



minova

technology electronics

Telemetry , Remote Monitoring and Control Products & Services

Server Room Monitoring
Depot & Facility Condition Monitoring
Cold Storage, Cold Chain Tracking
Metering & Pre-paid Systems Management

Telemetry Basics

Telemetry is the acronym for remote measurement. It is basically a monitoring system for specific conditions from a facility or machinery. System also informs the supervisor staff when an unexpected situation occurs. It uses SMS and e-mails for alarm conditions and cloud technology is used for data storage and reporting.

Telemetry system records every measurement and event in detail. Energy consumption, temperature, humidity, trespassing, water flood are some examples of conditions to be monitored. Also, remote control is available such as locking the entrance, stopping a pump, closing a valve etc. All the monitoring and controls can be done via a web browser, smart phone or a tablet.

Why to use a telemetry system?

The answer for this natural question is among the value of the facility to be monitored. When a high importance data storage server, an expensive machinery, a medicine cabinet or a rare artwork is ruined by a leaking faucet from upper floor, importance of a monitoring system would be understood with the regret of not having one installed before.

Not only for the emergency situations, telemetry system helps to monitor the productivity of a facility or power dissipation of a field machinery. Once the data is being collected, it can be used to analyse and optimise the plant at almost no cost.

All the monitored data is stored in cloud servers and can be recalled anytime. Data is visualised and converted into reports which are easily printed or downloaded as excel spreadsheets.

Telemetry is your gate to the 'Internet of Things' world. With sensors and telemetry terminals, telemetry lets you to make almost any thing 'connected'.

How it Works?

Monitoring & Reporting



Web based monitoring reporting & control



Tablet monitoring reporting & control



SmartPhones for monitoring and basic controls. SMS alarms

Internet Cloud Servers and Data Storage

Data is stored in cloud server. System is accessible from anywhere with your password.

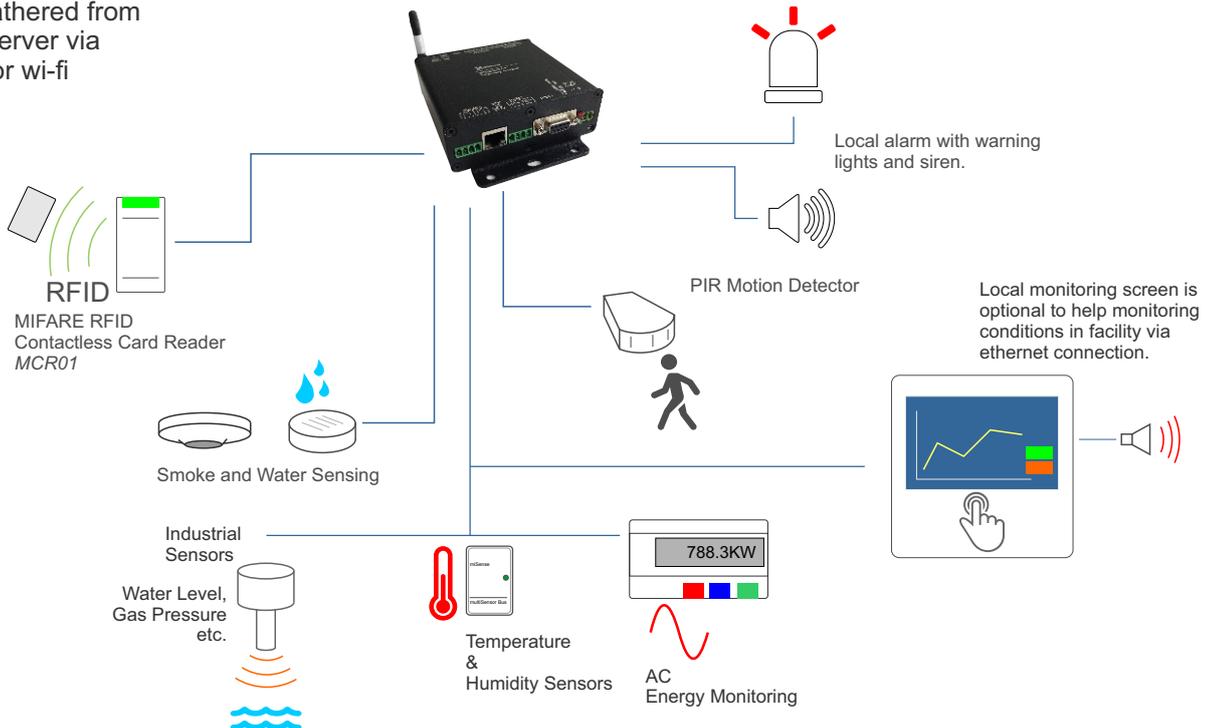


INTERNET Cloud Server

Facility or System Being Monitored



Telemetry main terminal conveys data gathered from sensors to the server via ethernet, GSM or wi-fi connection.

