# NVX80

## Installation Guide

Version 1.12

PARADOX™

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# NVX80 Overview

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The Paradox NVX80 motion detector is above and beyond anything in its class. The NVX80 features resilience to extreme conditions, a series of active infrared anti-masking and microwave proximity technologies to detect if anyone is trying to mask the detection, and unparalleled detection performance using SeeTrue™ (patent pending). The NVX80 is the only detector in the industry offering eight detection channels - 4x forward looking PIR channels (2x quad interlock geometry sensors), 2x microwave channels and 2x standalone creep detector (1quad sensor with interlock geometry). It is the first motion detector in the industry to have a full-color OLED display.
SeeTrue™ significantly improves the detection of cloaked intruders trying to avoid PIR detection by means of using insulating materials such as heavy coats, cartons, umbrellas, etc.
The combination of advanced technologies found in the NVX80 overcomes technical obstacles that traditional PIR detectors cannot, like the degrading effects of high temperature environments.
For the installer, "Easy Slide" installation and full-color OLED display with intuitive menus allows easy programming and installation without any mechanical setting (jumpers). The NVX80 also features diagnostic tools testing its PIR, anti-mask, and microwave settings, as well as SoloTest™ for easy walk test execution.
The sleek, vandal-resistant, and built-tough NVX80 is the detector of choice for commercial, industrial, and residential applications.

## 1.1 Features

- Paradox SeeTrue™ technology significantly improves detection response for both IR and microwave (MW) sensor technologies greatly decreasing false alarms
- Paradox Active IR anti-mask recognizes the degradation of lens clarity and objects blocking the main lens within 30 cm of detector
- 8 detection channels
- 2x Quad PIR for short to long range detection (4 channels)
- 1x Independent Quad PIR for Creep Zone Detection (2 channels)
- Active MW antenna (2 channels)
- MW Anti-mask allows for detection of close proximity movements (0.75 m - 2 m / 2.4 ft - 6.5 ft) - this close proximity range is adjustable
- Paradox's patented Pet Immunity active for false alarm rejection in the short and medium detection ranges
- 3rd generation Paradox digital detection technology delivering improved detection and false alarm rejection
- 16 m x 16 m / 52 ft x 52 ft coverage (see *Appendix 2: Coverage Beam Patterns* on page 32)
- 3 m x 3 m / 10 ft x 10 ft Creep Zone protection (see *Appendix 2: Coverage Beam Patterns* on page 32)
- “Easy Slide" installation
- Industry-first color OLED display featuring menu-driven, intuitive screens
- Comprehensive diagnostics: individual testing for PIR, MW and anti-mask technologies
- SoloTest™ for easy walk test execution
- 3 configurable relay outputs - these outputs are also reported by the Digiplex EVO bus
- Sleek, vandal-resistant design and tough construction
- Complies with EN 501312 Grade 3

# Installing the NVX80

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The NVX80 is an innovative product with extensive capabilities. To work as efficiently as possible, several factors must be considered before selecting an appropriate location for the detector. Proximity to moving objects (like swaying trees), indoor conditions, outdoor conditions, distance from other electronic devices, and more, all affect the operation of the detector.

## 2.1 Mounting Considerations

- Ensure that the unit's detection beams are perpendicular to the anticipated movement (see beam patterns on page 32)
- Keep a minimum distance between adjoining NVX80 detectors to prevent MW cross interference
- The NVX80 can be placed under a roof, awning, or the all-weather cover can be installed for outdoor installations
- Install the detector within the suggested range: installing the unit lower than 2.5 m / 8 ft 2 in may compromise the Pet Immunity capability. Installing over 3.0 m / 9 ft 8 in may require use of our swivel bracket adjusted downward shifting the Pet Immunity beam and neutralizing the creep zone. Installing the unit over 3.0 m / 10 ft does not affect the creep zone.
- If the installation is near heavy traffic or objects beyond the required detection range, adjust the MW sensitivity and/or tilt the detector downward.

Don't

- Don't direct the unit's beams into swaying trees or bushes
- Don't place the detector facing direct sunlight or near a heat source, as it might interfere with the Active IR anti-mask feature
- Don't place any objects, such as shelves, ledges or plants, below the unit
- Don't place any reflective objects within 2 m / 6 ft. 6 in of the unit, as this may interfere with the MW anti-mask capabilities
- Don't use excessive force when handling the NVX80

## 2.2 Installing the NVX80 Step-by-Step

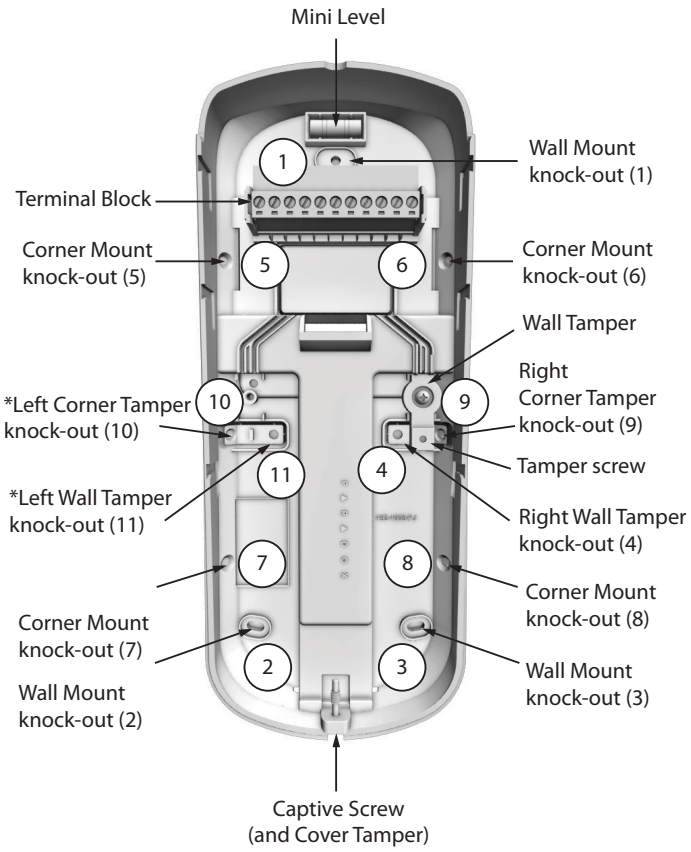


Figure 1: NVX80 Back Cover Components

1. Loosen the captive screw located at the bottom of the unit.
2. Separate the back cover from the front of the NVX80 by carefully sliding it up and off.
3. Prepare the back cover for a wall-mount installation by drilling out the appropriate knock-out holes (see Figure 1).

   for **Wall** Installations: drill holes #1, 2 and 3, and wall tamper 4.
   for **Corner** Installations: drill holes #5, 6, 7, 8 and wall tamper 9.

   **Note:** The wall tamper can be relocated to the left side of the unit, if desired. Simply remove the retaining screw, place the tamper in its corresponding spot on the left, and refasten the retaining screw. Make sure the two black wires remain properly inserted into the (B-) and (TMP) contacts on the power block. For left-sided wall tampers, the following knock out holes are used:

   for **Wall** Installations: drill holes #1, 2 and 3, and wall tamper 11.
   for **Corner** Installations: drill holes #5, 6, 7, 8 and wall tamper 10.

4. Mark the selected location using the back cover of the unit as a template. With the help from the level on the back cover, align your unit accordingly.
5. Remove the back cover and drill the marked holes into the wall surface.
6. Install wall anchors for added support. (Consider the material being drilled.)
7. Pass electrical wires through the opening on the back cover. Secure the back cover of the unit to the wall surface using the appropriate mounting screws. Re-level if necessary before securing.

8. Using a screw, secure the tamper switch to the back cover. (see Figure 1, “Tamper screw”)
9. Connect your 12 VDC power input (red and black) to their respective terminals. Connect the Digiplex EVO communication bus into the green and yellow terminals (see Figure 8). To connect wires to the other contacts, please refer to Table 1.
10. Insert the protective foam into the NVX80’s opening to prevent element infiltration.
11. Slide the front section of the NVX80 onto the back cover of the unit. The power up sequence will automatically start (if power is being supplied) and takes about 30 seconds.

**NOTE:** Excessive force can damage pin connectors to the power block. Please always use caution when separating the front and back panels.

12. Ensure the back panel and front cover are properly joined.
13. While the captive screw at the bottom of the unit is open, begin the power up process, and access the menus for configuration settings (see Figure 9). For more information about these settings, please see the NVX80 User Guide (document NVX80-EU00).
14. Carefully tighten the captive screw found at the bottom of unit, stopping when the green “Tamper Closed” message appears on the OLED screen. Once the screw is properly fastened, it makes a connection which acts as the cover tamper.
15. Slide the all-weather cover on (optional, for outdoor installations).

