

# 3M™ Dynatel™ Cable/Pipe Locator 2250M

## 3M™ Dynatel™ Cable/Pipe and Marker Locator 2250M-iD

3M™ Dynatel™ Cable/Pipe Locator 2250M and Cable/Pipe and Marker Locator 2250M-iD incorporate advanced electronics to quickly and efficiently trace the path of underground cables and pipes (with metallic tracer wire). They provide accurate cable/pipe, or Sonde depth measurements, giving a digital readout in inches, feet and inches, or centimeters (user-selectable). Lightweight, compact and well-balanced, these cable and pipe locators allow you to accurately and easily locate your underground plant and assets.

The 3M™ Dynatel™ Cable/Pipe Marker Locator 2250M-iD has the ability to write, read and lock programmed information into the 3M™ Electronic Marker System iD Markers.

2250M-iD locators are also compatible with select GPS/GIS field mapping instruments for real-time mapping of 3M™ Electronic Marker placement.



### Key Features

### Benefits

Transmitter	
<b>Four operator-selectable frequencies</b>	Optimizes unit performance in varying conditions
<b>Built-in ohmmeter and continuity tester</b>	Measures electrical resistance and the continuity of the circuit
<b>Simultaneous signals</b>	Allows user to select optimum frequency from receiver
<b>Output signal level indication</b>	Operator can distinguish between target pipe and other pipes in congested areas
<b>Auto load matching</b>	Automatic adjustment of output voltage to maximize signal
<b>High and normal output level</b>	Two output levels for long distance locates and other varying pipe conditions
<b>Output protected up to 240 Vac</b>	Prevents inadvertent damage to unit; operates while attached to live circuits
Receiver	
<b>Directional peak, directional null, single peak locate modes</b>	Verifies cable location and indicates direction to cable or pipe
<b>Backlit Graphic Display</b>	Allows operation in low-light conditions
<b>Push-button digital depth readout (of pipe, cable, or Sonde) in inches and feet/inches or centimeters</b>	Easy, quick and accurate depth measurements
<b>Measures signal current in cable</b>	Helps identify target cable regardless of depth or in congested areas
<b>Visual and audible pipe/cable locates</b>	Provides accuracy under varying field conditions
<b>50/60 Hz frequency settings</b>	Optimized for primary or secondary
<b>100/120 Hz CPS</b>	Detects cathodic protection signals
<b>31.5 kHz Auxillary frequency</b>	For locating CATV cables
<b>512 Hz, 560 Hz, 33 kHz Sonde frequencies</b>	Detects frequencies from Sondes and remote transmitters
<b>Up to four user-configurable frequencies</b>	Allows user to set frequency based on application requirements (50-999Hz)
<b>RS232 Port</b>	Allows for downloading software updates from website and GPS inter-connection <sup>1</sup>
<b>Detects all seven EMS marker frequencies<sup>1</sup></b>	Locates all marked assets with one unit
<b>RFID marker read/write capability<sup>1</sup></b>	Allows user to program and retrieve asset information from marker
<b>Dual marker frequency search-simultaneous<sup>1</sup></b>	Allows for detection of two marker frequencies simultaneously
<b>GPS communications capability with selected GPS receivers<sup>1</sup></b>	Allows for real-time mapping of marker placement

<sup>1</sup>Available on MiD Version only



# 3M™ Dynatel™ Cable/Pipe Locator 2250M

## 3M™ Dynatel™ Cable/Pipe and Marker Locator 2250M-iD

### Electrical Specifications

#### Receiver:

Frequencies	
Trace and tone modes	Active: 577Hz, 8kHz, 33kHz and 200kHz (577Hz, 8kHz, 33kHz, 133kHz CE Approved Models) Passive Power: 50L, 50H, 100, 60L, 60H, 120 Passive (other): CATV 31.5 kHz (LF 9-30 kHz)  Auxiliary: 560, 512, 460, 400, 393, 340, 333, 273Hz User defined: up to four frequencies (50-999Hz)
Display Resolution	0.1 dB
Depth Display Range	9 m (0 to 30 ft.)
Depth Units	cm, inch and ft.-in.
Depth Accuracy*	+/- 2% +/- 7.5 cm (3 in.)    1.5 m (0 to 60 in.) +/- 6% +/- 7.5 cm (3 in.)    1.5 m to 3 m (61 to 120 in.) +/- 10% +/- 7.5 cm (3 in.)    3 to 4.5 m (121 to 180 in.)
Cable Current Display	0.01 dB resolution or 0.01 mA resolution Units: dB and mA
Power	
Typical Battery Life	Battery Type: 8 AA size, Alkaline 40 hours - M-units 30 hours - M-iD units

#### Environmental:

Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)
Standard	IP54
Regulatory	CE (Export Models Only)

\* 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.

