 Amp Full Load - 5 Sec column = 20 Amp Fuse
CATALOG NUMBER 107600

FULL LOAD MOTOR AMPS (MAX)
BASED UPON ACCELERATION TIME

2 Sec	5 Sec	8 Sec	AMP SIZE	CATALOG NUMBER
0.2	0.2	0.2	1/4	**107594**
0.4	0.4	0.3	1/2	**107593**
0.6	0.5	0.5	8/10	**107615**
0.7	0.6	0.6	1	**107589**
1.0	0.9	0.8	1 1/4	**107591**
1.1	1.0	0.9	1 1/2	**107590**
1.3	1.1	1.0	1 8/10	**107592**
1.4	1.2	1.1	2	**107598**
2.1	2.1	1.8	2 1/2	**107599**
2.6	2.6	2.3	3	**107602**
3.4	3.2	2.8	4	**107605**
4.3	3.4	2.8	5	**107608**
5.2	4.0	3.4	6	**107610**
5.7	4.2	3.7	7	**107612**
6.2	4.6	4.2	8	**107614**
6.9	5.2	4.5	9	**107616**
7.7	5.8	4.9	10	**107595**
8.9	6.6	5.5	12	**107596**
10	7.7	6.7	15	**107597**
13.5	10	--	20	**107600**
15.8	11.8	--	25	**107601**
17.8	13.3	--	30	**107604**

CLASS J TIME DELAY FUSES ARE USED with ACI XA SERIES FUSIBLE LOAD BREAK DISCONNECT SWITCH.

Class J fuses are specifically designed to provide motor branch circuit protection using IEC or NEMA style Controls. They provide motor circuit components with high short circuit interrupt (200,000 amps) and superior current limiting characteristics, all in a small package size. Class J fuses are approximately 1/2 the size of a Class RK1 or RK5 fuse. These features allow the Class J fuse to be a viable alternative to the older and physically larger Class RK fuses. For specific applications consult factory.

Fuses are furnished in packages of 10 pieces. List Prices are per **EACH.** Order by **CATALOG NUMBER.**

EXAMPLE:
3 Horsepower, 230 volt 3 Phase Motor.
Motor Full Load = 9.6 Amps.
At 8.01 - 9.80 Amp Full Load column = 12 Amp Fuse
CATALOG NUMBER 118866

FULL LOAD MOTOR AMPS (MAX)

MOTOR FLA	AMP SIZE	CATALOG NUMBER
0 - 0.6	8/10	**118848**
0.61 - 0.80	1	**118849**
0.81 - 1.00	1 1/4	**118850**
1.01 - 1.20	1 1/2	**118851**
1.21 - 1.65	2	**118854**
1.66 - 2.00	2 1/2	**118856**
2.01 - 2.40	3	**118858**
2.41 - 3.30	4	**118861**
3.31 - 4.10	5	**118862**
4.11 - 4.90	6	**118863**
4.91 - 6.40	8	**118864**
6.41 - 8.00	10	**118865**
8.01 - 9.80	12	**118866**
9.81 - 12.0	15	**118867**
12.1 - 14.5	17 1/2	**118868**
14.6 - 17.0	20	**117045**
17.1 - 21.0	25	**118869**
21.1 - 25.0	30	**107096**
25.1 - 28.5	35	**118870**
28.6 - 34.0	40	**107098**
34.1 - 37.0	45	**118871**
37.1 - 41.0	50	**118872**
41.1 - 48.0	60	**117044**
48.1 - 52.0	70	**107104**
52.1 - 59.0	80	**118873**
59.1 - 66.0	90	**118874**
66.1 - 76.0	100	**118875**

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TYPICAL BID SPECIFICATION

ACI LOAD BREAK DISCONNECT SWITCH

ITEM #1
All Load Break Disconnect Switches are to be furnished by Advance Controls, Inc., Bradenton, Florida.

ITEM #2
All Load Break Disconnect Switches are to be UL508 Type IEC Style.

ITEM #3
All Load Break Disconnect Switches are to be furnished with a Through the Door Lockable Handle Assembly. Handle Assembly must be suitable to be padlocked in the “OFF” position with up to 3 padlocks. Handle Assembly shall have a door interlock that locks the enclosure door closed in all positions except “OFF”. Interlock defeater is not acceptable. Disconnect Switches with side mount handle assemblies are not allowed.

ITEM #4
All Load Break Disconnect Switches are to be specified, sized and installed per Advance Controls, Inc. recommendations.

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Load Break Disconnect Switch Submittal

Project Name: _____ Number: _____
Location: _____ Tag Number: _____ Date: _____
Rep / Distributor: _____
Contractor: _____ Engineer: _____

Design Data:

Motor HP: _____ Voltage: _____ Phase: _____ Full Load Amps: _____
Disconnect with Lockable Handle: ☐ Fused ☐ Non-Fused
Disconnect Fuses: ☐ Not Included ☐ Included Type: _____
Amps: _____

Enclosure:

☐ Hinged Cover ☐ Screw Cover Type: _____ Size: _____

Special Features:

_____

_____

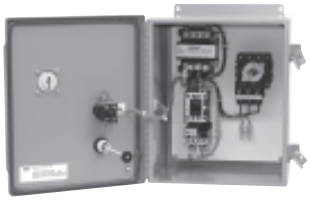
_____

_____

_____

_____

Advance Controls, Inc.
4505 18th Street East • Bradenton, FL 34203
800.559.9ACI (9224) • Fax: 941.746.3466
http://www.HVACiSpec.com • aci@HVACiSpec.com



Simplex Pump Control Panels

Tank Style • Constant Flow Style

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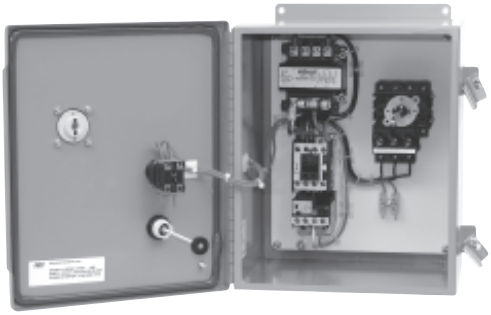
SIMPLEX TANK PUMP PANEL with FUSED Disconnect

SINGLE PHASE

NOTE: THESE PANELS ARE DESIGNED TO FILL OR EMPTY A TANK.



1/2 HP 200/208/60/1
TYPE 12

- For quick starting applications (<2 Sec)
- UL 508 Type Disconnect
- Disconnect Handle lockable in the "OFF" position with up to three (3) padlocks. Padlocks not furnished
- Control Transformer furnished on 200/208 and 230 volt units (120 VAC secondary) with fused secondary (fused primary above 50 Amps) - Transformer fuses furnished
- HAND - OFF - AUTO (HOA) Selector Switch
- 4-Point Terminal Block for connecting remote float switches, pressure switches etc. in the "AUTO" position (Switches are NOT furnished)
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL, UR, cUR
- Power fuses optional - See page 72

NOTE: Weights shown are APPROXIMATE and do NOT include any packing materials

EXAMPLES

- Potable Water Systems
- Sewage Systems
- Batching Tanks
- Evacuation Systems

120 Volt Single Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER	
					SIZE	TYPE
1/4	S11	5.5 - 8.5	30	#10	30	CC
1/3	S11	5.5 - 8.5	30	#10	30	CC
1/2	S11	8.5 - 12.5	30	#10	30	CC
3/4	S11	12.5 - 18	30	#10	30	CC
1	S11	17 - 24	40	#10	30	J
1 1/2	S11	17 - 24	40	#10	30	J
2	S18	22 - 30	40	#8	60	J
3	S25	30 - 40	63	#6	60	J
5	C65	48 - 65	100	#1	100	J

TYPE 1 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 12 x 8	21	**141197**
12 x 12 x 8	21	**141198**
12 x 12 x 8	21	**141199**
12 x 12 x 8	21	**141200**
16 x 12 x 8	24	**141201**
16 x 12 x 8	24	**141202**
16 x 16 x 8	29	**141203**
16 x 16 x 8	31	**141204**
24 x 20 x 8	52	**141205**

TYPE 12 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 8	22	**141206**
12 x 10 x 8	22	**141207**
12 x 10 x 8	22	**141208**
12 x 10 x 8	22	**141209**
14 x 12 x 8	26	**141210**
14 x 12 x 8	26	**141211**
16 x 14 x 8	32	**141212**
16 x 14 x 8	34	**141213**
24 x 20 x 9	65	**141214**

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER	
					SIZE	TYPE
1/4	S11	5.5 - 8.5	30	#10	30	CC
1/3	S11	5.5 - 8.5	30	#10	30	CC
1/2	S11	8.5 - 12.5	30	#10	30	CC
3/4	S11	12.5 - 18	30	#10	30	CC
1	S11	17 - 24	40	#10	30	J
1 1/2	S11	17 - 24	40	#10	30	J
2	S18	22 - 30	40	#8	60	J
3	S25	30 - 40	63	#6	60	J
5	C65	48 - 65	100	#1	100	J

TYPE 4 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 8	19	**141215**
12 x 10 x 8	19	**141216**
12 x 10 x 8	19	**141217**
12 x 10 x 8	19	**141218**
14 x 12 x 8	23	**141219**
14 x 12 x 8	23	**414220**
16 x 14 x 8	27	**141221**
16 x 14 x 8	29	**141222**
24 x 20 x 8	56	**141223**

TYPE 4X FIBERGLASS ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 8	17	**141224**
12 x 10 x 8	17	**141225**
12 x 10 x 8	17	**141226**
12 x 10 x 8	17	**141227**
14 x 12 x 8	21	**141228**
14 x 12 x 8	21	**141229**
16 x 14 x 8	22	**141230**
16 x 14 x 8	24	**141231**
24 x 20 x 10	46	**141232**

Options and Modifications are available: See Page 57

SIMPLEX TANK PUMP PANEL with FUSED Disconnect

SINGLE PHASE

200/208 Volt Single Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/4	S11	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	24	**141233**	14 x 12 x 8	28	**141243**
1/3	S11	3.5 - 5.0	30	#10	30	CC	14 x 12 x 8	24	**141234**	14 x 12 x 8	28	**141244**
1/2	S11	4.0 - 6.0	30	#10	30	CC	14 x 12 x 8	24	**141235**	14 x 12 x 8	28	**141245**
3/4	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	24	**141236**	14 x 12 x 8	28	**141246**
1	S11	8.5 - 12.5	30	#10	30	CC	14 x 12 x 8	24	**141237**	14 x 12 x 8	28	**141247**
1 1/2	S11	8.5 - 12.5	30	#10	30	CC	14 x 12 x 8	24	**141238**	14 x 12 x 8	28	**141248**
2	S11	12.5 - 18	30	#10	30	CC	14 x 12 x 8	24	**141239**	14 x 12 x 8	28	**141249**
3	S16	17 - 24	40	#10	30	J	16 x 12 x 8	27	**141240**	16 x 14 x 8	35	**141250**
5	S18	23 - 32	40	#8	60	J	16 x 16 x 8	33	**141241**	16 x 14 x 8	36	**141251**
7 1/2	S25	37 - 50	63	#6	100	J	20 x 20 x 8	51	**141242**	24 x 20 x 9	66	**141252**

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/4	S11	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	25	**141253**	14x 12 x7.75	23	**141263**
1/3	S11	3.5 - 5.0	30	#10	30	CC	14 x 12 x 8	25	**141254**	14x 12 x7.75	23	**141264**
1/2	S11	4.0 - 6.0	30	#10	30	CC	14 x 12 x 8	25	**141255**	14x 12 x7.75	23	**141265**
3/4	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	25	**141256**	14x 12 x7.75	23	**141266**
1	S11	8.5 - 12.5	30	#10	30	CC	14 x 12 x 8	25	**141257**	14x 12 x7.75	23	**141267**
1 1/2	S11	8.5 - 12.5	30	#10	30	CC	14 x 12 x 8	25	**141258**	14x 12 x7.75	23	**141268**
2	S11	12.5 - 18	30	#10	30	CC	14 x 12 x 8	25	**141259**	14x 12 x7.75	23	**141269**
3	S16	17 - 24	40	#10	30	J	16 x 14 x 8	30	**141260**	16x 14 x9.75	26	**141270**
5	S18	23 - 32	40	#8	60	J	16 x 14 x 8	31	**141261**	16x 14 x9.75	27	**141271**
7 1/2	S25	37 - 50	63	#6	100	J	24 x 20 x 8	57	**141262**	24x 20 x9.75	47	**141272**

230 Volt Single Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/4	S11	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	24	**141273**	14 x 12 x 8	28	**141283**
1/3	S11	3.5 - 5.0	30	#10	30	CC	14 x 12 x 8	24	**141274**	14 x 12 x 8	28	**141284**
1/2	S11	4.0 - 6.0	30	#10	30	CC	14 x 12 x 8	24	**141275**	14 x 12 x 8	28	**141285**
3/4	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	24	**141276**	14 x 12 x 8	28	**141286**
1	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	24	**141277**	14 x 12 x 8	28	**141287**
1 1/2	S11	8.5 - 12.5	30	#10	30	CC	14 x 12 x 8	24	**141278**	14 x 12 x 8	28	**141288**
2	S11	8.5 - 12.5	30	#10	30	CC	14 x 12 x 8	24	**141279**	14 x 12 x 8	28	**141289**
3	S16	12.5 - 18	40	#10	30	J	16 x 12 x 8	27	**141280**	16 x 14 x 8	35	**141290**
5	S18	22 - 30	40	#8	60	J	16 x 16 x 8	32	**141281**	16 x 14 x 8	35	**141291**
7 1/2	S25	37 - 50	63	#6	60	J	16 x 16 x 8	34	**141282**	16 x 14 x 8	37	**141292**

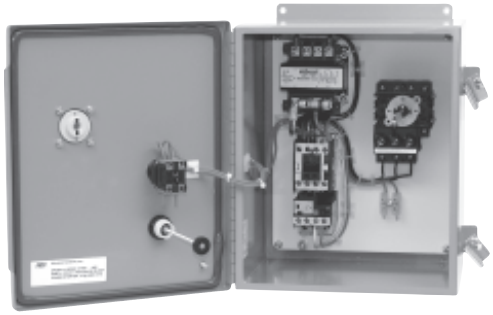
MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/4	S11	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	25	**141293**	14x 12 x7.75	23	**141303**
1/3	S11	3.5 - 5.0	30	#10	30	CC	14 x 12 x 8	25	**141294**	14x 12 x7.75	23	**141304**
1/2	S11	4.0 - 6.0	30	#10	30	CC	14 x 12 x 8	25	**141295**	14x 12 x7.75	23	**141305**
3/4	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	25	**141296**	14x 12 x7.75	23	**141306**
1	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	25	**141297**	14x 12 x7.75	23	**141307**
1 1/2	S11	8.5 - 12.5	30	#10	30	CC	14 x 12 x 8	25	**141298**	14x 12 x7.75	23	**141308**
2	S11	8.5 - 12.5	30	#10	30	CC	14 x 12 x 8	25	**141299**	14x 12 x7.75	23	**141309**
3	S16	12.5 - 18	40	#8	30	J	16 x 14 x 8	30	**141300**	16x 14 x9.75	26	**141310**
5	S18	22 - 30	40	#8	60	J	16 x 14 x 8	31	**141301**	16x 14 x9.75	26	**141311**
7 1/2	S25	37 - 50	63	#6	60	J	16 x 14 x 8	32	**141302**	16x 14 x9.75	28	**141312**

HVAC2007

SIMPLEX TANK PUMP PANEL with FUSED Disconnect

THREE PHASE

NOTE: THESE PANELS ARE DESIGNED TO FILL OR EMPTY A TANK.



1 HP 208/60/3 TYPE 12

EXAMPLES

- Potable Water Systems
- Sewage Systems
- Batching Tanks
- Evacuation Systems

- For quick starting applications (<2 Sec)
- UL 508 Type Disconnect
- Disconnect Handle lockable in the "OFF" position with up to three (3) padlocks. Padlocks not furnished
- Control Transformer furnished (120 VAC secondary) with fused secondary (fused primary above 50 Amps) - Transformer fuses furnished
- HAND - OFF - AUTO (HOA) Selector Switch
- 4-Point Terminal Block for connecting remote float switches, pressure switches etc. in the "AUTO" position (Switches are NOT furnished)
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL, UR, cUR
- Power fuses optional - See page 72

NOTE: Weights shown are APPROXIMATE and do NOT include any packing materials

200/208 Volt Three Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	1.4 - 2.1	30	#10	30	CC	14 x 12 x 8	24	**141313**	14 x 12 x 8	28	**141325**
1/2	S11	1.8 - 2.7	30	#10	30	CC	14 x 12 x 8	24	**141314**	14 x 12 x 8	28	**141326**
3/4	S11	3.5 - 5.0	30	#10	30	CC	14 x 12 x 8	24	**141315**	14 x 12 x 8	28	**141327**
1	S11	4.0 - 6.0	30	#10	30	CC	14 x 12 x 8	24	**141316**	14 x 12 x 8	28	**141328**
1 1/2	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	24	**141317**	14 x 12 x 8	28	**141329**
2	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	24	**141318**	14 x 12 x 8	28	**141330**
3	S11	8.5 - 12.5	40	#10	30	J	14 x 12 x 8	25	**141319**	14 x 12 x 8	29	**141331**
5	S16	12.5 - 18	40	#10	30	J	16 x 12 x 8	27	**141320**	16 x 14 x 7	35	**141332**
7 1/2	S18	22 - 30	40	#8	60	J	16 x 16 x 8	32	**141321**	16 x 14 x 8	35	**141333**
10	S18	30 - 40	40	#8	60	J	16 x 16 x 8	33	**141322**	16 x 14 x 8	36	**141334**
15	S25	37 - 50	63	#6	100	J	20 x 20 x 8	51	**141323**	20 x 20 x 9	58	**141335**
20	C65	48 - 65	100	#1	100	J	24 x 20 x 8	57	**141324**	24 x 20 x 9	70	**141336**
25	C80	63 - 80	100	#1	200	J	NA	NA	**NA**	30 x 24 x 9	93	**141337**

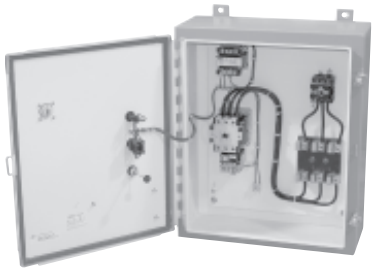
MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	1.4 - 2.1	30	#10	30	CC	14 x 12 x 8	25	**141338**	14x 12 x7.75	23	**141360**
1/2	S11	1.8 - 2.7	30	#10	30	CC	14 x 12 x 8	25	**141339**	14x 12 x7.75	23	**141361**
3/4	S11	3.5 - 5.0	30	#10	30	CC	14 x 12 x 8	25	**141340**	14x 12 x7.75	23	**141362**
1	S11	4.0 - 6.0	30	#10	30	CC	14 x 12 x 8	25	**141341**	14x 12 x7.75	23	**141363**
1 1/2	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	25	**141342**	14x 12 x7.75	23	**141364**
2	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	25	**142436**	14x 12 x7.75	23	**141365**
3	S11	8.5 - 12.5	40	#10	30	J	14 x 12 x 8	26	**141343**	14x 12 x7.75	24	**141366**
5	S16	12.5 - 18	40	#10	30	J	16 x 14 x 8	30	**141344**	16x 14 x9.75	26	**141367**
7 1/2	S18	22 - 30	40	#8	60	J	16 x 14 x 8	31	**141345**	16x 14 x9.75	26	**141368**
10	S18	30 - 40	40	#8	60	J	16 x 14 x 8	31	**141356**	16x 14 x9.75	27	**141369**
15	S25	37 - 50	63	#6	100	J	20 x 20 x 8	52	**141357**	24x 20 x9.75	47	**141370**
20	C65	48 - 65	100	#1	100	J	24 x 20 x 8	61	**141358**	24x 20 x9.75	51	**141371**
25	C80	63 - 80	100	#1	200	J	30 x 24 x 8	88	**141359**	30x 24 x9.75	66	**141372**

Options and Modifications are available: See Page 57

SIMPLEX TANK PUMP PANEL with FUSED Disconnect

THREE PHASE

NOTE: THESE PANELS ARE DESIGNED TO FILL OR EMPTY A TANK.



25 HP 230/60/3 TYPE 12

EXAMPLES

- Potable Water Systems
- Sewage Systems
- Batching Tanks
- Evacuation Systems

- For quick starting applications (<2 Sec)
- UL 508 Type Disconnect
- Disconnect Handle lockable in the “OFF” position with up to three (3) padlocks. Padlocks not furnished
- Control Transformer furnished (120 VAC secondary) with fused secondary (fused primary above 50 Amps) - Transformer fuses furnished
- HAND - OFF - AUTO (HOA) Selector Switch
- 4-Point Terminal Block for connecting remote float switches, pressure switches etc. in the “AUTO” position (Switches are NOT furnished)
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL, UR, cUR
- Power fuses optional - See page 72

NOTE: Weights shown are APPROXIMATE and do NOT include any packing materials

230 Volt Three Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	1.0 - 1.5	30	#10	30	CC	14 x 12 x 8	24	**141373**	14 x 12 x 8	28	**141386**
1/2	S11	1.8 - 2.7	30	#10	30	CC	14 x 12 x 8	24	**141374**	14 x 12 x 8	28	**141387**
3/4	S11	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	24	**141375**	14 x 12 x 8	28	**141388**
1	S11	3.5 - 5.0	30	#10	30	CC	14 x 12 x 8	24	**141376**	14 x 12 x 8	28	**141389**
1 1/2	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	24	**141377**	14 x 12 x 8	28	**141390**
2	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	24	**141378**	14 x 12 x 8	28	**141391**
3	S11	8.5 - 12.5	30	#10	30	CC	14 x 12 x 8	24	**141379**	14 x 12 x 8	28	**141392**
5	S16	12.5 - 18	40	#10	30	J	16 x 12 x 8	27	**141380**	16 x 14 x 8	35	**141393**
7 1/2	S18	17 - 24	40	#8	60	J	16 x 16 x 8	32	**141381**	16 x 14 x 8	35	**141394**
10	S18	22 - 30	40	#8	60	J	16 x 16 x 8	32	**141382**	16 x 14 x 8	35	**141395**
15	S25	37 - 50	63	#6	100	J	20 x 20 x 8	51	**141383**	20 x 20 x 9	58	**141396**
20	C65	48 - 65	100	#1	100	J	24 x 20 x 8	57	**141384**	24 x 20 x 9	70	**141397**
25	C80	63 - 80	100	#1	200	J	24 x 20 x 8	59	**141385**	24 x 20 x 9	72	**141398**
30	C80	77 - 97	100	#1	200	J	NA	NA	**NA**	30 x 24 x 9	93	**141399**

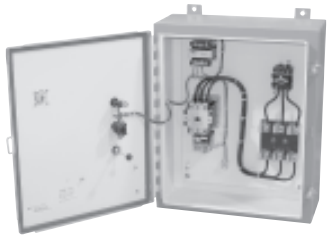
MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	1.0 - 1.5	30	#10	30	CC	14 x 12 x 8	25	**141400**	14x 12 x7.75	23	**141414**
1/2	S11	1.8 - 2.7	30	#10	30	CC	14 x 12 x 8	25	**141401**	14x 12 x7.75	23	**141415**
3/4	S11	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	25	**101402**	14x 12 x7.75	23	**141416**
1	S11	3.5 - 5.0	30	#10	30	CC	14 x 12 x 8	25	**141403**	14x 12 x7.75	23	**141417**
1 1/2	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	25	**141404**	14x 12 x7.75	23	**141418**
2	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	25	**141405**	14x 12 x7.75	23	**141419**
3	S11	8.5 - 12.5	30	#10	30	CC	14 x 12 x 8	25	**141406**	14x 12 x7.75	23	**141420**
5	S16	12.5 - 18	40	#10	30	J	16 x 14 x 8	30	**141407**	16x 14 x9.75	26	**141421**
7 1/2	S18	17 - 24	40	#8	60	J	16 x 14 x 8	30	**141408**	16x 14 x9.75	26	**141422**
10	S18	22 - 30	40	#8	60	J	16 x 14 x 8	30	**141409**	16x 14 x9.75	26	**141423**
15	S25	37 - 50	63	#6	100	J	20 x 20 x 8	52	**141410**	24x 20 x9.75	47	**141424**
20	C65	48 - 65	100	#1	100	J	24 x 20 x 8	61	**141411**	24x 20 x9.75	51	**141425**
25	C80	63 - 80	100	#1	200	J	24 x 20 x 8	63	**141412**	24x 20 x9.75	53	**141426**
30	C80	77 - 97	100	#1	200	J	30 x 24 x 8	88	**141413**	30x 24 x9.75	66	**141427**

HVAC2007

SIMPLEX TANK PUMP PANEL with FUSED Disconnect

THREE PHASE

NOTE: THESE PANELS ARE DESIGNED TO FILL OR EMPTY A TANK.



