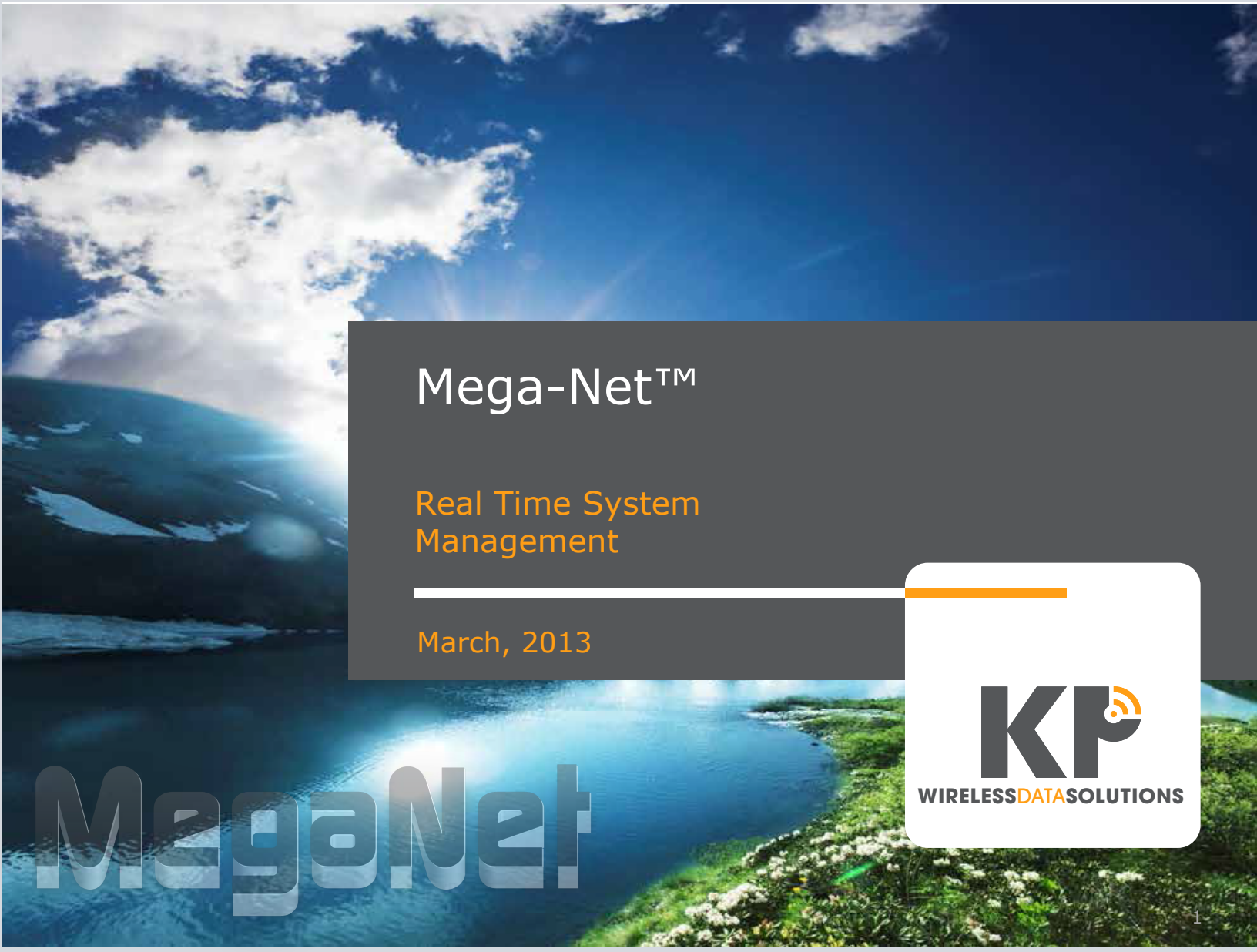


Mega-Net™

Real Time System Management

March, 2013

WIRELESSDATASOLUTIONS

Table of Contents

Overview of MegaNet

KP Electronics, Inc is pleased to provide the Industry's most effective MegaNet long-range AMI system as the first of a new breed of fixed base AMI products. Above grade, the MTU can transmit its meter reading as far as 20 miles, line of site, and 3 to 5 miles, in normal deployment. This long range is established by two key aspects of the system: (a) a dedicated, licensed FCC frequency and, (b) a standard MTU that transmits with 2 watts of power as standard. At 2 watts, the MTU is the most powerful MTU from any AMI supplier in the US. This high power allows the devices to be installed in locations and at distances previously unavailable to any AMI technology.

Brief History

This fixed network technology has been in service since 1987, having been deployed in over 80 countries worldwide. Approximately 2 million endpoints have been installed around the world in virtually all climates. Both private sector and government facilities depend on the reliability of the basis of this network technology. Originally designed as an industrial grade security system, the MegaNet technology has proven through the years to be a robust and reliable solution that can be deployed in countless applications. Security systems have always demanded reliable performance in order to avoid property loss or personal injury. Put simply, data and alarms simply must get through or the system has no integrity. This same reliability offered for security applications where alarm transmissions are transmitted and received with high confidence, is offered in the water industry as the MegaNet AMI solution.

Pioneered for the concept of high-power long-range AMI networks, the MegaNet system offers the advantages of a true 2-watt VHF or UHF transmitter, and a dedicated Radio Frequency network between each endpoint, the collector network back to the base station. Through experience and expertise it has been demonstrated that the system's reliability and security is optimized where no third-party GPRS network (i.e. cell phone) is required. This vision is both forward looking and unique to AMI systems within the U.S.

MegaNet has been offered in the U.S. for over ten years; there are currently over 50 water AMI domestic installations.

MegaNet AMI System Introduction

MegaNet is a true end-to-end RF solution, data flows directly to the MCM software instantaneously independent of any third party communications. This key advantage allows the owner to take full advantage of data reads, fault detection and water theft. The MegaNet MCM Software provides effective system management as well as performance analysis.

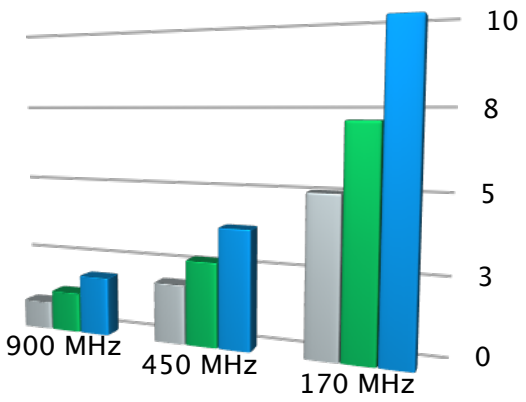
Operating at 2 full watts the MegaNet Meter Transmission Unit (MTU) is a state of the art high powered transmitter, it is used to send signals from the meter to the collector, and/or the head end receiver and MCM Software. This MTU is designed to analyze meter usage and record data from the encoder register, and transmit the data back to the utility in real time. The MegaNet MTU operates on a licensed frequency in the VHF 154-174 MHz (primary) or UHF 450-470 MHz bands (secondary), ensuring maximum reliability. MTU's have a life expectancy of about 20 years. One important benefit is that of installation verification - as soon as a new MTU is activated in the field, the installer gets confirmation from the network on the successful registration and reception of MTU at the control center. This eliminates expensive return visits, and allows the installer to perform a reliable one-time installation.

MegaNet collectors store and communicate the data collected from the MTU through its wireless network. The unique high power output and high speed collector communication is ideal for managing large scale communication networks, extending transmission distances and system capacity. This collector network has the ability to expand a localized radio network to a countywide system due to the equipment's extensive connectivity, modular design and smart programming. The network is expandable taking the system design today while preparing for the growth of the future with the ability to operate on either VHF or UHF channels simultaneously.

The MCM software is the heart of the owners system. It is easy to use, designed with a "windows like design" architecture, and allows multiple screens to be open for viewing and editing by operator at one time. In addition an internal synchronization mechanism permits multiple operators access to the same screens, yet assuring no parallel entry or changes are accepted. It is important to note the MegaNet system is a live "real time" system. Using wireless links end-to-end allows for extremely fast communication, delivering the transmitted meter data within seconds to the control center. Full security, graphical interfaces, system status, read data and alarms are always at hand. Users quickly learn how to move around the system and run reports, taking days out of normally required new system training.

Radio Frequency (RF) Technology

The entire MegaNet system is one network; from the meter to the office, all data is transmitted over the utilities dedicated FCC licensed network. There are no third party networks used to operate the system. MegaNet is a true RF end-to end system. System credibility, security and reliability is ensured.



The KP MegaNet high powered AMI system is designed to provide the maximum distance from the transmitter to the collector significantly reducing the amount of infrastructure required. The extended range is established by 2 key methods: (a) using a low bandwidth licensed frequency (b) MTU transmits at 2 watts power (std).

The 2 watt, MegaNet MTU is the most powerful MTU in the market today. Operating at 154-174MHz or 450-470MHz (secondary option) allows for the RF signal to travel up to 4X further than a 2 watt transmitter operating at 900MHz *(based on theoretical line of site calculations; actual performance will vary).* Above grade, the MTU can transmit its meter reading as far as 20 miles, line of site, and 3 to 5 miles, in normal deployment. This strong power allows the devices to be installed in locations previously unavailable to AMI technology. MTU's can be manufactured in an optional dual-port design; two meters may be attached to one MTU, fully supporting the communication of both metering endpoints. The MTU can transmit hourly data either at programmed intervals (last 12 reads every 5 hours default), or by user defined consumption (extended transmission requirements can effect battery life).

The system is equipped with algorithms to ensure extremely high reliability and to guaranty the highest probability of the receipt of required daily readings:

- Repetitions - each transmitted message is repeated to ensure reliable receipt
- Time slots - a sophisticated algorithm is used to calculate transmission times of each end point, allowing most efficient utilization of the frequency band.
- Collector redundancy - repeater positioning is designed with overlapping coverage, ensuring required redundancy and multiple points of reception for MTU's
- Two way communication from the office to the collectors is standard, to the endpoint is normally reserved for special control MTU's. These could cover remote shut-off valves, etc.
- Frequency licensed to the owner and only requires a renewal with the FCC every 10 years

Operations for Day-to-Day Meter Reading

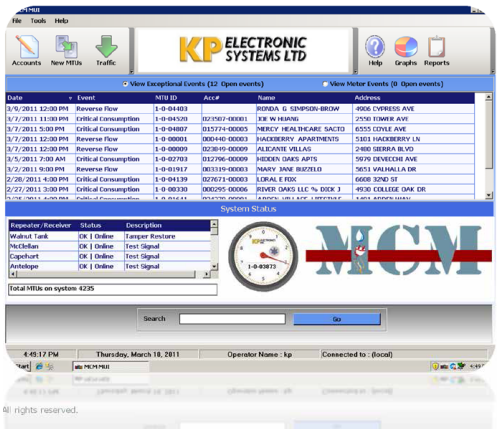
The MegaNet high powered 2 watt all-the-time endpoint ensures that in hard to read areas there is no need for boost modes or tri modes. Next we employ the VHF MHz 154-174MHz or UHF 450-470MHz frequency band with an exclusive FCC license that you own. Once obtained it runs without further assistance, simply renew each 10 years of use. The MTU installation and start-up takes seconds; in addition the installer is able to see on the spot if the MTU is live on the system. In standard mode (provides 20 years of battery life) all MTU's would collect readings from each meter every hour on the hour, and immediately transmit those readings every 5 hours. This provides hourly readings for every meter in the system. Additionally, any alarms that are deemed non-critical are sent at this time. Alarms deemed as critical are sent as they occur, for example a pipe burst on a customer's property. In this scenario consumption over the sampling period would elevate significantly and the MTU would send the alarm. Alarm parameters vary dependent on what meter the MTU is attached to, but system flags can include tamper (unable to communicate with meter), leak, air in pipe, low battery, etc.

Readings and alarms that are forwarded to the collector are immediately transmitted to the office via the MegaNet network. Data collectors also have the ability to store over 1000 messages, however good operational control dictates that they should be transmitted back to the office. In utilizing this method and a dedicated network, temporary third party network congestion or delays are eliminated. In the event of primary power loss to the collector, each collector can operate for days without power (typically 3-5 days standard battery), not just hours like a typical network collector. In addition all collectors are time synchronized with the office for accuracy and reliability.

With this continuous flow of data, the MegaNet head end/transceiver/server is capable of real-time system management. Each newly added meter MTU is visible within seconds, not minutes or hours. All manner of analysis and data control is available at the owner's fingertips. The standard system includes programmable leak detection, tamper detection, and reverse flow; additional management tools such as no consumption, usage on inactive meters can be added with ease. If required the MDM software allows meters to be paired with master/zone meters to compare area consumption, a great assist for the owner's water loss program. Communication health of the network down to the MTU is continually reported to the system administrator. With so many of the system functions user configurable the power is in the owner's hands.

Server Software and End User Interface

From the moment of transmission through to server acceptance, only milliseconds have transpired. The MCM software analyzes an incoming read and checks it against pre-set anomalies; High / Low / Zero / Negative / Critical consumption – whatever was assigned to a specific account. If a read falls into all normal set boundaries, it simply becomes part of the incoming traffic and part of the database. However, if there is any aspect of the read that is outside the pre-set parameters, the reading and account data are instantly presented on the event screen along with information of what triggered the event. All events are available for review and handling by a system operator.

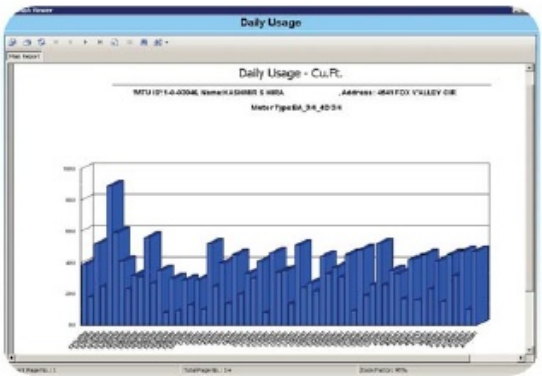


The basic events that are available as default are critical consumption, reverse flow, usage on fire line, alarm, network components status, tamper, usage on vacant/inactive property, continuous flow, no flow, etc. Additional events can be defined as special codes for each individual account.

The MCM software has a built-in backup function that automatically backs-up data. Frequency of backup, file storage locations and other functions are user configurable to meet any requirements. Historical data is available for retrieval for viewing or for the creation of reports. The MCM system keeps five years of data by default, but this can be decreased or increased by the user.

The MCM software being a ”windows like design" architecture allows multiple operators to access the same screens, yet does not allow parallel entry or edits. It is important again to note the MegaNet system is a live "real time" system. Using wireless links end-to-end allows for extremely fast communication, delivering the transmitted data within seconds to the control center. Real-time data - as soon as data is transmitted from MTU, it is received by a Collector, and almost immediately retransmitted to the control center allowing the owner to efficiently collect data without delays or complicated and expensive backhaul requirements related to other solutions. This allows for the ability to provide proactive customer service, where the owner has the ability for example to notify a customer if a leak occurs, unusual activity, identifying theft of water, identifying tampers, insuring integrity of water distribution infrastructure, and of course fully supporting all water conservation efforts.

The reporting is based on crystal report software, and the SQL tables are available to use for tailor made applications by the owner, such as web viewing of accounts by the owner’s customers through their own web site or through optional tools. The MCM software allows segregation of the meters into an unlimited number of groups. With the effective planning and use of this feature, the owner can run reports comparing individual meters, groups, sub-groups etc., allowing for a high resolution picture of the metered system and the potential identification of problematic areas.



Graphs are a key tool in today's world for documenting consumption history or trends. Visualization allows operators to quickly identify abnormal patterns, graphically compare different customers or groups of customers, convert units of measurement, and even e-mail a usage graph to a customer. The available breakdown of graphs are comprehensive and allows the owner to review a single meter or even the total meter population.

Flexible report generation allows sorting of data in the required order. Statistics are collected and displayed on reports relevant to consumption data, as well as the RF signal level history. All reports and graphs can be exported to Excel, Crystal Reports, PDF, Word, E-mail, etc. Further all reports and graphs include flexible filters, allowing operator to set conditions and sort by various fields. As the standard reports are Crystal Reports based, additional criteria can be set to view or modify and create custom requirements.

One final key advantage of the MegaNet system is that data is always stored on-site and is in the sole control of the owner. No offsite hosting is required; data belongs to owner and is in their full control at all times.

Billing Interface & Transition

A custom billing interface from the owner's billing system is created before the project start date. A typical transition scenario is as follows: at the time of billing, the system operator uploads (or imports) a file from the current meter reading system over to the billing software so bills can be produced. The imported files match up to specific accounts in the billing software and produce the customer bill. If there is no file to import, there is no update; just a record of an account (or accounts) that did not get updated by the imported file. It is at this point where the owners operator will import the file from the MCM software. Just as with the existing import file, the MCM import file will update specific accounts with the current meter reading data. Between those records updated from the existing reading system, and those records updated by the MegaNet system, the utility will normally have 100% of its records updated and have the billing process moving forward as normal. As already indicated, the MegaNet system reads the meters hourly. Therefore, the city can continue to read non–MegaNet system meters just as it always has and continue to bill at whatever frequency they normally bill; monthly, quarterly, etc. As more meters are adapted to the MegaNet AMI system, less will be read by the current meter reading system. The owner will extract files from the existing reading system as they are converted to MegaNet. This will prevent the duplication of unnecessary meter reads that are no longer connected to the old system. For the MegaNet system, all meters will therefore be new and there is nothing to purge.

