

# Smart Grid Solution



A total smart grid solution provider

with in house design, engineering, manufacturing and testing capabilities

Lotus Wireless Technologies strive to work with customers to meet their demanding requirements



## SMART METER Zyña

Zyna Smart Meters are one of the most advanced Smart Metering Platform with Integrated RF, GPRS, Bluetooth and Wi-Fi capabilities. The Smart Meter comes Pre Loaded with the entire metering requirement in one form factor. The Smart Meter communicates to the Eagle Power™ Suite (HES) on RF Optimesh Protocol which is a mesh transport layer optimized for Power Utility application.

Zyna is a Single Phase & Three Phase Whole Current Smart Meter with Compliances to IS13779 for measurement requirements.

The Smart Meter comes with features of Multi Tariff Metering along with built in Pre-Paid option. The Smart Meter also has Bluetooth option to connect to In Home Display or other Android Smart Devices to view the power utilization information.

Zyna along with Eagle Power Suite provides user with suggestions and alert based on analytics running on the usage, to benefit the user with direction on better and optimized use of Power.





## Zyna Key Features :

- Detects and records tamper attempt even during power off.
- Detects and records attempts to disconnect with time stamp.
- Energy output pulse interface two Red LEDs (active and reactive).
- Infrared interface for metering data reading on DLMS.
- Field-upgradeable firmware to extend the useful life of the metering solution and allow policies to be dynamically adjusted to optimize energy usage.
- Pluggable modules allow you to mix-and-match different HAN and NAN protocols to suit various requirements.
- Multi mode Connect/Disconnect for different Preconfigured Energy usage instead on complete Disconnect.
- Meter stores interval data on minute basis for required days predefined periodicity along with the load survey, midnight survey, events (tampers).

## Zyna Communication Capabilities :

- Multi Protocol Serial Interface, Optical Port Interface.
- Built in Self healing Optimesh Network for Scalable Communication.
- 865-867 Mhz Connectivity for AMR, GPRS Connectivity for WAN.
- Optional Bluetooth, Interface with Standard Consumer Device with Software Application.
- Optional Optical Fibre Connectivity ,Optional ZigBee Interface
- Optional Power Line Communication, Optional 2.4 GHz Wifi Module.
- Optional RS 485 Serial Communication



## DATA CONCENTRATOR UNIT DCU 860

**DCU 860** brings Industrial Grade very advance communication platform for the Smart Grid application. DCU860 comprises of a redundant 865-867 Mhz UHF RF modem enabled with Optimesh Protocol along with Wifi, GPS, 3G modem with Optional Fibre Optical Interface The system comes with battery backup for 6 Hours of power failure and is IP67 packaged for an all weather operation. The communication network shall support data according to IS 15959 Part-I/Part-II to HES and ensure secure communication to HES.

### Key Features of DCU 860

- Canopy Type Router based RF Mesh Network
- UHF Radio With Antenna And Polarization Diversity On Opti-Mesh Protocol.
- Built In Redundant Radios For Multiple Networks.
- Built In 3G Modem For High-Speed Cloud Connectivity.
- Battery Backup.
- Multiple Protocol Support.
- Network Management. On Board 10/100 Mbps Fast Ethernet Controller.
- Self-Healing And Auto Routing Capabilities.
- Store, Manage And Forward Capabilities.
- In-Built Protocol Conversion Capabilities.





## REMOTE TERMINAL UNIT RTU 2800

Feeder Remote Terminal Unit RTU 2800 stands as one of the most scalable platform in the industry with a large option of data connectivity for diverse requirement, enabling scalable telemetry, automation and communication network on open Protocols.

### Key Features

- Remote Communication over Serial, Ethernet and Wireless Technologies, Local/Remote operation.
- Multi Protocol Support like IEC 60870-101/104, Modbus.
- 10,000 event storage , 1 msec scan time with time stamp for all I/O's.
- Inbuilt Protocol Conversion capabilities, Remote Configuration, Built in Touch Screen for Local Display.
- Time synchronization using IEC60870 /Built-in GPS
- Scalable system for expanding communication ports and I/O Modules.
- Pluggable GPS/GPRS Connectivity and RF Modem.
- Suitable for Power utility application like Substation Automation and Feeder Control.





