Product Specifications

L3 8-Port 10/100/1000T 802.3at PoE + 2-Port 10G SFP+ Managed Switch

GS-6320-8P2X

Version 1.0

Change History:

Revision:	Date:	Author:	Change List
Version 1.0	2021/8/5	Sky Chen	Initial Release

Author:	Sky Chen	**Editor:**	Sky
Reviewed By:		**Approved By:**	Kent Kang

1. PRODUCT DESCRIPTION

Perfect Managed PoE+ Switch with Full PoE+ Power Budget

PLANETGS-6320-8P2XLayer 3 Managed Gigabit Switch supports both **IPv4 and IPv6 protocols** and **Layer 3 OSPFv2 dynamic routing and static routing**, and provides**8 10/100/1000BASE-T**ports featuring**802.3at PoE+**,**2 extra 1/2.5/10 Gigabit BASE-X SFP+ fiber slots**. Each of the eight Gigabit ports provides 36 watts of power, with a total power budget of up to **120 watts** for the different types of PoE applications being employed. It provides a quick, safe and cost-effective Power over Ethernet network solution to IP security surveillance for small businesses and enterprises.

Convenient and Smart ONVIF Devices with Detection Feature

PLANET has newly developed an awesome feature -- ONVIF Support -- which is specifically designed for cooperating with video IP surveillances. From the GS-6320-8P2XGUI, you just need one click to search and show all of the ONVIF devices via network application. In addition, you can upload floor images to the switch and remotely monitor what is going on in the production line. Moreover, you can get real-time surveillance's information and online/offline status, and can have PoE reboot control from GUI.

Cost-effective 10Gbps Uplink for Large Surveillance Applications

The GS-6320-8P2X provides IPv6/IPv4 management and built-in L2/L4 Gigabit Switching engine along with 8 10/100/1000BASE-T ports featuring 36-watt 802.3at PoE+, and 2 10Gbps SFP+ fiber slots. With a total power budget of up to 120 watts for different kinds of PoE applications, it definitely offers enterprises a quick, safe and cost-effective Power over Ethernet network solution to IP security surveillance.

Flexible and Extendable 10Gb Ethernet Solution

10G Ethernet is a big leap in the evolution of Ethernet. Each of the 10G SFP+ slots in the GS-6320-8P2Xsupports **triple speed** and **10GBASE-SR/LR or 2500BASE-X** and **1000BASE-SX/LX**. With its 2-port,10G Ethernet link capability, the administrator now can flexibly choose the suitable SFP/SFP+ transceiver according to the transmission distance or the transmission speed required to extend the network efficiently. TheGS-6320-8P2Xprovides broad bandwidth and powerful processing capacity.

Centralized Power Management for Gigabit Ethernet PoE Networking

To fulfill the needs of higher power required PoE network applications with Gigabit speed transmission, the GS-6320-8P2X features high-performance Gigabit IEEE 802.3af PoE (up to 15.4 watts) and IEEE 802.3at PoE+ (up to 36 watts) on all ports. It perfectly meets the power requirement of PoE VoIP phone and all kinds of PoE IP cameras such as IR, PTZ, speed dome cameras or even box-type IP cameras with built-in fan and heater for high power consumption.

The GS-6320-8P2X's PoE capabilities also help to reduce deployment costs for network devices as a result of freeing from restrictions of power outlet locations. Power and data switching are integrated into one unit, delivered over a single cable and managed centrally. It thus eliminates cost for additional AC wiring and reduces installation time.

Built-in Unique PoE Functions for Surveillance Management

As a managed PoE Switch for surveillance network, the GS-6320-8P2Xfeatures the following intelligent PoE management functions:

- **PD Alive Check**
- **Scheduled Power Recycling**
- **SMTP/SNMP Trap Event Alert**
- **PoE Schedule**
- **PoE Usage Monitoring**
- **PoE Extension**

Intelligent Powered Device Alive Check

The GS-6320-8P2Xcan be configured to monitor a connected PD status in real time via ping action. Once the PD stops working and it is without response, the GS-6320-8P2Xwill resume the PoE port power and bring the PD back to work. It will greatly enhance the network reliability through the PoE port resetting the PD's power source, thus reducing administrator management burden.