Training

The training process is one of the most crucial parts of insuring a successful project. Each of the owners staff linked to the project will go through a clearly defined process of specific and dedicated training. Although in most cases this is completed in just a few hours, follow up training is carried out to ensure the knowledge is not lost over the initial weeks of implementation. This will include but is not limited to classroom, hands-on, and web based instruction. Leaving the owner's staff competent and satisfied is one of our number one goals.

User Security

Each user has a dedicated user name and password required to logon to the system. The administrator of system can control permissions for each user, setting individual parameters per user, passwords, levels, as related to what parts of the software can be accessed, viewed, and edited. Each action of the operator that involves changing parameters or handling events is recorded in the database with the name, date, and time for future reference.

Optional End Customer User Interface

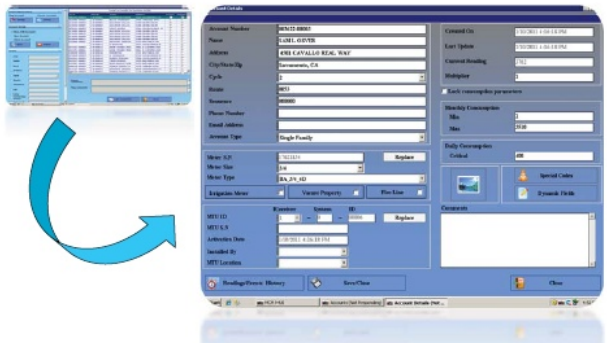
As an option, KP Electronics, Inc. can provide a platform for providing consumption related data to the owners end customers utilizing an MDM Content Management web platform. The Web component provides full content management functionality, customer self-subscription, password tracking and can either be linked from an existing owner site or even replace the existing site. The MDM Customer Portal functionality is uniquely designed such that the web support staff can manage, configure and re-arranged MDM blocks within the website. Each MDM block enables the utility to manage the MDM content exposed to the external customers which lowers cost of IT Services required from the MDM vendor. The system is a proven and vendor neutral next-generation meter data management system (MDMS) that can provide an integration platform for AMI/AMR demand response and distribution automation management systems.

Sample MCM Screen Shots

MCM Home Screen

Accounts

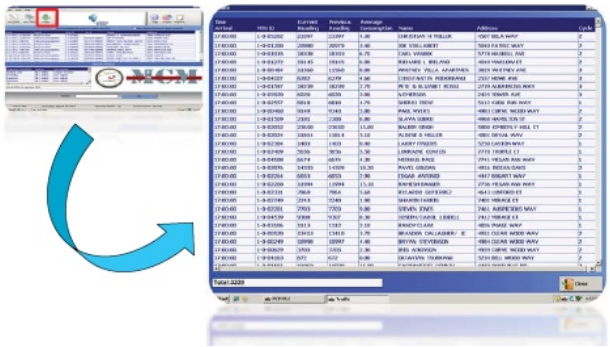
Account Details



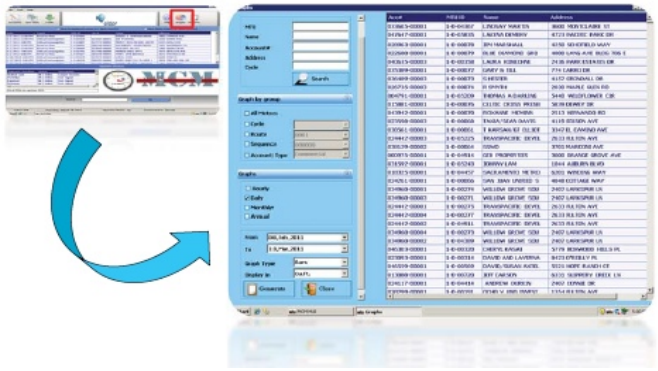
Readings/Events History

New Installations

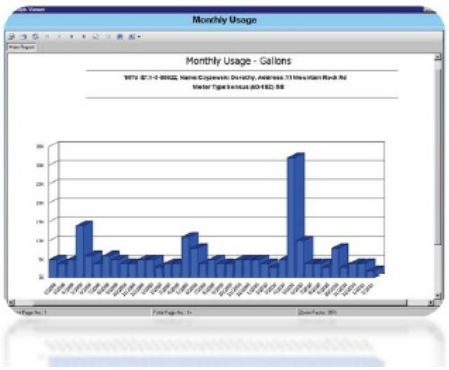
Incoming Traffic



Graphs

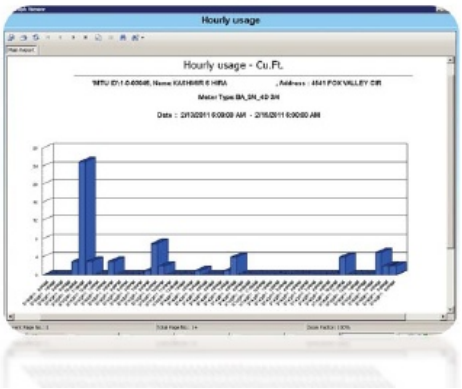


Monthly Graph



Daily Graph

Hourly Graph



Reports

Current Readings Report

Initial Planning & Study

In order to complete a required on-site RF propagation study, KP requires certain site information and access, to include but not limited to: power locations for each potential

collector site, scheduled access, mounting requirements/restrictions, and any pertinent additional site information. Owner owned sites are utilized where ever possible, it is often found that if a utility has the access, public buildings and schools are often utilized. Electronic propagation models are provided for review and joint agreement.

In the rare chance we find the need of a third party site, KP Electronics, Inc. will recommend and identify potential additional collector sites. We are available to assist in contacting and negotiating this process. KP will normally budget for all required collector sites; however, should there be ongoing lease requirements these costs are passed to the owner. Dependent upon the locations provided and the timeline given, an on-site RF study is carried out to validate our infrastructure assessment.

Project Installation

Based on our comprehensive project planning stage we begin roll-out of the project using time proven technics and practices. The servers and workstations are pre-loaded with AMI software. Upon arrival the on-site KP technicians unpack and perform setup. Additional setup is limited to connecting the machines to the owner's local network and internet.

Once the AMI management system is up and running the data collectors are installed. Aside from the antenna installation the collectors are plug-and-play, once powered up they immediately start communicating with the base station/office head end. The collectors create the RF umbrella that allows MTU's to enter into the system.

With the basic network infrastructure installed the KP team can start the meter and endpoint installation. Once the meter is in place the installer communicates back to the head end via a handheld to verify within seconds whether or not the endpoint is communicating with the office and how strong a signal is being received.

System startup is simplistic yet robust. Newly installed meters with MegaNet endpoints are initialized on the spot, with almost immediate communication verification; both at the meter and the office. No additional server start-up is necessary after installation

All meters and servers will already be programmed at this point, with only system monitoring and minor (if necessary) adjustments made at the office level. The installer's data transfer is normally broken into the routes/books/cycles that are used by the owner to mitigate and avoid confusion during the transition process.

Support and Maintenance Agreements

Network components included under the maintenance contract are as follows:

- Data Collectors
- Base Station components
- Handhelds
- Software support/upgrades
- Software phone support

Excluded but covered under a separate warranty:

- Meter radio endpoints
- Meters

The annual support cost for the project is normally included within the budget portion of a proposal. Sample maintenance agreements are attached.

Manufacturer Warranty

KP warranties typically meet or exceed industry standards. The MegaNet MTU offers a 20 year 10+10 pro-rated warranty. Other network infrastructure components fall under the annual maintenance agreement.

Sample standard published warranties attached.

Pricing guarantee for future equipment purchases

Cost is always a challenge, especially when a project runs over multiple years. While we strive to achieve a balance that is fair, prices are subject to escalation based on the Producer Price Index (PPI) as published by the United States Bureau of Labor Statistics, or in some cases those increases shall not exceed the percentage increase for copper as published in the London Metals Exchange (LME) for that same time period, or as mutually agreed during contract negotiations.

Turnkey Project Planning Process (Where Required)

The KP multi-faceted approach to project start up involves dedicated account management and an operational focus supported by KP Electronics, Inc. corporate headquarters. The joint

project implementation team will be in constant communication during the planning, transition and start-up phases of this project until field metering functions are operating smoothly. Following the first stages, KP Electronics, Inc. will schedule regular customer satisfaction and operations meetings to ensure the ongoing success. The approach to mobilization and deployment is designed to ensure minimal disruption of service, timely and accurate work completion and high levels of customer service.

The initial plan normally accounts for 45 to 60 days after contract signing for project mobilization. All costs associated with this start-up are included in the pricing. Project Management and Technical Services coordinate and oversee all aspects of project mobilization and deployment, as well as overall, ongoing quality monitoring. The project mobilization and deployment action plan includes the following:

- Most recent customer data at time of pre-construction meeting - a full data dump for the installation contractor & Work Order Management System (WOMS)
- List of cycles/routes & black out windows
- Owner route plan - sequence they wish the team to follow
- File formats for transfer of install data to their CIS
- Operational review of contract and scope of work
- Coordination with the owner regarding required operating policies and procedures
- Establishing an operating facility and other contractor supplied equipment, supplies, uniforms etc.
- Warehouse facility, its size and location are determined by jointly reviewing production plans and the area of installation activity. A central location being preferred with the provision for the appropriate level of security of materials. (The process of acquiring warehouse space commences at the time of Notice to Proceed and normally takes approximately 3-4 weeks)
- Inventory of all equipment provided
- Selection and local hiring, qualification, and training of staff
- Background checks and pre-employment drug screening
- Provision of employee picture identification, uniforms, and other specified credentials, safety and technical tools, and communications equipment
- Finalizing project milestones Management and Technical Resources Key to Project Success

Mega-Net™ High Power AMI

System Overview

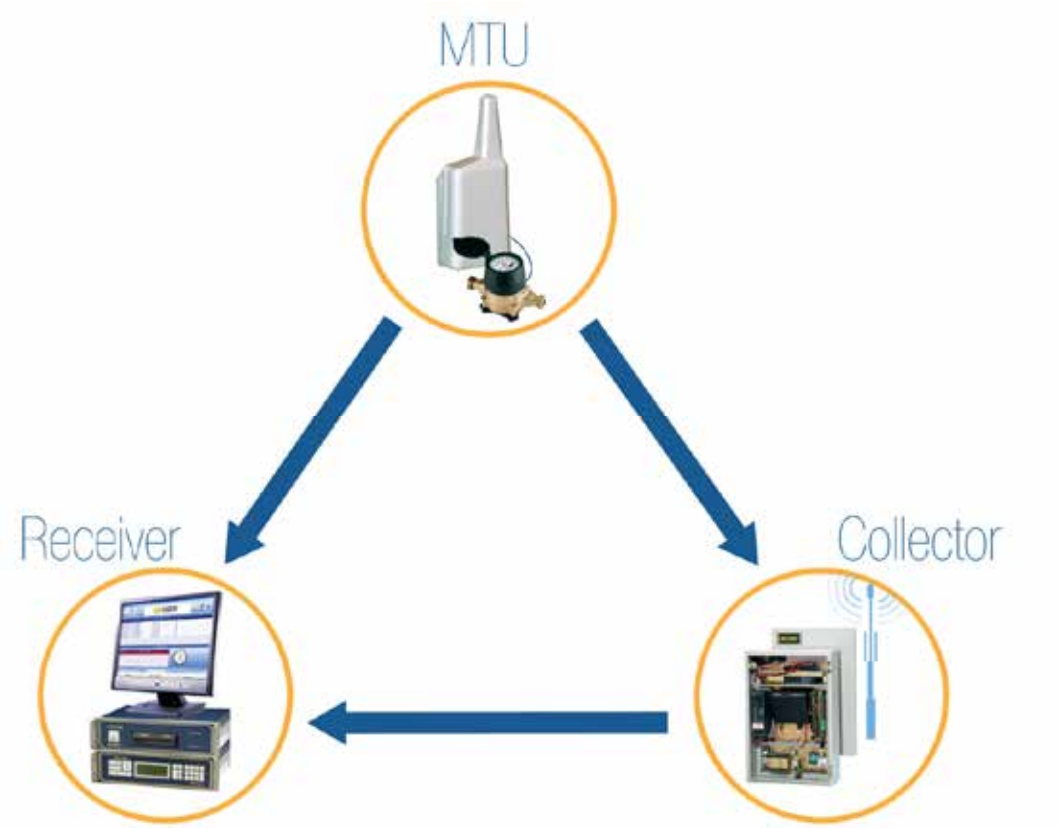
March, 2013

WIRELESSDATASOLUTIONS

Mega-Net™ High Power AMI

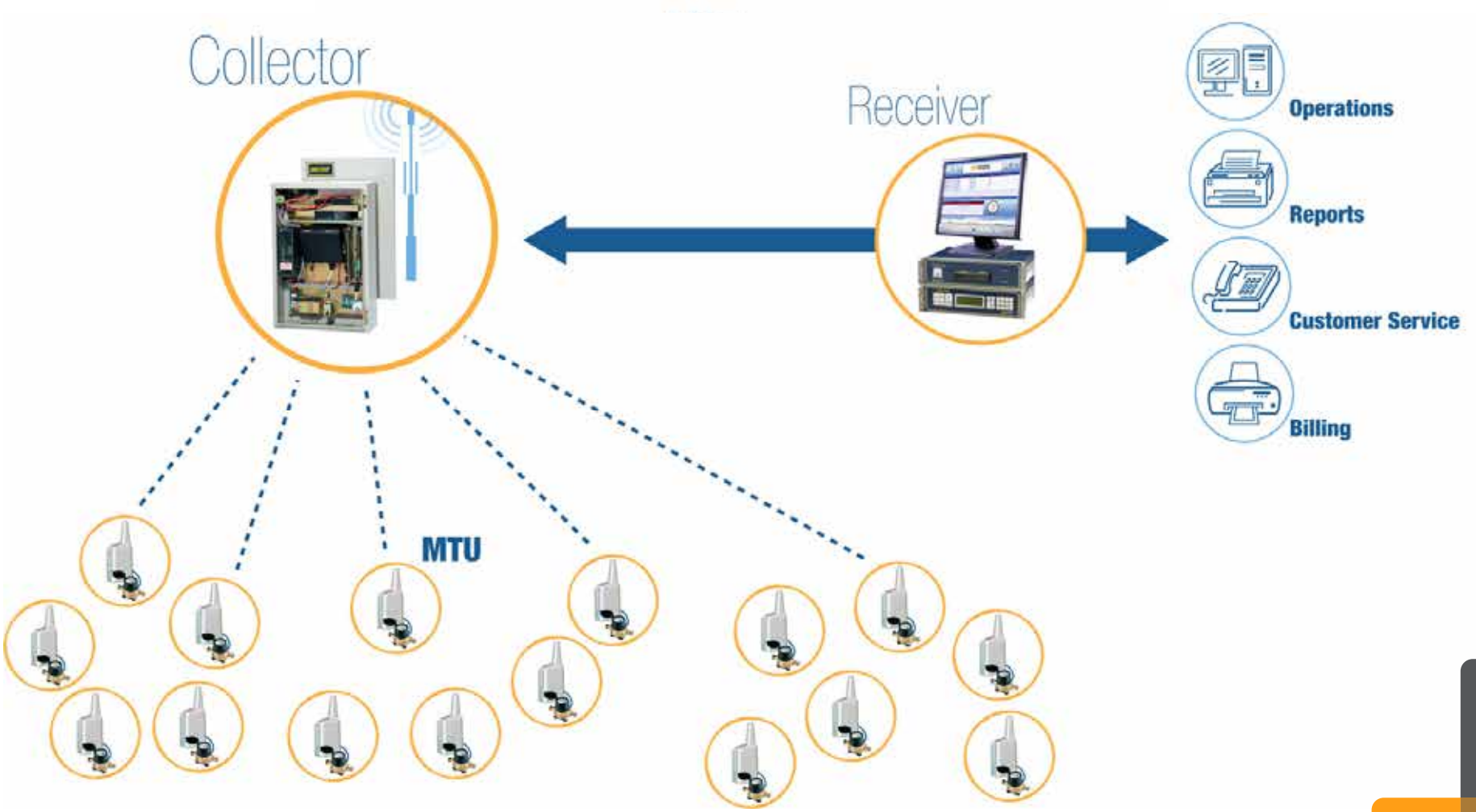
- Mega-Net is a powerful yet affordable AMI Solution with a full 2 watt radio transmission delivering long range results, with low infrastructure investment for remote meter reading.

