

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] ± 12 (+24) CURRENT1[A] 0.7 CURRENT2[A] 1.4	± 15 (+30) 0.5 1.0

SPECIFICATIONS

	MODEL	PBW15F-12	PBW15F-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 0.40typ (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]	± 12 / (+24V reference number)	± 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 Ω min (At Room Temperature)	
	INPUT-FG	AC2.000V 1minute, Cutoff current = 10mA, DC500V 50M Ω min (At Room Temperature)	
ENVIRONMENT	OUTPUT-FG	AC500V 1minute, Cutoff current = 25mA, DC500V 50M Ω 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 ² (2G), 3minutes period, 60minutes each along X, Y and Z axis	
SAFETY AND NOISE REGULATIONS	IMPACT	196.1m/s ² (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.

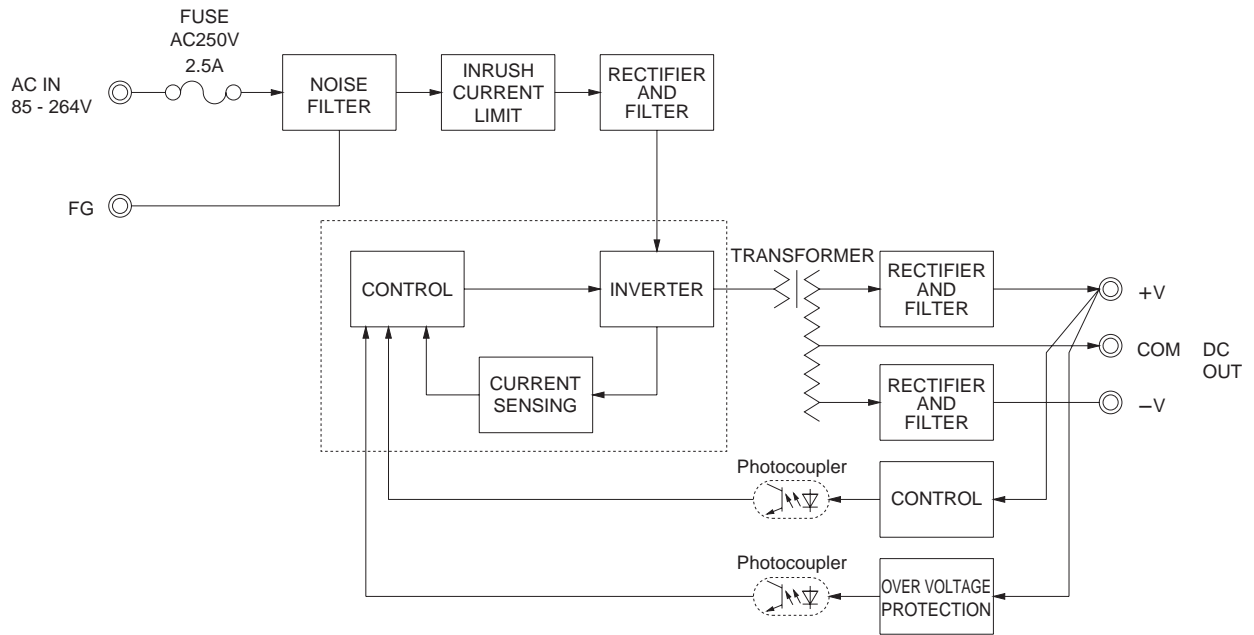
*9 Figures to rated current 1.

* Parallel operation with other model is not possible.

* Derating is required when operated with cover.

