

## Installation Instructions

### Model PSX-17C

17 Amp Power Supply Extender (S54505-B12-B1, S54505-B12-C1)

#### INTRODUCTION

The Model PSX-17C from Siemens Industry, Inc. is a high current power supply extender for the Fire Alarm system (Sprachalarmsystem E100). The power supply extender works in conjunction with the PSC-17C power supply to provide an additional 17 A of regulated 24 VDC for internal and external system use.

Up to three PSX-17C modules may be connected to one PSC-17C power supply and one set of batteries. The PSX-17C has a microprocessor-controlled transfer circuit that allows it to switch the system power to stand-by batteries during loss or reduction of AC power.

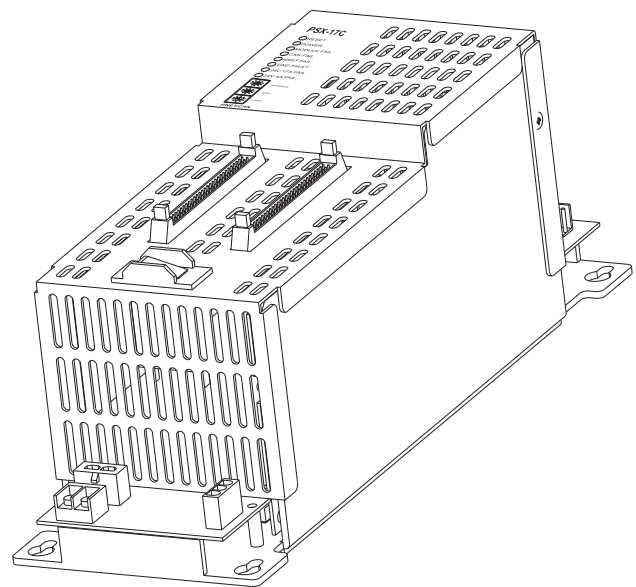


Figure 1  
PSX-17C 17 Amp Power Supply Extender

The PSX-17C incorporates a 24 A circuit breaker on the battery input.

The PSX-17C communicates directly to the PMI-S to report fault conditions and allows the PMI-S to query the status of the power supply extender.

The PSX-17C mounts at the back of the enclosure of the system and occupies 1/4 of the E100 Mounting Plate MP-M.

#### Features

The PSX-17C features are as follows:

- Universal AC power input 120 VAC - 240 VAC @ 60 Hz/50 Hz
- Off-line Switch Mode Power Converter
- Power Factor Correction
- AC Input Supervision with Battery Back-up: In the event of reduction or cut off of AC power, the microprocessor controller transfer circuit will switch the system power to stand-by batteries.

- Total Output power of 17 A@24 VDC
- Two separate power output terminals: one power limited terminal with 4 A max @ 24 VDC capacity and one non-power limited terminal with 17 A max @ 24 VDC capacity (total not to exceed 17 A)
- Both output terminals have current measurement capability
- Auto resettable current protection circuits for overload and short circuits
- Access to CC-5/CC-2 system bus
- Communicates via CAN protocol

OPERATION

The PSX-17C occupies one network address in the CAN network and has three functional components: the Controller, the Power Supply Extender and the Interface Board.

The Controller monitors the status of the Power Supply Extender (loss of network communication, 24 VDC terminal overload and the status of the battery). This information is relayed to the User Interface, where applicable, and is communicated to the PMI-S for system reporting. The Controller also allows the PMI-S to query the state of the power supply extender and its current load and can send a diagnostics command to the PSX-17C.

The Power Supply Extender has an Off-line switch mode power converter and power factor correction circuit to improve conductive RF emission at low frequency. It is designed to take voltage inputs of 120 VAC - 240 VAC at 50 Hz/60 Hz and has one resettable circuit breaker that can also be used as a battery power switch.

The Interface Board provides diagnostics LEDs, system connections and the terminal connections on the PSX-17C.

Terminal Blocks,  
Controls and Indicators

The PSX-17C has one reset switch, six LEDs, three address switches, one circuit breaker, two terminal blocks, two terminal connections and two 60 pin flat ribbon connections as shown in Figure 2. The ribbon cable connectors are used to connect the PSX-17C with a PSC-17C, additional PSX-17Cs or a Card Cage (CC-2/CC-5).

A reset switch is located on the top of the front panel. Pushing the reset switch re-initializes the PSX-17C operation.