## 2.3 Installation Using the Swivel Bracket

1. Loosen the captive screw located at the bottom of the unit.
2. Separate the Module from the back cover of the NVX80 by carefully sliding it up and off.
3. Remove the screw below the bus bar. The swivel section comes off.

**NOTE:** Be careful not to drop the metal washer.

4. Separate the swivel section by pulling down on one section while holding back the other section.
5. Unscrew the screw holding the back plate to the swivel section.
6. Remove the back plate from the swivel section.

**NOTE:** You will need to mount the wall back plate at least 9 cm(3.5 in.) from the ceiling.

7. Put the wires (4-wire combus) through the wire hole, set the back plate on the wall and mark the wall for the screws. The back plate is screwed using 3 screws (including 1 tamper screw).

**NOTE:** Mount this bracket level.

8. Drill three holes and insert the anchors. Don’t forget the hole for the tamper switch.

**NOTE:** You will need ~ 20cm (8 in.) of wire to connect through the swivel bracket.

9. Pull the 4-wire cable through the wire hole and screw the back plate to the wall.
10. Measure the height from the floor to the back plate.
11. Put the larger section of the swivel.
12. Insert the 4-wire cable through the larger section of the swivel and mount the swivel on the back plate.
13. Attach the screw from the larger swivel section to the back plate.
14. Insert both the 4-wire cable and the two tamper wires through the smaller section of the swivel and mount it on the larger section by pushing the two pieces together.
15. Insert the 4-wire cable and the two tamper wires through the module back.
16. Attach the screw that tightens the module back to the swivel.
17. Use the markings on the module back cover to set the unit's installation height as measured in step 10 and tighten the set screw. See *Figure 6*.
18. Connect your 12 VDC power input (red and black) to their respective terminals. Connect the EVO communication bus into the green and yellow terminals (see Figure 8). The black wire from the tamper switch goes to the B- terminal along with the black wire from the 12VDC power. The blue wire from the tamper switch goes to the TMP terminal on the bus connector.

19. Insert the protective foam into the NVX80's connector opening to prevent element infiltration to the serial connector.
20. Slide the front section of the NVX80 onto the back cover of the unit. The power up sequence will automatically start (if power is being supplied) and takes about 30 seconds.

**NOTE:** Excessive force can damage pin connectors to the power block. Please always use caution when separating the front and back panels.

21. Ensure the back panel and front cover are properly joined.
22. While the captive screw at the bottom of the unit is open, begin the power up process, and access the menus for configuration settings (see Figure 9). For more information about these settings, please see the NVX80 User Guide (document NVX80-EU00).
23. Carefully tighten the captive screw found at the bottom of unit, stopping when the green "Tamper Closed" message appears on the OLED screen. Once the screw is properly fastened, it makes a connection which acts as the cover tamper.
24. Slide the all-weather cover on (optional, for outdoor installations).
25. Mount the module. **Do not** tighten the capture screw yet.

