Datasheet | **IES7211-16PGE2GF-DC**

Gigabit PoE+ Smart Industrial Switches with Two 1Gb SFP Uplink

Outstanding 802.3at PoE+ Solution for Hardened Environment

Select your new network engine!

As a leading provider of network equipment for Industrial Communication, Benchu group understands the importance of providing stability and safety that can adapt to your business' needs, whether in the Safe City, Traffic,Mining,industrial automatic,Power or energy.

The IES7211-16PGE2GF-DC with IP40 protection class and meet EMC industrial level 4 requirements. The product supports wide power input voltage range of 48-54VDC redundant power with reverse polarity protection and wide operating temperature range of -40 to the +85°C.

The switches can be easily installed on a DIN rail as well as in distribution boxes. In addition to its compact size for space-saving installation, each product has passed a 100% burn-in test to ensure its quality high-reliability transmission.

The IES7211-16PGE2GF-DC is equipped with 16-10/100/1000BASE-T Gigabit Ethernet ports and 2-1000BASE-X SFP interfaces with redundant power input. Its 16 Gigabit Ethernet ports are integrated with an 802.3at PoE+ injector function. It offers a DIN-Rail mountable, safe and reliable power solution for outdoor industrial environments deploying Power over Ethernet networks

Support 2 Ports 1G SFP Uplink， provides efficient transmission and powerful processing capacity. The administrator can flexibly choose the suitable SFP transceiver according to the transmission distance or the Fiber type required to extend the network efficiently.

## Highlights

Benchu group IES7211-16PGE2GF-DC Industrial PoE+ Switch, featuring 16-10/100/1000BASE-T 802.3at PoE+ ports with each port powering up to 30 watts, and 2-1GBASE-X fiber ports,its in a IP40 rugged metal case, can be installed in any difficult environment. Support 8kV lightning protection, ensures high network availability by preventing downtime caused by power surges. support redundant power input ,ensures continuous operation even if one power source fails,the risk of network outages due to power supply failure is significantly reduced.DIN-Rail mounting allows for compact and organized installation of industrial PoE switches, maximizing the use of available space. wide temperature range， low-power consumption and fanless design, It is able to operate reliably, stably and quietly in the temperature range from -40 to 85 degrees C.

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## Key features include:

- Complies with IEEE 802.3af/at Power over Ethernet
- Up to 16 ports of IEEE 802.3af/802.3at devices powered
- PD alive check function
- Each port supports 52V DC power to PoE powered device
- Auto detects powered device (PD)
- Circuit protection prevents power interference between ports
- Remote power feeding up to 100m
- Hardware-based 10/100/1000Mbps auto-negotiation and auto MDI/MDI-X
- Flow control for full duplex operation and back pressure for half duplex operation
- Integrates address look-up engine, supporting 8K absolute MAC addresses
- Automatic address learning and address aging
- Supports Energy-Efficient Ethernet (EEE) function (IEEE 802.3az)

## Build a future-proof network with BENCHU:

- Solid performance with non-blocking architecture, 8K MAC addresses, 48Gbps Backplane bandwidth, 26.79Mpps Switch Throughput，9216 bytes Jumbo Frame
- Up to 16 ports of IEEE 802.3af/802.3at devices powered
- PoE+ support on all ports，PoE power up to 30 watts for each PoE port
- 2 Dedicated SFPs, Extends network distance up to 2KM/20KM/40KM/60KM/80KM/120KM with optical fiber.

## Fast Access

- The remote units provide the full line-speed forwarding capability. All ports support non-blocking data packet forwarding, providing users with high-speed access experience and meeting the requirements of high-bandwidth services such as HD video conferencing, online video, and large file download.

## BENCHU Quality and Reliability

- Low power consumption, fanless.
- High strength aluminum alloy shell
- IP40 Industrial design
- Contact Discharge 8KV DC；Air Discharge 15KV DC
- -40 to 85 degrees operating temperature
- Dual power input
- Din Rail mounting installation
- CE, FCC, RoHS,CB.

