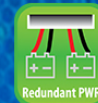
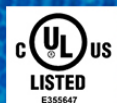


3ISYS-ETHF-16C2FC

**INDUSTRIAL 18-PORT MANAGED ETHERNET SWITCH WITH
16X10/100BASE-T(X) AND 2XGIGABIT COMBO PORTS, SFP SOCKET**

FEATURES

- World's fastest Redundant Ethernet Ring: Sys-Ring (recovery time < 10ms over 250 units of connection)
- Open-Ring support the other vendor's ring technology in open architecture
- Uni-Chain allow multiple redundant network rings
- Support standard IEC 62439-2 MRP (Media Redundancy Protocol) function
- STP/RSTP/MSTP supported
- Supports Auto Negotiation Speed
- Support PTP Client (Precision Time Protocol) clock synchronization
- Support Modbus/TCP protocol
- IGMP v2/v3 (IGMP snooping for support) filtering multicast traffic
- Port Trunking for easy of bandwidth management
- SNMP V1/V2c/V3 support for secured network management
- RMON for traffic monitoring
- Support LLDP protocol
- Event notification through Syslog, Email, SNMP trap, and Relay Output
- Support two Gigabit combo ports
- Rigid IP-30 housing design
- DIN-Rail and wall mounting enabled
- Windows utility (Open-Vision) support centralized management and configurable by Web-based ,Telnet, Console (CLI)
- Port lock to prevent access from unauthorized MAC address



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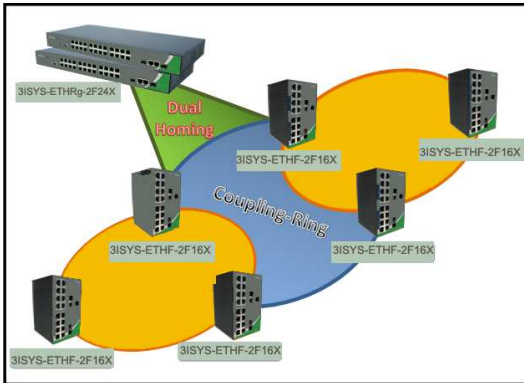
PRODUCT OVERVIEW

3ISYS-ETHF-16C2FC is managed Redundant Ring Ethernet switch with 2xGigabit combo ports and 16x10/100Base-T(X). With completely support of Ethernet Redundancy protocol, Sys-Ring (recovery time < 10ms over 250 units of connection), Sys-Ring, Sys-Chain, MRP and MSTP/RSTP/STP (IEEE 802.1s/w/D) can protect your mission-critical applications from network interruptions or temporary malfunctions with its fast recovery technology. Another Sys-Ring technology is also supported which can apply for other vendor's proprietary ring. Uni-Chain is the revolutionary network redundancy technology that provides the add-on network redundancy topology for any backbone network, Uni-Chain allows multiple redundant network rings of different redundancy protocols to join and function together as a larger and more robust compound network topology. Uni-Chain providing ease-of-use while maximizing fault-recovery swiftness, flexibility, compatibility, and cost-effectiveness in one set of network redundancy topology. All function of 3ISYS-ETHF-16C2FC can be managed centralized and convenient by a powerful windows

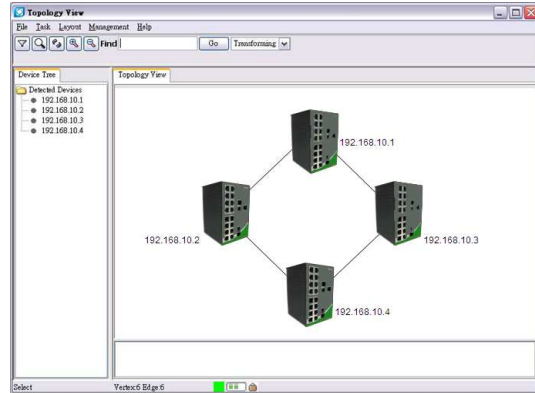
utility — System-Vision. In addition, the wide operating temperature range from -40 to 70oC can satisfy most of operating environment. Therefore, the switch is one of the most reliable choice for highly-managed and Fiber Ethernet application.

