

ESR H SERIES - THREE PHASE - 6 to 4000 kVA**Ashley-Edison**® (UK)
Mains Voltage Control - Without Compromise

STATIC DIGITAL VOLTAGE REGULATION
highly efficient with exceptionally ultra fast speed of response – ideal for highly sensitive / mission critical loads and applications.

FEATURES

- **Automatic Voltage Regulation**
Digitally controlled voltage stabilisation
- **Wide Range of Power Ratings**
Three Phase 6 to 4000 kVA
- **Choice of Input Voltage Swing Ranges**
Input Swing - ±10% (S10), ±15% (S15), ±20% (S20), ±25% (S25), ±30% (S30), *customer to specify*
- **Precise Output Voltage Regulation**
Output Voltage Accuracy ±1%
- **Transient Voltage Surge Suppression**
TVSS - Protects loads against harmful high-energy surges, transients and spikes.
- **Solid State Design**
Highly reliable and enduring electronic static design with no moving parts, delivering a 'virtually Maintenance Free' voltage regulation solution

STATIC ELECTRONIC DIGITAL DESIGN
AC VOLTAGE STABILISERS & REGULATORS
AC THREE PHASE - 6 TO 4000 kVA

380/220V - 400/230V - 415/240V - 50 or 60Hz

X468 MODELS: 440/256V - 460/265V - 480/277V - 50 or 60Hz

ESR
4 WIRE - WITH NEUTRAL
H - THREE PHASE

ENSURING AN EXTREMELY STABLE AC MAINS SUPPLY VOLTAGE

Suitable for most types of electrical and electronic equipment, Ashley-Edison's ESR Electronic AC Voltage Stabilisers continuously monitor the incoming supply. Should the incoming voltage rise or drop, the Stabilisers will automatically control the output to ensure the voltage reaching the load equipment always remains constant at the requisite voltage.

Inbuilt spike protection ensures the load is continuously protected against harmful mains born high energy spikes and surges.

Ashley-Edison ESR Series AC Voltage Stabilisers offer -

- **Ultra Fast Speed of Response**
Compact in size and quiet in operation, ESR Series AC Voltage Stabilisers deliver an unsurpassable speed of response making them ideal for highly sensitive loads.
- **Static / Solid State Design**
ESR Series AC Voltage Stabilisers use solid state devices (SCRs) to select transformer taps to regulate the output. Unlike other similar solutions, ESR Stabilisers by nature of their design do not require the SCRs to carry the full load, just a fraction - thereby delivering far superior reliability to similar systems found on the market. With no moving parts, they are virtually 'Maintenance Free' solutions.
- **Automatic Electronic Bypass**
Inbuilt as standard on all models, the automatic bypass maintains power to the load and unit functionality, except regulation, in the event of a problem.
- **All Digital Controls**
All digital microprocessor control and operation ensures ESR AC Voltage Stabilisers provide the highest level of performance and accuracy. The standard LCD display provides information on the operational status and loading on the stabilizer, and enables the configuration of a number system parameters for more demanding applications where customization is required.

- **Independent Phase Balancing & Control**
Independent phase voltage sensing and control to ensure the individual phase voltages remain stable - regardless of load unbalance.
- **Inbuilt High Overload Capability**
Ideal for loads with an inherent initial high current draw on start up.
- **Over / Low Voltage Protection**
Ability to automatically shutdown the Voltage Stabiliser in the event of the input supply voltage going outside pre-set input voltage parameters
- **Phase Failure Protection**
Protection of the load in the event of phase failure.
- **Bypass Protection**
Fully Automatic (or manually activated) transfer to bypass in the event of a problem.
- **Input Circuit Breaker**
Protection against damaging over-currents and short circuits. Standard on all models.
- **Digital LCD Monitoring Panel & Alarms**
Displaying real time operational status, key system readings and alarm events.
- **Optional Accessories**
Output Circuit Breaker, Full Manual Maintenance Bypass Switch, No-Volt Contacts, RS/232 or RS485 Interface, Surge Arrestors, Input Isolation Transformer and AquaStop Protective Coating
- **Compliance with International Standards**
Designed, manufactured and supplied to comply with leading international standards.
- **CE Conformity**
Fully compliant and labelled.

