

# Online Surge Arrester Monitor - EXCOUNT-III

## Remote real-time monitoring, diagnostics and analysis



— EXCOUNT - IIIA/IIIM with field probe.

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

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.

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 $\mu$ s)	Adjustable 100-1000 A	
	<b>EXCOUNT-IIIIM</b>	<b>EXCOUNT-IIIIA</b>
Amplitude classification (8/20 $\mu$ s)	The surge amplitude is classified as follows 100-999 A 1000- 4999 A 5000 – 9999 A >10 000 A	The surge amplitude is classified as follows 100-999 A 1000-4999 A 5000-9999 A >10 000 A  Additionally, EXCOUNT-IIIIA provides the measured surge amplitude between 100-20 000 A. EXCOUNT-IIIIA register amplitude, wave-steepness and calculates estimated overvoltage at connection point.
Time stamp	Yes	
Time resolution	1s	
Memory capacity	30 Years of data	
Leakage current measurement		
Measuring range of total leakage current	0.2-12 mA <sub>peak</sub>	
Measuring range of resistive leakage current (Peak level)	10-2000 $\mu$ A	
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-IIIIM

Version	EXCOUNT-IIIIM
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-IIIIA

Version	EXCOUNT-IIIIA
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