

# Buried Deployment Instructions

## 1. Buried Underground Detection Principle

- (1) Buried underground is to detect the pressure conveyed by trespassers' steps on the ground, via the buried medium, indirectly touching the sensing cable buried underground, triggering the alarm.
- (2) Thus, the texture of buried medium and the way it is deployed are the most important factors determining the effectiveness of detection.

## 2. Soil and Sand are not suitable for Buried Underground Application

- (1) Soil is subject to the climate change and become hard and decreases the capability of pressure transmission, eventually causing sensing fiber not functional.
- (2) Sand is vulnerable to foreign force, either sensing cable deeply buried or exposed. These will make the system detection function unstable.
- (3) Soil and sand are therefore not suitable for buried medium of pressure transmission. Furthermore, if a layer of turf is paved on the surface of soil, the installation will cause damage of landscape of turf. It will be extremely high cost to restore the landscape and for future maintenance.

## 3. Nxtar's Recommended Pebble Underground Deployment.

- (1) First, design a detection zone of 2.0 meter in width, making intruder pass this area under normal walking step, producing 2~3 times of pressure signals.
- (2) Dig a required detection base: 2.0 in width x 10 cm in depth x customer's desired length of detection zone.
- (3) In the bottom layer, put a PE net whose mesh size of or less than 2 cm. And then spread a layer of 4cm pebble. Finally, put another PE net similar to the bottom layer.
- (4) Deploy sensing cable onto the PE net. Take a interval of 25 cm as the length of foot print. Making the sensing cable deployment like a S Shape, and fix the cable on the PE net with cable tie.
- (5) Bury underground the Sensing & Leading Junction Box from each zone and pack these boxes in water-proof manner.
- (6) The surface level can put another layer of 4cm pebbles in diameter, keeping the sensing cable hidden from sight. Plastic turf can also be added on the pebbles.

#### **4. The Effectiveness of Pebble Underground Deployment**

- (1) As the sensing cable is in between two layers of pebbles, when intruder steps on the detection zone, his steps pressure cause rolling of pebbles and further squeezing the cable, thus beneficial to amplifying the signal and issue the alarm.
- (2) The PE net in the bottom layer will keep the pebbles from sticking in the soil after a long time use. The PE net in the middle layer can separate the top and lower layers of pebbles. Most importantly, the cable tie can be used to fix the sensing cable onto PE net, having the sensing cable more secure and evenly distributed.
- (3) In this application, the buried mediums are pebbles and PE materials, which are not subject to passage of time. The base of detection zone is solid and keeps detection function stable, yielding reliable performance.
- (4) White pebble strip detection base, not only intrusion defense function, but also increase the beauty of landscaping design. In the future, it is also convenient to maintain sensing cable and restore the detection base.