

RFID ELECTRONIC CABLE & PIPE MARKING SYSTEM

Smart system for permanent marking and tracing of your underground pipe & cable facilities.

It consists of the following parts:

- Smart RFID Marker SM1500
- Smart Marker locator SML (with Built in GPS)
- Marker Database Software
- Smart Phone App

Why choose Stanley Komplex Smart RFID Markers?

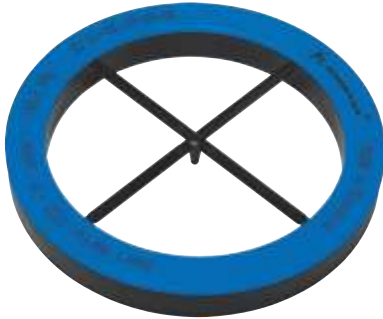
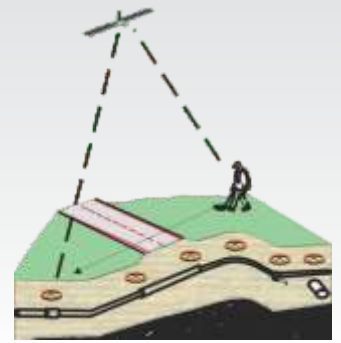
- Each marker is Unique: with its own RF-ID 10 digit hexadecimal code.
- Lifetime marking: of Buried utilities with information about the utility.
- Attribute: creation of user text information for each Smart Marker.
- Inbuilt GPS module: of Smart Marker Locator allows GPS Coordinates of each RFID marker to be logged.
- Automatic GIS Mapping: of your Smart Markers & In turn your cable/pipe assists using marker base software with overlays marker data on google maps.
- Marker Database Software: detailed archiving & managing of data about your underground networks.
- Mobile Phone App: Access your marker data (your network) information using the App to allow O&M team to access real time information.
- Acoustic GPS navigation: allows navigation back to "Specific" RFID markers.



SMART RFID MARKER SM1500

The Smart Marker SM1500 is an **electronic passive marker** with **built in RFID** chip with a **unique 10 digit hexadecimal ID** number ensuring that **every RFID marker** buried with a cable or pipe is **unique**. It allows permanent marking of buried pipes or cables along its route or specific selected points under the ground. Smart Marker SM 1500 provides the most accurate method to precisely mark and locate your buried facilities such as:

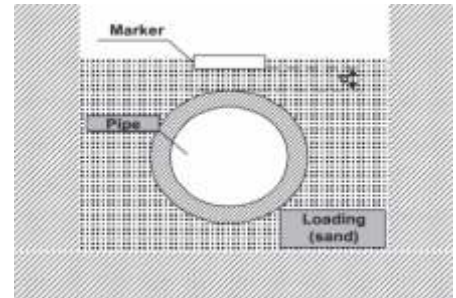
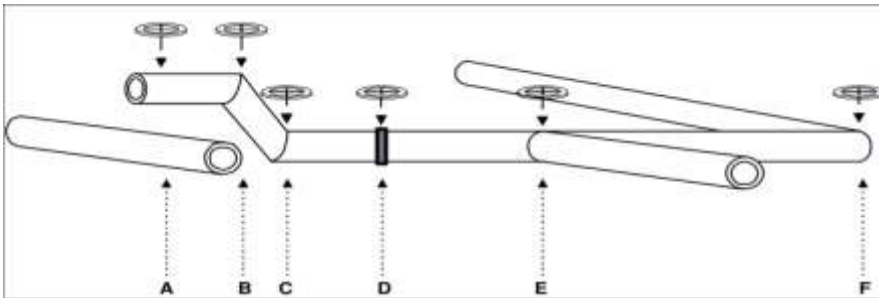
- Optical fiber telecom cables
- Power cables
- Water pipelines
- Sewage pipelines
- Gas Pipelines
- Buried Valves
- Hazardous Areas
- CATV
- Non drinkable water pipelines



Smart Marker SM1500 is buried “over” the buried utility or key facilities during construction or maintenance. The pre-programmed unique serial number of each Smart Marker SM1500 provides precise and clear marking of the route or each important point of the buried facility (joints, connections, change of direction etc.). GPS coordinates can be logged for each unique RFID marker using the Smart Marker SM1500 & then located easily, fast and accurately by use of the built in GPS navigation module of the SML locator.