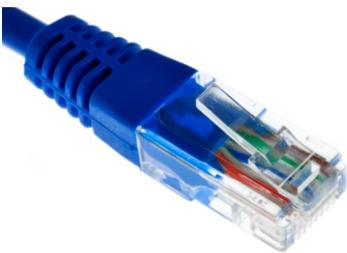


Communication

Telemetry system uses Ethernet/Wi-Fi, GPRS or SMS methods. As sensor data and all the monitoring information continuously transferred to the cloud server, SMS and E-mail messages for alarms and notifications are sent directly to the related supervisor staff.

Telemetry terminal utilises the large bandwidth ethernet/ADSL/Wi-Fi connection, when neither of the above channels available, system switches to the GSM/GPRS connection and keeps the device online. When the facility is on rural area or ethernet connection is not available, telemetry system would use GPRS connection as the primary method with a proper data plan.

There may be a case where all available communication channels may somehow unavailable. Device carries on all the monitoring and control tasks and logs every data and event to its 4GB memory. Offline data will be send to the cloud server with timestamps when any of the connection methods are re-established. The supervisor staff from facility will be informed on the loss of connection to take any physical or administrative action to overcome the communication failure.



Energy Monitoring

A unique advantage of the telemetry is to inform about power brown-outs and back-up power failures. Device can monitor the state of both sources and sends SMS & E-mail messages on any failure.

It is also possible to monitor the power consumption of the facility. Single and three-phase systems are monitored and power profiles are evaluated. Active, reactive, power factor and demand trends are some of the useful parameters to optimise the power usage of the facility or machinery.

Investigations on power related incidences or phase failures requires that kind of logging which exactly points out the responsible party and the time line for the failure.

Telemetry system has its own batteries to keep the unit alive in a total power failure. System also informs its battery level and switches to a power save mode to keep reporting as long as possible.

Monitoring & Reporting

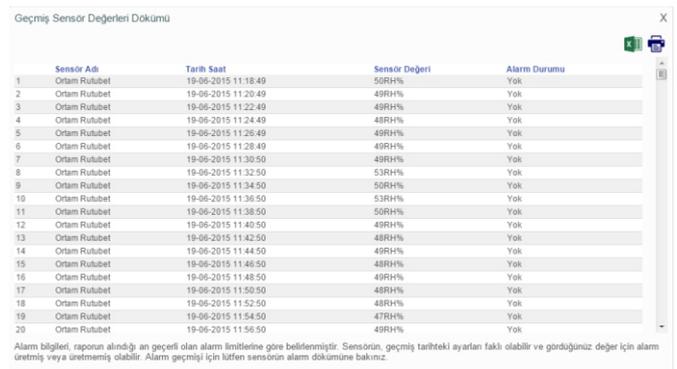
The cloud based system has a web server offering a virtual panel for indicators, alarms and reports. Any changes or settings can be done on the fly using any up-to-date web browser available.



Sensor history can be evaluated, plotted and reported between any date-time interval.

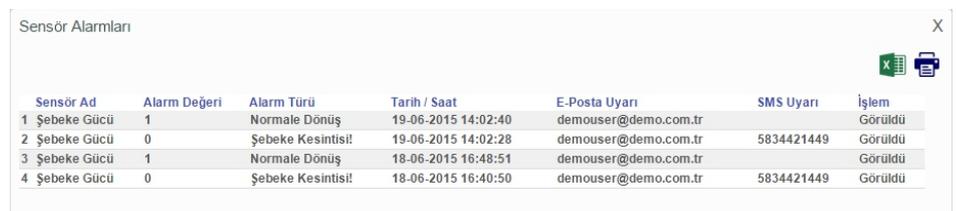


Along with the graphical depiction, sensor measurements can be reported as log charts which can be printed or downloaded as excel spreadsheets.



