

SUBSTATION AUTOMATION SYSTEM & CENTRAL MONITORING SYSTEM

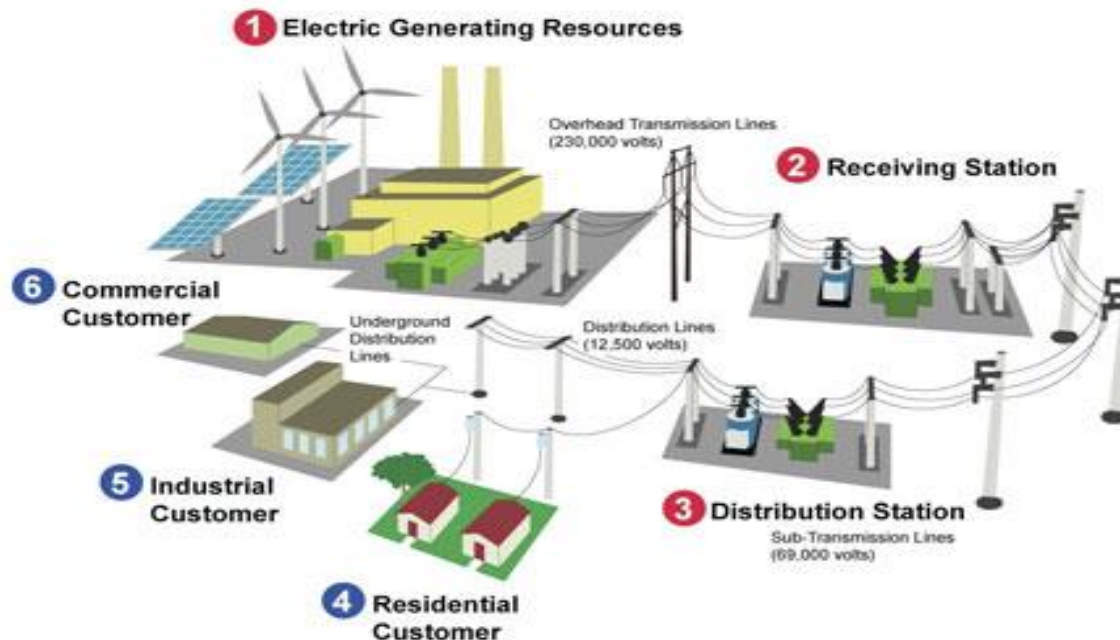
Products, Solutions & Technology

By

RBH Solutions Private Limited

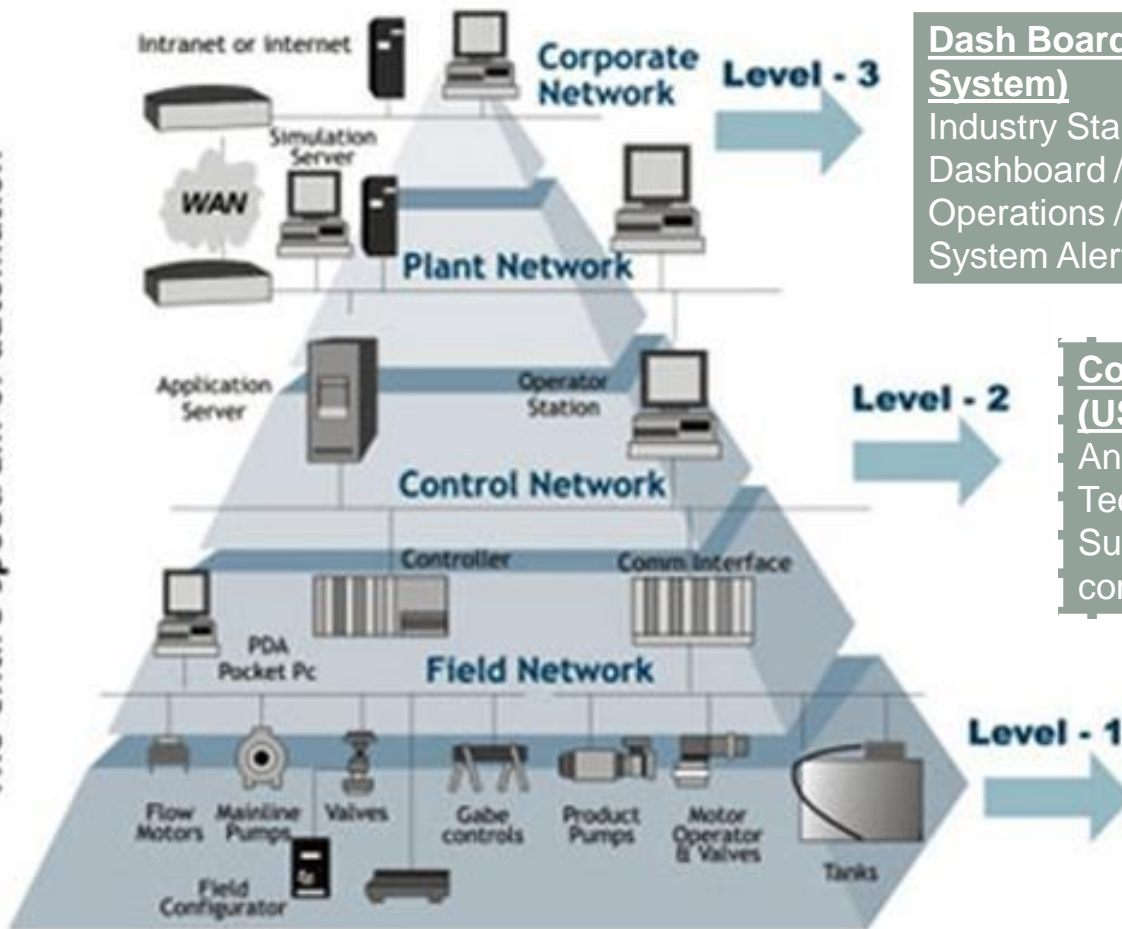
RBH Introduction

- Provides solutions for SMART Grid Communication / Interfaces and Automation
- Holds one the largest Gateway Solutions for Communication Middleware used in automation industry
- 5 Indigenously developed different products to cover all Grid's End to End Requirements (1 – 6: Generation to Consumption)



