



AMR (Drive By) System with Meters

Date: 10/10/2019

Customer:

Sunrise Engineering

11 North 300 West
Washington, UT 84780

Quoted By:

Matt Lahrs 303-408-5411
Ferguson Waterworks
1788 Helena Street
Aurora, CO 80011

Quote Ref: Mueller Systems Mi.Net® AMI System

Quote Expiration: 4/6/2020

Mueller Meters, Radios and Hangers

Description	Units	Quantity	Unit Sale Price	Extended
5/8 x 3/4" 420 B Brass Solid State Meter with 5' Nicor Connector	Each	270	\$ 114.00	\$ 30,780.00
MI.Node M AMR Transmitter with 5' Nicor Connector	Each	270	\$ 83.00	\$ 22,410.00
MINodeThrough the Lid Bracket Mount	Each	270	\$ 6.00	\$ 1,620.00
Meter and Endpoint Price Sub-Total				\$ 53,190.00

AMR (Drive By) Transceiver and Software OPTION 1

Description	Units	Quantity	Unit Sale Price	Extended
MI.NET Mobile Transceiver Kit	Each	1	\$ 7,875.00	\$ 7,875.00
EZ Reader Mobile Software Suite	Each	1	\$ 3,125.00	\$ 3,125.00
Mueller Systems Mi.Net® AMI System Infrastructure Sub-Total				\$ 11,000.00

AMR Handheld Unit OPTION 2

Description	Units	Quantity	Unit Sale Price	Extended
Handheld Mini (Export and Install Tool)	Each	1	\$ 1,375.00	\$ 1,375.00
Project Management and Training Sub-Total				\$ 1,375.00

Mueller Systems Mi.Net® AMI System Total: \$65,565.00

Maintenance and Support *Starting Year 2*

Description	Units	Quantity	Unit Sale Price	Extended
Software Optional Extended Warranty (Optional Starting Year 2)	Each	1	\$ 887.25	\$ 887.25
Mobile Transceiver Optional Extended Warranty (Optional Starting Year 2)	Each	1	\$ 1,690.00	\$ 1,690.00
Maintenance and Support *Starting Year 2*: \$				2,577.25

The City will be responsible for any integration fees charged by their billing software provider.

All Nodes must be mounted through the lid with a Mueller TTLH adapter.

NO installation quoted but is available for an added price

Quoted prices are based upon receipt of the total quantity for immediate shipment (48 hours). Shipments beyond 48 hours shall be at the price in effect at time of shipment unless noted otherwise. Seller is not responsible for delays, lack of product or increase of pricing due to causes beyond our control, and/or based upon Local, State and Federal laws governing the type of products that can be sold or put into commerce. This Quote is offered contingent upon the Buyer's acceptance of Seller's terms and conditions, which are incorporated by reference and found either following this document, or on the web at http://wolsley.com/terms_conditionsSale.html. Government Buyers: All items quoted are open market unless noted otherwise. Lead Law Warning: It is illegal to install products that are not "lead free" in accordance with US Federal or other applicable laws in potable water systems anticipated for human consumption. Products with *NP in the description are NOT lead free and can only be installed in non-potable applications. Buyer is solely responsible for product selection.

420 Series Bronze

420 Bronze PD Meter

Sizes 5/8" x 1/2" and 5/8" x 3/4"

Features

APPLICATIONS: The Hersey® 420 bronze is a nutating disc style, positive displacement meter designed for residential and small commercial applications where water volumes are low and low flow sensitivity is important.

CONFORMANCE TO STANDARDS: All Hersey 420 bronze meters meet or exceed the latest revision of the AWWA C-700 Standard for positive displacement meters. Every 420 bronze no lead meter is compliant with the latest initiatives of NSF, ANSI and EPA standards.

CONSTRUCTION: Hersey 420 water meters consist of three basic parts: maincase; measuring chamber; and permanently sealed register. The maincase is made of bronze for long life. Direction of flow arrows and model are cast into each maincase for ease of identification. The bottom cover is epoxy-coated cast iron with a molded plastic liner separating it from the waterway. Optional bronze and plastic bottom covers are available. The measuring chambers are designed for reduced wear during operation. The measuring chamber, integral strainer, nutating disc and thrust roller are thermoplastic, which is dimensionally stable and will not corrode. The register housing and lid are available in your choice of plastic or bronze for standard visual read registers. The meter is designed so that the register can be replaced easily without removing the meter from the service line.

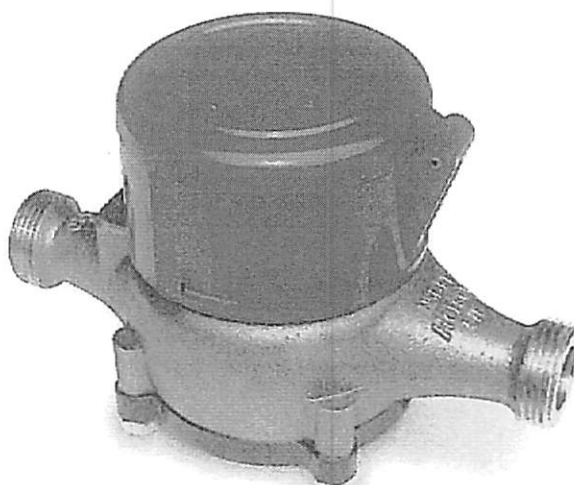
REGISTER: The permanently sealed visual read register has a unique triple "L" seal and heat treated, glass lens to eliminate dirt, moisture infiltration and fogging. An integral tamper-proof locking feature is provided to resist tampering with the register. The totalizing register has a straight-reading odometer type display, a 360° test circle with center sweep hand and a low flow (leak) detector. Standard gearing is used, making registers interchangeable by size. The 420 bronze meter is available with all AMR and AMI options for increased reading efficiency.

