

Gas/Oil Dual – Firing Management

# Innovative Approach to Control and Monitor Commercial and Industrial Dual Fuel Equipment

# Temperature Controlled (TC) Rate Defined

- › The TC or Temperature Controlled Rate provides service to large commercial, industrial and multi-family sites that use natural gas as the primary fuel source down to 15 degrees F.
- › At 15 degrees F, TC rate customers are required to automatically switch to an alternate fuel, normally #2 oil.
- › Transferring these customers off the gas system at 15 degree F offsets the need to purchase or maintain capacity for that load.
- › TC Rate also enables National Grid to manage its capital expenditure for new capacity.
- › National Grid makes gas purchases for a design day for TC customers down to 15 degrees F and for firm Rate customers down to 0 degrees F.

# Selecting the Vendor

- › August, 2004 - Issue Request for Information (RFI) to 12 vendors.
- › September, 2004 - Issue Request for Proposal (RFP) Bid Specification for BETA project to qualifying vendors.
- › October, 2004 – Review Proposals and select four qualifying vendors.
- › November, 2004 - Each vendor installs five field units.
- › November 2004 thru Feb 2005 - Operational BETA testing period.
- › March, 2005 - Evaluate performance.
- › April, 2005 - Decision on long term program.
- › April, 2005 - Issue RFP Specification to three qualifying vendors for competitive bid of 5000 modules.
- › May 2005 - Review of Bid Proposals, M2M Communications selected.

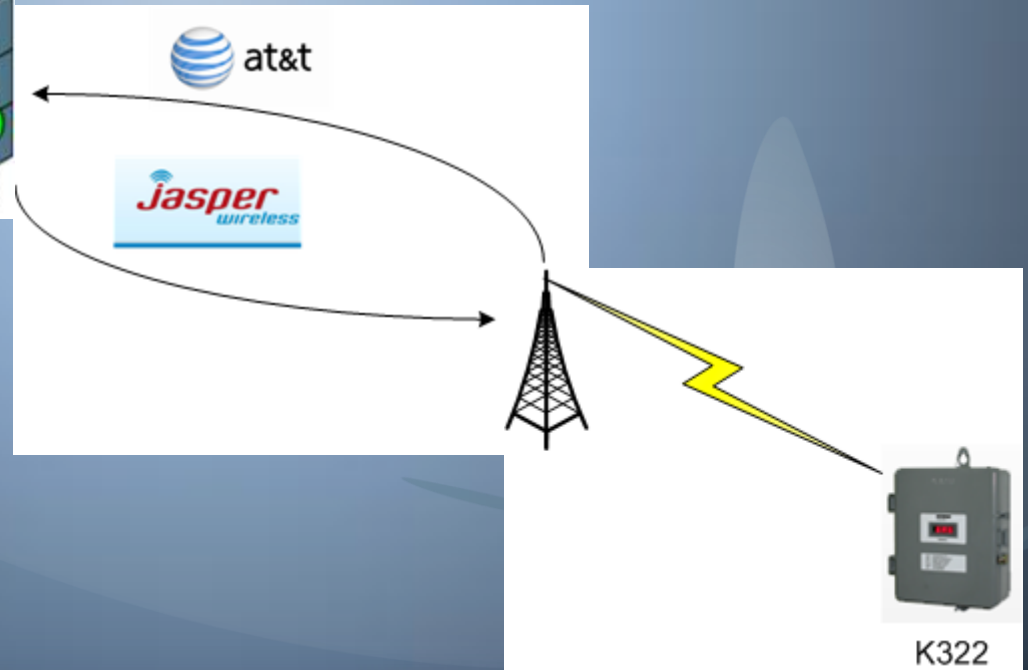
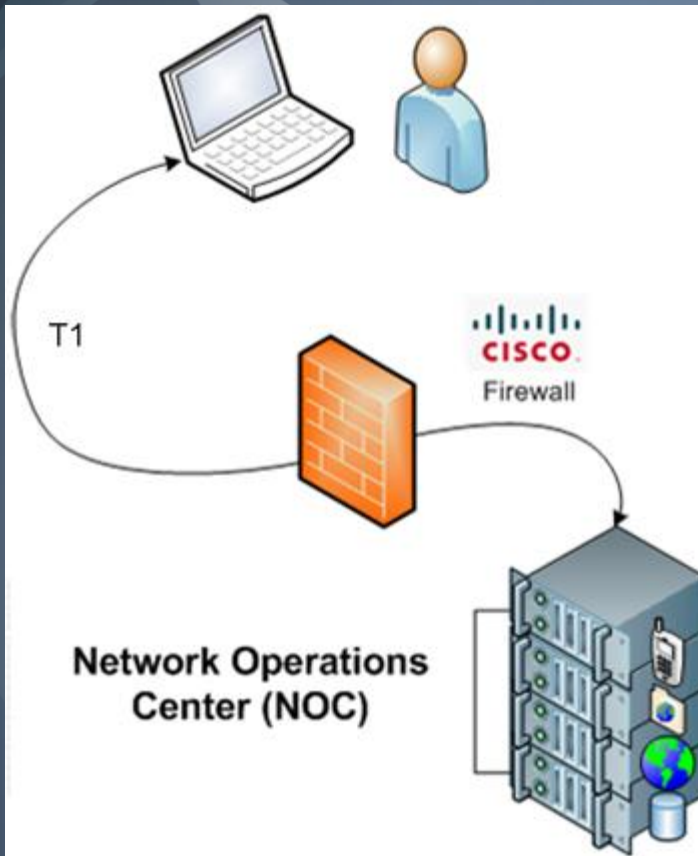
# Project Deployment

