DATA SHEET

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# iES22GF

Intelligent 20 Port Managed Gigabit Ethernet Switch
IEC61850 and IEEE1613 Compliant


## Product Overview

The iES22GF is an intelligent managed 20 port Gigabit Ethernet switch with 8 x 10/100/1000Base-T(X) RJ45 ports and up to 12 x 100/1000Base-X SFP ports.

The switch is IEC 61850-3 and IEEE 1613 compliant. The iES22GF provides redundancy support through functions such as STP/RSTP/MSTP assuring protection of all mission critical network applications. iES22GF can be managed via the Web UI, iManage Software Suite, Telnet, and Console (CLI) / SSH v2.

The switch is made of IP-40 galvanized steel and has a wide operating temperature range from -40°C to +85°C, which is suitable for the harshest of environments without the use of fans.

# Features and Benefits

Table 1. Features

| FEATURE | |
|---|---|
| SUPPORTS | • STP / RSTP / MSTP<br>• LLDP (Link Layer Discovery Protocol)<br>• Modbus TCP<br>• VLAN Priority—supports priority-tagged frames to be received by specific IEDs<br>• HTTPS / SSH v2<br>• SNTP for synchronizing the switch's clock<br>• NTPv4 - Network Time Protocol Version 4* |
| IGMP V2 / V3 (IGMP SNOOPING) | |
| SNMP V1 / V2C /V3 & RMON | |
| ACL, AAA (RADIUS), AND NAS 802.1X (USER AUTHENTICATION) | |
| 9.6K BYTES JUMBO FRAME | |
| MULTIPLE ALARM NOTIFICATION METHODS | |
| CONFIGURABLE BY WEB UI, TELNET, CONSOLE(CLI), IMANAGE SOFTWARE RUNNING ON WINDOWS 10, NT /2000/ XP/2003/VISTA/7 | |
| DIN RAIL AND PANEL MOUNT | |

* The NTPv4 version will be delivered to the customer by request.

## PRODUCT SPECIFICATIONS

Table 2. Technical Specification

| DESCRIPTION | SPECIFICATION |
|---|---|
| 10/100/1000 BASE-T(X) RJ45 PORTS<br>AUTO MDI/MDIX | 8 |
| 100/1000BASE-X SFP PORTS | Up to 12 |
| RS-232 SERIAL CONSOLE PORT | RS-232 in RJ45 connector with console cable: 115200 bps, 8, N, 1 |
| WARNING / MONITORING SYSTEM | Relay output for fault event alarming<br>2 alarm warning methods for system events supported:<br>• SYSLOG with server / client structure; recording and viewing events in the System Event Log<br>• SMTP for notification via email<br>Event selection per port |
| ALARM | Relay output to carry capacity of 1 A at 24 VDC |
| **TECHNOLOGY** | |
| MAC TABLE | 8K |
| PRIORITY QUEUES | 8 |
| PROCESSING | Store-and-Forward |
| SWITCH PROPERTIES | Switching latency: 7 µs<br>Switching bandwidth: 40 Gbps<br>Max. Number of Available VLANs: 4096<br>IGMP multicast groups: 32 per each VLAN<br>Port rate limiting: User Defined |
| JUMBO FRAME | 9.6K |

# Product Specifications

| TECHNOLOGY | |
|---|---|
| SECURITY FEATURES | • STP/RSTP/MSTP<br>• Device Binding and Remote Control security<br>• Access Control List (ACL) for every port<br>• Authentication, Authorization and Accounting (AAA)<br>• RADIUS Authentication management<br>• Port based network access control (NAS) 802.1x<br>• QoS for achieving efficient bandwidth utilization<br>• Private VLAN with Port Isolation Configuration<br>• VLAN (802.1 Q) for segregation and securing network traffic<br>• SNMPv3 authentication and privacy encryption<br>• HTTPS / SSH v2 enhanced network security<br>• Web and CLI authentication and authorization |
| SOFTWARE FEATURES | • Web or CLI based Management (Console or Telnet / SSH v2)<br>• DHCP Server / Relay<br>• VLAN (802.1Q) for segregating and securing network traffic<br>• Supports SNMPv1/v2/v3<br>• Traffic Prioritization—Storm Control and Quality of Service (QoS) includingDSCP-Based QoS Ingress Port Classification<br>• Multicast traffic—IGMP Snooping (IGMP v1/v2 / v3) and unregisteredIPMCv4 Flooding<br>• Warnings (Syslog and SMTP) and Fault Alarm (power failure)<br>• Monitoring and Diagnostics—MAC Table and Port Statistics (portsmonitoring including for SFP ports, system information, issuing PING packetsfor troubleshooting IP connectivity issues)<br>• SNTP for synchronizing of clocks over network |
| NETWORK REDUNDANCY | • RSTP (IEEE 802.1 D/w)<br>• MSTP (RSTP/ STP compatible)<br>• Fast Recovery and Dual Port Recovery |

