



The infrastructure networks consisting of communication, power, water, waste water, gas and cable TV utilities, are essential to a country's economic growth. The locating of infrastructure utility lines is vital to the protection, maintenance and repair of these networks. For this purpose, National Electronic Technologies (NET) has developed the NETworks Electronic Identifier.

**Features:**

- Money saver
- Accurate & reliable
- Ideal for metallic and non-metallic structures
- Safe and non-intrusive
- Fast and easy

**Advantages:**

- Low cost
- Durable
- Protects against accidental dig-in damage
- Avoids unnecessary digging
- Reduces locating time
- Eliminates high costs associated with tracer wires
- No signal application access point required
- Immune to lightning damage

**The Problem:**

When laying underground utilities such as telephone cables, water pipes, power lines etc... contractors and engineers must provide reliable means for locating and identifying each utility network long after the completion of the construction and installation phase. This is essential in order to avoid accidental dig-in damage, and to provide access to these networks for routine maintenance and repair without unnecessary expensive diggings.



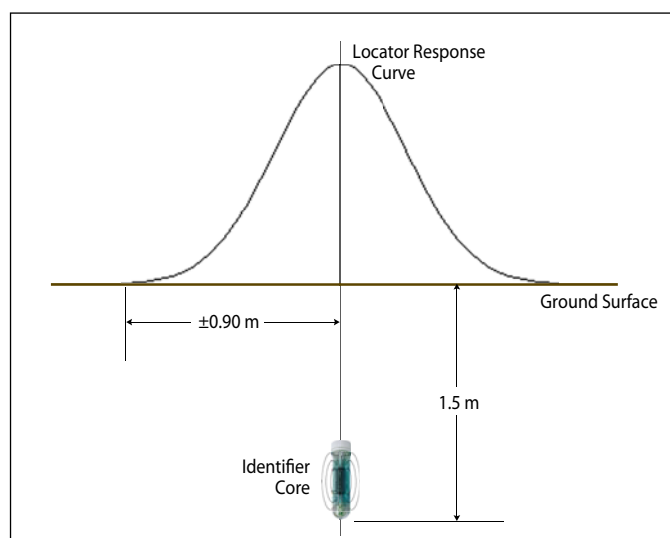
Traditional means to locate these networks consist of using maps, above ground markings, or metallic conductor locators. Unfortunately, maps are unreliable, and above ground markings are neither practical nor long lasting. As for metallic cable locators, they are difficult to use and to set up, require trained, skilled personnel, are prone to errors in congested network areas, and cannot be used to locate non-metallic structures.

**The Solution: NETworks Electronic Identifier.**

The NETworks Electronic Identifier saves time and money by eliminating all the problems associated with the traditional means of marking and locating underground networks.

The NETworks Electronic Identifier consists of a resonant device that responds to a specific frequency when stimulated by a locator. It is housed in a long-lasting, sealed polyethylene case which is resistant to water, shock, temperature variations, chemicals, and minerals for underground usage.

When the The NETworks Electronic Identifier is buried vertically over an underground utility network and stimulated by a Locator, it responds with a distinctive signal. This permits the quick determination of the exact location and type of the utility network.



## TI Marking Products:

### 1.5m Depth Identifiers

These identifiers are designed specifically to identify underground network facilities, and to mark their path and points of interest. They are self-contained and can be located accurately and easily for years to come regardless of topographic changes.

They are ideal for depth ranges not exceeding 1.5m from the surface of the ground.

They are reliable and long-lasting devices, housed in a rugged polyethylene case, which is resistant to underground water, chemicals, minerals, and temperature variations. These identifiers can be buried in a narrow trench without additional digging, and can be used for a multitude of applications.



Order Part Number..... I-125-X\*

\* X refers to utility; please check specifications table for details.

### 0.9m Depth Identifiers

These identifiers are designed specifically to identify underground network facilities, and to mark their path and points of interest. They are self-contained and can be located accurately and easily for years to come regardless of topographic changes.

They are ideal for depth ranges not exceeding 0.9m from the surface of the ground.

They are reliable and long-lasting devices, housed in a rugged polyethylene case, which is resistant to underground water, chemicals, minerals, and temperature variations. These identifiers can be buried in a narrow trench without additional digging, and can be used for a multitude of applications.



