Portable disturbance & fault recorder

Indactic®650

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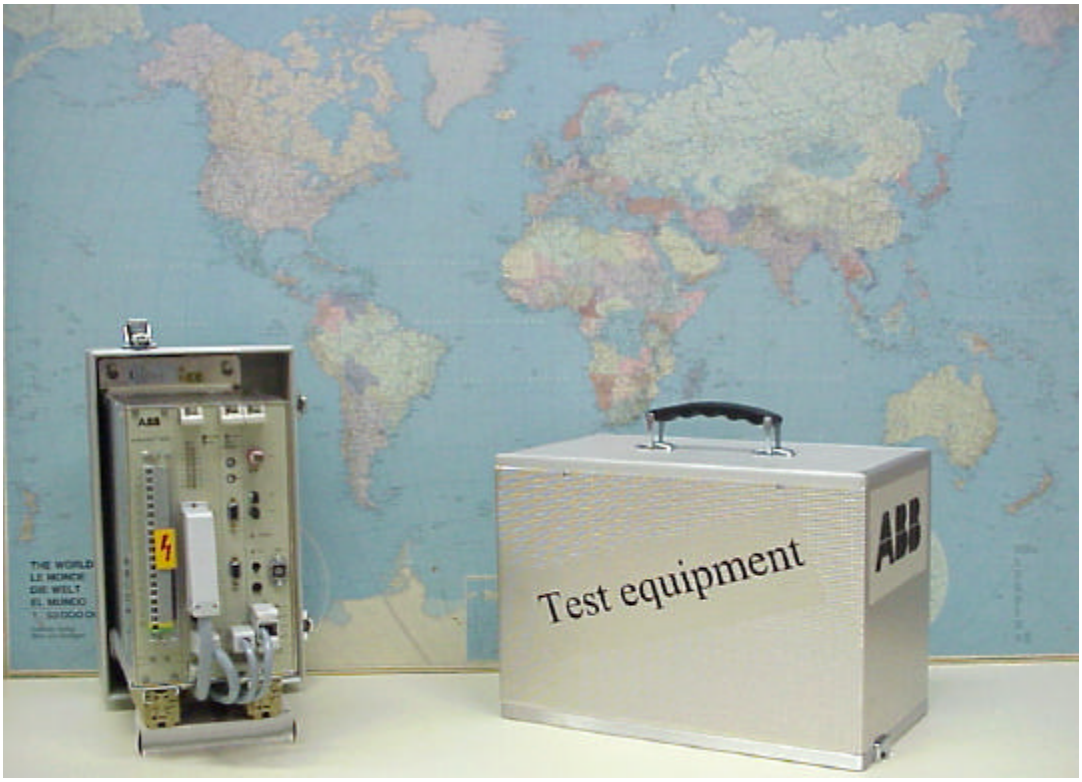


ABB Power Automation Ltd Switzerland (CHPAU)
Applications and Solutions for Customer Success

Indactic 650 Disturbance and Fault Recording Systems

The Disturbance & Fault Recorder (DFR) acquires for subsequent analysis the conditions in an electrical system that lead to (pre-fault), persist during (fault) and follow the Fault (post-fault). The analysis provides a detailed insight, with time resolution in fractions of a millisecond, into the behaviour of the electrical system.

The status and switching operations of bi-positional devices (digital inputs) like circuit breakers, switchgear and protection relay outputs can also be acquired together with the voltage and current waveforms (analogue inputs) on a common time base to facilitate analysis.
A specific requirement of the record is that it should span a period of time commencing at least a few cycles prior to the inception of the fault (this should be programmable from 5 to 50 cycles) till well after the fault; typically 0.5 to 5 seconds.
Essentially, no grey area should be encountered in the captured data during analysis. **This is done with the Indactic 650, additionally to this.....**

We have now developed a portable version of the Indactic 650, which will allow to install the unit in a substation on a temporary basis if there are some problems in a feeder without having to consider to install a permanent unit (Unit used as temporary installation).

To use this recorder during testing or commissioning (Unit used as test equipment).

This portable unit is equipped with own power supply (AC & DC), 9 analogue inputs (U, I or DC is defined by placing order) and 16 digital inputs.
It is delivered in a transportable case, 21 x 37 x 38 cm weighting approx. 12 Kg.
All technical details are as per Indactic 650 data sheet.

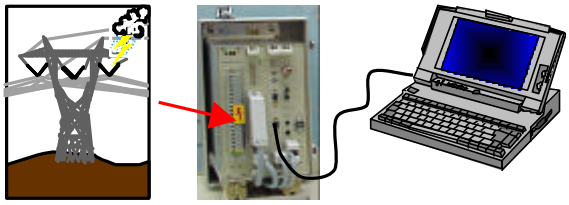
A highly reliable fault reporting and recording system is essential to enable:

- proper identification of poorly performing circuits
- taking corrective measures to improve leave clearances
- modifications to tower earthing and lightning shielding.

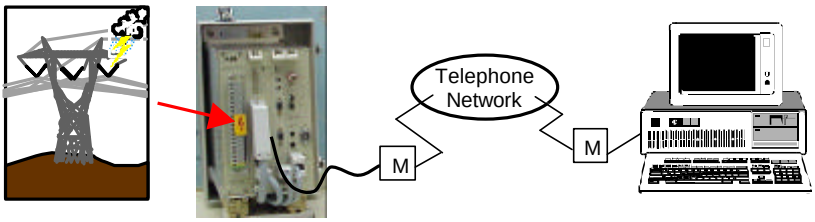
The major advantages are :

- Completely modular design, not susceptible to single-point failures, each acquisition unit is truly stand-alone.
- Very high reliability with two microprocessors (data acquisition, communication) and one DSP per unit.
- Easily expandable up to 79 units with only one cable (coaxial or fibre optic) for all functions and with the same level of performance and increased memory capacity.
- Dedicated analogue-to-digital converters for each channel results in simultaneous recording without any skew.
- Very high accuracy over the entire range of 0.6 to 40 times rated current (+/- 0.5% of full scale). 16 bit resolution.
- High-precision fault location with accuracy of +/- 2%
- Multi-tasking 32 bit analysis software **WINEVE** with **Expert** function which provides an automatic fast fault summary in a text file which is transmitted in a very short time to the central station and store all the data into a database for statistical analysis.

A storm can rapidly create outages of several circuits in a very short time span, and if the conventional system of transmitting all the fault records were resorted to, the telephone lines would be jammed.
The **Expert of WinEve** feature of the **INDACTIC 650** system prevents this from happening by performing a fast local evaluation, and only a text file (taking only a few minutes of transmission time) with the summary indicating the condition of the circuit is transmitted to the central station. **This enables engineers to quickly focus on circuits were the supply is interrupted and bring a repair team to the spot rapidly.**



Basic application (local) for portable Indactic 650



Remote application for portable Indactic 650

Conclusion

A highly reliable fault reporting and disturbance recording system is essential for monitoring the electrical transmission network and/or power generating plants.
Detailed analysis of these recordings will enable us to determine substation/generating plant failures, network weakness, diagnosing faults of switchgear, control equipment, protective relays etc.
While modern numerical protection schemes have limited inbuilt disturbance recording functions with lower sampling rates, lower memory capacity and less analogue triggering condition, only a dedicated and reliable fault recording system like the **INDACTIC 650** enables proper and accurate analysis of faults and complex system behaviour.

Planning and project design can be carried out by ABB Power Automation experts in close collaboration with the customers with the aim of achieving a high performance and cost-effective solution.

Our experts are ready to help you

For more information please contact the responsible sales engineer for your country.