

Power Supplies

RAY Series

AC Input
Single Output, Long Life

FEATURES

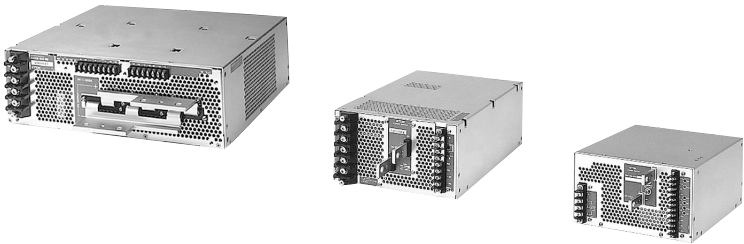
- Various auxiliary functions are provided, such as current balance alarm signal, variable output voltage, etc.

APPLICATIONS

Large-scale display equipment, aging test equipment.

PART NUMBERS AND RATINGS

Output voltage(V)	750W type		1500W type		3000W type	
	Current(A)	Part No.	Current(A)	Part No.	Current(A)	Part No.
2					600	RAY02-600
3	150	RAY03-150				
5	150	RAY05-150	300	RAY05-300	600	RAY05-600
12	62.5	RAY12-62R	125	RAY12-125		
15	50	RAY15-50R				
24	31.3	RAY24-31R	65	RAY24-65R	125	RAY24-125
28	26.8	RAY28-26R				
48	15.7	RAY48-15R	30	RAY48-30R	60	RAY48-60R



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SPECIFICATIONS

750W TYPE

Part No.		RAY03-150	RAY05-150	RAY12-62R	RAY15-50R	RAY24-31R	RAY28-26R	RAY48-15R
Output voltage, current* ¹		3V • 150A	5V • 150A	12V • 62.5A	15V • 50A	24V • 31.3A	28V • 26.8A	48V • 15.7A
Maximum output power	W	450	750	750	750	751.2	750.4	753.6
Input requirements								
Input voltage Eac	V	170 to 264[Rating:200-240](3-phase)						
Input frequency	Hz	47 to 66[Rating:50-60](3-phase)						
Input current	A	3.7max./3max.[200-240V]						
		3V:3max./2.5max.[200-240V]						
Fuse rating	A	10[Internal]						
Surge current	A	34max./40max.[200-240V, 1st surge current, reset after roughly 30s min.]						
Leakage current	mA	2max.[240V, output rating]						
Power factor		0.93typ.(3V:0.89typ.)						
Efficiency	% [200V]	76	79	83	83	84	84	86
Output characteristics								
Output voltage	V	3	5	12	15	24	28	48
Voltage variable range	V	2.7 to 3.6	4 to 5.5	8.4 to 13.2	12 to 16.5	16.8 to 26.4	22.4 to 30.8	32.6 to 52.8
Maximum output current* ¹	A	150	150	62.5	50	31.3	26.8	15.7
Minimum output current	A	0	0	0	0	0	0	0
Overvoltage threshold	%	3.8 to 4.6	6 to 6.9	13.7 to 15.7	17 to 19.5	27 to 30.5	31.4 to 34.5	55 to 59
Overcurrent threshold	A	157 to 175	157 to 175	65 to 71	52.5 to 58.5	32.8 to 36	28.1 to 30.8	16.4 to 18.1
Voltage stability	Input variation	%	1max.(0.5typ.)[Within the input voltage range]					
	Load variation	%	1max.(0.5typ.)[10 to 100% load]					
	Temperature variation	%	1max.(0.5typ.)[-10 to +50°C]					
	Drift	%	0.5max.[25°C, input and output ratings, after input voltage ON for 30min to 8h]					
	Dynamic load	%/ms	±4max./5max.[50 to 100% sudden load change, tr, tf ≥ 0.2ms]					
Ripple Ep-p	mV	100max.	100max.	180max.	180max.	190max.	200max.	200max.
Ripple noise Ep-p	mV	200max.	200max.	250max.	250max.	300max.	350max.	500max.
Start up time	ms	900max.(500typ.)[200V]						
Hold up time	ms	20min.[200V]						
Accessory equipment								
Operation indicator		LED(green) illuminates when voltage output is ON.						
Overvoltage protection* ²		Output voltage shielding type, LED (red) illuminates when AL output signal goes to OV LED.						
Low voltage protection* ²		Output voltage shielding type, LED (red) illuminates when AL output signal goes to UV LED.						
Overcurrent protection* ²		Fixed current threshold type(output limited when low voltage detected).						
Fan alarm* ²		Output voltage shielding type, LED (red) illuminates when AL output signal goes to FAN LED.						
Overheat protection* ²		Output voltage shielding type, LED (red) illuminates when AL output signal goes to OV LED.						
Open phase detector * ²		Output voltage shielding type, LED (red) illuminates when AL output signal goes to OV LED.						
Remote ON-OFF		Yes(Floating)						
Remote sensing		Yes(Floating)						
Current balance		Yes						
Output voltage external variable function		Yes						
Alarm signal		Yes						
Standards								
Safety standards		—						
Noise terminal voltage		FCC class A, VCCI class 1(500kHz to 30MHz) compliant.						
Construction								
External dimensions	mm	110×200×240						
H×W×L								
Weight	kg	5max.						
Mounting method		Can be attached to 3 sides.						
Case material		Frame: Steel Cover:Aluminum						

