

#### Recommended Noise Filter NAC-06-472



High voltage pulse noise type : NAP series  
Low leakage current type : NAM series  
\* The Noise Filter is recommended  
to connect with several devices.

- ① Series name  
② Dual output  
③ Output wattage  
④ Universal input  
⑤ Output voltage  
⑥ Optional  
C : with Coating  
G : Low leakage current

E : Low leakage current  
and EMI class A

T : Vertical terminal block  
J : Connector type  
N : with Cover  
N1 : with DIN rail  
V : Output voltage setting  
potentiometer external-  
ly

Cover is optional

MODEL	PBW15F-12	PBW15F-15
MAX OUTPUT WATTAGE[W]	16.8	15.0
DC OUTPUT	VOLTAGE[V] $\pm 12$ ( +24 ) CURRENT1[A] 0.7 CURRENT2[A] 1.4	$\pm 15$ ( +30 ) 0.5 1.0

## SPECIFICATIONS

	MODEL	PBW15F-12	PBW15F-15
INPUT	VOLTAGE[V]	AC85 - 264 1 $\phi$ or DC110 - 370 (AC50 or DC70 Please refer to the instruction manual 2.1 Input voltage *8)	
	CURRENT[A]	ACIN 100V 0.40typ (CURRENT1) ACIN 200V 0.20typ (CURRENT1)	
	FREQUENCY[Hz]	50/60 (47 - 440) or DC	
	EFFICIENCY[%]	ACIN 100V 74typ (CURRENT1) ACIN 200V 77typ (CURRENT1)	78typ (CURRENT1) 80typ (CURRENT1)
	INRUSH CURRENT[A]	ACIN 100V 15typ (CURRENT1) (At cold start) ACIN 200V 30typ (CURRENT1) (At cold start)	
	LEAKAGE CURRENT[mA]	0.15/0.30max (ACIN 100V/240V 60Hz, Io=100%, According to IEC60950-1.DENAN)	
OUTPUT	VOLTAGE[V]	$\pm 12$ / ( +24V reference number )	$\pm 15$ / ( +30V reference number )
	CURRENT1[A]	0.7 / 0.7	0.5 / 0.5
	CURRENT2[A]	1.4 / -	1.0 / -
	LINE REGULATION[mV]	60max / 96max	60max / 96max
	LOAD REGULATION 1[mV]	600max / 150max	600max / 150max
	LOAD REGULATION 2[mV]	750max / -	750max / -
	RIPPLE[mVp-p]	0 to +50°C 120max / 240max -10 - 0°C 160max / 320max	120max / 240max 160max / 320max
	RIPPLE NOISE[mVp-p]	0 to +50°C 150max / 300max -10 - 0°C 180max / 360max	150max / 300max 180max / 360max
	TEMPERATURE REGULATION[mV]	0 to +50°C 120max -10 to +50°C 150max	150max 180max
	DRIFT[mV]	48max	60max
	START-UP TIME[ms]	200typ(ACIN 100V, Io=100%) * Start-up time is 700ms typ for less than 1minute of applying input again from turning off the input voltage.	
	HOLD-UP TIME[ms]	20typ (ACIN 100V, Io=100%)	
PROTECTION CIRCUIT AND OTHERS	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	9.60 - 13.2 (+V and -V are simultaneously adjusted)	13.2 - 16.5 (+V and -V are simultaneously adjusted)
	OUTPUT VOLTAGE SETTING[V]	11.5 - 12.5 (+V and -V CURRENT1)	14.4 - 15.6 (+V and -V CURRENT1)
	OVERCURRENT PROTECTION	Works over 105% of rated current and recovers automatically	
	OVERVOLTAGE PROTECTION[V]	16.8 - 24.0	20.0 - 29.0
ISOLATION	OPERATING INDICATION	LED (Green)	
	REMOTE ON/OFF	None	
	INPUT-OUTPUT	AC3.000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)	
	INPUT-FG	AC2.000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (At Room Temperature)	
ENVIRONMENT	OUTPUT-FG	AC500V 1minute, Cutoff current = 25mA, DC500V 50M $\Omega$ min (At Room Temperature)	
	OPERATING TEMP., HUMID. AND ALTITUDE	-10 to +71°C (Required Derating), 20 - 90%RH (Non condensing) 3,000m (10,000feet) max	
	STORAGE TEMP., HUMID. AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing) 3,000m (10,000feet) max	
	VIBRATION	10 - 55Hz, 19.6m/s <sup>2</sup> (2G), 3minutes period, 60minutes each along X, Y and Z axis	
SAFETY AND NOISE REGULATIONS	IMPACT	196.1m/s <sup>2</sup> (20G), 11ms, once each X, Y and Z axis	
	AGENCY APPROVALS (At only AC input)	UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN	
	CONDUCTED NOISE	Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B	
	CE MARKING	Low Voltage Directive, EMC Directive	
OTHERS	HARMONIC ATTENUATOR	Complies with IEC61000-3-2 (Not built-in to active filter *7)	
	CASE SIZE/WEIGHT	31 x 78 x 85mm (without terminal block) (W x H x D) / 200g max (without cover)	
	COOLING METHOD	Convection	

\*1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN : RM101).

