



# Locate Plastic Pipe & Conduit

3M™ Electronic Marking System (EMS) Caution Tape 7600 Series

3M™ Dynatel™ Cable/Pipe/Fault/EMS Tape Locators 7000 Series

# 3M™ EMS (Electronic Marking System) Caution Tape 7600 Series 3M™ Dynatel™ Cable/Pipe/Fault/EMS Tape Locators 7000 Series

## Introducing 3M's Next Generation of Underground Infrastructure Asset Management

### A Revolutionary Approach to Locating Plastic Pipes/Conduit Path

3M has over 30 years experience developing new and innovative solutions for locating buried assets. 3M pioneered electronic marker technology with EMS markers and programmable ID markers and continues to set the standard for innovation with its newest path marking technology.

Now, 3M has developed an effective way to locate the path of underground plastic pipes and conduits, eliminating the need, problems and costs associated with tracer wire and test stations.



### System Benefits

- Eliminates need to install tracer wire
- No access points or connections required
- Locate without the need of a transmitter
- Unique identification for each utility type
- Low installed costs
- Tape does not provide a path for lightning
- Signal path maintained even if the tape is cut or damaged
- Product design life — 50 years

## EMS Caution Tape for Path Marking

3M™ Electronic Marking System Caution Tape uses a new EMS marker technology embedded into a caution tape for installation near or above the buried facility and helps provide continuous path location. When energized using a 3M™ Dynatel™ Locator 7000 Series, the markers are activated. The markers require no batteries, and there is no need to hook up an external transmitter or search for access points.

The markers work independently, so even if a section of caution tape is cut or removed, the other markers on the tape would continue to provide accurate location.

Each version of 3M™ EMS Caution Tape is tuned to a frequency specific to the path of that utility (gas, telco, or wastewater) and can be buried up to two feet (.76 m).

## EMS Electronic Markers for Point Marking

3M™ EMS Caution Tape for path marking is a perfect complement to 3M's existing line of EMS passive and ID markers (Near Surface, Ball and Full Range markers) which are used for marking points of interest, such as splices, service drops, valves, etc.

ID markers can be programmed to include specific information such as facility data, type of application, placement date and other important details.










3M™ Electronic Marking System (EMS)  
Caution Tape 7600 Series



3M™ ID Ball Markers

## 3M™ Electronic Marker Specifications

|                                 | Telephone  | Power   | CATV   | General Purpose  | Water  | Wastewater  | Gas  | Read Range*   |
|---------------------------------|--|---|--|--|--|---|--|---------------|
| Color                           |  orange |  red |  black/orange |  purple |  blue |  green |  yellow | n/a           |
| ID Ball Marker                  | 1421-XR/ID   | 1422-XR/ID  | 1427-XR/ID   | 1428-XR/ID   | 1423-XR/ID   | 1424-XR/ID  | 1425-XR/ID   | 5 ft. (1.5 m) |
| ID Near-Surface                 | 1432-XR/ID   | 1433-XR/ID  | 1437-XR/ID   | 1438-XR/ID   | 1434-XR/ID   | 1435-XR/ID  | 1436-XR/ID   | 3 ft. (0.9 m) |
| ID Full-Range                   | 1250-XR/ID   | 1251-XR/ID  | N/A  | 1248-XR/ID   | 1252-XR/ID   | 1253-XR/ID  | 1254-XR/ID   | 8 ft. (2.4 m) |
| <b>Non-ID</b><br>Ball Marker XR | 1401-XR  | 1402-XR   | 1407-XR  | 1408-XR  | 1403-XR  | 1404-XR   | 1405-XR  | 6 ft. (1.8 m) |
| Near-Surface Marker             | 1432   | 1433  | N/A  | N/A  | 1434   | 1435  | 1436   | 3 ft. (0.9 m) |
| Mini-Marker                     | 1255   | 1256  | N/A  | N/A  | 1257   | 1258  | 1259   | 7 ft. (2.1 m) |
| Full-Range                      | 1250   | 1251  | N/A  | N/A  | 1252   | 1253  | 1254   | 9 ft. (2.7 m) |

\*Read range specifies maximum distance from locator probe using 3M™ Dynatel™ Locator 7000 Series. Read range may vary on export models—refer to product bulletins. Some countries do not allow all marker operating frequencies.