### Products

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
2250M-EC5W-RT	Cable/pipe and fault locator OUS Communications 5-watt (CE Approved Model)
2250M-EU5W-RT	Cable/pipe and fault locator OUS Utility 5-watt (CE Approved Model)
2250M-iD/EC5W-RT	Cable/pipe and fault locator OUS Communications 5-watt w/EMS-iD capability (CE Approved Model)
2250M-iD/EU5W-RT	Cable/pipe and fault locator OUS Utility 5-watt w/EMS-iD capability (CE Approved Model)

To order, call 1-800-364-3577. For more information, please contact your local 3M representative.

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#### Track and Trace Solutions

3M Canada Company  
Post Office Box 5757  
London, Ontario N6A 4T1  
Canada  
1-800-364-3577 www.3M.com/dynatel

#### Transmitter:

Output frequencies	
Trace mode	577Hz, 8kHz, 33kHz and 200kHz (577Hz, 8kHz, 33kHz, 133kHz CE Approved Models)
Tone mode	577Hz and 200kHz pulsed at 8Hz
Induction mode	33kHz, 200kHz
Output voltage (maximum)	
Trace	70 Vrms
Tone	Normal setting: 10Vrms, High setting: 60 Vrms
Output power	
	Normal setting: Limited to 0.5 W High setting: Limited to 3W or 5W with external DC power
Output protection	
	240 Vrms
Power	
	Battery Type: Six C size, alkaline (LR14) cells; External DC: 9-18V DC (1A) (5-watt units only)
Typical battery life	
	Normal output level: 50 hours High output level: 10 hours

#### Physical Specifications:

	Size (H X W X D) cm (in.)	Weight (Including Batteries)
Transmitter	17.2 x 28.6 x 19.7 (6.75 x 11.25 x 7.75)	2.4 kg (5.2 lb.)
Receiver	26.7 x 26.1 x 76.2 (10.25 x 10.5 x 30)	2250M - 1.9 kg (4.05 lb.) 2250-iD - 2.3 kg (4.85 lb.)
Shipping	N/A	2250M - 7.9 kg (17 lb.) 2250-iD - 8.1 kg (17.6 lb.)

### Accessories

Product Number	Description
8006	Ground Rod, Stainless Steel
3019	Dyna-Coupler Kit, Consists of 3 in. Dyna-Coupler, Coupler Cable and Pouch
2876	Direct-Connect Transmitter Cable, 3 m (10 ft.) in length; for Utility (U) models
9012	Direct-Connect Transmitter Cable, 1.5 m (5 ft.) in length; for Communications (C) models
2892	Small Clip Direct-Connect Transmitter Cable, 3 m (10 ft.) in length
9043	Ground Extension Cable
3001	Dyna-Coupler 3 in., for use on cables up to 7.6 cm (3 in.) in diameter
1196	Dyna-Coupler 6 in., for use on cables up to 17.5 cm (6.9 in.) in diameter with pouch
9011	Dyna-Coupler Cable 12 ft.
2200M	Carrying Case/Bag
2200RB	Rechargeable auxiliary battery for 5-watt units

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# 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.

## A Reputation of Excellence

When you choose a quality 3M Dynatel locator, you get outstanding performance and reliability, along with a 24/7 technical support and service center dedicated to excellence. Our service center provides calibration, repair, upgrades and modifications for safety, performance and reliability.