*¹ Current rating(maximum output current) is determined for -10 to +50°C. Derating is required when used outside this temperature range.

*² Recovers upon reset(interval approx. 40s).

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1500W TYPE

Part No.		RAY05-300	RAY12-125	RAY24-65R	RAY48-30R
Output voltage, current* ¹		5V • 300A	12V • 125A	24V • 65A	48V • 30A
Maximum output power	W	1500	1500	1560	1440
Input requirements					
Input voltage Eac	V	170 to 264[Rating:200-240](3-phase)			
Input frequency	Hz	47 to 66[Rating:50-60](3-phase)			
Input current	A	7.3max.(6.6typ.)/6.1max.(5.5typ.)(200-240V]			
Fuse rating	A	10[Internal]			
Surge current	A	50max./60max.[200-240V, 1st surge current, reset after roughly 30s min.]			
Leakage current	mA	3.5max.[240V, output rating]			
Power factor		0.93typ.			
Efficiency	% [200V]	80typ.	80typ.	80typ.	80typ.
Output characteristics					
Output voltage	V	5	12	24	48
Voltage variable range	V	4 to 5.5	8.4 to 13.2	16.8 to 26.4	32.6 to 52.8
Maximum output current* ¹	A	300	125	65	30
Minimum output current	A	0	0	0	0
Overvoltage threshold	V	6 to 6.9	13.7 to 15.7	27 to 30.5	55 to 59
Overcurrent threshold	A	315 to 350	130 to 140	68 to 72	32 to 35
Voltage stability	Input variation	%	1max.(0.5typ.)(Within the input voltage range]		
	Load variation	%	1max.(0.5typ.)(10 to 100% load]		
	Temperature variation	%	1max.(0.2typ.)(0 to +60°C]		
	Drift	%	0.5max.[25°C, input and output ratings, after input voltage ON for 30min to 8h]		
	Dynamic load	%/ms	±4max./1max.[50 to 100% sudden load change, tr, tf ≥ 50μs]		
Ripple Ep-p	mV	140max.	180max.	190max.	240max.
Ripple noise Ep-p	mV	200max.	250max.	300max.	500max.
Start up time	ms	300max.(150typ.)(200V]			
Hold up time	ms	20min.(30typ.)(200V]			
Accessory equipment					
Operation indicator		LED(green) illuminates when voltage output is ON.			
Overvoltage protection* ²		Output voltage shielding type.			
Overcurrent protection* ²		Fixed current threshold type (output limited when low voltage detected).			
Open phase detector * ²		Output voltage shielding type.			
Remote ON-OFF		Yes(Floating)			
Remote sensing		Yes			
Current balance		Yes			
Output voltage external variable function		Yes			
Standards					
Safety standards		UL1950-D3, CSA ELECTRICAL BULLETIN No.1402C approved.			
Noise terminal voltage		FCC class A compliant.			
Construction					
External dimensions H×W×L	mm	110×203×320			
Weight	kg	8.5max.			
Mounting method		Can be attached to 3 sides.			
Case material		Frame: Steel Cover:Aluminum			

*¹ Current rating(maximum output current) is determined for 0 to +50°C. Derating is required when used outside this temperature range.*² Recovers upon reset(interval approx. 30s).