OPERATION: Water flows through the meter's strainer where debris is screened out. The incoming water fills a known volume of the measuring chamber on one or the other side of a movable disc that separates the chamber into two sections. As water enters, it moves the disc (nutates), forcing a known volume of water out of the meter from the opposite side of the disc. The process repeats as the sections refill and empty in turn. The nutating action of the disc is coupled magnetically to the register to indicate the volume of water that passes through the meter.

MAINTENANCE: The Hersey 420 positive displacement meter is designed and manufactured to provide long service life with virtually no maintenance required. Repair components available include complete chamber assemblies and bottom plate gaskets. All components can be accessed without removing the meter body from the service line for simplified maintenance.

CONNECTIONS: Supplied with external straight pipe threads (NPSM) per ANSI B1.20.1

Mueller SYSTEMS



5/8" x 3/4" 420 Bronze PD Meter

420 Bronze

Materials and Specifications

MODEL	420 Bronze Meter
SIZES	5/8" X 1/2", 5/8" X 3/4"
STANDARDS SERVICE	AWWA C-700, Most current NSF-61, ANSI, & EPA Initiatives Measurement of flow in forward direction only
INSTALLATION	Horizontal or Vertical
OPERATING FLOW RANGE	See Charts on the following pages
ACCURACY	See Charts on the following pages
MAXIMUM WORKING PRESSURE	150 PSI
TEMPERATURE RANGE	33° F to 100° F water temperature
MEASURING ELEMENT	Nutating Disc PD Chamber
REGISTER TYPE	Straight reading, permanently sealed, magnetic drive with low flow indicator and remote reading capability
METER CONNECTIONS	External straight pipe threads (NPSM)
MATERIALS	Meter case - Bronze Bolts - Stainless Steel Measuring Element Chamber and Disc - Thermoplastic Disc Pin - SST Strainer - Thermoplastic
OPTIONS	AMR/AMI Reading Systems

420 Series Bronze

420 Bronze PD Meter
Sizes 5/8" x 1/2" and 5/8" x 3/4"

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420 Bronze

Meter Registration

Meter Size	Initial Dial*	Capacity	Initial Dial*	Capacity
5/8"	10 Gallons	10 Million	1 Cubic Ft.	1 Million

*Registration equal to one full revolution of the sweep hand.

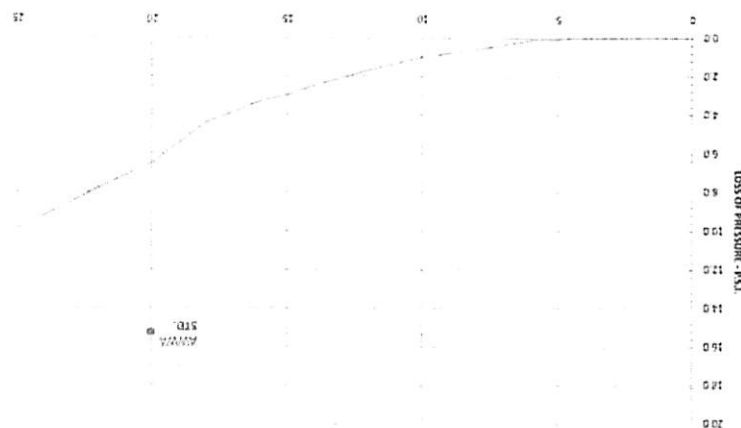
Flow Characteristics

Meter Size	Typical Low Flow	Typical Operating Range	Maximum Continuous Operation
5/8"	1/8 GPM	1/2 to 20 GPM	15 GPM

