

3M™ Dynatel™
Locating and Marking System



Quickly &
Accurately
Identify Underground
Assets



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.

Easy to Use.

Dynatel locators require little training and are simple to use. Digital LCD readouts and push-button operation make the units easy to interpret for precise locates. A bar graph on the receiver indicates received signal and proximity to the cable, and an automatic “memory” feature stores operator setup from previous use.

Precisely locates faults.

We earned our reputation for fault locating, and we continue to advance this technology today. 3M™ Dynatel™ Cable/Fault Locators identify and measure points of cable damage where there is metallic contact to earth via a conductor or cable shield. They utilize our proven fault detection method with enhanced speed, sensitivity, and noise rejection. Our multi-antenna design provides high accuracy and performance.



The full line of 3M locators and markers helps you quickly and accurately identify



The most difficult
locates
just got
easier

3M™ Dynatel™ Locators

Pipe, Cable, and Electronic Marker Locators

3M Dynatel Locators combine simple interfaces, large backlit high-resolution graphics, excellent balance and ergonomics with precision locating capabilities to help you quickly and accurately identify underground assets.

Dynatel Locators can be used to trace pipe and cable paths, locate sheath faults, provide accurate pipe, cable or Sonde depth measurements, locate buried electronic markers, read/write to 3M iD Markers and interface with GPS instruments to create accurate maps of underground facilities.

Dynatel Locators are available in a range of configurations from fully-featured pipe, cable, fault and electronic marker locators to basic cable avoidance systems.

	Cable/Pipe	Cable/Pipe/Fault
M Series Advanced locator	Model 2220M 2250M 2550	Model 2273M 2573
iD Series Advanced locator Locates all EMS markers and reads/writes to iD markers	Model 2250M-iD 2550-iD	Model 2273M-iD 2573-iD
GPS compatible		
2200 Series Basic locator	Model 2210 Model 2250	Model 2273

3M™ Dynatel™ Pipe/Cable Locator 2500 Series

Pipe/Cable Locators 2550

Pipe/Cable and Marker Locators 2550-iD

Cable/Pipe/Fault Locators 2573

Cable/Pipe/Fault and Marker Locators 2573-iD

Designed to be fast, accurate and integrated, the 3M™ Dynatel™ 2500 Series Locators and fault finders represent an advancement in locating and fault finding technology for the field professional. Offering a broad feature set with advanced digital processing, the 2500 Series locators combine simple interfaces with precision locating capabilities. All 2500 series locators offer six active frequencies and a maximum transmitter output of 12 watts providing a solution for virtually all challenging locate applications encountered in the field.

New to the 2500 Series

Trace View mode display helps

simplify locating.

The new Trace View mode

presents an innovative and

intuitive user interface that

graphically shows the position

and direction of the utility being

located, simplifying path tracing

applications. The unique multi-

3M™ Dynatel™ Cable/Pipe Locators 2250M/2273M Series

Cable/Pipe Locators 2250M

Cable/Pipe and Marker Locators 2250M-iD

Cable/Pipe/Fault Locators 2273M

Cable/Pipe/Fault and Marker Locators 2273M-iD

For cable/pipe locating, the Dynatel M series has a highly accurate multi-antenna design for various user-selected locating modes—Directional Peak, Multi-Directional Null, Induction Peak, plus an ultra-sensitive Special Peak mode for extreme depths. They come equipped with several built-in features that allow accurate cable and pipe locating:

- Locate cable and pipe path
- Measure cable/pipe or Sonde depth
- Measure signal current in the cable or pipe
- Identify cable and cable pairs
- Tone shorts and grounds in aerial cable
- Locate energized power cable

The receiver includes a unique “expander” function that makes peaks and nulls more pronounced for fast tracking and pinpointing 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.

Semi-automatic gain set with manual fine tuning 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.

For fault locating, the Dynatel locator 2273M performs all the functions of the 2250M plus the ability to find underground faults.