| PHYSICAL CHARACTERISTICS | |
|---|---|
| ENCLOSURE | IP-40 Galvanized Steel |
| DIMENSIONS (W X D X H) | 133.7 (W) x 157.5 (D) x 154.1 (H) mm (5.27 x 6.20 x 6.07 inches) |
| WEIGHT (G) | ~3500 g |

| POWER | |
|---|---|
| INPUT POWER | Redundant Power Supplies: Dual Input 10-48VDC, Dual Input 36-75VDC, or Dual Input 110-370VDC or 90-264VAC |
| POWER CONSUMPTION (TYP.) | 18 Watts |
| OVERLOAD CURRENT PROTECTION | Present |
| REVERSE POLARITY PROTECTION | Internal |

# Product Specifications

Table 3. Compliance Specification

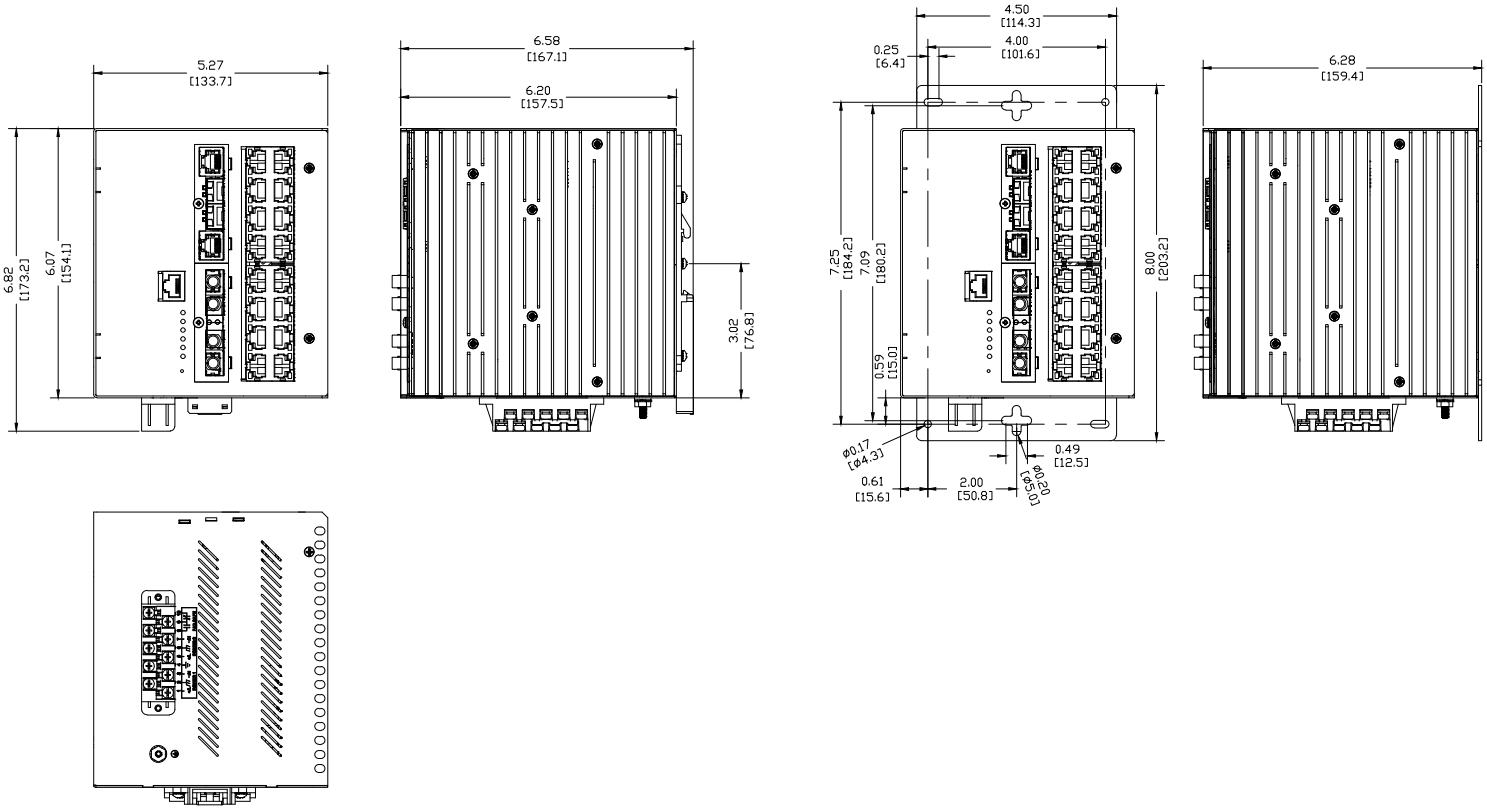
| TYPE | STANDARDS |
|---|---|
| ELECTROMAGNETIC EMISSIONS | FCC Part 15, CISPR (EN55022) class A,<br>EN50155 (EN50121-3-2, EN55011, EN50121-4) |
| ELECTROMAGNETIC IMMUNITY | EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge),<br>EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11 |
| INDUSTRY STANDARDS | IEC 61850-3, IEEE 1613 |
| SAFETY STANDARDS | EN60950-1 |
| OPERATING ENVIRONMENT | -40°C to +85°C (-40o to 185°F) (no fans)<br>EN 60068-2-21 |
| STORAGE ENVIRONMENT | -40°C to +85°C (-40° to 185°F)<br>EN 60068-2-14 |
| OPERATING HUMIDITY | 5% to 95% Non-condensing<br>EN 60068-2-30 |
| SHOCK | IEC60068-2-27 |
| FREE FALL | IEC60068-2-32 |
| VIBRATION | IEC60068-2-6 |
| WARRANTY | 5 years, (extendable option with additional terms) |

