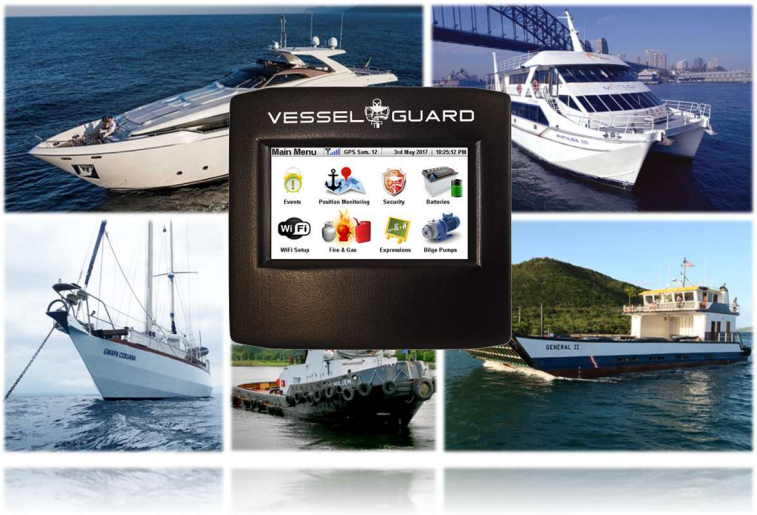
VESSEL GUARD

An Unparalleled and Comprehensive solution providing boat owners with security and peace of mind.

