

VSDGUARD™

WIDE BANDWIDTH EARTH LEAKAGE RELAY

Applications

The Ampcontrol VSDguard relay is a high performance, microprocessor based, wide bandwidth earth leakage relay that is capable of measuring and analysing power and switching frequency currents flowing in IT power systems. VSDguard is designed for use with variable speed drives in mining environments.

Features

- Complies with AS/NZS 2081:2011
- Patented earth leakage analysis method
- Fail safe operation
- Detects earth leakage currents from 20Hz to 8 kHz
- Wideband, narrowband and weighted frequency modes
- Adjustable trip level and trip times
- High resolution 3.2" colour LCD
- Last 20 data and event logs can be displayed on the local display
- On board memory logs last 1000 data logs and 50 events
- Ethernet communications allow real time and post event viewing of the system from an internet browser
- Continuous toroid connection monitoring
- Uses patented technology (US20130258537) to characterise earth leakage currents giving superior fault discrimination



Data Logging

Event Log:

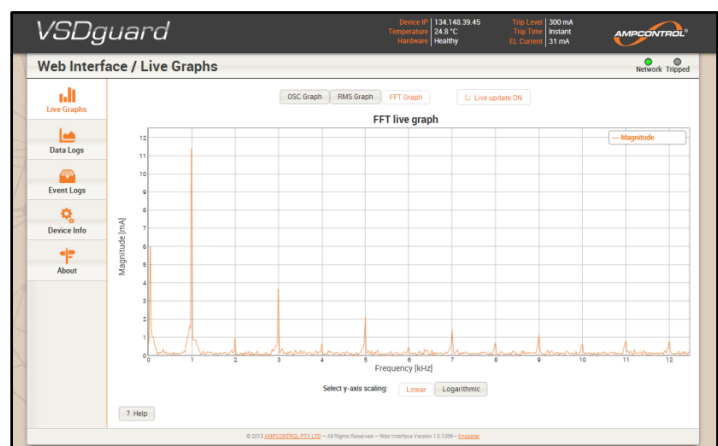
VSDguard stores the last 50 user changes to settings.

Data Log:

On each event trigger, the relay stores system data 2 seconds before and 2 seconds after the event including;

- system time
- earth leakage current
- phase current (with connection of a toroid, 5 A secondary connection, within $\pm 5\%$ of full-scale), and
- Zero crossing of the phase current (with connection of an 110Vac supply)

Events are triggered by the occurrence of a trip, from a digital input, an alarm set point (usually at the setting of downstream trip parameters), or can be set to happen periodically in the unit's software. The last 1000 event logs are stored in the unit's memory. Recent logs can be viewed remotely or via the user interface.



The internal storage cannot be overwritten by the user. When the unit's memory reaches capacity the earliest entries are overwritten.

User Interface

The VSDguard user interface has four live status screens;

1. Bar graph and numeric display of real time RMS current with colour coded trip state (home screen – shown at right),
2. RMS current history,
3. Plot of the real-time current seen by the earth leakage toroid (oscilloscope view), and
4. Frequency spectrum of the real time current.

The user interface can also view data on the most recent 20 data and event logs.



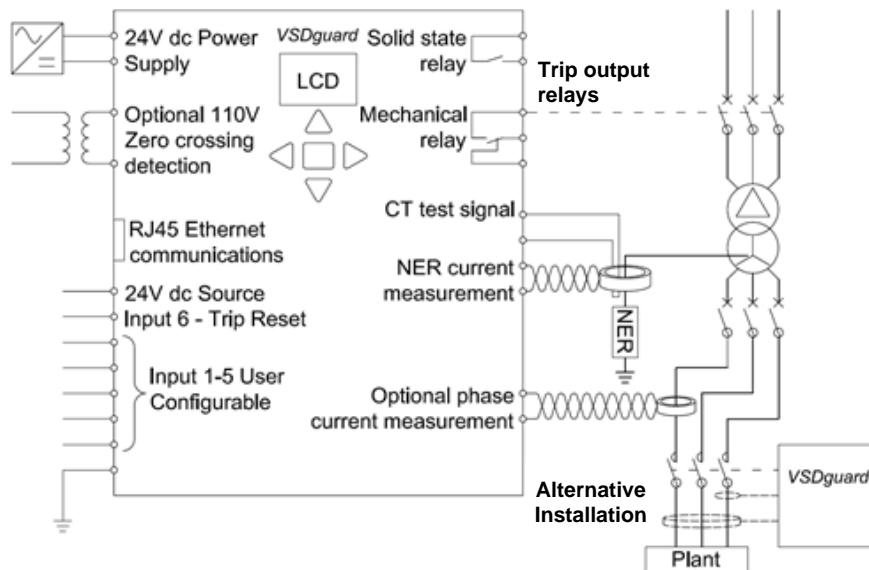
Indication LEDs

- Power On LED - green
- Trip LED (latched) - red
- Processor Healthy LED (1 Hz) – green

Remote Access

Ethernet connection to the VSDguard relay provides the ability to monitor the device parameters and real time measured current from an internet browser. All data logs stored on the unit can also be viewed.

Electrical Connections



Specifications			
Compliant to	AS/NZS 2081:2011 Section 10.6.		
Operating Temperature	0 °C - 60 °C		
Supply Voltage	24 VDC (+/-25 %) (12 W)		
IP Rating	IP20 IP55 (Panel Mounted)		
Digital Inputs	Inputs 1-5: Programmable Trip/Log functions Input 6: Manual trip reset by external pushbutton.		
Communications	Ethernet: 10BASE-TX or 100BASE-TX - accessible via http (using a standard web browser).		
Output Relay Contacts (Fail Safe)	1xCO (Mechanical) 250 VAC 1.6 A / 30 VDC 1.6 A (@50 VDC ~0.3 A) 1xNO (Solid State) 110 VAC/DC 0.2 A		
Enclosure Dimensions	155 W x 155 H x 113 D mm		
Panel Cut-out	135 W x 135 H mm		
User Settings			
	Wideband mode (Default)	Narrowband mode (Power frequency)	Weighted frequency mode (High frequency desensitised)
Operating Modes			
Frequency Range	20 Hz – 8 kHz	20 Hz – 200 Hz	20 Hz – 8 kHz
Trip Time	Instantaneous – 500ms in 50ms increments.		
Trip Current	50 mA – 5 A (50 mA to 1 A in 50 mA increments, 1 A – 5 A in 100 mA increments).		
Security	4 digit PIN can be set to limit access to settings.		

Ordering Information	
Ampcontrol Part Number	Description
162129	VSDguard – Wideband earth leakage relay
115437	Toroid EL500S - 25mmID
101658	Toroid EL500S - 60mmID
101656	Toroid EL500S - 112mm ID
167291	User Manual VSDGuard

DISCLAIMER

While every effort has been made to assure the accuracy of this document at the date of issue, Ampcontrol assumes no liability resulting from any omissions or errors in this document, and reserves the right to revise content at any time.