

# Inductive Voltage Regulator, Air-forced Cooling type

**HPI-D Series 10KVA~2500KVA**



## Application

- ▶ Anodizing and Plating
- ▶ Automatic Production Line
- ▶ Airports Facilities & Terminals
- ▶ Banks Head & Branch Offices
- ▶ FM Radio Stations Facilities
- ▶ Cold Storage Facilities
- ▶ Communication Receiver
- ▶ Electrochemical Processes
- ▶ Government Ministries
- ▶ High Voltage Power Supplies
- ▶ IC Finished Plant
- ▶ Internet Café's Medium & Large
- ▶ IT-Data & Telecom Head Offices
- ▶ Manufacturing and Testing
- ▶ Medium & Large Sized Hotels
- ▶ Metal Stamping Plants
- ▶ Medium to Large Offices Facilities
- ▶ Restaurants Centers
- ▶ Semi-conductor Equipment
- ▶ Whole Plant Voltage Regulation



**Ind. & Mfg. Plant**



**Communications**



**Cold Storage Facilities**



**Metal Stamping Plants**



**Airports Facilities & Terminals**



**Large Commercial Office Bldg.**



**Semi-conductor Equipment**



**Internet Café's Medium & Large**

# SATECH POWER

## Industrial Grade Power System

### HPI-D Series Inductive Voltage Regulator, Air-forced Cooling type

*The HPI-D series Inductive Voltage Regulator is available from 10 to 2,500 KVA as standard, in single or three-phase output configurations. Customization welcome!*

*The HPI-D series Inductive Voltage Regulator pay for themselves.*

*No matter what the applications, variations in voltage can cause considerable loss of time and money.*

*By reducing unnecessary downtime and costs, the HPI-D series IVR can actually pay for themselves.*

*What's more, alternative methods for solving poor voltage problems are usually more expensive than IVRs. Contact your local Satech Power Sales Engineer. He or she will welcome the opportunity to re-view your problem and help you solve it.*

#### ■ Robust, Wear-free

Trouble-free Operation. No Sliding Contacts or Brush. Rare maintenance is required. Capable to sustain Spikes & Non-linear Load Impulses. High Reliability and Long term operation.

#### ■ Voltage Regulation Method: Electro-magnetic Induction Theory (Linear Adjustment) – NO MOVING PARTS

#### ■ Wide Input Voltage Range : $\pm 15\%$ (Option: $\pm 20\%$ ~ $\pm 50\%$ or others)

Works effectively under any unstable AC source. All of the input components used are specially selected to handle extreme high voltage and high current.

#### ■ High Load-carrying Capacity

- 110% - 1 hour; 120% - 30 minutes; 150% - 15 minutes; 200% - 2 minutes; 300% - 12 seconds; 500% - 6 seconds.
- Designed to withstand **HEAVY** loads currents
- Designed to withstand **HIGH** motor Startup / Inrush currents

#### ■ Max. Performance: >98% VA Efficiency; Maintain An Output Voltage or Current at $\pm 1\%$ despite variations in the supply voltage or the connected load.

- Improve Plant Performance & Efficiency
- Increase Facility's Profitability
- Increase Equipment Life Span
- Reduce Production Costs
- Reduce Maintenance Costs

#### ■ Full Alarming Capabilities

- Over Current & Short Circuit Protection
- Loss Phase & Phase Reversed Protection

- Over Voltage & Under Voltage Protection
- Over Temperature Protection

#### ■ High Power Factor

Since it is a variable transformer, the IVR has almost no effect on the system power factor. This results in a substantial cost reduction. Suitable for all type of loads.

#### ■ Tolerate Harsh Environment

Each component is chosen with large safety margin to accommodate Extreme environments, such as temperature, humidity, altitude, shock or Contamination.

#### ■ No Wave Form Distortion

Unlike impedance changing regulators, no harmful wave distortion is induced. Problems with sensitive electronic equipment are therefore eliminated.

