

# FM GUARD

FACILITY MANAGEMENT CONTROLLER



## INTRODUCTION

Managing and constantly checking your facilities can be tedious, making sure all your crucial equipment are working properly and no problem may arise anytime. Thus, a simple unnoticed problem will cause inconvenience and might even affect the whole operation. However, with a reliable monitoring system, losses can be minimized and preventive actions can be taken.

**FM Guard** is designed to solve your problem, a smart monitoring controller that provides a 24/7 monitoring system which sends an update through SMS or emails, anytime and anywhere.

## SAMPLE APPLICATION

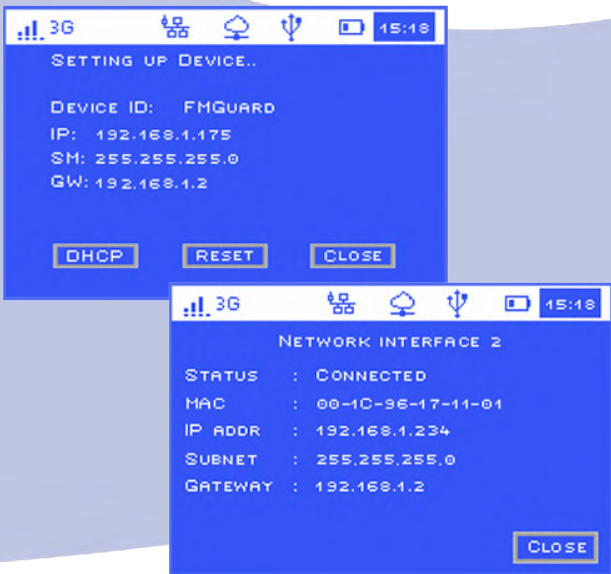


## FEATURES

- ✓ Has a 240 x 160 graphical display with a touchscreen that displays the current status of the I/Os.
- ✓ Embedded with firewall
- ✓ Penta band worldwide UMTS/HSPA engine
- ✓ With on board 2Ah Li-Ion battery and state of the art intelligent charging
- ✓ Alert notification via SMS and email
- ✓ With auto update function for firmware and system updates
- ✓ Remote ON/OFF via logic expression and SMS command
- ✓ With up to 500 event logs, First IN First OUT
- ✓ Supports data pushing to database
- ✓ With user-friendly interface accessible using any web browser
- ✓ I/Os are expandable using PICOBOX DAQ
- ✓ Supports SD card for data logging

# Efficiently monitor your facilities through SMS/Text or email. Fast, Easy and Reliable

Picobox FMGuard is designed to provide alert status in the most convenient way-through SMS and email. In just 2-3 seconds you will be able to receive an alarm updates when something happened to your facilities and therefore preventive action can be taken care of immediately. The facilities manager can now easily monitor the status of each device and equipment in real-time and remotely.

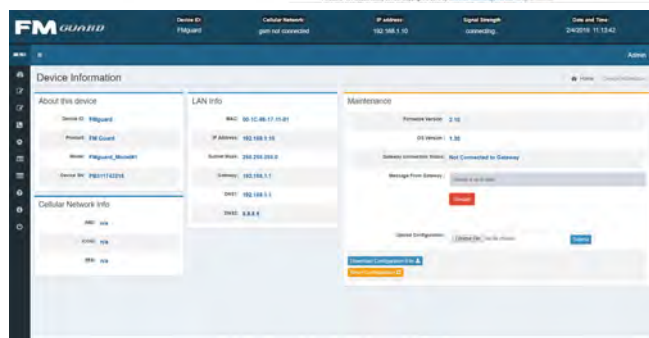
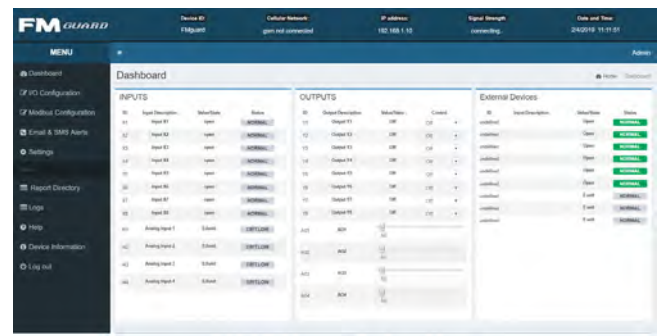


