Product Specifications

L2+ 24-Port 10/100/1000T + 4-Port Shared SFP
Managed Gigabit Switch with 48V DC Redundant Power

WGSW-24040/WGSW-24040R

Version 3.0

Change History:

Revision:	Date:	Author:	Change List
Version 3.0	2018/1/22	Peter Chen	1. NOR Flash upgrade from 16MB to 32MB 2. Add NAND Flash 3. Operating System changed from eCOS to Linux platform
Version 2.2	2014/8/21	Jos Li	SDK upgrading to 3.40b
Version 2.1	2014/1/14	Norman Tsai	Software Changed.
Version 2.0	2012/10/04	Neo Tsai	Hardware Change
Version 1.1	2008/9/15	Kent Kang	1. Number Active VLANs from 4k to 256 2. Remove Port Security
Version 1.0	2008/8/14	Kent Kang	Initial Release

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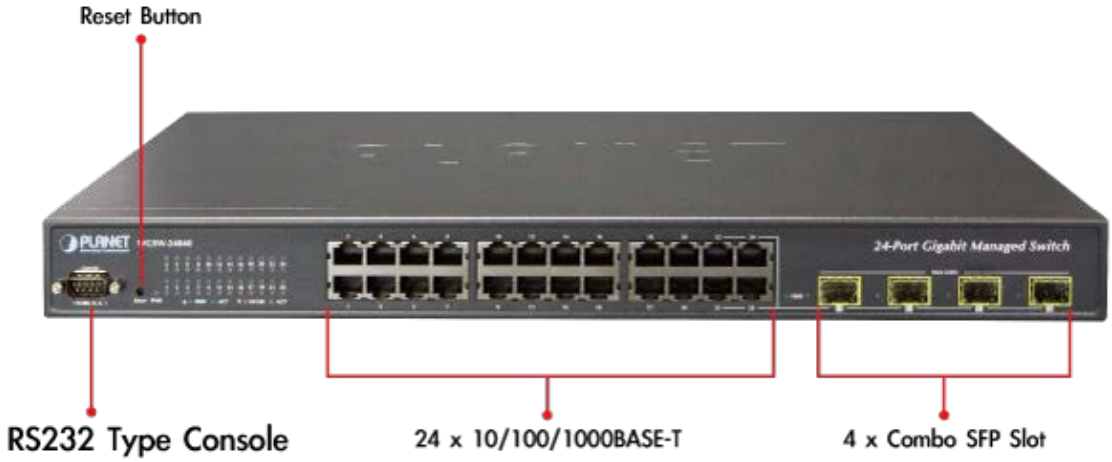
Reviewed By:		**Approved By:**	Kent Kang

1. PRODUCT DESCRIPTION

Cost-effective IPv6 Managed Gigabit Switch Solution for Enterprises

PLANET WGSW-24040 series is a Layer 2+ managed Gigabit Switch that features 24-Port 10/100/1000BASE-T + 4-Port Shared 100/1000BASE-X SFP and supports static Layer 3 routing for enterprise-level network. The abundant L2/L4 switching engine offered by the WGSW-24040 series performs effective data traffic control for enterprises and VoIP service providers, video streaming, and multicast applications. Providing user-friendly but advanced IPv6/IPv4 management interfaces, it is well suited for backbone and workgroup network applications that entail affordability, high performance, and stable transmission quality.

