

How to size *Phaseback VSGR* (Voltage Stabilizing Ground Reference)

Phaseback VSGR Model Selection

<u>3 Phase Voltage</u>	Design KVA	Amperage of Board	<i>Phaseback</i> WFC - Wastewater		<i>Phaseback</i> Industrial			
			Internal fused switch	Enclosure Size W X H X Depth	External fused switch	Enclosure Size W X H X Depth		
240	250	600	PB240D250WFC	24" x 20" x 8"	PB240D250I	16" x 20" x 12"		
240	750	1200	PB240D350WFC	24" x 20" x 8"	PB240D350I	16" x 20" x 12"		
240	2500	3000	PB240D1000WFC	30" x 30" x 12"	PB240D1000I	24" x 30" x 12"		
240	6000	6000	PB240D3000WFC	36" x 30" x 12"	PB240D3000I	30" x 30" x 12"		
480	250	400	PB480D250WFC	24" x 20" x 8"	PB480D250I	16" x 20" x 12"		
480	750	600	PB480D350WFC	24" x 20" x 8"	PB480D350I	16" x 20" x 12"		
480	2500	3000	PB480D1000WFC	30" x 30" x 12"	PB480D1000I	24" x 30" x 12"		
480	6000	4000	PB480D3000WFC	36" x 30" x 12"	PB480D3000I	30" x 30" x 12"		
Voltage/Phase		<i>Phaseback</i> Residential External Switch -Dimensions			Voltage/Phase		<i>Phaseback</i> High-Leg Delta External Switch -Dimensions	
240V/1split	150	PB150Res	24" x 20" x 8"		240/ 3Ph D	150	PB150HLDG	24" x 20" x 8"

Phaseback is selected based on the transformer kVA and Voltage class. **Example: 277/480 3000kVA is Bold.**

Choose Internal or external fused disconnect. Look for future articles on other Applied Energy products: DVS - Drive Voltage

Future posts on *DVS Drive Voltage Stabilizer* for the load side of the VFD and *Harmonic Silencer* for Harmonics only on Grounded Wye systems.

Two Examples follow:

Phaseback VSGR can be applied to most any electrical system, new or existing. [Instructions](#)

This article is specific to the 600V class *Phaseback VSGR*. Contact me about other voltage ratings.

1. Model # PB150HLDG - A split-phase, 120/240 Residential - Commercial 240D High Leg.

2. Model # PB480D3000WFC - 3 phase 480V Nema 3R 155C Ambient suitable for indoor or outdoor installation. Connect within 1000ft of the main Power panel. Make the Parallel connection to panel or direct connect to the bus (*Phaseback VSGR* includes fused disconnect). Optionally, to confirm benefits for yourself, once installation is complete, connect 3 phase meter to the Transformer secondary, anywhere you wish and collect the following values: Voltage Ph/Ground, Phasor (phase relationship between phases), Power Factor, KW, kVA, THD Voltage, etc. Operate the disconnect on the *Phaseback VSGR* and repeat the data collection process for comparison.

Expectations from comparison—With Phaseback VSGR:

Phaseback VSGR ON **1. No Transients**, improving reliability & saving money. **2. Arc Flash / Faults prevented** - see 6. Alarm condition, improving safety & reliability. **3. Voltages Phase to ground are balanced** - correcting high Voltage and low Voltage conditions, such as "Single Phase" condition and Arcing Ground Fault or Ground Fault, preventing the second phase fault, improving safety and reliability and saving money. **4. 120° Phase Angle Differential maintained**, saving energy. **5. Harmonics improvement** approximately 85% on 3 wire systems, improving reliability & saving energy. **6. Electrical Noise & wave form distortion corrected**, reducing losses, & saving energy. **7. Alarm from sensor/relay circuit** in case of ground on a phase is beginning, improving safety and reliability. **8. Power Factor improvement**, improving capacity. **9. Reduced Current to ground**, saving energy. www.phaseback.com

Call to discuss your applications. Cy Cates 832 647 4606 cell c Yates@cycates.com www.cycates.com