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# Marker burial depth chart

**Save time and money by quickly pinpointing the location of buried assets with 3M™ Point and Path Markers and our Electronic Marking System (EMS) technology. Designed to be placed in various ranges of burial depths, our markers protect your critical assets wherever they are.**

**0.9 m**

### 3M™ EMS Near Surface Markers
RFID Option
Point Marker

**1.2 m**

### 3M™ Path Markers
Path Marker

**1.5 m**

### 3M™ EMS Ball Markers
RFID Option
Point Marker

### 3M™ EMS Disk Markers
RFID Option
Point Marker

**1.8 m**

### 3M™ EMS Mini Markers
Point Marker

The 7000XE series adds 30 cm of burial depth detection for all EMS Point Markers.

**2.4 m**

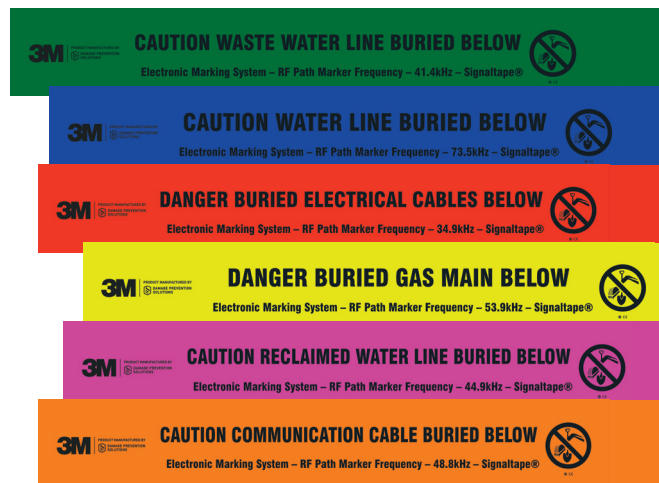### 3M™ EMS Full-Range Markers
RFID Option
Point Marker
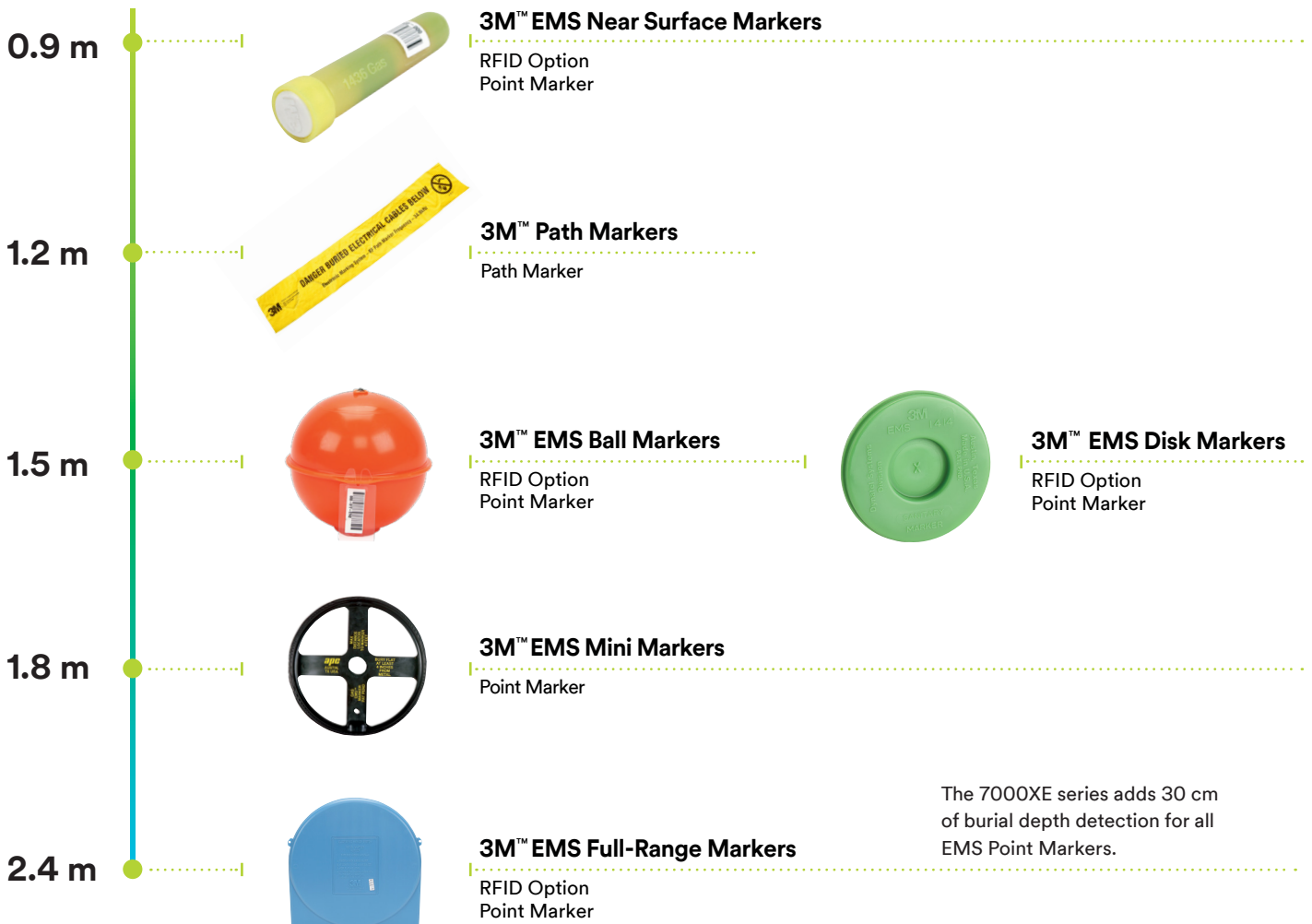
**Note:** burial depths are approximate. Review the marker specification sheet and locator compatibility for precise indication of burial depth for each of the marker models.

