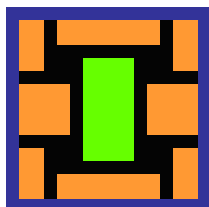# RsS Platform System:
Web Enabled SCADA System

Datasheet: Standard

Document Version: 3.0

Introduction

RSS Systems provides an Advanced Web Enabled Remote Plant Monitoring and Control platform enabling the vendor independent solution over any deployed Distributed RTU / PLC Technology.

RSS provides robust monitoring and management platform that allows you to build a solution to meet current and future web based distributed automation needs. RCDC as a web add-on to RsS SCADA System provides real-time functionality for remote supervision, including events and alarms handling, reporting, trending as well as parameter setting along with control facility. Features include:

- Reliable data acquisition and management control
- Compliance with Industry Standard/Proprietary Protocols and simultaneous multiprotocol support
- Web Based intuitive graphical user interface
- Highly Flexible and performing system capable of handling thousands of RTU / PLCs.
- Integrated multidimensional tagging capability
- History Logging with MS SQL Server or any ODBC Compliant Database
- State-of-the-art reporting capabilities with reports can be exported into MS Excel / PDF for better viewing and analysis

Key Components

RSS Server (RCS)

- Its main function is to handle all the Acquisition from distributed RTU / PLC infrastructure.
- Robust Validation engine as per user define requires and specific to Data acquisition nodes (Meters, RTU / PLCs, etc.)
- System calculations for computation of Alarms and Events as per user defines Business rules
- Scheduler: Module to automate Data Collection as per customized schedules.
- Application Interface: Interface to manage customer application allowing to define multiple customer application files as per user requirements
- Historian Application:
    o DB management in any ODBC compliant DB Server.
    o To manage Database procedures and queries
    o Data Archiving
- Smart Apps:
    o SMTP
    o FTP
    o SMS
    o XML file parsers
- Smart Reporter:
    o Custom user defined report formats (Pdf, XLS, Web Forms)
    o Enable Logical and Mathematical functions required for Data computation

RSS Web Manager (RWM)

- RWM is implemented as web service based on Microsoft .NET Platform using Angular and HTML5.
- RWM 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.
- Dash Board manager allowing user to arrange the views as per the requirements allowing quick, easy and satisfactory access to the information.
- User Management: Secure Password protected user session management allowing the user to see / validate / configure the information the user is authorized to do.

System Manager

- RTU / PLC Manager: Manage RTU / PLC / Modem parameterization
  - Allows secure Control interface with RTU / PLC
  - Allows RTU / PLC Configuration
  - System Parameters Configuration
  - Metering Scheduler
- Control Channel Manager: Define rules to manage RTU / PLC Communication for automatic and manual reading
- CDCS Manager: RSS system Configuration
  - Configuration and Parameterization
  - Data Management with version control and audit

Redundancy

- RSS Server: Two RSS Servers (RS) can be configured in hot-standby mode.
- Web Clients Station (HMI): RSS can support multiple HMIs Clients.
- Database Redundancy: Two DB Servers can be installed and managed by RSS in redundant configuration.

System Architecture

RsS SCADA Server With RCDC Web Server
HMI Clients
HMI Clients
Printer

SCADA Communication Hardware/Interface

GPRS Modem

GPRS Modem

Ethernet

Redundant
RsS SCADA Server
With RCDC Web Server

Communication Network

RTU

Energy Meters

Solar Panels

RTU

Energy Meters

Solar Panels

RTU

Energy Meters

Solar Panels

RTU : Remote Terminal Unit
RCDC : Real- Time Control Data Center
HMI : Human Machine Interface with Web Clients

