Overview

Facilities are essential part of every building and installations. As machineries, they are also needed for profit generation. It is important that facilities are operated efficiently and well maintained to avoid unnecessary downtime. Down time is an expensive affair which can lead to many businesses losses when an important facility breaks down. An aspect of maintenance is to know the condition of equipment, being able to monitor them and reduce their downtime.

In response to the fast phase technological advancement, Linkwise’s research and development team strives hard in improving its product line, thus releasing its latest model of Picobox system. Picobox system is a Critical Monitoring System designed to meet all aspects of facility monitoring.

**Message Master 5000** is a comprehensive and improved model from its predecessor yet maintains its simplicity, reliability, scalability, quality and ease of use. One of its new features is the capability of receiving and transmitting high level signals from equipment via Modbus RTU, Modbus TCP and SNMP protocols. A trend logging feature was added to help users identify potential efficiency problems on their equipment or even in the whole facility. Its SMS alert sending was improved using 3G network and E-mail alert sending through mobile data which makes it more efficient standalone monitoring system.
**Expansion Module for Message Master 5000**

**Message Master 5000** is designed as standalone system. For flexibility, MM5K has the capability to communicate with equipment via Modbus TRU / Modbus TCP protocol.

**Picobox DAQ** communicates with message master 5000 via Modbus RTU protocol to monitor additional input points. It offers wide variety of selection/combination of IO’s depending on system requirements.

**Standalone System** – Dry contact signal is the most common type of monitored points in a facility. Message master 5000 has built-in terminals capable of monitoring up to 12 dry contacts directly. Below example illustrates the connection of equipment to message master.

**Expansion** – When the monitoring points required exceeds what MM5K provides, Picobox DAQ is added as expansion module to increase the number of IO points. Picobox DAQ send the status of each monitoring points to MM5K via high level communication (Modbus RTU). The MM5K then process the signal and send necessary notifications to users. Below example illustrates the connection of Picobox DAQ to message master.
Application

There are some real questions facility managers and building owners frequently ask. Do I need to monitor my equipments? Can I afford not to monitor? Does the monitoring system provide data to help me make decisions? Is it worth the investment? Does it help my engineers to be more productive? Will it help me to be proactive in my facility management?

The answer is to estimate the tangible losses when, say a central air conditioning break down. What if the water to guest rooms is too cold? How does the hotel guests react? Is it negligible or serious? What damages in dollar terms and customer satisfaction level does it amount to?

**Message Master 5000** and its companion products easily addresses the above concerns. It is very cost effective, easy to deploy, operate and maintain. Below are some examples of monitoring and control applications. This list is by no means exhaustive.


Optional Accessories

<table>
<thead>
<tr>
<th>Intelligent Battery Charger</th>
<th>DAQ Module</th>
<th>DAQ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IBC-100</strong></td>
<td>Power: 30mA @ 12Vdc 17mA @ 24Vdc</td>
<td><strong>DAQ</strong></td>
</tr>
<tr>
<td>Power: 230VAC</td>
<td>Dimension: 97.6(1) x 22.6(w) x 109(h) mm</td>
<td></td>
</tr>
<tr>
<td>Output: 12V, 1A max</td>
<td>Features: Wide variety of selection depending on system requirements</td>
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<tr>
<td>Battery: 12V, 7.2AH Sealed, Lead Acid (External)</td>
<td></td>
<td></td>
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<tr>
<td>Dimension: 150(W) x 61(D) x 92(H) mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight: 1.8 kg (battery), 790 g (charger)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Features: Smart charger with over-charging &amp; over discharging protection</td>
<td>Relay output signal for power failure Alarm</td>
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<tr>
<td></td>
<td>LED indicators for AC and DC power supply</td>
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<table>
<thead>
<tr>
<th>Temperature Sensor</th>
<th>Temperature &amp; Humidity Sensor</th>
<th>Water Detection Sensor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TS-70</strong></td>
<td>Power: DC 12V</td>
<td>Power: 12V or 24V DC</td>
</tr>
<tr>
<td>Interface: 2 wire loop powered, non-polarized</td>
<td>4 wire (2 Power, 1 Temp, 1 Humidity)</td>
<td>Open collector drive</td>
</tr>
<tr>
<td>Output: 4 – 20mA</td>
<td>Dimension: 112(W) x 88(X) x 42(H) mm</td>
<td>Type: Spot Water Detection Sensor</td>
</tr>
<tr>
<td>Dimension: 75(W) x 55(D) x 25(H) mm</td>
<td>Accuracy: +/- 0.5°C. +/- 5% RH</td>
<td>Dimension: 24(D) x 44(diameter) mm</td>
</tr>
<tr>
<td>Accuracy: +/- 0.5°C</td>
<td>Range: Range 0-50°C. 0-100% RH</td>
<td>Features: Fully sealed water proof casing</td>
</tr>
<tr>
<td>Range: Range 0-70°C</td>
<td>Features: IC sensor provides linear and accurate measurement</td>
<td>Adjustable sensing height</td>
</tr>
<tr>
<td>Features: IC sensor provides linear and accurate measurement</td>
<td></td>
<td>Visual alarm indication</td>
</tr>
</tbody>
</table>
Specifications

