Advanced Tower Monitoring

Power Equipment Status
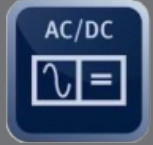
Battery Health

Fuel Level

Energy Consumption

Temperature & Smoke

Highlights

Energy Utility Based billing for Individual Tenants

Comprehensive Base Station Monitoring

Diesel Generator Monitoring

Dashboards for Real time monitoring

Modular Wireless Connectivity

Advanced Tower Monitoring - An Overview

Effective Tower management is essential for telecom operators and providers to maximize profits and reduce operational costs .

CASCADEMIC's Advanced Tower Monitoring Solution is the perfect aid for optimal monitoring of the telecom towers . The solution enables utility based energy billing for the individual tenants in case of a shared infrastructure and also includes the monitoring of the Base Station Shelter and Diesel Generator coupled with alerts and notifications .

The Solution delivers business value through

- Reduce down time of Telecom Tower
- Reduce in Operational Cost of Telecom Tower
- Higher Asset Utilization with contiguous monitoring

Alarms and Alerts

With built-in sensors for fuel, shelter door access, temperature, Phase and DG detection, the Tower Monitoring Solution aids operators to monitor Energy Consumption, Hardware health & Security of the Power Supply and effective monitoring of the Base Station Shelter

The Solution provides extensive alerts based on sensor values and enables real time monitoring of the Telecom Tower . Below are the exceptions and parameters which can be monitored through CASCADEMIC Tower Monitoring Solution

- Individual Energy Consumption of Tenants
- Door Open / Close Status of Shelter
- Temperature profiling of Shelter

- Battery Voltage Level
- Presence of AC Mains / DG / Battery
- Fuel Level in Diesel Generator
- Smoke Alarm
- Movement within Shelter

Turnkey End to End Solution

CASCADEMIC Tower Monitoring Solution allows operators to create custom views through custom dashboard feature. Wherein, a user can view of the status of all the assets at a particular cell tower site. The cloud platform provides a proactive approach in managing the infrastructure by leveraging remote site intelligence that allows operators to anticipate, identify, and mitigate issues faster . With the inbuilt predict analytics , the platform helps is preventive maintenance of the Telecom tower assets like Power Supply , Diesel Generator , Air Conditioner and other equipments within the shelter . This predictive analysis helps in reducing the downtime of the tower and effective management of the operator workforce .

Non Invasive Retrofit Solution

CASCADEMIC Tower Monitoring Solution is a retrofit solution and can be installed at ease in the shelter without any need for disturbance of existing infrastructure . The solution can be deployed in both Ground based tower (GBT) and RTT (Roof Top Tower). The sensors including the current sensors are clamps sensors and can be installed on the existing power lines and ensure immediate functioning without any down time of the equipment .

System Hardware	
Processor	• ARM Cortex M4
Memory	• 1MB program flash memory • 128 KB RAM
Storage	• SPI Flash - Expendable Up to 64MB
Power Supply	• 40 to 70 V DC Input Range • Current < 500 mA • Rechargeable Battery Back Up ○ 6 V , 4500mAh • Isolated Analog Section: +/-15V • Over-voltage protection and power reversal

Sensors	• Energy Monitoring
	  ○ Hall-sensor
	  ○ 75A Sensing Capacity
	  ○ Accuracy : 2.5%
	• Base Station Shelter
	  ○ Temperature sensor (-55 to +125 deg.C)
	  ○ Smoke sensor (0 to 10000 ppm)
	  ○ Door sensor (Open / Close Status)
	  ○ Human Movement within Sheter
	• Phase and DG presence detection
	• SMPS Bus voltage
	• Battery voltage
	• Diesel Generator
	  ○ Fuel level in Diesel Generator
	  ○ Fuel Tank Temperature

System Software	
Protocol Support	• HTTP, HTTPS, FTP, FTPS, TCP/IP • Firmware Over the Air (FOTA)
Wired Protocol Support	• MODBUS
Connectivity - Wired	
Serial	• 1 * RS232 • 1 * RS485
USB	• 2 * USB 2.0 OTG* • 1 Debug Serial micro USB

Connectivity - Wireless	
WWAN – 2G / 3G / LTE	• Quad Band GSM (850 / 900 / 1800/1900 MHz)
User Interfaces	
LED	• Power Status LED • Wireless Connectivity Status
Power Switch	• On / Off Power Switch
Environmental Parameters	
Operating Temperature	• 0 to 65 deg.C
Storage Temperature	• -40deg.C to +85deg.C
Relative Humidity	• 5% to 95% Non Condensing
Mechanical Overview	
Dimension	• 175×75mm
Tamper Proofing	• Yes
Weight	• 7KG
Chassis	• Sheet Metal Enclosure
Mounting	• Wall Mounting

CASCADEMIC Advanced Telecom Tower Monitoring

Benefits and Value Proposition

Energy Measurement

Pay as you use concept for Individual Tenants

With passive & active infrastructure shared between multiple operators within the infrastructure, there is a need for individual tenants to monitor their power consumption. With the non invasive rugged current sensors, our solutions aims at solving this problem by reporting the monthly power consumption of the tenants within the infrastructure.

Tower Equipment Health

- Battery Voltage Level

- Run time of Diesel Generator

- Run time of Battery

- SMPS Bus Voltage Level

By considering the above parameters of the power equipment within the base station, you get a complete overview of the health of the power system within the Telecom Tower. This data helps in reducing the down time of the tower and helps in knowing when to replace the equipment and the fault points within the system.

Base Station Shelter

- Temperature Monitoring

  Continuous monitoring in the Shelter helps to maintain optimum temperature within the cell tower room thus reducing cooling costs. The constant monitoring of the temperature helps to acertain critical events like failure of the Air Conditioner before other costly equipment are effected within the shelter.

- Smoke Status

  Alarms in case of Fire

Theft and Losses

Constantly monitoring the fuel level within the diesel generator, the tower operator is able to identify fuel thefts in case of any and are able to control their costs on the fuel .

Alarms , Incident and Ticket Management

Efficient ticket management based on alarms and alerts helps in reducing the operational cost and invrease in up time of the telecom towers.

CASCADEMIC
solutions

Industrial IoT Gateway

INDUSTRIAL IoT GATEWAY

Energy Monitoring Solution

Archmeter PA330

Advance Tower Monitoring

LoRa Connectivity Solution

LoRa™

LoRa METERING ADAPTER

InnovaTion towards Embedded Planet

Cloud Connectivity Solution

Azure
IBM Bluemix
amazon web services™

Environment Monitoring
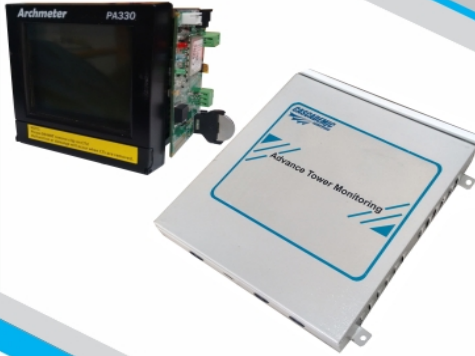
Thermal Printer

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Bangalore, Karnataka, India.
Pincode: 560078
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CASCADEMIC solutions

INDUSTRIAL IoT GATEWAY

Industrial IoT Gateway

Energy Monitoring Solution

LoRa

LoRa Connectivity Solution

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Cloud Connectivity Solution

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