

## Class II 63W LED Controlgear : PA-1600-32 Series

### Product Features

- Universal AC Input
- High Power Factor
- Low Total Harmonic Distortion
- Short Circuit / Open Circuit / Over Voltage / Over Temperature Protections
- Suitable for Dry & Damp Location
- IP66 Waterproof Grade
- Adjustable Output Current by Dimming Input
- RoHS Compliant

### AC Input / DC Output

• AC Input Voltage	100 ~ 305Vac (110 ~ 277Vac)
• AC Input Frequency	47 ~ 63Hz (50-60Hz)
• Max. Input Current @ 110Vac (60Hz)	1.0A
• Min. PF @ 230Vac (50Hz) / 90V Output	0.95
• Min. PF @ 230Vac (50Hz) / 63V Output (70% load)	0.92
• Min. PF @ 240Vac (60Hz) / Output > 40W	0.9
• Max. THD @ 110~277Vac / 90V Output	20%
• Min. Eff. @ 220Vac (50Hz) / 90V Output	90%
• Turn On Delay Time	<1 second
• DC Output Current	700mA
• Line Regulation	±3%
• Load Regulation	±5%
• DC Output Voltage Range	35 ~ 90V
• Ripple Current	±20%
• DC Output Isolation	yes

### EMC

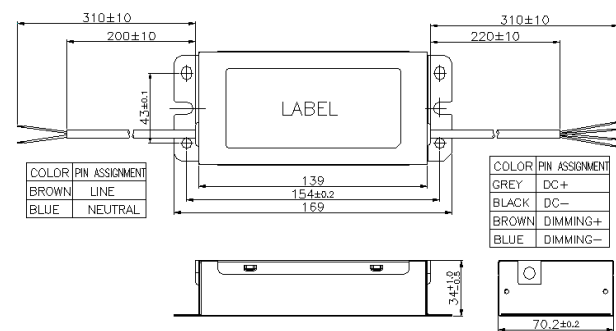
• EMI	EN55015
• Harmonic Current Emissions	EN61000-3-2
• Voltage Fluctuations & Flicker	EN61000-3-3
• Electrostatic Discharge (ESD)	EN61000-4-2
	±4KV (Contact), ±8KV (Air)
• RS Immunity Test	EN61000-4-3
	80MHz ~ 1GHz, 3V/m, 80% AM (1KHz)
• Electrical Fast Transient	EN61000-4-4
	±1KV for AC power line, ±0.5KV for DC / signal line
• Lighting Surge	EN61000-4-5
	±4KV (Com.), ±4KV (Dif.)
• CS Immunity Test	EN61000-4-6
	0.15MHz ~ 80MHz, 3V, 80% AM (1KHz)
• Voltage Dips & Short Interruptions	EN61000-4-11
	30%, 25 cycles voltage reduction
	100%, 0.5 cycles voltage reduction

### Operating Environments / Reliability

• Operating Temperature / Humidity	-40 ~ 60°C / 10 ~ 95% RH
• Storage Temperature / Humidity	-40 ~ 80°C / 10 ~ 95% RH
• Vibration (with shipping container)	1.146Grms / 5~200Hz / six sides 30 minutes / side
• Vibration (operation)	6Grms / 10~1000Hz / X/Y/Z axis 15 minutes / axis
• Life Time (Note 3)	43,000 Hrs
• MTBF (Note 4)	50,000 Hrs while Tc ≤ 75°C 100,000 Hrs while Tc ≤ 65°C
• Tc	85°C
• Cooling	free air convection
• Waterproof Grade	IP66

### Mechanical

• AC Input Terminal	310mm / brown(L) & blue(N) color / H05BB-F 1.5mm <sup>2</sup>
• DC Output Terminal	310mm / gray(DC +) & black(DC -) color / H05BB-F 1.0mm <sup>2</sup>
• Dimming Input Terminal	310mm / brown(dim +) & blue(dim -) color / H05BB-F 1.0mm <sup>2</sup>
• Weight (typ.)	700g
• Outline Dimension	169mm(L) * 70.2mm(W) * 34mm(H)



