



The Indian River, Sebastian, FL



PRODUCT BROCHURE 2019

MCMILLER.COM

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* Products and specifications subject to change without notice

GPS SYNCHRONIZABLE CURRENT INTERRUPTER

NEW!

JPL100

100 Amp AC/DC GPS CURRENT INTERRUPTER

The JPL100 is our newest all-in-one ultra-modern GPS current interrupter using all the latest technology in current control & digital communication.

The JPL100 offers all the functionality of a 100 Amp AC/DC interrupter with the convenience of Bluetooth™ programmability, GPS sync capability as well as M. C. Miller's high quality components and manufacturing standards at an incredible price.

Maximum Current: **100Amps AC or DC**
Maximum Voltage: **170VDC either polarity**
120VACrms (50/60Hz)
Voltage Drop: **<150mV @ 100Amps DC**
Auto Thermal Shutdown: **80°C**
Isolation to Ground: **>12,000V**
Power Source: **(4) "D" Cell Alkaline Batteries**
(1.5V)



Capabilities:

- Interrupts 100 Amps 170 Volts DC, 120 Volts AC (50/60Hz)
- Cool to the touch - even at full rated current
- Can be GPS synchronized and works with your existing M.C. Miller interrupters
- Can provide immediate or scheduled interruption operations

Features:

- Compact (12x6x3 in), lightweight (under 5 lbs), sturdy construction
- Bluetooth™ enabled - can be programmed via simple Android™ app
- High accuracy Real Time Clock, on/off cycles from 1 millisecond to 6 months
- Powered by 4 user-replaceable D-cell Alkaline batteries

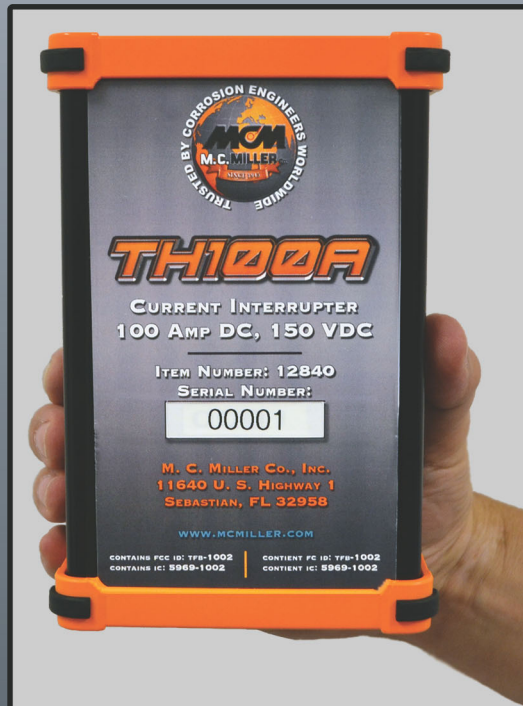


SYNCHRONIZABLE CURRENT INTERRUPTER

TH100A

100 AMP CURRENT INTERRUPTER

The TH100A is a modern current interrupter using the latest technology in current control and digital communication.



You get all the functionality of a 100 Amp interrupter plus the convenience of Bluetooth™ programmability, as well as M. C. Miller's high quality components and manufacturing standards at a price that will make the office budget happy.

Capabilities:

- Interrupts 100 Amps at 150 Volts DC
- Cool to the touch - even at full rated current
- Can be synced to Cronos, JR-1 or JR-2 units - works with your existing interrupters
- Can provide immediate or scheduled interruption operations

Features:

- Compact, lightweight, sturdy construction
- Bluetooth™ enabled - can be programmed via simple Android™ app
- High accuracy Real Time Clock, on/off cycles from 1 millisecond to 6 months
- Powered by 4 user-replaceable AA batteries

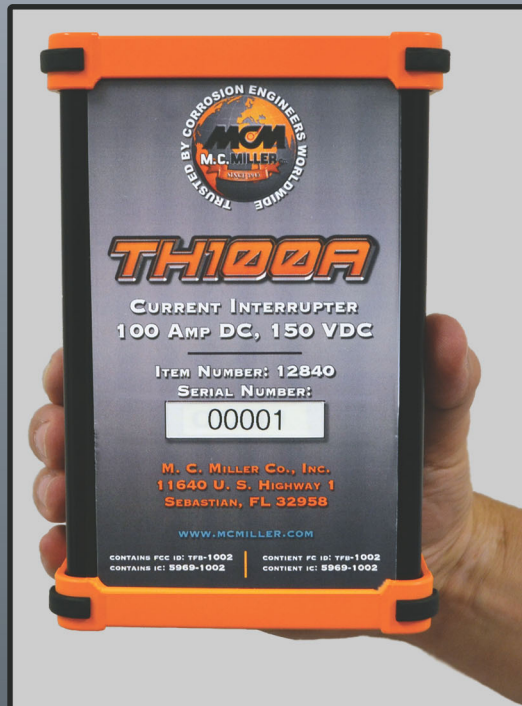


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- Interrupts 100 Amps at 150 Volts DC
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- Can provide immediate or scheduled interruption operations

Features:

- Compact, lightweight, sturdy construction
- Bluetooth™ enabled - can be programmed via simple Android™ app
- High accuracy Real Time Clock, on/off cycles from 50 milliseconds to 64 seconds in 1 millisecond increments
- Powered by 4 user-replaceable AA batteries



DECOUPLERS

M. C. Miller now manufactures a comprehensive line of Solid State Decouplers to suit all of your AC mitigation needs

Why do you need a decoupler?

- Isolation of cathodic protection system
- Safe grounding of electrical hazards
- Protect personnel, plant and equipment



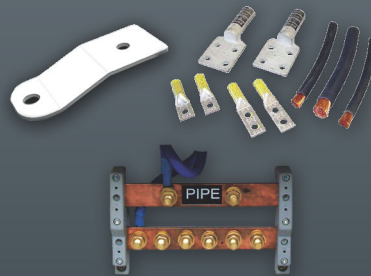
PCR
Polarization Cell Replacement



SSD
Solid State Decoupler



VLD
Voltage Limiting Device



Accessories
Connectors
Mounting Brackets
Cables
Enclosures



Isolators



iBTVM BLUETOOTH VOLTMETER

iBTVM BLUETOOTH VOLTMETER



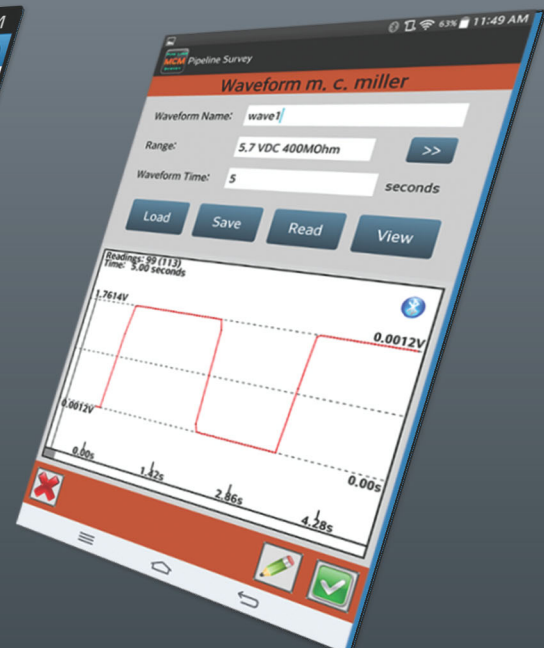
- **Android™ compatible Bluetooth® voltmeter with integrated GPS receiver**
- **Wireless communication with tablets & phones**
- **Re-chargeable battery lasts 18 hours with continuous usage**
- **Submeter GPS at no additional cost**
- **Bluetooth® status indicating LED on case exterior**
- **5 pin connector and 2 shrouded banana jacks**
- **iBTVM for Android™ application included**



iBTVM WITH
TEST SITE SURVEY APP
Item #12430



iBTVM APP



iBTVM WITH
PIPELINE SURVEY APP
Item #12435



iBTVM BLUETOOTH VOLTMETER

Voltmeter Characteristics:

- High Voltage Isolation for Operator Safety: Tested to 1 kV steady-state/15 kV transient voltage levels (designed for higher voltage level isolation) – operator isolated from power supply
- Non-Saturating: Voltmeter will not saturate on 5.7 VDC and higher ranges with superimposed AC signals up to 120 VAC (for readings up to approximately 50% of full scale at 60 Hz) and/or inductive spikes up to 2 kV appearing at the input terminals
- Extensive Ranges: Various DC Ranges (40 mV full scale to 570 V full scale) plus 40 V and 400 V AC Ranges. All DC Ranges have <80 ms response times for accurate On/Off pair readings during fast current interruption cycling (for example, 700 ms ON / 300 ms OFF)

Power Source:

- Lithium-Polymer rechargeable battery
- Interior battery charging port
- Re-chargeable battery lasts 18 hours with continuous usage
- Battery module easily replaced in the field

Communication with Tablets/Phones via Bluetooth® wireless technology:

- Android compatible
- Bluetooth® status indicating LED on case exterior

Connectors:

- 5-pin connector for optional push-button data-probe triggering of readings
- Two shrouded banana jacks (one red/one black) – 1,000 V; CAT III (IEC 61010 rating)

Integrated GPS System:

- Internal GPS antenna

Environmental:

- IP65 Rated

Temperature Ranges:

- Operating Range/Battery Charging Range: 32 °F to 104 °F (0 °C to 40 °C)

Case Dimensions (approximate):

- 5-7/8" long x 3.5" wide x 1.75" high

Weight

- 0.82 lb



* Android is a Trademark of Google Inc.



