

## METERING

# HLMK Current Transformers

Standard: IEC60044-1

€



### Range Presentation

HLMK Series is HimeI range of Current Transformer, to measure and transform high current to low current

### Features

- ◆ 100% pure copper varnished wire
- ◆ Optimized electric conductivity, less power loss and better stability
- ◆ Shell is made of flame retardant PC material
- ◆ Maximum rated voltage is 0.66kV

### Online Content



HLMK

### Selection Code

Range name	Maximum rated voltage	Accuracy class	Rated primary current	Bus-bar dimension
<b>HLMK</b>	<b>P6</b>	<b>P1</b>	<b>30</b>	<b>30</b>
<b>HLMK</b>	<b>P6: 0.66kV</b>	<b>Default: class 0.5 P1: class 1</b>	<b>30: 30A 50: 50A 75: 75A ... 5000: 5000A</b>	<b>30: 30×10mm 40: 40×10mm 50: 50×15mm 60: 60×20mm 80: 80×10mm or 60×30mm 100: 100×30mm or 60×40mm 120: 120×25mm or 80×30mm</b>

### Rating Table

Busbar diameter (mm)	φ 30	φ 40	φ 50	φ 60	φ 80	φ 100	φ 120
Rated primary current to select (A)	30 50 75 100 150 200	250 300 400 500	300 400 500 600 750 1000	500 600 750 1000 1200 1500	600 750 800 1000 1200 1500 2000 2500	600 750 800 1000 1200 1500 2000 2500 3000	600 750 800 1000 1200 1500 2000 2500 3000

### Technical Parameters

Current Transformers	HLMK
Rated primary current	30A-5000A
Rated secondary current	5A
Maximum rated voltage	0.66kV
Accuracy class	0.5, 1.0
Short time thermal current	I <sub>th</sub> =100I <sub>n</sub>
Security coefficient security coefficient	FS=5
Standard	IEC 60044-1
Certificate	CE

# VOLTAGE STABILIZERS

## HTND Servo type Voltage Stabilizers



HTND

Rated capacity: 0.5~30kVA  
Regulation type: servo motor type



HTND2

108



HTND3

Rated capacity: 0.5~10kVA  
Regulation type: relay type

## HAVRL Relay type Voltage Stabilizers



HAVRL

112

## HSJW Three-phase AC Voltage Stabilizers up to 60kVA



HSVCB

Rated capacity: 3-10kVA  
Regulation type: servo motor type  
Installation method: wall-mounted

110



HSJW

Rated capacity: 1.5-60kVA  
Regulation type: servo motor type

114

## HAVRB Relay Type Wall-Mounted Voltage Stabilizer



HAVRB

Rated Capacity: 1-12kVA  
Regulation Type: Relay Type  
Installation Method: Wall-mounted