### Product Features

- Two active frequencies (8 kHz, 82 kHz)
- 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



## Key Features

## Benefits

<b>Super Induction Mode</b>	Maximum induction for challenging locates
<b>Two operator-selectable frequencies</b>	Optimizes unit performance in varying conditions
<b>Dual frequency mode</b>	Allows user to select optimum frequency from receiver
<b>Output signal level indication</b>	Operator can distinguish between target pipe and other pipes in congested areas
<b>Auto load matching</b>	Automatic adjustment of output voltage to maximize signal
<b>High and normal output level</b>	Two output levels for long distance locates and other varying pipe conditions
<b>Output protected up to 240 Vac</b>	Prevents inadvertent damage to unit; operates while attached to live circuits
<b>Receiver</b>	
<b>Single and Dual Peak Modes with Direction</b>	Verifies cable location and indicates direction to pipe
<b>Backlit Graphic Display</b>	Allows operation in low-light conditions
<b>Push-button digital depth readout (of pipe or Sonde) in inches and feet/inches or centimeters</b>	Easy, quick and accurate depth measurements
<b>Measures signal current in cable</b>	Helps identify target cable regardless of depth or in congested areas
<b>Visual and audible pipe/cable locates</b>	Provides accuracy under varying field conditions
<b>50/60 Hz frequency settings</b>	Optimized for primary or secondary
<b>100/120 Hz CPS</b>	Detects cathodic protection signals
<b>31.5 kHz Auxillary frequency</b>	For locating CATV cables
<b>512 Hz, 640 Hz, 33 kHz Sonde frequencies</b>	Detects frequencies from Sondes and remote transmitters
<b>RS232 Port</b>	Allows for downloading software updates from website



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

## General Specifications

Receiver:	
Locating Modes	Special (Single) Peak, Dual Peak w/Direction, Depth & Current
Gain Adjustment	Semi-Automatic with Manual override
Frequencies	
Active	8 kHz, 82 kHz
Passive Power	50 Hz or 60 Hz
Passive LF	VLF 15 k ~ 30 kHz Broadband
Passive CATV*	31.5 kHz
Cathodic Protection	100 Hz or 120 Hz
Sonde/Auxiliary (Receive only)	512 Hz, 640 Hz, 33 kHz
Display Resolution	0.1 dB
Depth Display Range	0 to 30 ft. (9 m)
Depth Units	inch and ft-in, cm
Depth Accuracy**	+/- 2% +/- 3 in. (7.5 cm) 0 to 60 in. (1.5 m) +/- 6% +/- 3 in. (7.5 cm) 61 to 120 in. (1.5 m to 3 m) +/- 10% +/- 3 in. (7.5 cm) 121 to 180 in. (3 to 4.5 m)
Cable Current Display	0.01 mA resolution Units: mA
Battery Type	8 AA size, Alkaline
Typical Battery Life	30 hrs
Display	Large Graphic high-contrast LCD with backlight
Speaker	0.25 W
Headphone Jack	Standard Mini Jack
Serial Port	Standard RS232 serial with DB9 connector

## General Specifications

Transmitter:		
Output frequencies		
Trace mode	8 kHz, 82 kHz	
Induction mode	82 kHz	
Output voltage (maximum)		
Trace	60 Vrms	
Output power	Normal setting: Limited to 0.5 W High setting: Limited to 3 W @ 8 kHz, 1 W @ 82 kHz	
Output protection	240 Vrms	
Battery Type	Six C size, alkaline (LR14) cells	
Typical battery life	Normal output level: 45 hrs. High output level: 7 hrs.	
Environmental:		
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	
Physical Specifications:		
	<b>Size (H X W X D) in. (cm)</b>	<b>Weight (Including Batteries)</b>
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)	4.05 lb. (1.9 kg)
Shipping	N/A	17 lb. (7.9 kg)

\* American NTSC, television set on

\*\* 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.

## Products

Product Description	Included In Package
<b>2220M-U3W Advanced Pipe/Cable Locator Util W/bag</b>	2220M Receiver, 3 Watt Transmitter, Large Style Direct Connect Cable, Carrying Bag, Ground Rod and Operating Manual
<b>2220M-U3W3 CPLR Advanced Pipe/Cable Locator Util with 3" coupler and bag</b>	2220M Receiver, 3 Watt Transmitter, Utility Style Direct Connect Cable, 3" Inductive Coupler, Coupler Cable, Ground Rod, Carrying Bag and Operating Manual
<b>2220M-C3W-Cplr Advanced Pipe/Cable Locator Comm W/3" Cplr and Bag</b>	2220M Receiver, 3 Watt Transmitter, Small Style Direct Connect Cable, 3" Inductive Coupler, Coupler Cable, Carrying Bag, Ground Rod and Operating Manual

