

AIRSYS DC-Failover Power Converter Box

Supplemental Manual

Models

ASPCB.2.24

ASPCB.2.48

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AIRSYS
7820 Reidville Rd Suite 100
Greer, SC29651
<https://airsysnorthamerica.com>

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1. Product Overview

Thank you for choosing AIRSYS.

The AIRSYS DC Failover Box is an indoor wall mount power converter box that converts 24 or 48 VDC to 230 VAC. This power converter box provides AC pass through when AC power source is available. When AC power source is not available, it automatically switches to DC-inverter to convert DC to AC. The power converter box is rated for 1kW and is designed to power up both supply fan and damper actuator. This means when AC is lost, free cooling and emergency ventilation can be achieved through backup DC power source, such as a battery bank.

The power converter box can be used for sites without backup AC power to provide emergency ventilation and sites with backup AC power to provide secondary fail-safe. Since the power conversion only occurs during AC power loss, there is no efficiency loss during normal operation.

Additional features include:

- Remote alarming on AIRSYS HVAC controllers when system is in failover
- Adjustable build-in delay (15-60 seconds) to protect against rapid power switching
- A prime power loss signal for HVAC controller to disable heater and compressor
- Built-in overload, short, over-temp, and reverse polarity protection.

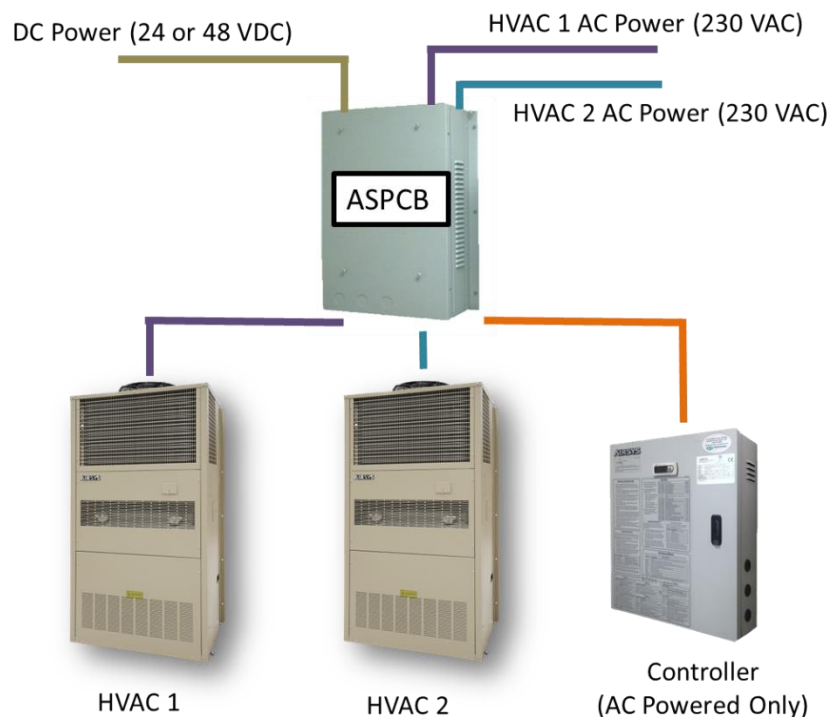


Figure 1: ASPCB Overview

2. Model Identification

The elements in the number are explained in Figure 2: Model Number.