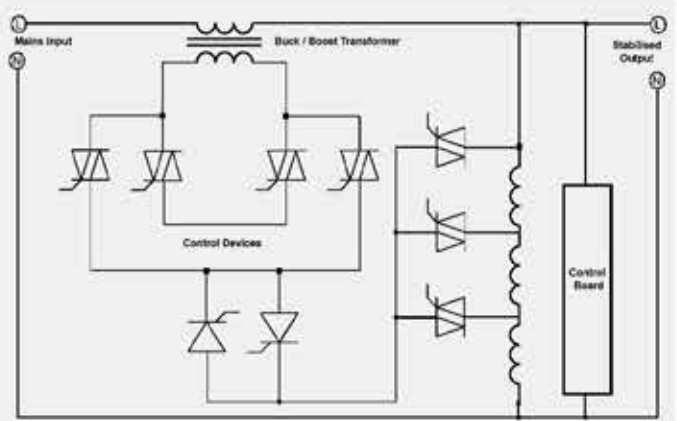


DIGITAL HYBRID BUCK BOOST SCR DESIGN TOPOLOGY

Based on the extremely well proven Buck Boost design topology which underlines our SES & SESL AC Voltage Stabilisers, ESR Static Voltage Regulators utilise SCRs (Silicon Controlled Rectifiers) to select transformer taps to deliver a highly stable output voltage with an extremely fast correction time.

Unlike traditional Electronic SCR based solutions, the underlying Buck Boost topology ensures that the SCRs are not required to handle the full load current, but merely a fraction of the load current. By suitably sizing the ratings of the SCRs, ESR Stabilisers are able to deliver impressive over-load capabilities and considerable enhanced reliability.

The utilisation of the latest in microprocessor control and the inclusion as standard on all models of an input circuit breaker, ensures that the SCRs are fully protected against over-current conditions and other malfunctions, which historically have been viewed as the primary weakness of Electronic based SCR solutions.



VOLTAGE CHOICES AVAILABLE

Also available as 3 Wire Solutions (No Neutral)
- ESR-HD-3P & ESR-LD-3P SERIES

4 WIRE SOLUTIONS

THREE PHASE WITH NEUTRAL (+ GROUND / EARTH)

H SERIES 6 to 4000 kVA

High Voltage Models:

380/220V, 400/230V or 415/240V
X468 Models - 440/254V, 460/285V or 480/277V

Other voltages available on individual request / quotation.

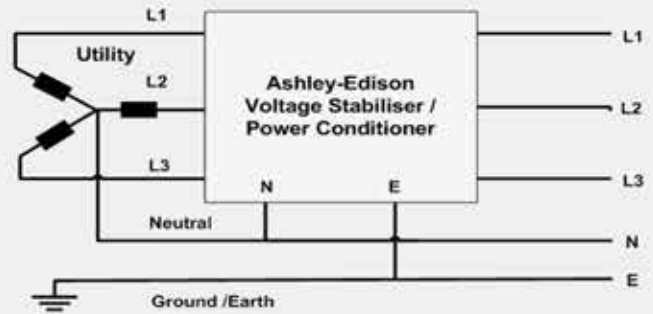


LY SERIES 6 to 500 kVA

Low Voltage Models:

190/110V, 200/115V, 208/120V or 220/127V

Other voltages available on individual request / quotation.



