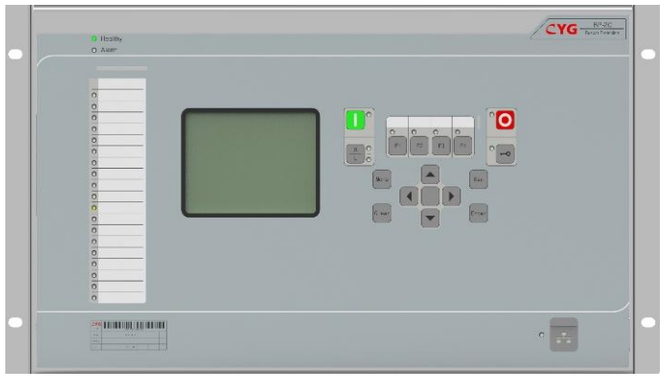
BP-2C

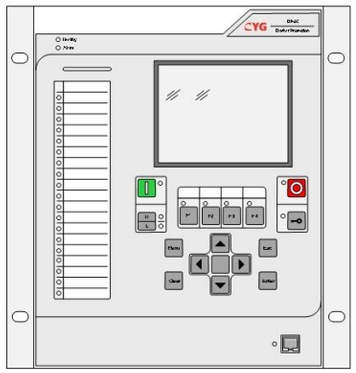
General Application

BP-2C is a numerical busbar differential protection intended for protecting and monitoring various busbar arrangements of various voltage levels, ranging from 110kV to 1000kV. BP-2C is suitable for various busbar configurations, including single busbar, single busbar with single bus coupler, double busbar, double busbar with up to 4 bus couplers, 3/2 breaker busbar, etc.