Wired Communication

Wireless Communication

Ethernet Communication

System Management and Inter Process Architecture
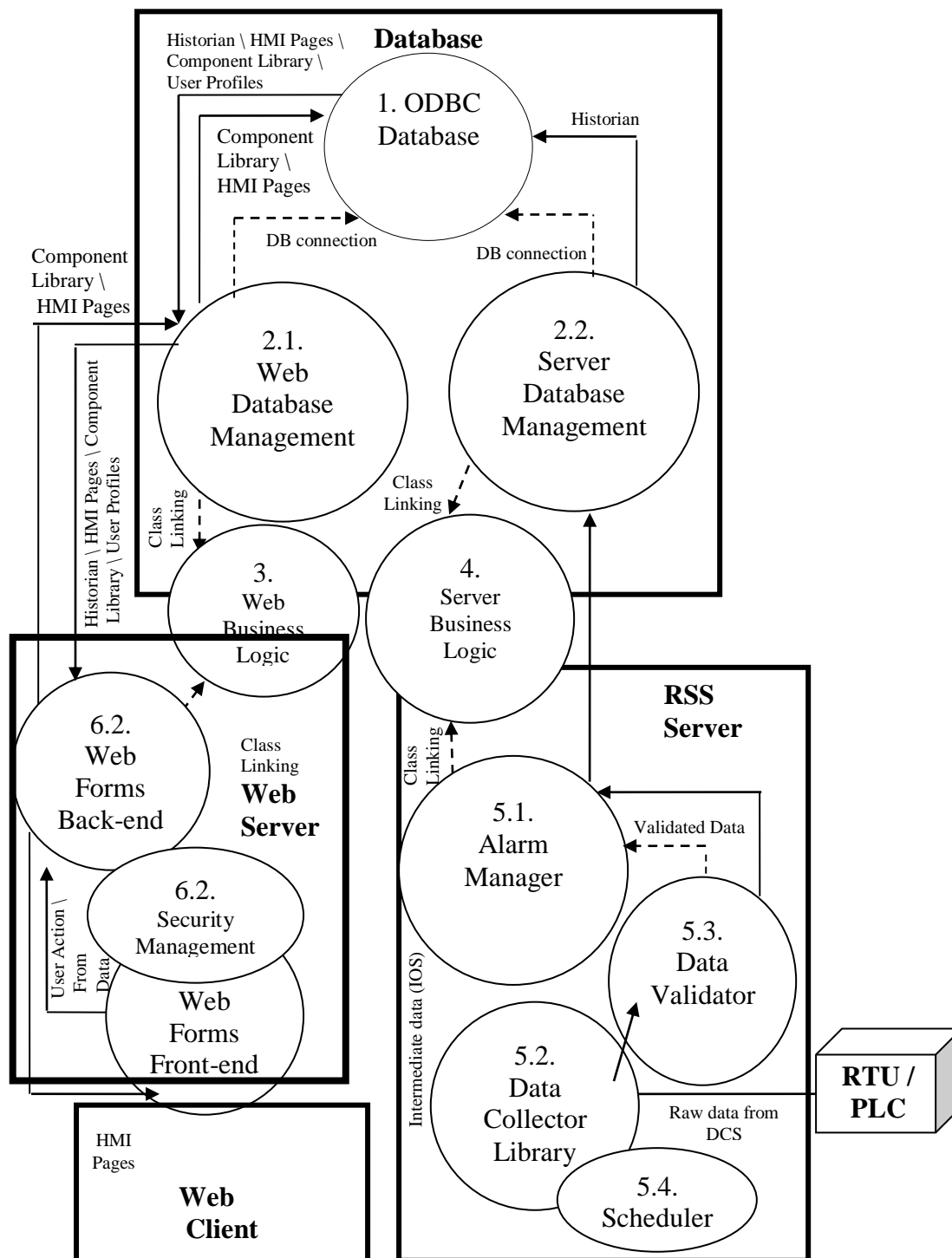