# 3M™ Path Marking Tape

## A maintenance-free solution for marking and locating

3M™ Electronic Marking System (EMS) Warning Tape 7900-XT Series and 3M™ EMS Caution Tape 7900 Series provide a virtually maintenance-free solution for marking and locating the path of underground plastic pipes and conduits. Together, they help eliminate problems and costs associated with tracer wire and test stations.

The 3M™ EMS Warning Tape 7900-XT Series and 3M™ EMS Caution Tape 7900 Series are both embedded with markers that are activated using the 3M™ Dynatel™ Locators 7000XE Series. The EMS Warning Tape 7900-XT Series also includes an additional high strength core material feature called extreme tensile (XT) which provides an early warning for excavators that an underground asset is below.

CAUTION WASTE WATER LINE BURIED BELOW
Electronic Marking System – RF Path Marker Frequency – 41.4kHz – Signaltape®

CAUTION WATER LINE BURIED BELOW
Electronic Marking System – RF Path Marker Frequency – 73.5kHz – Signaltape®

DANGER BURIED ELECTRICAL CABLES BELOW
Electronic Marking System – RF Path Marker Frequency – 34.9kHz – Signaltape®

DANGER BURIED GAS MAIN BELOW
Electronic Marking System – RF Path Marker Frequency – 53.9kHz – Signaltape®

CAUTION RECLAIMED WATER LINE BURIED BELOW
Electronic Marking System – RF Path Marker Frequency – 44.9kHz – Signaltape®

CAUTION COMMUNICATION CABLE BURIED BELOW
Electronic Marking System – RF Path Marker Frequency – 48.8kHz – Signaltape®

▶ Can be installed near or above buried assets

▶ Easy to follow, creating a detectable path above ground

▶ For use in open trench applications

▶ Does not require batteries and there's no need to hook up an external transmitter or spend time searching for access points

▶ The markers work independently, so even if a section of path marking tape is cut or removed, the other markers on the tape will continue to provide an accurate location

