

3M

Dynatel™

2250M Cable/Pipe Locators

2250M-iD Cable/Pipe and Marker Locators with iD Read/Write





New-to-the-world technology for locating underground utilities without any doubt.

3M™ Dynatel™ 2250M and 2250M-iD Cable/Pipe Locators are microprocessor-based systems that incorporate advanced digital signal processing techniques to quickly and efficiently trace the path of underground cables and pipes, both copper and fiber optic (with metallic tracer wire). They provide accurate cable or Sonde depth measurements, giving a digital readout in inches, feet and inches, or centimeters (user-selectable). Lightweight, compact and well-balanced, these cable/pipe and fault locators allow you to accurately and easily:

- Locate cable and pipe path
- Measure cable or Sonde depth with the push of a button
- Measure signal current in the cable
- Identify cable and cable pairs
- Tone shorts and grounds in aerial cable
- Identify cable pairs through wet sections
- Locate energized power cable

Advanced features detect more information about underground utilities.

A new feature exclusive to the 3M Dynatel 2250M-iD Cable/Pipe and Marker Locator is the ability to write, read and lock programmed information into the new 3M 1400 Series EMS iD Ball Markers. Information such as a pre-programmed unique identification number, facility data, owner information, application type, placement date and other details from up to 100 ID markers can all be read, stored with date/time stamp and transmitted back to your PC through a standard RS232 serial port for enhanced resource management.



Designed to be more accurate, faster and more integrated than any other locator on the market, the 3M Dynatel 2250M-iD Cable/Pipe and Marker Locators can perform these additional functions:

- Pin-point the location and estimate the depth of all existing models of properly installed underground passive EMS markers
- Direct depth reading of ID markers
- Locate two different marker frequencies simultaneously
- Trace a cable path while simultaneously finding buried markers along the way

Several unique modes of operation for accurate locates in every situation.

For cable path locating, the 3M Dynatel Cable/Pipe Locators have a highly accurate multi-antenna design for various user-selected locating modes – Directional Peak, Multi-Directional Null, plus an ultra-sensitive Special Peak mode for extreme depths.

The receiver includes a unique "expander" function that makes peaks and nulls more pronounced. The expander feature enhances the response for fast tracking and pin-pointing of position. The unique Directional Peak mode combines the response from four peak antennas to indicate left/center/right direction to the cable/pipe while the bar graph and numeric display indicate the sharp and accurate dual-peak response. Automatic gain set with manual override provides maximum flexibility and control. The multi-directional null mode shows null signal response with automatic gain and utilizes the multiple antenna design to show cable/pipe location and direction on a unique "compass" like graphic user interface on the high-resolution display.



A simple, easy-to-use system. Lightweight and easy to operate, the 3M™ Dynatel™ 2250M and 2250M-iD Cable/Pipe Locators are rugged, ergonomic and require very little operator training. A large backlit digital liquid crystal display (LCD) screen and soft-key operation make them easy to understand for more precise locates. A “memory” feature remembers operator set-up from previous use. A standard RS232 communications port allows interfacing to an external computer for uploading/downloading of data, unit configuration and remote software upgrades. The system can run over 30 hours on eight AA alkaline batteries.

The system consists of two basic components:

- Transmitter with built-in ohmmeter, which also senses and measures the presence of foreign voltage and tests the continuity of the circuit
- Rugged, one-piece hand-held receiver with bar graph signal strength and direction, that indicates received signal and proximity to the cable; ID versions locate all 3M EMS Markers and read/write to all 3M EMS-iD Markers



The 3M Dynatel Cable/Pipe Locators use four active trace frequencies — 577Hz, 8kHz, 33kHz and 200kHz — which can be used individually or simultaneously to compensate for varying field conditions. The receiver incorporates passive power and auxiliary frequencies that do not require the use of the transmitter. The receiver also has the unique capability to accommodate four user-definable auxiliary frequencies and allows the user to perform a self-calibration operation at any frequency at any time. In total, the receiver accommodates 23 frequencies. With the easy-to-use configuration tool, users can enable or disable any frequency to select only the frequencies that they need to use.