Products

The entire spectrum of automation



Dash Boards / Displays (SCADA System)
Industry Standard products
Dashboard / Reports / Interactive Plant Operations / Monitoring
System Alerts / Simulations

Communication Middleware (USP): Gateways
Any Type of Sensor / Vendor / Technology
Supports 90% of industrial communication standards

Field Instruments / Sensors by 3rd Parties
Any Type of sensor
Any Vendor
Any Technology

RBH Solutions

- Product based offering for
 - Electrical Infrastructure Automation
 - Renewable Power Plant Automation & Integration
 - Automatic Metering Infrastructure / Energy Management System
 - Central Monitoring System: Web based Central Monitoring System
 - Substation Automation
 - References upto 765kV Substation
 - Multi Protocol
 - Multi Vendor
 - Electrical Installation / Integration / Automation for Balance of Plant
 - LDC Data Exchange / Interface
 - Remote HMI Option
 - Web addon module for Remote Monitoring & control of Plant / Assets

Key Customers



ALSTOM

SIEMENS

Schneider
Electric



ABB



Honeywell



Atos

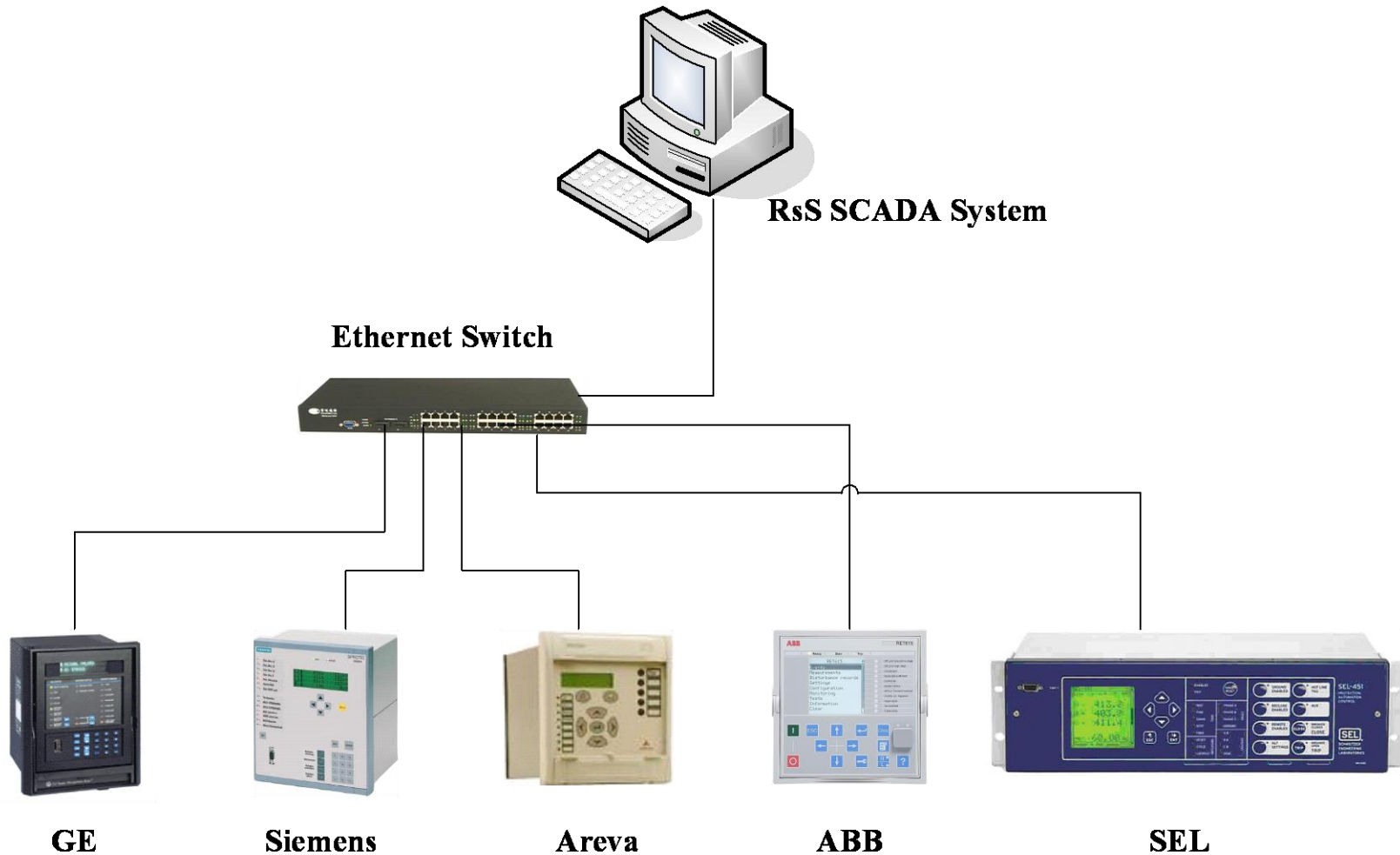


Rockwell
Automation

Electric Infra: Products & Solutions

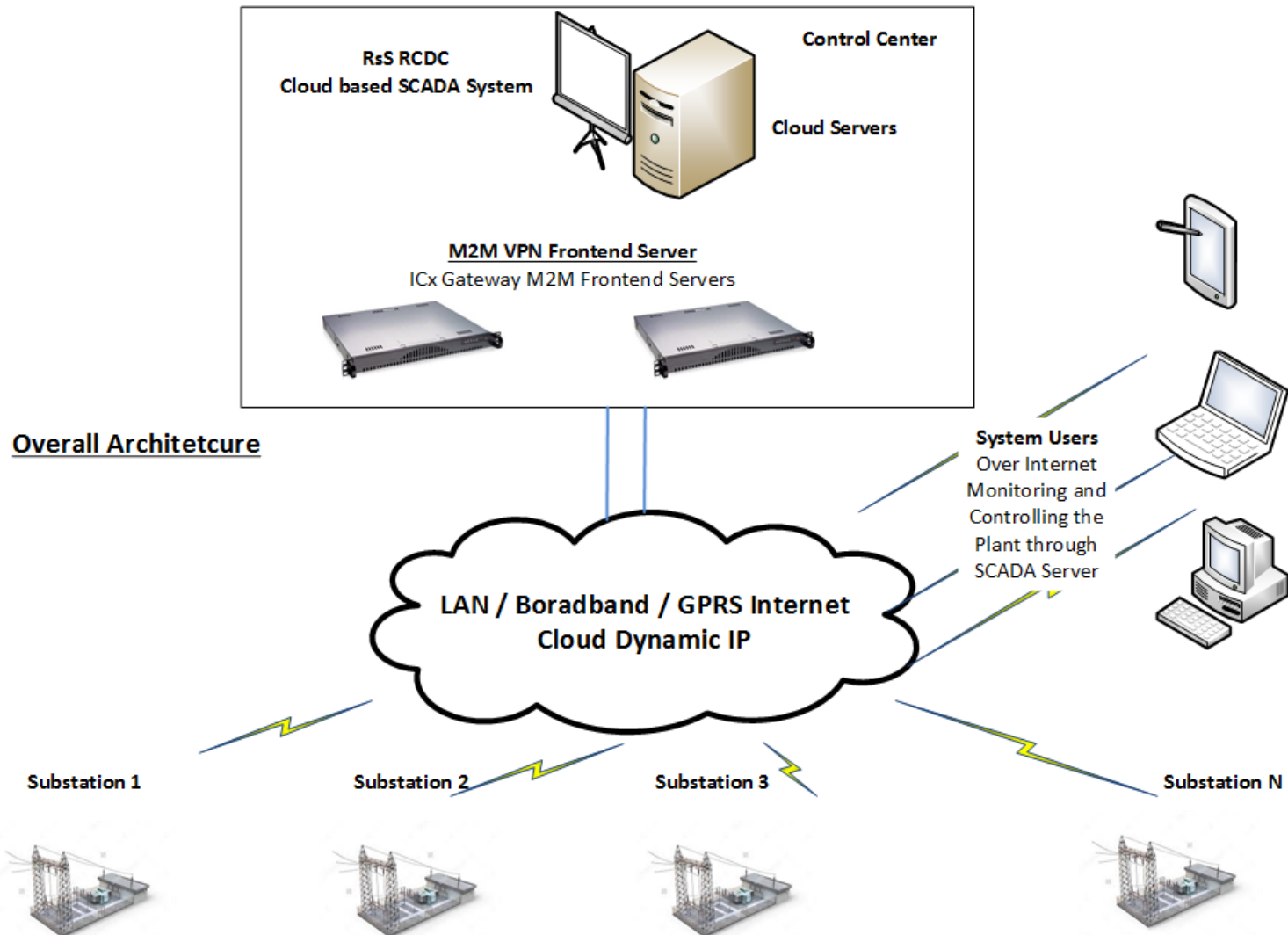
- Substation Automation & Integration
 - SCADA Software: Interface with any BCU / IEDs / Metering Platform
 - Communication Gateway: for interfacing with LDC over IEC 60870-5-101 / 104, ICCP & DNP
 - Products
 - SCADA System :RsS SCADA System
 - Gateway Solutions: ICx Gateway
- Electrical Distribution Infrastructure Automation / Interfacing
 - RTUs : MIC / ADAM / APAX
 - Data Concentrator Solutions: ICx Gateway Platform
 - LDMS: Local Display Management System (Small SCADA)