MILLER Gx DATA-LOGGER

CP Data Collection made Simple



**TEST SITE
SURVEYS**



**INTEGRATED
DIGITAL CAMERA**



**PIPELINE
SURVEYS**

FEATURES & BENEFITS

- Specialty voltmeter tailor made for cathodic protection testing
- CIS, DCVG, and Surface Potential Surveys
- Waveprints and Time Chart Recordings
- Test site surveys (rectifiers, test stations, bonds, atmospherics etc.)... integrated with ProActive software for data storage and reporting
- Hi-res camera and WAAS-enabled GPS receiver built-in
- Full-line of survey equipment accessories available
- Comes in weatherproof hard plastic case for the ultimate in protection



MILLER Gx DATA-LOGGER

Included Accessories for both Gx Data-loggers

- Hard plastic carry case
 - GPS patch antenna
 - A/C charger/adaptor
 - Vehicle charger
 - USB host cables
 - Serial cable
- 2 Shrouded test leads
 - Excel Survey Download Software



Key M. C. Miller Voltmeter Characteristics (for test site survey & pipeline survey work)

- **High Voltage Isolation for Operator Safety**
Tested to 1kV steady-state/15kV transient voltage levels (designed for higher voltage level isolation) – meets the IEC Standard for Category IV environments
- **Analog Pre-Processing & Digital Signal Processing (DSP)**
Accurate determination of On/Off pair values – voltmeter does not saturate even with superimposed AC signals (up to 120V) and/or inductive spikes (up to 2kV) appearing at the input terminals
- **Fast Response Channels (Ranges) Available**
80ms response time in combination with high input impedance values (up to 400M Ω) – accurate On/Off pair readings during fast cycle current interruption, even under high source resistance conditions

General specifications:

- Integrated M. C. Miller voltmeter
- Integrated GPS receiver (WAAS-enabled)
 - Built-in 5MP digital camera with auto-focus and illumination
 - Serial port available for an external GPS receiver connection, if required
 - 320x240 pixel (3.5 inch) color LCD touch-screen (indoor/outdoor viewing)
- 55-key alphabetic-order keypad
- Windows CE 5.0 operating system
- Xscale processor (624MHz)
- 256 MB SDRAM
- 2GB SD card (non-volatile memory for survey data storage)
- Serial (RS232) & USB outputs
- Bluetooth-enabled
 - Re-chargeable 5000mAh Li-Ion battery (40+ hours operation)
 - IP67 rated (1 meter immersion)
 - Satisfies MIL-STD-810F (wind-blown rain)
 - Meets EN 61000-4-2 standard for electrostatic discharge
- Operating temp range: -4°F to +122 °F (-20°C to +50°C)
- Dimensions: 12.5"x5.31"x2.31"
- Weight: 2.64 lbs



Miller Insulation Checker (M.I.C.)

M. C. Miller has created a DIGITAL Above Ground Insulation Checker which is:

- COMPACT- Fits easily in your hand or carried in your back pocket
- SIMPLE TO USE - Employs bright Pass/Fail LEDs for quick readings
- EFFICIENT - 'Push-To-Test' button ensures no power is wasted when the unit is idle, greatly increasing battery life



Item #1200

FEATURES:

- Uses Radio Frequency technology to distinguish between insulation shorts and shorts associated with interconnected piping
- Checks all types and sizes of insulators - Flanges, dressers, couplings or unions - whether in parallel or series
- Locates shorted bolts - Eliminates costly and unnecessary replacement of good insulators
- Evaluates partially shorted insulators
- Easy to operate - Clear operating procedure reduces training time
- Quick - Fast "touch probe" operation eliminates guesswork and additional wires, coils, etc.

SPECIFICATIONS:*

- Enclosure: Heavy duty electronic instrument enclosure - flame retardant ABS plastic.
- Power Source: Two AA size alkaline batteries
- Operating Temperature Range (alkaline battery limited): -4 °F to 131 °F (-20 °C to +55 °C)
- Recommended Storage Temperature Range (alkaline battery limited): -4 °F to 95 °F (-20 °C to +35 °C)
- Max Dimensions: 6.2" L x 3.6" W x 1.5" H (15.8 cm x 9.1 cm x 3.8 cm)

*Specifications subject to change without notice



Underground Insulation Checker (Model 702)

Model 702
Item #461000



FEATURES:

- Built to provide years of dependable service, this precision instrument is light and compact
- Checks all types and sizes of buried insulators from remote test leads - flanges, dressers, couplings, unions, carrier pipe to casing, whether parallel or in series
- 100% accurate - not effected by pipe to soil potentials or most protection voltages
- Indicates continuity of connection between pipe and test lead
- Simple to operate - simplified operation procedure reduces training time to 10 minutes following step by step instructions
- Cost Effective - saves time compared to present test procedures

SPECIFICATIONS

- Enclosure: Molded glossy black Phenolic MIL-M-14, CFG. Designed to meet IP54 standard
- Power Source: Two D size alkaline batteries and two AA size batteries
- Operating temperature range (alkaline battery limited): -4 °F to +131 °F (-20 °C to +55 °C)
- Recommended storage temperature range (alkaline battery limited): -4 °F to +95 °F (-20 °C to +35 °C)
- Output voltage: 1.5 VDC
- Dimensions: 7" L x 5.25" W x 4" H (17.8 cm x 13.3 cm x 10.16 cm)
- Weight: 3lbs (1.36 kg)



MODEL LC-4.5



- DC Volts for IR Drop, Potential & Rectifier readings
- AC Volts for Potential & Rectifier readings
- OHMS for Continuity & Resistance testing
- Selectable Input Resistance
- Display "Freeze" for instant off & Coordinated tests
- Optional plug-in shunt for current readings
- Includes carry case with red and black test leads



Model LC-4.5
Item #5203



MODEL LC-4.5

GENERAL INFORMATION

MODEL LC-4.5 is the first hand-held digital meter to include a number of special features which facilitate corrosion and cathodic protection testing on underground structures. It is designed for field testing under almost any environmental conditions. Sealed Mil.Spec. switches, sealed windows, a gasketed case and a printed circuit board with baked - on moisture and fungus resistance coating on both sides make this possible.

LCD DISPLAY: the large (.5") display characters are easy to read under both high and low lighting conditions and function over a wide temperature range with very little drain on the battery.

THE LC-4.5 is recommended for potential surveys, side drain measurements, surface potential surveys, IR drop measurements, - checking both the AC and DC circuits of rectifiers, checking for stray or hazardous AC potentials, and checking galvanic anodes. DC current measurements require the use of an optional plug in shunt (0-20 Amp).

THE SELECTABLE INPUT: resistance feature permits detection of high resistance in the external circuit and elimination of resulting errors in virtually all cases.

THE PUSH-TO-HOLD READING: button freezes the display at any desired time which makes the meter usable in many areas having varying stray currents. It is also useful when conducting instant-off and coordinated tests.

