DX3 ENTERPRISES LTD.

Frequently Asked Questions

Driven by Energy…

Anti - Islanding Detection for Distributed Generators (DG)

FREQUENTLY ASKED QUESTIONS

It automatically detects when distributed generators become electrically isolated (i.e. Islanded) from the utility grid. (ex: transmission line failure, emergency situations, circuit breaker operation) With the detection of an islanding situation, the distributed generators can be disconnected from the grid to quickly protect personnel and equipment.

Who needs it?

All distributed generator owners and utility companies that have interconnected distributed generators.

Why do I need it?

Without an effective islanding detection product, this could happen:

• The distributed generators could be damaged when they are reconnected to the supply system after being islanded. This may happen because the generators are likely not synchronized with the system at the instant of reconnection. Such out-of-phase reclosing can inject a large current on the generators.

• Islanding may create a hazard for utility line-workers or the public by causing a line that is assumed to be disconnected from all energy sources to remain energized.

• The voltage and frequency provided to the customers by islanded distributed generators can vary significantly. This creates the possibility of damaging customer equipment if the distributed generators do not detect the islanding situation, do not provide special regulation of voltage and frequency, and do not have protective relaying to limit voltage and frequency excursions.

What are the special features (technical advantages) of this product?

• It works for any type of distributed generators

• It works without non-detection zones (regardless of the load and generation matching situation in an island)

What are the special features (technical advantages) of this product? (continued)

• It automatically detects islands caused by the opening of any devices in any distribution network topology

• It also detects islands caused by the opening of a breaker upstream of the signal generator in the transmission system, or within a distribution substation

• It is flexible, you can customize it for your system and choose to protect:

- All the DGs served by a substation
- All the DGs served by (a portion of) a feeder, or
- Individual DGs

• It is cost-effective as one host signal generator protects all the downstream DGs and the cost can be shared among DG owners

• Easy Closed-loop test by simply disabling the signal generator without impacting the rest of the electrical system

• Works reliably as multiple signalling patterns and channels are available for use and the signal detection algorithms are very robust in noisy environments

How does it work?

Our product has two main devices:

1) A signal generator connected to the utility grid broadcasts a signal to all distribution feeders continuously

2) A signal detector equipped at each DG site detects the signal. If the detector does not detect the signal (caused by the opening of any breakers between the substation and the DG), an island condition is determined and the DG can be tripped immediately.

If I'm a DG owner, what should I do?

Talk to your utility company. If they have a host signal generator installed, you only need to purchase and install a signal detector at the generator terminal.

Who invented/produced it?

This technology has been researched, developed and perfected at University of Alberta, and Dr. Wilsun Xu has been granted a patent on the technology. DX3 Enterprises Ltd. is exclusively licensed to commercialize it. For more information please contact DX3 Enterprises Ltd.

For more information on these or other products & services email us at:

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