- › May 2005 - M2M Supplies Software Source Codes and Shop Drawings for Approval
- › June 2005 - Finalize Data Transfer Issues, Operational Matters and Rollout First Phase Web Page Views and Report Formatting
- › June 2005 - M2M Provides One Week of Installation Training to National Grid Technicians
- › July 2005 - First Shipment of Modules, Installation begins at 300 Selected Sites
- › July 2005 through March 2006 - Operational Testing Period to Evaluate Performance for Heating Season and Institute Customized Modifications
- › April 2006 - Review Results and Decide on Long Term Program
- › May 2006 - National Grid Commits to Long Term Purchasing Contract for Conversion of all TC Sites over a five year period.

# System Overview

- › Combined Fuel Selection/Automatic Meter Read wireless module with features and functionality to provide demand and temperature based fuel switching and capture of meter read data.
- › Efficient management of data and control functions for the total population of approximately 5000 sites.
- › Secure password protected web site to provide operator access to the servers and applications to provide enterprise-wide systematic and centralized availability of functions.
- › Real time fuel switching status and consumption data for better load side management of our gas portfolio as well as generate accurate bills
- › Reports for load studies, peak day estimation, violators, zero flow, gas purchases and the like from information obtained from the data warehouse.

# System Components



# Web Based Interface

- › Users can access the system via the internet over a Secure Socket Layer (SSL).
- › Manage user permissions.
- › Configure field devices.
- › View real time and historical data.
- › Communicate with the devices.
- › Run individual and group reports.

# Network Operations Center (NOC)

- › Servers located in a secure, climate controlled hosting facility.
- › Data is stored in a mirrored database.
- › Commands are sent to the devices.
- › Reports are received from the devices.
- › Connects to the cellular network via T-Mobile or AT&T.
- › Secure Communication via Virtual Private Network (VPN).
- › Notify contacts of field device status change.
- › Requests missing reports and verify data correctness.

# Field Device

- › Monitors boiler room and environmental conditions.
- › Listens for commands from the NOC.
- › Switch fuel sources on demand and at specified temperature changes.
- › Stores 30 days of consumption data.
- › Sends a consumption report each night to the NOC for calculating the meter read.
- › Battery back up with low power mode.