▶ Available in 6 frequencies, creating a unique identification for each utility type

| | Depth | Length | Marker spacing | Tensile strength | Width | Telephone | Power | Gas | Water | Wastewater | Reclaimed water |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3M™ EMS Warning Tape 7900-XT Series | Up to 1.2 m | 152 m | 2.4 m | 13 kN | 15 cm | 7901-XT | 7902-XT | 7905-XT | 7903-XT | 7904-XT | 7908-XT |
| 3M™ EMS Caution Tape 7900 Series | Up to 1.2 m | 152 m | 2.4 m | 1.6 kN | 15 cm | 7901 | 7902 | 7905 | 7903 | 7904 | 7908 |

The optimal depth for the XT early warning system is < 2 ft (60 cm) while the embedded EMS markers are locatable < 4 ft (1.2 m).

XT – Extreme Tensile, EMS – Electronic Marking System

# 3M™ EMS Point Markers

## Marking points of interest

Unlike surface features, maps and other methods of recording position, our Point Markers are a point of reference you can depend on.

**3M™ EMS Markers:**

▸ Operate in all soil types; under asphalt, cement, and wet or dry soil

▸ Provide easy positive identification with each utility having its own frequency

▸ Colour-coded to APWA standards

**3M iD Markers can be customised to include customer-specific information:**

▸ Facility data

▸ Material type and size

▸ Type of application

▸ Placement date

Access all of this information in the field through a 3M™ Dynatel™ ID capable locator, or by uploading and using with your GIS system.



**3M™ EMS and iD Near Surface Marker**
Ideal for marking at shallow depths of 0.6-0.9 m



**3M™ EMS and iD Ball Marker**
Self-leveling feature, suited for depths of 1.5-1.8 m

| | Detection/ read range | Type | Telephone | Power | CATV | General purpose | Water | Wastewater | Gas |
|---|---|---|---|---|---|---|---|---|---|
| **3M™ EMS Near Surface Marker** | 0.9 m | EMS | 1432 | 1433 | – | – | 1434 | 1435 | 1436 |
| | 0.6 m | iD | 1432-XR/iD | 1433-XR/iD | 1437-XR/iD | 1438-XR/iD | 1434-XR/iD | 1435-XR/iD | 1436-XR/iD |
| **3M™ EMS Ball Marker** | 1.8 m | EMS | 1401-XR | 1402-XR | 1407-XR | 1408-XR | 1403-XR | 1404-XR | 1405-XR |
| | 1.5 m | iD | 1421-XR/iD | 1422-XR/iD | 1427-XR/iD | 1428-XR/iD | 1423-XR/iD | 1424-XR/iD | 1425-XR/iD |
| **3M™ EMS Mini-Marker** | 1.8 m | EMS | 1255 | 1256 | – | – | 1257 | 1258 | 1259 |
| **3M™ EMS Full Range Marker** | 2.7 m | EMS | 1250 | 1251 | – | – | 1252 | 1253 | 1254 |
| | 2.4 m | iD | 1250-XR/iD | 1251-XR/iD | – | 1248-XR/iD | 1252-XR/iD | 1253-XR/iD | 1254-XR/iD |
| **3M™ EMS Disk Marker** | 1.5 m | EMS | 1411-XR | 1412-XR | 1417-XR | 1418-XR | 1413-XR | 1414-XR | 1415-XR |
| | 1.5 m | iD | 1411-XR/iD | 1412-XR/iD | – | 1418-XR/iD | 1413-XR/iD | 1414-XR/iD | 1415-XR/iD |



**3M™ EMS Mini-Marker**
Designed for maintaining a stable position after placement at depths of 1.8 m



**3M™ EMS and iD Full-Range Marker**
Suited for deep applications of up to 2.4-2.7 m



**3M™ EMS and iD Disk Marker**
Ideal for marking at shallow depths of 1.5-1.8 m

# 3M™ Dynatel™ Locator XE Series

**3M™ Dynatel™ Locator 1420XE**

**3M™ Dynatel™ Locator 7420XE**
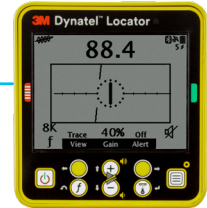
**3M™ Dynatel™ Locator 2550XE/2573XE**

**3M™ Dynatel™ Locator 2550XE-iD/2573XE-iD**

**3M™ Dynatel™ Locator 7550XE/7573XE**

Our latest innovation, the Dynatel XE Series Locators allow you to quickly locate underground assets. They are equipped with Bluetooth® wireless technology receivers, along with improved software and GPS capabilities. All models are available both as full kits including transmitter and as stand-alone locators.