111

## HSBW Three-phase AC Voltage Stabilizers up to 2000kVA



HSBW

Rated capacity: 10-2000kVA  
Regulation type: servo motor type

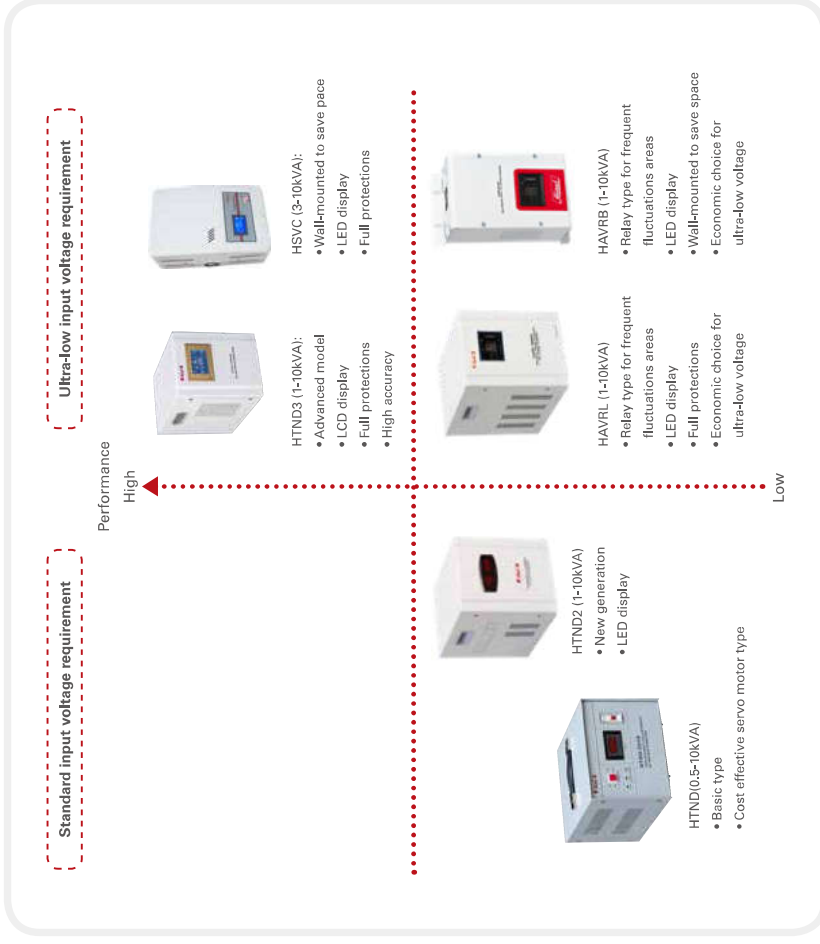
115

# VOLTAGE STABILIZERS

## Easy Selection Guide for Single-phase Voltage Stabilizer

- Capacity: <math>\leq 2\text{kVA}</math>:
- Plug socket is available for applications
  - Suitable for protections of 1 appliances, e.g. TV, washing machine, fridge, etc.
- 3kVA ~10kVA:
- It is available in home, office and shops
  - Suitable for protections of more than 1 device working, e.g. air conditioner plus lamps and TV.
- 10-30kVA:
- Cabinet type
  - It is available in home, office and shops
  - HTND/HTND2/HTND3 will be your best solutions which depends on your specified requirements.
  - Suitable for protections of multi devices.

## Voltage Stabilizer capacity: 1kVA~10kVA (single-phase)



## Product Overview

- Single-Phase Voltage Stabilizer
- √ Servo motor type
  - HTND
  - HTND2
  - HTND3
  - HSVC
  - √ Relay type
  - HAVRL
- Three-Phase Voltage Stabilizer
- √ Servo motor type
  - HSJW
  - HSBW

# VOLTAGE STABILIZERS

## HTND Voltage Stabilizers

Standard: EN61000-6-2, EN61000-6-4, EN61558-1



## Range Presentation

HTND is Himel range of single-phase servo motor type voltage stabilizers. It's up to 30kVA with high accuracy and smooth stabilization.