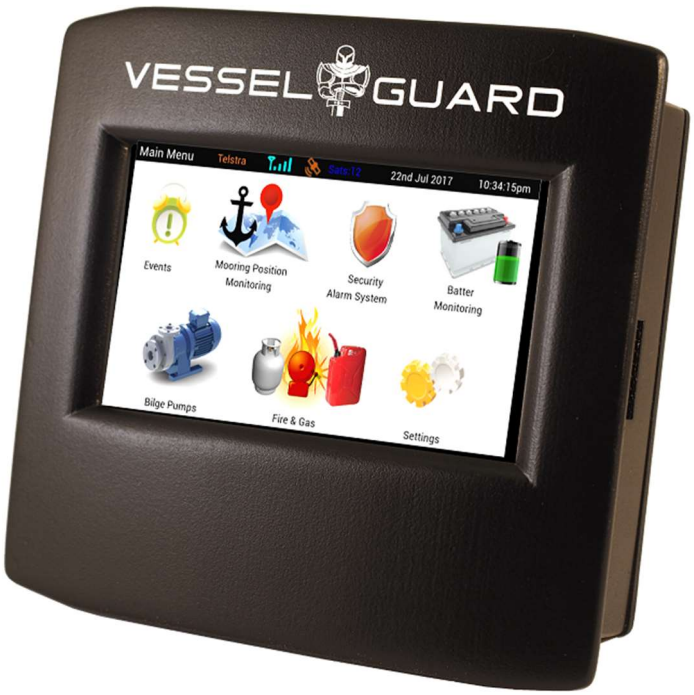


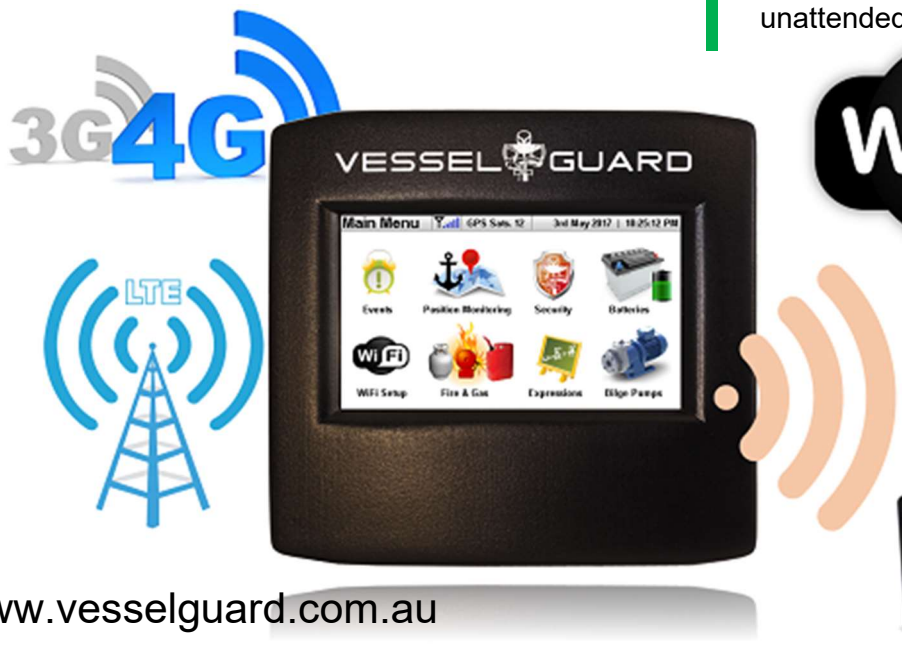
VG-300 Vessel Guard

All-in-1 Marine Vessel Monitoring Solution

- Real-Time Cell Phone Alerts & Remote Control with relay outputs
- 4G LTE Cellular Network with Wi-Fi
- Security Alarm System
- Mooring / Anchoring Positioning
- Bilge Pumps Monitoring
- Fire & Gas Monitoring
- Battery Monitoring
- Loss of Shore-To-Ship Power
- Events Log & Trends

The Vessel Guard VG-300 protects your marine vessel by providing remote monitoring and control through cell phone communications and GPS/GLONASS satellite position monitoring. Users receive instant warning alerts from their vessel via SMS alerting of threat (Fire, Gas, Mooring Drift, Bilge Pumps, Intruder, etc). The Vessel Guard VG-300 is easy to use and guards your vessel whilst unattended.





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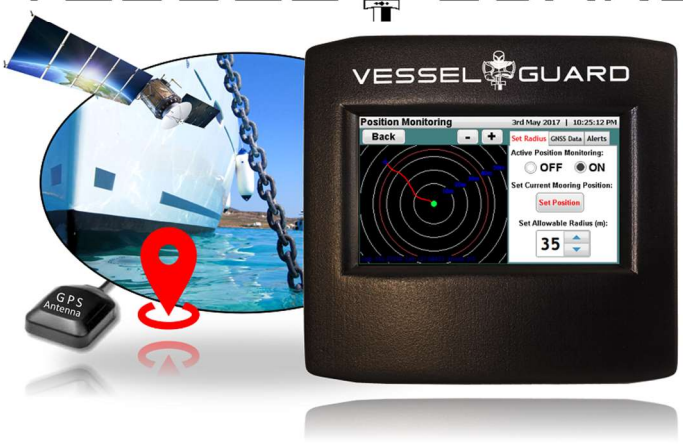
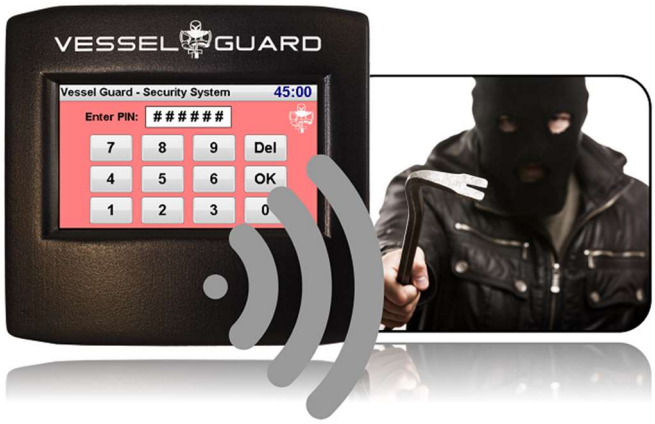
VESSEL GUARD

GPS/GNSS Mooring & Anchoring Position Monitoring

The VG-300 continuously monitors the anchored position of your vessel and provides alarm and/or cell phone SMS warning if the vessel drifts outside the chosen mooring zone. The VG-300 incorporates the latest Qualcomm gpsOne Gen8 technology that tracks 16 GPS channels and 14 GLONASS channels. The VG-300 accurately pinpoints the latest coordinates, drift heading and speed.

Users can also SMS the VG-300 at any time, to receive the vessel's location and movement details, including URL link mapping of your vessel's real-time location. The VG-300 gives peace of mind for possible anchor dragging or mooring failure during inclement weather.





