

CPGS-B9142ET-C



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3U CompactPCI EN50155 16-port managed Gigabit Ethernet switch with 8x10/100/1000Base-T(X) in CompactPCI sockets, and 6x10/100/1000Base-T(X) with 2 Extension Ports

Features

- Leading EN50155 compliant Ethernet switch for rolling stock application
- Supports 3U and 16HP CompactPCI form factor and hot swapping
- PICMG 2.0 specification compatible
- Support 6x10/100/1000Base-T(X) ports
- Support Jumbo frame up to 9.6K Bytes
- Supports MSTP/RSTP/STP (IEEE 802.1s/w/D) for Ethernet Redundancy
- Support standard IEC 62439-2 **MRP*NOTE** (Media Redundancy Protocol) function
- Supports IPV6 new internet protocol version
- Support Modbus TCP protocol
- Support IEEE 802.3az **Energy-Efficient Ethernet** technology
- Provided HTTPS/SSH protocol to enhance network security
- Supports SMTP client
- Supports IP-based bandwidth management
- Supports application-based QoS management
- Supports Device Binding security function
- Supports DOS/DDOS auto prevention
- Supports SSH/Https security function
- IGMP v2/v3 (IGMP snooping support) for filtering multicast traffic
- Supports SNMP v1/v2c/v3, RMON and 802.1Q VLAN Network Management
- Multiple notification for warning of unexpected event
- Windows utility support centralized management and configurable by Web-based interface, Telnet and Console (CLI)
- Support LLDP Protocol
- Support hot-swappable technology



Introduction

CPGS-B9142ET-C is CompactPCI managed redundant ring Ethernet switch with 8x10/100/1000Base-T(X) ports in CompactPCI socket and 6x10/100/1000Base-T(X) in RJ45 which is specifically designed for the toughest and fully compliant with EN50155 requirement. In addition, CPGS-B9142ET-C also includes 2 two-wire Ethernet extension ports for longer transmission distance with less cable cost. The switch support Ethernet Redundancy protocol, MSTP (RSTP/STP compatible) can protect your mission-critical applications from network interruptions or temporary malfunctions with its fast recovery technology. CPGS-B9142ET-C supports wide operating temperature from -40°C to 70°C which can fulfill most of the requirement of operation environment. Except the Web-based interface, Telnet and console (CLI) configuration, CPGS-B9142ET-C can also be managed centralized and conveniently by Management Software. Therefore, the switch is one of the most reliable choices for rolling stock and highly-managed Ethernet application.

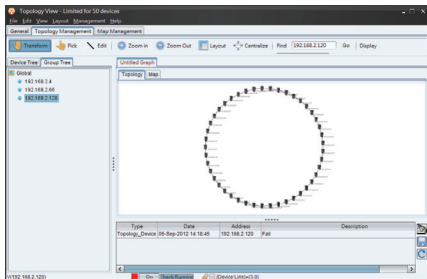
- **MRP*NOTE** : Media Redundancy Protocol (MRP) is a data network protocol standardized by the IEC 62439-2. It allows rings of Ethernet switches to overcome any single failure with recovery time much faster than achievable with Spanning Tree Protocol.
- **IP-based Bandwidth Management** : The switch provide advanced IP-based bandwidth management which can limit the maximum bandwidth

*NOTE: This function is available by request only

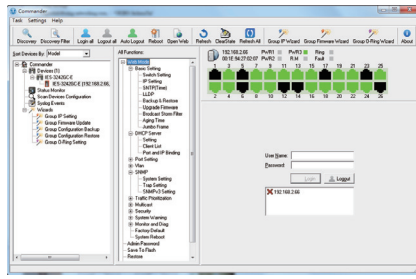
for each IP device. User can configure IP camera and NVR with more bandwidth and limit other device bandwidth.

