

MASTER IN POWER CONTROL





TOP
PROTECTION



MINISTATIC-STEROGUARD LINE CONDITIONERS

Ministatic and Steroguard IREM Line Conditioners have been designed to provide the highest level of protection to electrical appliances connected to distribution lines disturbed by sudden voltage variations, HF noises and spikes. Statistically,

the phenomena that reduce the power quality of the energy supplied by the network represent more than 95% of electric anomalies that could be the cause of breakdowns and poor operation of any kind of appliance connected to distribution lines.

IREM Line Conditioners guarantee maximum protection to users subject to particular power grid anomalies and drastically increase the level of power quality.



The Power Conditioners embody four different devices each one devoted to the compensation or attenuation of a specific electrical fault:

- ✓ a suppressor of voltage spikes;
- ✓ a line filter;
- ✓ a high attenuation isolation transformer;
- ✓ a voltage regulator.

THE RANGE

The range of IREM Line Conditioners is made up of models with powers that vary from 0.5 to 950 kVA and use two different voltage regulation technologies:

- a. static switching technology for loads with single-phase absorption (up to 4 kVA) and three-phase (up to 24 kVA);
- b. electrodynamic regulation technology via series transformer and variable autotransformer for loads with three-phase absorption (up to 950 kVA).

The two regulation technologies and the wide range allow the most suitable regulation system to be supplied to meet the specific needs of power quality of various kinds of appliances.



IREM PROPOSAL

MINISTATIC ELECTRONIC LINE CONDITIONERS

IREM Electronic Line Conditioners have specific performances to power electronic appliances with medium to low powers that require a particularly high stabilisation speed such as: process and numerical controls, robotics, medical equipment, telecommunications and computers.

The range is made up of standard models with powers ranging from 0.5 to 24 kVA. Furthermore, because the manufacturing criteria make these power conditioners highly versatile, on request, versions can be designed with customised specifications for the most varied applications.

STEROGUARD ELECTRODYNAMIC LINE CONDITIONERS

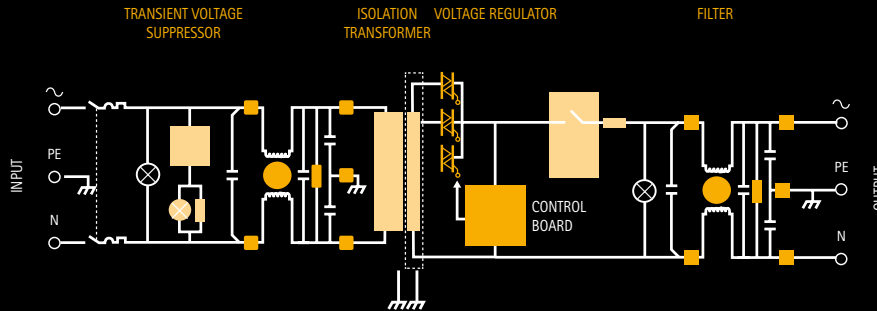
IREM Electrodynamic Line Conditioners provide a maximum level of protection to high power appliances, with high electromagnetic susceptibility, connected to distribution lines disturbed by sudden voltage variations, high frequency interferences and voltage spikes.

The voltage regulation system is made up exclusively of magnetic components capable of supporting loads with high inrush currents. The use of electronic components is limited to mains control and command of the magnetic components that stabilize the voltage. Thanks to these features, the electromechanical line conditioners stand apart for their high electromagnetic immunity and for the reliability characterised by a MTBF longer than 500,000 hours. They are, therefore, particularly suitable to solve power quality problems of electric users like radio-TV transmitters, telephone systems, radar systems, motors, compressors, pumps, medical equipment, machine tools and so on.

Their constructive features ensure that maintenance can be carried out even by technical staff with only a basic knowledge of electrical installations.



MINISTATIC TS - TST ELECTRONIC LINE CONDITIONERS



The range of single-phase IREM Ministatic TS Electronic Line Conditioners is made up of models with powers ranging from 500 VA to 4 kVA.

Possibility to:

- ✓ connect single-phase 220, 230, 240 or 120 V loads to 500/400V lines without neutral
- ✓ install these units inside electric switchgears or rack units
- ✓ have a range of "universal" appliances capable of delivering a 230V single-phase voltage powered by 440/400/220V 50 and 60 Hz three-phase distribution lines.