RBH Products: Vendor Independent

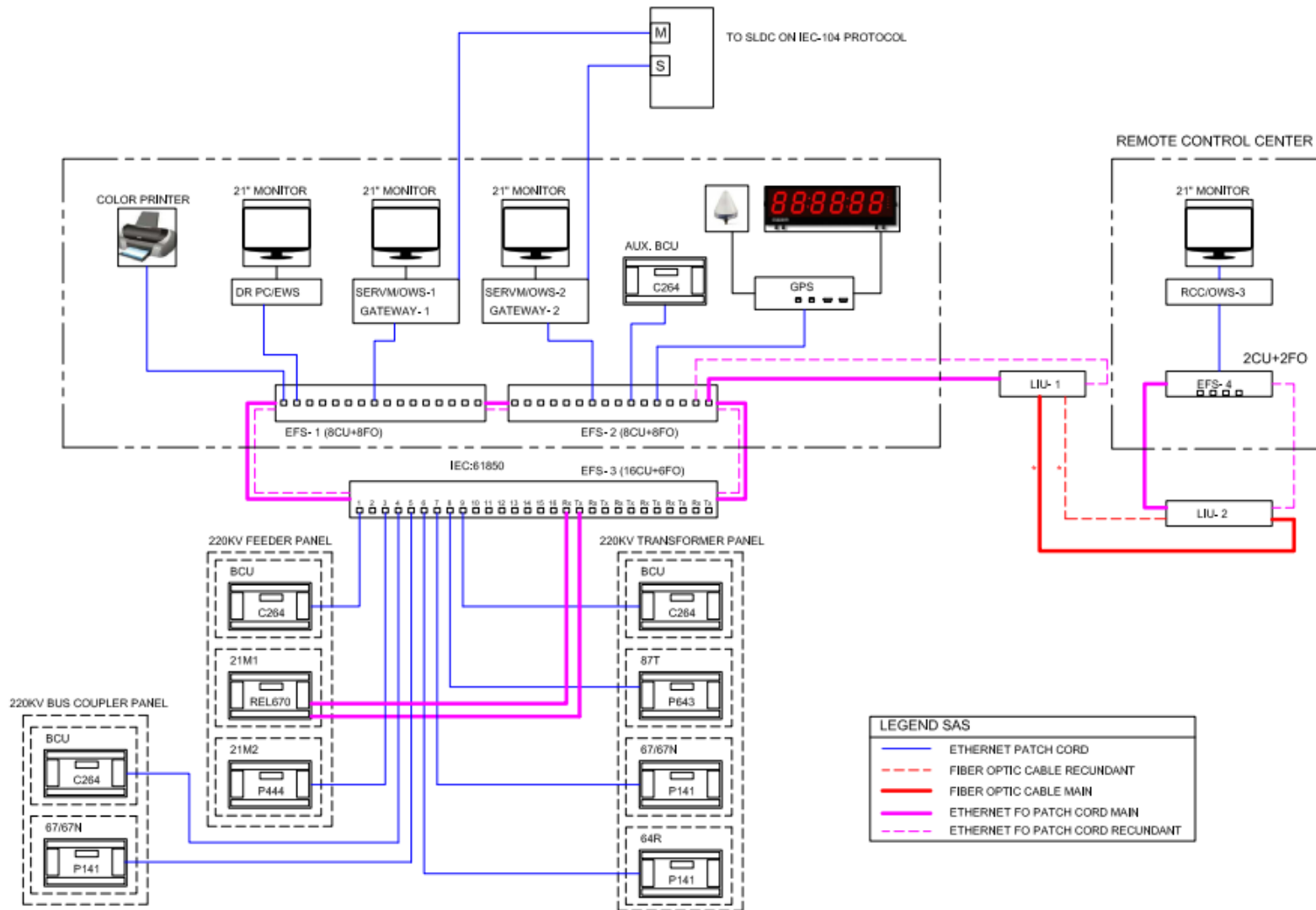


ALL IEDs / BCUs over IEC 61850 Protocol

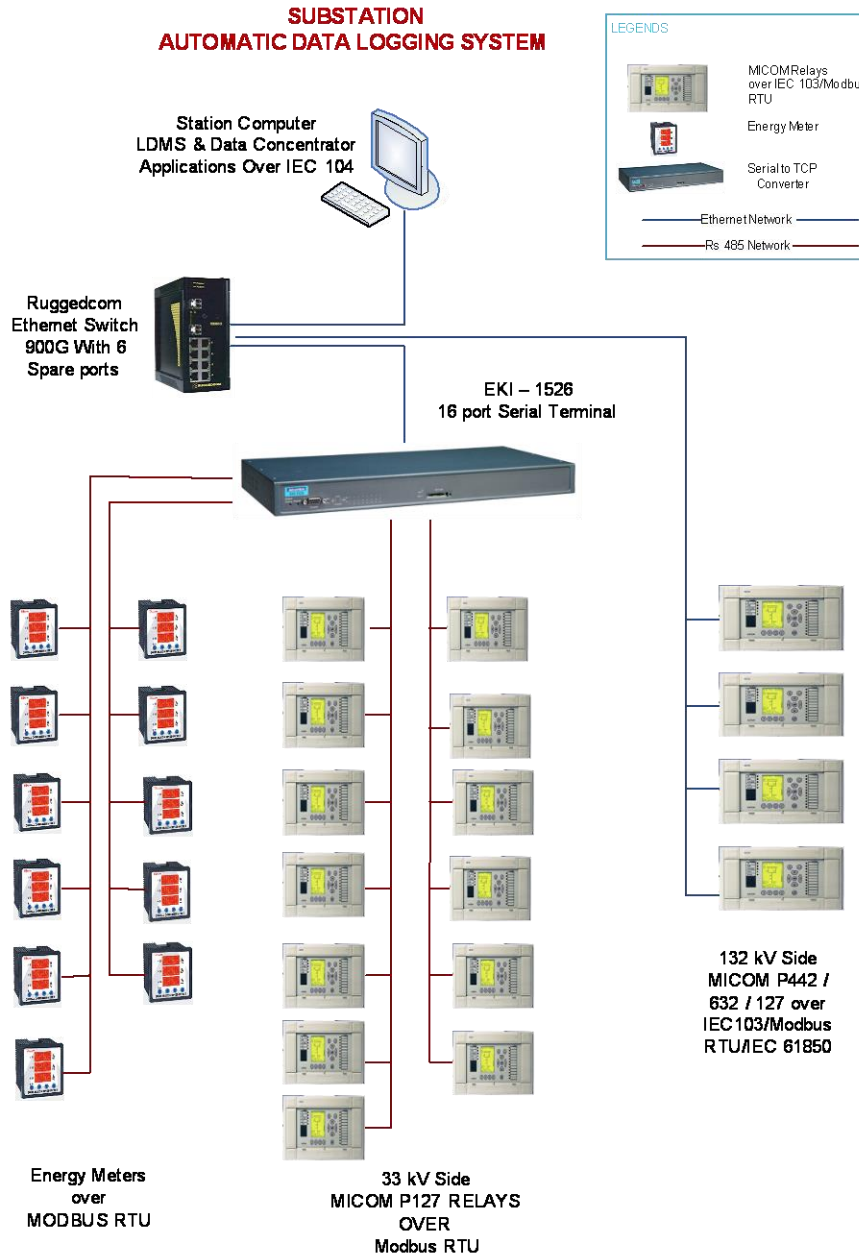
Central Monitoring System: Architecture



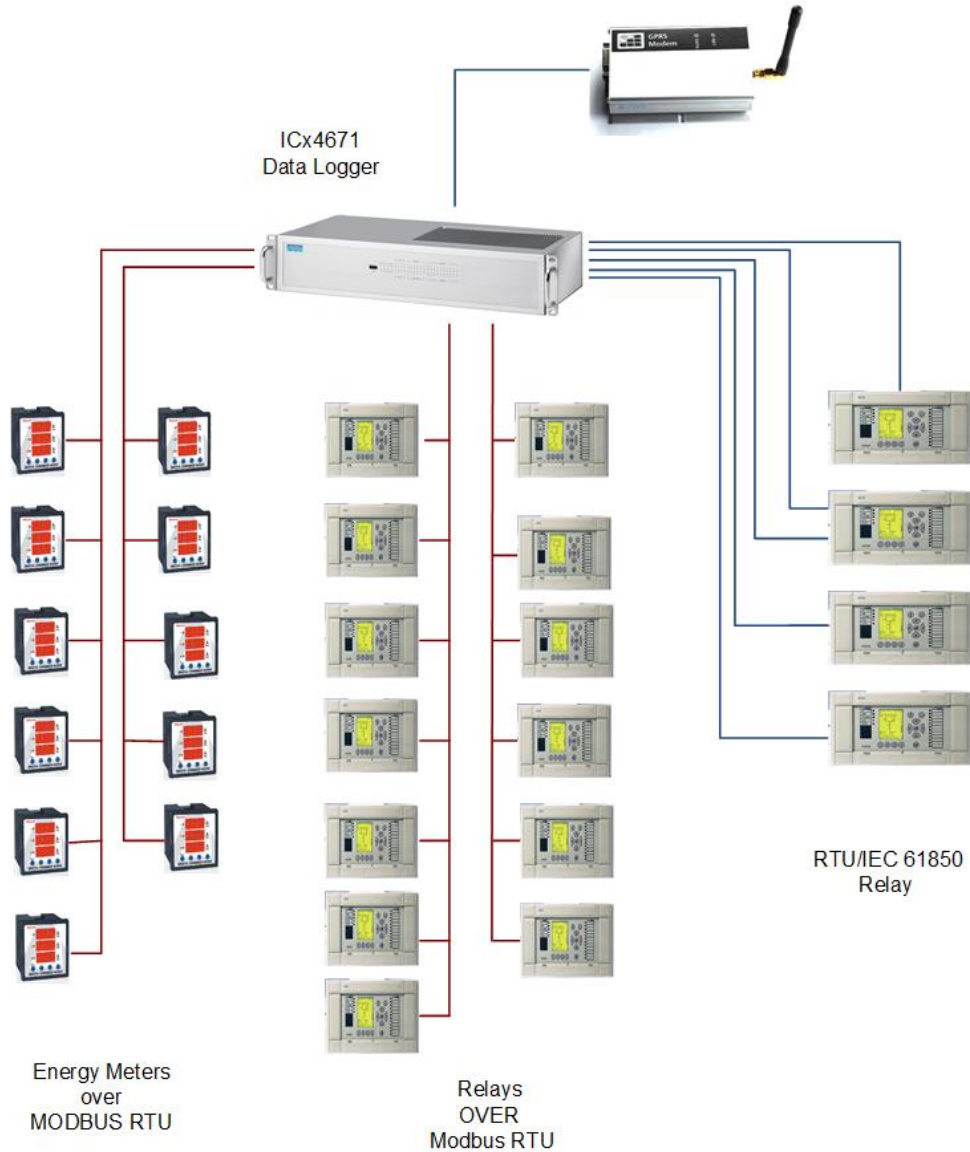
RsS SCADA based IEC 61850 SAS Architecture



RsS: Multiprotocol Substation Installation



RsS: Data Logger Platform for remote Substation Automation



RsS SCADA: Components

- RsS Server: Single / Redundant
- RsS Database: Single / Redundant
- RsS HMI: Upto 32 HMI Clients
- RsS Engineering Station
- RsS Historian (Reports / Trending)
- ICx Gateway
 - IEC 61850 – IEC 60870-5-101/104 Gateway
 - Metering Gateway (Modbus / DLMS)
 - ICCP Gateway
 - Single / Redundant
- Optional Add – On
 - SMS / Email Alert System
 - Web Server
 - Energy Management System
 - ABT

