

# FSP200-P36P Series

## FEATURES

- Class-I Design
- IEC 62368-1 safety standard
- EN55032 radiated emission
- Remote ON / OFF input (optional)
- Standby power less than 0.5W
- Peak power 400W

## SAFETY STANDARD APPROVAL



## DESCRIPTION

This AC-DC switching power supplies in a package of 160 x 75 x 36.1 mm is a Class-I (with Protection Earth) safety construction and feature with 0.5W low input power consumption at 0.2W load which is comply with Energy Star requirement. This PSU is capable of delivering 200 watts continuous power and 400 watts peak power (except 12V at 300 watts) at specified operation temperature. Product is suitable for industry control applications.

## INPUT SPECIFICATIONS

Input voltage:	90 to 264 VAC
Input frequency:	47-63 Hz
Input current:	2.8 A (rms) for 115 VAC 1.3 A (rms) for 230 VAC
Earth leakage current:	750 $\mu$ A max. @ 264 VAC, 50 Hz
Touch current:	250 $\mu$ A max. @ 264 VAC, 63 Hz
Remote Off (optional)	PSU is normally off and has no output voltage until a HIGH-level signal is input.

Vout



Remote Off



## OUTPUT SPECIFICATIONS

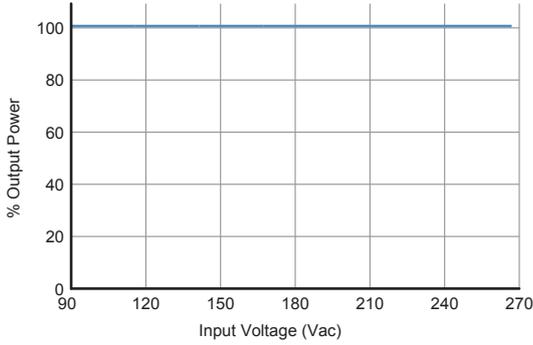
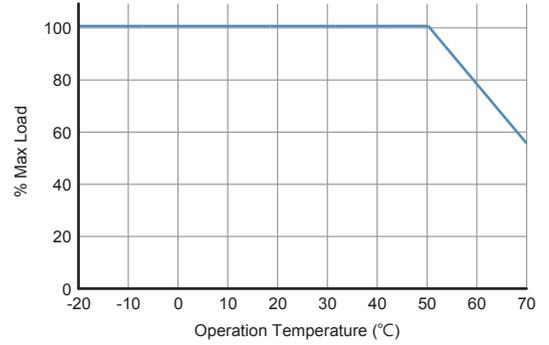
Output voltage/current:	See rating chart.
Total output power:	200 watts maximum
Ripple and noise:	1% peak to peak maximum
Protection:	
OVP	Auto recovery
OCP & Shorted	Auto recovery
OTP	Auto recovery
Temperature coefficient:	All outputs $\pm 0.04\%$ / $^{\circ}$ C maximum
Transient response:	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 $\mu$ s after a 25% step load change

## ENVIRONMENTAL SPECIFICATIONS

Operating temperature:	-20 $^{\circ}$ C to +70 $^{\circ}$ C
Storage temperature:	-40 $^{\circ}$ C to +85 $^{\circ}$ C
Relative humidity:	5% to 95% non-condensing
Derating:	See derating curve