Security Alarm System

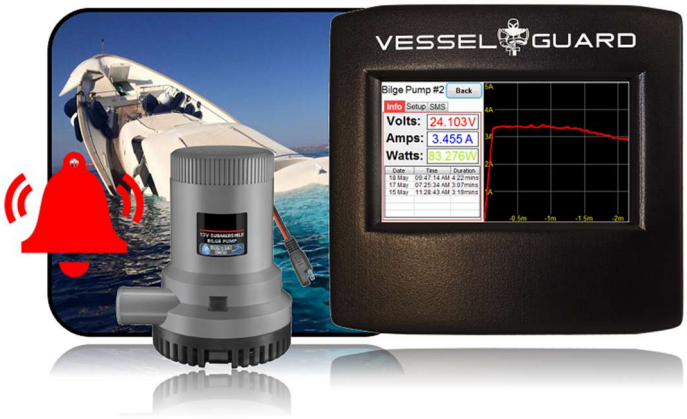
The VG-300 provides a cabin security system that reads signals from motion sensors that detects movement within your vessel. When the security system is triggered the unit sounds a 120dB siren and an SMS alert is sent to the user's cell phone. As many as 8 sensors (e.g. motion sensors, door magnetic sensors or pressure step mats) can be wired into the VG-300's electrical inputs to provide additional coverage and monitoring. The easy to use interface makes setup, arming and disarming intuitive and easy. The security features are flexible for the user's desired security level, providing an invaluable deterrent and warning system against intruders.

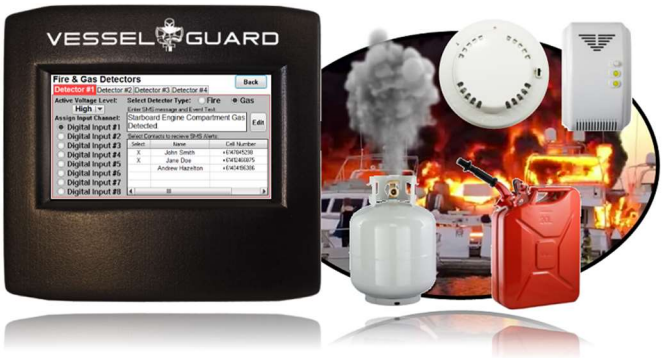
Bilge Pumps Monitoring

Keep track of your vessel's bilge pump activity, current consumption and performance. The VG-300 can monitor up to 4 bilge pumps and can alert the user via SMS if a bilge pump has been running for longer than a specified period of time or is experiencing high overload current. All bilge pump activity and run-time duration is recorded in the VG-300's Events screen. The VG-300 provides early warning of bilge pump blockage or failure by monitoring pump performance and current.

Bilge pump high current can be a sign of:

- Process liquid of higher viscosity due to oil contamination.
- Rotating parts in contact with stationary parts.





Fire & Gas Monitoring

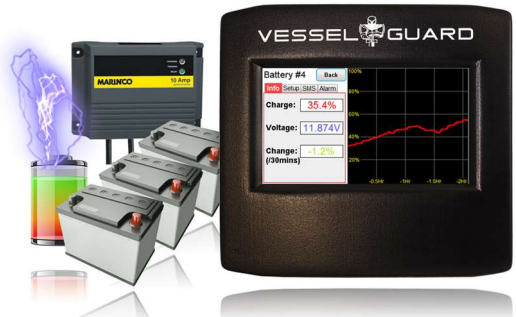
The VG-300 provides continuous monitoring and early warning of gas leaks and smouldering fires by reading signals from fixed gas and smoke detectors. The VG-300 can be setup to provide you with advanced warning of hazardous flammable gas or petrol vapour accumulating within your vessel, by sending an SMS alert, while enacting counter protective measures by activating an extraction fan. Ensure that your vessel is safe to enter before stepping aboard, by sending an SMS to the VG-300 to receive a status report.

The user can be alerted to smouldering fires, common to electrical faults, allowing you to act before the fault escalates.

Battery Monitoring

The VG-300 can monitor the voltage of up to 4 batteries to measure charge levels, battery depletion and warn of low power levels. The unit can send an SMS to the user if the battery reaches a low level, to protect against depletion damage of expensive marine batteries.

Battery charge and discharge trends are recorded to give the user a nd performance.



