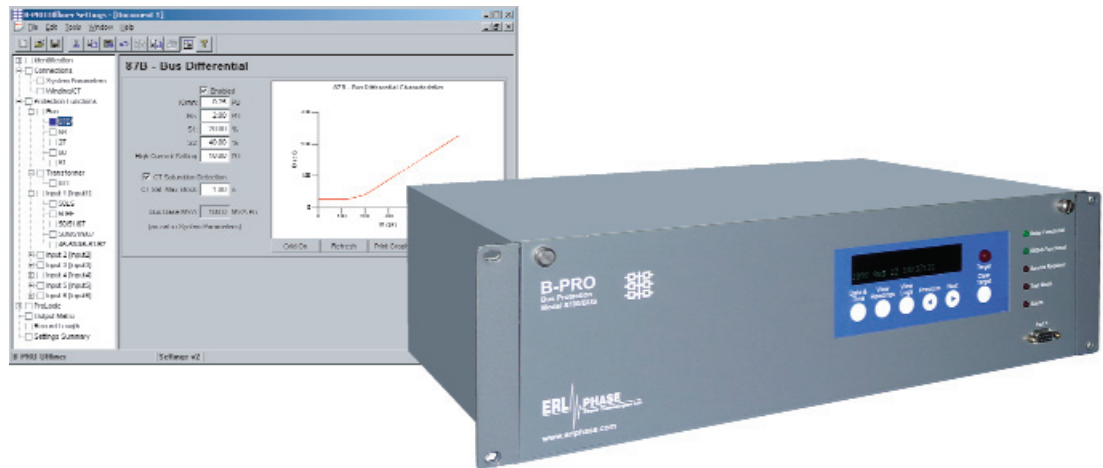


B-PRO 8701 Multi-function Bus Protection Relay (1-Phase)

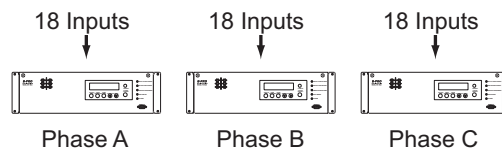
- Easy to use with intuitive settings and analysis software
- Offers reliable protection with superior transient fault recording
- Common look and feel with other ERLPhase relays and recorders



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, sequence of events logging in a fully integrated protective relay solution.



- Application for 2 to 18 bus connections using three-single phase relays in one unit
- 96 samples/cycle fault recording and event logging (1 ms)
- IRIG-B time stamping and sample synchronization
- Protection functions include IEEE devices 87B, 27, 59, 60, 81, 50LS, 50BF, 50/51/67



B-PRO 8701 Multi-function Bus Protection Relay (1-Phase)

Protection

- Up to 18 sets of CT inputs for differential protection (54 currents) using percentage slope characteristics for security on external faults. One B-PRO relay (model 8701/BUS) for each phase.
- CT saturation blocking for external faults
- 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.
- Apply 3 phase-to-neutral voltages to provide metering, plus over/under voltage, over/under frequency and Loss of Potential protection
- Protection functions include IEEE devices 87B, 27, 59, 60, 81, 50LS, 50BF, 50/51/67
- ProLogic — control logic statements

Recording, Monitoring and Metering

- High quality recording — fault recording (96 samples/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
- 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
- Coordinated operation — supports choice of internal modem, external modem or Ethernet card (requires 1/box)

B-PRO 8701 Multi-function Bus Protection Relay (1-Phase)

Item	Quantity/Specs	Notes
General		
Nominal Frequency	50 or 60 Hz	
Operating Time	87B: 8-20 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, 27, 59, 60, 81, 50BF, 50LS, 50/51/67	18 x single-phase current inputs per relay 3 x 3-phase voltage inputs (3 voltage channels)	Fault protection, monitoring and fault recording Note: 3 single-phase units "ganged" together a total of 54 current and 9 voltage channels
ProLogic	15 statements/setting group	5 inputs/statement
Setting Groups	1/single-phase unit	Using 3 single-phase units multiply everything in ProLogic by 3x
Recording		
Record capacity(per single-phase unit)	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	
Events (per single-phase units)	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 per relay (9 voltage channels for all 3 relays)	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 18 sets of single-phase current channels per relay (1 set of 18 3-phase current channels for all 3 relays)	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 8701 Multi-function Bus Protection Relay (1-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	Standard 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 8701 is also available with 1 amp current input.
All current specifications would change accordingly.