

2019

GUARDIAN : SOLO

Marine Lone Worker Protection

Information Brochure – Wind Turbine Version



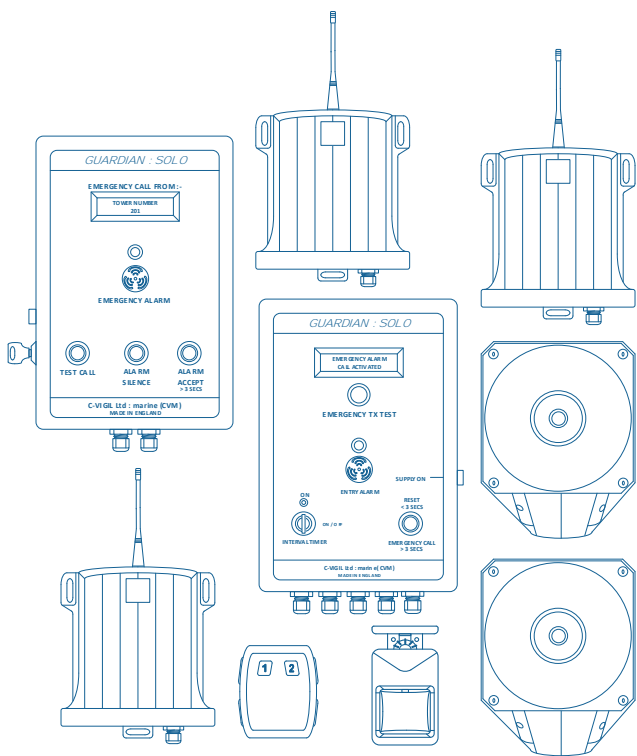
C-VIGIL Ltd : marine (CVM)

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with



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GUARDIAN : SYSTEMS





Establishing a healthy and safe working environment for lone workers can be different from organizing the health and safety of other work staff - they should not be put at more risk than any other type of worker.

It will often be safe to work alone. However, managers should think about and deal with any health and safety risks **before** people are allowed to do so.

One option is to provide these service and maintenance engineers with lone worker protection and emergency calling equipment; thereby improving the chances of a successful outcome should the worst happen.

Protection can be provided for: -

- Upper and lower tower areas
- Nacelle and machinery areas

Automatic Wireless Lone Worker Protection & Emergency Calling System

solo
lone worker systems

sea-vu
cctv systems

klarion
acoustic area denial

autoguard
intruder detection

thermoguard
remote °C monitoring

elev8tor
lift car indicator

Portable Wireless Interval Timer Reset / Emergency Call

SOLO has been designed to supplement existing safety measures i.e. regular radio calls, to give added protection for maintenance and service engineers attending turbine towers on regular intervals.

Offshore wind farm towers are, by their very nature isolated places to work, therefore should anything untoward happen to the attending engineers it's crucial, for a successful outcome, that help is summoned immediately.

Remember – it's better to have it and not need it, then to need it and not have it!

Description

On entering the tower, a PIR motion sensor will detect the engineer's presence and activate an 'entry' alarm on the MCU, located near the entrance hatch. This will draw the engineer's attention to the MCU and the fact they must activate the lone worker system prior to proceeding.

The engineer should then operate the key switch, which turns the 'entry' alarm off and starts the interval timer, for a period of 15 minutes. The engineer should then radio the support vessel to expect a test 'Emergency Call Transmission' which should register the tower's number on the Alarm Indicator Panel situated on the support vessel's bridge.



Wireless Reset / Call Transmitter & Receiver

With a strategically placed wireless receiver in the tower below the nacelle, the portable transmitter will be well within the normal working area of the engineers and other personnel.

Following confirmation, the engineer can then remove the key (for safety's sake), collect the portable reset/call transmitter and proceed to their work place.

With the interval timer running, the engineer must use the portable wireless transmitter to reset the timer before the end of the 15-minute interval. The wireless reset can be used at any point.

At the end of the 15-minute interval an intermittent pre-alarm is sounded through the local sounders, this warns the engineer they haven't reset the system yet.

