



EM (Electro Mechanical) Voltage Stabiliser

Data Sheet

Watford Control stabilisers are designed and built in compliance with the Low Voltage and Electromagnetic Compatibility European Directives regarding CE marking requirements. The products are built with suitable quality components and the manufacturing process is constantly verified in accordance with the Quality Control Plans which the Company applies in compliance with the ISO 9001:2008 Standards. In order to obtain better performance, the products described in the present document can be altered by the Company at any date and without prior notice. *Technical data and descriptions do hold therefore any contractual value.*

The EM and EMS range offers the most cost effective and efficient way to ensure a stable, undistorted mains supply for the vast majority of applications.

Based on the proven electronic servo design, a double wound transformer has its secondary winding connected between the incoming AC supply and the load, with the primary winding voltage controlled by a motor-driven variable auto transformer. A solid-state servo amplifier continuously monitors the output voltage of the stabiliser.

All our stabilisers are manufactured under strict quality controlled procedures approved to ISO 9001:2008 and ISO 14001:2004. Every stabiliser or regulator complies with the latest European EMC directive to ensure that the quality and reliability of our products can be assured. We can confidently claim to have manufactured far more AC Voltage Stabilisers/Regulators than anyone else in the UK and sold them worldwide. There are now hundreds of thousands of Watford Control units in service in some of the toughest environments on earth.

Standard Features:

Rated Power (Kva)	Single and Three Phase models with ratings from 10Kva to 4000Kva
Input variation range	Available with a wide selection of Input ranges from $\pm 8\%$ to $\pm 40\%$
Output Voltage range	Low Voltage: 100VAC-127VAC (L-N) 173VAC-220VAC (L-L) High Voltage: 200VAC-254VAC (L-N) 346VAC-440VAC (L-L)
Output accuracy	$\pm 0.5\%$ accuracy maintained over the full range of input voltage variations from zero to full load irrespective of power factor
Supply Frequency	50/60Hz with a $\pm 5\%$ Tolerance
Speed regulation	The speed of response defined as the time taken to restore a 10% voltage variation to within 2%, these will vary 0.15 sec on smaller units to 1 sec for larger models
Efficiency	better than 98% with up to 99.5% on higher models.
Admitted load variation	Up to 100 %
Admitted load imbalance	100 %
Cooling	Natural air ventilation (aided with fans over 45°C)
Ambient temperature	-25 °C +45°C (. Derate by 2% per each additional degree °C up to 70 Degree °C)
Storage temperature	-25 °C +60°C
Max relative humidity	95%
Admitted overload	Ten times the rated current up to 2 seconds. Three times up to 1 minute. Twice up to 5 minutes.
Harmonic distortion	None introduced
Colour	RAL 7035
Protection degree	IP21 (Other ratings up to IP66 available)
Installation	IP21 Suitable for indoor use only.
Audible Noise Level	Less than 40dB at 1metre distance EM & EMS models 50dB for EMT & EMST models.
Low internal impedance	Capable of sustaining high surge currents.
Power Factor	The Power Factor has no effect on the performance

Optional features:

Input Circuit Breaker	Up to 6000Amps (Three or Four Pole available)
Output Circuit Breaker	Up to 6000Amps (Three or Four Pole available)
Manual bypass Switch	Available as a separate switch or built into the Stabiliser.
Over/under voltage protection	Usually offered in conjunction with a motorized Output circuit breaker top open in case of fault and close when back in operational limits.
Isolating Transformer	Available upon request.
Class I input surge arrestors	Standard on All EMS+ Voltage Stabilisers, available on all other models as an optional extra.
Integrated PFC system	Available on all models as an optional extra.
Total Protection	Input/output and Bypass Circuit Breakers with under/over voltage protection as well as phase sequence and phase failure. (Motorized Output Breaker)
EMI/RFI filters	Available upon request.
Output Surge Suppression	Class II Suppressors Fitted to all Stabilisers over 60Kva as standard.
Static Balancer	Creates a Neutral reference point for the internal components, this is required if the Input is a three wire Delta connection.
Isolation Transformer	Fitted to the Input or the Output of the Stabiliser.

Schematic