SPECIFICATIONS

LOGIC:	C-MOS, crystal controlled timing
DISPLAY:	Liquid crystal, 3-1/2 digits, .5" high
DC VOLT RANGE:	0-20 mV (.01 mV resolution) 0-200 mV (.1 mV resolution) 0-2 V (1 mV resolution) 0-200 V (.1 V resolution)
AC VOLT RANGE:	0-600 V (1 V resolution)
RESISTANCE RANGE:	0-200 Ω (.1 Ω resolution)
DC CURRENT RANGE:	Using optional .001 Ω LC Shunt: 0-20 A (.01 A resolution).
ACCURACY:	VDC: 1% of reading \pm 1 digit. VAC: 3% or reading \pm 1 digit. Ohms: 2% of reading \pm 1 digit.
AC REJECTION:	20 mV range: 20 mVAC @ 50/60/400 Hz 200 mV range: 5 VAC @ 50/60/400 Hz 2 V range: 120 VAC @ 50/60/400 Hz 200 V range: 600 VAC @ 50/60/400 Hz 600 VAC range: 600 VDC
DC REJECTION:	600 VAC range: 600 VDC
ZERO:	Automatic
DECIMAL POINT:	Automatic; set by range switch
POLARITY:	Automatic; negative symbol displayed, positive assumed
INPUT RESISTANCE:	20 mV range: 1000 Ω . All other VDC ranges are switch selectable (10 M Ω , 25 M Ω , 50 M Ω , 100 M Ω , 200 M Ω)
OPERATING RANGE:	8 $^{\circ}$ F to 176 $^{\circ}$ F (-14 $^{\circ}$ C to +80 $^{\circ}$ C)
BATTERY:	(1) 9 V - alkaline recommended
DIMENSIONS:	Weight: 11 oz (.312 Kg); Size 6-1/8" x 3-5/8" x 1-3/4" overall (15cm x 8cm x 4.5cm)
ACCESSORIES:	Includes: carry case, 1 - test lead #16 red, 1 - test lead #16 black



CONCRETE CORROSION MAPPING



Model CCMS
Item #15620

SAMPLE APPLICATIONS

- Bridge Decks
- Highway Slabs
- Parking Garages
- Concrete Piers & Docks
- Substructures
- Pre-cast Structures
- Foundations
- Reinforced Concrete Pipe
- Warehouse Floors
- Tunnels



Case Included

FEATURES & BENEFITS

- Corrosion Mapping System can be used to satisfy ASTM C-876 standard test method which has been adopted by the Federal Highway Administration
- Corrosion Mapping System contains all the items needed to perform a corrosion survey on virtually every reinforced concrete structure
- Includes our rugged industry proven LC-4.5 digital meter, adapter plate, electrode extensions, portable hand held test wheel (wire included)
- Two portable reference electrodes; sponge bottle reference electrode for testing on slab surfaces and RE-5/U for testing on overhead/vertical surfaces
- Light weight, easy to use designed for field use under nearly any weather
- Large scale digital meter read out at waist height minimizes operator fatigue and errors.
- Packaged with instructions in a durable hard plastic case for ease of storage and transport to survey sites

NOTE: ASTM Revised standard is C-876-09

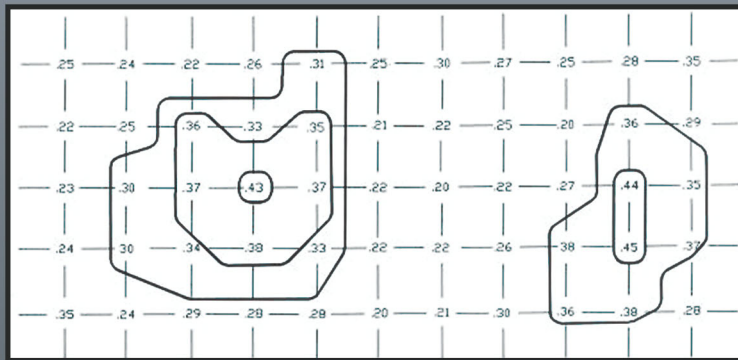


CONCRETE CORROSION MAPPING

The nature of concrete corrosion is an exchange of energy within different sections of the reinforcing steel. At the anode, corrosion occurs and iron ions are released into the electrolyte. The relative energy levels can be determined in relation to a reference electrode with a stable electrochemical potential. A high impedance voltmeter is connected between the reinforcing steel and a reference electrode placed on the surface of the concrete. The resulting potential reading on the voltmeter is an indication of the energy levels (corrosion activity) of the steel in the vicinity of the reference cell.

Half cell potential measurements serve as an important means of determining the probability of corrosion activity on the structure's reinforcing steel. These measurements, which are related to the electrochemical nature of corrosion, allow an accurate survey to be performed in a short period of time.

Data from these surveys can be plotted to provide an easy to interpret graphic picture of the structure. From this plot, as typically shown below, probable corrosion areas and the total area of the structure subject to corrosion can be determined.



Typical concrete slab section with steel reinforcement (rebars). Potential measurements obtained on 4' centers of 24' x 48' panel.

Concrete Mapping System Items Included in Kit

Item #	Description
5203	LC-4.5 meter w/carrying case and manual with test leads
5701	Electrode extension meter adapter plate
16200	Intermediate electrode extension (15") - 2 included
15625	Sponge bottle electrode
30500	GEM hand reel (aluminum) with: 30807 No. 16 AWG test lead wire (red wire insulation) 250' included on reel
16906	Copper-sulphate crystals, 12 oz bottle
17105	Electrode anti-freeze solution, 8 oz bottle.
14905	RE-2.5U electrode (overhead testing)
15628	Concentrate, 4 oz surfactant solution
MAN060	C.C.M.S. Reference guide
CAS015	Orange carrying case C.C.M.S.

LC-4.5 METER
ITEM #5203



ADAPTER
PLATE
ITEM #5701



INTERMEDIATE
ELECTRODE
EXTENSIONS
(15 INCH)
ITEM #16200



SURFACTANT
RESERVOIR
W/ELECTRODE
ITEM #15625

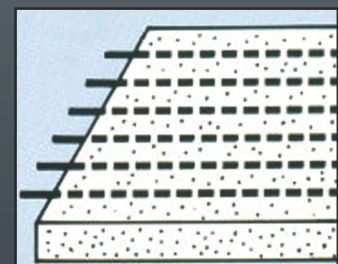
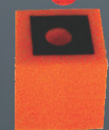
SURFACTANT BOTTLE
CAP WITH SPECIAL
VERSION RE-7 Cu-CuSO₄
REFERENCE ELECTRODE



SURFACTANT
RESERVOIR

INTERFACE
CONNECTOR

SOLUTION
DISPENSING
SPONGE



Concrete slab with steel rods



DIGITAL POTENTIAL METER

FEATURES:

- Low Cost
- Rugged
- Easy to use
- Structure to earth potentials
- Ranges: ± 2 V, ± 20 V
- Low Battery Display
- Electrode extension optional

Model DPM
Item #4110



Model DPM Digital Potential Meter For Electrolysis, Corrosion and Cathodic Protection Testing...
Designed for use by non-technical personnel, such as crews, service technicians, meter readers, etc., but also suitable for the most experienced engineers and staff.

20 Megohms Input Resistance....

Practically eliminated low potential readings caused by resistance in the external circuit due to contact resistance of the reference electrode. This condition is frequently encountered in city work and in frozen ground.



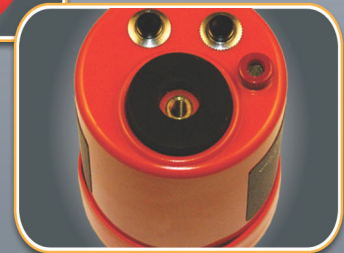
DIGITAL POTENTIAL METER

GENERAL INFORMATION

- Large 1/2" LCD numbers
- Weatherproofed with neoprene gasket
- 20 Megohms input resistance
- Solid state impedance amplifier
- Operates on one 9 V battery
 - Low drain - long shelf life
 - Battery easily replaced and readily available
- Low battery indicator on display
- Push one button to read ± 2 V; push two buttons to read ± 20 V while taking a reading
- Digital readout: ± 1.999 V and ± 19.99 V
- Molded polycarbonate housing
- Filter eliminates errors caused by AC up to 50 V, 50/60 Hz
- Operating temperature: -4 °F to $+185$ °F
- Plastic carrying case with resilient padding
- Modular construction
- Weight: approximately 3 lbs.
- Size: 2 1/2" deep by 10" long



Item #16203



KIT INCLUDES

Digital Potential Meter with:

- 1 - (15108) RE-5 Copper Sulfate Electrode
- 1 - (SUB171) Test Lead Positive 8ft Green
- 1 - (SUB173) Test Lead 20ft Red
- 1 - (BAT007) 9v Battery
- 1 - (4115) Carry Case
- 1 - (MIS101) Orange Meter Cover



Potential meter with optional 30" electrode extension



ANALOG ELECTRONIC POTENTIAL METER

The "Model IA" voltmeter (Analog Potential Meter) is designed for ease of use by meter readers and corrosion technicians alike. The voltmeter comes with an integrated RE-5 reference electrode attached for "metallic structure-to-soil" potential difference readings. The kit also includes a test lead for electrical connection to a metallic structure. The voltmeter offers a 0 - 2 VDC range with a 10 M Ω input impedance, and the analog display presents a color divided scale for convenient indication as to whether or not a carbon-steel structure is receiving a suitable level of cathodic protection with respect to the accepted 0.85 V (850 mV) threshold value.

