

### 375W Quad Output with PFC Function

# QP-375 series



■ Features :

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Forced air cooling by built-in DC fan
- CH3,4 are isolated from other outputs and the polarity can be reversed
- No minimum load requirement for CH2,3,4
- All output can be adjustable from -5~+10%
- With power good and fail signal output
- Built-in remote ON-OFF control
- Fixed switching frequency at 100KHz
- 3 years warranty



**SPECIFICATION**

MODEL		QP-375-5A				QP-375-5B				QP-375-5C			
OUTPUT	OUTPUT NUMBER	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4
	DC VOLTAGE	5V	+12V	12V	12V	+5V	+12V	12V	5V	5V	+12V	15V	15V
	RATED CURRENT	30A	10A	6A	3A	30A	10A	6A	3A	30A	9A	4A	4A
	CURRENT RANGE	3.5 ~ 40A	0 ~ 16A	0 ~ 6A	0 ~ 3A	3.5 ~ 40A	0 ~ 16A	0 ~ 6A	0 ~ 3A	3.5 ~ 40A	0 ~ 16A	0 ~ 4A	0 ~ 4A
	RATED POWER(max.)	378W				357W				378W			
	RIPPLE & NOISE (max.) Note.2	100mVp-p	150mVp-p	150mVp-p	50mVp-p	100mVp-p	120mVp-p	120mVp-p	50mVp-p	100mVp-p	150mVp-p	150mVp-p	240mVp-p
	VOLTAGE ADJ. RANGE	4.75 ~ 5.5V	11.4 ~ 13.2V	11.4 ~ 13.2V	11.4 ~ 13.2V	4.75 ~ 5.5V	11.4 ~ 13.2V	11.4 ~ 13.2V	-----	4.75 ~ 5.5V	11.4 ~ 13.2V	14.3 ~ 16.5V	14.3 ~ 16.5V
	VOLTAGE TOLERANCE Note.3	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±0.8%	±0.8%	±0.8%	±0.8%	±0.8%	±0.8%	±0.8%	±0.8%	±0.8%	±0.8%	±0.8%	±0.8%
SETUP, RISE TIME	800ms, 50ms at full load												
HOLD UP TIME (Typ.)	36ms at full load												
INPUT	VOLTAGE RANGE Note.7	85 ~ 264VAC		120 ~ 370VDC									
	FREQUENCY RANGE	47 ~ 63Hz											
	POWER FACTOR (Typ.)	PF>0.95/230VAC				PF>0.98/115VAC at full load							
	EFFICIENCY (Typ.)	77%				77%				77%			
	AC CURRENT (Typ.)	6A/115VAC		3A/230VAC									
	INRUSH CURRENT (Typ.)	COLD START 45A											
	LEAKAGE CURRENT	<2mA / 240VAC											
PROTECTION	OVERLOAD	105 ~ 135% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed											
	OVER VOLTAGE	CH1:5.75 ~ 6.75V Protection type : Shut down o/p voltage, re-power on to recover											
	OVER TEMPERATURE	80°C ±5°C (TSW1) Detect on heatsink of Q1,Q2 power transistor) Protection type : Shut down o/p voltage, recovers automatically after temperature goes down											
FUNCTION	POWER GOOD / POWER FAIL(OPTIONAL)	10ms/1ms											
	REMOTE CONTROL	RC+/RC-:0 ~ 0.8V POWER ON; 4V ~ 10V POWER OFF											
ENVIRONMENT	WORKING TEMP.	-10 ~ +60°C (Refer to output load derating curve)											
	WORKING HUMIDITY	20 ~ 90% RH non-condensing											
	STORAGE TEMP., HUMIDITY	-20 ~ +85°C, 10 ~ 95% RH											
	TEMP. COEFFICIENT	±0.03%/°C (0~50°C)											
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes											
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 Approved											
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC											
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC											
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B											
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3											
OTHERS	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, Light industry level, criteria A											
	MTBF	75.9K hrs min. MIL-HDBK-217F (25°C)											
	DIMENSION	280*127*63.5mm (L*W*H)											
NOTE	PACKING 2.4Kg; 6pcs/14.8Kg/1.45CUFT												
NOTE	<ol style="list-style-type: none"> <li>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</li> <li>3. Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.</li> <li>5. Peak current can not exceed 60 sec.</li> <li>6. Isolated CH3 &amp; CH4 maybe series connected or can be used as positive or negative outputs.</li> <li>7. Derating may be needed under low input voltages. Please check the derating curve for more details.</li> </ol>												