The LEDs located at the top left of the module are defined as follows:

POWER -	(Green)	Normally ON. When illuminated, indicates that the PSX-17C is powered from the AC mains. When flashing, indicates that the PSX-17C is powered from the battery.
MODULE FAIL -	(Yellow)	Normally OFF. When illuminated indicates that the module microprocessor has failed.
CAN FAIL -	(Yellow)	Normally OFF. When illuminated indicates that CAN communication with the PSX-17C has terminated.

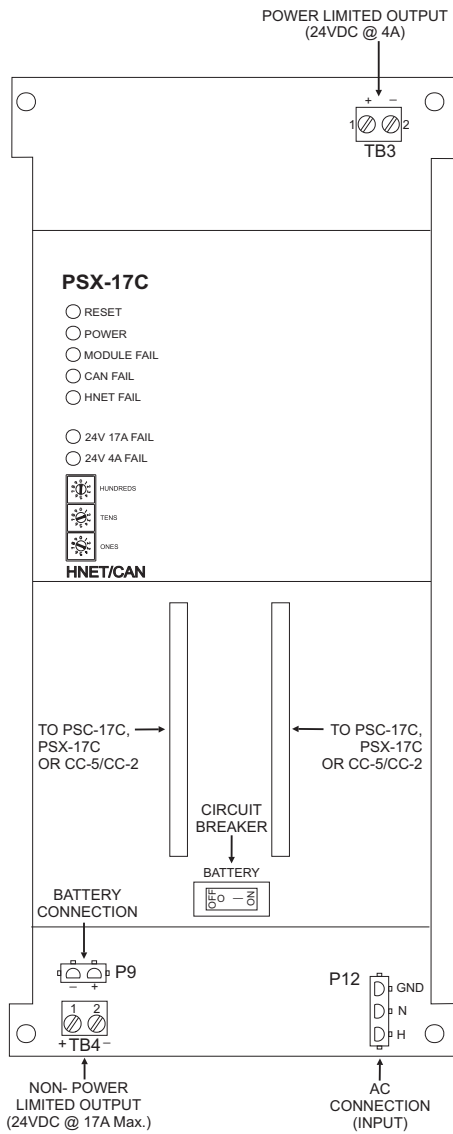


Figure 2  
Terminal Blocks, Controls  
and Indicators

- HNET FAIL - (Yellow) Normally OFF.  
Not used for E100 applications.
- 24 V 17A FAIL - (Yellow) Normally OFF.  
When illuminated, indicates that the 24 VDC non-power limited output has a trouble condition or the PSX-17C has disconnected the 24 VDC output due to current overload or short circuit.
- 24 V 4 A FAIL - (Yellow) Normally OFF.  
When illuminated, indicates that the 24 VDC power limited output has a trouble condition or the PSX-17C has disconnected the 24 VDC power output due to current overload or short circuit.

Three rotary dial switches located directly below the LEDs are used to set the CAN network address of the PSX-17C.

The terminal blocks of the PSX-17C are defined as follows (refer to Figure 2):

**TB3** 24 VDC Power Limited Output Terminal. This terminal output is limited to 4 A. When it is exceeded, it will shut down, light its associated diagnostic LED and send a fault condition to the PMI-S.

This output is normally connected to the modules and cards located on the door of the enclosure or to the remote CAN network modules. This output is power limited to NFPA 70 per 760. All wiring must be in accordance with Article 760 of NEC or local building codes (See Figure 2).

- Output Voltage: 24 VDC +10%, -15%
- Output Current: 4 A max
- TB3-1: (+) terminal
- TB3-2: (-) terminal

**TB4** 24 VDC Non-Power Limited Output Terminal. This terminal is non-power limited and can supply up to 17 A. When the current draw is exceeded, it shuts down, lights its associated LED and sends a fault condition to the PMI-S.

This output is normally connected to the input terminals of the CC-5. All wiring must be in accordance with Article 760 of NEC or local building codes (See Figure 2).

- Output Voltage: 24 VDC +10%, -15%
- Output Current: 17 A max
- TB4-1: (+) terminal
- TB4-2: (-) terminal

- P9 Connects the back-up battery to the PSX-17C.
- P12 AC input connector
- 60-pin Connects the PSX-17C to the system. It is a straight-through connection between the two connectors. It contains the communication signals and system signal bus that is necessary for the proper operation of the system.
- If a 60-pin ribbon cable is used to connect the PSC-17C to another module, the supplied ribbon cable ferrite should be placed around the cable.
- These connectors are power limited. If the PSX-17C is located in a different row in the enclosure, an optional extended ribbon cable, Model FCL (C24200-K28-B6), must be used.