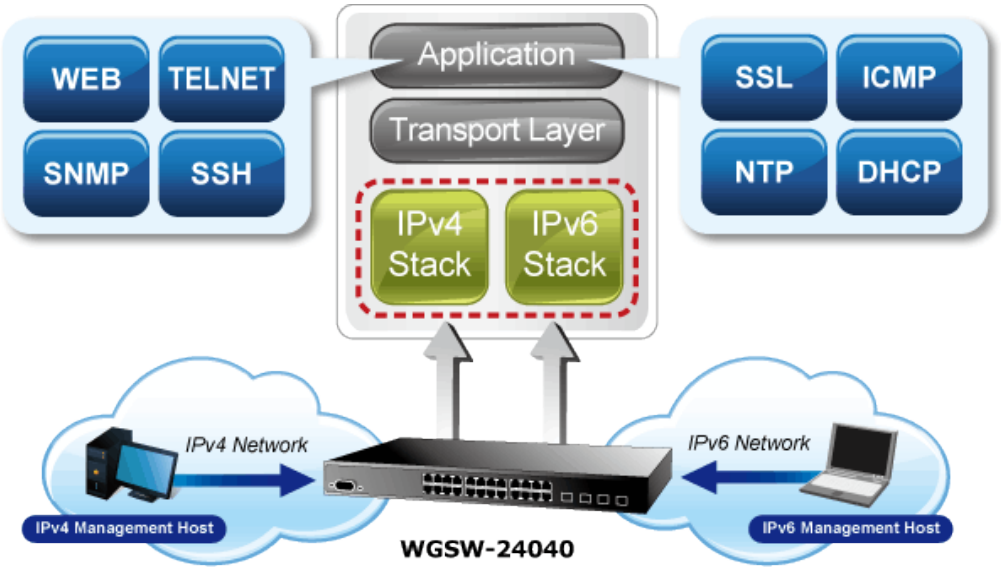


Network Cybersecurity Network Solution to Minimize Security Risks

The new-generation WGSW-24040 series has the cybersecurity features to protect the switch management and enhance the security of the mission-critical network without extra cost and effort. The new WGSW-24040 expands its memory and upgrades both SSH and SSL protocols to provide strong protection against advanced threats. It includes a range of cybersecurity features such as DHCP Snooping, IP Source Guard, ARP Inspection Protection, 802.1x port-based and mac-based network access control, RADIUS and TACACS+ user accounts management, SNMPv3 authentication, and so on to complement it as an all-security solution. The network administrator can now construct highly-secure corporate networks with considerably less time and effort than before.

Solution for IPv6 Networking

By supporting IPv6/IPv4 dual stack and plenty of management functions with easy and friendly management interfaces, the WGSW-24040 series is 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 but not necessary to replace the network facilities while the ISP constructs the IPv6 FTTx edge network.

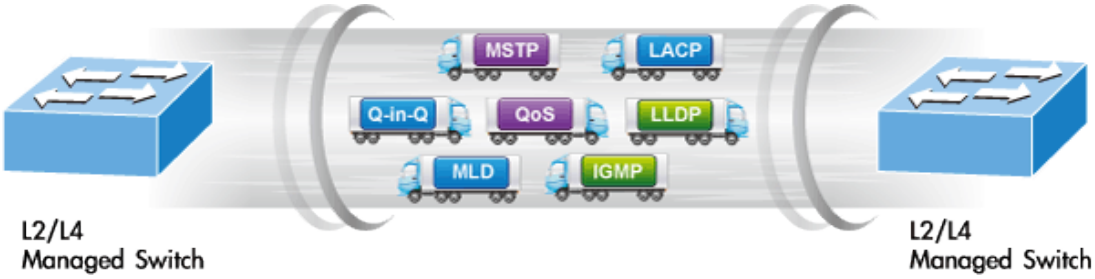


IPv4 and IPv6 VLAN Routing for Secure and Flexible Management

To help customers stay on top of their businesses, the WGSW-24040 series not only provides ultra high transmission performance and excellent Layer 2 technologies, but also offers IPv4/IPv6 VLAN routing feature which allows to cross over different VLANs and different IP addresses for the purpose of having a highly-secure, flexible management and simpler networking application.

Robust Layer 2 Features

The WGSW-24040 can be programmed for advanced switch management function, such as dynamic port link aggregation, **Q-in-Q VLAN**, **Multiple Spanning Tree Protocol(MSTP)**, Layer 2/4 QoS, bandwidth control and **IGMP/MLD snooping**. The SWGSW-24040 series allows the operation of a high-speed trunk combining multiple ports. It enables up to 14 trunk groups with 8 ports per trunk group and supports connection fail-over as well.



Powerful Security

The WGSW-24040 series offers comprehensive **Layer 2 to Layer 4 access control list (ACL)** for enforcing security to the edge. It can be used to restrict to 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 WGSW-24040 series 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. With the enhanced security and strict traffic control, the switch is definitely the best in building highly-secure corporate networks.