MINISTATIC TS..., TST...ELECTRONIC LINE CONDITIONERS

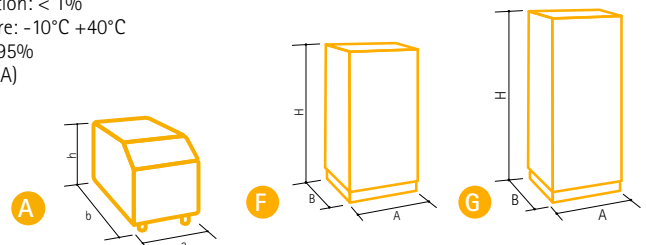
Model	Power KVA	N. of phases	Input voltage V	Output voltage V	Rated current Amp	Standard fittings	Net weight kg	Dimensions mm a x b x h	Figure
TS50/GS	0,5				2,17		21	380 x 315 x 216	
TS75/GS	0,75				3,26		28	380 x 315 x 216	
TS100/GS	1	1	230/400/440 ±15%	230±3%	4,35	FF, CF, CT, F, SP	39	380 x 360 x 260	A
TS200/GS	2				8,7		49	400 x 460 x 295	
TS400/GS	4				17,39		60	400 x 460 x 295	
TS75/GSR	0,75				3,26		30	482 x 415 x 221	
TS100/GSR	1	1	230/400/440 ±15%	230V ±3%	4,35	FF, CF, CT, F, SP, R	45	482 x 460 x 266	A
TS200/GSR	2				8,7		58	482 x 560 x 310	
TS400/GSR	4				17,39		68	482 x 560 x 310	
TST12N	12				17,32		172	650 x 650 x 1300	F
TST18N	18	3	400 ±15%	400 ±3%	26	IM, L, F, PT, SP	295	650 x 650 x 1800	
TST24N	24				34,64		375	650 x 650 x 1800	G

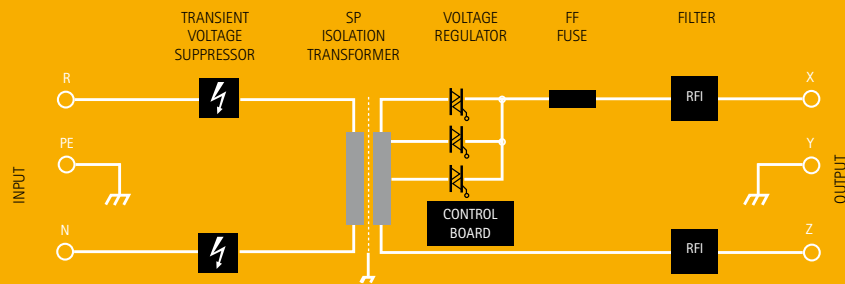
Fittings:

- CF = Frequency selector (50/60Hz)
- CT = Voltage selector
- F = EMI filter
- FF = Ultra rapid output fuse
- L = "Mains on" pilot lamps
- PT = Thermal protection
- SP = Transient voltage suppressor
- R = Rack version
- IM = Thermal magnetic circuit breaker (TST mdels)
- BT = Over/under voltage protection (optional on TST)

Other features

- Impedance: 0.3 to 11 Ohm depending on models
- No-load current: 40 to 700mA depending on models
- Total harmonic distortion: < 1%
- Operating temperature: -10°C +40°C
- Full load efficiency: >95%
- Audible noise: <40dB(A)





The range of three-phase IREM Ministatic TST Electronic Line Conditioners is made up of models with power from 12 to 24 kVA.

It is particularly suitable for powering NC machine-tool equipment, automation plants and telecommunications systems.

These line conditioners are fitted with delta-star isolating transformer and create a "real neutral" making it possible to have a single-phase 230V voltage using a three-phase 400V plant without neutral.

GENERAL FEATURES

TRANSIENT VOLTAGE SUPPRESSOR

This device is intended to limit transverse and common mode spikes exceeding the input voltage peak value. Transient voltage protection can also be effective on spikes of atmospheric origin over 6kV.

RFI FILTER

They attenuate high frequency transverse and common mode interferences over 300 kHz.

ISOLATION TRANSFORMER

It is featured by low output impedance, insensitivity to load power factor, high attenuation and functional and dielectric isolation. The F thermal class transformer has a recessed concentric winding configuration to meet the impedance and power factor requirements. The double shielding allows a common mode attenuation higher than 110 dB up to 350 kHz and an insulation degree in compliance with relevant Standards. The creepage and clearance distances exceed 7 mm. The withstanding overvoltage at 50/60 Hz between primary and secondary exceeds 3750V. The isolation at fulmination pulse voltage is 8 kVolt.