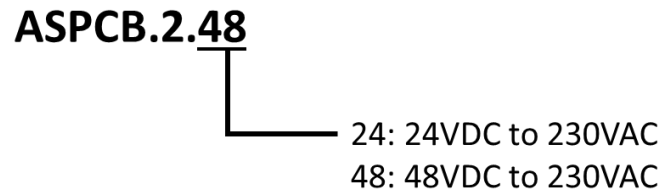


Figure 2: Model Number

3. Specification

Model Number	ASPCB.2.24	ASPCB.2.48
Electrical		
DC Input Voltage	24 VDC	48 VDC
DC Input Range	21-30 VDC	42-60 VDC
Rated Power	1000W	1000W
Efficiency (Normal Op.)	100%	100%
Efficiency (Failover)	91%	92%
Input Protections	Short Circuit, Reverse Polarity, Overload	
AC Input	See HVAC Nameplate	
Environmental		
Operating Temp (100% Load)	30-105F	30-105F
Max Temp (50% Load)	140F	140F
Storage Temperature	-20-160F	-20-160F
Humidity	10-90% Non-condensing	10-90% Non-condensing
Physical		
Width	470 mm / 18.5 in	470 mm / 18.5 in
Depth	150 mm / 5.9 in	150 mm / 5.9 in
Height	630 mm / 24.9 in	630 mm / 24.9 in
Weight	25 kg / 55 lbs.	25 kg / 55 lbs.

4. Electrical Ratings

Wire and breaker size must be selected according to HVAC:

Wall Packed Unit Model		DC Input (by DC Voltage)				AC Input (by heater size)					
		24V		48V		1.5 kW		2.4 kW		5 kW	
		MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS	MCA	MFS
M-OD	3E1C1DR410.230/1/60.AC	40	50	20	25	10	15	15	20	--	--
	5E1C1DR410.230/1/60.AC	40	50	20	25	11	15	15	20	--	--
	7E1C2DR410.230/1/60.AC	40	50	20	25	--	--	17	25	31	35
	9E1C2DR410.230/1/60.AC	40	50	20	25	--	--	--	--	31	35
	13E1C3DR410.230/1/60.AC	40	50	20	25	--	--	--	--	32	40
	18E1C4DR410.230/1/60.AC	40	50	20	25	--	--	--	--	37	55
	18E1C4DR410.230/3/60.AC	40	50	20	25	--	--	--	--	28	40
UNICOOL	11V1B3MR410AAC	40	50	20	25	--	--	--	--	28	40
	11V1T3MR410AAC	40	50	20	25	--	--	--	--	28	40
	15V1B4MR410AAC	40	50	20	25	--	--	--	--	45	60
	15V1T4MR410AAC	40	50	20	25	--	--	--	--	45	60
	15V1T4MR410CACxxxD	40	50	20	25	--	--	--	--	18	25
	28V1B5MR410BAC	40	50	20	25	--	--	--	--	23	30

*MCA = Minimum Circuit Ampacity (Wire Size Amps) MFS = Maximum Fuse Size or HACR circuit breaker

Example: Example: A 48V DC Failover for a 3.5 ton system (M-OD.13E1C3DR410.230/1/60.AC) with 5kW heater would require:

- 20A for DC wire sizing, 25A DC input breaker
- 32A for AC wire sizing, 40A AC input breaker

Special Instructions for M-OD.18E1C4:

Important: Controller settings must be changed if using DC Failover in conjunction with HVAC Model **18E1C4** (5 ton units). Skip this step when using with any other model.

1. Press **Up** and **Down** together to display indoor temperature (**main menu**),
2. Press **Up** twice, screen should display **SPt**
3. Press **Down** and **Sel** at the same time, the screen should display **□**
4. Press **Down** until you get to **□** and press **Sel**, the screen should display **L □ I**
5. Press **Down** until you get to **L □ 5** and press **Sel**, the screen should display **F □ I**
6. Press **Down** until you get to **F 4 □** and press **Sel**, the screen should display **B □**
7. Press **Down** to change to **□ □** and press **Sel**, the screen should return to **F 4 □**
8. Press **Up** and **Down** together to return to indoor temperature (**main menu**)

5. Wiring Block Diagram

Diagram A, for HVAC Models:

3E1C1DR410.230/1/60.AC, 5E1C1DR410.230/1/60.AC, 7E1C2DR410.230/1/60.AC,
9E1C2DR410.230/1/60.AC, 13E1C3DR410.230/1/60.AC, 18E1C4DR410.230/1/60.AC,

