



Current/Voltage sensor ELK/CP3
for High Voltage GIS

Experience

from the praxis with
IEC 61850-9 process bus

This electronic voltage and current transformer for High Voltage has a completely redundant measuring system.

Lars Andersson

ELK-CP3 is an electronic voltage and current transformer for the ABB 550 kV GIS. The ELK-CP3 has a completely redundant measuring system within one unit at a fraction of the weight and volume of conventional instrument transformers. It measures voltage and current with an accuracy that meets both protection and metering standards. Each measuring system has two interfaces to protection and metering equipment.

Two different merging units can be connected to the secondary con-



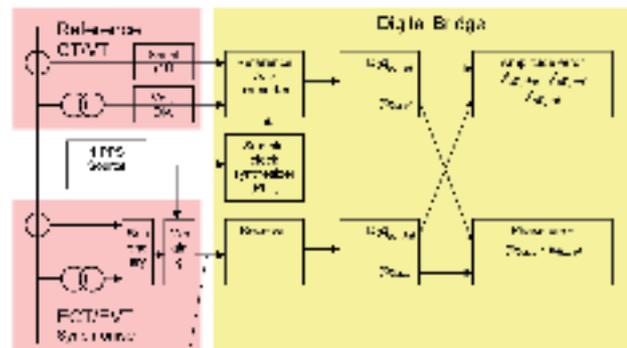
Merging units for the CP3 sensor



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verters, the MUM (Merging Unit for Metering) and MUP (Merging Unit for Protection). From the MUM the IEC61850-9-1 is used for connection to the meter. In the MUP the IEC61850-9-2 is used for connection to the protection and control equipment.

The sensor is a fully integrated part of the GIS. This makes it faster and easier to install compared with conventional ITs. Due to the fully redundant measurement systems it can be



Digitale Bridge

serviced without interrupting the operation and power flow. The primary converter has been in operation since 1998 and has to date an accumulated operational experience in excess of 1400 years without failure.

The CP3 is designed to fulfil the requirements defined in national and international regulations for design of metering systems and protection against fraud.

ABB has developed a digital bridge to verify the accuracy of the

metering system. It was first used for a factory acceptance test in 2003 where an ELK-CP3 based metering system was successfully tested.

The digital bridge has now been certified by *Physikalische Technische Bundesanstalt' PTB* in Braunschweig, Germany. This allows not only ABB but also personnel from the customer or third parties to use the digital bridge to accuracy of a metering system at any time.



Principle for the Digitale Bridge