| Sensör Adı | Tarih Saat | Sensör Değeri | Alarm Durumu |
|------------------|---------------------|---------------|--------------|
| 1 Ortam Rutubet | 19-06-2015 11:18:49 | 50RH% | Yok |
| 2 Ortam Rutubet | 19-06-2015 11:20:49 | 49RH% | Yok |
| 3 Ortam Rutubet | 19-06-2015 11:22:49 | 49RH% | Yok |
| 4 Ortam Rutubet | 19-06-2015 11:24:49 | 48RH% | Yok |
| 5 Ortam Rutubet | 19-06-2015 11:26:49 | 48RH% | Yok |
| 6 Ortam Rutubet | 19-06-2015 11:28:49 | 49RH% | Yok |
| 7 Ortam Rutubet | 19-06-2015 11:30:50 | 49RH% | Yok |
| 8 Ortam Rutubet | 19-06-2015 11:32:50 | 53RH% | Yok |
| 9 Ortam Rutubet | 19-06-2015 11:34:50 | 50RH% | Yok |
| 10 Ortam Rutubet | 19-06-2015 11:36:50 | 53RH% | Yok |
| 11 Ortam Rutubet | 19-06-2015 11:38:50 | 50RH% | Yok |
| 12 Ortam Rutubet | 19-06-2015 11:40:50 | 49RH% | Yok |
| 13 Ortam Rutubet | 19-06-2015 11:42:50 | 48RH% | Yok |
| 14 Ortam Rutubet | 19-06-2015 11:44:50 | 49RH% | Yok |
| 15 Ortam Rutubet | 19-06-2015 11:46:50 | 48RH% | Yok |
| 16 Ortam Rutubet | 19-06-2015 11:48:50 | 49RH% | Yok |
| 17 Ortam Rutubet | 19-06-2015 11:50:50 | 48RH% | Yok |
| 18 Ortam Rutubet | 19-06-2015 11:52:50 | 48RH% | Yok |
| 19 Ortam Rutubet | 19-06-2015 11:54:50 | 47RH% | Yok |
| 20 Ortam Rutubet | 19-06-2015 11:56:50 | 49RH% | Yok |

Alarms and event logs can be reported and delivered SMS & E-mail notifications can be tracked. All the reports can be printed and downloaded as excel spreadsheets.



| Sensör Ad | Alarm Değeri | Alarm Türü | Tarih / Saat | E-Posta Uyarı | SMS Uyarı | İşlem |
|---------------|--------------|-------------------|---------------------|----------------------|------------|---------|
| 1 Şebeke Gücü | 1 | Normale Dönüş | 19-06-2015 14:02:40 | demouser@demo.com.tr | | Görüldü |
| 2 Şebeke Gücü | 0 | Şebeke Kesintisi! | 19-06-2015 14:02:28 | demouser@demo.com.tr | 5834421449 | Görüldü |
| 3 Şebeke Gücü | 1 | Normale Dönüş | 18-06-2015 16:48:51 | demouser@demo.com.tr | | Görüldü |
| 4 Şebeke Gücü | 0 | Şebeke Kesintisi! | 18-06-2015 16:40:50 | demouser@demo.com.tr | 5834421449 | Görüldü |

Configuration

A facility such as a server room or a depot can be monitored for temperature, smoke, water flood, authorised entry, intrusion, power failure etc.

Every single sensor has upper and lower limits for alarm generation. Facility admin will be in charge of setting the proper limits.

If a contactless card based access control system is involved, any access to facility or room is logged for further investigations. Door locks can be controlled by telemetry base terminal with black & white lists of cards.

In case of an alarm, local workers or security guards can be informed by simply connecting a siren and warning light to the terminal.



Sample Configuration

- Telemetry Base Unit, GSM+Ethernet (miTrack-GT1)
- Wi-Fi Bridge (mtp-702)
- Temperature & Humidity Sensor (miSense TH1)
- Smoke / Fire Detector (DM326)
- Water Flood Sensor (miSense-WD1)
- Motion Detector (miSense-SD1)
- Power Fail Detection (internal)
- Power Consumption Monitoring
- Access Controller and Door Locks (MCR-ATS 01)

Optional Hardware,

- LCD Local Monitoring Screen (Touch) (MCR08L-TLE)
- Siren (Local Alarm)
- IP Camera Monitoring

Configuration Guide

- Considering the available communication channels, ethernet, Wi-Fi or sole GPRS based system should be chosen.
- A number sensors can be connected over a single multisensor bus cable. Cable length may cover entire facility which lets the single terminal may hold multiple rooms.