User-friendly Secure Management

For efficient management, the WGSW-24040 managed switch series is equipped with console, web and SNMP management interfaces. With the built-in web-based management interface, the WGSW-24040 series offers an easy-to-use, platform-independent management and configuration facility. The WGSW-24040 series supports SNMP and it can be managed via any management software based on SNMP v1 and v2 protocol. For reducing product learning time, the WGSW-24040 series offers Cisco-like command via Telnet or console port and customer doesn't need to learn new command from these switches. Moreover, the WGSW-24040 series offers remote secure management by supporting **SSH**, **SSL** and **SNMPv3** connection which can encrypt the packet content at each session.

Flexible and Extendable Solution

The 4 mini-GBIC SFP slots built in the WGSW-24040 support dual speed as it features 100BASE-FX and 1000BASE-SX/LX SFP (Small Form-factor Pluggable) fiber-optic modules. Now the administrator can flexibly choose the suitable SFP transceiver according to not only the transmission distance, but also the transmission speed required. The distance can be extended from 550 meters to 2 kilometers (multi-mode fiber) and to 10/20/30/40/50/70/120 kilometers (single-mode fiber or WDM fiber). They are well suited for applications within the enterprise data centers and distributions.

Intelligent SFP Diagnosis Mechanism

The WGSW-24040 supports **SFP-DDM (Digital Diagnostic Monitor)** function that greatly helps network administrator to easily monitor real-time parameters of the SFP and SFP+ transceivers, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.

Redundant AC/DC Power Supply to Ensure Continuous Operation

The WGSW-24040R is particularly equipped with one 100~240V AC power supply unit and one 36~60V DC power supply unit to provide an enhanced reliable and scalable redundant power supply. The continuous power system is specifically designed to fulfill the demands of high-tech facilities requiring the highest power integrity. With the 36~60V DC power supply, the WGSW-24040R is able to act as a telecom-level device that can be located in the electronic room.

2. Product Features

- **Physical Ports**
  - 24-port 10/100/1000BASE-T RJ45 copper
  - 4 100/1000BASE-X mini-GBIC/SFP slots, shared with Port-21 to Port-24 compatible with 100BASE-FX SFP
  - Console interface for basic management and setup

- **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
    - –Up to 255 VLANs groups, out of 4094 VLAN IDs
    - –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
    - –STP, IEEE 802.1D Spanning Tree Protocol (STP)
    - –RSTP, IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)

- –MSTP, IEEE 802.1s Multiple Spanning Tree Protocol (MSTP), spanning tree by VLAN
- –BPDU Guard

■ Supports **Link Aggregation**

- –802.3ad Link Aggregation Control Protocol (LACP)
- –Cisco ether-channel (static trunk)
- –Maximum 10 trunk groups, up to 16 ports per trunk group
- –Up to 32Gbps bandwidth (full duplex mode)

■ Provides port mirroring (many-to-1)
■ Port mirroring to monitor the incoming or outgoing traffic on a particular port
■ Loop protection to avoid broadcast loops
■ 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.

➢ **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
■ IGMP Snooping port filtering
■ 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

■ 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
  - Console / Telnet Command Line Interface
  - Web switch management
  - SNMP v1, v2c, and v3 switch management
  - SSH / SSL 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
- DHCP Server
- 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
- SMTP / Syslog remote alarm
- Four RMON groups (history, statistics, alarms and events)
- SNMP trap for interface Link Up and Link Down notification
- System Log
- PLANET Smart Discovery Utility for deploy management

➢ Redundant Power System (WGSW-24040R)

- Redundant 100~240V AC/36-60V DC dual power
- Active-active redundant power failure protection
- Backup of catastrophic power failure on one supply
- Fault tolerance and resilience

3. Product Specifications

3.1 MAIN COMPONENT

Switch ASIC:	VITESSE VSC7426	X1
Giga PHY:	VITESSE VSC8512	X1
CPU	MIPS 416MHz (integrated with VSC7426)	X 1
Flash:	MX25L12845EMI-10G (32Mbytes / 128Mbits)	X1
DDR RAM:	MT47H128M8CF-25E (512Mbytes / 1Gbits)	X1