- **Application-Based QoS** : The switch also support application-based QoS. Application-based QoS can set highest priority for data stream according to TCP/UDP port number.
- **Device Binding Function** : ORing special Device Binding function can only permit allowed IP address with MAC address to access the network. Hacker cannot access the IP surveillance network without permission. It can avoid hacker from stealing video privacy data and attacking IP camera, NVR and controllers.
- **Advanced DOS/DDOS Auto Prevention** : The switch also provided advanced DOS/DDOS auto prevention. If there is any IP flow become big in short time, the switch will lock the source IP address for certain time to prevent the attack. It's hardware based prevention so it can prevent DOS/DDOS attack immediately and completely.
- **Modbus TCP** : This is a Modbus variant used for communications over TCP/IP networks.
- **IEEE 802.3az Energy-Efficient Ethernet** : This is a set of enhancements to the twisted-pair and backplane Ethernet family of networking standards that will allow for less power consumption during periods of low data activity. The intention was to reduce power consumption by 50% or more.

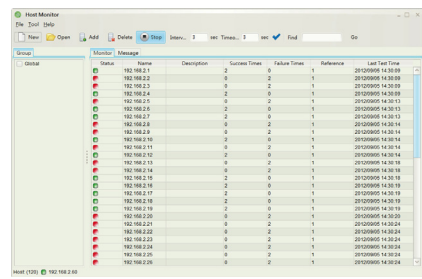
Management Software



Topology View



Commander



Host Monitor

Console Port Pin DeFinition

| PC (male) pin assignment | RS-232 with DB9 (female) pin assignment (RJ45 to DB9 cable) | RJ 45 pin assignment |
|--------------------------|---|----------------------|
| Pin #2 RxD | Pin #2 TxD | Pin #2 TxD |
| Pin #3 TxD | Pin #3 RxD | Pin #3 RxD |
| Pin #5 GND | Pin #5 GND | Pin #5 GND |