Output Voltages: 24 VDC, 6.2 VDC  
 Max Current: 2 A @ 24 VDC  
 2 A @ 6.2 VDC



The total cumulative sum of the 24VDC output (Power limited TB3 and non-power limited TB4 and power limited System bus 60-pin) must not exceed 17 A. Over current draw will initiate a PSX-17C shut down.

ACCESSORY PACK

The PSX-17C installation kit has the following components:

INSTALLATION KIT COMPONENTS	
1 DC wire red / blue	600-250361
1 Ribbon cable 60 Pins, l = 165mm	555-133036
4 Flat head screws	545-034832
1 Contact washer	545-034832
2 Round clamp ferrites	A5Q20003585
1 Flat ribbon cable ferrite	A5Q20003573
Battery Cable Assy	600-234845
1 Ribbon cable 46 pins, l = 850mm	555-134829

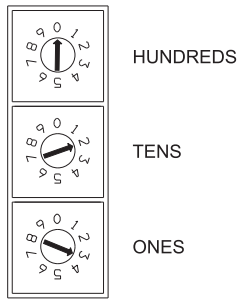
The following part is optional:

- If the PSX-17C is not located on the same mounting plate MP-M as the PSC-17C, PSX-17C and/or CC-5/CC-2 it is connected to, an extended 60-pin flat ribbon cable, Model FCL (C24200-K28-B6), is required.

PRE-INSTALLATION

The following components must be set prior installing the module in the enclosure:

- **Battery Circuit Breaker:** Set this circuit breaker to the OFF position.



## HNET/CAN

- CAN Network Address Switches:** Set the three-digit CAN network address for the PSX-17C using the three rotary dial address switches located below the LEDs on the front panel. (Refer to Figure 2 for the location of the switches.) The address for the PSX-17C must be the same as the address selected for it in the Zeus Programming Tool. To set the address, turn the pointers on each of the three dials to the numbers for the selected address. For example, if the address is 023, set the pointer for the HUNDREDS dial to "0," set the pointer for the TENS dial to "2," and set the pointer for the ONES dial to "3." The range of allowable addresses is from 001 to 099 (leading zeros must be used).

## INSTALLATION



Disconnect BATTERY and AC prior to working on equipment.

The PSX-17C can occupy any position on the mounting plate, but it should be installed as shown in Figures 3 and 5. When the PSX-17C is mounted correctly on the Mounting Plate it will be flush on the top, bottom, and right with the Mounting Plate and the mounting screw holes of the PSX-17C will align with the threaded posts.

- Install four M5 screws in the threaded posts at the mounting position. Screw each of the M5 screws into the threaded posts 5-6 turns.
- Place the PSX-17C over the four screws on the Mounting Plate and slide it down or towards you to rest on the four screws (Refer to Figure 4). When the PSX-17C is in the correct position it will be flush with the top, bottom and right side of the Mounting Plate.
- Tighten the four screws.