RsS RCDC Central Monitoring System

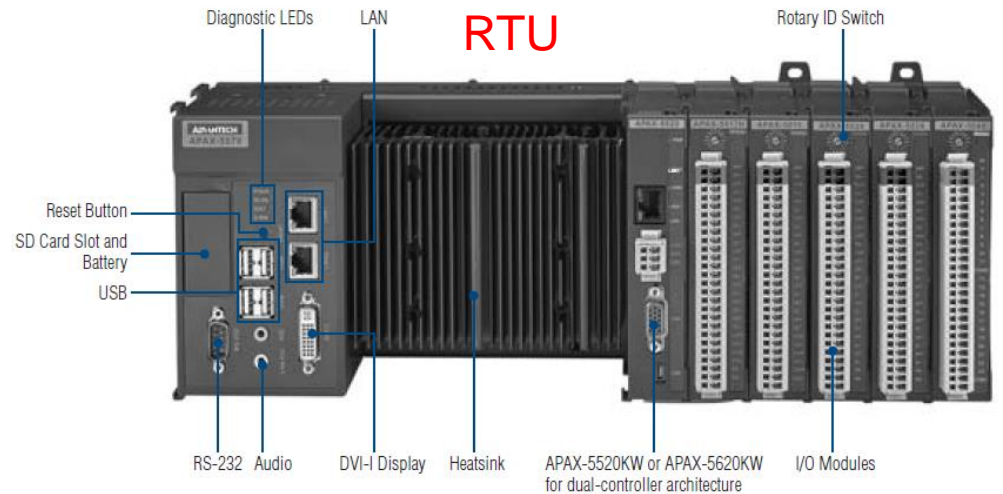
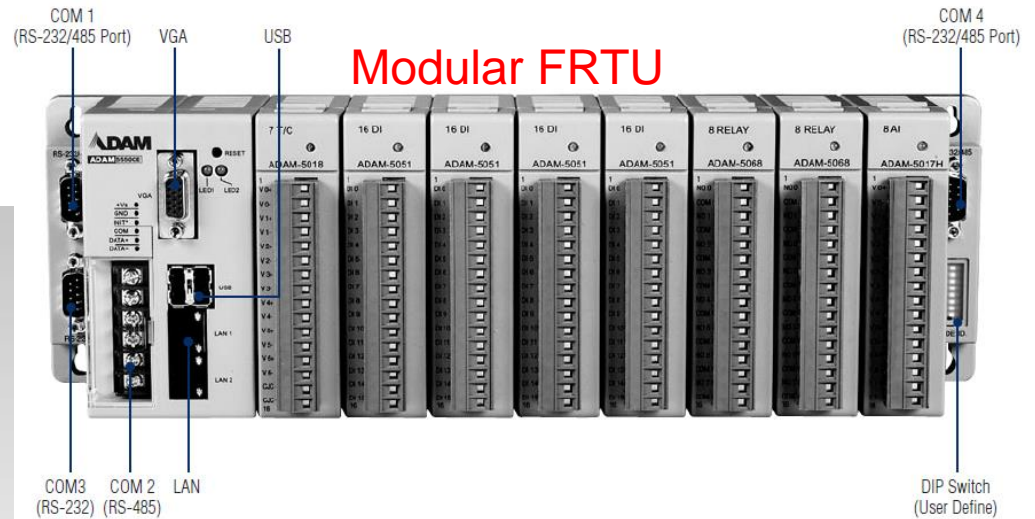
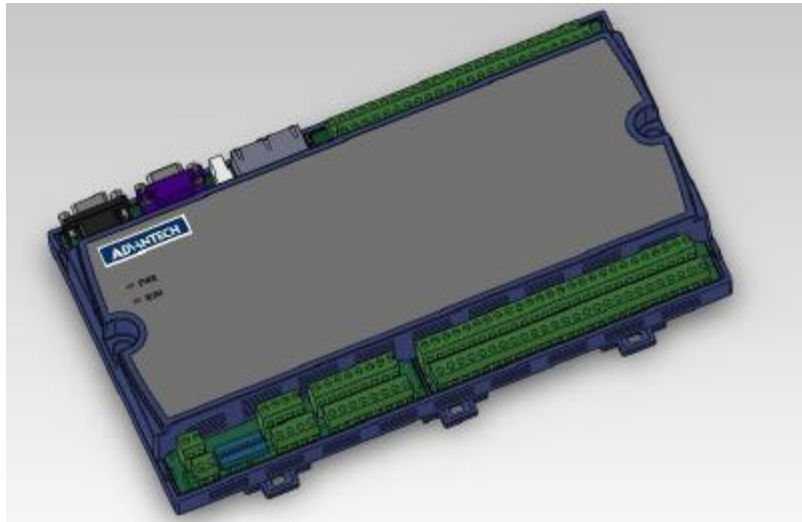
- RCDC is implemented as web service based on Angular Platform using .NET and HTML5 Technology.
- RCDC Web forms are an innovative set of applications that displays the acquired data to operators as useful information. Operators can monitor, analyze and control using state of the art Web forms accessible over any standard web browser.
- RCDC Dash Board manager allowing user to arrange the views as per the requirements allowing quick, easy and satisfactory access to the information.
- RCDC User Management: Secure Password protected user session management allowing the user to see / validate / configure the information the user is authorized to do.