Scheduled Power Recycling

The GS-6320-8P2Xallows each of the connected PDs to reboot at a specified time each week. Therefore, it will reduce the chance of PD crash resulting from buffer overflow.

SMTP/SNMP Trap Event Alert

Though most NVR or camera management software offers SMTP email alert function, the GS-6320-8P2X further provides event alert function to help to diagnose the abnormal device owing to whether or not there is a break of the network connection, loss of PoE power or the rebooting response by the PD Alive Check process.

PoE Schedule for Energy Saving

Besides being used for IP surveillance, theGS-6320-8P2Xis certainly applicable to build any PoE network including VoIP and wireless LAN. Under the trend of energy saving worldwide and contributing to the environmental protection on the Earth, the GS-6320-8P2Xcan effectively control the power supply besides its capability of giving high watts power. The "PoE schedule" function helps you to enable or disable PoE power feeding for each PoE port during specified time intervals and it is a powerful function to help SMBs and enterprises save energy and budget.

Solution for IPv6 Networking

With the support for IPv6/IPv4 protocol, and easy and friendly management interfaces, the GS-6320-8P2Xis the best choice for IP surveillance, VoIP and wireless service providers to connect with the IPv6 network. It also helps SMBs to step in the IPv6 era with the lowest investment and without having to replace the network facilities even though ISPs establish the IPv6 FTTx edge network.

IPv4 and IPv6 VLAN Routing for Secure and Flexible Management

To help customers stay on top of their businesses, the GS-6320-8P2X not only provides ultra high transmission performance and excellent layer 2 technologies, but also offers IPv4/IPv6 VLAN routing feature which allows to crossover different VLANs and different IP addresses for the purpose of having a highly-secure, flexible management and simpler networking application.

Robust Layer2 Features

The GS-6320-8P2Xcan be programmed for advanced switch management function, such as dynamic port link aggregation, **Q-in-Q VLAN**, **Multiple Spanning Tree Protocol (MSTP)**, Layer2/4 QoS, bandwidth control and **IGMP/MLD snooping**. The GS-6320-8P2Xallows the operation of a high-speed trunk combining multiple ports. Supporting 5 trunk groups, it enables a maximum of up to 2ports per trunk and supports connection fail-over as well.

Powerful Security

The GS-6320-8P2Xoffers comprehensive**layer2 to layer4 access control list (ACL)** for enforcing security to the edge. It can be used to restrict network access by denying packets based on source and destination IP address, TCP/UDP port number or defined typical network applications. Its protection mechanism also comprises **802.1x Port-based** and **MAC-based** user and device authentication. With the **private VLAN** function, communication between edge ports can be prevented to ensure user privacy.

Enhanced Security and Traffic Control

The GS-6320-8P2X also provides **DHCP Snooping**, **IP Source Guard** and **Dynamic ARP Inspection** functions to prevent IP snooping from attack and discard ARP packets with invalid MAC address. The network administrator can now build highly-secure corporate networks with considerably less time and effort than before.

User-friendly Secure Management

For efficient management, the GS-6320-8P2Xis equipped with console, Web and SNMP management interfaces.

- With the built-in **Web-based** management interface, it offers an easy-to-use, platform-independent management and configuration facility.
- For **text-based** management, it can be accessed via Telnet and the console port.
- For standard-based monitor and management software, it offers SNMPv3 connection which encrypts the packet content at each session for secure remote management.

Intelligent SFP Diagnosis Mechanism

TheGS-6320-8P2Xsupports **SFP-DDM (Digital Diagnostic Monitor)** function that greatly helps network administrator to easily monitor real-time parameters of the SFP transceivers, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.

2. PRODUCT FEATURES

- **Physical Port**
  - **8-port 10/100/1000BASE-T** with 36W PoE injector function
  - **2-port 1G/2.5G/10GBASE-X** SFP+
  - RS232 RJ45 console interface for switch basic management and setup

- **Power over Ethernet**
  - Up to 8 ports of IEEE 802.3af/802.3at devices powered
  - Supports PoE power up to 36 watts for each PoE port
  - Auto detects powered device (PD)
  - Circuit protection prevents power interference between ports
  - Remote power feeding up to 100 meters
  - PoE Management
    - PoE admin-mode control
    - PoE usage threshold
    - Temperature threshold
    - PoE Port Status monitoring
    - PD classification detection
    - Per port PoE function enable/disable
    - Per PoE port power limit
    - PoE Port Power feeding priority
    - PoE extend mode control to support power feeding up to a distance of up to 200 meters
  - Intelligent PoE features
    - Temperature threshold control
    - PoE usage threshold control
    - PD alive check
    - PoE schedule