\*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.

\*3 Figures for 0 to rated current 1. The current not measured side is fixed.

\*4 Figures for 0 to rated current 2. The current not measured side is fixed.

\*5 The sum of +power -power must be less than output power.

\*6  $\pm 12, \pm 15$  can be used as +24 and +30.

\*7 When two or more units are used, they may not comply with the harmonic attenuator. Please contact us for details.

\*8 Derating is required.

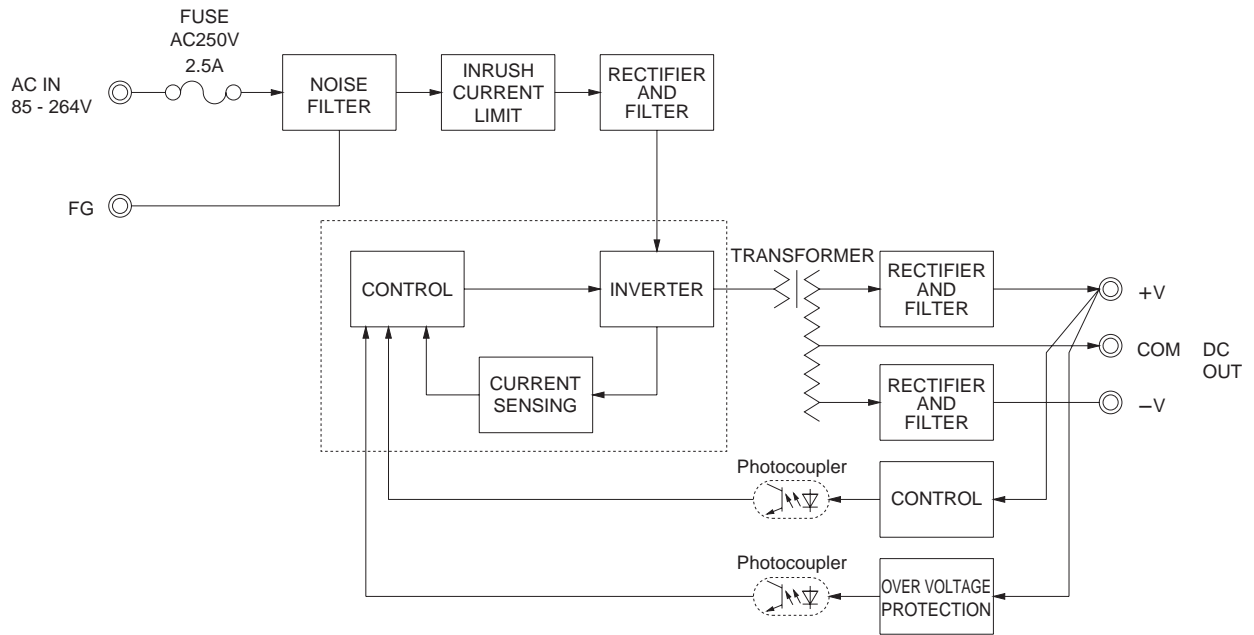
\*9 Figures to rated current 1.

\* Parallel operation with other model is not possible.

\* Derating is required when operated with cover.