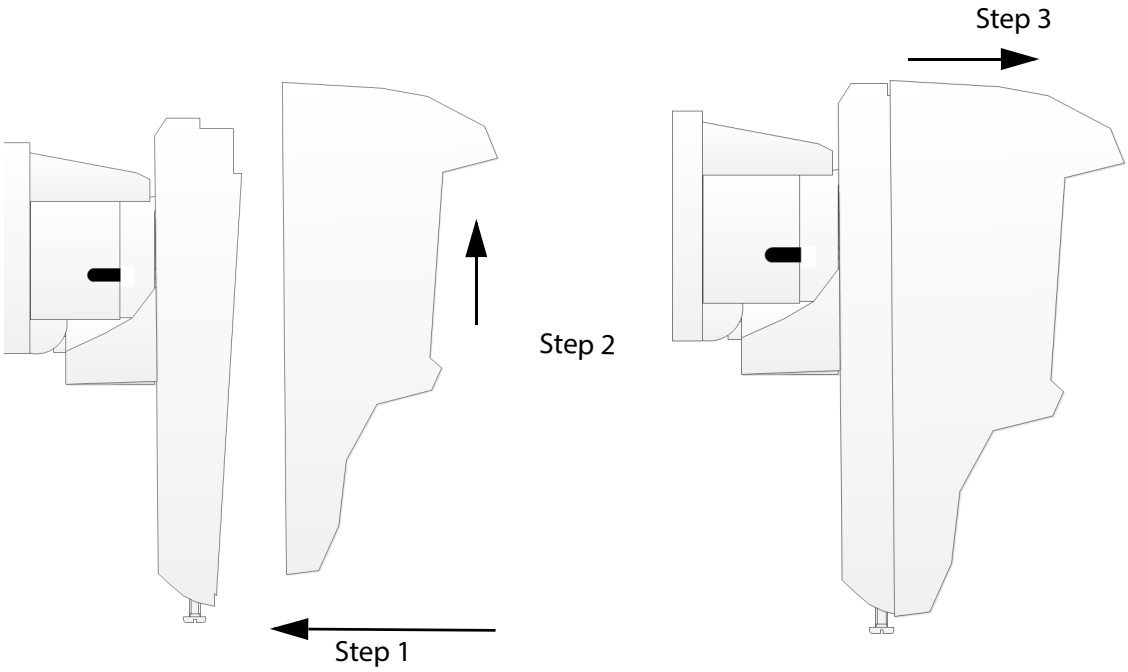


Figure 2: Separating the Module from the Bracket

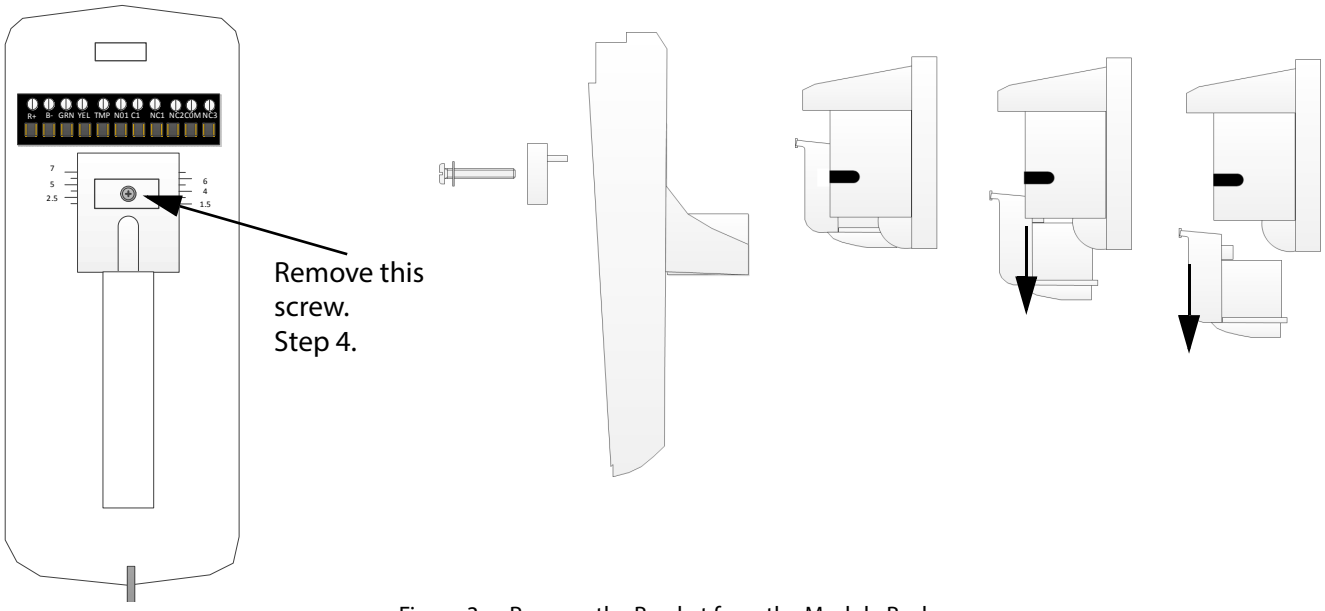


Figure 3: Remove the Bracket from the Module Back

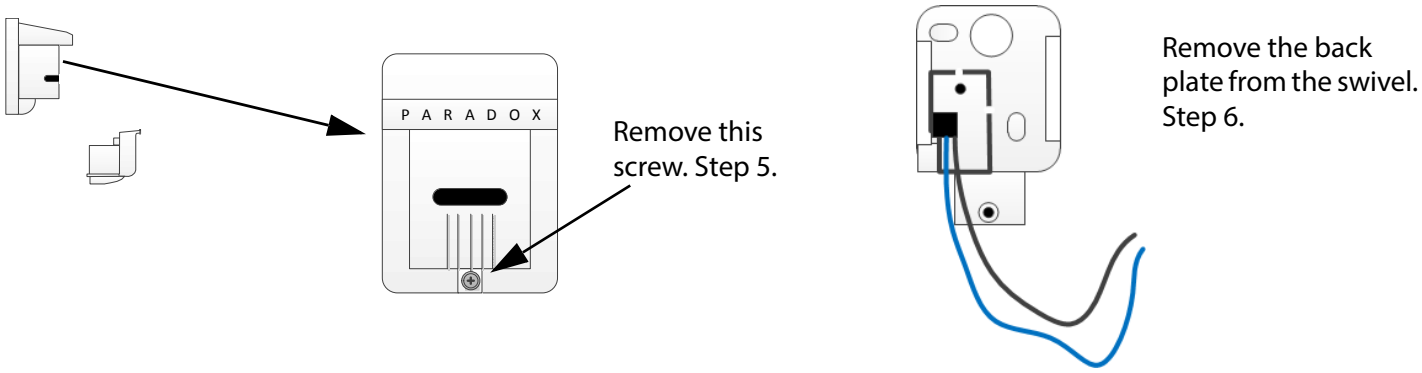


Figure 4: Remove the Mounting Bracket

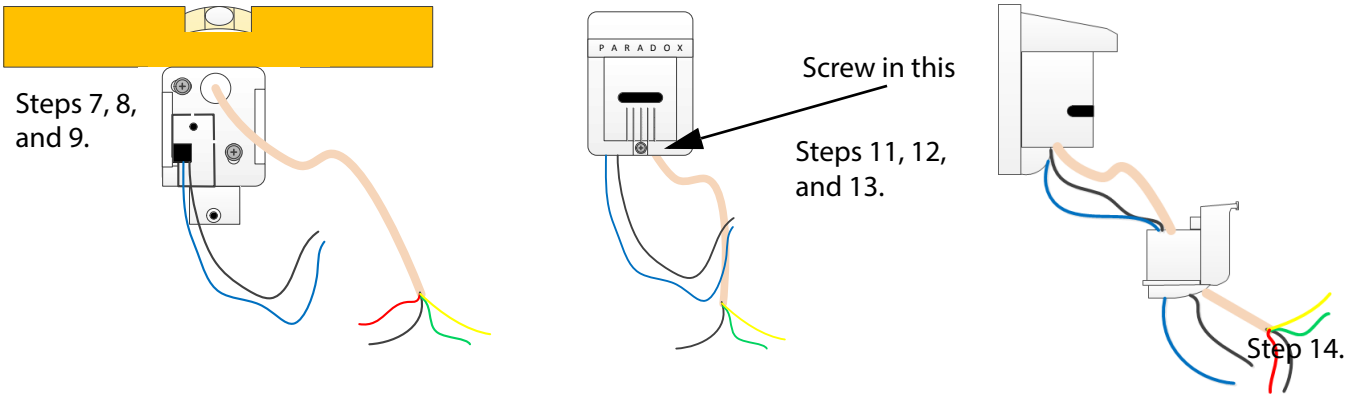


Figure 5: Install the Mounting Bracket

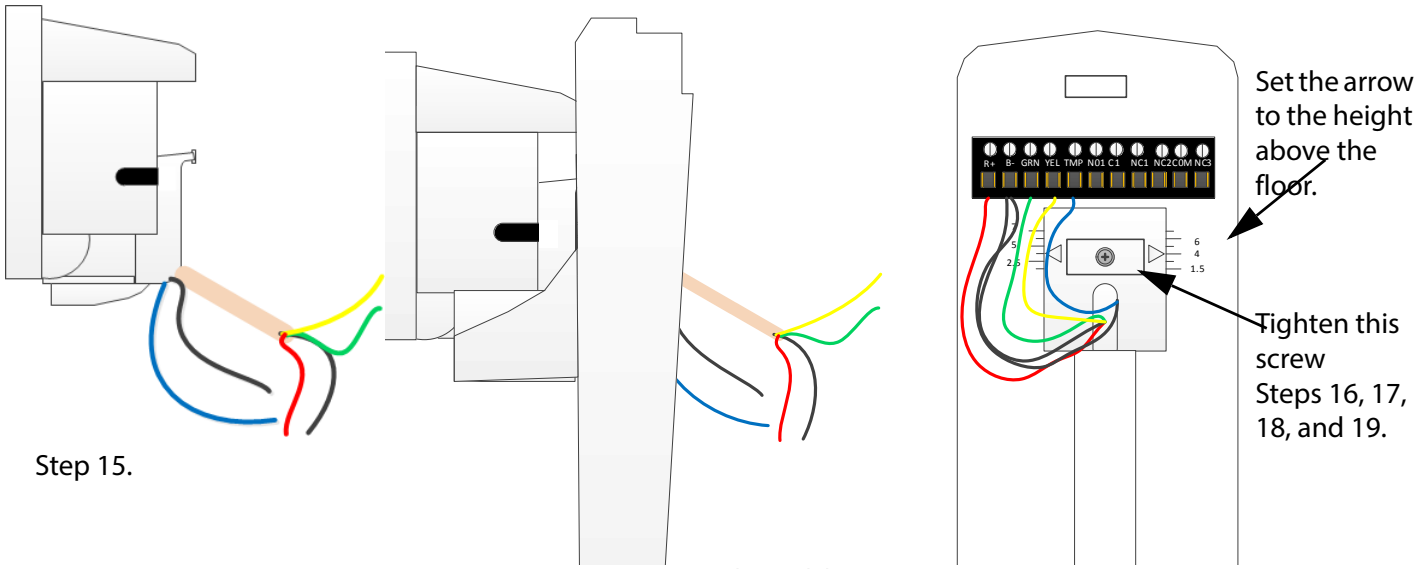


Figure 6: Wire the Module

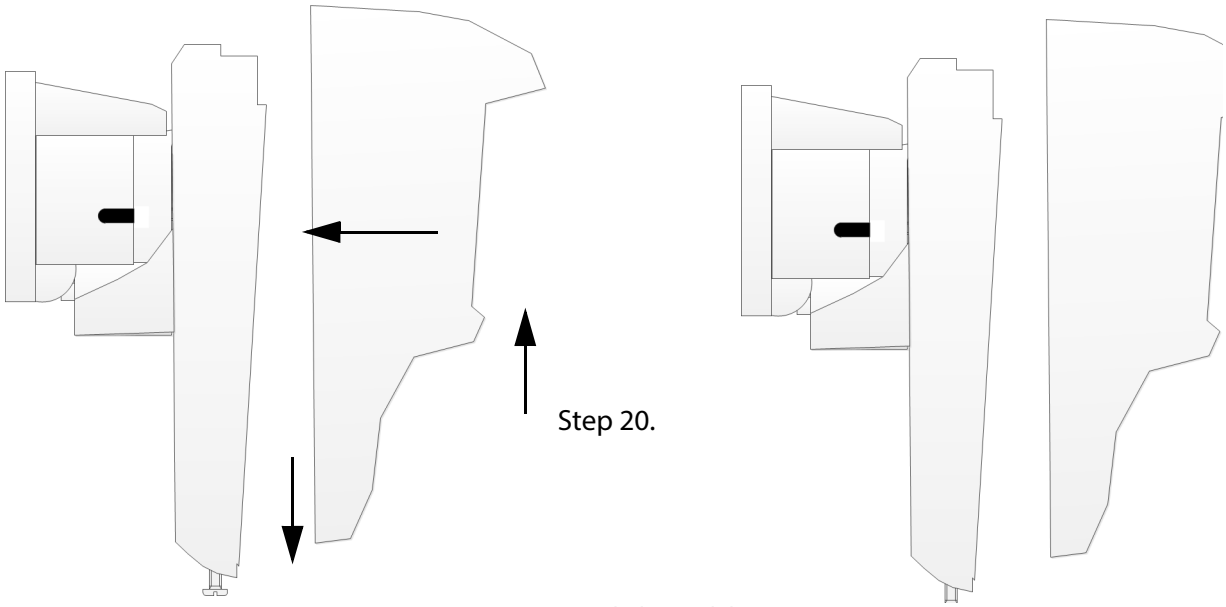


Figure 7: Attach the Module

## 2.4 Connecting the NVX80 to a Control Panel

Connect the NVX80:

- To EVO control panels with a Digiplex connection
- To MG/SP control panels or a third party system with a Dry Contact connection

### 2.4.1 Digiplex Connection

Connect the NVX80 to the EVO control panel with four colored wires corresponding to the marking on the terminal board as displayed below.

