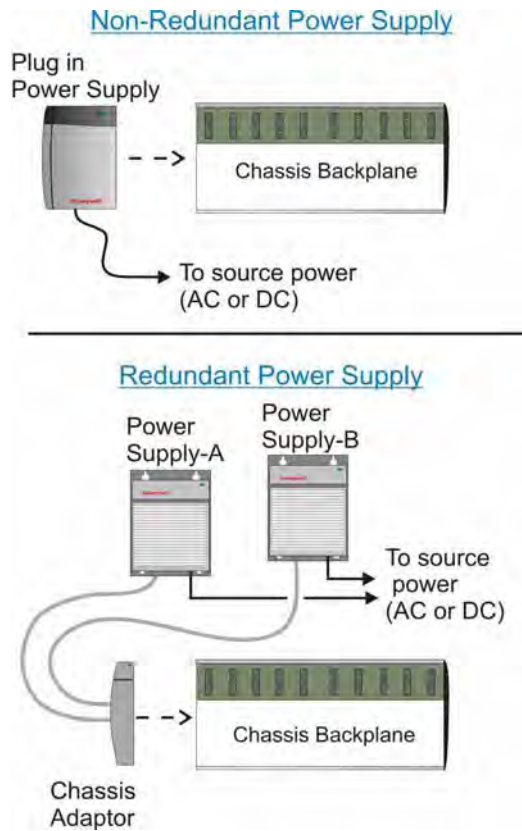


5. Chassis Series-A Power System

There is a non-redundant and redundant version of the power supply system.



Non-Redundant Power: With this implementation a Chassis Series-A power supply module slides onto the left side of the chassis. This connects the DC output voltage to the chassis backplane and powers all modules that are inserted into one of the chassis slot positions. There is a version that accepts AC source power and a version that accepts DC source power.

Redundant Power: With this implementation two panel mounted Chassis Series-A power supplies are connected to the chassis through a chassis adaptor module that connects to the left side of the chassis. If one power supply fails, the other will carry the load. There is a version that accepts AC source power and a version that accepts DC source power.

PMIO Power System Redundancy: The PMIO platform provides a fully redundant and robust power supply assembly. This supply generates 24 Vdc and can be used to as the source power for a DC type Chassis-A power supply.

Redundant Power System Versions: There are two versions of the redundant power system. They differ by the cables and chassis adaptor (power supplies are the same). Older versions may exist in the field, but they are no longer available for sale. The table below shows the old and new versions and associated model numbers.

Model No.	Description	No. req.	Notes
TC or TK-	RPDXX1 24 Vdc Power Supply	2	Usable with both versions.
TC or TK-	RPCXX1 120 Vac Power Supply	2	Usable with both versions.
TC-	PRSC03 Power Cable (female connector both ends)	2	Old version- not available.
TC or TK-	RPSCA1 Chassis Adaptor (male connector)	1	Old version- not available.
TC-	PRSC04 Power Cable (female connector for power supply male connector for adaptor)	2	New version – active.
TC or TK-	RPSCA2 Chassis Adaptor (female connector)	1	New version – active.

Note: all power cables are 1 meter long.

5.1 Power Calculations

The Chassis Series-A power supply provides 24 Vdc, 5 Vdc, 3.3 Vdc, and 1.2 Vdc. Each module that is inserted into the chassis will consume a portion of the available power. The user must ensure that the planned configuration and mix of modules does not exceed the capability of the power supply. See power consumption section “Module Power Consumption Data”.