## 3M™ EMS Caution Tape 7600 Series Specifications

|   |  |
|---|--|
| <b>Description:</b>                                       | 6 Mil PE film with 3M Markers for locating |
| <b>Part Number:</b>                                       | 7600 Series                                |
| <b>Tape Material:</b>                                     | Polyethylene                               |
| <b>Color(s):</b>  | Yellow, Orange, Green                      |
| <b>Gauge(s):</b>  | 6 Mil (+/- 10%)                            |
| <b>Roll Width(s):</b>                                     | 6" (0.15 m)                                |
| <b>Roll Length:</b>                                       | 1,312 ft. (400 m)                          |
| <b>Density*:</b>  | .920 g/cc (6.0 Mil)                        |
| <b>Tensile at Break (psi) / (with markers attached)*:</b> | MD 1307 (+/- 5%)<br>TD 377 (+/- 5%)        |
| <b>Elongation (%)*:</b>                                   | MD 7.8<br>TD 12.7                          |
| <b>Tear Strength (g)*:</b>                                | MD 440<br>TD 1200                          |
| <b>Physical Specifications:</b>                           |  |
| <b>Weight(s):</b>   | 22 lbs. @ 4" wide<br>44 lbs. @ 6" wide     |
| <b>Spool size: 6" wide</b>                                | 19.5 in. (.5 m) dia. x 12 in. (.3 m)       |
| <b>Spool hole:</b>  | 3.0 dia in                                 |
| <b>Environmental Specifications:</b>                      |  |
| Operating temperature                                     | -4° F to 122° F (-20° C to 50° C)          |
| Storage temperature                                       | -4° F to 149° F (-20° C to 65° C)          |
| <b>Compatibility:</b>                                     |  |
| 3M™ Dynatel™ 7400 and 7500 Series Locators                |  |
| <b>Maximum Burial Depth**:</b>                            |  |
| 7600 Series Tape  | 2.0 ft. (.61 m) (maximum)**                |

\* Based on average production

\*\* Using 3M™ Dynatel™ 7000 Series Locators



3M™ Electronic Marking System (EMS) Caution Tape 7600 Series

## Ordering Information

| Product Number | Product Description              | 3M ID          |
|----------------|----------------------------------|----------------|
| 7605-XR-CT-GAS | EMS Tape 6", 400 m roll, English | 80-6116-1196-5 |
| 7604-XR-CT-WW  | EMS Tape 6", 400 m roll, English | 80-6116-1198-1 |
| 7601-XR-CT-TEL | EMS Tape 6", 400 m roll, English | 80-6116-1195-7 |



# 3M™ Dynatel™ Locators 7000 Series

## Marker Tape/Locator 7420

Based on existing Dynatel technology platform, the new 7420 locator will allow the user to locate EMS Caution Tape and existing electronic markers (balls, near-surface, full range, etc.). In addition, the locator will read/write to 3M ID markers. It is as easy as selecting “path” marker locating for EMS Caution Tape or “ID/EMS” for point marker locating. The push of one button will provide the depth to any of the underground marking solutions.

## Pipe/Cable/EMS Locators 7550-ID

## Pipe/Cable/Fault/EMS Locators 7573-ID

3M™ Dynatel™ locators 7500 series offer a broad feature set with advanced digital processing and simple interfaces with precision locating capabilities. The new 7500 series locators will allow the user to locate EMS Caution Tape and existing electronic markers (balls, near-surface, full range, etc.). In addition, all 7500 series locators will read/write to 3M ID markers. All 7500 series locators offer six active frequencies and transmitter output options in 3, 5 or 12 watts providing a solution for virtually all challenging applications encountered in the field.