## Online Content



HTND

HTND2

HTND3

## Selection Code

Model	Power Rating	Connection Type	Input Voltage	Output Voltage
HTND	P5	HE	I110	O220
HTND: HTND series	<b>P5:</b> 0.5kVA <b>1:</b> 1kVA <b>1P5:</b> 1.5kVA <b>2:</b> 2kVA <b>3:</b> 3kVA <b>5:</b> 5kVA <b>7:</b> 7kVA <b>10:</b> 10kVA <b>10G:</b> 10kVA cabinet <b>15G:</b> 15kVA cabinet <b>20G:</b> 20kVA cabinet <b>30G:</b> 30kVA cabinet	<b>HE:</b> Europe plug (1.5kVA) <b>HB:</b> British plug (only when capacity $\leq 1.5\text{kVA}$ ) <b>H:</b> Terminal connect	<b>Default:</b> Standard 150-250V <b>I110:</b> Input: 110-250V	<b>O220:</b> Output 220V <b>O230:</b> Output 230V
HTND5: HTND2 series	<b>1:</b> 1kVA <b>1P5:</b> 1.5kVA <b>2:</b> 2kVA <b>3:</b> 3kVA <b>5:</b> 5kVA <b>7:</b> 7kVA <b>10:</b> 10kVA <b>10G:</b> 10kVA cabinet <b>15G:</b> 15kVA cabinet <b>20G:</b> 20kVA cabinet <b>30G:</b> 30kVA cabinet	<b>HE:</b> Europe plug (only when capacity $\leq 10\text{kVA}$ ) <b>HB:</b> British plug (only when capacity $\leq 10\text{kVA}$ ) <b>H:</b> Terminal connect	<b>Default:</b> Standard 140-250V <b>I85:</b> Input: 85-250V <b>I110:</b> Input: 110-250V	<b>Default:</b> Output 220V <b>O230:</b> Output 230V
HTND6: HTND3 series	<b>1:</b> 1kVA <b>1P5:</b> 1.5kVA <b>2:</b> 2kVA <b>3:</b> 3kVA <b>5:</b> 5kVA <b>7:</b> 7kVA <b>10:</b> 10kVA <b>10G:</b> 10kVA cabinet <b>15G:</b> 15kVA cabinet <b>20G:</b> 20kVA cabinet <b>30G:</b> 30kVA cabinet	<b>HE:</b> Europe plug (only when capacity $\leq 10\text{kVA}$ ) <b>HB:</b> British plug (only when capacity $\leq 10\text{kVA}$ ) <b>H:</b> Terminal connect	<b>Default:</b> Standard 140-250V <b>I85:</b> Input: 85-250V <b>I110:</b> Input: 110-250V	<b>Default:</b> Output 220V <b>O230:</b> Output 230V

Note: Additional features are available, please consult us if you want to customized type.

## Spare Parts List - For HTND Family

- √ Servo motor
- √ Carbon brush
- √ PCB
- √ Limit switch
- √ Regulating coil
- √ Compensating coil (when capacity  $\geq 15\text{kVA}$ )
- √ Screen

Note: Spare part list above can be provided on request.

## VOLTAGE STABILIZERS

# HTND Voltage Stabilizers

Standard: EN61000-6-2, EN61000-6-4, EN61558-1



Technical Parameters		HTND	HTND2	HTND3
HTND product series		0.5-30	1-30	1-30
Rated Capacity	kVA	0.5-30	1-30	1-30
Accuracy of stabilized voltage	V	0.5-5kVA: 220 (or 230) ±4%; 110 (or 115) ±4%; 7-30kVA: 220 (or 230) ±4%	1-5kVA: 220 (or 230) ±4%; 110 (or 115) ±4%; 7-30kVA: 220 (or 230) ±4%	1-5kVA: 220 (or 230) ±4%; 110 (or 115) ±4%; 7-30kVA: 220 (or 230) ±4%
Output voltage	V	220 (or 230) ±4%	220 (or 230) ±4%	220 (or 230) ±4%
Undervoltage Protection	V	184 (or 194) ±4	184 (or 194) ±4	184 (or 194) ±4
Overvoltage Protection	V	246 (or 256) ±4	246 (or 256) ±4	246 (or 256) ±4
Range of Input Voltage	V	140-250	140-250	140-250
Customized Input Range	V	100-240	85-250 or 110-250	85-250 or 110-250
Extended Function	Optional	By-pass (not available for 30kVA) Fan Input undervoltage protection	By-pass (not available for 30kVA) Fan Temperature rise protection Overload protection Input undervoltage protection Time delay	By-pass (not available for 30kVA) Fan Temperature rise protection Overload protection Input undervoltage protection
Cooling Mode		Air cooling can be customized (not for standard product; standard one is self-cooling)		
Voltage-regulating Speed	s	<1 (variation of input voltage is 10%)		
Temperature rise	K	<80		
Frequency	Hz	50/60	50/60	50/60
Display mode		Dial Meter (Panel Meter)	LED	LCD
Insulation grade		B		
Insulation resistance	MΩ	≥5		
Time Delay	min	5±2 (not for standard product) can be customized		
Withstand voltage	V/1min	1500		
Efficiency		92%		
Maximum rated current	A	2.3 (0.5kVA), 4.5 (1kVA), 6.8 (1.5kVA), 9.1 (2kVA), 13.6 (3kVA), 22.7 (5kVA), 31.8 (7kVA), 45.5 (10kVA), 68 (15kVA), 90.9 (20kVA), 136 (30kVA)		
Certification		CE	CE	CE
Standard		EN61000-6-2, EN61000-6-4, EN61558-1		

Note:

- By-pass is available for 30kVA
- Customization of additional protection on request.