### Protections

• OVP or Open Circuit	auto recovery, 125V max.
• SCP	auto recovery
• OTP	Output power decrease

### Safety / Certifications

• Hi Pot (AC I/P to Case)	3750Vac / 10mA / 60Sec.
• Hi Pot (AC I/P to O/P)	3750Vac / 10mA / 60Sec.
• Insulation (AC I/P to O/P)	>20MΩ, 500Vac
• Complied with IEC 61347-2-13:2006	
• Complied with IEC 61347-1(Second Edition):2007+A1:2010	
• Complied with IEC 62384:2006(1 Edition)	
• Complied with CE	



### Dimming Input

- Support 2 in 1 Dimming Function
- Resistor Dimming Range (10~100K)
- Voltage Dimming Range (1~10V)
- Resistor Dimming Reference Table

Resistor Dimming	75KΩ ±1%	43KΩ ±1%
Output Current	540mA	330mA
Tolerance	±10%	±10%

Voltage Dimming	7.7V	5V
Output Current	540mA	330mA
Tolerance	±10%	±10%

### Notes :

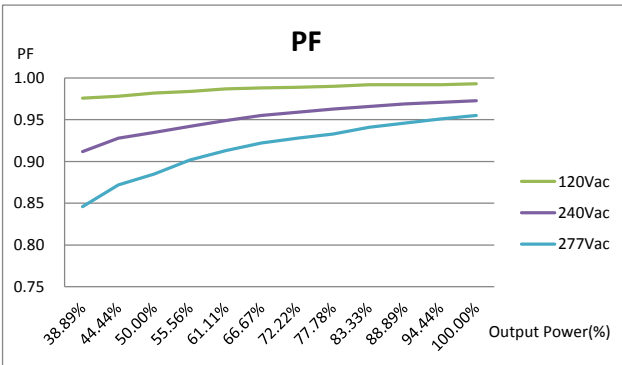
- (1) above definition is based on 25°C ambient if not specified
- (2) this LED driver is designed and intended for operating with LED load only
- (3) the condition of E-cap life evaluation are 110Vac/60Hz or 230Vac/50Hz @ max. load & 25°C ambient
- (4) MTBF evaluation is based on SR-332 method, 115Vac/60Hz, max. load
- (5) to measure efficiency after burn-in 30 minutes with full output load
- (6) recommend to install the controlgear inside the enclosure



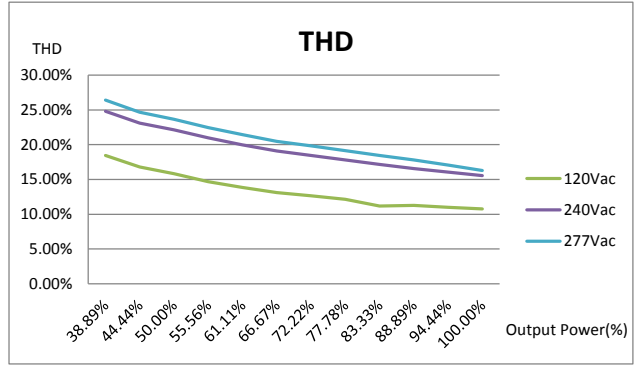
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## Performance Curves

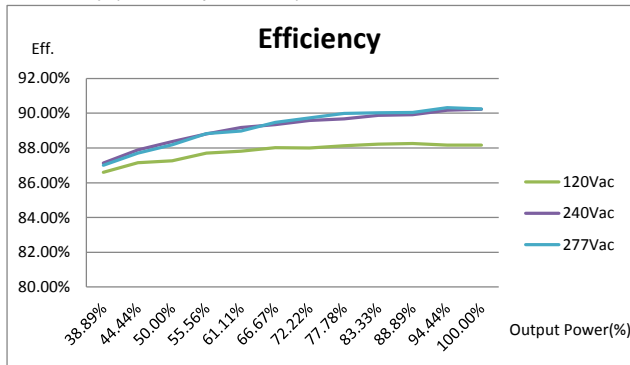
• Power Factor (PF / Output Power)