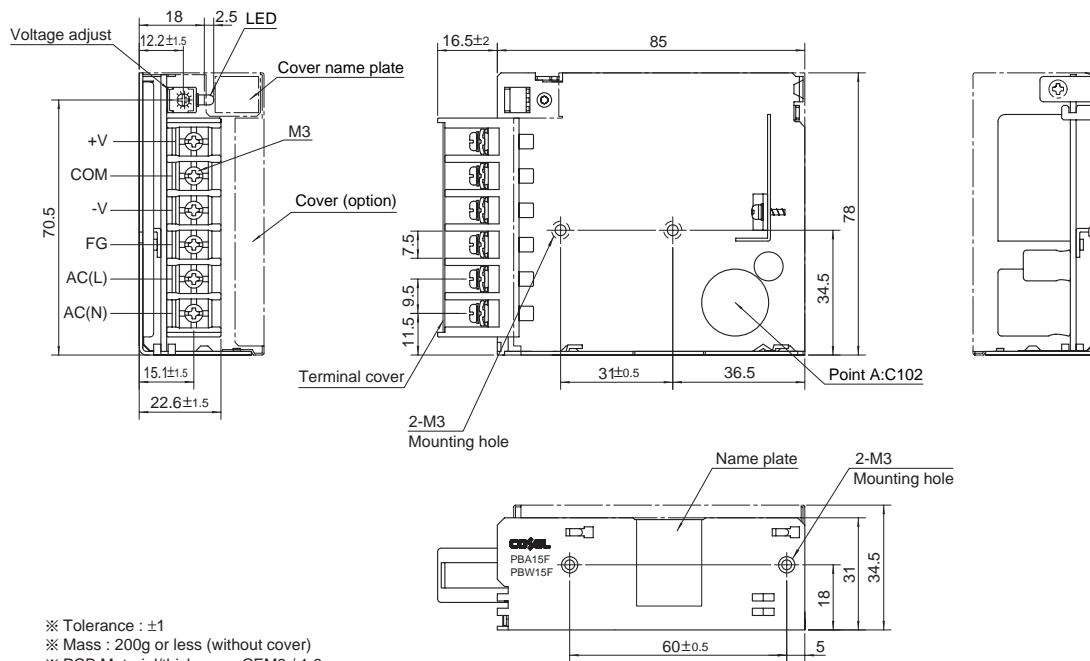
\* A sound may occur from power supply at peak loading.

## Block diagram



## External view

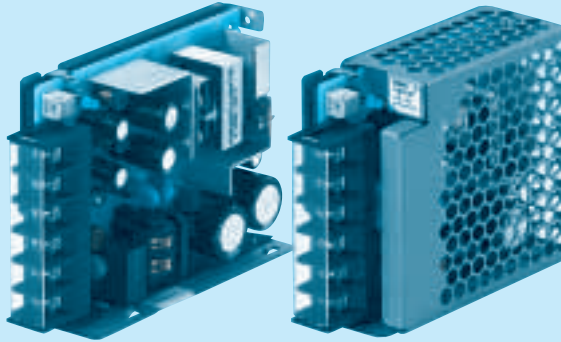
※ External size of option T,J,N,N1 and V is different from standard model and refer to 7 Option of instruction manual for details.



- ※ Tolerance :  $\pm 1$
- ※ Mass : 200g or less (without cover)
- ※ PCB Material/thickness : CEM3 / 1.6mm
- ※ Chassis material : Electric galvanizing steel board
- ※ Dimensions in mm
- ※ Mounting torque : 0.6N • m(6.3kgf • cm)max
- ※ Screw tightening torque : M3 0.8N • m(8.5kgf • cm)max
- ※ Please connect safety ground to the unit in 2-M3 holes.

PB W 30 F -□ -□

① ② ③ ④ ⑤ ⑧

Recommended Noise Filter  
NAC-06-472

High voltage pulse noise type : NAP series  
Low leakage current type : NAM series  
\* The Noise Filter is recommended  
to connect with several devices.

- ① Series name  
② Dual output  
③ Output wattage  
④ Universal input  
⑤ Output voltage  
⑥ Optional  
C : with Coating  
G : Low leakage current

E : Low leakage current  
and EMI class A

T : Vertical terminal block  
J : Connector type  
N : with Cover  
N1 : with DIN rail  
V : Output voltage setting  
potentiometer external-  
ly

Cover is optional

MODEL	PBW30F-5	PBW30F-12	PBW30F-15
MAX OUTPUT WATTAGE[W]	15	31.2	30.0
DC OUTPUT	VOLTAGE[V] *6 ±5 ( +10 ) CURRENT1[A] 1.5 CURRENT2[A] *5 2.0	±12 ( +24 ) 1.3 1.7	±15 ( +30 ) 1.0 1.4