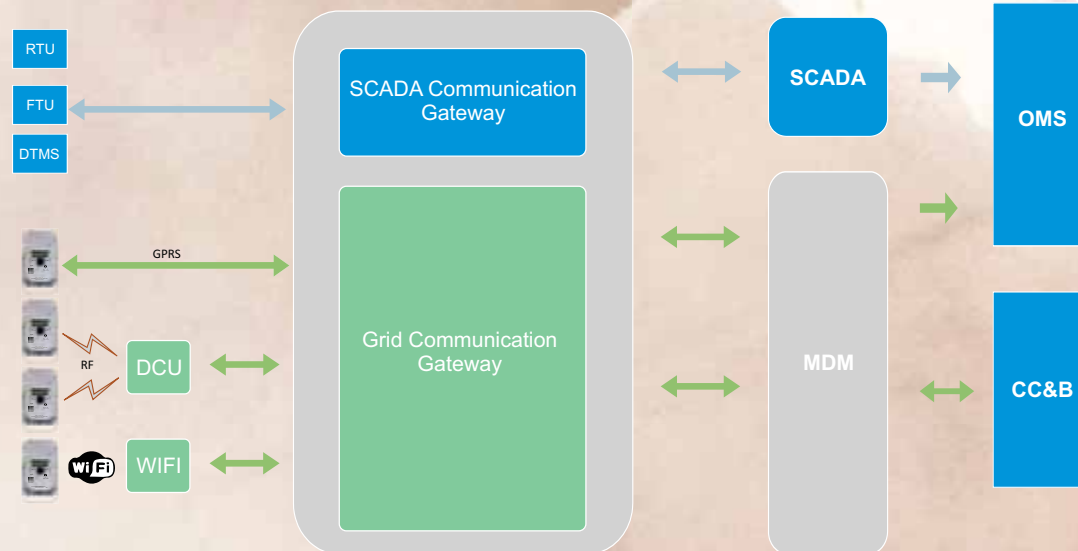
## Smart Grid End-to-End Solution \

Eagle Power™ Solution has the capacity to deliver the best Smart Meter Interface for each type of user like residential area, Urban, Suburban, Rural or Industrial. The 100,000 Sqft state of the art, Smart Grid test facility of ours provides a single vendor Capabilities to integrate and test all the Smart Grid needs.

With multiple options of interface and open platform implementation, Eagle Power™ Solution offers the best value proposition to the Smart Grid .

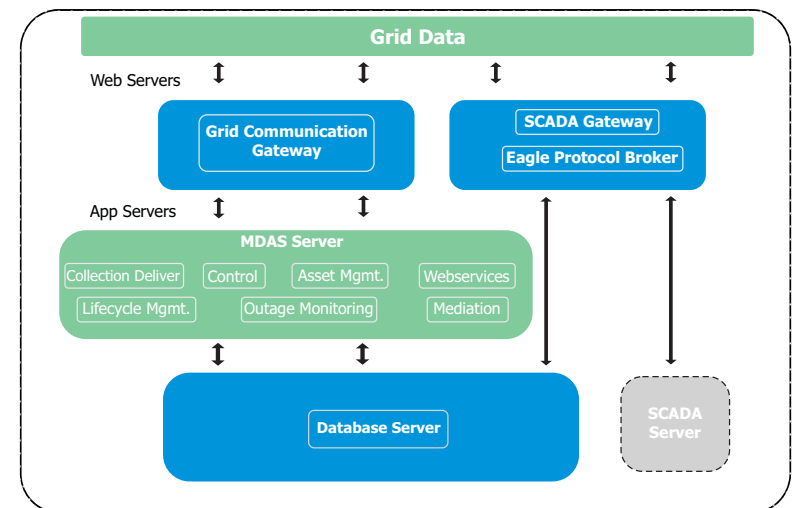
## Eagle Power™ Solution Modules \

- Eagle Power™ Suite (Head End System)
- Network Interface Card (865-867Mhz)
- FRTU 2800 (Field RTU)
- DCU 860 (Data Concentrator Unit )
- Zyna (Smart Meter)
- Optimesh (RF Mesh Protocol)
- Eagle Power Insight (Mobile APP)
- System Integration
- IT Hardware and OS of Datacentre
- Oracle Data Base (DB) / Outage Management System OMS) / Meter Data Management System (MDMS)