ELECTRONIC VOLTAGE REGULATOR

The electronic voltage regulator stabilises the voltage permitting to attain, under every load condition, $\pm 3\%$ output voltage accuracy with very high efficiency without generating any EMI interference. Its main features are:

- ✓ response time lower than 2 ms/volt,
- ✓ insensitivity to load power factor,
- ✓ reduced dynamic impedance (0,5%),
- ✓ high overload capacity (7 to 10 In);
- ✓ efficiency higher than 99%,
- ✓ "quasi-peak" output voltage sensing circuit which allows "data acquisition" in 10 ms and the compensation of wave form flattening caused by non-linear loads,
- ✓ creepage and clearance distances exceeding 8 mm,
- ✓ mounting of power semiconductors with 2500 Volt internal insulation on isolated heatsinks.

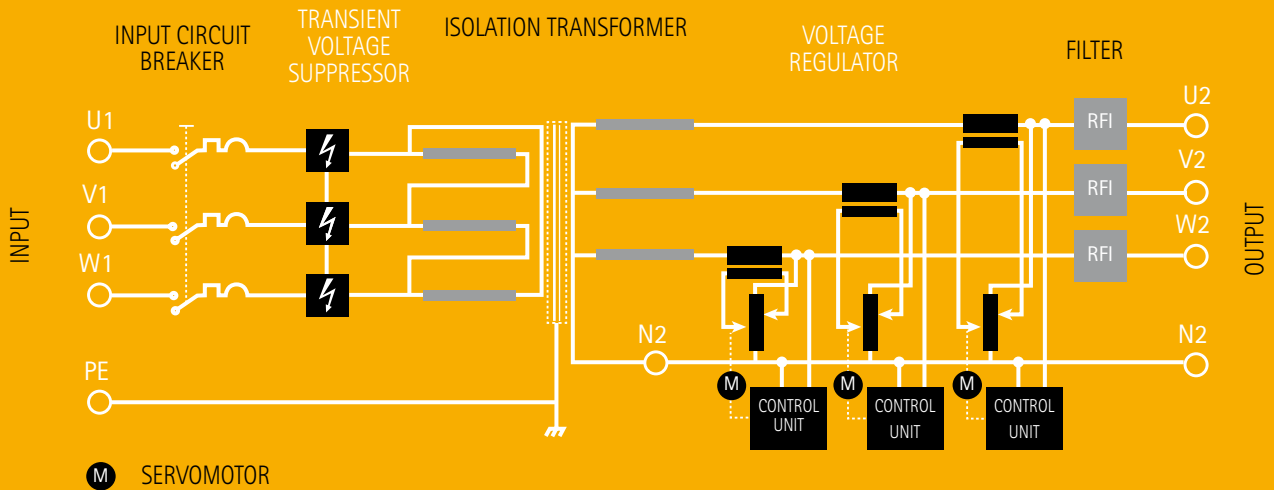
CONFORMITY TO STANDARDS

Ministatic line conditioners conform to the requirements of the most recent Electro Magnetic Compatibility Standards, and particularly 2014/30/UE and 2014/35/UE.



STEROGUARD

ELECTRODYNAMIC LINE CONDITIONERS



IREM Steroguard Line Conditioners provide a maximum level of protection to high power appliances, burdened by power quality problems due to high electromagnetic susceptibility, connected to distribution lines disturbed by sudden voltage variations, high frequency interferences and voltage spikes.

The voltage regulation system is made up exclusively of magnetic components capable of supporting electric loads with high inrush currents. The use of electronic components is limited to the control of the mains and of magnetic components stabilising the voltage. Thanks to these features, the electromechanical line conditioners stand apart for their high electromagnetic immunity and for the reliability characterised by a MTBF longer than 500,000 hours. They are, therefore, particularly suitable for powering radio-TV transmitters, telephone systems, radar systems, motors, compressors, pumps, medical equipment, machine tools and so on.

Their constructive features ensure that maintenance can be carried out even by technical staff with only a basic knowledge of electrical installations.