HAZELTON TECHNOLOGIES

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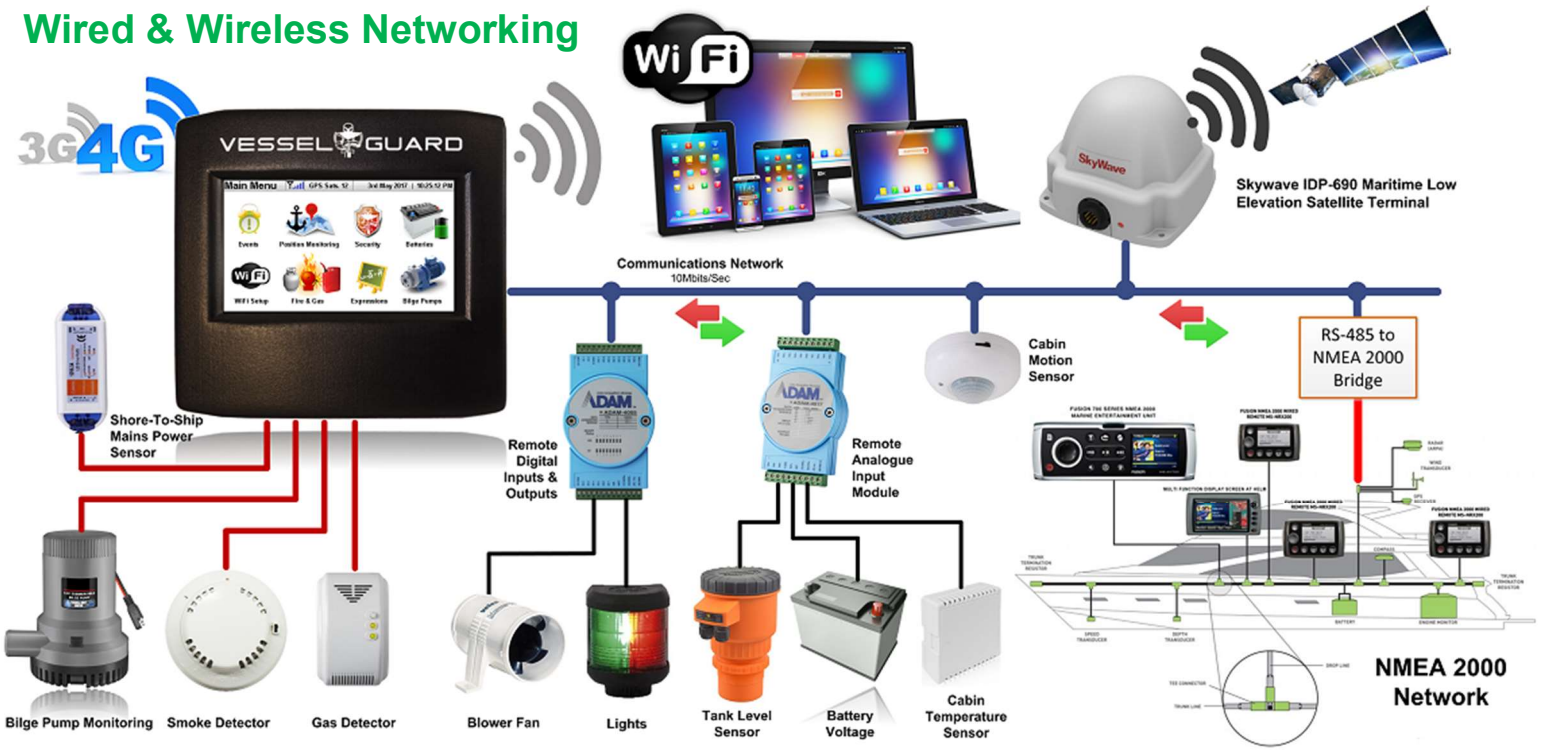
Wired & Wireless Networking



In addition to directly wiring devices to Vessel Guard, the units control and monitoring capabilities can be expanded via a serial communications network. The VG-300 Vessel Guard unit can be programmed using a structured text language to perform automation tasks. This system allows a secure connection to the internet via 3G & 4G cellular networks, enabling remote reading of any sensor and control of any equipment connected to the network. For ocean going vessels outside of the cellular networks range, a satellite communication terminal can be connected to the network. This allows remote monitoring from any location at sea.