3.2 FUNCTION SPECIFICATION

Product	**WGSW-24040**	**WGSW-24040R**
Hardware Specifications		
Copper Ports	24 10/ 100/1000BASE-T RJ45 auto-MDI/MDI-X ports	
10/100/1000Mbps / SFP Combo Interfaces	4 10/100/1000Mbps TP and SFP shared combo interfaces, SFP (Mini-GBIC) supports 100/1000Mbps Dual mode DDM, shared with Port-21 to Port-24	
Console	1 x RJ45 serial port (115200, 8, N, 1)	
Switch Architecture	Store-and-Forward	
Switch Fabric	48Gbps / non-blocking	
Throughput	95.2Mpps@64Bytes	
Address Table	8K entries, automatic source address learning and ageing	
Shared Data Buffer	1392 kilobytes	
Flow Control	IEEE 802.3x pause frame for full-duplex Back pressure for half-duplex	
Jumbo Frame	10K bytes	
Reset Button	< 5 sec: System reboot > 5 sec: Factory Default	
LED	System: PWR (Green) Ethernet Interfaces (Port 1 to Port 24): 1000 LNK/ACT (Green), 10/100 LNK/ACT (Orange) 100/1000Mbps SFP Combo Interfaces (Port 21 to Port 24): 1000 (Green), 100 (Orange)	
Power Requirements	100~240V AC, 50/60Hz, 2A	100~240V AC, 50/60Hz 48V DC @ 0.6A, Range: 36 ~ 60V
Power Consumption (Full Loading)	Max. 30 watts / 102 BTU	
ESD Protection	6KV DC	
Dimensions (W x D x H)	440 x 200 x 44.5 mm, 1U high	

Weight	3.3 kg	3.4 kg
Layer2 Management Function		
Basic Management Interfaces	Console; Telnet; Web Browser; SNMP v1, v2c	
Secure Management Interfaces	SSH, SSL, SNMP v3	
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	
VLAN	802.1Q tag-based VLAN, up to 255 VLAN groups ■ Q-in-Q tunneling ■ Private VLAN Edge (PVE) ■ MAC-based VLAN ■ Protocol-based VLAN ■ Voice VLAN ■ MVR (Multicast VLAN Registration) Up to 255 VLAN groups, out of 4094 VLAN IDs	
Link Aggregation	IEEE 802.3ad LACP / static trunk Supports 10 trunks groups with 16 ports per trunk group	
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	
IGMP Snooping	IGMP Snooping (v1/v2/v3), up to 255 multicast groups IGMP Querier mode support	
MLD Snooping	MLD Snooping ((v1/v2), up to 255 multicast groups MLD Querier mode support	
Access Control List	IP-based ACL / MAC-based ACL Up to 256 entries	
Bandwidth Control	Per port bandwidth control Ingress: 500Kb~80Mbps Egress: 64Kb~80Mbps	
SNMP MIBs	RFC 1213 MIB-II IF-MIB RFC 1493 Bridge MIB RFC 1643 Ethernet MIB RFC 2863 Interface MIB RFC 2665 Ether-Like MIB RFC 2737 Entity MIB RFC 2819 RMON MIB (Group 1, 2, 3 and 9) RFC 2618 RADIUS Client MIB RFC 3411 SNMP-Frameworks-MIB	

	IEEE 802.1X PAE LLDP MAU-MIB
Layer 3 Function	
IP Interface	Max. 8 VLAN interfaces
Routing Table	Max. 32 routing entries
Routing Protocols	IPv4 software static routing IPv6 software static routing
Standards Conformance	
Regulatory Compliance	FCC Part 15 Class A, CE
Standards Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX/100BASE-FX IEEE 802.3z 1000BASE-SX/LX IEEE 802.3ab 1000BASE-T IEEE 802.3x flow control and back pressure IEEE 802.3ad port trunk with LACP IEEE 802.1D Spanning Tree protocol IEEE 802.1w Rapid Spanning Tree protocol IEEE 802.1s Multiple Spanning Tree protocol IEEE 802.1p Class of service IEEE 802.1Q 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 version 1 RFC 2236 IGMP version 2 RFC 3376 IGMP version 3 RFC 2710 MLD version 1 FRC 3810 MLD version 2
Environments	
Operating	Temperature: 0 ~ 50 degrees C for AC power input Relative Humidity: 5 ~ 95% (non-condensing)
Storage	Temperature: -10 ~ 70 degrees C Relative Humidity: 5 ~ 95% (non-condensing)

