

**STAKEHOLDER WORKSHOP  
PWTC  
(19<sup>th</sup> October 2011)**

**POWER QUALITY BASELINE STUDY FOR  
PENINSULAR MALAYSIA  
by  
*TRASTECH SDN BHD***

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**Presentation Outline**

- Overview
- Methodology
- Delivery of Power Quality Analyzer
- Fluke 1750
- Preliminary works
- Collection of data

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## Overview

- Trastech Sdn Bhd has been awarded a contract to supply, install and maintain the power quality analyzer at 50 sites selected by the consultants.
- Our main objective for this Power Quality Baseline Study is to supply, install, operate, supervise, data collection and maintain of power quality analyzer for first 25 sites in northern & eastern region for the 1<sup>st</sup> year and another 25 sites in the southern & central region for the 2<sup>nd</sup> year. These total 50 selected sites will be either the industrial substations, commercial substations, government buildings or hospitals.
- To record and measure all the voltage and current readings, power quality events & disturbances and other power quality parameters for one year. Besides online recorded data transferring to the server by the consultant, we are responsible for manually data collection once a month as a back-up.

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## METHODOLOGY



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## **Delivery Of Power Quality Analyzer**

- 25 sets of Fluke Model 1750 Portable Power Quality Analyzer was delivered on December 2010.
- The consultant team has inspected and is satisfied that all recorder function according to specifications.

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## **Fluke 1750 Power Recorder**

- Quick and reliable configuration: PDA wireless “front panel interface” provides a window into what the instrument is recording, even in awkward test locations.
- Threshold-free setup: Apply thresholds after data is collected with Fluke Power Analyze Software.
- Captures everything: Cross-channel and current triggering capture every measurement, on every channel, every time.
- Intuitive PC software: Easily analyze data and generate reports.
- Plug and play: Set up in minutes with self-identifying current probes and single-lead voltage connections.
- Measure every parameter: voltage and current on three phases, neutral, and ground.
- 5 MHz, 8000 Vpk waveform capture: Get a detailed picture of even the shortest events.

## Fluke 1750 Three-Phase Power Quality Recorder



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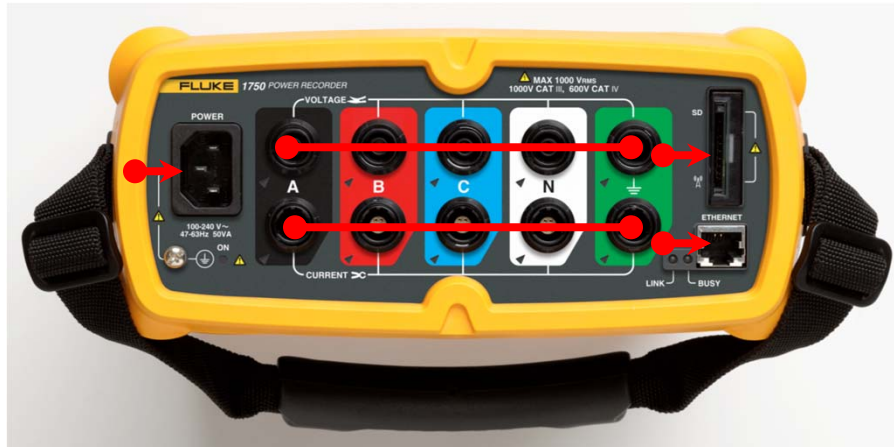
## Current Transformer



Model No.	CT Type	Current Range	Accuracy	Frequency Response	Jaw Opening
3005-PR	Clamp-On	0.01 A to 5 A	1 % RDG $\pm$ 0.5 % FS	5 kHz	2 cm (.78 in) dia.
3014-PR	Clamp-On	0.1 A to 40 A	1 % RDG $\pm$ 0.1 % FS	5 kHz	2 cm (.78 in) dia.
3140R	Clamp-On	2 A to 400 A	2 % RDG $\pm$ 0.04 A	20 kHz	3.2 cm (1.25 in) dia.
3110-PR	Flexi-CT	2 A to 100 A	1 % rdg $\pm$ 0.5 % FS	7 kHz	60 cm (24 in)
3210-PR	Flexi-CT	20 A to 1000 A	1 % rdg $\pm$ 0.15 % FS	7 kHz	60 cm (24 in)
3310-PR	Flexi-CT	100 A to 5000 A	1 % rdg $\pm$ 0.15 % FS	7 kHz	60 cm (24 in)
3312-PR	Flexi-CT	100 A to 5000 A	1 % rdg $\pm$ 0.15 % FS	7 kHz	120 cm (48 in)

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## Front Panel

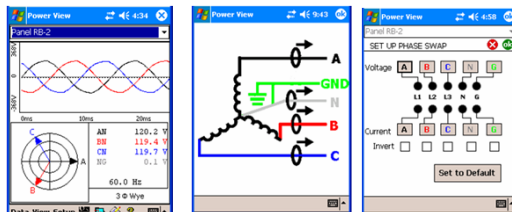


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## Verify in Seconds

Wireless PDA interface  
enables safe and easy  
verification

- instantly provides a window into measurements
- confirm setup and swap channels from a safe distance



## Preliminary Works

Preliminary works and site survey were carried out before the PQ analyzer installation to check the condition of the site, location to install the analyzer and other necessary preparation.



## Installation Of Power Quality Analyzer

- The PQ analyzer were installed at the 415V three phase star incoming feeder by the competent person.
- 4 x 5000A flexible CT's were clamped on the Red, Yellow, Blue & Neutral cable with 100A CT on the ground cable where 4 voltage leads were connected to the same 3 phase and neutral cable to measure the three phase voltage and current.
- The actual site installation was carried out from 28th December 2010 to 13<sup>th</sup> January 2011 for the Northern Region and followed by 14<sup>th</sup> January 2011 to 21<sup>st</sup> January 2011 for the Eastern Region.

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## Installation Of Power Quality Analyzer



## Connecting The Voltage Leads



## Clamping The Flexible CT



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## Collection Of Data

- Collection of data through online Celcom 3G to the server and manually save to the external SD card as back-up in case any interruption to the 3G service.

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## Collection Of Data Through SD Card



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## Supervision And Maintenance

- Our team will supervise the work, provide technical support and maintenance of the power quality analyzer installed at site.
- We will make monthly visit to each of the site to make sure that all the analyzer working properly. In case any of the analyzer were found to be faulty we will rectify it immediately or replace with a new one if the fault is severe.
- A full technical support service will also be provided by our principle Fluke Singapore if required

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## **Training And Seminar**

- During the whole 2 years period of the power quality baseline study we will conduct four technical training on operation, software, data collection and installation of the PQ analyzer and also seminar to Suruhanjaya Tenaga personnel on transfer of PQ knowledge.

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## **Calibration**

- The power quality analyzer will be sent for calibration after completed the 2 years power quality baseline study.

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## Project Hand Over

- After completed the 2 years power quality baseline study and recalibration of the power quality analyzer have been done, we will hand over all the analyzers to Suruhanjaya Tenaga. We will then responsible to install and integrate all the analyzer to existing Suruhanjaya Tenaga networking at 10 regional offices and headquarters in Malaysia.

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**THANK YOU**

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