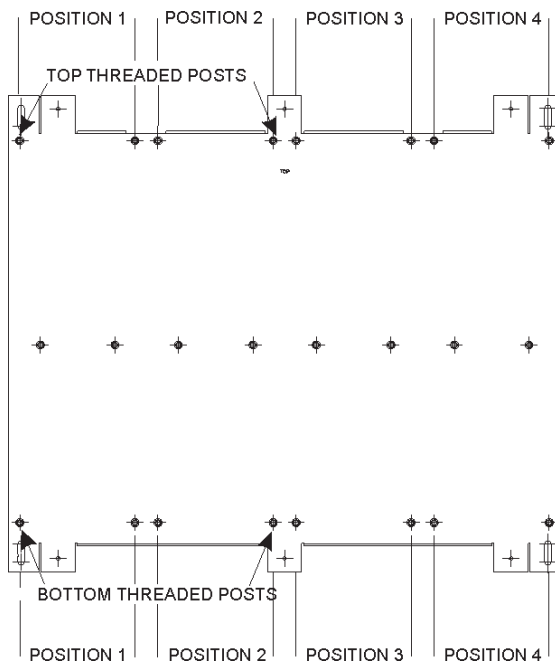


Figure 3  
Location Of The PSX-17C On The Mounting Plate MP-M

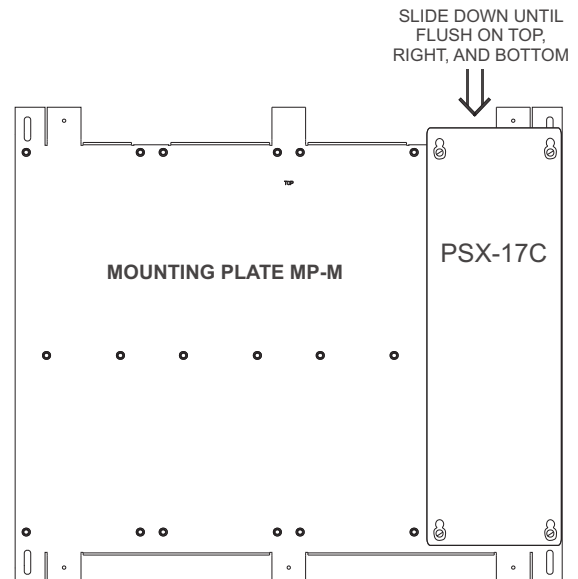


Figure 4  
Mounting The PSX-17C On The Mounting Plate MP-M

WIRING

Use the ferrites provided on all cables as shown on Figures 6 and 7. All cables are to be wrapped around the ferrites once and the two battery wires are to be braided together. The PSX-17C has removable terminal blocks and connectors at the top and bottom of the module. The terminal block at the top of the PSX-17C is power limited. The terminals and connectors at the bottom of the PSX-17C are non-power limited (Refer to Figure 5).

Use a separate or dedicated circuit breaker and run the earth ground from a suitable source to the PSX-17C. Check local requirements.



Conduit is not an acceptable Earth Ground Conductor.

Wire in accordance with the local codes.