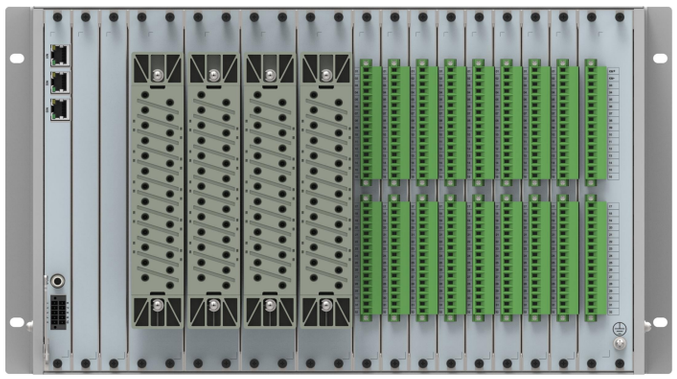
❖ Central Type



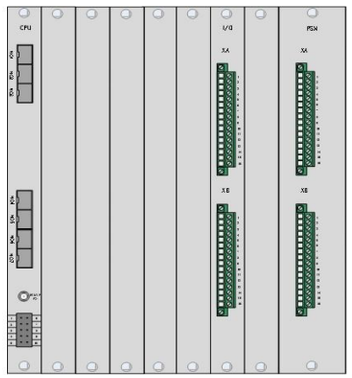
❖ 1/1 19” Front Panel



❖ 1/2 19” Front Panel



❖ 1/1 19” Rear Panel

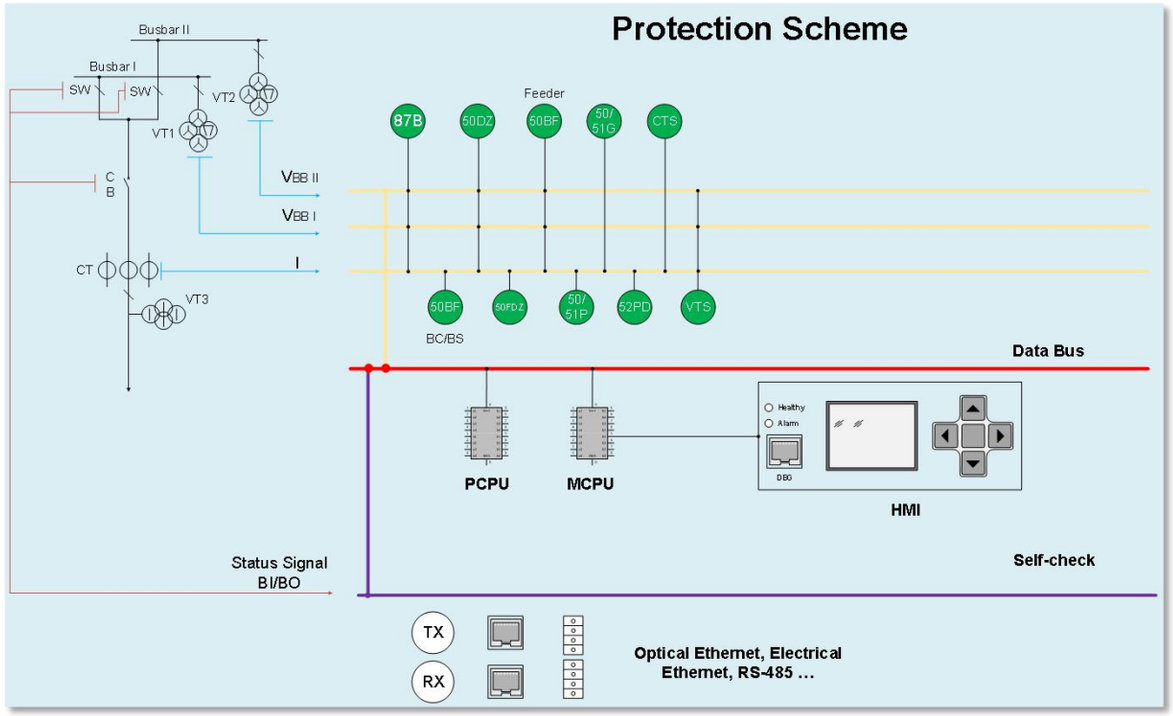


❖ 1/2 19” Rear Panel

Feature

Item	Parameter
Performance	32-bit high performance dual-core processor, internal high speed bus and intelligent I/O ports
Hardware	Modularized hardware design, flexibly configurable, easy extension
Interface	HMI with a control module (a 320×240-dot LCD, 16-key keypad and 28 LED indicators)
Communication	Ethernet network, RS-485 serial ports. Communication protocol optional: IEC61850, IEC60870-5-103, DNP3.0 or ModBus.
Time Synchronization	SNTP, IEEE 1588, pulse per second (PPS) and IRIG-B
Analog	Support the protocol IEC60044-8, IEC61850-9-2 and GOOSE, constantly measures and calculates voltage, current, power and frequency.
Recording	Fault and disturbance waves, operation reports, supervision, control operation records and time tagged sequence of event.
Monitor & Control	Optional: BI, BO, measurement and control

Protection Functions



Protection Functions

Description	IEC 61850	IEC 60617	ANSI
Busbar differential protection	-	3Id/I	87B
Breaker failure protection	CC_RBRF	3I>BF	50BF
BC/BS Dead Zone Protection			50DZ
Feeder End-fault Protection			50FDZ
Phase OverCurrent Protection	OC_PTOC	3I>	50/51P
Ground OverCurrent Protection	EF_PIOC	IN>>	50/51N
Three-phase Overvoltage Protection	OVPTOV	3U>	59P
Three-phase Undervoltage Protection	UVPTUV	3U<	27P

Supervision Functions

Description	IEC 61850	IEC 60617	ANSI
Fuse failure supervision	SEQRFUF	FUSEF	60
Current circuit supervision	CCRDIF	MCS 3I	MCS 31
Circuit Breaker Status Supervision			
Disconnector Status Supervision			

Protection Specifications

Busbar Differential Protection

Tolerance of current setting	≤ 2.5% Setting or 0.02In, whichever is greater
Accuracy of voltage setting	≤ 2.5% Setting or 0.02Un, whichever is greater
Operation time	≤20ms (Id>2.00×Setting)

Feeder End-fault Protection

Tolerance of current setting	≤ 2.5% Setting or 0.02In, whichever is greater
Dropout time	≤ 30ms
Tolerance of time setting	≤ 1% Setting + 40ms

Protection Specifications

Breaker Failure Protection

Tolerance of current setting	≤ 2.5% Setting or 0.02In, whichever is greater
Accuracy of voltage setting	≤ 2.5% Setting or 0.02Un, whichever is greater
Drop-off current	0.98×Setting
Drop-off time	≤ 12.5ms
Tolerance of time setting	≤ 1% Setting + 40ms

Phase Overcurrent Protection

Pickup current	1.00×Setting
Dropout current	0.98×Setting
Tolerance of current setting	≤ 2.5% Setting or 0.02In, whichever is greater
Dropout time	≤ 35ms
Tolerance of time setting (Definite-time characteristic)	≤1%×Setting+30ms (at 2 times current setting)
Tolerance of time setting (Inverse-time characteristic)	2.5% of operating time or 30ms, whichever is greater (Start value multiples in range of 1.2...20 when I>In) 5% of operating time or 40ms, whichever is greater (Start value multiples in range of 2...20 when I≤In)

Ground Overcurrent protection

Pickup current	1.00×Setting
Dropout current	0.98×Setting
Tolerance of current setting	≤ 2.5% Setting or 0.02In, whichever is greater
Dropout time	≤ 35ms
Tolerance of time setting (Definite-time characteristic)	≤1%×Setting+30ms (at 2 times current setting)
Tolerance of time setting (Inverse-time characteristic)	5% of operating time or 40ms, whichever is greater (Start value multiples in range of 1.2...20)

Pole Discordance Protection

Tolerance of current setting	≤ 2.5% Setting or 0.02In, whichever is greater
Dropout time	≤ 35ms

Protection Specifications

Tree-phase Overvoltage Protection

Tolerance of voltage setting	≤ 2.5% Setting or 0.02Un, whichever is greater
Tolerance of time setting (Definite-time characteristic)	≤1%×Setting+30ms (at 1.2 times voltage setting)
Tolerance of time setting (Inverse-time characteristic)	5% of operating time or 40ms, whichever is greater (Start value multiples in range of 1.2...20)
Dropout time	≤ 35ms

Tree-phase Undervoltage Protection

Tolerance of voltage setting	≤ 2.5% Setting or 0.02Un, whichever is greater
Tolerance of time setting (Definite-time characteristic)	≤1%×Setting+30ms (at 1.2 times voltage setting)
Tolerance of time setting (Inverse-time characteristic)	5% of operating time or 40ms, whichever is greater (Start value multiples in range of 1.2...20)
Dropout time	≤ 35ms

Protection Specifications