As with all 3M Dynatel Cable/Pipe Locators, the 7500 series provides accurate pipe, cable, or Sonde depth measurements, giving a digital readout in feet and inches, or centimeters (user-selectable). All 7500 series locators and fault finders are also compatible with select GPS/GIS field mapping instruments for real time mapping of electronic markers or pipe and cable facilities. Other user friendly features include the ability to enable or disable receiver frequencies and the ability to select audio sounds in the simple menu driven interface.

## A Reputation of Excellence

When you choose a quality 3M™ Dynatel™ Locator, you get outstanding performance and reliability, along with toll-free technical phone support and a service center dedicated to excellence. Our service center provides calibration, repair, upgrades and modifications for safety, performance and reliability.



3M™ Dynatel™ Cable/Pipe/Fault/EMS Locator 7500 Series



3M™ Dynatel™ Cable/Pipe/Fault/EMS Locator 7500 Series

## Product Features

- 6 active frequencies for direct connect
- 4 induction frequencies with maximum allowed output power
- Trace view mapping display
- Push button depth to all underground markers (passive and ID)
- Receiver rechargeable battery kit
- All frequency mode in direct connect (4 simultaneously)
- Automatic impedance matching
- Ohm meter with high voltage detection
- Rugged, industrial temperature range
- 240VAC output protection

New features in the 3M™ Dynatel™ 7500 Series Locators include EMS Caution Tape Locating and EMS alert which allows the user to locate EMS Caution Tape and at the same time be alerted to electronic markers of the same utility.



## Optional/Replacement Accessories

| Stock Number | Product Number | Product Description   |
|--------------|----------------|---|
| 80610074686  | 3001           | Dyna-Coupler 3-Inch   |
| 80610764716  | 3019           | Cable Locator Coupler Accessory Kit 3"                          |
| 80611325830  | 4001           | Dyna-Coupler 4.5 Inch   |
| 80611335201  | 4519           | Locator Coupler Accessory Kit - 4.5"                            |
| 80610411185  | 1196           | 6" Dyna-Coupler W/Pouch   |
| 80611312499  | 1196/C         | 6" Dyna-Coupler W/Pouch & 9011 Coupler Cable                    |
| 80610598130  | 2876           | Large Clip Direct-Connect Trnsmr Cable for Cable/Fault Locators |
| 80610598668  | 2892           | Small Clip Direct-Connect Trnsmr Cable for Cable/Fault Locators |
| 80610074850  | 9012           | Direct Connect, 5-Foot Transmitter Cable, Telephone             |
| 80610074843  | 9011           | Coupler Cable   |
| 80610126833  | 9043           | Ground Extension Cable 12'                                      |
| 80611330368  | 2200M-USB      | USB To RS232 Converter For 2200M/1420 Locators                  |
| 80610074777  | 3014           | Earth Contact Frame   |
| 80610074942  | 9026           | Earth Contact Frame Cable                                       |
| 80611146715  | 2200M/7000     | Soft Carrying Bag For 2200M/2500/7000 Series                    |
| 80611306517  | 2200/7000RB    | Rechargeable Battery for 5W & 12W Units Non-Spillable           |
| 80630002535  | 7000RB         | Rechargeable Battery Pack for 7000 Series Rcvr                  |
| 80610126841  | 8006           | Ground Rod  |
| 80610757785  | 3229           | ADP 33 kHz Sonde for Use w/Cable/Fault Locators                 |

# 3M™ Dynatel™ EMS Marker/Tape Locator 7420/7420E Product Specifications

## Physical Specifications:

|              |   |   |
|--------------|---|---|
| Locator      | Size (H x W x D) IN (CM)<br>30" x 6.5" x 10.5" (76 x 17 x 27) | Weight (including batteries)<br>5 lb. (2.25 kg) |
| Shipping Box | Size (L x W x H) IN (CM)<br>33" x 17" x 12.5" (84 x 43 x 32)  | 7 lb. (3.2 kg)                                  |

