

## **Nautilarm V2 Installation Instructions**

### **1 - Mount unit**

The Nautilarm is should be mounted with the glands at the bottom to ensure water resistance. The housing is not entirely sealed but its fairly waterproof. Ensure that enough space is left around the unit for cable routing. When using wireless sensors, it is recommended that the unit is mounted within 12m of the alarm sensors being used and that there are no metal bulkheads between it and its sensors.

### **2 - Mount GSM / GPS Antenna**

The Nautilarm is supplied with an external bulkhead mounting antenna or an internal antenna. If the system is being installed into a metal boat the external antenna must be used, ideally situated on the roof of the boat. The antenna can be painted to match the roof of the boat. If the internal antenna is being used, ensure that the antenna is mounted away from large metal objects.

If you are using the GPS version of the Nautilarm, it is essential that the GPS antenna is mounted the right way up and with a clear view of the sky. The GPS signal will not penetrate metal.

### **3 - Wiring**

A full wiring diagram has been supplied with this manual. Please refer to it when wiring the Nautilarm. The GSM and GPS antenna connectors on the Xtreme version are located inside the case. The connectors are polarised so they cannot be incorrectly fitted.

#### **3.1 - Power Supply**

The Nautilarm is available in 12V and 24V versions. Ensure that you are using the correct version for the supply voltage in use. The supply should be fused at 2A. If a Nautilarm kit has been purchased, a wiring loom with an inline fuse folder will have been supplied. The fuse should be mounted as near to the battery as possible so that the whole cable run is protected. **The power must not be switched on until installation is complete.**

Connect the 0V / GROUND / BLACK wire to terminal A (SUPPLY-).  
Connect the +12V / +24V / RED wire to terminal B (SUPPLY+).

#### **3.2 - Siren (optional)**

The siren should draw no more than 1A and should be of the correct voltage for the power supply in use. The siren will sound for a configurable time (see section 6.5) when the alarm is triggered.

Connect the POSITIVE / RED wire to terminal H (SIREN+).  
Connect the NEGATIVE / BLACK wire to terminal G (SIREN-).

#### **3.3 - Strobe (optional)**

The strobe should draw no more than 1A and should be of the correct voltage for the power supply in use. The strobe will flash when the unit is triggered and will keep flashing until the system is disarmed.

Connect the POSITIVE / RED wire to terminal F (STROBE+).  
Connect the NEGATIVE / BLACK wire to terminal E (STROBE-).

#### **3.4 - Beeper (optional)**

An external beeper can be wired into the Nautilarm for confirmation of arm / disarm and entry / exit tones. The external beeper will operate in tandem with the internal beeper fitted inside the Nautilarm. The beeper should draw no more than 1A and should be of the correct voltage for the power supply in use.

Connect the POSITIVE / RED wire to terminal L (BEEPER+).  
Connect the NEGATIVE / BLACK wire to terminal K (BEEPER-).

#### **3.5 - External Switch (optional)**

The Nautilarm is able to control one external appliance such as a light, fridge etc. The device connected to the Nautilarm can be switched on and off by pressing button 3 on the RF keyfob or by sending the Nautilarm a text message (see section 7.7). If using this feature an external relay must be used.

Connect the POSITIVE / RED wire of the relays coil to terminal J (SWITCH+).  
Connect the NEGATIVE / BLACK wire of the relays coil to terminal I (SWITCH-).

#### **3.6 - Status LED**

An external LED can be connected to the Nautilarm to show its status (armed or disarmed) along with its current GPS and GSM signal strengths.

During the entry and exit time the LED will flash fast.

When the system is armed the LED will flash slowly.

When the system is triggered the LED will light constantly.

When the alarm is disarmed the LED will indicate the GSM signal strength and the number of GPS satellites in view. The LED will flash in the following pattern:

Off for 4 seconds.

Flashes 1-5 times for GSM signal strength.

Off for 1 second.

Flashes 0-12 times for number of satellites in view.

See section 8 to find out what this means.

Connect the POSITIVE / RED wire to terminal N (LED+).  
Connect the NEGATIVE / BLACK wire to terminal M (LED-).

#### **3.7 - Keyswitch (optional)**

An external keyswitch or other latching switch can be connected to the Nautilarm to arm and disarm it. When the switch is opened the system will arm. When it is closed the system will disarm. If this feature is required it must be enabled (see section 6.9).

Connect the POSITIVE / RED wire to terminal U (KEY+).  
Connect the NEGATIVE / BLACK wire to terminal V (KEY-).

#### **3.8 - Tamper / 24hr / Flood sensor (optional)**

A flood / tamper sensor connected to the Nautilarm will always be active whether the alarm is armed or not. If it is triggered, the Nautilarm will send a text message but will not activate the siren or strobe. If this feature is required it must be enabled (see section 6.10).