- ▶ Receiver with Bluetooth® wireless technology
- ▶ Integrated USB port is compatible with USB Type-C connector
- ▶ Internal GPS data can be saved internally or directly to a memory stick compatible with USB Type-C connector
- ▶ 3M iD Marker write/read/ locate capabilities

- ▶ EMS Path Marking Antennas
- ▶ Multiple EMS antennas for maximum locate capabilities
- ▶ Large LCD display with image-driven graphical interface
- ▶ Integrated tone functions
- ▶ Dynatel Locators 2573XE, 2573XE-iD, and 7573XE include fault locating
- ▶ 12 W transmitter

**3M™ Dynatel™ Locators
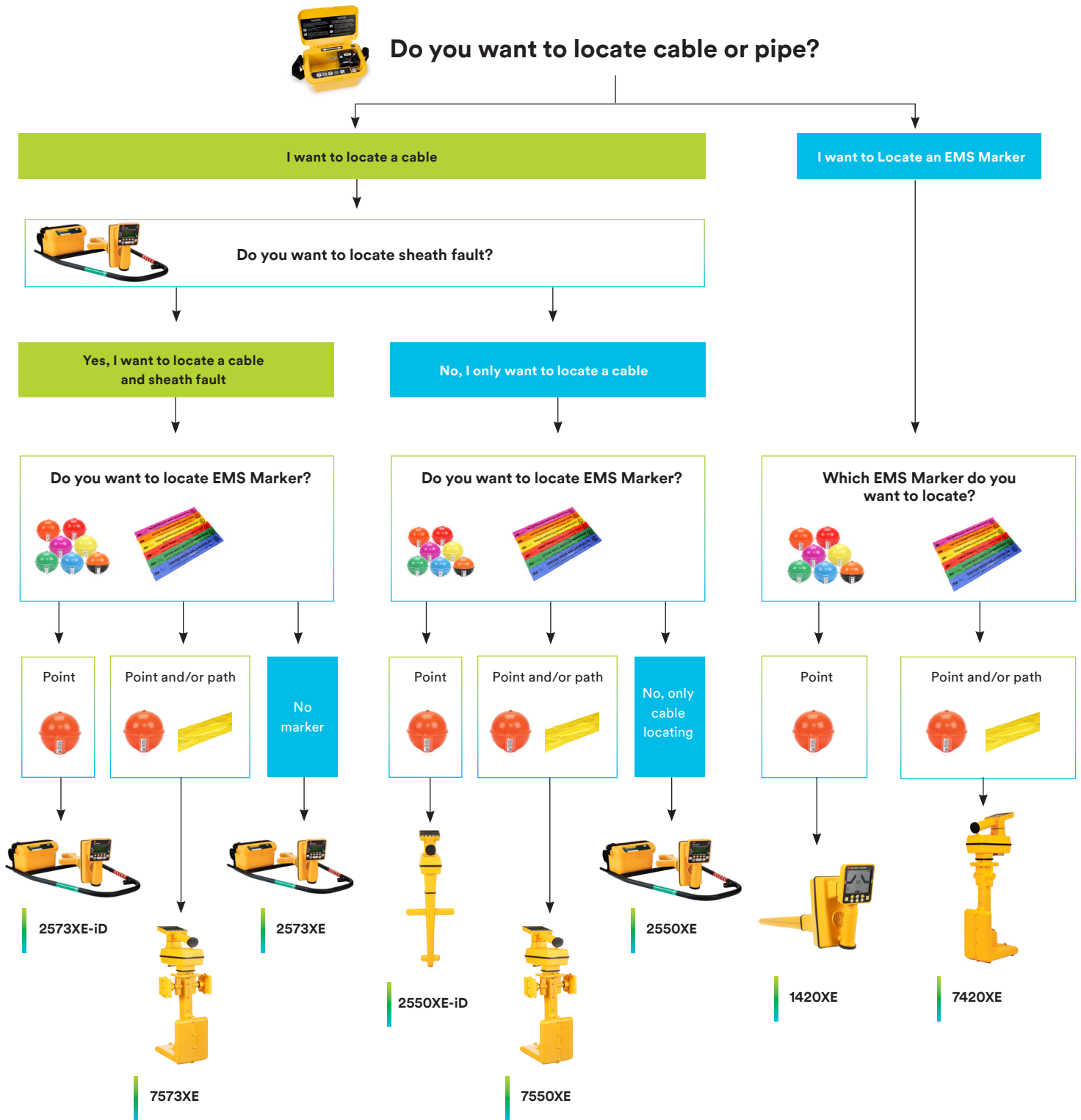1420XE/7420XE Series**

**3M™ Dynatel™ Locator
2550XE-ID/2573XE-ID Series**

**3M™ Dynatel™ Locator
7550XE/7573XE Series**

All Enquiries: tel: +44 (0)1744 762 929 | email: sales@etechcomponents.com | web: www.etechcomponents.com

# 3M™ Dynatel™ Locator selection chart



**Do you want to locate cable or pipe?**

| I want to locate a cable | I want to Locate an EMS Marker |
|---|---|

**Do you want to locate sheath fault?**

| Yes, I want to locate a cable and sheath fault | No, I only want to locate a cable |
|---|---|

| Do you want to locate EMS Marker? | Do you want to locate EMS Marker? | Which EMS Marker do you want to locate? |
|---|---|---|

| Point | Point and/or path | No marker | Point | Point and/or path | No, only cable locating | Point | Point and/or path |
|---|---|---|---|---|---|---|---|

**2573XE-iD**

**2573XE**

**7573XE**

**2550XE-iD**

**2550XE**

**7550XE**

**1420XE**

**7420XE**

The numbers above reference Dynatel Locator models.

Some kits have 3 or 12 W transmitters. 12 W transmitters can be useful with locates that have a weak signal.
To pick specific kits please refer to the locator kit ordering information starting on page 10.

# 3M™ Dynatel™ Locator features by model

| | | | 3M™ Dynatel Locator XE-Series | | | | | | | |
| | | | 2550XE | 2550XE-iD | 2573XE | 2573XE-iD | 7550XE | 7573XE | 1420XE | 7420XE |