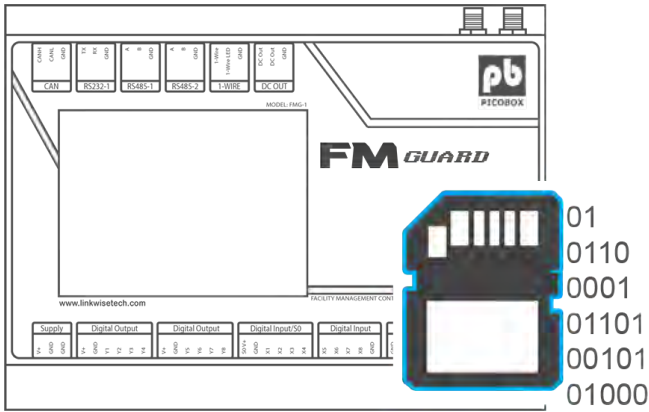
## Graphical 240x160 pixels display

Simple LCD Display with touchscreen technology used to view the current status of the device without going through your PC.

## Real-time monitoring

FMGuard has an outstanding graphical user interface that shows the current status and information of devices connected to it. The user interface is web-based, no need to install software, it is 100% open source. The user-friendly UI made the configuration easier to set up and maintain.





## Record data

Save data within the given interval using FMGuard. It provides you the data you need to quickly and easily troubleshoot devices connected to it. Using SD Cards, FMGuard's data logger can store a large amount of data.

## Easily expand monitoring capacity up to 64 points.

FMGuard is capable of expanding its monitoring capabilities up to 64 monitoring points through expansion modules like DAQ. Able to monitor status, alarms and IO availability using remote PC by visual representation (dashboard) and log reports. FMGuard can send 30 simultaneous SMS and Email alerts.



## Why Monitor your facilities?

Providing the best solutions has always been the secret in managing your facilities efficiently and effectively. Therefore, any problem may arise should be anticipated and taken care of as soon as possible.

### But will you be able to foresee any problem in the future? Or even check your facilities 24/7?

FMGUARD is designed to solve your problem, originated from 4 different models in the past (Message Master; 2000; 4000; 5000). Linkwise Technology recently developed FMGuard as the most advanced monitoring controllers that combined these 4 models into one and innovate a new powerful features for you to fully experience not just the efficient and effective way of monitoring your facilities, but also the convenience of getting an updates 24/7 through SMS or email wherever you are. A proven monitoring system that is used in Data Center, Facilities and a wide variety of applications.