## 375W Quad Output with PFC Function

# QP-375 series



### ■ Features :

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- Protections: Short circuit / Overload / Over voltage / Over temperature
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- CH3,4 are isolated from other outputs and the polarity can be reversed
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- With power good and fail signal output
- Built-in remote ON-OFF control
- Fixed switching frequency at 100KHz
- 3 years warranty



### SPECIFICATION

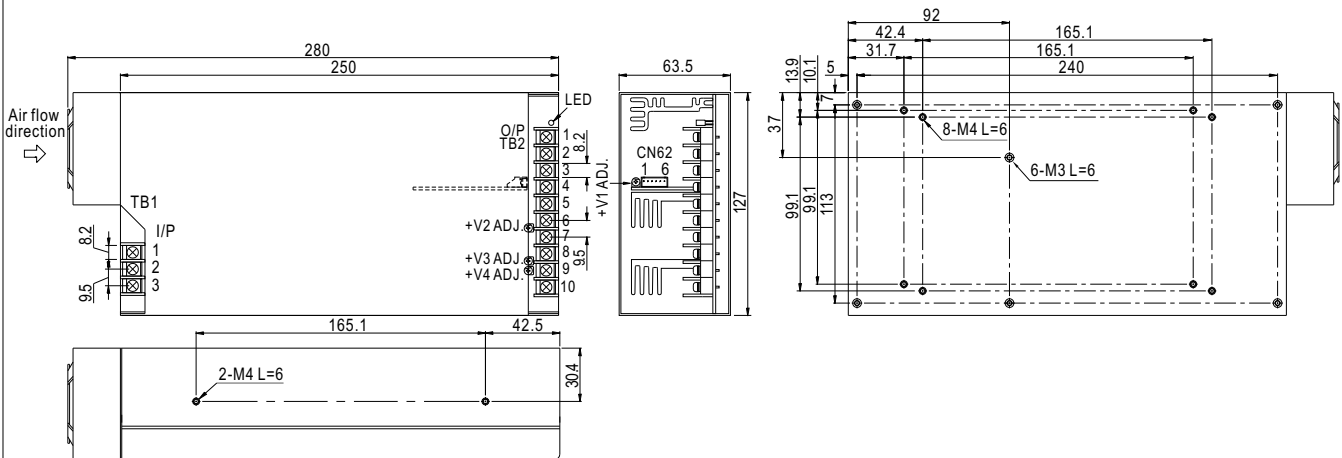
MODEL		QP-375-5D				QP-375-5E				
OUTPUT	OUTPUT NUMBER	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	
	DC VOLTAGE	+5V	+12V	12V	24V	+5V	+12V	24V	24V	
	RATED CURRENT	30A	9A	4A	3A	30A	9A	3A	2A	
	CURRENT RANGE	3.5 ~ 40A	0 ~ 16A	0 ~ 6A	0 ~ 3A	3.5 ~ 40A	0 ~ 16A	0 ~ 4A	0 ~ 3A	
	RATED POWER(max.)	378W				378W				
	RIPPLE & NOISE (max.) Note.2	100mVp-p	120mVp-p	120mVp-p	240mVp-p	100mVp-p	120mVp-p	120mVp-p	240mVp-p	
	VOLTAGE ADJ. RANGE	4.75 ~ 5.5V	11.4 ~ 13.2V	11.4 ~ 13.2V	22.8 ~ 26.4V	4.75 ~ 5.5V	11.4 ~ 13.2V	22.8 ~ 26.4V	22.8 ~ 26.4V	
	VOLTAGE TOLERANCE Note.3	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	
	LOAD REGULATION	±0.8%	±0.8%	±0.8%	±0.8%	±0.8%	±0.8%	±0.8%	±0.8%	
SETUP, RISE TIME	800ms, 50ms at full load									
HOLD UP TIME (Typ.)	36ms at full load									
INPUT	VOLTAGE RANGE Note.7	85 ~ 264VAC		120 ~ 370VDC						
	FREQUENCY RANGE	47 ~ 63Hz								
	POWER FACTOR (Typ.)	PF>0.95/230VAC		PF>0.98/115VAC at full load						
	EFFICIENCY (Typ.)	78%				78%				
	AC CURRENT (Typ.)	6A/115VAC		3A/230VAC						
	INRUSH CURRENT (Typ.)	COLD START 45A								
	LEAKAGE CURRENT	<2mA / 240VAC								
PROTECTION	OVERLOAD	105 ~ 135% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed								
	OVER VOLTAGE	CH1: 5.75 ~ 6.75V Protection type : Shut down o/p voltage, re-power on to recover								
	OVER TEMPERATURE	80°C ±5°C (TSW1): Detect on heatsink of Q1, Q2 power transistor Protection type : Shut down o/p voltage, recovers automatically after temperature goes down								
FUNCTION	POWER GOOD / POWER FAIL(OPTIONAL)	10ms/1ms								
	REMOTE CONTROL	RC+/RC-: 0 ~ 0.8V POWER ON; 4V ~ 10V POWER OFF								
ENVIRONMENT	WORKING TEMP.	-10 ~ +60°C (Refer to output load derating curve)								
	WORKING HUMIDITY	20 ~ 90% RH non-condensing								
	STORAGE TEMP., HUMIDITY	-20 ~ +85°C, 10 ~ 95% RH								
	TEMP. COEFFICIENT	±0.03%/°C (0~50°C)								
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes								
SAFETY & EMC (Note 5)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 Approved								
	WITHSTAND VOLTAGE	I/P-O/P: 3KVAC I/P-FG: 1.5KVAC O/P-FG: 0.5KVAC								
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG: 100M Ohms/500VDC								
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B								
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3								
OTHERS	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, Light industry level, criteria A								
	MTBF	75.9K hrs min. MIL-HDBK-217F (25°C)								
	DIMENSION	280*127*63.5mm (L*W*H)								
	PACKING	2.4Kg; 6pcs/14.8Kg/1.45CUFT								
NOTE	<ol style="list-style-type: none"> <li>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</li> <li>3. Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.</li> <li>5. Peak current can not exceed 60 sec.</li> <li>6. Isolated CH3 &amp; CH4 maybe series connected or can be used as positive or negative outputs.</li> <li>7. Derating may be needed under low input voltages. Please check the derating curve for more details.</li> </ol>									