Data about each Smart Marker SM1500 being installed can be logged including:

- **GPS** coordinates of the marker location
- **User text description of marker** (Attribute definition) eg: Joint Pit, Cable Turning, Cable Joint, Cable Type etc.
- 10 digit serial number of marker

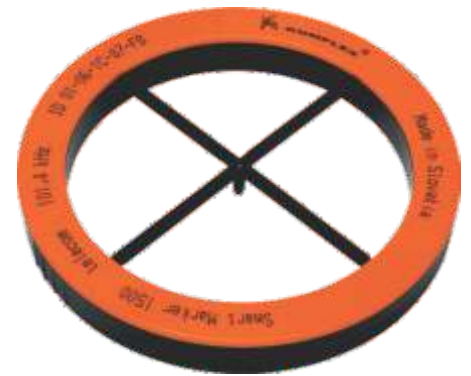


Technical Specification Of Smart RFID Marker SM 1500






Operating frequency (kHz)	83.0, 101.4, 121.6, 134.0, 145.7
Material of cover	High Density PS
Dimensions	Diameter x height 225 x 28 mm
Weight	max. 300 g
Identification number ID	10 digits in hexadecimal code
Marker/ID read range	1.8 m(5.9 ft) / 1.5 m (4.9 ft)
Operating temperature	-20 to +60 °C
Lifetime	50 years

Technical Specification Of Smart MiM120 RFID Marker

MiM RFID Marker Dimension	12 cms dia, Thickness: 34mm
Marker ID Range	1.0 m



TYPES OF OPERATING FREQUENCY

Operating frequency	Type of device	Color of marker	Type of Marker Locator
83,0 kHz	Gas pipelines	Yellow 	SML G
101,4 kHz	Optical cables	Orange 	SML T
121,6 kHz	Sewage pipelines	Green 	SML S
145,7 kHz	Water pipelines	Blue 	SML W
134,0 kHz, 169,8 kHz	Energetics cables	Red 	SML E

SMART RFID MARKER LOCATOR SML

SML is a portable RFID smart marker locator with built in GPS designed for:

- Logging RFID 10 digit code, attributes & GPS coordinates of markers being installed.
- Fast localization & detection of buried markers.
- Navigation to marker.

The SML automatically stores all data about each marker in to the locator's internal memory when markers are being installed including GPS coordinates of the RFID marker. The virtual keyboard enables the user to type **useful** text information about the utility or location for which marker is being used allowing a clear & precise data base of utility information to be developed.

This data can be downloaded to the Marker Database Software. During detection the SML guides the operator using GPS to the marker/s. The SML also provides depth measurement. Stores data of upto 8000 markers.



Technical Specification Of Smart RFID Marker Locator - Model SML

Operating frequency	SML G1 – 83.0 kHz, SML T1 – 101.4 kHz SML S1 – 121.6 kHz, SML W1 – 145.7 kHz SML E1 – 134.0 kHz
GPS navigation	YES, inbuilt GPS module
Depth measurement	Yes
Marker depth measurement accuracy	+/- 10 % up to marker specification
Memory capacity (Rewritable memory)	8000 marker records
Display type	Backlight LCD screen, 4 x 20 digits
Communication with PC	USB cable
Dimensions (height x width x depth)	225 x 240 x 210 mm
Weight of device with antenna	Max. 4 kg
Battery life	45 working hours
Primary battery cells, voltage 1,5 V	10 pcs.
Operating temperature	-20 °C to +60 °C
Storage temperature	-20 °C to +60 °C

RFID Markers : The Big Solution for O&M

RFID marker data is acquired at time of marker installation in trench

RFID Marker ID acquired	Automatic gps coordinate acquired Attribute information &/or line information added
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Data downloaded to computer