## Easy operation and maintenance

- Hardware-based 10/100/1000Mbps auto-negotiation and auto MDI/MDI-X.
- Flow control for full duplex operation and back pressure for half duplex operation
- Supports Energy-Efficient Ethernet (EEE) function (IEEE 802.3az)
- Din Rail mount installation and dual power input
- Plug and play, No configuration required
- The user-friendly panel can show the device status through the LED indicator of PWR, Link.

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## Hardware at a Glance

| **FRONT** | | | | | **REAR** | **SIDE** |
|---|---|---|---|---|---|---|
| Model Name | Form-Factor | 10/100/1000Base-T RJ45 ports | 1GBASE-X Fiber SFP Ports | PoE+ 802.3at Ports | Power Supply | Fans |
| IES7211-16PGE2GF-DC | Din Rail mounting | 16 | 2 | 16 PoE+ | Dual power input DC48~54V | Fanless |

## Performance at a Glance

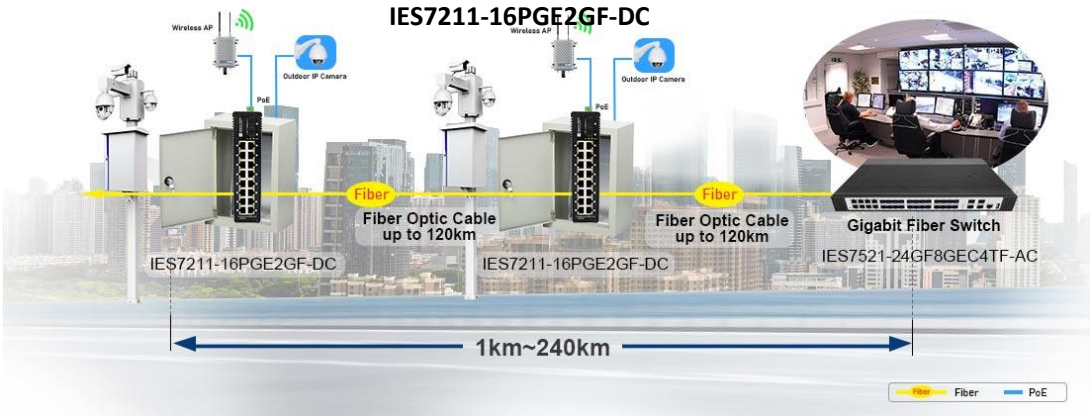
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Model Name | Chip | Packet buffer | Fabric | Switch Throughput | MAC Address Table | Jumbo Frame | Latency (Max Connection Speed) |
| IES7211-16PGE2GF-DC | Realtek | 4.2MB | 48Gbps | 26.79Mpps line-rate | 8K MAC | 9216 bytes | 1G Copper: <3.35μs<br>1G Fiber: <3.1μs |

## Features and Benefits

| **Hardware Features** | |
|---|---|
| 1000BASE-T Copper Ethernet PoE+ connections | Support Surveillance, Wi-Fi AP, VoIP, Access control and Speaker, deployments, scal-able for future growth. Never face the risk of running out of PoE ports. |
| 1.25GBASE-X SFP Combo ports | Two 1Gb SFP ports for aggregation to the network core. Support for Fiber and Copper modules. |
| Redundant Power Inpout | By having a secondary power supply, the switch can seamlessly switch to the backup power, maintaining network connectivity without interruption. |
| 8kV Lightning Protection | Enhanced protection minimizes the risk of costly repairs and replacements, maintaining network stability and reliability in environments prone to lightning activity. |
| Wide Operating Temperature Range of -40 to 85℃ | Remains reliable in both extremely cold and hot environments. Reliable performance in extreme conditions reduces downtime and maintenance needs, ensuring continuous operation. |