Specifications

- RE-5 reference electrode included
- 8' black test lead with 46-C clip included
- An optionally available electrode extension can be used to eliminate having to bend over to place the reference electrode in contact with soil (Item #16203)
- 2½" taut-band rugged instrument
- Weatherproofed neoprene gasket
- 10 M Ω input resistance
- Solid-state impedance amplifier
- 9 V transistor battery, low drain - long shelf life, push switch to check battery condition, battery easily replaced and readily available
- Push switch to read potentials, current drain only while taking readings
- Scale marked 0 VDC to 2 VDC, Red to 0.85 VDC, Green to 2 VDC
- Filter eliminates errors caused by AC, Up to 50 V, 50/60 Hz
- Operating temperature: 0 °F to 150 °F
- Molded PVC housing
- Plastic carrying case with resilient padding
- Modular construction
- Weight: about 3 lbs.
- Size: 2 ½" deep x 10" long



Model IA
Item #4107



MILLER RESISTANCE METERS

...Soil Resistivity Testing Made Easy

...Your Choice of Analog (Miller 400A) or Digital (Miller 400D) Meter



Item #44500



Item #44550

Features:

- Rugged, light-weight, hard plastic case – safe to use on wet ground
- The 400A is weather resistant, even with lid removed
- Convenient case lid removal on both the 400A and 400D
- Resistance measurement range from 0.01 Ω to 1.1 M Ω (400A) and 0.01 Ω to 10 M Ω (400D)
- Resistance measurements are unaffected by stray interference signals
- Compatible with M.C. Miller's Soil Resistivity Kit (Item #156225)
- Meters run on a set of replaceable batteries (C-Cell for the 400A and D-Cell for the 400D)

Digital Meter - Additional Features:

- Resistance readings with the push of a button
- Integrates with Bluetooth-enabled PCs and PDAs for wireless data acquisition
- Soil resistivity survey software included free-of-charge

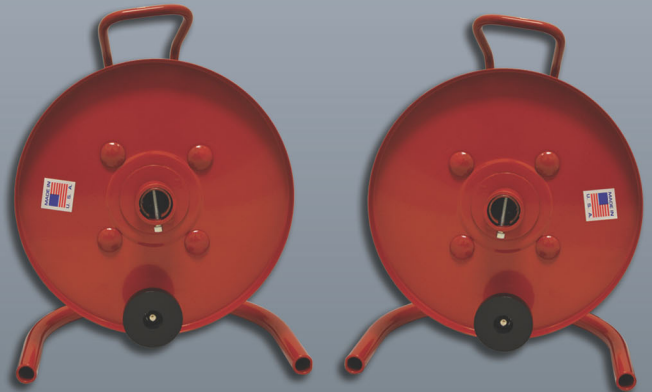


DUAL REEL WIRING SYSTEM

The Dual Reel Wiring Systems offer maximum pin spacing, with respect to a 4-pin linear array (Wenner methodology). Both reels are positioned at the center of the linear array, as opposed to at one end. Custom lengths available.



DUAL REEL WIRING SYSTEM (GEM) V2
Items #44760, 44820, 44855



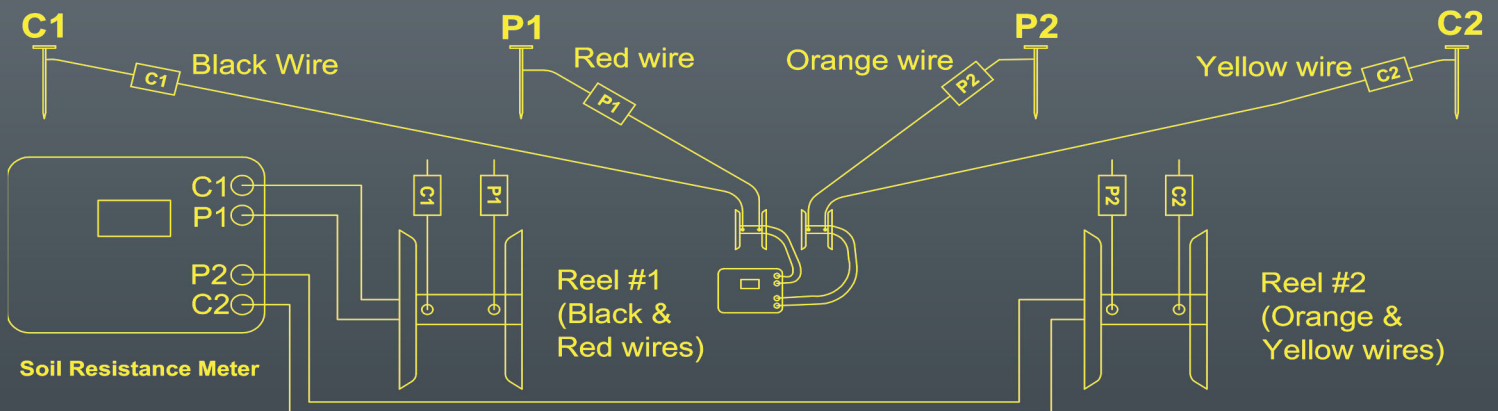
DUAL REEL WIRING SYSTEM (Model 90) V2
Items #44850, 44860

Each reel has the following features:

- 9" Diameter
- Pin spacings of 50ft., 120ft., and 240ft. available
- Two color coded banana jack terminals (for banana plug cable connection to a 4-terminal resistance meter)
- A set of four (4 ft long) color coded banana plug leads used to connect the two wires on each reel to a 4-terminal resistance meter
- Weight - 4.7 lbs.

Each reel has the following features:

- 18 Gauge Steel Construction
- Balanced Carrying Handle
- 9" Diameter
- Simple Clamp-on Connectors
- Totally Enclosed Collector
- 8.5 ft long integrated cable for resistance meter connection (with 2 banana plug terminals)
- Pin spacings of 240ft. and 400ft. available
- Weight - 15 lbs.



SOIL RESISTIVITY TEST KIT



Soil Resistivity Test Kit
Item #156226

- Kit equipment can be used to satisfy both the 4-Electrode ASTM (G57-06) and the 2-Electrode AASHTO (T-288) soil resistivity testing methodologies (the two interior pins are removed from the soil box in the case of the AASHTO methodology with an appropriate adjustment to the multiplication factor)
- Kit items are supplied in a hard plastic carrying case that can also conveniently accommodate a 4-terminal resistance meter, such as the Miller 400A, Miller 400D or Nilsson 400 Resistance Meters. **(Resistance Meters are sold separately.)**

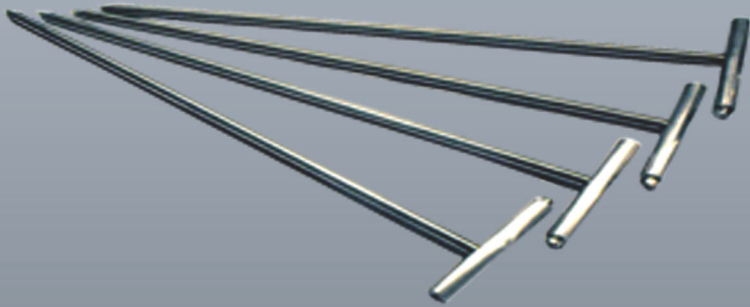
Test Kit Includes

- 4-Pin Test Reel (with color-coded wires), including “reel-to-meter” test leads (also color-coded)(*maximum pin spacing is 20 feet*)
- Set of four stainless steel soil pins for use with the 4-Pin Test Reel
- Large Soil Box - 270 ml volume (4-terminal)
- Soil Box Test Leads (each lead has a banana plug on one end (for connection to a resistance meter) and a pointed plug on the other end (for connection to the soil box))



SOIL RESISTIVITY TEST KIT

TEST KIT ITEMS



Set of four 3/8" dia. x 18" long
Stainless Steel Soil Pins
Item #44720 (Single pin)



Soil Container Test Leads(4 FT)
Item #37010



Large Soil Box (270 ml)
Item #37008



4-Pin Test Reel
Item #44900



4-Pin Test Reel Lead Set (4FT)
Item #44698



MILLER SOIL BOXES



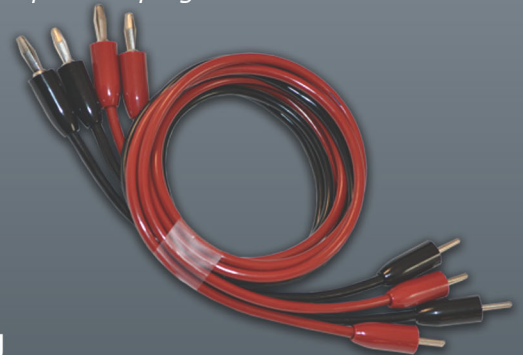
Large Soil Box
Item #37008
1.5"W, 8.75"L, 1.25"D



Small Soil Box
Item #37006
1.2"W, 4.4"L, 1"D

ACCESSORIES

Test Leads for Miller Soil Boxes
Item #37010
Set of 4 Leads (2 Red / 2 Black)
w/banana plugs on one end and
pointed plugs on the other end.