25 HP 460/60/3 TYPE 12

EXAMPLES

- Potable Water Systems
- Sewage Systems
- Batching Tanks
- Evacuation Systems

- For quick starting applications (<2 Sec)
- UL 508 Type Disconnect
- Disconnect Handle lockable in the “OFF” position with up to three (3) padlocks. Padlocks not furnished
- Control Transformer furnished (120 VAC secondary) with fused secondary (fused primary above 50 Amps) - Transformer fuses furnished
- HAND - OFF - AUTO (HOA) Selector Switch
- 4-Point Terminal Block for connecting remote float switches, pressure switches etc. in the “AUTO” position. (Switches are NOT furnished)
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL, UR, cUR
- Power fuses optional - See page 72

NOTE: Weights shown are APPROXIMATE and do NOT include any packing materials

460 Volt Three Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	0.67 - 1.0	30	#10	30	CC	14 x 12 x 8	24	**141428**	14 x 12 x 8	28	**141444**
1/2	S11	1.0 - 1.5	30	#10	30	CC	14 x 12 x 8	24	**141429**	14 x 12 x 8	28	**141445**
3/4	S11	1.4 - 2.1	30	#10	30	CC	14 x 12 x 8	24	**141430**	14 x 12 x 8	28	**141446**
1	S11	1.8 - 2.7	30	#10	30	CC	14 x 12 x 8	24	**141431**	14 x 12 x 8	28	**141447**
1 1/2	S11	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	24	**141432**	14 x 12 x 8	28	**141448**
2	S11	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	24	**141433**	14 x 12 x 8	28	**141449**
3	S11	4.0 - 6.0	30	#10	30	CC	14 x 12 x 8	24	**141434**	14 x 12 x 8	28	**141450**
5	S11	5.5 - 8.5	30	#10	30	CC	16 x 12 x 8	26	**141435**	16 x 14 x 8	34	**141451**
7 1/2	S11	8.5 - 12.5	30	#10	30	CC	16 x 16 x 8	31	**141436**	16 x 14 x 8	34	**141452**
10	S11	12.5 - 18	30	#10	30	CC	16 x 16 x 8	31	**141437**	16 x 14 x 8	34	**141453**
15	S18	17 - 24	40	#10	60	J	16 x 16 x 8	32	**141438**	16 x 14 x 8	35	**141454**
20	S18	22 - 30	40	#8	60	J	16 x 16 x 8	32	**141439**	16 x 14 x 8	35	**141455**
25	S25	30 - 40	63	#6	60	J	16 x 16 x 8	34	**141440**	16 x 14 x 8	37	**141456**
30	S25	37 - 50	63	#6	60	J	16 x 16 x 8	34	**141441**	16 x 14 x 8	37	**141457**
40	S25	48 - 65	63	#6	100	J	24 x 20 x 8	53	**141442**	24 x 20 x 9	66	**141458**
50	C65	63 - 80	100	#1	100	J	24 x 20 x 8	57	**141443**	24 x 20 x 9	70	**141459**
60	C80	63 - 80	100	#1	200	J	NA	28	**NA**	30 x 24 x 9	93	**141460**

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	0.67 - 1.0	30	#10	30	CC	14 x 12 x 8	25	**141461**	14x 12 x7.75	23	**141478**
1/2	S11	1.0 - 1.5	30	#10	30	CC	14 x 12 x 8	25	**141462**	14x 12 x7.75	23	**141479**
3/4	S11	1.4 - 2.1	30	#10	30	CC	14 x 12 x 8	25	**141463**	14x 12 x7.75	23	**141480**
1	S11	1.8 - 2.7	30	#10	30	CC	14 x 12 x 8	25	**141464**	14x 12 x7.75	23	**141481**
1 1/2	S11	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	25	**141465**	14x 12 x7.75	23	**141482**
2	S11	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	25	**141466**	14x 12 x7.75	23	**141483**
3	S11	4.0 - 6.0	30	#10	30	CC	14 x 12 x 8	25	**141467**	14x 12 x7.75	23	**141484**
5	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	25	**141468**	14x 12 x7.75	23	**141485**
7 1/2	S11	8.5 - 12.5	30	#10	30	CC	14 x 12 x 8	25	**141469**	14x 12 x7.75	23	**141486**
10	S11	12.5 - 18	30	#10	30	CC	14 x 12 x 8	25	**141470**	14x 12 x7.75	23	**141487**
15	S18	17 - 24	40	#10	60	J	16 x 16 x 8	33	**141471**	16x 14 x9.75	26	**141488**
20	S18	22 - 30	40	#8	60	J	16 x 16 x 8	33	**141472**	16x 14 x9.75	26	**141489**
25	S25	30 - 40	63	#6	60	J	16 x 16 x 8	35	**141473**	16x 14 x9.75	28	**141490**
30	S25	37 - 50	63	#6	60	J	16 x 16 x 8	35	**141474**	16x 14 x9.75	28	**141491**
40	S25	48 - 65	63	#6	100	J	24 x 20 x 8	57	**141475**	24x 20 x9.75	47	**141492**
50	C65	63 - 80	100	#1	100	J	24 x 20 x 8	61	**141476**	24x 20 x9.75	51	**141493**
60	C80	63 - 80	100	#1	200	J	30 x 24 x 8	88	**141477**	30x 24 x9.75	66	**141494**

SIMPLEX TANK PUMP PANEL with FUSED Disconnect

NOTE: THESE PANELS ARE DESIGNED TO FILL OR EMPTY A TANK.

OPTIONS AND MODIFICATIONS

NOTE: IF THE SIMPLEX TANK PUMP PANEL HAS ANY OPTION OR MODIFICATION - THE ACI CATALOG NUMBER WILL CHANGE.
CONSULT FACTORY FOR CORRECT CATALOG NUMBER FOR ALL SIMPLEX TANK PUMP PANELS WITH OPTIONS OR MODIFICATIONS.

OPTIONAL ENCLOSURES

Type 3R Metal	For Protection against Windblown Rain
Type 4X Stainless Steel	For Protection against Corrosion

PANEL MODIFICATIONS

UL Panel Shop Label	UL508 Approval of the Starter Assembly
Unit Identification Label	To identify the Pump operated by the panel
Circuit Breaker Disconnect	To replace the standard FUSED Disconnect
Phase Monitor (3 Phase)	Electronic, for protection against: Low Voltage Phase Reversal Loss of Phase
24 VAC Control:	To replace standard 120 volt control
Pilot Light (std)	120 Volt Incandescent
Pilot Light (Push to TEST)	120 Volt Incandescent
Selector Switch	2 or 3 Position (specify function - specify std legend plate)
Auxiliary Contacts	1 Normally OPEN + 1 Normally CLOSED TOP MOUNTED on Contactor - Not Wired SIDE MOUNTED on Contactor - Not Wired
Class 20 Motor Overload	Applications with Long (>5 seconds) Starting Time

High or Low Water Alarms — For notification of HIGH or LOW water levels

a) BASIC ALARM Control Circuit:
   ALARM maintaining relay, pilot light and "RESET" button
b) ADVANCED ALARM Control Circuit:
   Basic Alarm Control Circuit PLUS Alarm horn relay, horn "Silence" button and terminals for remote horn (horn not furnished)
c) Top Mounted NON FLASHING ALARM Light:
   Requires either BASIC or ADVANCED ALARM Control Circuit (40 watt - Lamp not included)
d) Top Mounted Flashing ALARM Light:
   Requires either BASIC or ADVANCED ALARM Control Circuit (40 watt - Lamp not included)
e) Top Mounted STROBE ALARM Light:
   Requires either BASIC or ADVANCED ALARM Control Circuit
f) ALARM HORN:
   Requires ADVANCED ALARM Circuit - 90 dbA at 1 meter, 120 volt, door mounted

Fused Transformer Primary	When Motor Circuit protection is below 50 Amps
Hour Meter	6 Digit - Non Resetable, 120 volt
GFCI Convenience Outlet	15 Amp, 120 Volt, mounted in the side of the enclosure
Unit Identification Label	To identify the specific Panel

ADDITIONAL OPTIONS AND MODIFICATIONS ARE AVAILABLE
CONSULT FACTORY WITH YOUR REQUIREMENTS

Simplex Tank Style Pump Panel Worksheet

Advance Controls, Inc.
4505 18th Street East • Bradenton, FL 34203
800.559.9ACI (9224) • Fax: 941.746.3466
http://www.HVACiSpec.com • aci@HVACiSpec.com

Company: _____
Address: _____
Phone: _____ Fax: _____ E-Mail: _____
Project Name: _____ Number: _____
Location: _____ Tag Number: _____ Date: _____
Contractor: _____ Engineer: _____

☐ **Simplex**

Panel Design Data:

☐ Control Transformer
Motor HP: _____
Motor Voltage: _____
Motor Phase: _____
Motor Full Load Amps: _____
Panel Control Voltage: _____

Disconnect Switch:

☐ None ☐ Non-Fused
☐ Fused ☐ Other: _____

Enclosure:

☐ Metal ☐ Type 1 / 12
☐ Non-Metallic 4X ☐ Type 3R / 4

Control Devices:

☐ START / STOP Buttons
☐ Low/High Water Alarm Circuit
☐ Alarm Horn
☐ Other: _____
☐ OFF / ON Selector Switch
☐ Phase Monitor
☐ Hourmeter

Pilot Lights:

☐ LED ☐ Incandescent

Color: _____ Function: _____ Legend: _____
Color: _____ Function: _____ Legend: _____
Color: _____ Function: _____ Legend: _____
Color: _____ Function: _____ Legend: _____

Number of Auxiliary Contacts (on Contactors): NO _____ NC _____

I. D. Tag and UL Labels: _____

_____

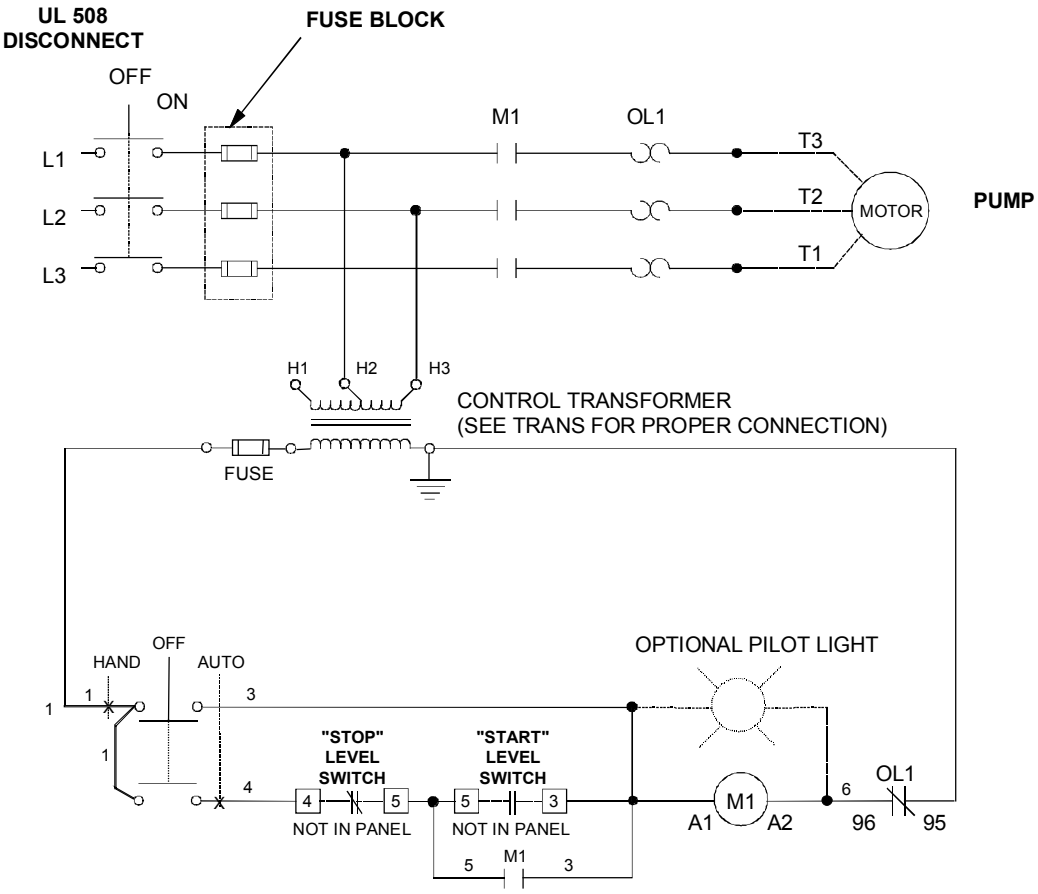
Additional Requirements / Comments: _____

_____

_____

IMPORTANT:
Any changes, modifications, additions or deletions otherwise noted in the above specifications may result in a delay in the quoting process.
Any changes made by the customer, after the specifications have been approved and / or the manufacturing process has commenced, may result in shipment delays and additional charges may be assessed.

Typical Wiring Diagram - Simplex Tank Style Pump Panel



ADVANCE CONTROLS, INC.
4505 18TH STREET EAST BRADENTON, FL
941-746-3221

TYPICAL WIRING DIAGRAM
3 PHASE TANK PUMP PANEL
WITH FUSED DISCONNECT
CONTROL TRANSFORMER AND
H-O-A CONTROL

SCALE	DRAWN	DATE	DRAWING NUMBER	PAGE	REV
NONE	MJK	6/23/92	SIMPLEX TANK PUMP	1 OF 1	

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Advance Controls, Inc.
4505 18th Street East • Bradenton, FL 34203
800.559.9ACI (9224) • Fax: 941.746.3466
http://www.HVACiSpec.com • aci@HVACiSpec.com

TYPICAL BID SPECIFICATION

ACI SIMPLEX TANK PUMP PANEL

ITEM #1
All Simplex Tank Pump Panels are to be furnished by Advance Controls, Inc., Bradenton, Florida.

ITEM #2
All Simplex Tank Pump Panels shall include a FUSED IEC Style, UL Approved DISCONNECT SWITCH complete with a Door Mounted Lockable Handle Assembly.

ITEM #3
The Door Mounted Lockable Handle Assembly shall be able to accept up to THREE (3) padlocks (not furnished) to lock the Disconnect in the “OFF” position. The Handle Assembly shall interlock the enclosure door CLOSED in all except the “OFF” possition. A door interlock defeater shall NOT be provided.

ITEM #4
All Simplex Tank Pump Panel Motor Starters are to be IEC Style, UL approved, with adjustable, bimetallic, UL Class 10 ambient compensated Overload Relays. Motor Starters with Overloads that require replaceable heater elements are not allowed. All Simplex Tank Pump Panel Motor Starters shall have a wide voltage range coil with a minimum rating of +10% to -30% of the nominal 60 Hz voltage. All coils are to be suitable for 60/50 Hz.

ITEM #5
All Simplex Tank Pump Panels are to be designed to operate with TWO (2) Float Switches. One switch is the START the pump. The second switch is to STOP the pump. The Float Switches are to be furnished and remotely installed by others.

ITEM #6
All Simplex Tank Pump Panels are to be furnished standard with a HAND - OFF - AUTO (HOA) Selector Switch. The HOA switch shall be wired so that in the “HAND” position the pump will run irregardless of the condition of the float switches. In the “AUTO” position the pump will automatically operate in response to the float switches.

ITEM #7
All Simplex Tank Pump Panels must be furnished in a Type 1, 12, 4 or 4X enclosure as required.

ITEM #8
All Simplex Tank Pump Panels are to be specified, sized and installed per Advance Controls, Inc. recommendations.

Advance Controls, Inc.
4505 18th Street East • Bradenton, FL 34203
800.559.9ACI (9224) • Fax: 941.746.3466
http://www.HVACiSpec.com • aci@HVACiSpec.com

Simplex Tank Pump Panel Submittal

This Form: Page 1 of 1. *This Package: Page _____ of _____ .*

Project Name: _____ Number: _____
Location: _____ Tag Number: _____ Date: _____
Rep / Distributor: _____
Contractor: _____ Engineer: _____

Design Data:

Motor HP: _____ Voltage: _____ Phase: _____
Disconnect with Lockable Handle: ☐ Fused ☐ Non-Fused ☐ None
Disconnect Fuses: ☐ Not Included ☐ Included Type: _____
Amps: _____

Starter:

Contactor Inductive Amps: _____ Overload Amp Range (Amps): _____
Auxiliary Contacts supplied on Contactor (standard) NO: _____ NC: _____

Control Transformer: ☐ Yes ☐ No

Fused Secondary Standard • Fused Primary Required above 50 Amps

Primary Fuse Furnished: Type: _____ Size: _____ Amps
Secondary Fuse Furnished: Type: _____ Size: _____ Amps

Accessories:

H-O-A (Standard)
☐ Run Light - Red
☐ Phase Monitor
2 Point Terminal Block for Auto position of H-O-A (Standard)
☐ Stop Light - Green
☐ LED Lamps

Enclosure: ☐ Hinged Cover ☐ Screw Cover Type: _____ Size: _____

Special Features:

_____

_____

_____

_____

_____

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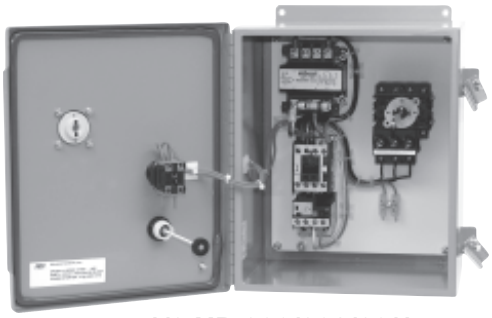
SIMPLEX CONSTANT FLOW PUMP PANEL with FUSED Disconnect

SINGLE PHASE

NOTE: THESE PANELS ARE DESIGNED TO CONTINUOUSLY OPERATE ONE PUMP.



1/2 HP 200/208/60/1
TYPE 12

- For quick starting applications (<2 Sec)
- UL 508 Type Disconnect
- Disconnect Handle lockable in the “OFF” position with up to three (3) padlocks. Padlocks not furnished
- Control Transformer furnished on 200/208 and 230 volt units (120 VAC secondary) with fused secondary (fused primary above 50 Amps) - Transformer fuses furnished
- HAND - OFF - AUTO (HOA) Selector Switch
- 2-Point Terminal Block for connecting ENABLE contact in the “AUTO” position (ENABLE contact is NOT furnished)
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL, UR, cUR
- Power fuses optional - See page 72

NOTE: Weights shown are APPROXIMATE and do NOT include any packing materials

EXAMPLES

- Closed Circuit Fluid Cooler
- Boiler Feed Pumps
- Condensate Feed Pumps
- Circulating Pumps

120 Volt Single Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER	
					SIZE	TYPE
1/4	S11	5.5 - 8.5	30	#10	30	CC
1/3	S11	5.5 - 8.5	30	#10	30	CC
1/2	S11	8.5 - 12.5	30	#10	30	CC
3/4	S11	12.5 - 18	30	#10	30	CC
1	S11	17 - 24	40	#10	30	J
1 1/2	S11	17 - 24	40	#10	30	J
2	S18	22 - 30	40	#8	60	J
3	S25	30 - 40	63	#6	60	J
5	C65	48 - 65	100	#1	100	J

TYPE 1 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 12 x 8	21	**141742**
12 x 12 x 8	21	**141743**
12 x 12 x 8	21	**141744**
12 x 12 x 8	21	**141745**
16 x 12 x 8	24	**141746**
16 x 12 x 8	24	**141747**
16 x 16 x 8	29	**141748**
16 x 16 x 8	31	**141749**
24 x 20 x 8	52	**141750**

TYPE 12 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 8	22	**141751**
12 x 10 x 8	22	**141752**
12 x 10 x 8	22	**141753**
12 x 10 x 8	22	**141754**
14 x 12 x 8	26	**141755**
14 x 12 x 8	26	**141756**
16 x 14 x 8	32	**141757**
16 x 14 x 8	34	**141758**
24 x 20 x 9	65	**141759**

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER	
					SIZE	TYPE
1/4	S11	5.5 - 8.5	30	#10	30	CC
1/3	S11	5.5 - 8.5	30	#10	30	CC
1/2	S11	8.5 - 12.5	30	#10	30	CC
3/4	S11	12.5 - 18	30	#10	30	CC
1	S11	17 - 24	40	#10	30	J
1 1/2	S11	17 - 24	40	#10	30	J
2	S18	22 - 30	40	#8	60	J
3	S25	30 - 40	63	#6	60	J
5	C65	48 - 65	100	#1	100	J

TYPE 4 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 8	19	**141760**
12 x 10 x 8	19	**141761**
12 x 10 x 8	19	**141762**
12 x 10 x 8	19	**141763**
14 x 12 x 8	23	**141764**
14 x 12 x 8	23	**141765**
16 x 14 x 8	27	**141766**
16 x 14 x 8	29	**141767**
24 x 20 x 8	56	**141768**

TYPE 4X FIBERGLASS ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
12 x 10 x 8	17	**141769**
12 x 10 x 8	17	**141770**
12 x 10 x 8	17	**141771**
12 x 10 x 8	17	**141772**
14 x 12 x 8	21	**141773**
14 x 12 x 8	21	**141774**
16 x 14 x 8	22	**141775**
16 x 14 x 8	24	**141776**
24 x 20 x 10	51	**141777**

Options and Modifications are available: See Page 67

SIMPLEX CONSTANT FLOW PUMP PANEL with FUSED Disconnect

SINGLE PHASE

200/208 Volt Single Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER	
					SIZE	TYPE
1/4	S11	2.4 - 3.6	30	#10	30	CC
1/3	S11	3.5 - 5.0	30	#10	30	CC
1/2	S11	4.0 - 6.0	30	#10	30	CC
3/4	S11	5.5 - 8.5	30	#10	30	CC
1	S11	8.5 - 12.5	30	#10	30	CC
1 1/2	S11	8.5 - 12.5	30	#10	30	CC
2	S11	12.5 - 18	30	#10	30	CC
3	S16	17 - 24	40	#10	30	J
5	S18	23 - 32	40	#8	60	J
7 1/2	S25	37 - 50	63	#6	100	J

TYPE 1 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 8	24	**141778**
14 x 12 x 8	24	**141779**
14 x 12 x 8	24	**141780**
14 x 12 x 8	24	**141781**
14 x 12 x 8	24	**141782**
14 x 12 x 8	24	**141783**
14 x 12 x 8	24	**141784**
16 x 12 x 8	27	**141785**
16 x 16 x 8	33	**141786**
20 x 20 x 8	51	**141787**

TYPE 12 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 8	28	**141788**
14 x 12 x 8	28	**141789**
14 x 12 x 8	28	**141790**
14 x 12 x 8	28	**141791**
14 x 12 x 8	28	**141792**
14 x 12 x 8	28	**141793**
14 x 12 x 8	28	**141794**
16 x 14 x 8	35	**141795**
16 x 14 x 8	36	**141796**
24 x 20 x 9	66	**141797**

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER	
					SIZE	TYPE
1/4	S11	2.4 - 3.6	30	#10	30	CC
1/3	S11	3.5 - 5.0	30	#10	30	CC
1/2	S11	4.0 - 6.0	30	#10	30	CC
3/4	S11	5.5 - 8.5	30	#10	30	CC
1	S11	8.5 - 12.5	30	#10	30	CC
1 1/2	S11	8.5 - 12.5	30	#10	30	CC
2	S11	12.5 - 18	30	#10	30	CC
3	S16	17 - 24	40	#10	30	J
5	S18	23 - 32	40	#8	60	J
7 1/2	S25	37 - 50	63	#6	100	J

ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 8	25	**141798**
14 x 12 x 8	25	**141799**
14 x 12 x 8	25	**141800**
14 x 12 x 8	25	**141801**
14 x 12 x 8	25	**141802**
14 x 12 x 8	25	**141803**
14 x 12 x 8	25	**141804**
16 x 14 x 8	30	**141805**
16 x 14 x 8	31	**141806**
24 x 20 x 8	57	**141807**

ENCLOSURE SIZE	WT	CATALOG NUMBER
14x 12 x7.75	23	**141808**
14x 12 x7.75	23	**141809**
14x 12 x7.75	23	**141810**
14x 12 x7.75	23	**141811**
14x 12 x7.75	23	**141812**
14x 12 x7.75	23	**141813**
14x 12 x7.75	23	**141814**
16x 14 x9.75	26	**141815**
16x 14 x9.75	27	**141816**
24x 20 x9.75	47	**141817**

230 Volt Single Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER	
					SIZE	TYPE
1/4	S11	2.4 - 3.6	30	#10	30	CC
1/3	S11	3.5 - 5.0	30	#10	30	CC
1/2	S11	4.0 - 6.0	30	#10	30	CC
3/4	S11	5.5 - 8.5	30	#10	30	CC
1	S11	5.5 - 8.5	30	#10	30	CC
1 1/2	S11	8.5 - 12.5	30	#10	30	CC
2	S11	8.5 - 12.5	30	#10	30	CC
3	S16	12.5 - 18	40	#10	30	J
5	S18	22 - 30	40	#8	60	J
7 1/2	S25	37 - 50	63	#6	60	J

TYPE 1 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 8	24	**141818**
14 x 12 x 8	24	**141819**
14 x 12 x 8	24	**141820**
14 x 12 x 8	24	**141821**
14 x 12 x 8	24	**141822**
14 x 12 x 8	24	**141823**
14 x 12 x 8	24	**141824**
16 x 12 x 8	27	**141825**
16 x 16 x 8	32	**141826**
16 x 16 x 8	34	**141827**

TYPE 12 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 8	28	**141828**
14 x 12 x 8	28	**141829**
14 x 12 x 8	28	**141830**
14 x 12 x 8	28	**141831**
14 x 12 x 8	28	**141832**
14 x 12 x 8	28	**141833**
14 x 12 x 8	28	**141834**
16 x 14 x 8	35	**141835**
16 x 14 x 8	35	**141836**
16 x 14 x 8	37	**141837**

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER	
					SIZE	TYPE
1/4	S11	2.4 - 3.6	30	#10	30	CC
1/3	S11	3.5 - 5.0	30	#10	30	CC
1/2	S11	4.0 - 6.0	30	#10	30	CC
3/4	S11	5.5 - 8.5	30	#10	30	CC
1	S11	5.5 - 8.5	30	#10	30	CC
1 1/2	S11	8.5 - 12.5	30	#10	30	CC
2	S11	8.5 - 12.5	30	#10	30	CC
3	S16	12.5 - 18	40	#8	30	J
5	S18	22 - 30	40	#8	60	J
7 1/2	S25	37 - 50	63	#6	60	J

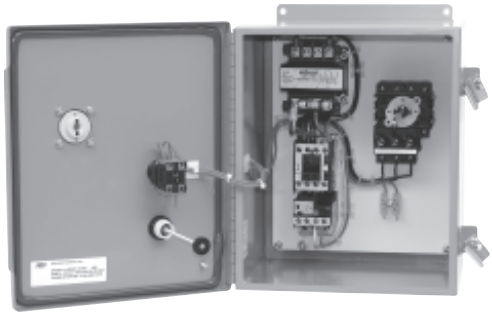
TYPE 4 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14 x 12 x 8	25	**141838**
14 x 12 x 8	25	**141839**
14 x 12 x 8	25	**141840**
14 x 12 x 8	25	**141841**
14 x 12 x 8	25	**141842**
14 x 12 x 8	25	**141843**
14 x 12 x 8	25	**141844**
16 x 14 x 8	30	**141845**
16 x 14 x 8	31	**141846**
16 x 14 x 8	32	**141847**

TYPE 4X FIBERGLASS ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
14x 12 x7.75	23	**141848**
14x 12 x7.75	23	**141849**
14x 12 x7.75	23	**141850**
14x 12 x7.75	23	**141851**
14x 12 x7.75	23	**141852**
14x 12 x7.75	23	**141853**
14x 12 x7.75	23	**141854**
16x 14 x9.75	26	**141855**
16x 14 x9.75	26	**141856**
16x 14 x9.75	28	**141857**

HVAC2007

SIMPLEX CONSTANT FLOW PUMP PANEL with FUSED Disconnect — THREE PHASE

NOTE: THESE PANELS ARE DESIGNED TO CONTINUOUSLY OPERATE ONE PUMP.



