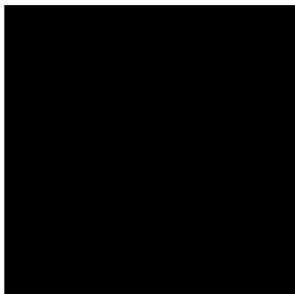
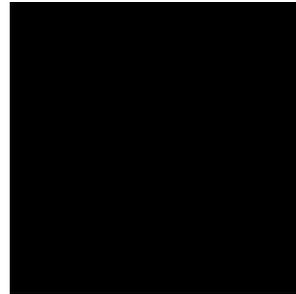




# 1400 Series Electronic Marker System iD Ball Markers





**A Smarter Marking System.** Ball markers make the job of precisely locating underground facilities faster and easier. They have been considered the most reliable way to mark:

- Buried splices
- Buried service drops
- Conduit stubs
- Fiber optic facilities
- Cable paths
- Load coils
- Installations under pavement or snow

The 3M™ 1400 Series Electronic Marker System (EMS) iD Ball Markers provide more information than ever before. They are the first of a new series of markers that perfectly complement the existing line of EMS passive markers.

**Positive Underground Identification.** For the first time, underground facilities can be positively identified with certainty even in difficult environments. 3M 1400 Series EMS iD Ball Markers do everything the existing line of EMS ball markers can do and more. These ID markers come pre-programmed with a unique identification number. This pre-programmed number is also attached to the marker on a removable bar-coded tag, which can be peeled off before installation and attached to facility maps for future reference. When a 3M Dynatel™ 1420 or 2200M-iD Series Locator sends a “read” command signal, the ID markers will respond by sending back data previously stored in it. The ID markers can also be programmed and locked by the user via the 1420 and 2200M-iD Series Locators to include customer-specific information such as facility data, hazard levels, type of application, placement date and other important details. After the locator has read this data, it may be transferred to the user’s PC through a standard RS232 communications port.

**Application-Specific Design.** 3M 1400 Series EMS iD Ball Markers are available in seven standard frequencies, color coded to APWA standards to quickly signify the application: telephone, gas, CATV, power, water, wastewater and a new general-purpose application. These markers are readable to a maximum buried depth of five feet. The ID markers can be located by the previous generation of locators, but can only be read and written to using the new 3M Dynatel 1420 and 2200M-iD Series Locators.



**Quality that Lasts.** 3M 1400 Series EMS iD Ball Markers work in all soil conditions and in the presence of all types of congestion. Their four-inch diameter makes them easy to drop into a standard-sized trench. A free-floating, self-leveling design inside a watertight, polyethylene shell ensures that the marker is always in an accurate horizontal position, regardless of how it is placed in the ground. The markers contain a mixture of propylene glycol and water, which is approved for use in pharmaceuticals, cosmetics and as a food additive. The mixture is readily biodegradable and will not harm humans, wildlife or the environment. With over a quarter century of leadership in Electronic Marker Systems, 3M continues to set the standard for quality and innovation.



## Features of 3M™ 1400 Series EMS iD Ball Markers

	TELEPHONE	POWER	CATV	GENERAL PURPOSE	WATER	WASTEWATER	GAS
<b>MODEL</b>	1421-XR/iD	1422-XR/iD	1427-XR/iD	1428-XR/iD	1423-XR/iD	1424-XR/iD	1425-XR/iD
<b>COLOR</b>	orange	red	black/orange	purple	blue	green	yellow
<b>READ RANGE*</b>	5 ft. (1.5 m) from locator probe						
<b>UNIQUE ID NUMBER</b>	10 digits						
<b>MEMORY SIZE</b>	256 bits						
<b>TYPICAL COMPRESSED TEXT LENGTH**</b>	7 lines						
<b>MARKER WEIGHT</b>	0.77 lbs. (0.35 kg)						
<b>STANDARD PACKAGE</b>	30/cs.						
<b>SHIPPING WEIGHT</b>	25 lbs. (11.4 kg)						

\*Range specifies maximum distance when using 3M Dynatel™ 1420 Locator. Read range may vary on export models for water and power frequencies.

\*\*Typical compressed text is 6 lines. Each line holds an 8-character subject label and a 13-character description label.

## Specifications for 3M 1400 Series EMS iD Ball Markers

PHYSICAL SPECIFICATIONS	
Size	4 in. (10.4 cm) diameter sphere
Marker weight	0.77 lb. (0.35 kg)
Shipping weight	25 lb. (11.4 kg)
Packaging	30 to a case
Frequencies/Models	Telephone, gas, CATV, power, water, wastewater, general-purpose
Range	
Search Mode	5 ft. maximum using any 3M Dynatel Locator for markers
Read Mode	5 ft. maximum using 3M Dynatel 1420 or 2200M-iD Series Locators
Write	1 ft. maximum using 3M Dynatel 1420 or 2200M-iD Series Locators
Shell	High-density, watertight polyethylene
Contents	Mixture of propylene glycol and water
ID number	Unique 10-digit number (xxx-xxx-xxxx)
Memory size	256 bits
Typical compressed text length	6 lines (each line holds an 8-character subject label and a 13-character description label)

ENVIRONMENTAL SPECIFICATIONS	
Operating temperature	-4° F to 122° F (-20° C to 50° C)
Storage temperature	-4° F to 158° F (-20° C to 70° C)

# Specifications for 3M™ 1400 Series EMS iD Ball Markers

## CONSTRUCTION

Shell	The high-density, watertight polyethylene shell is impervious to minerals, chemical and temperature extremes normally found in the underground environment.
Contents	The markers contain a mixture of propylene glycol and water, which is approved for use in pharmaceuticals, cosmetics and as a food additive. The mixture is readily biodegradable and will not harm humans, wildlife or the environment.

## Ordering for 3M 1400 Series EMS iD Ball Markers

### ORDERING INFORMATION

To order, select the ball marker model that matches your specific application.  
For further information, contact your 3M sales representative.

## Applications for 3M 1400 Series EMS iD Ball Markers

TELEPHONE	POWER	CATV	GENERAL PURPOSE	WATER	WASTEWATER	GAS
Cable paths	Cable paths	Cable paths	Reclaimed water	Pipeline paths	Pipeline paths	Pipeline paths
Buried splices	Service drops	Fiber optic facilities	Private campuses	Service stubs	Service stubs	Main stubs
Buried service drops	Conduit stubs	Buried service drops	Valve boxes	PVC pipeline	PVC pipeline	Service stubs
Load coils	Road crossings	Road crossings	Road crossings	All types of valves	Buried valves	Tees
Conduit stubs	All types of splices	Buried splices	Path marking	Road crossings	Road crossings	Road crossings
Fiber optic facilities	Buried transformers	Bends	Buried valves	Tees	Tees	All types of valves
All types of splices	Service loops		Tees	Clean-outs	Clean-outs	Meter boxes
Bends	Street lighting		Meter boxes			Stopping fittings
Depth changes	Bends		Main stubs			Depth changes
Man hole covers	Man hole covers		Service stubs			Transition fittings
Road crossings	Distribution loops					Squeeze points
						Pressure control fittings
						Electro fusion couplings



### Important Notice

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### Warranty; Limited Remedy; Limited Liability.

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