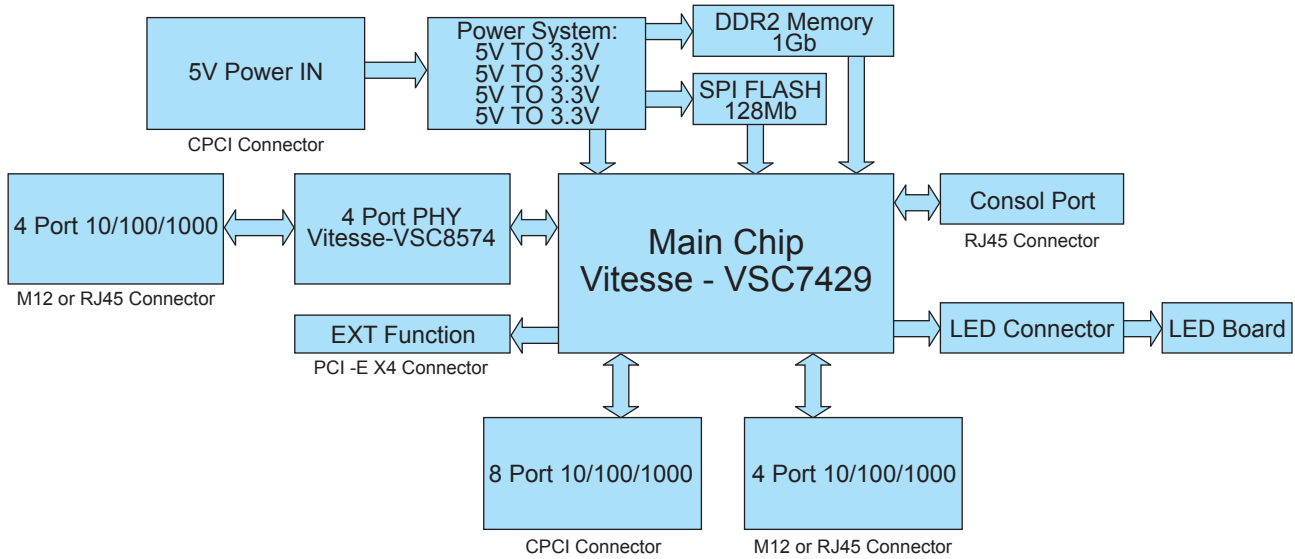
Backplane Pin Definition

| Pin | Z | A | B | C | D | E | F | |
|-----|-----|----|-----|---|-----|----|-----|----|
| 25 | GND | 5V | | | | 5V | GND | |
| 24 | GND | | 5V | | | | GND | |
| 23 | GND | | | | 5V | | GND | |
| 22 | GND | | GND | | | | GND | J1 |
| 21 | GND | | | | | | GND | |
| 20 | GND | | GND | | | | GND | |
| 19 | GND | | | | GND | | GND | |

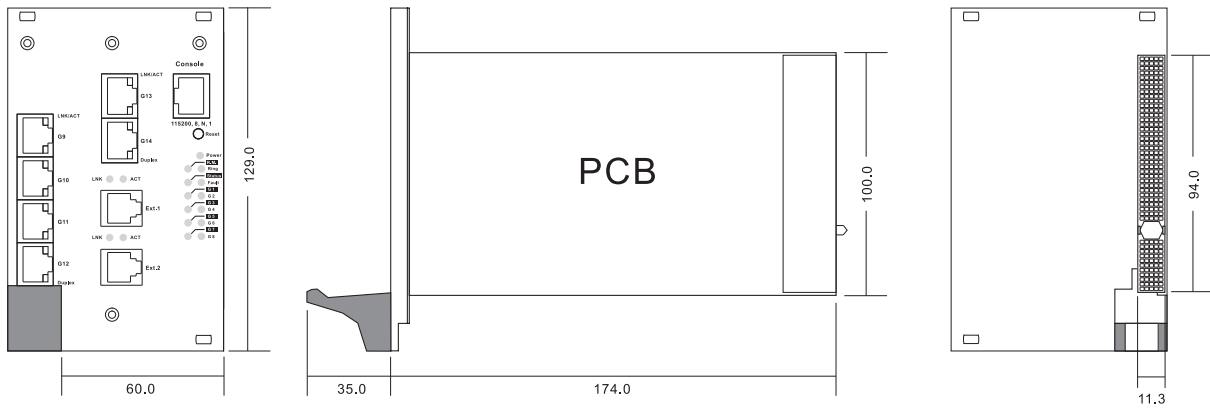
| | | | | | | | | | | | | | | | | |
|------------|----------|----------|----------|----------|----------|----------|----------|----|----|----------|--|--|--|--|--|--|
| 18 | GND | | GND | | | | GND | J1 | | | | | | | | |
| 17 | GND | | | | GND | | GND | | | | | | | | | |
| 16 | GND | | GND | | | | GND | | | | | | | | | |
| 15 | GND | | | | | | GND | | | | | | | | | |
| 14 | KEY AREA | | | | | | | | J2 | | | | | | | |
| 13 | | | | | | | | | | KEY AREA | | | | | | |
| 12 | | | | | | | | | | | | | | | | |
| 11 | GND | | | | GND | | GND | | | | | | | | | |
| 10 | GND | | GND | | | | GND | | | | | | | | | |
| 9 | GND | | | | GND | | GND | | | | | | | | | |
| 8 | GND | | GND | | | | GND | | | | | | | | | |
| 7 | GND | | | | GND | | GND | | | | | | | | | |
| 6 | GND | | GND | | | | GND | | | | | | | | | |
| 5 | GND | | | | GND | | GND | | | | | | | | | |
| 4 | GND | | HEALTHY# | | | | GND | | | | | | | | | |
| 3 | GND | | | | 5V | | GND | | | | | | | | | |
| 2 | GND | | 5V | | | | GND | | | | | | | | | |
| 1 | GND | 5V | | | | 5V | GND | | | | | | | | | |
| Pin | Z | A | B | C | D | E | F | | | | | | | | | |
| 22 | GND | | | | | | GND | | | | | | | | | |