FEATURES AND BENEFITS

- Plexiglass body with rounded corners for easy cleaning
- Stainless steel current distribution plates and removable brass pins can be used with any 4-Terminal Resistance Meter, including Miller 400A, Miller 400D and Nilsson 400
- Can also be used with any M.C. Miller multimeter (or separate volts and amps meters) together with an external battery
- Can be used to satisfy the ASTM (G57 and G187) standards as well as the AASHTO (T-288) Standard



MILLER IR-FREE COUPONS

CONVENIENTLY MEASURE LOCAL POLARIZED POTENTIALS WITHOUT THE NEED TO INTERRUPT ALL CURRENT SOURCES



1 SQ CM SURFACE AREA COUPONS



10 SQ CM SURFACE AREA COUPONS

FEATURES & BENEFITS

- Wide range of standard “low-carbon steel” coupons available, including 10 sq cm and 1 sq cm exposed surface area coupons having both flat disc and cylindrical shaped designs
- Custom coupons manufactured to customers’ specifications, including choice of metal type (including ductile iron and aluminum), coupon shape and cable requirements (including wire gauge, insulation type, color and number of wires)
- IR-drop-free polarized potential readings possible in association with coupon current interruption
- Coupons integrate with pre-existing test stations
- Coupon holder available allowing integration of coupons with customer-supplied 2” diameter PVC tubes

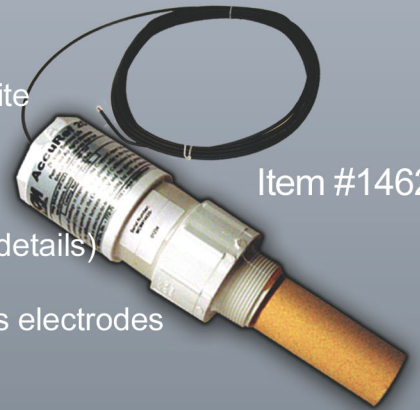


ACCUREF 20

Silver / Silver Chloride Permanent Reference Electrode

FEATURES & BENEFITS:

- Electrodes are buried directly with native soil backfill – no need for composite backfills
- Electrodes can be used in chloride ion containing soils, due to the use of a saturated chloride filling solution (please see the Specifications section for details)
- Depressed electrolyte (filling solution) freezing temperature of -20 °C allows electrodes to experience a deep frost without freezing or cracking
- Design life of 20 years (please see “Important Notes” below)
- Large electrical contact area (electrically active surface area) having hygroscopic characteristics promotes good electrode-to-soil electrical contact. (Note: Soil moisture content is a requirement for a buried metallic structure potential reading versus any permanently installed reference electrode, which means that readings in ultra-dry soil are not possible)



SPECIFICATIONS:

- Sealed cable type/length (standard): 25 feet of #12 AWG wire coated with XLP (USE-2/RHH/RHW-2) insulation; 600 V rating, 90 °C max. temp. in wet & dry environments
- Active electrical contact surface area: approx. 16.4 inches²
- Half-cell materials: 99.99% Ag, 99.99% AgCl and proprietary filling solution
- Please see the “Important Notes” section below) Metallic structure-to-soil potentials versus these electrodes can be adjusted to the Copper/Copper Sulfate potential, if necessary, as indicated in “A Guide to Understanding Reference Electrode Readings”, Materials Performance, Sept. 2009 issue
- Max. diameter: 2.77 inches,
Overall length (not including sealed cable): 11 inches
Weight (including sealed cable): 1.9 lbs

Important Notes:

- These products must be installed according to the installation instructions provided
- These products are not guaranteed to maintain their calibration in all soil environments and it is incumbent on the customer to test their soil for the presence of any potential chemical contaminants prior to installation of these products. The M. C. Miller Company has not tested these products with regard to the effects of specific (potential) chemical contaminants on their calibration.
- These products are not designed for submersion applications.



ACCUREF 60

Silver / Silver Chloride Permanent Reference Electrode

FEATURES & BENEFITS

- Electrodes are buried directly with native soil backfill – no need for composite backfills
- Electrodes can be used in chloride ion containing soils, due to the use of a saturated chloride filling solution (please see the Specifications section for details)
- Depressed electrolyte (filling solution) freezing temperature of -4°F (-20°C) allows electrodes to experience a deep frost without freezing or cracking
- Design life of 60 years (please see “Important Notes” below)
- Large electrical contact area (electrically active surface area) having hygroscopic characteristics promotes good electrode-to-soil electrical contact. [Note: Soil moisture content is a requirement for a buried metallic structure potential reading versus any permanently installed reference electrode, which means that readings in ultra-dry soil are not possible]



SPECIFICATIONS

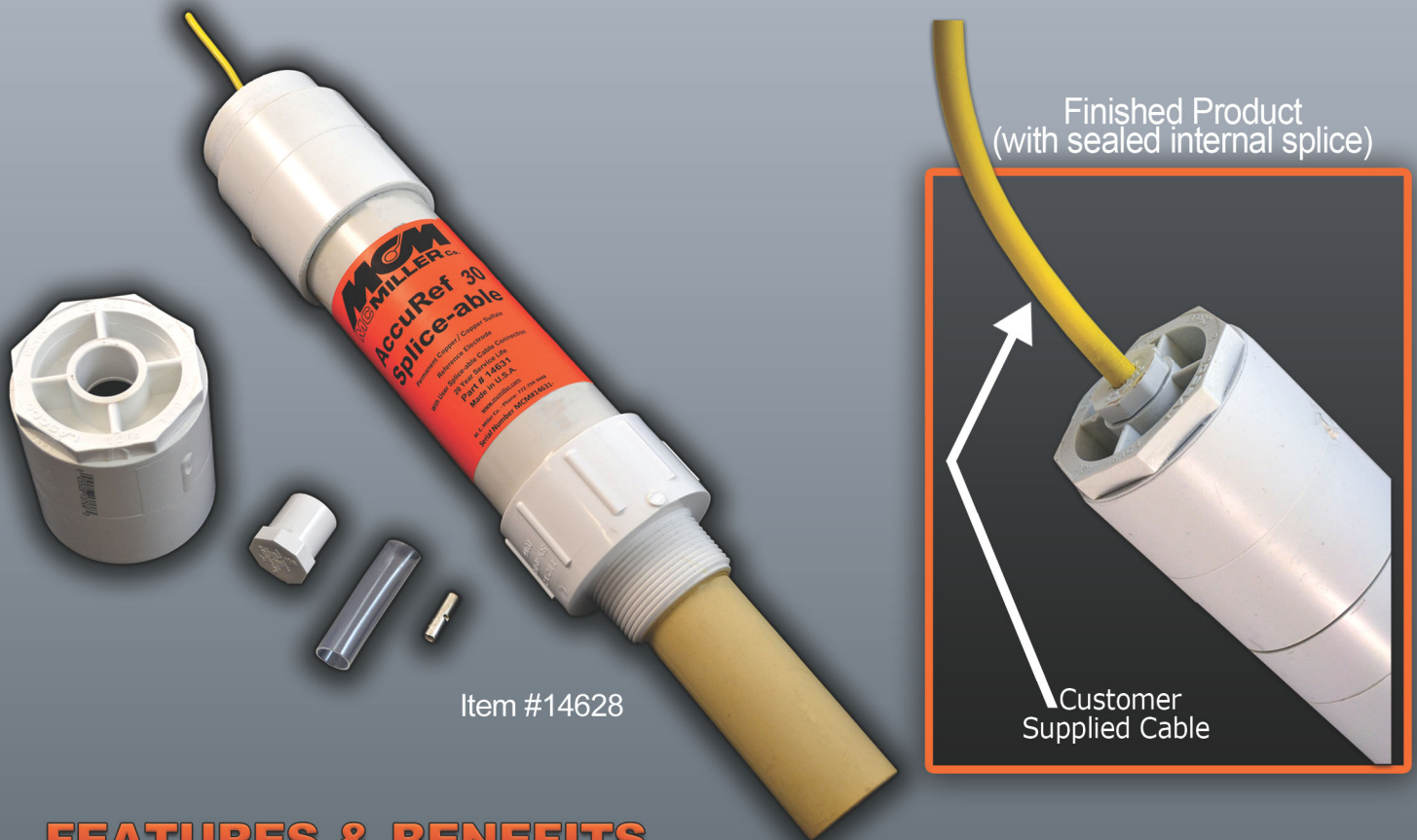
- Sealed cable type/length (standard): 25 feet of #12 AWG wire coated with XLP (USE-2/RHH/RHW-2) insulation; 600V rating, 90°C max. temp. in wet & dry environments
- Active electrical contact surface area: approx. 16.4 in^2
- Half-cell materials: 99.99% Ag, 99.99% AgCl and proprietary filling solution
- [Please see the “Important Notes” section below]. Metallic structure-to-soil potentials versus these electrodes can be adjusted to the Copper/Copper Sulfate potential, if necessary, as indicated in “A Guide to Understanding Reference Electrode Readings”, Materials Performance, September 2009 issue
- Max. diameter: 2.77 in, Overall length (not including sealed cable): 15 in; Weight (including sealed cable): 3.9 lbs