Performance

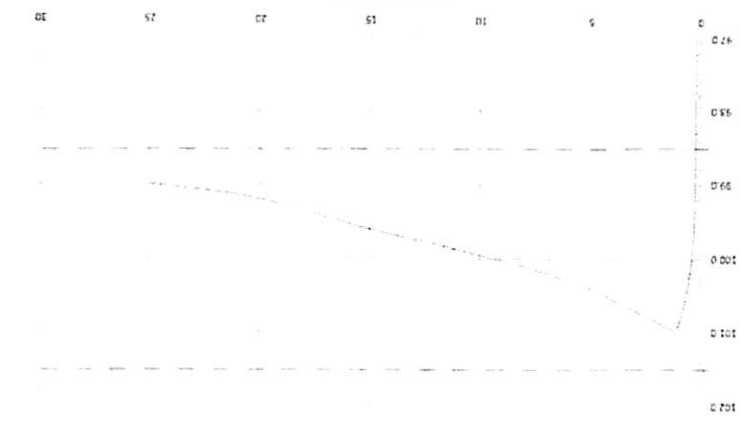
Head loss

Head Loss on 5/8" 420 Bronze



Accuracy

Accuracy on 5/8" 420 Bronze



420 Series Bronze

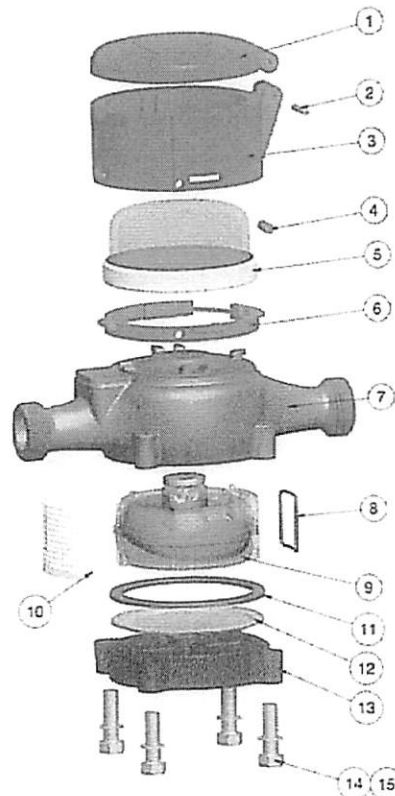
420 Bronze PD Meter

Sizes 5/8" x 1/2" and 5/8" x 3/4"

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420 Bronze

MODEL 420 BRONZE METER ASSEMBLY COMPONENTS			
ITEM	PART #	DESCRIPTION	QTY
1	C5768	PLASTIC REGISTER COVER	1
	C5774	BRONZE REGISTER COVER	
2	C5769	PLASTIC REGISTER HOUSING BASE	1
	C5772	BRONZE REGISTER HOUSING BASE	
3	AS41122	PLASTIC LID SPIROL PIN	1
	AS41123	BRONZE LID SPIROL PIN	
4	AS12658	BLUE COLOR REGISTER LOCKING PIN	1
	AS126581	BRONZE COLOR REGISTER LOCKING PIN	
5	D36981	MODEL 420 VISUAL REGISTER SG	1
	D36982	MODEL 420 VISUAL REGISTER CF	
	D36983	MODEL 420 VISUAL REGISTER CM	
	D36991XX	MODEL 420 TRANSLATOR REGISTER SG	
	D36992XX	MODEL 420 TRANSLATOR REGISTER CF	
	D36993XX	MODEL 420 TRANSLATOR REGISTER CM	
6	C5770	REGISTER HOUSING INSERT	1
7	D3680SI	5/8" X 3/4" MODEL 420 MAIN CASE	1
	D3681-1SI	5/8" X 1/2" MODEL 420 MAIN CASE	
8	A13120	MODEL 420 CHAMBER O-RING	1
9	D3635PO	MODEL 420 CHAMBER ASSEMBLY	1
10	C6681	MODEL 420 BRONZE STRAINER RETAINER	1
11	B8664	MODEL 420 BRONZE GASKET	1
12	B8665	MODEL 420 LINER (IRON/BRZ ONLY)	1
	B8663	MODEL 420 IRON BOTTOM PLATE	
	B8662	MODEL 420 BRONZE BOTTOM PLATE	
	C6682	MODEL 420 PLASTIC BOTTOM PLATE	
14	90026	5/16-18 X 7/8" HEX BOLT SS (IRON/BRZ BTM)	4
	90010	5/16-18 X 1-1/8" HEX BOLT SS (PLASTIC BTM)	
15	90018	5/16 FLAT WASHER SS (PLASTIC BTM)	4

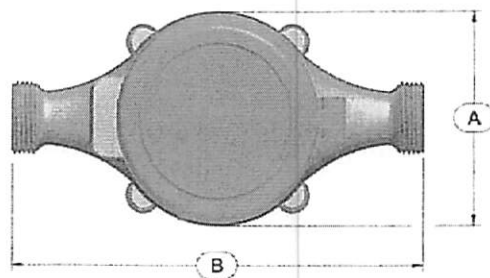


Dimensions, Weights and Parts

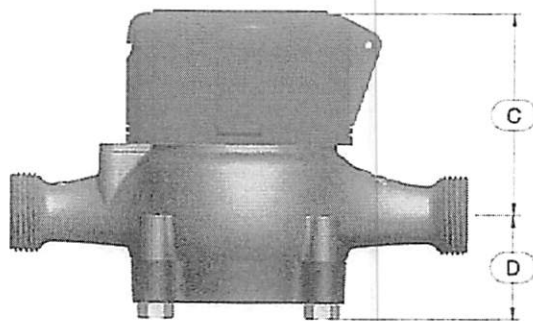
Meter Size	5/8"	
Model	420 Bronze Standard Register	420 Bronze Translator Register
Dimension		
A	3.8125"	3.8125"
B	7.5"	7.5"
C	3.3125	4.25
D	1.375"	1.375"
Weight	3.7	3.7

Weights are in pounds and are approximate.
Inlet and outlet 1/2" or 3/4"

420 Bronze Meter



420 Bronze Meter



Route Management Software

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APPLICATIONS: A total route management software system solution for handheld and mobile meter reading, the EZ Reader™ system combines state of the art software with a variety of powerful, lightweight and rugged handheld computers. The software is compatible with the Mueller Systems Street Machine™ 2 Mobile Data Collection Device.