## APPLICATIONS



Data Center



Manufacturing Process



Telecommunication



Fire and Security



Energy Efficient & Power Management



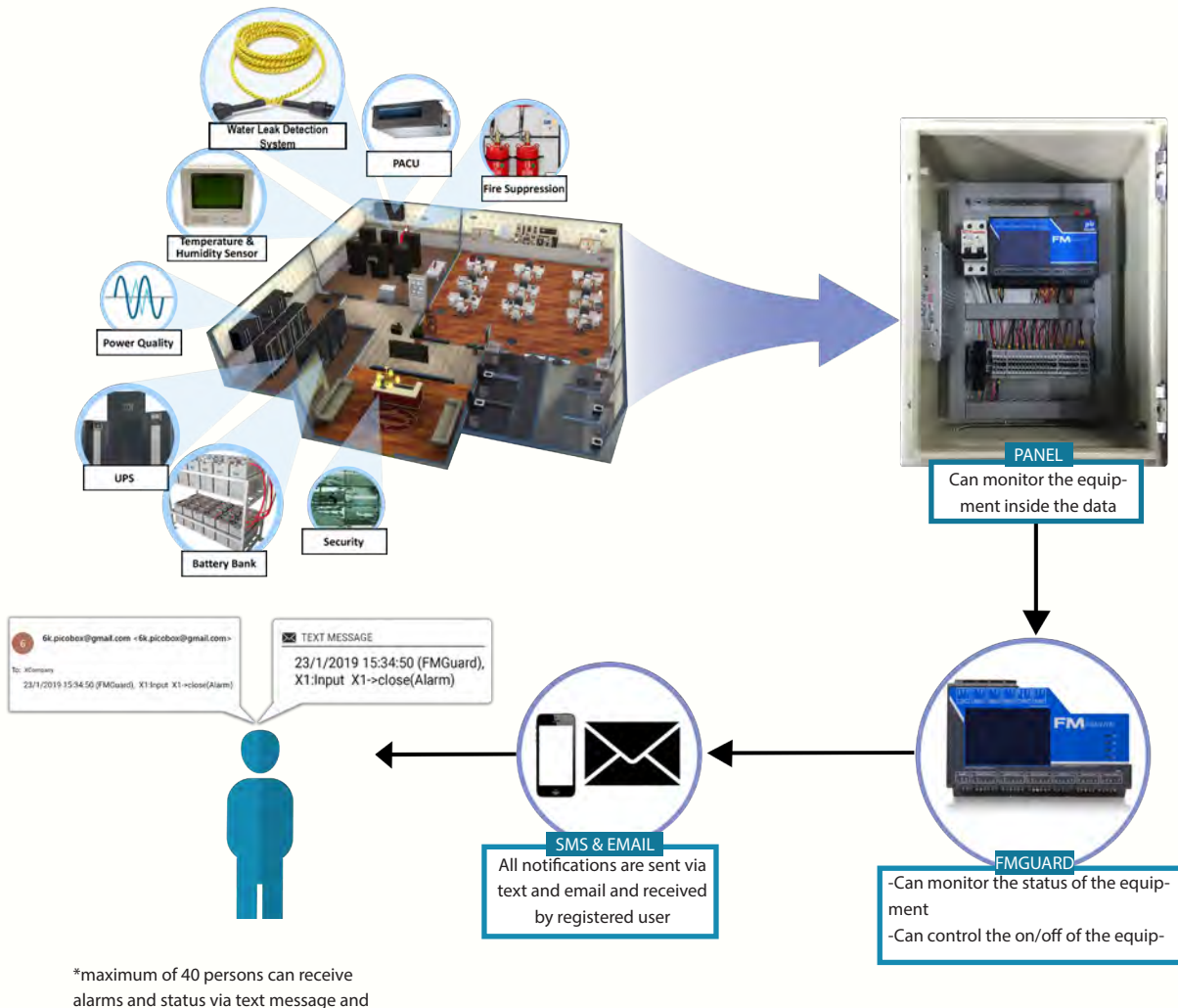
Environmental



M&E Facility Management

## DATA CENTER SETUP

FMGuard (Facility Management Guard) is a standalone facility monitoring system with an alarm notification using SMS and Email. A perfect companion product for all IT Data Centers, server rooms and any related facility. Providing a 24 x 7 continuous monitoring to all of your critical facilities and alerting you instantly on any alarm.