#### ■ Voltmeter & Ammeter Displays

#### ■ Manual Forced Voltage Adjustment

When internal control system is damaged, the selection of the MANUAL mode can be used for output voltage adjustments.

#### ■ Fast Control Chips

Provide powerful protections, loads to operate with safe and reliable.

#### ■ Optional Isolation Transformer

Solve ultimately power problems, including noise, lightning, ground leakage current, and CEMF (Counter-electromotive Force) etc.

#### ■ Optional Dry Contact Alarm Signal

For remote control panel.

#### ■ Optional Outdoor Application

# Technical Specification (3-Phase Input / Output 10 - 300KVA)

## Input Voltage Range: $\pm 15\%$

MODEL		HPI-D 3320	HPI-D 3325	HPI-D 3330	HPI-D 3350	HPI-D 3375	HPI-D 33100	HPI-D 33150	HPI-D 33200	HPI-D 33250	HPI-D 33300
<b>CAPACITY (KVA)</b>		20	25	30	50	75	100	150	200	250	300
<b>INPUT</b>	Nominal Voltage	110V, 220V, 380V, 400V, 415V, 440V, 3.3KV, 4.16KV									
	Voltage Range	$\pm 15\%$ (Option: $\pm 20\%$ ~ $\pm 50\%$ or others)									
	Frequency	47Hz ~ 63Hz									
	Power Factor	0.95 ~ 1									
<b>OUTPUT</b>	Nominal Voltage	Same as Input Nominal Voltage									
	Regulation	$\pm 1\%$ ~ $\pm 2\%$ Adjustable									
	Response Time	<1.5ms									
	Correction Time	A 10% supply variation will be corrected to within 2.5% in typically 0.6 to 1 second – dependent on the selected permissible input voltage range and system rating									
	T.H.D.	Less than 1% THD shall be added to the output waveform									
	Efficiency	> 98% at full load typical									
	Overload	100% - continuous; 120% - 2hours; 150% - 30minutes; 200% - 1minute (linear load)									
<b>Adjusting Methods</b>		1) Auto-adjustment, Electro-adjustment, Manual-adjustment; 2) Voltage-UP Time Adjustment (0.1~3 Seconds Adjustable) 3) Voltage-DOWN Time Adjustment (0.1~3 Seconds Adjustable)									
<b>Protection (Visual &amp; Audio)</b>		1) Loss Phase, Phase Reversed (By Voltage Stability Circuit Cut-off) 2) High Voltage 2 Steps Protection: (VR Adjustable): 1 <sup>st</sup> Step: Auto Cut-off Voltage UP Signal to Avoid Voltage Increase ; 2 <sup>nd</sup> Step: Abnormal Indicator 3) Low Voltage 2 Steps Protection: (VR Adjustable): 1 <sup>st</sup> Step: Auto Cut-off Voltage DOWN Signal to Avoid Voltage Decrease ; 2 <sup>nd</sup> Step: Abnormal Indicator 4) Overload Protection: 10%~150% Adjustable, 0.1~5 Seconds Adjustable, 5) Over Temperature Protection									
<b>Indicator</b>		Input Voltmeter, Output Voltmeter, Output Ampere Meter (Option: Meter with Wide Angle Hanging Wire type or LED Digital Display Type), 3-Phase AS/V S Change Over Switch									
<b>Coolant</b>		Air-forced Fan									
<b>Audible Noise</b>		<60dBA at 1Meter									
<b>Working Temp.</b>		-20°C to +45°C									
<b>Relative Humidity</b>		0-95% (Non-condensing)									
<b>Altitude</b>		< 4,000 above sea level									
<b>Options</b>		1) Input Over Current Protection (Fused TPN) 100 Amps – 1200 Amps 2) Multi-Function Power Monitoring Unit (Amps / Volts / KVA / KW/ KVAR / Pf)									
<b>Rise Temperature</b>		< 55°C									
<b>Capacity (KVA)</b>		20	25	30	50	75	100	150	200	250	300
<b>Physical Dimension (WxDxH / mm)</b>		570	570	570	570	710	710	710	820	820	820
		820	820	820	820	1020	1020	1020	1220	1220	1220
		1050	1050	1050	1200	1600	1600	1600	1700	1700	1700
<b>Est.Net Weight (kgs)</b>		220	235	250	300	450	600	700	850	950	1,000