Sample Views
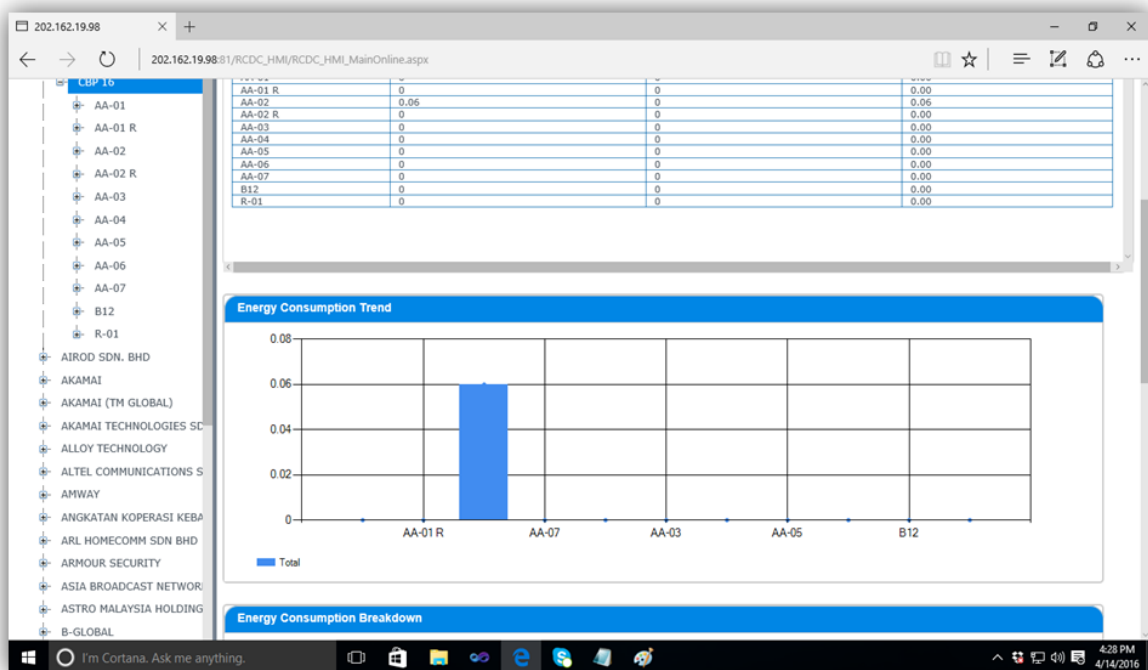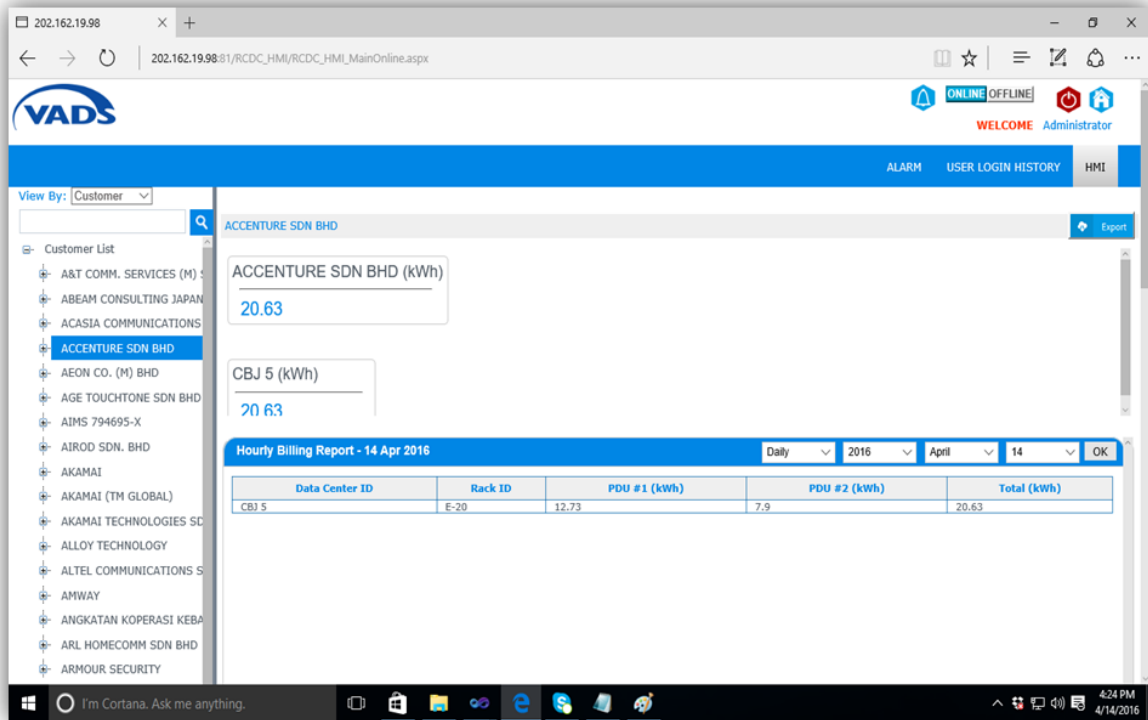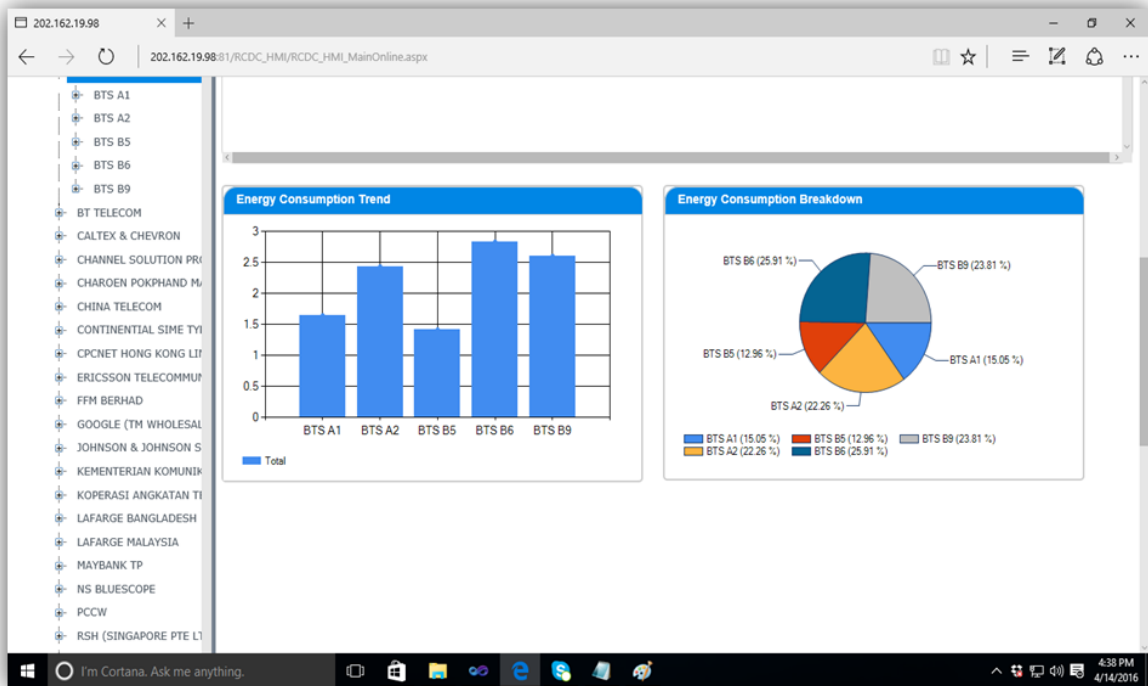
RSS RCDC