### 375W Quad Output with PFC Function

# QP-375 series

Case No. 927A Unit:mm

#### Mechanical Specification



#### AC Input Terminal Pin No. Assignment

Pin No.	Assignment
1	AC/L
2	AC/N
3	FG

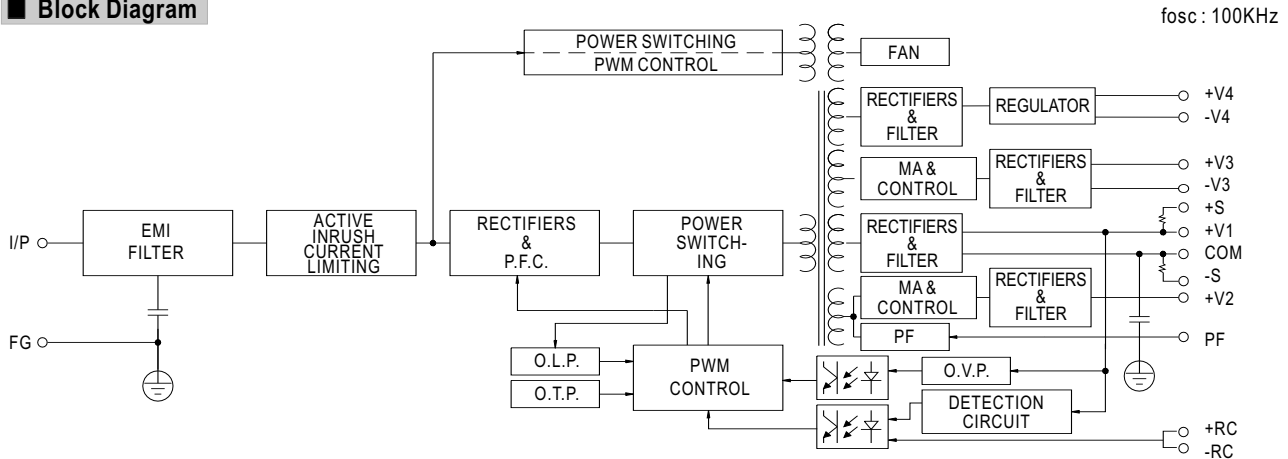
#### DC Output Terminal Pin No. Assignment

Pin No.	Assignment	Pin No.	Assignment
1,2	+V1	8	-V3
3,4,5	COM(V1 and V2)	9	+V4
6	+V2	10	-V4
7	+V3		