INPUT VOLTAGE WINDOW

H SERIES - ESR-H-3P-S* Input Voltage Windows & Output Accuracy

Nominal Three Phase Voltage	Output Voltage Accuracy ± % of Nominal	INPUT VOLTAGE SWINGS / SWING MODEL NO S* VARIANTS									
		S10		S15		S20		S25		S30	
		L-L	L-N	L-L	L-N	L-L	L-N	L-L	L-N	L-L	L-N
380V L-N: 220V	± 1%	342 to 416V (± 10%)	198 to 242V	323 to 437V (± 15%)	187 to 253V	304 to 456V (± 20%)	176 to 264V	285 to 475V (± 25%)	165 to 275V	266 to 494V (± 30%)	154 to 285V
400V L-N: 230V	± 1%	360 to 440V (± 10%)	207 to 253V	340 to 460V (± 15%)	196 to 265V	320 to 480V (± 20%)	184 to 276V	300 to 500V (± 25%)	173 to 288V	280 to 520V (± 30%)	161 to 289V
415V L-N: 240V	± 1%	374 to 457V (± 10%)	218 to 264V	353 to 477V (± 15%)	204 to 276V	332 to 498V (± 20%)	192 to 288V	311 to 519V (± 25%)	180 to 300V	291 to 540V (± 30%)	168 to 312V

H-X468 SERIES - ESR-H-3P-S*-X468 Input Voltage Windows & Output Accuracy



Nominal Three Phase Voltage	Output Voltage Accuracy ± % of Nominal	INPUT VOLTAGE SWINGS / SWING MODEL NO S* VARIANTS									
		S10		S15		S20		S25		S30	
		L-L	L-N	L-L	L-N	L-L	L-N	L-L	L-N	L-L	L-N
440V L-N: 254V	± 1% ~ ± 2%	396 to 484V (± 10%)	229 to 279V	374 to 506V (± 15%)	218 to 292V	352 to 528V (± 20%)	203 to 305V	330 to 550V (± 25%)	191 to 318V	308 to 572V (± 30%)	178 to 330V
460V L-N: 265V	± 1% ~ ± 2%	414 to 506V (± 10%)	239 to 291V	391 to 529V (± 15%)	225 to 305V	368 to 552V (± 20%)	212 to 318V	345 to 575V (± 25%)	199 to 331V	322 to 598V (± 30%)	166 to 345V
480V L-N: 277V	± 1% ~ ± 2%	432 to 528V (± 10%)	256 to 304V	408 to 552V (± 15%)	235 to 319V	384 to 575V (± 20%)	222 to 332V	360 to 600V (± 25%)	208 to 346V	336 to 624V (± 30%)	194 to 360V



ESR H SERIES - THREE PHASE - 6 to over 4000 kVA

PRODUCT SELECTION TABLE

S* = Selected permissible input voltage window - S10 (±10%), S15 (±15%), S20 (±20%), S25 (±25%) or S30 (±30%)

ESR Models	Rating kVA	Max Rating (Amps per Phase)						Dimensions W x H x D (mm)	Weights Kg
		H SERIES			H-X468 SERIES				
		@ 380V	@ 400V	@ 415V	@ 440V	@ 460V	@ 480V		
ESR-6H-3P-S*	6	9.1	8.7	8.3	7.9	7.5	7.2	<i>Dimensions & Weights available on Request - according to the S* Swing Model Variant required.</i>	
ESR-10H-3P-S*	10	15.2	14.4	13.9	13.1	12.5	12.0		
ESR-15H-3P-S*	15	22.8	21.6	20.9	19.7	18.8	18.0		
ESR-20H-3P-S*	20	30	28	27	26	25	24		
ESR-25H-3P-S*	25	38	36	34	32	31	30		
ESR-30H-3P-S*	30	45	43	41	39	37	36		
ESR-35H-3P-S*	35	53	50	48	45	43	42		
ESR-40H-3P-S*	40	60	57	55	52	50	48		
ESR-45H-3P-S*	45	68	64	62	59	56	54		
ESR-50H-3P-S*	50	75	72	69	65	62	60		
ESR-55H-3P-S*	55	83	79	76	72	69	68		
ESR-60H-3P-S*	60	91	86	83	78	75	72		
ESR-75H-3P-S*	75	113	108	104	98	94	90		
ESR-80H-3P-S*	80	121	115	111	104	100	96		
ESR-90H-3P-S*	90	136	129	125	118	112	108		
ESR-100H-3P-S*	100	151	144	139	131	125	120		
ESR-120H-3P-S*	120	182	173	168	157	150	144		
ESR-150H-3P-S*	150	227	216	208	196	188	180		
ESR-180H-3P-S*	180	273	259	250	236	226	216		
ESR-200H-3P-S*	200	303	288	278	262	251	240		
ESR-250H-3P-S*	250	379	360	347	327	313	300		
ESR-300H-3P-S*	300	455	432	417	393	376	360		
ESR-350H-3P-S*	350	531	505	488	459	439	420		
ESR-400H-3P-S*	400	607	572	556	524	501	481		
ESR-450H-3P-S*	450	683	649	625	590	564	541		
ESR-500H-3P-S*	500	759	721	695	655	627	601		
ESR-600H-3P-S*	600	911	865	834	787	752	721		
ESR-650H-3P-S*	650	987	937	904	852	815	781		
ESR-700H-3P-S*	700	1063	1010	973	918	878	841		
ESR-750H-3P-S*	750	1139	1082	1043	983	941	901		
ESR-800H-3P-S*	800	1215	1154	1112	1049	1003	962		
ESR-900H-3P-S*	900	1367	1298	1251	1180	1129	1082		
ESR-1000H-3P-S*	1000	1518	1443	1390	1311	1254	1202		
ESR-1200H-3P-S*	1200	1822	1731	1669	1574	1505	1443		
ESR-1250H-3P-S*	1250	1868	1803	1738	1639	1568	1503		
ESR-1500H-3P-S*	1500	2278	2164	2086	1967	1882	1803		
ESR-2000H-3P-S*	2000	3037	2885	2781	2623	2509	2404		
ESR-2500H-3P-S*	2500	3797	3607	3477	3279	3137	3006		
ESR-3000H-3P-S*	3000	4558	4326	4172	3935	3764	3607		
ESR-3500H-3P-S*	3500	5318	5050	4868	4591	4392	4209		
ESR-4000H-3P-S*	4000	6078	5772	5563	5247	5019	4810		