Networking & Interfacing: Components

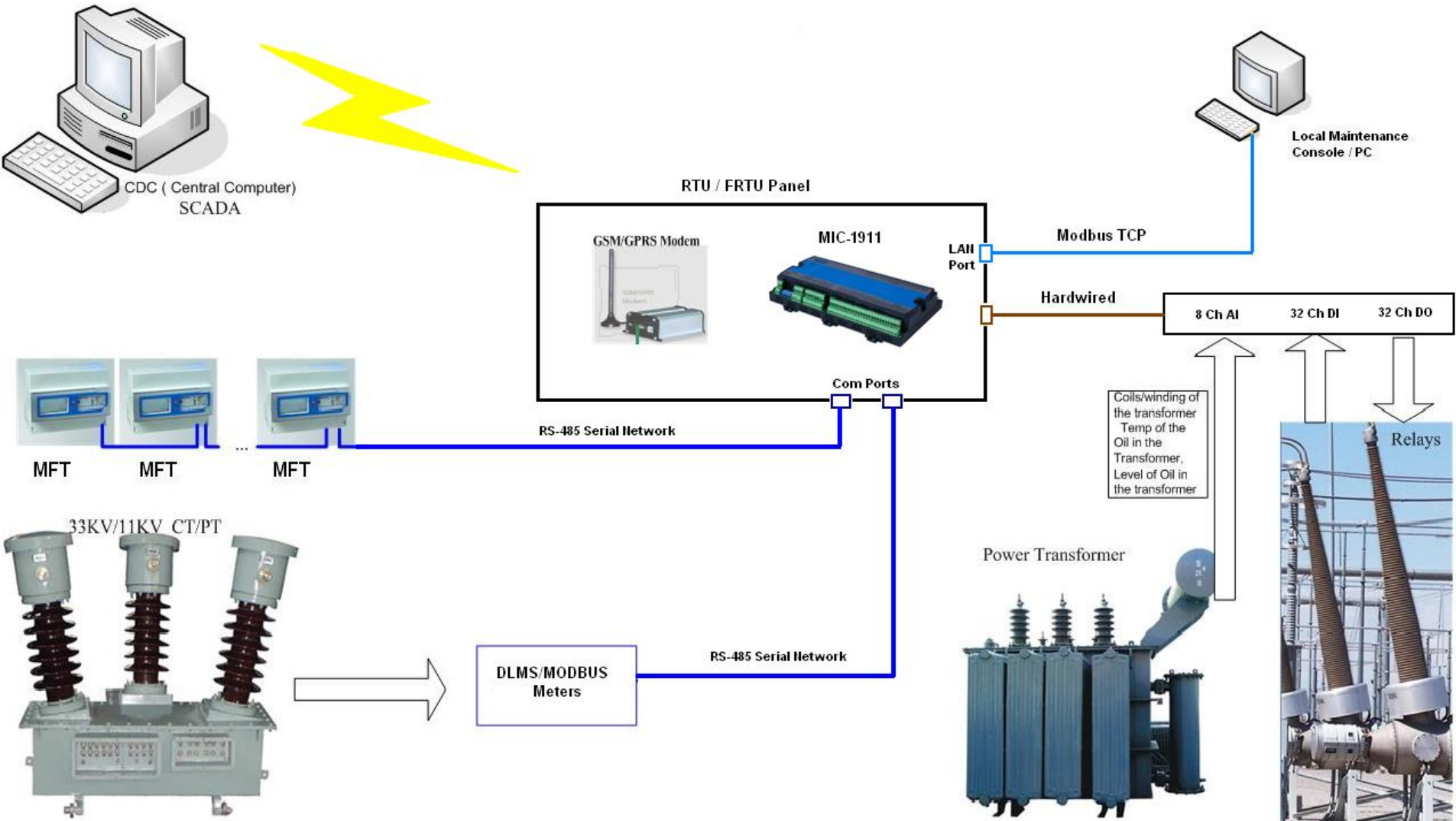
- Ethernet Switches
 - Industrial Grade
 - IEC 61850 Certified
 - Multiple Cu and FO ports options
- Terminal Servers
 - Serial to Ethernet Convertors
 - 2 Port / 4 Port / 8 Port / 16 Port (Serial Ports)
 - 2 LAN ports for Redundancy
- Media Converters
 - Serial to FO Convertors (managed / unmanaged)
 - FO to LAN Ethernet Converter
 - Multiport options available