## 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) |
| Regulatory             | 7420 (FCC Part 15), 7420E (CE)    |
| Environmental Standard | IP54                              |

## Compatibility:

|                                 |  |
|---------------------------------|--|
| 3M EMS/ID Markers               | All 3M markers (telephone, gas, communication, power, water, wastewater and general purpose) |
| 3M EMS 7600 Series Caution Tape | All 3M path marking caution tape (telephone, gas, wastewater)                                |

## Range/Depth:

### Write Range 3M ID Markers:

|              |                |
|--------------|----------------|
| Near-Surface | 6 in. (15 cm)  |
| Ball Marker  | 12 in. (30 cm) |
| Full-Range   | 24 in. (61 cm) |

### 7420 Read Range 3M ID Markers: (Telephone, Power, Gas, Water, Wastewater, Communications (CATV), General Purpose)<sup>1</sup>

|              |               |
|--------------|---------------|
| Near-Surface | 3 ft. (0.9 m) |
| Ball Marker  | 5 ft. (1.5 m) |
| Full-Range   | 8 ft. (2.4 m) |

### 7420E Read 3M ID Markers: (Telephone, Gas, Wastewater, Water, Communications (CATV), General Purpose)\*

|              |                |
|--------------|----------------|
| Near-Surface | 90 cm (36 in.) |
| Ball Marker  | 1.5 m (60 in.) |
| Full-Range   | 2.4 m (94 in.) |

\* Some countries do not allow all marker operating frequencies. Refer to the Operator's Manual for more information.

## Detection Depth 3M Passive Markers (no ID):

|              |                |
|--------------|----------------|
| Near-Surface | 3 ft. (0.9 m)  |
| Ball Marker  | 6 ft. (1.8 m)  |
| Mid-Range    | 7 ft. (2.1 m)  |
| Full-Range   | 9 ft. (2.75 m) |

## Maximum Burial Depth

|                            |  |
|----------------------------|--|
| 7600 Series Caution Tape   | 2.0 ft. (.61 m)  |
| Depth measurement accuracy | +/- (10% + 5 cm) or +/- (10% + 2 in.) up to specified depth of marker or caution tape<br>(Depth accuracy susceptible to high ambient noise conditions) |

## ID Marker Memory Storage:

|                                     |                           |
|-------------------------------------|---------------------------|
| Memory storage with date/time stamp | Read marker records 100   |
| Written marker records              | 100                       |
| User defined ID templates           | 32                        |
| Marker depth memory storage         | Five with date/time stamp |

## Electrical Specifications:

|                |   |
|----------------|---|
| Power          | Rechargeable battery pack (12V2R4A) <sup>2</sup>                              |
| Battery life:  | 8 hours typical <sup>3</sup>  |
| Charging time  | 2.5 hours, with 90~240V AC adapter  |
| Display        | Large graphic high-contrast LCD with backlight                                |
| Speaker        | 0.25 W  |
| Headphone jack | Standard mini phone jack  |
| Serial port    | Standard RS232 serial with DB9 connector(RS232 to USB adapter cable included) |

## Notes:

<sup>1</sup>Some countries do not allow all marker operating frequencies. Refer to configuration section for 7420E instruction manual (Section 4A).

<sup>2</sup>It's recommended to use the rechargeable battery pack. However, a battery holder is provided for using 8-AA size Alkaline batteries for backup, which would have reduced battery life.

<sup>3</sup>The battery life is measured for the 12V2R4 rechargeable battery pack at 73°F/23°C, with 10% usage of the backlight and audio volume at medium level.



