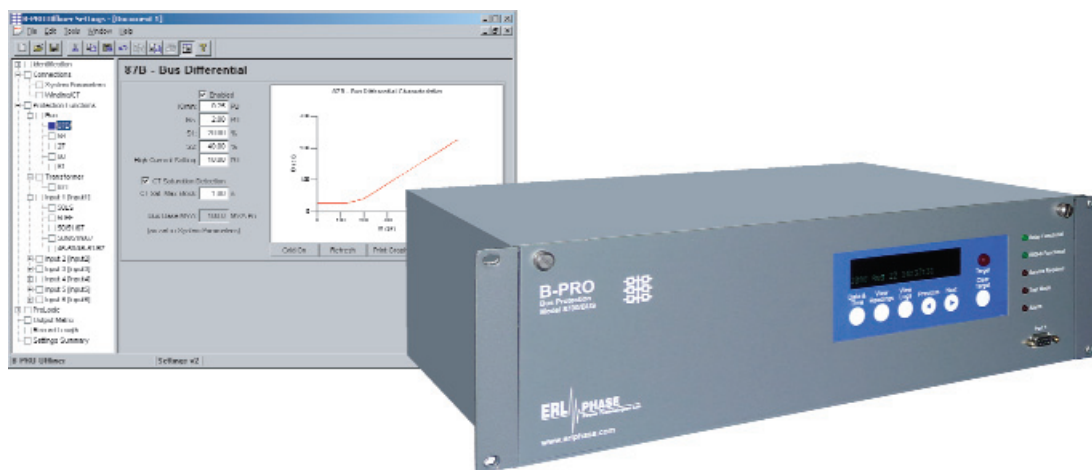


B-PRO 8700 Multi-function Bus Protection Relay (3-Phase)

- Easy to use with intuitive settings and analysis software
- Offers reliable protection with superior transient fault and dynamic swing recording
- Common look and feel with other ERLPhase relays and recorders



The B-PRO relay provides bus and substation differential protection (low impedance) with CT saturation security, integrated breaker failure and overcurrent protection with metering, DFR quality fault oscillography and dynamic swing recording, sequence of events logging, SCADA control in a fully integrated protective relay solution.



- Multiple zones of protection
- Transformer, bus and dual bus zones
- 96 samples/cycle fault recording, swing recording and event logging (1 ms)
- IRIG-B time stamping and sample synchronization
- Protection functions include IEEE devices 87B, 27, 59, 60, 81, 87T, 50LS, 50BF, 50/51/67, 50N/51N/67, 46/50/51/67

B-PRO 8700 Multi-function Bus Protection Relay (3-Phase)

Protection

- 6 sets of CT inputs for differential protection (18 currents) using percentage slope characteristic for security on external faults. Low impedance design allows different CT ratios for each of the 6 inputs.
- Backup overcurrent and breaker failure for each input current. User defined directional control of overcurrent functions for networked lines. Apply 3 phase voltages to apply over/under voltage and frequency functions.
- Protection functions include IEEE devices 87B, 27, 59, 60, 81, 87T, 50LS, 50BF, 50/51/67, 50N/51N/67, 46/50/51/67
- 1 or 2 separate differential zones – bus and transformer or Bus 1 and Bus 2 for multiple buses
- ProLogic — control logic statements

Recording, Monitoring and Metering

- High quality recording — fault recording (96 samples/cycle), dynamic swing recording (1 sample/cycle), and event logging (1 ms resolution)
- Metering functions for each input connection

Substation Automation – Ethernet Ready

- Direct-connect DNP3 and Modbus SCADA communication protocols
- 3 communication RS-232 ports
- IRIG-B time stamping and sample synchronization
- 30 virtual inputs for local remote control
- Standard 100BASE-TX Ethernet Port
- Optional internal modem

Easy to Use

- Easy to use, simplified relay setting and record analysis software (Windows® 2000/XP) included
- Intuitive ASCII-terminal interface provides full local or remote access

B-PRO 8700 Multi-function Bus Protection Relay (3-Phase)