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3000W TYPE

Part No.		RAY02-600	RAY05-600	RAY24-125	RAY48-60R
Output voltage, current* ¹		2V • 600A	5V • 600A	24V • 125A	48V • 60A
Maximum output power	W	1200	3000	3000	2880
Input requirements					
Input voltage Eac	V	170 to 264[Rating:200-240](3-phase)			
Input frequency	Hz	47 to 66[Rating:50-60](3-phase)			
Input current	A	15max.[200-240V]			
Fuse rating	A	30[Internal]			
Surge current	A	90max.[200-240V]			
Leakage current	mA	2max.[200V-240V]			
Efficiency	%	65typ.	80typ.	80typ.	80typ.
Output characteristics					
Output voltage	V	2	5	24	48
Voltage variable range	V	1.6 to 2.2	4 to 5.5	16.8 to 26.4	32.6 to 52.8
Maximum output current* ¹	A	600	600	125	60
Minimum output current	A	0	0	0	0
Overvoltage threshold	V	2.6 to 3.5	6 to 6.9	27 to 30.5	55 to 59
Overcurrent threshold	A	630 to 700	630 to 700	130 to 140	64 to 70
Voltage stability	Input variation	%	2max.(1typ.)[Within the input voltage range]		
	Load variation	%	3.5max.(2typ.)	2max.(1typ.)[10 to 100% load]	
	Temperature variation	%	2max.(1typ.)[0 to +50°C]		
	Total variation	%	4.5max.(3typ.)	4max.(2typ.)	
	Drift	%	0.5max.[25°C, input and output ratings, after input voltage ON for 30min to 8h]		
	Dynamic load	%/ms	±4max./5max.[50 to 100% sudden load change]		
Ripple Ep-p	mV	100max.	100max.	190max.	240max.
Ripple noise Ep-p	mV	250max.	250max.	400max.	600max.
Start up time	ms	500max.			
Hold up time	ms	20min.[Input 200V]			
Accessory equipment					
Operation indicator		LED illuminates when voltage output is ON.			
Overvoltage protection		Output voltage shielding type, recovers upon reset after roughly 40s.			
Overcurrent protection		Fixed current threshold type, output limited when UV detected.			
Remote ON-OFF		Yes			
Remote sensing		Yes			
Current balance		Yes			
Output voltage external variable function		Yes			
Alarm signal		Yes			
Standards					
Safety standards* ²		UL1950, CSA ELECTRICAL BULLETIN No.1402C approved.			
Noise terminal voltage		FCC class A compliant.			
Construction					
External dimensions H×W×L	mm	110×340×322			
Weight	kg	15max.			
Mounting method		Can be attached to 3 sides.			
Case material		Frame: Steel Cover:Aluminum			

*¹ Current rating(maximum output current) is determined for 0 to +50°C. Derating is required when used outside this temperature range.*² UL1950: Ambient temperature 45°C, 100% load.

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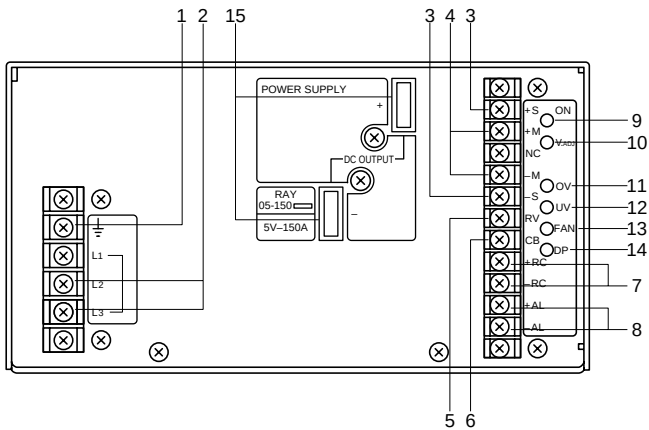
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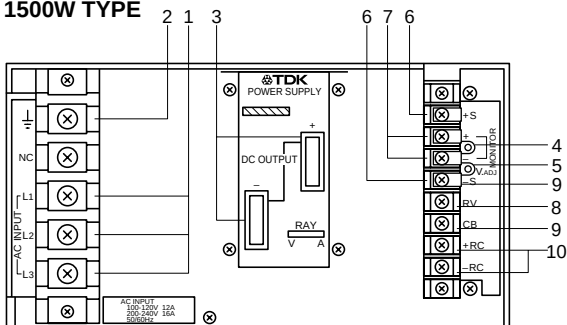
TERMINAL DESIGNATIONS AND FUNCTIONS