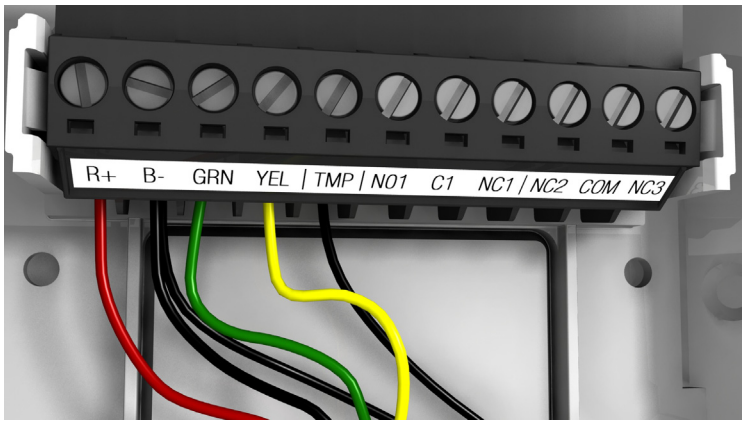


Figure 8: Digiplex Wiring

### 2.4.2 Dry Contact Connection

Connect the NVX80 terminal board to MG/SP control panels or a third party system as described below.

Table 1: Dry Contact Connection

| Contacts | Description |
|---|---|
| R+ | Power Line |
| B- | Ground |
| GRN | N/A |
| YEL | N/A |
| TMP | Tamper line (note the tamper ground line should be connected to B-) |
| NO1 | Relay 1 (Form C) Normally Open output line |
| C1 | Relay 1 Common |
| NC1 | Relay 1 (Form C) Normally Closed output line |
| NC2 | Relay 2 (Form A) Normally Closed output line |
| COM | Relays 2 and 3 common |
| NC3 | Relay 3 (Form A) Normally Closed output line |

**NOTE:** Configure NVX80 after connecting it to the control panel via the OLED screen on the NVX80, BabyWare software or a supported keypad.

# NVX80 Menu-Driven Settings and Configuration 3

## 3.1 OLED 4-button interface

The NVX80 introduces a unique 4-button interface and 16-bit OLED display screen. The NVX80 is completely menu-driven, making programming and configuration simple. See *Figure 9* below.

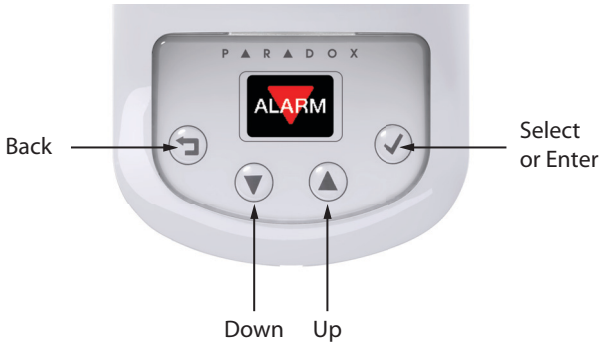


Figure 9: OLED Screen and Buttons

The OLED screen displays a variety of icons which indicate the current state of the detector. Alarm, pre-alarm, and Anti-Mask events as well as notifications are displayed on the OLED. The menus provide direct control of the detector's operation, the sensitivity level settings, display characteristics and more.
The NVX80 menu consists of the following categories: SeeTrue™, PIR, Microwave, IR Anti-Mask, Wall Tamper, Outputs, Diagnostics, Settings, About and Language. A full menu tree can be viewed in *Appendix 1: Configuration Menu Tree* on page 31.
The following sections will describe all the menu items in detail.

### 3.1.1 SeeTrue™

The Paradox SeeTrue™ (patent pending) technology, developed exclusively for the NVX80 motion detector, uses advanced signal processing to significantly improve the detection response of dual-tech infrared and microwave motion detectors.
SeeTrue™ can detect at the highest performance level, even where most PIR detectors fail. The NVX80 together with SeeTrue™ can detect intruders in high temperature environments, detect camouflaged movements (to and from the device), and detect intruders using insulated materials such as umbrellas, coats, cartons or other similar type of materials that are used to breach common PIR detectors.
SeeTrue™ offers extended protection for areas within 14 m (46 ft) range from the detector. It is designed to be used mainly in indoor environments (Creep Zone **ON** and Pet Immunity **OFF**). Beyond this range, the superior dual detection performance will be maintained. SeeTrue™ offers three different configuration modes, they include Secure, Sterile, and Idle.

**NOTE:** Enabling SeeTrue™ automatically turns OFF Pet Immunity.

### 3.1.2 SeeTrue™ Sub-Menu

| Menu Item | Description |
|---|---|
| Idle | SeeTrue™ is off. This is the default mode. |
| Secure | SeeTrue™ detection is combined with PIR detection. The NVX80 will provide very high movement detection through the combination of the SeeTrue™ functionality with the PIR detection events. |
| Sterile | SeeTrue™ detection is independent of PIR detection. The NVX80 will detect all movement in its detection range, making it practically impossible to move undetected in the protected area. |

## 3.2 PIR: Passive Infrared Detection with Independent Creep Zone

### 3.2.1 PIR Sub-Menu

| Menu Item | Description |
|---|---|
| PIR Sensitivity | Select sensitivity from 1 (lowest) to 5 (highest) The solid bars represent the current settings The frame represents your selection<br>Use the Up/Down buttons to toggle through the settings<br>(Default is 3) |
| Security Level | Control the level of interference rejection<br>Normal - Indoor, regular and normal (Default)<br>Moderate - Industrial conditions<br>High - Extreme conditions (bad weather, machinery, etc.) |
| Pet Immunity | Off (Default)<br>Up to 10 kg (22 lbs) - Small Pet<br>Up to 20 kg (44 lbs) - Large Pet |
| Creep Zone | Select Creep Zone sensitivity 1 (lowest) to 5 (highest)<br>1 for 2.5 m installations<br>5 for 3.0 m installations<br>Selecting the sensitivity level below 1 disables the Creep Zone functionality.<br>(Default is 4) |
| Test PIR | Test the PIR functionality<br>Show only PIR and Creep Zone indications |

At an installation height within the suggested range of 2.5 m – 3.0 m / 8 ft 2 in – 11 ft 6 in, infrared detection is possible up to 17 m / 5 ft 6 in. Detection is at 90 degrees.

The creep zone is exceptionally large. The NVX80 delivers approximately a 180 degree angle covering almost 2 m / 6 ft 7 in all directions in front of the detector. When the Pet Immunity is activated, the creep zone is neutralized.

## 3.3 Pet Immunity

| Menu Item | Description |
|---|---|
| Pet Immunity | Set for small pet, large pet, or Off (Default is Off) |

The NVX80's Pet Immunity can filter out the movement of small and large animals, under 80 cm /32 in high, and weighing up to 20 kg / 44 lbs, in both indoor and outdoor environments. By ignoring the movement of the pets the detector's reliability increases.

**Note:** enabling Pet Immunity will automatically turn OFF SeeTrue™ functionality and Creep Zone functionality. Enabling Creep Zone will automatically turn OFF Pet Immunity.

## 3.4 Microwave (MW) Detection

Microwave Sub-Menu

| Menu Item | Description |
|---|---|
| MW Sensitivity | Select sensitivity from 1 (lowest) to 5 (highest) Push OK to confirm the change. (Default is 3) |
| MW AM Distance | Control MW anti-mask sensitivity, range of 0.5 m to 2 m (Default is 1) |
| Test MW | Test the MW functionality<br>Shows only MW and MW "anti-mask" indications |

The microwave coverage varies depending upon the chosen sensitivity setting. The coverage range is approximately effective within 10 m – 19 m / 33 ft 3 in – 62 ft 3 in and up to 110 degrees. The greater the sensitivity setting results in a larger range of coverage.

| Sensitivity | Distance (max) | |
|---|---|---|
| | Crossing the Waves | Approaching the detector |
| 1 | 13 m (42.6 ft) | 19.5 m (64 ft) |
| 3 | 19 m (62.3 ft) | 26.5 m (86.9 ft) |
| 5 | 23 m (75.5 ft) | 29.5 m (96.8 ft) |

## 3.5 IR Anti-Mask

IR Anti-Mask Sub-Menu

| Menu Item | Description |
|---|---|
| Response Time | Choose from 30, 60, 120 seconds to define as the detection time required until an anti-mask event is triggered.<br>A blue frame appears 3-5 seconds after masking starts and an anti-mask event is triggered after the selected time frame has passed. |
| Calibrate | Initiate an anti-mask calibration process |
| Test Anti-Mask | Test the anti-mask functionality |
| AM Code | This code is generated after the last anti-mask calibration process and may be required when communicating with distributor support |

Paradox developed the NVX80 to provide superior anti-masking capabilities. The combined Active IR and MW anti-mask technologies detect an extensive range of materials placed or sprayed on the lens, and object placed in close proximity of the lens, movement within close range of the unit and the degradation of the lens by dirt or

dust by 50% from factory-set levels. The NVX80 anti-mask technology protects the detector from a wide range of materials; including but not limited to clear lacquer, aluminum foil, cling wrap, clear adhesive tape, and spray paint.