## Portfolio for HTND family (not customized type)

HTND product series	HTND	HTND2	HTND3
Description	Single phase full automatic AC voltage stabilizer	Single phase full automatic AC voltage stabilizer	Single phase full automatic AC voltage stabilizer
Capacity	0.5, 1, 1.5, 2, 3, 5, 7, 10, 15, 20, 30kVA	1, 1.5, 2, 3, 5, 7, 10, 15, 20, 30kVA	1, 1.5, 2, 3, 5, 7, 10, 15, 20, 30kVA
Type	Servo motor	Servo motor	Servo motor
Standard	EN 61000-6-2, EN 61000-6-4, EN 61558-1	EN 61000-6-2, EN 61000-6-4, EN 61558-1	EN 61000-6-2, EN 61000-6-4, EN 61558-1
Certification	CE	CE	CE
Overvoltage	✓	✓	✓
Short circuit	✓	✓	✓
Overload	*	*	✓
Undervoltage (output)	*	✓	✓
Temperature rise	*	*	✓
Time delay	*	*	✓
By-pass	*	*	*

Note:

- (1) "\*" means optional functions for this series, which is required to be customized;
- (2) Even though overload protection is not the standard one for all series, short circuit protection can help the system protect against overload issue at a certain level;
- (3) By-pass is not available for 30kVA.

## VOLTAGE STABILIZERS

# HSVCB Voltage Stabilizers

Standard: EN61000-6-2, EN61000-6-4, EN61558-1



## Range Presentation

HSVC is Himel range of single-phase wall-mounted servo motor type voltage stabilizers. It's up to 10kVA, and it can help customers save much mounting space.

Online Content



HSVCB

## Selection Code

Model	Power Rating	Display	Input Voltage	Output Voltage
<b>HSVCB</b>	<b>5</b>	<b>C</b>	<b>I110</b>	<b>O230</b>

HSVCB	3: 3kVA 5: 5kVA 7: 7kVA 8: 8kVA 10: 10kVA	Default: pointer display (dial meter) C: LCD	Default: Standard 140-250V I85: Input: 85-250V I110: Input: 110-250V	Default: Output 220V O230: Output 230V
-------	---	---	--	---

Note: Additional features are available, please consult us if you want to customized type.

## Technical Parameters

Type	HSVC High Precise Full-Automatic AC Voltage Stabilizer			
Rated Capacity	kVA	3-7		10
Accuracy of stabilized voltage	V	220 (or 230) ±4%; 110 (or 115) ±4%;		220 (or 230) ±4%
Output Voltage	V	184 (or 194) ±4 (not for standard product) can be customized		
Overvoltage Protection	V	246 (or 256) ±4		
Range of input voltage	V	110-250 , 140-150 or 85-250		
Customized Input Range	V	85-250		
Extended function*	Optional	Fan Input undervoltage protection		
Voltage-regulating speed	s	<1 (variation of input voltage is 10%)		
Temperature rise	K	<80		
Frequency	Hz	50/60		
Display mode		LED or LCD		
Insulation resistance	MΩ	≥5		
Time delay	min	5±4 (not for standard product) can be customized		
Withstand voltage	V/1min	1500		
Efficiency		> 92%		
Maximum rated current	A	13.6 (3kVA), 22.7 (5kVA), 31.8 (7kVA), 45.5 (10kVA)		
Standard		EN61000-6-2, EN61000-6-4, EN61558-1		
Certification		CE		

\* Please consult us.

## Spare Parts List

- ✓ Servo motor
- ✓ Carbon brush
- ✓ PCB
- ✓ Limit switch
- ✓ Relay
- ✓ Regulating coil
- ✓ Screen

## VOLTAGE STABILIZERS

# HAVRB Voltage Stabilizer

Standard: EN61000-6-2, EN61000-6-4, EN61558-1



### Range Presentation

HAVRB is Himel range of single-phase wall-mounted relay type voltage stabilizers. It's up to 12KVA, and it can help customers save much mounting space as well as solve the frequent fluctuations issue from power grid.