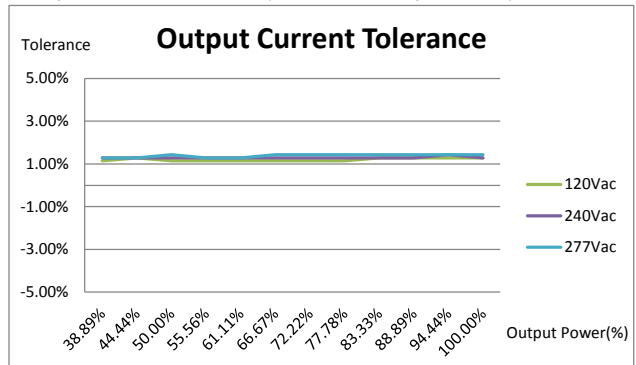
• THD (THD / Output Power)



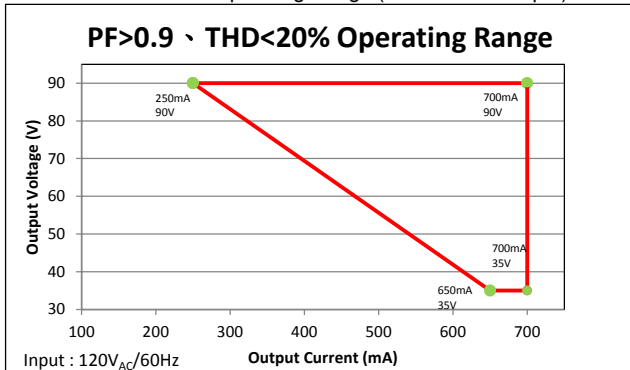
• Efficiency (Eff. / Output Power)



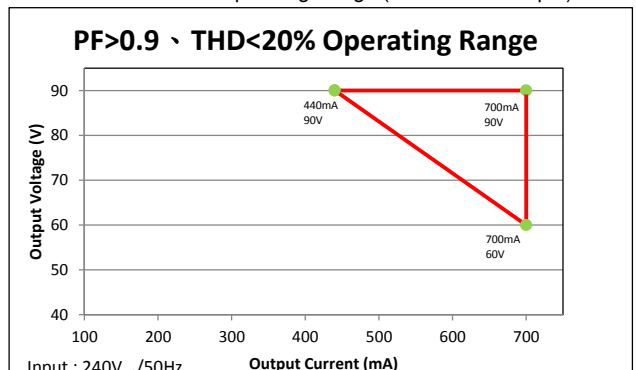
• Output Current Tolerance (Tolerance / Output Power)



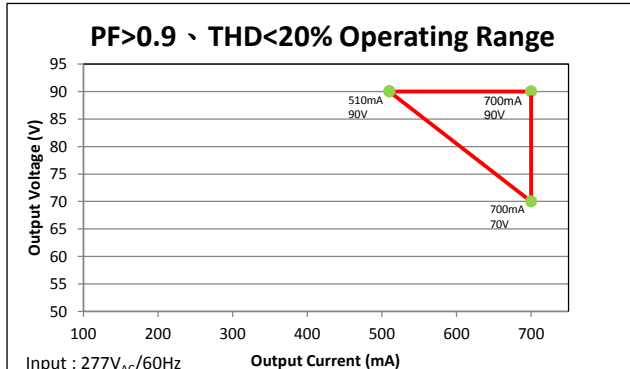
• PF>0.9 & THD<20% Operating Range (120Vac/60Hz Input)



• PF>0.9 & THD<20% Operating Range (240Vac/50Hz Input)



• PF>0.9 & THD<20% Operating Range (277Vac/60Hz Input)



**Notes :**

- (1) experimental instruments :  
AC Source : Chroma 61604 / Power Analyzer : Chroma 6630 / Electrical LED Load : Prodigit 3312F / Oscilloscope : Tektronix TDS3014C / Multimeter : Fluke 287
- (2) all above curves are measured under 25°C ambient
- (3) all above curves are only for design reference