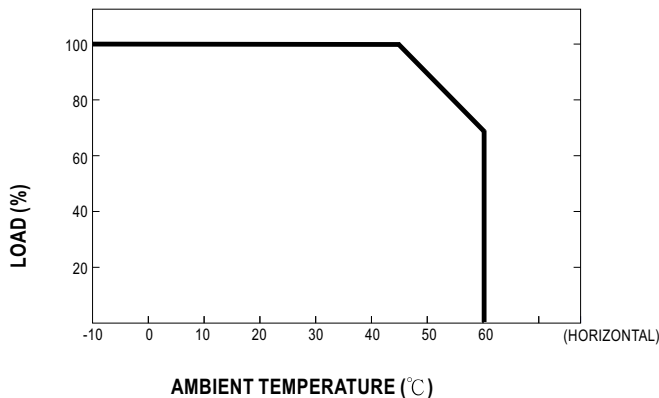
#### CN62 Pin No. Assignment : JST S6B-XH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	PF(Power good / Fail signal)	JST XHP or equivalent	JST SXH-001T-P0.6 or equivalent
2	GND		
3	RS-		
4	RS+		
5	RC-		
6	RC+		

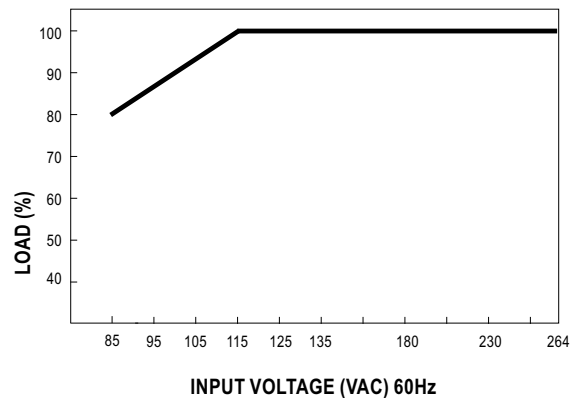
#### Block Diagram



#### Derating Curve



#### Output Derating VS Input Voltage



### 375W Quad Output with PFC Function

# QP-375-24 series



■ Features :

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Forced air cooling by built-in DC fan
- CH3,4 are isolated from other outputs and the polarity can be reversed
- No minimum load requirement for CH2,3,4
- All output can be adjustable from -5~+10%
- With power good and fail signal output
- Built-in remote ON-OFF control
- Fixed switching frequency at 100KHz
- 3 years warranty



