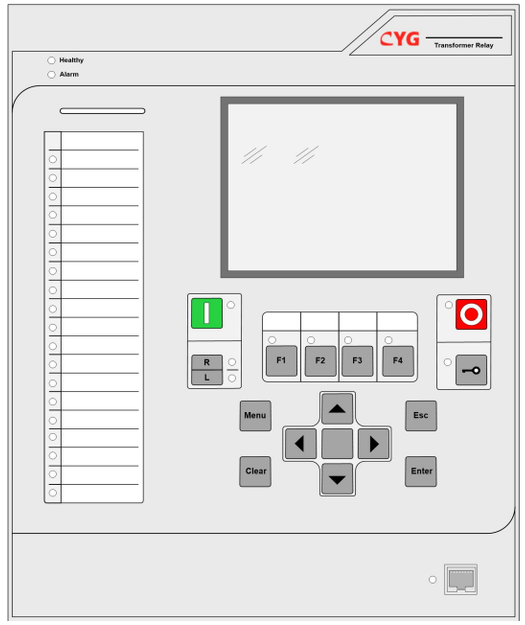
PRS-7741

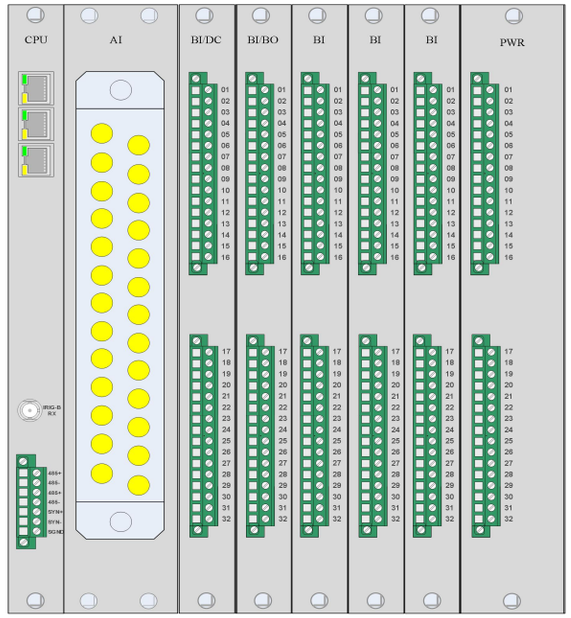
Bay Control Unit

General Application

The PRS-7741 relay is a numerical Bay Control Unit (abbreviated as BCU) which can be used in various voltage level, ranging from 1000kV to 10kV.
PRS-7741 is specifically designed for monitoring and controlling all types of apparatus in power systems, including circuit breaker, disconnector, earthing switch, etc. Additionally, it is integrated with tap changer control functions for transformer and shunt reactor as well.