- All specifications are subject to change without notice.
- Custom-made specifications are welcome.
- Cubicle size and weight varies with input voltage range.
- **For other specification, please ask.**

# Technical Specification (3-Phase Input / Output 350 - 2500KVA)

## Input Voltage Range: $\pm 15\%$

MODEL	HPI-D 33350	HPI-D 33400	HPI-D 33500	HPI-D 33600	HPI-D 33750	HPI-D 331000	HPI-D 331200	HPI-D 331500	HPI-D 332000	HPI-D 332500	
<b>CAPACITY (KVA)</b>	350	400	500	600	750	1000	1200	1500	2000	2500	
<b>INPUT</b>	Nominal Voltage	110V, 220V, 380V, 400V, 415V, 440V, 3.3KV, 4.16KV									
	Voltage Range	$\pm 15\%$ (Option: $\pm 20\% \sim \pm 50\%$ or others)									
	Frequency	47Hz ~ 63Hz									
	Power Factor	0.95 ~ 1									
<b>OUTPUT</b>	Nominal Voltage	Same as Input Nominal Voltage									
	Regulation	$\pm 1\% \sim \pm 2\%$ Adjustable									
	Response Time	<1.5ms									
	Correction Time	A 10% supply variation will be corrected to within 2.5% in typically 0.6 to 1 second – dependent on the selected permissible input voltage range and system rating									
	T.H.D.	Less than 1% THD shall be added to the output waveform									
	Efficiency	> 98% at full load typical									
	Overload	100% - continuous; 120% - 2hours; 150% - 30minutes; 200% - 1minute (linear load)									
<b>Adjusting Methods</b>	1) Auto-adjustment, Electro-adjustment, Manual-adjustment; 2) Voltage-UP Time Adjustment (0.1~3 Seconds Adjustable) 3) Voltage-DOWN Time Adjustment (0.1~3 Seconds Adjustable)										
<b>Protection (Visual &amp; Audio)</b>	1) Loss Phase, Phase Reversed (By Voltage Stability Circuit Cut-off) 2) High Voltage 2 Steps Protection: (VR Adjustable): 1 <sup>st</sup> Step: Auto Cut-off Voltage UP Signal to Avoid Voltage Increase ; 2 <sup>nd</sup> Step: Abnormal Indicator 3) Low Voltage 2 Steps Protection: (VR Adjustable): 1 <sup>st</sup> Step: Auto Cut-off Voltage DOWN Signal to Avoid Voltage Decrease ; 2 <sup>nd</sup> Step: Abnormal Indicator 4) Overload Protection: 10%~150% Adjustable, 0.1~5 Seconds Adjustable, 5) Over Temperature Protection										
<b>Indicator</b>	Input Voltmeter, Output Voltmeter, Output Ampere Meter (Option: Meter with Wide Angle Hanging Wire type or LED Digital Display Type), 3-Phase AS/VS Change Over Switch										
<b>Coolant</b>	Air-forced Fan										
<b>Audible Noise</b>	<60dBA at 1Meter										
<b>Working Temp.</b>	-20°C to +45°C										
<b>Relative Humidity</b>	0-95% (Non-condensing)										
<b>Altitude</b>	< 4,000 above sea level										
<b>Options</b>	1) Input Over Current Protection (Fused TPN) 100 Amps – 1200 Amps 2) Multi-Function Power Monitoring Unit (Amps / Volts / KVA / KW/ KVAR / Pf)										
<b>Rise Temperature</b>	< 55°C										
<b>Capacity (KVA)</b>	350	400	500	600	750	1000	1200	1500	2000	2500	
<b>Physical Dimension (WxDxH / mm)</b>	820	820	820	1120	1120	1120	1120	1120	1120	1460	
	1220	1220	1220	1620	1620	1620	1620	1620	1620	2020	
	1700	1900	1900	1900	1900	1900	1900	2000	2000	2200	
<b>Est.Net Weight (kgs)</b>	1,100	1,180	1,280	1,800	2,100	2,300	2,500	2,800	3,100	3,500	