# 3M™ Dynatel™ Pipe/Cable/Fault/EMS Locator 7500 Series Product Specifications

## Physical Specifications:

|              |                                   |                              |
|--------------|-----------------------------------|------------------------------|
| Locator      | Size (H x W x D) IN (CM)          | Weight (including batteries) |
| Shipping Box | 30" x 6.5" x 10.5" (76 x 17 x 27) | 6.4 lb. (2.90 kg)            |
|              | Size (L x W x H) IN (CM)          | 7 lb. (3.2 kg)               |
|              | 33" x 17" x 12.5" (84 x 43 x 32)  |                              |

## 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)                                |
| Regulatory             | 7550 (FCC Part 15), 7550E (CE)<br>7573 (FCC Part 15), 7573E (CE) |
| Environmental Standard | IP54   |

## 7500 Series Receiver Specifications

|                           |   |
|---------------------------|---|
| Power                     | Rechargeable Li Ion battery pack (12V2R4A)1   |
| Battery Life              | 8 hours typical2  |
| Charging Time             | 2.5 hours typical, with 90~240V AC adapter  |
| Display                   | Large graphic high-contrast LCD with backlight  |
| Speaker                   | 0.25W   |
| Headphone jack            | Standard mini phone jack  |
| Serial Port               | Standard RS232 serial with DB9 connector<br>(RS232 to USB adapter cable included)   |
| Display                   | LCD   |
| Gain Control              | Manual and Automatic  |
| Weight w/batteries        | 5.0 - 6.4 lbs. (2.3 - 2.9 kg) (model dependent)   |
| Cable/Pipe Depth Accuracy | ±2% ± 3 in. (7.6 cm) for 0–60 in. (1.5 m)<br>±6% ± 3 in. (7.6 cm) for 60–120 in. (1.5–3.0 m)<br>±10% ± 3 in. (7.6 cm) for 120–180 in. (3.0 m–4.5 m) |
| Cable/Pipe Depth Range    | 0–360 in. (0–914 cm)  |

## Locate Modes:

Trace View  
Directional Peak  
Directional Null  
Special Peak  
Induction Peak

## Frequency Response:

|                                  |  |
|----------------------------------|--|
| Active 7550/7573                 | 577 Hz<br>1 kHz<br>8 kHz<br>33 kHz<br>82 kHz<br>200 kHz  |
| Active 7550E/7573E International | 577 Hz<br>1 kHz<br>8 kHz<br>33 kHz<br>82 kHz<br>133 kHz  |
| Passive                          | 31.5 kHz (CATV)<br>15 – 30 kHz (LF)  |
| Power                            | 50 Hz, 5th and 9th harmonic of 50 Hz<br>60 Hz, 5th and 9th harmonic of 60 Hz<br>(100 / 120 Hz) rectified power |
| Auxiliary                        | 512 Hz<br>560 Hz<br>640 Hz   |
| User Defined Frequencies         | Four   |

**Marker Compatibility:**

|  |  |
|--|--|
| 3M™ EMS/ID Markers<br>3M™ EMS 7600 Series Caution Tape | All 3M markers (telephone, gas, communication, power, water, wastewater and general purpose) All 3M path marking caution tape (telephone, gas, water, waste water) |
| Write Range<br>3M™ ID Markers:                         | (Telephone, Power*, Gas, Water, Wastewater, Communications (CATV), General Purpose)  |
| Near-Surface<br>Ball Marker<br>Full-Range              | 6 in (15 cm)<br>12 in (30 cm)<br>24 in (61 cm)   |

\* The Power frequency is not supported for 7550E/7573E in write mode.

|   |   |
|---|---|
| 7550/7573 Read Range<br>3M™ ID Markers: | (Telephone, Power, Gas, Water, Wastewater, Communications (CATV), General Purpose)* |
|---|---|

|   |  |
|---|--|
| Near-Surface<br>Ball Marker<br>Full-Range | 3 ft (0.9 m)<br>5 ft (1.5 m)<br>8 ft (2.4 m) |
|---|--|

|   |  |
|---|--|
| 7550E/7573E Read Range<br>3M™ ID Markers: | (Telephone, Water, Gas, Wastewater, Communications (CATV), General Purpose)* |
|---|--|

|   |   |
|---|---|
| Near-Surface<br>Ball Marker<br>Full-Range | 90 cm (36 in)<br>1.5 m (60 in)<br>2.4 m (96 in) |
|---|---|

\* Some countries do not allow all marker operating frequencies. Refer to Configuration Section for 7550E/7573E (Section 4A).

