

RELIABILITY FOR BACKUP SYSTEMS

GenMax™

Eliminating the third harmonic current enhances reliability for backup generator systems

GenMax is the solution to circulating 3rd harmonic current

Operating parallel generators with different pitch presents the challenge of dealing with circulating 3rd harmonic current flowing in the system. This current can cause excessive heat in the windings and premature tripping of the ground-fault shunt-trip breaker, shutting down the system long before it reaches full load capacity, and just as you need it most.

The first recommendation to avoid the problem is to match the pitch of all the generators, but that is not always possible nor economically feasible, and traditional methods of dealing with 3rd harmonic current simply accommodated the flow.

Now there is a solution that eliminates it.

GenMax, based on Harmonics Limited patented Harmonic Suppression System (HSS™) technology, virtually eliminates 3rd harmonic current flow from the entire system; the ground, neutral, phases and the windings of all generators in the system. This technology has been used for over 15 years in electrical distribution systems.

- GenMax is easy and simple to size and install. It can be used on 3-wire delta and 4-wire wye systems. In wye systems it is sized to the kW of the generator. In delta systems it is sized to the ampacity of the ground system.
- There are no overall impedance and voltage drop design requirements.
- GenMax is passive in operation, containing no electronic switching devices or control units. Preventative maintenance is not required.
- Standard size range is 200 kW to 2,500 kW (125 amps to 2,800 amps) with voltages of 208, 480 and 600.



With GenMax, you can be confident that your generator system has the capacity to perform when you need it most.

480V, 60Hz, 4-wire wye system

Model	Generator kW	Amp Rating	Height (inch)	Width (inch)	Depth (inch)	Weight (lbs)
HLGM0.25-48Y	250	350	30	24	15	300
HLGM0.30-48Y	300	400	30	24	15	330
HLGM0.50-48Y	500	700	60*	30	21	565
HLGM0.60-48Y	600	800	60*	30	21	565
HLGM1.00-48Y	1,000	1,400	72*	48	25	1,350
HLGM1.50-48Y	1,500	2,100	84*	60	25	1,960
HLGM2.00-48Y	2,000	2,800	84*	60	25	2,900

* includes 12 inch legs

RELIABILITY FOR BACKUP SYSTEMS

Eliminating the third harmonic current enhances reliability for backup generator systems.

GenMax™ in Action

Stanford University/California

Problem: When a new 1.2 MW generator was placed on line in parallel with another generator, the ground current was over 235 amps at 35% load. Attempts to increase the load resulted in the ground fault breaker on the new generator tripping due to excessive ground current.

Solution: Applying a GenMax reduced 3rd harmonic ground current on the new generator to under 5 amps, and 100% loading was easily achieved.

Dade County/Wisconsin

Problem: A 1,050 kW generator was added to two 820 kW generators operated by the Dade County Public Works Department. Soon after, the 3rd harmonic ground current of 450 amps tripped the ground-fault breaker on the new generator.

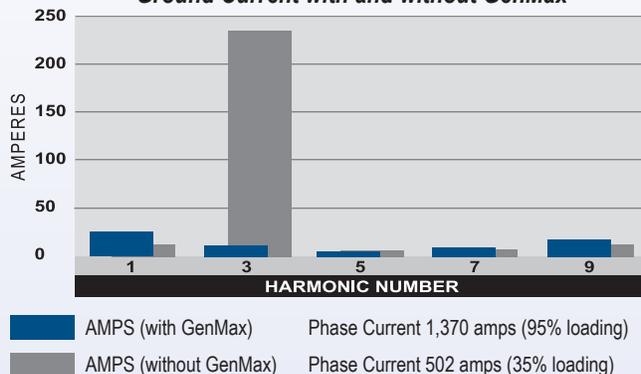
Solution: Applying a GenMax reduced 3rd harmonic ground current on the new generator to under 10 amps, and no further breaking occurred.

Magee Hospital/Pennsylvania

Problem: Adding a third generator to the emergency system tripped the ground fault relay. Magee Hospital in Pittsburgh, PA had an emergency generating system consisting of two diesel driven generators rated at 1,250 kW each, both with a 4/5 pitch. A 1,000 kW with 2/3 pitch was added to increase the emergency capacity. When the three generators were operated together the ground-fault relay tripped. With only a 1,000 kW load, over 900 amps of current was measured on the neutral.

Solution: GenMax was selected to solve the problem. A single GenMax was installed on the 1,000 kW generator. The total neutral rms current was lowered to under 50 amps and 3rd harmonic neutral current was reduced to 3 amps.

Ground Current with and without GenMax



Ground Current with and without GenMax

