

Product Features

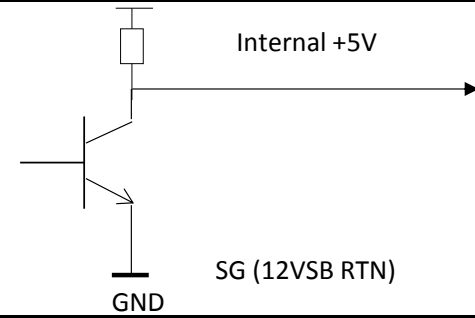
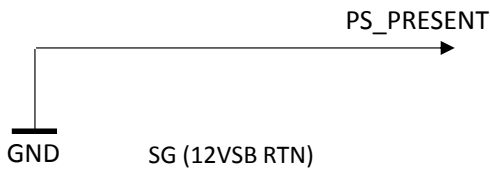
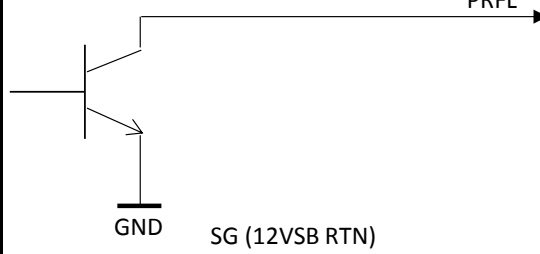
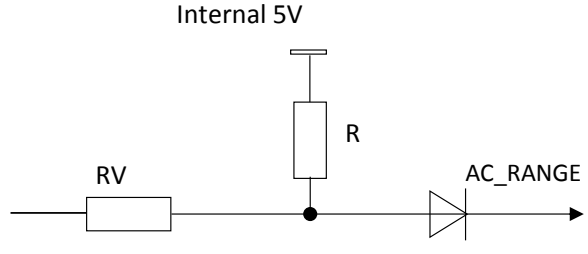
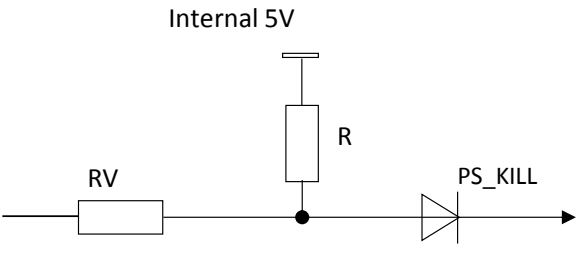
- Input range 260VDC - 400VDC
- Bulk Power for Distributed Power Architectures
- Hot Swap N+1 Redundancy
- Active Current Sharing
- LED Indicators on Front Panel
- Over Voltage, Over current and Under Voltage Protection
- Over Temperature Protection
- RoHS Compliant