Network Components



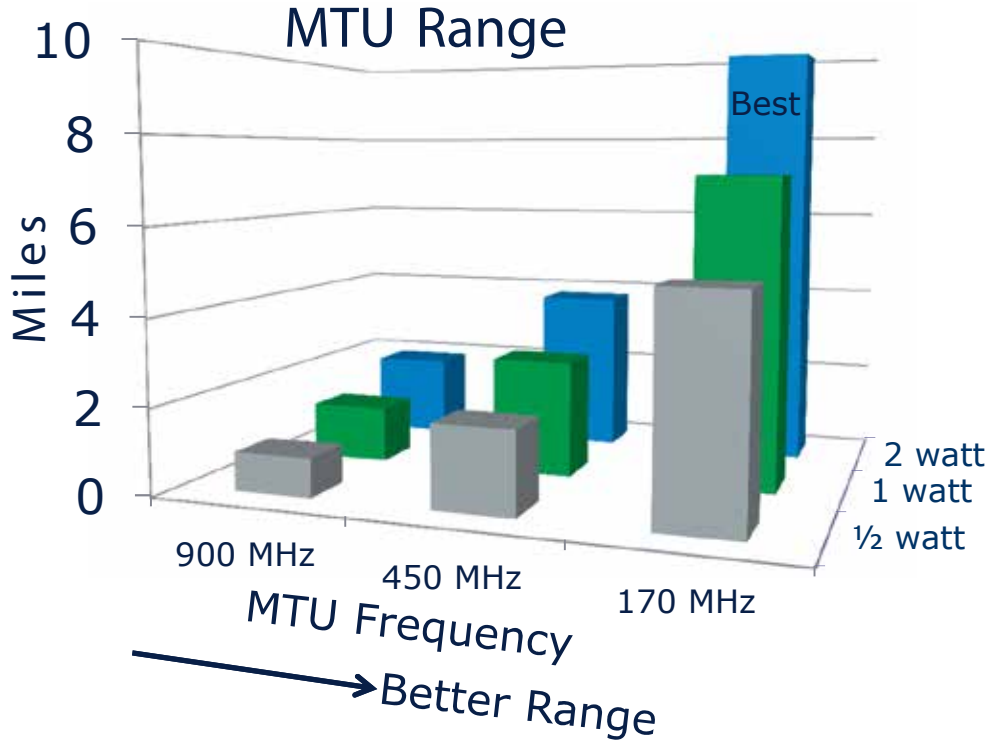
MTUs communicate directly to Receiver, or through Collector.

Network Architecture

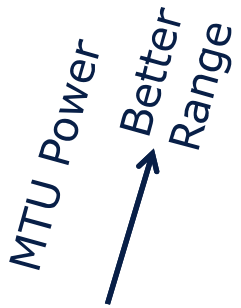


AMI Facts – Transmission Range

- Each time power is doubled, transmit ranges increase by 50%
  Example: A 1-watt, 20-year endpoint transmitting 1.3 miles increases to 1.9 miles at 2-watt.
- Each time transmit frequency is halved, transmit range increases by 100% (or more).
  Example: When a 900 MHz endpoint is halved to 450 MHz, the range is doubled.
  Example: When a 450 MHz endpoint is more than halved again to 170 MHz, the range is increased again by 150%.



- Higher power means better coverage and performance.
- Lower transmit frequency means better coverage and performance.



Mega-Net™ Transmission Range

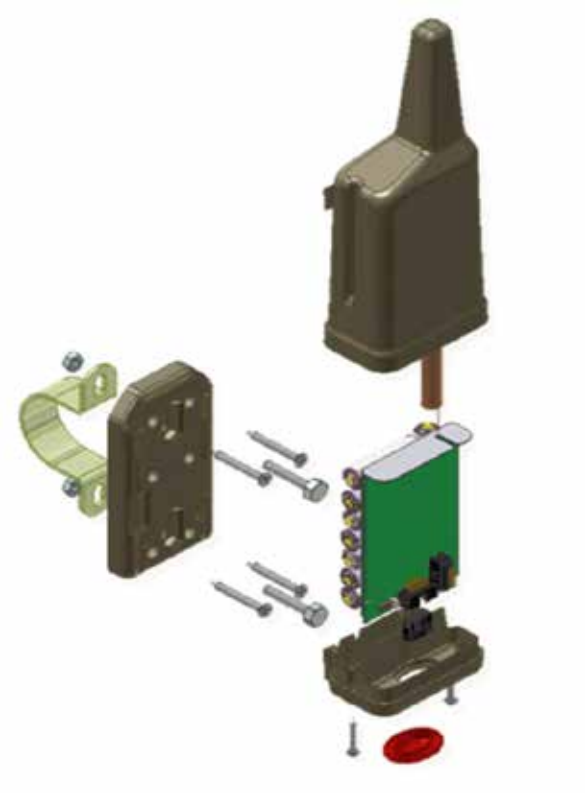
- Mega-Net™ endpoints transmit at 2 watt to maximize range and coverage.
  - Other endpoints offering 2 watt power must be put in boost modes, sacrificing battery life.
- Mega-Net™ offers 450 MHz or 170 MHz endpoints providing 100%-425% greater range than an 900 MHz endpoints, at the same power level.
- Transmitters are typically mounted in a pit environment with cast iron or concrete lids and sometimes under water. Lesser range transmitters must be compensated by purchasing additional system collector/repeaters.

670% transmission improvement with Mega-Net™

Comparing true 2 watt endpoint (rather than 1 watt) and using 170 MHz (rather than 900 MHz). That is, more than six times the distance, requiring less infrastructure hardware.

MTU – Meter Transmitter Unit

- Powerful 2 Watt radio transmitter - longest range in the industry
- FCC licensed frequency (VHF 154-174 MHz, UHF 450-470 MHz)
- No programming required for encoded registers
- Rugged waterproof and tamper proof IP65
- Outdoor / indoor installation
- 20 year battery
- Replaceable battery pack
- Multiport configuration
- Fully potted transmitter for pit applications IP 68



MTU - Compatibility

- Reads any type of Encoder or Digital register
- Dual Port MTUs are available for all Absolute Encoder registers
- Four port MTUs are available for digital registers
- Mega-net MTU is the only transmitter that can fully read Elster Smart Meter protocol.

MTU – Reading Intervals

- Once a day
- Hourly (every 5 hours, readings are transmitted)
- Volumetric reporting configuration
- Intervals can be modified using wireless field programming unit

wireless programmer

MTU – Installation Simplicity

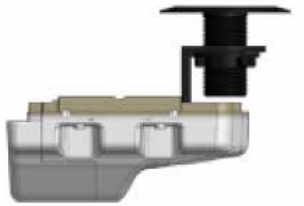
Encoder Register Installation

- Secure mounting bracket on a wall, pipe or inside a pit
- Slide MTU onto mounting bracket
- Connect MTU wires to meter terminals (Green-Green, Black-Black, Red-Red)
- Pit application utilizes factory potted connections, and magnetic swipe activation.
- Typical installation time is less than five minutes

MTU – Photos & Dimensions

Wall Mount 8.4” x 3.4” x 2.7“

Pit Mount 7.6” x 4.1” x 3.5”



SMR5000™ – Smart Collector

- Extend radio coverage by tens of miles
- Data transmission over long distances (6 watt)
- Immediate delivery of readings once received
- Provides installation verification
- Network management
- No additional backhaul costs
- No third party backhaul reliance
- Alert if status changes – power fail, low battery, tamper, etc.

SMR5000™ – Antenna Install

Antenna, 9 foot

SMR5000™ – Collector Install

Collector 32” x 24” x 6”

Base Station Receiver

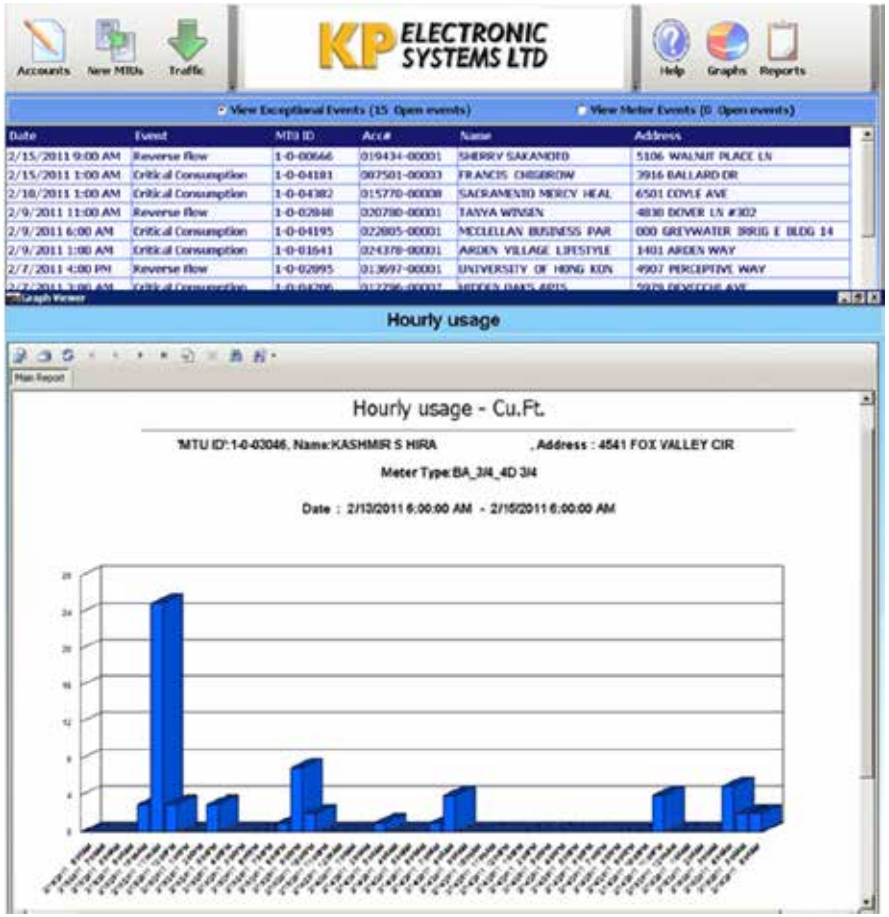
- Receives, decodes radio signals, and transfers to management software
- Alarms advise of any communication loss with server, if a power failure or a radio failure occurs
- Internal memory buffer stores readings avoiding data loss should communication error occur
- 19” rack mount Base Radio Station, RCI5000™ (3U)
- 19” rack mount Receiver, EXR5000™ (3U)

Base Station Equipment

- Consists of the radio receiver(s), base station(s), server(s) and workstation(s). MCM software comes with 5 licenses; others can be obtained. Any city networked computer can act as a workstation.

Meter Control Management (MCM) Software

- Generates current and historical reports of water consumption
- Intuitive & user friendly
- Real-time reads and fault detection
- Total compatibility with any billing software
- Supports semi/fully automated data synchronization
- Improve customer service
- Unlimited data storage

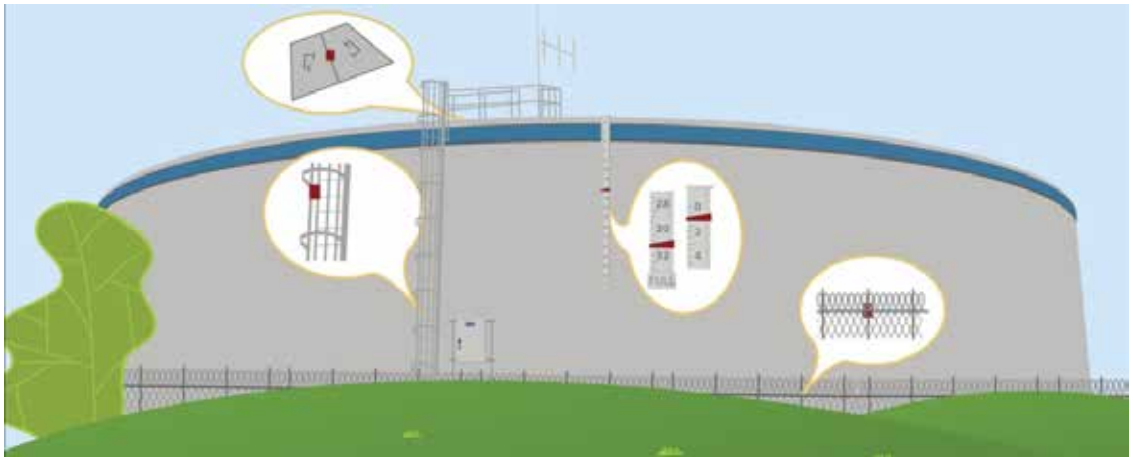


Mega-Net™ Advantages

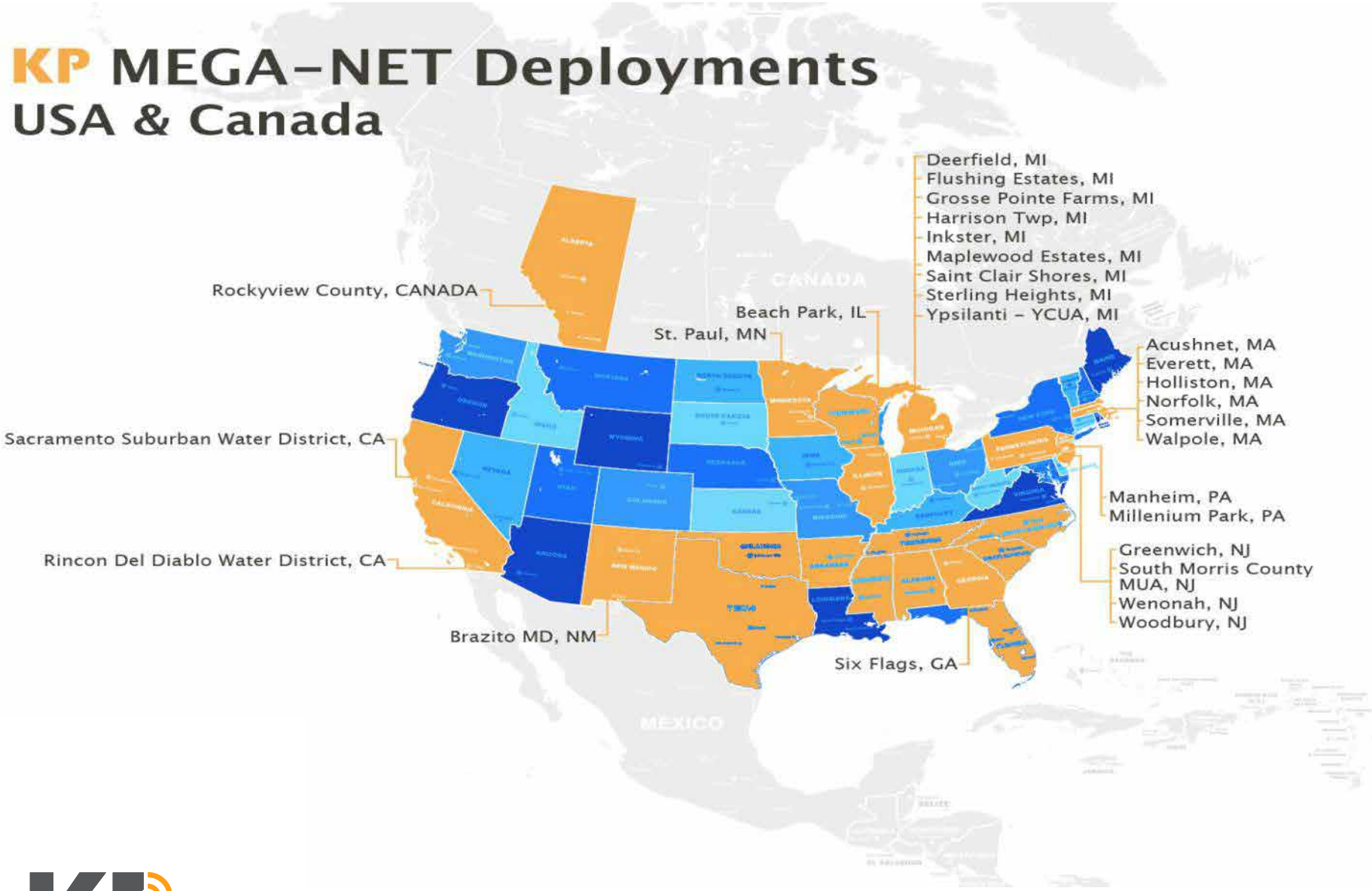
- High power system = Reliability and Accuracy
- 2 Watts transmission power, every time
- Low infrastructure = less maintenance and cost
- Only end to end live RF system industry wide
- Zero costs per read; no monthly cellular/internet fees
- Full ownership and operation of the system
- Instant verification upon installation
- True open architecture includes Absolute encoder as well as Digital encoder
- Improve Customer Service with hourly data
- Powerful MCM software provides real time alarms
- System operates on a protected FCC licensed frequency

Mega-Net™ Advantages (cont.)

