

# Competitive and safe with the VDS

The compact switchgear 3AP1 DTC offers you the possibility of integrating several different switchgear functions in a single device.

The combination of different components, which are available in a wide range of versions, enables us to fulfill the specific requirements of our customers with respect to their individual substation layouts.

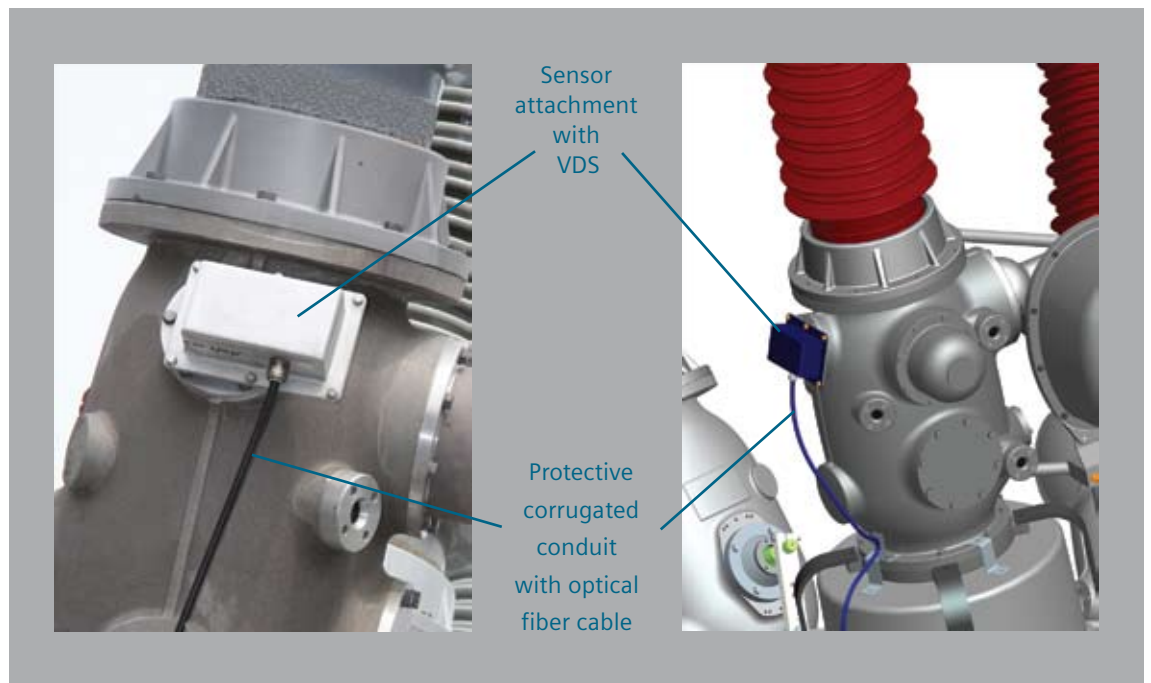
## Advantages:

- Economic alternative to a voltage transformer if there is no requirement for voltage values to be measured
- High reliability due to use of an optical interface
- Guaranteed high level of safety thanks to an integrated surge arrester which protects electronic components and staff
- Opportunity for simple integration of switching error protection, such as closing the earthing switch under live conditions

The Voltage Detection System (VDS) is yet another intelligent device of the DTC component portfolio.

Up to three VDS systems can be integrated to monitor the voltage at the outgoing units.

The system is attached directly to the disconnector and earthing switch component of the DTC and enables the voltage condition of the compact switchgear to be checked.



Voltage Detection System for the 3AP1 DTC

Answers for energy.

**SIEMENS**



Gas-tight measurement bushing with electrode

The major components of each voltage detection system are:

- Three sensor attachments (each with an electrode and measured signal converter) for detecting the voltage
- The control cabinet unit for indicating the voltage condition

The three sensor attachments are mounted directly on the housing of the disconnecter and earthing switch element. The integrated electrical components can be guaranteed for long service life through the use of a splash-proof housing and surge arrester.

The electrode is responsible for decoupling a capacitive current that behaves proportionally to the high voltage connection. It is mounted on a cover which includes a gas-tight bushing.

The measured signal converter transforms the capacitive current into an optical signal and supplies an optical output signal from a minimum threshold current of 5  $\mu\text{A}$ , which corresponds to a primary-side voltage in the range of 10 % and 35 %  $U_R/\sqrt{3}$ .

The control cabinet unit evaluates the signals from all three phases. The voltage condition is displayed via LEDs on the front side of the unit and made available by means of relay outputs.

The Voltage Detection System is a cost-effective alternative to a voltage transformer, in the event that no precise voltage values are required.

As a result of the VDS displaying the voltage condition, an electrical interlocking device can be used to prevent the disconnecter and earthing switch component from switching when voltage is applied. This switching error protection affords you a greater level of safety during operation.

The possibility of influence from external interference is eliminated thanks to the optical fiber transmission link. This constantly ensures that the voltage condition is displayed correctly in the control cabinet.



Control cabinet units for the monitoring of two outgoing units

Technical details			
Nominal voltage	72.5 kV	123 kV	145 kV
Minimum operating voltage	4.2 kV	7.1 kV	8.4 kV
Maximum operating voltage	14.7 kV	24.9 kV	29.3 kV
Temperature range	-55 °C up to +55 °C		
IP protection class	IP 54		

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Power Transmission Division  
Order No. E50001-D630-A200 -X-4A00  
Printed in Germany

Sha. 05113.0  
Printed on elementary chlorine-free  
bleached paper.

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