### Online Content



HAVRB

### Selection Code

Model **HAVRB** Power Rating **5** Input Voltage **I110** Output Voltage **-**

## HAVRB

**5**

**I110**

**-**

HAVRB	Power Rating	Input Voltage	Output Voltage
<b>1:</b> 1KVA <b>1P5:</b> 1.5KVA <b>2:</b> 2KVA <b>3:</b> 3KVA <b>5:</b> 5KVA <b>7:</b> 7KVA <b>8:</b> 8KVA <b>10:</b> 10KVA <b>12:</b> 12KVA	<b>1:</b> 1KVA <b>1P5:</b> 1.5KVA <b>2:</b> 2KVA <b>3:</b> 3KVA <b>5:</b> 5KVA <b>7:</b> 7KVA <b>8:</b> 8KVA <b>10:</b> 10KVA <b>12:</b> 12KVA	<b>Default:</b> Standard 140~250V <b>I85:</b> Input: 85-250V <b>I110:</b> Input: 110~250V	<b>Default:</b> Output 220V

Note: HAVRB only has 220V output. Additional features are available, please consult us if you want to customized type.

### Technical Parameters

Relay Type Wall-mounted Voltage Stabilizers		HAVRB
Accuracy of stabilized voltage	V	220±8%
Output Voltage	V	194±4
Undervoltage protection	V	250±4
Overvoltage protection	V	140~250
Range of Input Voltage	V	Overload protection Short circuit protection Output overvoltage protection Output undervoltage protection Time delay
Standard Function		110-250 or 85-250
Customized Input Range	V	Fan By-pass Input undervoltage protection Temperature rise protection
Extended Function*	Optional	<10
Voltage-regulating Speed	ms	<75 (with rated load)
Temperature Rise	K	50/60
Frequency	Hz	LED
Display Mode		≥5
Insulation Resistance	MΩ	>90%
Efficiency		2.3 (0.5KVA), 4.5 (1KVA), 9.1 (2KVA), 13.6 (3KVA), 22.7 (5KVA), 31.8 (7KVA), 36.4 (8KVA), 45 (10KVA), 54.5 (12KVA)
Maximum Rated Current	A	EN61000-6-2/ EN61000-6-4/EN61558-1
Standard		

\* Please consult us.

## VOLTAGE STABILIZERS

# HAVRL Voltage Stabilizers

Standard: EN61000-6-2, EN61000-6-4, EN61558-1



### Range Presentation

HAVRL is Himel range of single-phase relay type voltage stabilizers. It's up to 10KVA, and it can solve the frequent fluctuations issue from power grid.

### Online Content



HAVRL

### Selection Code

Model **HAVRL** Power Rating **P5** Connection Type **HE** Input Voltage **I110**

## HAVRL

**P5**

**HE**

**I110**

HAVRL	Power Rating	Connection Type	Input Voltage
<b>P5:</b> 0.5KVA <b>1:</b> 1KVA <b>1P5:</b> 1.5KVA ... <b>10:</b> 10KVA	<b>HE:</b> Europe plug <b>HB:</b> British plug	<b>Default:</b> Input: 85-250V <b>I110:</b> Input: 110-250V	

Note: HAVRL only has 220V output. Additional features are available, please consult us if you want to customized type.

### Technical Parameters

Ultra-Low Voltage Relay Type Voltage Stabilizer		HAVRL
Type		HAVRL Ultra-Low Voltage Full-Automatic AC Voltage Stabilizer
Rated capacity	KVA	Standard Model Economic Model
Accuracy of stabilized voltage	V	0.5-10
Output voltage	V	220±8% 110±10% (only when capacity is equal or less than 5KVA)
Overvoltage protection	V	250±4
Range of input voltage	V	85-250
Customized input range	V	110-250 or 140-250
Extended function*	Optional	By-pass Fan Input undervoltage protection
Power factor		0.8
Voltage-regulating speed	ms	<10
Temperature rise	K	<75 (with rated load)
Frequency	Hz	50/60
Display mode		LED
Insulation resistance	MΩ	≥5
Efficiency		>90%
Maximum rated current	A	2.3 (0.5KVA), 4.5 (1KVA), 6.8 (1.5KVA), 9.0 (2KVA), 13.6 (3KVA), 22.7 (5KVA), 31.8 (7KVA), 45 (10KVA)
Standard		EN61000-6-2/ EN61000-6-4/EN61558-1

\* Please consult us.