EZ Reader Software is the superior alternative for handheld or mobile utility meter reading. Using the latest technology in software development and the most effective price/performance hardware alternative, EZ Reader Software surpasses the competition with superior functionality, unparalleled flexibility, and exceptional performance making it one of the most comprehensive and easy to use tools on the market.

The EZ Reader System is a complete meter reading application capable of interfacing with any host billing system, including custom developed systems. Its efficiency eliminates unnecessary file duplication, maintenance requirements and opportunities for errors common to many other reading systems. Although a powerful and capable tool for larger utilities, the Hot Rod System is affordable to smaller cities, water districts and electric membership cooperatives.

OPERATION: The EZ Reader Software uses standard ASCII file format data from the host billing software computer. This host download file contains route information about customers, meters and previous meter readings. The interface file then downloads the route data to the EZ Reader Software on the PC. This data is prepared for either visual, touch pad, mobile radio meter reading, in just three mouse clicks. The meter reader then reads the pre-determined route and returns with the data which is uploaded to the EZ Reader Software for processing. Reports and statistics can be run, after which the reading data is ready to be uploaded back to the host billing computer.

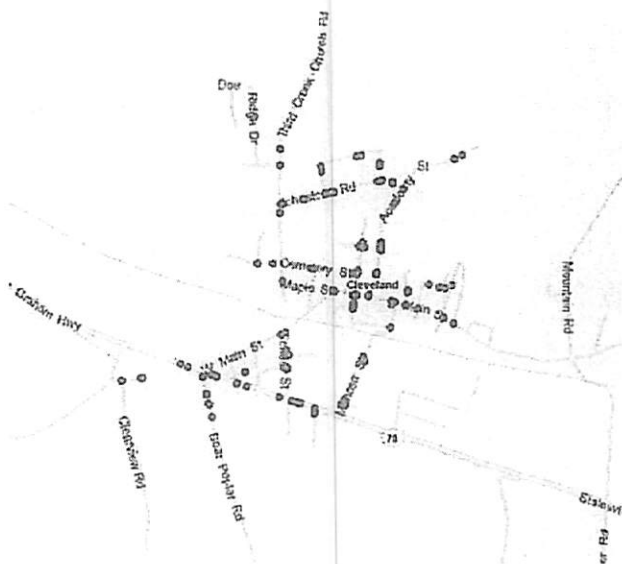
CONFORMANCE TO STANDARDS: EZ Reader Software meets the Open Systems Foundation Goals and operates on any IBM compatible PC with Microsoft® Windows XP™ or newer.

Ittron® is a registered trademark of Ittron Inc., Spokane, WA.