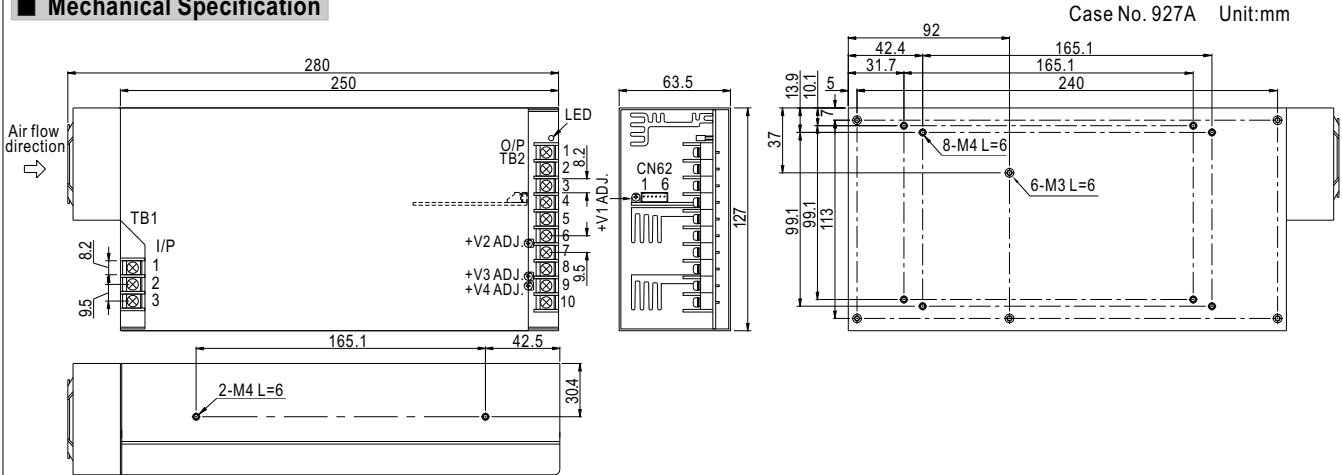
### SPECIFICATION

MODEL		QP-375-24B				QP-375-24C				
OUTPUT	OUTPUT NUMBER	CH1	CH2	CH3	CH4	CH1	CH2	CH3	CH4	
	DC VOLTAGE	+24V	+5V	12V	12V	+24V	+5V	15V	15V	
	RATED CURRENT	10A	10A	4A	4A	10A	10A	4A	4A	
	CURRENT RANGE	1 ~ 10A	0 ~ 16A	0 ~ 4A	0 ~ 4A	1 ~ 10A	0 ~ 10A	0 ~ 4A	0 ~ 4A	
	RATED POWER(max.)	386W				410W				
	RIPPLE & NOISE (max.) Note.2	240mVp-p	50mVp-p	120mVp-p	120mVp-p	240mVp-p	50mVp-p	150mVp-p	150mVp-p	
	VOLTAGE ADJ. RANGE	21.6 ~ 26.4V	4.5 ~ 5.5V	10.8 ~ 13.2V	10.8 ~ 13.2V	21.6 ~ 26.4V	4.5 ~ 5.5V	13.5 ~ 16.5V	13.5 ~ 16.5V	
	VOLTAGE TOLERANCE Note.3	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	
	LOAD REGULATION	±0.8%	±0.8%	±0.8%	±0.8%	±0.8%	±0.8%	±0.8%	±0.8%	
	SETUP, RISE TIME	800ms, 50ms at full load								
HOLD UP TIME (Typ.)	36ms at full load									
INPUT	VOLTAGE RANGE Note.7	85 ~ 264VAC		120 ~ 370VDC						
	FREQUENCY RANGE	47 ~ 63Hz								
	POWER FACTOR (Typ.)	PF>0.95/230VAC		PF>0.98/115VAC at full load						
	EFFICIENCY (Typ.)	78%				80%				
	AC CURRENT (Typ.)	6A/115VAC		3A/230VAC						
	INRUSH CURRENT (Typ.)	COLD START 45A								
	LEAKAGE CURRENT	<2mA / 240VAC								
PROTECTION	OVERLOAD	105 ~ 135% rated output power Protection type : Hiccup mode, recovers automatically after condition is removed								
	OVER VOLTAGE	CH1:27.6 ~ 32.4V Protection type : Shut down o/p voltage, re-power on to recover								
	OVER TEMPERATURE	80°C ±5°C (TSW1) Detect on heatsink of Q1,Q2 power transistor) Protection type : Shut down o/p voltage, recovers automatically after temperature goes down								
FUNCTION	POWER GOOD / POWER FAIL(OPTIONAL)	10ms/1ms								
	REMOTE CONTROL	RC+/RC-:0 ~ 0.8V POWER ON; 4V ~ 10V POWER OFF								
ENVIRONMENT	WORKING TEMP.	-10 ~ +60°C (Refer to output load derating curve)								
	WORKING HUMIDITY	20 ~ 90% RH non-condensing								
	STORAGE TEMP., HUMIDITY	-20 ~ +85°C, 10 ~ 95% RH								
	TEMP. COEFFICIENT	±0.03%/°C (0~50°C)								
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes								
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 Approved								
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC								
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC								
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B								
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3								
OTHERS	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, Light industry level, criteria A								
	MTBF	75.9K hrs min. MIL-HDBK-217F (25°C)								
	DIMENSION	280*127*63.5mm (L*W*H)								
	PACKING	2.4Kg; 6pcs/14.8Kg/1.45CUFT								
NOTE	<ol style="list-style-type: none"> <li>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</li> <li>3. Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.</li> <li>5. Peak current can not exceed 60 sec.</li> <li>6. Isolated CH3 &amp; CH4 maybe series connected or can be used as positive or negative outputs.</li> <li>7. Derating may be needed under low input voltages. Please check the derating curve for more details.</li> </ol>									