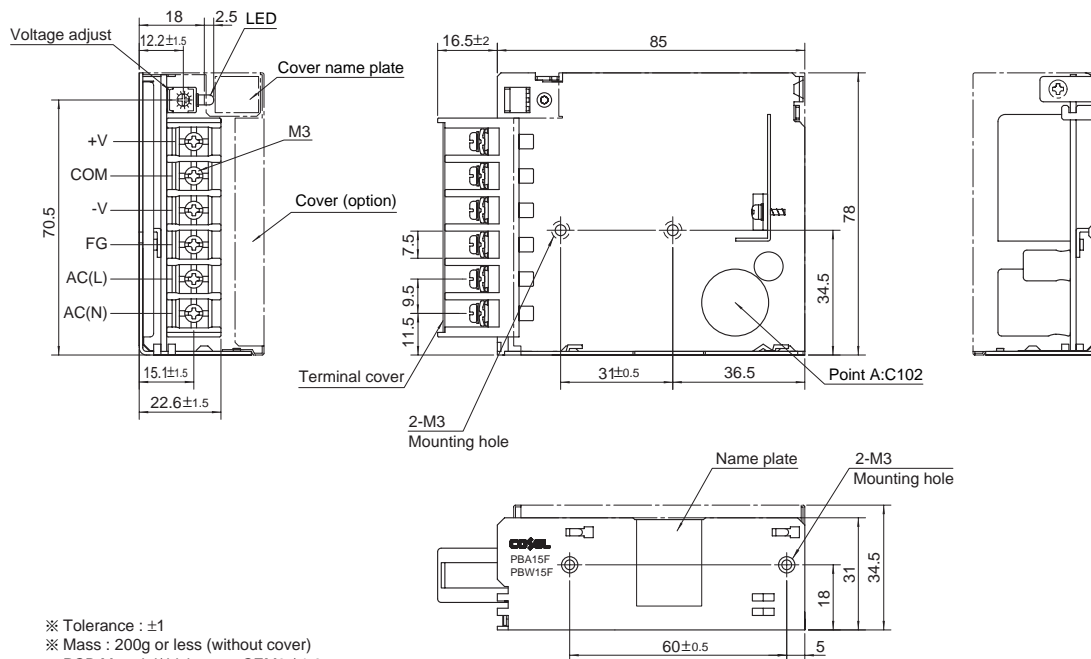
* A sound may occur from power supply at peak loading.

Block diagram

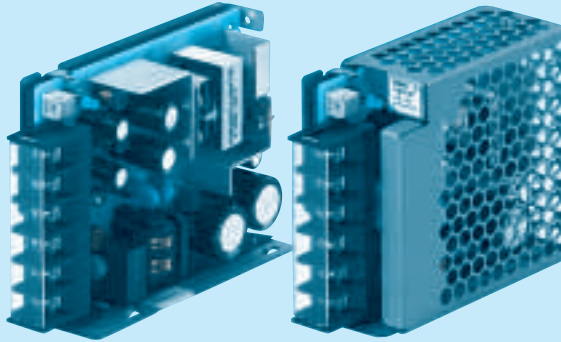


External view

※ 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 : ± 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.



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- 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 CURRENT1[A] CURRENT2[A] *5	±5 (+10) ±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 1φ or DC110 - 370 (AC50 or DC70 Please refer to the instruction manual 2.1 Input voltage *8)		
	CURRENT[A]	ACIN 100V 0.4typ (CURRENT1) ACIN 200V 0.25typ (CURRENT1)	0.7typ (CURRENT1) 0.4typ (CURRENT1)	
	FREQUENCY[Hz]	50/60 (47 - 440) or DC		
	EFFICIENCY[%]	ACIN 100V 75typ (CURRENT1) ACIN 200V 75typ (CURRENT1)	77typ (CURRENT1) 81typ (CURRENT1)	78typ (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)		
OUTPUT	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]	2.0 / -	1.7 / -	1.4 / -
	LINE REGULATION[mV]	20max / 36max	60max / 96max	60max / 96max
	LOAD REGULATION 1[mV]	250max / 100max	600max / 150max	600max / 150max
	LOAD REGULATION 2[mV]	500max / -	750max / -	750max / -
	RIPPLE[mVp-p]	0 to +50°C *1 80max / 240max -10 - 0°C *1 140max / 320max	120max / 240max 160max / 320max	120max / 240max 160max / 320max
	RIPPLE NOISE[mVp-p]	0 to +50°C *1 120max / 300max -10 - 0°C *1 160max / 360max	150max / 300max 180max / 360max	150max / 300max 180max / 360max
	TEMPERATURE REGULATION[mV]	0 to +50°C 50max -10 to +50°C 60max	120max 150max	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%)		
PROTECTION CIRCUIT AND OTHERS	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		
	OVERVOLTAGE PROTECTION[V]	6.90 - 10.0	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 50MΩ min (At Room Temperature)		
	INPUT-FG	AC2.000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (At Room Temperature)		
ENVIRONMENT	OUTPUT-FG	AC500V 1minute, Cutoff current = 25mA, DC500V 50MΩ 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 ² (2G), 3minutes period, 60minutes each along X, Y and Z axis		
SAFETY AND NOISE REGULATIONS	IMPACT	196.1m/s ² (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 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.