**Peak antenna
directional
guidance delivers
pinpoint accuracy.**

2250M/2273M Series

- Four locating modes: Directional Peak, Directional Null, Single (Special) Peak, Induction Peak, locate
- Four active frequencies, 577, 8k, 33k, 200k (133k for Export models)
- All frequency mode in direct connection (four frequencies simultaneously)
- Three induction frequencies available: 8k, 33k, 200k
- Tone mode 577Hz and 200kHz pulsed at 8Hz
- Transmitter has 3, 5, and 12 Watt (maximum) power output options
- Fault finding option
- Electronic marker locate/read/write and alert mode option.
- GPS communication capability for GIS mapping of pipe/cable path and electronic markers



3M™ Dynatel™ Advanced Pipe/Cable Locator 2220M

A new addition to the 3M Dynatel Locators 2200M series, the 2220M locator is designed to provide a simple and accurate solution to locate buried pipes, cables, and Sondes in even the most challenging field conditions. The rugged, highly sensitive receiver uses two active trace frequencies and provides a bar graph, signal strength and direction indication to the pipe/cable. In addition, the receiver is designed to detect passive power and auxiliary frequencies that do not require the use of a transmitter.

2200M

- Single and Dual Peak modes with direction. Verifies cable location and indicates direction to pipe
- Two active frequencies (8k, 82k)
- Induction mode for situations with limited or no access to the facility
- High and normal output levels for long distance locates and other varying pipe conditions
- Measures signal current in cable which helps identify target cable in congested areas
- Push-button digital depth readout of pipe or Sonde
- Transmitter has 3 and 12 Watt (maximum) power output options
- Passive Power, Passive LF, Sonde (512, 640, 33k)
- Detects cathodic protection signals

Product Feature

Two active frequencies (8k, 82k)

Dual frequency output

Passive power, Sonde locating

Single and Dual Peak modes with direction

Product Applications

Locates pipes, cables and tracer wire

Detects power signals

Locates Sondes and pipeline inspection cameras



Innovative
technology for
locating underground
utilities





3M™ Dynatel™ Locators

2200 Series

Cable/Pipe Locator 2250

Cable/Pipe/Fault Locator 2273

The 2200 series locator is built specifically to find the path and estimated depth of buried cables and pipes. 2200 series locators have four active frequencies: passive frequencies for power, cathodic protection, CATV and auxiliary frequencies for long distance locating from remote transmitters. They also offer toning of aerial cable, direct readout of active duct probe, and cable/pair identification.



Receivers incorporate an “expander” function to make peaks and nulls more pronounced by enhancing the amplitude difference between two conductors carrying the same tone. Both the receiver and the transmitter feature a self-test routine that is executed each time the unit is turned on.

As with other locator models, the Dynatel locator 2273 performs all the functions of the 2250 locator plus the ability to find underground faults.



3M™ Dynatel™ Locating and Marking Systems

Receiver	2250	2273
Peak mode	X	X
Null mode	X	X
Differential mode	X	X
Push button digital depth readout	X	X
Cable identification	X	X
Measures signal current in cable	X	X
Direct readout of active duct probe (sonde) depth	X	X
Visual and audible cable locates	X	X
Digital fault strength indicator		X
Graphic display	X	X
Ground level antenna	X	X
Expander amplifier	X	X
50/60 Hz power cable locate mode	X	X
Transmitter	2250	2273
Four operator-selectable frequencies	X	X
Simultaneous signals	X	X
Built-in ohmmeter	X	X
Indicates presence of foreign and hazardous voltage	X	X
Built-in continuity test	X	X
Three tone application methods (direct connect, coupler, inductive)	X	X
Auto load impedance matching	X	X
High and normal output level	X	X
Sheath (earth return) fault-finding capability		X
Fault-locate and cable-locate tones applied simultaneously		X



Marker Solutions for the Gas, Power, Water/Wastewater, and Communications Industry

The 3M™ Electronic Marker System helps eliminate guesswork. 3M markers operate even in the presence of metal conduit or pipe, metallic conductors, fences, AC power lines and electronic markers of other utilities. All EMS markers are color-coded to APWA standards for visual reference and each utility has its own frequency. For example, telephone utility markers are all orange in color. EMS signals provide positive identification of each utility, thus helping to reduce the risk of accidentally locating and excavating other buried facilities.



