

3M™ Electronic Marker System (EMS) Ball Markers

EMS Markers and EMS-iD Ball Markers

Data Sheet

August 2020

The 3M™ Ball Marker makes the job of precisely locating underground facilities easier. Other buried markers can be disturbed by backfill dirt or installed improperly so they don't stay positioned correctly. The 3M ball marker's unique self-leveling design ensures the marker is always in an accurate, horizontal position regardless of how it is placed into the ground.

The addition of the new 3M-iD markers provides additional functionality by enabling facility data to be stored in the marker to ensure positive identification of facilities. The pre-programmed unique serial number integrates with back office mapping and GIS systems when used for mapping new and legacy assets and points of special interest for construction and maintenance applications.

The ball marker is buried over key facilities during construction or maintenance. Later, the marker is easily and accurately located using a 3M™ Dynatel™ Locator. The locator transmits a signal to the buried marker. The marker returns the signal to the locator, indicating the marker's exact position. The compact electronic locator gives both a visual reading and an audible tone.

Agency Approvals & Self Certifications For RoHS information, please visit www.3M.com/ROHS

Physical Specifications	Size	4" diameter sphere (10.4 cm diameter)
	Weight	Net: 0.7 lb. (0.35 kg)/ Shipping: 25 lb. (11.34 kg)
	Packaging	30 per carton

Environmental Specifications	Operating temperature	-22° F to 122° F (-30° C to 50° C)
	Storage/Installation temperature	-40° F to 140° F (-40° C to 60° C)
	Environmental Standard	IP68
	Impact Rating of Marker	IK-10
	Underground Pressure	Over 40 kPa (~5.8 PSI)

Electrical Specifications

3M iD Markers Read Range	With a 'U' model (U.S.) locator: 5 ft. (1.5 m) With a 'E' model (Export, CE) locator: 1.2 m (Tel, Gas, WW, Comm, CE Pwr)/1.0 m (Pwr, Wtr)
3M Passive Markers Detection Range	With a 'U' model (U.S.) locator: 5 ft. (1.5 m) With a 'E' model (Export, CE) locator: 1.2 m (Tel, Gas, WW, Comm)/1.0 m (Pwr, Wtr)
Minimum Separation from Metallic Facilities	4 in (10 cm)

Frequency Allocation

Utility	Frequency (kHz)	Series 1400-XR	Series 1400-XR/iD	Marker Color	
Power	169.8	1402-XR	1422-XR/iD	Red	Red
Water	145.7	1403-XR	1423-XR/iD	Blue	Blue
Wastewater	121.6	1404-XR	1424-XR/iD	Green	Green
Telecom	101.4	1401-XR	1421-XR/iD	Orange	Orange
Gas	83.0	1405-XR	1425-XR/iD	Yellow	Yellow
CATV	77.0	1407-XR	1427-XR/iD	Orange	Black
Reclaimed Water	66.35	1408-XR	1428-XR/iD	Purple	Purple
CE Power	134	1402CE-XR	1422CE-XR/iD	Red	Red

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Important Notice

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Conditional Limited Warranty

3M provides the following Conditional Limited Warranty for its iD Electronic Marker Products: When installed in accordance with 3M's installation instructions, 3M warrants iD Electronic Markers for a period of ten (10) years from the date of purchase of the product, to be free from defects in material and manufacture, provided iD Electronic Markers are located with 3M™ Dynatel™ Locators or other brand locators as may be designated by 3M in writing. This warranty does not extend to iD Electronic Markers that have been subjected to misuse or improper application or that have been repaired or altered by others. 3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE. If the iD Marker is found to be defective within the warranty period, your exclusive remedy shall be, at 3M's options, to repair or replace the iD Markers or refund the purchase price. Except where prohibited by law, 3M will not be liable for any direct, indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.

Conditional Lifetime Warranty

3M provides the following Conditional Limited Warranty for its Electronic Marker Products (non-iD versions only): When installed in accordance with 3M's installation instructions, 3M warrants Electronic Markers for the lifetime of the product, to be free from defects in material and manufacture, provided the Electronic Markers are located with 3M™ Dynatel™ Locators or other brand locators as may be designated by 3M in writing. This warranty does not extend to Electronic Markers that have been subjected to misuse or improper application or that have been repaired or altered by others. 3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE. If the Electronic Marker is found to be defective during the normal lifetime of the product, your exclusive remedy shall be, at 3M's options, to repair or replace the Electronic Markers or refund the purchase price. Except where prohibited by law, 3M will not be liable for any direct, indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.

Limited Product Warranty

All 3M products, locating instruments (except accessories), manufacture dated test leads, and rechargeable batteries will conform to 3M's published specifications and will be free from defects in material and manufacture for a period of twelve (12) months from the date of purchase. Dry cell batteries included in any of 3M's products are warranted only to the extent the battery manufacturer determines such batteries are covered by its warranty. Accessories for locating instruments are warranted for ninety (90) days after purchase. 3M's obligations and liability under this warranty are limited to repairing, replacing or refund of the purchase price, at 3M's option, any of 3M's products which, after normal and proper usage, are determined by 3M to be defective. This warranty does not extend to any of 3M's products which have been subjected to misuse, neglect, accident or improper applications, nor shall it extend to products which have been repaired or substantially altered outside 3M's manufacturing or repair facility, nor to any associated instruments, equipment or apparatus. Before utilizing any of 3M's products, BUYER should determine the suitability of the product for BUYER'S intended use. 3M MAKES NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. In no case shall 3M be liable for any special, incidental, or consequential damages based upon breach of warranty, breach of contract, negligence, strict liability or any other legal theory. This limitation does not apply to claims for personal injury.



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