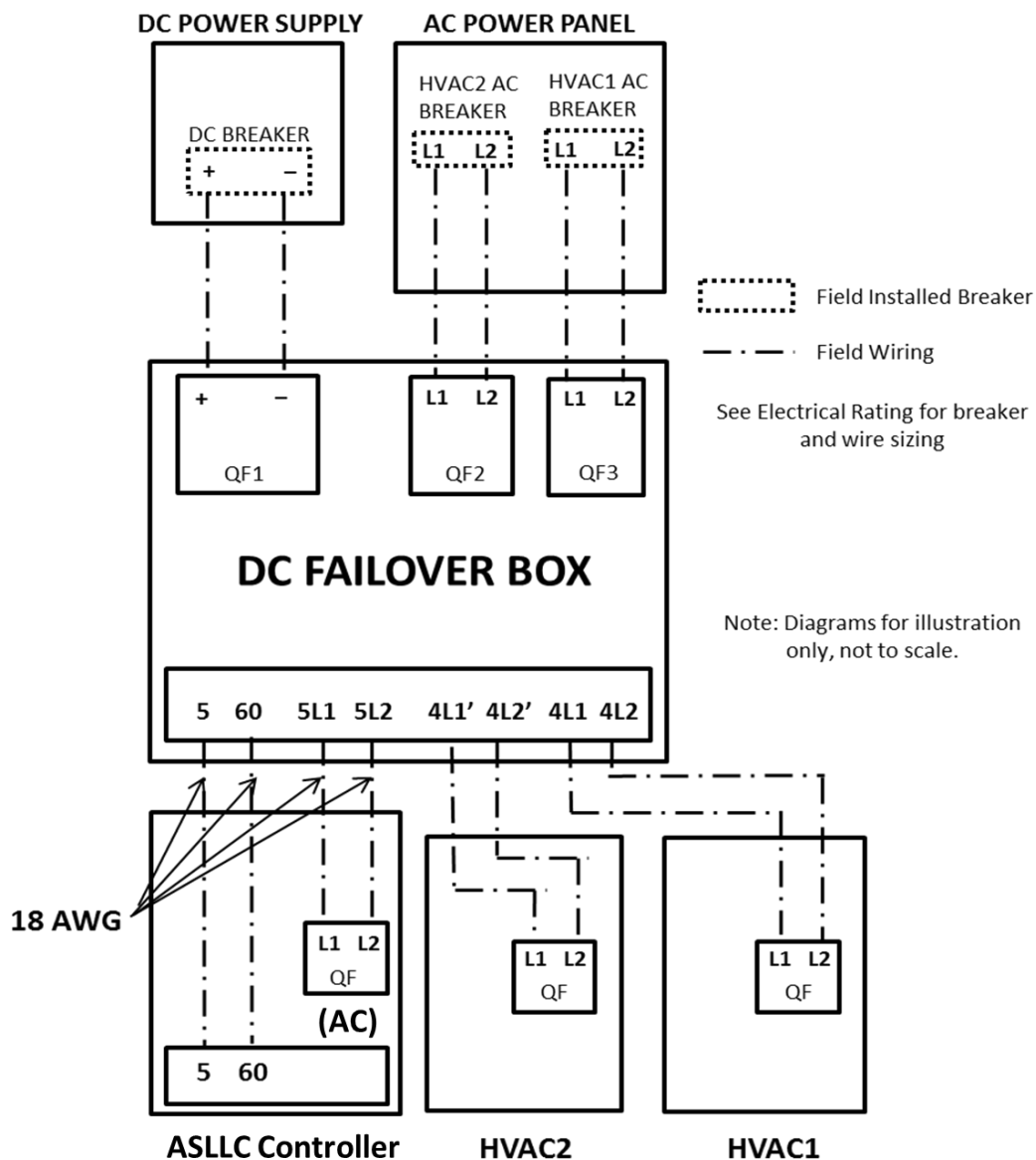