## GENERAL SPECIFICATIONS

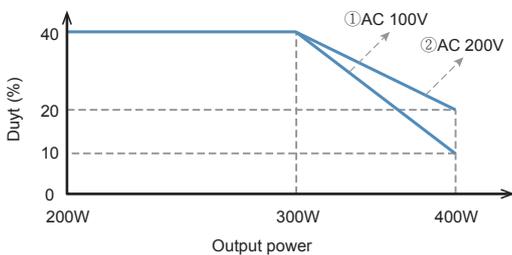
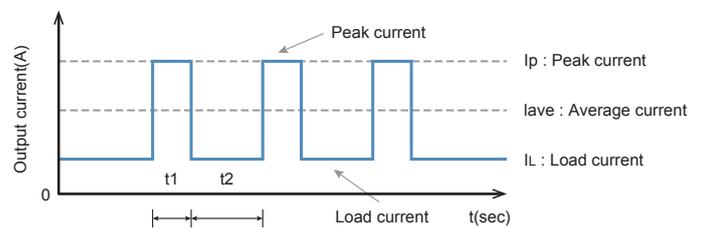
Operating altitude :	5000 meters above sea level
Efficiency:	Refer to rating table
Turn-On Delay Time	$\leq 1$ sec at 115 VAC
Hold-up time:	16.6 mS minimum @ 115 VAC & 100% load
Line regulation:	$\pm 1\%$ maximum at full load
Inrush current:	60 A @ 115 VAC / 60 Hz or 120 A @ 230VAC / 50 Hz, at 25 $^{\circ}$ C cold start
Power factor:	$\geq 0.95$ @ 115 VAC, $\geq 0.90$ @ 230 VAC
Withstand voltage:	3000 VAC from input to output 2000 VAC from input to ground, 1500 VAC from output to ground
Isolation resistance	Input to output 100M ohm @ 500Vdc
MTBF:	400,000 hours mini. at full load at 25 $^{\circ}$ C ambient temperature, calculated per Telcordia SR-332
EMC Performance	
EN55032 /EN55035:	Class B conducted, class B radiated
EN61000-3-2:	Harmonic distortion, class D
EN61000-3-3:	Line flicker
EN61000-4-2:	ESD, $\pm 8$ KV air and $\pm 4$ KV contact
EN61000-4-3:	Radiated immunity, 3 V/m
EN61000-4-4:	Fast transient/burst, $\pm 1$ KV
EN61000-4-5:	Surge, $\pm 2$ KV diff., $\pm 4$ KV com.
EN61000-4-6:	Conducted immunity, 3 V/m
EN61000-4-8:	Magnetic field immunity, 1 A/m
EN61000-4-11:	Voltage dip immunity & voltage interruptions 30% reduction for 500mS, criteria A >95% reduction for 10mS, criteria A 100% reduction for 5000mS, criteria B

**INPUT VOLTAGE DERATING CURVE**

**OUTPUT POWER DERATING CURVE**

**OUTPUT VOLTAGE/CURRENT RATING CHART**

Model <sup>(1)</sup>	Output							Efficiency (typical) @ 115 / 230 Vac
	V1	Min. Current	Max. Current	Tolerance	Ripple & Noise <sup>(2)</sup>	Max. Power	Peak Power <sup>(3)</sup>	
FSP200-P36P-A12	12 V	0 A	16.67 A	±3 %	120 mV	200W	300W	89 / 91%
FSP200-P36P-A24	24 V	0A	8.33 A	±3 %	240 mV	200W	400W	89 / 91%
FSP200-P36P-A36	36 V	0A	5.56 A	±3 %	240 mV	200W	400W	89 / 91%
FSP200-P36P-A42	42 V	0A	4.76 A	±3 %	240 mV	200W	400W	89 / 91%
FSP200-P36P-A48	48 V	0A	4.17 A	±3 %	240 mV	200W	400W	89 / 91%

**NOTES:**

1. PSU is the PCB form factor. Suffix " C" in model no. is for the enclosed form, e.g. FSP200-P36P-A12C
2. Ripple and noise is maximum peak to peak voltage value measured at output within 20 MHz bandwidth, at rated line voltage and output load ranges, and with a 22  $\mu$ F capacitor in parallel with a 0.1  $\mu$ F ceramic capacitor across the output.
3. Refer to Fig. 1 and Fig. 2 for peak power definition.

**FIG 1. PEAK OUTPUT POWER**

**FIG 2. DESCRIPTION OF PEAK CURRENT**

**MODEL NO. RULE:**

FSP 200 - P36P - A12 C S  
(1) (2)

The suffix definition of model no.