Versa Probe™ is a registered trademark of Northrop Grumman, San Diego, CA

Microsoft® is a registered trademark of Microsoft Corporation, Redmond, WA

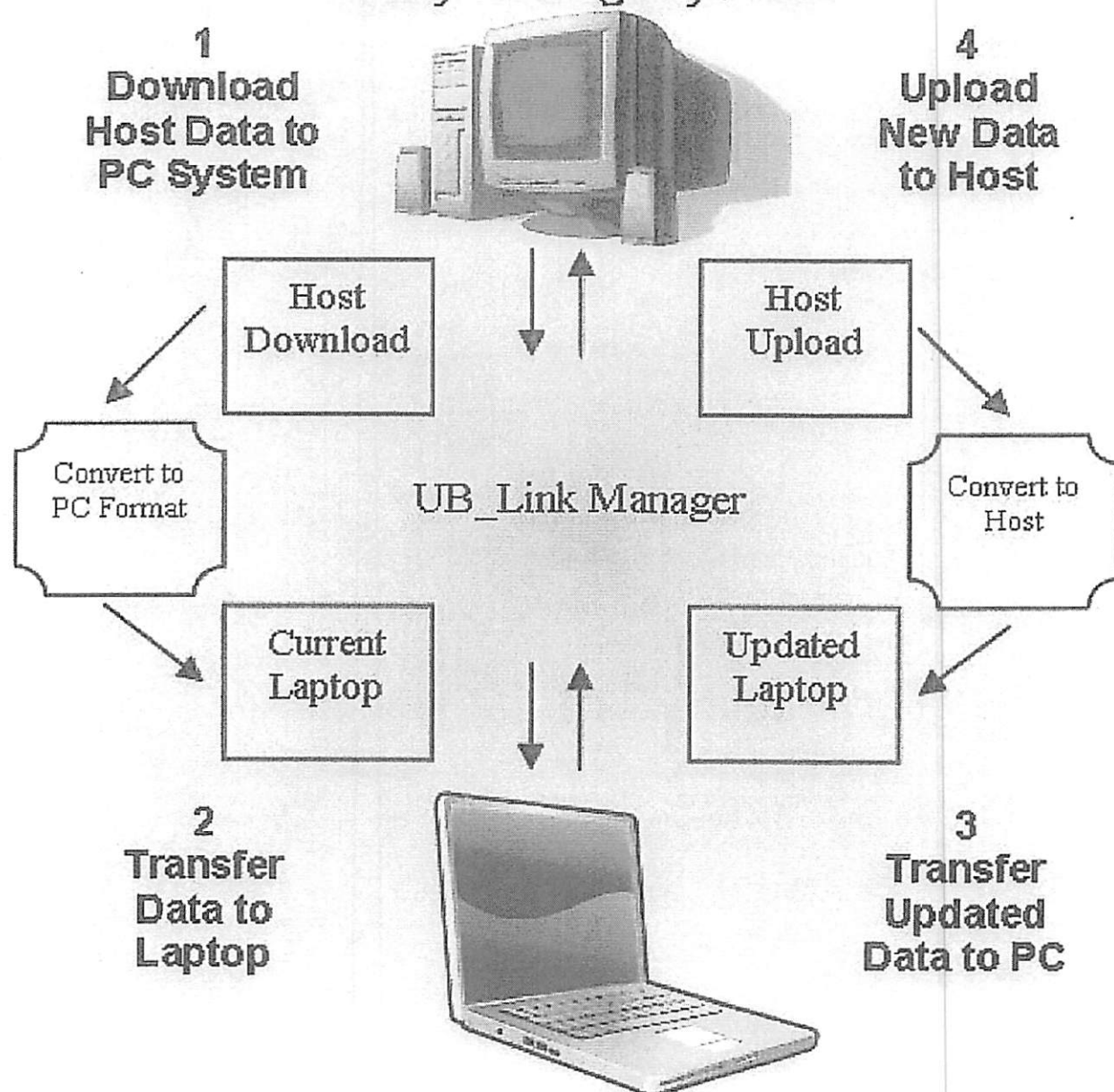
Windows XP™ is a trademark of Microsoft Corporation, Redmond, WA



EZ Reader™

Materials and Specifications

- Radio-Read ready interface for the Mueller Systems Hot Rod Mobile AMR System.
- Touch-Read ready interface for Northrup Grumman VersaProbe™.
- Visual-Read ready for keyboard entry of meter readings.
- Accesses data by route, customer name, service location or meter number with either sequential or random access.
- Mapping view permits visual verification of route and readings.
- Un-read feature can screen out completed readings and scan only the unread accounts.
- Notes feature accepts alpha numeric text allowing comments and instructions to be transferred between meter readers and billing administration.
- On-line, context sensitive help.
- Annual maintenance program includes maintenance and software updates.
- Reports and statistics are open to other Microsoft tools such as Excel or Access programs.
- Automatic Re-Sequencing feature for arranging read order in meter reader's preference.

Systems Overview
Utility Billing System


Information on routes, meters, customers etc. is downloaded from the current Utility Billing System and converted to a format compatible with the computer database using EZ Reader. The current files are then loaded onto the appropriate reading devices. This creates the current computer database. The current computer database is then updated with new information through routine

meter reading operations using EZ Reader hand-held / mobile computer systems. The updated database is then loaded back to EZ Reader. The updated database is then converted back to the proper format for uploading to the Utility Billing System.

Street Machine 2™

Street Machine 2™ Radio Receiver

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Features

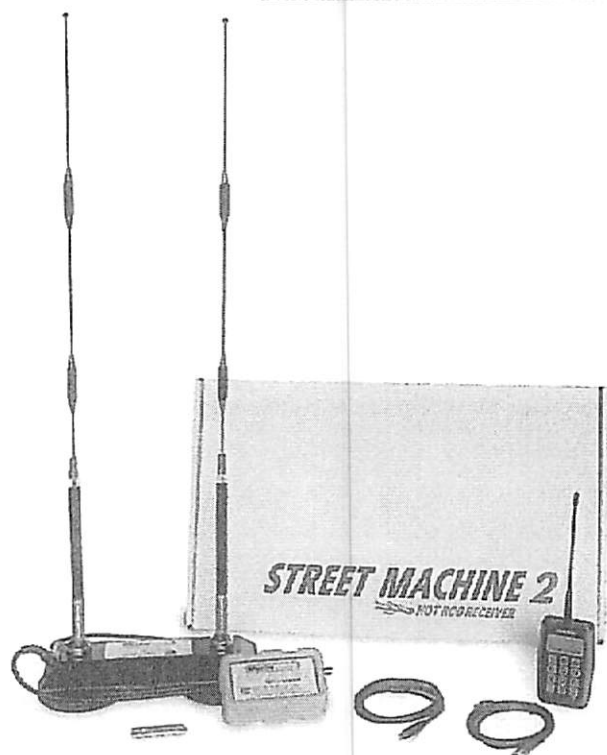
APPLICATIONS: The Mueller Systems Street Machine 2™ is a high performance, vehicle based AMR receiver. It is designed to collect water meter data via radio frequency while driving a meter route at posted speed limits. The complete Hot Rod® Mobile AMR Kit System includes the radio receiver, data collection software, dual antenna, Pit Stop 2 and all cable connections. Implementation of a mobile meter reading solution like the Hot Rod® system insures significant performance improvements in meter reading efficiency, customer satisfaction and cash flow for utilities.