- Security Integration Over Entire Service Area
  - Motion/Intrusion/Access - doors opening/closing, protect communication room, water tank hatches, water facility, climbing ladders
  - Security - panic buttons, personal alarm transmitters, campus alarm devices, temperature sensors, humidity/smoke detectors
  - Monitoring - high/low water levels, tank levels changing too quickly



KP MEGA-NET Deployments
USA & Canada



WIRELESSDATASOLUTIONS

Mega-Net™ High Power AMI

Meter Control Management (MCM) Software Introduction

March, 2013

WIRELESSDATASOLUTIONS

Introduction to MCM

- Generates current and historical reports of water consumption
- Real-time reads enabling administrators to quickly respond to leaks and water theft
- SQL database
- Wide range of Crystal reports
- Priority alarms
- Improved customer service
- Unlimited data storage

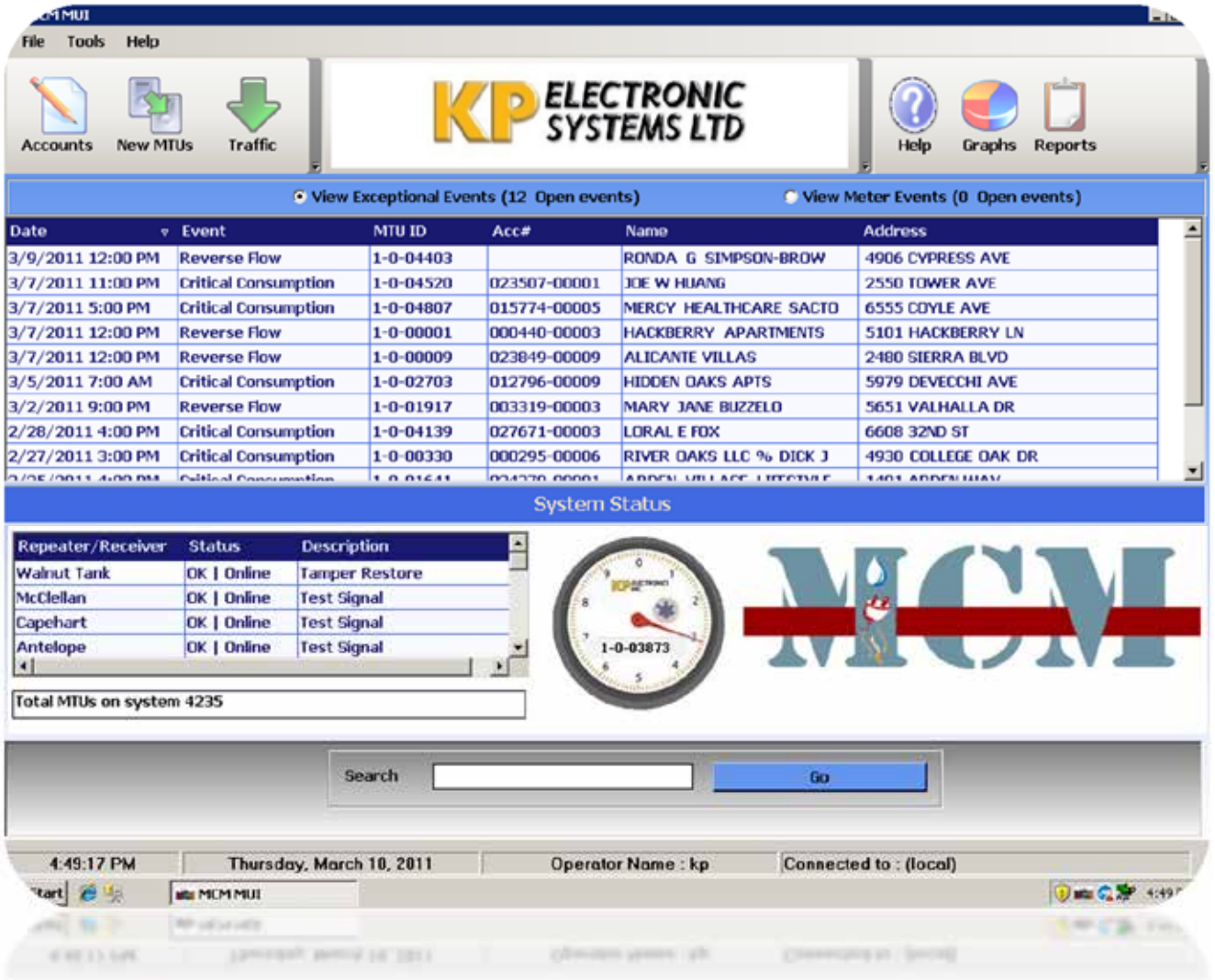
Introduction to MCM (continued)

- Intuitive & user friendly
- Total compatibility with any billing software
- Support semi/fully automated data synchronization & data management

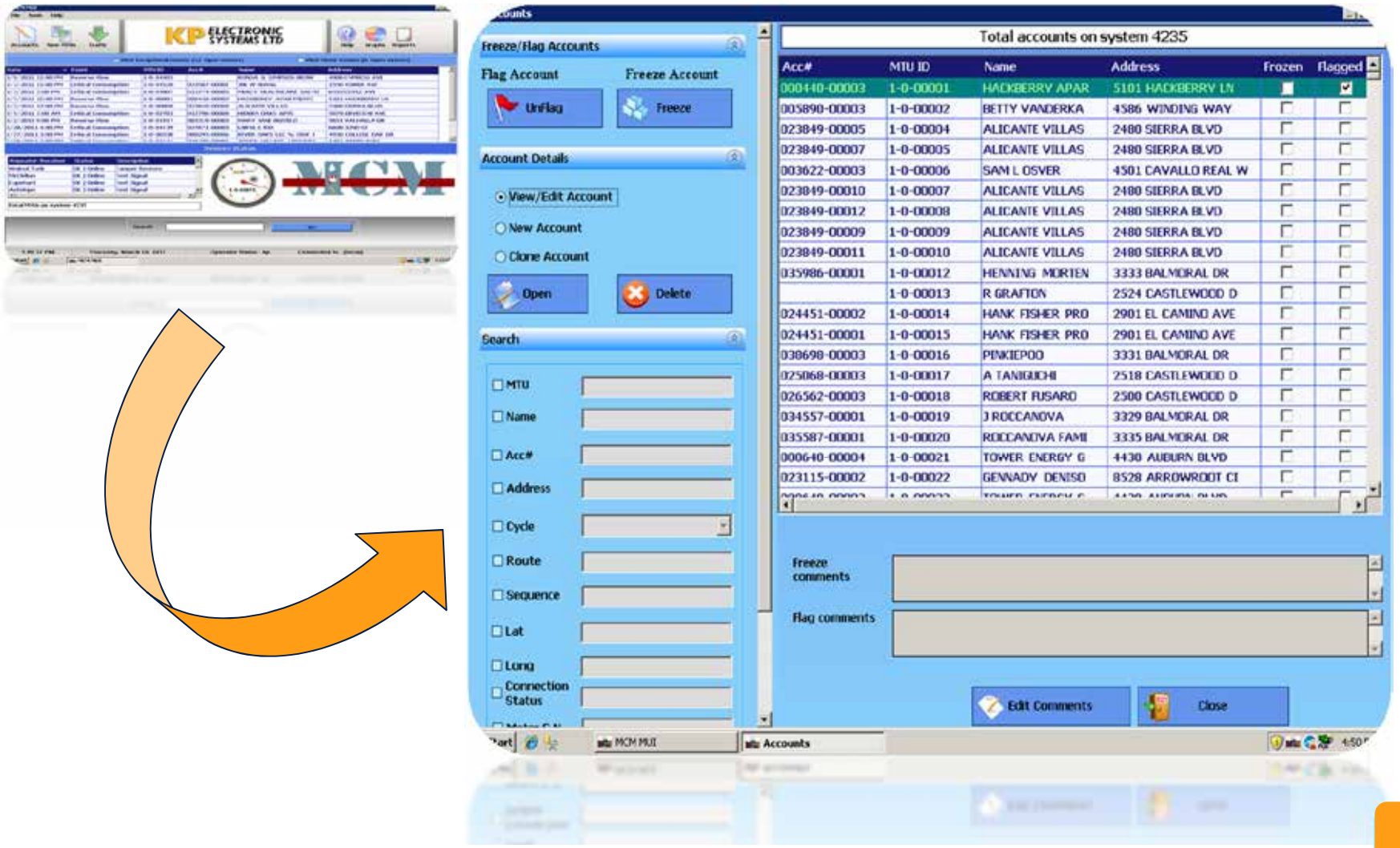
Data Management

- Real time reads
- Leak detection
- Reverse flow
- High usage
- Low usage
- Usage on vacant accounts
- Usage on fire line
- Collector alarms
- Alarm transmitters

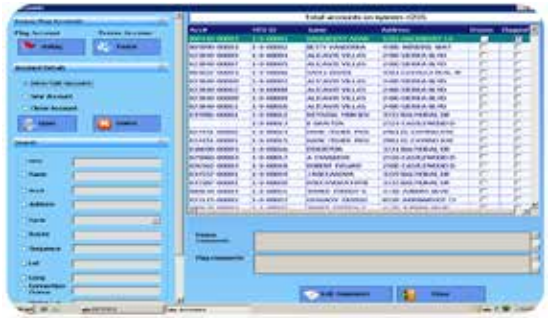
MCM Home Screen

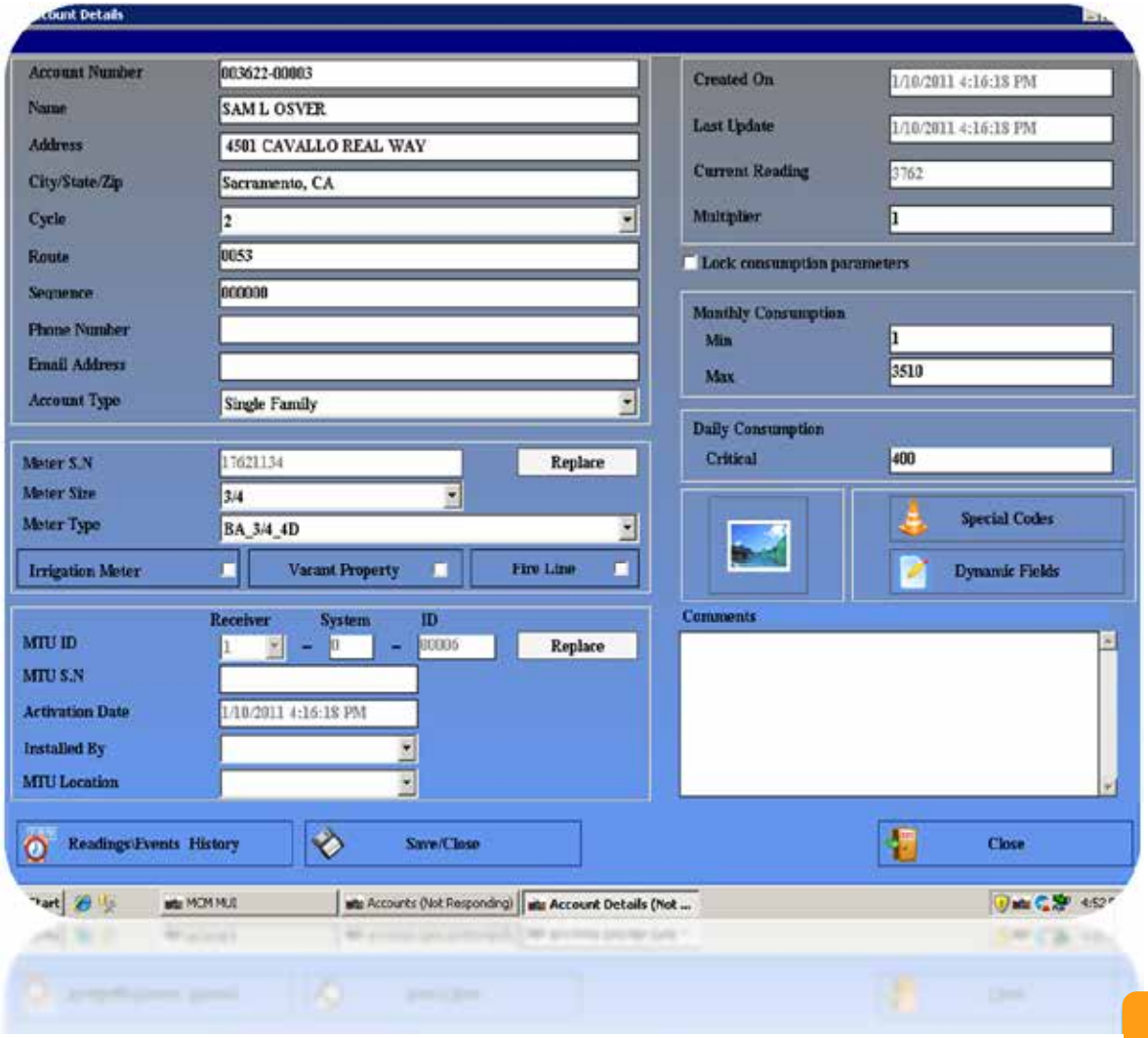


Accounts

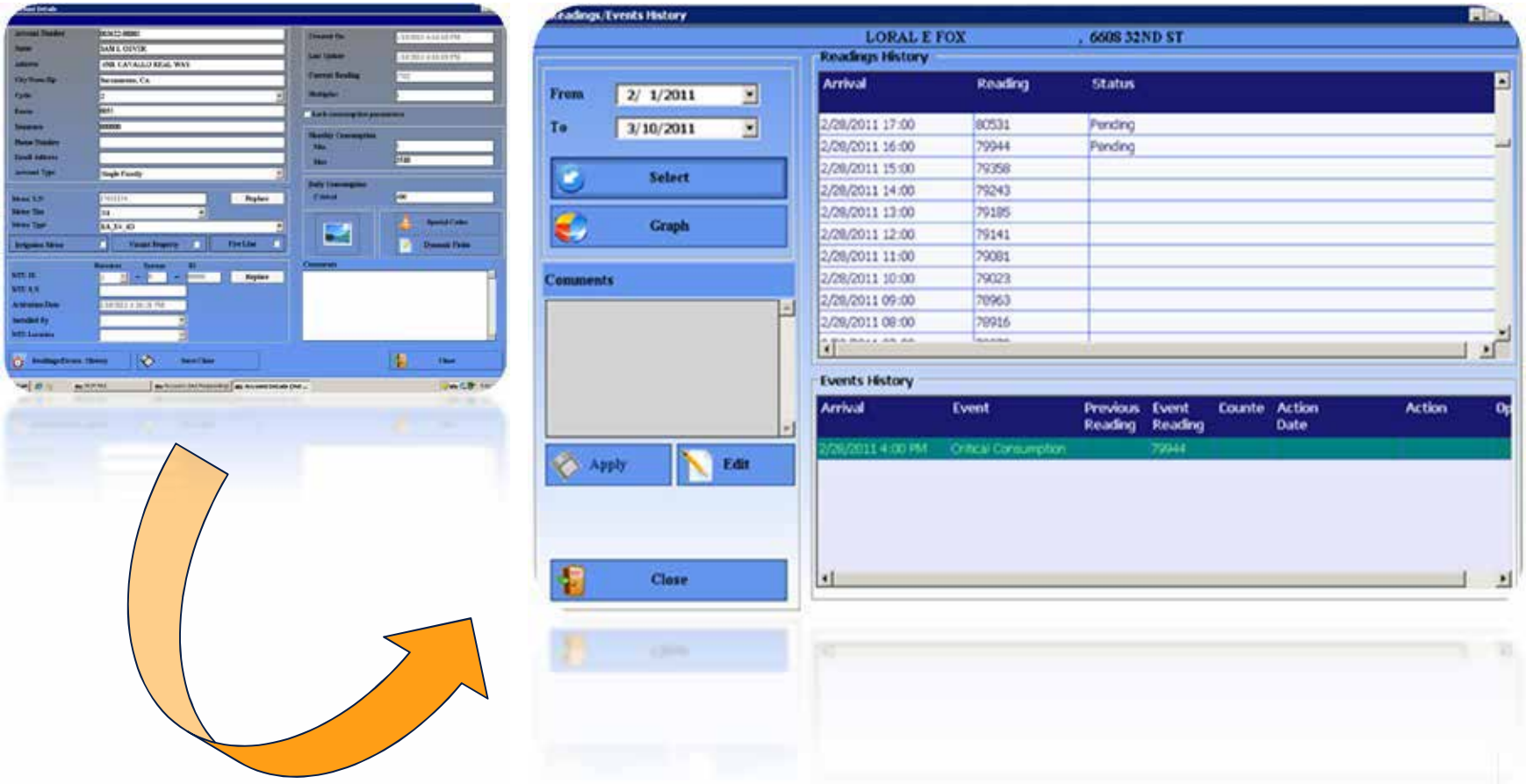

KP ELECTRONIC SYSTEMS LTD
MCM
Freeze/Flag Accounts
Flag Account
Freeze Account
UnFlag
Freeze
Account Details
View/Edit Account
New Account
Clone Account
Open
Delete
Search
MTU
Name
Acc#
Address
Cycle
Route
Sequence
Lat
Long
Connection Status
Total accounts on system 4235
Acc#
MTU ID
Name
Address
Frozen
Flagged
000440-00003 1-0-00001 HACKBERRY APAR 5101 HACKBERRY LN
005890-00003 1-0-00002 BETTY VANDERKA 4586 WINDING WAY
023849-00005 1-0-00004 ALICANTE VILLAS 2480 SIERRA BLVD
023849-00007 1-0-00005 ALICANTE VILLAS 2480 SIERRA BLVD
003622-00003 1-0-00006 SAM L OSVER 4501 CAVALLO REAL W
023849-00010 1-0-00007 ALICANTE VILLAS 2480 SIERRA BLVD
023849-00012 1-0-00008 ALICANTE VILLAS 2480 SIERRA BLVD
023849-00009 1-0-00009 ALICANTE VILLAS 2480 SIERRA BLVD
023849-00011 1-0-00010 ALICANTE VILLAS 2480 SIERRA BLVD
035986-00001 1-0-00012 HENNING MORTEN 3333 BALMORAL DR
1-0-00013 R GRAFTON 2524 CASTLEWOOD D
024451-00002 1-0-00014 HANK FISHER PRO 2901 EL CAMINO AVE
024451-00001 1-0-00015 HANK FISHER PRO 2901 EL CAMINO AVE
030698-00003 1-0-00016 PINKIEPOO 3331 BALMORAL DR
025068-00003 1-0-00017 A TANIGUCHI 2518 CASTLEWOOD D
026562-00003 1-0-00018 ROBERT RUSARO 2500 CASTLEWOOD D
034557-00001 1-0-00019 J ROCCANOVA 3329 BALMORAL DR
035587-00001 1-0-00020 ROCCANOVA FAMI 3335 BALMORAL DR
000640-00004 1-0-00021 TOWER ENERGY G 4430 AUBURN BLVD
023115-00002 1-0-00022 GENNADY DENISO 8528 ARROWROOT CI
Freeze comments
Flag comments
Edit Comments
Close
MCM MUI
Accounts

