IRV Integrated Protection, Control and Metering IED

Protection Units

50 Instantaneous Phase Overcurrent (2 units).
51 Time Delay Phase Overcurrent (Inverse/Definite) (3 units).
50G Instantaneous Ground Overcurrent (2 units).
51G Time Delay Ground Overcurrent (Inverse/Definite) (3 units).
50SG Instantaneous Sensitive Ground Overcurrent.
51SG Time Delay Sensitive Ground Overcurrent.
50Q Instantaneous Negative Sequence Overcurrent (I2) (2 units).
51Q Time Delay Negative Sequence Overcurrent (Inverse/Definite) (I2) (3 units).
67 Directional Phase Overcurrent.
67G Directional Ground Overcurrent.
67Q Directional Negative Sequence Overcurrent.
67SG Directional Sensitive Ground Overcurrent.
67Nu Directional Ungrounded / Petersen Coil Neutral Overcurrent.

85-67N/67Q Protection Schemes for Ground/Negative Sequence DIR O/C Elements.
51V Voltage Dependent Phase Overcurrent (3 units).
27 Line or Phase Undervoltage (3 units).
59 Line or Phase Overvoltage (3 units).
59G Ground Overvoltage (2 units).
64 Earth Fault.
47 Negative Sequence Overvoltage.
81m Underfrequency (4 units).
81M Overfrequency (4 units).
81D Frequency Rate of Change (4 units).
50/62BF Breaker Failure.
46 Open Phase Element.
61 Residual Current Detection.
25 Synchronism Check.
78 Out-of-Step Element.
49 Thermal Image Unit.
26 Thermal Image Hot Spot Unit.
32P/Q Directional Power Element (Active/Reactive) (2 units).
37 Undercurrent.
87N Restricted Earth Fault.
79 Three Phase Recloser (4 cycles).
Control Features

- Programmable Control Logic.
- Local Breaker Control (2 Pushbuttons for open/close).
- 6 Programmable Pushbuttons for local control of the bay.
- Alphanumeric Display and Keypad.
- 8 to 82 Programmable Digital Inputs.
- 5 to 31 Programmable Digital Outputs.
- 4 or 17 Programmable Led Targets.
- Virtual Inputs/Outputs (up to 16 digital signals and 16 analog magnitudes).

Additional Functions

- Cold Load Pick Up.
- Frequency Load Shedding.
- Phase sequence selectable (ABC or ACB).
- Number of Voltage Transformers selectable: 2 or 3.
- Current/Time Inverse Curves: IEC, IEEE(ANSI) and US standards.
- Trip and Close Contacts (2+2)
- Trip and Close Circuit Supervision
- Breaker Monitoring (kA2 and number of trips)
- AC/DC power supply voltage monitoring
- 4 independent setting groups
- Event Recording and Programmable Metering Data Logging
- Fault Reporting
- Historical Metering Data Logging.
- Oscillographic Register (32 samples/cycle)
- Sequence of Event (SOE) Recorder with Programmable Metering Data Logging
- Fault Locator
- Integrated Simulator
- Time Synchronization via GPS (IRIG-B 003 and 123 Protocol) or by remote port (PROCOME 3.0 or DNP3 Protocols)
- Self-checking routines
- ZivercomPlus® Software Package.

Metering Functions

- Phase and Ground Currents (L-L and L-N).
- Ungrounded and Sensitive Ground Currents.
- Phase-Ground, Phase-Phase, Ground and Synchronism Voltages.
- Power Supply Voltage.
- Active and Reactive Power (P and Q).
- Apparent Power (S).
- Maximum and Minimum Values of each Magnitude (I, V, P, Q, S).
- Active and Reactive Energy in both directions.
- Power Factor.
- Frequency.
- Harmonics (up to 8th) for IA and VA.
- Thermal Image.
- Distance to the fault.
- Cumulative kA2.

Communications

- Standard DNP3, MODBUS, PROCOME and IEC61850.
- One serial RS232 + USB Local Port.
- One Electrical Interface RS232/RS485 Remote Port.
- Two LAN Ports: 100FX and 100TX - Ethernet F.O. (MT-RJ) and RJ45.
- One BUS CAN Remote Port.