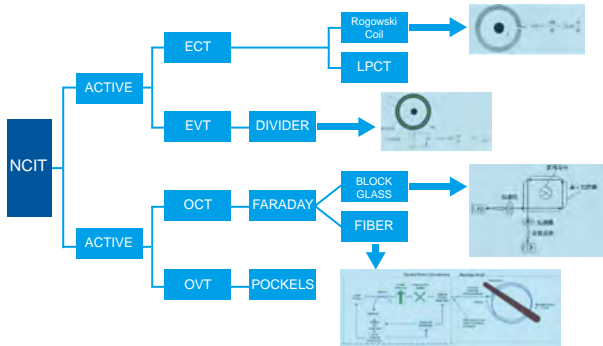




Overview

Compared with traditional transformers, Non-Conventional Instrument Transformers (NCIT) are divided into two types, one is active transformers, the other is passive transformers.

The active transformers include Electronic Current Transformer (ECT), Electronic Voltage Transformer (EVT) and the passive transformers include Optical Current Transformer (OCT), Optical Voltage Transformer (OVT).



There also has another taxonomy, divided the transformers into Gas Insulated Switch (GIS) type and Air Insulated Switch (AIS) type according to the application situation and object.

Benefits of NCIT

Item	Conventional CT/VT	NCIT
Dynamic range	Narrow Easy saturation	Wide No saturation
Insulation	Complex	Simple
Volume and weight	Large and heavy	Small and light
PT resonance	Easily occurred	No problem
CT break circuit	Not allowed	No problem
Output	Analog output	Digital output

NR Products Family

NR Electric can provide many kinds of NCIT products (PCS-9250 Series) which can satisfy the requirements of smart substations and HVDC converter stations. Since 2006, more than 5000+ NCIT products have been used in digital substations and HVDC converter stations.

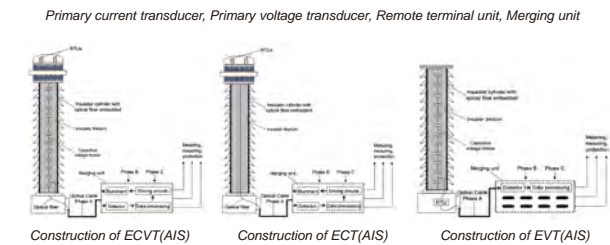
Products	Type	Voltage level
GIS ECT	PCS-9250-EGC	66kV-500kV
GIS EVT	PCS-9250-EGV	66kV-500kV
GIS ECVT	PCS-9250-EGI	66kV-500kV
AIS ECT	PCS-9250-EAC	66kV-500kV
AIS EVT	PCS-9250-EAV	66kV-500kV
AIS ECVT	PCS-9250-EAI	66kV-500kV
AIS Optical CT	PCS-9250-OAC	66kV-500kV
GIS Optical CT	PCS-9250-OGC	66kV-500kV

Products	Type	Voltage level
AIS Optical ECVT	PCS-9250-OAI	66kV-500kV
DC ECT	PCS-9250-EACD	50kV-1100kV
DC EVT	PCS-9250-EAVD	50kV-1100kV
DC OCT	PCS-9250-OACD	50kV-1100kV

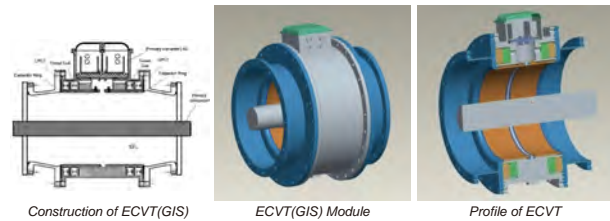
PCS-9250 series is a substitute product of conventional electromagnetic current and voltage transformers. It has advantages of simple insulation design, small size, wide dynamic range, and no magnetic saturation and resonance, etc. It covers the voltage levels such as 66kV, 110kV, 220kV, 330kV, 500kV and 750kV etc.

PCS-9250-EAI/C/V electronic transformers are a series of products for air-insulated switches. PCS-9250-EGI/C/V electronic transformers are a series of products for gas-insulated switches. Both of them include electronic combined transformer (ECVT), electronic current transformer (ECT), and electronic voltage transformer (EVT).

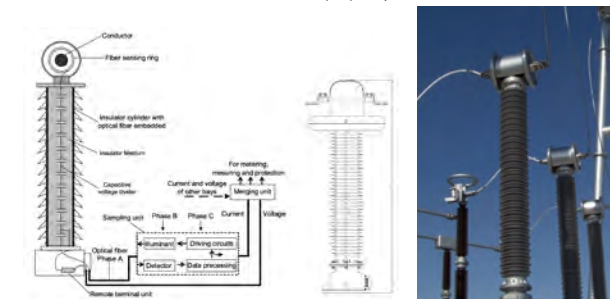
AIS electronic transformer consists of four parts:



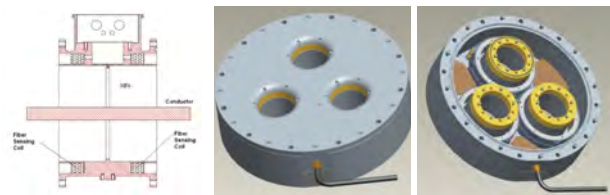
PCS-9250-OAC/OGC are optical current transformers (OCT) for AIS and GIS.



Construction of OCT (AIS) and picture



Construction of OCT (GIS) and picture



Application and Reference

PCS-9250 GIS/AIS ECT/EVT is applied in many digital substations and proves to be a stable product with excellent performance and high reliability.

Application examples of this product is shown in the following figures.



Figure. PCS-9250 GIS ECT/EVT in a 220kV digital substation in Shandong Province



Figure. PCS-9250 GIS ECT/EVT in a 220kV digital substation in Anhui Province



Figure. PCS-9250 GIS ECT/EVT in a 110kV digital substation in Jiangxi Province



Figure. PCS-9250 AIS ECT/EVT in a 220kV digital substation in Heilongjiang Province



Figure. PCS-9250 AIS ECT/EVT in a 110kV digital substation in Liaoning Province



Figure. PCS-9250 AIS OCT in 220kV Jinshan digital substation in Heilongjiang Province



Figure. PCS-9250 AIS OCT in 110kV Dalv digital substation in Zhejiang Province



Figure. PCS-9250 AIS OCT in 220kV Lanxi digital substation in Zhejiang Province



Figure. PCS-9250 GIS OCT in 110kV Huangtun digital substation in Shandong Province



Figure. PCS-9250 GIS OCT in 110kV Zibo digital substation in Shandong Province

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NCIT (Non-Conventional Instrument Transformer)

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