**Detection Depth for Passive Markers (no ID):**

|  |   |
|--|---|
| Near-Surface<br>Ball Marker<br>Mid-Range<br>Full-Range | 3 ft (0.9 m)<br>6 ft (1.8 m)<br>7 ft (2.1 m)<br>9 ft (2.75 m) |
|--|---|

**Maximum\* Burial Depth**

|   |   |
|---|---|
| 7600 Series CT-3 Tape<br>Depth measurement accuracy | 2.0 ft (.61 m)<br>+/- (10% + 5 cm) or +/- (10% + 2 in) up to specified depth of marker or caution tape (Depth accuracy susceptible to high ambient noise conditions) Maximum Burial depth 2.5 ft (.7 m) |
|---|---|

**ID Marker Memory Storage:**

|   |   |
|---|---|
| Memory storage with date/time stamp<br>Written marker records<br>User defined ID templates<br>Marker depth memory storage | Read marker records 100<br>100<br>32<br>Five with date/time stamp |
|---|---|

**Notes:**

1. It's recommended to use the rechargeable battery pack. However, a battery holder is provided for using 8-AA size Alkaline batteries for backup, which would have reduced battery life.
2. The battery life is specified for the 12V2R4 rechargeable battery pack at 73°F / 23°C, with 10% usage of the backlight and audio volume at medium level.

## 7500 Series U Version 12-Watt Transmitter Specifications

| Item                                     | Specification  |
|--|--|
| Trace Mode                               | 577 Hz<br>1 kHz<br>8 kHz<br>33 kHz<br>82 kHz<br>200 kHz  |
| Fault Mode<br>(7573 models only)         | 10/20 Hz -Fault signal<br>577 Hz / 33 kHz -Trace signal.   |
| Tone Mode<br>(7573 models only)          | 577 Hz and 200 kHz pulsing at 8 Hz   |
| Induction Mode                           | 8 kHz<br>33 kHz<br>82 kHz<br>200 kHz   |
| Output Power<br>(in Direct Connect mode) | Normal setting: 0.5 W<br>High setting: 3 W @ 577 Hz, 1 kHz, 8 kHz, 33 kHz; 1 W @ 82 kHz, 200 kHz<br>Maximum setting: 12 W @ 577 Hz, 1 kHz, 8 kHz; 10 W @ 33 kHz; 1 W @ 82 kHz, 200 kHz |
| Output Voltage (Maximum)                 | 70 Vrms  |

| Item                                 | Specification   |
|--------------------------------------|---|
| Output Protection                    | 240 Vrms  |
| Weight with batteries                | with alkaline batteries only: 5.2 lbs (2.4 kg)<br>with rechargeable battery and alkaline batteries: 9.2 lbs (4.2 kg)  |
| Battery Qty. and size                | For Normal and High Output Power: 6 "C" size, Alkaline (LR14)<br>For Maximum Output Power: Rechargeable Battery, 12V-6AH, Sealed Maintenance-Free Lead (Pb)-Acid Battery  |
| Typical Battery Life                 | Normal Output Power level: 50 hours<br>High Output Power level: 10 hours<br>Typical transmitter specified battery life (listed above) is increased by 40% when using the 2200RB Rechargeable Battery (12 volt). Using the 2200RB bypasses the alkaline batteries.<br>Maximum Output Power level: 4 hours (Maximum Output Power level achieved using 2200RB Rechargeable Battery.) |
| External DC Power                    | 9–18 V DC   |
| Standard                             | IP54  |
| Regulatory                           | FCC compliant, FCC Part 15  |
| Operating Temperature                | 4°F to 122°F (-20°C to 50°C)  |
| Storage Temperature                  | -4°F to 158°F (-20°C to 70°C)   |
| Rechargeable Battery Fuse            | 5 Amp / 32 Volt Littelfuse MINI® Blade # 0297005  |
| Cigarette Lighter Adapter Cable Fuse | 4 Amp/Fast Blow 250V  |