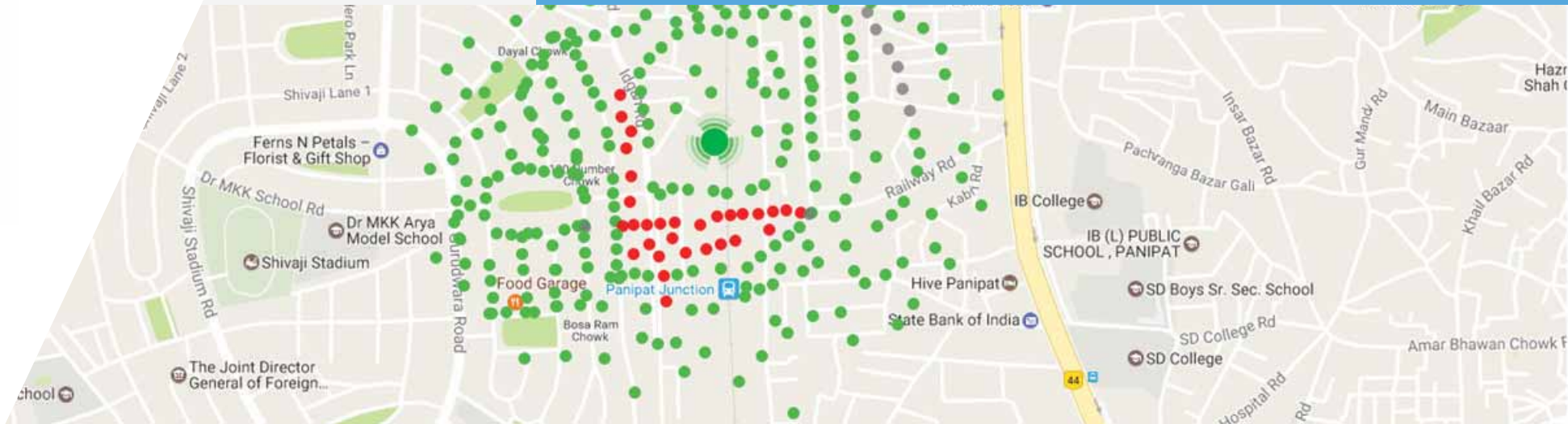


## Key Features of Eagle Power Suite

- Built on open platform for higher value for cost to user. Integrated platform for complete Smart Grid implementation.
- Multi Protocol Head End System to wider interface option.
- Vertical and Horizontal clustering for higher availability and better performance.
- High Level of security with dynamic keying Algorithm for interface to Grid Equipment.
- SCADA Gateway for interface to a scalable Grid Control.
- Clustered application for higher performance and availability.
- SOA Interface to interface to any standard 3rd Party application.
- Network Management System for ensuring high availability of the Network System.
- Supports Pre-Paid and Post-Paid customer.
- Supports Demand Limit and Load Limit Functionality.







## Eyrie Core

The Core of the system Eyrie gives you the capability to customize the Suites to the specify operational needs of the utility. Further our Systems are designed with high level of customizability due to agile architecture and design,

- Advance metering infrastructure
- Operation
- Data Management
- System Integration
- Customer Support
- Remote Accessibility (Optional)

### **Advance Metering Infrastructure**

- Grid Communication Gateway
- SCADA Communication Gateway
- Address Resolution System, NMS Gateway

### **Operation Management System**

- Life Cycle Management System
- Network Asset Management System
- Network Management System

### **System Integration**

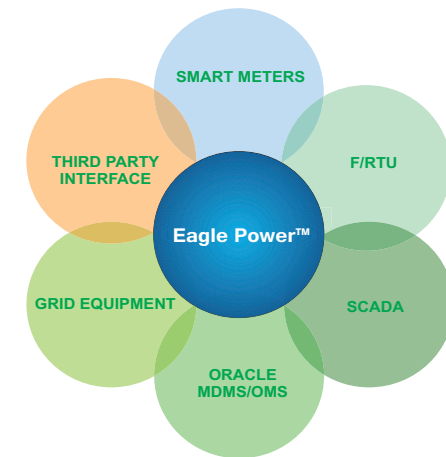
- 3rd Party Meter Adaptor
- Enterprise Service Bus
- Web Service
- Adaptor Framework

### **Data Storage & Management**

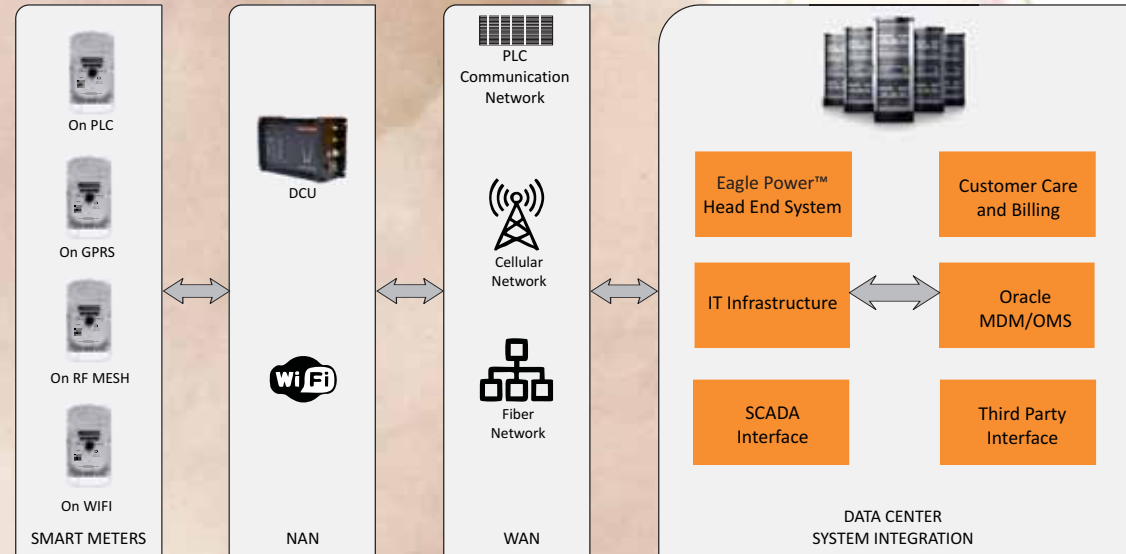
- Measurement Data for Post Processing
- Data Staging
- Configuration Data, Device Event
- Network Status, Logs