- **Layer 2 Features**
  - High performance of Store-and-Forward architecture and runt/CRC filtering eliminates erroneous packets to optimize the network bandwidth
  - Storm Control support
    - Broadcast/Multicast/Unknown unicast
  - Supports **VLAN**
    - IEEE 802.1Q tagged VLAN
    - Supports provider bridging (VLAN Q-in-Q, IEEE 802.1ad)
    - Private VLAN Edge (PVE)
    - Protocol-based VLAN
    - MAC-based VLAN
    - Voice VLAN
    - GVRP(GARP VLAN Registration Protocol)
  - Supports **Spanning Tree Protocol**
    - IEEE 802.1D Spanning Tree Protocol
    - IEEE 802.1w Rapid Spanning Tree Protocol
    - IEEE 802.1s Multiple Spanning Tree Protocol, spanning tree by VLAN
    - BPDU Guard
  - Supports **Link Aggregation**
    - 802.3ad Link Aggregation Control Protocol(LACP)

- Cisco ether-channel (static trunk)
- Maximum 5 trunk groups, up to 2ports per trunk group
- Up to 40Gbps bandwidth (full duplex mode)

- Provides port mirror (many-to-1)
- Port mirroring to monitor the incoming or outgoing traffic on a particular port
- Loop protection to avoid broadcast loops
- Link Layer Discovery Protocol (LLDP)
- Compatible with Cisco uni-directional link detection(UDLD) that monitors a link between two switches and blocks the ports on both ends of the link if the link fails at any point between the two devices
- Supports G.8032 ERPS (Ethernet Ring Protection Switching)

- **Layer 3 IP Routing Features**
  - IP dynamic routing protocol supports RIPv2, OSPFv2 and OSPFv3
  - IPv4/IPv6 hardware static routing
  - Routing interface provides per VLAN routing mode

- **Quality of Service**
  - Ingress Shaper and Egress Rate Limit per port bandwidth control
  - 8 priority queues on all switch ports
  - Traffic classification
    - IEEE 802.1p CoS
    - TOS/DSCP/IP Precedence of IPv4/IPv6 packets
    - IP TCP/UDP port number
    - Typical network application
  - Strict priority and Weighted Round Robin (WRR) CoS policies
  - Supports QoS and In/Out bandwidth control on each port
  - Traffic-policing policies on the switch port
  - DSCP remarking

- **Multicast**
  - Supports IGMP Snooping v1, v2 and v3
  - Supports MLD Snooping v1 and v2
  - Querier mode support
  - IPv4 IGMP Snooping port filtering
  - IPv6 MLD Snooping port filtering
  - Multicast VLAN Registration (MVR) support

- **Security**
  - Authentication
    - IEEE 802.1x Port-based/MAC-based network access authentication
    - Built-in RADIUS client to co-operate with the RADIUS servers
    - TACACS+ login users access authentication
    - RADIUS/TACACS+ users access authentication
    - Guest VLAN assigns clients to a restricted VLAN with limited services

- Access Control List
  - IP-based Access Control List (ACL)
  - MAC-based Access Control List
- Source MAC/IP address binding
- **DHCP Snooping** to filter un-trusted DHCP messages
- **Dynamic ARP Inspection** discards ARP packets with invalid MAC address to IP address binding
- **IP Source Guard** prevents IP spoofing attacks
- Auto DoS rule to defend DoS attack
- IP address access management to prevent unauthorized intruder