|---|---|---|---|---|---|---|---|---|---|---|
| **Application** | Pipe and cable locating | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| | Sheath fault (A-frame) | | | | ✓ | ✓ | | ✓ | | |
| | EMS point marking | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| | EMS path marking | | | | | | ✓ | ✓ | | ✓ |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Functions** | Transmitter active frequencies | 577 Hz, 1 kHz, 8 kHz, 33 kHz, 82 kHz and 133 kHz | | | | | | | Not applicable | |
| | Transmitter inductive frequencies | 33 kHz, 82 kHz and 133 kHz | | | | | | | Not applicable | |
| | Passive power | 50 Hz or 60 Hz (5th and 9th harmonic) | | | | | | | Not applicable | |
| | Passive LF | 15 kHz – 30 kHz | | | | | | | Not applicable | |
| | Sonde locating | 33 kHz | | | | | | | Not applicable | |
| | EMS point marking[1] 8 utilities | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | |
| | EMS path marking[2] 6 utilities | | | | | | ✓ | ✓ | | ✓ |
| | Receiver battery system | Chargeable Li-Ion battery + alkaline 8x AA size battery pack for backup | | | | | | | | |
| | Receiver GPS | Internal GPS interface CEP50 (Autonomous Position Accuracy) ability to connect an external GPS device | | | | | | | | |
| | Receiver Bluetooth® wireless technology | Dual-mode Bluetooth® 5.0 profiles support GAP, GATT, SPP | | | | | | | | |
| | Receiver USB Type-C® connector | Charging Li-Ion battery connect external headphone or external GPS device memory stick (storage locator data, such as burial depth, GPS, marker info, time and date stamp, etc.) | | | | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Accessories** | Transmitter output power | | 0.5 watt and 3 watt (internal alkaline batteries) | | Not applicable |
| | Transmitter output power | | 12 watt (external 3M™ rechargeable battery) | | Not applicable |
| | Dyna-coupler size | | 3" and 4.5" | | Not applicable |