Both the receiver and the transmitter feature a self-test routine that is executed each time the unit is turned on. A power-up battery test indicates the battery level. Both components are constructed of heavy-duty materials designed to withstand typical field use.



Standard Dynatel accessories:

- 8006 Ground Rod; stainless steel
- 3019 Dyna-Coupler Kit; consists of 3 in. Dyna-Coupler, Coupler Cable and Pouch
- 2876 Direct-Connect Transmitter Cable; 10 ft. (3 m) in length; for Utility (U) models
- 9012 Direct-Connect Transmitter Cable; 5 ft. (1.5 m) in length; for Communications (C) models

Optional Dynatel accessories:

- 2892 Small Clip Direct-Connect Transmitter Cable; 10 ft. (3 m) in length
- 9043 Ground Extension Cable
- 3001 3 in. Dyna-Coupler; for use on cables up to 3 in. (7.6 cm) in diameter
- 1196 6 in. Dyna-Coupler; for use on cables up to 6.9 in. (17.5 cm) in diameter; with pouch
- 9011 12 ft. Coupler Cable
- 3011 3/8 in. Inductive Probe; for pair identification
- 3013 Direct Probe
- 9023 Probe Cable
- 2200M Carrying Case/Bag

Features of 3M™ Dynatel™ 2200M/M-iD Series Locators

RECEIVER	2250M	2250M-iD	2273M	2273M-iD
Directional peak, directional null, single peak locate modes	X	X	X	X
Large backlit, high resolution graphic display	X	X	X	X
Push button cable/pipe depth readout with continuous depth measurement mode	X	X	X	X
Active duct probe (Sonde) depth measurement	X	X	X	X
Signal current measurement	X	X	X	X
Toning amplifier function	X	X	X	X
Cable/pair identification	X	X	X	X
Marker alert mode while path tracing		X		X
Wet section tagging	X	X	X	X
Digital fault strength indicator			X	X
Expander amplifier	X	X	X	X
Pre-set auxiliary frequencies for power, CATV, radio and long haul fiber applications	X	X	X	X
Four user-definable auxiliary frequencies	X	X	X	X
Self-calibration mode, on demand	X	X	X	X
PC interface via standard RS232 serial port	X	X	X	X
User-configurable features and interface	X	X	X	X
Detects all seven EMS marker frequencies		X		X
Marker-Link and Locator PC tools software		X		X
ID marker read/write capability		X		X
Dual marker frequency search-simultaneous		X		X
Marker depth estimation		X		X
Conductor or sheath (earth return) fault locating			X	X

TRANSMITTER	2250M	2250M-iD	2273M	2273M-iD
Simultaneous signals	X	X	X	X
Built-in ohmmeter and continuity tester	X	X	X	X
Indicates presence of crossed or hazardous voltage	X	X	X	X
Three tone application methods (direct connect, coupler, inductive)	X	X	X	X
Auto load matching	X	X	X	X
High and normal output level	X	X	X	X
3 watt and 5 watt models available	X	X	X	X
Conductor or sheath (earth return) fault signal			X	X
Fault locate and cable locate tones applied simultaneously			X	X

Specifications for 3M™ Dynatel™ 2250M/M-iD Cable/Pipe Locators

PHYSICAL SPECIFICATIONS	SIZE (H x W x D) IN. (CM)	WEIGHT (INCLUDING BATTERIES)
Transmitter	6.75 x 11.25 x 7.75 (17.2 x 28.6 x 19.7)	5.2 lb. (2.4 kg)
Receiver	10.25 x 10.5 x 30 (26.7 x 26.1 x 76.2)	2250M – 4.05 lb. (1.9 kg), 2250M-iD – 4.85 lb. (2.3 kg)
Shipping	N/A	2250M – 17 lb. (7.9 kg), 2250M-iD – 17.6 lb. (8.1 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)
Standard	IP54
Regulatory	CE