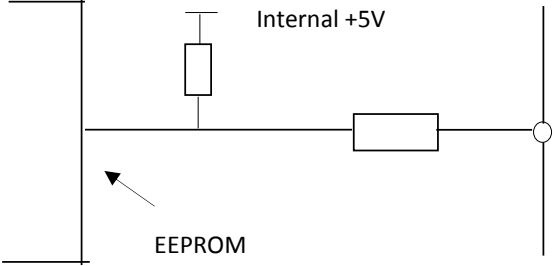


Input Characteristics	Notes	Min.	Type	Max.	Units
Operating Voltage Range 2000W Operation		260	380	400	VDC
Turn-on Input Voltage	900W - 2000W Operation	-	240	-	VDC
Turn-off Input Voltage	900W - 2000W Operation	-	250	-	VDC
Inrush Current Limitation	Measured at 25°C, 380VDC Input	-	-	85	ApK
Input Current 2000W Operation	Measured at 380VDC, Vout=48V, Load=40.6A	-	-	6	A
Hold-up Time 2000W Operation	Single Unit Operation	5	-	-	mS
Efficiency	at 380VDC	at 20% Load, 93.04%			
		at 50% Load, 95.02%			
		at 100% Load, 95.48%			
Output Characteristics	Notes	Min.	Type	Max.	Units
Output Voltage Set Point	Factory Set		48		VDC
Voltage Regulation	AC Line, Load, temperature	-3		+3	%
Output Current	AC Range : High	1.35		17.7	A
	AC Range : Low	3		40.6	A
Output Current	100VAC to 120VAC			900	W
	200VAC to 240VAC			2000	W
Transient Response	Overshoot & Undershoot@Hot-Swap,Turn On/Off			5	%
	Dynamic Characteristics ; Change in output 75% <=>100% load step			3	%
Load Sharing	@ full load	-5		+5	%
Ripple & Noise	With load capacitance, 0.1uF of Ceramic Cap. & 100uF of Electrolytic			480	mVp-p
Auxiliary Output	Notes	Min.	Type	Max.	Units
Stand-by Output Voltage		-	12.5	-	VDC
Voltage Regulation		-4	-	+4	%
Stand-by Output Current		0	-	4.0	A
Ripple & Noise	With load capacitance, 0.1uF of Ceramic Cap. & 10uF of Electrolytic Cap	-	-	120	mVp-p
Load Sharing	Difference between two units at full load	See Function Specification			%
Stand-by Output Over Voltage	Eliminator voltage; Less than 16.5V	-	-	-	VDC
Stand-by Output Under Voltage		-	-	-	VDC
Stand-by Output Over Current		100	-	150	%
Protections	Notes	Min.	Type	Max.	Units
Input Under Voltage	Shutdown if input voltage <240VDC for more than 1 sec	235	240	245	VDC
Output Over Voltage	Shutdown	51	-	55	VDC
Output Under Voltage	Shutdown	14.4	-	38.4	VDC
Output Over Current	Shutdown	110	-	150	%
Over Temperature	The power supply shutdown to protect itself before excessive temperature causes damage	-	-	-	°C

Latch off -> DC off/on

Serial Communications	Signal	
Signals	PS_ON FANC AC_OK FAIL PW-OK PS_PRESENT	PRFL ACRANGE PS_KILL 48VLS FRU
LED Signals	Refer to LED Indicators on Page 7	
Signal Condition / Signal Type	Circuit Condition	Electrical Condition
Input Signal PS_ON	<p style="text-align: center;">Internal +5V</p>	48VDC Turn ON/OFF signal Active low (less than 1V)
Input Signal FANC	<p style="text-align: center;">Internal +12V</p>	FAN Speed control signal 2~3V Fan in LOW speed 3~10.5V Fan ramps from LOW to HIGH speed. >10.5V: Fan in HIGH speed The power supply will supersede this request and increase the fan speed if it requires more cooling
Output Signal DC_OK	<p style="text-align: center;">GND SG (12VSB RTN)</p>	Input voltage monitor signal "Low" active (below 0.4V at 4mA) "High" shows AC input loss
Output Signal FAIL	<p style="text-align: center;">GND</p>	Power supply failure signal "High" active "Low" (below 0.4V at 4mA) shows normal

Signal Condition / Signal Type	Circuit Condition	Electrical Condition
Output Signal PWOK	 <p style="text-align: center;">Internal +5V</p> <p style="text-align: center;">SG (12VSB RTN)</p> <p style="text-align: center;">GND</p>	Output status signal "High" active "Low" (below 0.4V at 4mA) shows abnormal output
PS_PRESENT	 <p style="text-align: center;">PS_PRESENT</p> <p style="text-align: center;">GND</p> <p style="text-align: center;">SG (12VSB RTN)</p>	Power supply present signal Low = Present High = Not - present
Output Signal PRFL	 <p style="text-align: center;">PRFL</p> <p style="text-align: center;">GND</p> <p style="text-align: center;">SG (12VSB RTN)</p>	FAN speed drop signal "High" active "Low" (below 0.4V at 4mA) shows normal
Input Signal AC_RANGE	 <p style="text-align: center;">Internal 5V</p> <p style="text-align: center;">RV</p> <p style="text-align: center;">R</p> <p style="text-align: center;">AC_RANGE</p>	DC input range setting signal Low (below 1V) : 48VDC @ 40.6A max High : 48V @ 13.5A max
Input Signal PS_KILL	 <p style="text-align: center;">Internal 5V</p> <p style="text-align: center;">RV</p> <p style="text-align: center;">R</p> <p style="text-align: center;">PS_KILL</p>	Power supply force shut off signal for hotswapping Low (below 1V) : Power on High (above 2V) : Power off