- **Management**
  - IPv4 and IPv6 dual stack management
  - Switch Management Interfaces
    - Web switch management
    - Console and Telnet Command Line Interface
    - SNMP v1 and v2c switch management
    - SSHv2, TLSv1.2 and SNMPv3 secure access
  - **IPv6** IP Address/NTP/DNS management
  - Built-in Trivial File Transfer Protocol (TFTP) client
  - BOOTP and DHCP for IP address assignment
  - System Maintenance
    - Firmware upload/download via HTTP/TFTP
    - Reset button for system reboot or reset to factory default
    - Dual Images
  - DHCP Relay
  - DHCP Option82
  - User Privilege levels control
  - NTP (Network Time Protocol)
  - Link Layer Discovery Protocol (LLDP) and LLDP-MED
  - Network Diagnostic
    - ICMPv6/ICMPv4 Remote Ping
    - Cable Diagnostic technology provides the mechanism to detect and report potential cabling issues
    - SFP-DDM (Digital Diagnostic Monitor)
  - SMTP/Syslog remote alarm
  - Four RMON groups (history, statistics, alarms and events)
  - SNMP trap for interface Linkup and Link down notification
  - System Log
  - PLANET Smart Discovery Utility for deployment management
  - PLANET UNI-NMS (Universal Network Management) and Smart Discovery Utility for deployment management
  - Provides ONVIF for co-operating with PLANET video IP surveillances

3. PRODUCT SPECIFICATIONS

3.1 MAIN COMPONENTS

Switch ASIC:	VITESSE VSC7440	x 1
Switch PHY:	VITESSE VSC8512XJG-02	x1
CPU:	MIPS 500MHz (integrated with VSC7440)	-
PSE Chipset:	IP808AR/MQFN48	x1
DRAM:	512Mbytes	x 1
Flash:	64Mbytes	x 1

3.2 FUNCTION SPECIFICATIONS

Product	**GS-6320-8P2X**
Hardware Specifications	
Copper Ports	8x 10/100/1000BASE-T RJ45 auto-MDI/MDI-X interface with Port-1 to Port-8
SFP/mini-GBIC Slots	2 x 1G/2.5G/10GBASE-X SFP interfaces with Port-9to Port-10
PoE Injector Port	8 ports with 802.3at/afPoE injector function with Port-1 to Port-8
Console	1 x RJ45 serial port (115200, 8, N, 1)
Reset Button	< 5 sec: System reboot > 5 sec: Factory default
Dimensions (W x D x H)	330 x 150 x 44.5mm, 1U height
Weight	1.6 KG
Power Requirements	100~240V AC, 50/60Hz
Power Consumption	Max. 14.8 watts/50.47BTU (Power on without any connection) Max. 162watts/552.42BTU (Full loading with PoE+ function)
ESD Protection	6KV DC
LED	**System:** R.O (Green),Ring (Green), SYS (Green), PWR (Green) **10/100/1000BASE-T RJ45 Interfaces (Port 1 to Port 8):** 10/100/1000Mbps LNK/ACT (Green) PoE-in-Use (**Amber**) (Port 1 to Port 8) **1G/2.5G/10G Mbps SFP Interfaces (Port 9 to Port 10):** 1G/2.5G LNK/ACT (Green) 10G LNK/ACT (**Amber**)
Switching Specifications	
Switch Architecture	Store-and-Forward
Switch Fabric	56Gbps/non-blocking
Throughput	41.67Mpps@ 64Bytes packet
Address Table	8K entries, automatic source address learning and aging
Shared Data Buffer	4.1Mbits
Flow Control	IEEE 802.3x pause frame for full-duplex Back pressure for half-duplex

Jumbo Frame		9KB
Power over Ethernet		
PoE Standard		IEEE 802.3atPoE Plus, PSE Backward compatible with IEEE 802.3af PoE PSE
PoE Power Supply Type		End-span
PoE Power Output		Per port 52V DC, max. 36watts
Power Pin Assignment		1/2(+), 3/6(-)
PoE Power Budget		120 watts (max.) @ 25 degrees C 100 watts (max.) @ 50 degrees C
PoE Ability	**PD @ 7 watts**	8 units
	PD @ 15.4 watts	7units
	PD @ 30.8 watts	3 units
PoE Management Functions		
PoE System Management		System PoE Admin control Auto power input and PoE budget control Over-temperature threshold alarm PoE usage threshold alarm
PoE Device Live Detects		Per port remote PD IP address 4 actions - None - PD reboot - PR reboot and alarm Alarm
PoE Power Recycle		Yes, daily or predeinded schedule
PoE Schedule		4 schedule profiles
PoE Extend Mode		Yes, max. 160 to 200 meters
Layer3 Functions		
IP Interfaces		Max. 128 VLAN interfaces
Routing Table		Max. 128 routing entries
Routing Protocols		IPv4 RIPv2 IPv4 OSPFv2 IPv6 OSPFv3 IPv4 hardware static routing IPv6 hardware static routing
Layer 2Functions		
Port Configuration		Port disable/enable Auto-negotiation 10/100/1000Mbps full and half duplex mode selection Flow Control disable/enable
Port Status		Display each port's speed duplex mode, link status, flow control status, auto negotiation status, trunk status
Port Mirroring		TX/RX/Both Many-to-1 monitor