Important Notes:

- 1) These products must be installed according to the installation instructions provided
- 2) These products are not guaranteed to maintain their calibration in all soil environments and it is incumbent on the customer to test their soil for the presence of any potential chemical contaminants prior to installation of these products. The M. C. Miller Company has not tested these products with regard to the effects of specific (potential) chemical contaminants on their calibration.
- 3) These products are not designed for submersion applications.



ACCUREF 30 SPLICE-ABLE ELECTRODE



FEATURES & BENEFITS

- All hardware components included for onsite cable splicing (silicone sealant & PVC cement to be supplied by customer)
- Any customer-supplied cable can be used having a maximum outside diameter of 0.4 inch (10 mm) and a maximum wire size of #8 AWG (10 mm²)
- Copper / copper sulfate electrode has a design lifetime of 30 years (AccuRef 30) and a -20 °C freezing temperature
- Moisture absorbent ceramic tip has a large electrical contact area of approximately 16.4 sq. inches (approx. 100 cm²)
- Electrode contains 80 grams of high purity copper and 500 ml of saturated copper sulfate gel
- Electrode has a 2.77" diameter (6.9 cm) at its maximum, is 15" long (37 cm) and weighs 3.9 lbs (1.77 kg)



ACCUREF 30

Copper / Copper Sulfate Permanent Reference Electrode

FEATURES & BENEFITS:

- Electrodes are buried directly with native soil backfill – no need for composite backfills. Note: These products are suitable for use in neutral soil having a chloride ion content <500 ppm. (AccuRef Silver/Silver Chloride electrodes are recommended for use in higher chloride ion content soils)
- Depressed electrolyte freezing temperature of -20 °C allows electrodes to experience a deep frost without freezing and cracking
- Design life of 30 years (please see “Important Notes” below)
- Large electrical contact area (electrically active surface area) having hygroscopic characteristics promotes good electrode-to-soil electrical contact. (Note: Soil moisture content is a requirement for a buried metallic structure potential reading versus any permanently installed reference electrode, which means that readings in ultra-dry soil are not possible)



Item #14627

SPECIFICATIONS:

- Sealed cable type/length (standard): 25 feet of #12 AWG stranded copper wire coated with XLP (USE-2/RHH/RHW-2) insulation; 600 V rating, 90 °C max. temp. in wet & dry environments
- Active electrical contact surface area: approx. 16.4 in²
- Half-cell materials: 80 grams of 99.99% copper and 500ml of saturated copper sulfate gel electrolyte
- Max. diameter: 2.77 in, Overall length (not including sealed cable): 15 in
Weight (including sealed cable): 3.9 lbs

Important Notes:

- 1) These products must be installed according to the installation instructions provided
- 2) These products are not guaranteed to maintain their calibration in all soil environments and it is incumbent on the customer to test their soil for chloride ion content and for the presence of any other potential chemical contaminants prior to installation of these products. The M. C. Miller Company has not tested these products with regard to the effects of specific (potential) chemical contaminants on their calibration.
- 3) These products are not designed for submersion applications.



PERMANENT REFERENCE ELECTRODE

with Integrated Coupon
...single hole burial



Item #146305

REFERENCE ELECTRODE FEATURES

- Applications: Direct burial in soil, assuming low (<500 ppm) levels of chloride ion contamination. AccuRef Silver/Silver Chloride electrodes are recommended for use in chloride ion contaminated soil
- Low Freezing Point: -20°C
- Design Life: 30 years (AccuRef 30)
- High Purity Materials: Copper rod and copper sulfate crystals
- Cost: Less expensive than most copper sulfate permanent electrodes
- Tip: Moisture absorbent ceramic tip
- Evaporation: Will not dry out at low humidity and/or high heat
- Wire: 25 feet of #12 AWG XLPE RHW-2 lead wire; cross-linked Polyethylene jacket, direct burial, low leakage, 600 V, 90°C Rating. Longer lengths of wire are available
- Electrical Contact Surface Area: Approximately 16.4 in^2 (a cylindrical surface, 1.5 in diameter and 3.5 in length)

COUPON FEATURES

- Integrated coupon/holder assembly
- Integrated PVC pipe adapter for optional PVC pipe connection (nominal 3 in (7.6 mm) diameter pipe)
- Carbon Steel coupon (AISI 1018, ASTM A108, AMS5069) with 10 cm^2 surface area
- #12 AWG (4 mm^2) standard copper wire, green colored THHN insulation, single wire, 25 ft long for coupon connection. Longer lengths of wire are available

Dimensions:

Width: 4.0 Inch maximum outside diameter

Length: 20.75 Inch long (with pipe adapter attached)

Weight: 5.25 Pounds



RE-SERIES REFERENCE ELECTRODES

MODEL RE-5:

Flat surface ceramic plug for general use on soil surfaces. Approx. overall size 1 3/8" dia. X 6" long. Dry weight: 4 oz.



Item #15108

COPPER/COPPER SULFATE ELECTRODES

MODEL RE-5C:

Ceramic plug has conical shape designed for use in soft soil conditions. Approx. overall size 1 3/8" dia. X 6 3/4" long. Dry weight: 5 oz.



Item #15210

MODEL RE-7:

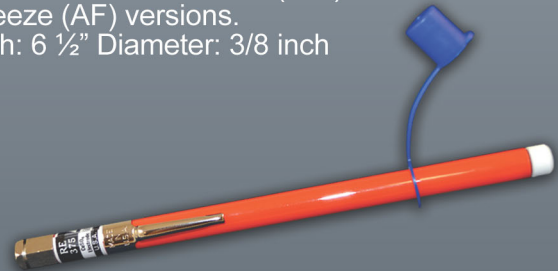
Ceramic plug has a flat surface with beveled edge for general purpose use on soil surfaces. Fits through 1 inch diameter holes in pavement & asphalt, for example. Approx. overall size: 1" dia. X 8 1/2" long. Dry weight: 5 oz.



Item #15301

MODEL RE-375:

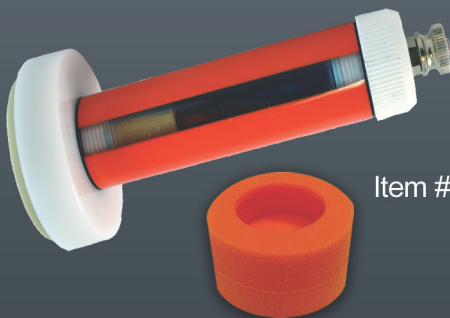
Small diameter electrode (non-extendable) designed for readings taken through small holes or cracks. Comes in de-ionized water (DW) and antifreeze (AF) versions. Length: 6 1/2" Diameter: 3/8 inch



RE-375 (DW): Item #15102
RE-375 (AF): Item #15104

MODEL RE-2.5U:

Highly durable, large area ceramic plug (2.25" diameter). Electrode can be used in any orientation, including upside down configuration. Ideal for concrete corrosion potential mapping (bridge decks, parking garages, etc.) - stands upright by itself. Electrode supplied with highly absorbent sponge cap for enhanced electrical contact to concrete surfaces.