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- Cubicle size and weight varies with input voltage range.
- **For other specification, please ask.**

# Technical Specification (3-Phase Input / Output 10 - 300KVA)

## Input Voltage Range: $\pm 20\%$

MODEL		HPI-D 33030	HPI-D 33060	HPI-D 33100	HPI-D 33150	HPI-D 33200	HPI-D 33250	HPI-D 33300
<b>CAPACITY (KVA)</b>		30	60	100	150	200	250	300
<b>INPUT</b>	Nominal Voltage	400V						
	Voltage Range	$\pm 20\%$ (Option: $\pm 15\% \sim \pm 50\%$ or others)						
	Frequency	47Hz ~ 63Hz						
	Power Factor	0.95 ~ 1						
<b>OUTPUT</b>	Nominal Voltage	400V/230V						
	Regulation	$\pm 1\% \sim \pm 2\%$ Adjustable						
	Response Time	<1.5ms						
	Correction Time	A 10% supply variation will be corrected to within 2.5% in typically 0.6 to 1 second – dependent on the selected permissible input voltage range and system rating						
	T.H.D.	Less than 1% THD shall be added to the output waveform						
	Efficiency	> 98% at full load typical						
	Overload	100% - continuous; 120% - 2hours; 150% - 30minutes; 200% - 1minute (linear load)						
<b>Adjusting Methods</b>		1) Auto-adjustment, Electro-adjustment, Manual-adjustment; 2) Voltage-UP Time Adjustment (0.1~3 Seconds Adjustable) 3) Voltage-DOWN Time Adjustment (0.1~3 Seconds Adjustable)						
<b>Protection (Visual &amp; Audio)</b>		1) Loss Phase, Phase Reversed (By Voltage Stability Circuit Cut-off) 2) High Voltage 2 Steps Protection: (VR Adjustable): 1 <sup>st</sup> Step: Auto Cut-off Voltage UP Signal to Avoid Voltage Increase ; 2 <sup>nd</sup> Step: Abnormal Indicator 3) Low Voltage 2 Steps Protection: (VR Adjustable): 1 <sup>st</sup> Step: Auto Cut-off Voltage DOWN Signal to Avoid Voltage Decrease ; 2 <sup>nd</sup> Step: Abnormal Indicator 4) Overload Protection: 10%~150% Adjustable, 0.1~5 Seconds Adjustable, 5) Over Temperature Protection						
<b>Indicator</b>		Input Voltmeter, Output Voltmeter, Output Ampere Meter (Option: Meter with Wide Angle Hanging Wire type or LED Digital Display Type), 3-Phase AS/VS Change Over Switch						
<b>Coolant</b>		Air-forced Fan						
<b>Audible Noise</b>		<60dBA at 1Meter						
<b>Working Temp.</b>		-20°C to +45°C						
<b>Relative Humidity</b>		0-95% (Non-condensing)						
<b>Altitude</b>		< 4,000 above sea level						
<b>Options</b>		1) Input Over Current Protection (Fused TPN) 100 Amps – 1200 Amps 2) Multi-Function Power Monitoring Unit (Amps / Volts / KVA / KW / KVAR / Pf)						
<b>Rise Temperature</b>		< 55°C						
<b>Capacity (KVA)</b>		30	60	100	150	200	250	300
<b>Physical Dimension (WxDxH / mm)</b>		570	720	720	720	720	820	820
		820	1020	1020	1020	1020	1220	1220
		1200	1600	1600	1600	1700	1900	1900
<b>Est.Net Weight (kgs)</b>		300	600	700	800	900	1,050	1,180

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- Cubicle size and weight varies with input voltage range.
- **For other specification, please ask.**