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
9/28/2015 4:32:08 PM	<System>	FRTU_BETA-2, OUT SIDE PKT F S/S_GTW	CONNECTED	---
9/28/2015 4:31:59 PM	BETA-1, A-MARKET(AQQARWAL CLINIC)	ISO-2	OPEN	OPERATIONAL
9/28/2015 4:31:57 PM	<System>	FRTU_BETA-1, A-MARKET(AQQARWAL CLINIC)_GTW	CONNECTED	---
9/28/2015 4:31:56 PM	11KV_NEUMANN_SS	11 KV O/G-3_MFM	DISCONNECTED	---
9/28/2015 4:31:56 PM	11KV_NEUMANN_SS	11 KV O/G-4_MFM	DISCONNECTED	---
9/28/2015 4:31:56 PM	11KV_NEUMANN_SS	11 KV O/G-5 SPARE_MFM	DISCONNECTED	---
9/28/2015 4:31:56 PM	11KV_NEUMANN_SS	11 KV O/G-2_MFM	DISCONNECTED	---
9/28/2015 4:31:56 PM	11KV_NEUMANN_SS	11 KV INC-2_MFM	DISCONNECTED	---
9/28/2015 4:31:56 PM	11KV_NEUMANN_SS	11 KV O/G-1_MFM	DISCONNECTED	---
9/28/2015 4:31:56 PM	11KV_NEUMANN_SS	11 KV B/C_MFM	DISCONNECTED	---
9/28/2015 4:31:34 PM	33/11KV_K.P-3_SS	11KV-2_MFM	DISCONNECTED	---
9/28/2015 4:31:33 PM	11KV_NEUMANN_SS	11 KV INC-1_MFM	DISCONNECTED	---
9/28/2015 4:31:25 PM	33/11KV_LAKHNAWALI_SS	11 KV KULESRA_MFM	DISCONNECTED	---
9/28/2015 4:31:25 PM	<System>	FRTU_DELTA-1 A-258_GTW	DISCONNECTED	SYSTEM
9/28/2015 4:31:25 PM	33/11KV_JALPURA_SS	11 KV ECOTECH-12_MFM	DISCONNECTED	---