1 HP 208/60/3 TYPE 12

EXAMPLES

- Closed Circuit Fluid Cooler
- Boiler Feed Pumps
- Condensate Feed Pumps
- Circulating Pumps

- For quick starting applications (<2 Sec)
- UL 508 Type Disconnect
- Disconnect Handle lockable in the “OFF” position with up to three (3) padlocks. Padlocks not furnished
- Control Transformer furnished (120 VAC secondary) with fused secondary (fused primary above 50 Amps) - Transformer fuses furnished
- HAND - OFF - AUTO (HOA) Selector Switch
- 2-Point Terminal Block for connecting remote ENABLE contact in the “AUTO” position (ENABLE contact is NOT furnished)
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL, UR, cUR
- Power fuses optional - See page 72

NOTE: Weights shown are APPROXIMATE and do NOT include any packing materials

200/208 Volt Three Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	1.4 - 2.1	30	#10	30	CC	14 x 12 x 8	24	**141858**	14 x 12 x 8	28	**141870**
1/2	S11	1.8 - 2.7	30	#10	30	CC	14 x 12 x 8	24	**141859**	14 x 12 x 8	28	**141871**
3/4	S11	3.5 - 5.0	30	#10	30	CC	14 x 12 x 8	24	**141860**	14 x 12 x 8	28	**141872**
1	S11	4.0 - 6.0	30	#10	30	CC	14 x 12 x 8	24	**141861**	14 x 12 x 8	28	**141873**
1 1/2	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	24	**141862**	14 x 12 x 8	28	**141874**
2	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	24	**141863**	14 x 12 x 8	28	**141875**
3	S11	8.5 - 12.5	40	#10	30	J	14 x 12 x 8	25	**141864**	14 x 12 x 8	29	**141876**
5	S16	12.5 - 18	40	#10	30	J	16 x 12 x 8	27	**141865**	16 x 14 x 7	35	**141877**
7 1/2	S18	22 - 30	40	#8	60	J	16 x 16 x 8	32	**141866**	16 x 14 x 8	35	**141878**
10	S18	30 - 40	40	#8	60	J	16 x 16 x 8	33	**141867**	16 x 14 x 8	36	**141879**
15	S25	37 - 50	63	#6	100	J	20 x 20 x 8	51	**141868**	20 x 20 x 9	58	**141890**
20	C65	48 - 65	100	#1	100	J	24 x 20 x 8	57	**141869**	24 x 20 x 9	70	**141891**
25	C80	63 - 80	100	#1	200	J	NA	NA	**NA**	30 x 24 x 9	93	**141892**

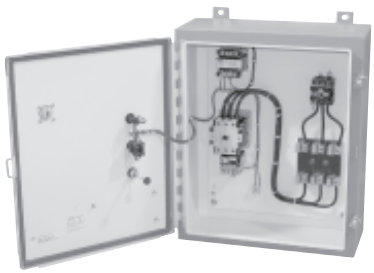
MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	1.4 - 2.1	30	#10	30	CC	14 x 12 x 8	25	**141893**	14x 12 x7.75	23	**141906**
1/2	S11	1.8 - 2.7	30	#10	30	CC	14 x 12 x 8	25	**141894**	14x 12 x7.75	23	**141907**
3/4	S11	3.5 - 5.0	30	#10	30	CC	14 x 12 x 8	25	**141895**	14x 12 x7.75	23	**141908**
1	S11	4.0 - 6.0	30	#10	30	CC	14 x 12 x 8	25	**141896**	14x 12 x7.75	23	**141909**
1 1/2	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	25	**141897**	14x 12 x7.75	23	**141910**
2	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	25	**141898**	14x 12 x7.75	23	**141911**
3	S11	8.5 - 12.5	40	#10	30	J	14 x 12 x 8	26	**141899**	14x 12 x7.75	24	**141912**
5	S16	12.5 - 18	40	#10	30	J	16 x 14 x 8	30	**141900**	16x 14 x9.75	26	**141913**
7 1/2	S18	22 - 30	40	#8	60	J	16 x 14 x 8	31	**141901**	16x 14 x9.75	26	**141914**
10	S18	30 - 40	40	#8	60	J	16 x 14 x 8	31	**141902**	16x 14 x9.75	27	**141915**
15	S25	37 - 50	63	#6	100	J	20 x 20 x 8	52	**140903**	24x 20 x9.75	47	**141916**
20	C65	48 - 65	100	#1	100	J	24 x 20 x 8	61	**141904**	24x 20 x9.75	51	**141917**
25	C80	63 - 80	100	#1	200	J	30 x 24 x 8	88	**141905**	30x 24 x9.75	66	**141918**

Options and Modifications are available: See Page 67

SIMPLEX CONSTANT FLOW PUMP PANEL with FUSED Disconnect

THREE PHASE

NOTE: THESE PANELS ARE DESIGNED TO CONTINUOUSLY OPERATE ONE PUMP.



25 HP 230/60/3 TYPE 12

EXAMPLES

- Closed Circuit Fluid Cooler
- Boiler Feed Pumps
- Condensate Feed Pumps
- Circulating Pumps

- For quick starting applications (<2 Sec)
- UL 508 Type Disconnect
- Disconnect Handle lockable in the “OFF” position with up to three (3) padlocks. Padlocks not furnished
- Control Transformer furnished (120 VAC secondary) with fused secondary (fused primary above 50 Amps) - Transformer fuses furnished
- HAND - OFF - AUTO (HOA) Selector Switch
- 2-Point Terminal Block for connecting remote ENABLE contact in the “AUTO” position (ENABLE contact is NOT furnished)
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL, UR, cUR
- Power fuses optional - See page 72

NOTE: Weights shown are APPROXIMATE and do NOT include any packing materials

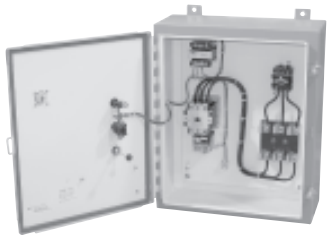
230 Volt Three Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	1.0 - 1.5	30	#10	30	CC	14 x 12 x 8	24	**141919**	14 x 12 x 8	28	**141932**
1/2	S11	1.8 - 2.7	30	#10	30	CC	14 x 12 x 8	24	**141920**	14 x 12 x 8	28	**141933**
3/4	S11	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	24	**141921**	14 x 12 x 8	28	**141934**
1	S11	3.5 - 5.0	30	#10	30	CC	14 x 12 x 8	24	**141922**	14 x 12 x 8	28	**141935**
1 1/2	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	24	**141923**	14 x 12 x 8	28	**141936**
2	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	24	**141924**	14 x 12 x 8	28	**141937**
3	S11	8.5 - 12.5	30	#10	30	CC	14 x 12 x 8	24	**141925**	14 x 12 x 8	28	**141938**
5	S16	12.5 - 18	40	#10	30	J	16 x 12 x 8	27	**141926**	16 x 14 x 8	35	**141939**
7 1/2	S18	17 - 24	40	#8	60	J	16 x 16 x 8	32	**141927**	16 x 14 x 8	35	**141940**
10	S18	22 - 30	40	#8	60	J	16 x 16 x 8	32	**141928**	16 x 14 x 8	35	**141941**
15	S25	37 - 50	63	#6	100	J	20 x 20 x 8	51	**141929**	20 x 20 x 9	58	**141942**
20	C65	48 - 65	100	#1	100	J	24 x 20 x 8	57	**141930**	24 x 20 x 9	70	**141943**
25	C80	63 - 80	100	#1	200	J	24 x 20 x 8	59	**141931**	24 x 20 x 9	72	**141944**
30	C80	77 - 97	100	#1	200	J	NA	NA	**NA**	30 x 24 x 9	93	**141945**

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	1.0 - 1.5	30	#10	30	CC	14 x 12 x 8	25	**141946**	14x 12 x7.75	23	**141960**
1/2	S11	1.8 - 2.7	30	#10	30	CC	14 x 12 x 8	25	**141947**	14x 12 x7.75	23	**141961**
3/4	S11	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	25	**141948**	14x 12 x7.75	23	**141962**
1	S11	3.5 - 5.0	30	#10	30	CC	14 x 12 x 8	25	**141949**	14x 12 x7.75	23	**141963**
1 1/2	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	25	**141950**	14x 12 x7.75	23	**141964**
2	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	25	**141951**	14x 12 x7.75	23	**141965**
3	S11	8.5 - 12.5	30	#10	30	CC	14 x 12 x 8	25	**141952**	14x 12 x7.75	23	**141966**
5	S16	12.5 - 18	40	#10	30	J	16 x 14 x 8	30	**141953**	16x 14 x9.75	26	**141967**
7 1/2	S18	17 - 24	40	#8	60	J	16 x 14 x 8	30	**141954**	16x 14 x9.75	26	**141968**
10	S18	22 - 30	40	#8	60	J	16 x 14 x 8	30	**141955**	16x 14 x9.75	26	**141969**
15	S25	37 - 50	63	#6	100	J	20 x 20 x 8	52	**141956**	24x 20 x9.75	47	**141970**
20	C65	48 - 65	100	#1	100	J	24 x 20 x 8	61	**141957**	24x 20 x9.75	51	**141971**
25	C80	63 - 80	100	#1	200	J	24 x 20 x 8	63	**141958**	24x 20 x9.75	53	**141972**
30	C80	77 - 97	100	#1	200	J	30 x 24 x 8	88	**141959**	30x 24 x9.75	66	**141973**

SIMPLEX CONSTANT FLOW PUMP PANEL with FUSED Disconnect — THREE PHASE

NOTE: THESE PANELS ARE DESIGNED TO CONTINUOUSLY OPERATE ONE PUMP.



25 HP 460/60/3 TYPE 12

EXAMPLES

- Closed Circuit Fluid Cooler
- Boiler Feed Pumps
- Condensate Feed Pumps
- Circulating Pumps

- For quick starting applications (<2 Sec)
- UL 508 Type Disconnect
- Disconnect Handle lockable in the “OFF” position with up to three (3) padlocks. Padlocks not furnished
- Control Transformer furnished (120 VAC secondary) with fused secondary (fused primary above 50 Amps) - Transformer fuses furnished
- HAND - OFF - AUTO (HOA) Selector Switch
- 2-Point Terminal Block for connecting remote ENABLE contact in the “AUTO” position. (ENABLE contact is NOT furnished)
- Reset in door for Overload Relay
- Wired and ready to install
- Components are UL, cUL, UR, cUR
- Power fuses optional - See page 72

NOTE: Weights shown are APPROXIMATE and do NOT include any packing materials

460 Volt Three Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	0.67 - 1.0	30	#10	30	CC	14 x 12 x 8	24	**141974**	14 x 12 x 8	28	**141990**
1/2	S11	1.0 - 1.5	30	#10	30	CC	14 x 12 x 8	24	**141975**	14 x 12 x 8	28	**141991**
3/4	S11	1.4 - 2.1	30	#10	30	CC	14 x 12 x 8	24	**141976**	14 x 12 x 8	28	**141992**
1	S11	1.8 - 2.7	30	#10	30	CC	14 x 12 x 8	24	**141977**	14 x 12 x 8	28	**141993**
1 1/2	S11	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	24	**141978**	14 x 12 x 8	28	**141994**
2	S11	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	24	**141979**	14 x 12 x 8	28	**141995**
3	S11	4.0 - 6.0	30	#10	30	CC	14 x 12 x 8	24	**141980**	14 x 12 x 8	28	**141996**
5	S11	5.5 - 8.5	30	#10	30	CC	16 x 12 x 8	26	**141981**	16 x 14 x 8	34	**141997**
7 1/2	S11	8.5 - 12.5	30	#10	30	CC	16 x 16 x 8	31	**141982**	16 x 14 x 8	34	**141998**
10	S11	12.5 - 18	30	#10	30	CC	16 x 16 x 8	31	**141983**	16 x 14 x 8	34	**141999**
15	S18	17 - 24	40	#10	60	J	16 x 16 x 8	32	**141984**	16 x 14 x 8	35	**142000**
20	S18	22 - 30	40	#8	60	J	16 x 16 x 8	32	**141985**	16 x 14 x 8	35	**142001**
25	S25	30 - 40	63	#6	60	J	16 x 16 x 8	34	**141986**	16 x 14 x 8	37	**142002**
30	S25	37 - 50	63	#6	60	J	16 x 16 x 8	34	**141987**	16 x 14 x 8	37	**142003**
40	S25	48 - 65	63	#6	100	J	24 x 20 x 8	53	**141988**	24 x 20 x 9	66	**142004**
50	C65	63 - 80	100	#1	100	J	24 x 20 x 8	57	**141989**	24 x 20 x 9	70	**142005**
60	C80	63 - 80	100	#1	200	J	NA	28	**NA**	30 x 24 x 9	93	**142006**

MOTOR HP	CONT.	O/L Amp RANGE	DISCONNECT SIZE (Amps)	MAX WIRE SIZE	FUSE HOLDER		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					SIZE	TYPE	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	0.67 - 1.0	30	#10	30	CC	14 x 12 x 8	25	**142007**	14x 12 x7.75	23	**142024**
1/2	S11	1.0 - 1.5	30	#10	30	CC	14 x 12 x 8	25	**142008**	14x 12 x7.75	23	**142025**
3/4	S11	1.4 - 2.1	30	#10	30	CC	14 x 12 x 8	25	**142009**	14x 12 x7.75	23	**142026**
1	S11	1.8 - 2.7	30	#10	30	CC	14 x 12 x 8	25	**142010**	14x 12 x7.75	23	**142027**
1 1/2	S11	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	25	**142011**	14x 12 x7.75	23	**142028**
2	S11	2.4 - 3.6	30	#10	30	CC	14 x 12 x 8	25	**142012**	14x 12 x7.75	23	**142029**
3	S11	4.0 - 6.0	30	#10	30	CC	14 x 12 x 8	25	**142013**	14x 12 x7.75	23	**142030**
5	S11	5.5 - 8.5	30	#10	30	CC	14 x 12 x 8	25	**142014**	14x 12 x7.75	23	**142031**
7 1/2	S11	8.5 - 12.5	30	#10	30	CC	14 x 12 x 8	25	**142015**	14x 12 x7.75	23	**142032**
10	S11	12.5 - 18	30	#10	30	CC	14 x 12 x 8	25	**142016**	14x 12 x7.75	23	**142033**
15	S18	17 - 24	40	#10	60	J	16 x 16 x 8	33	**142017**	16x 14 x9.75	26	**142034**
20	S18	22 - 30	40	#8	60	J	16 x 16 x 8	33	**142018**	16x 14 x9.75	26	**142035**
25	S25	30 - 40	63	#6	60	J	16 x 16 x 8	35	**142019**	16x 14 x9.75	28	**142036**
30	S25	37 - 50	63	#6	60	J	16 x 16 x 8	35	**142020**	16x 14 x9.75	28	**142037**
40	S25	48 - 65	63	#6	100	J	24 x 20 x 8	57	**142021**	24x 20 x9.75	47	**142038**
50	C65	63 - 80	100	#1	100	J	24 x 20 x 8	61	**142022**	24x 20 x9.75	51	**142039**
60	C80	63 - 80	100	#1	200	J	30 x 24 x 8	88	**142023**	30x 24 x9.75	66	**142040**

SIMPLEX CONSTANT FLOW PUMP PANEL with FUSED Disconnect

NOTE: THESE PANELS ARE DESIGNED TO CONTINUOUSLY OPERATE ONE PUMP.

OPTIONS AND MODIFICATIONS

NOTE: IF THE SIMPLEX CONSTANT FLOW PUMP PANEL HAS ANY OPTION OR MODIFICATION - THE ACI CATALOG NUMBER WILL CHANGE.
CONSULT FACTORY FOR CORRECT CATALOG NUMBER FOR ALL SIMPLEX TANK PUMP PANELS WITH OPTIONS OR MODIFICATIONS.

OPTIONAL ENCLOSURES

Type 3R Metal	For Protection against Windblown Rain
Type 4X Stainless Steel	For Protection against Corrosion

PANEL MODIFICATIONS

UL Panel Shop Label	UL508 Approval of the Starter Assembly
Unit Identification Label	To identify the Pump operated by the panel
Circuit Breaker Disconnect	To replace the standard FUSED Disconnect
Phase Monitor (3 Phase)	Electronic, for protection against: Low Voltage Phase Reversal Loss of Phase
24 VAC Control:	To replace standard 120 volt control
Pilot Light (std)	120 Volt Incandescent
Pilot Light (Push to TEST)	120 Volt Incandescent
Selector Switch	2 or 3 Position (specify function - specify std legend plate)
Auxiliary Contacts	1 Normally OPEN + 1 Normally CLOSED TOP MOUNTED on Contactor - Not Wired SIDE MOUNTED on Contactor - Not Wired
Class 20 Motor Overload	Applications with Long (>5 seconds) Starting Time

High or Low Water Alarms — For notification of HIGH or LOW water levels

a) BASIC ALARM Control Circuit:
   ALARM maintaining relay, pilot light and "RESET" button
b) ADVANCED ALARM Control Circuit:
   Basic Alarm Control Circuit PLUS Alarm horn relay, horn "Silence" button and terminals for remote horn (horn not furnished)
c) Top Mounted NON FLASHING ALARM Light:
   Requires either BASIC or ADVANCED ALARM Control Circuit (40 watt - Lamp not included)
d) Top Mounted Flashing ALARM Light:
   Requires either BASIC or ADVANCED ALARM Control Circuit (40 watt - Lamp not included)
e) Top Mounted STROBE ALARM Light:
   Requires either BASIC or ADVANCED ALARM Control Circuit
f) ALARM HORN:
   Requires ADVANCED ALARM Control Circuit - 90 dbA at 1 meter, 120 volt, door mounted

Fused Transformer Primary	When Motor Circuit protection is below 50 Amps
Hour Meter	6 Digit - Non Resetable, 120 volt
GFCI Convenience Outlet	15 Amp, 120 Volt, mounted in the side of the enclosure
Unit Identification Label	To identify the specific Panel

ADDITIONAL OPTIONS AND MODIFICATIONS ARE AVAILABLE
CONSULT FACTORY WITH YOUR REQUIREMENTS

Constant Flow Pump Panel Worksheet

Advance Controls, Inc.
4505 18th Street East • Bradenton, FL 34203
800.559.9ACI (9224) • Fax: 941.746.3466
http://www.HVACiSpec.com • aci@HVACiSpec.com

Company: _____
Address: _____
Phone: _____ Fax: _____ E-Mail: _____
Project Name: _____ Number: _____
Location: _____ Tag Number: _____ Date: _____
Contractor: _____ Engineer: _____

☐ **Simplex** ☐ **Duplex**

Panel Design Data:

☐ Control Transformer
Motor HP: _____
Motor Voltage: _____
Motor Phase: _____
Motor Full Load Amps: _____
Panel Control Voltage: _____

Disconnect Switch:

☐ None ☐ Non-Fused
☐ Fused ☐ Other: _____

Enclosure:

☐ Metal ☐ Type 1 / 12
☐ Non-Metallic 4X ☐ Type 3R / 4

Control Devices:

☐ Alternation
☐ Low Flow Alarm Circuit
☐ Alarm Horn
☐ Other: _____
☐ LEAD 1 - LEAD 2
☐ Phase Monitor
☐ Hourmeter

Pilot Lights:

☐ LED ☐ Incandescent
Color: _____ Function: _____ Legend: _____
Color: _____ Function: _____ Legend: _____
Color: _____ Function: _____ Legend: _____
Color: _____ Function: _____ Legend: _____

Number of Auxiliary Contacts (on Contactors): NO _____ NC _____

I.D. Tags and UL Label: _____

_____

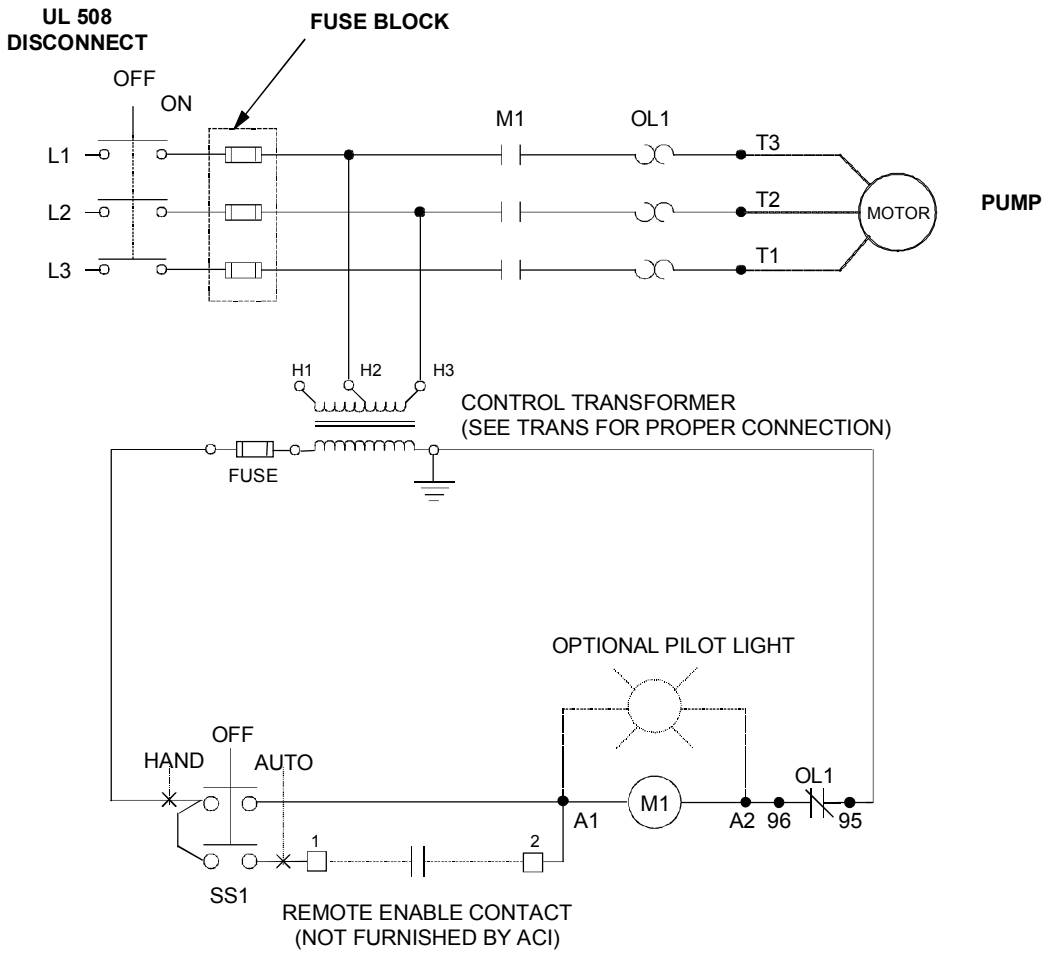
Additional Requirements / Comments: _____

_____

_____

IMPORTANT:
Any changes, modifications, additions or deletions otherwise noted in the above specifications may result in a delay in the quoting process.
Any changes made by the customer, after the specifications have been approved and / or the manufacturing process has commenced, may result in shipment delays and additional charges may be assessed.

Typical Wiring Diagram - Simplex Constant Flow Style Pump Panel



ADVANCE CONTROLS, INC.
4505 18TH STREET EAST BRADENTON, FL
941-746-3221

TYPICAL WIRING DIAGRAM
3 PHASE CONSTANT RUN PUMP PANEL
WITH FUSED DISCONNECT
CONTROL TRANSFORMER AND
H-O-A CONTROL

SCALE	DRAWN	DATE	DRAWING NUMBER	PAGE	REV
NONE	MJK	6/23/92	1013-3	1 OF 1	

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800.559.9ACI (9224) • Fax: 941.746.3466
http://www.HVACiSpec.com • aci@HVACiSpec.com

TYPICAL BID SPECIFICATION

ACI SIMPLEX CONSTANT FLOW PUMP PANEL

ITEM #1
All Simplex Constant Flow Pump Panels are to be furnished by Advance Controls, Inc., Bradenton, Florida.

ITEM #2
All Simplex Constant Flow Pump Panels shall include a FUSED IEC Style, UL Approved DISCONNECT SWITCH complete with a Door Mounted Lockable Handle Assembly.

ITEM #3
The Door Mounted Lockable Handle Assembly shall be able to accept up to THREE (3) padlocks (not furnished) to lock the Disconnect in the “OFF” position. The Handle Assembly shall interlock the enclosure door CLOSED in all except the “OFF” possition. A door interlock defeater shall NOT be provided.

ITEM #4
All Simplex Constant Flow Pump Panel Motor Starters are to be IEC Style, UL approved, with adjustable, bimetallic, UL Class 10 ambient compensated Overload Relays. Motor Starters with Overloads that require replaceable heater elements are not allowed. All Simplex Constant Flow Pump Panel Motor Starters shall have a wide voltage range coil with a minimum rating of +10% to -30% of the nominal 60 Hz voltage. All coils are to be suitable for 60/50 Hz.

ITEM #5
All Simplex Constant Flow Pump Panels are to be designed to operate with a remote ENABLE contact that allows the pump to operate when the HOA switch is in the “AUTO” position. The ENABLE contact is to be furnished and remotely installed by others.

ITEM #6
All Simplex Constant Flow Pump Panels are to be furnished standard with a HAND - OFF - AUTO (HOA) Selector Switch.

ITEM #7
All Simplex Constant Flow Pump Panels must be furnished in a Type 1, 12, 4 or 4X enclosure as required.

ITEM #8
All Simplex Constant Flow Pump Panels are to be specified, sized and installed per Advance Controls, Inc. recommendations.

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http://www.HVACiSpec.com • aci@HVACiSpec.com

Simplex Constant Flow Pump Panel Submittal

This Form: Page 1 of 1. *This Package: Page _____ of _____ .*

Project Name: _____ Number: _____
Location: _____ Tag Number: _____ Date: _____
Rep / Distributor: _____
Contractor: _____ Engineer: _____

Design Data:

Motor HP: _____ Voltage: _____ Phase: _____
Disconnect with Lockable Handle: ☐ Fused ☐ Non-Fused ☐ None
Disconnect Fuses: ☐ Not Included ☐ Included Type: _____
Amps: _____

Starter:

Contactor Inductive Amps: _____ Overload Amp Range (Amps): _____
Auxiliary Contacts supplied on Contactor (standard) NO: _____ NC: _____

Control Transformer: ☐ Yes ☐ No

Fused Secondary Standard • Fused Primary Required above 50 Amps

Primary Fuse Furnished: Type: _____ Size: _____ Amps
Secondary Fuse Furnished: Type: _____ Size: _____ Amps

Accessories:

H-O-A (Standard)
☐ Run Light - Red ☐ Stop Light - Green
☐ Phase Monitor ☐ LED Lamps
2 Point Terminal Block for Auto position of H-O-A (Standard)

Enclosure:

☐ Hinged Cover ☐ Screw Cover Type: _____ Size: _____

Special Features:

_____
_____
_____
_____
_____

Fuse Sizing Guide for Simplex Pump Control Panels with Fusible Disconnect

Please Note:

- This is a basic ***guide*** for sizing fuses. Specific installations may require different sizes
- ALL information shown is for standard duty, low inertia motors (<2 seconds Start Up Time)
- ALL fusing is to be installed in accordance with NEC and local codes
- ALL information contained in this document is derived from fuse manufacturer's information and industry practice
- Advance Controls, Inc. makes no claim concerning the accuracy or completeness of this Guide

Class CC Fuse – Time Delay

1. Determine the Full Load Amps (FLA) from the motor nameplate
2. Locate the Motor FLA in the chart below
3. Choose ACI Catalog Number for the fuse

EXAMPLE:

3 Horsepower, 230 Volt 3 Phase Motor
with an Acceleration Time = 5 Seconds.
Motor Full Load = 9.6 Amps.
At 10 Amp Full Load - 5 Sec column = 20 Amp Fuse
CATALOG NUMBER = 107600

FULL LOAD MOTOR AMPS (MAX)
BASED UPON ACCELERATION TIME

2 Sec	5 Sec	8 Sec	AMP SIZE	CATALOG NUMBER
0.2	0.2	0.2	1/4	**107594**
0.4	0.4	0.3	1/2	**107593**
0.6	0.5	0.5	8/10	**107615**
0.7	0.6	0.6	1	**107589**
1.0	0.9	0.8	1 1/4	**107591**
1.1	1.0	0.9	1 1/2	**107590**
1.3	1.1	1.0	1 8/10	**107592**
1.4	1.2	1.1	2	**107598**
2.1	2.1	1.8	2 1/2	**107599**
2.6	2.6	2.3	3	**107602**
3.4	3.2	2.8	4	**107605**
4.3	3.4	2.8	5	**107608**
5.2	4.0	3.4	6	**107610**
5.7	4.2	3.7	7	**107612**
6.2	4.6	4.2	8	**107614**
6.9	5.2	4.5	9	**107616**
7.7	5.8	4.9	10	**107595**
8.9	6.6	5.5	12	**107596**
10	7.7	6.7	15	**107597**
13.5	10	--	20	**107600**
15.8	11.8	--	25	**107601**
17.8	13.3	--	30	**107604**

Note: Fuses are sold in package quantities of 10
List Price is for **ONE** single fuse.