If an obstruction is detected and remains for a predetermined time, an anti-mask event will be noted. If the object causing the obstruction, masking or blocking, is removed before the predetermined time has been reached an alarm will not be triggered or cause an effect on the relays.

Active IR detects any objects blocking the lens in close proximity of the unit; 0 – 30 mm / 0 - 11.8 in. The anti-mask response time can be set at :30, :60, and :120 seconds. The response time will correspond to the time needed for the masking to persist until an alarm is triggered. During the response relay time, 3-5 seconds after detection of an obstruction, a blue frame will be displayed. This will allow for an object accidentally blocking the lens to be removed.

## 3.6 Wall Tamper

Wall Tamper Sub-Menu

| Menu Item | Description |
|---|---|
| Enable | Enable indication on wall tamper events (Default) |
| Disable | Disable indication on wall tamper events |

## 3.7 Outputs

### Outputs Sub-Menu

| Menu Item | Description |
|---|---|
| Relay 1 Function | Form C relay / N.C. and N.O. terminal outputs<br>Select events from a list to activate this relay |
| Relay 2 Function | Relay 2 is a solid state relay<br>Select events from a list to activate this relay |
| Relay 2 Logic | Select N.C. or N.O. (Remember: Relay 2 will open when power is lost) |
| Relay 3 Function | Relay 3 is a solid state relay<br>Select events from a list to activate this relay |
| Relay 3 Logic | Select N.C. or N.O. (Remember: Relay 3 will open when power is lost) |

### Relay Defaults

| | Relay 1 | Relay 2 | Relay 3 |
|---|---|---|---|
| Alarm | ✓ | | |
| Wall Tamper | | ✓ | |
| IR Anti-Mask | | | ✓ |
| MW Anti-Mask | | | |
| PIR | | | |
| Microwave | | | |
| Clean Lens | | | |
| Trouble | | | |
| Creep Zone | | | |

**NOTE:** Using Relay 1 (form C) provides a higher safety level, as an indication may be generated on power loss (line cut). It should be noted that this feature increases power consumption.

## 3.8 Diagnostics

Diagnostics Sub-Menu

| Menu Item | Description |
|---|---|
| Test All | Tests all detection functions<br>Shows PIR, MW and Anti-Mask notifications<br>The blue frame does not appear in this mode |
| Test PIR | Tests PIR detection<br>Shows PIR detection and Creep Alarm |
| Test MW | Tests and shows MW and MW anti-mask detection |
| Test Anti-Mask | Tests Active IR and MW<br>The blue frame does not appear in this mode |
| Test Bus | Tests voltage and Digiplex communication bus<br>Shows the measured bus voltage, the status of the data and clock lines<br>Displays OK for proper connection and operation, and N/A for no connection or improper operation |

Use the built-in diagnostics to pinpoint troublesome installations. Test the NVX80 detector settings and bus operation.

The Test Bus option will test the bus voltage and Digiplex connection, by checking the status of data and lines reporting no connection or invalid operation.

You can test the PIR, MW and Anti-Mask functionality separately or as a group.

## 3.9 Settings

### 3.9.1 Settings Sub-Menu

| Menu Item | Description |
|---|---|
| Show Event(s) | Select the events to be displayed on the OLED<br>Note: Selection do not affect the operation, only the display<br>Alarm - Alarms are shown<br>Pre Alarms - Pre Alarms (MW, PIR, Creep) are shown<br>Trouble - Trouble events are shown<br>Anti-Mask - Anti-mask Events (IR Anti-mask and MW Anti-mask) |
| Restore Settings | Restore detector settings that were previously stored by "Save Settings" option |
| Save Settings | Save detector settings |
| Reset | Reset all detector settings to factory defaults |
| Menu Color | Select menu color for better visibility and fun! |
| Brightness | Select the general brightness of indications<br>Note: The menu is always shown on maximal brightness except for the brightness screen which demonstrates the chosen brightness |
| Display On/Off | Turns the Display On or Off<br>On - OLED will display messages and notifications<br>Off - OLED will not display messages and notifications. The Display is turned Off when the tamper is closed. When the tamper switch is open the Display is turned On and the user may program the unit. |

Installation specific settings can be ***saved*** and ***restored*** if altered. Settings can also be reset to factory defaults, all with the push of a button. Setting changes occur once the "OK" button is pushed. Changes will not be saved if the "back" button is pushed.

## 3.10 About

| Menu Item | Description |
|---|---|
| Firmware | Version number, Date, Serial number |
| Hardware | Version number, ECO number |

## 3.11 Language

| Menu Item | Description |
|---|---|
| English | Displays text in English |
| Portuguese | Displays text in Portuguese |

# OLED Display Messages

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The NVX80 features an OLED screen, which displays colorful icons indicating alarm status, alarm type, and notifications.

## 4.1 SeeTrue™ Indications

**Secure Mode**


For indoor, pet free environments, SeeTrue™ extends the detection of true movement patterns. In addition to the regular indications, SeeTrue™ will indicate detection by the ST1 screen (red text on yellow triangle). For relay and Digiplex purposes ST1 is treated as an Alarm.

**Sterile Mode**


For indoor, pet free environments, utilize SeeTrue™ to the maximum protection value to make the protected area sterile - no movement allowed. In this mode, verify area is clear of fans, pets, large plastic water sewage or drain pipes. Sterile type movements will be indicated by ST2 display (red text on yellow triangle). In addition to the regular indications, and ST1, Sterile Mode detections are indicated with the ST2 screen (red text on yellow triangle). For relay and Digiplex purposes, ST2 is treated as an Alarm.

**Idle Mode**

Indicates no activity in the area.

**Anti-Mask Indications**


Active IR anti-mask detection appears in Operational mode, after an obstruction is detected and the anti-mask response time has elapsed (from the time the active IR anti-mask notification was displayed). In Test Mode Active IR mask detection appears immediately on obstruction detection.

Active IR anti-mask notification appears in Operational mode only immediately on obstruction detection and for the response time duration.

## 4.2 MW Anti-Mask Indications

The MW anti-mask is activated if a validated detection of movement (both PIR and MW) has occurred, followed within the next 90n seconds by a close MW detection without a PIR detection. This will cause the green frame to appear on the OLED screen for 90 seconds. The MW anti-mask relay has not yet been activated. If an alarm is triggered as the result of the main lens' detection of an object, during that same period, the blue frame will disappear and a MW anti-mask event will not occur. If no alarm is triggered by detection of the main lens in the 90 second period, a MW anti-mask relay will be activated and the MW anti-mask logo will be displayed. The MW anti-mask relay and logo will be cleared by an Alarm event triggered by the main lens.

An Active IR anti-mask has a higher display priority. If Active IR and MW anti-mask events occur simultaneously, then the blue frame will appear instead of a green frame and the Active IR anti-mask logo will appear instead of the MW anti-mask logo. The resulting relays are not affected by the display priority.


MW anti-mask detection appears in Operational Mode after detection of a moving object and 90 seconds have elapsed from the time the MW anti-mask Notification was displayed. In test mode, MW anti-mask detection appears immediately on detection of a moving object.

MW anti-mask notification appears in Operational mode only, immediately on detection of a moving object for 90 seconds.

## 4.3 PIR and MW Indications

### 4.3.1 Pre-Alarms

When a movement signal is detected by within a PIR or MW range, the corresponding pre-alarm is shown.

The detector waits for 16 seconds for the complementary technology's detection. If no additional movement is detected during that time, the detector will return to its standby state.


PIR Pre-Alarm in Test Mode


PIR Pre-Alarm in Operation Mode


MW Pre-Alarm in Test Mode


MW Pre-Alarm in Operation Mode


MW Anti-Mask Pre-Alarm in Test and Operation Mode

### 4.3.2 Alarms

When an obstruction or movement has been detected and confirmed, the following alarm icons will be displayed.


Alarms as shown in Test and Operation Mode after PIR and MW Pre-Alarm


Creep alarm as shown in Test and Operation Mode

## 4.4 Tamper Indications

Tamper messages are triggered by when the captive screw at the bottom of the unit is opened or the wall tamper screws have been disengaged.


