ABB introduces the next generation of monitoring equipment for surge arresters - EXCOUNT-III. It provides user with remote real time monitoring and useful input to the insulation co-ordination of the station as a whole.

ABB’s family of surge counters and arrester monitors type EXCOUNT have shown their superior functionality and user safety. With the introduction of EXCOUNT-III, ABB has the full range of counters and monitors to cater for all customer needs – from simple discharge operation count (EXCOUNT-C) through leakage current measurement (EXCOUNT-I), remote wireless monitoring and diagnostics (EXCOUNT-II) to online real-time monitoring, diagnostics and analysis (EXCOUNT-III).

The state-of-the-art EXCOUNT-III is available in two versions:
• EXCOUNT-IIIA
• EXCOUNT-IIIM

Key features and advantages of EXCOUNT-IIIA are:
• Registration of surge amplitude and wave-steepness, date and time of occurrence
• Recording of complete surge current impulses at the arrester’s connection point
• Online total leakage current measurement
• Online resistive leakage current measurement through the arrester by third-harmonic analysis
• Data analysis via a web page interface
• Support for IEC 61850 data transfer protocol

EXCOUNT-IIIA provides the measured surge amplitude between 100-20 000 A. EXCOUNT-IIIA registers amplitude, wave-steepness and calculates estimated overvoltage at connection point.

The standard version (EXCOUNT-IIIM) is available for users who do not desire to analyze overvoltages in detail. With this, discharges are only categorized by their amplitude along with a date and time stamp of occurrence. Other generic features are the same between the versions.

The unique features of EXCOUNT-III form a powerful set of tools in the maintenance engineer’s arsenal and set it aside from normal counters in terms of functionality. Alone or with the aid of a SCADA system, the measurements can be used to co-ordinate maintenance work and possible arrester replacement in order to assist with minimizing unnecessary and costly unplanned outages. In its advanced form, EXCOUNT-III can also give system engineers the ability to estimate overvoltages occurring at nearby apparatus within the arrester’s protection zone - providing valuable information about whether the protection against potentially damaging surges is sufficient or not.

Interest for online monitoring is growing, and EXCOUNT-III has been designed to fulfill this need by providing the user with remote real-time monitoring of arresters as well as useful input to the insulation co-ordination of the station as a whole.
Brief performance data

General
Climatic conditions: Sealed water-tight design, IP67
Power supply: 100-250 Volt, AC (50-60 Hz) or DC

Surge registration
Minimum counting threshold (8/20 μs): Adjustable 100-1000 A

EXCOUNT-IIIM
Amplitude classification (8/20 μs): The surge amplitude is classified as follows
- 100-999 A
- 1000-4999 A
- 5000-9999 A
- >10 000 A

EXCOUNT-III A
Amplitude classification (8/20 μs): The surge amplitude is classified as follows
- 100-999 A
- 1000-4999 A
- 5000-9999 A
- >10 000 A

Additionally, EXCOUNT-III A provides the measured surge amplitude between 100-20 000 A. EXCOUNT-III A registers amplitude, wave-steepness and calculates estimated overvoltage at connection point.

EXCOUNT-IIIM
- Time stamp: Yes
- Time resolution: 1s
- Memory capacity: 30 Years of data

EXCOUNT-III A
- Time stamp: Yes

Leakage current measurement
- Measuring range of total leakage current: 0.2-12 mA
- Measuring range of resistive leakage current (Peak level): 10-2000 μA
- Measuring frequency range: 48-62 Hz

Communication
- Optical fibre connection: Yes
- Protocol: IEC 61850, Ed. 2. TCP/IP with web server in the device

EXCOUNT-IIIM
- Version: EXCOUNT-IIIM
- Model: 1HSA449000-C
- Surge counting: Yes
- Time stamp: Yes
- Impulse amplitude classification: Yes
- Impulse amplitude measurement: -
- Leakage current measurement: Yes
- Resistive leakage current measurement: Yes
- Online real-time monitoring: Yes
- Wave steepness: -
- Advanced surge analytics: -
- Overvoltage estimation: -

EXCOUNT-III A
- Version: EXCOUNT-III A
- Model: 1HSA449000-A
- Surge counting: Yes
- Time stamp: Yes
- Impulse amplitude classification: Yes
- Impulse amplitude measurement: Yes
- Leakage current measurement: Yes
- Resistive leakage current measurement: Yes
- Online real-time monitoring: Yes
- Wave steepness: Yes
- Advanced surge analytics: Yes
- Overvoltage estimation: Yes