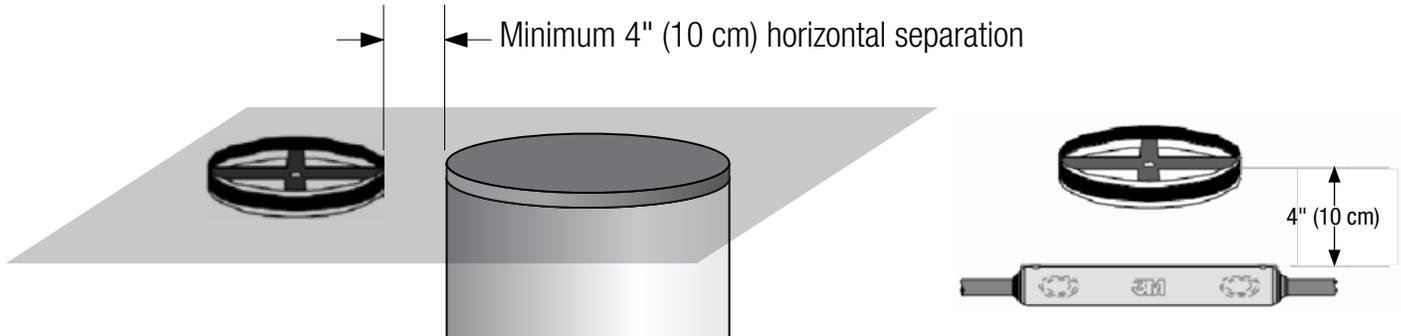


3M™ Electronic Marking System (EMS) Mid-Range Marker Installation Instructions



1.0 Introduction

1.1 3M™ Mid-Range Markers provide an accurate, convenient, long lasting method of marking underground facilities during construction or maintenance. They also make the job of precisely locating underground facilities easier. Electronic marking saves time and money spent searching for buried facilities prior to excavation. 3M Electronic Markers enable you to return to the exact location of the marked underground feature. Unlike surface markers such as stakes, flags or paint, the mid-range marker cannot be inadvertently moved or worn away by weather.

2.0 Installing the Marker

- 2.1 Place a minimum of 4 inches (10 cm) of fill dirt over the facility to be marked.
- 2.2 Position the marker flat and horizontal. Failing to do so can cause inaccuracies in marker location and depth estimation.

IMPORTANT: The Mid-Range Marker cannot reliably re-radiate the locator's signal at a depth greater than 6 feet (1.8 m). This is the maximum allowable distance between the Mid-Range Marker and the locator tip.

- 2.3 Hand fill at least 6 inches (15 cm) of soil over the marker to prevent movement or damage during backfill, and tamp down the soil.
- 2.4 Backfill the hole.

3.0 Specifications

Specifications

Read Depth (max) (US & E-version Locators)	6 ft (1.8 m)
Vertical Separation from Facility (min)	4 in* (10.4 cm)
Horizontal Separation from Facility (min)	4 in* (10.4 cm)
Distance Between Markers (min)	3.5 ft (1.06 m)
Marker Diameter	8.4 in (21.3 cm)
Marker Height	1.2 in (3 cm)

* Target size and material dependent. Depth estimation may be adversely affected when placing the marker above a large metallic object, such as a manhole cover. To improve depth estimation accuracy, increase the vertical separation from the metal object or perform a field test for depth accuracy.

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