✓ Standard feature

[1]Telephone, water, wastewater, gas, general purpose, power, power CE, CATV

[2]Telephone, water, wastewater, gas, general purpose, power

# 3M™ Locating and Marking Accessories

**7000027975**

**3M™ Ribbed Battery Compartment Cap with liner for 3M™ Dynatel™ M-Series cable/pipe Locators**

The cap screws onto the locator handle to help protect the battery.

**7000058653**

**3M™ Rechargeable Battery**

Two-lead, 10' (3 m) cable used for direct connection to cable and ground.

**7000058654**

**3M™ 6" (15.2 cm) Dyna-Coupler with pouch**

Permits coupling of RF trace tone to large diameter cables, bundle cables, and cables enclosed in accessible non-metallic ducts. For use on cables and conduits with a maximum diameter of 6.9" (17.5 cm).

**7000058906**

**3M™ Rechargeable Battery Pack**

For use with 3M™ Dynatel™ 7000XE and 2500XE Series Receiver.

**7000057745**

**3M™ Small Clip 1/4" (6.4 mm) Direct Connect, 5-foot Transmitter Cable, telephone**

Two-lead, 5' (1.5 m) cables used for direct connection to conductor and ground. The 9012 cable has smaller Telco style alligator clips with an insulation piercing needle incorporated.

**7000057744**

**3M™ 3" (7.6 cm) Dyna-Coupler**

Permits coupling of RF trace tone to cables with a maximum diameter of 3" (7.6 cm).

**7000058141**

**3M™ Small Clip 1/4" (6.4 mm) Direct-Connect Transmitter Cable for all cable/fault locators**

Two-lead, 10' (3 m) cable used for direct connection to cable and ground.

**7000031716**

**3M™ 4.5" (11.4 cm) Dyna-Coupler**

Permits coupling of RF trace tone to cables with a maximum diameter of 4.5" (11.4 cm).

**7000058140**

**3M™ Large Clip 5/8" (15.9 mm) Direct-Connect Transmitter Cable**

Two-lead, 10' (3 m) cable used for direct connection to cable and ground.

**7000031432**

**3M™ Coupler Cable**

For use with any Dynatel Transmitter, Receiver, or Coupler: 12' (3.7 m) in length.

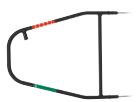**7000043006**

**3M™ Ground Extension Cable**

Extends ground capability to 12' (3.7 m).

**7000006221**

**3M™ Dynatel™ Locator Coupler Accessory Kit**

Contains a 4001 4.5" (11.4 cm) 3M Dyna-coupler and a 3M Coupler Cable 9011 with a case that can be attached to the transmitter.

**7000031431**

**3M™ Earth Contact Frame**

Used only when locating sheath (earth return) faults. It indicates direction to the fault and is color coded to correspond with the Receiver's indicator.

**7000058326**

**3M™ 3" (7.6 cm) Cable Locator Coupler Accessory Kit**

Contains a 3001 3" (7.6 cm) Dyna-coupler and a Coupler Cable 9011 with a case that can be attached to the transmitter.

**7000031433**

**3M™ Earth Contact Frame Cable**

For use with the 3M™ Earth Contact Frame 3014 for sheath (earth return) fault location; 4' (1.2 m) in length.

