BUS1000/2000 To
B30, B90 Replacement

BUS1000/2000 – SOLID STATE, HIGH-SPEED BUSBAR PROTECTION

The BUS 1000/2000 is a solid state, high-speed protection system for phase-to-phase and phase-to-ground faults on busbar installations of any voltage.

The UR product portfolio offered by GE Multilin has more options to meet your specific application needs. To take advantage of the latest in technology and the new developments on Low Impedance Busbar Differential Protection, consider replacing the BUS 1000/2000 with an UR B30 or B90 system.

UR FAMILY

- B30 Cost Effective Low Impedance Bus Differential System
- B90 Scalable Low Impedance Bus Differential System

KEY BENEFITS

- Enahnced operation during external faults
- Flash memory for product field upgrade
- Multiple breakers and disconnect switches support
- Reduced installation space requirements through compact design - True convergence of protection, metering and control functions, multiple I/O options programmable pushbuttons and status LEDS, and communication interfaces
- Modular construction simplifying and reducing the stock of spare parts
- Advanced programmable logic for building customized schemes
- Embedded IEC61850 Protocol - No external protocol converters required
- Comprehensive metering - current, voltage, power, energy, frequency, phasors
- Front panel display and keypad for local direct access, with a RS232 port for local PC access
- Multi-language support - French, Chinese, Russian option

- Customize protection and control functions with Programmable logic (FlexLogic™), custom time-current curves (FlexCurves™), and custom built protection and control functions (FlexElements™)
- Networking options – Ethernet cooper or fiber (optional redundancy), RS485
- Pilot channel options - Direct fiber for up to 150 km, RS422, G.703, direct to multiplexer fiber C37.94
- Multiple protocols - IEC61850, DNP 3.0 Level 2, DNP TCP/IP, Modbus RTU, Modbus TCP/IP, IEC 60870-5-104, HTTP, TFTP,SNTP, EGD
- Reduced relay to relay wiring and associated installation costs through high-speed inter-relay communications
- Dependable - Globally accepted, with performance backed up by more than a decade of field experience
- Reduce cooper wiring and labor cost of electrical substationsthrough the IEC61850 Process Bus solution "HARFIBER"

Multilin

B30 Cost Effective Low Impedance Bus Differential System

- High speed differential protection algorithm for enhanced with Subcycle trip times of 0.75 power cycle

- Complete IEC 61850 Process Bus solution providing resource optimization and minimizing total P&C lifecycle costs

- Superior CT saturation detector capable of detecting CT saturation even with only 2 msec of saturation free current for enhanced through fault stability.

- Ambient temperature monitoring with alarming when outside temperature exceeds upper thresholds

- Cost effective alternative to high impedance schemes

- Advanced automation capabilities for providing customized protection and control solutions

- Re-configurable simple bus applications, up to 6 feeders with breaker failure

- Integrated bus protection and metering for HV and EHV substations

- High-end fault and disturbance recording, including internal relay operating signals provided thus eliminating the need for redundant recording devices

- Application flexibility with multiple I/O options and programmable logic (FlexLogic™)

- Robust network security enabling Critical Infrastructure Protection through user command logging, and dual permission access control

- Isolator monitoring, CT trouble monitoring, VT supervision

- Oscillography - 64 samples/cycle, up to 64 records

- Event Recorder - 1024 time tagged events, with 0.5 ms scan of digital inputs

- Data Logger - 16 channels with sampling rate up to 1 sample / cycle

B30 Enhanced Front Panel

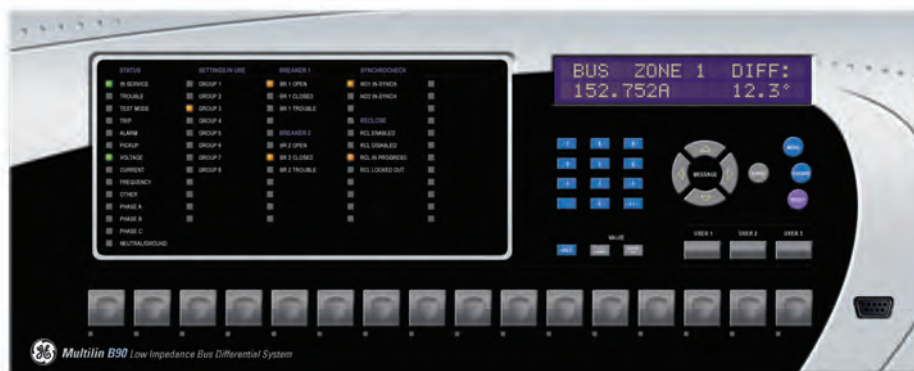## Functional Block Diagram
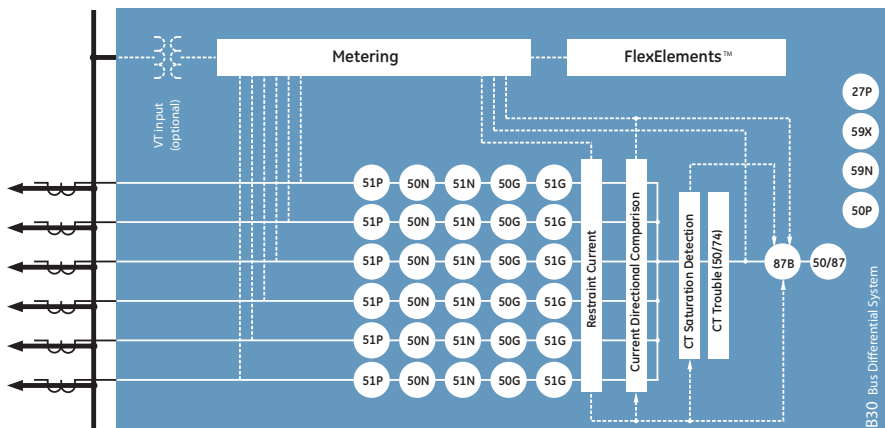
ANSI Device Numbers & Functions