### **Customer Support**

- CIS Portal
- SMS Gateway
- Mobile App Gateway



## Turnkey Offering



**Eagle Power™** is a Flexible, Modular and End-to-End solution platform from Smart Meter to system integration for the modern Smart Grids.

### Modular design

System is designed Modular to enable customer to pick functions specific to the requirements.

### Interoperable systems

Eagle Power™ Suite comes with all standards technologies of interface like SOAP, ESB, and web services for a seamless integration to any third party tools.

### Interface

Eagle Power™ Suite is capable of Grid Communication on Optimesh and DLMS Payload along with IEC 104 Protocol for Grid Automation. It also has adaptors for PLCC, 2G, 3G or 4G Platforms and Standard Wi-Fi communication technologies.

### Scalability

Scalability of the implementation is ensured at the field level as well as at the Data Center level not only on the size of implementation but also on the technology adaptation.

### Security

Lotus Wireless is committed to a high level of reliability by raising our security levels and meeting international standards. Our security module is based on the US government's Federal Information Processing Standard, and our encryption Algorithm (AES-128) is based on the NSA's coding along with a unique dynamic keying Algorithm.

### Potential Future Development

Our Smart Meter are designed with plugin hardware architecture that can manage multiple transmission modes and technologies. We build our hardware with future expansion in mind, to help improve services to our utility customers moving forward with the best value proposition for the investment.

### Open Standards

Eagle Power™ Suite is compliant with international open standards and specifications, enabling seamless integration of our head end systems with other software in the utility industry.

### Economical Proposition

Eagle Power™ Suite has flexibility to connect with cloud based technologies enabling us to deliver systems at lower cost and best economies of scale.

## OUR EXPERIENCE IN POWER SECTOR

### Transmission Project @ Trichy, Tamil Nadu India

Turnkey Contract for 230/110 KV AIS Substation. The broad scope includes design, detailed fabrication, engineering, manufacturing, supply, erection, testing and commissioning of 230-110 KV AIS Sub-Station with associated auto transformers, switchgears, accessories, control panels, substation automation system, control room and civil works complete at Jambunathapuram in Trichy region of Tamilnadu India.

### Distribution Project @ North Chennai, Tamil Nadu India

Execution of Distribution Strengthening works under "Re-Structured accelerated power development and reforms programme (R-APDRP) Part-B" in Chennai North Region of TANGEDCO on total turnkey basis. Total DT's supply, erected and commissioned 16KVA to 500KVA Rating are 1319 No's. Total UG cable Supply, Erected and Commissioned Including 33KV UG Cable is approximately 154.7 Kms. Total OH Rabbit Conductor Supply, Erected and Commissioned is approximately 227.9 Km's Total AB Cable Supply, Erected and Commissioned is approximately 53 Kms. Total LT UG Cable Supply, Erected and Commissioned 240 Sq. Mm, 120 Sq. Mm, 25 Sq. Mm, 16 Sq. Mm is approximately 105.3 Kms

### Distribution Automation System (DAS) @ Bangalore

The Last Mile execution of Communication Package of BESCO DAS Project Bangalore broad scope includes implementation of a communication network with licenced microwave and UHF Radio Systems to monitor and control over 3250 RMUS and Auto-Reclosers / load break switches. The entire communication network cover a service area of about 1600 Sq km in City of Bangalore

### Smart Grid Pilot Project @ City Of Panipat, Haryana India

Design, Manufacture and supply of 11600 Smart Meters With in build RF Mesh and GPRS as per BIS specs, 34 Nos FRTU, 40 Nos Data Concentrator Unit, Eagle Power™ Head End System, Data Center Servers and Oracle Utilities OMS, MDMS, Data Base Products

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