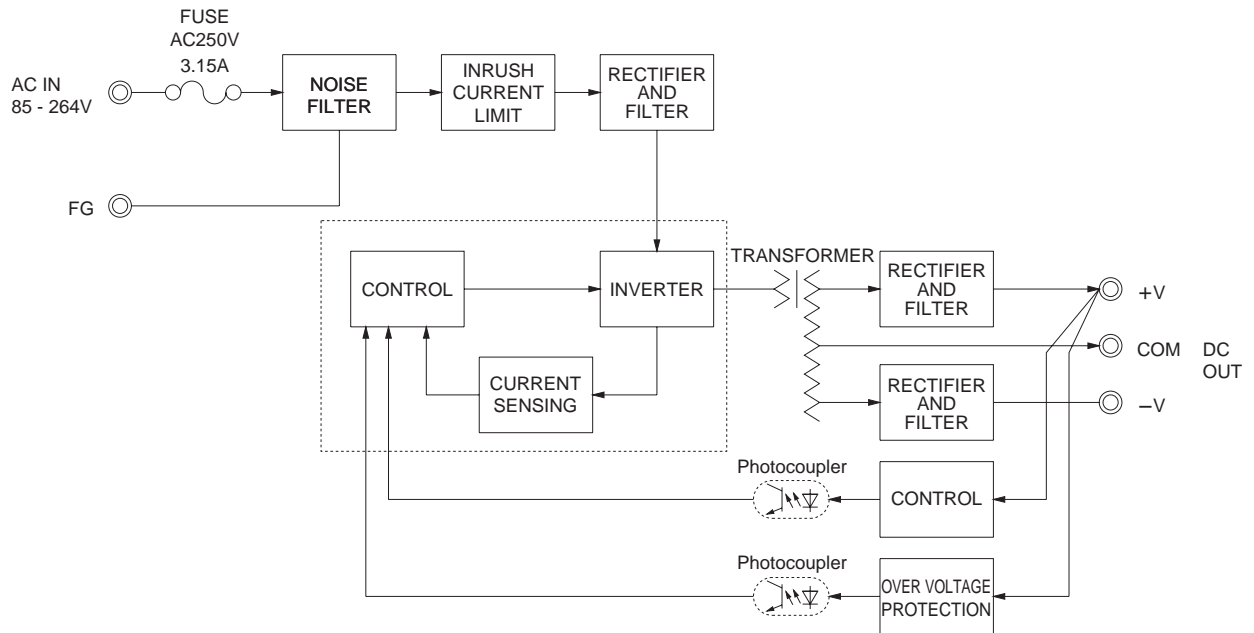
*9 Figures to rated current 1.

* Parallel operation with other model is not possible.

* Derating is required when operated with cover.

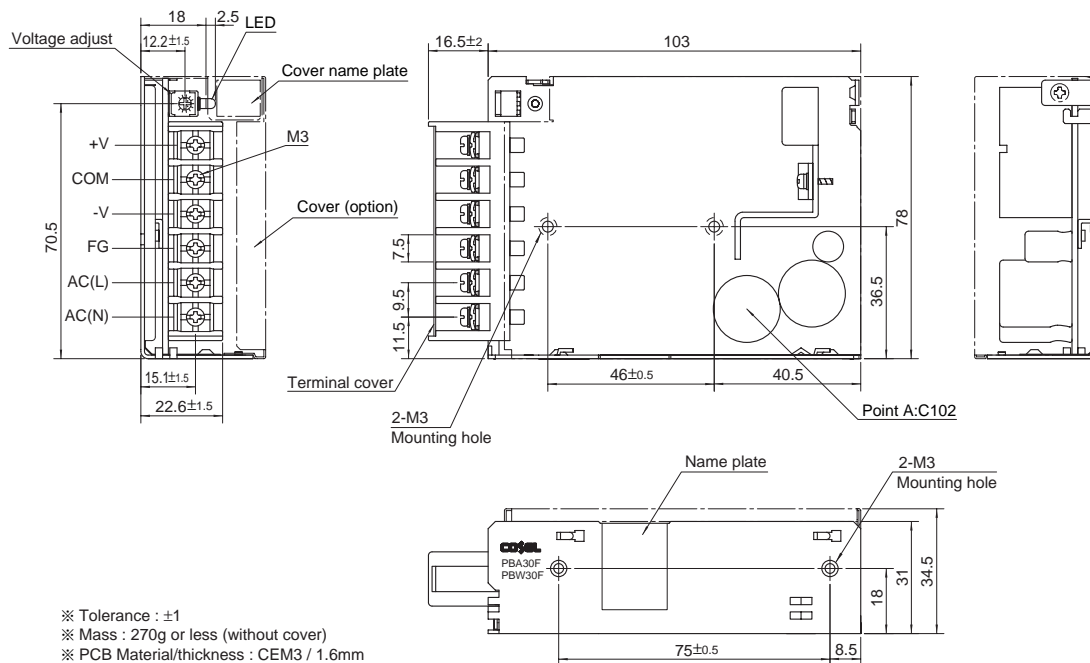
* A sound may occur from power supply at peak loading.