# Device List A

M2M Communications - Windows Internet Explorer

https://www.m2mcomm.com/m2mNet/deviceList.aspx

File Edit View Favorites Tools Help Links M2M Device Search install\_apps SQL 2005 .NET Framework Class Library

Main Menu > Device List Logout

Device Search | Group Commands | Usage Reports | Verify Reports

## Device List

Device Group: **Ungrouped Devices**

FSM/AMR Devices Views:  Main  Extended  Show All

| Name                           | Address ^           | Account No  | Device ID | Meter Reading | Fuel Type | Control Mode | Temperature | AC Power | Status | Alarms  | Last Report           |
|--------------------------------|---------------------|-------------|-----------|---------------|-----------|--------------|-------------|----------|--------|---|-----------------------|
| <a href="#">Demo Device</a>    | 100 Main st.        | 12345/12345 | 13637493  | n/a           | Gas       | Override     | 93°         | Outage   |        | Meter Unavailable   | 6/21/2008 12:46:27 PM |
| <a href="#">Steve's Desk</a>   | 12                  | 12133/56789 | 72018672  | n/a           | Gas       | Automatic    | Open        | Present  |        | Maintenance Message = Temperature sensor may be open, Meter Set Flag = Meter is Unset, Open Circuit Detection = Meter 1 may be open | 3/27/2008 6:48:45 PM  |
| <a href="#">test</a>           | 2266 E. CCommercial | 09876/54321 | 72018706  | n/a           | Oil       | Automatic    | -10°        | Present  |        | Meter Set Flag = Meter is Unset   | 10/30/2007 3:59:05 PM |
| <a href="#">1060 7201 8734</a> | n/a                 | n/a         | 00198480  | n/a           | Oil       | Automatic    | 1°          | Present  |        | Meter Set Flag = Meter is Unset   | 2/4/2008 11:30:52 AM  |
| <a href="#">1060 7201 9323</a> | n/a                 | n/a         | 00925146  | n/a           | Oil       | Automatic    | 1°          | Present  |        | Meter Set Flag = Meter is Unset   | 5/21/2008 12:26:23 AM |
| <a href="#">M2M Test</a>       | Test                | 12345/12345 | 72018722  | n/a           | Oil       | Automatic    | -10°        | Present  |        | Meter Set Flag = Meter is Unset   | 10/15/2007 5:47:46 PM |
| <a href="#">M2M Test</a>       | Test Bench          | 12345/12345 | 72018664  | n/a           | Gas       | Automatic    | Open        | Present  |        | Maintenance Message = Temperature sensor may be open, Meter Set Flag = Meter is Unset   | 5/12/2008 4:09:05 PM  |

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Quick reference for essential device data

# Status Summary

M2M Communications - Windows Internet Explorer

https://www.m2mcomm.com/m2mNet/status.aspx?unitID=72018730

File Edit View Favorites Tools Help Links M2M Device Search install\_apps SQL 2005

M2M Communications M2M Communic...

Main Menu > Device List > GPRS Test Caller Logout

Device History | Consumption Data | Commands | Device Setup | Usage Reports | Verify Reports

## Status Summary

Device Name: [GPRS Test Caller](#) Device ID: **72018730** Group: **GPRS Test Caller** Jump to Device:  
Model: **K322 GPRS** GPRS Test Caller - 1060 7201 8730