Specification

General

General

Analogue Inputs:	**4**	0 – 27 Volts
Digital Inputs:	**8**	50 Volts maximum
Digital Outputs:	**4**	Relay 3 Amps
Features:		Security Alarm System
		Mooring / Anchoring Positioning
		Bilge Pumps Monitoring
		Fire & Gas Monitoring

Environmental Performance

Ambient Temperature:	-10 to +60°C	(Operating)
	-20 to +70°C	(Storage)
Humidity Range:	5% to 85% RH*	(Operating)
	5% to 85% RH*	(Storage)
		*non condensing
Protection:	IP3x	(International)
Shock/Vibration:	BS EN61131-2	(5 to 150 Hz. at 1g)
Altitude:	<2000 meters	
Atmosphere:	Not suitable for use in explosive or corrosive atmospheres.	
Electrical Safety:	BS EN61010-1	(Installation category II; Pollution degree 2)
Electromagnetic Compatibility Emissions:	BS EN61326 Class B – Light industrial	
Immunity:	BS EN61326 Industrial	

Physical

Weight:	0.9kg (1.98lbs)
Panel Cutout dimensions:	124 mm x 110 mm (±1 mm) or 4.88 in x 4.33 in (±0.3 in)
Depth behind panel:	60 mm (2.36 in)

Operator Interface:

Display:	4.3” TFT colour display Touchscreen (480 pixels wide x 272 pixels high)
Controls:	Capacitive touchscreen display

Power Requirements:

Supply voltage:	9 V_{DC} to 45 V_{DC}
Power dissipation:	2 Watts (max)
Fuse type:	Internal Self-Resetting fuse fitted

Battery Backup

Stored data:	Time and Date
Replacement period:	N/A. Built-in internal Super Capacitor. No need to replace.
Support time:	2 months with unit unpowered

USB port

Number of ports:	One on the front of instrument	
Standard:	USB 2.0	
Transmission speeds:	100Mbit/sec	(High speed device)
Max current:	<100mA	
Peripherals supported:	Mass storage device (128GB max)	

Update/Archive rates

Sample rate (input/output):	100Hz
Trend update:	3Hz
Archive sample value:	Latest value at archive time
Display value:	Latest value at display update time

Communications & GPS Positioning

Cellular Network

Network Coverage:	3G, 4G, Worldwide UMTS/HSPA+ and GSM/GPRS/EDGE coverage
Frequency Bands:	900/2100MHz@UMTS

	850/900/1800/1900MHz@GSM
Date Rates:	14.4Mbps (DL) / 5.76Mbps (UL)
Receiver Sensitivity:	-110dBm@UMTS Bands
Connection Approvals:	CE/ FCC/ IC/ KC/ NCC/ OFCA/ GCF Telstra / ANATEL/ Vodafone/ NAL

GPS Positioning

Positioning Engine:	Qualcomm gpsOne Gen8
Supported Consolations:	GPS and GLONASS
Max Satellite Tracking:	16
AGNSS:	Supports XTRA™ Technology
Accuracy:	<1.5m (in open sky)

Wi-Fi Networking

Operating Frequency:	2.4GHz
WLAN Standard:	802.11b/g/n
Modulation Mode:	DBPSK, DQPSK, CCK, BPSK, QPSK, 16QAM, 64QAM
Encryption Mode:	WEP, TKIP, AES, WPA-PSK, WPA2-PSK
Max Access Points:	10

Analogue Input

General

Number of inputs channels:	4
Voltage input types:	4 x 0 - 27 Volts
Sample rate:	100 Hz (10ms)
Conversion method:	12 bit delta sigma
Input impedance:	10 MΩ for Voltage inputs

Noise Rejection

Mains rejection (48 to 65 Hz)	>95 dB	(Series mode)
	>180 dB	(Common mode)
Static Electric protection:	±15V RMS	(Internal TVS diode)

Isolation

Isolation (Input channel to common electronics):	60Vrms
Isolation (Input to Output):	1500Vrms, (15kV/µs transient)
Isolation (between input channels):	60Vrms (common negative terminal connection)

Digital Inputs

Input Impedance:	4500 Ω
Logical '0' Voltage Range:	0 to 9 Volts dc
Logical '1' Voltage Range:	10 to 50 Volts dc
Refresh Rate:	100 Hz (10mS)
Isolation (Output channel to common electronics):	60Vrms
Isolation (Output to Input):	1500Vrms, (15kV/µs transient)

Digital Output (Relay)

Maximum Switching Voltage:	60 V dc
Maximum Switching Current:	3 Amps
Maximum Carrying Current:	3 Amps
Refresh Rate:	100 Hz (10mS)
Isolation (Output channel to common electronics):	1500Vrms, (15kV/µs transient)
Isolation (Output to Input):	1500Vrms, (15kV/µs transient)
Isolation (between output channels):	1500Vrms, (15kV/µs transient)

Device Dimensions