Markers that Last

With our Full-Range, Mid-Range, Ball and Near-Surface Markers, there is a marker to meet almost every need. Markers are passive antennas with no internal power source to run down. Their water-resistant, polyethylene shells are impervious to minerals, chemicals and the temperature extremes normally found underground. A four-inch Disk marker is also available for marking handholes. These markers easily attach to non-metallic lids or covers over flush-mounted facilities.

3M™ iD Markers

3M iD markers are designed to not only provide an accurate, convenient, long-lasting method of marking underground assets, but also iD markers may be programmed to include customer-specific information such as facility data, type of application, material type and size, placement date and other important details.

3M™ Ball Marker.

Engineered for narrow trench applications up to 5' in depth, the 4"-diameter ball marker has a unique self-leveling feature that helps ensure an accurate, horizontal position regardless of how it is placed in the ground. The ball contains a mixture of water and propylene glycol (a common additive in toothpaste, hair gels etc. and generally recognized as safe for use in foods by USFDA). The mixture is readily biodegradable in the environment and will not harm humans, wildlife or the environment in this application.



3M™ Near-Surface Marker.

The near-surface marker is ideal for marking underground and street-access facilities up to 2' for Passive (Non-iD marker) and 3' for iD marker in depth. Its 3.5" long cylindrical size and shape allows for easy installation in asphalt, concrete or rock without extensive digging or drilling.



3M™ Mini-Marker.

Designed for marking applications at depths up to 6', marker spokes in the 8.25" diameter mini-marker help stabilize it in the correct position after placement.



3M™ Full-Range Marker.

The full-range marker is suited for deep applications up to 8'. Its 15"-diameter makes it ideal for use as a digging shield over sensitive underground facilities.



The Smart Choice

A feature exclusive to the Dynatel EMS locator is the ability to read, write and lock programmed information into 3M™ Electronic iD Marker System. 3M iD Locators are able to pinpoint the depth and location of existing models of properly installed underground passive EMS markers — easily differentiating between standard frequencies. Detailed information can be read, stored with date/time stamp and transmitted back to your PC for enhanced resource management through a standard RS232 serial port or USB port. As referenced in a previous section, the iD Locators are now compatible with selected GPS/GIS instruments to greatly simplify the mapping process.



Please go to www.3M.com/Dynatel for more details.



3M™ Electronic Marker System Specifications

	Telephone	Power	CATV	General	Water	Wastewater Purpose	Gas	Read Range*
Color	orange	red	black/orange	purple	blue	green	yellow	n/a
iD EMS iD Ball Marker Product Number	1421-XR/iD	1422-XR/iD	1427-XR/iD	1428-XR/iD	1423-XR/iD	1424-XR/iD	1425-XR/iD	5 ft. (1.5m)
EMS iD Near-Surface Product Number	1432-XR/iD	1433-XR/iD	1437-XR/iD	1438-XR/iD	1434-XR/iD	1435-XR/iD	1436-XR/iD	2 ft. (0.6m)
EMS iD Full-Range Product Number	1250-XR/iD	1251-XR/iD	N/A	1248-XR/iD	1252-XR/iD	1253-XR/iD	1254-XR/iD	8 ft. (2.4m)
Non-iD Ball Marker XR Product Number	1401-XR	1402-XR	1407-XR	1408-XR	1403-XR	1404-XR	1405-XR	5 ft. (1.5m)
Near-Surface Marker Product Number	1432	1433	N/A	N/A	1434	1435	1436	2 ft. (0.6m)
Mini-Marker Product Number	1255	1256	N/A	N/A	1257	1258	1259	6 ft. (1.8m)
Full-Range Product Number	1250	1251	N/A	N/A	1252	1253	1254	8 ft. (2.4m)

*Read range specifies maximum distance from locator probe using 3M™ Dynatel™ Locator 1420-iD. Read range may vary on export models—refer to product bulletins.

Image	Product	Description
	3M™ 6" (15.2 cm) Dyna-Coupler with pouch, 1196/C	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).
	3M™ Small Clip 1/4" (6.4 mm) Direct Connect, 5-foot Transmitter Cable, Telephone 9012	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.
		