# Target Application

Network Convergence

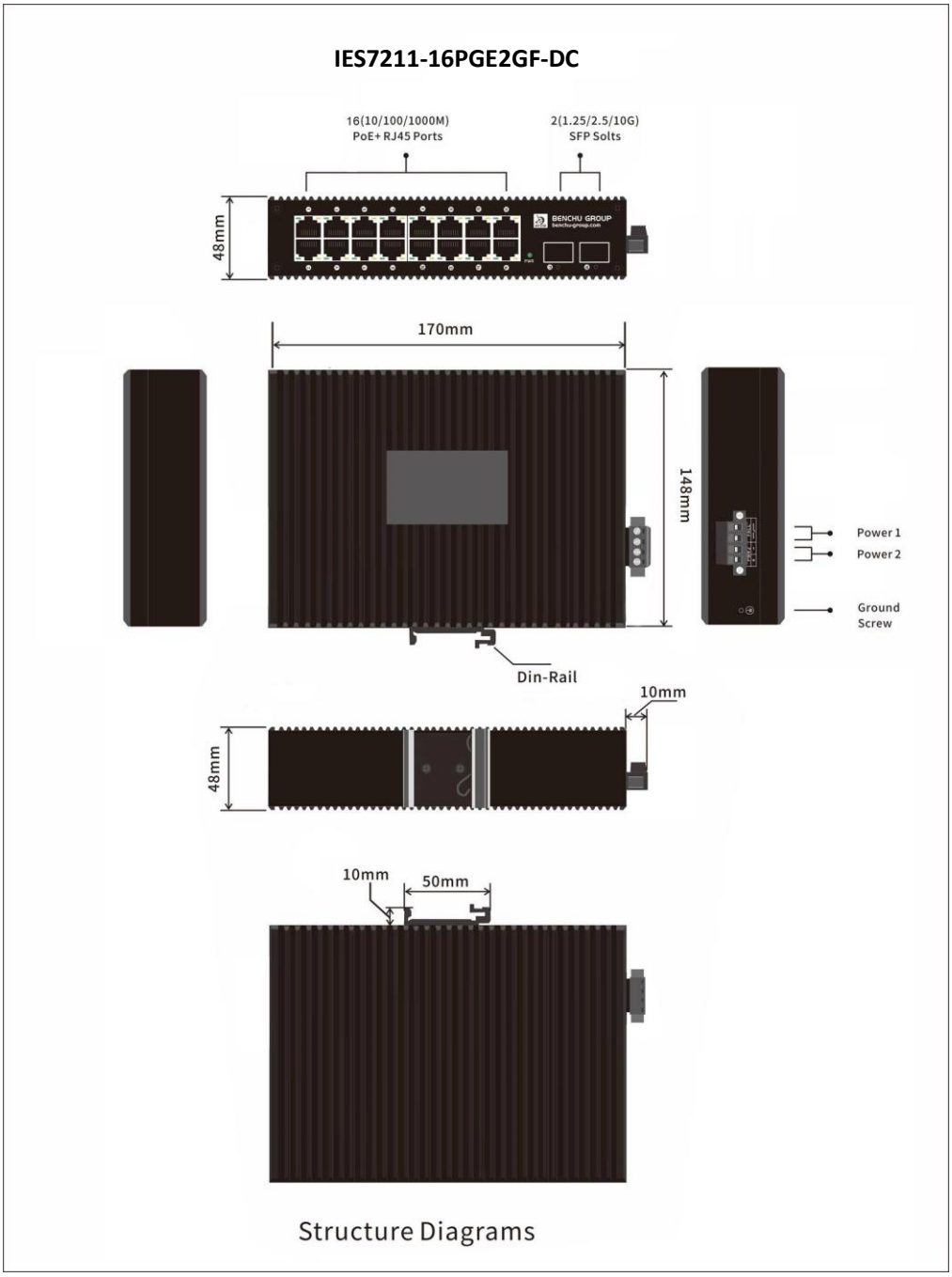



Within industry organizations — especially in the Industrial Park, industrial automation ,Power , Public safety and energy — there is growing deployment of VoIP phones, IP security cameras, video-over-IP endpoints, proximity sensors, LED lighting, secure access door locks, and other IoT devices. The dense proximity of these devices requires Industrial network switches capable of supporting PoE so a network manager can add power-hungry devices to the network with a single wire for power AND connectivity. Wave 2 802.11ac wireless access points and pan-tilt-zoom HD surveillance cameras with features such as night vision and built-in motion tracking also require PoE+ power (802.3at), Severe environments require industrial grade network switches with stronger adaptability, increasing the power demands on Industrial PoE switches.

The BENCHU GROUP 18-port Industrial PoE Switches support dense deployments of these modern high-power PoE+ devices. They offer enhanced performance and a focus on usability within Industrial environments:

- Provide 16-10/100/1000M 802.3af/at PoE+ ports
- 2 dedicated 1Gb SFP fiber ports for aggregation to the network core
- Dual power input --- the risk of network outages due to power supply failure is significantly reduced.
- Wide Operating Temperature Range of -40 to 85℃
- Contact Discharge 8KV DC； Air Discharge 15KV DC
- High strength aluminum alloy shell,IP40 Industrial design