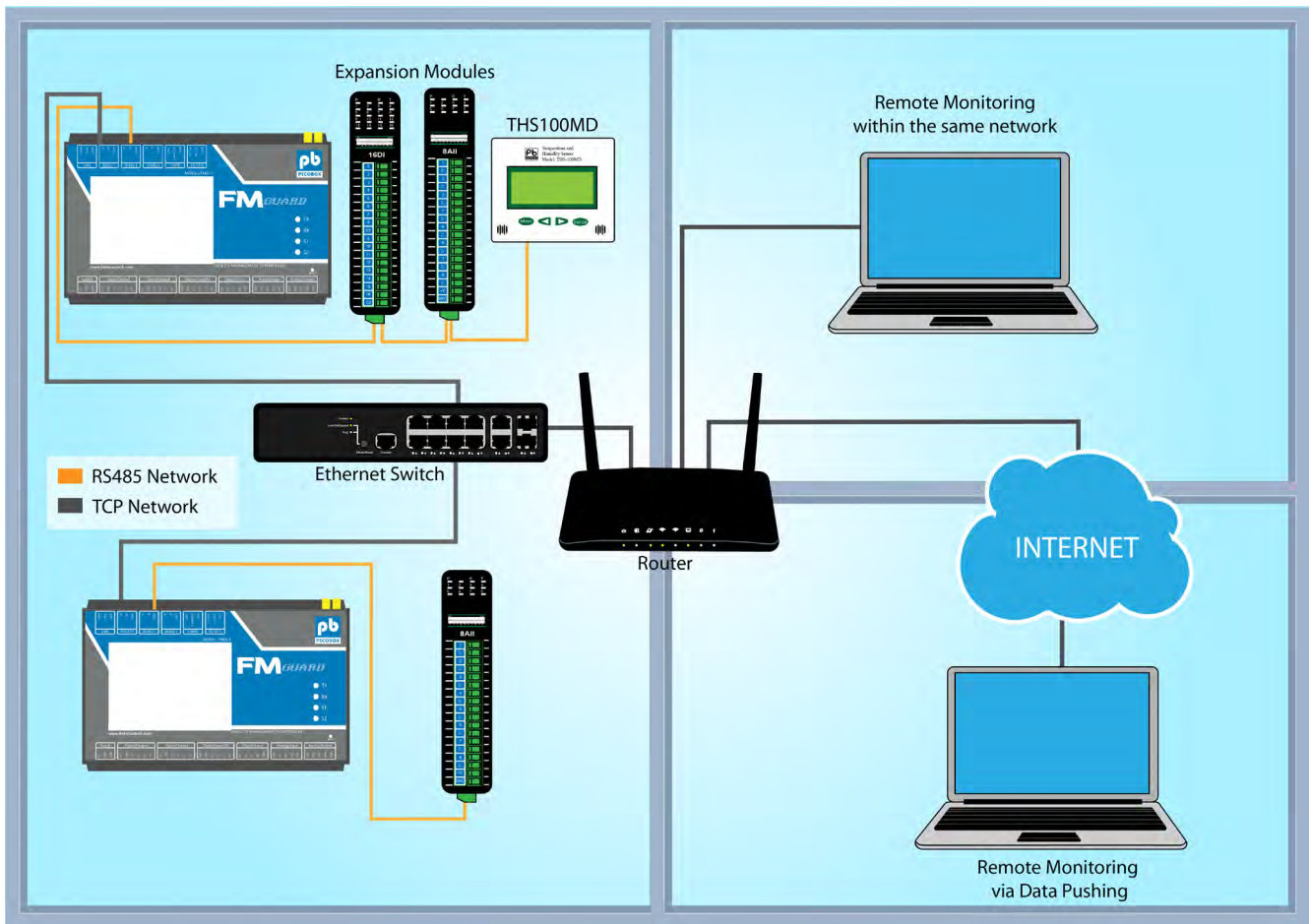


## Modbus Communication for FMGuard Facility Management Guard

**Modbus DAQ** is designed to collect data from low-level interface devices then send the data to FMGuard through MODBUS RTU. With multiple Modbus DAQ, FMGuard can monitor up to 64 monitoring points including the built in IO's of FMGuard. Modbus DAQ is also compatible with any devices with Modbus RTU protocol.

Any model of MODBUS DAQ can communicate with FMGuard using MODBUS RTU. FMGuard has automatic connectivity supervision that ensures all devices are communicating. Communication failure to any devices will be reported to the users via SMS.

Devices such as sensors and leak detection systems (ex. THS100MD and TTSIM-2) are capable of sending data to FMGuard via MODBUS RTU. FMGuard can read the real time values of these devices 24/7.



## DIFFERENT WAYS OF MONITORING

### Monitoring via SMS and Email Alerts

FMGuard can prompt the user via SMS and Email alerts when there is a change on the state of the equipment, system or device connected to it. It only takes 2-3 seconds to receive the alarm notification. FMGuard can even send messages to a specific person for the specific device.

FMGuard is an intelligent device that can answer pre configured SMS to the numbers registered on it. Users can ask the status of each device connected to it, the signal strength and more. Users with authoritative rights can also command FMGuard to turn ON and OFF devices connected to the digital output.

### Monitoring via User Interface

FMGuard is packed with a user interface that can be easily accessed using any web browser. The users can view real-time status of all devices connected to FMGuard. They can also configure the FMGuard settings using this interface.

### Monitoring using Data Pushing

FMGuard can send data to a server with a given time interval and during the occurrence of an alarm. Using this feature, the user can check FMGuard status anytime and anywhere around the world.

PHYSICAL	
Operating Voltage	24 to 36 VDC
Battery	On-board 2Ah (nominal) Li-Ion Battery
Processor	Cortex A5 32 bit ARM processor
Cellular Modem	GSM: 850/900/1800/1900 MHz UMTS: 800/850/900/1900/2100 MHz
Operating Temperature & Humidity	0-45 °C, 5-90% non condensing
Physical Size	W 160.2 x H 89 (top) x D 53.5 mm without terminal blocks and connectors.
Weight	Approximately 465 g. without accessories
Mounting	Industrial standard ABS housing with 9M DIN rail mounting, pluggable
Connectors	2-way pluggable terminal blocks
Security Feature	2 Level security, administrator and guest
Date and Time	Support NTP server time zone synchronization Real time clock w/ battery back up
LED Indicators	TX=Reserve for Modbus transmit RX=Reserve for Modbus receive S1 and S2 = for signaling status and possible errors
Communication Port	2x RJ45, Ethernet (10/100 Mbit) & RS232 Mini USB-B, Service port SMA female connector for UMTS USB host port (USB-A receptacle) RS485 Modbus Serial Port
Interface	HTML interface, via a web browser Dot Matrix LCD with 240x160 pixels, touch screen with virtual buttons
NETWORK	
Network Support	Static and Dynamic IP
Network Protocol	a.TCP (Transmission Control Protocol) b.IP (Internet Protocol) c.HTTP (Hypertext Transfer Protocol)
DIGITAL INPUT	
Digital Input Description	8x Digital Input Logic high: 8 to 40VDC Logic Low: -5 to 3 VDC Impedance: 3.3kΩ
Configuration	Independent configuration of input description, trigger delay, open/close status description
DIGITAL OUTPUT	
Digital Output Description	8 x digital solid-state digital output Max. 36 volt / 1.5 A per. channel Short-circuit, ESD, Inductive kick-back protected up to 20 mH User-supplied power
Configuration	User defined output description
Output Control	Through SMS or locally on/off relay outputs through web browser and through Logic Expression