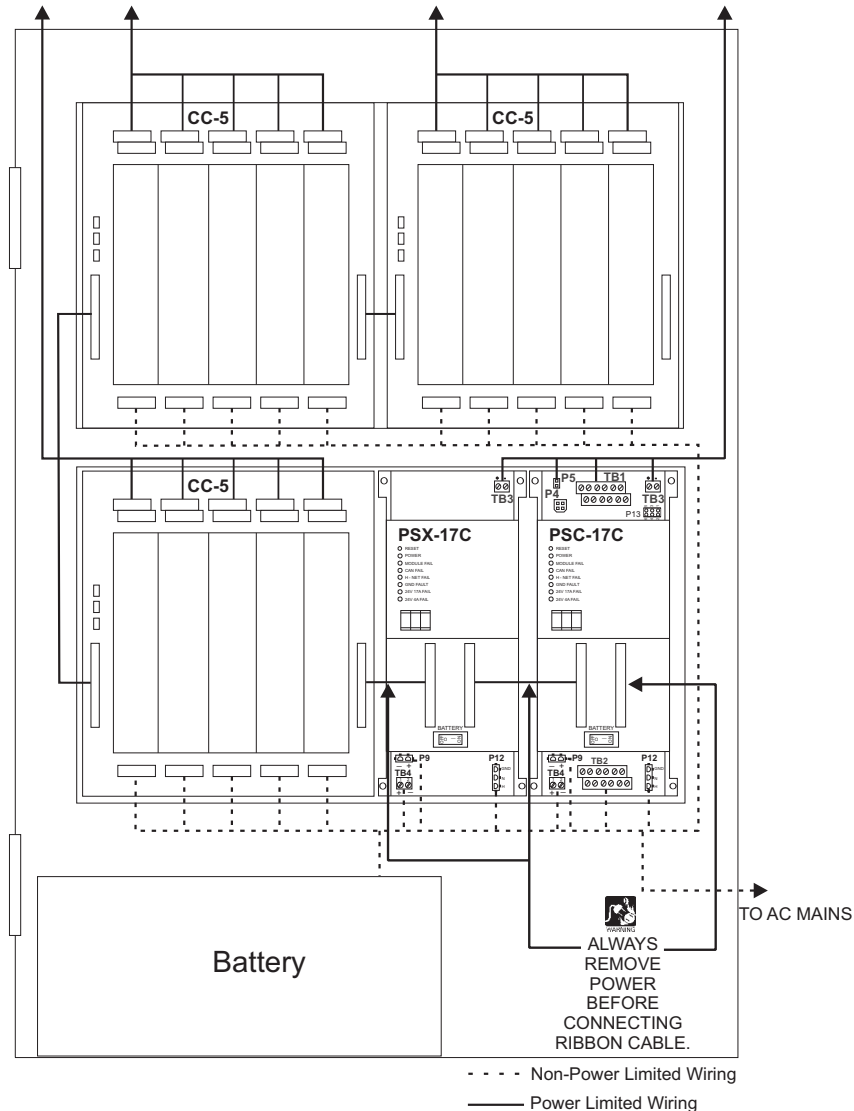


Figure 5  
PSX-17C Wiring In The CAB-1/2 and CAB 