



Key Features

- Inserts >40% impedance in neutral current circulating path
- Reduces neutral circulating current by >75%
- Adds <1% saturated impedance to 1-Ph fault path
- No impedance to 3-Ph fault path
- Use in 3-wire or 4-wire applications or any parallel source application with a common neutral and dissimilar voltage waveforms
- Eliminates generator overheating and false protection trips caused by triple frequency circulating currents
- Easy to install
- Reliable and proven performance



Challenges of Parallel Operations

When paralleling equipment such as generators or other distributed generation sources to each other or the utility supply, it is imperative that voltages produced by the generating equipment are as closely matched as possible. This means not only the RMS voltage values but the actual voltage waveshapes as well. Given the increased usage of this equipment, there are many paralleling applications where the voltage waveshapes can be dissimilar, resulting in high neutral circulating currents. Common reasons for these differences include:

1. Using generators with different pitch configurations made by different manufacturers or by the same manufacturer who has changed its standard pitch designs
2. Solar, wind or other alternative energy sources which use inverters to convert DC power to AC for connection to the Utility

To solve these challenges, Mirus' GENLINK Dissimilar Pitch Neutral Limiter (DPNL) is a multiple winding reactor which is installed in the common neutral of paralleled sources.

Treating Neutral Circulating Current

Generators with different pitch configurations will have slightly different voltage waveshapes. These differences can produce phase-to-neutral instantaneous voltages which can introduce heavy neutral circulating currents which are predominantly triple frequency.

Mirus' GENLINK, once installed in the common neutral of paralleled generators, adds impedance to block the flow of circulating currents while adding only minimal impedance to the flow of fault current. If left untreated, these circulating currents can cause overheating in the generator windings and false tripping of overcurrent protection equipment, especially ground fault detection schemes.

Applications

GENLINK can be used in both 3-wire and 4-wire systems. In both systems, GENLINK is used when two or more generators of dissimilar pitch are paralleled together or a generator is paralleled with an alternate source, such as the Utility. DPNL is then inserted in the neutral between the dissimilar generators or the generator and Utility supply.

For 4-wire applications where there is return neutral current from 1-Ph loads, GENLINK must be sized for this current as well as the circulating current. For 3-wire applications where there is no return neutral current from 1-Ph loads, a smaller size GENLINK can be used.

In applications where access to all source neutrals is not readily available, individual DPNLs can be applied at the source neutral connections as a neutral grounding inductor or NGI. This can simplify installations and allow broader application.

In addition to dissimilar pitched generator applications, GENLINK can also be applied to various parallel source applications with common neutral and dissimilar voltage waveforms.

General Specifications:

Voltages

208-240, 380-440, 460-480, 575-600, 660-690, 3-phase, 3 or 4 wire, 60 or 50Hz (Also Available for MV applications up to 13.8kV ^[2])

Operating Temp. Rise

130°C (Max. Ambient of 40°C)

Insulation Class

220°C

System Connection

Series connected in the common neutral of generator groups with dissimilar winding pitches

Equiv. Efficiency at Full Load

> 99%

Through Impedance (%Z)

Y-Z Term: ~ 45%

X-Y or X-Z Term: ~ 1% (saturated)

Winding Material

Copper

Insulating Varnish Impregnation

Polyester Resin

Audible Sound Level

As per NEMA ST-20 & CSA C9
Based on equivalent kVA

Ventilation

Convection air cooled

Enclosure

Type: Nema-3R, ventilated

Paint: Polyester powder coated

Colour: ANSI 61 Grey

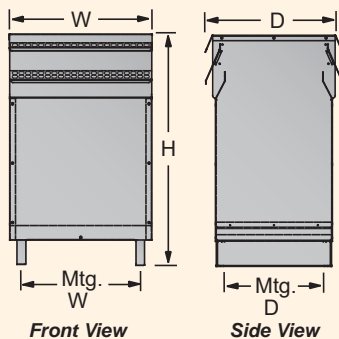
Temperature Switches

170°C and 200°C

Over-Temperature Alarm

ALM2: Over-Temperature Alarm with horn and flashing light (requires separate power, supplied by customer)