Address: **Test** Account Number: **12345/12345** Meter Number: **000123456**

| Description               | Status                     | Status Duration | Last Reported        |
|---------------------------|----------------------------|-----------------|----------------------|
| Meter Reading             | 81763 (100 Cu Ft)          | n/a             | n/a                  |
| AC Power                  | Present                    | 475 days        | 7/15/2008 5:35:02 PM |
| Fuel Type                 | Gas                        | 475 days        | 7/15/2008 5:35:02 PM |
| Local Control             | Automatic                  | 475 days        | 7/15/2008 5:35:02 PM |
| Temperature               | 24°                        | 16 days         | 7/15/2008 5:35:02 PM |
| Low Temperature Setpoint  | 50°                        | 289 days        | 6/19/2008 1:07:13 PM |
| High Temperature Setpoint | 46°                        | 289 days        | 6/19/2008 1:07:13 PM |
| Uncorrected Mode          | On                         | 289 days        | 7/15/2008 5:35:02 PM |
| Max Oil Time Limit        | 535 hours                  | 289 days        | 6/19/2008 1:07:13 PM |
| Meter Set Flag            | Meter is Set               | 1 minute        | 7/15/2008 5:45:17 PM |
| Meter Circuit             | Neither meter is monitored | 259 days        | 7/15/2008 5:35:02 PM |
| Signal Strength           | 17 (Good)                  | 6 days          | 7/15/2008 5:35:02 PM |
| Alarms                    | none                       | n/a             | n/a                  |
| Firmware Version          | 2.1                        | 1 minute        | 7/15/2008 5:45:17 PM |
| Last Transmission         | Meter Remotely Reset       | 1 minute        | 7/15/2008 5:45:17 PM |

| Extended Data Points       |     |           |      |
|----------------------------|-----|-----------|------|
| Is Pilot Gas on Firm Meter | YES | Auto/Semi | Auto |
| Demand Fuel Switching      | ON  | Gas Load  |      |
| Gas Main Pressure          | HP  |           |      |

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# Consumption / Temperature Data

M2M Communications - Windows Internet Explorer

https://www.m2mcomm.com/m2mNet/ConsumptionData.aspx?unitID=13638087

File Edit View Favorites Tools Help Links M2M Device Search install\_apps SQL 2005 .NET Framework Class Library