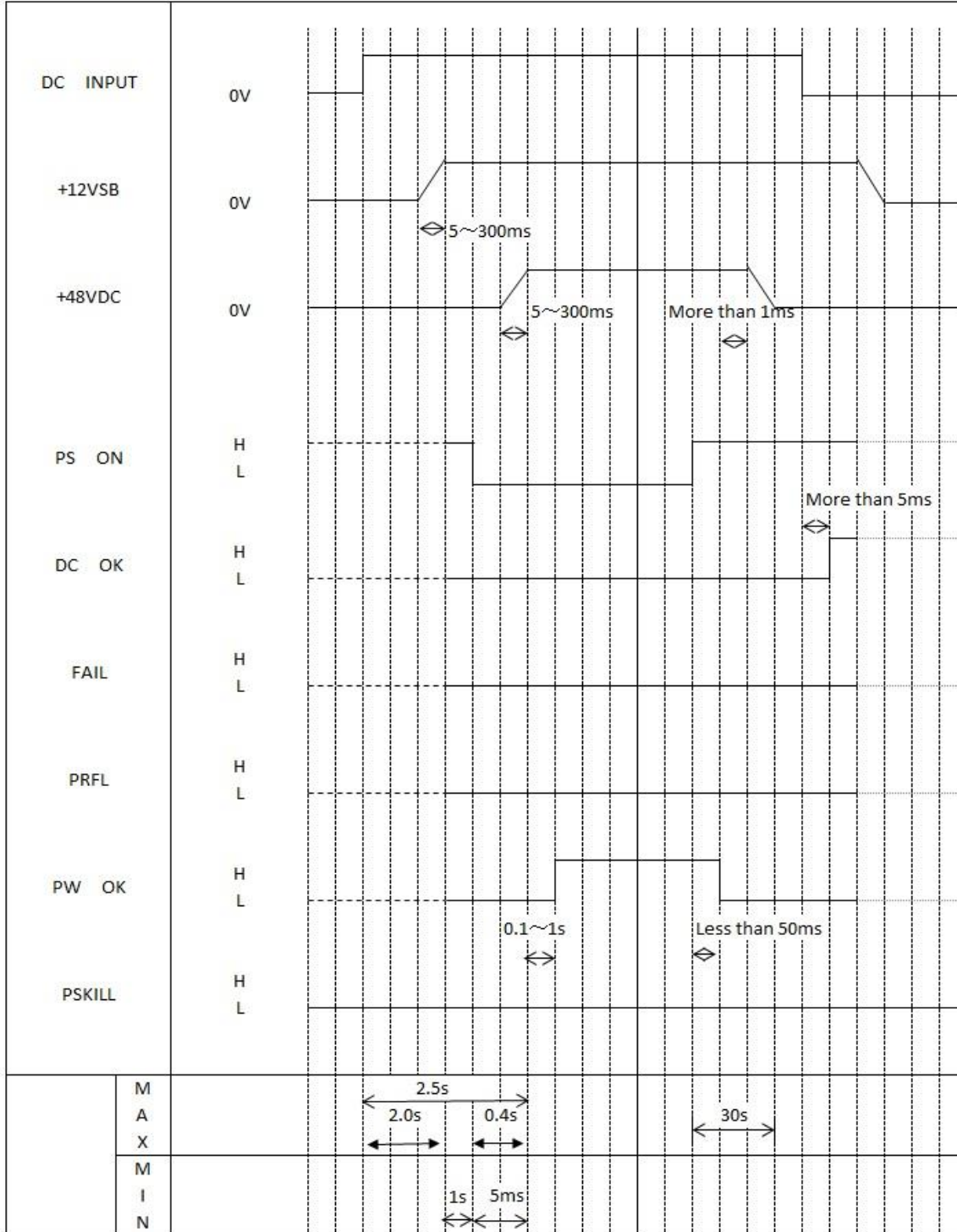
Signal Condition / Signal Type	Circuit Condition	Electrical Condition
48VLS		48VDC current balance signal 40.6A at 8V 17.7A at 8V
FRU		Based on SSI Specification