## 7500 Series E Version 12-Watt Transmitter Specifications

| Item                                     | Specification   |
|--|---|
| Trace Mode                               | 577 Hz<br>1 kHz<br>8 kHz<br>33 kHz<br>82 kHz<br>133 kHz   |
| Fault Mode - (7573 models only)          | 10/20 Hz -Fault signal<br>577 Hz / 33 kHz -Trace signal<br><i>Note: The fault locating limit is 2.0MΩ, although the transmitter's ohm-meter mode can display a fault resistance up to 10MΩ.</i>   |
| Tone Mode - (7573 models only)           | 577 Hz and 200 kHz pulsing at 8 Hz  |
| Induction Mode                           | 8 kHz<br>33 kHz<br>82 kHz<br>133 kHz  |
| Output Power<br>(in Direct Connect mode) | Normal setting: 0.5 W<br>High setting: 3 W @ 577 Hz, 1 kHz, 8 kHz, 33 kHz; 1 W @ 82 kHz, 133 kHz<br>Maximum setting: 12 W @ 577 Hz, 1 kHz, 8 kHz; 10 W @ 33 kHz; 1 W @ 82 kHz, 133 kHz (with external DC power source)  |
| Output Voltage (Maximum)                 | 70 Vrms   |
| Output Protection                        | 240 Vrms  |
| Weight w/batteries                       | with alkaline batteries only: 5.2 lbs (2.4 kg)<br>with rechargeable battery (2200RB) and alkaline batteries: 9.2 lbs (4.2 kg)   |
| Battery Qty. and size                    | For Normal and High Output Power: 6 "C" size, Alkaline (LR14)<br>For Maximum Output Power: Rechargeable Battery (2200RB), 12V-6AH, Sealed Maintenance-Free Lead (Pb)-Acid Battery (See safety information below.)   |
| Typical Battery Life                     | Normal Output Power level: 50 hours<br>High Output Power level: 10 hours<br>Typical transmitter specified battery life (listed above) is increased by 40% when using the 2200RB Rechargeable Battery (12 volt). Using the 2200RB bypasses the alkaline batteries.<br>Maximum Output Power level: 4 hours (Maximum Output Power level achieved using 2200RB Rechargeable Battery.) |
| External DC Power                        | 9–18 V DC   |
| Standard                                 | IP54  |
| Regulatory                               | CE Compliant  |
| Operating Temperature                    | 4°F to 122°F (-20°C to 50°C)  |
| Rechargeable Battery Fuse                | 5 Amp / 32 Volt, Littelfuse MINI® Blade # 0297005   |
| Cigarette Lighter Adapter Cable Fuse     | 4 Amp/Fast Blow 250V  |

3M and Dynatel are trademarks of 3M Company.

### **Conditional Limited Warranty**

3M provides the following Conditional Limited Warranty for its EMS Caution Tape 7600 Series Products: When installed in accordance with 3M's installation instructions, 3M warrants EMS Caution Tape for a period of one (1) year from the date of purchase of the product, to be free from defects in material and manufacture, provided EMS Caution Tape is located with 3M™ Dynatel™ Locators or other brand locators as may be designated by 3M in writing. This warranty does not extend to EMS Caution Tape that has 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 EMS Caution Tape is found to be defective within the warranty period, your exclusive remedy shall be, at 3M's options, to repair or replace the EMS Caution Tape or refund the purchase price. Except where prohibited by law, 3M will not be liable for any indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.

### **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 indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.

### **Conditional Lifetime Warranty**

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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.



### **Electrical Markets Division**

6801 River Place Blvd.  
Austin, TX 78726-9000  
800/200-0265  
Fax 877/601-1305  
[www.3M.com/dynatel](http://www.3M.com/dynatel)

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