Screenshot 1 — RSS RCDC (Scada_SLD)

localhost:52388/ScadaWeb/Scada_SLD.aspx

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_305_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

0 MW
0 MVAR
0 A
? CB
TRF-1_11KV I/C

11KV BUS-1

0 MW
0 MVAR
0 A
? CB

0 MW
0 MVAR
0 A
? CB

11KV O/G FDR
REWALSAR LOCAL

11KV O/G FDR
KOTHI SADYANI

Screenshot 2 — Energy Consumption

202.162.19.98/RCDC_HMI/RCDC_HMI_MainOnline.aspx

BTS A1
BTS A2
BTS B5
BTS B6
BTS B9
BT TELECOM
CALTEX & CHEVRON
CHANNEL SOLUTION PR(
CHAROEN POKPHAND M/
CHINA TELECOM
CONTINENTAL SIME TY
CPCNET HONG KONG LI
ERICSSON TELECOMMU
FFM BERHAD
GOOGLE (TM WHOLESAL
JOHNSON & JOHNSON S
KEMENTERIAN KOMUNII
KOPERASI ANGKATAN T
LAFARGE BANGLADESH
LAFARGE MALAYSIA
MAYBANK TP
NS BLUESCOPE
PCCW
RSH (SINGAPORE PTE L

Energy Consumption Trend

(bar chart: BTS A1, BTS A2, BTS B5, BTS B6, BTS B9) — Total

Energy Consumption Breakdown

BTS B6 (25.91 %)
BTS B9 (23.81 %)
BTS B5 (12.96 %)
BTS A1 (15.05 %)
BTS A2 (22.26 %)

Legend:
BTS A1 (15.05 %)   BTS B5 (12.96 %)   BTS B9 (23.81 %)
BTS A2 (22.26 %)   BTS B6 (25.91 %)

Screenshot 3 — Wind Turbine SCADA

Renewing Our Future   SCADA

GAJENDRAGADH

Turbine A3
Turbine A6
Turbine A5
Turbine A7
Turbine 7
Turbine 11
Turbine 12
Turbine 17
Turbine 18
Turbine 19
Turbine 25
Turbine 26
Turbine 31
Turbine 32
Turbine 35
Turbine 36
Turbine 38
Turbine 39
Turbine 43
Turbine 46
Turbine 47
Turbine 57
Turbine 59
Turbine 60

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 TEMPRATURE :	32
CONTROLLER TEMPREATURE :	42
HYDRAULIC TEMPRATURE :	41
GEARBOX TEMPRATURE :	63
MAIN BEARING TEMPREATURE :	71

TURBINE STATUS

COMMAND
START   STOP   RESET

143.96.66:82/ONLINE/WS_Online_All_Turbine.aspx?WindFarm=Gajendragadh
ENERATOR SPEED   ROTOR SPEED   Wind Speed

ADMS Control Centre Network Architecture Diagram (MEGHALAYA)

33/11KV METER FACTORY