ANALOG INPUT	
Analog Input Description	4 x analog inputs Range is 0-5, 0-10VDC or 0-20, 4-20 mA Resolution: 12 bit Accuracy: Typ. $\pm 0.3\%$ FSR @ 25°C Impedance: 40 k $\Omega$ (V)/504 ohm (C)
Configuration	Configurable input description, scaling, critical high/high/low/critical low alarm points
ANALOG OUTPUT	
Analog Output Description	4 x analog outputs. Range is 0-5, 0-10VDC or 0-20, 4-20 mA Resolution: 12 bit Accuracy: Typ. $\pm 0.3\%$ FSR @ 25°C
Configuration	--
Output Control	--
MODBUS PROTOCOL	
Maximum No. of IO pts.	64
Maximum No. of Expansion Modules	5
Acceptable Addresses	1-247
Maximum Cable Length	1,000 m @ <100kbit; this limit is highly influenced by the quality of the cable, signaling rate, noise etc.
Baud Rate	9600, 14400, 19200, 38400, 56000, 57600, 115200
Data Bits	7, 8
Parity	None, Odd, Even
Stop Bit	1, 2
REMOTE MANAGEMENT	
Remote Command	<ul style="list-style-type: none"> <li>a. Add / edit / delete mobile phone groups, repeat time</li> <li>b. Query Operational / Authorizer / Forwarder mobile phone numbers</li> <li>c. Query digital input / digital output / analog input / analog output status</li> <li>d. Query health check</li> <li>e. On / Off output equipment / devices</li> <li>f. Acknowledgment</li> </ul>
SMS AND EMAIL ALERT	
Phone Groups	<ul style="list-style-type: none"> <li>a. 40 Operation Numbers/Email</li> <li>b. 4 Authorized Numbers/Email</li> <li>c. 8 Escalation Numbers/Email</li> <li>d. Accepts International phone number format and supports auto roaming</li> </ul>
Configurable SMS Message	Digital Inputs, Digital Outputs: Alarm and Normal Analog Inputs, Analog Outputs: Critical low, Low, Normal, High and Critical High
Auto Health Check	Programmable daily or once a week health check
Time Stamp	SMS and Email sent and received with time stamps

## PHYSICAL LAYOUT



Front view



Left view



Top view



Back view



Right view



Bottom view

## OPTIONAL ACCESSORIES

### ANTENNA EXTENDER



**Model:** Ant3db3m  
**Type:** 3db gain 900/1800 MHz Antenna  
**Mount:** Magnetic base mounting  
**Length:** 32cm  
**Cable:** 3m RG179 coaxial cable  
**Features:** Boost up GSM signal in enclosed area. Use to maximize signal performance.

### TEMPERATURE AND HUMIDITY SENSOR

**Model:** THS-100MD  
**Power:** 12-4V DC  
**Range:** -20-70 DegC, 0-100%RH  
**Accuracy:** +/-0.3 DegC, +/- 3%RH  
**Dimension:** 86 x 86 x 34 mm  
**Modbus Connection:** 2 wired Modbus RTU  
**Connection Interface:** RS485



### SPOT SENSOR



**Model:** SP-12  
**Type:** Spot water detection probe  
**Power:** 1 2VDC or 24VDC non polarity  
**Output:** Normally close (NC) relay dry contact 12 or 24VDC, 1A (non polarity)  
**Sensing Height:** 1mm to 6mm (adjustable)  
**Dimension:** 24 (h) x 44 (diameter) mm

### TEMPERATURE AND HUMIDITY SENSOR

**Model:** THS-100D  
**Power:** 12-24V DC  
**Range:** 0-50 DegC, 0-100% RH  
**Accuracy:** +/- 0.5 DegC, +/- 5% RH  
**Output:** 4-20mA  
**Dimension:** 86 x 86 x 34 mm

