8.5 Power supply requirements

The rail-mounted UIO module is powered from a +24VDC remote industrial grade power supply. The DC power is supplied directly to each rail-mounted UIO assembly. Note that the customer will supply conditioned power that meets the Series C specifications. It operates reliably from a DC power source of 20VDC to 26VDC. The rail-mounted UIO module in redundant configuration consumes power at 10 Ampere from the power source.

A DC fused terminal block (TB) needs to be mounted inside the non-standard Honeywell cabinet to terminate the incoming DC power cord from the external remote DC power supply. From this terminal strip, a pair of wire with 18 AWG (0.82 mm2) terminates on the rail-mounted UIO TB. See **Figure: DC power line wiring through system tray** in the section "Wiring connections" on page 301 to view the connections of fused TB and FOE.

The below specifications are applicable for each rail-mounted UIO module.

Output Specifications			
MUST be MET specifications for Series C system			
	Reference **Conditions** Full load @ 25° C (+/-2° C) is the base reference conditions. Additional conditions are noted below	**Operating Limits** Or **Operating Feature**	**Comments**
DC Output Voltage (VDC)		20V min 26V max	Must include combined effects of temp, line/load regulation, aging effects.
DC OUTPUT VOLTAGE STABILITY		Should be not more than +/- 0.1% for 8 hours, following a 6 hour warm-up period	
DC output Holdup Time	For all line voltage values within the normal operating band	The DC output should be maintained (with maximum load current) for at least 20 milliseconds after a (100%) dropout of the AC line input	
Low Freq - Ripple & Noise	From DC to 2x power line frequency and at the switch mode frequency	Less than 200 milli-volts peak-to-peak	For all input line and output load conditions.
Noise on the Negative Output	DC to 50MHz	Less than 3.0V peak-to-peak	Measurement to be made between System Common and Safety Ground
Output Current Limiting	Power supply should be capable of operating without damage continuously.	For power supply(ies) of 20A or less, the soft limit is 135%. For power supply(ies) between 20A to 40A, the soft limit is 120% For safety reasons, once the hard limit (200%) is reached, the power supply must shutdown the DC output (0 volts).	No component rating should be exceeded during an overcurrent condition.

24V Power down		When 24V rail falls below 19V, the output voltage shall monotonically decrease until a reapplication of the AC line input for proper system shutdown/operation	
STABILITY UNDER BROWNOUT CONDITIONS		When the Input AC line voltage is below the minimum operating limit (e.g., between 0 and 85 VAC) the power supply will not be damaged. The difference between the power-up and power- down thresholds shall be 10% of the low line operating limits	
Soft Start feature		Rise Time: > 10ms	

Reverse voltage protection

The Rail-UIO-IOTA power conditioning PWA (51307106-175) is mounted on the rail-mounted UIO assembly, which is provided with the reverse protection feature. This feature protects the rail-mounted UIO modules from the reverse polarity.

Routing of DC power lines

Each rail-mounted UIO requires a separate pair of +24V DC and GND lines from the fused Terminal Strip. The power lines are routed in the system tray of rail-mounted UIO. See **Figure: DC power line wiring through system tray** in the section “Wiring connections” on page 301 for illustration.

8.5.1 Fused Terminal Block

The Terminal Block is fused and the typical fuse rating for powering a single rail-mounted UIO module is as follows:

- Typical operating current: 15 Amps
- VDC: >30V
- Operating temperature: -40 to 70 degC
- Fast acting, Glass type removable fuse from the terminal block is preferred
- Meets the UL/CSA 248-14 standard
- I^2t rating > 950 $Amphere^2$ second
- Fuse should meet the local agency approval requirements

8.5.2 Circuit Breaker

The AC input line to the DC power system must be protected by an appropriately sized circuit breaker.

Compliance

Power wiring must conform to the local electric code like NEC and CEC or any other local electric code.