M2M Wirele... Device List ... ASP.NET T... M2M Co... X

|           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |        |        |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------|--------|
| 1/26/2008 | 14<br>26° | 11<br>26° | 13<br>27° | 13<br>27° | 13<br>28° | 13<br>29° | 13<br>28° | 14<br>29° | 14<br>32° | 14<br>34° | 14<br>37° | 13<br>38° | 13<br>38° | 14<br>39° | 14<br>40° | 13<br>38° | 13<br>37° | 13<br>38° | 13<br>38° | 13<br>37° | 12<br>38° | 11<br>38° | 14<br>37° | 331       | 623052 |        |
| 1/25/2008 | 12<br>23° | 13<br>23° | 15<br>22° | 14<br>22° | 13<br>22° | 14<br>22° | 15<br>22° | 14<br>24° | 17<br>26° | 14<br>27° | 15<br>29° | 13<br>30° | 14<br>31° | 15<br>32° | 14<br>33° | 13<br>31° | 13<br>30° | 15<br>30° | 14<br>29° | 13<br>28° | 14<br>28° | 15<br>27° | 14<br>27° | 337       | 622721 |        |
| 1/24/2008 | 12<br>32° | 13<br>31° | 14<br>31° | 11<br>30° | 15<br>30° | 11<br>32° | 16<br>33° | 14<br>34° | 13<br>35° | 16<br>37° | 11<br>40° | 16<br>39° | 13<br>38° | 13<br>39° | 15<br>37° | 13<br>35° | 13<br>34° | 15<br>33° | 11<br>33° | 15<br>31° | 13<br>29° | 15<br>29° | 13<br>27° | 13<br>25° | 326    | 622384 |
| 1/23/2008 | 14<br>40° | 11<br>40° | 14<br>40° | 13<br>39° | 14<br>38° | 14<br>36° | 13<br>36° | 14<br>37° | 14<br>37° | 15<br>37° | 12<br>39° | 14<br>40° | 13<br>40° | 13<br>40° | 13<br>39° | 12<br>38° | 12<br>37° | 14<br>36° | 14<br>35° | 12<br>34° | 15<br>33° | 12<br>32° | 13<br>31° | 319       | 622058 |        |
| 1/22/2008 | 12<br>26° | 15<br>28° | 14<br>27° | 13<br>27° | 13<br>28° | 17<br>29° | 15<br>30° | 14<br>31° | 15<br>33° | 13<br>35° | 17<br>35° | 12<br>38° | 15<br>36° | 14<br>41° | 13<br>42° | 15<br>41° | 14<br>41° | 13<br>40° | 15<br>39° | 11<br>39° | 15<br>39° | 14<br>39° | 12<br>40° | 336       | 621739 |        |
| 1/21/2008 | 16<br>16° | 14<br>16° | 12<br>15° | 1<br>15°  | 0<br>15°  | 0<br>15°  | 0<br>14°  | 0<br>15°  | 0<br>16°  | 0<br>18°  | 0<br>19°  | 13<br>21° | 15<br>23° | 16<br>24° | 13<br>25° | 14<br>25° | 15<br>25° | 14<br>25° | 15<br>25° | 14<br>25° | 14<br>25° | 15<br>25° | 15<br>25° | 14<br>25° | 230    | 621403 |
| 1/20/2008 | 11<br>36° | 14<br>35° | 12<br>34° | 13<br>31° | 13<br>29° | 12<br>28° | 14<br>26° | 14<br>24° | 14<br>23° | 14<br>23° | 15<br>23° | 16<br>24° | 16<br>24° | 13<br>23° | 14<br>23° | 16<br>22° | 15<br>21° | 13<br>20° | 14<br>19° | 16<br>18° | 14<br>18° | 14<br>17° | 12<br>17° | 334       | 621173 |        |