## 3M Dynatel Accessories

Product Number	Description
<b>3001</b>	Dyna-Coupler, 3 in.
<b>1196</b>	Dyna-Coupler, 6 in.
<b>9011</b>	Dyna-Coupler cable 12 ft.
<b>8006</b>	Ground Rod
<b>2876</b>	Direct-Connect Transmitter Cable, 10 ft. (3 m) in length (large clips 5/8")
<b>9012</b>	Direct-Connect Transmitter Cable, 5 ft. (1.5 m) in length (small clips 1/4")
<b>2892</b>	Direct-Connect Transmitter Cable, 10 ft (3 m) in length (small clips 1/4")
<b>9043</b>	Ground Extension Cable
<b>2200M</b>	Soft Carrying Bag

### Important Notice

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### Track and Trace Solutions

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**Product Reference: Spider Lake Estates, Phase 1**

Item	Quantity	Description	Unit Price	Unit of Measure	Tracer Wire	Passive Markers	ID Markers
		<b>Pipe:</b>					
	625	300 mm CL-52 DUCTILE IRON PIPE		METER			
	9	30"X250' POLY WRAP ENCASEMENT		METER			
	205	200mm CL-52 DUCT LE IRON P PE		PER ROLL			
	3	22"X250' POLY-WRAP ENCASEMENT		PER ROLL			
	625	300mm DR-18 C900 PVC P PE		METER			
	835	200mm DR-18 C900 PVC P PE		METER			
		<b>Fire Hydrants:</b>					
	4	300mm X 150mm MJ ANCHOR TEE C/W GLAND PACKS		EACH			
	2	200mm X 150mm MJ ANCHOR TEE C/W GLAND PACKS		EACH			
	6	150mm MJ GATE VALVE C/W GLAND PACKS		EACH			
	6	6' BURY VALVE BOX		EACH			
	6	6' BURY FIRE HYDRANT C/W GLAND PACK		EACH			
	12	Z-24-48 ZINC ANODE		EACH			
	24	150mm CL-52 DUCT LE IRON P PE		METER			
	24	150mm DR-18 PVC PIPE		METER			
		<b>Direct Buried Gate Valves:</b>					
	9	300mm MJ GATE VALVE C/W GLAND PACKS					
	3	200mm MJ GATE VALVE C/W GLAND PACKS					
	12	6' BURY VALVE BOX					
	12	Z-24-48 ZINC ANODE					
		<b>Waterline Fittings:</b>					
	1	300mm MJ SLEEVE C/PLG C/W GLAND PACKS		EACH		\$9.00	\$21.00
	1	300mm X 11 1/2" MJ BEND C/W GLAND PACKS		EACH		\$9.00	\$21.00
	8	300mm X 22 1/2" MJ BEND C/W GLAND PACKS		EACH		\$72.00	\$168.00
	4	300mm X 45" MJ BEND C/W GLAND PACKS		EACH		\$36.00	\$84.00
	1	300mm MJ TEE C/W GLAND PACKS		EACH		\$9.00	\$21.00
	1	300mm X 200mm MJ TEE C/W GLAND PACKS		EACH		\$9.00	\$21.00
	2	300mm MJ CAP C/W GLAND PACKS		EACH		\$18.00	\$42.00
	1	200mm MJ CAP C/W GLAND PACKS		EACH		\$9.00	\$21.00
	6	300mm MJ CAP C/W GLAND PACKS		EACH			
		<b>Service Fittings:</b>					
	39	19mm SERVICE SET FOR COPPER SERVICE		EACH			
	39	19mm MAIN STOP		INCLUDED		\$351.00	\$819.00
	39	19mm CURB STOP		INCLUDED		\$351.00	\$819.00
	39	SERVICE BOX C/W SS ROD		INCLUDED			
	39	Z-24-48 ZINC ANODE		INCLUDED			
	39	19MM GROUND CLAMP		INCLUDED			
	39	25mm SERVICE SET FOR MUNICIPEX SERVICE		EACH			
	39	25mm MAIN STOP		INCLUDED			
	39	25mm CURB STOP		INCLUDED			
	39	SERVICE BOX C/W SS ROAD		INCLUDED			
	117	25mm SS INSERT FMUNICIPEX		INCLUDED			
	28	300mm X 25mm DOUBLE STRAPPED SADDLE		EACH			
	11	200mm X 25mm DOUBLE STRAPPED SADDLE		EACH			
		<b>Service Pipe:</b>					
	370	19mm TYPE K COPPER PIPE		METER			
	370	25mm MUNICIPEX SERVICE TUB NG		METER			
	370	TRACER W RE (FOR MUNICIPEX)	\$1	METER	\$1,213.97		
	825	TRACER W RE (FOR MAIN P PE)	\$1	METER	\$2,706.83		
	78	TRACER W RE SPLICE	\$6.79	EACH	\$529.62		
	39	TRACER W RE END CAPS	\$3.15	EACH	\$122.85		
		Labour	0		\$0.00		
		<b>Carrier Pipe:</b>					
	36.6	400mm DR-18 C900 PVC P PE x 6.1m		METER			
	12	SETS LINK SEAL (300mm x 400mm)		EACH			
	18.3	300mm DR-18 C900 PVC P PE x 6.1m		METER			
	6	SETS LINK SEAL (200 mm x 300mm)		EACH			
	140.3	100mm DR-18 C900 PVC P PE x 6.1m		METER			
	46	SETS LINK SEAL (100mm x 19mm/25mm)		EACH			