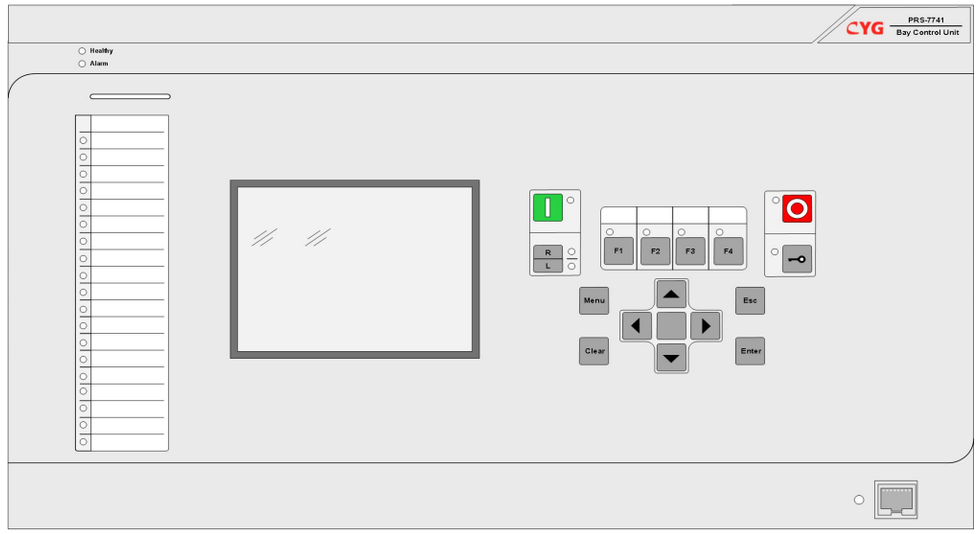


❖ ½ Case Front Panel

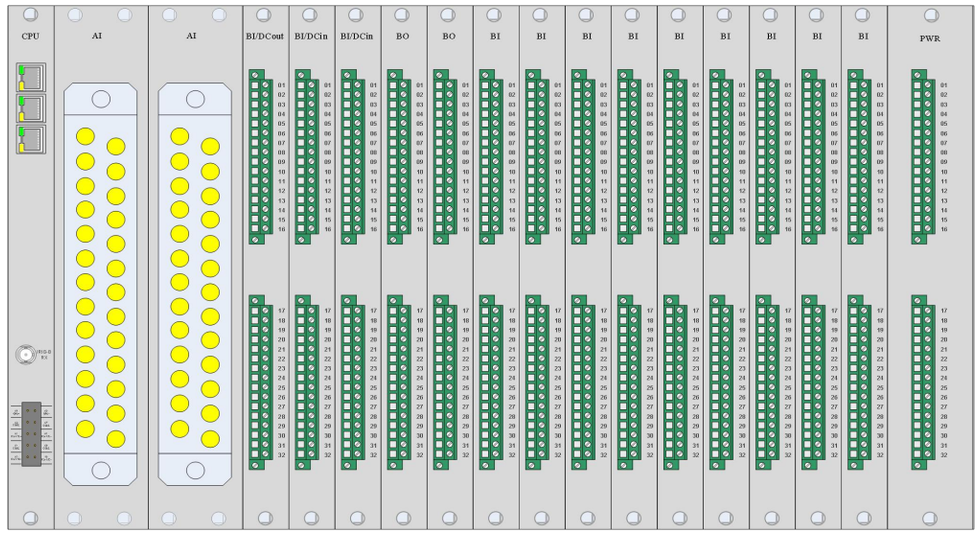


❖ ½ Case Rear Panel

General Application



❖ 1/1 Case Front Panel



❖ 1/1 Case Rear Panel

Features

Item	Feature
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
HMI	The human machine interface (HMI) with a small control module (240×128-dot LCD, a 9-key keypad and 20 LED indicators)
Communication	Ethernet network, RS-485 serial ports. Communication protocol optional: IEC61850, IEC60870-5-103, DNP3.0 or ModBus.
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.

Functions

Item	Parameter
Measurement	Conventional CT/VT sampling method with ADC module in using electrical cable Transducer input in DC for temperature, humidity, etc Regulation command from remote control center or local station control can be realized in sending DC analog output to regulate a control object such as the active/reactive power output of generator
Configurable	Programmable binary input Programmable binary output Programmable software & hardware interlocking logic output Programmable LED indicators
Supervision	Fuse Failure supervision Current circuit supervision Self-diagnostic Device power supply supervision
Synchrocheck	The synchrocheck can be used in a local control operation or remote control operation from a supervision and control system
Tele-Adjusting control	The Tele-Adjusting control is to adjust the tap changer of the transformer through the remote control system, so as to adjust the output voltage and ensure the stable operation of the power system
Event Recorder	Including 1024 disturbance records, 1024 binary events, 1024 supervision events, 256 control logs and 1024 device logs
Synchronization	Supporting PPS, IRIG-B, PPM, SNTP,1588 PTP etc.