Image	Product	Description
	3M™ 3” (7.6 cm) Dyna-Coupler, 3001	Permits coupling of RF trace tone to cables with a maximum diameter of 3” (7.6 cm).
	3M™ 4.5” (11.4 cm) Dyna-Coupler, 4001	Permits coupling of RF trace tone to cables with a maximum diameter of 4.5” (11.4 cm).
	3M™ Coupler Cable 9011	For use with any Dynatel Transmitter, Receiver, or Coupler: 12’ (3.7 m) in length.
	3M™ Dynatel™ Locator Coupler Accessory Kit 4519	The 4519 Accessory Kit contains a 4001 4.5” (11.4 cm) Dyna-coupler and a 9011 Coupler Cable with a case that can be attached to the transmitter.
	3M™ 3” (7.6 cm) Cable Locator Coupler Accessory Kit 3019	The 3019 Accessory Kit contains a 3001 3” (7.6 cm) Dyna-coupler and a 9011 Coupler Cable with a case that can be attached to the transmitter.
	3M™ Soft Carrying Bag 2200	Soft carrying bag for the 2200 series product line (2210, 2250, 2273)
	3M™ Soft Carrying Bag 2200M	Soft carrying bag for the 2200M and 2500 series product locators.

3M™ Dynatel™ US Version Locator Kits*

Ordering Information

			Cable/Pipe Locate	Fault Locate	Electronic Marker Locate	Transmitter Output	Direct Connect Cable - small clips	Direct Connect Cable - large clips	Coupler Size	2200RB Rechargeable Battery	Cigarette Lighter Adapter Cable	Carrying Bag
		EMS enabled										
		Not EMS enabled										
2573 Series Kits	80-6113-3462-6	2573-ID/C12	x	x	x	12W	x		3"		x	
	80-6113-3464-2	2573-ID/U12	x	x	x	12W		x	4.5"	x	x	x
	80-6113-3458-4	2573-C12	x	x		12W	x		3"		x	
	80-6113-3460-0	2573-U12	x	x		12W		x	4.5"	x	x	x
2550 Series Kits	80-6113-3452-7	2550-ID/U12	x		x	12W		x	4.5"	x	x	x
	80-6113-3450-1	2550-U12	x			12W		x	4.5"	x	x	x
2273M Series Kits	80-6113-3044-2	2273M-ID/UCU12W-RT	x	x	x	12W	x	x	3"	x	x	x
	80-6111-4091-6	2273M-ID/UU5W-RT	x	x	x	5W		x	3"		x	
	80-6111-4095-7	2273M-ID/UU3W-RT	x	x	x	3W		x	3"			
	80-6111-4090-8	2273M-ID/UC5W-RT	x	x	x	5W	x		3"		x	
	80-6111-4094-0	2273M-ID/UC3W-RT	x	x	x	3W	x		3"			
	80-6113-2342-1	2273M-ID/CATV	x	x	x	3W	x		3"			
	80-6113-3046-7	2273M-UCU12W/RT	x	x		12W	x	x	3"	x	x	x
	80-6111-4132-8	2273M-UU5W-RT	x	x		5W		x	3"		x	
	80-6111-4136-9	2273M-UU3W-RT	x	x		3W		x	3"			
	80-6111-4131-0	2273M-UC5W-RT	x	x		5W	x		3"		x	
	80-6111-4135-1	2273M-UC3W-RT	x	x		3W	x		3"			
	2250M Series Kits	80-6113-3039-2	2250M-ID/UCU12W-RT	x		x	12W	x	x	3"	x	x
80-6111-4140-1		2250M-ID/UU5W-RT	x		x	5W		x	3"		x	
80-6111-4144-3		2250M-ID/UU3W-RT	x		x	3W		x	3"			
80-6111-4139-3		2250M-ID/UC5W-RT	x		x	5W	x		3"		x	
80-6111-4143-5		2250M-ID/UC3W-RT	x		x	3W	x		3"			
80-6113-3041-8		2250M-UCU12W/RT	x			12W	x	x	3"	x	x	x
80-6111-4148-4		2250M-UU5W-RT	x			5W		x	3"		x	
80-6111-4152-6		2250M-UU3W-RT	x			3W		x	3"			
80-6111-4147-6		2250M-UC5W-RT	x			5W	x		3"		x	
80-6111-4151-8		2250M-UC3W-RT	x			3W	x		3"			
2220M Series Kits	80-6113-3107-7	2220M-CU12W/RT	x			12W	x	x	3"	x	x	x
	80-6113-2585-5	2220M-U3W	x			3W		x				x
	80-6113-2681-2	2220M-U3W3-CPLR	x			3W		x	3"			x
	80-6113-2586-3	2220M-C3W-CPLR	x			3W	x		3"			x
2273 Series Kits	80-6109-9352-1	2273-U5P3/A	x	x		5W	x		3"		x	
	80-6109-9353-9	2273-U5T3/A	x	x		5W	x		3"		x	
	80-6108-4745-3	2273-U3P3	x	x		3W		x	3"			
	80-6108-4739-6	2273-U3T3	x	x		3W	x		3"			
2250 Series Kits	80-6108-4727-1	2250-U3P3	x			3W		x	3"			
	80-6108-4721-4	2250-U3T3	x			3W	x		3"			x
1420	80-6111-4087-4	1420			x							