TECHNICAL SPECIFICATION

Technology:	Digital Hybrid Buck Boost SCR design topology.		
Input Voltage Swing Variant Options Available: (S*)	Model	Input Swing	Output Accuracy
	S10	± 10%	± 1%
	S15	± 15%	± 1%
	S20	± 20%	± 1%
	S25	± 25%	± 1%
	S30	± 30%	± 1%
	Three Phase, 4 Wire (3 Phase + Neutral + G/E). Other swing options available to special quotation / order.		
Output Voltage:	Presettable for any voltage between 380/220V, 400/230V & 415/240V (Customer to specify), Three Phase, 4 Wire. X468 Models - 440/254V, 460/265V & 480/277V - available on request. The permissible input voltage swing is relative to the preset output voltage.		
Output Voltage Accuracy:	± 1%, (dependent on input swing see above).		
Frequency:	35 - 63Hz.		
Response Time:	<0.04 seconds		
Correction Time:	40 ms per Step		
Efficiency:	≥98%		
Power Factor:	Any lagging to 0.95 leading		
Overload Capability:	5 x max. current rating for 1 second 1.5 x max. current rating for 1 minute		
Surge Suppression:	TVSS - Protects loads against high-energy Spikes and Transient Voltages.		
Harmonic Distortion:	None introduced		
Independent Phase Control:	Maintains each phase voltage stable irrespective of load unbalance, even up to 100% load unbalance.		
Automatic & Manual Bypass:	Automatic transfer to bypass in the event of an overload, system problem or manual user request.		
Soft-Switch On:	Ensures the output voltage is set at minimum upon Switch-On before commencing stabilization - protects load equipment from damaging start up voltage surges.		
Environment:	Temperature range -15 to 45 °C. Derate by 2% for each additional °C up to max 60 °C Suitable for indoor tropical use 90% RH (non-condensing). Maximum altitude 4000m. Derate by 2.5% for each additional 500m.		
Audible Noise:	< 45 dB (at 1 metre)		
Construction:	Enclosures to IP20 (NEMA 1 Style) - BS EN 60529		
Paint Colour:	RAL 7032 (Grey - Epoxy Powder Coating)		
EMC Conformance:	Complies with BS EN 55022 and the relevant parts of the BS EN 61000 series of standards.		
CE Conformity:	CE Marked - being fully compliant with European Union Directives 2004/108/EC (The EMC Directive) and 2006/95/EC (The Low Voltage Directive).		
Standard Warranty:	One Year / 12 Months from date of supply - with extendable option.		
Standard Features:	Input Circuit Breaker Over/Low Voltage Protection Phase Failure Protection Automatic Bypass LCD Display Panel No Volt Remote Contacts		

Note: Optional Accessories added may affect dimensions - subject to confirmation.