5.2 Series-A Power Supply Specifications

Table 5-1 – Standard (non-redundant) Power Supply Modules

Model	Uncoated:	TC-FPCXX2	TC-FPDXX2
	Coated:	TK-FPCXX2	TK-FPDXX2
Input Voltage Range		85-132 VAC or 170-265 VAC (selectable)	19.2-32 VDC ¹
Input Power ²		150 VA, 92 W	100 W
Maximum Inrush Current		15 A	30 A
Frequency Range		47-63 Hz	DC
Total power output maximum, watts		70 W @ 60 °C	70 W @ 60 °C
Backplane Output Current, Maximum ³		1.5 A @ 1.2 V 4 A @ 3.3 V 10 A @ 5.1 V 2.8 A @ 24.0 V	
Fuse Protection ⁴		non-replaceable fuse is soldered in place	
Wiring		#14 AWG (1.4 mm)	
Dimensions (L x D x H)		11.2 x 14.5 x 14.0 cm (4.41 x 5.71 x 5.51 in)	
Weight – Approximate		1.1 kg (2.5 lb.)	
Location		Left side of chassis (does not consume a slot)	
<ol style="list-style-type: none"> Input may drop to 16 V for a maximum of 2 minutes each hour for motor starting. Note earlier models were rated as follows: TC-FPCXX1 -- 55 W @ 60°C; 70 W @ 45°C and TC-FPDXX1 -- 50 W @ 60°C; 70 W @ 40°C. The combination of all output power (5 V backplane, 24 V backplane, 3.3 V backplane and 1.2 V backplane) cannot exceed 70 W. This fuse is intended to guard against fire hazard due to short circuit conditions and may not protect the power supply from damage under overload conditions. 			

Table 5-2 Redundant Power Supply Modules

Model	Uncoated:	TC- RPCXX1	TC- RPDXX1
	Coated:	TK- RPCXX1	TK- RPDXX1
Input Voltage Range		85 – 265 VAC	16 – 32 VDC
Input Power		110VA, 110 W (estimated)	110 W (estimated)
Maximum Inrush Current		20 A	30 A @ 19 – 32 VDC
Frequency Range		47 – 63 Hz	DC
Total power output maximum, watts		75 W @ 60 C	75 W @ 60 C
Backplane Output Current, Maximum ¹		1.5 A @ 1.2 V 4 A @ 3.3 V 13 A @ 5.1 V 2.8 A @ 24.0 V	
Input Power Wiring		#14 AWG (1.4 mm)	
Annunciation User Connection ²		Solid state relay rated for 120 VAC/DC at 100ma maximum	
Dimensions (L x D x H)		14.4 x 13.7 x 17.5 cm (5.67 x 5.39 x 6.89 in)	
Weight – Approximate		1.1 kg (2.5 lb.)	
Redundant Power Supply Cable Model (3ft)		TC-RPSC03 (one required per power supply)	
Power Supply Cable Weight – Approximate		0.57 kg (1.25 lb.)	
Location ³		Upright mounting, typically above/below chassis to be powered.	
1. The combination of all output power (5 V backplane, 24 V backplane, 3.3 V backplane and 1.2 V backplane) cannot exceed 75 W. 2. In order to pass certain input power surge testing for CE certification, the length of the wiring from this relay must be limited to ten (10) meters. 3. It is not recommended to mount the power supply above/below its partner power supply as this could create ambient temperatures that are greater than 60 C within 1.0 inch of the bottom of the power supply.			

Table 5-3 Redundant Power System Chassis Adaptor

Model	Uncoated:	TC-RPSCA2
	Coated:	TK-RPSCA2
Dimensions (L x D x H)		3.4 x 14.4 x 15.0 cm (1.34 x 5.67 x 5.91 in.)
Weight – Approximate		0.228 kg (0.50 lb.)
Location		Left side of chassis (does not consume a slot)
Environmental Conditions		See Table 3.
Chassis compatibility ¹		TC-FXX042, TC-FXX072, TC-FXX102, TK-FXX102, TC-FXX132, TK-TXX132, TC-FXX172
1. The Chassis Adapter Module will only mount to Chassis model numbers identified above due to a physical interlock. These chassis models are rated for the 13 A supplied by the redundant power supplies. Earlier versions of the chassis were only rated for 10 A.		

The Redundant Power Supply System is designed with the following features:

- Current Sharing Control between each supply – for maximum power supply life
- Error Detection – for maximum security
- Error Annunciation – for immediate notification
- LED Indication – indicating redundant, non-redundant, and failure conditions