- Excellent features such as fast response, resisting vibration, enduring dust, adapting for the hard environment, etc.
- Plug and play, No configuration required --- simplifies the installation process
- Limited Lifetime* Warranty, Tech support

## Structure Diagrams



| **Technical Specifications** | **IES7211-16PGE2GF-DC** |
|---|---|
| 10M/100M/1G RJ-45 copper ports | 16 |
| PoE / PoE+ ports | 16 PoE+ |
| 1G SFP (fiber) ports | 2 |
| **Power over Ethernet** | |
| PoE Standard | IEEE 802.3at Power over Ethernet Plus/PSE<br>Backward compatible with IEEE 802.3af Power over Ethernet |
| PoE Power Supply Type | End-span: 1/2 (+), 3/6 (-) |
| PoE Power Output | Per port 52V DC, 300mA. max. 15.4 watts (IEEE 802.3af)<br>Per port 52V DC, 600mA. max. 30 watts (IEEE 802.3at) |
| **Performance Specification** | |
| Chip | Realtek |
| Packet buffer memory (Dynamically shared across only used ports) | 4.2 MB |
| Forwarding modes | Store-and-forward |
| Bandwidth | 48 Gbps |
| Packet forwarding rate (64 byte packet size) (Mpps) | 26.79Mpps |
| MAC address database size (48-bit MAC ad-dresses) | 8K |
| Jumbo frame support (bytes) | Up to 9K packet size |
| Mean Time Between Failures (MTBF) @ 25°C | 181,365 hours |
| 100M Copper Latency (64-byte; 1518-byte; 9216-byte frames) | 8.314µs; 8.412µs; 8.551µs |
| 1G Copper Latency (64-byte; 1518-byte; 9216-byte frames) | 3.514µs; 3.545µs; 3.628µs |
| 1G Fiber Latency (64-byte; 1518-byte; 9216-byte frames) | 2.980µs; 3.101µs; 3.179µs |