19-3/6 Enclosures

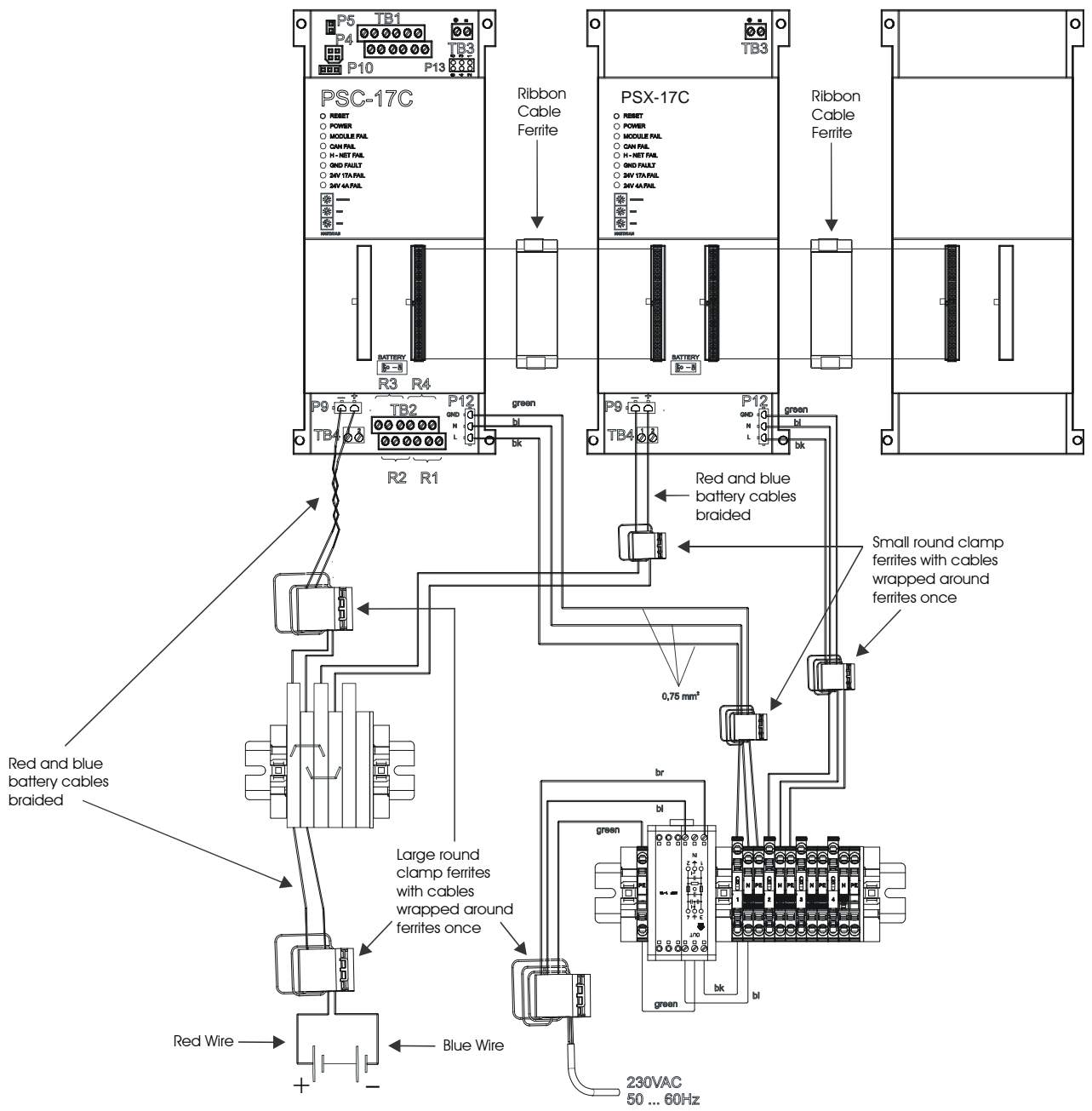


Figure 6  
Wiring In The CAB-1/2 Enclosure