STEROGUARD LINE CONDITIONERS 3PH+N 230/400V 50/60 HZ WITH INPUT ISOLATION TRANSFORMER



Model	Power kVA	Rated current Amp	Voltage variation %	Response time ms/V	Accuracy ±%	Standard fittings	Protection degree IP	Weight kg	Dimensions mm a x b x h	Figure		
Y306AC 6	6	9	±30	11	±1	V, L, HF, PS, IT, I	21	250	650x 650x1300	F		
Y306AC 8	8	12	±25	12								
Y306AC 10	10	14	±20	14								
Y306AC 15	15	22	±15	16	±1	V, L, HF, PS, IT, I	21	300	650x650x1800	G		
Y306AC 18	18	26	±10	19								
Y308AC 8	8	12	±30	13								
Y308AC 12	12	17	±25	14	±1	V, L, HF, PS, IT, I	21	330	650x 650x1800	G		
Y308AC 15	15	22	±20	16								
Y308AC 20	20	29	±15	18								
Y308AC 25	25	36	±15	18	±1	V, L, HF, PS, IT, I	21	400	650x 650x1800	G		
Y310AC 15	15	22	±30	13								
Y310AC 20	20	29	±25	14								
Y310AC 25	25	36	±20	16	±1	V, L, HF, PS, IT, I	21	440	650x 650x1800	G		
Y310AC 40	40	58	±15	18								
Y310AC 60	60	87	±10	21								
Y311AC 25	25	36	±30	13	±1	V, L, HF, PS, IT, I	21	540	650x650x1800	G		
Y311AC 30	30	43	±25	14								
Y311AC 40	40	58	±20	16								
Y311AC 60	60	87	±15	18	±1	V, L, HF, PS, IT, I	21	610	1100x650x1800	H		
Y311AC 80	80	115	±10	21								
Y312AC 30	30	43	±30	14								
Y312AC 40	40	58	±25	15	±1	V, L, HF, PS, IT, I	21	700	1100x650x1800	H		
Y312AC 50	50	72	±20	24								
Y312AC 70	70	101	±15	33								
Y312AC 100	100	144	±10	37	±1	V, L, HF, PS, IT, I	21	740	1100x900x1800	I		
Y313AC 40	40	58	±30	11								
Y313AC 55	55	79	±25	12								
Y313AC 70	70	101	±20	14	±1	V, L, HF, PS, IT, I	21	930	1100x1300x1800	J		
Y313AC 100	100	144	±15	16								
Y313AC 140	140	202	±10	18								
Y314AC 60	60	87	±30	11	±1	V, L, HF, PS, IT, I	21	1140	1100x1300x1800	J		
Y314AC 80	80	115	±25	12								
Y314AC 100	100	144	±20	14								
Y314AC 140	140	202	±15	16	±1	V, L, HF, PS, IT, I	21	1290	1100x1300x1800	J		
Y314AC 240	200	289	±10	18								
Y316AC 80	80	115	±30	11								
Y316AC 100	100	144	±25	12	±1	V, L, HF, PS, IT, I	21	1350	1100x1300x1800	J		
Y316AC 140	140	202	±20	14								
Y316AC 200	200	289	±15	16								
Y316AC 280	280	404	±10	18	±1	V, L, HF, PS, IT, I	21	1770	1100x1300x1800	J		
Y317AC 120	120	173	±30	15								
Y317AC 160	160	231	±25	16								
Y317AC 200	200	289	±20	17	±1	V, L, HF, PS, IT, I	21	1610	1100x1300x1800 + 1100x900x1900	H+I		
Y317AC 280	280	404	±15	20								
Y317AC 420	420	606	±10	26								
Y318AC 160	160	231	±30	11	±1	V, L, HF, PS, IT, I	21	1150+1200	1100x900x1900	2H		
Y318AC 220	220	318	±25	12								
Y318AC 280	280	404	±20	13								
Y318AC 400	400	577	±15	15	±1	V, L, HF, PS, IT, I	21	1150+1700	1100x900x1900 + 1100x1300x1900	I+J		
Y318AC 580	580	837	±10	19				1150+2280	1100x900x1900 + 1500x1350x2150	I+K		
Y319AC 250	250	361	±30	16				1400+1550	1100x1300x1800 + 1100x900x1900	J+I		
Y319AC 320	320	462	±25	17	±1	V, L, HF, PS, IT, I	21	1400+1750	1100x1300x1800 + 1100x1300x1900	2J		
Y319AC 420	420	606	±20	19				1400+2150			1100x1300x1800 + 1100x1300x1900	J+K
Y319AC 580	580	837	±15	22				1400+2400			1100x1300x1800 + 1500x1350x2150	J+K
Y319AC 850	850	1227	±10	27	1400+2900	1100x1300x1800 + 2150x1350x2150	J+L					

Fittings V: digital voltmeter
L: pilot lamps
HF: HF filter

PS: surge arresters
IT: isolation transformer
I: input circuit breaker

IREM LCs are designed to deliver the declared power permanently (24/7) under the worst operating conditions, i.e. at full load, at minimum input voltage and max input current and at the declared ambient temperature.



A GLOBAL LEADING PLAYER



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