| 21 | GND | | | GND | | | GND | | | | | | | | | |
| 20 | GND | LED5_0 | LED5_1 | GND | LED7_0 | LED7_1 | GND | | | | | | | | | |
| 19 | GND | LED4_0 | LED4_1 | GND | LED6_0 | LED6_1 | GND | | | | | | | | | |
| 18 | GND | LED1_0 | LED1_1 | GND | LED3_0 | LED4_1 | GND | | | | | | | | | |
| 17 | GND | LED0_0 | LED0_1 | GND | LED2_0 | LED2_1 | GND | | | | | | | | | |
| 16 | GND | P7_A_P | P7_A_N | GND | P7_C_P | P7_C_N | GND | | | | | | | | | |
| 15 | GND | P7_B_P | P7_B_N | GND | P7_D_P | P7_D_N | GND | | | | | | | | | |
| 14 | GND | P6_A_P | P6_A_N | GND | P6_C_P | P6_C_N | GND | | | | | | | | | |
| 13 | GND | P6_B_P | P6_B_N | GND | P6_D_P | P6_D_N | GND | | | | | | | | | |
| 12 | GND | P5_A_P | P5_A_N | GND | P5_C_P | P5_C_N | GND | | | | | | | | | |
| 11 | GND | P5_B_P | P5_B_N | GND | P5_D_P | P5_D_N | GND | | | | | | | | | |
| 10 | GND | P4_A_P | P4_A_N | GND | P4_C_P | P4_C_N | GND | | | | | | | | | |
| 9 | GND | P4_B_P | P4_B_N | GND | P4_D_P | P4_D_N | GND | | | | | | | | | |
| 8 | GND | P3_A_P | P3_A_N | GND | P3_C_P | P3_C_N | GND | | | | | | | | | |
| 7 | GND | P3_B_P | P3_B_N | GND | P3_D_P | P3_D_N | GND | | | | | | | | | |
| 6 | GND | P2_A_P | P2_A_N | GND | P2_C_P | P2_C_N | GND | | | | | | | | | |
| 5 | GND | P2_B_P | P2_B_N | GND | P2_D_P | P2_D_N | GND | | | | | | | | | |
| 4 | GND | P1_A_P | P1_A_N | GND | P1_C_P | P1_C_N | GND | | | | | | | | | |
| 3 | GND | P1_B_P | P1_B_N | GND | P1_D_P | P1_D_N | GND | | | | | | | | | |
| 2 | GND | P0_A_P | P0_A_N | GND | P0_C_P | P0_C_N | GND | | | | | | | | | |
| 1 | GND | P0_B_P | P0_B_N | GND | P0_D_P | P0_D_N | GND | | | | | | | | | |