Order Part Number..... I-90-X\*

\* X refers to utility; please check specifications table for details.

### In-Asphalt Identifier

For use with In-Asphalt Fiber Optics Cables.

The specifications of the suggested electronic identifier are a direct result of the requirements set for this technology (In-Asphalt). The requirements included the set functional specifications of electronic identifiers, coupled with requirements imposed by In-Asphalt technology.

Order Part Number..... IIA-008-T



IIA-008-T



### Custom Made Identifier

TI offers its customers a unique service of customizing the identifiers according to application requirements. Customization can be applied to shape, size, temperature tolerances, and frequencies.

TI also provides a basic form identifier containing an insulated circuit for use with special molds from the customer.

Please consult our technical support for any special requirements.

## Applications and Uses:

Hand-holes  
Buried splices

Cable paths  
Road crossing  
Snow covered equipment

Load coils  
Slack loops  
Fiber optic networks

Service drops  
Manhole covers under pavement  
Metallic and non-metallic pipe path

Stubs  
Clean outs  
Meters, Valves, Tees

## I-125-X Specifications:

Feature / Utility	Water	Waste Water	Power	Telecom.	Gas	CATV	Gen. Purpose
Part No.	I-125-W	I-125-S	I-125-P	I-125-T	I-125-G	I-125-CT	I-125-GP
Color	Blue	Green	Red	Orange	Yellow	Black/Orange	Purple
Frequency	145.7 kHz	121.6 kHz	169.8 kHz	101.4 kHz	83.0 kHz	77.0 kHz	77.0 kHz
Accuracy	± 1%						
Depth Range	Up to 150 cm						
Operating Temp.	-40 to +70 C						
Storage Temp.	-40 to +85 C						
RLC Circuit	RLC circuit core is ferrite						
Housing	Rugged with a water proof insulating material to protect the RLC circuit						
Life Expectancy	At least 45 years						
Dimensions	L: 12 cm x Max. Dia.: 3.4 cm						

## I-90-X Specifications:

Feature / Utility	Water	Waste Water	Power	Telecom.	Gas	CATV	Gen. Purpose
Part No.	I-90-W	I-90-S	I-90-P	I-90-T	I-90-G	I-90-CT	I-90-GP
Color	Blue	Green	Red	Orange	Yellow	Black/Orange	Purple
Frequency	145.7 kHz	121.6 kHz	169.8 kHz	101.4 kHz	83.0 kHz	77.0 kHz	77.0 kHz
Accuracy	± 1%						
Depth Range	30 - 90 cm *						
Operating Temp.	-40 to +70 C						
Storage Temp.	-40 to +85 C						
RLC Circuit	RLC circuit core is ferrite						
Housing	Rugged with a water proof insulating material to protect the RLC circuit						
Life Expectancy	At least 45 years						
Dimensions	L: 8 cm x Max. Dia.: 3.4 cm						

## IIA-008-T Specifications:

Utility / Feature	Telecom.
Fibre Optics	IIA-008-T
Color	Orange
Frequency	101.4 kHz
Accuracy	± 1%
Depth Range	8 - 80 cm *
Operating Temp.	-40 to +70 C
Storage Temp.	-40 to +85 C
RLC Circuit	RLC circuit core is ferrite
Housing	Water proof with high temperature resistant casing that can tolerate upto 125C
Life Expectancy	At least 45 years
Dimensions	L: 7 cm x Max. Dia.: 0.9 cm

## NETworks Electronic Identifier Installation:

The NET works electronic identifier is a self-contained, accurate, reliable, and long lasting device. It is immune to any location mis-match of utility in congested areas, typically encountered when using a traditional conductor locator. It is able to identify the underground facilities for years to come regardless of topographic changes.