	Supports up to 5 sessions
VLAN	IEEE 802.1Q tag-based VLAN, IEEE 802.1ad Q-in-Q tunneling Private VLAN Edge (PVE) MAC-based VLAN Protocol-based VLAN Voice VLAN MVR (Multicast VLAN Registration) GVRP Up to 4K VLAN groups, out of 4094 VLAN IDs
Link Aggregation	IEEE 802.3ad LACP (static trunk) Supports 5 trunk groups with 2 ports per trunk
IGMP Snooping	IPv4 IGMP (v1/v2/v3) snooping IPv4 IGMP querier mode support Supports255IGMPgroups
MLD Snooping	IPv6 MLD (v1/v2) snooping, IPv6 MLD querier mode support Supports255MLDgroups
Ring	Supports ERPS, and complies with ITU-T G.8032 Recovery time < 10ms @ 3 nodes Recovery time <10ms @ 16 nodes Supports Major ring and sub-ring
Bandwidth Control	Per port bandwidth control Ingress: 10Kbps~13000Mbps Egress: 10Kbps~13000Mbps
QoS	Traffic classification based, strict priority and WRR 8-level priority for switching - Port number - 802.1p priority - 802.1Q VLAN tag - DSCP/TOS field in IP packet
Security Functions	
Access Control List	IP-based ACL/MAC-based ACL ACL based on: - MAC Address - IP Address - Ethertype - Protocol Type - VLAN ID - DSCP - 802.1p Priority Up to 256 entries
Security	Port security IP source guard Dynamic ARP inspection Command line authority control based on user level
AAA	RADIUS client TACACS+ client

Network Access Control	IEEE 802.1x port-based network access control MAC-based authentication Local/RADIUS authentication
Management Functions	
Basic Management Interfaces	Console;Telnet; Web browser; SNMP v1, v2c
Secure Management Interfaces	SSHv2, TLSv1.2, SNMPv3
System Management	Firmware upgrade by HTTP protocol through Ethernet network Configuration upload/download through HTTP Remote Syslog System log LLDP protocol NTP PLANET Smart Discovery Utility PLANET CloudViewer app
Event Management	Remote Syslog System log SMTP
ONVIF	ONVIF device discovery ONVIF device monitoring Floor Map
SNMP MIBs	RFC1213 MIB-II RFC 2863 IF-MIB RFC1643 Ethernet MIB RFC2863 Interface MIB RFC2665 Ether-Like MIB RFC2737 Entity MIB RFC2819 RMON MIB (Groups 1, 2, 3 and 9) RFC2618 RADIUS Client MIB RFC3411SNMP-Frameworks-MIB IEEE802.1X PAE LLDP MAU-MIB Power over Ethernet MIB
Standards Conformance	
Regulatory Compliance	FCC Part 15 Class A, CE
Standards Compliance	IEEE802.3 10BASE-T IEEE802.3u 100BASE-TX IEEE802.3z 1000BASE-SX/LX IEEE 802.3ab 1000BASE-T IEEE 802.3ae 10Gb/s Ethernet IEEE802.3x flow control and back pressure IEEE802.3ad port trunk with LACP IEEE802.1D Spanning Tree Protocol IEEE802.1w Rapid Spanning Tree Protocol IEEE 802.1s Multiple Spanning Tree Protocol IEEE802.1p Class of Service IEEE802.1Q VLAN tagging IEEE 802.1x Port Authentication Network Control IEEE 802.1ab LLDP

	IEEE 802.3af Power over Ethernet IEEE 802.3at Power over Ethernet Plus RFC 768 UDP RFC 793 TFTP RFC 791 IP RFC 792 ICMP RFC 2068 HTTP RFC 1112 IGMP v1 RFC 2236 IGMP v2 RFC 3376 IGMP v3 RFC 2710 MLD v1 RFC 3810 MLD v2 RFC 2328 OSPF v2 RFC 2453 RIP v2
Environments	
Operating	Temperature: 0 ~ 50 degrees C Relative Humidity: 5 ~ 95% (non-condensing)
Storage	Temperature: -10 ~ 70degrees C Relative Humidity:5 ~ 95% (non-condensing)