Account Details

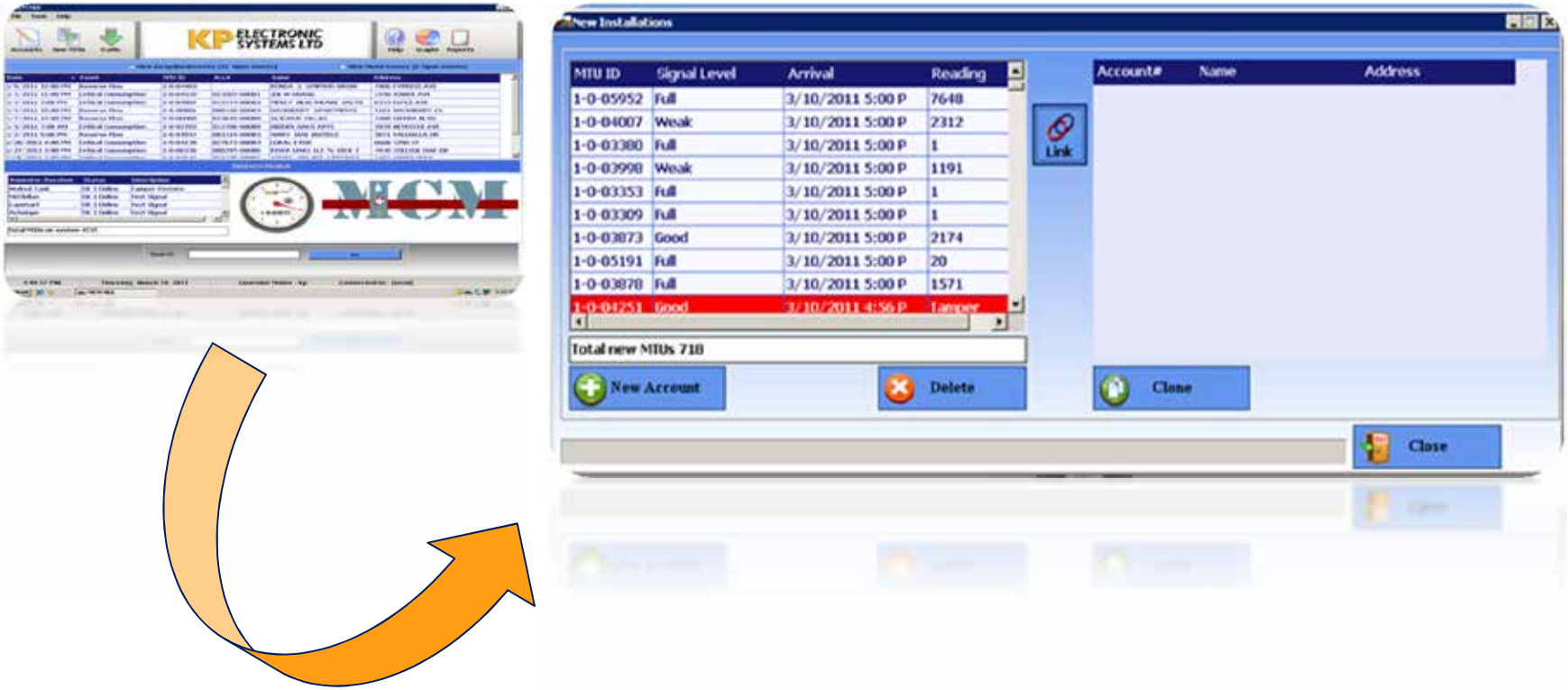




Readings/Events History



New Installations



Incoming Traffic

Time Arrival	MIU ID	Current Reading	Previous Reading	Average Consumption	Name	Address	Cycle
17:00:00	1-0-05202	23397	23397	4.30	CHRISTIAN H MILLER	4507 BELA WAY	2
17:00:00	1-0-01200	20980	20979	3.40	JOE STELLABOTT	5040 PATRIC WAY	2
17:00:00	1-0-01935	18338	18333	6.70	CARL YASDEK	5770 HASKELL AVE	2
17:00:00	1-0-01272	19145	19145	6.00	RICHARD L IRELAND	4040 MARLOW CT	2
17:00:00	1-0-00484	11560	11560	8.00	WHITNEY VILLA APARTMEN	3829 WHITNEY AVE	3
17:00:00	1-0-04107	6282	6279	4.60	CONSTANTIN PODOREANU	2557 HOWE AVE	3
17:00:00	1-0-01597	18239	18239	2.70	PETE & ELIZABET ROSSI	2739 ALBATROSS WAY	3
17:00:00	1-0-05920	6020	6020	3.00	N EMERSON	2425 TOWER AVE	3
17:00:00	1-0-02557	6818	6818	4.70	SHERRI TRENT	5112 KUDU RUN WAY	1
17:00:00	1-0-00460	9149	9143	5.80	PAUL MYERS	4983 CURVE WOOD WAY	2
17:00:00	1-0-01509	2181	2180	6.80	SLAVA SOBKO	4968 HAMILTON ST	2
17:00:00	1-0-02052	23650	23650	15.00	BALBIR SINGH	5800 KIMBERLY HILL CT	2
17:00:00	1-0-02024	11814	11814	3.10	ALDENE D MILLER	4001 ORVAL WAY	2
17:00:00	1-0-02384	1403	1403	0.40	LARRY FINGERS	5250 EASTON WAY	1
17:00:00	1-0-02409	5656	5656	5.50	LORRAINE CONTOS	7770 TRUFFLE CT	1
17:00:00	1-0-04508	6674	6674	4.30	MICHAEL PAGE	7741 MEGAN ANN WAY	1
17:00:00	1-0-02076	14333	14329	10.20	PAVEL GOLBAN	4916 INDIAN OAKS	2
17:00:00	1-0-02264	6053	6053	2.90	EDGAR ANTONIO	4447 BOGART WAY	1
17:00:00	1-0-02268	11994	11994	15.10	RAMESH BANGER	7756 MEGAN ANN WAY	1
17:00:00	1-0-02331	7969	7964	5.60	RICARDO GUTIERREZ	4643 LUXFORD CT	1
17:00:00	1-0-02749	2243	2240	1.90	SHARON FARRIS	7401 MIRAGE CT	1
17:00:00	1-0-02201	7703	7703	9.80	STEVEN JONES	7461 AUSPICIOUS WAY	1
17:00:00	1-0-04539	9308	9307	8.30	JOSEPH/CAROL LIDDELL	7412 MIRAGE CT	1
17:00:00	1-0-03106	1113	1112	2.10	RANDY CLARK	4826 IMAGE WAY	1
17:00:00	1-0-00520	13413	13410	3.70	BRANDON GALLAGHER/ JE	4951 CLEAR WOOD WAY	2
17:00:00	1-0-00249	10998	10997	4.40	BRYAN STEVEINSON	4984 CLEAR WOOD WAY	2
17:00:00	1-0-00629	3705	3705	2.30	IRIS ATKINSON	4959 CURVE WOOD WAY	2
17:00:00	1-0-04163	672	672	0.00	OKTAVIAN TSURKANU	5234 BELL WOOD WAY	2