**3M™ Dynatel™ Export Version Locator Kits*
Ordering Information**

			Cable/Pipe Locate	Fault Locate	Electronic Marker Locate	Transmitter Output	Direct Connect Cable - small clips	Direct Connect Cable - large clips	Coupler Size	2200RB Rechargeable Battery	Cigarette Lighter Adapter Cable	Carrying Bag
			EMS enabled									
			Not EMS enabled									
2573-E Series Kits	80-6113-3470-9	2573E-ID/CU12	x	x	x	12W	x	x	4.5"	x	x	x
	80-6113-3468-3	2573E-CU12	x	x		12W	x	x	3"	x	x	x
2550-E Series Kits	80-6113-3466-7	2550E-ID/CU12	x		x	12W	x	x	4.5"	x	x	x
	80-6113-3465-9	2550E-CU12	x			12W	x	x	4.5"	x	x	x
2273M-E Series Kits	80-6113-3043-4	2273M-ID/ECU12W-RT	x	x	x	12W	x	x	3"	x	x	x
	80-6111-4093-2	2273M-ID/EU5W-RT	x	x	x	5W		x	3"		x	
	80-6111-4092-4	2273M-ID/EC5W-RT	x	x	x	5W	x		3"		x	
	80-6113-3042-6	2273M-ECU12W/RT	x	x		12W	x	x	3"	x	x	x
	80-6111-4134-4	2273M-EU5W/RT	x	x		5W		x	3"		x	
	80-6111-4133-6	2273M-EC5W/RT	x	x		5W	x		3"		x	
2250M-E Series Kits	80-6113-3038-4	2250M-ID/ECU12W-RT	x		x	12W	x	x	3"	x	x	x
	80-6111-4142-7	2250M-ID/EU5W-RT	x		x	5W		x	3"		x	x
	80-6111-4141-9	2250M-ID/EC5W-RT	x		x	5W	x		3"		x	x
	80-6113-3037-6	2250M-ECU12W/RT	x			12W	x	x	3"	x	x	x
	80-6111-4150-0	2250M-EU5W/RT	x			5W		x	3"		x	x
	80-6111-4149-2	2250M-EC5W/RT	x			5W	x		3"		x	x
2220M Series Kits	80-6113-3107-7	2220M-CU12W/RT	x			12W	x	x	3"	x	x	x
	80-6113-2585-5	2220M-U3W	x			3W		x				x
	80-6113-2681-2	2220M-U3W3-CPLR	x			3W		x	3"			x
	80-6113-2586-3	2220M-C3W-CPLR	x			3W	x		3"			x
2273-E Series Kits	80-6109-9337-2	2273-E5T3	x	x		5W	x	3"		x		
2250-E Series Kits	80-6109-9335-6	2250-E5T3	x			5W	x	3"		x		
1420E	80-6111-4646-7	1420E			x							

All 3M™ Dynatel™ Cable/Pipe Locator Kits include locator receiver, transmitter, ground rod, manual, direct connect and accessory cables.

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.