| **IEEE Network Protocols** | **IES7211-16PGE2GF-DC** |
|---|---|
| • IEEE 802.3i 10BASE-T | • IEEE 802.3af PoE |
| • IEEE 802.3u 100BASE-T | • IEEE 802.3at PoE+ |
| • IEEE 802.3ab 1000BASE-T | • IEEE 802.3az Energy Efficient Ethernet (EEE) |
| • IEEE 802.3z Gigabit Ethernet 1000BASE-SX/LX | • IEEE 802.3x Full-Duplex Flow Control |
| **Monitoring** | |
| LEDs | Yes |
| Per port | Speed, Link, Activity; or PoE in different mode |
| Per device | Power |
| **Physical Specifications** | |
| Dimensions | 170 x 135 x 48 mm (6.69 x 5.31 x 1.89 in) |
| Weight (includes packaging accessories) | 1.1Kg (2.43IB) |
| Power Inpout (Dual power input) | DC 48~54V |
| Max power (worst case, all ports used, full PoE, line-rate traffic) (Watts) | 9W |
| Idle power consumption (all ports link-down standby) (Watts) | 7W |
| Energy Efficient Ethernet (EEE) IEEE 802.3az | Yes (deactivated by default) |
| Fan | Fanless |
| **Environmental Specifications** | **IES7211-16PGE2GF-DC** |
| **Operating** | |
| Operating Temperature | -40° to 85°C (-40° to 185°F) |
| Humidity | 95% maximum relative humidity (RH), non-condensing |
| Altitude | 10,000 ft (3,000 m) maximum |
| **Storage** | |
| Storage Temperature | -40° to 85°C (-40° to 185°F) |
| Humidity (relative) | 95% maximum relative humidity, non-condensing |
| Altitude | 10,000 ft (3,000 m) maximum |

| **Executive Standard & Protection** | |
|---|---|
| **Lightning Protection** | |
| IEC61000-4-3 (RS) | 10V/m (80~1000MHz) |
| FCC Part 15/CISPR22 (EN55022) | Class B |
| CE | EN55032,EN55035 |
| IEC61000-6-2 | Common Industrial Standard |
| IEC61000-4-9 (Pulsed magnet field) | 1000A/m |
| IEC61000-4-10 (Damped oscillation) | 30A/m, 1MHz |
| IEC61000-4-12/18 (Shockwave) | CM 2.5kV, DM 1kV |
| IEC61000-4-4(EFT) | Power cable:±4kV, Data cable: ±2kV |
| IEC61000-4-16(Common-mode transmission) | 30V, 300V, 1s |
| IEC61000-4-2 (ESD) | ±8kV contact discharge, ±15kV air discharge |
| IEC61000-4-6 (Radio frequency transmission) | 10V(150kHz~80MHz) |
| IEC61000-4-8 (Power frequency magnetic field) | 100A/m, 1000A/m, 1s-3s |
| IEC61000-4-5 (Surge): Power cable | CM±4kV/ DM±2kV, Data cable: ±4kV |
| **Mechanical Properties** | |
| IEC60068-2-6 | Anti Vibration |
| IEC60068-2-32 | Free Fall |
| IEC60068-2-27 | Anti Shock |

| | |
|---|---|
| **Electromagnetic Emissions and Immunity** | |
| Certifications | CE mark, commercial<br>FCC Part 15 Class A, VCCI Class A<br>Class A EN 55022 (CISPR 22) Class A<br>Class A C-Tick<br>EN 55024<br>CCC<br>47 CFR FCC Part 15, SubpartB, Class A ICES-003: 2016 Issue 6, Class A<br>ANSI C63.4:2014<br>IEC 60950-1:2005 (ed.2)+A1:2009+A2:2013 AN/NZS CISPR 22:2009+A1:2010 CLASS A |
| **Safety** | |
| Certifications | CB mark, commercial<br>CSA certified (CSA 22.2 #950)<br>EN 60950-1: 2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 IEC 60950-1:2005 (ed.2)+A1:2009+A2:2013<br>AN/NZS 60950.1:2015<br>CCC (China Compulsory Certificate) |
| **Warranty and Support** | |
| Hardware Limited Warranty | Limited Lifetime* |
| Technical Support via Phone and Email* | Limited Lifetime* |
| Limited Lifetime* 24x7 Online Chat Technical Support | Limited Lifetime* |
| **Package Contents** | |
| All models | Industrial PoE Switch<br>Brackets and screws for DIN-Rail mounting which are already installed in the industrial switch<br>Rubber protection caps, which are already installed in the SFP sockets Installation guide |

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