## SPECIFICATIONS

	MODEL		PBW30F-5	PBW30F-12	PBW30F-15
INPUT	VOLTAGE[V]		AC85 - 264 1 φ or DC110 - 370 (AC50 or DC70 Please refer to the instruction manual 2.1 Input voltage *8)		
	CURRENT[A]	ACIN 100V	0.4typ (CURRENT1)	0.7typ (CURRENT1)	
		ACIN 200V	0.25typ (CURRENT1)	0.4typ (CURRENT1)	
	FREQUENCY[Hz]		50/60 (47 - 440) or DC		
	EFFICIENCY[%]	ACIN 100V	75typ (CURRENT1)	77typ (CURRENT1)	78typ (CURRENT1)
		ACIN 200V	75typ (CURRENT1)	81typ (CURRENT1)	79typ (CURRENT1)
	INRUSH CURRENT[A]	ACIN 100V	15typ (CURRENT1) (At cold start)		
ACIN 200V		30typ (CURRENT1) (At cold start)			
LEAKAGE CURRENT[mA]		0.30/0.65max (ACIN 100V/240V 60Hz, Io=100%, According to IEC60950-1.DENAN)			
VOLTAGE[V]		±5 / ( +10V reference number )	±12 / ( +24V reference number )	±15 / ( +30V reference number )	
CURRENT1[A]		1.5 / 1.5	1.3 / 1.3	1.0 / 1.0	
CURRENT2[A]		*5 2.0 / -	1.7 / -	1.4 / -	
LINE REGULATION[mV]		*9 20max / 36max	60max / 96max	60max / 96max	
LOAD REGULATION 1[mV]		*3 250max / 100max	600max / 150max	600max / 150max	
LOAD REGULATION 2[mV]		*4 500max / -	750max / -	750max / -	
OUTPUT	RIPPLE[mVp-p]	0 to +50℃ *1	80max / 240max	120max / 240max	120max / 240max
		-10 - 0℃ *1	140max / 320max	160max / 320max	160max / 320max
	RIPPLE NOISE[mVp-p]	0 to +50℃ *1	120max / 300max	150max / 300max	150max / 300max
		-10 - 0℃ *1	160max / 360max	180max / 360max	180max / 360max
	TEMPERATURE REGULATION[mV]	0 to +50℃	50max	120max	150max
		-10 to +50℃	60max	150max	180max
	DRIFT[mV]		*2 20max	48max	60max
	START-UP TIME[ms]		200typ(ACIN 100V, Io=100%) * Start-up time is 700ms typ for less than 1minute of applying input again from turning off the input voltage.		
HOLD-UP TIME[ms]		20typ (ACIN 100V, Io=100%)			
OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		4.99 - 6.00 (+V and -V are simultaneously adjusted)	9.60 - 13.2 (+V and -V are simultaneously adjusted)	13.2 - 16.5 (+V and -V are simultaneously adjusted)	
OUTPUT VOLTAGE SETTING[V]		4.99 - 5.30 (+V and -V CURRENT1)	11.5 - 12.5 (+V and -V CURRENT1)	14.4 - 15.6 (+V and -V CURRENT1)	
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION		Works over 105% of rated current and recovers automatically		
	OVERVOLTAGE PROTECTION[V]		6.90 - 10.0	16.8 - 24.0	20.0 - 29.0
	OPERATING INDICATION		LED (Green)		
	REMOTE ON/OFF		None		
ISOLATION	INPUT-OUTPUT		AC3.000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)		
	INPUT-FG		AC2.000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)		
	OUTPUT-FG		AC500V 1minute, Cutoff current = 25mA, DC500V 50MΩ min (At Room Temperature)		
ENVIRONMENT	OPERATING TEMP., HUMID. AND ALTITUDE		-10 to +71℃ (Required Derating), 20 - 90%RH (Non condensing) 3,000m (10,000feet) max		
	STORAGE TEMP., HUMID. AND ALTITUDE		-20 to +75℃, 20 - 90%RH (Non condensing) 3,000m (10,000feet) max		
	VIBRATION		10 - 55Hz, 19.6m/s <sup>2</sup> (2G), 3minutes period, 60minutes each along X, Y and Z axis		
	IMPACT		196.1m/s <sup>2</sup> (20G), 11ms, once each X, Y and Z axis		
SAFETY AND NOISE REGULATIONS	AGENCY APPROVALS (At only AC input)		UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN		
	CONDUCTED NOISE		Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B		
	CE MARKING		Low Voltage Directive, EMC Directive		
	HARMONIC ATTENUATOR		Complies with IEC61000-3-2 (Not built-in to active filter *7)		
OTHERS	CASE SIZE/WEIGHT		31 x 78 x 103mm (without terminal block) (W x H x D) / 270g max (without cover)		
	COOLING METHOD		Convection		

\*1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN : RM101).

\*2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.

\*3 Figures for 0 to rated current 1. The current not measured side is fixed.

\*4 Figures for 0 to rated current 2. The current not measured side is fixed.

\*5 The sum of +power -power must be less than output power.

\*6 ±5, ±12, ±15 can be used as +10, +24 and +30.

\*7 When two or more units are used, they may not comply with the harmonic attenuator. Please contact us for details.

\*8 Derating is required.