Connect the POSITIVE / RED wire to terminal S (TAMP+).  
Connect the NEGATIVE / BLACK wire to terminal T (TAMP-).

#### **3.9 - Wired alarm sensors, Zones 4-7 (optional)**

The Nautilarm has up to four zones for wired sensors. You can wire more than one sensor in series per zone as long as the sensor is of the NC type. If 12V powered sensors (eg. wired PIR sensors) are being used they may cause false alarms when the supply fails. The 12V AUX terminal supplies 7.2V when running from internal backup batteries.

##### *Zone4*

Connect the POSITIVE / RED wire to terminal O (ZONE4+).  
Connect the NEGATIVE / BLACK wire to terminal P (ZONE4-).

##### *Zone5*

Connect the POSITIVE / RED wire to terminal Q (ZONE5+).  
Connect the NEGATIVE / BLACK wire to terminal R (ZONE5-).

##### *Zone6*

Connect the POSITIVE / RED wire to terminal S (ZONE6+).  
Connect the NEGATIVE / BLACK wire to terminal T (ZONE6-).  
If wired zone 6 is required the tamper feature must be disabled (see section 6.10).

##### *Zone7*

Connect the POSITIVE / RED wire to terminal U (ZONE7+).  
Connect the NEGATIVE / BLACK wire to terminal V (ZONE7-).  
If wired zone 7 is required the keyswitch feature must be disabled (see section 6.9).

### **4 - Install SIM Card**

It is a good idea to first fit the SIM card into a mobile phone to ensure that it is registered and can successfully send text messages. Ensure that no PIN code is set on the SIM (the phone should not ask for a PIN after being turned on). Voice mail should also be disabled. After testing the SIM can be installed into the unit. If using a prepay SIM card it is a good idea to use one whose balance can be checked and topped up without removing the SIM from the unit.

We recommend the use of Vodafone or O2 SIM cards as these provide the best coverage.

With the front panel of the Nautilarm removed, the SIM card should be installed into the holder. Ensure that the holder is fully closed after fitting the SIM. If an internal backup battery pack is fitted, ensure that it is disconnected before the SIM is fitted and reconnected to the connector marked BATT afterwards.

## 5 - Install the Sensors

All of the wireless sensors and the Nautilarm main unit must have their house codes set the same. The house code of the Nautilarm is set using the set of DIP switched marked CODE on the PCB. The sensors are supplied with their own instructions which should be followed.

The wireless sensors will trigger alarm zones 1-3. Zones 4-7 are hard wired zones.

### 5.1 - Beam Break Sensors

The Nautilarm Beam Break Sensor is a waterproof optical beam break sensor. The sensor and reflector should be mounted no more than 2.5m apart and must be securely attached to stable surfaces.

The Brown and White wires of the sensor should be connected to +12V (eg. 12V AUX terminal). The Blue wire should be connected to 0V (eg. 0V AUX terminal). The Black wire should be connected to the positive terminal of the zone in use.

The beam break sensor must be aligned with the reflector before the adjustable mount in the case is tightened and the lid fitted. To perform the alignment the Nautilarm has a beam alignment mode in which the internal and external beepers of the control box will sound when the sensor is not aligned. The enter alignment mode on one of the input zones (4-7) send one of the following messages:

*Secret, beam, test, 4*

*Secret, beam, test, 5*

*Secret, beam, test, 6*

*Secret, beam, test, 7*

To disable beam test mode send the following:

*Secret, beam, test, disable*

When aligning the sensor it is easiest to adjust the sensor to point in the correct direction then move the reflector around to find the centre of the detection area. By mounting the reflector in the centre of the beam the probability of false alarms is minimized.

Before screwing the front of the sensor housing on, tighten the sensor mounting bracket and place the silica gel bag in the bottom of the sensor housing.

Once the beam break sensor is fitted, the zone it connected to should be configured as a beam break input. If this is done, the Nautilarm will double beep during the exit time if the sensor is obstructed. To configure a zone as a beam break sensor or a normal input send one of the following:

*Secret, beam, 1, 0, 0, 0* (Zone 4 is a beam break)

*Secret, beam, 0, 0, 0, 1* (Zone 7 is a beam break)

*Secret, beam, 0, 1, 1, 0* (Zone 5 and 6 are beam breaks)

*Secret, beam, 1, 1, 1, 1* (All zones are beam breaks)

*Secret, beam, 0, 0, 0, 0* (All zones are normal inputs)

## 6 - Configure unit

There are various configuration options which can be set in the Nautilarm using SMS text messages.

All of the commands sent to the Nautilarm must contain the correct password. Throughout this manual it is assumed that the default password has not been changed.

