PCS-996RC

Disturbance Fault Recorder

PCS-996RC disturbance & fault recorder is mainly used for recording the dynamic fault process of power system. The DFR is composed of one control unit (PCS-996RC) and multiple acquisition units (PCS-996RA). The control unit is linked to the acquisition units via fiber optic cables in point-to-point communication mode.

The control unit PCS-996RC is responsible for concentrating and monitoring of large array of quantities from different acquisition units.

The acquisition unit PCS-996RA is responsible for sampling and synchronizing of analogue quantities and digital quantities.

One control unit can connect with 1~4 acquisition units. Each of acquisition unit has 48 analog channels and 96 digital channels.

Typical configuration:

- 1 × PCS-996RC ＋ 2 × PCS-996RA, with 96 analog channels and 192 digital channels

Alternative configuration:

- 1×PCS-996RC＋(1~4) × PCS-996RA, with (1~4)×48 analog channels and (1~4)×96 digital channels, up to 192 analog channels and 384 digital channels

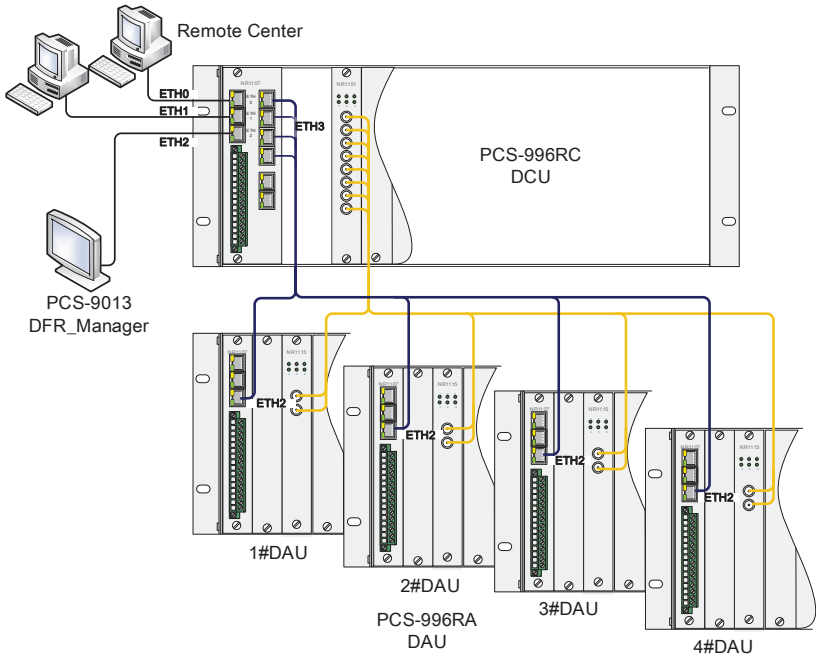

Figure 1 PCS-996RC and PCS-996RA

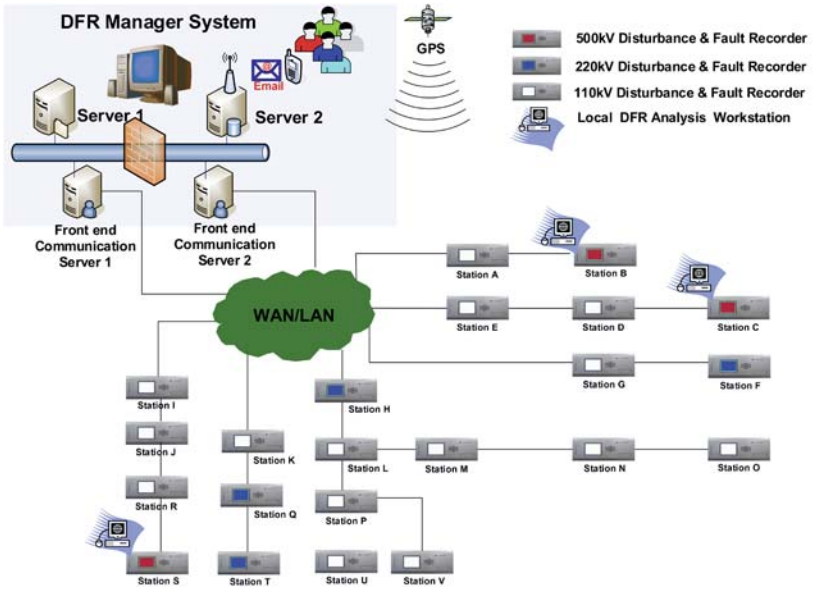

Figure 2 Typical application of PCS-996RC in a wide-area DFR system

Functions

Recording Functions

- Triggered recording
  Triggered according to the user defined or configured criteria for each channel
  - Voltage and current variation
  - Voltage and current over limit
  - Imbalance of phases
  - Frequency over limit and variation
  - Power swing
  - Binary input change
  - Manual trigger
  - Remote trigger

- Continuous recording
  24hrs uninterrupted recording with recording rate 1000Hz for 50Hz system and 1200Hz for 60Hz system. One file per minute up to 7 days.

- Long-term recording
  24hrs uninterrupted recording RMS values with recording rate 1Hz. One file per hour over 3 months.

- Extract recording.
  Automatically choose the channels of most probably fault component from triggered recording file and form a new COMTRADE file with smaller size for faster transmission and quick look. Usually with 4 channels of voltage, 4 channels of current and several digital channels.

Auxiliary Function

- Self diagnostic test
- Loss of DC power supply alarm
- Hardware circuit online detection
- Support IRIG-B time synchronization

Communications

- 3 RJ45 Ethernet port complies with IEC60870-5-103 and IEC61850 protocol
- 1 RS-485 serial port used for GPS time synchronization
- 1 RS-232 serial port used to test and configure device

Features

- Scalable distributed or centralized architecture, up to 192 analog channels and 384 digital channels. Optical connection module combined with remote acquisition units provides unique distributed topology.
- Control unit and acquisition unit can work independently, one unit failure will not affect another one, decreasing the risk of the whole system failure because of one point failure.
- High synchronization sampling (<1μs) between channels,16 bit analog-to-digital resolution and up to 12000Hz sampling rate, 32bit high performance CPU and digital signal processor(DSP).
- Web HMI, provides an easy way to configure the DFR locally and remotely.
- Comply with IEC 61850 protocol.