Class J Fuse – Time Delay

1. Determine the Full Load Amps (FLA) from the motor nameplate
2. Locate the Motor FLA in the chart below
3. Choose ACI Catalog Number for the fuse

EXAMPLE:

3 Horsepower, 230 Volt 3 Phase Motor.
Motor Full Load = 9.6 Amps.
At 8.01 - 9.80 Amp Full Load column = 12 Amp Fuse
CATALOG NUMBER 118866

FULL LOAD MOTOR AMPS (MAX)

MOTOR FLA	AMP SIZE	CATALOG NUMBER
0 - 0.6	8/10	**118848**
0.61 - 0.80	1	**118849**
0.81 - 1.00	1 1/4	**118850**
1.01 - 1.20	1 1/2	**118851**
1.21 - 1.65	2	**118854**
1.66 - 2.00	2 1/2	**118856**
2.01 - 2.40	3	**118858**
2.41 - 3.30	4	**118861**
3.31 - 4.10	5	**118862**
4.11 - 4.90	6	**118863**
4.91 - 6.40	8	**118864**
6.41 - 8.00	10	**118865**
8.01 - 9.80	12	**118866**
9.81 - 12.0	15	**118867**
12.1 - 14.5	17 1/2	**118868**
14.6 - 17.0	20	**117045**
17.1 - 21.0	25	**118869**
21.1 - 25.0	30	**107096**
25.1 - 28.5	35	**118870**
28.6 - 34.0	40	**107098**
34.1 - 37.0	45	**118871**
37.1 - 41.0	50	**118872**
41.1 - 48.0	60	**117044**
48.1 - 52.0	70	**107104**
52.1 - 59.0	80	**118873**
59.1 - 66.0	90	**118874**
66.1 - 76.0	100	**118875**
76.1 - 84.0	125	**118877**

Note: Fuses are sold in package quantities of 10
List Price is for **ONE** single fuse.

Advance Controls, Inc.
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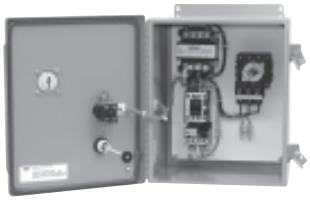
http://www.HVACiSpec.com • aci@HVACiSpec.com



Duplex Pump Control Panels

Tank Style • Constant Flow Style

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DUPLEX TANK STYLE PUMP PANEL with FUSED Disconnect

SINGLE PHASE

NOTE: THESE PANELS ARE DESIGNED TO FILL OR EMPTY A TANK. BOTH PUMPS CAN BE OPERATED AT THE SAME TIME

2 HP 230/60/1
TYPE 12

- For quick starting applications (<2 seconds)
- UL 508 Type IEC Style Disconnect Switch
- Disconnect Handle lockable the "OFF" position with up to three (3) padlocks. Padlocks not furnished
- Class J Motor Fuseblock for each motor
- IEC Style Motor Starter with adjustable UL Class 10 Motor Overload with door mounted "RESET" button for each motor
- Control transformer with 120 volt secondary standard on panels 208 Volt and above:
  Fused primary on panels above 50 Fused Amps (fuses included)
  Fused secondary (fuse included)
- HAND - OFF - AUTO (H-O-A) maintained Selector Switch for each motor
- Pilot Light, Red marked "ON" for each motor
- "LEAD 1 - LEAD 2" maintained Selector Switch
- Manual Alternation
- Terminal strip for connecting remote LEAD START, LAG START and STOP float switches, pressure switches, etc. (Switches are NOT furnished)
- Ground screw or lug
- Wired and ready to install
- Components are UL, cUL, UR, cUR
- Power fuses optional - See page 94

NOTE: Weights are APPROXIMATE and do NOT include any packing materials

EXAMPLES

- Potable Water Systems
- Sewage Systems
- Batching Tanks
- Evacuation Systems

120 Volt Single Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/4	S11	5.5 - 8.5	40	30	#8	#10	24 x 20 x 8	51	**141495**	24 x 16 x 8	50	**141502**
1/3	S11	5.5 - 8.5	40	30	#8	#10	24 x 20 x 8	51	**141496**	24 x 16 x 8	50	**141503**
1/2	S11	8.5 - 12.5	40	30	#8	#10	24 x 20 x 8	51	**141497**	24 x 16 x 8	50	**141504**
3/4	S11	12.5 - 18	40	30	#8	#10	24 x 20 x 8	51	**141498**	24 x 16 x 8	50	**141505**
1	S11	17 - 24	40	30	#8	#10	24 x 20 x 8	51	**141499**	24 x 16 x 8	50	**141506**
1 1/2	S11	17 - 24	40	30	#8	#8	24 x 20 x 8	51	**141500**	24 x 16 x 8	50	**141507**
2	S18	22 - 30	63	60	#3	#6	24 x 20 x 8	52	**141501**	24 x 16 x 8	51	**141508**
3	S25	30 - 40	100	60	#1	#1	NA	NA	**NA**	30 x 20 x 8	81	**141509**

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/4	S11	5.5 - 8.5	40	30	#8	#10	24 x 16 x 8	48	**141510**	24x 20 x9.75	45	**141518**
1/3	S11	5.5 - 8.5	40	30	#8	#10	24 x 16 x 8	48	**141511**	24x 20 x9.75	45	**141519**
1/2	S11	8.5 - 12.5	40	30	#8	#10	24 x 16 x 8	48	**141512**	24x 20 x9.75	45	**141520**
3/4	S11	12.5 - 18	40	30	#8	#10	24 x 16 x 8	48	**141513**	24x 20 x9.75	45	**141521**
1	S11	17 - 24	40	30	#8	#10	24 x 16 x 8	48	**141514**	24x 20 x9.75	45	**141522**
1 1/2	S11	17 - 24	40	30	#8	#10	24 x 16 x 8	48	**141515**	24x 20 x9.75	45	**141523**
2	S18	22 - 30	63	60	#3	#8	24 x 16 x 8	49	**141516**	24x 20 x9.75	46	**141524**
3	S25	30 - 40	100	60	#1	#6	30 x 20 x 8	76	**141517**	30x 24 x9.75	62	**141525**

Options and Modifications are available: See Page 79

DUPLEX TANK STYLE PUMP PANEL with FUSED Disconnect

SINGLE PHASE

NOTE: THESE PANELS ARE DESIGNED TO FILL OR EMPTY A TANK.
BOTH PUMPS CAN OPERATE AT THE SAME TIME

200/208 Volt Single Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE	
					IN	OUT
1/4	S11	2.4 - 3.6	40	30	#8	#10
1/3	S11	3.5 - 5.0	40	30	#8	#10
1/2	S11	4.0 - 6.0	40	30	#8	#10
3/4	S11	5.5 - 8.5	40	30	#8	#10
1	S11	8.5 - 12.5	40	30	#8	#10
1 1/2	S11	8.5 - 12.5	40	30	#8	#10
2	S11	12.5 - 18	40	30	#8	#10
3	S16	17 - 24	63	30	#3	#10
5	S18	23 - 32	100	60	#1	#8

TYPE 1 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
24 x 20 x 8	51	141526
24 x 20 x 8	51	141527
24 x 20 x 8	51	141528
24 x 20 x 8	51	141529
24 x 20 x 8	51	141530
24 x 20 x 8	51	141531
24 x 20 x 8	51	141532
24 x 20 x 8	52	141533
NA	NA	NA

TYPE 12 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
24 x 16 x 8	50	141535
24 x 16 x 8	50	141536
24 x 16 x 8	50	141537
24 x 16 x 8	50	141538
24 x 16 x 8	50	141539
24 x 16 x 8	50	141540
24 x 16 x 8	50	141541
24 x 16 x 8	51	141542
24 x 16 x 8	53	141543

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE	
					IN	OUT
1/4	S11	2.4 - 3.6	40	30	#8	#10
1/3	S11	3.5 - 5.0	40	30	#8	#10
1/2	S11	4.0 - 6.0	40	30	#8	#10
3/4	S11	5.5 - 8.5	40	30	#8	#10
1	S11	8.5 - 12.5	40	30	#8	#10
1 1/2	S11	8.5 - 12.5	40	30	#8	#10
2	S11	12.5 - 18	40	30	#8	#10
3	S16	17 - 24	63	30	#3	#10
5	S18	23 - 32	100	60	#1	#8

TYPE 4 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
24 x 16 x 8	48	141544
24 x 16 x 8	48	141545
24 x 16 x 8	48	141546
24 x 16 x 8	48	141547
24 x 16 x 8	48	141548
24 x 16 x 8	48	141549
24 x 16 x 8	48	141550
24 x 16 x 8	49	141551
24 x 16 x 8	51	141552

ENCLOSURE SIZE	WT	CATALOG NUMBER
24x 20 x9.75	45	141553
24x 20 x9.75	45	141554
24x 20 x9.75	45	141555
24x 20 x9.75	45	141556
24x 20 x9.75	45	141557
24x 20 x9.75	45	141558
24x 20 x9.75	45	141559
24x 20 x9.75	46	141560
24x 20 x9.75	48	141561

230 Volt Single Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE	
					IN	OUT
1/4	S11	2.4 - 3.6	40	30	#8	#10
1/3	S11	3.5 - 5.0	40	30	#8	#10
1/2	S11	4.0 - 6.0	40	30	#8	#10
3/4	S11	5.5 - 8.5	40	30	#8	#10
1	S11	5.5 - 8.5	40	30	#8	#10
1 1/2	S11	8.5 - 12.5	40	30	#8	#10
2	S11	8.5 - 12.5	40	30	#8	#10
3	S16	12.5 - 18	63	30	#3	#10
5	S18	22 - 30	100	60	#1	#8
7 1/2	S25	37-50	100	60	#1	#6

TYPE 1 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
24 x 20 x 8	51	141562
24 x 20 x 8	51	141563
24 x 20 x 8	51	141564
24 x 20 x 8	51	141565
24 x 20 x 8	51	141566
24 x 20 x 8	51	141567
24 x 20 x 8	51	141568
24 x 20 x 8	52	141569
24 x 20 x 8	52	141570
NA	NA	NA

TYPE 12 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
24 x 16 x 8	50	141572
24 x 16 x 8	50	141573
24 x 16 x 8	50	141574
24 x 16 x 8	50	141575
24 x 16 x 8	50	141576
24 x 16 x 8	50	141577
24 x 16 x 8	50	141578
24 x 16 x 8	51	141579
24 x 16 x 8	51	141580
30 x 20 x 8	81	141581

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE	
					IN	OUT
1/4	S11	2.4 - 3.6	40	30	#8	#10
1/3	S11	3.5 - 5.0	40	30	#8	#10
1/2	S11	4.0 - 6.0	40	30	#8	#10
3/4	S11	5.5 - 8.5	40	30	#8	#10
1	S11	5.5 - 8.5	40	30	#8	#10
1 1/2	S11	8.5 - 12.5	40	30	#8	#10
2	S11	8.5 - 12.5	40	30	#8	#10
3	S16	12.5 - 18	63	30	#3	#10
5	S18	22 - 30	100	60	#1	#8
7 1/2	S25	37 - 50	100	60	#1	#6

TYPE 4 METAL ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
24 x 16 x 8	48	141582
24 x 16 x 8	48	141583
24 x 16 x 8	48	141584
24 x 16 x 8	48	141585
24 x 16 x 8	48	141586
24 x 16 x 8	48	141587
24 x 16 x 8	48	141588
24 x 16 x 8	49	141589
24 x 16 x 8	49	141590
30 x 20 x 8	76	141591

TYPE 4X FIBERGLASS ENCLOSURE		
ENCLOSURE SIZE	WT	CATALOG NUMBER
24x 20 x9.75	45	141592
24x 20 x9.75	45	141593
24x 20 x9.75	45	141594
24x 20 x9.75	45	141595
24x 20 x9.75	45	141596
24x 20 x9.75	45	141597
24x 20 x9.75	45	141598
24x 20 x9.75	46	141599
24x 20 x9.75	46	141600
30x 20 x9.75	60	141601

HVAC2007

DUPLEX TANK STYLE PUMP PANEL with FUSED Disconnect

THREE PHASE

NOTE: THESE PANELS ARE DESIGNED TO FILL OR EMPTY A TANK. BOTH PUMPS CAN OPERATE AT THE SAME TIME

2 HP 200/208/60/3
TYPE 12

EXAMPLES

- Potable Water Systems
- Sewage Systems
- Batching Tanks
- Evacuation Systems

- For quick starting applications (<2 seconds)
- UL 508 Type IEC Style Disconnect Switch
- Disconnect Handle lockable the "OFF" position with up to three (3) padlocks. Padlocks not furnished
- Class J Motor Fuseblock for each motor
- IEC Style Motor Starter with adjustable IEC Style UL Class 10 Motor Overload with door mounted "RESET" button for each motor
- Control transformer with 120 volt secondary standard on panels 208 Volt and above:
  Fused primary on panels above 50 Fused Amps (fuses included)
  Fused secondary (fuse included)
- HAND - OFF - AUTO (H-O-A) maintained Selector Switch for each motor
- Pilot Light, Red marked "ON" for each motor
- "LEAD 1 - LEAD 2" maintained Selector Switch
- Manual Alternation
- Terminal strip for connecting remote LEAD START, LAG START and STOP float switches, pressure switches, etc. (Switches are NOT furnished)
- Ground screw or lug
- Wired and ready to install
- Components are UL, cUL, UR, cUR
- Power fuses optional - See page 94

NOTE: Weights are APPROXIMATE and do NOT include any packing materials

200/208 Volt Three Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	1.4 - 2.1	40	30	#8	#10	24 x 20 x 8	54	**141602**	24 x 16 x 8	53	**141612**
1/2	S11	1.8 - 2.7	40	30	#8	#10	24 x 20 x 8	54	**141603**	24 x 16 x 8	53	**141613**
3/4	S11	3.5 - 5.0	40	30	#8	#10	24 x 20 x 8	54	**141604**	24 x 16 x 8	53	**141614**
1	S11	4.0 - 6.0	40	30	#8	#10	24 x 20 x 8	54	**141605**	24 x 16 x 8	53	**141615**
1 1/2	S11	5.5 - 8.5	40	30	#8	#10	24 x 20 x 8	54	**141606**	24 x 16 x 8	53	**141616**
2	S11	5.5 - 8.5	40	30	#8	#10	24 x 20 x 8	54	**141607**	24 x 16 x 8	53	**141617**
3	S11	8.5 - 12.5	40	30	#8	#10	24 x 20 x 8	54	**141608**	24 x 16 x 8	53	**141618**
5	S16	12.5 - 18	40	30	#8	#10	24 x 20 x 8	54	**141609**	24 x 16 x 8	53	**141619**
7 1/2	S18	22 - 30	63	60	#3	#8	24 x 20 x 8	55	**141610**	24 x 16 x 8	54	**141620**
10	S18	30 - 40	100	60	#1	#8	24 x 20 x 8	56	**141611**	24 x 16 x 8	55	**141621**

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	1.4 - 2.1	40	30	#8	#10	24 x 16 x 8	51	**141622**	24x x20 x9.75	48	**141632**
1/2	S11	1.8 - 2.7	40	30	#8	#10	24 x 16 x 8	51	**141623**	24x x20 x9.75	48	**141633**
3/4	S11	3.5 - 5.0	40	30	#8	#10	24 x 16 x 8	51	**141624**	24x x20 x9.75	48	**141634**
1	S11	4.0 - 6.0	40	30	#8	#10	24 x 16 x 8	51	**141625**	24x x20 x9.75	48	**141635**
1 1/2	S11	5.5 - 8.5	40	30	#8	#10	24 x 16 x 8	51	**141626**	24x x20 x9.75	48	**141636**
2	S11	5.5 - 8.5	40	30	#8	#10	24 x 16 x 8	51	**141627**	24x x20 x9.75	48	**141637**
3	S11	8.5 - 12.5	40	30	#8	#10	24 x 16 x 8	51	**141628**	24x x20 x9.75	48	**141638**
5	S16	12.5 - 18	40	30	#8	#10	24 x 16 x 8	51	**141629**	24x x20 x9.75	49	**141639**
7 1/2	S18	22 - 30	63	60	#3	#8	24 x 16 x 8	52	**141630**	24x x20 x9.75	50	**141640**
10	S18	30 - 40	100	60	#1	#8	24 x 16 x 8	53	**141631**	24x x20 x9.75	55	**141641**

Options and Modifications are available: See Page 79

DUPLEX TANK STYLE PUMP PANEL with FUSED Disconnect

THREE PHASE

NOTE: THESE PANELS ARE DESIGNED TO FILL OR EMPTY A TANK. BOTH PUMPS CAN OPERATE AT THE SAME TIME

25 HP 230/60/3
TYPE 12

EXAMPLES

- Potable Water Systems
- Sewage Systems
- Batching Tanks
- Evacuation Systems

- For quick starting applications (<2 seconds)
- UL 508 Type IEC Style Disconnect Switch
- Disconnect Handle lockable the "OFF" position with up to three (3) padlocks. Padlocks not furnished
- Class J Motor Fuseblock for each motor
- IEC Style Motor Starter with adjustable IEC Style UL Class 10 Motor Overload with door mounted "RESET" button for each motor
- Control transformer with 120 volt secondary standard on panels 208 Volt and above:
  Fused primary on panels above 50 Fused Amps (fuses included)
  Fused secondary (fuse included)
- HAND - OFF - AUTO (H-O-A) maintained Selector Switch for each motor
- Pilot Light, Red marked "ON" for each motor
- "LEAD 1 - LEAD 2" maintained Selector Switch
- Manual Alternation
- Terminal strip for connecting remote LEAD START, LAG START and STOP float switches, pressure switches, etc. (Switches are NOT furnished)
- Ground screw or lug
- Wired and ready to install
- Components are UL, cUL, UR, cUR
- Power fuses optional - See page 94

NOTE: Weights are APPROXIMATE and do NOT include any packing materials

230 Volt Three Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	1.0 - 1.5	40	30	#8	#10	24 x 20 x 8	54	**141642**	24 x 16 x 8	53	**141653**
1/2	S11	1.8 - 2.7	40	30	#8	#10	24 x 20 x 8	54	**141643**	24 x 16 x 8	53	**141654**
3/4	S11	2.4 - 3.6	40	30	#8	#10	24 x 20 x 8	54	**141644**	24 x 16 x 8	53	**141655**
1	S11	3.5 - 5.0	40	30	#8	#10	24 x 20 x 8	54	**141645**	24 x 16 x 8	53	**141656**
1 1/2	S11	5.5 - 8.5	40	30	#8	#10	24 x 20 x 8	54	**141646**	24 x 16 x 8	53	**141657**
2	S11	5.5 - 8.5	40	30	#8	#10	24 x 20 x 8	54	**141647**	24 x 16 x 8	53	**141658**
3	S11	8.5 - 12.5	40	30	#8	#10	24 x 20 x 8	54	**141648**	24 x 16 x 8	53	**141659**
5	S16	12.5 - 18	40	30	#8	#10	24 x 20 x 8	54	**141649**	24 x 16 x 8	53	**141660**
7 1/2	S18	17 - 24	63	60	#3	#8	24 x 20 x 8	55	**141650**	24 x 16 x 8	54	**141661**
10	S18	22 - 30	100	60	#1	#8	24 x 20 x 8	55	**141651**	24 x 16 x 8	54	**141662**
15	S25	37 - 50	100	100	#1	#6	NA	NA	**NA**	30 x 20 x 8	86	**141663**

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	1.0 - 1.5	40	30	#8	#10	24 x 16 x 8	51	**141664**	24x 20 x9.75	48	**141675**
1/2	S11	1.8 - 2.7	40	30	#8	#10	24 x 16 x 8	51	**141665**	24x 20 x9.75	48	**141676**
3/4	S11	2.4 - 3.6	40	30	#8	#10	24 x 16 x 8	51	**141666**	24x 20 x9.75	48	**141677**
1	S11	3.5 - 5.0	40	30	#8	#10	24 x 16 x 8	51	**141667**	24x 20 x9.75	48	**141678**
1 1/2	S11	5.5 - 8.5	40	30	#8	#10	24 x 16 x 8	51	**141668**	24x 20 x9.75	48	**141679**
2	S11	5.5 - 8.5	40	30	#8	#10	24 x 16 x 8	51	**141669**	24x 20 x9.75	48	**141680**
3	S11	8.5 - 12.5	40	30	#8	#10	24 x 16 x 8	51	**141670**	24x 20 x9.75	48	**141681**
5	S16	12.5 - 18	40	30	#8	#10	24 x 16 x 8	51	**141671**	24x 20 x9.75	48	**141682**
7 1/2	S18	17 - 24	63	60	#3	#8	24 x 16 x 8	52	**141672**	24x 20 x9.75	49	**141683**
10	S18	22 - 30	100	60	#1	#8	24 x 16 x 8	52	**141673**	24x 20 x9.75	49	**141684**
15	S25	37 - 50	100	100	#1	#6	30 x 20 x 8	81	**141674**	30x 24 x9.75	67	**141685**

DUPLEX TANK STYLE PUMP PANEL with FUSED Disconnect

THREE PHASE

NOTE: THESE PANELS ARE DESIGNED TO FILL OR EMPTY A TANK. BOTH PUMPS CAN OPERATE AT THE SAME TIME

- For quick starting applications (<2 seconds)
- UL 508 Type IEC Style Disconnect Switch
- Disconnect Handle lockable the "OFF" position with up to three (3) padlocks. Padlocks not furnished
- Class J Motor Fuseblock for each motor
- IEC Style Motor Starter with adjustable IEC Style UL Class 10 Motor Overload with door mounted "RESET" button for each motor
- Control transformer with 120 volt secondary standard on panels 208 Volt and above:
  Fused primary on panels above 50 Fused Amps (fuses included)
  Fused secondary (fuse included)
- HAND - OFF - AUTO (H-O-A) maintained Selector Switch for each motor
- Pilot Light, Red marked "ON" for each motor
- "LEAD 1 - LEAD 2" maintained Selector Switch
- Manual Alternation
- Terminal strip for connecting LEAD START, LAG START and STOP float switches, pressure switches, etc.
- Ground screw or lug
- Wired and ready to install
- Components are UL, cUL, UR, cUR
- Power fuses optional - See page 94

NOTE: Weights are APPROXIMATE and do NOT include any packing materials

EXAMPLES

- Potable Water Systems
- Sewage Systems
- Batching Tanks
- Evacuation Systems

460 Volt Three Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	0.67 - 1.0	40	30	#8	#10	24 x 20 x 8	54	**141686**	24 x 16 x 8	53	**141700**
1/2	S11	1.0 - 1.5	40	30	#8	#10	24 x 20 x 8	54	**141687**	24 x 16 x 8	53	**141701**
3/4	S11	1.4 - 2.1	40	30	#8	#10	24 x 20 x 8	54	**141688**	24 x 16 x 8	53	**141702**
1	S11	1.8 - 2.7	40	30	#8	#10	24 x 20 x 8	54	**141689**	24 x 16 x 8	53	**141703**
1 1/2	S11	2.4 - 3.6	40	30	#8	#10	24 x 20 x 8	54	**141690**	24 x 16 x 8	53	**141704**
2	S11	2.4 - 3.6	40	30	#8	#10	24 x 20 x 8	54	**141691**	24 x 16 x 8	53	**141705**
3	S11	4.0 - 6.0	40	30	#8	#10	24 x 20 x 8	54	**141692**	24 x 16 x 8	53	**141706**
5	S11	5.5 - 8.5	40	30	#8	#10	24 x 20 x 8	54	**141693**	24 x 16 x 8	53	**141707**
7 1/2	S11	8.5 - 12.5	40	30	#8	#10	24 x 20 x 8	54	**141694**	24 x 16 x 8	53	**141708**
10	S11	12.5 - 18	40	30	#8	#10	24 x 20 x 8	54	**141695**	24 x 16 x 8	53	**141709**
15	S18	17 - 24	63	60	#3	#10	24 x 20 x 8	55	**141696**	24 x 16 x 8	54	**141710**
20	S18	22 - 30	100	60	#1	#8	24 x 20 x 8	55	**141697**	24 x 16 x 8	54	**141711**
25	S25	30 - 40	100	60	#1	#6	NA	NA	**NA**	30 x 20 x 8	84	**141712**
30	S25	37 - 50	100	60	#1	#6	NA	NA	**NA**	30 x 20 x 8	84	**141713**

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	0.67 - 1.0	40	30	#8	#10	24 x 16 x 8	51	**141714**	24x 20 x9.75	48	**141728**
1/2	S11	1.0 - 1.5	40	30	#8	#10	24 x 16 x 8	51	**141715**	24x 20 x9.75	48	**141729**
3/4	S11	1.4 - 2.1	40	30	#8	#10	24 x 16 x 8	51	**141716**	24x 20 x9.75	48	**141730**
1	S11	1.8 - 2.7	40	30	#8	#10	24 x 16 x 8	51	**141717**	24x 20 x9.75	48	**141731**
1 1/2	S11	2.4 - 3.6	40	30	#8	#10	24 x 16 x 8	51	**141718**	24x 20 x9.75	48	**141732**
2	S11	2.4 - 3.6	40	30	#8	#10	24 x 16 x 8	51	**141719**	24x 20 x9.75	48	**141733**
3	S11	4.0 - 6.0	40	30	#8	#10	24 x 16 x 8	51	**141720**	24x 20 x9.75	48	**141734**
5	S11	5.5 - 8.5	40	30	#8	#10	24 x 16 x 8	51	**141721**	24x 20 x9.75	48	**141735**
7 1/2	S11	8.5 - 12.5	40	30	#8	#10	24 x 16 x 8	51	**141722**	24x 20 x9.75	48	**141736**
10	S11	12.5 - 18	40	30	#8	#10	24 x 16 x 8	51	**141723**	24x 20 x9.75	48	**141737**
15	S18	17 - 24	63	60	#3	#10	24 x 16 x 8	52	**141724**	24x 20 x9.75	49	**141738**
20	S18	22 - 30	100	60	#1	#8	24 x 16 x 8	52	**141725**	24x 20 x9.75	49	**141739**
25	S25	30 - 40	100	60	#1	#6	30 x 20 x 8	79	**141726**	30x 24 x9.75	52	**141740**
30	S25	37 - 50	100	60	#1	#6	30 x 20 x 8	79	**141727**	30x 24 x9.75	65	**141741**

DUPLEX TANK STYLE PUMP PANEL with FUSED Disconnect

NOTE: THESE PANELS ARE DESIGNED TO FILL OR EMPTY A TANK.
BOTH PUMPS CAN BE OPERATED AT THE SAME TIME

OPTIONS AND MODIFICATIONS

NOTE: IF THE DUPLEX TANK PUMP PANEL HAS ANY OPTION OR MODIFICATION - THE ACI CATALOG NUMBER WILL CHANGE.
CONSULT FACTORY FOR CORRECT CATALOG NUMBER FOR ALL DUPLEX TANK PUMP PANELS WITH OPTIONS OR MODIFICATIONS.