### Installing I-125-X and I-90-X Identifiers:

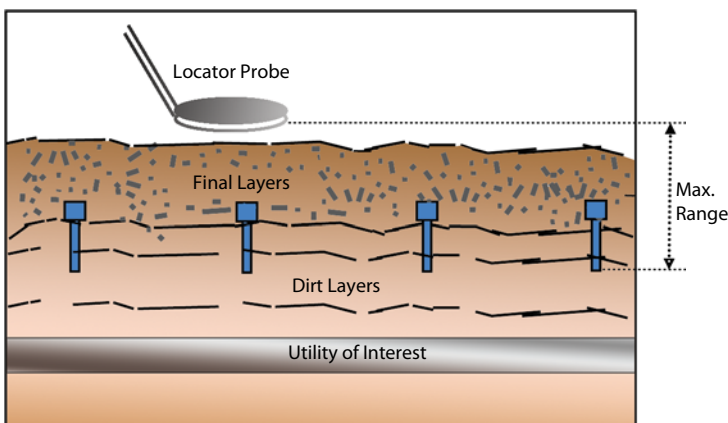
To install the identifier over underground utility you need to follow these steps:

#### Marking the path:

- Install your utility
- Cover the utility with the first layer of dirt
- Insert the identifier vertically in the dirt layer over the utility without exceeding its specific range
- Once all the identifiers are installed, use a locator to verify proper identifier installation
- Continue filling up the trench with the required layers until complete

#### Recommendations:

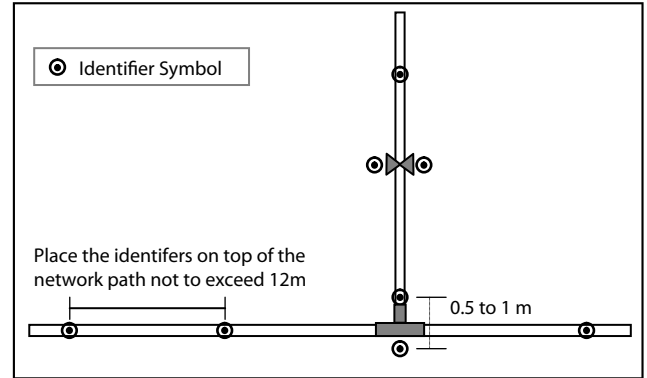
- Make sure that the identifier is vertical
- Keep the identifier 10 cm (4 in) away from any metallic or magnetic materials
- Always verify that you can locate the identifier before filling up the trench
- Maintain approximately 4m to 6m (13ft to 20ft) distance between identifiers for best results
- Install the identifier at shallower depth to allow typical snow accumulation or dirt overfill, and easier detection



### Marking Points of Interest:

In addition to determining the location and type of utility, use the NETworks identifiers to mark point of special importance, such as ; splices, under pavement, man-hole covers, road crossing, snow covered equipment, buried service drops, conduit or service stubs, slack loop, underground valves and meters, tees, etc...

To mark points of interest, install two identifiers, 0.5 m to 1 m apart, symmetrically across the main path one on each side of the fixture. Mark all Valves, T-joints, Meters, etc.



### Installing IIA-008-T Identifiers:

To install the identifier over underground utility you need to follow these steps:

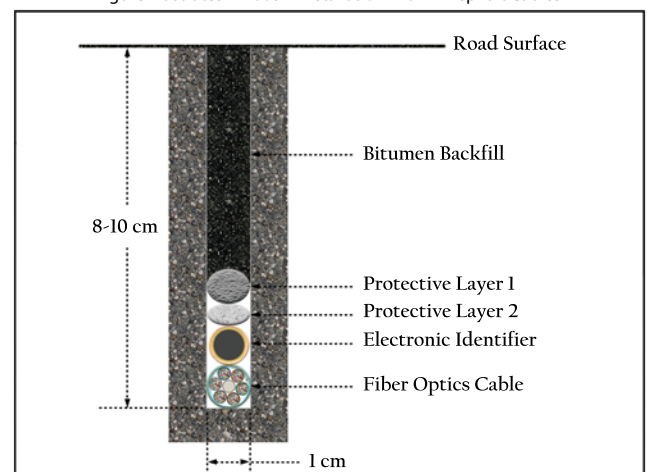
#### Marking the path:

- Install your fiber optics cable
- Insert the identifier horizontally above your fiber optics cable
- When the identifiers are installed use a Locator to verify that all identifiers are operational
- Install the first and second protection layers
- Continue by backfilling the bitumen layer

#### Recommendations:

- Make sure that the identifier is horizontal
- Verify that you can locate the identifier before back filling the bitumen layer

Figure illustrates IIA-008-T installation with In-Asphalt Cables



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