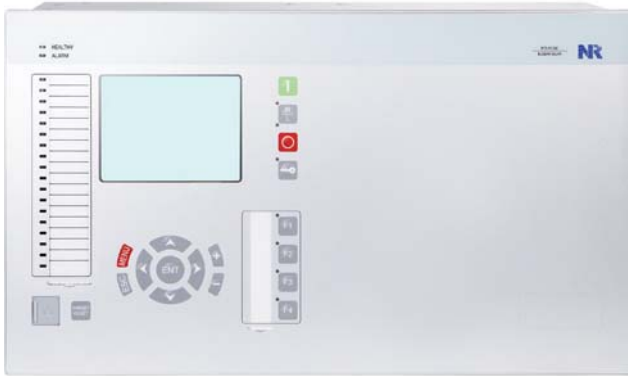
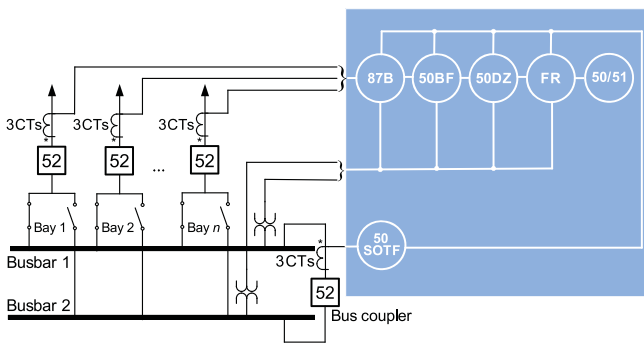


PCS-915SC Centralized Busbar Relay



PCS-915SC centralized busbar relay integrates busbar differential protection, bus coupler/section protection (includes overcurrent protection, switch-onto-fault protection, dead zone fault protection and breaker failure protection) and feeder protection (includes overcurrent protection, dead zone fault protection and breaker failure protection). With its flexibility and the powerful PCS-Studio configuration tool, PCS-915SC offers future-oriented busbar solutions with high investment security and low operating costs.



Features

- Applicable for single busbar, single bus with bus section, double busbar, double busbar with bus section, etc. busbar arrangement, and the busbar differential protection can connect up to 4 busbars and 32 bays.
- Comprehensive functionality including phase segregated current differential protection, breaker failure protection, overcurrent protection and dead zone protection, etc.
- The phase segregated differential protection adopts both of deviation of power frequency component (DPFC) and steady-state component, that can guarantees fast and reliable performance during CT saturation. It can ensure no mal-operation of external fault and fast operation of internal fault in the case of the correct transfer time of CT is no less than 3ms.
- With patented adaptive-weight anti-saturation algorithm and harmonic restrain algorithm, the DPFC differential protection operates fast and not affected by load current, the typical operation time is within 15ms.

- Voltage blocking is an option for the current differential protection and breaker failure protection, which will improve the reliability of current differential protection and breaker failure protection.
- With CT circuit supervision function, once CT circuit failure is detected, the user can choose discrimination zone or check zone differential protection blocking.
- Both of phase segregated and three phase breaker failure binary inputs can be connected for breaker failure protection, users can choose whether or not blocked by the current criterion. The overcurrent element of breaker failure protection have been especially treated, the dropoff time of it is no more than 12ms.
- Selectable IEC, ANSI inverse-time characteristic curves, also the curve can be defined by users and the inverse-time dropoff curve selection is supported.

With the disconnecter position status monitor and memory function, the device can check the rationality of the memorized disconnecter position status and automatically correct the error.

- Users can disable the discrimination zone differential element by the external binary input during the busbar maintenance. Also the bay can be disabled by the external binary input when it is in maintenance.
- LCD can display real-time main wiring diagram, the number of each bay, the state of each breaker and disconnecter, current and power flow, etc.

Functions

Protection and Control

- Busbar current differential protection (87B)

It consists of phase current differential protection and DPFC differential protection. Voltage control element and CT saturation blocking element are available to supervise the current differential protection.

- DPFC differential protection

DPFC differential protection is sensitive to high resistance fault and is immune to load fluctuations.

- Voltage control element

The used voltage can be phase voltage, zero sequence voltage or negative sequence voltage.

- Detection of CT saturation

Two principles for CT saturation detection are provided: patented adaptive weighted anti-saturation algorithm and harmonic algorithm. It keeps the current differential protection stable to external faults and quickly clears internal faults and external-to-internal evolving faults during CT saturation.

- Check zone and discrimination zone

The check zone differential element is used to distinguish between internal and external fault of the overall busbar system, the discriminating zone differential elements are used to select faulty zone.

- Bus coupler/section protection

- Breaker failure protection (50BF)

It can be supervised by voltage control element. Re-tripping and busbar tripping are executed in sequence.

- Dead zone protection (50DZ)

It is provided to clear the dead zone faults between CT and breaker.

- Switch-onto-fault protection (50SOTF)

Switch-onto-fault logic of bus coupler/section is used for bus energizing.

- Overcurrent protection (50/51)

Phase and ground overcurrent protection are both provided.

- Feeder protection

- Breaker failure protection (50BF)

It can be supervised by voltage control element. Re-tripping and busbar tripping are executed in sequence.

- Dead zone protection (50DZ)

It is provided to clear the dead zone fault between CT and breaker.

- Overcurrent protection (50/51)

Overcurrent protection consists of phase overcurrent element and ground overcurrent element, each can be set as inverse-time or definite-time.

- Voltage and current drift auto adjustment

The relay continually and automatically traces the voltage and current drifts and adjusts the zero point to acquire accurate measurements.

- Frequency tracking

Frequency tracking is provided to accommodate the frequency shifts in power system.

Monitoring and Measurement

- Dynamic busbar replica
- CT circuit failure supervision
- VT circuit failure supervision
- Fault phase selection
- Self diagnostic
- Event recorder including 1024 change-of-binary-input events, 1024 supervision events, 256 control logs and 1024 device logs
- Disturbance recorder including 32 disturbance records with waveforms (The format is compatible with COMTRADE.)
- Clock synchronization using IRIG-B, SNTP, PPS (Pulse-Per-Second) and PPM (Pulse-Per-Minute) , IEEE1588

Communication

- Up to four 10Base-T/100Base-TX copper Ethernet ports using IEC 61850, DNP3.0 or IEC 60870-5-103 over TCP/IP
- Up to four 100Base-FX optical Ethernet ports using IEC 61850, DNP3.0 or IEC 60870-5-103 over TCP/IP
- Two RS-485 serial ports using IEC 60870-5-103, DNP3 or Modbus
- One RS-485 serial port for clock synchronization
- Support GOOSE communication module using IEC 61850-8-1 GOOSE
- Full compatibility between IEC 61850 Editions 1 and 2
- Redundancy protocols PRP and HSR
- Provide some function shortcuts key, which can be configured by PCS-Studio and be fulfilled by combination key of devices' keypad, to execute some operation quickly.
- One front RJ-45 port for debugging