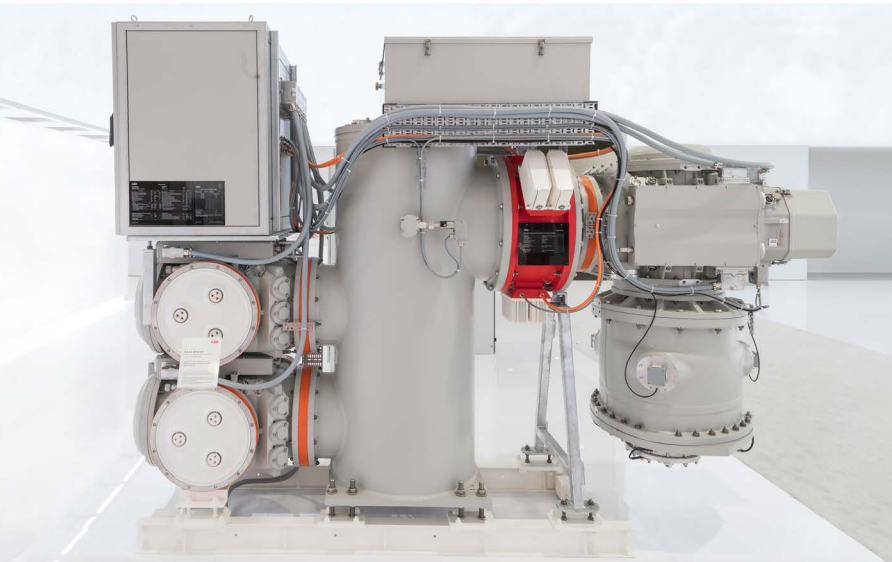


# Non-conventional instrument transformers for high-voltage gas-insulated switchgear

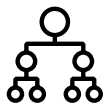


ABB's digital gas-insulated switchgear (GIS) comes integrated with non-conventional instrument transformers (NCIT) for metering, protection and control accuracy in a single device. The measurement principle of ABB's NCIT is based on Rogowski coil for current and capacitive divider for voltage measurement.

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NCIT for GIS  
ELK-04, 145 kV

ABB's high-voltage GIS were first equipped and delivered with NCITs in 1998. Since then, ABB has delivered more than 380 NCITs to GIS substations. ABB offers a range of NCIT portfolio for 52 kV up to 550 kV voltage levels.

## Key advantages



### Application

- One multi-purpose device for all applications
- Measurement values are available via IEC61850 bus communication
- Wide dynamic range and high precision
- High availability as the primary sensor is designed for the GIS lifetime



### Safety

- Configurable current and voltage ratings enable future adaptation of ratios without the need to replace cores or to open gas compartments
- No electrical circuits have to be opened for maintenance and repair, as all signals are fully digital available
- Stable against electro-magnetic disturbances



### Operation and maintenance

- Software configurable and digital, no burden calculation required
- High product flexibility without hardware changes
- Ease of maintenance for secondary sensor electronics without requiring shutdowns or re-calibration during exchange



### Savings

- No project specific dimensioning and manufacturing
- Reduces substation cabling between GIS and protection
- Reduces the GIS weight up to 27 percent
- Saves up to 17 percent of SF<sub>6</sub>-gas



## CP04

for GIS up to 170 kV

- Three phase enclosure, 500 mm long
- Horizontal mounting
- Rated primary current: 100... 3150 A
- Rated primary voltage: 52... 170 kV/ $\sqrt{3}$
- Accuracy class ECT 5TPE/0.2 (0.2S)
- Accuracy class EVT 3P/0.2
- Protection, measurement and revenue metering
- Single and redundant type (option)
- IEC60044-7, -8, IEC61850-9-2LE, IEC61869-6

### Merging unit

The CP-MU merging unit for all NCITs combines and synchronizes the current and voltage measurements from the sensors to IEC61850-9-2 process bus information.

- World's first UCA-certified<sup>1</sup> IEC61850-9-2LE compliant merging unit
- Reads up to nine current and nine voltage NCIT measurements
- Integrated switch function for five IEC61850-9-2LE ports
- Sampling rate 80 samples per cycle (4 kHz/4.8 kHz)

<sup>1</sup> UCA = International Users Group, implementation guideline for digital interface to instrument transformers using IEC61850-9-2



## CP14 and CP3

for GIS from 170 kV up to 550 kV

- Single phase enclosure, 560 | 780 mm long
- Vertical and horizontal mounting
- Rated primary current: 100... 4000 A | 100...6300 A
- Rated primary voltage: 170... 300 kV/ $\sqrt{3}$  | 330...550 kV/ $\sqrt{3}$
- Accuracy class ECT 5P, 5TPE/0.2 (0.2S)
- Accuracy class EVT 3P/0.2
- Protection, measurement and revenue metering
- Redundant type
- IEC60044-7, -8, IEC61850-9-2LE