The Nautilarm will reply to all messages sent to it with the correct password. Nothing sent to the unit (including the password) is case sensitive. The default password is *SECRET*, if you have changed it use your password instead.

### 6.1 - Initialise the Nautilarm and set the master phone

The Nautilarm sends all alarm notifications, low battery warnings and status messages to the master phone.

To set the master phone, send the following from the master phone:

*Secret, master, set*

If you wish to set the master phone to someone else's phone (eg a customer) and you haven't got their phone, send the following message (+441234567890 is an example new number):

*Secret, master, +441234567890*

To delete the master phone number, send the following:

*Secret, master, delete*

To view the master phone number, send the following:

*Secret, master*

### 6.2 - Change the Password

The password is set to *SECRET* by default and should be changed. Send this message to change the password (for example to *BICYCLE*):

*Secret, password, bicycle*

### 6.3 - Configure Automatic Status Reporting (optional)

The Nautilarm can be configured to send status messages to the master phone at intervals you can define (set in minutes, maximum 60000). By default it will send a message every 14 days. It is important that this is enabled and configured to send messages at least once every 14 days in order to keep the SIM card registered (after long periods of inactivity SIM cards are disabled by the network). The unit will send a message to this number after power up, and then the counter begins. This is also a useful feature to receive notifications of power up.

To set the reporting interval to 14 days (14 x 24 x 60 = 20160 minutes, send this message:

*Secret, auto, 20160*

To disable automatic status reporting (NOT RECOMMENDED), send this message:

*Secret, auto, disable*

### 6.4 - Configure the Low Voltage Warning (optional)

If the power supply to the Nautilarm drops below a preset limit for more than 2 minutes a low voltage warning is sent to the master phone. By default the low voltage warning is set to 10.5V.

To set the limit to 10.5V, send this message:

*Secret, voltage, 10.5*

To disable the low voltage warning, send this message:

*Secret, voltage, disable*

### 6.5 - Configure the Entry, Exit and Alarm Times (optional)

After arming the unit, it must see all its inputs in a steady state for the Exit time before it will arm.

After the unit is triggered, it will wait the Entry time before sounding the alarm.

The siren will sound for the Alarm time when the alarm is triggered.

The unit will then wait the Exit time again before rearming itself.

To set the entry time to 20 seconds, the exit time to 30 seconds, and the Alarm time to 5 minutes (300 seconds) send this message:

*Secret, Time, 20, 30, 300*

### 6.6 - Name the alarm zones (optional)

The alarm zones can be named to make the messages the Nautilarm sends more informative. The name set for zone 6 will be used when the tamper input (if enabled) is triggered. Zone names can be up to 16 characters long.

To change the zone 1 name, send this message:

*Secret, name, 1, motion detector*

To change the zone 6 / tamper name, send this message:

*Secret, name, 6, flood sensor*

### 6.7 - Name the output switch (optional)

The output switch can be named to suit its use.

To name the output switch as *lights*, send this message:

*Secret, name, 8, lights*

### 6.8 - Configure the Phone Numbers (optional)

The Nautilarm unit can send alarm messages to up to two phone numbers in addition to the master phone number. To set the new phone numbers send these messages (+441234567890 is an example new number):

*Secret, phone, 1, +441234567890*

*Secret, phone, 2, +441234567890*

To delete the phone numbers send:

*Secret, phone, 1, delete*

*Secret, phone, 2, delete*

### 6.9 - Configure the keyswitch (optional)

If a keyswitch or other latching switch is to be used to arm or disarm the system, zone 7 must be configured as a keyswitch input. To enable or disable this feature, send one of the following messages:

*Secret, key, enable*

*Secret, key, disable*

### 6.10 - Configure the tamper zone (optional)

If a tamper / flood sensor is to be connected to the system, zone 6 must be configured as a tamper input. To enable or disable this feature, send one of the following messages:

*Secret, tamper, enable*

*Secret, tamper, disable*

## 7 - Operation

This section describes the operation of the Nautilarm after it has been installed and configured.

### 7.1 - To query the status of the Nautilarm

If *Secret, status* is sent to the unit it will reply with a message detailing its current supply voltage, along with the current status of the output switch and GSM signal strength. If you phone the unit from any of the registered phones then hang up within 3 rings it will send you a status text message.

If the GPS version of the Nautilarm is being used, this command will also return the units current position. If the unit is out of GPS coverage or the GPS is turned off the unit will also return the time of the last fix. To view a map of the units location, type in the coordinates received at:

[www.touchline-security.co.uk/locate.shtml](http://www.touchline-security.co.uk/locate.shtml)

To query the status of the unit, send this message:

*Secret, status*

### 7.2 - To Query the Credit of the SIM Card

The *Credit* command is used to set the USSD string which is used to request the credit remaining on a prepay SIM card. This is network specific. For O2 in the UK set it to *\*\*#10#*. For Vodafone set it to *\*#1345#*. If the number is omitted the unit will return the credit remaining on the SIM.