Specifications

Measurement Range and Accuracy

Metering Item	Range	Accuracy
Phase range	0° ~ 360°	≤ 0.5% or ±1°
Frequency	35.00Hz ~ 70.00Hz	≤ 0.01Hz
Currents from dedicated metering current transformers		
Current	0.05~1.40In	≤ 0.2% of rating
Voltage	0.05~1.20Un	≤ 0.2% of rating
Voltage under the limit temperature condition	0.05~1.20Un	≤ 0.4% of rating
Active power (W)	0.05 ~ 1.20×Un, 0.05 ~ 1.40×In	≤ 0.5% of rating at unity power factor
Reactive power (Vars)	0.05 ~ 1.20×Un, 0.05 ~ 1.40×In	≤ 0.5% of rating at zero power factor
Apparent power (VA)	0.05 ~ 1.20×Un, 0.05 ~ 1.40×In	≤ 0.5% of rating
Energy (Wh)	0.05 ~ 1.20×Un, 0.05 ~ 1.40×In	≤ 0.5% of rating at unity power factor
Energy (Varh)	0.05 ~ 1.20×Un, 0.05 ~ 1.40×In	≤ 0.5% of rating at zero power factor
Currents from protection measurement current transformers		
Current	0.05~1.40In	≤ 0.2% of rating
Voltage	0.05~1.20Un	≤ 0.5% of rating
Active power (W)	0.05 ~ 1.20×Un, 0.05 ~ 1.40×In	≤ 3.0% of rating at unity power factor
Reactive power (Vars)	0.05 ~ 1.20×Un, 0.05 ~ 1.40×In	≤ 3.0% of rating at zero power factor
Apparent power (VA)	0.05 ~ 1.20×Un, 0.05 ~ 1.40×In	≤ 3.0% of rating
Energy (Wh)	0.05 ~ 1.20×Un, 0.05 ~ 1.40×In	≤ 3.0% of rating at unity power factor
Energy (Varh)	0.05 ~ 1.20×Un, 0.05 ~ 1.40×In	≤ 3.0% of rating at zero power factor

Specifications

Auxiliary Power Supply

Reference	IEC 60255-1, IEC 60255-26
Rated voltage	24VDC-250VDC, 48V-250VAC
Variation	80% - 120%
Frequency	50/60Hz, ± 5Hz
Maximum interruption time in the auxiliary DC voltage without resetting the IED	0%Un,100ms； 40%Un,200ms； 70%Un,500ms At the Un=DC220V
Gradual shut down / Start up	Class C (60s shut down ramp, 5 min power off, 60s start up ramp)
Ripple in the DC auxiliary voltage	Class A (15% of rated @200Hz, 220VDC)
Maximum load of auxiliary voltage supple	≤22W (normal state), ≤25W (maximum state)

Binary Input

Binary input number	Up to 147(6U 19" rack) / Up to 71(6U 9.5" rack)						
Rated voltage	24V	30V	48V	110V	125V	220V	250V
Rated current	1.00mA	1.25mA	2.00mA	1.10mA	1.25mA	2.20mA	2.50mA
Pickup voltage	55% ~ 70% rated voltage						
“ON” value voltage	70% ~ 120% rated voltage						
“OFF” value voltage	< 55% rated voltage						
Minimum Voltage Threshold	120% rated voltage						
Maximum permitted voltage	2000Vac, 2800Vdc						
High voltage withstand	< 1ms						
Resolving time for logic input	Up to 147(6U 19" rack) / Up to 71(6U 9.5" rack)						

Specifications

Binary Output

Item		Tripping output	Signal output
Binary output number		Up to 25	Up to 25
Output model		Potential-free contact	Potential-free contact
Max system voltage		380Vac, 250Vdc	380Vac, 250Vdc
Voltage across open contact		1000V RMS for 1min	1000V RMS for 1min
Continuous carry		2000VA, 240W	2000VA, 150W
Short duration current		6A for 3000ms; 15A for 500ms	6A for 3000ms; 15A for 500ms
Breaking capacity		1.00A @ 48Vdc, L/R=40ms 0.30A @ 110Vdc, L/R=40ms 0.20A @ 220Vdc, L/R=40ms	0.60A @ 48Vdc, L/R=40ms 0.10A @ 110Vdc, L/R=40ms 0.05A @ 220Vdc, L/R=40ms
Pickup time		< 8ms	< 10ms
Dropout time		< 5ms	< 8ms
Bounce time		1ms	1ms
Durability	loaded contact	10,000 operations minimum	10,000 operations minimum
	unloaded contact	20,000 operations minimum	20,000 operations minimum