EZY SWITCHGEAR
MEDIUM VOLTAGE SPECIALISTS

Islanding and Voltage Protection Controller

Automated Grid Isolation for Medium Voltage Embedded Generation

11 kV | 22 kV | NRS 097-2-3 Compliant

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www.ezyswitchgear.co.za

The Problem

THE PROBLEM: Grid Backfeed Hazard

During grid outages, embedded generation systems (diesel generators, solar arrays, wind turbines) continue to supply power to their point of common coupling. Without automatic islanding protection, utility workers and the public face extreme danger from unexpected live conductors. Backfed voltage persists even when the main utility supply is disconnected, creating a hidden hazard that islanding protection controllers are designed to eliminate.

Electrocution Risk

Backfed conductors remain live and at dangerous voltages even when utility workers believe the system is de-energised. Personnel working on supposedly dead lines face lethal shock hazards.

Equipment Damage

Out-of-phase reconnection when the grid recovers causes severe transient overvoltages and insulation failure across both the consumer and utility network.

Regulatory Non-Compliance

NRS 097-2-3 and municipal bylaws mandate anti-islanding protection at the point of connection for all consumers with embedded generation capacity. Non-compliance results in disconnection and penalties.

THE SOLUTION: EZY Islanding Controller

The EZY Islanding Controller is a fully automated protection device that detects grid anomalies and physically disconnects the consumer from the MV network. When stable power returns, it automatically reconnects after a 4-minute stability verification period. Available in 11 kV and 22 kV variants, it retrofits into existing switchgear with no primary equipment modification.

TECHNICAL SPECIFICATIONS

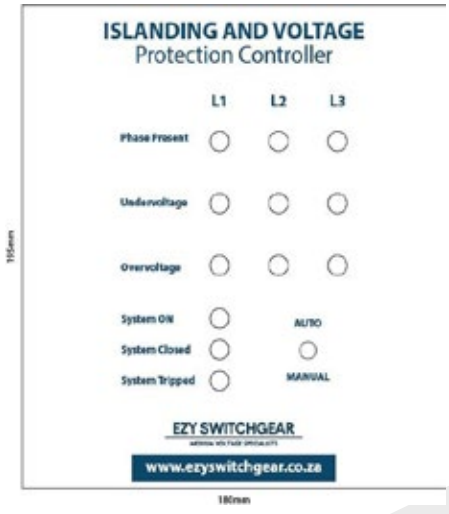

Figure 1: Front panel layout - 180 mm x 195 mm

Technical Specifications

Parameter	Specification
Enclosure	Takachi aluminium, IP54 rated
Panel Dimensions	180 mm (W) x 195 mm (H)
Input Voltage	11 kV or 22 kV 3-phase via VTs
VT Ratio	22 kV / 110 V (or 11 kV / 110 V)
Auxiliary Supply	24 VDC (battery-backed)
AC Supply	110 / 230 VAC selectable
CT Inputs	Dual secondary (S1 & S2) per phase
Operating Mode	AUTO / MANUAL (key-switch)
Actuator Interface	Motorised CB or isolator drive
Indication	LED matrix - per-phase UV, OV, Phase Present
Mounting	DIN rail compatible
Standards	NRS 097-2-3, SANS 10142-1

PROTECTION SETTINGS

Under-Voltage Trip Characteristics (per phase)

Voltage Threshold	kV Equivalent (22 kV)	Trip Delay
Below 30% of nominal	Below 6.6 kV	Instantaneous
Below 60% of nominal	Below 13.2 kV	100 ms
Below 80% of nominal	Below 17.6 kV	300 ms
Below 90% of nominal	Below 19.8 kV	800 ms

Over-Voltage Protection

Trips when any phase exceeds 112.7% of nominal (24.8 kV for 22 kV system). Trip delay: 5 seconds definite time.

Single Phasing Protection

Loss of any single phase triggers immediate trip to protect downstream three-phase equipment from the damaging effects of single-phase operation.

Reconnection Logic

All three phases must be between 90% and 112.7% of nominal, stable for a full 4-minute period. If voltage dips during the timer, the counter resets to zero. Only after the complete stability period does the controller issue the close command, ensuring the grid is genuinely stable before reconnection.

Proven Deployments

PROVEN DEPLOYMENTS

Wonderboom Junction Mall, Pretoria

Integrated with diesel generators and solar SSEG. Full automatic operation since 2025 with zero backfeed incidents. Commercial retail environment with high availability requirement.

Barnes Steel Group, Germiston

Heavy industrial application with large embedded generation capacity. Controller manages motorised isolator for rapid disconnection. Three-phase motor protection is critical at this site.

Vodacom World Campus, Midrand

Critical telecoms infrastructure with multiple backup power sources. Islanding controller ensures NRS 097-2-3 compliance at the point of common coupling. Zero-downtime requirement.

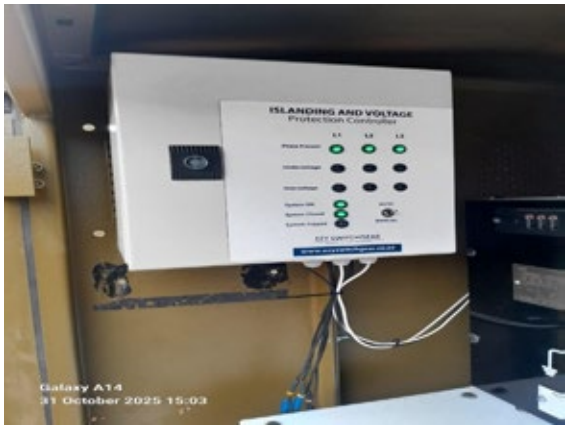

Figure 2: Controller installed in MV switchgear enclosure

COMPLIANCE & STANDARDS

Standard	Description
NRS 097-2-3	Grid-connected embedded generation islanding protection
SANS 10142-1	Wiring of premises compliance
Municipal Bylaws	Mandatory physical isolation for embedded generation

GET IN **TOUCH!**

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