Industrial Ethernet Switch
 Industrial Media Converter
 Industrial Device Server
 Industrial Wireless Access Point
 Industrial Cellular VPN Router
 Industrial M2M Gateway
 Accessories
 Network Management Software

Block Diagram



Dimensions



(Unit=mm)

Specifications

| ORing Switch Model | CPGS-B9142ET-C |
|--|---|
| Physical Ports | |
| 10/100/1000Base-T(X) Ports Auto MDI/MDIX | 14-port (8-port with CompactPCI interface, 6-port with RJ45 connector) (PICMG 2.0 compatible) |
| 2-Wire Extension Ports | 2 |
| Technology | |
| Ethernet Standards | IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX IEEE 802.3ab for 1000Base-T IEEE 802.3x for Flow control IEEE 802.3ad for LACP (Link Aggregation Control Protocol) IEEE 802.1D for STP (Spanning Tree Protocol) IEEE 802.1p for COS (Class of Service) IEEE 802.1Q for VLAN Tagging IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol) IEEE 802.1s for MSTP (Multiple Spanning Tree Protocol) IEEE 802.1x for Authentication IEEE 802.1AB for LLDP (Link Layer Discovery Protocol) |

| | |
|-------------------------------------|--|
| MAC Table | 8k |
| Priority Queues | 8 |
| Processing | Store-and-Forward |
| Switch Properties | Switching latency: 7 us Switching bandwidth: 28.4Gbps Max. Number of Available VLANs: 4095 IGMP multicast groups: 256 for each VLAN Port rate limiting: User Define |
| Jumbo frame | Up to 9.6K Bytes |
| Security Features | Device Binding security feature Enable/disable ports, MAC based port security Port based network access control (802.1x) VLAN (802.1Q) to segregate and secure network traffic Radius centralized password management SNMPv3 encrypted authentication and access security Https / SSH enhance network security |
| Software Features | STP/RSTP/MSTP (IEEE 802.1D/w/s) TOS/Diffserv supported Quality of Service (802.1p) for real-time traffic VLAN (802.1Q) with VLAN tagging IGMP Snooping IP-based bandwidth management Application-based QoS management DOS/DDOS auto prevention Port configuration, status, statistics, monitoring, security DHCP Server/Client/Relay SMTP Client Modbus TCP |
| Network Redundancy | O-Ring O-Chain MRP* NOTE MSTP (RSTP/STP compatible) |
| RS-232 Serial Console Port | RS-232 in RJ45 connector with console cable. 115200bps, 8, N, 1 |
| LED Indicators | |
| Power indicator (Power) | Power indicator (Power) |
| Status Indicator (STA) | Status Indicator (STA) |
| R.M. indicator (R.M) | R.M. indicator (R.M) |
| Ring indicator (Ring) | Ring indicator (Ring) |
| Fault indicator (Fault) | Fault indicator (Fault) |
| 10/100/1000Base-T(X) port indicator | 10/100/1000Base-T(X) port indicator |
| Extension port indicator | Top Green for data transmission activity Bottom Green for port Link status |
| Power | |
| Power Input | CompactPCI bus powered (5VDC) |
| Power Consumption (Typ.) | 21.5W |
| Overload Current Protection | Present |
| Physical Characteristic | |
| Dimension (W x D x H) | 81.7 (W) x 209 (D) x 129.0 (H)mm |
| Weight (g) | 469 g |
| Environmental | |
| Storage Temperature | -40 to 85°C (-40 to 185°F) |
| Operating Temperature | -40 to 70°C (-40 to 158°F) |
| Operating Humidity | 5% to 95% Non-condensing |
| Regulatory Approvals | |
| EMI | FCC Part 15, CISPR (EN55022) class A, EN50155 (EN50121-3-2, EN55011, EN50121-4) |
| EMS | EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11 |
| Shock | IEC60068-2-27 |
| Free Fall | IEC60068-2-32 |

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Industrial Ethernet Switch

Industrial Media Converter

Industrial Device Server

Industrial Wireless Access Point

Industrial Cellular VPN Router

Industrial M2M Gateway

Accessories

Network Management Software

| | |
|-----------|--------------|
| Vibration | IEC60068-2-6 |
| Safety | EN60950-1 |
| Warranty | 5 years |

Ordering Information

CPGS-B9 **AA** **B** **ET** -C

| Code Definition | 10/100/1000Base-T(X) Port Number | Additional Port Number | Additional Port Type |
|-----------------|----------------------------------|------------------------|------------------------------|
| Option | - 14 : 14 ports | - 2 : 2 ports | - ET : Extension Port |

| Available Model | Model Name | Description |
|-----------------|----------------|--|
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Packing List

- CPGS-B9142ET-C x 1
- Tool CD x 1
- Console Cable x 1
- Quick Installation Guide x 1