



Since 1983, Dairyland has offered the Neutral Isolator as the preferred solution for addressing “stray voltage” on farms. Power utilities who wish to isolate their primary neutral from the customer’s secondary neutral can prevent undesirable primary neutral-to-earth voltage (NEV) from affecting the customer’s system. Where utilities have concerns about NEV effects on dairy or other livestock operations, the Neutral Isolator offers the most effective and safe solution for separating the two systems under normal conditions, yet solidly re-bonding the two grounding grids under lightning or AC fault conditions.

**Note:** The Dairyland model VTNI is not authorized for use in solving nuisance shock to persons at swimming pools or similar human health situations where structure to ground voltage is present. Instead, proper bonding and grounding techniques need to be applied to solve such problems.

### Features and Characteristics

- Solid-state, fail-safe design
- Adequate voltage threshold of 45V to avoid nuisance switching
- Variable threshold design blocks transients
- Meets NESC 97D2 for isolation
- High impedance to AC and DC current when in the blocking mode

### Typical Applications

- Stray Voltage Mitigation

### Why Safety is Important When Mitigating Stray Voltage

Electrical isolation for the purpose of addressing stray voltage on farms will eliminate the utility contribution, but safety must be considered as well. The VTNI device provides AC and DC isolation of the primary and secondary neutrals at the transformer under normal conditions, but must instantly reconnect the two systems during an electrical disturbance, to limit the voltage between the two systems. This abnormal condition could be caused by AC system faults or lightning, and the VTNI is rated for both conditions, and will fail shorted if exposed to current in excess of the rating. This fail-safe mode assures that safety bonding will be available under all conditions. Other products or methods of isolation do not limit the voltage between the primary and the secondary to the low levels provided by the VTNI.

### Ratings

*Voltage Threshold:*

45V peak

(Higher for transients - see technical literature for values)

*Lightning Surge Current:*

30kA crest (8 x 20  $\mu$ s waveform)

*AC Fault Current (amperes-rms) 60 Hz*

Model 30 cycles

VTNI-170-45 1,700

Note: See technical literature for other current / time values

*Environmental rating:*

NEMA 4X

*System Voltage Use:*

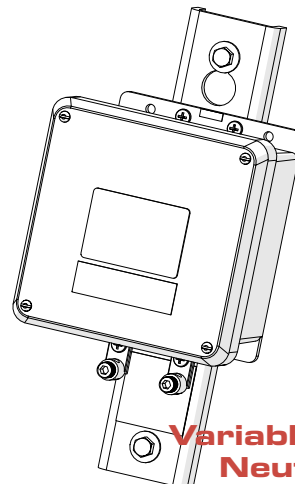
For use on any voltage class distribution system using a grounded neutral

For all model numbers, options and accessories, see full technical literature at [www.dairyland.com](http://www.dairyland.com)

### CORROSION SERVICE

AUTHORIZED DAIRYLAND RESELLER  
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**VTNI**  
Variable Threshold  
Neutral Isolator