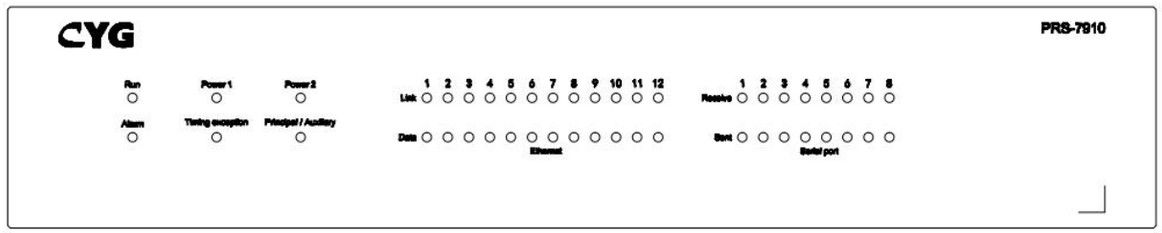
PRS-7910

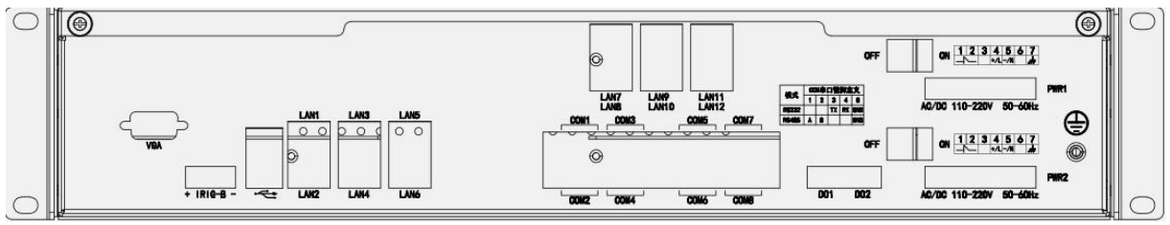
Station Gateway

General Application

The PRS-7910 Communication Gateway is designed for the highest standards of performance, safety and reliability to meet requirements of a complex substation automation system (SAS). As a part of the SAS, it works as a station communication manager, which collects, stores and maps signals of relays, measurement units, control units and other IEDs in the substation to higher-level systems such as control center (CC) and distributed control system (DCS).