Item #14905

FREE-STANDING RE-5C ELECTRODE:

Allows readings to be taken without the technician having to hold onto a reference electrode. Includes a RE-5C electrode (Item #15210). Highly durable plastic stake with stainless steel clip. Length: 15" Width: 1 3/4" Depth: 3 1/2"



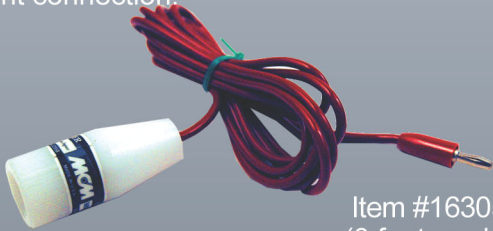
Item #15310



ELECTRODE ACCESSORIES

SUBMERSIBLE ADAPTERS:

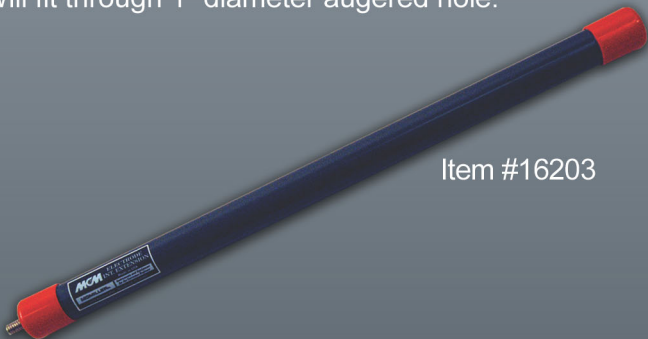
Covers any MCM electrode for use underwater, includes your choice of a lead length (8', 25', 50', 100', 150' or 200') with banana plug. Water-tight connection.



Item #16305
(8 foot model shown)

EXTENSIONS:

Intermediate electrode extension: 30" long. One or more can be used with MCM model IA and LC series meters or between the electrode and the standard electrode extension, so that the electrode can be easily placed at the desired location inside manholes, water tanks, etc. Will fit through 1" diameter augered hole.



Item #16203

ELECTRODE EXTENSIONS:

Electrode extensions 30" long. Side terminal connection allows use of the electrode without bending over or stooping. Extensions also available in 15" lengths.



Item #16101

ANTI-FREEZE SOLUTION:

For use with any MCM electrode. Permits potential measurements with temperature as low as -10°F (-23°C) without danger of cracking electrode tube. Available in 8 oz. and 32 oz. (fl.) containers. Can be used year around.



Item #17207



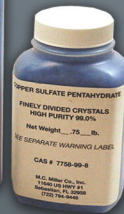
Item #17105

COPPER SULPHATE:

Finely divided high-purity crystals. Available in ¾ lb and 2 ½ lbs containers. Under normal conditions a ¾ lb container will be sufficient to maintain an electrode for a year.



Item #17003



Item #16906

LEAK STOP GEL:

New, improved Leak Stop Gel for use with any MCM electrode. Stops the leaking of CuSO_4 electrodes, has no expiration date.

Item #18020

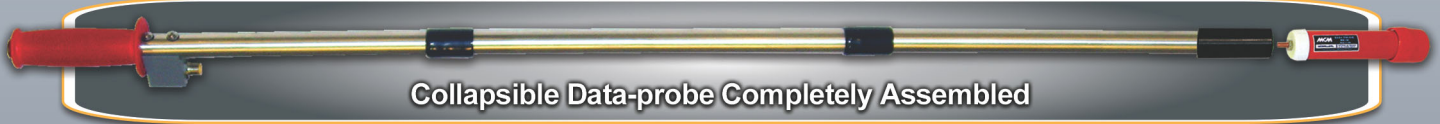


Item #18010



COLLAPSIBLE DATA-PROBES

...the performance of our regular data-probes with the convenience of collapsibility



FEATURES & BENEFITS

- Simple assembly & disassembly
- Convenient for travel - collapsed probes (x2) integrate with our pipeline survey equipment carrying case (Item #11231)
- Detachable reference electrode design - integrates with any electrode with a 1/4 x 20 threaded fitting, including RE-5, RE-5C, RE-7 and sponge bottle electrodes (sold separately)
- 6" long middle section (compared to 12" standard section) is available to make the assembled probes shorter (or longer), if required (sold separately) (Item #SUB9771)



CUSTOM LENGTH WIRE

Wire can be purchased by the foot, by the spool, or mounted on a reel.

#16 - Item #30807
#18 - Item #31210

#16 - Item #31505
#18 - Item #31410



#16 - Item #31006
#18 - Item #31403



#16 - Item #31108
#18 - Item #31352

#16 - Item #30909
#18 - Item #31301

Available Reels:



Model 90



GEM Reel



Model 600

Reel Capacity*		
Reel	Wire Gauge	Max Qty (Feet)
GEM	16	500
	18	1000
Model 90	16	500
	18	1800
Model 600	16	2300
	18	8000

* Non-spliced lengths limited to 500 FT for #16 and 3000 FT for #18



Items shown are not to scale

ACCESSORIES

HANDHELD PUSH BUTTON DATA PROBE

Item #12425



REQUIRES:

Item #12428 BLACK BAND (NEGATIVE) CABLE
OR
Item #12429 RED BAND (POSITIVE) CABLE

Canes and adapter
platforms for LC-4.5, Gx
and iBTVM meters



Item	Item#
Ball Handle Cane	16281
Cane Handle Cane	16282
LC 4.5 Adapter	16285
Gx Adapter	16288
iBTVM/Tablet Adapter	11850

TEST LEAD FIELD KIT



Item #36100

RE-5 FIELD KIT



Item #15150

RE-5C FIELD KIT



Item #15150

SELECTABLE IMPEDANCE AMPLIFIER



Item #5615

HALF-CELL SOLUTION TEMPERATURE MONITOR



Item #15215

WIRE MEASURER CONTINUITY TESTER



Item #HIP048



IONX PORTABLES



Package Contents:

- IonX Portable Electrode (either RE-5 or RE-5C style)
- Electrode calibration certificate
- “Derivation of Electrode Potential Value” document
- Instructions & Maintenance sheet
- 2 oz. squeeze bottle of Electrode Solution for “top-ups”



IONX PORTABLES

FEATURES & BENEFITS:

- No copper sulfate solution leakage (“Green” Electrodes)
- Half-cell cannot be contaminated
- No need to handle, store or dispose of hazardous copper sulfate crystals or copper sulfate anti-freeze solutions
- Electrodes arrive “ready-to-use” – no need to prepare chemicals, etc. in the field
- All IonX Portable Electrodes are calibrated at the factory and are shipped with a certificate of calibration.
- Electrode potentials are in the range $316\text{mV} \pm 10\text{mV}$ at 25°C versus Standard Hydrogen Electrode (SHE)
- Electrodes can be stored at temperatures down to -20°C
- Electrodes have the same fittings as conventional M. C. Miller portable electrodes (for connection to standard canes and electrode extensions). The robust ceramic plugs are customized for IonX electrodes

CERTIFICATION

IonX Portable Electrodes are in a “ready-to-use” state upon completion of the manufacturing process and their electrode potentials are measured at the factory, prior to shipping. A certificate of calibration is issued for each electrode which, in addition to indicating the electrode potential as measured at the factory, presents the certification date and the expiration date, which is 12 months beyond the date of certification. IonX Portable Electrodes can be returned annually to the factory for recalibration.