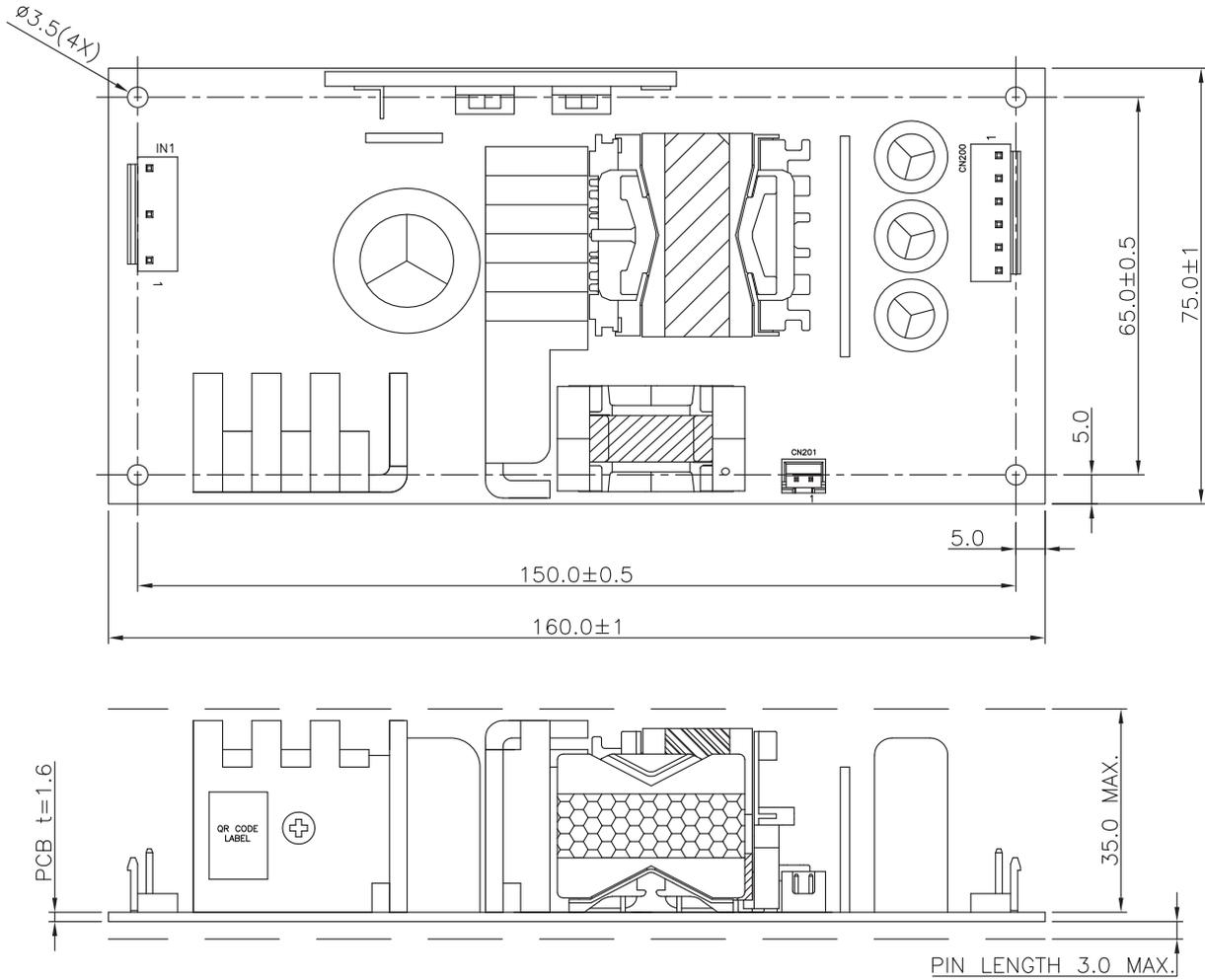
- (1) Suffix C denotes the metal enclosed form factor.
- (2) Suffix S denotes the remote ON/OFF switch.

**Definitions:**

- Peak output power [W] = Peak current [A] \* Output voltage [V]
- $t1 \leq 10$  sec
- $I_p \leq$  Rated peak current
- $Duty = t1 / (t1 + t2) \times 100[\%] \leq 40\%$
- $I_{ave} = (I_p \times t1 + I_L \times t2) / (t1 + t2) \leq$  Rated current

### MECHANICAL SPECIFICATIONS

PCB form factor



Pin assignment:

1. IN1: JST B3P5-VH or EQU

2. CN200: JST B6P-VH or EQU

3. CN201: JST B2B-XH-A or EQU

Pin No.	Function
1	L
2	
3	N
4	
5	FG

Pin No.	Function
1, 2, 3	V-
4, 5, 6	V+

Pin No.	Function
1	R / C+
2	R / C-

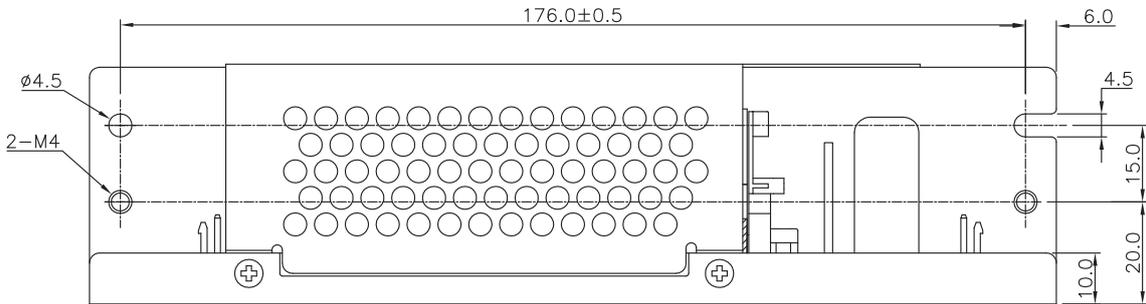
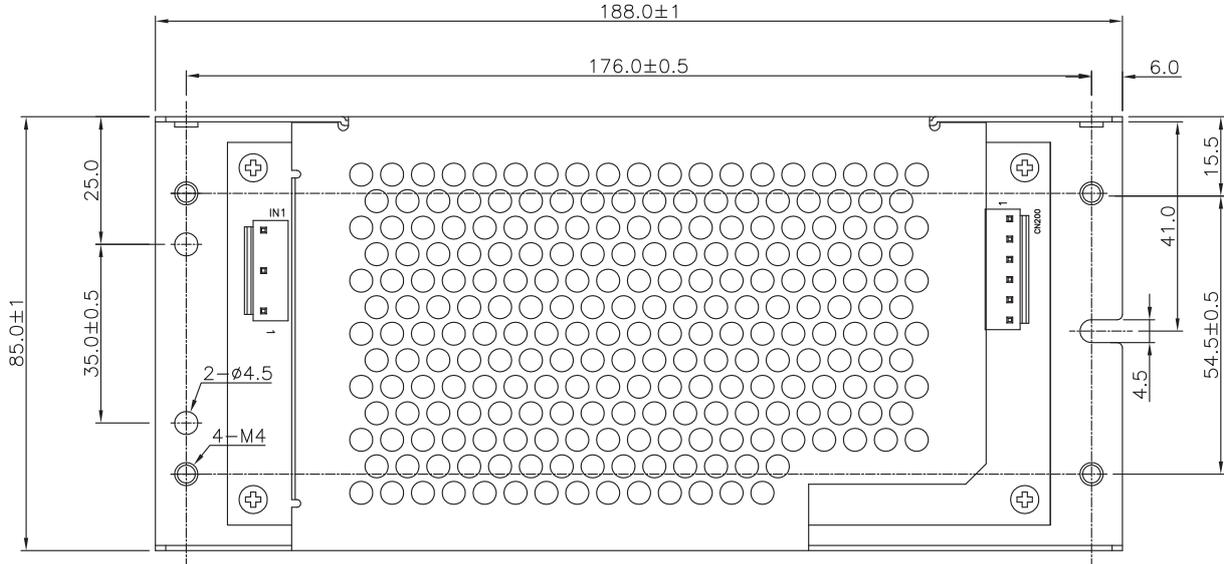
\*Optional function

NOTES:

1. Dimension showed in mm.
2. To ensure compliance with level B emissions, connect the three PCB mounting holes with metallic standoffs to the chassis.
3. Weight: PCB form factor 345.5 grams (0.761 lbs.) approx.

### MECHANICAL SPECIFICATIONS

Enclosed form factor



Pin assignment:

1. IN1: JST B3P5-VH or EQU

2. CN200: JST B6P-VH or EQU

3. CN201: JST B2B-XH-A or EQU

Pin No.	Function
1	L
2	
3	N
4	
5	FG

Pin No.	Function
1, 2, 3	V-
4, 5, 6	V+

Pin No.	Function
1	R / C+
2	R / C-

\*Optional function

NOTES:

1. Dimension showed in mm.
2. Weight: Enclosed form factor 597 grams (1.315 lbs.) approx.