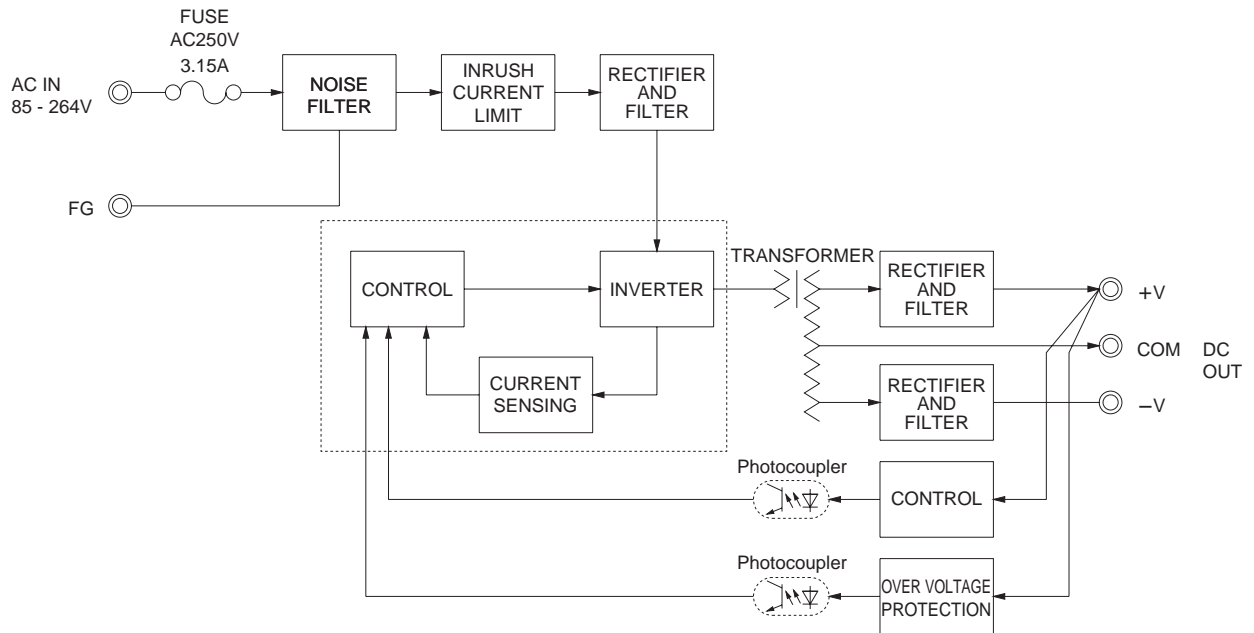
\*9 Figures to rated current 1.

\* Parallel operation with other model is not possible.

\* Derating is required when operated with cover.

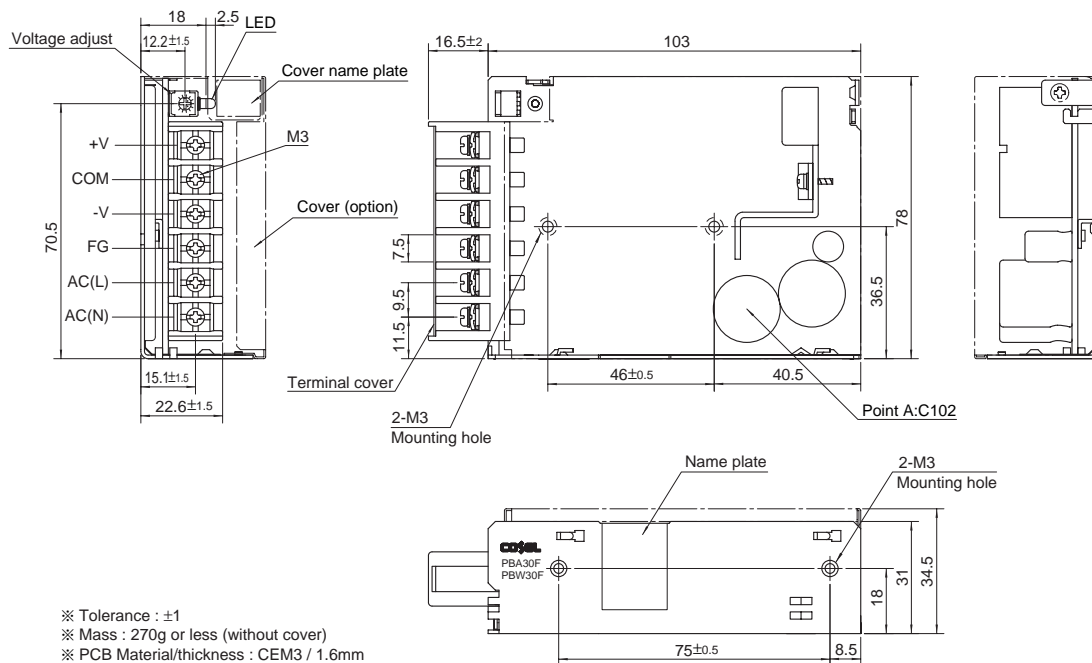
\* A sound may occur from power supply at peak loading.