If, after a further 2 minutes, no reset is received the 2nd stage alarm is triggered. The local alarms are now sounded continuously for 2 minutes to alert any other co-workers in the tower to a possible situation arising.

If still no reset received, the 3rd stage is then triggered – the local alarms continue to sound and an 'Emergency Call' coded radio transmission is sent to the receiver aboard the support vessel, raising the alarm & giving the tower's ID number.

The 'Emergency Call' transmission is repeated every 2 minutes till cancelled, which can only take place from the tower itself.

Manual 'Call for Assistance' is also available by pressing the reset button for more than 3 seconds – this then by-passes the timer and enters the staged alarms sequence immediately.

Wireless portable transmitter has button-2 programmed to sound the local alarms whilst pressed, to signal to co-workers, when needed.



Features

- Supplements existing safety measures
- Personnel entry detection
- 15-mins interval period
- Wireless portable reset/emergency call transmitter
- Emergency "Call for Assistance" to immediately signal help is required
- Emergency call radio transmission to support vessel
- Pre-alarm reminder to reset timer before main alarm is activated
- High output alarm sounders for local signaling
- Key operated timer on/off switch for safety
- IP65 marine rated
- Support vessel Emergency Call Alarm Indicator Panel
- Coded radio modems with 1.5km range
- License free operating frequencies



Entry PIR

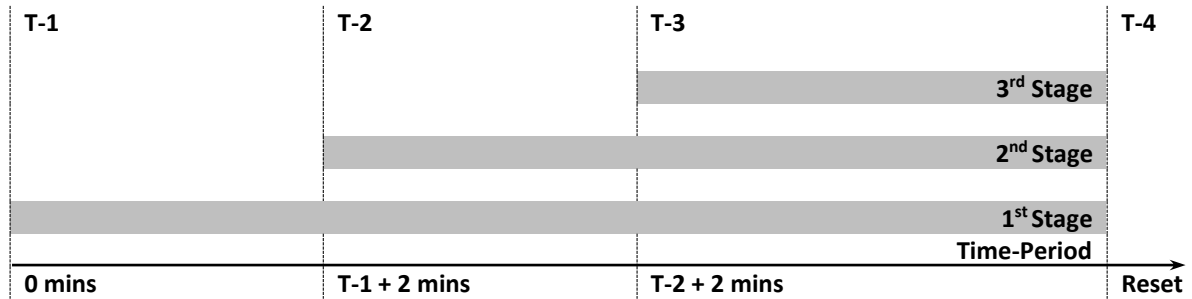
Stage Alarms

Interval timer completes: -

- 1st Stage (T-1)
 - MCU + Local Sounders - Intermittent
- 2nd Stage (T-2)
 - MCU + Local Sounders - Constant
- 3rd Stage (T-3)
 - MCU + Local Sounders – Constant + Emergency Call
- Reset (T-4)
 - All staged alarms cancelled / reset



Local Alarm Sounder



*Full Turnkey Solutions,
Bespoke Design, Cabling Installation,
Testing & Commissioning*