OPERATION: The Street Machine 2 can be temporarily or permanently mounted in any vehicle. Once initialized, it operates silently in the background and transfers data to a computer of the utility's choice. The Street Machine 2 receives data on multiple discreet frequencies for secure and reliable data processing. During the reading process, the operator can view route progress screens including the number of meters remaining to be read, collected meter readings and meter status data. At the end of the day, the data is downloaded to the EZ Reader™ route management software and uploaded to the utility's existing billing system with a few clicks of a mouse. A standard series of reports are available for viewing performance of the system.

MAPPING: The Mapping Tab is not only the most popular but the most efficient and convenient way for meter readers to view their route data. Within the mapping tab, a physical representation of the geographical area being read and the meter locations are displayed. Each meter location is based on GPS Lat/Long coordinates. Each meter location is visually depicted on the map using blue dots. As the operator selects *Start Reading*, these blue dots will begin to disappear as meter data is retrieved. If there is an Instant Data Logging alarm associated with a specific meter location (i.e. leak), the blue dot will turn to a red dot instead of disappearing prompting the meter reader to take action while in the field if so desired.

PERFORMANCE: The Street Machine 2 receives power through the USB cable attached to the laptop. A magnetic dual antenna on the vehicle's roof provides the powerful interface for reception of all RF communication from Mueller Systems Hot Rod® radio transmitters. Meter information is transmitted every 3 seconds to insure continuous high performance data capture on multiple receiver channels of the Street Machine 2. The meter reader collects all RF data by simply driving past the meters (Please! posted speeds only though you'll feel you could go much faster).

CONFORMANCE TO STANDARDS: The system is FCC Certified for operation in the United States. It is fully compliant with FCC Part 15 and no FCC license is required for operation.



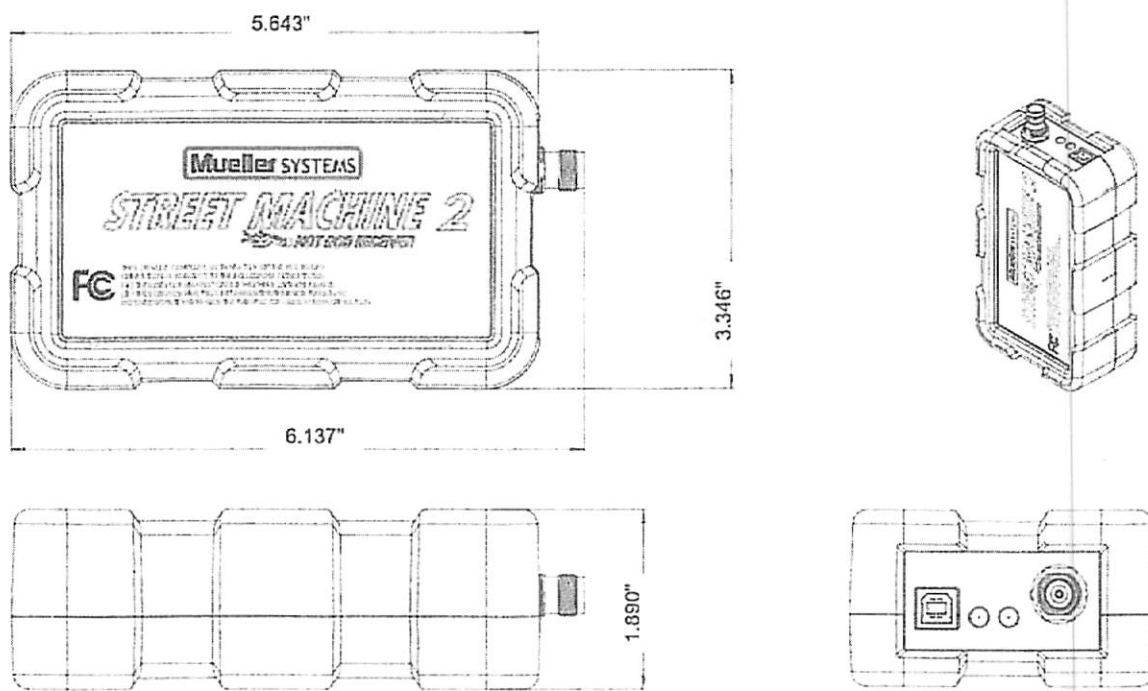
Street Machine 2™

Materials and Specifications

RADIO FREQUENCY	Operates on 902 to 928MHz (No FCC license required)
PC OPERATING SYSTEM	Windows®
OPERATING SOFTWARE	EZ Reader Route Management
RECEIVER POWER SUPPLY	Powered via USB connection to laptop; 12VDC
RECEIVER DIMENSIONS	L: 6.137" W: 3.346" H: 1.890"
RECEIVER WEIGHT	.6 lbs
ANTENNA HEIGHT	35" Magnetic Mount
ONE WAY COMMUNICATION; FCC LICENSE EXEMPT	
OPERATING TEMPERATURE	-40°F to + 122°F (-40°C to + 50°C)
STORAGE TEMPERATURE	-40°F to + 176°F (-40°C TO + 80°C)