MILLER TEST REELS

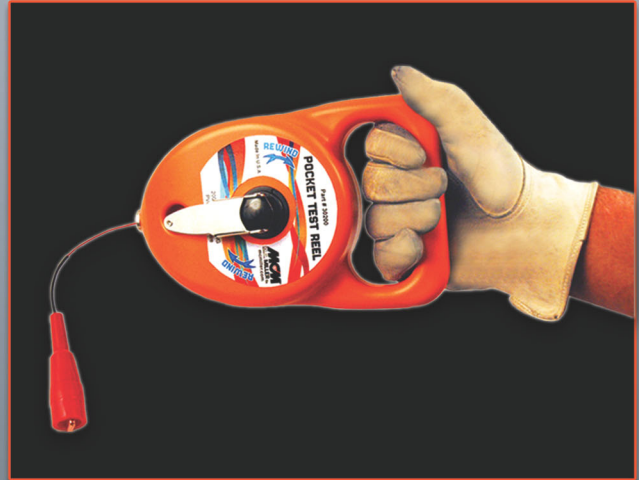
ONE GREAT DESIGN...TWO GREAT OPTIONS



MAGNUM TEST REEL

PVC-INSULATED WIRE OPTIONS:

200ft of #18 AWG Wire (Item #30218)
100ft of #16 AWG Wire (Item #30215)



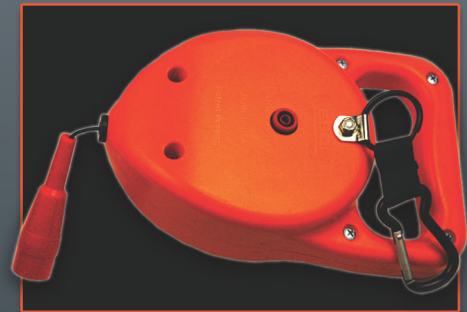
POCKET TEST REEL

PVC-INSULATED WIRE OPTIONS:

75ft of #18 AWG Wire (Item #30190)

FEATURES & BENEFITS:

- One-piece steel crank for long life
- “Glovable” grip for cold weather
- Ergonomic design to reduce wrist strain
- Integrated safety banana jack for test lead connection
- 40 Amp copper C-Clip with insulated boot included
- Corrosion-proof body
- Belt clip attached (Pocket Reel)
- Optional Submersible Adapter (replaces C-Clip) - available with the #16 AWG wire option (priced separately)



POCKET REEL W/ BELT CLIP,
SAFETY BANANA JACK ALSO SHOWN



PROACTIVE SOFTWARE

Pipeline Integrity for the

Life

of Your System



ProActive[®]

Pipeline Integrity System

ProActive[®]

Pipeline Threat Management

Corrosion and Mechanical Damage Prevention Data:

- External Corrosion (Cathodic Protection)
- Internal Corrosion
- Atmospheric (Exposed Pipe)
- Depth-Of-Cover

Anomaly Detection & Repair Data:

- ILI (Smart Pig) Surveys
- DCVG Surveys
- Surface Potential Surveys
- Anomaly Direct Inspections

ProActive[®]

Pipeline Integrity System

Pipeline Structural Integrity Data Management

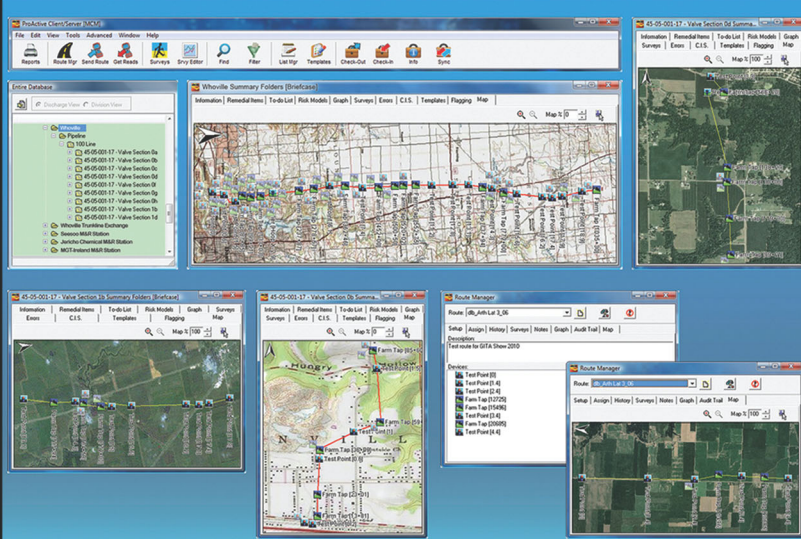
- APDM, ISAT & PODS Integration
- Data-Loggers & Mobile Device Support
- Graphical Reports & Asset Mapping
- Customizable Risk Assessment Model
- Remote Monitoring Support



PROACTIVE SOFTWARE

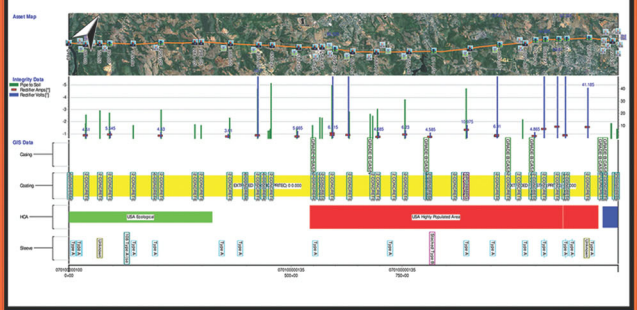
ProActive® Pipeline Asset Mapping

Integrated Web Service Imagery



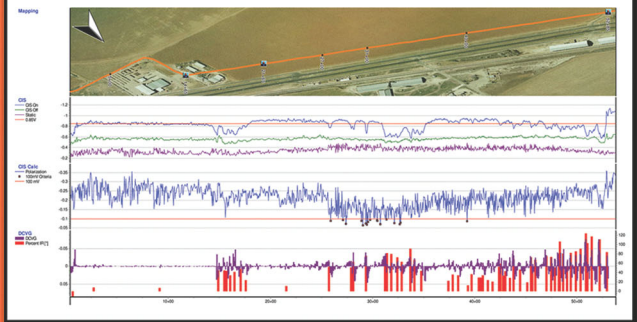
ProActive® GIS Database Integration

Pipeline Structural Integrity data support inside GIS Databases



ProActive® Graphical Pipeline Reports

ECDA Graphical Reports



ProActive® GIS Database Integration

Pipeline Structural Integrity data support inside GIS Databases

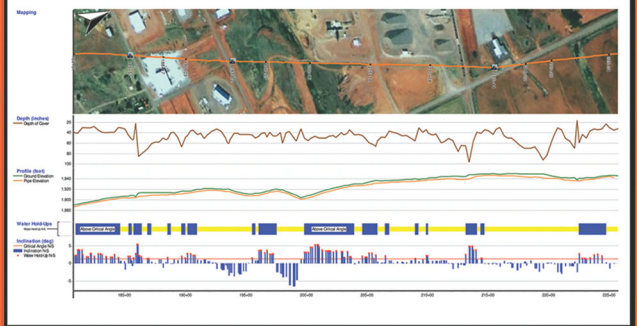
• APDM • ISAT • PODS

Pipeline GIS/ProActive Integration:



ProActive® Graphical Pipeline Reports

ICDA Graphical Reports

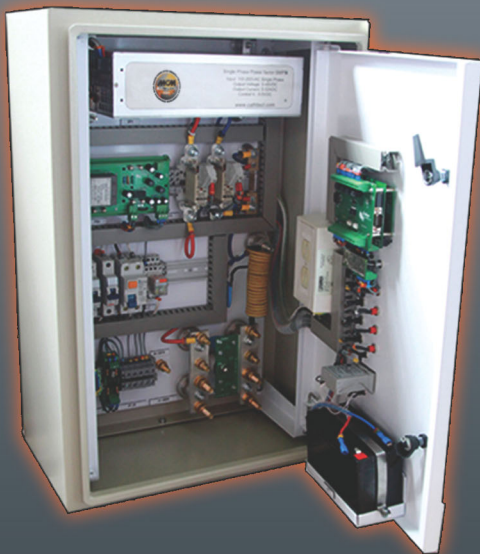


RECTIFIERS

Switchmode Technology

The Switchmode Rectifier is the latest rectifier technology known for its higher quality DC output, efficiency, service life & internal design features.

- Automatic with 4 modes of control
- Integrated Remote Monitoring (RMU)
- Output DC ripple is less than 200 mV
- High efficiency of up to 95%
- Single phase – lower power usage
- Lightweight design
- Less copper used
- Lower carbon footprint



SWITCHMODE



M.C. Miller is celebrating 74 years as the leader in corrosion monitoring equipment!

We would like to thank all our customers and distributors for their support over the last 74 years. We would also like to thank our employees, past and present, for making our company a well respected name in our industry. M. C. Miller and it's employees would like to give special thanks to Melvin C. Miller (Founder) and Melvin C. Miller II (Mark Miller) for creating a company that has been known worldwide for quality and service for over 74 years.

THANK YOU!



THE EQUIPMENT ALL CORROSION ENGINEERS WISH THEY HAD



ProActive[®]
Pipeline Integrity System



Software - Data Collection - Electrodes - Test Kits - Survey Equipment
M. C. MILLER - TRUSTED BY CORROSION ENGINEERS WORLDWIDE

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