Block diagram

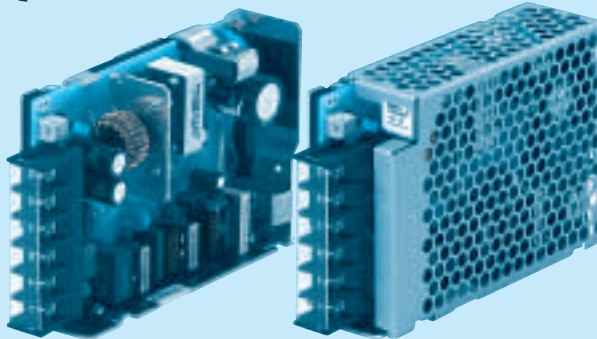


External view

※ 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 : ± 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.



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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

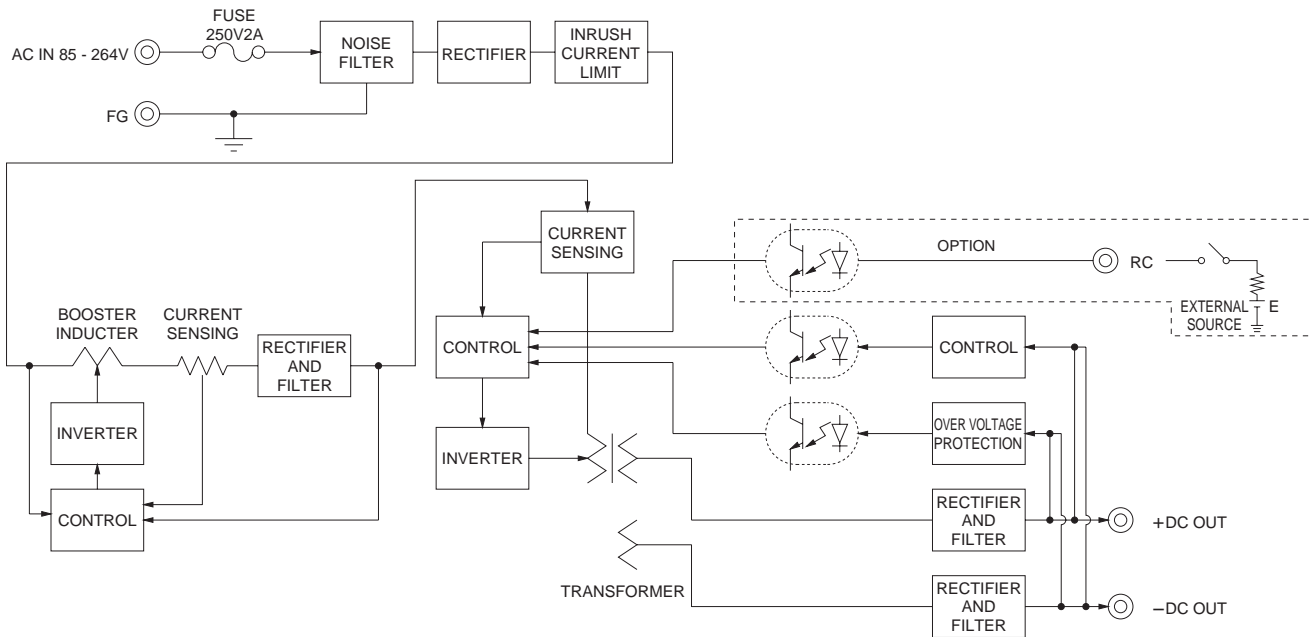
	MODEL	PBW50F-5	PBW50F-12	PBW50F-15
INPUT	VOLTAGE[V]	AC85 - 264 1 φ or DC120 - 370 (AC50 or DC70 Please refer to the instruction manual 2.1 Input voltage ※3)		
	CURRENT[A]	ACIN 100V 0.45typ (CURRENT1)	0.70typ (CURRENT1)	
		ACIN 200V 0.30typ (CURRENT1)	0.40typ (CURRENT1)	
	FREQUENCY[Hz]	50/60 (47 - 63)		
	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 ² (2G), 3minutes period, 60minutes each along X, Y and Z axis		
SAFETY AND NOISE REGULATIONS	IMPACT	196.1m/s ² (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.