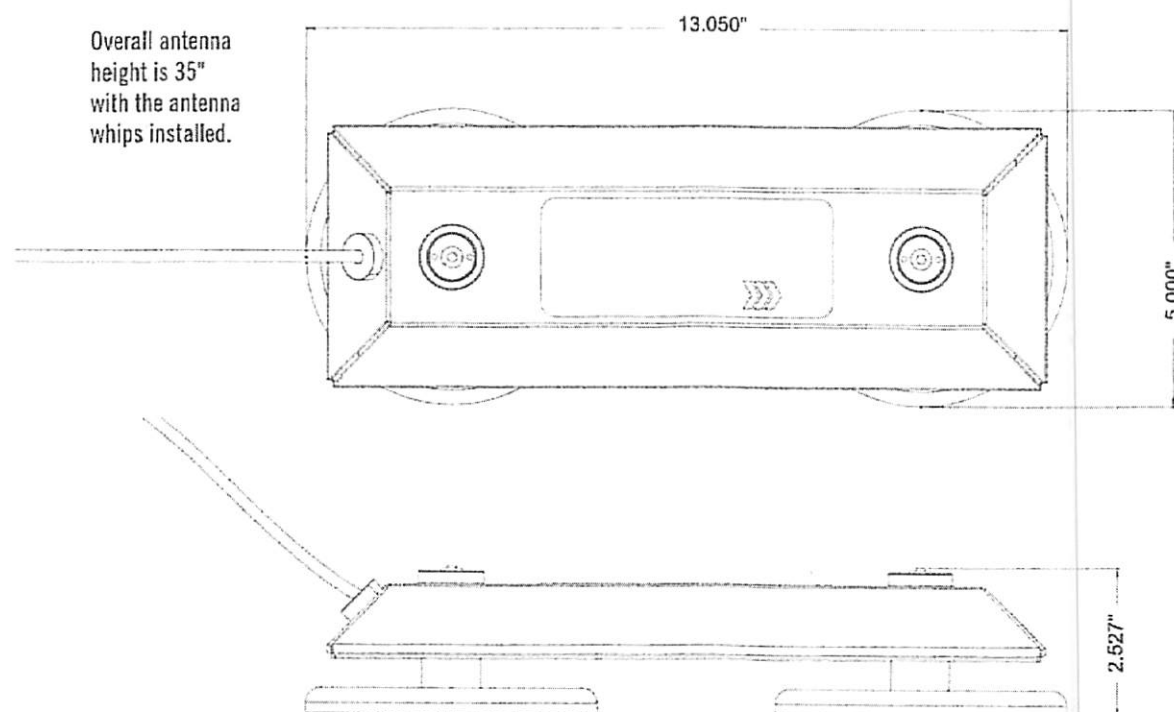
CONSTRUCTION: The Street Machine 2™ receiver is small, lightweight and encased in rugged thermoplastic enclosure. All internal electronics are shielded against electro-magnetic interference. Connection to a laptop of the utility's choice is accomplished via the USB connection located on the back of the unit. All connections are clearly marked for operational efficiency and ease of installation. LED lights confirm power and data reception status.

Street Machine 2™ Dimensions



Street Machine 2™ Antenna Base Dimensions

Overall antenna height is 35" with the antenna whips installed.



BATTERY

The unit uses a rechargeable lithium polymer battery that can be charged through the USB interface.

- Battery life is a minimum of 10 hours.
- Recharging occurs in < 12hrs.
- Rechargeable ~ 2K time (10 year life)
- The LCD display has a battery power indicator

USB

There is a female USB 1.x/2.0 mini type B receptacle on the PitStop. This interface will be capable of powering and recharging the PitStop.

- USB 2.0

AUTO POWER OFF

When operating in the troubleshooting mode, the unit will auto power down after 10 minutes of inactivity (E.g. no button push). This feature is disabled when in reading mode

BELT CLIP

A belt clip will be fitted to the rear of the case. An optional holster can be ordered for the unit direct from an OEM manufacturer, or any holster that it fits in could be used.

ACCESSORY: HOLSTER



MENU TREE

The menu tree is as follows for the Meter Reading functionality

- Main Splash Screen Displays:
 1. Version Number
 2. Eight Digit Serial Number
- Main Menu
 1. Meter Reading
 2. Installation Tool
- Meter Reading Menu
 1. Meters Logging
 2. Transparent Mode
 3. Setup
- Meters Logging Menu
 1. Start Logging
 2. View List Data
 3. View Unlist Data
- Transparent Mode Screen
- Setup Menu
 1. Clear Meter Data
 2. Clear List Data
 3. Change Frequency
- Change Frequency
 1. 909 MHz
 2. 910 MHz