3.3 PHYSICAL SPECIFICATIONS:

Dimensions:

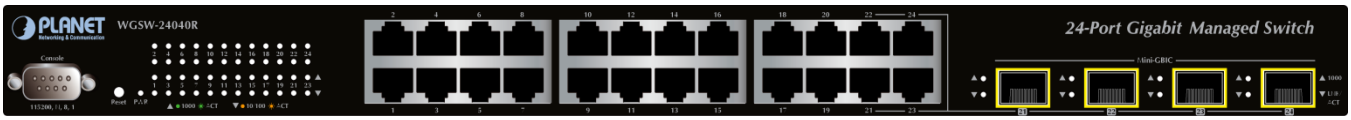
440 x 200 x 44.5mm (W x D x H), 1U height

Weight:

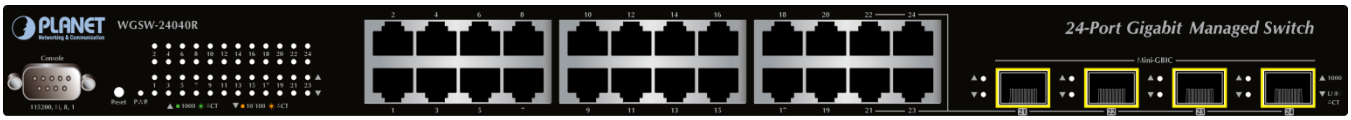
3.3kg (24040), 3.4kg (24040R)

Front Panel:

WGSW-24040



WGSW-24040R



■ **Rear Panel:**

WGSW-24040

WGSW-24040R

■ **LED definition**

■ **System**

LED	Color	Function
PWR	**Green**	Lights to indicate that the switch has power.

■ **Per 10/100/1000BASE-T Port**

LED	Color	Function
1000 LNK/ACT	**Green**	**Lights** to indicate the port is running at **1000Mbps** speed and successfully established. **Blinks** to indicate that the switch is actively sending or receiving data over that port.
10/100 LNK/ACT	**Orange**	**Lights** to indicate the port is running at **10/100Mbps** speed and successfully established. **Blinks** to indicate that the switch is actively sending or receiving data over that port.

■ **Per 100/1000BASE-X SFP Interfaces**

LED	Color	Function
1000	**Green**	**Lights** to indicate that the port is operating at **1000Mbps**. **Off** to indicate the port is operating at 100Mbps or no link.
LNK/ACT	**Orange**	**Lights** to indicate the port is successfully established. **Blinks** to indicate that the switch is actively sending or receiving data over that port.

3.4 ENVIRONMENTAL SPECIFICATIONS

Operating:

Temperature: 0°C ~ 50 degrees C

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

Storage:

Temperature: -20°C ~ 70 degrees C

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

3.5 ELECTRICAL SPECIFICATION

Power Input Voltage:	100 - 240V AC, 50 - 60Hz, Auto-sensing.	-36 ~ -60V DC
Power Consumption (System on):	110V AC: 10 watts / 34.1 BTU	-36V DC: 9.5 watts / 32.395 BTU
	220V AC : 10.4 watts / 35.464 BTU	-48V DC: 10 watts / 34.1 BTU
		-60V DC: 10.2 watts / 34.782 BTU
Power Consumption (Full Load):	110V AC : 20.3 watts / 69.223 BTU	-36V DC: 20.1 watts / 68.541 BTU
	220V AC: 21.0 watts / 71.652 BTU	-48V DC: 20.2 watts / 68.882 BTU
		-60V DC: 20.8 watts / 70.928 BTU

3.6 REGULATORY COMPLIANCE

FCC Class A, CE

3.7 RELIABILITY

MTBF > 50,000 hrs @ 25 degrees C

3.8 BASIC PACKAGING

- WGSW-24040(R) x 1
- User's manual x 1
- Quick installation guide x 1
- Power cord x 1
- RS232 cable x 1
- Rubber feet x 4
- SFP dust cap x 4
- Two rack-mounting brackets with attachment screws x 2

3.9 PACKING INFORMATION

Dimension: 520mm (W) x 450mm (D) x 90mm (H)

Weight: 3.3kg (24040), 3.4kg (24040R)

5 pcs in one carton