Function Specification

Redundant Operation
 -The power supply unit has redundant operation function within up to 30 units in parallel.
 -Hot swappable
 -Current sharing function
 The 48VDC output current is balanced within +/-5% tolerance by wiring each 48LS current balance signals.
 The 12VSB output has the current limit point balance function.

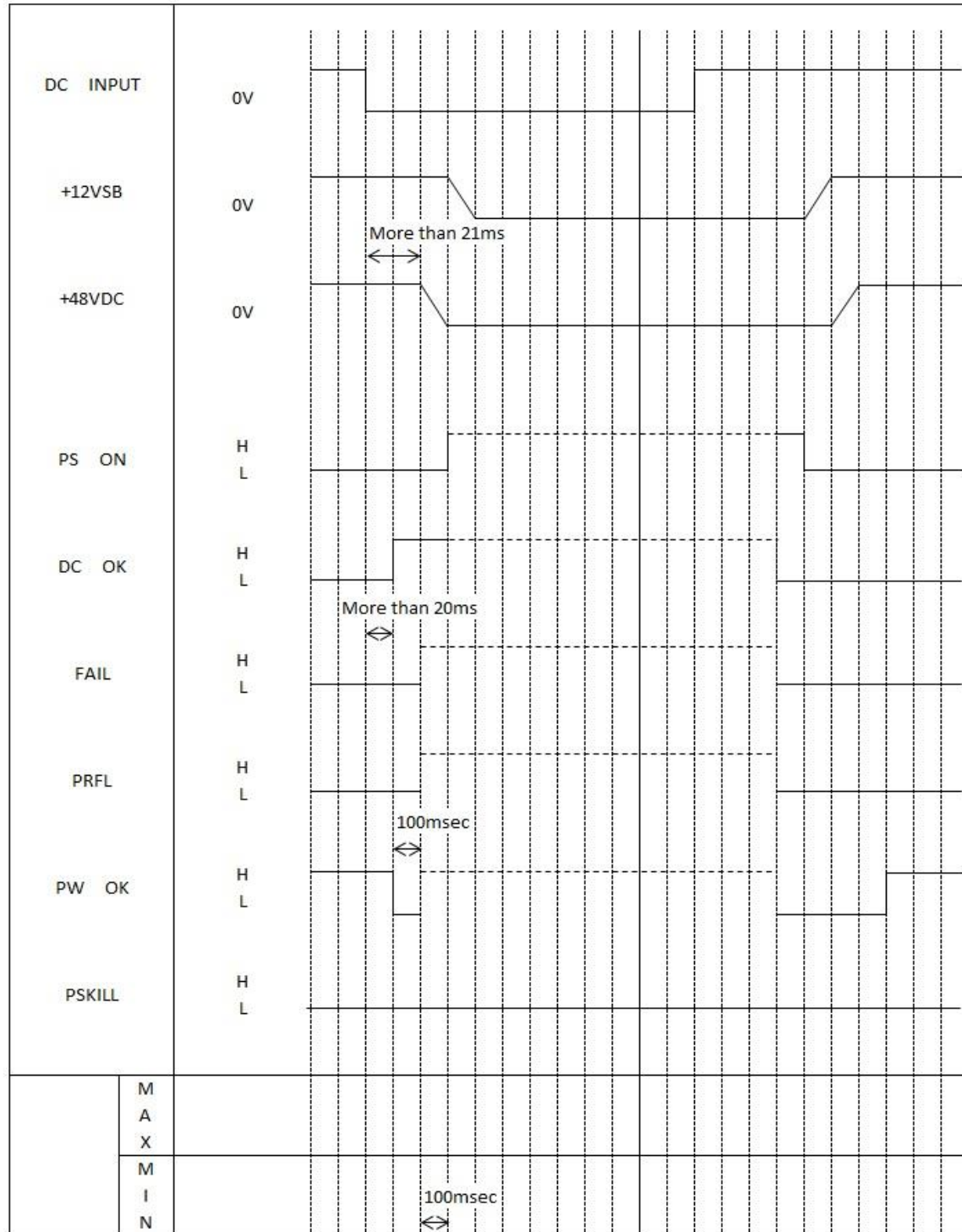
Timing Chart

Turn ON/OFF Timing



Timing Chart

Turn ON/OFF Timing



High Voltage DC

48V 2000W Front End Power Supply

LED Indicators		Power Supply LED					
Power Supply Condition		POWER	PRFL	FAIL			
LED'S Color		Green	Amber	Amber			
No DC Power to All PSU		OFF	OFF	OFF			
No DC Power to This PSU but Provided to Other Units		OFF	OFF	ON			
DC Present / Standby Output On		Blinking	OFF	OFF			
Power Supply DC Outputs ON and Okay		ON	OFF	OFF			
Power Supply Failure		OFF	OFF	ON			
Current Limit on 48VDC Output		ON	OFF	Blinking			
Predictive Failure		ON	Blinking	OFF			
Environmental & Reliability Specifications	Notes	Min.	Type	Max.	Units		
Operating Temperature Range	Standby 12VSB on	0	-	+50	°C		
Storage Temperature		-40	-	-70	°C		
Humidity	Relative Humidity, non-condensing	20	-	+85	%RH		
Cooling	Internal fan cooling						
Fan Speed	Automatically adjusted based on load and ambient temperature						
Vibration Test	Non-operating ; 20-250Hz 0.5G, 3 axes, 15 min	0.5	-	-	G		
MTBF	Calculated @ 25°C ambient temperature	-	500,000	-	Hours		
General Requirements	Notes	Min.	Type	Max.	Units		
