

C-VIGIL Ltd : marine (CVM)

Marine Safety & Security Systems

GUARDIAN SYSTEMS

Portable Wireless Worker Protection

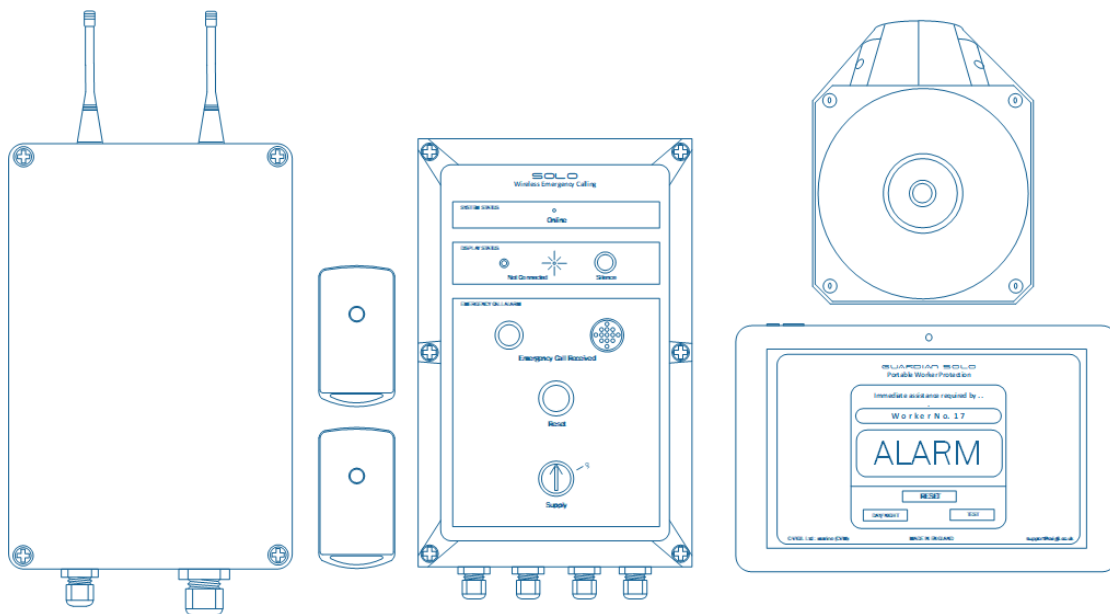
guardianSOLO

Deck Version



GUARDIAN SOLO

Operations Guide



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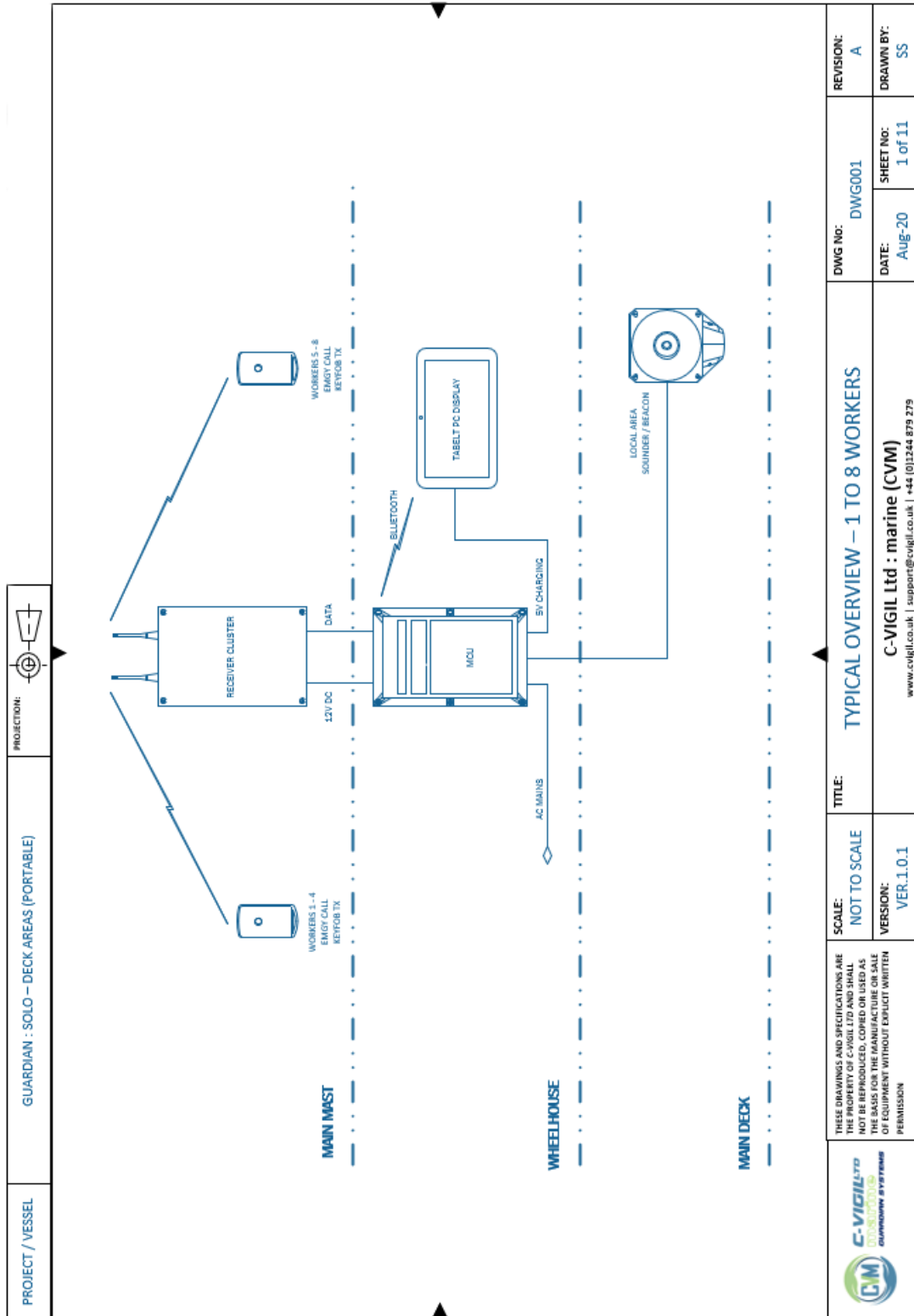


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Typical Overview





1. General Description

1.1 Introduction

Establishing a healthy and safe working environment for lone workers can be different from organizing the health and safety of other crew members - they should not be put at more risk than other crew working onboard.

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 crew members 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: -

- Engineering Areas
- Catering Areas
- Deck Areas (Portable Units)

Description

SOLO is intended to supplement any existing protection systems already in use.

It is often the case that deck workers will find themselves alone on open deck areas, working in tanks, cofferdams, cargo holds . . . etc for protracted periods i.e. during upgrading, repairs and routine maintenance duties.

SOLO consists of portable wireless keyfob transmitters that remotely activates a relay in the receiver cluster – each receiver board having 4 relays. On activation a coded data packet is sent to the main control unit (MCU) and displayed on a tablet PC - located in the wheelhouse or other manned position - for easy identification of the worker in trouble,

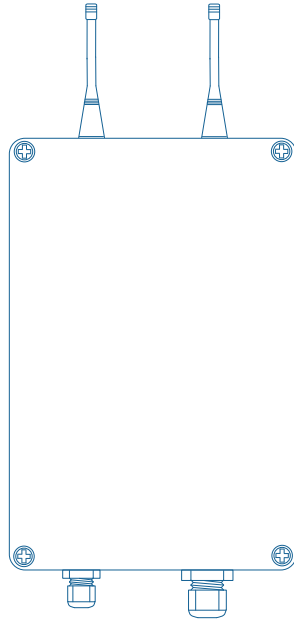
the data packet carries a unique worker ID number.