### 375W Quad Output with PFC Function

# QP-375-24 series

#### Mechanical Specification



#### AC Input Terminal Pin No. Assignment

Pin No.	Assignment
1	AC/L
2	AC/N
3	FG

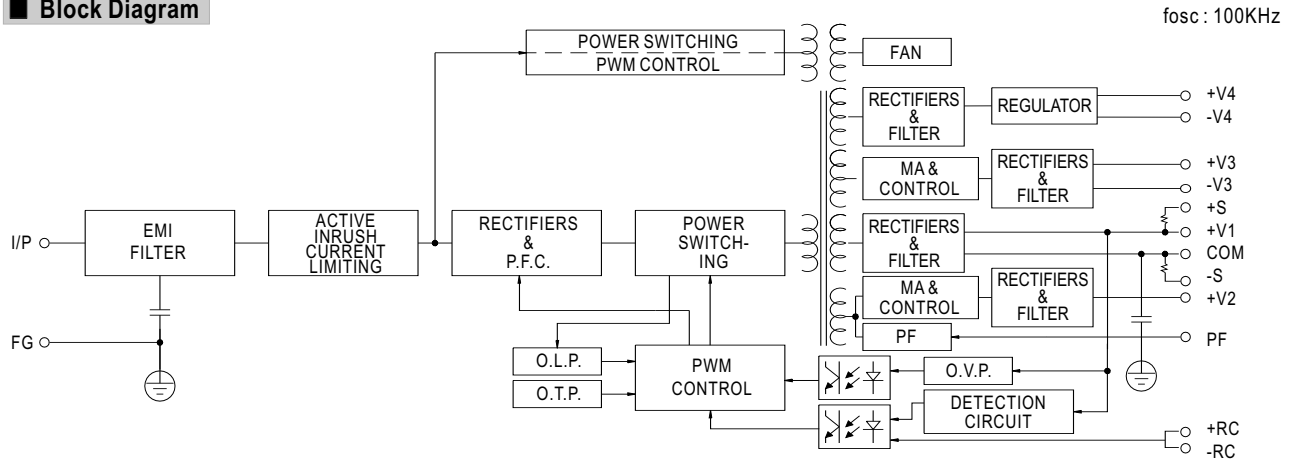
#### DC Output Terminal Pin No. Assignment

Pin No.	Assignment	Pin No.	Assignment
1,2	+V1	8	-V3
3,4,5	COM(V1 and V2)	9	+V4
6	+V2	10	-V4
7	+V3		

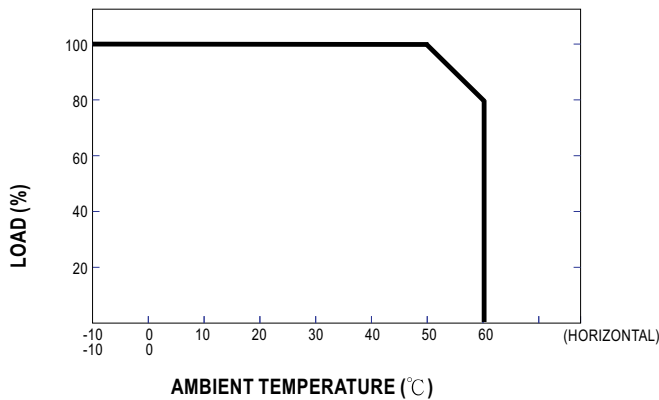
#### CN62 Pin No. Assignment : JST S6B-XH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	PF(Power good / Fail signal)	JST XHP or equivalent	JST SXH-001T-P0.6 or equivalent
2	GND		
3	RS-		
4	RS+		
5	RC-		
6	RC+		