OPTIONAL ENCLOSURES

Type 3R Metal	For Protection against Windblown Rain
Type 4X Stainless Steel	For Protection against Corrosion

PANEL MODIFICATIONS

Automatic Alternation	Exchange LEAD and LAG Pump - Alternates at Pump Shutdown
UL Panel Shop Label	UL508 Approval of the Starter Assembly
Unit Identification Label	To identify the pumps operated by the panel
Circuit Breaker Disconnect	To replace the standard Disconnect Switch
Phase Monitor (3 Phase)	Electronic for Protection Against: Low Voltage, Phase Reversal Loss of Phase
24 VAC Control:	To replace standard 120 volt control
Pilot Light (std)	120 Volt Incandescent
Pilot Light (Push to TEST)	120 Volt Incandescent
Selector Switch	2 or 3 Position (specify function - specify std legend)
Auxiliary Contacts	1 Normally OPEN + 1 Normally CLOSED TOP MOUNTED on Contactor - Not Wire SIDE MOUNTED on Contactor - Not Wired
Class 20 Motor Overload	Applications with Long (>5 seconds) Starting Time
High or Low Water Alarms	For notification of HIGH or LOW water levels

a) BASIC ALARM Control Circuit:
ALARM maintaining Relay, Pilot Light and "RESET" Button - NO PUMP ALTERNATION of pumps

b) BASIC ALARM / ALTERNATION Control Circuit with FORCED PUMP ALTERNATION

c) ADVANCED ALARM Control Circuit:
Basic Alarm Control Circuit PLUS Alarm Horn Relay, Horn "Silence" Button and terminals for remote Horn (horn not furnished)

d) ADVANCED ALARM / ALTERNATION Control Circuit with FORCED PUMP ALTERNATION:

e) Top Mounted NON FLASHING ALARM Light:
Requires either BASIC or ADVANCED ALARM Control Circuits shown above - 40 watt - Lamp not included

f) Top Mounted Flashing ALARM Light:
Requires either BASIC or ADVANCED ALARM Control Circuits shown above - 40 watt - Lamp not included

g) Top Mounted STROBE ALARM Light:
Requires either BASIC or ADVANCED ALARM Control Circuits shown above

h) ALARM HORN:
Requires ADVANCED ALARM Control Circuit shown above - 90 dbA at 1 meter, 120 volt, door mounted

Fused Transformer Primary	When Motor Circuit protection is below 50 Amps
Hour Meter	6 Digit - Non Resetable, 120 volt
GFCI Convenience Outlet	15 Amp, 120 Volt, mounted in enclosure side
Unit Identification Label	To identify the specific Pump or Panel

ADDITIONAL OPTIONS AND MODIFICATIONS ARE AVAILABLE
CONSULT FACTORY WITH YOUR REQUIREMENTS

Duplex Tank Style Pump Panel Worksheet

Advance Controls, Inc.
4505 18th Street East • Bradenton, FL 34203
800.559.9ACI (9224) • Fax: 941.746.3466
http://www.HVACiSpec.com • aci@HVACiSpec.com

Company: _____
Address: _____
Phone: _____ Fax: _____ E-Mail: _____
Project Name: _____ Number: _____
Location: _____ Tag Number: _____ Date: _____
Contractor: _____ Engineer: _____

☐ **Duplex**

Panel Design Data:

☐ Control Transformer
Motor HP: _____
Motor Voltage: _____
Motor Phase: _____
Motor Full Load Amps: _____
Panel Control Voltage: _____

Disconnect Switch:

☐ None ☐ Non-Fused
☐ Fused ☐ Other: _____

Enclosure:

☐ Metal ☐ Type 1 / 12
☐ Non-Metallic 4X ☐ Type 3R / 4

Control Devices:

☐ Alternation ☐ LEAD 1 - LEAD 2
☐ Low/High Water Alarm Circuit ☐ Phase Monitor
☐ Alarm Horn ☐ Hourmeter
☐ Other: _____

Pilot Lights:

☐ LED ☐ Incandescent
Color: _____ Function: _____ Legend: _____
Color: _____ Function: _____ Legend: _____
Color: _____ Function: _____ Legend: _____
Color: _____ Function: _____ Legend: _____

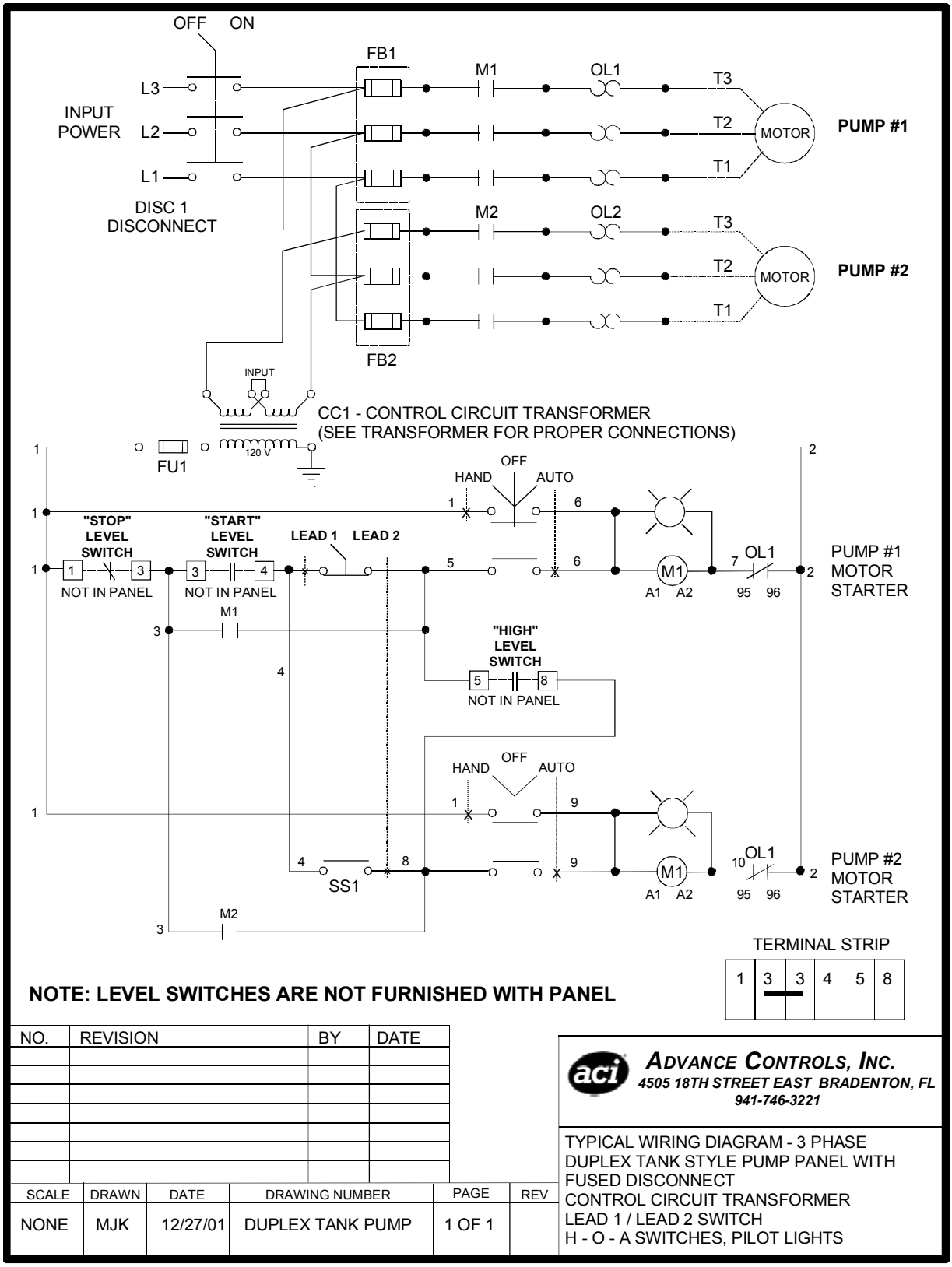
Number of Auxiliary Contacts (on Contactors): NO _____ NC _____

I. D. Tag and UL Labels: _____

Additional Requirements / Comments: _____

IMPORTANT:
Any changes, modifications, additions or deletions otherwise noted in the above specifications may result in a delay in the quoting process.
Any changes made by the customer, after the specifications have been approved and / or the manufacturing process has commenced, may result in shipment delays and additional charges may be assessed.

Typical Wiring Diagram - Duplex Tank Style Pump Panel



NOTE: LEVEL SWITCHES ARE NOT FURNISHED WITH PANEL

NO.	REVISION	BY	DATE

SCALE	DRAWN	DATE	DRAWING NUMBER	PAGE	REV
NONE	MJK	12/27/01	DUPLEX TANK PUMP	1 OF 1	

ADVANCE CONTROLS, INC.
4505 18TH STREET EAST BRADENTON, FL
941-746-3221

TYPICAL WIRING DIAGRAM - 3 PHASE
DUPLEX TANK STYLE PUMP PANEL WITH
FUSED DISCONNECT
CONTROL CIRCUIT TRANSFORMER
LEAD 1 / LEAD 2 SWITCH
H - O - A SWITCHES, PILOT LIGHTS

Advance Controls, Inc.
4505 18th Street East • Bradenton, FL 34203
800.559.9ACI (9224) • Fax: 941.746.3466
http://www.HVACiSpec.com • aci@HVACiSpec.com

TYPICAL BID SPECIFICATION

ACI DUPLEX TANK Style PUMP PANEL

ITEM #1
All Duplex Tank Pump Panels are to be furnished by Advance Controls, Inc., Bradenton, Florida.

ITEM #2
All Duplex Tank Pump Panels are to be furnished with a UL508 style IEC Type Disconnect Switch with a Through the Door Lockable Handle Assembly. The Handle Assembly must be lockable in the "OFF" position with up to 3 padlocks (not furnished). The Handle Assembly shall have a door interlock that locks the enclosure door CLOSED in all positions except the "OFF" position. Door interlock defeater is not acceptable. Side mount style disconnect switches are not allowed.

ITEM #3
The Duplex Tank Pump Panels are to be furnished with Two (2) Class J Fuse Blocks.

ITEM #4
All Duplex Tank Pump Panels are to be furnished with two IEC Style Motor Starters with adjustable, bimetallic, UL Class 10 ambient compensated Overload Relays. Starters that require replaceable heater elements are not allowed. Duplex Tank Pump Panels Motor Starters shall have a wide voltage range coil with a minimum +10% to -30% voltage range from the nominal 60 Hz voltage. All coils are to be 60/50 Hz.

ITEM #5
All Duplex Tank Pump Panels are to be designed to operate with THREE (3) Float Switches. One switch is the START the LEAD pump. The second switch is to STOP the pumps. The third is to START the LAG pump if the LEAD pump is unable to maintain an adaquate level. The Float Switches are to be furnished and remotely installed by others.

ITEM #6
All Duplex Tank Pump Panels are to be furnished standard with Two (2) door mounted "HAND-OFF-AUTO" maintained Selector Switches - one for each motor starter. The HOA switches shall be wired so that in the "HAND" position the pump will run irregardless of the condition of the float switches. In the "AUTO" position the pump will automatically operate in response to the float switches.

ITEM #7
All Duplex Tank Pump Panels are to be furnished standard with a door mounted "RUN" red Pilot Light.

ITEM #8
Duplex Tank Pump Panels are to be furnished standard with a door mounted "Lead 1 - Lead 2" Selector Switch to allow Manual Alternation of the pump motors

ITEM #9
All Duplex Tank Pump Panels must be furnished in a Type 1, 12, 4 or 4X enclosure as required.

ITEM #10
All Duplex Tank Pump Panels are to be specified, sized and installed per Advance Controls, Inc. recommendations.

Advance Controls, Inc.
4505 18th Street East • Bradenton, FL 34203
800.559.9ACI (9224) • Fax: 941.746.3466
http://www.HVACiSpec.com • aci@HVACiSpec.com

Duplex Tank Style Pump Panel Submittal

Project Name: _____ Number: _____
Location: _____ Tag Number: _____ Date: _____
Rep / Distributor: _____
Contractor: _____ Engineer: _____

Design Data:

Motor HP: _____ Voltage: _____ Phase: _____
Disconnect with Lockable Handle: ☐ Fused ☐ Non-Fused ☐ None
Disconnect Fuses: ☐ Not Included ☐ Included Type: _____
Amps: _____

Starter:

Contactor Inductive Amps: _____ Overload Amp Range (Amps): _____
Auxiliary Contacts supplied on Contactor (standard) NO: _____ NC: _____

Control Transformer: ☐ Yes ☐ No

Fused Secondary Standard • Fused Primary Required above 50 Amps

Primary Fuse Furnished: Type: _____ Size: _____ Amps
Secondary Fuse Furnished: Type: _____ Size: _____ Amps

Accessories:

H-O-A (Standard)
4 Point Terminal Block for Auto position of H-O-A (Standard)
Run Light - Red (Standard)
Lead 1 - Lead 2 (Standard)

Options:

☐ Alternation ☐ Phase Monitor
☐ Stop Light - Green ☐ LED Lamps

Enclosure:

☐ Hinged Cover (Type 4 is Standard) Type: _____ Size: _____

Special Features:

_____

_____

_____

_____

DUPLEX CONSTANT FLOW PUMP PANEL with FUSED Disconnect

SINGLE PHASE

NOTE: THESE PANELS ARE DESIGNED TO CONTINUOUSLY OPERATE ONE PUMP. BOTH PUMPS CAN *NOT* OPERATE AT THE SAME TIME

2 HP 230/60/1
TYPE 12

- For quick starting applications (<2 seconds)
- UL 508 Type IEC Style Disconnect Switch
- Disconnect Handle lockable the "OFF" position with up to three (3) padlocks. Padlocks not furnished
- Class J Motor Fuseblock for each motor
- IEC Style Motor Starter with adjustable UL Class 10 Motor Overload with door mounted "RESET" button for each motor
- Control transformer with 120 volt secondary standard on panels 208 Volt and above:
  Fused primary on panels above 50 Fused Amps (fuses included)
  Fused secondary (fuse included)
- HAND - OFF - AUTO (H-O-A) maintained Selector Switch for each motor
- Pilot Light, Red marked "ON" for each motor
- "LEAD 1 - LEAD 2" maintained Selector Switch
- Manual Alternation
- 2 Point Terminal Strip for connecting remote ENABLE" contact (contact not furnished)
- Ground screw or lug
- Wired and ready to install
- Components are UL, cUL, UR, cUR
- Power fuses optional - See page 94

NOTE: Weights are APPROXIMATE and do NOT include any packing materials

EXAMPLES

- Closed Circuit Fluid Cooler
- Boiler Feed Pumps
- Condensate Feed Pumps
- Circulating Pumps

120 Volt Single Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/4	S11	5.5 - 8.5	40	30	#8	#10	24 x 20 x 8	51	**142041**	24 x 16 x 8	50	**142050**
1/3	S11	5.5 - 8.5	40	30	#8	#10	24 x 20 x 8	51	**142043**	24 x 16 x 8	50	**142051**
1/2	S11	8.5 - 12.5	40	30	#8	#10	24 x 20 x 8	51	**142044**	24 x 16 x 8	50	**142052**
3/4	S11	12.5 - 18	40	30	#8	#10	24 x 20 x 8	51	**142045**	24 x 16 x 8	50	**142053**
1	S11	17 - 24	40	30	#8	#10	24 x 20 x 8	51	**142046**	24 x 16 x 8	50	**142054**
1 1/2	S11	17 - 24	40	30	#8	#10	24 x 20 x 8	51	**142047**	24 x 16 x 8	50	**142055**
2	S18	22 - 30	40	60	#8	#8	24 x 20 x 8	51	**142048**	24 x 16 x 8	50	**142056**
3	S25	30 - 40	63	60	#3	#6	24 x 20 x 8	55	**142049**	30 x 20 x 8	81	**142057**
5	C65	48 - 65	100	100	#1	#1	NA	NA	**NA**	36 x 24 x 8	108	**142058**

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/4	S11	5.5 - 8.5	40	30	#8	#10	24 x 16 x 8	48	**142059**	24x 20 x9.75	45	**142068**
1/3	S11	5.5 - 8.5	40	30	#8	#10	24 x 16 x 8	48	**142060**	24x 20 x9.75	45	**142069**
1/2	S11	8.5 - 12.5	40	30	#8	#10	24 x 16 x 8	48	**142061**	24x 20 x9.75	45	**142070**
3/4	S11	12.5 - 18	40	30	#8	#10	24 x 16 x 8	48	**142062**	24x 20 x9.75	45	**142071**
1	S11	17 - 24	40	30	#8	#10	24 x 16 x 8	48	**142063**	24x 20 x9.75	45	**142072**
1 1/2	S11	17 - 24	40	30	#8	#10	24 x 16 x 8	48	**142064**	24x 20 x9.75	45	**142073**
2	S18	22 - 30	40	60	#8	#8	24 x 16 x 8	48	**142065**	24x 20 x9.75	45	**142074**
3	S25	30 - 40	63	60	#3	#6	30 x 20 x 8	76	**142066**	30x 24 x9.75	62	**142075**
5	C65	48 - 65	100	100	#1	#1	36 x 24 x 8	105	**142067**	36x 24 x9.75	105	**142076**

Options and Modifications are available: See Page 89

DUPLEX CONSTANT FLOW PUMP PANEL with FUSED Disconnect

SINGLE PHASE

NOTE: THESE PANELS ARE DESIGNED TO CONTINUOUSLY OPERATE ONE PUMP. BOTH PUMPS CAN *NOT* OPERATE AT THE SAME TIME

200/208 Volt Single Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/4	S11	2.4 - 3.6	40	30	#8	#10	24 x 20 x 8	54	142077	24 x 16 x 8	53	142086
1/3	S11	3.5 - 5.0	40	30	#8	#10	24 x 20 x 8	54	142078	24 x 16 x 8	53	142087
1/2	S11	4.0 - 6.0	40	30	#8	#10	24 x 20 x 8	54	142079	24 x 16 x 8	53	142088
3/4	S11	5.5 - 8.5	40	30	#8	#10	24 x 20 x 8	54	142080	24 x 16 x 8	53	142089
1	S11	8.5 - 12.5	40	30	#8	#10	24 x 20 x 8	54	142081	24 x 16 x 8	53	142090
1 1/2	S11	8.5 - 12.5	40	30	#8	#10	24 x 20 x 8	54	142082	24 x 16 x 8	53	142091
2	S11	12.5 - 18	40	30	#8	#10	24 x 20 x 8	54	142083	24 x 16 x 8	53	142092
3	S16	17 - 24	40	30	#8	#10	24 x 20 x 8	54	142084	24 x 16 x 8	53	142093
5	S18	23 - 32	40	60	#8	#8	24 x 20 x 8	56	142085	24 x 16 x 8	55	142094
7.5	S25	37 - 50	63	100	#3	#6	NA	NA	NA	30 x 20 x 8	86	142095

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/4	S11	2.4 - 3.6	40	30	#8	#10	24 x 16 x 8	51	142096	24x 20 x9.75	48	142106
1/3	S11	3.5 - 5.0	40	30	#8	#10	24 x 16 x 8	51	142097	24x 20 x9.75	48	142107
1/2	S11	4.0 - 6.0	40	30	#8	#10	24 x 16 x 8	51	142098	24x 20 x9.75	48	142108
3/4	S11	5.5 - 8.5	40	30	#8	#10	24 x 16 x 8	51	142099	24x 20 x9.75	48	142109
1	S11	8.5 - 12.5	40	30	#8	#10	24 x 16 x 8	51	142100	24x 20 x9.75	48	142110
1 1/2	S11	8.5 - 12.5	40	30	#8	#10	24 x 16 x 8	51	142101	24x 20 x9.75	48	142111
2	S11	12.5 - 18	40	30	#8	#10	24 x 16 x 8	51	142102	24x 20 x9.75	48	142112
3	S16	17 - 24	40	30	#8	#10	24 x 16 x 8	51	142103	24x 20 x9.75	48	142113
5	S18	23 - 32	40	60	#8	#8	24 x 16 x 8	53	142104	24x 20 x9.75	50	142114
7.5	S25	37 - 50	63	100	#3	#6	30 x 20 x 8	79	142105	30x 24 x9.75	65	142115

230 Volt Single Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/4	S11	2.4 - 3.6	40	30	#8	#10	24 x 20 x 8	54	142116	24 x 16 x 8	53	142125
1/3	S11	3.5 - 5.0	40	30	#8	#10	24 x 20 x 8	54	142117	24 x 16 x 8	53	142126
1/2	S11	4.0 - 6.0	40	30	#8	#10	24 x 20 x 8	54	142118	24 x 16 x 8	53	142127
3/4	S11	5.5 - 8.5	40	30	#8	#10	24 x 20 x 8	54	142119	24 x 16 x 8	53	142128
1	S11	5.5 - 8.5	40	30	#8	#10	24 x 20 x 8	54	142120	24 x 16 x 8	53	142129
1 1/2	S11	8.5 - 12.5	40	30	#8	#10	24 x 20 x 8	54	142121	24 x 16 x 8	53	142130
2	S11	8.5 - 12.5	40	30	#8	#10	24 x 20 x 8	54	142122	24 x 16 x 8	53	142131
3	S16	12.5 - 18	63	30	#3	#10	24 x 20 x 8	54	142123	24 x 16 x 8	53	142132
5	S18	22 - 30	100	60	#1	#8	24 x 20 x 8	55	142124	24 x 16 x 8	54	142133
7 1/2	S25	37 - 50	100	60	#1	#6	NA	NA	NA	30 x 20 x 8	84	142134

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/4	S11	2.4 - 3.6	40	30	#8	#10	24 x 16 x 8	51	142135	24x 20 x9.75	48	142146
1/3	S11	3.5 - 5.0	40	30	#8	#10	24 x 16 x 8	51	142136	24x 20 x9.75	48	142147
1/2	S11	4.0 - 6.0	40	30	#8	#10	24 x 16 x 8	51	142137	24x 20 x9.75	48	142148
3/4	S11	5.5 - 8.5	40	30	#8	#10	24 x 16 x 8	51	142138	24x 20 x9.75	48	142149
1	S11	5.5 - 8.5	40	30	#8	#10	24 x 16 x 8	51	142139	24x 20 x9.75	48	142150
1 1/2	S11	8.5 - 12.5	40	30	#8	#10	24 x 16 x 8	51	142140	24x 20 x9.75	48	142151
2	S11	8.5 - 12.5	40	30	#8	#10	24 x 16 x 8	51	142141	24x 20 x9.75	48	142152
3	S16	12.5 - 18	63	30	#3	#10	24 x 16 x 8	51	142143	24x 20 x9.75	48	142153
5	S18	22 - 30	100	60	#1	#8	24 x 16 x 8	52	142144	24x 20 x9.75	49	142154
7 1/2	S25	37 - 50	100	60	#1	#6	30 x 20 x 8	79	142145	30x 20 x9.75	65	142155

HVAC2007

DUPLEX CONSTANT FLOW PUMP PANEL with FUSED Disconnect

THREE PHASE

NOTE: THESE PANELS ARE DESIGNED TO CONTINUOUSLY OPERATE ONE PUMP. BOTH PUMPS CAN *NOT* OPERATE AT THE SAME TIME

2 HP 200/60/3
TYPE 12

EXAMPLES

- Closed Circuit Fluid Cooler
- Boiler Feed Pumps
- Condensate Feed Pumps
- Circulating Pumps

- For quick starting applications (<2 seconds)
- UL 508 Type IEC Style Disconnect Switch
- Disconnect Handle lockable the "OFF" position with up to three (3) padlocks. Padlocks not furnished
- Class J Motor Fuseblock for each motor
- IEC Style Motor Starter with adjustable UL Class 10 Motor Overload with door mounted "RESET" button for each motor
- Control transformer with 120 volt secondary standard on panels 208 Volt and above:
  Fused primary on panels above 50 Fused Amps (fuses included)
  Fused secondary (fuse included)
- HAND - OFF - AUTO (H-O-A) maintained Selector Switch for each motor
- Pilot Light, Red marked "ON" for each motor
- "LEAD 1 - LEAD 2" maintained Selector Switch
- Manual Alternation
- 2 Point Terminal Strip for connecting remote ENABLE" contact (contact not furnished)
- Ground screw or lug
- Wired and ready to install
- Components are UL, cUL, UR, cUR
- Power fuses optional - See page 94

NOTE: Weights are APPROXIMATE and do NOT include any packing materials

200/208 Volt Three Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	1.4 - 2.1	40	30	#8	#10	24 x 20 x 8	54	**142156**	24 x 16 x 8	53	**142166**
1/2	S11	1.8 - 2.7	40	30	#8	#10	24 x 20 x 8	54	**142157**	24 x 16 x 8	53	**142167**
3/4	S11	3.5 - 5.0	40	30	#8	#10	24 x 20 x 8	54	**142158**	24 x 16 x 8	53	**142168**
1	S11	4.0 - 6.0	40	30	#8	#10	24 x 20 x 8	54	**142159**	24 x 16 x 8	53	**142169**
1 1/2	S11	5.5 - 8.5	40	30	#8	#10	24 x 20 x 8	54	**142160**	24 x 16 x 8	53	**142170**
2	S11	5.5 - 8.5	40	30	#8	#10	24 x 20 x 8	54	**142161**	24 x 16 x 8	53	**142171**
3	S11	8.5 - 12.5	40	30	#8	#10	24 x 20 x 8	54	**142162**	24 x 16 x 8	53	**142172**
5	S16	12.5 - 18	40	30	#8	#10	24 x 20 x 8	54	**142163**	24 x 16 x 8	53	**142173**
7 1/2	S18	22 - 30	40	60	#8	#8	24 x 20 x 8	55	**142164**	24 x 16 x 8	54	**142174**
10	S18	30 - 40	40	60	#8	#8	24 x 20 x 8	56	**142165**	24 x 16 x 8	55	**142175**
15	S25	37 - 50	63	100	#3	#6	NA	NA	**NA**	30 x 20 x 8	86	**142176**
20	C65	48 - 65	100	100	#1	#1	NA	NA	**NA**	36 x 24 x 8	113	**142177**
25	C80	63 - 80	100	200	#1	#1	NA	NA	**NA**	42 x 30 x 8	162	**142178**

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	1.4 - 2.1	40	30	#8	#10	24 x 16 x 8	51	**142179**	24x 20 x9.75	48	**142192**
1/2	S11	1.8 - 2.7	40	30	#8	#10	24 x 16 x 8	51	**142180**	24x 20 x9.75	48	**142193**
3/4	S11	3.5 - 5.0	40	30	#8	#10	24 x 16 x 8	51	**142181**	24x 20 x9.75	48	**142194**
1	S11	4.0 - 6.0	40	30	#8	#10	24 x 16 x 8	51	**142182**	24x 20 x9.75	48	**142195**
1 1/2	S11	5.5 - 8.5	40	30	#8	#10	24 x 16 x 8	51	**142183**	24x 20 x9.75	48	**142196**
2	S11	5.5 - 8.5	40	30	#8	#10	24 x 16 x 8	51	**142184**	24x 20 x9.75	48	**142197**
3	S11	8.5 - 12.5	40	30	#8	#10	24 x 16 x 8	51	**142185**	24x 20 x9.75	48	**142198**
5	S16	12.5 - 18	40	30	#8	#10	24 x 16 x 8	51	**142186**	24x 20 x9.75	48	**142199**
7 1/2	S18	22 - 30	40	60	#8	#8	24 x 16 x 8	52	**142187**	24x 20 x9.75	49	**142200**
10	S18	30 - 40	40	60	#8	#8	24 x 16 x 8	53	**142188**	24x 20 x9.75	50	**142201**
15	S25	37 - 50	63	100	#3	#6	30 x 20 x 8	81	**142189**	30x 24 x9.75	67	**142202**
20	C65	48 - 65	100	100	#1	#1	36 x 24 x 8	110	**142190**	36x 24 x9.75	110	**142203**
25	C80	63 - 80	100	200	#1	#1	42 x 30 x 8	162	**142191**	48 x 36 x 12	157	**142204**

Options and Modifications are available: See Page 89

DUPLEX CONSTANT FLOW PUMP PANEL with FUSED Disconnect

THREE PHASE

NOTE: THESE PANELS ARE DESIGNED TO CONTINUOUSLY OPERATE ONE PUMP. BOTH PUMPS CAN *NOT* OPERATE AT THE SAME TIME

2 HP 200/60/3
TYPE 12

EXAMPLES

- Closed Circuit Fluid Cooler
- Boiler Feed Pumps
- Condensate Feed Pumps
- Circulating Pumps