System-Vision

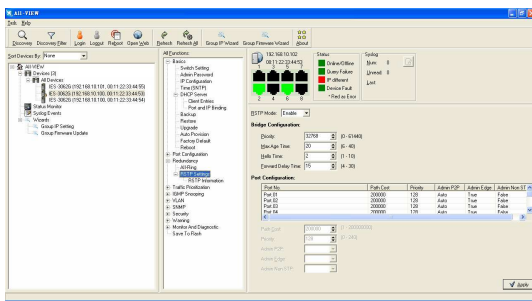
3ISYS's switches are intelligent switches. Different from other traditional redundant switches, 3ISYS provides a set of Windows utility (System-Vision) for user to manage and monitor all of industrial Ethernet switches on the industrial network.



Network connection

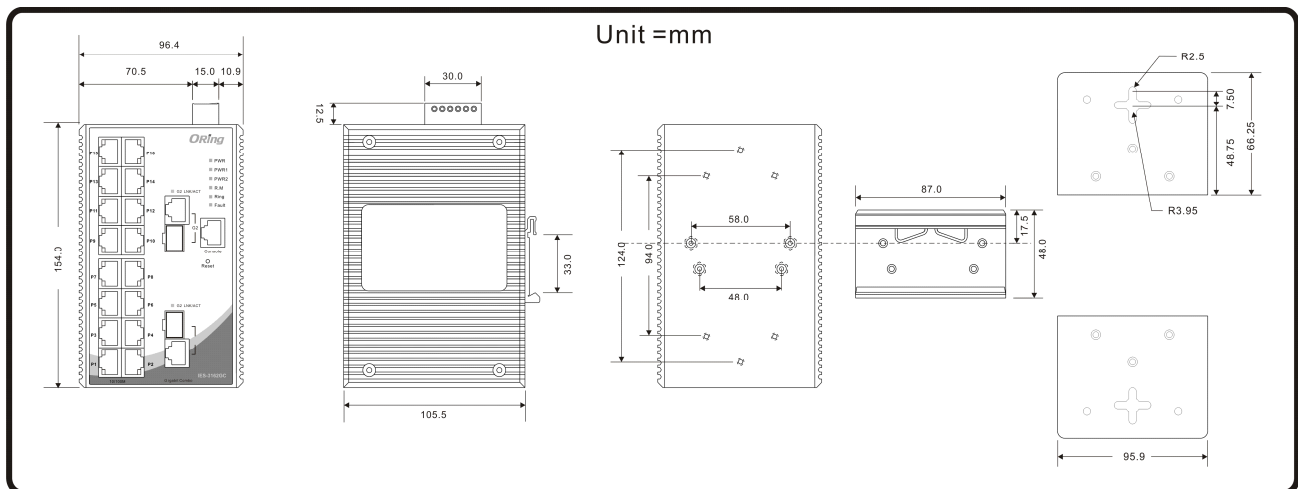


Topology View



Monitoring and Configuration

Dimension



Technical Specifications

3ISYS Switch Model	3ISYS-ETHF-16C2FC
Physical Ports	
Gigabit combo Ports with 10/100/1000Base-T(X) and 100/1000Base-X SFP Port	2
10/100 Base-T(X) Port in RJ45 Auto MDI/MDIX	16
Technology	
Ethernet Standards	<ul style="list-style-type: none"> §IEEE 802.3 for 10Base-T §IEEE 802.3u for 100Base-TX and 100Base-FX §IEEE 802.3z for 1000Base-X §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	8192 MAC addresses
Priority Queues	4
Processing	Store-and-Forward
Switch Properties	<ul style="list-style-type: none"> §Switching latency: 9 us §Switching bandwidth: 7.2Gbps §Max. Number of Available VLANs: 4096 §IGMP multicast groups: 1024 §Port rate limiting: User Define Port rate limiting: User Define
Security Features	<ul style="list-style-type: none"> §Enable/disable ports, MAC based port security §Port based network access control (802.1x) §VLAN (802.1Q) to segregate and secure network traffic §Supports Q-in-Q VLAN for performance & security to expand the VLAN space §Radius centralized password management §SNMP v1/v2c/v3 encrypted authentication and access security