Appears when the tamper screw at the bottom of the unit is properly closed. It signifies the unit has entered operation.


Appears when the tamper screw at the bottom of the unit is open and that the menus are not accessible. This message will also appear at the end of the power up sequence.


Appears when the Wall Tamper screw has been open. This message will also appear after the power up sequence is finished, should the Wall Tamper screw be open during power up. The detector will enter menu mode after the power up sequence is over.


After closing the Wall Tamper, this message will appear.

When any of the tampers are detected as open, a relay configured as a Tamper will trigger. The wall tamper switch can be excluded from this relay sequence by disabling it in the Input menu.

## 4.5 Service Notifications

The following notifications appear when the functionality of the NVX80 unit is compromised. These indicators can help troubleshoot during installation or during operation.


Appears in Operation Mode when the unit's voltage is below 10v. It may also appear after an alarm or at the end of the power up sequence if the voltage was low.

The Test Bus tool, reached in the Diagnostics Menu, can be used to discern the unit's current voltage.


Appears in Operation Mode when a strong light source is in front of the unit.


Appears in Operation Mode when the unit detects a reduction in lens transparency, i.e., below 50% of factory-set levels. If this condition exists, this message will appear at the end of the power up sequence.


Appears in Operation Mode if any of the Digiplex wires are disconnected or invalid. This message will appear only once at the end of the power up sequence. Once the Digiplex bus is connected properly, this message will only appear if it is once again disconnected or invalid


Contact service provider. Appears on unit failures, i.e. self-test failure.

# Alternate Methods of Configuration

5

The NVX80 can be configured through the:
- NVX80 module using the 4 button interface See *OLED 4-button interface* on page 13.
- system keypad/touchpad,
- EVOHD control panel using BabyWare

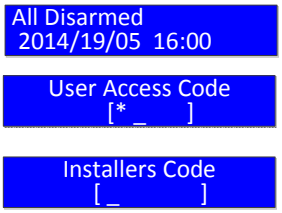
## 5.1 Configuration through the Keypad/Touchpad

**NOTE:** You will need the NVX80 module serial number to configure the module through the keypad. If you don't know the module number you can still configure it through the OLED or BabyWare.

To configure the NVX80 through a keypad or touchpad start by:

Keypad:

1. Press and hold the 0 (number zero) key.




**NOTE:** The area must be disarmed to configure it.

2. Initially you will see **User Access Code** but within a 2 seconds it will change to **Installer Code.**
3. When the Installer code appears, input the Installer code number, the default number is [000000].
4. Input the 4 digit section code for Module Programming [4003].

**NOTE:** You will need the NVX80 Serial number for the next step.

5. Input the Module serial number.
6. Input module sec [001].

**Section 001:**

Display parameters 1 + See True

Sample section 001 with explanation:


1 – Show alarm
*in position 2 – Hide pre-alarm
3 – Show troubles
*in position 4 – Hide anit-mask
5,6 – Blue Menu color
7* – See True set to Idle

Sample section 003 with explanation


1,* – Normal PIR Security
*,4 – Pet immunity set for big pet
5,* – Anti-mask response time 30 seconds
7 – Not used

Table 2: NVX80 Settings

| Programming Section | Feature | Bits | Setting | Default[a] |
|---|---|---|---|---|
| 001 | Show alarm | 1 | 1 | △ |
| | Hide alarm | | * | |
| | Show Pre-alarm | 2 | 2 | △ |
| | Hide Pre-alarm | | * | |
| | Show Troubles | 3 | 3 | △ |
| | Hide Troubles | | * | |
| | Show Anti-mask | 4 | 4 | △ |
| | Hide Anti-mask | | * | |
| | Menu Color[b] | 5,6 | ** orange | △ |
| | | | 5* green | |
| | | | *6 yellow | |
| | | | 56 blue | |
| | See True | 7,8 | ** not used (Idle) | |
| | | | 7* Idle | △ |
| | | | *8 Secure | |
| | | | 7,8 Sterile | |
| **002** | Display Brightness | | 000-005[c] | 004 |
| **003** | PIR Security Level | 1,2 | ** not used (Normal) | |
| | | | 1* Normal | △ |
| | | | *2 Medium | |
| | | | 1,2 High | |
| | Pet Immunity | 3,4 | ** Pet Immunity Off | △ |
| | | | 3* Small Pets | |
| | | | *4 Large Pets | |
| | | | 3,4 Pet Immunity Off (not used) | |
| | Anti-mask response time | 5,6 | ** Not used (60 sec) | |
| | | | 5* - 30 sec | |
| | | | *6 - 60 sec | △ |
| | | | 5,6 - 120 sec | |
| | Not Used | 7 | | |
| **004** | PIR Sensitivity | | 000-005[c] | 003 |
| **005** | PIR Creep Zone sensitivity | | 000-005 000 is off | 004 |
| **006** | Microwave Sensitivity | | 000-005[c] | 003 |
| **007** | Microwave Anti-mask Distance | | 000-005[c] | 001 |

Table 2: NVX80 Settings

| Programming Section | Feature | Bits | Setting | Default[a] |
|---|---|---|---|---|
| **008 for Relay 1<br>010 for Relay 2<br>012 for Relay 3** | Alarm | 1 | * Trigger off | |
| | | | 1 Trigger on | |
| | Tamper | 2 | * Trigger off | |
| | | | 2 Trigger on | |
| | Anti-Mask | 3 | * Trigger off | |
| | | | 3 Trigger on | |
| | Microwave Anti-mask | 4 | * Trigger off | |
| | | | 4 Trigger on | |
| | PIR | 5 | * Trigger off | |
| | | | 5 Trigger on | |
| | MW | 6 | * Trigger off | |
| | | | 6 Trigger on | |
| | Clean | 7 | * Trigger off | |
| | | | 7 Trigger on | |
| | Trouble | 8 | * Trigger off | |
| | | | 8 Trigger on | |
| **009 for Relay 1<br>011 for Relay 2<br>013 for Rely 3** | Creep Zone | 1 | * Trigger off | |
| | | | 1 Trigger on | |
| | Not used | | | |
| **014 I/O Configuration** | Display On/Off | 1 | * Display Off | |
| | | | 1 Display On | △ |
| | Wall Tamper | 2 | * Wall Tamper Off | |
| | | | 2 Wall Tamper On | △ |
| | Relay 2 Polarity | 3 | * N.O (normally open) | |
| | | | 3 N.C (normally closed) | △ |
| | Relay 3 Polarity | 4 | * N.O (normally open) | |
| | | | 4 N.C (normally closed) | △ |
| | Language | 5, 6, 7 | *** English | △ |
| | | | 5** Portuguese | |
| | | | *6* Not Used | |
| | | | 56* Not Used | |
| | | | **7 Not Used | |
| | | | 5*7 Not Used | |
| | | | *67 Not Used | |
| | | | 567 Not Used | |

a. A triangle denotes the default setting.
b. If you change the menu color you will need to push one of the OLED buttons to activate the new color.
c. a Value of 000 will set the default value.