Table 4. Standards and Management

| DESCRIPTION | SPECIFICATION | | |
|---|---|---|---|
| IEEE STANDARDS | IEEE 802.3 for 10Base-T<br>IEEE 802.3u for 100Base-TX and 100Base-FX<br>IEEE 802.3ab for 1000Base-T<br>IEEE 802.3z for 1000Base-X<br>IEEE 802.3x for Flow control<br>IEEE 802.3ad for LACP (Link Aggregation Control Protocol)<br>IEEE 802.1D - 1998 Spanning Tree Protocol (STP)<br>IEEE 802.1D – 2004 /w Rapid Spanning Tree Protocol (RSTP)<br>IEEE 802.1Q – 2014 Bridged Networks<br>IEEE 802.1-2010 Port Based Network Access Control<br>IEEE 802.1AB – 2016 Station and Media Access Connectivity discovery (LLDP)<br>IEEE 802.1AX Link Aggregation | | |
| RFC COMPLIANCE | • RFC 768: UDP<br>• RFC 783: TFTP<br>• RFC 791: IPv4<br>• RFC 792: ICMP<br>• RFC 793: TCP<br>• RFC 854: Telnet<br>• RFC 959: FTP<br>• RFC 1157: SNMPv1 | • RFC 1901,1902-1907 SNMPv2<br>• RFC 2273-2275: SNMPv3<br>• RFC 2571: SNMP Management<br>• RFC 1166: IP Addresses<br>• RFC 1643: Ethernet InterfaceMIB<br>• RFC 1757: RMON<br>• RFC 2068: HTTP<br>• RFC 2990 QoS | • RFC 2131, 2132: DHCP<br>• RFC 2236: IGMP v2<br>• RFC 3376: IGMP v3<br>• RFC 2474: DiffServ Precedence<br>• RFC 3046: DHCP Relay Agent Information Option<br>• RFC 3580: 802.1x RADIUS<br>• RFC 4250-4252 SSH Protocol |

# Dimensions

All dimensions are shown in inches [millimeters].