TYPICAL INTERNAL VIEWS



Examples - 1000 kVA & 100 kVA Models

ALSO AVAILABLE IN IP54 / NEMA 3 STYLE ENCLOSURES

Suitable for external use, or more challenging internal environments.



Examples - 1000 kVA & 100 kVA Models

LCD DISPLAY PANEL



Comprehensive LCD Digital Monitoring and Control Panel

delivering intuitive control and monitoring of all the key system parameters.

Real Time Display of -

- **Voltage:** Individual & Average Output Phase Voltages
- **Current:** Individual & Average Phase Currents
- **Operational Status:** On AVR & On Bypass
- **Alarm Conditions:** Overload, Over-Voltage, Under-Voltage, Fuse Failure & Phase Failure

Modifiable System Parameter Settings -

- Output Voltage
- Output Voltage Accuracy
- Correction Time
- Over - Voltage
- Under - Voltage
- Over - Current Value

ADD-ON OPTIONS

Where required ESR Series AC Voltage Stabilisers can be supplied with the following additional accessories / add-on features.

- **Output Circuit Breaker**

Protection against potential overload.

- **Inbuilt Manual Maintenance Bypass**

Integrated bypass facility offering the ability to route the supply feed to bypass the stabiliser. Useful when performing deep maintenance on the system, or in the highly unlikely event of a system malfunction. Available on larger models with, or without, interlocking.

- **SPD Class II Surge Arrestors**

Protection against extremely high voltage surges and transients caused by lightning induced strikes on the utility supply line.

- **Input Isolating Transformer**

Through the inclusion of a shielded isolation transformer, provides enhanced spike & electrical noise (common & normal interference) suppression and neutral ground bonding. Delivers what is commonly referred to as a 'CLEAN' supply.

- **IP54 Ingress Protection**

Stabiliser presented in durable IP54 (BS / EN 60529) / NEMA 3 free standing steel cubicles suitable for external use, or more challenging internal environments.

- **Neutral Point Reactors**

Creates a reference neutral for the system where the AC input does not include the neutral or when a stable neutral is required to feed the load.

- **AquaStop**

PCB protective coating offering protection against damp and moisture ingress.

- **Advanced Remote Monitoring**

RS-232 / RS-485 interfacing ability for remote monitoring.

NB: The inclusion of the above add-on options may increase enclosure sizings and weights - subject to confirmation at time of ordering.

TYPICAL APPLICATIONS

- Computers & Network Systems
- Medical Equipment
- Electronics Equipment
- Testing Equipment
- Laboratory Equipment
- POS Terminals
- Process Control Systems
- TV / Radio Broadcasting Stations
- Elevators
- Audio/Video Systems
- Security Systems
- Production Line
- CNC Equipment
- SMT Equipment

AVAILABILITY

We offer probably the best availability on AC Voltage Stabiliser & Power Conditioning solutions.

Many of our most popular ratings are readily available from stock at the factory or from one of our strategically located Service and Distribution Hubs. Where a solution is not readily available, due to our considerable investment in component inventory and fine-tuned accredited build processes, we are able to ensure very short lead times on deliveries – *even for the largest of models!*



NEED HELP SELECTING THE RIGHT MODEL FOR YOUR NEEDS?

Check-out our Online Selector Tool at
<http://www.AshleyEdison.com/Selector>

CUSTOM BUILT SOLUTIONS

Ashley-Edison, with a strong and wide manufacturing base, is able to meet the requirements of customers from our own in-house professional resources.

Where bespoke / custom built solutions are required we are able to call upon our extensive portfolio of proven standard designs and tailor offerings to accommodate, without breaking the bank, most individual specific requirements.

Copyright 2015 © Ashley-Edison (UK) reserves the right to change any or all the specifications without prior notice to its clients.

