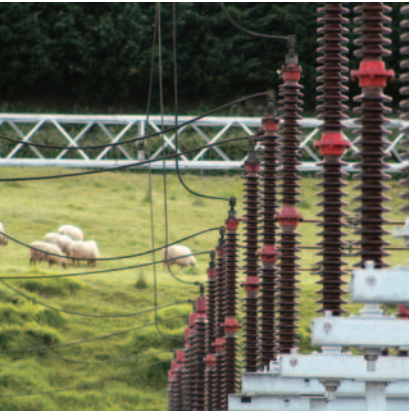


8IRV *Integrated Protection, Control and Metering IED*



IEC 61850

***Fully adaptable to feeders and
substation automation requirements***

Protection Functions

- | | | | |
|-------------|--|-------------------|--|
| 50 | Instantaneous Phase Overcurrent (2 units) | 85-67N/67Q | Protection Schemes for Ground/Negative sequence DIR O/C Elements |
| 51 | Time Delay Phase Overcurrent (Inverse/Definite) (3 units) | 51V | Voltage Dependent Phase Overcurrent (3 units) |
| 50G | Instantaneous Ground Overcurrent (2 units) | 27 | Line or Phase Undervoltage (3 units) |
| 51G | Time Delay Ground Overcurrent (Inverse/Definite) (3 units) | 59 | Line or Phase Overvoltage (3 units) |
| 50SG | Instantaneous Sensitive Ground Overcurrent | 59G | Ground Overvoltage (2 units) |
| 51SG | Time Delay Sensitive Ground Overcurrent | 64 | Earth Fault |
| 50Q | Instantaneous Negative Sequence Overcurrent (I2) (2 units) | 47 | Negative Sequence Overvoltage |
| 51Q | Time Delay Negative Sequence Overcurrent (Inverse/Definite) (I2) (3 units) | 81m | Underfrequency (4 units) |
| 67 | Directional Phase Overcurrent | 81M | Overfrequency (4 units) |
| 67G | Directional Ground Overcurrent | 81D | Frequency Rate of Change (4 units) |
| 67Q | Directional Negative Sequence Overcurrent | 50/62BF | Breaker Failure |
| 67SG | Directional Sensitive Ground Overcurrent | 46 | Open Phase Element |
| 67Nu | Directional Ungrounded / Petersen Coil Neutral Overcurrent | 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) |





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
- New **Vercomplus**® 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
- Two serial RS232, F.O. and RS485 Remote Ports
- 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

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)



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