| 1/19/2008 | 12<br>37° | 12<br>37° | 11<br>37° | 12<br>36° | 13<br>36° | 12<br>36° | 13<br>35° | 14<br>36° | 14<br>37° | 12<br>37° | 14<br>39° | 13<br>40° | 14<br>41° | 14<br>39° | 13<br>38° | 13<br>38° | 12<br>39° | 13<br>39° | 13<br>39° | 14<br>38° | 13<br>38° | 13<br>37° | 12<br>37° | 309       | 620839 |        |
| 1/18/2008 | 13<br>44° | 12<br>44° | 11<br>43° | 11<br>43° | 13<br>44° | 13<br>42° | 14<br>42° | 14<br>41° | 14<br>42° | 12<br>42° | 12<br>45° | 14<br>48° | 11<br>47° | 14<br>47° | 12<br>47° | 12<br>46° | 14<br>44° | 12<br>43° | 12<br>43° | 13<br>42° | 13<br>40° | 12<br>39° | 13<br>38° | 302       | 620530 |        |
| 1/17/2008 | 14<br>36° | 12<br>36° | 12<br>36° | 14<br>37° | 11<br>37° | 14<br>37° | 15<br>36° | 12<br>37° | 15<br>38° | 13<br>40° | 13<br>43° | 13<br>43° | 12<br>45° | 12<br>45° | 13<br>46° | 14<br>45° | 13<br>44° | 13<br>42° | 13<br>40° | 13<br>39° | 13<br>41° | 11<br>42° | 13<br>43° | 310       | 620228 |        |
| 1/16/2008 | 14<br>32° | 12<br>30° | 11<br>29° | 14<br>29° | 14<br>29° | 13<br>30° | 13<br>30° | 15<br>31° | 14<br>33° | 14<br>34° | 13<br>35° | 13<br>37° | 14<br>38° | 13<br>39° | 12<br>39° | 15<br>37° | 12<br>36° | 12<br>36° | 14<br>35° | 12<br>36° | 13<br>35° | 13<br>35° | 14<br>36° | 314       | 619918 |        |
| 1/15/2008 | 12<br>38° | 11<br>38° | 14<br>37° | 11<br>37° | 12<br>37° | 14<br>36° | 14<br>36° | 12<br>36° | 14<br>36° | 15<br>37° | 12<br>38° | 12<br>39° | 14<br>40° | 12<br>40° | 11<br>39° | 14<br>38° | 14<br>38° | 13<br>37° | 12<br>36° | 14<br>36° | 14<br>35° | 12<br>35° | 14<br>34° | 309       | 619604 |        |
| 1/14/2008 | 12<br>38° | 12<br>36° | 12<br>35° | 13<br>37° | 13<br>37° | 12<br>37° | 16<br>38° | 11<br>38° | 14<br>39° | 12<br>42° | 13<br>43° | 13<br>41° | 11<br>43° | 15<br>42° | 11<br>43° | 14<br>44° | 12<br>45° | 14<br>45° | 11<br>44° | 14<br>43° | 12<br>39° | 14<br>38° | 12<br>37° | 304       | 619295 |        |
| 1/13/2008 | 11<br>47° | 11<br>46° | 12<br>45° | 11<br>45° | 12<br>45° | 12<br>43° | 12<br>42° | 13<br>42° | 12<br>44° | 15<br>45° | 11<br>50° | 14<br>51° | 14<br>52° | 12<br>52° | 13<br>51° | 12<br>49° | 12<br>51° | 13<br>50° | 12<br>50° | 12<br>49° | 13<br>46° | 14<br>39° | 10<br>41° | 296       | 618991 |        |
| 1/12/2008 | 2<br>50°  | 0<br>50°  | 2<br>48°  | 0<br>47°  | 25<br>47° | 13<br>47° | 11<br>46° | 14<br>46° | 14<br>47° | 12<br>48° | 13<br>50° | 15<br>50° | 12<br>50° | 12<br>50° | 13<br>50° | 14<br>49° | 11<br>47° | 12<br>46° | 12<br>46° | 13<br>46° | 12<br>47° | 12<br>46° | 12<br>47° | 269       | 618695 |        |