# of Marker Balls	0	97	97
Total Cost:	\$4,573.27	\$873.00	\$2,037.00
Cost Savings:	\$0.00	\$3,700.27	\$2,536.27
% Savings:	0.00%	80.91%	55.46%

TO:	DATE: APRIL 06/08	CLOSING DATE: APRIL 10/08	TAXES: EXTRA
	F.O.B.:	CONSULTING ENGINEER:	
<b>PROJECT/REFERENCE: HARRISVILLE TRANSMISSION WATER MAIN</b>			
<b>TERMS OF PAYMENT:</b>			
<b>TERMS AND CONDITIONS:</b>			
A; PRICES ARE BASED ON QUANTITY , ANY CHANGE TO QUANTITY MAY AFFECT PRICE AND IS SUBJECT TO BE REQUESTED			
B; ITEMS MARKED WITH AN ASTERISK (*) ARE SPECIAL ORDERS AND MAY NOT BE SUBJECT TO RETURN OR CANCELLATION UNLESS PRIOR APPROVAL IS GIVEN			
C; RETURNS MUST HAVE PRIOR APPROVAL AND ARE SUBJECT TO HANDLING CHARGE AND INCOMING AND RETURN FREIGHT CHARGES			
<b>WE ALSO OFFER THE FOLLOWING PRODUCTS:</b>			
<b>GEOTEXTILES, SILT FENCE, MANHOLE FRAMES &amp; COVERS, WATER METERS, HYDRAULIC CEMENT INVERTED SPRAY PAINT, DIAMOND SAW BLADES, TEST PLUGS</b>			