The Menu tree is as follows for the Installation Tool functionality

- Main Splash Screen Displays:
 1. Version Number
 2. Eight Digit Serial Number
- Main Menu
 1. Meter Reading
 2. Installation Tool
- Installation Tool Menu
 1. Receive
 2. View Last 9
 3. Change Frequency
- Receive Menu
 1. Receive All
 2. Receive One
- Receive One Menu
 1. Input 10 Digit ID
- Change Frequency Menu
 1. 909 MHz
 2. 910 MHz

Pit Stop 2™ RF Reader

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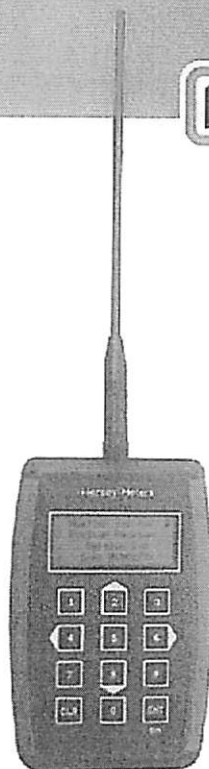
Features

APPLICATIONS: The Mueller Systems Pit Stop 2™ RF Reader™ is a high performance RF Reader, designed for use with the Hot Rod® Mobile AMR System. It is compatible with all current Hersey meters utilizing the Translator® Positional Encoder Register and Hot Rod AMR transmitters. The primary function of the Pit Stop 2 RF Reader is to interrogate Hot Rod transmitters to obtain the encoder serial number from the Translator register, water consumption, leak detection, backflow, no flow, register disconnect and duration data via radio frequency transmission. Initial electronic readings for new services and final readings can be obtained quickly and easily without the need of loading the entire route database for last minute reads on the fly. Verification of proper installation is easy with this simple to use RF Reader.

OPERATION: The Pit Stop 2 RF Reader is easy to use. The Pit Stop 2 RF Reader can be utilized with all Translator registers connected to any of the Hot Rod options available; Metal Pit Option (Yellow), Standard Option (Gray), and the Integral Mount Hot Rod. Simply input the Translator serial number into the device via the keyboard to interrogate individual Hot Rod transmitters via RF transmission or turn it on to capture up to nine available RF readings and scroll through the list to the desired device. ID, reading and Event and Duration Data is displayed on the large black and white LCD screen for easy verification of reading information. The Pit Stop 2 RF Reader is capable of storing data for up to 1000 meters in a memory which can be scrolled through by pressing a single key. An integral power management system shuts down the Pit Stop 2 RF Reader after ten minutes of inactivity to conserve battery power. An internal Lithium Ion battery provides up to 20 hours of continuous operation.

CONFORMANCE TO STANDARDS: FCC compliance: Part 15 certified. The Pit Stop 2 RF Reader complies with Standard C707 for Encoded Remote Reading Systems. No FCC License is required for operation.

CONSTRUCTION: The Pit Stop 2 RF Reader consists of a compact printed circuit board which is encased in a thermoplastic enclosure to provide protection against shock, dust and water intrusion. The replaceable, short whip antenna permits communication with nearby Hot Rod transmitter units. A tactile response, twelve key, overlay membrane provides immediate feedback for operation in colder climates with gloved hands. A rechargeable battery required for power is sealed with the electronics to protect it from water damage. The small size and ergonomic shape permit the Pit Stop 2 RF Reader to be carried in a shirt pocket making it a great installation and RF Reader. There are no customer serviceable parts inside the Pit Stop 2 RF Reader.



Mueller Systems
Pit Stop 2™ RF Reader

Pit Stop 2™ RF Reader

Materials and Specifications

Radio Frequency	Operates on 902 to 928 MHz
Model	Pit Stop 2™ RF Reader
Enclosure	UV Stable Thermoplastic
LCD Screen	4 lines x 20 Characters
Keyboard	Raised 12 Key Tactile Response
Power Source	Rechargeable Lithium Polymer Battery
Typical Range	up to 1200 feet
Temperature Range	-10°F to +130°F (-23°C to +54°C)
Storage Temperature	-14°F to +140°F (-25°C to +60°C)
Humidity	0% to 95% noncondensing
Dimensions	3" X 3.5" X 1"
Weight	0.5 lb
Compatibility	Translator Registers and Hot Rods

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: Changes or Modifications. Any changes or modifications not expressly approved by the party responsible for Compliance could void the user's authority to operate the equipment.

Caution: Exposure to Radio Frequency Radiation. The radiated output power of this device is far below the FCC radio frequency exposure limits. Nevertheless, the device shall be used in such that the potential for human contact during normal operation is minimized.

Attachment B

Gage Madson 801-707-0159 URBAN DEER CONTROL

The state does nothing except help cities set up a program and they are happy to do that. They will help us figure out how to eradicate the deer. The problem is too big, state wide, for the state to address it any longer and relocating is too expensive and doesn't work. They have to be eradicated (killed). We have to go through the city and Gage will help City officials set up the program. Gage said if we don't address the problem, it will only get bigger and bigger. The program has to be administered by the city not the state.

Division of Wildlife Resources (DWR) 801-476-2740

The state is looking at tags for a "primitive hunt". Told us we had to call Gage Madson for help with a plan to take care of our deer problem.