Serial Data Radio Modem



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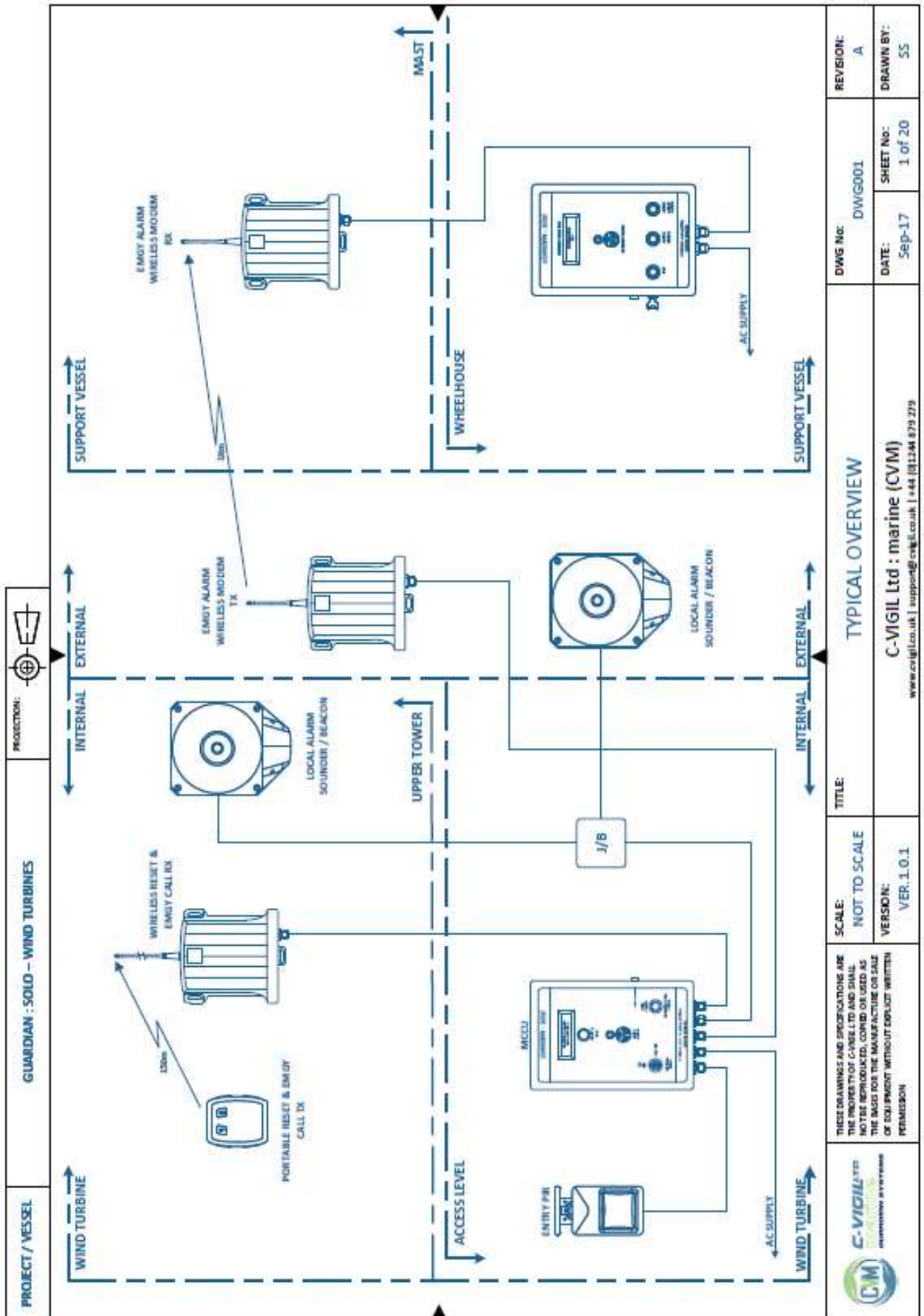
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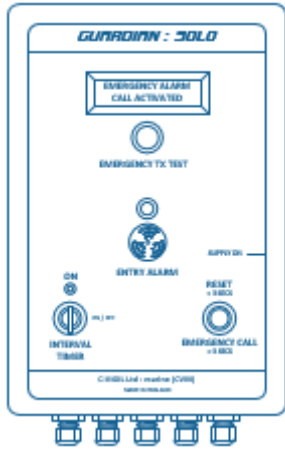
System Overview



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	C-VIGIL LTD SURVEILLANCE SYSTEMS	C-VIGIL Ltd : marine (CVM) www.cvigil.co.uk support@cvigil.co.uk +44 (0)1244 879 279	DATE: Sep-17	SHEET No: 1 of 20	DRAWN BY: SS

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TURBINE TOWER - MAIN CONTROL UNIT (MCU)

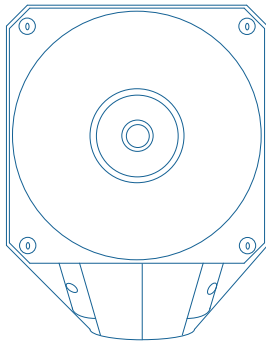


MCU – fitted within the lower tower, adjacent to the access hatch, giving easy access to attending personnel.