To set the USSD string for Vodafone, send this message:

*Secret, credit, \*#1345#*

To check the credit remaining on the SIM, send this message:

*Secret, credit*

### 7.3 - To Arm or Disarm the system

To arm or disarm the system, send one of these messages:

*Secret, arm*

*Secret, disarm*

To arm the system using the RF keyfob press button 1. To disarm it, press button 2. Alternatively the keyswitch (optional) can be used to arm and disarm the system.

The beeper will beep slowly during the exit time and quickly during the entry time. If a beam break sensor is blocked whilst arming the alarm, the beeper will double-beep during the exit time.

### 7.4 - To Reset the Nautilarm

To reset the system to factory settings, send the following message:

*Secret, reset*

### 7.5 - GPS Operation

The units position is requested using the Status command above. For power saving reasons, the GPS can be turned off and on. To turn the GPS off or on, send one of these messages:

*Secret, gps, on*

*Secret, gps, off*

The Nautilarm can also report its current speed and direction of travel. To query this, send the following message:

*Secret, gps*

### 7.6 - Geofence Operation

The Nautilarm is equipped with a geofence alarm. This means that you are able to set a circle in which the unit must stay when the alarm is armed. If it leaves this area, the alarm will be triggered. You can configure the radius of the circular area in units of 10m and also whether the alarm and siren will be triggered or just a message will be sent when the geofence area is left. The following messages can be used to configure the geofence:

*Secret, fence, disable* (Disables the geofence)

*Secret, fence* (Queries the fence settings)

*Secret, fence, 3, alarm* (Fence radius 30m, full alarm)

*Secret, fence, 10, message* (Fence radius 100m, message only)

The centre of the geofence area is set to the current position when the alarm is armed. The geofence may occasionally false alarm – this is a limitation of the GPS system. It is recommended that the geofence radius not be set below 50m – the larger the area the less likely it is to false alarm. If the geofence triggers, wait a few minutes then query the boats position. Verify on a map that the boat really has moved a significant amount.

### 7.6 - Microphone (optional)

If the microphone option has been purchased it must be plugged into the connector marked MIC on the PCB. To listen in to the Nautilarm, phone the unit. It will answer after 8 rings and you can listen in to whatever the microphone picks up.

### 7.7 - Control the Output switch

The device connected to the output switch can be controlled by the keyfob or by text message.

To control the output from the keyfob, press button 3. Each time it is pressed the output will toggle on or off.

To control it by text message, send one of these messages:

*Secret, switch, on*

*Secret, switch, off*

If the output switch has been renamed to *lights*, it can be controlled by name:

*Secret, lights, on*

*Secret, lights, off*

## 8 - Internal LED Operation

There is a red / green LED on the Nautilarm circuit board. The LED flashes red or green a number of times every few seconds.

The number of green flashes indicates the GSM signal strength (1 is little/no signal, 5 is maximum strength).

The number of red flashes indicates the number of GPS satellites in view (if GPS is fitted). More than 4 is good.

## 9 - Support

Should you have any problems installing or configuring the Nautilarm, please contact your distributor or email [support@touchline-security.co.uk](mailto:support@touchline-security.co.uk) for assistance.

Should you forget your unit password, please contact your distributor or email [support@touchline-security.co.uk](mailto:support@touchline-security.co.uk) to have your password reset remotely.

## 10 - Default Settings

Unless otherwise stated, the Nautilarm will be supplied with the following default settings:

Zone 1 Name: ZONE1

Zone 2 Name: ZONE2

Zone 3 Name: ZONE3

Zone 4 Name: ZONE4

Zone 5 Name: ZONE5

Zone 6 Name: ZONE6

Zone 7 Name: ZONE7

Output Switch Name: SWITCH

No phone numbers registered.

Password set to secret.

Disarmed.

Credit number set to \*#10#.

Entry time set to 10s.

Exit time set to 10s.

Alarm time set to 5 minutes.

Low voltage warning set to 10.5V.

Automatic status messages sent every 14 days.

## 11 - Electrical Specifications

Operation of the Nautilarm outside of these specifications is not advised and may cause damage and unexpected operation.

Parameter	Min	Max	Typ	Unit
Supply Voltage	8	16	12	V
<b>WITH GPS:</b>				
Supply Current @ 12V	90	1000*	50	mA
<b>WITHOUT GPS / GPS Off:</b>				
Supply Current @ 12V	17	1000*	17	mA
<b>Battery Charging:</b>				
Supply Current @ 12V	230	1000*	230	mA

\*These peak currents will only be drawn for a few mS during the transmit uplink burst.

# 12 - Wiring Diagram