## VOLTAGE STABILIZERS

# HAVRL Voltage Stabilizers

Standard: EN61000-6-2, EN61000-6-4, EN61558-1

### Portfolio for HSVC & HAVRL & HAVRB (not customized type)

HTND product series	HSVC-B		HTND2		HAVRB
	Standard Model	Economic Model	Standard Model	Economic Model	
Description	Single phase full automatic AC voltage stabilizer				
Capacity	3,5,7,10kVA	0,5,1,1,5,2,3,5,7,10kVA	1, 1,5,2,3,5,7, 8, 10, 12kVA		
Type	Servo motor	Relay type			
Standard	EN 61000-6-2, 61000-6-4, 61558-1				
Certification	CE				
Overvoltage	✓	✓	✓	✓	✓
Overload	✓	✓	✓	✓	✓
Temperature rise	✓	✓	✓	✓	●
Short circuit	✓	✓	✓	✓	✓
Undervoltage (output)	●	✓	✓	✓	●
Time delay	●	✓	✓	✓	●
Bypass	✓	✓	✓	✓	●

Note:

- "\*"\*" means optional functions for this series, which is required to be customized;
- "●" means that for HSVC series, output undervoltage protection and time delay function cannot be extended at the same time; customer can only choose one of them for each order; otherwise, the value of the output undervoltage protection should be set as a fixed value and this function cannot be selectable;
- Even through overload protection is not the standard one for all series, short circuit protection can help the system protect against overload issue at a certain level.

### Spare Parts List - for HSVC & HAVRL

- ✓ Servo motor (only for HSVC)
- ✓ Relay (only for HAVRL)
- ✓ Carbon brush (only for HSVC)
- ✓ Regulating coil
- ✓ PCB
- ✓ Screen
- ✓ Limit switch (only for HSVC)

## VOLTAGE STABILIZERS

# HSJW Voltage Stabilizers

Standard: EN61000-6-2, EN61000-6-4, EN61558-1

### Range Presentation

HSJW is Himel range of three-phase servo motor type voltage stabilizers. It's up to 60kVA with high accuracy.

### Selection Code

Model      Power Rating      Shape      Display      Input Voltage      Output Voltage

**HSJW**      **1P5**      **G**      **E**      **I250**      **O400**

HSJW	1P5	G	E	I250	O400
<b>HSJW</b>	<b>1P5:</b> 1.5kVA <b>3:</b> 3kVA <b>4P5:</b> 4.5kVA <b>6:</b> 6kVA <b>9:</b> 9kVA <b>15:</b> 15kVA <b>20:</b> 20kVA <b>30:</b> 30kVA <b>45:</b> 45kVA <b>60:</b> 60kVA	<b>Default:</b> Desktop; Only for 1.5kVA-4.5kVA <b>G:</b> Cabinet	<b>Default:</b> Dial meter display <b>E:</b> LED display <b>MLCD:</b> Multifunction meter (LCD) display	<b>Default:</b> I/260-430V for 1.5-30kVA, I/304-458V for 45-60kVA <b>I250:</b> Input 250-423V	<b>Default:</b> Output 380V <b>O400:</b> Output 400V