Remote Terminating Unit: LV / MV / HV Stations

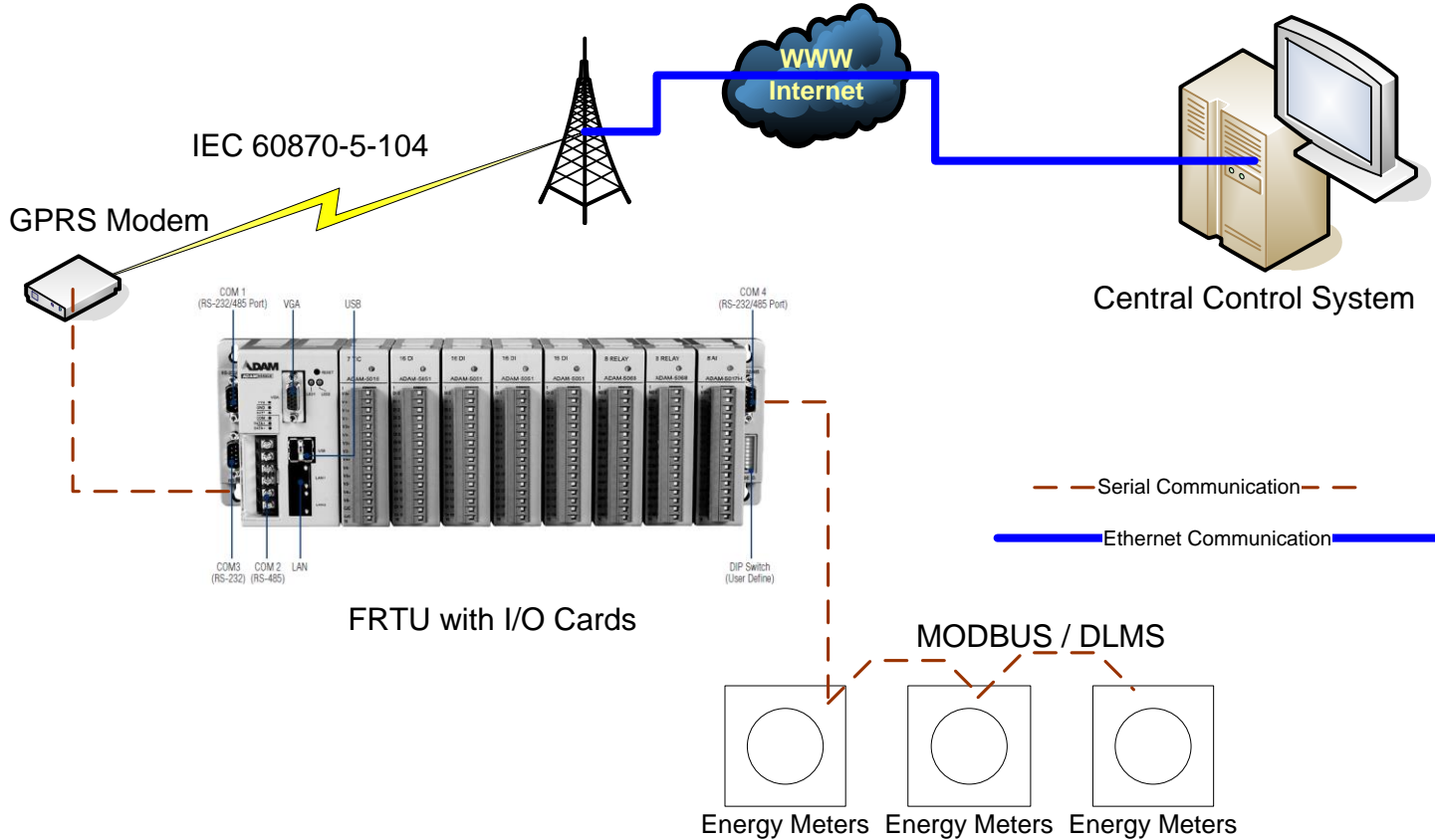
Mini - RTU



Packaged Station: System Architecture



Renewable Power Plant / Telemetry : Complete Solution



Sample WEB Views

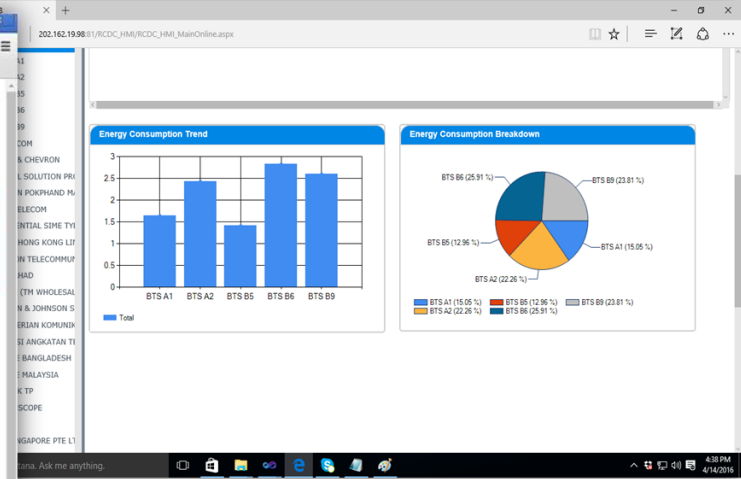
RBH Solutions

RSS RCDC

SLD ALARMS EVENTS TREND REPORT

Date Time	Circuit Name	DI/AI Name	Status	Category
9/28/2015 4:35:49 PM	<System>	FRTU_CALCUM_MODE_GTW	CONNECTED	---
9/28/2015 4:34:26 PM	<System>	FRTU_SEC_37_C_335_GTW	CONNECTED	---
9/28/2015 4:33:49 PM	<System>	BUILDER AREA_SS_GTW	DISCONNECTED	SYSTEM
9/28/2015 4:32:11 PM	<System>	FRTU_BETA-1. FRONT OF MOTHER DAIRY_GTW	DISCONNECTED	SYSTEM
9/28/2015 4:32:10 PM	BETA-2. OUT SIDE PKT F S/S	ISO-2	OPEN	OPERATIONAL

KALKHAR SLD



Renewing Our Future

GAJENDRAGADH

Gajendragadh -> A3

REAL VALUE	
POWER GENERATED :	10472915
POWER CONSUMED :	-25703
ACTIVE POWER :	387.2
REACTIVE POWER :	3764
TOTAL REACTIVE ENERGY :	-1134693
TOTAL Hrs :	83298
GRID OK Hrs :	76299
TURBINE OK Hrs :	75086
YAWING HR :	2386
VOLTAGE :	405
CURRENT :	319
FREQUENCY :	49.94
POWER FACTOR :	0.99
PITCH :	-1.1
GENERATOR TEMPREATURE :	76
AMBIENT TEMPREATURE :	24
NACELLE TEMPREATURE :	32
CONTROLLER TEMPREATURE :	42
HYDRAULIC TEMPREATURE :	41
GEARBOX TEMPREATURE :	63
MAIN BEARING TEMPREATURE :	71

TURBINE STATUS

COMMAND

START STOP RESET

ENERATOR SPEED ROTOR SPEED Wind Speed

Sample Application Views