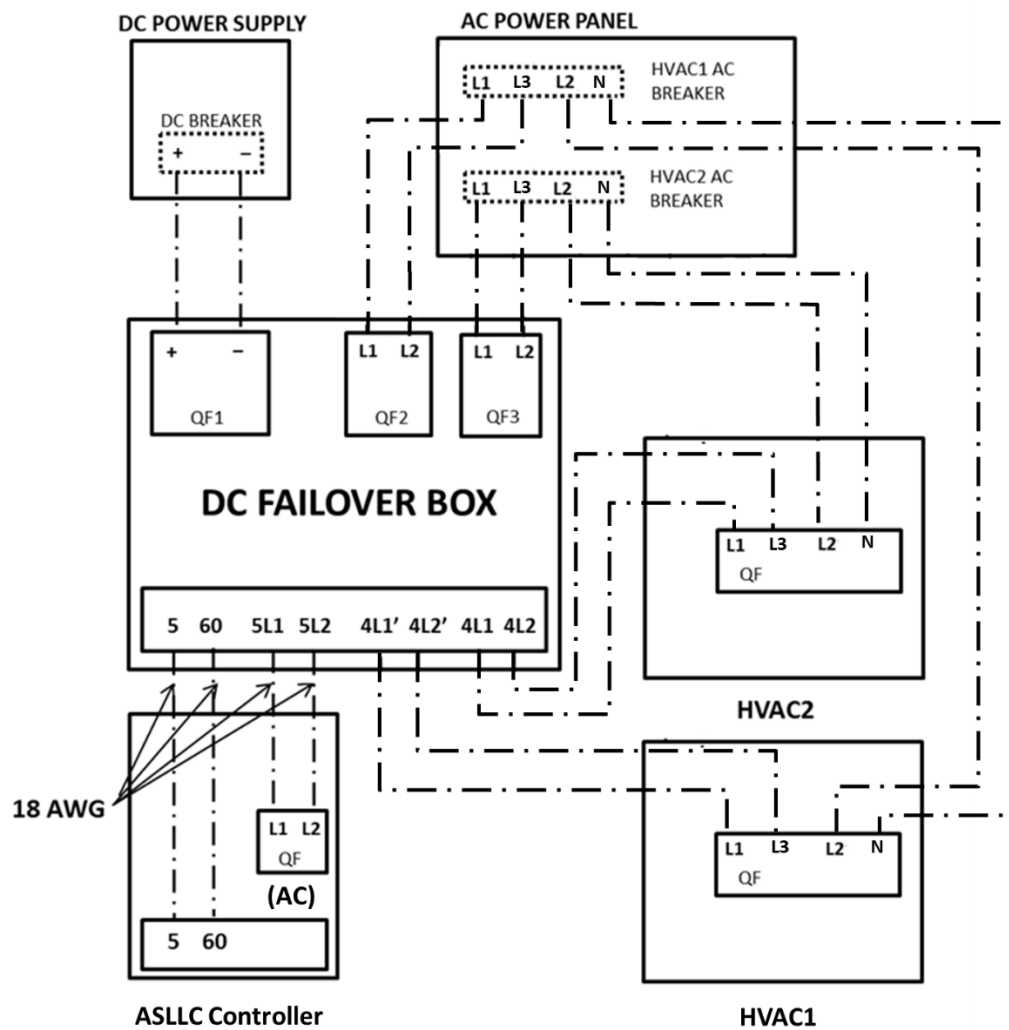