Device Number	Function
25	Phase Undervoltage
50G	Ground Instantaneous Overcurrent
50N	Neutral Instantaneous Overcurrent
50P	Phase Instantaneous Overcurrent
50/74	CT Trouble
50/87	Unrestrained Bus Differential
51G	Ground Time Overcurrent
51N	Neutral Time Overcurrent
51P	Phase Time Overcurrent
59N	Neutral Overvoltage
59X	Auxiliary Overvoltage
87B	Restrained Bus Differential

# B90 Scalable Low Impedance Bus Differential System

- High speed protection algorithm for enhanced stability with trip times of 0.75 power cycle
- Superior CT saturation detector capable of detecting CT saturation even with only 2 msec of saturation free current for enhanced through fault stability
- Ambient temperature monitoring with alarming when outside temperature exceeds upper thresholds
- Suitable for different bus configurations, scalable architecture to protect up to 24 feeders.
- Re-configurable multi-section busbar with up to 24 feeders
- Integrated isolator position monitoring & alarming
- Single Bus, Breaker and half bus bar configurations, Double Bus and Triple Bus with and without bus couplers
- Isolator monitoring, CT trouble monitoring, VT supervision

- Pre Engineered Bus protection system - Use experienced GE Multilin application engineers to develop busbar protection system for your specific configurations
- Use high speed communications to reduce wiring and installation costs - Exchange inputs and outputs between relays to achieve relay-to-relay interaction
- Robust network security enabling Critical Infrastructure Protection through user command logging, and dual permission access control
- Oscillography – analog and digital parameters at 64 samples/cycle
- Event Recorder - 1024 time tagged events with 0.5ms scan of digital inputs
- Setting Security Audit Trail for tracking changes to C60 configuration

B90 Enhanced Front Panel

Functional Block Diagram
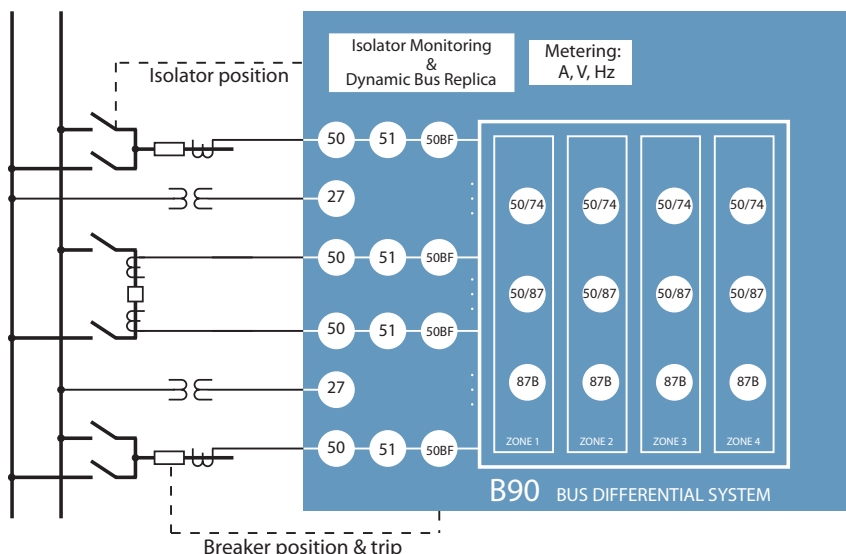
ANSI Device Numbers & Functions

Device Number	Function
27	Undervoltage
50	Instantaneous Overcurrent
50/74	CT Trouble
87B	Bus Differential
51	Time Overcurrent
50BF	Breaker Fail