3.3 PHYSICAL SPECIFICATIONS:

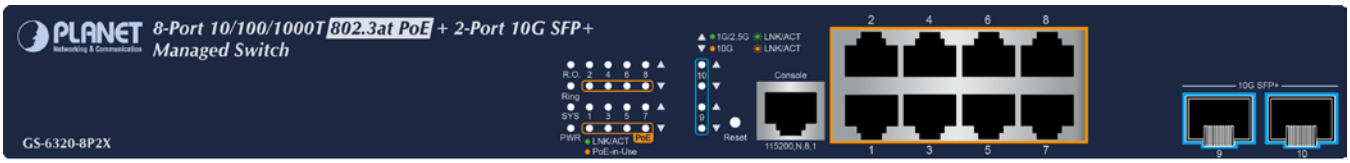
- **Dimensions:**

  330 x 150 x 44.5 mm (W x D x H), 1U height

- **Weight:**

  1.6kg

- **Front Panel:**



- **Rear Panel:**

■ **LED Definition**

■ **System**

LED	Color	Function
R.O.	**Green**	Lights to indicate that Switch has enabled Ring Owner.
Ring	**Green**	Lights to indicate the ERPS Ring has been created successfully Off to indicate the Ring function is not working
SYS	**Green**	Lights to indicate the system is working.
PWR	**Green**	**Lights** to indicate that the Switch has power.

■ **Per 10/100/1000BASE-T RJ45 PoE++ port (Port-1 to Port-8)**

LED	Color	Function	
10/100/1000 LNK/ACT	**Green**	**Lights**:	To indicate the port is running in 10/100/**1000Mbp**s speed and successfully established.
		Blinks:	To indicate that the switch is actively sending or receiving data over that port.
802.3at PoE In-Use	**Amber**	**Lights**:	Lights to indicate the PoE port is working in 802.3at PoE+ mode and offers up to 36 watts of power.

■ **Per 10GBASE-SR/LR SFP+ port (Port-9 to Port-10)**

LED	Color	Function	
1G/2.5G LNK/ACT	**Green**	**Lights**:	To indicate the port is running in **1000Mbps or 2500Mbps** speed.
		Blinks:	To indicate that the switch is actively sending or receiving data over that port.
10G LNK/ACT	**Amber**	**Lights**:	To indicate the port is running in **10GMbps** speed and successfully established

3.4 ENVIRONMENTAL SPECIFICATIONS

Operating:

Temperature: 0°C ~ 50 degrees C

Relative Humidity: 5% ~ 95% (non-condensing)

Storage:

Temperature: -10°C ~ 70 degrees C

Relative Humidity: 5% ~ 95% (non-condensing)

3.5 ELECTRICAL SPECIFICATION

Input Voltage:	100~240V AC, 50/60Hz, 4A (max.)	
Power Consumption (System on):	110V: 14.8 watts	50.4BTU
	220V: 14.5 watts	49.4BTU
Power Consumption (Ethernet PoE Full Load):	110V: 162watts *	552.4BTU
	220V: 158 watts *	538.7BTU

* With a total PoE power output limited at 120 watts

3.6 REGULATORY COMPLIANCE

FCC Part 15 Class A, CE

3.7 RELIABILITY

MTBF > 50,000Hrs @ 25 degrees C

3.8 BASIC PACKAGING

☑ The GS-6320-8P2X	x 1
☑ Quick Installation Guide	x 1
☑ RJ45-to-DB9 RS232 Cable	x 1
☑ Rubber Feet x 4	x 1
☑ Two Rack-mounting Brackets with Attachment Screws	x 1
☑ AC Power Cord	x1
☑ SFP Dust-proof Caps	x 2
☑ CloudViewer App Quick Guide	x1
☑ CloudViewer App標示貼	x1

3.9 PACKING INFORMATION

Box Dimensions (W x D x H):	390 × 233 × 85 mm
Gross Weight:	TBD
Carton Dimensions (W x D x H):	530 × 409 × 260 mm
Total Weight (gross weight)**:**	TBD
Quantity:	6pcs in one carton