## Block diagram

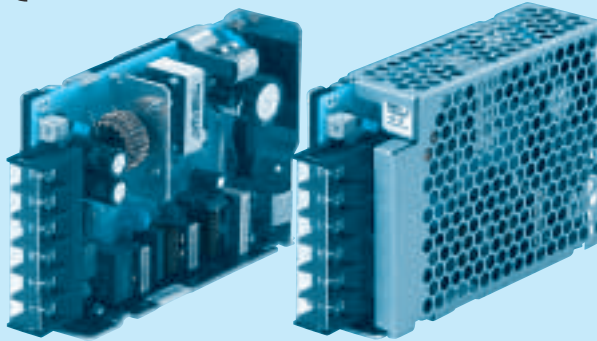


## External view

※ External size of option T,J,N,N1 and V is different from standard model and refer to 7 Option of instruction manual for details.



- ※ Tolerance :  $\pm 1$
- ※ Mass : 270g or less (without cover)
- ※ PCB Material/thickness : CEM3 / 1.6mm
- ※ Chassis material : Electric galvanizing steel board
- ※ Dimensions in mm
- ※ Mounting torque :  $0.6\text{N} \cdot \text{m}$  ( $6.3\text{kgf} \cdot \text{cm}$ ) max
- ※ Screw tightening torque : M3  $0.8\text{N} \cdot \text{m}$  ( $8.5\text{kgf} \cdot \text{cm}$ ) max
- ※ Please connect safety ground to the unit in 2-M3 holes.



#### Recommended Noise Filter NAC-06-472



High voltage pulse noise type : NAP series  
Low leakage current type : NAM series  
\* The Noise Filter is recommended  
to connect with several devices.

- ① Series name  
② Dual output  
③ Output wattage  
④ Universal input  
⑤ Output voltage  
⑥ Optional  
C : with Coating  
G : Low leakage current  
(0.15mA max / ACIN 240V)  
E : Low leakage current  
and EMI class A  
(0.5mA max / ACIN 240V)  
T : Vertical terminal block  
J : Connector type  
R : with Remote ON/OFF  
N : with Cover  
N1 : with DIN rail  
V : Output voltage setting  
potentiometer external-  
ly

Cover is optional

MODEL	PBW50F-5	PBW50F-12	PBW50F-15
MAX OUTPUT WATTAGE[W]	30	50.4	51
VOLTAGE[V]	±5 ( +10 )	±12 ( +24 )	±15 ( +30 )
DC OUTPUT	CURRENT1[A]	2.1	1.7
	CURRENT2[A]	2.7	2.4