- For quick starting applications (<2 seconds)
- UL 508 Type IEC Style Disconnect Switch
- Disconnect Handle lockable the "OFF" position with up to three (3) padlocks. Padlocks not furnished
- Class J Motor Fuseblock for each motor
- IEC Style Motor Starter with adjustable UL Class 10 Motor Overload with door mounted "RESET" button for each motor
- Control transformer with 120 volt secondary standard on panels 208 Volt and above:
  Fused primary on panels above 50 Fused Amps (fuses included)
  Fused secondary (fuse included)
- HAND - OFF - AUTO (H-O-A) maintained Selector Switch for each motor
- Pilot Light, Red marked "ON" for each motor
- "LEAD 1 - LEAD 2" maintained Selector Switch
- Manual Alternation
- 2 Point Terminal Strip for connecting remote ENABLE" contact (contact not furnished)
- Ground screw or lug
- Wired and ready to install
- Components are UL, cUL, UR, cUR
- Power fuses optional - See page 94

NOTE: Weights are APPROXIMATE and do NOT include any packing materials

230 Volt Three Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	1.0 - 1.5	40	30	#8	#10	24 x 20 x 8	54	**142205**	24 x 16 x 8	53	**142215**
1/2	S11	1.8 - 2.7	40	30	#8	#10	24 x 20 x 8	54	**142206**	24 x 16 x 8	53	**142216**
3/4	S11	2.4 - 3.6	40	30	#8	#10	24 x 20 x 8	54	**142207**	24 x 16 x 8	53	**142217**
1	S11	3.5 - 5.0	40	30	#8	#10	24 x 20 x 8	54	**142208**	24 x 16 x 8	53	**142218**
1 1/2	S11	5.5 - 8.5	40	30	#8	#10	24 x 20 x 8	54	**142209**	24 x 16 x 8	53	**142219**
2	S11	5.5 - 8.5	40	30	#8	#10	24 x 20 x 8	54	**142210**	24 x 16 x 8	53	**142220**
3	S11	8.5 - 12.5	40	30	#8	#10	24 x 20 x 8	54	**142211**	24 x 16 x 8	53	**142221**
5	S16	12.5 - 18	40	30	#8	#10	24 x 20 x 8	54	**142212**	24 x 16 x 8	53	**142222**
7 1/2	S18	17 - 24	40	60	#8	#8	24 x 20 x 8	55	**142213**	24 x 16 x 8	54	**142223**
10	S18	22 - 30	40	60	#8	#8	24 x 20 x 8	55	**142214**	24 x 16 x 8	54	**142224**
15	S25	37 - 50	63	100	#3	#6	NA	NA	**NA**	30 x 20 x 8	86	**142225**
20	C65	48 - 65	100	100	#1	#1	NA	NA	**NA**	36 x 24 x 8	113	**142226**
25	C80	63 - 80	100	200	#1	#1	NA	NA	**NA**	42 x 30 x 8	162	**142227**
30	C80	77 - 97	100	200	#1	#1	NA	NA	**NA**	42 x 30 x 8	162	**142228**

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	1.0 - 1.5	40	30	#8	#10	24 x 16 x 8	51	**142229**	24x 20 x9.75	48	**142243**
1/2	S11	1.8 - 2.7	40	30	#8	#10	24 x 16 x 8	51	**142230**	24x 20 x9.75	48	**142244**
3/4	S11	2.4 - 3.6	40	30	#8	#10	24 x 16 x 8	51	**142231**	24x 20 x9.75	48	**142245**
1	S11	3.5 - 5.0	40	30	#8	#10	24 x 16 x 8	51	**142232**	24x 20 x9.75	48	**142246**
1 1/2	S11	5.5 - 8.5	40	30	#8	#10	24 x 16 x 8	51	**142233**	24x 20 x9.75	48	**142247**
2	S11	5.5 - 8.5	40	30	#8	#10	24 x 16 x 8	51	**142234**	24x 20 x9.75	48	**142248**
3	S11	8.5 - 12.5	40	30	#8	#10	24 x 16 x 8	51	**142235**	24x 20 x9.75	48	**142249**
5	S16	12.5 - 18	40	30	#8	#10	24 x 16 x 8	51	**142236**	24x 20 x9.75	48	**142250**
7 1/2	S18	17 - 24	40	60	#8	#8	24 x 16 x 8	52	**142237**	24x 20 x9.75	49	**142251**
10	S18	22 - 30	40	60	#8	#8	24 x 16 x 8	52	**142238**	24x 20 x9.75	49	**142252**
15	S25	37 - 50	63	100	#3	#6	30 x 20 x 8	81	**142239**	30x 24 x9.75	67	**142253**
20	C65	48 - 65	100	100	#1	#1	36 x 24 x 8	110	**142240**	36x 24 x9.75	110	**142254**
25	C80	63 - 80	100	200	#1	#1	42 x 30 x 8	162	**142241**	48 x 36 x 12	157	**142255**
30	C80	77 - 97	100	200	#1	#1	42 x 30 x 8	162	**142242**	48 x 36 x 12	157	**142256**

DUPLEX CONSTANT FLOW PUMP PANEL with FUSED Disconnect

THREE PHASE

NOTE: THESE PANELS ARE DESIGNED TO CONTINUOUSLY OPERATE ONE PUMP. BOTH PUMPS CAN *NOT* OPERATE AT THE SAME TIME

- For quick starting applications (<2 seconds)
- UL 508 Type IEC Style Disconnect Switch
- Disconnect Handle lockable the "OFF" position with up to three (3) padlocks. Padlocks not furnished
- Class J Motor Fuseblock for each motor
- IEC Style Motor Starter with adjustable UL Class 10 Motor Overload with door mounted "RESET" button for each motor
- Control transformer with 120 volt secondary standard on panels 208 Volt and above:
  Fused primary on panels above 50 Fused Amps (fuses included)
  Fused secondary (fuse included)
- HAND - OFF - AUTO (H-O-A) maintained Selector Switch for each motor
- Pilot Light, Red marked "ON" for each motor
- "LEAD 1 - LEAD 2" maintained Selector Switch
- Manual Alternation
- 2 Point Terminal Strip for connecting remote ENABLE" contact (contact not furnished)
- Ground screw or lug
- Wired and ready to install
- Components are UL, cUL, UR, cUR
- Power fuses optional - See page 94

NOTE: Weights are APPROXIMATE and do NOT include any packing materials

EXAMPLES

- Closed Circuit Fluid Cooler
- Boiler Feed Pumps
- Condensate Feed Pumps
- Circulating Pumps

460 Volt Three Phase Motor

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 1 METAL ENCLOSURE			TYPE 12 METAL ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	0.67 - 1.0	40	30	#8	#10	24 x 20 x 8	54	**142257**	24 x 16 x 8	53	**142269**
1/2	S11	1.0 - 1.5	40	30	#8	#10	24 x 20 x 8	54	**142258**	24 x 16 x 8	53	**142270**
3/4	S11	1.4 - 2.1	40	30	#8	#10	24 x 20 x 8	54	**142259**	24 x 16 x 8	53	**142271**
1	S11	1.8 - 2.7	40	30	#8	#10	24 x 20 x 8	54	**142260**	24 x 16 x 8	53	**142272**
1 1/2	S11	2.4 - 3.6	40	30	#8	#10	24 x 20 x 8	54	**142261**	24 x 16 x 8	53	**142273**
2	S11	2.4 - 3.6	40	30	#8	#10	24 x 20 x 8	54	**142262**	24 x 16 x 8	53	**142274**
3	S11	4.0 - 6.0	40	30	#8	#10	24 x 20 x 8	54	**142263**	24 x 16 x 8	53	**142275**
5	S11	5.5 - 8.5	40	30	#8	#10	24 x 20 x 8	54	**142264**	24 x 16 x 8	53	**142276**
7 1/2	S11	8.5 - 12.5	40	30	#8	#10	24 x 20 x 8	54	**142265**	24 x 16 x 8	53	**142277**
10	S11	12.5 - 18	40	30	#8	#10	24 x 20 x 8	54	**142266**	24 x 16 x 8	53	**142278**
15	S18	17 - 24	40	60	#8	#10	24 x 20 x 8	54	**142267**	24 x 16 x 8	53	**142279**
20	S18	22 - 30	40	60	#8	#8	24 x 20 x 8	55	**142268**	24 x 16 x 8	54	**142280**
25	S25	30 - 40	63	60	#3	#6	NA	NA	**NA**	30 x 20 x 8	84	**142281**
30	S25	37 - 50	63	60	#3	#6	NA	NA	**NA**	30 x 20 x 8	84	**142282**
40	S25	48 - 65	63	100	#3	#6	NA	NA	**NA**	36 x 24 x 8	107	**142283**
50	C65	63 - 80	100	100	#1	#1	NA	NA	**NA**	36 x 24 x 8	113	**142284**
60	C80	63 - 80	100	200	#1	#1	NA	NA	**NA**	42 x 30 x 8	162	**142285**

MOTOR HP	CONT.	O/L Amp RANGE	DISC SIZE (Amps)	FUSE BLOCK (AMPS)	MAX WIRE		TYPE 4 METAL ENCLOSURE			TYPE 4X FIBERGLASS ENCLOSURE		
					IN	OUT	ENCLOSURE SIZE	WT	CATALOG NUMBER	ENCLOSURE SIZE	WT	CATALOG NUMBER
1/3	S11	0.67 - 1.0	40	30	#8	#10	24 x 16 x 8	51	**142286**	24x 20 x9.75	48	**142303**
1/2	S11	1.0 - 1.5	40	30	#8	#10	24 x 16 x 8	51	**142287**	24x 20 x9.75	48	**142304**
3/4	S11	1.4 - 2.1	40	30	#8	#10	24 x 16 x 8	51	**142288**	24x 20 x9.75	48	**142305**
1	S11	1.8 - 2.7	40	30	#8	#10	24 x 16 x 8	51	**142289**	24x 20 x9.75	48	**142306**
1 1/2	S11	2.4 - 3.6	40	30	#8	#10	24 x 16 x 8	51	**142290**	24x 20 x9.75	48	**142307**
2	S11	2.4 - 3.6	40	30	#8	#10	24 x 16 x 8	51	**142291**	24x 20 x9.75	48	**142308**
3	S11	4.0 - 6.0	40	30	#8	#10	24 x 16 x 8	51	**142292**	24x 20 x9.75	48	**142309**
5	S11	5.5 - 8.5	40	30	#8	#10	24 x 16 x 8	51	**142293**	24x 20 x9.75	48	**142310**
7 1/2	S11	8.5 - 12.5	40	30	#8	#10	24 x 16 x 8	51	**142294**	24x 20 x9.75	48	**142311**
10	S11	12.5 - 18	40	30	#8	#10	24 x 16 x 8	51	**142295**	24x 20 x9.75	48	**142312**
15	S18	17 - 24	40	60	#8	#10	24 x 16 x 8	51	**142296**	24x 20 x9.75	48	**142313**
20	S18	22 - 30	40	60	#8	#8	24 x 16 x 8	52	**142297**	24x 20 x9.75	49	**142314**
25	S25	30 - 40	63	60	#3	#6	30 x 20 x 8	79	**142298**	30x 24 x9.75	65	**142315**
30	S25	37 - 50	63	60	#3	#6	30 x 20 x 8	79	**142299**	30x 24 x9.75	65	**142316**
40	S25	48 - 65	63	100	#3	#6	36 x 24 x 8	104	**142300**	36x 24 x 9.75	104	**142317**
50	C65	63 - 80	100	100	#1	#1	36 x 24 x 8	110	**142301**	36x 24 x9.75	110	**142318**
60	C80	63 - 80	100	200	#1	#1	42 x 30 x 8	162	**142302**	42 x 36 x12	157	**142319**

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DUPLEX CONSTANT FLOW PUMP PANEL with FUSED Disconnect

NOTE: THESE PANELS ARE DESIGNED TO CONTINUOUSLY OPERATE ONE PUMP. BOTH PUMPS CAN *NOT* OPERATE AT THE SAME TIME

OPTIONS AND MODIFICATIONS

NOTE: IF THE DUPLEX TANK PUMP PANEL HAS ANY OPTION OR MODIFICATION - THE ACI CATALOG NUMBER WILL CHANGE.
CONSULT FACTORY FOR CORRECT CATALOG NUMBER FOR ALL DUPLEX TANK PUMP PANELS WITH OPTIONS OR MODIFICATIONS.

OPTIONAL ENCLOSURES

Type 3R Metal	For Protection against Windblown Rain
Type 4X Stainless Steel	For Protection against Corrosion

PANEL MODIFICATIONS

24 Hour Alternation	Alternates from LEAD to LAG Pump in a 24 Hour sequence
7 Day Alternation	Alternates from LEAD to LAG Pump in a 7 Day sequence
UL Panel Shop Label	UL508 Approval of the Starter Assembly
Unit Identification Label	To identify the pumps operated by the panel
Circuit Breaker Disconnect	To replace the standard Disconnect Switch
Phase Monitor (3 Phase)	Electronic for Protection Against: Low Voltage, Phase Reversal Loss of Phase
24 VAC Control:	To replace standard 120 volt control
Pilot Light (std)	120 Volt Incandescent
Pilot Light (Push to TEST)	120 Volt Incandescent
Selector Switch	2 or 3 Position (specify function - specify std legend)
Auxiliary Contacts	1 Normally OPEN + 1 Normally CLOSED TOP MOUNTED on Contactor - Not Wire SIDE MOUNTED on Contactor - Not Wired
Class 20 Motor Overload	Applications with Long (>5 seconds) Starting Time
High or Low Water Alarms	For notification of HIGH or LOW water levels

a) BASIC ALARM Control Circuit:
ALARM maintaining Relay, Pilot Light and "RESET" Button - NO PUMP ALTERNATION of pumps

b) BASIC ALARM / ALTERNATION Control Circuit with FORCED PUMP ALTERNATION:

c) ADVANCED ALARM Control Circuit:
Basic Alarm Control Circuit PLUS Alarm Horn Relay, Horn "Silence" Button and terminals for remote Horn (horn not furnished)

d) ADVANCED ALARM / ALTERNATION Control Circuit with FORCED PUMP ALTERNATION:

e) Top Mounted NON FLASHING ALARM Light:
Requires either BASIC or ADVANCED ALARM Control Circuits shown above - 40 watt - Lamp not included

f) Top Mounted Flashing ALARM Light:
Requires either BASIC or ADVANCED ALARM Control Circuits shown above - 40 watt - Lamp not included

g) Top Mounted STROBE ALARM Light:
Requires either BASIC or ADVANCED ALARM Control Circuits shown above

h) ALARM HORN:
Requires ADVANCED ALARM Control Circuit shown above - 90 dbA at 1 meter, 120 volt, door mounted

Fused Transformer Primary	When Motor Circuit protection is below 50 Amps
Hour Meter	6 Digit - Non Resetable, 120 volt
GFCI Convenience Outlet	15 Amp, 120 Volt, mounted in enclosure side
Unit Identification Label	To identify the specific Pump or Panel

ADDITIONAL OPTIONS AND MODIFICATIONS ARE AVAILABLE
CONSULT FACTORY WITH YOUR REQUIREMENTS

Constant Flow Pump Panel Worksheet

Advance Controls, Inc.
4505 18th Street East • Bradenton, FL 34203
800.559.9ACI (9224) • Fax: 941.746.3466
http://www.HVACiSpec.com • aci@HVACiSpec.com

Company: _____
Address: _____
Phone: _____ Fax: _____ E-Mail: _____
Project Name: _____ Number: _____
Location: _____ Tag Number: _____ Date: _____
Contractor: _____ Engineer: _____

☐ **Simplex** ☐ **Duplex**

Panel Design Data:

☐ Control Transformer
Motor HP: _____
Motor Voltage: _____
Motor Phase: _____
Motor Full Load Amps: _____
Panel Control Voltage: _____

Disconnect Switch:

☐ None ☐ Non-Fused
☐ Fused ☐ Other: _____

Enclosure:

☐ Metal ☐ Type 1 / 12
☐ Non-Metallic 4X ☐ Type 3R / 4

Control Devices:

☐ Alternation
☐ Low Flow Alarm Circuit
☐ Alarm Horn
☐ Other: _____
☐ LEAD 1 - LEAD 2
☐ Phase Monitor
☐ Hourmeter

Pilot Lights:

☐ LED ☐ Incandescent
Color: _____ Function: _____ Legend: _____
Color: _____ Function: _____ Legend: _____
Color: _____ Function: _____ Legend: _____
Color: _____ Function: _____ Legend: _____

Number of Auxiliary Contacts (on Contactors): NO _____ NC _____

I.D. Tags and UL Label: _____

_____

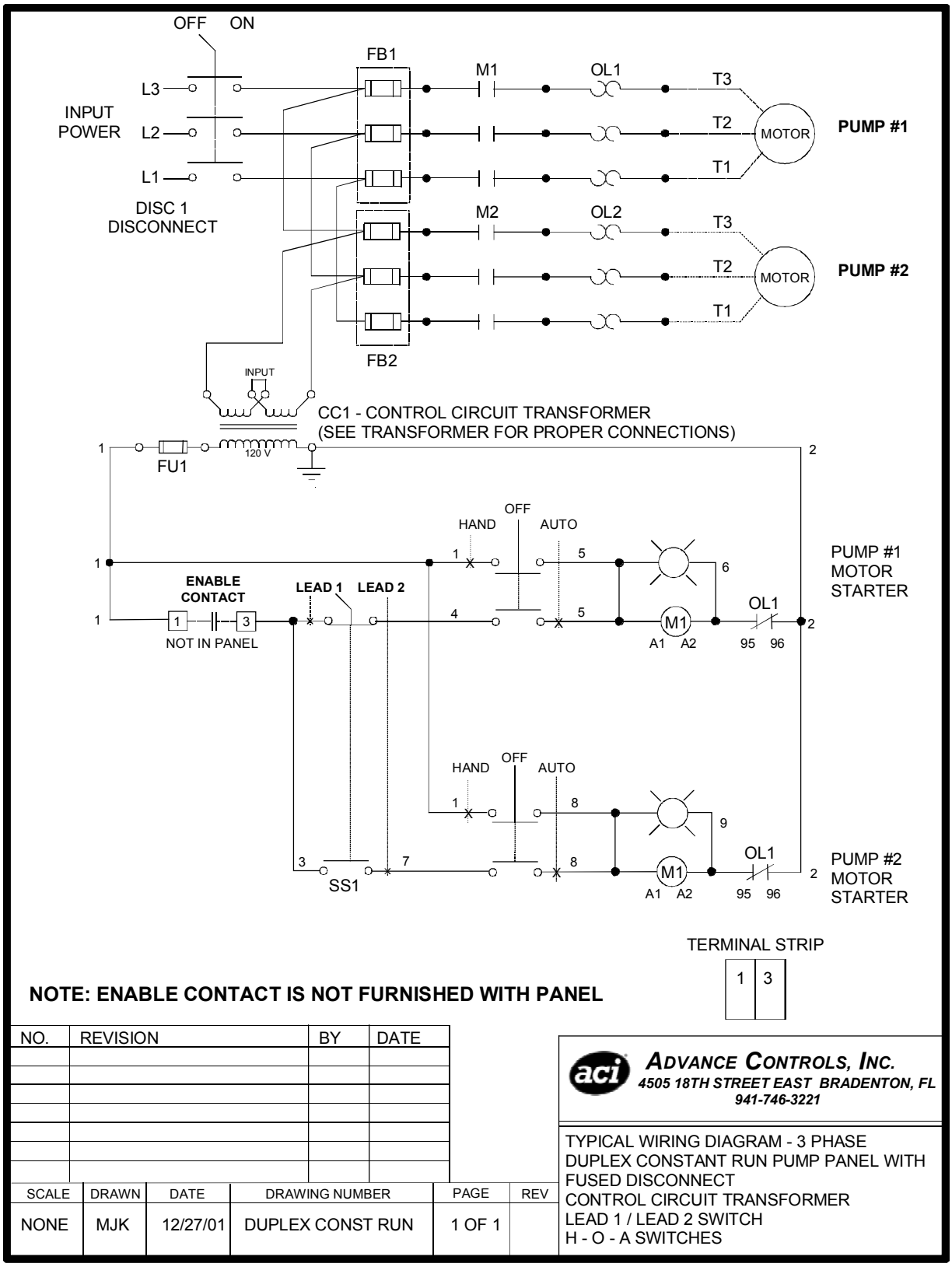
Additional Requirements / Comments: _____

_____

_____

IMPORTANT:
Any changes, modifications, additions or deletions otherwise noted in the above specifications may result in a delay in the quoting process.
Any changes made by the customer, after the specifications have been approved and / or the manufacturing process has commenced, may result in shipment delays and additional charges may be assessed.

Typical Wiring Diagram - Duplex Constant Fow Pump Panel



NOTE: ENABLE CONTACT IS NOT FURNISHED WITH PANEL

NO.	REVISION	BY	DATE

SCALE	DRAWN	DATE	DRAWING NUMBER	PAGE	REV
NONE	MJK	12/27/01	DUPLEX CONST RUN	1 OF 1	

ADVANCE CONTROLS, INC.
4505 18TH STREET EAST BRADENTON, FL
941-746-3221

TYPICAL WIRING DIAGRAM - 3 PHASE
DUPLEX CONSTANT RUN PUMP PANEL WITH
FUSED DISCONNECT
CONTROL CIRCUIT TRANSFORMER
LEAD 1 / LEAD 2 SWITCH
H - O - A SWITCHES

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TYPICAL BID SPECIFICATION

ACI DUPLEX CONSTANT FLOW PUMP PANEL

ITEM #1
All Duplex Constant Flow Pump Panels are to be furnished by Advance Controls, Inc., Bradenton, Florida.

ITEM #2
All Duplex Constant Flow Pump Panels are to be furnished with a UL508 style IEC Type Disconnect Switch with a Through the Door Lockable Handle Assembly. The Handle Assembly must be lockable in the "OFF" position with up to 3 padlocks (not furnished). The Handle Assembly shall have a door interlock that locks the enclosure door CLOSED in all positions except the "OFF" position. Door interlock defeater is not acceptable. Side mount style disconnect switches are not allowed.

ITEM #3
The Duplex Constant Flow Pump Panels are to be furnished with Two (2) Class J Fuse Blocks.

ITEM #4
All Duplex Constant Flow Pump Panels are to be furnished with two IEC Style Motor Starters with adjustable, bimetallic, UL Class 10 ambient compensated Overload Relays. Starters that require replaceable heater elements are not allowed. Duplex Constant Flow Pump Panels Motor Starters shall have a wide voltage range coil with a minimum +10% to -30% voltage range from the nominal 60 Hz voltage. All coils are to be 60/50 Hz.

ITEM #5
All Duplex Constant Flow Pump Panels are to be designed to operate with a remote ENABLE contact. The ENABLE contact is to be furnished and remotely installed by others.

ITEM #6
All Duplex Constant Flow Pump Panels are to be furnished standard with two (2) door mounted "HAND-OFF-AUTO" maintained Selector Switch - one for each motor starter. The HOA switch shall be wired so that in the "HAND" position the pump will run. In the "AUTO" position the pump will operate in response to the ENABLE contact.

ITEM #7
All Duplex Constant Flow Pump Panels are to be furnished standard with a door mounted "RUN" red Pilot Light.

ITEM #8
Duplex Constant Flow Pump Panels are to be furnished standard with a door mounted "Lead 1 - Lead 2" Selector Switch to allow Manual Alternation of the pump motors

ITEM #9
All Duplex Constant Flow Pump Panels must be furnished in a Type 1, 12, 4 or 4X enclosure as required.

ITEM #10
All Duplex Constant Flow Pump Panels are to be specified, sized and installed per Advance Controls, Inc. recommendations.

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Duplex Constant Flow Pump Panel Submittal

Project Name: _____ Number: _____
Location: _____ Tag Number: _____ Date: _____
Rep / Distributor: _____
Contractor: _____ Engineer: _____

Design Data:

Motor HP: _____ Voltage: _____ Phase: _____
Disconnect with Lockable Handle: ☐ Fused ☐ Non-Fused ☐ None
Disconnect Fuses: ☐ Not Included ☐ Included Type: _____
Amps: _____

Starter:

Contactor Inductive Amps: _____ Overload Amp Range (Amps): _____
Auxiliary Contacts supplied on Contactor (standard) NO: _____ NC: _____

Control Transformer: ☐ Yes ☐ No

Fused Secondary Standard • Fused Primary Required above 50 Amps

Primary Fuse Furnished: Type: _____ Size: _____ Amps
Secondary Fuse Furnished: Type: _____ Size: _____ Amps

Accessories:

H-O-A (Standard)
4 Point Terminal Block for Auto position of H-O-A (Standard)
Run Light - Red (Standard)
Lead 1 - Lead 2 (Standard)

Options:

☐ Alternation ☐ Phase Monitor
☐ Stop Light - Green ☐ LED Lamps

Enclosure:

☐ Hinged Cover (Type 4 is Standard) Type: _____ Size: _____

Special Features:

_____

_____

_____

_____

Fuse Sizing Guide for Simplex and Duplex Pump Panels with Fusible Disconnect

Please Note:

- This is a basic ***guide*** for sizing fuses. Specific installations may require different sizes
- ALL information shown is for standard duty, low inertia motors (<2 seconds Start Up Time)
- ALL fusing is to be installed in accordance with NEC and local codes
- ALL information contained in this document is derived from fuse manufacturer's information and industry practice
- Advance Controls, Inc. makes no claim concerning the accuracy or completeness of this Guide
- Simplex Panels - Single Phase requires 2 fuses per Panel Three Phase requires 3 fuses per Panel
- Duplex Panels - Single Phase requires 4 fuses per Panel Three Phase requires 6 fuses per Panel

Class CC Fuse – Time Delay

1. Determine the Full Load Amps (FLA) from the motor nameplate
2. Multiply the FLA by 2
3. Round to the nearest offered fuse size
4. Choose ACI Catalog Number for the fuse

Example:

1. Motor = 5 HP @ 480 VAC - Motor FLA = 7.6
2. FLA @ 7.6 Amps x 2 = 15.2 Amps
3. Round fuse size down to 15 Amps
4. Use ACI Catalog Number 107597
   15 Amp Class CC Time Delay

FULL LOAD MOTOR AMPS (MAX)
BASED UPON ACCELERATION TIME

2 Sec	5 Sec	8 Sec	AMP SIZE	CATALOG NUMBER
0.2	0.2	0.2	1/4	**107594**
0.4	0.4	0.3	1/2	**107593**
0.6	0.5	0.5	8/10	**107615**
0.7	0.6	0.6	1	**107589**
1.0	0.9	0.8	1 1/4	**107591**
1.1	1.0	0.9	1 1/2	**107590**
1.3	1.1	1.0	1 8/10	**107592**
1.4	1.2	1.1	2	**107598**
2.1	2.1	1.8	2 1/2	**107599**
2.6	2.6	2.3	3	**107602**
3.4	3.2	2.8	4	**107605**
4.3	3.4	2.8	5	**107608**
5.2	4.0	3.4	6	**107610**
5.7	4.2	3.7	7	**107612**
6.2	4.6	4.2	8	**107614**
6.9	5.2	4.5	9	**107616**
7.7	5.8	4.9	10	**107595**
8.9	6.6	5.5	12	**107596**
10	7.7	6.7	15	**107597**
13.5	10	--	20	**107600**
15.8	11.8	--	25	**107601**
17.8	13.3	--	30	**107604**

Note: Fuses are sold in package quantities of 10
List Price is for **ONE** single fuse.