Total:3339

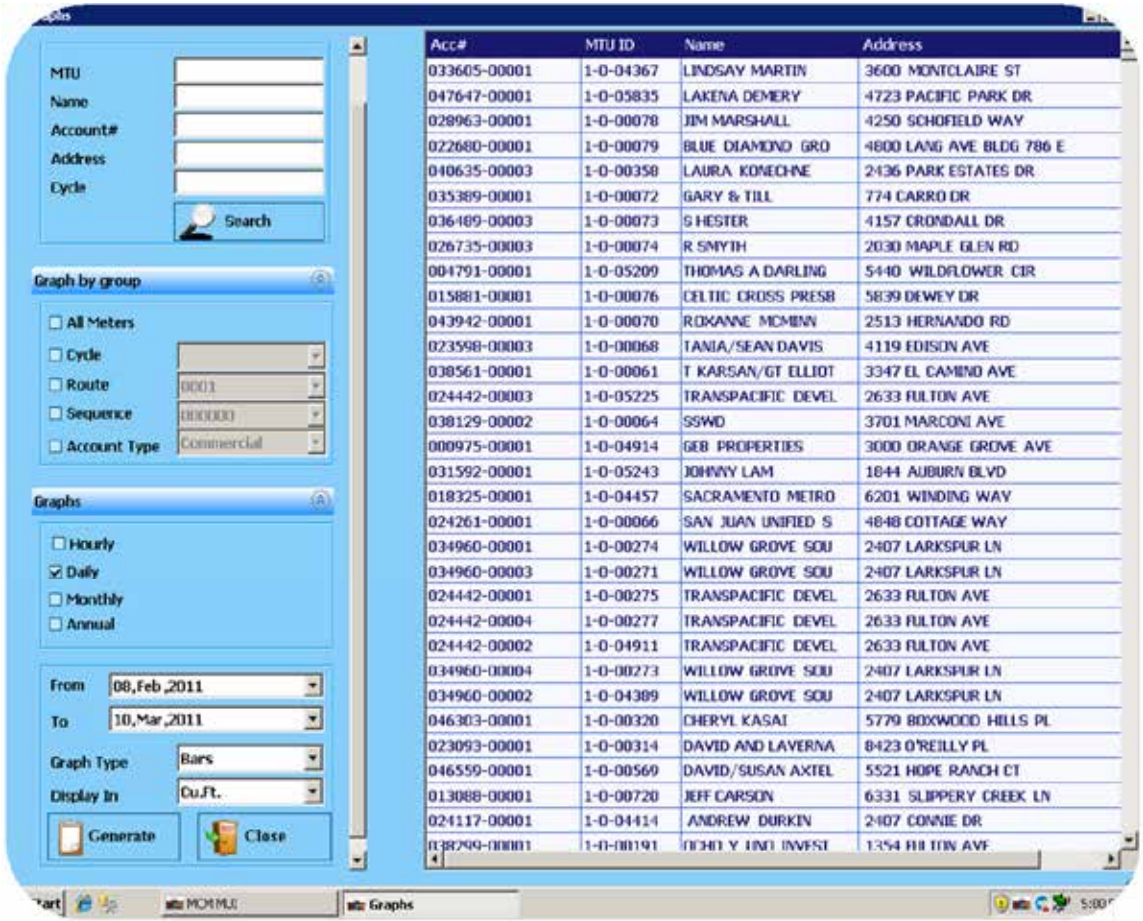
Close

MCM MUI

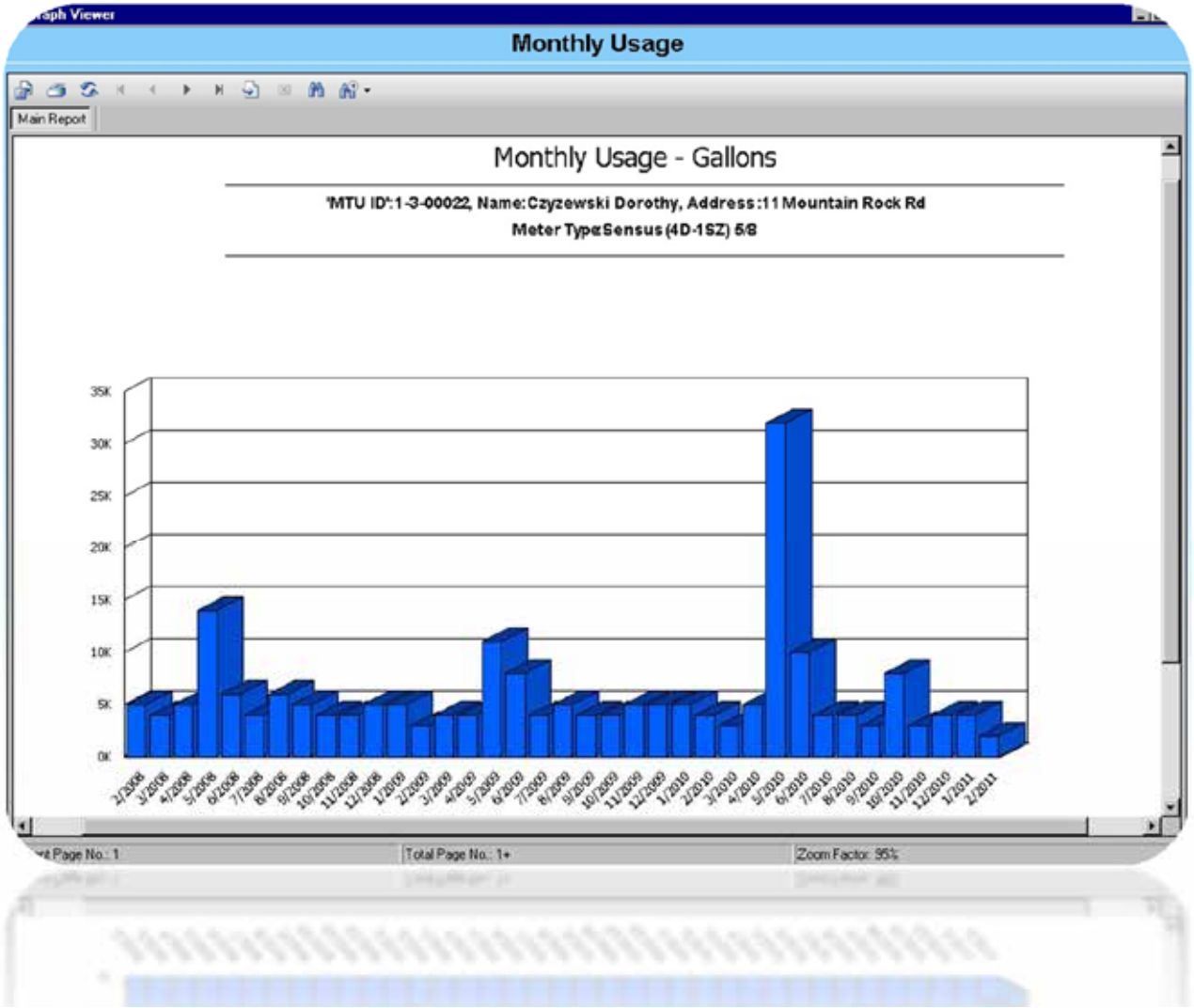
Traffic

Graphs

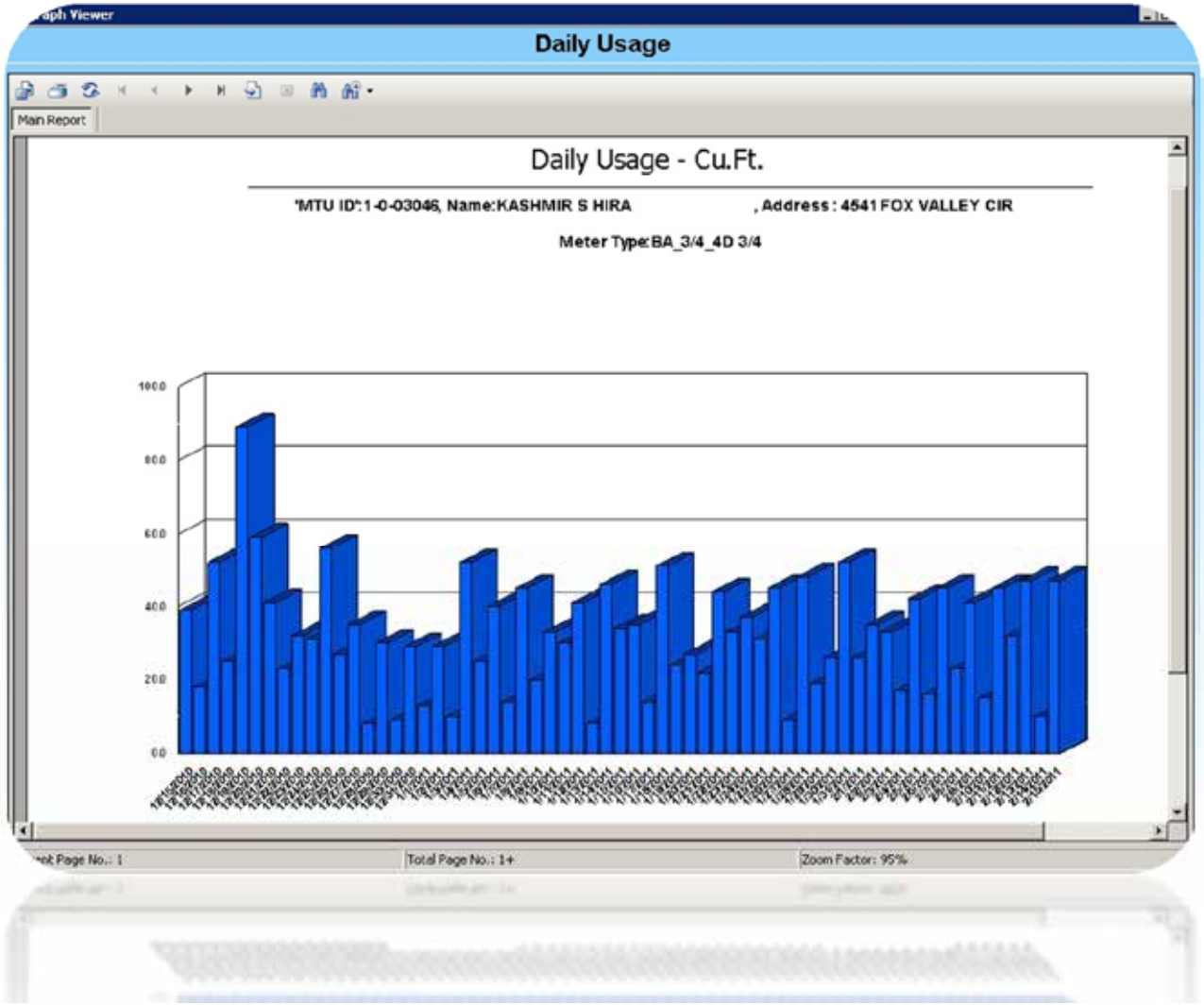

KP ELECTRONIC SYSTEMS LTD
MCM


MTU
Name
Account#
Address
Cycle
Search
Graph by group
All Meters
Cycle
Route
Sequence
Account Type
Commercial
Graphs
Hourly
Daily
Monthly
Annual
From
08,Feb ,2011
To
10,Mar ,2011
Graph Type
Bars
Display In
Cu.Ft.
Generate
Close
Acc#
MTU ID
Name
Address
033605-00001 1-0-04367 LINDSAY MARTIN 3600 MONTCLAIRE ST
047647-00001 1-0-05835 LAKENA DEMERY 4723 PACIFIC PARK DR
028963-00001 1-0-00078 JIM MARSHALL 4250 SCHOFIELD WAY
022680-00001 1-0-00079 BLUE DIAMOND GRO 4800 LANG AVE BLDG 786 E
040635-00003 1-0-00358 LAURA KONECHNE 2436 PARK ESTATES DR
035389-00001 1-0-00072 GARY & TILL 774 CARRO DR
036489-00003 1-0-00073 S HESTER 4157 CRONDALL DR
026735-00003 1-0-00074 R SMYTH 2030 MAPLE GLEN RD
004791-00001 1-0-05209 THOMAS A DARLING 5440 WILDFLOWER CIR
015881-00001 1-0-00076 CELTIC CROSS PRESB 5839 DEWEY DR
043942-00001 1-0-00070 ROXANNE MCMINN 2513 HERNANDO RD
023598-00003 1-0-00068 TANIA/SEAN DAVIS 4119 EDISON AVE
038561-00001 1-0-00061 T KARSAN/GT ELLIOT 3347 EL CAMINO AVE
024442-00003 1-0-05225 TRANSPACIFIC DEVEL 2633 FULTON AVE
038129-00002 1-0-00064 SSWD 3701 MARCONI AVE
000975-00001 1-0-04914 GEB PROPERTIES 3000 ORANGE GROVE AVE
031592-00001 1-0-05243 JOHNNY LAM 1844 AUBURN BLVD
018325-00001 1-0-04457 SACRAMENTO METRO 6201 WINDING WAY
024261-00001 1-0-00066 SAN JUAN UNIFIED S 4848 COTTAGE WAY
034960-00001 1-0-00274 WILLOW GROVE SOU 2407 LARKSPUR LN
034960-00003 1-0-00271 WILLOW GROVE SOU 2407 LARKSPUR LN
024442-00001 1-0-00275 TRANSPACIFIC DEVEL 2633 FULTON AVE
024442-00004 1-0-00277 TRANSPACIFIC DEVEL 2633 FULTON AVE
024442-00002 1-0-04911 TRANSPACIFIC DEVEL 2633 FULTON AVE
034960-00004 1-0-00273 WILLOW GROVE SOU 2407 LARKSPUR LN
034960-00002 1-0-04389 WILLOW GROVE SOU 2407 LARKSPUR LN
046303-00001 1-0-00320 CHERYL KASAI 5779 BOXWOOD HILLS PL
023093-00001 1-0-00314 DAVID AND LAVERNA 8423 O'REILLY PL
046559-00001 1-0-00569 DAVID/SUSAN AXTEL 5521 HOPE RANCH CT
013088-00001 1-0-00720 JEFF CARSON 6331 SLIPPERY CREEK LN
024117-00001 1-0-04414 ANDREW DURKIN 2407 CONNIE DR
MCMUI
Graphs

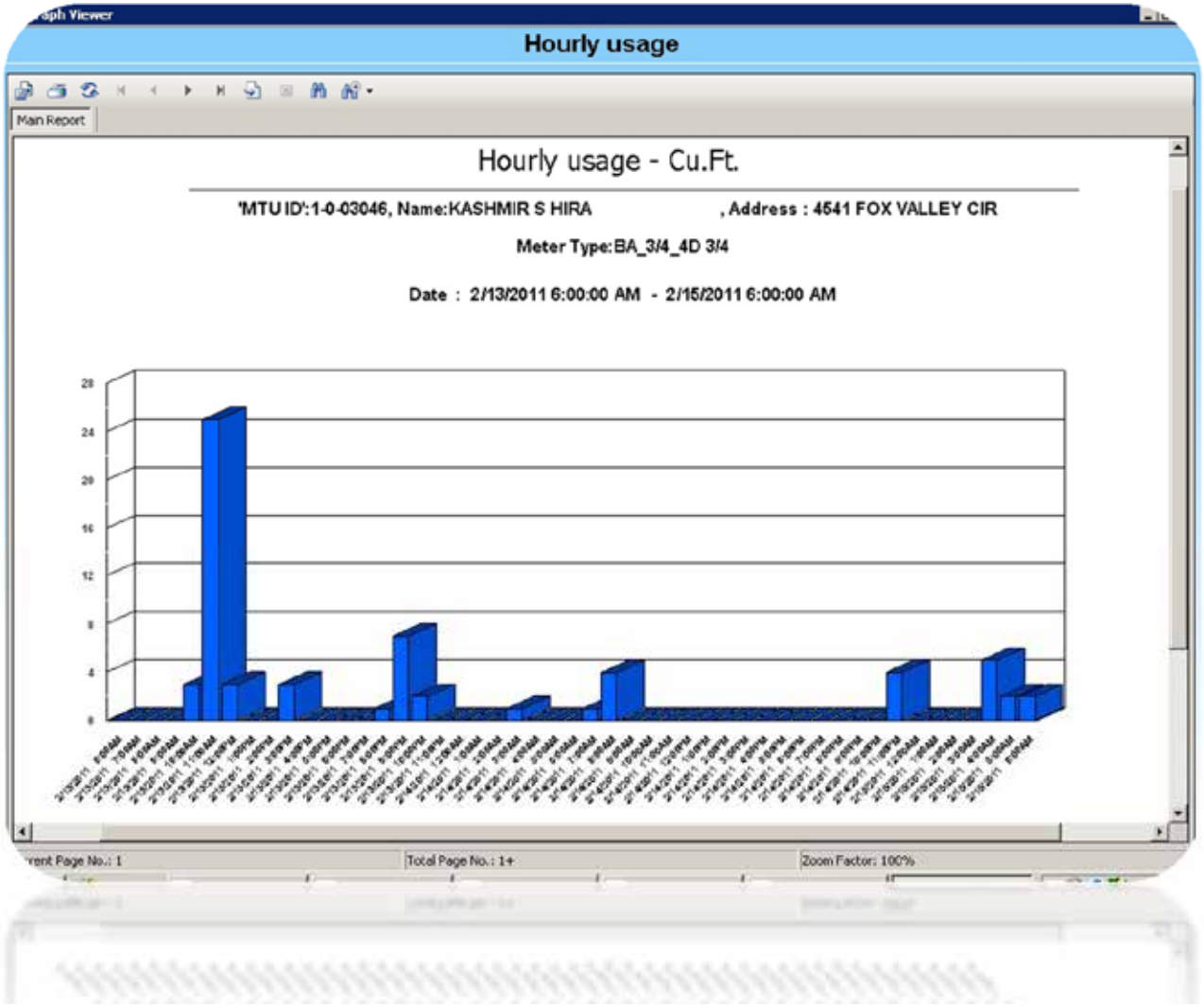
Monthly Graph



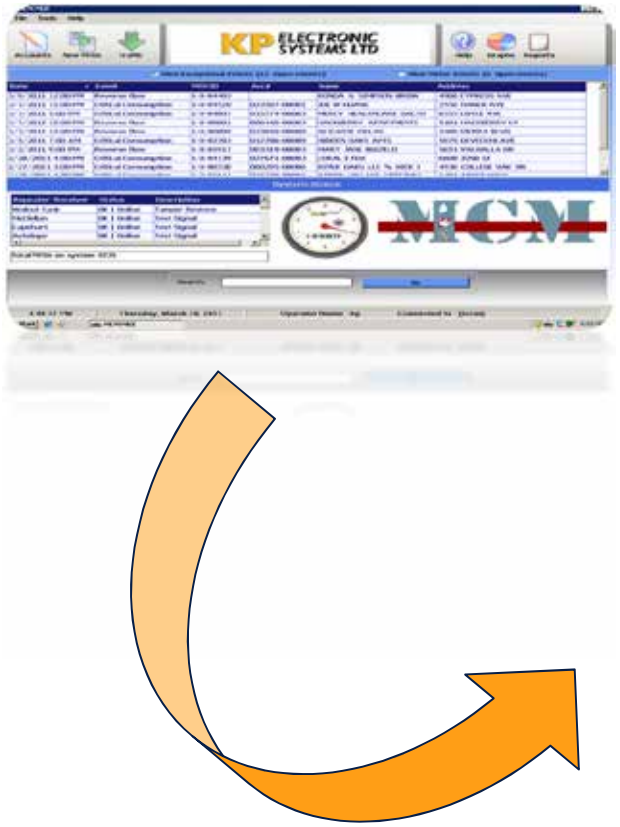
Daily Graph

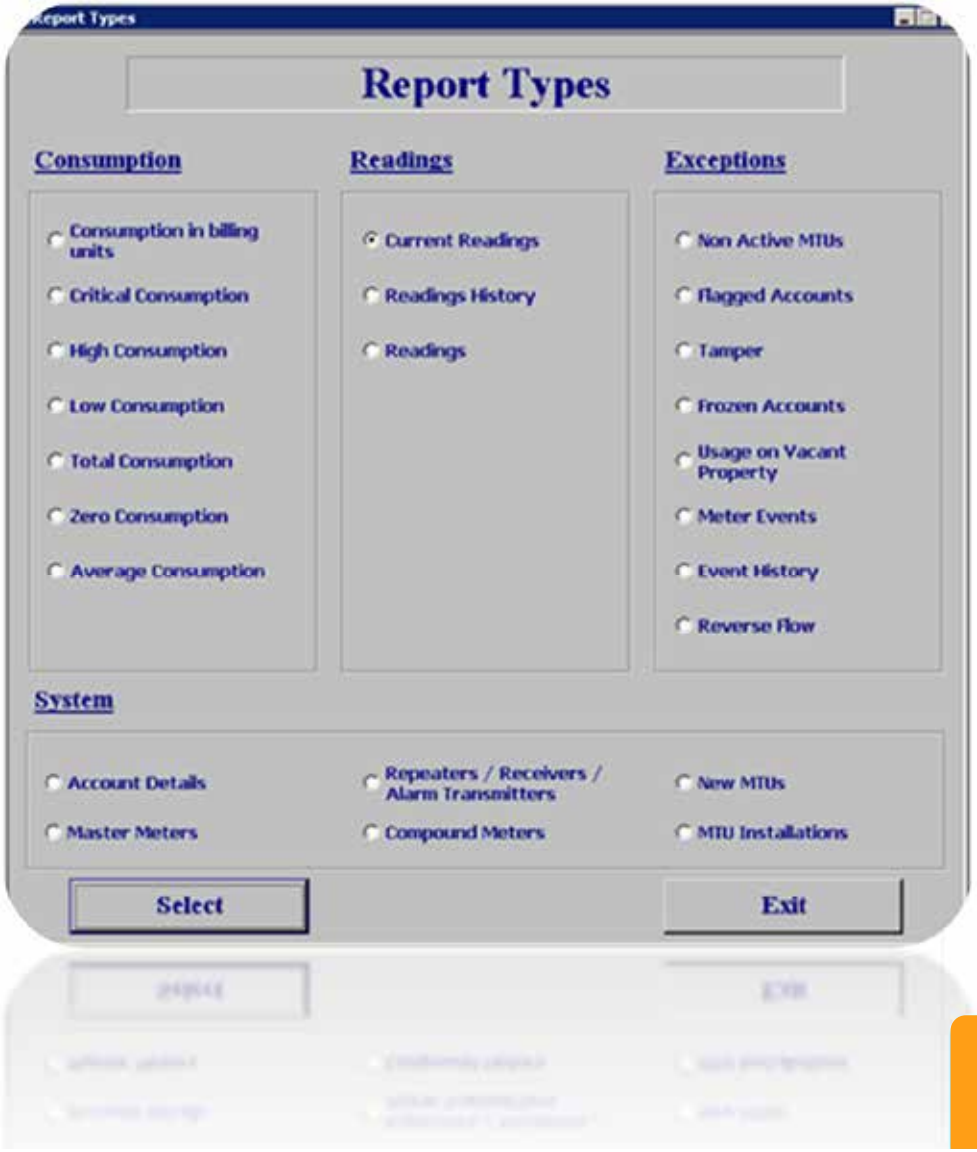

Daily Usage
Main Report
Daily Usage - Cu.Ft.
'MTU ID':1-0-03046, Name:KASHMIR S HIRA , Address : 4541 FOX VALLEY CIR
Meter Type:BA_3/4_4D 3/4
100.0
80.0
60.0
40.0
20.0
0.0
Total Page No.: 1+
Zoom Factor: 95%