ITEM	QUANTITY	DESCRIPTION	UNIT PRICE	AMT. OF	LINE TOTAL	Tracer Wire	3M Passive Markers	3M ID Markers
1	2600	400MM DR18 CAPPED WATERMAIN		M	*	\$4,690	\$1,535	\$1,535
1								
2	183	400MM DR11 HDPE PIPE		M	*	\$330	\$108	\$108
3	40	300MM DR18 CAPPED WATERMAIN		M	*	\$72	\$24	\$24
4	12	150MM DR18 CAPPED WATERMAIN		M	*	\$22	\$18	\$18
5	4	400MM GATEVALVE C/W COMP. , RESTRAINERS & VALVEBOX		SET	*		\$36	\$84
6	6	300MM GATEVALVE C/W COMP. , RESTRAINERS & VALVEBOX		SET	*		\$54	\$126
7	2	150MM GATEVALVE C/W COMP. , RESTRAINERS & VALVEBOX		SET	*		\$18	\$42
8	2	100MM GATEVALVE C/W COMP. , RESTRAINERS & VALVEBOX		SET	*		\$18	\$42
10	1	CITY OF MONCTON 7'-6" STD. HYD. C/W COMP		EACH				
	1	CITY OF DIEPPE 7'-6" STD. HYDRANT C/W COMP		EACH				
11A	1	400X300MM MJ CROSS C/W COMP. & RESTRAINT		EACH	*		\$9	\$21
11B	10	400MM X 45' MJ BEND C/W COMP. & RESTRAINT		EACH	*		\$90	\$210
	2	400MM X 22-1/2' MJ BEND C/W COMP. & REST.		EACH	*		\$18	\$42
	1	400MM X 11-1/4' MJ BEND C/W COMP. & REST.		EACH	*		\$9	\$21
11C	4	400MM MJXFL ADAPTER		EACH	*		\$36	\$84
	4	400MM B.F. FLANGE ADAPTER		EACH	*		\$36	\$84
	4	400MM MJ RESTRAINER C/W COMP.		EACH	*		\$36	\$84
11D	1	400X300MM MJ REDUCER C/W COMP. & REST.		EACH	*		\$9	\$21
11E	2	400X150MM MJ TEE C/W COMP. & RESTRAINT		EACH	*		\$18	\$42
11F	1	300MM MJ TEE C/W COMPONENTS & RESTAINER		EACH	*		\$9	\$21
11G	2	300MM MJ CAP C/W COMP. & RESTRAINER		EACH	*		\$18	\$42
11H	2	300X100MM MJ TEE C/W COMP. & RESTRAINT		EACH	*		\$18	\$42
11I	2	300MM MJXFL ADAPTER		EACH	*		\$18	\$42
11J	1	300MM ROMAC CPLG		EACH	*		\$9	\$21
11K	8	50MM APPURTENANCE C/W 400MM SADDLE, MAIN STOP, CURB STOP, SERVICE BOX, SS ROD & SS INSERTS		SET	*		\$144	\$336
	100	50MM MUNICIPEX SERVICE TUBING		FT				
	1	CLA-VAL ELECTRONIC COMBINATION PRV/PSV MODEL #3692-03BSY SIZE 12" PER SPEC		EACH				
	1	CLA-VAL CHECK VALVE MODEL #81-02DB 150A G E9999 BBB SIZE 4" PER SPEC		EACH				
	41	37" POLY WRAP FOR DUCTILE IRON POLY TAPE		ROLL				
	1	12" ABB MAGMASTER FLOWMETER C/W REMOTE TRANSMITTER AND DISPLAY WITH KEYPAD		EACH				
<b>TOTAL FOR PAGE 2</b>					0.00	\$5,114	\$2,288	\$3,092
<b>Quote #:</b> 8016						<b>Savings:</b> -55.3% -39.5%		



## 3M™ Dynatel™ Electronic Marker System (EMS) Marker Locator 1420-iD

Designed to be more accurate, faster and more integrated, the 1420-iD EMS marker locators are lightweight and compact, rugged, ergonomic and require very little operator training. Allowing users to accurately and easily:

- Locate, read and write to 3M™ RFID Markers
- Pinpoint the depth and location of all existing models of properly installed underground passive EMS markers
- Conduct direct depth reading of markers
- Locate two different marker frequencies simultaneously

The 1420-iD locators are unaffected by metal conduit or pipe, metallic conductors, fences, AC power or electronic markers for other utilities. Multiple markers located at close proximity can be read individually using this system.

The 3M™ Dynatel™ Electronic Marker System Marker Locators 1420-iD are compatible with select GPS/GIS field mapping instruments for real-time mapping of marker placement. The customized Dynatel interface commands the GPS/GIS device allowing even a generalist field technician to perform real-time mapping. It's a simple system for mapping marker placement and saving information directly into CAD and GIS systems.