| Item | Quantity/Specs | Notes |
|---|--|--|
| General | | |
| Nominal Frequency | 50 or 60 Hz | |
| Operating Time | 87B: 16-25 ms typical 87T: 12-24 ms typical | Including relay output operation |
| Sampling Rate | 96 samples/cycle | Records up to 25th harmonic |
| Power Supply | Range: 48–250 Vdc, 120 Vac | Power Consumption: 25-30 VA (AC) 25-30 W (DC) |
| Protection Functions | | |
| IEEE Device 87B, 87T, 27, 59, 60, 81, 50BF, 50LS, 50/51/67, 50N/51N/67, 46/50/51/67 | 6 x 3-phase current inputs (18 current channels) 1 x 3-phase voltage inputs (3 voltage channels) | Fault protection, monitoring and dynamic swing recording |
| ProLogic | 15 statements/setting group | 5 inputs/statement |
| Setting Groups | 1 | |
| Recording | | |
| Record Capacity | Up to 30 seconds of records per single phase unit. Each record can be up to a maximum of 2 seconds. | Viewing software provides waveform, symmetrical components, harmonic analysis and differential analysis |
| Transient | 96 s/c oscillography of all analog and external input digital channel | |
| Dynamic Swing | 1 samples/cycle or 60 samples/second | Line positive sequence voltage, current and frequency, W Var and Z for each of the 6 feeder inputs. Each swing record can be up to maximum 120 seconds |
| Events | 250 events | 1 ms resolution. When the "event auto save" is enabled a compressed event record is created is created approximately every 230 events |
| A/D Resolution | 13 bits, 8192 counts full scale peak–peak | |
| Input & Output | | |
| Analog Voltage Inputs 1 set of 3-phase voltage inputs (3 voltage channels) | Nominal Voltage Continuous rating over voltage Maximum over-scale thermal rating Burden | Vn = 69 Vrms 2x Vn = 138 Vrms 3x Vn = 207 Vrms for 10 seconds <0.15 VA @ 69 Vrms |
| Analog Current Inputs 6 sets of 3-phase current inputs (18 current channels) | Nominal Current Full Scale/Continuous Maximum full-scale rating Thermal Rating Burden | In = 5 Arms 3x In = 15 Arms 20x In = 100 A for 1 second (no distortion) 80x In = 400 A for 1 second <0.25 VA @ 5 Arms |
| External Inputs (digital) | 9 inputs | Two options: 48-125 or 125-250 Vdc |
| Output (contacts) | 14 programmable outputs and 1 relay inoperative output (N.C.) | Externally wetted Make: 30 A as per IEEE C37.90 Carry: 8 A Break: 0.9 A at 125 Vdc 0.35 A at 250 Vdc |

B-PRO 8700 Multi-function Bus Protection Relay (3-Phase)

| Item | Quantity/Specs | Notes |
|--------------------------------------|---|---|
| Interface & Communication | | |
| Front Display | 2 lines x 24 characters, fluorescent | Exceptional visibility in all ambient light conditions. |
| Front Panel Indicators | 6 LEDs | Target, Relay Functional, IRIG-B Functional, Service Required, Test Mode, Alarm |
| Serial User Interface | Front and rear RS-232 ports to 57.6 K baud | Rear port can support an external modem |
| Network | 100BASE-TX Ethernet port | Standard Ethernet card |
| Internal Modem | 33.6 Kbps, V.32 bis | Optional internal modem |
| SCADA Interface | DNP3 or Modbus | DNP3: Ethernet or RS-232, Modbus: RS-232 |
| Time Sync | IRIG-B, BNC connector | Modulated or unmodulated, auto-detect |
| Self Checking/Relay Inoperative | 1 contact | Closed when relay inoperative |
| Environmental | | |
| Ambient Temperature Range | -40°C to 85°C for 16 hours -40°C to 70°C continuous | IEC 60068-2-1, 2 |
| Humidity | Up to 95% without condensation | IEC 60068-2-30 |
| Insulation Test (Hi-Pot) | Power supply, analog inputs, external inputs, output contacts at 1.5 kV, 50/60 Hz, 1 minute | IEEE C37.90.1 / (IEC 61000-4-4/ IEC 60255-22-4): Class 3 |
| Electrical Fast Transient | | IEEE C37.90.1: 4kV / IEC 60255-22-4 Class 3 / IEC 61000-4-4: Level 3 |
| Oscillatory Transient | | IEEE C37.90.1: 2.5 kV / IEC 60255-22-1: Level 3 / IEC 61000-4-12): Level 3 |
| RFI Susceptibility | | IEEE C37.90.2: 35 V/m / (IEC 255-22-3/ IEC 61000-43): Level 3 |
| Vibration, Shock and Bump | | (IEC 60255-21-1, 2 / IEC 60068 2-8, 27, 29): Class 1 |
| Conducted RF Immunity | | (IEC 60255-22-6 / IEC 61000-4-6): Level 3 |
| Voltage Interruptions | 200 ms interrupt | IEC 60255-11 / IEC 61000-4-11 |
| Physical | | |
| Weight | 11.52 kg | 25.40 lbs |
| Dimensions | 13.3 cm (3U) high x 48.3 cm wide x 30.5 cm deep | 5.25" (3U) high x 19" wide x 12" deep |
| Mounting | Vertical or horizontal | Specify at time of order |

NOTE: The B-PRO 8700 is also available with 1 amp current input.
All current specifications would change accordingly.