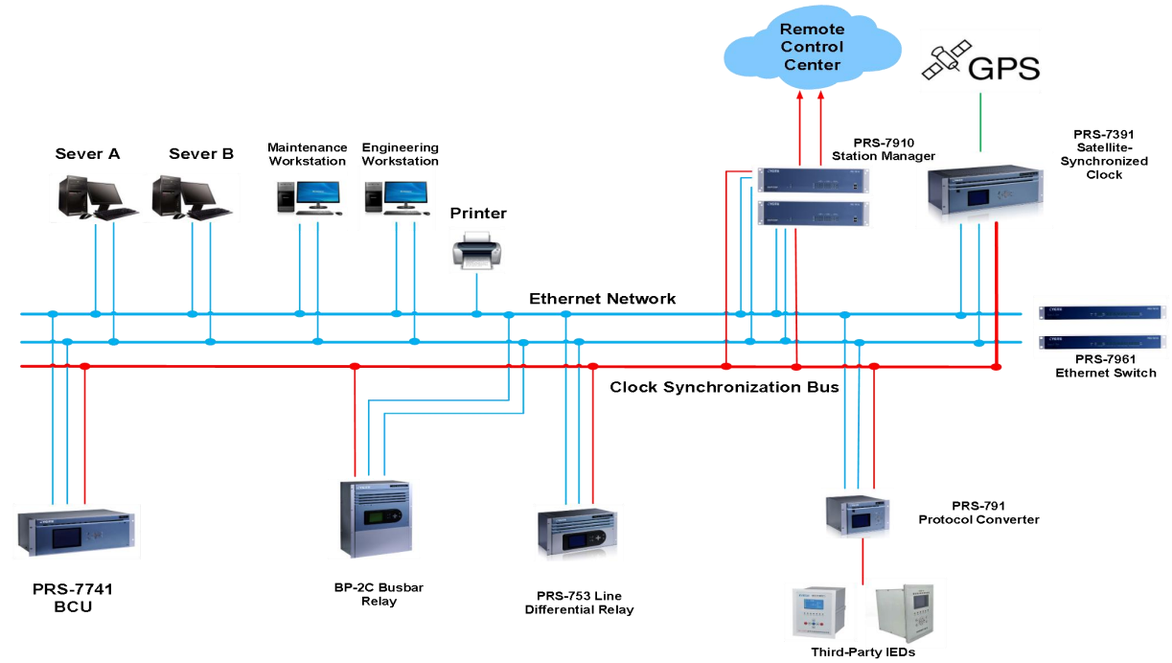


❖ **Front Panel**



❖ **Rear Panel**

General Application



Features

Item	Parameter
Performance	Dual 1.60 GHz CPUs, 2GB RAM, optional 128 ~256 GB SATA SSD storage memory Dual power supply module is an option
Hardware	High-performance built-in processor, FLASH, SRAM, SDRAM, Ethernet controller and other peripherals. Up to 1024 IEDs Up to 32 control centers
Interface	3 USB 2.0 interfaces. 6/12 RJ45, 10/100/1000M self-adaptive internet access. 8-channel RS232/485 serial port，in which, COM2-COM8 supports 232 parallel connection. 1-channel IEEE1588 time-check function and VGA interface.
Communication	Standard package for server: IEC 60870-5-101/104, DNP, Modbus Standard package for client: IEC 60870-5-101/104, IEC 60870-5-103, DNP3.0 Serial, DNP3.0 LAN/WAN, DNP secure, Modbus serial, Modbus TCP/IP Advanced package: IEC 61850 server & client Customized package: Other customized protocol
Time Synchronization	SNTP, IEEE 1588, pulse per second (PPS) and IRIG-B
Database	Real-time database is compatible with data model IEC 61850 and IEC 103 Embedded history database Database > 200,000 signals, SOE resolution: ≤1ms Maximal lines (buffer): 8000

Functions

Item	Description
Relay information acquisition	SOE records, tripping signals, supervision alarms, etc.
Measurement & control IED information acquisition	Sampled values, binary status, energy metering signals, etc. Meanwhile, control and regulation operation could be done.
Auxiliary IED information acquisition	Energy meter, which is useful or crucial for substation.
Remote control center communication	Communication with multiple remote control centers with different protocols. The mapping transmission tables for different centers can be customized independently.
Signal synthesis	Configuration tool PRS-COMM. Logical and mathematic operation of data such as AND, OR, NOT, XOR, +, -, x and ^ can be proceed for the transmission to remote control center.
Command record and query	Control selection, control execution, regulation, setting modification selection, setting modification execution, signal reset, etc.
History event record	Self running state change, alarm from connected IED, communication failure alarm, etc.
Double device redundancy strategy	Several device redundancy strategies are supported.
Time synchronization	RS-485 ports for IRIG-B Supports IRIG-B, IEEE 1588 (PPS), NTP/SNTP, etc.
On-line maintenance and monitoring	Running information print, message display of Ethernet port and serial port, on-field configuration, database view, virtual measurement, file transmission, remote rebooting, etc.
Self-diagnostic	Supervision on its software and hardware, once an abnormality is found, the device will be self-blocked to ensure no mal-operation is conducted, meanwhile, an alarm will be sent out both digitally and hardware output as alarm.

Technical Specifications

Power Supply

Standard	IEC 60870-2-1:1995
Rated voltage	110VDC/125VDC/220VDC, 220VAC
Operating range	85-265VDC, 85-265VAC
Frequency	50/60Hz
Power consumption	≤50W

Communication Interface

Ethernet Electrical	Port number	6/12
	Connector type	RJ-45
	Transmission rate	100Mbits/s
	Transmission standard	100Base-TX
	Transmission distance	≤ 100m
	Protocol	IEC60870-5-103, IEC61850, DNP 3.0 etc.
	Safety level	Isolation to ELV level
RS-485/232 (EIA)	Port number	8
	Baud rate	300 ~ 115200bps
	Transmission distance	≤ 500m @ 4800bps
	Maximal capacity	32
	Protocol	IEC60870-5-103:1997, DNP3.0 etc.
	Safety level	Isolation to ELV level

Communication Interface

RS-485 (EIA)	Port number	1
	Transmission distance	≤ 500m
	Timing standard	IRIG-B
	Accuracy	≤ 1ms
	Safety level	Isolation to ELV level
NTP/SNTP	Accuracy	≤ 100ms
IEEE 1588	Accuracy	≤ 1ms

Technical Specifications

Related technical conditions

Operating temperature range(outdoor/indoor)	-20° C ~ +60° C
Permissible humidity	93% humidity, 40°C during 10days
Atmospheric pressure	70kPa ~ 106kPa
Transport and storage temperature range	-40° C ~ +70° C
Electrostatic discharge test	IEC 60255-26:2013 IEC 61000-4-4:2008
Anti fast transient disturbance performance	IEC 60255-26:2013 IEC 61000-4-4:2012
Anti surge (impact) disturbance performance	IEC 60255-26:2013 IEC 61000-4-5:2005
Immunity to Conducted Disturbances included by radio-frequency field	IEC 60255-26:2013 IEC 61000-4-6:2008
Immunity to power frequency magnetic field	IEC 60255-26:2013 IEC 61000-4-8:2009
Immunity to pulsed magnetic field	IEC 61000-4-9:2001
Anti high frequency electrical interference performance	IEC 60255-27:2013
Immunity to Shockwave	IEC 60255-21-2:1988 IEC 60068-2-27:2008
Anti Insulation and voktage resistance	IEC 60255-27:2013
Heat and humidity resistance	IEC 60068-2-30:2005
Anti corrosion	IEC60068-2-42 IEC60068-2-43

Technical Specifications