### Features

### Benefits

Large backlit, high-resolution graphic display

Allows operation in low-light conditions

Locator PC tools software

Provides quick, easy interface for setup and download of marker templates

PC interface via standard RS232 serial port

Allows for downloading of software updates and RFID marker templates

RFID marker read/write capability

Optimized to program, locate, and read RFID markers

User-configurable features and interface

Ability to turn on/off marker frequencies

Dual marker frequency search-simultaneous

Detection of two markers frequencies simultaneously

Detects all seven EMS marker frequencies

Optimized to locate all industry standard electronic marker types

Marker depth estimation

Allows depth reading of 3M™ Electronic Markers

GPS/GIS Integrateable<sup>1</sup>

For real-time mapping of marker placement<sup>1</sup>



Telephone



Gas



CATV/Communication



Power



Water



Wastewater



General Purpose

<sup>1</sup> Compatible with select GPS/GIS instruments







# 3M™ Dynatel™ Electronic Marker System (EMS) Marker Locator 1420-iD

## General Specifications

### Electrical Specifications

<b>Marker Compatibility</b>	All 3M markers (Telephone, Gas, Communication, Power, Water, Wastewater and General Purpose)
<b>Dual marker mode</b>	Any two marker frequencies simultaneously
<b>Detection range</b>	Exceeds maximum marker depth specifications
<b>Marker read range</b>	1420 - 1,5 m (5 ft.) to all iD ball markers
<b>Marker write range</b>	30 cm (1 ft.)
<b>RFID Marker depth measurement accuracy</b>	+/- 10% +/- 5 cm (2 in.) up to marker depth specifications
<b>Memory storage with date/time stamp</b>	Read marker records 100 Written marker records 100 User defined iD templates 32
<b>Marker depth memory storage</b>	Five with date/time stamp
<b>Power</b>	Battery type: eight AA size, alkaline Typical battery life: 25 hours
<b>Display</b>	Large graphic high-contrast LCD with backlight
<b>Speaker</b>	0.25W
<b>Headphone jack</b>	Standard mini-jack
<b>Serial port</b>	Standard RS232 serial with DB9 connector

### Environmental Specifications

<b>Operating temperature</b>	-20° C to 50° C (-4° F to 122° F)
<b>Storage temperature</b>	-20° C to 70° C (-4° F to 158° F)
<b>Regulatory</b>	CE (Export Models Only)
<b>Standard</b>	IP54

### Physical Specifications

	Size (H x W x D) cm (in.)	Weight (including batteries)
<b>Receiver</b>	26,7 x 11,8 x 76,2 (10.25 x 4.7 x 30)	1,9 kg (4 lb.)
<b>Shipping</b>		N/A 5,3 kg (11.5 lb.)

## Ordering Information

Product Number	Description
1420	EMS-iD marker locator with iD read/write

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# 3M™ Dynatel™ Locating and Marking Electronic Marker System



## Marker Solutions for the **Water Industry**



The 3M™ Electronic Marker System (EMS) helps save water utilities time and money by enabling utility field crews to quickly pinpoint the location of buried facilities including valves, bends, clean-outs and road crossings. Using EMS markers during construction, installation and maintenance virtually eliminates the time consuming search for hard-to-locate 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 lids or covers over flush-mounted facilities.

## 3M™ iD Markers

3M iD markers are designed to provide an accurate, convenient, long-lasting method of marking underground assets. In addition, these 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™ Electronic Marker System for the Water Industry

**Near-Surface Marker**  
A small marker which is well-suited for bore holes in concrete or asphalt for marking flush-mount facilities prior to repaving.

**Ball Marker**  
Ideal for most applications, with a unique self-leveling feature. The core of the marker floats in a non-toxic, non-freezing liquid inside the ball; so the marker can be dropped in a trench, and the self-leveling feature will assure a correct orientation.

**Full-Range Marker**  
Designed for deep underground applications. Its large size makes it ideal for use as a digging shield over sensitive underground facilities.










**Mid-Range**  
Designed for applications where less depth is required than with the Full-Range Marker. Marker spokes help stabilize it in the correct position after placement.

## The Safe Choice

There is no guesswork with the 3M™ Electronic Marker System. 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. EMS signals provide positive identification of each utility, thus helping to reduce the risk of accidentally locating and excavating other buried facilities.

# Help Eliminate the Guesswork










# 3M™ Water Utility Markers

Image	Product	Description	Stock Number
	3M™ EMS Near-Surface Marker <b>1434</b>	Near-Surface Marker - designed to provide an accurate, convenient, long-lasting method of marking underground and street-access facilities.	80610230379
	3M™ iD Near-Surface Marker <b>1434-XR/iD</b>	3M 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.	80611321318
	3M™ Disk Marker <b>1413-XR</b>	Extended Range Disk Marker - designed to provide an easy, accurate method of locating flush-mounted facilities which become covered by backfill or other obstructions, such as snow or overgrown vegetation. <i>(Do Not Direct Bury)</i>	80630000265
	3M™ iD Disk Marker <b>1413-XR/iD</b>	3M 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. <i>(Do Not Direct Bury)</i>	80611303530
	3M™ EMS 4" Ball Marker <b>1403-XR</b>	EMS Ball Marker - provides self-levelling design providing accurate, horizontal position regardless of how it is placed in the ground and making the job of precisely locating easier.	80630000323
	3M™ iD Ball Marker <b>1423-XR/iD</b>	3M 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.	80611143225
	3M™ EMS Mid-Range Marker <b>1257</b>	Mid-Range Marker - designed to provide an accurate, convenient, long-lasting method of marking underground water facilities.	80610221931
	3M™ EMS Full-Range Marker <b>1252</b>	Full-Range Marker - designed to provide an accurate, convenient, long-lasting method of marking underground water facilities.	80610221519
	3M™ iD Full-Range Marker <b>1252-XR/iD</b>	3M 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.	80611321250