**Section 002:**

Display parameters 00x to Display Brightness

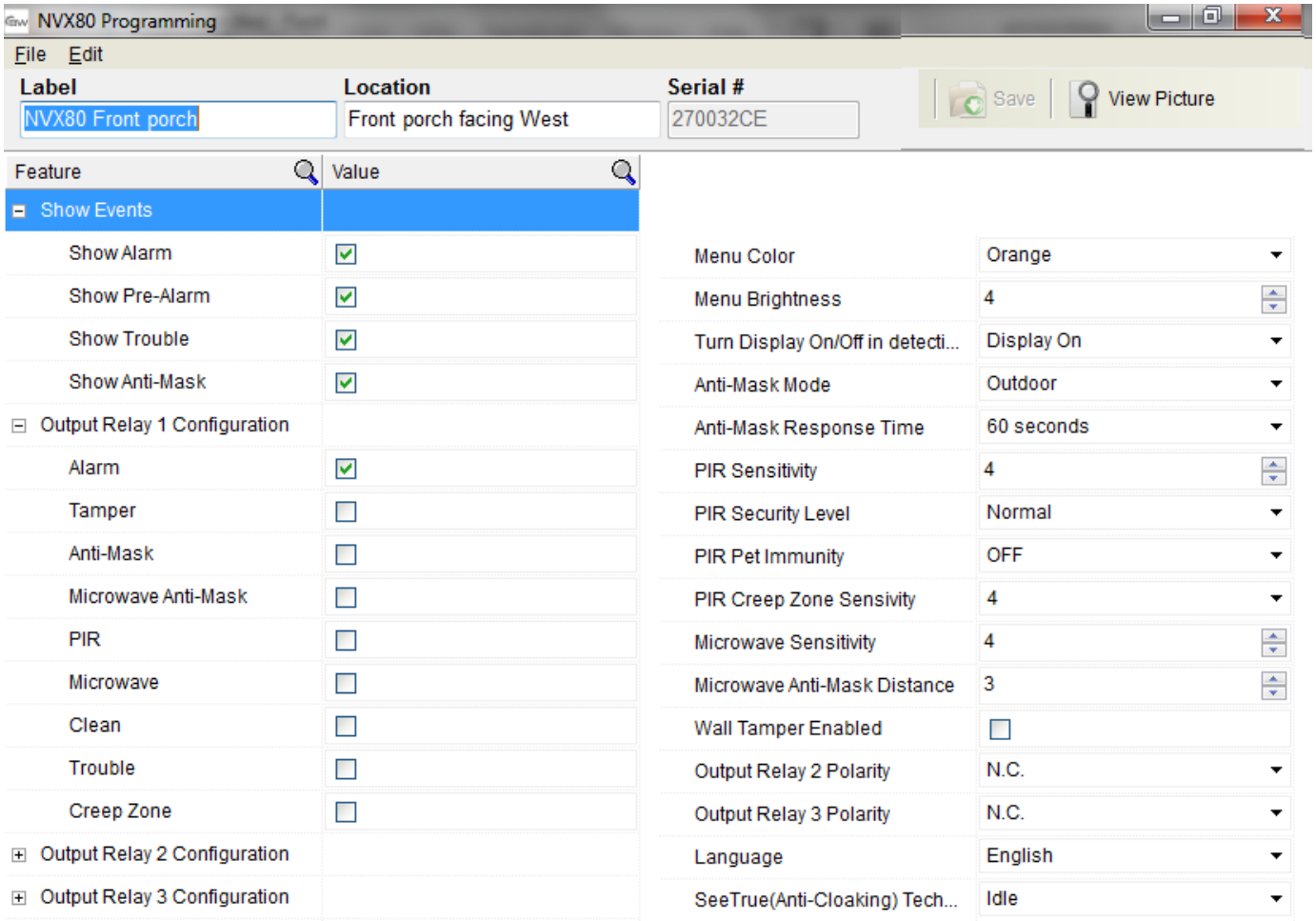
Acceptable values 000-005 for brightness level. Actual values 1-5. 0 will set a default value.

**Section 003:**

PIR parameters 1 + Anti-Mask parameters 1

## 5.2 Configuring through BabyWare

1. Open BabyWare
2. Right click on the NVX80 module.



# Firmware Upgrade

6

To upgrade the NVX80's firmware you will have to access the unit. You will need:

- a PC or laptop with Paradox In-Field Firmware Upgrade Software Installed (either on its own or through BabyWare)
- a Paradox 307USB device (shown in *Figure 10*)
- a small Phillips screwdriver

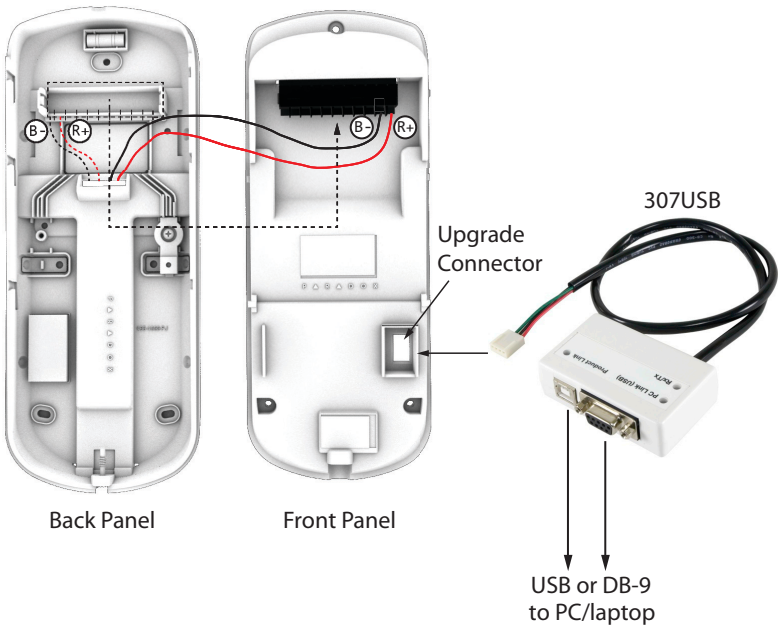



Figure 10: Upgrading the NVX80's Firmware

1. Remove the all-weather cover (if applicable) by lifting it up and off the unit.
2. Unscrew the captive screw at the bottom of the unit.
3. Separate the front panel from the back panel by carefully sliding it up and off.

**NOTE:** Always use caution when separating and re-connecting the front and back panels of the NVX80. Too much force can damage the pin connectors to the power block.

4. Carefully pull out the terminal block from the back panel, and plug it into the front panel, in order to provide power to the front panel. Make sure the power line (R+) and ground line (B-) remain properly connected.
5. Plug the 307USB 's UART cable into the serial 4-pin upgrade connector on the NVX80.
6. Using either a DB-9 or a USB connection, connect the 307USB to your PC or laptop.