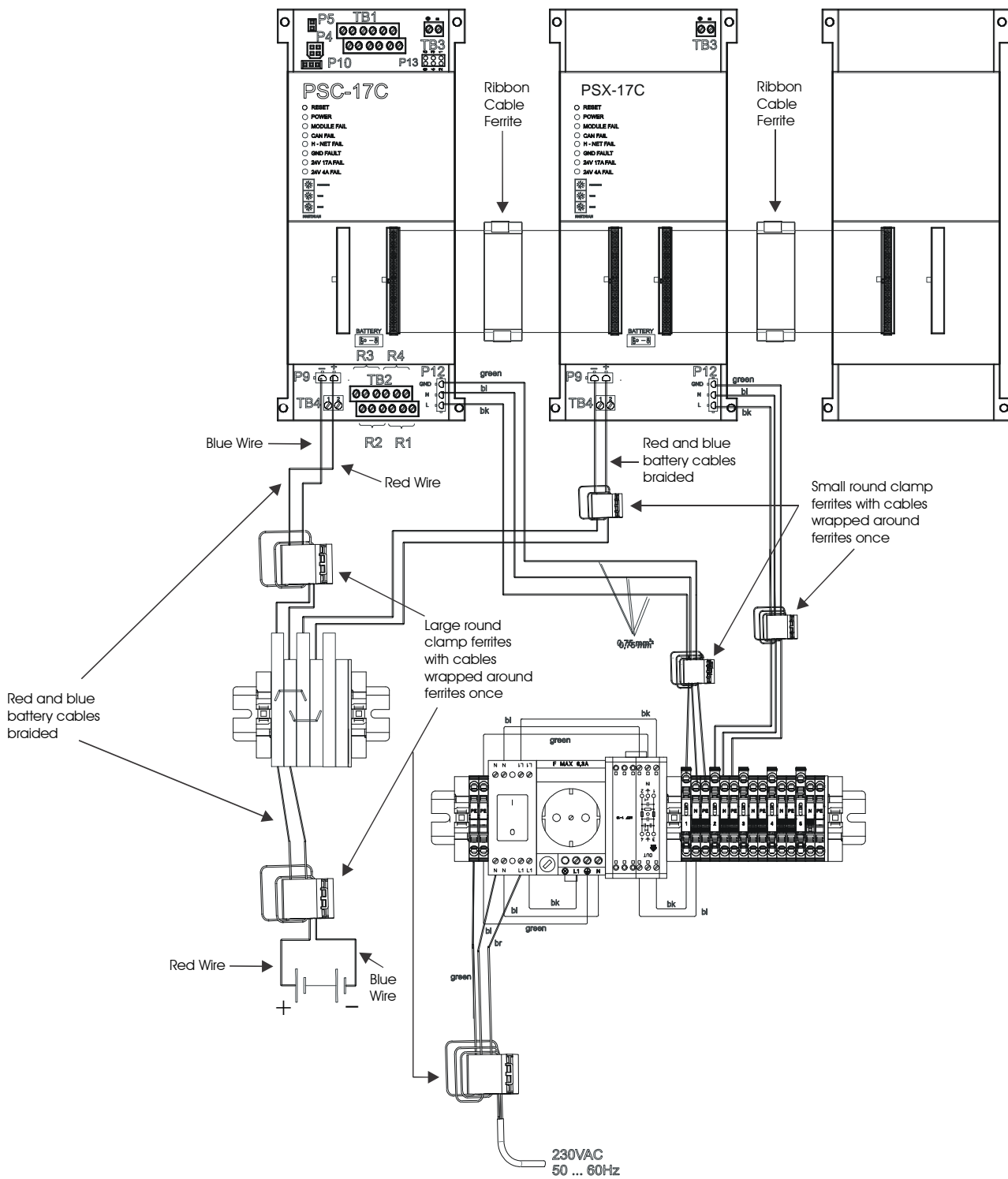
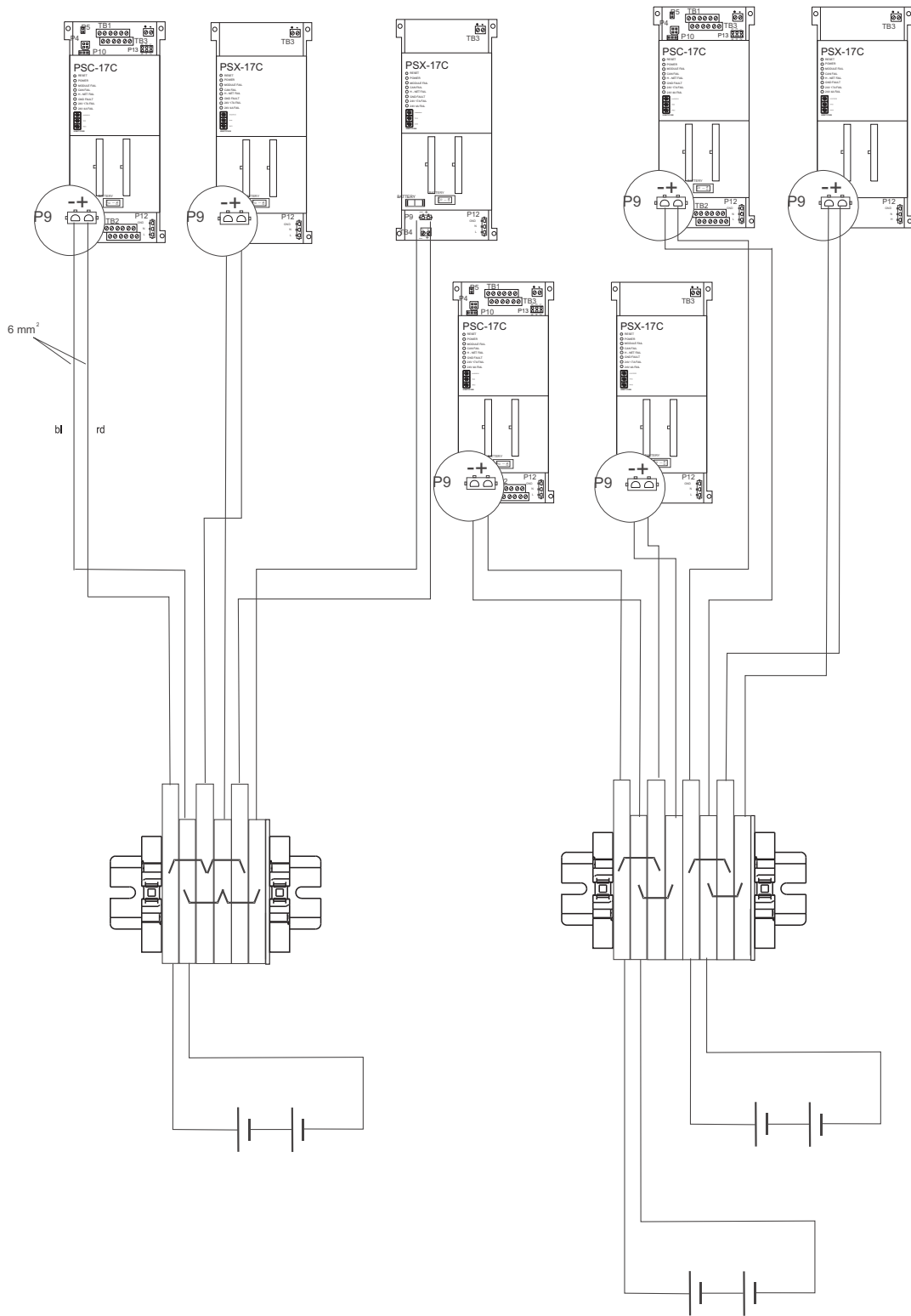