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Hourly Usage with Temperature

# History

|                       |  |
|-----------------------|--|
|                       | 1/25/2008, Meter Circuit = Neither meter is monitored  |
| 1/25/2008 12:27:19 AM | <b>Device Report:</b> Call Reason = Consumption Report, Model = K322 GPRS, Signal Strength = 25 (Excellent), AC Power = Present, Fuel Type = Gas, Device DateTime = 1/25/2008 12:27:07 AM, Local Control = Automatic, Temperature = 25°, Uncorrected Mode = Off, Pulse Count = 88188, Report Date = 1/24/2008, Meter Circuit = Neither meter is monitored                                  |
| 1/24/2008 12:26:43 AM | <b>Device Report:</b> Call Reason = Consumption Report, Model = K322 GPRS, Signal Strength = 25 (Excellent), AC Power = Present, Fuel Type = Gas, Device DateTime = 1/24/2008 12:26:33 AM, Local Control = Automatic, Temperature = 31°, Uncorrected Mode = Off, Pulse Count = 87862, Report Date = 1/23/2008, Meter Circuit = Neither meter is monitored                                  |
| 1/23/2008 12:27:07 AM | <b>Device Report:</b> Call Reason = Consumption Report, Model = K322 GPRS, Signal Strength = 25 (Excellent), AC Power = Present, Fuel Type = Gas, Device DateTime = 1/23/2008 12:27:00 AM, Local Control = Automatic, Temperature = 41°, Uncorrected Mode = Off, Pulse Count = 87543, Report Date = 1/22/2008, Meter Circuit = Neither meter is monitored                                  |
| 1/22/2008 12:26:32 AM | <b>Device Report:</b> Call Reason = Consumption Report, Model = K322 GPRS, Signal Strength = 25 (Excellent), AC Power = Present, Fuel Type = Gas, Device DateTime = 1/22/2008 12:26:26 AM, Local Control = Automatic, Temperature = 25°, Uncorrected Mode = Off, Pulse Count = 87207, Report Date = 1/21/2008, Meter Circuit = Neither meter is monitored                                  |
| 1/21/2008 11:09:19 AM | <b>Device Report:</b> Call Reason = Local Control Action, Model = K322 GPRS, Signal Strength = 25 (Excellent), AC Power = Present, Fuel Type = Gas, Device DateTime = 1/21/2008 11:09:16 AM, Local Control = Automatic, Temperature = 20°  |
| 1/21/2008 3:01:36 AM  | <b>Device Report:</b> Call Reason = Local Control Action, Model = K322 GPRS, Signal Strength = 25 (Excellent), AC Power = Present, Fuel Type = Oil, Device DateTime = 1/21/2008 3:01:32 AM, Local Control = Automatic, Temperature = 15°   |
| 1/21/2008 12:26:56 AM | <b>Device Report:</b> Call Reason = Consumption Report, Model = K322 GPRS, Signal Strength = 25 (Excellent), AC Power = Present, Fuel Type = Gas, Device DateTime = 1/21/2008 12:26:53 AM, Local Control = Automatic, Temperature = 16°, Uncorrected Mode = Off, Pulse Count = 86977, Report Date = 1/20/2008, Meter Circuit = Neither meter is monitored                                  |
| 1/20/2008 1:27:15 AM  | <b>Device Report:</b> Call Reason = Consumption Report, Model = K322 GPRS, Signal Strength = 25 (Excellent), AC Power = Present, Fuel Type = Gas, Device DateTime = 1/20/2008 1:27:14 AM, Local Control = Automatic, Temperature = 36°, Uncorrected Mode = Off, Maintenance Message = Comm Retry, Pulse Count = 86643, Report Date = 1/19/2008, Meter Circuit = Neither meter is monitored |
| 1/19/2008 12:31:22 AM | <b>Atomic Time Sync:</b> Device Time Remotely Synchronized   |
| 1/19/2008 12:29:45 AM | <b>Device Report:</b> Call Reason = Consumption Report, Model = K322 GPRS, Signal Strength = 24 (Excellent), AC Power = Present, Fuel Type = Gas, Device DateTime = 1/19/2008 12:26:44 AM, Local Control = Automatic, Temperature = 37°, Uncorrected Mode = Off, Pulse Count = 86334, Report Date = 1/18/2008, Meter Circuit = Neither meter is monitored                                  |
| 1/18/2008 12:30:10 AM | <b>Device Report:</b> Call Reason = Consumption Report, Model = K322 GPRS, Signal Strength = 24 (Excellent), AC Power = Present, Fuel Type = Gas, Device DateTime = 1/18/2008 12:27:11 AM, Local Control = Automatic, Temperature = 44°, Uncorrected Mode = Off, Pulse Count = 86032, Report Date = 1/17/2008, Meter Circuit = Neither meter is monitored                                  |
| 1/17/2008 12:29:35 AM | <b>Device Report:</b> Call Reason = Consumption Report, Model = K322 GPRS, Signal Strength = 24 (Excellent), AC Power = Present, Fuel Type = Gas, Device DateTime = 1/17/2008 12:26:37 AM, Local Control = Automatic, Temperature = 37°, Uncorrected Mode = Off, Pulse Count = 85722, Report Date = 1/16/2008, Meter Circuit = Neither meter is monitored                                  |
| 1/16/2008 12:29:58 AM | <b>Device Report:</b> Call Reason = Consumption Report, Model = K322 GPRS, Signal Strength = 24 (Excellent), AC Power = Present, Fuel Type = Gas, Device DateTime = 1/16/2008 12:27:04 AM, Local Control = Automatic, Temperature = 32°, Uncorrected Mode = Off, Pulse Count = 85408, Report Date = 1/15/2008, Meter Circuit = Neither meter is monitored                                  |

# Send Commands

M2M Communications - Windows Internet Explorer

https://www.m2mcomm.com/m2mNet/sendCommands.aspx?u

File Edit View Favorites Tools Help Links M2M Device Search install\_apps SQL 2005

M2M Communications

### Select command(s)

**Request Reports**

Request Status Report

**Control Actions**

Set Fuel Type Automatic  Auxiliary Output Off

Set Circuit Detect Gas

Set Monitor Neither meter  Set Uncorrected Meter 2 Off

**Advanced Options**

Low Temperature Setpoint 15  High Temperature Setpoint 20

Request Unset the Meter

**Super Advanced Options - M2M Use Only**

Request Past Consumption 1  Upgrade Firmware Version 2.1

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# Notifications

M2M Communications - Mozilla Firefox

File Edit View History Bookmarks Tools Help

https://www.m2mcomm.com/m2mNet/eventManagement.aspx?u

Most Visited install\_apps.lnk M2M SQL 2000 Google News

M2M Communications

Main Menu > Device Setup > Event Notifications Logout

## Event Management

Device Name: [Test Unit](#) Device ID: **72018714** Group: **2.1 Test** Jump to Device:  
Model: **K322 GPRS** Test Unit - 1060 7201 8714