Diagram B, for HVAC Models:

18E1C4DR410.230/3/60.AC



 Field Installed Breaker

 Field Wiring

See Electrical Rating for breaker
and wire sizing

Note: Diagrams for illustration
only, not to scale.

Diagram C, for HVAC Models:

11V1B3DR410AAC, 11V1T3DR410AAC, 15V1B4DR410AAC, 15V1T4DR410AAC

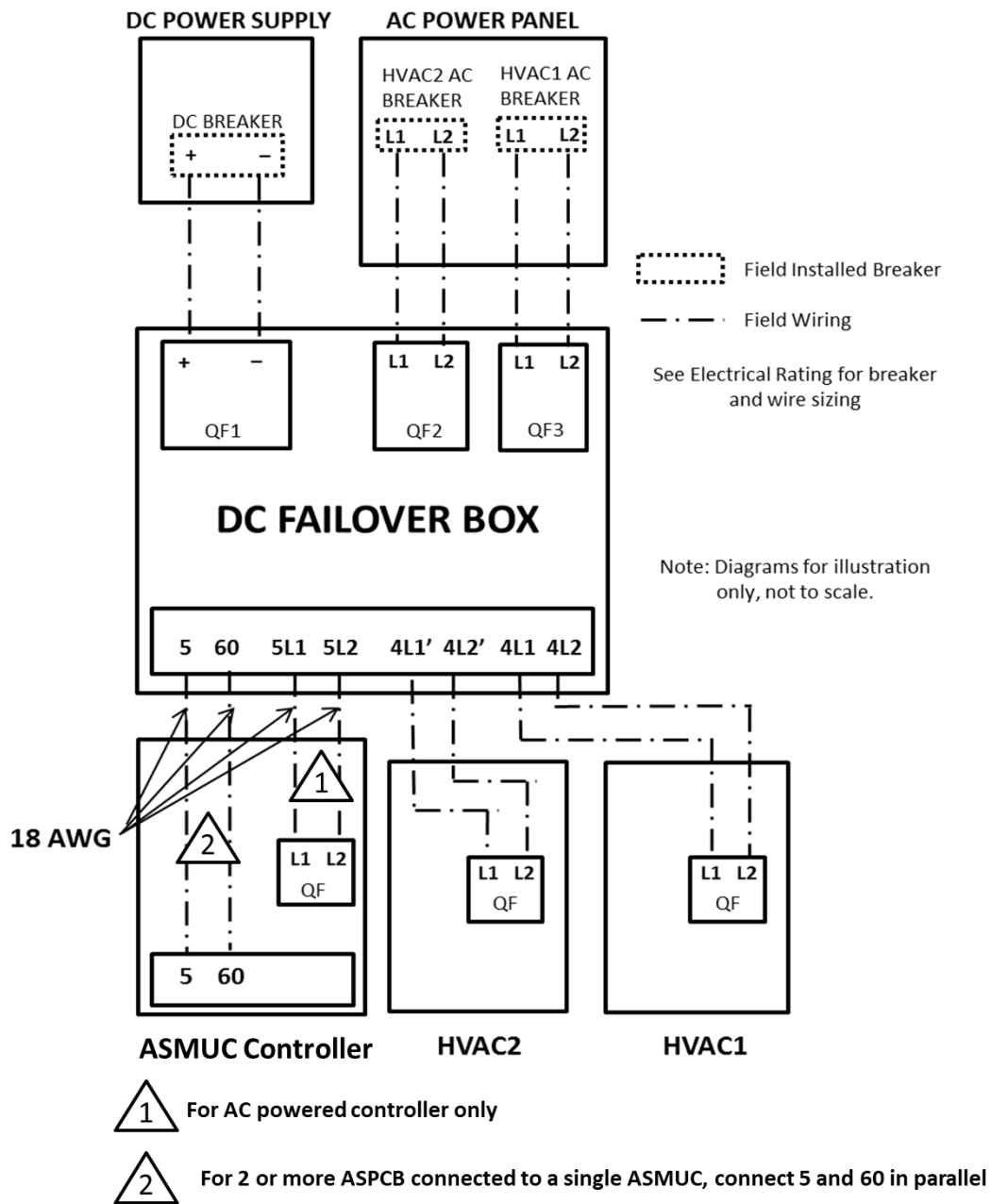


Diagram D, for HVAC Models:

15V1B4MR410CACxxxD

Note: 15V1B4MR410CAC is generally incompatible with DC-Failover with exception of Dual Input Models (denoted by additional “D” at the end of the model number) which requires a 277V neutral.