Hourly Graph

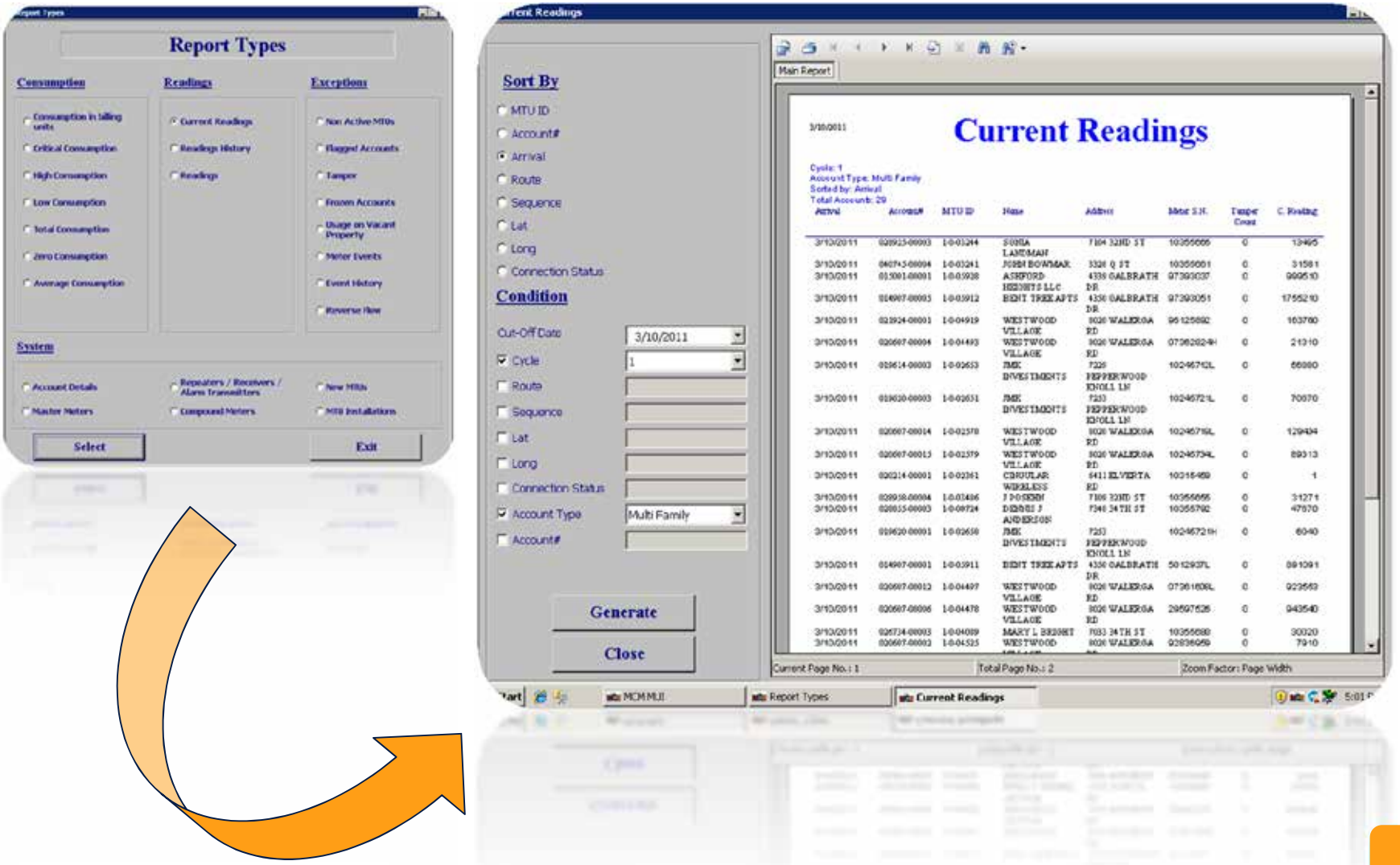


Reports

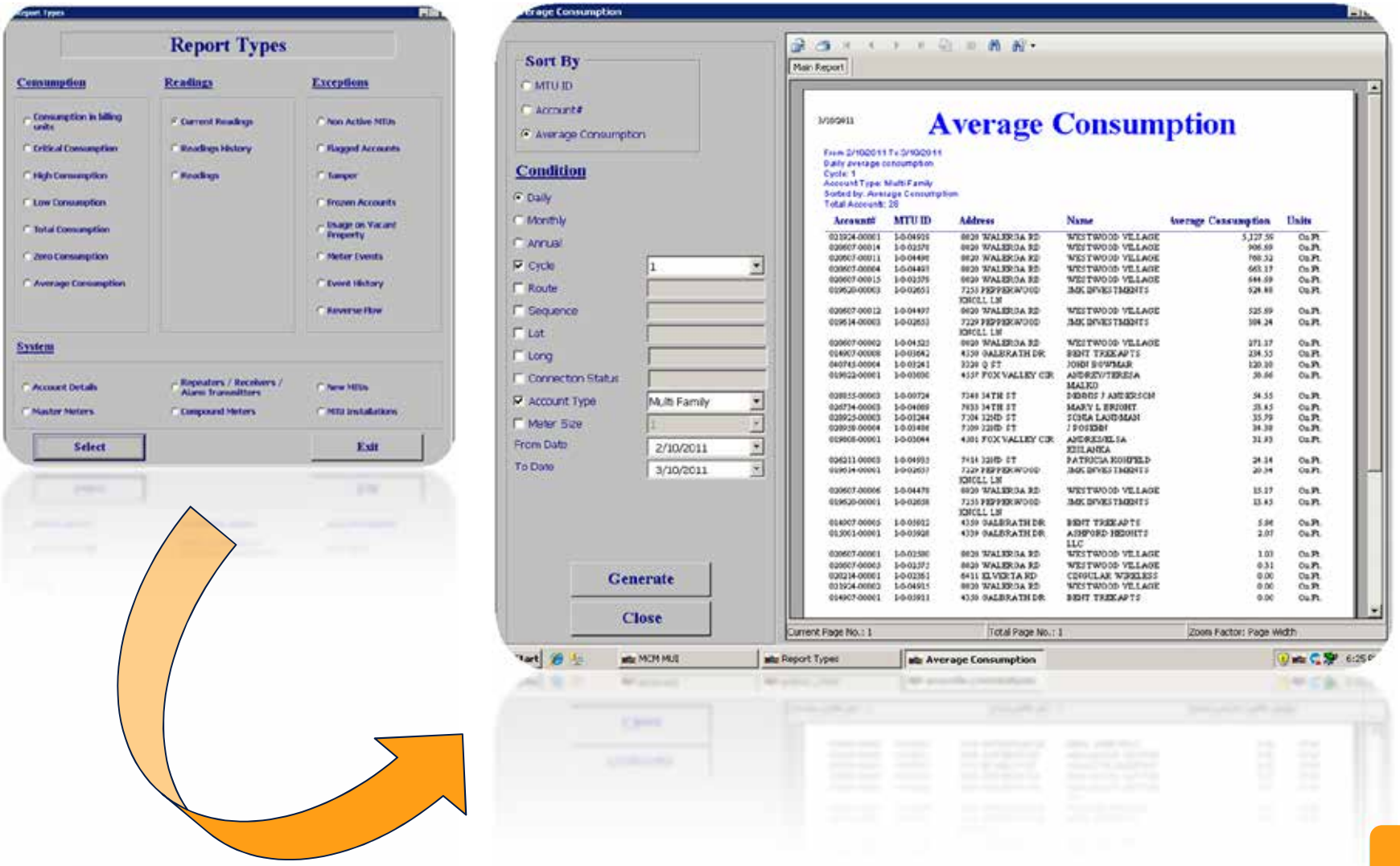

KP ELECTRONIC SYSTEMS LTD
MCM


Report Types
Report Types
Consumption
Consumption in billing units
Critical Consumption
High Consumption
Low Consumption
Total Consumption
Zero Consumption
Average Consumption
Readings
Current Readings
Readings History
Readings
Exceptions
Non Active MTUs
Flagged Accounts
Tamper
Frozen Accounts
Usage on Vacant Property
Meter Events
Event History
Reverse Flow
System
Account Details
Master Meters
Repeaters / Receivers / Alarm Transmitters
Compound Meters
New MTUs
MTU Installations
Select
Exit

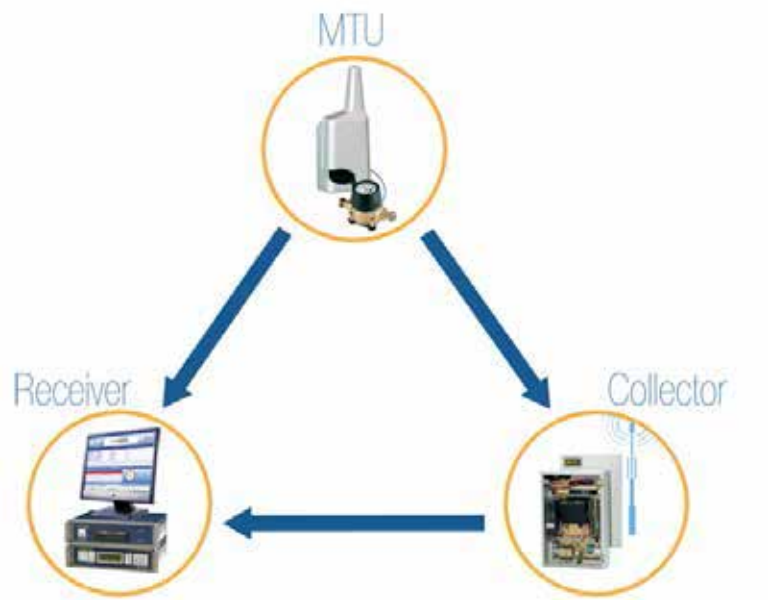
Current Readings Report



Average Consumption Report



MegaNet High Power AMI Infrastructure … an Overview

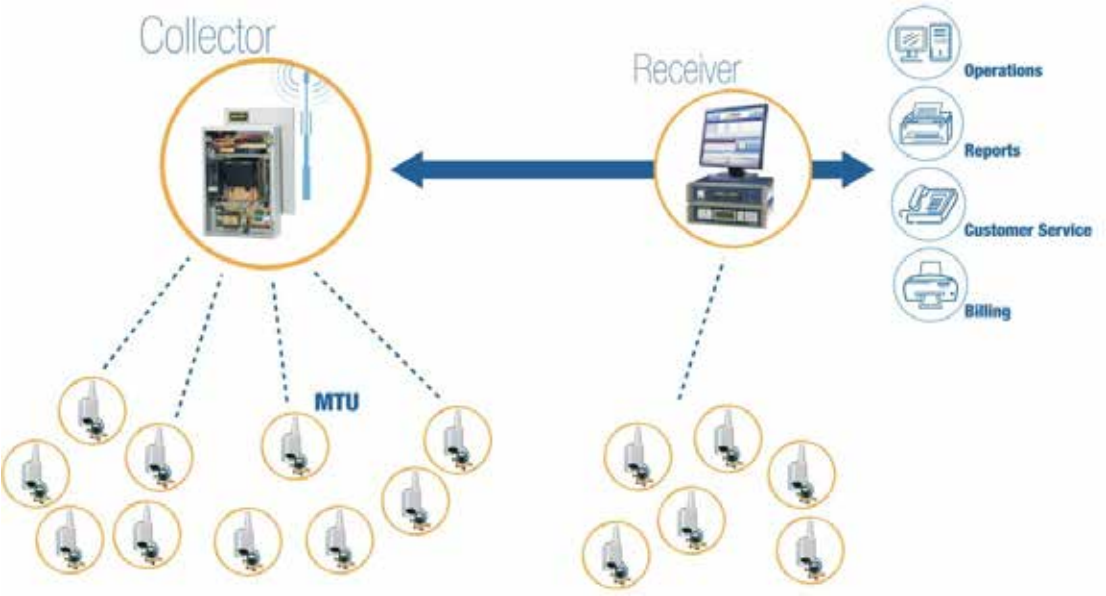


WIRELESSDATASOLUTIONS

Contents

Introduction

The KP MegaNet is a powerful, yet affordable, true end to end RF Advanced Metering Infrastructure (AMI) solution with full 2 watt radio transmitters delivering long range results without the cost of, or dependency on, any third party communications infrastructure such as cellular (GPRS), Internet, or Telephone.



The preceding figure illustrates the overall communication path of a typical MegaNet AMI system through the system components. The meter transmission units (MTUs) analyze and transmit meter usage and alarm type data, from all industry standard meter types, directly to the Base Station Receiver, or in the case of long range or challenging topography, to a long range Collector/Repeater. The MTUs transmit at a true 2 watt level within the selected frequency bands of 154-174 MHz and 450-470 MHz. The Collector/Repeater in turn receives signals from the MTUs and transmits/forwards the data to the Base Station Receiver through a wireless system.

The Base Station Receiver consists of two physical components, the Radio Transceiver and the Radio Communications Interface. The External Base Station Radio Transceiver receives signals either directly from MTUs or through a Collector/Repeater then transfers this data to the Radio Communications Interface. The Radio Communications Interface, available in a desktop or rack mount model, receives, decodes, and transfers the data to the Meter Control Management (MCM) software application residing on a standalone PC. The MCM software, resident on a PC, stores and displays the real-time reads enabling utility personnel to monitor exceptional events processing and analyze historical usage. The MCM software also provides the interface for exporting, totally compatible, data to the utility billing software system.

System Components

- MTU, Meter Transmission Unit
- SMR5000, Long Range Radio Collector
- EXR5000, External Base Station Radio Transceiver
- DTRCI5000/RCI5000, [Desktop] Radio Communications Interface
- MCM, Meter Control Management Software

MTU, Meter Transmission Unit

Overview

The MegaNet Meter Transmission Unit (MTU) is a state of the art high powered, true 2 watt, transmitter used to send signals from the meter to the head end receiver.

Wall Mount

Operation

The MTU is designed to analyze meter usage and data recorded by the Encoder register and transmit it back to the utility in real time. The MegaNet MTU operates on a licensed frequency in the VHF 154-174 MHz or UHF 450-470 MHz bands, ensuring maximum range and reliability. The MTU installs in all applications including Wall-mount/Pit options, Encoder/Digital Pulse, and single/dual/quad port configurations. The Pit mount is typically mounted through the cast-iron or concrete pit lid. The standard MTU is preprogrammed to deliver data daily, with a data logging option to transmit hourly usage data. Electronic data collection improves customer service and allows the utility to better address consumption disputes, water conservation, and monitor water usage. When attached to a meter, the MTU monitors, identifies, and immediately notifies the utility of alarms such as continuous flow, no flow, leaks, tampering, and reverse flow. Readings and meter data are stored in the MCM software database for historical customer usage profile generation.

Pit Mount

Compatibility

The MegaNet MTU is universal and compatible with all standard register formats including Elster (ScanCoder, InVISION and Smart Meter), Neptune (ARB III / IV / V, ProRead, Auto Detect, and E-Coder), Sensus (ECR II and ICE), Badger (ADE), Hersey (Translator), Mueller, Metron, and all other common absolute encoder registers. The Digital Pulse MTU is compatible with Elster Digital and Badger RTR registers.

Performance

The MegaNet MTU has one operational mode; a full two watts of power output in each transmission, without any reduction to the battery life warranty. Based on two and a half decades of expertise and experience deploying Fixed Networks in the demanding security industry, MegaNet technology employs field proven levels of safety measures to protect the data, creating the most reliable communication system offered to the AMI industry. Security measures include time slots, channel monitors, data package repetitions and many others.

SMR5000, Long Range Radio Collector

Overview

The SMR5000 Radio Collector is a high powered long range device that receives signals from the MTU's and forwards them to the head-end receiver. The Radio Collector is powered via a utility supplied 110V AC source and mounted at prescribed Utility owned locations to satisfy large service coverage areas. In remote situations, a solar powered collector option may be sourced, if applicable.

Collector (inside)

Operation

The SMR5000 is a collector that store and forwards the data collected from the MTU's through a wireless system. The unique high power output (6 watts) is ideal for managing communications networks and extending transmission distances. The SMR5000 can expand a localized radio network to a countrywide system due to the equipment's extensive connectivity, modular design and smart programming. The SMR5000 is expandable, accommodating the system design today while preparing for the growth of the future with the ability to operate on either VHF or UHF channels simultaneously.

Performance

The collector repeatedly monitors all MTU signal transmit strengths to ensure accurate communication. The collector alerts status changes for power fail, low battery, and tamper conditions. The collector features a built-in lightning arrestor to prevent damage to the unit from an indirect lightning hit. The collector antenna is also grounded and tied to an external lightning arrestor. MegaNet is independent of any third party infrastructure such as Cellular (GPRS), Internet, or Telephone, therefore data flows to the MCM software instantaneously; a true end-to-end RF solution.

EXR5000, External Base Station Radio Transceiver

Overview

The MegaNet Head End is comprised of the External Base Station Radio Transceiver, RCI™ (Radio Communication Interface) and the MCM™ (Meter Control Management) software.

Base Station Radio Transceiver

Operation

The EXR5000 Endurance plus radio is a high performance base station radio transceiver at the heart of the monitoring and control system. It offers durability and high functionality, receiving signals from the MTU's and/or collector(s).

Performance

This transceiver operates without reliance on any third party backhaul network. The transceiver can also operate for multiple days in a battery backup condition.

DTRCI5000/RCI5000, [Desktop] Radio Communications Interface

Overview

The MegaNet Head End is comprised of the External Base Station Radio Transceiver, RCI™ (Radio Communication Interface) and the MCM™ (Meter Control Management) software. The RCI receives signals from the Radio Transceiver, then decodes and transfers them to the MCM software. The complete RCI functionality is available in a desktop unit for smaller utilities or a rack mount unit for medium to large utilities. One DTRCI accommodates up to 7500 endpoints whereas one RCI accommodates up to 65000 endpoints. Larger systems employ multiple RCI's integrated as one seamless MegaNet AMI system.

Desktop RCI

Rack Mount RCI

Operation

The RCI provides a reliable, robust, and scalable means of centralized control and monitoring to any sized project. The internal construction of a synthesized radio and high speed processor offers the best long-range wireless solution for a control center. The RCI5000 acts as an interface between the wireless infrastructure and MCM installed computers, yet enables manual control if the PC computer is down.

Performance

The RCI advises, through alert status, in cases of power loss, communication loss with server, or communication loss with any radio. Internal memory continues to store all data during any server communication errors. MegaNet is independent of any third party communications such as Cellular (GPRS), Internet, or Telephone, therefore data flows to the MCM software instantaneously, a true end-to-end RF solution. The Base Station can be protected from temporary power interruptions by use of the BB5000 back up battery. The BB5000 is rack mountable and integrates seamlessly with the base station equipment.

MCM, Meter Control Management Software

Overview

The MCM Software is designed to accommodate the needs of various sized utilities. Compatible with Windows® operating systems, the software can be installed as a stand-alone application for smaller offices or can be networked for larger utilities requiring multiple operators. In a stand-alone network, all three software components; (1) the SQL server, (2) the MCM Communications Module/Settings, and (3) the MCM GUI are resident on one PC. In a networked application where multiple users are employed, these three components are configured on multiple PCs.