Hardware

| Prod.Code | Details | Connection Options |
|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| MCR02L-TL-E | <ul style="list-style-type: none"> - Ethernet Connection - Sensor Network with multiSensor Bus, 100 mt cable length for 8 sensors - Offline Log Memory (1 Mbyte) - Buzzer - 128x64 MonoChrome LCD | Ethernet |
| LCD, Ethernet Telemetry Terminal, small scale cabinet telemetry | | |
| MCR04L-TL-E | <ul style="list-style-type: none"> - Ethernet Connection - Sensor Network with multiSensor Bus, 100 mt cable length for 8 sensors - Offline Log Memory (1 Mbyte) - Buzzer - 128x64 MonoChrome LCD - Hidden cable door for panel mounting | Ethernet |
| LCD, Ethernet Telemetry Terminal, small scale cabinet telemetry | | |
| MCR08L-TL-E | <ul style="list-style-type: none"> - Ethernet Connection - Sensor Network with multiSensor Bus, 100 mt cable length for 16 sensors - 4GB SD Memory - Real Audio - 4.3" TFT Color Screen - Touch Screen User Interface | Ethernet |
| TFT Color LCD Touchscreen Ethernet Telemetry Terminal, Advanced Telemetry Projects | | |
| miTRACK-GT100 | <ul style="list-style-type: none"> - Ethernet Connection - Sensor Network Connection over multiSensor Bus, 100 mt cable length for 24 sensors - 4GB SD Memory - Buzzer - 6 Digital Inputs + 6 Digital Outputs - 2 Relay Outputs - RS485 Port - RS232 Port | Ethernet + GSM-GPRS |
| Ethernet and GPRS Advanced Telemetry Terminal | | |
| miTRACK-GT101 | <ul style="list-style-type: none"> - Ethernet Connection - Sensor Network Connection over multiSensor Bus, 100 mt cable length for 24 sensors - 4GB SD Memory - Buzzer - 6 Digital Inputs + 6 Digital Outputs - 2 Relay Outputs - RS485 Port - RS232 Port | Ethernet |
| Advanced Ethernet Telemetry Terminal | | |
| miTRACK-GT102 | <ul style="list-style-type: none"> - GPRS Modem Connection - Sensor Network Connection over multiSensor Bus, 100 mt cable length for 24 sensors - 4GB SD Hafiza - Buzzer - 6 Digital Inputs + 6 Digital Outputs - 2 Relay Outputs - RS485 Port - RS232 Port | GSM-GPRS |
| Advanced GPRS Telemetry Terminal | | |

Services

| Prod. Code | Details | Options |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Server Monitoring and Reporting Service 1.Option | Only for Ethernet Connected Devices Server Hosting, Cloud Storage, SMS & E-mail Alarm Services | Unlimited Users, Web Reporting, Mobile Interface, 50 SMS Alarms per Month |
| Server Monitoring and Reporting Service 2.Option | For GSM and/or Ethernet Connected Devices Server Hosting, Cloud Storage, SMS & E-mail Alarm Services | Unlimited Users, Web Reporting, Mobile Interface, 50 SMS Alarms per Month |
| Additional SMS Pack | 50 More SMS per Month | In addition to standart 50 SMS, 50 More messages for alarms and notifications. |

Sensors

| Prod. Code | Details | Options |
|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| miSense-T1 Temperature Sensor multiSensor Bus Digital Output | - -40 +125 C° mesuring range - RS485 communication interface - Functional situation LED | Multi Sensor BUS |
| miSense-TH1 Temperature and Moisture Sensor multiSensör Bus Digital Output | - -40 +125 C° mesuring range - Factory Calibrated - %0 - %95 moisture measurement - RS485 communication interface - Functional situation LED | Multi Sensor BUS |
| miSense-SD1 Fire Detector | Fire Detector | Relay Output |
| miSense-WD1 Flood Sensor | Liquid Contact Sensitivity | Relay Output |

Network Bridges

| Prod. Code | Details | Options |
|------------|----------------------|----------------------------------------|
| Mtp-702 | Ethernet-Wifi Bridge | 150 MBit / Rechargable Battery Options |



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