750W TYPE



- Terminal No. 1: Ground terminal($\perp$)
- Terminal No. 2: AC input terminals(L₁, L₂, L₃)
- Terminal No. 3: Remote sensing terminals(+S, -S)
- Terminal No. 4: Output voltage monitor terminals(+M, -M)
- Terminal No. 5: Output voltage external adjustment terminal(RV)
- Terminal No. 6: Current balance terminal(CB)
- Terminal No. 7: Remote ON-OFF terminals(-RC, +RC)
- Terminal No. 8: Alarm terminals(AL+, -)
- Terminal No. 9: Output display LED(Green)
- Terminal No. 10: Output voltage adjustment trim (V.ADJ)
- Terminal No. 11: Output overvoltage display LED(Red)
- Terminal No. 12: Output low voltage display LED(Red)
- Terminal No. 13: Fan alarm display LED(Red)
- Terminal No. 14: AC input open phase display LED(Red)
- Terminal No. 15: DC output terminals(+, -)

1500W TYPE



- Terminal No. 1: AC input terminals(L, N, AC INPUT)
- Terminal No. 2: Frame ground terminal(G)
- Terminal No. 3: DC output terminals(+, -)
- Terminal No. 4: Output display LED(ON)
- Terminal No. 5: Output voltage adjustment trim(V.ADJ)
- Terminal No. 6: Remote sensing terminals(+S, -S)
- Terminal No. 7: Monitor terminals(MONITOR, +, -)
- Terminal No. 8: Output voltage external adjustment terminal(RV)
- Terminal No. 9: Current balance terminal(CB)
- Terminal No. 10: Remote ON-OFF terminals(-RC, +RC)

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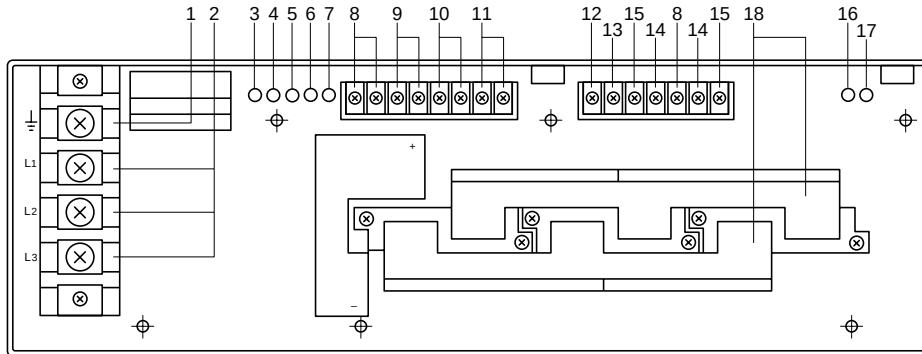
RAY Series

AC Input

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TERMINAL DESIGNATIONS AND FUNCTIONS

3000W TYPE



- Terminal No. 1: Frame ground terminal(G)
- Terminal No. 2: AC input terminal
- Terminal No. 3: POK signal adjust trim
- Terminal No. 4: AC input open phase display LED (Red)
- Terminal No. 5: FAN alarm display LED(Red)
- Terminal No. 6: Output overvoltage display LED(Red)
- Terminal No. 7: Output low voltage display LED(Red)
- Terminal No. 8: No connection(NC)
- Terminal No. 9: POK signals(POK-, +)
- Terminal No. 10: External alarm terminals(AL-, +)
- Terminal No. 11: Remote ON-OFF terminals(-RC, +RC)
- Terminal No. 12: Current balance terminal(CB)
- Terminal No. 13: Output voltage external adjustment terminal(RV)
- Terminal No. 14: Monitor terminals (-M, +M)
- Terminal No. 15: Remote sensing terminals(-S, +S)
- Terminal No. 16: Output display LED(Green)
- Terminal No. 17: Output voltage adjustment trim(V_{ADJ})
- Terminal No. 18: DC output terminals (+, -)

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