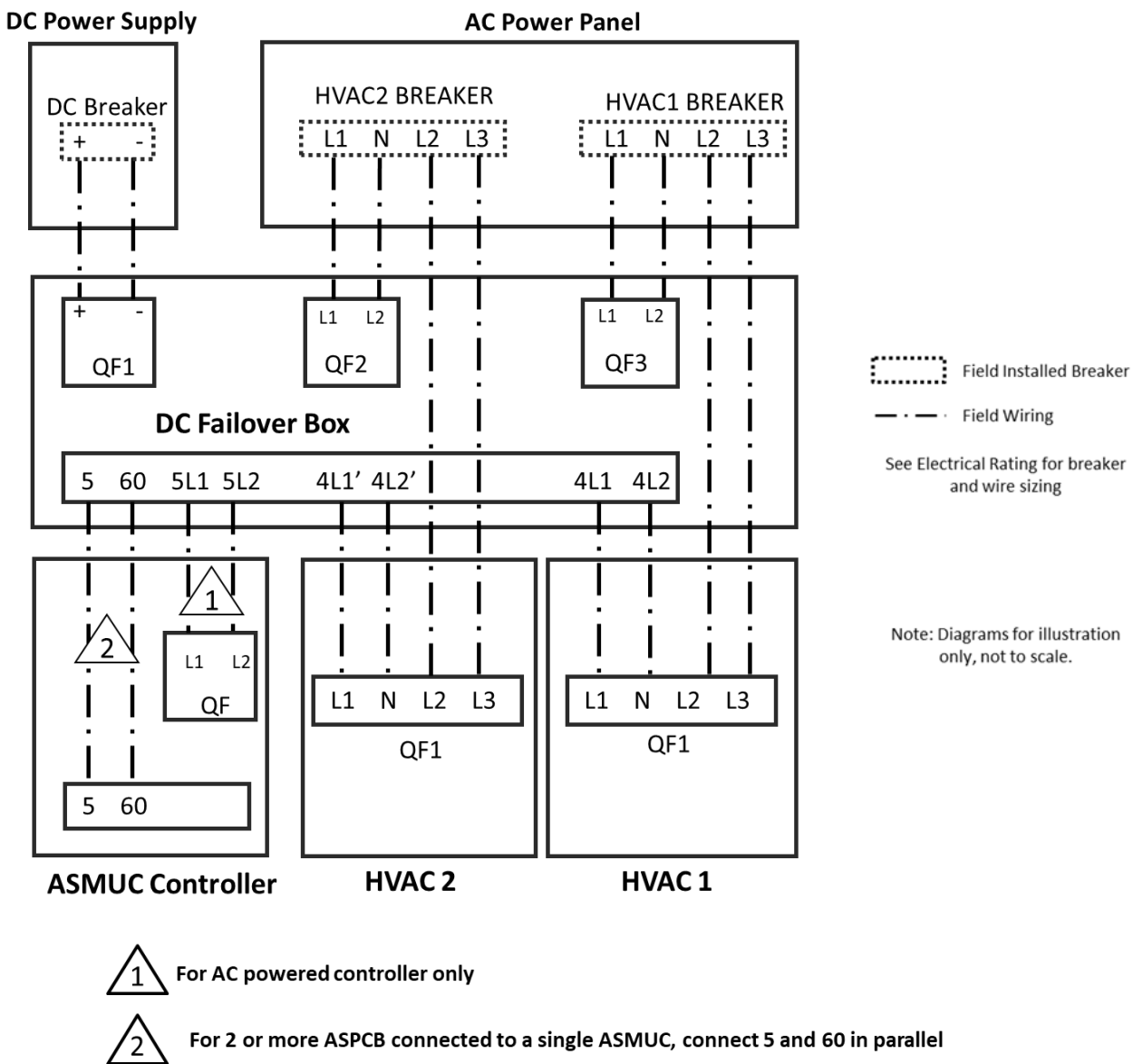
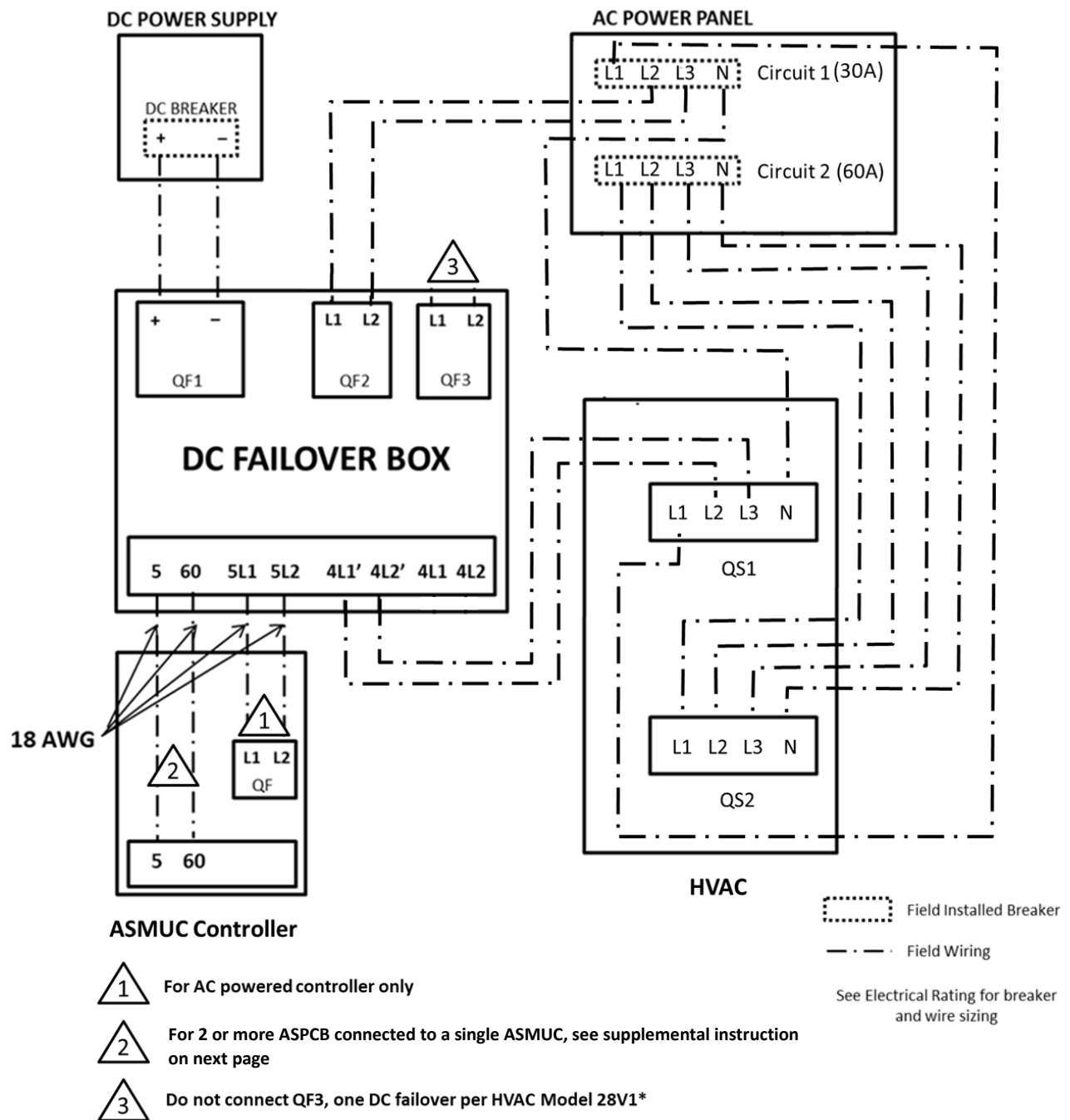


Diagram E, for HVAC Models:

28V1B5DR410BAC



Note: Only signal wiring shown below. Refer to the diagram E for power wiring.