	3M iD Markers Read Range		3M Passive Markers Range*
	With a U.S. Locator	With an Export (CE) Locator	
<b>Near-Surface</b>	3 ft (0.9 m)	10 cm	2 ft (0.6 m)
<b>Ball-Marker</b>	5 ft (1.5 m) 5 ft (1.5 m)	1.2 m (Tel, Gas, WW, Comm) 1.0 m (Pwr, Wtr)	5 ft. (1.5 m) 5 ft. (1.5 m)
<b>Mid-Range</b>	N/A	N/A	6 ft (2 m)
<b>Full-Range</b>	9 ft (2.75 m)	2.2 m	8 ft (2.4 m)

\* Using 3M™ Dynatel™ Marker Locator 2200M-Series or 1420

## 3M™ Wastewater Utility Markers

Image	Product	Description	Stock Number
	3M™ EMS Near-Surface Marker <b>1435</b>	Near-Surface Marker - designed to provide an accurate, convenient, long-lasting method of marking underground and street-access facilities.	80610230395
	3M™ iD Near-Surface Marker <b>1435-XR/iD</b>	3M 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.	80611321326
	3M™ Disk Marker <b>1414-XR</b>	Extended Range Disk Marker - designed to provide an easy, accurate method of locating flush-mounted facilities which become covered by backfill or other obstructions, such as snow or overgrown vegetation. <i>(Do Not Direct Bury)</i>	80630000273
	3M™ iD Disk Marker <b>1414-XR/iD</b>	3M 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. <i>(Do Not Direct Bury)</i>	80611303548
	3M™ EMS 4" Ball Marker <b>1404-XR</b>	Extended Range Ball Marker - provides self-levelling design providing accurate, horizontal position regardless of how it is placed in the ground and making the job of precisely locating easier.	80630000331
	3M™ iD Ball Marker <b>1424-XR/iD</b>	3M 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.	80611143233
	3M™ EMS Mid-Range Marker <b>1258</b>	Mid-Range Marker - designed to provide an accurate, convenient, long-lasting method of marking underground wastewater facilities.	80610221949
	3M™ EMS Full-Range Marker <b>1253</b>	Full-Range Marker - designed to provide an accurate, convenient, long-lasting method of marking underground wastewater facilities.	80610221501
	3M™ iD Full-Range Marker <b>1253-XR/iD</b>	3M 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.	80611321268

## 3M™ General Purpose/Reclaimed Water

Image	Product	Description	Stock Number
	3M™ iD Near-Surface Marker <b>1438-XR/iD</b>	3M 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.	00051115227554
	3M™ Disk Marker <b>1418-XR</b>	Extended Range Disk Marker - designed to provide an easy, accurate method of locating flush-mounted facilities which become covered by backfill or other obstructions, such as snow or overgrown vegetation. <i>(Do Not Direct Bury)</i>	0005115160967
	3M™ iD Disk Marker <b>1418-XR/iD</b>	3M 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. <i>(Do Not Direct Bury)</i>	80611303563
	3M™ EMS 4" Ball Marker <b>1408-XR</b>	Extended Range Ball Marker - provides self-levelling design providing accurate, horizontal position regardless of how it is placed in the ground and making the job of precisely locating easier.	80611168354
	3M™ iD Ball Marker <b>1428-XR/iD</b>	3M 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.	80611142227
	3M™ iD Full-Range Marker <b>1248-XR/iD</b>	3M 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.	80611321284

## The EMS water series can be used to mark:

- Buried valves
- Clean-outs
- PVC pipeline
- Road crossings
- Pipeline paths
- Service stubs
- Bends
- Trees

## 3M™ Dynatel™ Electronic Marker Locators

3M™ Dynatel™ offers the following electronic marker and multipurpose locators. Additional information about 3M™ Dynatel™ cable and electronic marker locating products for water applications is available at [www.3M.com/dynatel](http://www.3M.com/dynatel), or contact your local 3M sales professional.



3M™ Dynatel™ Marker Locator 1420 EMS-iD



3M™ Dynatel™ Cable/Pipe and Marker Locator 2250M-iD



3M™ Dynatel™ Cable/Pipe/Fault and Marker Locator 2273M-iD

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