Class J Fuse – Time Delay

1. Determine the Full Load Amps (FLA) from the motor nameplate
2. Multiply the FLA by 1.5
3. Round to the nearest offered fuse size
4. Choose ACI Catalog Number for the fuse

Example:

1. Motor = 5 HP @ 480 VAC - Motor FLA = 7.6
2. FLA @ 7.6 Amps x 1.5 = 11.4 Amps
3. Round fuse size up to 12 Amps (11 Amp n/a)
4. Use ACI Catalog Number 118866
   12 Amp Class J Time Delay

FULL LOAD MOTOR AMPS (MAX)

MOTOR FLA	AMP SIZE	CATALOG NUMBER
0 - 0.6	8/10	**118848**
0.61 - 0.80	1	**118849**
0.81 - 1.00	1 1/4	**118850**
1.01 - 1.20	1 1/2	**118851**
1.21 - 1.65	2	**118854**
1.66 - 2.00	2 1/2	**118856**
2.01 - 2.40	3	**118858**
2.41 - 3.30	4	**118861**
3.31 - 4.10	5	**118862**
4.11 - 4.90	6	**118863**
4.91 - 6.40	8	**118864**
6.41 - 8.00	10	**118865**
8.01 - 9.80	12	**118866**
9.81 - 12.0	15	**118867**
12.1 - 14.5	17 1/2	**118868**
14.6 - 17.0	20	**117045**
17.1 - 21.0	25	**118869**
21.1 - 25.0	30	**107096**
25.1 - 28.5	35	**118870**
28.6 - 34.0	40	**107098**
34.1 - 37.0	45	**118871**
37.1 - 41.0	50	**118872**
41.1 - 48.0	60	**117044**
48.1 - 52.0	70	**107104**
52.1 - 59.0	80	**118873**
59.1 - 66.0	90	**118874**
66.1 - 76.0	100	**118875**
76.1 - 84.0	125	**118877**

Note: Fuses are sold in package quantities of 10
List Price is for **ONE** single fuse.

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Air Curtain Controllers

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AIR CURTAIN CONTROLLER without DISCONNECT ONE TO FOUR MOTOR • 1/2 - 3 HP • THREE PHASE

- One (1) Motor Starter (IEC style) for EACH motor with adjustable UL Class 10 Thermal Overload Relay
- One (1) "RESET" button for EACH Thermal Overload mounted in door
- One (1) Control Transformer - 120 volt fused secondary (fuse furnished)
- One (1) "HAND-OFF-AUTO" Selector Switch mounted in door
- Type 4X UL Listed Non-Metallic Enclosure
- 4 Point Terminal Strip
- Wired - ready to install
- Components UL, cUL, CE

Typical Two Motor Air Curtain Controller available in optional Type 12 Enclosure
(Consult Factory)

How to Choose an Air Curtain Controller

- Determine Air Curtain Controller by the Number of Motors, Motor Voltage and Motor HP as shown below.
- Motor FULL LOAD AMPS must fall within the Overload Amp Range.
- Consult factory if required Overload Amp Range is other than shown.

200/208 Volt Three Phase Motor

MOTOR HP	OVERLOAD Amp RANGE	ONE MOTOR PANEL		TWO MOTOR PANEL		THREE MOTOR PANEL		FOUR MOTOR PANEL	
		ENCLOSURE SIZE/TYPE	CATALOG NUMBER	ENCLOSURE SIZE/TYPE	CATALOG NUMBER	ENCLOSURE SIZE/TYPE	CATALOG NUMBER	ENCLOSURE SIZE/TYPE	CATALOG NUMBER
1/4	1 - 1.5	A	137951	A	137958	B	137965	B	137979
1/3	1 - 1.5	A	137951	A	137958	B	137965	B	137979
1/2	1.8 - 2.7	A	137952	A	137959	B	137966	B	137980
3/4	2.4 - 3.6	A	137953	A	137960	B	137967	B	137981
1	3.5 - 5	A	137954	A	137961	B	137968	B	137982
1 1/2	5.5 - 8.5	A	137955	A	137962	B	137969	B	137983
2	5.5 - 8.5	A	137955	A	137962	B	137969	B	137983
3	8.5 - 12.5	A	137957	A	137964	B	137971	B	137985

230 Volt Three Phase Motor

MOTOR HP	OVERLOAD Amp RANGE	ONE MOTOR PANEL		TWO MOTOR PANEL		THREE MOTOR PANEL		FOUR MOTOR PANEL	
		ENCLOSURE SIZE/TYPE	CATALOG NUMBER	ENCLOSURE SIZE/TYPE	CATALOG NUMBER	ENCLOSURE SIZE/TYPE	CATALOG NUMBER	ENCLOSURE SIZE/TYPE	CATALOG NUMBER
1/4	1 - 1.5	A	137986	A	137993	B	138000	B	138007
1/3	1 - 1.5	A	137986	A	137993	B	138000	B	138007
1/2	1.8 - 2.7	A	137988	A	137995	B	138002	B	138009
3/4	2.4 - 3.6	A	137989	A	137996	B	138003	B	138010
1	3.5 - 5	A	137990	A	137997	B	138004	B	138011
1 1/2	4 - 6	A	137987	A	137994	B	138001	B	138008
2	5.5 - 8.5	A	137991	A	137998	B	138005	B	138012
3	8.5 - 12.5	A	137992	A	137999	B	138006	B	138013

460 Volt Three Phase Motor

MOTOR HP	OVERLOAD Amp RANGE	ONE MOTOR PANEL		TWO MOTOR PANEL		THREE MOTOR PANEL		FOUR MOTOR PANEL	
		ENCLOSURE SIZE/TYPE	CATALOG NUMBER	ENCLOSURE SIZE/TYPE	CATALOG NUMBER	ENCLOSURE SIZE/TYPE	CATALOG NUMBER	ENCLOSURE SIZE/TYPE	CATALOG NUMBER
1/4	.45 - .67	A	138014	A	138021	B	138028	B	138035
1/3	.45 - .67	A	138014	A	138021	B	138028	B	138035
1/2	.67 - 1.0	A	138015	A	138022	B	138029	B	138036
3/4	1.4 - 2.1	A	138016	A	138023	B	138030	B	138037
1	1.4 - 2.1	A	138016	A	138023	B	138030	B	138037
1 1/2	2.4 - 3.6	A	138018	A	138025	B	138032	B	138039
2	2.4 - 3.6	A	138018	A	138025	B	138032	B	138039
3	3.5 - 5.0	A	138020	A	138027	B	138034	B	138041

Enclosure Size/Type:

"A" = Type 4X - 11.8" x 8.7" x 5.9" - Lift Off Cover
"B" = Type 4X - 14" x 12" x 8"- Hinged Cover

Single Phase Units and Other Enclosure Types Available Refer to Factory

Options:

Phase Monitor: **ADD $261 to LIST PRICE**
24 VAC Control: **SAME LIST PRICE**
Pilot Light 120 volt: **ADD $49 to LIST PRICE** - Specify color

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TYPICAL BID SPECIFICATION

ACI AIR CURTAIN CONTROLLER WITHOUT DISCONNECT

ITEM #1
All Air Curtain Controllers are to be furnished by Advance Controls, Inc., Bradenton, Florida.

ITEM #2
All Air Curtain Controllers are to be furnished with an individual separate and complete motor starter for each air curtain motor.

ITEM #3
All Air Curtain Controller Motor Starters are to be IEC Style, UL Listed, with adjustable, bimetallic, UL Class 10 ambient compensated overload relays. Units that require replaceable heaters are not allowed. Motor Starters with UL Recognition (c UL us) are not allowed.

ITEM #4
All Air Curtain Controller Motor Starters shall have a wide voltage range coil with a minimum +10% to -30% voltage range based on the nominal 60Hz voltage. All coils are to be rated for 60/50 Hz.

ITEM #5
All Air Curtain Controllers are to be furnished standard with a control circuit transformer on all units with an input voltage above 120 Volts. The Control Transformer is to have a fused secondary as standard. The secondary fuse to be furnished.

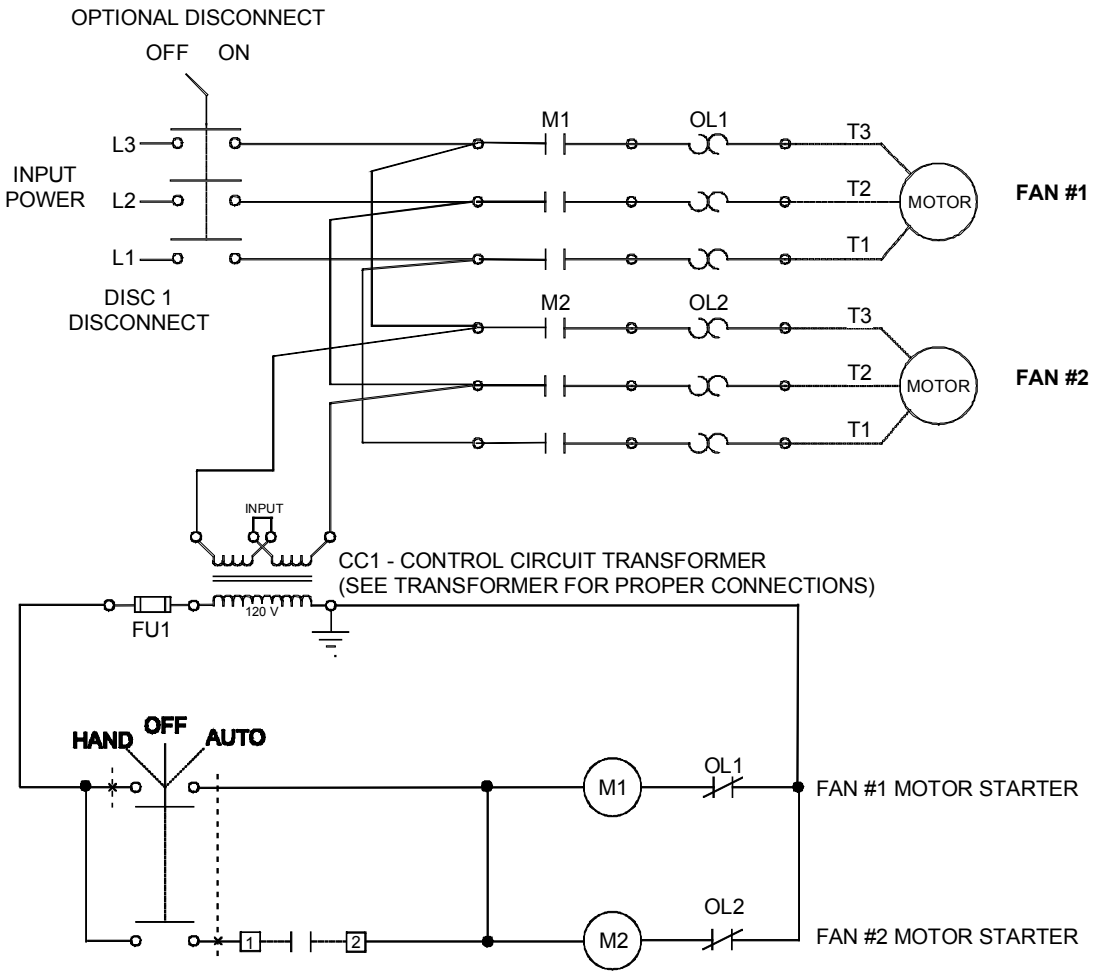
ITEM #6
All Air Curtain Controllers are to be furnished standard with a cover mounted “HAND-OFF-AUTO” selector switch. The selector switch will start all motors in the “HAND” position, stop all motors in the “OFF” position and allow automatic control of all motors in the “AUTO” position.

ITEM #7
All Air Curtain Controllers are to be furnished standard with a cover mounted “RESET” button for each motor starter. The “RESET” button shall mechanically reset a tripped overload relay.

ITEM #8
All Air Curtain Controllers must be furnished standard in a Type 4X non metallic enclosure.

ITEM #9
All Air Curtain Controllers are to be specified, sized and installed per Advance Controls, Inc. recommendations.

Typical Wiring Diagram - Two Motor Air Curtain Controller - with OPTIONAL Disconnect



NO.	REVISION	BY	DATE

SCALE	DRAWN	DATE	DRAWING NUMBER	PAGE	REV
NONE	MJK	12/27/01	AIR CURTAIN CONTROL	1 OF 1	

ADVANCE CONTROLS, INC.
4505 18TH STREET EAST BRADENTON, FL
941-746-3221

TYPICAL WIRING DIAGRAM - 3 PHASE
2 MOTOR AIR CURTAIN CONTROLLER
WITH OPTIONAL DISCONNECT
CONTROL CIRCUIT TRANSFORMER
H - O - A SWITCH

AIR CURTAIN CONTROLLER with NON-FUSED DISCONNECT ONE TO FOUR MOTOR • 1/2 - 3 HP • THREE PHASE

- One (1) Non-Fused UL508 style Disconnect
- One (1) Motor Starter (IEC style) for EACH motor with adjustable UL Class 10 Thermal Overload Relay
- One (1) "RESET" button for EACH Thermal Overload mounted in door
- One (1) Control Transformer with 120 volt fused secondary (fuse furnished)
- One (1) "HAND-OFF-AUTO" Selector Switch mounted in door
- Type 4X Non-Metallic UL Listed Enclosure
- 4 Point Terminal Strip
- Wired - ready to install
- Components UL, cUL, CE

Typical One Motor Air Curtain Controller in Type 4X Enclosure

How to Choose an Air Curtain Controller

- Determine Air Curtain Controller by the Number of Motors, Motor Voltage and Motor HP as shown below.
- Motor FULL LOAD AMPS must fall within the Overload Amp Range.
- Consult factory if required Overload Amp Range is other than shown.

200/208 Volt Three Phase Motor

MOTOR HP	OVERLOAD Amp RANGE	ONE MOTOR PANEL		TWO MOTOR PANEL		THREE MOTOR PANEL		FOUR MOTOR PANEL	
		ENCLOSURE SIZE/TYPE	CATALOG NUMBER	ENCLOSURE SIZE/TYPE	CATALOG NUMBER	ENCLOSURE SIZE/TYPE	CATALOG NUMBER	ENCLOSURE SIZE/TYPE	CATALOG NUMBER
1/4	1 - 1.5	A	138042	A	138049	B	138056	B	138063
1/3	1 - 1.5	A	138042	A	138049	B	138056	B	138063
1/2	1.8 - 2.7	A	138043	A	138050	B	138057	B	138064
3/4	2.4 - 3.6	A	138044	A	138051	B	138058	B	138065
1	3.5 - 5	A	138045	A	138052	B	138059	B	138066
1 1/2	5.5 - 8.5	A	138046	A	138053	B	138060	B	138067
2	5.5 - 8.5	A	138046	A	138053	B	138060	B	138067
3	8.5 - 12.5	A	138048	A	138055	B	138062	B	138069

230 Volt Three Phase Motor

MOTOR HP	OVERLOAD Amp RANGE	ONE MOTOR PANEL		TWO MOTOR PANEL		THREE MOTOR PANEL		FOUR MOTOR PANEL	
		ENCLOSURE SIZE/TYPE	CATALOG NUMBER	ENCLOSURE SIZE/TYPE	CATALOG NUMBER	ENCLOSURE SIZE/TYPE	CATALOG NUMBER	ENCLOSURE SIZE/TYPE	CATALOG NUMBER
1/4	1 - 1.5	A	138070	A	138078	B	138085	B	138092
1/3	1 - 1.5	A	138070	A	138078	B	138085	B	138092
1/2	1.8 - 2.7	A	138072	A	138080	B	138087	B	138094
3/4	2.4 - 3.6	A	138073	A	138081	B	138088	B	138095
1	3.5 - 5	A	138074	A	138082	B	138089	B	138096
1 1/2	5.5 - 8.5	A	138071	A	138079	B	138086	B	138093
2	5.5 - 8.5	A	138076	A	138083	B	138090	B	138097
3	8.5 - 12.5	A	138077	A	138084	B	138091	B	138098

460 Volt Three Phase Motor

MOTOR HP	OVERLOAD Amp RANGE	ONE MOTOR PANEL		TWO MOTOR PANEL		THREE MOTOR PANEL		FOUR MOTOR PANEL	
		ENCLOSURE SIZE/TYPE	CATALOG NUMBER	ENCLOSURE SIZE/TYPE	CATALOG NUMBER	ENCLOSURE SIZE/TYPE	CATALOG NUMBER	ENCLOSURE SIZE/TYPE	CATALOG NUMBER
1/4	.45 - .67	A	138099	A	138106	B	138113	B	138120
1/3	.45 - .67	A	138099	A	138106	B	138113	B	138120
1/2	.67 - 1.0	A	138100	A	138107	B	138114	B	138121
3/4	1.4 - 2.1	A	138101	A	138108	B	138115	B	138122
1	1.4 - 2.1	A	138101	A	138108	B	138115	B	138122
1 1/2	2.4 - 3.6	A	138103	A	138110	B	138117	B	138124
2	2.4 - 3.6	A	138103	A	138110	B	138117	B	138124
3	3.5 - 5.0	A	138105	A	138112	B	138119	B	138126

Enclosure Size/Type:

"A" = Type 4X - 11.8" x 8.7" x 5.9" - Lift Off Cover
"B" = Type 4X - 14" x 12" x 8"- Hinged Cover

Options:

Phase Monitor: **ADD $261 to LIST PRICE**
24 VAC Control: **SAME LIST PRICE**
Pilot Light 120 volt: **ADD $49 to LIST PRICE** - Specify color

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Advance Controls, Inc.
4505 18th Street East • Bradenton, FL 34203
800.559.9ACI (9224) • Fax: 941.746.3466
http://www.HVACiSpec.com • aci@HVACiSpec.com

TYPICAL BID SPECIFICATION

ACI AIR CURTAIN CONTROLLER WITH NON-FUSED DISCONNECT

ITEM #1
All Air Curtain Controllers are to be furnished by Advance Controls, Inc., Bradenton, Florida.

ITEM #2
All Air Curtain Controllers are to be furnished standard with a UL508 style IEC Type Disconnect Switch.

ITEM #3
All Disconnect Switches are to be furnished standard with Through the Door Lockable Handle Assembly. The Handle Assembly must be able to be padlocked in the “OFF” position with up to three (3) padlocks (not furnished). The Handle Assembly shall have a door interlock that locks the enclosure door closed in all positions except “OFF”. Interlock defeater is not acceptable. Side mount style disconnect switches are not allowed.

ITEM #4
All Air Curtain Controllers are to be furnished standard with an individual, separate and complete motor starter for each air curtain motor.

ITEM #5
All Air Curtain Controller Motor Starters are to be IEC Style, UL Listed, with adjustable, bimetallic, UL Class 10 ambient compensated overload relays. Units that require replaceable heaters are not allowed. Starters with UL Recognition (c UL us) are not allowed.

ITEM #6
All Air Curtain Controller Motor Starters shall have a wide voltage range coil with a minimum +10% to -30% voltage range based on the nominal 60 Hz voltage. All coils are to be rated for 60/50 Hz.

ITEM #7
All Air Curtain Controllers are to be furnished standard with a control circuit transformer on all units with an input power voltage above 120 Volts. The Control Transformer is to be furnished standard with a fused secondary. The secondary fuse to be furnished with the unit.

Continues Next Page

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TYPICAL BID SPECIFICATION

ACI AIR CURTAIN CONTROLLER WITH NON-FUSED DISCONNECT

(Continued)

ITEM #8

All Air Curtain Controllers are to be furnished standard with a cover mounted “HAND-OFF-AUTO” Selector Switch. The Selector Switch shall start all motors in the “HAND” position, stop all motors in the “OFF” position and allow automatic control of all motors in the “AUTO” position.

ITEM #9

All Air Curtain Controllers are to be furnished standard with a cover mounted “RESET” button for each motor starter. The “RESET” button shall mechanically reset a tripped motor starter overload relay.

ITEM #10

All Air Curtain Controllers are to be furnished standard in a Type 4X non metallic enclosure.

ITEM #11

All Air Curtain Controllers are to be specified, sized and installed per Advance Controls, Inc. recommendations.

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Air Curtain Controller Submittal

Project Name: _____ Number: _____
Location: _____ Tag Number: _____ Date: _____
Rep / Distributor: _____
Contractor: _____ Engineer: _____

Design Data:

Number of Motors: _____ Motor HP: _____ Voltage: _____ Phase: _____
Non-Fused Disconnect with Lockable Handle: ☐ Yes ☐ No

Starter:

Contactor Inductive Amps: _____ Overload Amp Range (Amps): _____
Auxiliary Contacts supplied on Contactor (standard) NO: _____ NC: _____

Control Transformer: ☐ Yes ☐ No

120V Fused Secondary Standard

Secondary Fuse Furnished: Type: _____ Size: _____ Amps

Accessories:

H-O-A (Standard)
4 Point Terminal Block (Standard)
☐ Run Light - Red
☐ Stop Light - Green
☐ Phase Monitor

Enclosure:

Type 4X Non-Metallic *(other type enclosures available- consult factory)*

Special Features:

_____
_____
_____
_____
_____
_____

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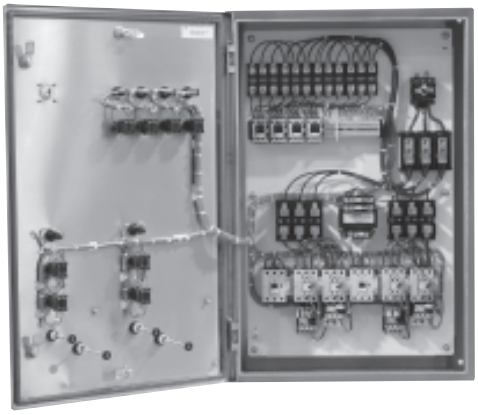

Cooling Tower • Fluid Cooler Control Panels

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Exterior View 105
Interior View 105

Typical Wiring Diagrams
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Control Circuit 107

Cooling Tower Control Panel Workout 108

Please consult factory for
Cooling Tower and Fluid Cooler Control Panel
Specifications and Ordering Information

COOLING TOWER AND FLUID COOLER PANELS

ACI manufactures Single and Three Phase Cooling Tower Control Panels and Fluid Cooler Control Panels. Because of the wide variety of possible FAN, PUMP and HEATER combinations, ACI tailors your Panel and our Quotation to meet your exact requirements. This way ACI does NOT quote you an excessive and costly panel, or worse, a "bargain basement" panel that will NOT fulfill your customers needs.

If you are not sure of what is needed, simply send the Specification Pages from the Bid Package to ACI and we will analysis the needed requirements. If the Specifications are vague and your customer is unsure of what is needed, ACI's wide experience with Cooling Tower and Fluid Cooler Control Panels means that we can generally "decipher" what is needed and provide you with the correct Panel.

Below is the MINIMUM amount of information we will require:

1) **Input Power Voltage**

2) **Input Power Phase**

3) **Environmental Protection (Indoors - Outdoors - Corrosion Resistant, etc.?)**

4) **Number of Fans (1, 2, 3, etc.)**

5) **Fan Motor Horsepower**

6) **Fan Motor Speeds - 1 Speed or 2 Speed (1 or 2 Winding)**

7) **Damper(s)? Powered - Gravity - None**

8) **Vibration Switch(es)?**

9) **Number of Pumps (1, 2, 3, etc.)**

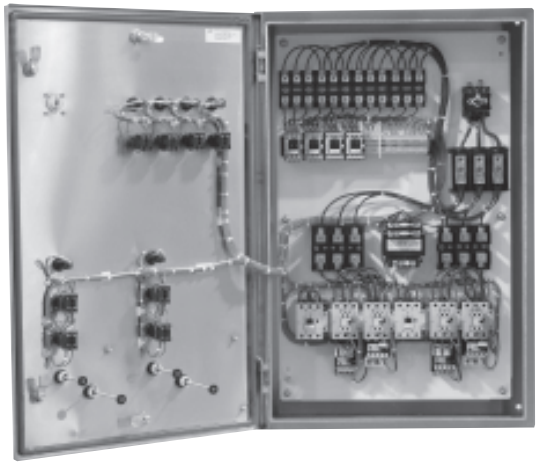
10) **Pump Motor Horsepower**

11) **Number of Heaters (1, 2, 3, etc.)**

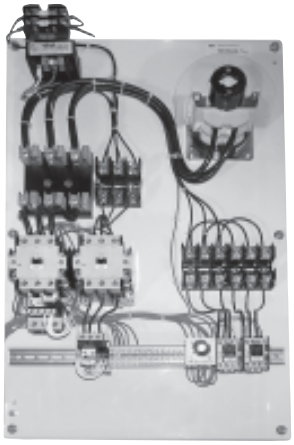
12) **Heater KW**

13) **Single Stage or Two Stage Heater(s)**

14) **Any Special Requirements or Specifications**



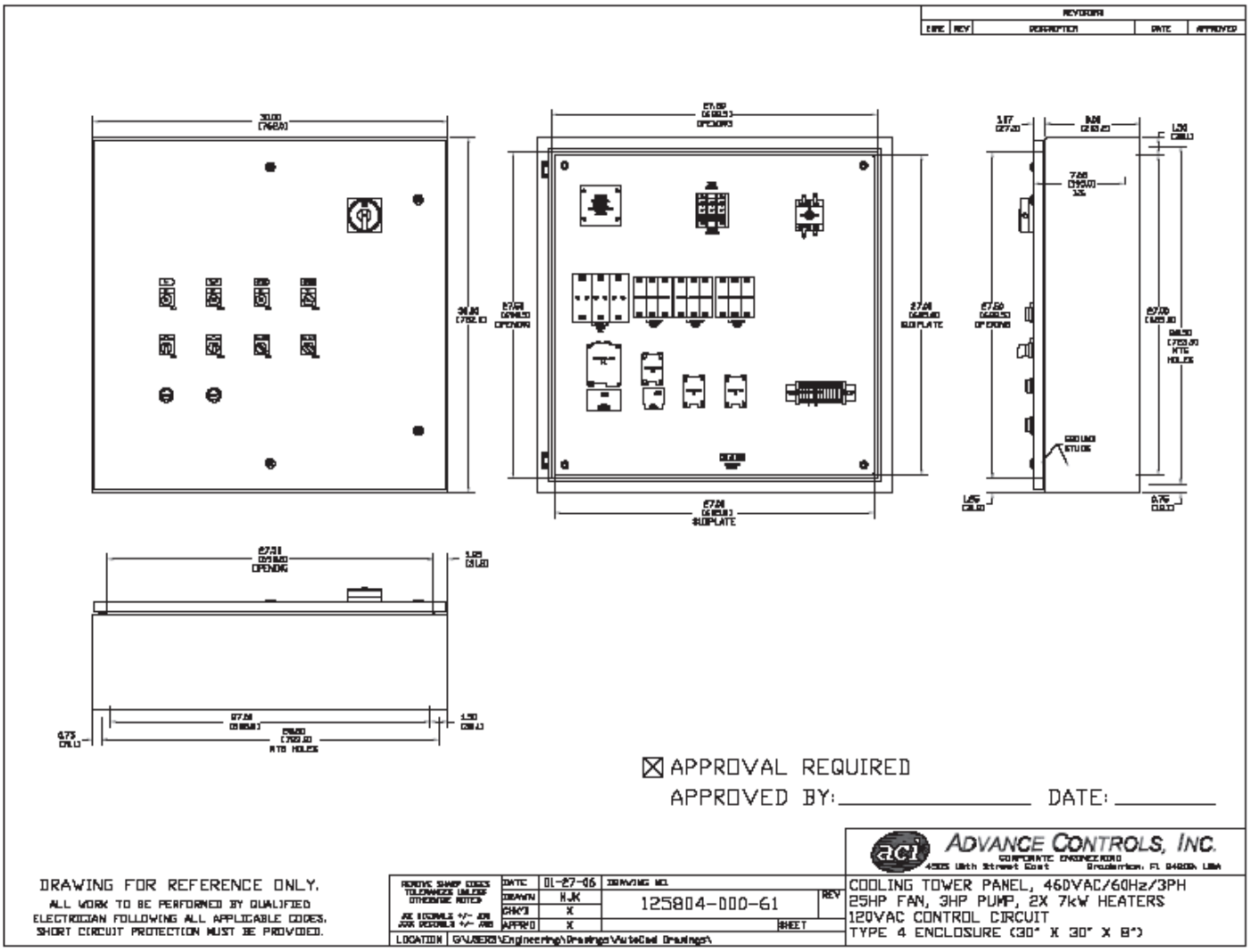
Cooling Tower Controller
in Type 4X
Stainless Steel Enclosure