### Technical Parameters

#### Three-Phase Voltage Stabilizer

Type	HSJW	
Rated capacity	kVA	HSJW Three-Phase Full-Automatic AC Voltage Stabilizer 1.5-30
Output voltage	Accuracy of stabilized voltage	380 (or 400) ±4%
	Undervoltage Protection	320 (or 340) ±7 (not for standard product) can be customized
Range of input voltage	Overvoltage Protection	425 (or 445) ±7
	Customized input range	260-430
Extended function*	Bypass Fan	250-423
	Optional	Input undervoltage protection Output undervoltage protection Overload protection Phase failure protection Temperature rise protection Time delay Surge protector
Voltage-regulating speed	s	<1 (variation of input voltage is 10%)
Temperature rise	K	<80
Ambient temperature	°C	-5°C ~ +40°C
Frequency	Hz	50/60
Display mode		Dial Meter (Panel Meter) or LED or LCD
Insulation resistance	MΩ	≥5
Withstand voltage	V/1min	1500
Efficiency		> 92%
Maximum rated current	A	2,3(1.5kVA), 4,6(3kVA), 6,8(4.5kVA), 9,1(6kVA), 13,7(9kVA), 22,8(15kVA), 30,4(20kVA), 45,6(30kVA), 68(45kVA), 91(60kVA)
Certification Standard	CE	EN61000-6-2/ EN61000-6-4/ EN61558-1

\* Please consult us.



Online Content



HSJW

## VOLTAGE STABILIZERS

# HSBW Voltage Stabilizers

Standard: EN61000-6-2, EN61000-6-4, EN61558-1



### Range Presentation

HSBW is Himel range of three-phase servo motor type voltage stabilizers. It's up to 2000KVA with high accuracy.

### Selection Code

Model	Power Rating	Display	Input Voltage	Output Voltage
<b>HSBW</b>	<b>10</b>	<b>E</b>	<b>I250</b>	<b>O400</b>
	10: 10KVA 15: 15KVA 30: 30KVA 50: 50KVA ... 1000: 1000KVA 1600: 1600KVA 2000: 2000KVA	Default: Dial meter display E: LED display MLCD: Multifunction meter (LCD) display	Default: I/ 304-456V I250: Input 250-423V	Default: Output 380V O400: Output 400V O470: Output is 380V when input is 304-470V

### Online Content



HSBW

### Technical Parameters

Three Phase Compensation Voltage Stabilizer		HSBW	
Type	HSBW Three-Phase Compensation AC Voltage Stabilizer		
Rated capacity	kVA	10-2000	
Output voltage	Accuracy of stabilized voltage	380 (or 400) ±3%	
	Undervoltage protection	320 (or 340) ±7	
Range of input voltage	Overvoltage protection	425 (or 445) ±7	
	Customized input range	304-456	
Extended function*	Optional	By-pass Fan Input undervoltage protection Overload protection Phase failure protection Temperature rise protection Time delay Surge protector	
	Voltage-regulating speed	s	<1 (variation of input voltage is 10%)
Temperature rise	K	<60	
Ambient temperature	°C	-5°C ~+40°C	
Frequency	Hz	50/60	
Display mode	Dial Meter (Panel Meter) or LED or LCD		
Insulation resistance	MΩ	≥5	
Withstand voltage	V/1min	2000	
Efficiency		≥ 95%	
Standard	EN61000-6-2/EN61000-6-4/EN61558-1		

\* Please consult us.

## VOLTAGE STABILIZERS

# HSBW Voltage Stabilizers

Standard: EN61000-6-2, EN61000-6-4, EN61558-1



### Portfolio for HSJW & HSBW (not customized type)

product series		HSJW	HSBW
Characteristics	Description	Three phase full automatic AC voltage stabilizer	
	Capacity	1.5,3,4,5,6,9,15,20,30,45,60KVA	10,15,30,50,100,150,200,250,300,400,500,600,800,1000,1600,2000KVA
	Type	Servo motor	Servo motor
	Standard	EN 61000-6-2, 61000-6-4, 61558-1	
	Certification	CE	-
	Overvoltage	✓	✓
Protection	Temperature rise	*	*
	Overload	*	*
	Undervoltage (output)	*	✓
	Short circuit	✓	✓
	Time delay	*	*
	By-pass	*	*

Note:

- (1) "\*" means optional functions for this series, which is required to be customized with higher cost;
- (2) Even through overload protection is not the standard one for all series, short circuit protection can help the system protect against overload issue at a certain level.

### Spare Parts List - for HSVC & HAVRL

- ✓ Servo motor (only for HSVC) ✓ Carbon brush (only for HSVC) ✓ PCB ✓ Limit switch (only for HSVC)
- ✓ Relay (only for HAVRL) ✓ Regulating coil ✓ Screen