Address: **Boise** Account Number: **12345/12345** Meter Number: **000123456**

| Monitored Data Point | Enable/Disable Reporting from the Field Device to the Website | Enable/Disable Notifications from the Website to a Contact List |
|----------------------|---|---|
| AC Power             | <input checked="" type="checkbox"/>                           | <input type="checkbox"/> <a href="#">edit</a>                   |
| Fuel Type            | <input checked="" type="checkbox"/>                           | <input type="checkbox"/> <a href="#">edit</a>                   |
|                      |   | <input type="checkbox"/> Enable All                             |

© M2M Communications [Questions or Comments](#)

Done www.m2mcomm.com

Trigger a notification when an event occurs at the remote location

# Usage Reports

M2M Communications - Windows Internet Explorer

https://www.m2mcomm.com/m2mNet/onDemandReport.aspx?unitID=0

File Edit View Favorites Tools Help Links M2M Device Search install\_apps SQL 2005 .NET Framework Class Library

Main Menu > Device List > Usage Reports Logout

## Total Usage Report

Jump to Report: Total Usage Report

Group Name: 2.1 Test Jump to Group: 2.1 Test

From: Tuesday, July 15, 2008 0:00

To: Tuesday, July 15, 2008 23:00

Refresh

Export to CSV

| Device Name | Address     | Account #    | City  | Device ID      | Total Usage (CF) |
|-------------|-------------|--------------|-------|----------------|------------------|
| Test Unit   | Boise       | 12345/12345  | Boise | 1060 7201 8714 | 83318            |
| M2M Test    | In the back | 123123434124 | boise | 1060 7201 8656 | 83714            |
| Jasper #2   | In the back | 03531/44640  | boies | 1060 7201 8733 | 718944           |
| Jasper      | Somewhere   | 12345/13235  | boise | 1060 7201 8731 | 9774             |

\* Data is missing  
\*\* Meter was reset/unset during the selected time frame  
r#W Represents Raw Pulses

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# Verification Reports

The screenshot shows a web browser window titled "Keyspan Energy - Windows Internet Explorer". The address bar displays the URL: <https://www.m2mcomm.com/m2mNet/VerificationReports.aspx?unitID=72018714>. The browser's menu bar includes File, Edit, View, Favorites, Tools, and Help. The toolbar contains various icons for navigation and utility. The page content is titled "Max Gas Load" and includes a breadcrumb trail: "Main Menu > Device List > Test Unit > Usage Reports". A "Logout" link is visible in the top right corner.

Device Name: Test Unit DeviceID: **72018714** Model: **K322 GPRS** Jump to Device: Test Unit

From: Tuesday, July 01, 2008 Jump to Report: Max Gas Load

To: Tuesday, July 15, 2008

| Location              | Device Id | Report Date | Load | 0   | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  |
|-----------------------|-----------|-------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <a href="#">Boise</a> | 72018714  | 07-15-2008  | 361  | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 369 | 351 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 |
| <a href="#">Boise</a> | 72018714  | 07-14-2008  | 361  | 378 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 |
| <a href="#">Boise</a> | 72018714  | 07-02-2008  | 361  | 359 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 362 | 358 | 361 | 359 | 361 | 359 | 360 | 360 | 360 | 360 | 360 | 360 | 361 | 359 |

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mailto:   100%

Reports to find devices that need attention

# System Reliability

- › Commands sent to the field devices are 97% successful.
- › Usage reports sent from the devices are 99% successful.
- › 99% accurate and reliable and meter read rate.
- › Automated export to National Grid billing system.