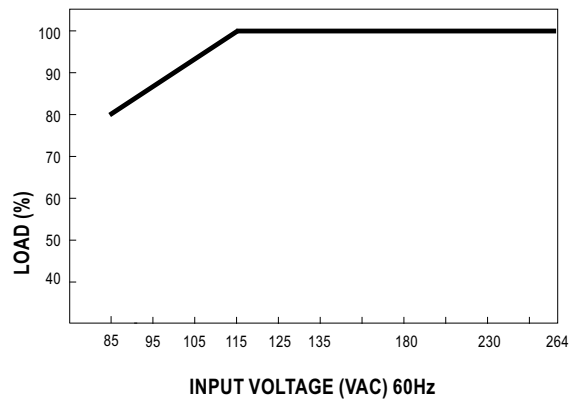
#### Block Diagram



#### Derating Curve



#### Output Derating VS Input Voltage

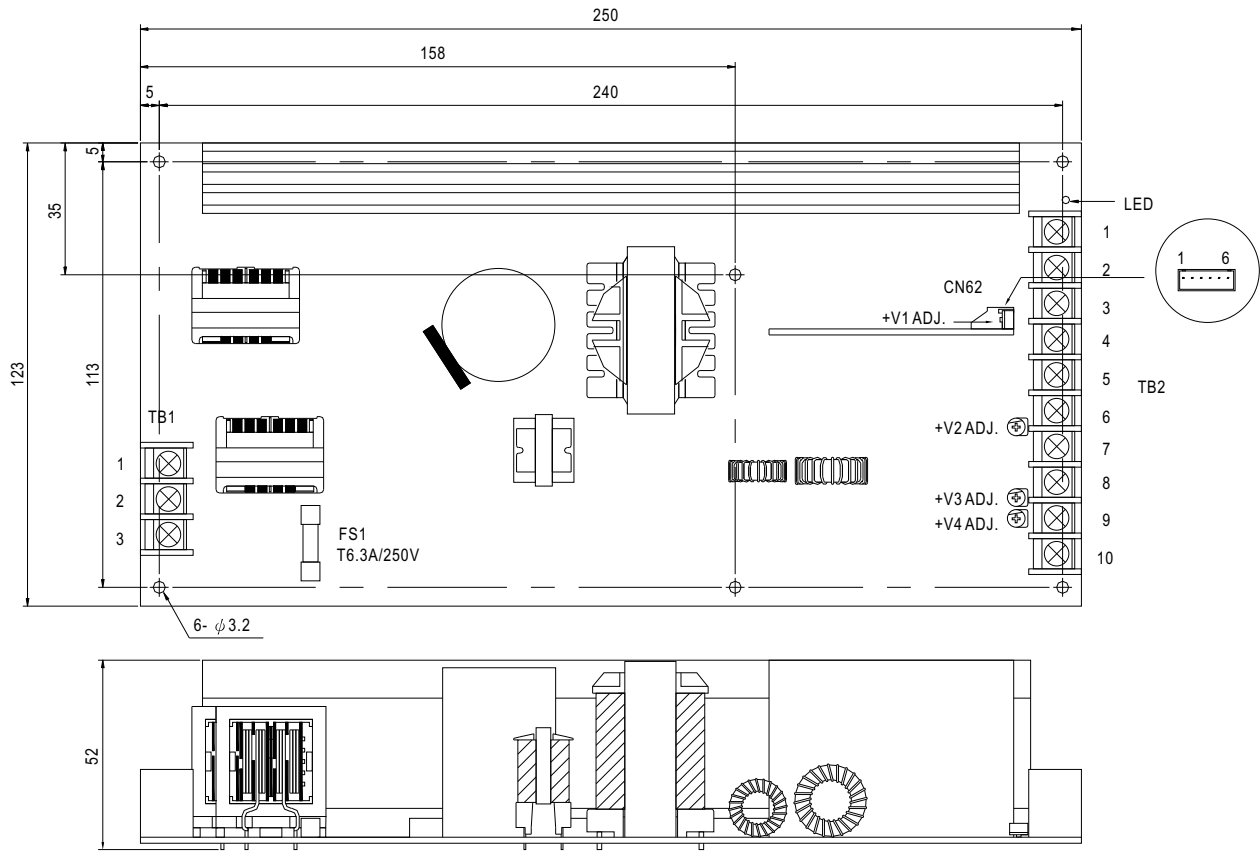


375W Quad Output with PFC Function

**QP-375P** series

**Mechanical Specification**

Unit:mm



AC Input Terminal Pin No. Assignment

Pin No.	Assignment
1	AC/L
2	AC/N
3	FG $\perp$

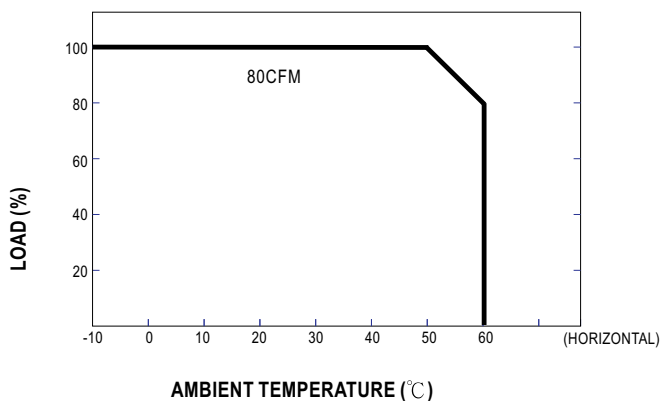
DC Output Terminal Pin No. Assignment

Pin No.	Assignment	Pin No.	Assignment
1,2	+V1	8	-V3
3,4,5	COM(V1 and V2)	9	+V4
6	+V2	10	-V4
7	+V3		