## SPECIFICATIONS

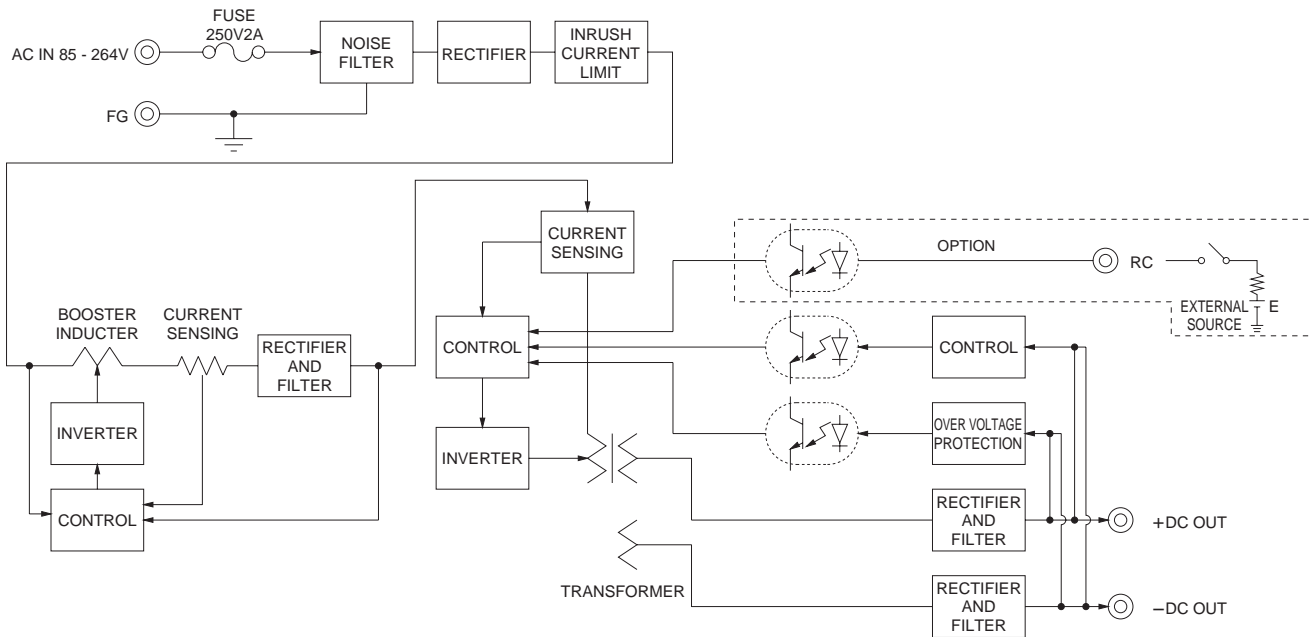
	MODEL	PBW50F-5	PBW50F-12	PBW50F-15
INPUT	VOLTAGE[V]	AC85 - 264 1 φ or DC120 - 370 (AC50 or DC70 Please refer to the instruction manual 2.1 Input voltage ※3)		
	CURRENT[A]	ACIN 100V 0.45typ (CURRENT1)	0.70typ (CURRENT1)	
		ACIN 200V 0.30typ (CURRENT1)	0.40typ (CURRENT1)	
	FREQUENCY[Hz]	50/60 (47 - 63)		
	EFFICIENCY[%]	ACIN 100V 76typ (CURRENT1)	81typ (CURRENT1)	81typ (CURRENT1)
		ACIN 200V 77typ (CURRENT1)	83typ (CURRENT1)	83typ (CURRENT1)
	POWER FACTOR(10=100%)	ACIN 100V 0.98typ	0.99typ	
OUTPUT		ACIN 200V 0.87typ	0.93typ	
	INRUSH CURRENT[A]	ACIN 100V 15typ (CURRENT1) (At cold start)		
		ACIN 200V 30typ (CURRENT1) (At cold start)		
	LEAKAGE CURRENT[ma]	0.40/0.75max (ACIN 100V/240V 60Hz, 10=100%, According to IEC60950-1.DENAN)		
	VOLTAGE[V]	±5	±12	±15
	CURRENT1[A]	3.0	2.1	1.7
	CURRENT2[A]	4.0	2.7	2.4
PROTECTION CIRCUIT AND OTHERS	LINE REGULATION[mV]	20max	48max	60max
	LOAD REGULATION 1[mV]	250max	600max	600max
	LOAD REGULATION 2[mV]	500max	750max	750max
	RIPPLE[mVp-p]	0 to +50°C 80max	120max	120max
		-10 - 0°C 140max	160max	160max
	RIPPLE NOISE[mVp-p]	0 to +50°C 120max	150max	150max
		-10 - 0°C 160max	180max	180max
	TEMPERATURE REGULATION[mV]	0 to +50°C 50max	120max	150max
		-10 to +50°C 60max	150max	180max
	DRIFT[mV]	20max	48max	60max
ISOLATION	START-UP TIME[ms]	350typ (ACIN 100V, 10=100%)		
	HOLD-UP TIME[ms]	20typ (ACIN 100V, 10=100%)		
	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]	4.99 - 6.00 (+V and -V are simultaneously adjusted)	9.60 - 13.2 (+V and -V are simultaneously adjusted)	13.2 - 16.5 (+V and -V are simultaneously adjusted)
	OUTPUT VOLTAGE SETTING[V]	4.99 - 5.30 (+V and -V CURRENT1)	11.5 - 12.5 (+V and -V CURRENT1)	14.4 - 15.6 (+V and -V CURRENT1)
	OVERCURRENT PROTECTION	Works over 105% of rated current and recovers automatically		
ENVIRONMENT	OVERVOLTAGE PROTECTION[V]	6.90 - 10.0	16.8 - 24.0	20.0 - 29.0
	OPERATING INDICATION	LED (Green)		
	REMOTE ON/OFF	Optional (Required external power source)		
SAFETY AND NOISE REGULATIONS	INPUT-OUTPUT · RC	AC3.000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)		
	INPUT-FG	AC2.000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)		
	OUTPUT · RC-FG	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (At Room Temperature)		
OTHERS	OPERATING TEMP.HUMID.AND ALTITUDE	-10 to +71°C (Required Derating), 20 - 90%RH (Non condensing) 3,000m (10,000feet) max		
	STORAGE TEMP.HUMID.AND ALTITUDE	-20 to +75°C, 20 - 90%RH (Non condensing) 3,000m (10,000feet) max		
	VIBRATION	10 - 55Hz, 19.6m/s <sup>2</sup> (2G), 3minutes period, 60minutes each along X, Y and Z axis		
SAFETY AND NOISE REGULATIONS	IMPACT	196.1m/s <sup>2</sup> (20G), 11ms, once each X, Y and Z axis		
	AGENCY APPROVALS (At only AC input)	UL60950-1, C-UL(CSA60950-1), EN60950-1, EN50178 Complies with DEN-AN		
	CONDUCTED NOISE	Complies with FCC Part15 classB, VCCI-B, CISPR22-B, EN55011-B, EN55022-B		
OTHERS	CE MARKING	Low Voltage Directive, EMC Directive		
	HARMONIC ATTENUATOR	Complies with IEC61000-3-2		
	CASE SIZE/WEIGHT	31 x 82 x 120mm (without terminal block) (W x H x D) / 280g max (without cover)		
OTHERS	COOLING METHOD	Convection		

