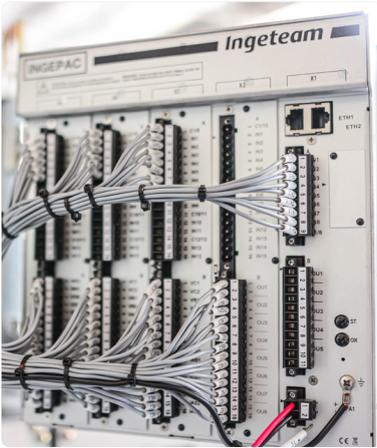


# CASE

# STUDY

RMU automation and remote monitoring  
King Palace (Thailand)



The objective of this project is to guarantee the **remote control and automation** of a ring main network used for distribution of power to the **King Palace** project, located in **Sakon Nakhon, Thailand**. Protection and control of this 24 kV urban secondary network is accomplished through four SF6 Gas Insulated RMU.

The equipment supplied by Ingeteam allows the **remote monitoring of the MV feeders** from the **telecontrol center** of the electric utility company PEA, that receives all the **signals and alarms**, as well as the **measurements** collected at each bay of the RMU.

Additionally, the RMU Controller detects the **presence of voltage** and **fault passage indication**, which **allows automation** necessary in the RMU to reconfigure the energy flow and maintain the power supply in the event of a fault.

## Applications

- RMU automation and remote monitoring
- Remote control of secondary distribution networks

## Medium voltage network automation

Installation: ELETECH/Type: SUP User: admin/Mode: MODIFICACION

Ingeteam RTU Web Application

Support Settings Configuration Events Logout

Status Detail Alarms Statistics Tools Users

RTU

- 01L-LBS-INC1
- 02L-LBS-INC2
- 03TF01-CB-OUT1
- 04TF02-CB-OUT2

Refresh Period: 5 s Refresh

2012-04-11 08:57:10

Back to Status

Interlocks

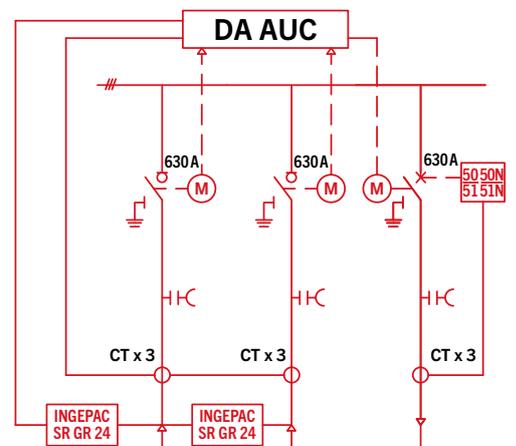
- Enclosure Door Open
- Earthing Switch Close
- Fault
- Sensitive Ground
- Isolating Switch Auto
- Definitive Trip

Currents		
	Mod	Arg
IA	0.000 A	0.000
IB	0.000 A	0.000
IC	0.000 A	0.000
IN	0.000 A	0.000
AVERAGE I	0.000 A	-

Voltages		
	Mod	Arg
VA	0.000 kV	0.000
VB	0.000 kV	0.000
VC	0.000 kV	0.000
VN	0.000 kV	0.000
AVERAGE V	0.000 kV	-
VAB	0.000 kV	0.000
VBC	0.000 kV	0.000
VCA	0.000 kV	0.000
AVERAGE V	0.000 kV	-

Power

PacFactory configuration available



# Overview

## RTU functions

- RMU remote control and real time monitoring of the signals
- Local control of each feeder through pushbuttons located on the front of the device
- Recording and sending measurements to the telecontrol center:
  - Current
  - Voltage
  - Active power
  - Reactive power
  - Power factor
  - Frequency
- Communication with telecontrol dispatch through DNP3 SA5 (Secure Authentication)

## Ingeteam Scope

- 1 x INGEPAC™ DA AUC controller with 21 DI + 5 DO for RMU (2L+P) automation
- 3 x INGEPAC™ DA AUC controller with 36 DI + 13 DO for RMU (3L+P) automation
- 24 resistive voltage sensors INGEPAC™ SR GR24 for gas-insulated switchgear up to 24 kV
- 36 CT for current measuring

## Built-in web server pages

- Single line diagram that indicates the general status of each switchgear providing detailed information of status, commands and measurements
- Alarms and events pages
- Measurement page

## Engineering services

- RTU signals programming
- Directional fault passage indication, fault isolation and load transfer automation programming
- Remote control list programming and point to point test by means of DNP3 SA5

## Highlights

- With a single device, all the automation, measurement, and supervision needs required in this type of installation are covered: fault passage, voltage presence detection, fault isolation automatism and load transfer, measurement, protection, control and RTU
- Voltage is measured by sensors that are more cost-effective than conventional voltage transformers