# Ordering Information

## SUPPORTED SFPs FOR iES22GF

| ORDER CODE | DESCRIPTION | PORTS 9-20 |
|---|---|---|
| SFP100-MM-550 | SFP 100Mbps Multimode LC Transceiver 550m, 850nm, -40°C to +85°C | • |
| SFP100-MM-2 | SFP 100Mbps Multimode LC Transceiver 2km, 1310nm, -40°C to +85°C | • |
| SFP100-SM-20 | SFP 100Mbps Singlemode LC Transceiver 20km, 1310nm, -40°C to +85°C | • |
| SFP100BIDI2-SM-40 | SFP 100Mbps Bi-Directional Singlemode LC Transceiver 40km, TX1550nm, RX1310nm, -40°C to +85°C | • |
| SFP100BIDI2-SM-40 | SFP 100Mbps Bi-Directional Singlemode LC Transceiver 40km, TX1310nm, RX1550nm, -40°C to +85°C | • |
| SFP1000-TX | SFP 1000Mbps TX RJ45 Transceiver 100m, -40°C to +85°C | • |
| SFP1000-MM-550 | SFP 1Gbps Multimode LC Transceiver 550m, 850nm, -40°C to +85°C | • |
| SFP1000-MM-2 | SFP 1Gbps Multimode LC Transceiver 2km, 1310nm, -40°C to +85°C | • |
| SFP1000-SM-10 | SFP 1Gbps Singlemode LC Transceiver 10km, 1310nm, -40°C to +85°C | • |
| SFP1000-SM-20 | SFP 1Gbps Singlemode LC Transceiver 20km, 1310nm, -40°C to +85°C | • |
| SFP1000-SM-60 | SFP 1Gbps Singlemode LC Transceiver 60km, 1550nm, -40°C to +85°C | • |
| SFP1000-SM-80 | SFP 1Gbps Singlemode LC Transceiver 80km, 1550nm, -40°C to +85°C | • |

| BASE | POWER SUPPLY 1 | POWER SUPPLY 2 | MOUNT | ETHERNET PORT 1-8 | ETHERNET PORT 9-12 | ETHERNET PORT 13-16 | ETHERNET PORT 17-20 | MOD | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| iES22GF | LV | XX | D | 8GRJ45 | 4GSFP | 4GSFP | 4GSFP | C1 | |
| iES22GF | \| | \| | \| | \| | \| | \| | \| | \| | Core assembly and packaging |
| | \| | XX | \| | \| | \| | \| | \| | \| | None |
| | LV | LV | \| | \| | \| | \| | \| | \| | Input 9-36VDC |
| | MV | MV | \| | \| | \| | \| | \| | \| | Input 36-75VDC |
| | HV | HV | \| | \| | \| | \| | \| | \| | Input 110-370VDC or 90-264VAC |
| | | | D | \| | \| | \| | \| | \| | DIN Rail Mounting |
| | | | P | \| | \| | \| | \| | \| | Panel Mounting |
| | | | N | \| | \| | \| | \| | \| | No Mounting Hardware |
| | | | | 8GRJ45 | \| | \| | \| | \| | 8 X 10/100/1000Base-T(X) RJ45 |
| | | | | | 4GSFP | \| | \| | \| | 4 X 100/1000Base-X SFP |
| | | | | | | XX | XX | \| | None |
| | | | | | | 4GSFP | 4GSFP | | 4 X 100/1000Base-X SFP |
| | | | | | | | | C1 | Conformal Coating |

## iES22GF Sample Order Code

iES22GF-LV-XX-D-8GRJ45-4GSFP-4GSFP-4GSFP

Description: iES22GF—61850 - 20 Port Ethernet Switch with 8 TX and up to 12 Base X ports, (Power Supply 1) Input 9-36VDC, (Power Supply 2) None, DIN Rail Mounting, (Ethernet Port 1-8)) 8 X 10/100/1000Base-T(X) RJ45, (Ethernet Port 9 -16) – None, (Ethernet Port 17&18) 2 X 100/1000Base-X SFP, (Ethernet Port 19&20) 2 X 100/1000Base-X SFP.

The same unit, may be ordered with conformal coating by appending '-C1' to the order code, for example:
iES22GF-LV-XX-D-8GRJ45-4GSFP-4GSFP-4GSFP-C1

Description: iES22GF—61850 - 20 Port Ethernet Switch with 8 Tx and up to 12 Base X ports, (Power Supply 1) Input 9-36VDC, (Power Supply 2) None, DIN Rail Mounting, (Ethernet Port 1-8)) 8 X 10/100/1000Base-T(X) RJ45, (Ethernet Port 9 -16) – None, (Ethernet Port 17&18) 2 X 100/1000Base-X SFP, (Ethernet Port 19&20) 2 X 100/1000Base-X SFP. This system will be conformal coated.


## For more information, visit: is5com.com

toll free: +1-844-520-0588 | fax: +1-289-401-5206 | info@is5com.com
technical support: +1-844-475-8324 | support@is5com.com
5895 Ambler Drive. Mississauga, Ontario. L4W 5B7, Canada