Software Features	<ul style="list-style-type: none"> §STP/RSTP/MSTP (IEEE 802.1D/w/s) §Redundant Ring (Sys-Ring) with recovery time less than 10ms over 250 units §TOS/Diffserv supported §Quality of Service (802.1p) for real-time traffic §VLAN (802.1Q) with VLAN tagging and GVRP supported §IGMP Snooping for multicast filtering §Port configuration, status, statistics, monitoring, security §SNTP for synchronizing of clocks over network §Support PTP Client (Precision Time Protocol) clock synchronization §DHCP Server / Client support §Port Trunk support §MVR (Multicast VLAN Registration) support §Modbus TCP
Network Redundancy	<ul style="list-style-type: none"> §Sys-Ring §Uni-Ring §Sys-Chain §MRP §STP / RSTP / MSTP
Warning / Monit3ISYS System	<ul style="list-style-type: none"> §Relay output for fault event alarming §Syslog server / client to record and view events §Include SMTP for event warning notification via email §Event selection support
RS-232 Serial Console Port	RS-232 in RJ45 connector with console cable. 9600bps, 8, N, 1
LED Indicators	
Power Indicator	Green : Power LED x 3
R.M. Indicator	Green : Indicate system operated in Sys-Ring master mode
Fault Indicator	Amber : Indicate unexpected event occurred
10/100Base-T(X) RJ45 Port Indicator	Green for port Link/Act. Amber for Duplex/Collision
10/100/1000Base-T(X) RJ45 Port Indicator	Green for port Link/Act. Amber for 100Mbps indicator
100/1000Base-X SFP Port Indicator	Green for port Link/Act.
Fault contact	
Relay	Relay output to carry capacity of 1A at 24VDC
Power	
Redundant Input Power	Dual DC inputs. 12 ~ 48VDC on 6-pin terminal block
Power Consumption (Typ.)	12 Watts

Overload Protection	Current	Present
Reverse Protection	Polarity	Present on terminal block
Physical Characteristic		
Enclosure		IP-30
Dimension (W x D x H)		96.4(W)x108.5(D)x154(H) mm (3.8 x 4.27 x 6.06 inch)
Weight (g)		1220g
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
Standards Conformance		
EMI		FCC Part 15, CISPR (EN55022) class A
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
Vibration		IEC60068-2-6
Safety		UL 60950-1, CSA C22.2 No. 60950-1, EN 60950-1 (E355647)
Warranty		1 year

Ordering Information

3ISYS®-AAAA-C-FC

Module Identifier	Number of 10/100Base-T(X) Ports	Number of 100/1000Base-X, SFP sockets
Gigabit Ethernet, ETHF	16	2

Items Included

- § 3ISYS-ETHF-16C2FC x 1
- § DIN-Rail Kit x 1
- § Sys-Ring Tool CD x 1
- § Wall-mount Kit x 1
- § Quick Installation Guide x 1
- § Console Cable x 1

Optional Accessories

- § System-Vision M5C : Powerful Network Management Windows Utility Suit, 500 IP devices
- § 3ISYS-PWR-45 series : 45 Watts DIN-Rail power supply
- § 3ISYS-PWR-75 series : 75 Watts DIN-Rail power supply
- § 3ISYS-SFP-100 : 100Mbps SFP optical transceiver
- § 3ISYS-SFP-1G : 1Gbps SFP optical transceiver
- § 3ISYS-PWR-120 series : 120 Watts DIN-Rail power supply



CONTACT DETAILS

#F-2, No. 12, Alley 112
Lane 12 Wen Hu Street Taipei, Taiwan
Ph: +886920221793

Office 508, The Fairmont
Shiekh Zayed Road, UAE
Ph: +97143116732

P.O. Box 74, P.C 102 CB 49
Al-Khuwair-233, Muscat
Ph: +96824488412

www.3isysnetworks.com

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All specifications are subject to change without further notice. All features with * mark will be available by firmware upgrade.