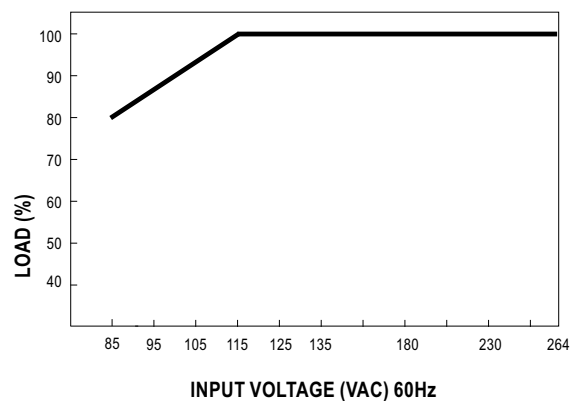
CN62 Pin No. Assignment : JST S6B-XH or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	PF(Power good / Fail signal)	JST XHP or equivalent	JST SXH-001T-P0.6 or equivalent
2	GND		
3	RS-		
4	RS+		
5	RC-		
6	RC+		

**Derating Curve**



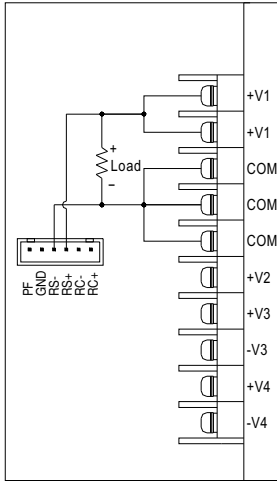
**Output Derating VS Input Voltage**



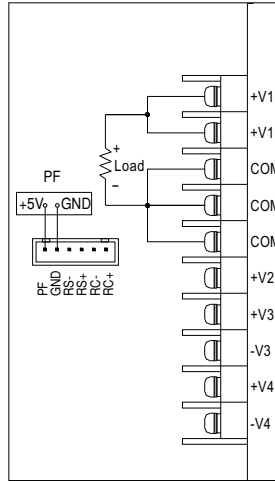
375W Quad Output with PFC Function

**QP-375 series**

■ Control terminal instruction manual

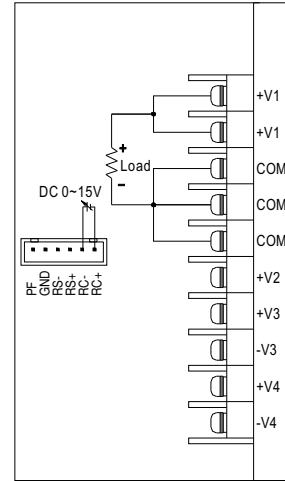


**Remote Sensing**



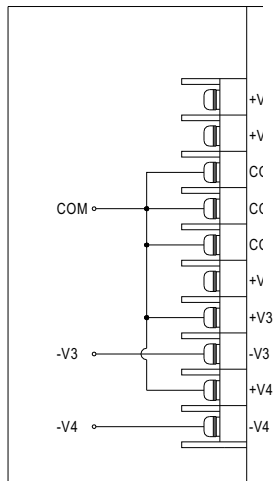
**Power Fail Signal**

PF Signal is the voltage difference between "GND" and "PF" pin output

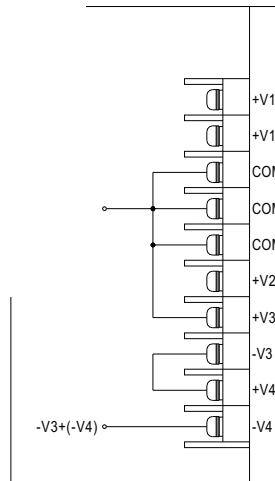


**Power Fail Signal**

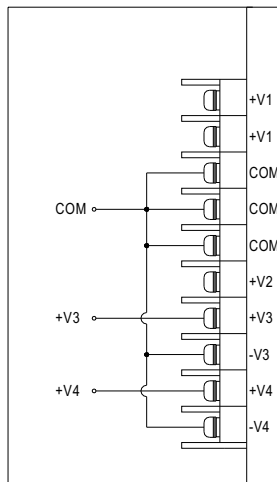
Power ON: When VRC+,RC=0 ~ 0.8V or Open  
Power OFF: When VRC+,RC=4 ~ 10V



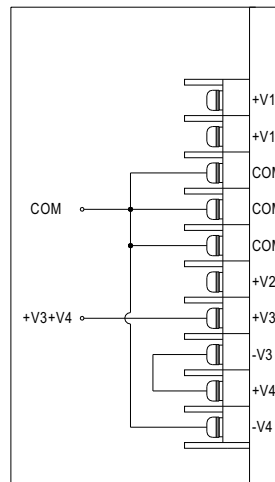
**V3,V4 All Negative(-)**



**V3 Puls Negative(-)**



**V3,V4 All Positive(+)**



**V3 Plus V4 Positive(+)**