Figure 7  
Wiring In The CAB19-3/6 Enclosure





**NOTE:** See Figure 6 for Ferrite location/wiring

Figure 8  
Wiring Batteries To The PSX-17C

POWER SUPPLY CALCULATION

To ensure that the PSX-17C power supply is not overloaded, use the form and follow the procedure listed below.

1. Enter the quantity of each card/module in the enclosure.
2. Calculate both the 24 VDC and the 6.2 VDC loads for each row.
3. Total the Active 24 VDC and Active 6.2 VDC columns.
4. Ensure that both totals are within the power supply output ratings.

Power Supply Full Load Calculations

**POWER SUPPLY LOAD CALCULATION FORM**

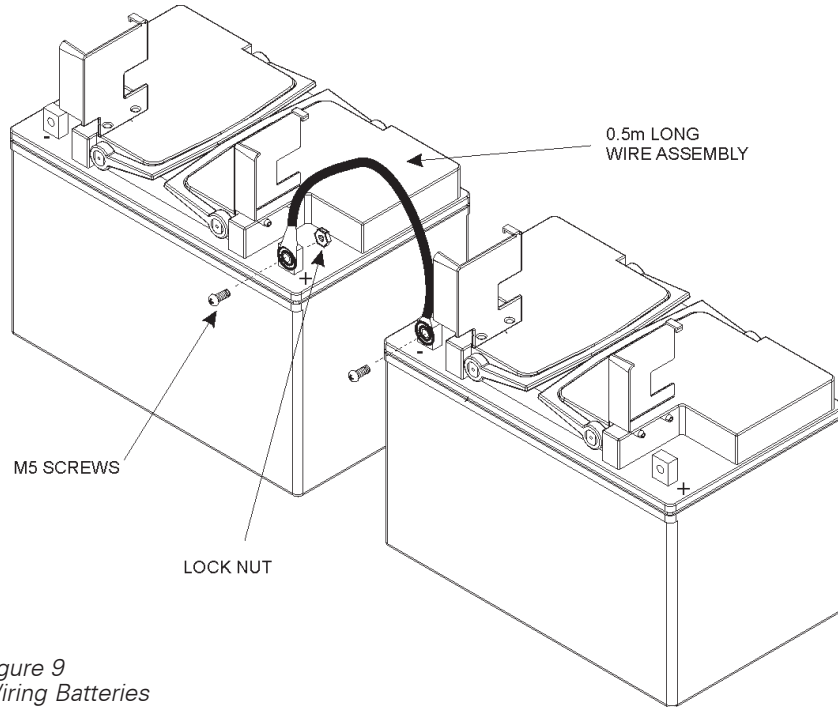
Card / Module	Quantity	24 VDC Screw Terminal Current	
		Per Card/Module	Total 24 VDC Current
AIC		0	0
DAC-NET		0	0
FCM-6S		14mA + 1mA per active LED	
FMT-S		150mA	
LCM-8S		14mA + 1mA per active LED	
LPB		0	0
LVM-SS/HS		25mA	
LVM-D		100mA	
NIC-C		0	0
OCM-16		14mA + 10mA per active LED	
PMI		0	0
RNI		75mA	
RPM		150mA	
SCM-8S		14mA + 1mA per active LED	
SIM-16		20 mA + 20mA per active relay + 1.2mA per supv. input	
SZC-8IMP		0	0
SZC-8DC		0	0
TZC-8B		280mA	
ZAC-40		150mA + 53mA per Watt	
ZAC-70		150mA + 53mA per Watt	
ZAM-180		300mA + 53mA per Watt	
ZAM-300		330mA + 45mA per Watt	
ZIC-4AC		Usage dependant	
			(Must not exceed 17 Amps)

## Battery Power

Make sure that the battery circuit breaker is in the OFF position.

Use 10 AWG (6 mm<sup>2</sup>) for the battery connection.

Battery backup is required. (12 amp hours is the minimum size and 100 amp hours is the maximum size of the battery for the PSX-17C.)



*Figure 9  
Wiring Batteries*

## Battery Connections

1. Using the 0.5m long wire assembly, connect the two batteries together, as shown in Figure 9. Secure each end of the assembly to the battery with an M5 screw and lock nut.
2. Braid the full length of the red and blue battery cable.
3. Attach the red battery wire using the screw provided on the positive terminal and the blue battery wire on the negative terminal.
4. Close the covers of the battery terminals.

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**ELECTRICAL RATINGS****PSX-17C**

Input Voltage	120 VAC/220 VAC/240 VAC +10%, -15%
Input Current	4.0 A max. @ 120 VAC 2.5 A max. @ 220 VAC 2.0 A max. @ 240 VAC
24 V Backplane Current	2 A max.
Screw Terminal 24 V Current	Power Limited: 4 A max. Non-Power Limited: 17 A max.
24 V Standby Current	150 mA

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**ELECTRICAL RATINGS****Battery System**

Input Voltage	24 VDC
Input Current	17 A max.
Minimum Battery size	12 Ah
Maximum Battery size	100 Ah
Battery Max Charge Current	6 A (full charge mode)

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**SPECIFICATION REQUIREMENT**

Number of devices in the E100 cabinets

**CAB-1/2**

- Up to 4 PSC-17C / PSX-17C
- Batteries: 2 x 12 V/65 Ah\*
- No active cooling (vent)

**CAB 19-3/6**

- Up to 9 PSX-17C / PSX-17C
- Batteries: 6 x 12 V/ 65 Ah\*
- Target: No active cooling (vent)
- Optional vent

\*100 Ah batteries require a separate enclosure.

For CE applications in E100 systems refer to  
Installation Instruction A24205-A334-B844 (English) or A24205-A334-A844 (German).