Update/refine data & upload to Cloud

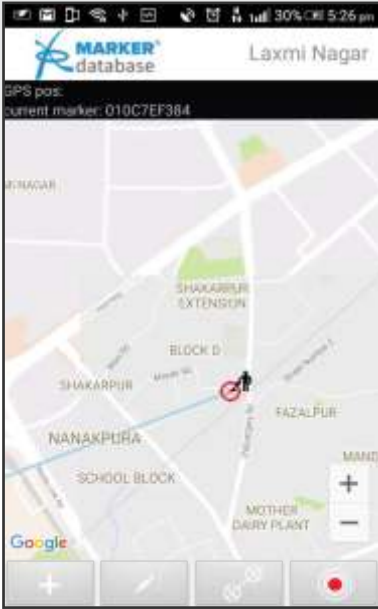
View marker location using Mobile App

Navigate to exact marker location using GPS navigation feature of SML RFID marker locator and then detect RFID Marker



Mobile Phone App:

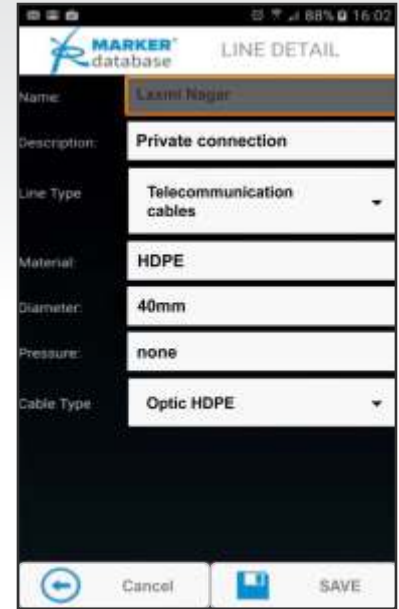
Data from marker data base is uploaded to your cloud and then displayed on your mobile phone app, when logged in to your account.



View marker data using Mobile App based on "ID" &/or cloud data ; achieve proximity based on maps ;then navigate to location of marker using Smart marker locator navigation & detection feature



View Marker Information



Update line information

Software Marker Database

Marker Database software is a unique software for database management of installed markers. It provides convenience to manage data about your buried facilities including display of installed Marker locations on Google maps & easy access to marker attribute information (& therefore information of your utilities).

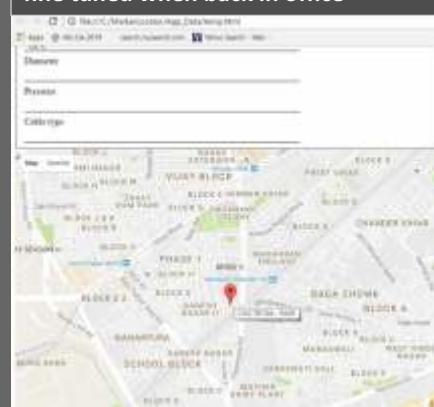
Advantages:

- Edit data about your markers and underground facilities.
- Manage your data about markers and underground facilities.
- Export your data to SHP format for GIS systems.
- Export your markers and network information in Google Maps.

Markers when viewed on Desktop using Data base software



Attribute information can be edited in field or even further added or fine tuned when back in office



ID	Name	Description	Material	Diameter	Pressure	Cable Type	GPS LAT	GPS LONG	Depth
001	SHAKARPUR	Private connection	HDPE	40mm	none	Optic HDPE	19.1780930100642	76.11253869093	1.4m
002	SHAKARPUR	Private connection	HDPE	40mm	none	Optic HDPE	19.1780930100642	76.11253869093	1.4m
003	SHAKARPUR	Private connection	HDPE	40mm	none	Optic HDPE	19.1780930100642	76.11253869093	1.4m
004	SHAKARPUR	Private connection	HDPE	40mm	none	Optic HDPE	19.1780930100642	76.11253869093	1.4m
005	SHAKARPUR	Private connection	HDPE	40mm	none	Optic HDPE	19.1780930100642	76.11253869093	1.4m
006	SHAKARPUR	Private connection	HDPE	40mm	none	Optic HDPE	19.1780930100642	76.11253869093	1.4m
007	SHAKARPUR	Private connection	HDPE	40mm	none	Optic HDPE	19.1780930100642	76.11253869093	1.4m
008	SHAKARPUR	Private connection	HDPE	40mm	none	Optic HDPE	19.1780930100642	76.11253869093	1.4m
009	SHAKARPUR	Private connection	HDPE	40mm	none	Optic HDPE	19.1780930100642	76.11253869093	1.4m
010	SHAKARPUR	Private connection	HDPE	40mm	none	Optic HDPE	19.1780930100642	76.11253869093	1.4m