Shock	Non-Operating and no-packaging : Three times shock on each of the 6 faces , 2 inch drop						
Vibration	Operating : 0.5G , 5-400Hz, along three orthogonal axes , 30min.						
Electrostatic Discharge	Conditions: Contact and Air No components being damaged and work normally	10	-	-	KV		
Input Line Surges	Line to Ground	-	-	2	KV		
	Line to Line	-	-	1	KV		
Fast Transient / Bursts		-	-	1	KV		
Conductive Emissions	EN55022 & FCC Class A 6dB margin						
Radiated EMI	EN55022 & FCC Class A (with the System)						
Safety Specifications	Notes and Condition	Min.	Type	Max.	Units		
Isolation Voltage	Isolation Voltage Input to Output	-	3000	-	Vac		
	Isolation Voltage Output to Chassis	-	1500	-	Vac		
Safety Agency Approvals	Scheduled to be compliant to CSA, C-US, TUV-EN60950						
Safety Standards	Scheduled to be compliant to EN60950-1 2nd						
	Scheduled to be compliant to UL60950-1 2nd						
	Scheduled to be compliant to CSA60950-1 2nd						
Input / Output Connections							
DC Input Connector	Circuit Name and Purpose			Terminal Type			
	DC INPUT	L		Power Inlet Multi beam 6450123-3 (Tyco)			
		N					
FG							
DC Output Connector : Multi Beam 6-6450130-7 (TYCO) Pin Assignment	Single Pins						
		1	2	3	4	5	6
	D	12VSB	12VSB RTN	48LS	ACRANGE	SCL	A0
	C	12VSB	12VSB RTN	ACOK	PRFL	N.C.	A1
	B	12VSB	12VSB RTN	PSON	PSKILL*	SDA	A2
	A	FANP	PSAlert#	PRESENT	PWOK	FAIL	FANC
	Power Blades						
	P1, P2			P3, P4			
	48VDC RTN			48VDC			

* Pin B4 is a short pin