7. Start BabyWare and click the In-Field Upgrade Software button. The screen shown in Figure 11 will launch.

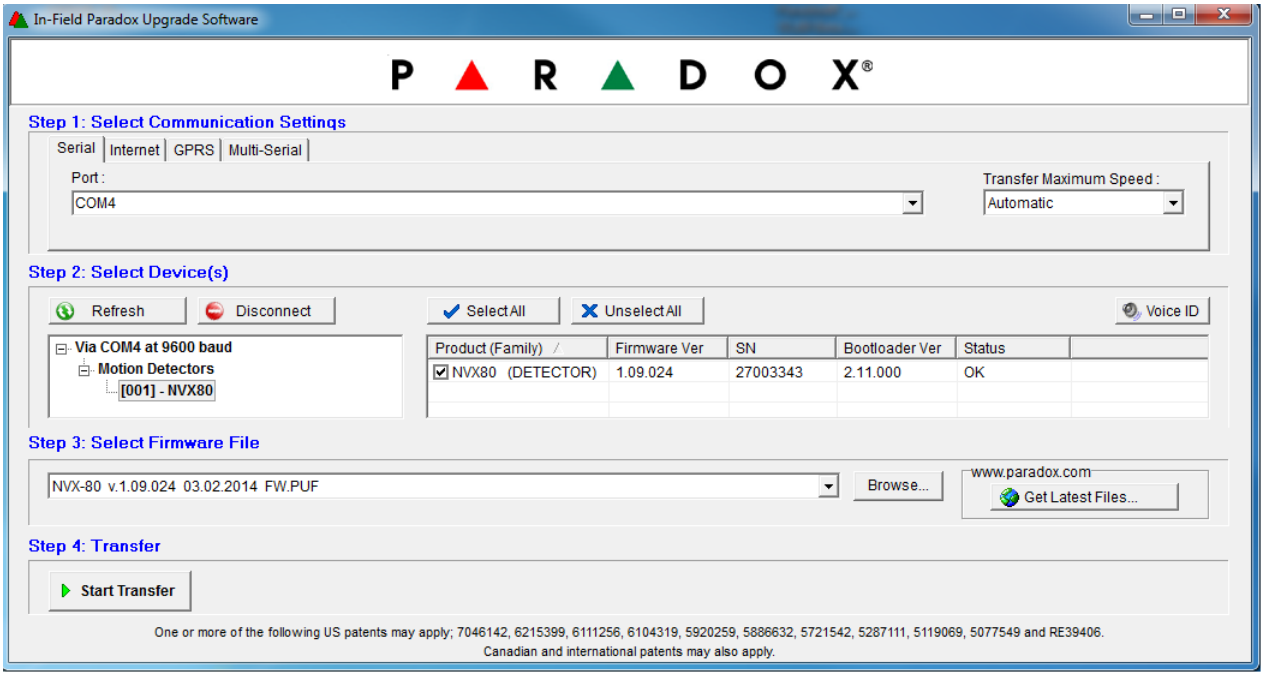
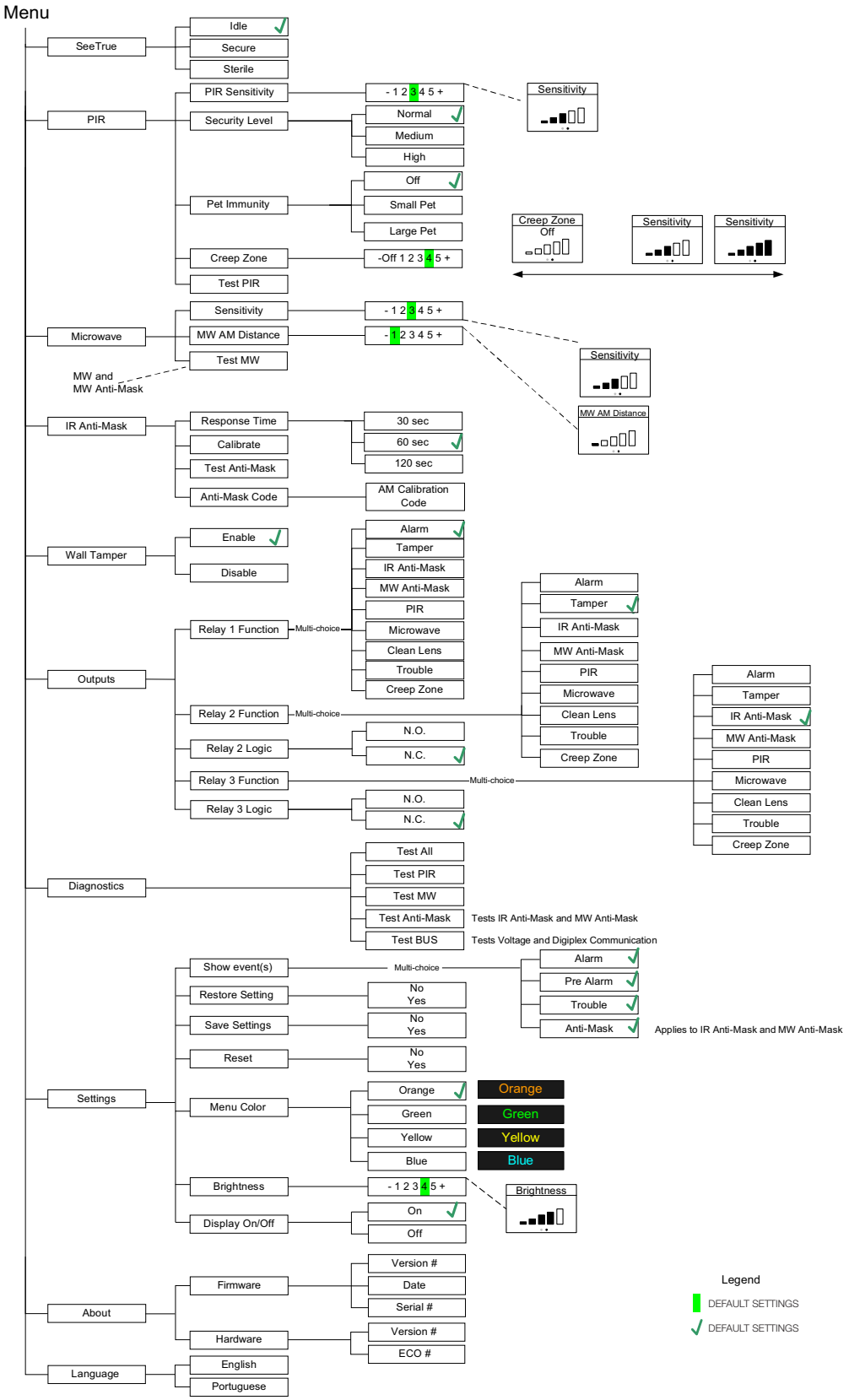



Figure 11: In-Field Paradox Upgrade Software Screen

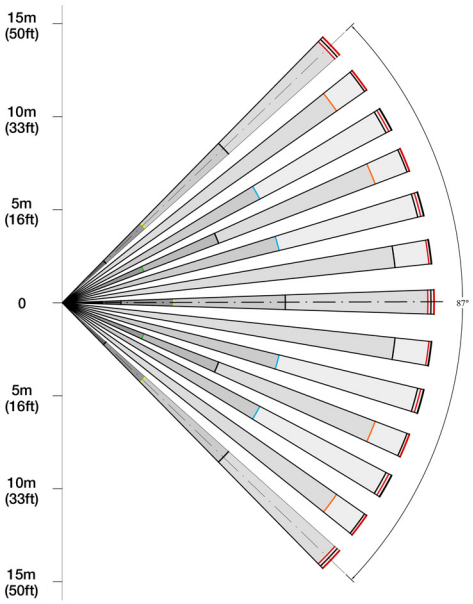
8. Click the Serial tab. Then select the Transfer Maximum Speed to Automatic.
9. Click Connect.
10. Select the NVX80 from the Select Device window on the left portion of the window. The hardware information is displayed in the right pane.
11. From the drop-down menu, select the firmware you want to use. To download new firmware, click Get Latest Files in the Paradox.com box. You may also browse to a previously downloaded file.
12. Click Start Transfer.
13. A progress bar will show the status of the upgrade. Click OK when it is done.

# Appendix 1: Configuration Menu Tree

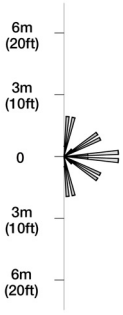


# Appendix 2: Coverage Beam Patterns

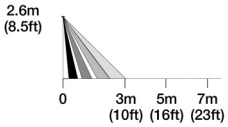
TOP VIEW (Short to long range)



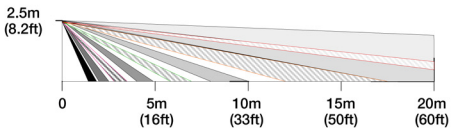

TOP VIEW (Creep Zone)




SIDE VIEW (Creep Zone)



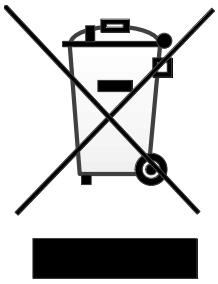

SIDE VIEW (Short to long range)



# Appendix 3: Technical Specifications

| | |
|---|---|
| SeeTrue™ Effective Range | Indoor use, two levels, secure and sterile, up to 12 m (36 ft) |
| Dual Anti-Mask | Selectable:<br>1) Active IR: Proximity and blocking comply / surpass EN50131 grade 3 for all materials, liquids.<br>2) Active Microwave for movement detection. |
| Creep Zone Area | Up to 3 m (10 ft) 90° downward |
| Coverage Pattern | 16m (52 ft) 90° |
| Installation Height | 2.5 - 3.0m (8 - 10 ft). A bracket may be used for installation requiring higher mounting. |
| Current Consumption (at 12V) | Typ. 80 mA, max. 100 mA |
| Outputs | Relay 1: 1A 24 VDC<br>Relay 2 and 3: 150 mA / 24 VDC |
| Display | OLED, 16-bit, 96 x 64 pixels |
| Dimensions | 9.8 cm x 22.9 cm x 9.2 cm (3.8 in x 9.0 in x 3.6 in) |
| Tamper | Dual : Cover and Wall |
| RF Immunity | 10 V/m up to 2.7 GHz |
| Operating Temperature | -35º to 60º C (-31º to 140º F) |
| Bus Connection | Paradox EVO Series, 4 wires |
| Certification | EN 50131 Grade 3 Class IV |
| Construction Materials | ASA UV Resistant |
| Programming | Interactive 4-button programming with graphic menu display or via EVO bus |
| Weight | 520 g (1.1 lb) |
| PIR Forward | 2X quad sensors with interlock geometry |
| PIR Creep | 1X quad sensor with interlock geometry |
| Microwave | Dual output 10.5 GHz |
| Power Up Time | Approximately 30 seconds |
| Humidity | 5 - 95% RH non-condensing |
| Ingress Protection (IP) Rating | IP54 & IP55 (dust and water protection) |
| Pet Immunity | Suppress detection of animals: Settings for small and large pets |
| Languages | English, Portuguese |

# Appendix 4: Certifications

| Mark/ | Area/Country | level/Grade/Class |
|---|---|---|
| CE | European Economic Area (EEA) | |
|  | European Economic Area (EEA) | WEEE |
| EN50131 | | Grade 3<br>Certification Body: Applica Test and Certification |
| EN50130-5 | | Class IV |
| EN45011 | | System 5 |

PARADOX™

The whole Paradox team wishes you a successful and easy installation.
We hope this product performs to your complete satisfaction.
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For support, please contact your local distributor, or dial 1-800-791-1919 (in North America) or +1-450-491-7444 (outside North America), Monday to Friday, from 8:00 a.m. to 8:00 p.m. EST.
You may also e-mail us at support@paradox.com.
Additional information can be found at PARADOX.COM

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