**Physical**
- **Name**: Message Master 5000
- **Models**: RMCI
- **Operating Voltage**: 9 to 30VDC, 2W max power consumption
- **Processor**: Cortex-A5, 530 MHz
- **Memory**: 256 Mbytes DDR2 RAM
- **GSM modem**: USB modem Quad-Band HSDPA/UMTS (900/2100MHz)
- **Operating Environment**: 0 ~ 55 degree Celsius, 0 ~ 90% non-condensing
- **Size & Weight**: 160 (L) x 40 (H) x 100 (D) mm, 500 gm
- **Security Feature**: 2 security levels, Administrator and User level
- **Real Time Clock**: Date & time with NTP Support
- **LCD Display**: 16 x 2 Characters with backlit, selectable status display date and time | Network Status | Device Name | Device ID | Telco Signal Strength* | Digital Input State | Digital Input Alarm State
- **Communications port**: 1 x RJ45 port, Ethernet 10 / 100Mbps
- **Interface**: Web-based, accessible via web browser software

**Network**
- **Network Support**: Static IP
- **Network Protocol**: TCP (Transmission Control Protocol), IP (Internet Protocol), UDP (User Datagram Protocol), HTTP (Hyper Text Transfer Protocol), DNS (Domain Name Server), SMTP (Simple Network Time Protocol), SNMP (Simple Mail Transfer Protocol)

**Digital Inputs**
- **No of input points**: 12 optically coupled dry contact
- **Configuration**: Independent configuration of input description open / close status description
- **Response Time**: Individual selection of response time for each input from 0.1 to 3600 secs (trigger sensitivity)
- **Alarm State**: Definable normally open (NO) or close (NC) as Alarm condition

**Relay Outputs**
- **No of Out puts points**: 2 relay outputs, contact rated at 24VDC 2A
- **Configuration**: User definable output description
- **Output control**: Through SMS or Local On / Off relay outputs through web-browser
- **Internal buzzer**: Option time interval from 10 to 60 secs on Alarm state

**Analog Input**
- **No of Analog points**: Requires DAQ module, up to 8 analog inputs per module
- **Configuration**: Configurable input description, scaling, trigger delay, high / low alarm points
- **Alarm Delay Time**: Individual selection of alarm delay time for each analog input from 0 to 3600 secs (trigger sensitivity)

**Email Alert**
- **Email group**: up to 64 email recipients
- **Time stamp**: Email sent with time stamp with configurable subject

**Event Logs**
- **Event logging**: Stores up to 500 History events with Date and time Stamps, FIFO event recording
- **Data Format**: XML (Extensible Markup Language), allows user to define their own tags in excel or web interface

**Trend Logs**
- **Display**: Display 4 charts
- **Configuration**: Up to 8 tags per chart, Minimum log interval of 10 minutes

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**Remote Management**
- **Query health check**
- **Query input / output / analog status**
- **On / Off / equipment / devices**
- **Add / Edit / Delete contacts**
- **Query Operational / Authorizer / Escalation / Forwarder contacts**
- **Acknowledgements**

**SMS Alert**
- **Phone Groups**: 64 mobile phone number for operational alert
- **8 mobile phone number for 1st level escalation**
- **8 mobile phone numbers for 2nd level escalation**
- **8 mobile phone number for authorizer**
- **1 mobile phone number for Forwarder**

**SMS Configuration**
- **Digital inputs, relay outputs & analog inputs (2 messages per input)**, 1 for Alarm State and 1 for Normal State
- **Auto Health Check**: Programmable date & time system health check

**Time Stamp**: SMS sent & received with time stamps

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**Front / Rear View**

Message Master 5000

Remote Monitoring Controller

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**Note**: In the interest of product development, specifications are subject to changes without prior notice

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**MMX5 requires additional Picobox DAQ module to monitor environmental sensor readings or direct polling via Modbus RTU / Modbus TCP / SNMP protocol.**

Authorized Distributor / Reseller