Operation

The MCM software incorporates many features and benefits including, but not limited to; generation of current and historical reports of water consumption; real-time reads enabling Utility to quickly respond to leaks and water theft; utilization of an SQL database; supporting a wide range of Crystal reports; displaying various exceptional events / alarms; having unlimited data storage capability, being intuitive & user friendly;

supporting total compatibility with any billing software; and supporting semi/fully automated data synchronization & data management.

The MCM system administrator has access to a Log application allowing the monitoring of real-time data incoming from the Base Station Receiver. All users have visibility to real-time reads enabling utility personnel to monitor exceptional events processing and analyze historical usage.

Performance

The MCM AMI software operates in the MS Windows Server environment (2003 or later). As it is being widely used worldwide, this platform also allows quickly incorporating and migrating functions and features used in other software products. The MCM server utilizes the RAID technology, allowing mirroring data on multiple hard drives. A scheduled backup can being done on a daily/weekly/monthly basis to an offsite location.

FTU101W

Accessories

The MegaNet system employs two hand-held devices to assist in the installation and programming of the MTUs. The FTU101W is a hand-held wireless signal strength meter used during the MTU install. After installation, the strength of each MTU is monitored by the Radio Collector and/or Radio Communication Interface. The FTU102 is a hand-held wireless programmer. This programmer is used during installation to change the transmit intervals or MTU communication protocol (see table below).

FTU102

Meter Protocol	Meter/Register Compatibility for MegaNet MTU
1	Elster AMCO
2	Neptune ARB III / ARB IV / ARB V
3	Sensus, Hersey, Muller, Metron, Severn Trent and any other register programmed to Sensus open protocol
4	Neptune Auto / Pro / E-Coder
5	Elster Smart-Meter
6	Badger
7	Elster AMCO with Nicor Connector
8	Neptune Auto / Pro / E-Coder with Nicor Connector

Security Integration

The MegaNet system can also seamlessly integrate Utility security solutions over the entire service area. These security points will also be monitored in a true end to end RF communications network, without the monthly cost or reliance on a cellular, internet, or telephone network. Alerts can include points of concern such as:

Door/Motion Detectors	Water Levels	Safety
Water tank hatches	High level alerts	Panic buttons
Climbing ladders	Low level alerts	Humidity/smoke sensors
Door opening/closing	Levels changing too quickly (signals potential leak/break)	Temperature sensors
		Campus alarm devices

Service and Support

Customer Service

The KP Electronics, Inc Customer Service Team can be contacted during the following hours:

Monday through Friday – 8:00 a.m. to 5:00 p.m. EST, excluding holidays

You can reach the Customer Service Team by calling:

1-888-542-7460

Technical Support

KP Electronics, Inc. Technical Support Specialists are a highly skilled group of individuals who have been selected for their dedication to customer satisfaction. The Technical Support Team is on call during the following hours:

Monday through Friday – 8:00 a.m. to 5:00 p.m. EST, excluding holidays

You can reach the Technical Support Team by calling:

1-888-542-7460

Please note: If you are calling after hours, or a technical support person is not immediately available, you will be directed to a voice mailbox. Please leave your name and number along with your question or a brief description of the issue. A tech support person will return your call as quickly as possible.

Email: info@kpelectronics.com

Revision History

Issue Number	Changes	Release Date
1	Initial Release	02/15/12

Mega -Net™ High Power AMI Installation & Programming Manual for PIT MTU

WIRELESSDATASOLUTIONS

NOTICE

The information contained in this document is subject to change without notice. Product specifications cited are those in effect at time of publication.

KP Electronics, Inc. shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

KP Electronics, Inc. expressly disclaims all responsibility and liability for the installation, use, performance, maintenance and support of third party products. Customers are advised to make their own independent evaluation of such products.

Contents

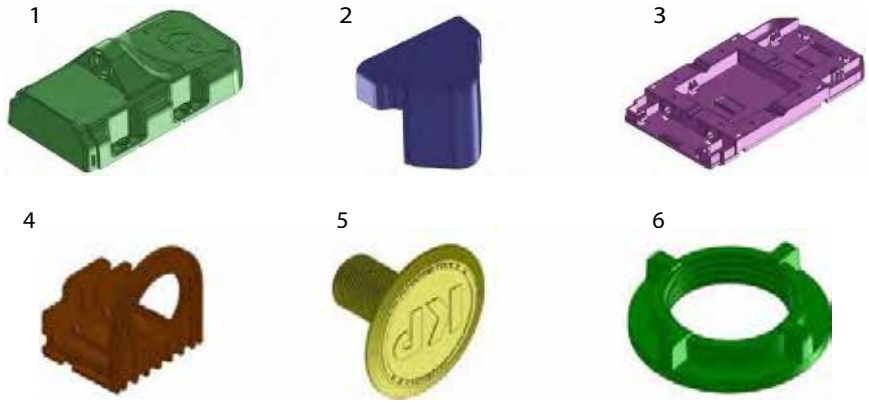
1. Introduction

This manual explains how to install/mount and program the MegaNet™ PIT MTU (MTWEP).

The MTWEP is designed for pit, inside, or outside installations. MTWEP is a long range radio Meter Transmission Unit [MTU]. The MTU interrogates the encoder register at a preprogrammed interval to obtain the most recent read, and transmits the data to the Head-End receiver. Single-port and dual-port encoder type MTUs are available.

2. PIT Accessories

1. MTU
2. MTU Cover
3. Back Plate
4. PIT Attachment
5. Mushroom Top
6. Nut



3. Recommended Tools and Materials

1. FTU101W (handheld signal level indicator)
2. Activation Magnet
3. FTU102 (wireless field programmer)
4. Wire stripping tool (i f needed)
5. Screwdriver – small standard head for terminal connections (if needed)
6. Electric drill and ¼" bit (if needed)
7. 1¼" metal/wood screws, quantity of 2-4 (if needed)
8. DBSR Black Large connector or equivalent (if needed)
9. 3M UY2 Scotchlok or equivalent, quantity of 3 (if needed)
10. 3M Scotchlok hand crimping tool E-9Y or equivalent (if needed)

4. Installation

Through Lid Mount Installation

Using Inline Connector

1. Remove pit cover.
2. Pull meter wire out from pit and place it on the ground next to the pit cover.
3. Slide pit attachment [black] onto top of back plate (grey), and push to secure in place.
4. Slide the mushroom top through the hole in lid, insert the pit attachment on bottom of mushroom top and tighten using plastic nut (see figure).
5. Turn pit lid over, so that the mushroom top is facing down.
6. Connect meter to the MTWEP wire via inline connector.
7. Activate MTWEP (see activation and installation verification section).

Using 3M UY2 Scotchlok

1. Remove pit cover.
2. Pull meter wire out from pit and place it on the ground next to the pit cover.
3. Slide pit attachment [black] onto top of back plate (grey), and push to secure in place.
4. Slide the mushroom top through the hole in lid, insert the pit attachment on bottom of mushroom top and tighten using plastic nut (see figure).
5. Turn pit lid over, so that the mushroom top is facing down.
6. Using 3M Scotchlok, connect MTWEP wire to wires coming from the register (red to red, green to green, and black to black).
7. Insert the Scotchloks into the DBSR and close cap.
8. Activate MTWEP (see activation and installation verification section).

Mounting Variations

Wall Mount Installation

Using Inline Connector

1. Place MTWEP on intended installation location.
2. Mark the location to pre-drill the holes.
3. Remove MTWEP from the wall and use a ¼" drill bit to pre-drill the holes.
4. Place MTWEP on the wall and align it with the holes.
5. Mount MTWEP to the wall using two to four 1¼" screws.
6. Connect meter to the MTWEP wire via inline connector.
7. Activate MTWEP (see activation and installation verification section).

Using 3M UY2 Scotchlok

1. Place MTWEP on intended installation location.
2. Mark the location to pre-drill the holes.
3. Remove MTWEP from the wall and use a ¼" drill bit to pre-drill the holes.
4. Place MTWEP on the wall and align it with the holes.
5. Mount MTWEP to the wall using two to four 1¼ " screws.
6. Using 3M Scotchlok, connect MTWEP wire to wires coming from the register (red to red, green to green, and black to black).
7. Insert the Scotchloks into the DBSR and close cap.
8. Activate MTWEP (see activation and installation verification section).

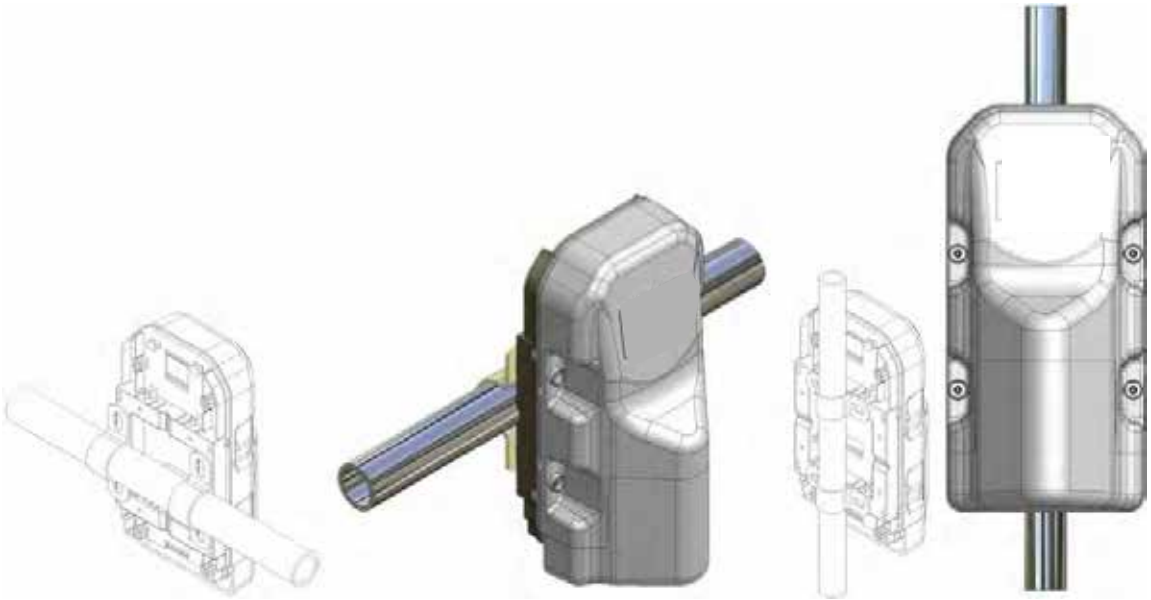
Pipe Mount Installation

Using Inline Connector

1. Place mounting bracket on the intended installation location.
2. Fasten the mounting bracket on the pipe using two screws and the pipe bracket (see figure).
3. Connect meter to the KP wire via inline connector.
4. Activate MTWEP (see activation and installation verification section).

Using 3M UY2 Scotchlok

1. Place mounting bracket on the intended installation location.
2. Fasten the mounting bracket on the pipe using two screws and the pipe bracket (see figure).
3. Using 3M Scotchlok, connect KP wire to wires coming from the register (red to red, green to green, and black to black).
4. Insert the Scotchloks into the DBSR and close cap.
5. Activate MTWEP. (See Activation and Installation Verification section.)



Mounting Variations

5. Activation and Installation Verification

1. Turn on FTU101 signal level unit.
2. Connect meter to MTU.
3. Make sure connection is tight.
4. Swipe activation magnet over the bottom back plate of the MTU.
5. Place pit lid back in place and observe the FTU101 screen to check signal level of MTU.
6. Note that the MTU will transmit three (3) times within 60 seconds to allow enough time to place the pit lid back in place.
7. Make sure a proper signal level is received.

Restrictions

1. Do not expose unmated connector to humidity or water.
2. When using 3M UY2 Scotchlok, make sure they are properly connected and secured inside direct bury connector.
3. Do not wrap excess wire around MTU.
4. When installing more than one MTU at same site, make sure you keep a distance of at least 3 feet between two adjacent MTUs, as well as at least 1 foot between their wires.

6. Specifications

Installation Environment	Inside, outside or pit applications
Physical Dimensions	4" Width x 8 ¼" Height x 3" Depth
Weight	1.6 pounds (725 gr ams)
Color	Light grey
Frequency Band	VHF 154 -174 MHZ, UHF 450 -470 MHZ.
Modulation	FM FSK
Operating Voltage	8-15 volts dc
Standby Current	30 µA max
TX Current	0.8 A max
Power Output	2 watt
Frequency Stability	±1.5 ppm at operating temperature range
Operating Temperature	-22 ° F to 120 °F (-30 °C to 60 °C)
Storage Temperature	-40 °F to 158 °F (-40 °C to 70 °C)
Meter Compatibility	Encoder and pulse registers

7. MTU Programming

Introduction
The FTU102 is a wireless field programmer for programming MTUs. (The FTU102 replaces the CAT5 version of the field programmer, FTU101.)

Features
1. Field programming – modify meter types, TX cycles, and turn MTU off.
2. Power Source - Internal 9V battery.

Function
Numeric Keypad - use the following keys to navigate through the screen

<ESC>	Exit from current screen and reverts to previous screen without saving changes
<↵> (Enter)	Affirm LCD message and moves to the next LCD message
<↵> (3) Up Arrow	Allows to navigate the programming screen s
<↵> (9) Down Arrow	Allows to navigate the programming screens
<shift> (2)	Activates MTU and sends test transmission

FTU102 Wireless Programmer

Operating Instructions

To power up the programmer use the On/Off button located on the side of the FTU102. The green PWR LED light and the KP logon screen displays:

KP FTU100W V3.10	KP FTU100W

Swipe the activation magnet over the bottom back plate of the MTU. Immediately thereafter the main screen displays:

MTU ID: XXXXX

Using the up / down arrow, the user can navigate the different screens:

Select Meter Protocol	MTU Activation	MTU ID: XXXXX

Changing Meter Protocol

Scroll up / down using the arrows until the following screen is displayed:

Select Meter Protocol ->	Click <↵> (Enter), and the following screen is displayed:
Current Protocol Type X	Scroll up / down using the arrows and the following screen will be displayed, with X denoting current protocol type.
Change to Type X	To change meter protocol to other protocols. Use up/down arrows until desired protocol is displayed. Click < ⊠> (Enter).
Are you sure you Want to change?	Click <↵> (Enter) again to accept protocol change.

Meter Protocol	Meter/ Register
1	Elster Amco
2	Neptune ARB III / ARB IV / ARB V
3	Sensus , Hersey, Metron, and any other register programmed to Sensus open protocol
4	Neptune Auto / Pro/ E -Coder
5	Elster Smart -Meter
6	Badger
7	Elster Amco with Nicor Connector
8	Neptune Auto / Pro / E -Coder with Nicor Connector

Editing a Port

If the Qty reporting feature is already in use, the following screens will be displayed:

Qty Reporting 1250	To edit the Qty Reporting, Click < ↵ > (Enter) and then insert the required quantity.

Notice that if a port is inactive the following screen will be displayed instead of the "Deactivate Port 1".

Active Port 1?

Changing TX Cycle

The TX Cycle feature allows the user to define a time interval for the MTU transmission. TX Cycle will determine the number of cycles that the timer of the MTU will go through before it will transmit the data from the meter. (Please contact Elster to verify your system configuration).

Scroll up / down using the arrows until the following screen is displayed:

TX Cycle	Click <↵> (Enter) to view / change TX Cycle.
Current Value 6	Click <↵> (Enter) to change required TX Cycle.
Change to.	Enter the required TX Cycle.
Password?	Enter a four digit password to save changes (default password: 1234).

Turning MTU OFF

From the main screen, scroll up / down using the arrows until the following screen is displayed:

MTU Activation	Click <↵> (Enter).
Current Status Activated	Scroll Up/Down using the arrow keys. Screen will be displayed:
Deactivate?	Click <↵> (Enter) and the following screen will be displayed:
Are you sure you want to Deact. ?	Click <↵> (Enter) and the following screen will be displayed:
Current Status Deactivated	Click <↵> (Enter) and the following screen will be displayed:

Programming Termination

In order to save all parameters and terminate the communication with the MTU, click <shift> then click (5). [Do not HOLD the shift key while pressing the number.]

The screen will show:

Terminating Communication

8. Service and Support

Customer Service

The KP Electronics, Inc. Customer Service Team can be contacted during the following hours:

Monday through Friday – 8:00 a.m. to 5:00 p.m. EST, excluding holidays

You can reach the Customer Service Team by calling:

1-888-542-7460

Technical Support

KP Electronics, Inc. Technical Support Specialists are a highly skilled group of individuals who have been selected for their dedication to customer satisfaction. The Technical Support Team is on call during the following hours:

Monday through Friday – 8:00 a.m. to 5:00 p.m. EST, excluding holidays

You can reach the Technical Support Team by calling:

1-888-542-7460

Please note: If you are calling after hours, or a technical support person is not immediately available, you will be directed to a voice mailbox. Please leave your name and number along with your question or a brief description of the issue. A tech support person will return your call as quickly as possible.

Email: info@kpelectronics.com

9. Revision History

Issue Number	Changes	Release Date
1	Initial Release	