Alarms are then activated at the MCU and on deck (if required).

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

2. System Components

2.1 Receiver Cluster



Rugged ABS IP66 housing, containing receiver/relay PCBs and processor/communication PCBs.

Receiver PCBs – fitted with 4 relays, one for each worker wireless transmitter.

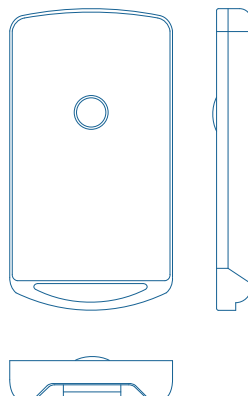
Example shown is for 1 – 8 workers, can be expanded to cover any number of workers.

Communicates with MCU over ethernet.

200m range (line-of-sight) to keyfob transmitters.

12V DC – supplied from MCU.

2.2 Wireless Keyfob Emergency Call Transmitter





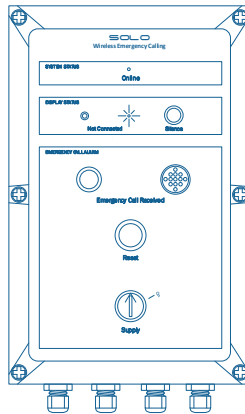
868MHz license fee frequency

200m range

2 button operations

Long battery life (+5 years)

2.3 Main Control Unit (MCU)



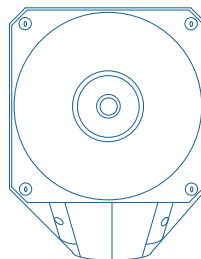
Receives unique worker ID number from receiver cluster.

On receipt of emergency call audio visual alarms are activated – at the MCU and on deck (if required).

Worker ID number is also passed to the tablet PC by Bluetooth serial connection.

Connection to the display PC is monitored.

2.4 Deck Wide Area High Output Klaxon



High output industrial sounder

Multi-tone selection

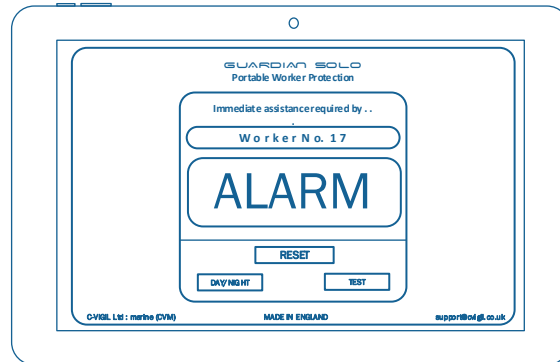
116dB @ 1m

IP65

Alarm sounder for wide area signalling



2.5 Tablet PC Display



Displays emergency call information.

10.1" Windows 10 tablet PC.

5V DC charging from MCU.

Connects to MCU by Bluetooth.

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.



3. Operation

3.1 Power On

Turn the key switch to power up the system.

12V DC is fed to power the receiver cluster.

Press and hold the tablet PC on/off button till the display powers up.

After windows loads the display will load automatically.

3.2 MCU to Display Connection

Once the display program has loaded successfully and the tablet connects to the MCU any alarm indication should now reset.

If the connection is lost an audible alarm will sound and LED illuminate. The sounder can be silenced, but the LED will only be extinguished on reconnection to the MCU.

To reconnect – reboot the tablet PC, or close and then restart the program.

3.3 Emergency Call

Press the keyfob transmitter's button for 2 secs or more will transmit a radio signal to the receiver cluster. This will activate a relay allocated to that transmitter. A data packet, containing the worker's unique ID number is sent to the MCU and tablet display.

Alarms will be activated at the MCU and on deck (if required).

Press the reset button to acknowledge and cancel the alarms.