- ※1 Measured by 20MHz oscilloscope or Ripple-Noise meter(equivalent to KEISOKU-GIKEN : RM101).  
※2 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C.  
※3 Derating is required.  
※4 Figures for 0 to rated current 1.The current not measured

- side is fixed.  
※5 Figures for 0 to rated current 2.The current not measured side is fixed.  
※6 The sum of +power -power must be less than output power.  
※7 RC is applied to remote ON/OFF option. RC is isolated with input/output and FG.

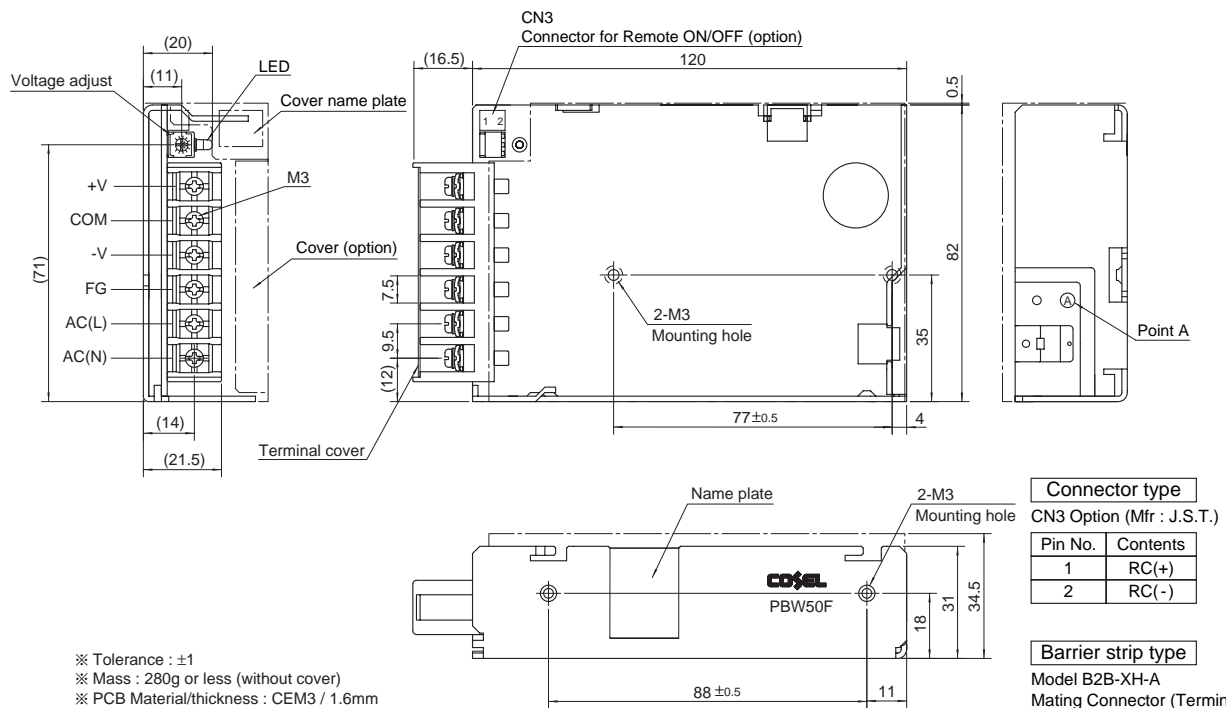
- ※8 ±5, ±12, ±15 can be used as +10, +24 and +30.  
※ Parallel operation with other model is not possible.  
※ Derating is required when operated with cover.  
※ A sound may occur from power supply at peak loading.

## Block diagram



## External view

※ External size of option T,J,R,N,N1 and V is different from standard model and refer to 7 Option of instruction manual for details.



- ※ Tolerance : ±1
- ※ Mass : 280g or less (without cover)
- ※ PCB Material/thickness : CEM3 / 1.6mm
- ※ Chassis material : Aluminum
- ※ Dimensions in mm
- ※ Mounting torque : 0.49N • m(5kgf • cm)max
- ※ Screw tightening torque : M3 0.8N • m(8.5kgf • cm)max
- ※ Please connect safety ground to the unit in 2-M3 holes.

## Connector type

CN3 Option (Mfr : J.S.T.)

Pin No.	Contents
1	RC(+)
2	RC(-)

## Barrier strip type

Model B2B-XH-A  
Mating Connector (Terminal)  
XHP-2  
(BXH-001T-P0.6  
or SXH-001T-P0.6)