The MCU contains: -

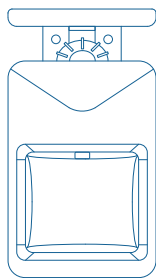
- Entry-Alarm* – flashing red LED & pulsing 80dB sounder
- Key-Switch* – cancels entry alarm and activates interval timer.
- Reset / Call for Assistance* – short press (<3 secs) resets interval period timer. Long press (>3 secs) Call for Assistance
- Emergency Call* – push button sends emergency call transmission to the support vessel, used on entry to ensure system in good working order.
- Power On* – LED indicator
- LCD Display* – shows turbine tower unique ID number and emergency call status

TURBINE TOWER - LOCAL ALARM SOUNDER (X2)



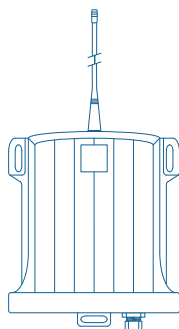
- High output industrial sounder
- Multi-tone selection
- 116dB @ 1m
- IP65
- Alarm sounder for local signalling

TURBINE TOWER - ENTRY PIR MOTION SENSOR



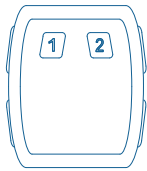
- Activates audible and visual alarms on receipt of emergency alarm call from portable unit.
- LCD displays unique ID of portable unit.
- Silence PB for panel alarm sounder.
- Accept alarm PB (press for > 3 secs) to cancel received emergency alarm call once situation resolved.
- Test PB for indicators & LCD display.
- Key operated power switch for safety.

TURBINE TOWER - WIRELESS RESET / CALL RECEIVER



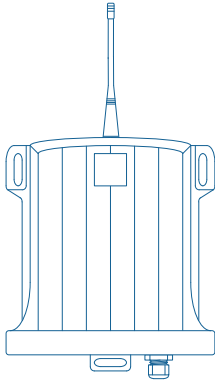
- Wireless reset / emergency call receiver.
- 433MHz license free frequency
- 4 relay outputs – changeover contacts
- IP65 enclosure

TURBINE TOWER - WIRELESS PORTABLE RESET / CALL TRANSMITTER



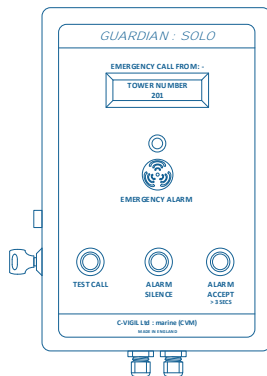
Wireless reset / emergency call transmitter
433MHz license free frequency
200m range
Button 1 – reset / call
Button 2 – Activate local sounders
IP65 enclosure

TURBINE TOWER - EMERGENCY CALL RADIO MODEM TRANSMITTER



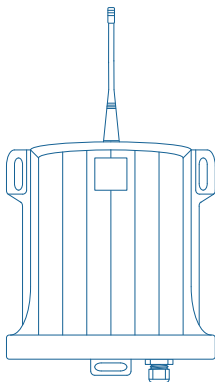
Half duplex radio modem
RS232 serial data input
Many-to-one addressable
868MHz license free frequency
Coded emergency call transmission

SUPPORT VESSEL - EMERGENCY CALL ALARM PANEL (AP)



Activates audible and visual alarms on receipt of emergency alarm call from portable unit.
LCD displays unique ID of portable unit.
Silence PB for panel alarm sounder.
Accept alarm PB (press for > 3 secs) to cancel received emergency alarm call once situation resolved.
Test PB for indicators & LCD display.
Key operated power switch for safety.

EMERGENCY CALL RADIO MODEM RECEIVER



Half duplex radio modem
RS232 serial data reception
One-to-many addressable
868MHz license free frequency
Coded emergency call reception



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