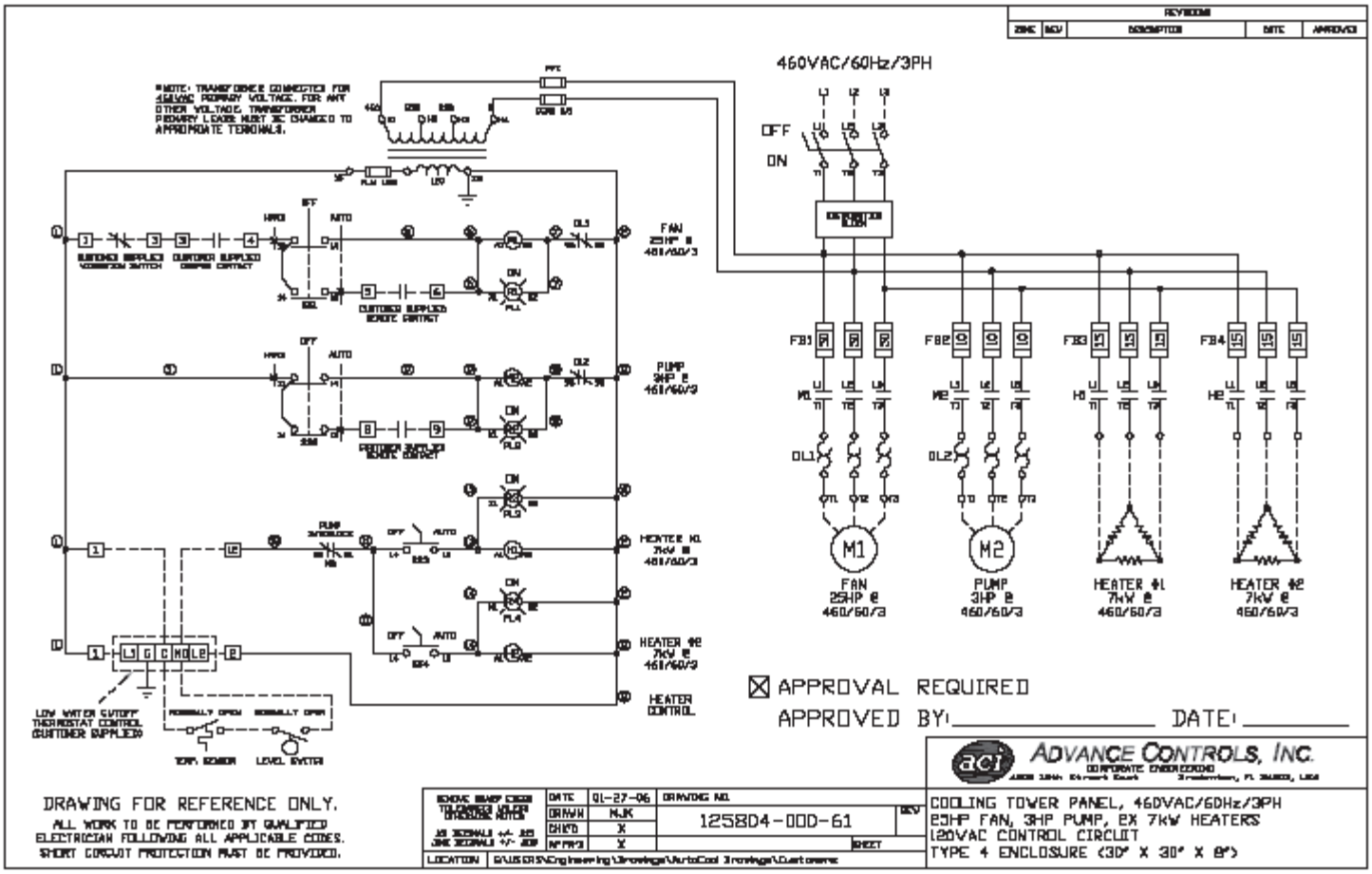
Cooling Tower Controller
with Fan and Heater
Sample Interior View

Other Enclosure Types Available Refer to Factory

TYPICAL COOLING TOWER CONTROLLER • GENERAL LAYOUT DRAWING



TYPICAL COOLING TOWER CONTROLLER • CONTROL CIRCUIT WIRING DIAGRAM



Cooling Tower Control Panel Worksheet

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http://www.HVACiSpec.com • aci@HVACiSpec.com

Company: _____
Address: _____
Phone: _____ Fax: _____ E-Mail: _____
Project Name: _____ Number: _____
Location: _____ Tag Number: _____ Date: _____
Contractor: _____ Engineer: _____

Fan Motor	Pony Motor	Pump Motor	Heater
HP _____	HP _____	HP _____	KW _____
Voltage _____	Voltage _____	Voltage _____	Voltage _____
Phase _____	Phase _____	Phase _____	Phase _____

☐ **1 Speed** ☐ **2 Speed 1 Winding** High HP _____ Low HP _____
☐ **2 Speed 2 Winding** High HP _____ Low HP _____

Disconnect Switch:

☐ None ☐ Non-Fused
☐ Fused ☐ Other: _____

Enclosure:

☐ Metal ☐ Type 1 / 12
☐ Non-Metallic 4X ☐ Type 3R / 4

Control Devices:

	Fan Motor	Pony Motor	Pump Motor	Heater
	☐ H-O-A	☐ H-O-A	☐ H-O-A	☐ H-O-A
	☐ OFF-AUTO	☐ OFF-AUTO	☐ OFF-AUTO	☐ OFF-AUTO
	☐ START/STOP	☐ START/STOP	☐ START/STOP	☐ START/STOP
Other:	☐ _____	☐ _____	☐ _____	☐ _____
	☐ High to Low Speed Delay Timer			

Pilot Lights:

	Fan Motor	Pony Motor	Pump Motor	Heater
	Qty: _____	Qty: _____	Qty: _____	Qty. _____
	Color: _____	Color: _____	Color: _____	Color: _____
	Function: _____	Function: _____	Function: _____	Function: _____
	Color: _____	Color: _____	Color: _____	Color: _____
	Function: _____	Function: _____	Function: _____	Function: _____
	☐ LED ☐ Incand.	☐ LED ☐ Incand.	☐ LED ☐ Incand.	☐ LED ☐ Inc.

	Fan Motor		Pony Motor		Pump Motor		Heater	
Aux. Contacts (Contactor):	**NO**	**NC**	**NO**	**NC**	**NO**	**NC**	**NO**	**NC**

☐ **Phase Monitor (Incoming Power)**

ID Tag Number and UL Label: _____

Additional Requirements / Comments: _____

IMPORTANT: Any changes, modifications, additions or deletions otherwise noted in the above specifications may result in a delay in the quoting process. Any changes made by the customer, after the specifications have been approved and / or the manufacturing process has commenced, may result in shipment delays and additional charges may be assessed.

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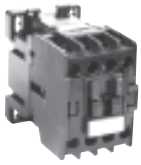
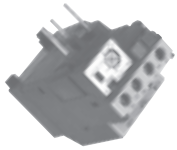


Panel Components

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Description	Page
DPA Series Contactors	
General / Ordering Information	86
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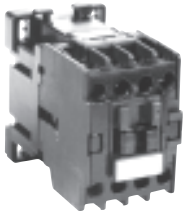
"S" Series Special Purpose Contactors - AC Coil

Features:

- Modern IEC design
- "S" Series Contactors can be combined with the RH Series Overloads and Accessories - See page 112
- Straight through wiring
- Wide ambient temperature operating range
- Arc chute design increases contact life
- Oversize contacts for exceptionally long life
- "S" Series Contactors meet the European RoHS Directive
- Complete line of accessories – See page 113
- Guarded "finger safe" terminal design
- Captive, raised terminal screws reduce wiring time
- Wide Voltage Range Coil (+10% to -30%) suitable for 60/50 Hz operation with Class F insulation, completely enclosed in the housing
- Anti-stick magnet design with ground faces, shading rings and rust resistant coating
- Auxiliary contacts are furnished standard:
  S06 through S16 = 1 NO or 1 NC
  S18 through S35 = 1 NO + 1 NC



S11 Contactor

S06 "Mini" Contactor

NON-REVERSING • 3 POLE and 4 POLE • AC COIL

c UL us File No: E155477

RESISTIVE AMPS	AIR COND. AMPS	FULL LOAD MOTOR AMPS	LOCKED ROTOR AMPS	MAXIMUM HORSEPOWER						MAX WIRE SIZE (AWG)	POLES				TYPE	COIL VOLTAGE	WT Lbs	CATALOG NUMBER
				1 PHASE		3 PHASE					POWER		AUX					
				115	230	200	230	480	575		NO	NC	NO	NC				
S06 Special Purpose Contactor - AC COIL																		
20	16	16	96	1	2	3	3	5	5	#10	3	-	1	-	S06.310	24 120 230 460 575	0.4	**132545 132546 132547 132548 132549**
											3	-	-	1	S06.301	24 120 230 460 575	0.4	**132550 132551 132552 132553 132554**
											4	-	-	-	S06.440	24 120 230 460 575	0.4	**132555 132556 132557 132558 132559**
S11 Special Purpose Contactor - AC COIL																		
30	24	24	144	2	3	5	5	10	15	#10	3	-	1	-	S11.310	24 120 230 460 575	0.7	**132560 132561 132562 132563 132564**
											3	-	-	1	S11.301	24 120 230 460 575	0.7	**132565 132566 132567 132568 132569**
											4	-	-	-	S11.440	24 120 230 460 575	0.7	**132570 132571 132572 132573 132574**

* 4 NC versions available - consult factory.

"S" Series Special Purpose Contactors - AC Coil

Non-Reversing • 3 Pole and 4 Pole • AC COIL

c UL us File No: E155477

S16 Special Purpose Contactor - AC COIL

RESISTIVE AMPS	AIR COND. AMPS	FULL LOAD MOTOR AMPS	LOCKED ROTOR AMPS	MAXIMUM HORSEPOWER 1 PHASE 115	MAXIMUM HORSEPOWER 1 PHASE 230	MAXIMUM HORSEPOWER 3 PHASE 200	MAXIMUM HORSEPOWER 3 PHASE 230	MAXIMUM HORSEPOWER 3 PHASE 480	MAXIMUM HORSEPOWER 3 PHASE 575	MAX WIRE SIZE (AWG)	POLES POWER NO	POLES POWER NC	POLES AUX NO	POLES AUX NC	TYPE	COIL VOLTAGE	WT Lbs	CATALOG NUMBER
40	2 8	28	168	2	5	7 1/2	7 1/2	15	20	#10	3	-	1	-	S16.310	24 120 230 460 575	0.7	132575 132576 132577 132578 132579
											3	-	-	1	S16.301	24 120 230 460 575	0.7	132580 132581 132582 132583 132584
											4	-	-	-	S16.440	24 120 230 460 575	0.7	132585 132586 132587 132588 132589

S18 Special Purpose Contactor - AC COIL

RESISTIVE AMPS	AIR COND. AMPS	FULL LOAD MOTOR AMPS	LOCKED ROTOR AMPS	MAXIMUM HORSEPOWER 1 PHASE 115	MAXIMUM HORSEPOWER 1 PHASE 230	MAXIMUM HORSEPOWER 3 PHASE 200	MAXIMUM HORSEPOWER 3 PHASE 230	MAXIMUM HORSEPOWER 3 PHASE 480	MAXIMUM HORSEPOWER 3 PHASE 575	MAX WIRE SIZE (AWG)	POLES POWER NO	POLES POWER NC	POLES AUX NO	POLES AUX NC	TYPE	COIL VOLTAGE	WT Lbs	CATALOG NUMBER
50	42	42	240	3	7 1/2	10	15	25	25	#8	3	-	1	1	S18.311	24 120 230 460 575	0.9	132590 132591 132592 132593 132594
											4	-	-	-	S18.440	24 120 230 460 575	0.9	132595 132596 132597 132598 132599

S22 Special Purpose Contactor - AC COIL

RESISTIVE AMPS	AIR COND. AMPS	FULL LOAD MOTOR AMPS	LOCKED ROTOR AMPS	MAXIMUM HORSEPOWER 1 PHASE 115	MAXIMUM HORSEPOWER 1 PHASE 230	MAXIMUM HORSEPOWER 3 PHASE 200	MAXIMUM HORSEPOWER 3 PHASE 230	MAXIMUM HORSEPOWER 3 PHASE 480	MAXIMUM HORSEPOWER 3 PHASE 575	MAX WIRE SIZE (AWG)	POLES POWER NO	POLES POWER NC	POLES AUX NO	POLES AUX NC	TYPE	COIL VOLTAGE	WT Lbs	CATALOG NUMBER
60	56	56	336	5	7 1/2	15	20	30	30	#8	3	-	1	1	S22.311	24 120 230 460 575	0.9	132600 132601 132602 132603 132604
											4	-	-	-	S22.440	24 120 230 460 575	0.9	132605 132606 132607 132608 132609

S25 Special Purpose Contactor - AC COIL

RESISTIVE AMPS	AIR COND. AMPS	FULL LOAD MOTOR AMPS	LOCKED ROTOR AMPS	MAXIMUM HORSEPOWER 1 PHASE 115	MAXIMUM HORSEPOWER 1 PHASE 230	MAXIMUM HORSEPOWER 3 PHASE 200	MAXIMUM HORSEPOWER 3 PHASE 230	MAXIMUM HORSEPOWER 3 PHASE 480	MAXIMUM HORSEPOWER 3 PHASE 575	MAX WIRE SIZE (AWG)	POLES POWER NO	POLES POWER NC	POLES AUX NO	POLES AUX NC	TYPE	COIL VOLTAGE	WT Lbs	CATALOG NUMBER
75	68	68	365	5	10	20	25	40	40	#6	3	-	1	1	S25.311	24 120 230 460 575	1.8	132610 132611 132612 132613 132614

S35 Special Purpose Contactor - AC COIL

RESISTIVE AMPS	AIR COND. AMPS	FULL LOAD MOTOR AMPS	LOCKED ROTOR AMPS	MAXIMUM HORSEPOWER 1 PHASE 115	MAXIMUM HORSEPOWER 1 PHASE 230	MAXIMUM HORSEPOWER 3 PHASE 200	MAXIMUM HORSEPOWER 3 PHASE 230	MAXIMUM HORSEPOWER 3 PHASE 480	MAXIMUM HORSEPOWER 3 PHASE 575	MAX WIRE SIZE (AWG)	POLES POWER NO	POLES POWER NC	POLES AUX NO	POLES AUX NC	TYPE	COIL VOLTAGE	WT Lbs	CATALOG NUMBER
80	80	80	480	7 1/2	15	25	30	50	50	#6	3	-	1	1	S35.311	24 120 230 460 575	1.8	132615 132616 132617 132618 132619

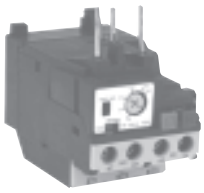
HVAC2007

"RH" Series Overload Relays for "S" Series Special Purpose Contactors

Direct Mount • 2 Pole and 3 Pole • 0.30 - 80 Amps

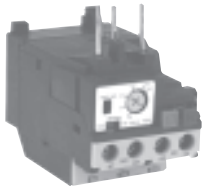
Use with "S" Series Special Purpose Contactors

ADJUST RANGE (AMPS)	2 POLE - SINGLE PHASE			3 POLE - THREE PHASE		
	TYPE	CATALOG NUMBER	WT Lbs	TYPE	CATALOG NUMBER	WT Lbs
0.30 - 0.45	RHS6-A	**130277**	0.3	RH6-A	**130266**	0.3
0.45 - 0.67	RHS6-B	**130278**		RH6-B	**130267**	
0.67 - 1.0	RHS6-C	**130279**		RH6-C	**130268**	
1.0 - 1.5	RHS6-D	**130280**		RH6-D	**130269**	
1.4 - 2.1	RHS6-E	**130281**		RH6-E	**130270**	
1.8 - 2.7	RHS6-F	**130282**		RH6-F	**130271**	
2.4 - 3.6	RHS6-G	**130283**		RH6-G	**130272**	
3.5 - 5.0	RHS6-H	**130284**		RH6-H	**130273**	
4.0 - 6.0	RHS6-J	**130285**		RH6-J	**130274**	
5.5 - 8.5	RHS6-K	**130286**		RH6-K	**130275**	
8.5 - 12.5	RHS6-L	**130287**		RH6-L	**130276**	
12.5 - 18.0	RHS6-M	**130333**		RH6-M	**130332**	



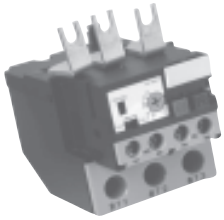
Direct Mount to S06 Contactor

0.30 - 0.45	RHS20-A	**130302**	0.3	RH20-A	**130288**	0.3
0.45 - 0.67	RHS20-B	**130303**		RH20-B	**130289**	
0.67 - 1.0	RHS20-C	**130304**		RH20-C	**130290**	
1.0 - 1.5	RHS20-D	**130305**		RH20-D	**130291**	
1.4 - 2.1	RHS20-E	**130306**		RH20-E	**130292**	
1.8 - 2.7	RHS20-F	**130307**		RH20-F	**130293**	
2.4 - 3.6	RHS20-G	**130308**		RH20-G	**130294**	
3.5 - 5.0	RHS20-H	**130309**		RH20-H	**130295**	
4.0 - 6.0	RHS20-J	**130310**		RH20-J	**130296**	
5.5 - 8.5	RHS20-K	**130311**		RH20-K	**130297**	
8.5 - 12.5	RHS20-L	**130312**		RH20-L	**130298**	
12.5 - 18.0	RHS20-M	**130313**		RH20-M	**130299**	
17 - 24	RHS20-N	**130314**		RH20-N	**130300**	
22 - 30	RHS20-P	**130315**		RH20-P	**130301**	



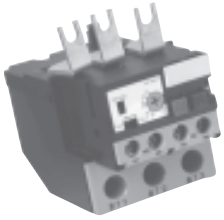
Direct Mount to S11 - S16 Contactor

17 - 25	RHS80/1-N	**131045**	0.7	RH80/1-N	**131050**	0.7
23 - 32	RHS80/1-P	**131046**		RH80/1-P	**131051**	
30 - 40	RHS80/1-R	**131047**		RH80/1-R	**131052**	
37 - 50	RHS80/1-S	**131048**		RH80/1-S	**131053**	
48 - 65	RHS80/1-T	**131049**		RH80/1-T	**131054**	



Direct Mount to S18 - S22 Contactor

17 - 25	RHS80/2-N	**130340**	0.7	RH80/2-N	**130334**	0.7
23 - 32	RHS80/2-P	**130341**		RH80/2-P	**130335**	
30 - 40	RHS80/2-R	**130342**		RH80/2-R	**130336**	
37 - 50	RHS80/2-S	**130343**		RH80/2-S	**130337**	
48 - 65	RHS80/2-T	**130344**		RH80/2-T	**130338**	
63 - 80	RHS80/2-U	**133371**		RH80/2-U	**133370**	



Direct Mount to S25 - S35 Contactor

Accessories for "S" Series Special Purpose Contactors

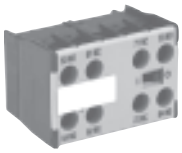
Type "RP20" Independent Mounting Base

Type RP-20 Independent Mounting Base allows the RHS20 or the RH20 Thermal Overload Relay to be independently mounted away from the contactor. The Thermal Overload Relay must still be electrically included in both the motor circuit and the control circuit. Independent mounting of the Thermal Overload Relay allows flexibility in component layout for situations where panel space is not available to mount a conventional starter or remote mounting of the Thermal Overload Relay is required.

INDEPENDENT MOUNTING BASE			
TYPE	CATALOG NUMBER	WT Lbs	LIST PRICE
RP-20	**130331**	0.1	**$11**

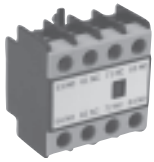
3_43

Type "CA"Auxiliary Contact Blocks



TOP MOUNT
2 & 4 Pole
S06 MINI

TOP MOUNT
2 Pole
S11 - S35



TOP MOUNT
4 Pole
S11- S35

SIDE MOUNT
2 Pole
S11 - S35

APPLICATION	TYPE	DESCRIPTION	WT Lbs	CATALOG NUMBER
TOP MOUNT **S06 MINI** CONTACTOR	CA2-211M	1 NO + 1 NC	0.1	**130490**
	CA2-220M	2 NO	0.1	**130491**
	CA2-202M	2NC	0.1	**130492**
	CA4-440M	4 NO	0.1	**130493**
	CA4-404M	4 NO	0.1	**130494**
	CA4-413M	1 NO + 3 NC	0.1	**130495**
	CA4-422M	2 NO + 2 NC	0.1	**130496**
	CA4-431M	3 NO + 1 NC	0.1	**130497**
TOP MOUNT **S11 - S35** CONTACTOR	CA2-211	1 NO + 1 NC	0.1	**130498**
	CA2-220	2 NO	0.1	**130499**
	CA2-202	2NC	0.1	**130500**
	CA4-440	4 NO	0.1	**130501**
	CA4-404	4 NO	0.1	**130502**
	CA4-413	1 NO + 3 NC	0.1	**130503**
	CA4-422	2 NO + 2 NC	0.1	**130504**
	CA4-431	3 NO + 1 NC	0.1	**130505**
SIDE MOUNT **S11-S35**	CA-11S	1 NO + 1 NC	0.1	**130506**

Type "CI" and "CNI" Mechanical Interlocks

Mini Interlock

Side Mount Interlock with 2 NC Aux.

APPLICATION	TYPE	DESCRIPTION	WT Lbs	CATALOG NUMBER
S06 MINI	CNI-6	1TOP MOUNT	0.1	**130509**
S11 - S22	CI-18	SIDE MOUNT	0.1	**130510**
	CNI-18	SIDE MOUNT WITH 1 NO + 1 NC	0.1	**130511**
S25 - S35	CI-35	SIDE MOUNT	0.1	**130512**

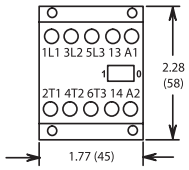
c UL us File: E155477

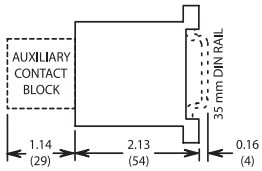
HVAC2007

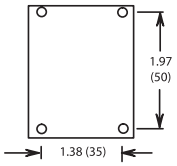
Dimensions • Special Purpose "S" Series Contactors

TOP VIEW	SIDE VIEW	MOUNTING HOLES

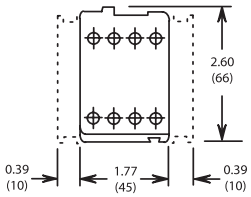
S06 NON-REVERSING

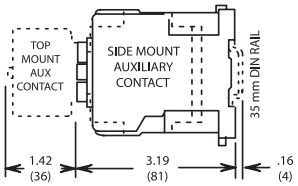


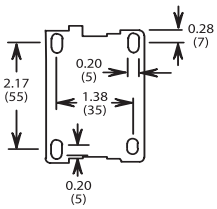




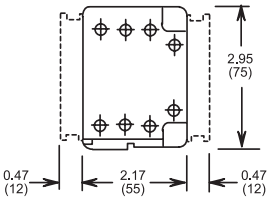
S11 & S16 NON-REVERSING

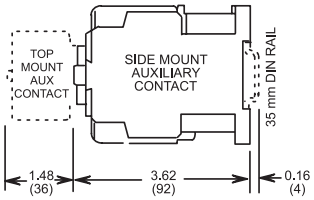


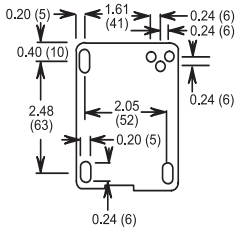




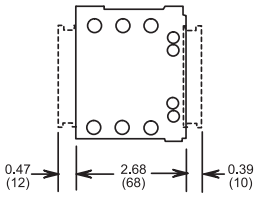
S18 & S22 NON-REVERSING

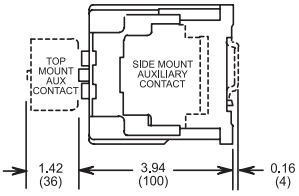


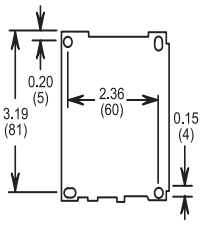




S25 & S35 NON-REVERSING



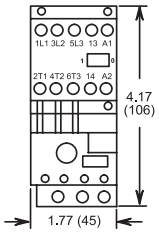


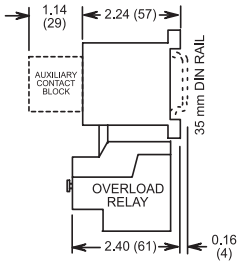


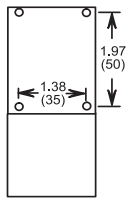
Dimensions • Special Purpose "S" Series Starters

TOP VIEW	SIDE VIEW	MOUNTING HOLES

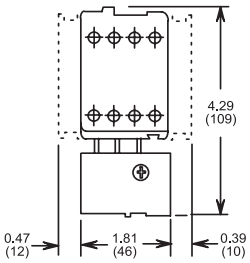
S06 NON-REVERSING

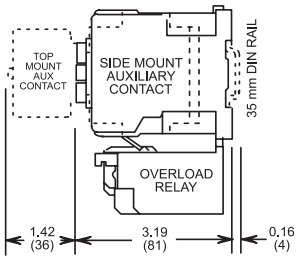


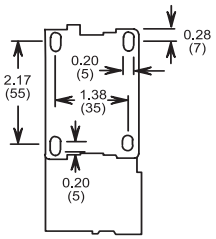




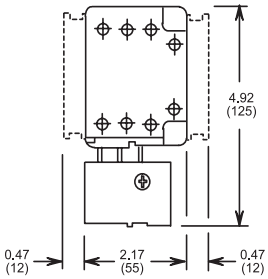
S11 & S16 NON-REVERSING

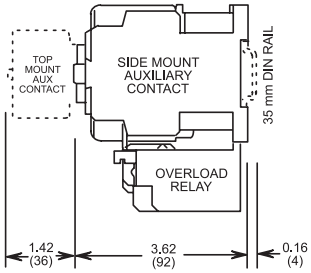


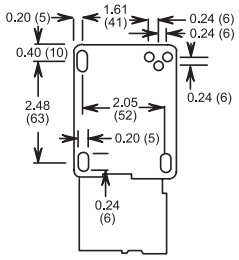




S18 & S22 NON-REVERSING







S25 & S35 NON-REVERSING