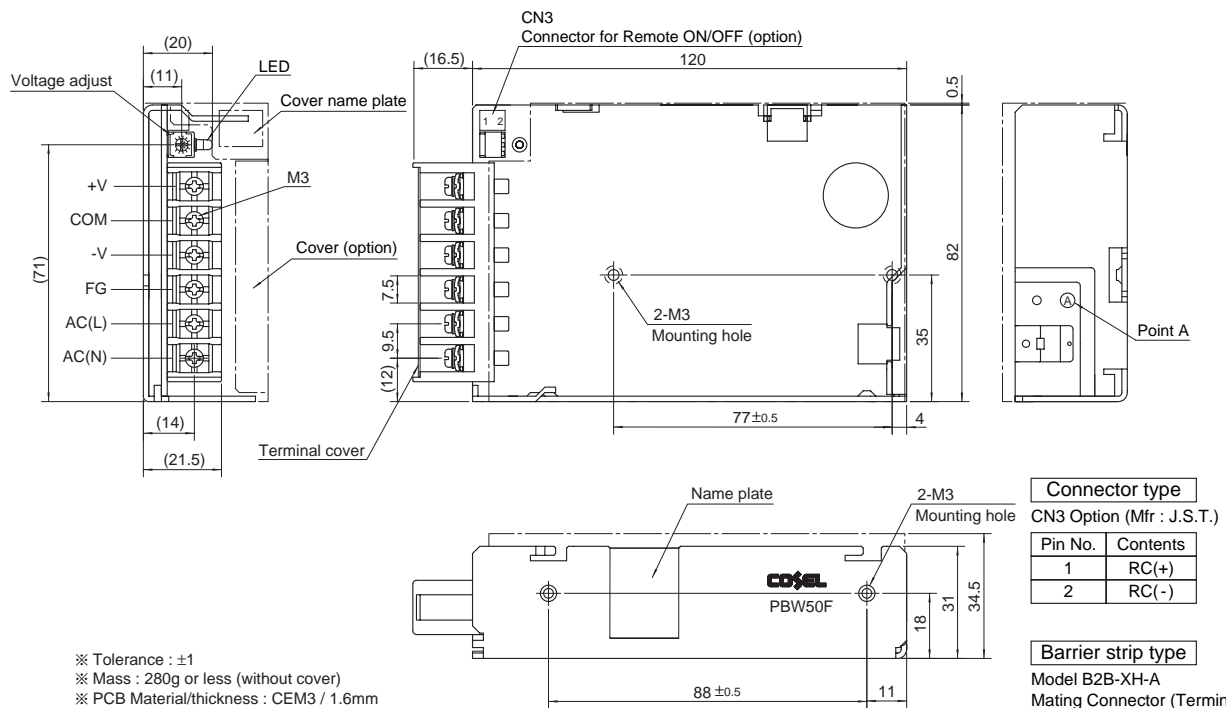
※8 ±5, ±12, ±15 can be used as +10, +24 and +30.
※ Parallel operation with other model is not possible.
※ Derating is required when operated with cover.
※ A sound may occur from power supply at peak loading.

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)