'MT & LT' Style Enclosure

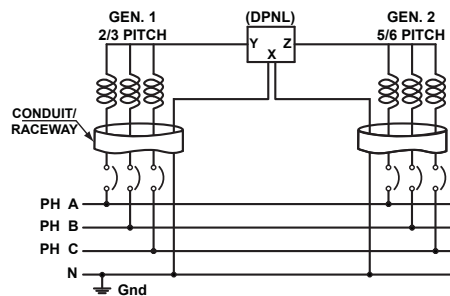


DPNL Size Table [50 or 60Hz]

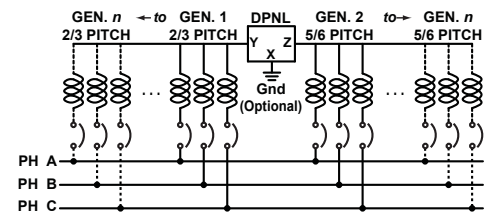
Return Neutral (Amps)	Circulating (Amps)	Case Style	Weight* lbs [kg]	Losses @ Full Load (Watts)
200	100	MT1	150 [68]	150
500	250	MT2	330 [150]	315
1000	500	MT2	408 [185]	515
1500	750	MT3	500 [227]	765
2000	1000	MT3	560 [254]	800
2500	1250	MT4	725 [329]	965
3000	1500	MT4	1169 [530]	1120
4000	2000	Consult Factory		
5000	2500	Consult Factory		

* Estimated values.

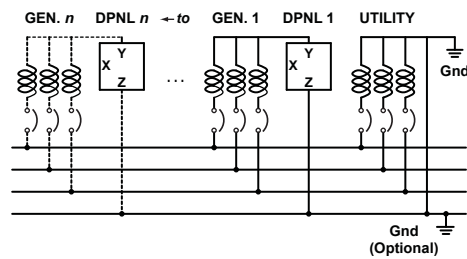
GENLINK™ 4-Wire, Grounded Neutral System



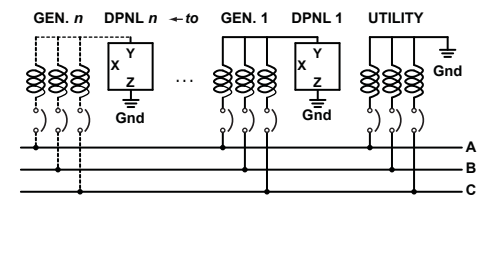
GENLINK™ 3-Wire System



GENLINK™ as NGI 4-Wire, Grounded Neutral System



GENLINK™ as NGI 3-Wire System



Dimensions

Case Style	H (Height) inches [mm]	W (Width) inches [mm]	D (Depth) inches [mm]	Mtg. Center W inches [mm]	Mtg. Center D inches [mm]
MT1	29.00 [737]	16.75 [425]	15.00 [381]	13.75 [349]	13.00 [330]
MT2	38.00 [965]	21.50 [546]	19.50 [495]	17.00 [432]	17.50 [445]
MT3	45.00 [1143]	26.00 [661]	21.00 [534]	21.50 [546]	19.00 [483]
MT4	51.50 [1308]	32.00 [813]	25.50 [648]	23.50 [597]	23.50 [597]
LT1	59.00 [1499]	39.50 [1003]	30.00 [762]	24.00 [610]	32.00 [813]

Product Code:

Dissimilar Pitch
Neutral Limiter

Voltage

240, 440, 480, 600, 690 VAC ^[2]

Frequency

50, 60

DPNL - aaa - vvv - Hz - En

Size (Return Neutral Amps)

200, 500, 1000, 1500, 2000
2500, 3000, 4000, 5000

Enclosure

E0 = No Enclosure

E1 = Standard Enclosure

E1E = Type 3R Enhanced

Notes:

1. For additional information, refer to Technical Data Sheet and Technical Guide.

2. Also available for MV applications up to 13.8kV. See MV Technical Data Sheet DPNL-S003-n for sizing selection.



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