ELECTRICAL SPECIFICATIONS

Receiver	
Frequencies	Active: 577Hz, 8kHz, 33kHz, and 200kHz Passive power: 50L, 50H, 100, 60L, 60H, 120 Passive (other): CATV 31.5kHz Auxiliary: 560, 512, 460, 400, 393, 340, 333, 273Hz User defined: up to four frequencies (50~999Hz)
Trace and tone modes	
Performance	Sensitivity @ 1 m/3.3 ft. from cable, Single Peak mode under low noise conditions
Depth	
Display resolution	0.1 dB
Depth display range	0 to 30 ft. (9 m)
Depth units	cm, inch, ft.-in.
Depth accuracy*	+/- 2% +/- 2 in. (5 cm) 0 to 60 in. (1.5 m) +/- 6% +/- 2 in. (5 cm) 60 to 120 in. (1.5 to 3 m) +/- 10% +/- 2 in. (5 cm) 120 to 180 in. (3 to 4.5 m)
Cable current display	0.1 dB resolution or 0.01 mA resolution Units: dB or mA
Power	Battery type: Eight AA size, alkaline
Typical battery life	30 hours
Transmitter	
Output frequencies	
Trace mode	577Hz, 8kHz, 33kHz, 200kHz
Sheath (earth return) fault mode	10/20 Hz for sheath (earth return) fault; 577Hz and 33kHz for tracing
Tone mode	577Hz and 200kHz pulsed at 8Hz
Induction mode	33kHz, 200kHz
Output Voltage (maximum)	
Sheath (earth return) fault	70 Vrms
Trace	70 Vrms
Tone	Normal setting: 10 Vrms, High setting: 60 Vrms
Output Power	Normal setting: Limited to 0.5W High setting: Limited to 3W, or 5W with External DC power (option 'A' only)
Output protection	240 Vrms
Power	Battery type: Six C size, alkaline (LR14) cells; External DC: 9-18V DC (1A) (option 'A' only)
Typical battery life	Normal output level: 50 hours High output level: 10 hours

*Note: Locators are tested in model field conditions with no adjacent signals. Actual operating conditions may result in decreased depth accuracy due to outside signal disruptions.

Ordering for 3M™ Dynatel™ 2250M/M-iD Cable/Pipe Locators

ORDERING INFORMATION

To order, specify the appropriate 3M™ Dynatel™ 2250M/M-iD Cable/Pipe Locator using the schematic below.

EXAMPLE: 2250M-iD/UC3W-RT
Description:
— 2250M Cable/Pipe Locator with iD Capability
— US Version
— Communications Application
— 3 Watt Transmitter-Receiver and Transmitter Included

PRODUCT NUMBER	DESCRIPTION
2250M-iD/UR	Cable/Pipe Locator US Receiver only, with EMS-iD Capabilities
2250M-iD/UC5W-RT	Cable/Pipe Locator US Communications 5 watt with EMS-iD Capabilities
2250M-iD/UU5W-RT	Cable/Pipe Locator US Utility 5 watt with EMS-iD Capabilities
2250M-iD/UC3W-RT	Cable/Pipe Locator US Communications 3 watt with EMS-iD Capabilities
2250M-iD/UU3W-RT	Cable/Pipe Locator US Utility 3 watt with EMS-iD Capabilities
2250M-UR	Cable/Pipe Locator US Receiver only
2250M-UC5W/RT	Cable/Pipe Locator US Communications 5 watt
2250M-UU5W/RT	Cable/Pipe Locator US Utility 5 watt
2250M-UC3W/RT	Cable/Pipe Locator US Communications 3 watt
2250M-UU3W/RT	Cable/Pipe Locator US Utility 3 watt



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