**7000006166**

**3M™ Soft Carrying Bag**

Carrying bag for the 2500XE and 7000XE series locators.

# 3M™ Dynatel™ Locator Kits ordering information

| For Europe | Point and path markers enabled / Point markers enabled / No point or path enabled | Cable/pipe locate | Fault locate | Electronic marker locate | Path marker locate | Transmitter output | Direct connect cable – small clips | Direct connect cable – large clips | Coupler size (inches) | 2200RB rechargeable battery | Receiver rechargeable battery | Cigarette lighter adapter cable | Carrying bag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **7573XE Series Kits** | | | | | | | | | | | | | |
| 7100253206 | 7573XE U12 Mkr/Pth Cb/Pp/Flt Loc 4.5" 12 W | × | × | × | × | 12 W | | × | 4,5 | × | × | × | × |
| 7100253211 | 7573XE C12 Mkr/Pth Cb/Pp/Flt Loc 3" 12 W | × | × | × | × | 12 W | × | | 3 | × | × | × | × |
| **7550XE Series Kits** | | | | | | | | | | | | | |
| 7100253208 | 7550XE U12 Mkr/Pth Cb/Pp Loc 4.5" 12 W | × | | × | × | 12 W | | × | 4,5 | × | × | × | × |
| **7420XE** | | | | | | | | | | | | | |
| 7100213472 | 7420XE ID Marker/Path Locator – Exp | | | × | × | | | | | | × | | |
| **2573XE Series Kits** | | | | | | | | | | | | | |
| 7100253196 | 2573XE-ID U12 Mkr Cb/Pp/Flt Loc 4.5" 12 W | × | × | × | | 12 W | | × | 4,5 | | × | × | × |
| 7100253203 | 2573XE-ID C12 Mkr Cb/Pp/Flt Loc 3" 12 W | × | × | × | | 12 W | × | | 3 | | × | × | × |
| 7100253197 | 2573XE C12 Cb/Pp/Flt Loc 3" 12 W | × | × | | | 12 W | × | | 3 | | × | × | × |
| **2550XE Series Kits** | | | | | | | | | | | | | |
| 7100253524 | 2550XE-ID U12 Mkr Cb/Pp Loc 4.5" 12 W | × | | × | | 12 W | | × | 4,5 | | × | × | × |
| 7100253114 | 2550XE-ID C12 Mkr Cb/Pp Loc 3" 12 W | × | | × | | 12 W | × | | 3 | | × | × | × |
| 7100253198 | 2550XE C12 Cb/Pp loc 3" 12 W | × | | | | 12 W | × | | 3 | | × | × | × |
| **1420XE** | | | | | | | | | | | | | |
| 7100213430 | 1420XE ID Marker Locator – Exp | | | × | | | | | | | × | | |
| **XE-Series receiver only** | | | | | | | | | | | | | |
| 7100213427 | 7573XE Mkr/Pth Cb/Pp/Flt Loc Only | × | × | × | × | | | | | | × | | |
| 7100253207 | 7550XE Mkr/Pth Cb/Pp Loc Only | × | | × | × | | | | | | × | | |
| 7100213429 | 2573XE-ID Mkr Cb/Pp/Flt Loc Only | × | × | × | | | | | | | × | | |
| 7100253263 | 2573XE Cb/Pp/Flt Loc Only | × | × | | | | | | | | × | | |
| 7100253199 | 2550XE-ID Mkr Cb/Pp Loc Only | × | | × | | | | | | | × | | |
| 7100253062 | 2550XE Cb/Pp Loc Only | × | | | | | | | | | × | | |
| **Transmitter only** | | | | | | | | | | | | | |
| 80-6113-3471-7 | 2573E-T12 M-SERIES Transmitter Only, OUS 12 W | | | | | 12 W | × | × | | × | | × | |
| 80-6113-3476-6 | 2550E-T12 M-SERIES Transmitter Only, OUS, 12 W | | | | | 12 W | × | × | | × | | × | |

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