

intelbras

# Intelbras Campus Switches 3130 Series






## Intelbras SC 3130 Layer 3 Gigabit Access Switch Series

### Product Overview

Intelbras SC 3130 Series Switch – A simple (fixed power design), cost-effective and easy to deploy access switching solution with POE+ that offers enhanced security, high-density GE and 10GbE uplinks, static route, RIP, OSPF and IRF enabled, flexible management, which meet the requirements for SME access, enterprise desktop access and high-density campus access.

**Intelbras SC 3130 series Ethernet switch includes the following models:**

Product Description	Product Photograph
<ul style="list-style-type: none"> <li>SC 3130-24GP-2M10-2X: 24*10/100/1000Base-T (PoE + AT) Ports 2*1/2.5/5/10G BASE-T Ports 2*10G BASE-X SFP+ Ports (AC)</li> </ul>	
<ul style="list-style-type: none"> <li>SC 3130-48GP-2M10-2X: 48*10/100/1000Base-T (PoE + AT) Ports 2*1/2.5/5/10G BASE-T Ports 2*10G BASE-X SFP+ Ports (AC)</li> </ul>	
<ul style="list-style-type: none"> <li>SC 3130-8M2U-2X: 8*1G/2.5GBase-T (UPoE BT) Ports 2*1G/10GBase-X SFP Plus Ports (AC/DC)</li> </ul>	

## Features

### IRF2 (Intelligent Resilient Framework 2)

The SC 3130 series switch supports IRF2 technology that connects multiple physical devices (up to 9) to a logical device, that is to say, users can manage and use these devices as a single device. IRF can bring the following benefits to the user :

- **Simplify the management:** Any one of the ports can be connected to any of the devices to login to a unified logical device, and to manage the whole system and all the members of the system through the configuration of a single device, without the physical connection to each member of the device.
- **High scalability:** With IRF2, plug-n-play device aggregation can be achieved by adding one or more switches into the IRF2 stack and enabling IRF2 stacking on the new device. New devices can be managed with a single IP, and upgraded at the same time to reduce network expansion cost.
- **High reliability:** IRF2 patented 1: N standby technology allows each slave device in the IRF2 stack to serve as the backup of the master, creating control and data link redundancy, as well as uninterrupted layer-3 forwarding. This improves the reliability, avoids unplanned business downtime and serves to improve overall performance. When the master device fails, traffic remains uninterrupted.
- **Load balancing:** IRF2 supports cross-device link aggregation, upstream and downstream can be connected to more than one physical link, which creates another layer of network redundancy and boosts the network resource utilization.
- **Availability:** Intelbras Implements IRF2 through standard Gigabit Ethernet (1GE) ports or 10 Gigabit Ethernet (10GE) ports which allocates bandwidth for business and application access and reasonably splits local traffic and upstream traffic.

### Comprehensive Security Control

Intelbras SC 3130 series switch supports innovative single-port multi-authentication function, the access authentication modes supported by different clients are different. For example, some clients can only perform MAC addresses Authentication (such as the printer terminal), and some user host for 802.1X authentication, and some user hosts only want to access through the Web portal authentication. In order to flexibly adapt to the multi-authentication requirements of the network environment, the SC 3130 switch series support single-port multi-authentication unified deployment.

Intelbras SC 3130 series switch supports SSH V2 (Secure Shell V2) to secure information security, and strong authentication protect the Ethernet network switch from attacks such as IP address spoofing and clear text interception.

ARP attack and ARP virus are major threats to LAN security, so the SC 3130 switch series comes with diverse ARP protection functions such as ARP Detection to challenge the legitimacy of client, validate the ARP packets, and set a speed limit for ARP to prevent ARP swarm attacks from targeting CPU.

Intelbras SC 3130 series switch supports EAD (End User Admission Domination) function. With the On-premise centralized software system, EAD integrates terminal security policies, such as anti-virus and patch update, network access control and access right control policies to form a cooperative security system. By checking, isolating, updating, managing, and monitoring access terminals, EAD changes to passive mode, single point network protection to active, comprehensive network protection, and changes separate management to centralized management, enhancing the network capability for preventing viruses, worms, and new threats.

### **High Availability**

Intelbras SC 3130 series switch features multiple redundancy measures at the device and link levels, support current and voltage surge control, overheat protection, power and fan troubleshooting and alert, as well as fan speed adjustment when the temperature changes.

Apart from device level redundancy, Intelbras SC 3130 series switch also provides diverse link redundancy support such as LACP/STP/RSTP/MSTP/Smart Link protocols. It supports IRF2 and 1: N redundancy backup as well as cross-device link aggregation which substantially increases network reliability.

### **Abundant QoS**

Intelbras SC 3130 series switch supports packet filtering at Layer 2 through Layer 4, and traffic classification based on source MAC addresses, destination MAC addresses, source IP addresses, destination IP addresses, TCP/UDP port numbers, protocol types, and VLANs. It supports flexible queue scheduling algorithms based on ports and queues, including strict priority (SP), weighted round Robin (WRR) and SP+WRR. The SC 3130 switch series enables committed access rate (CAR) with the minimum granularity of 8 kbps. It supports port mirroring in the outbound and inbound directions, to monitor the packets on the specific ports, and to mirror the packets to the monitor port for network detection and troubleshooting.

### **Professional Surge Protection Function**

Intelbras SC 3130 series switch uses professional built-in surge protection technology and supports the industry-leading 10KV service port surge protection capability, which greatly reduces the damage rate of surge strikes to equipment even in harsh working environments.

## Excellent Manageability

Intelbras SC 3130 series switch makes switch management with ease with the support of SNMPv1/v2/v3, which can be managed by INC platforms, such as On-premise centralized software. With CLI and Telnet switch management is made easier. And with SSH 2.0 encryption, switch management security is enhanced.

## Green Design

The SC 3130 series switch implements a variety of green energy saving features, including auto-power-down (port automatic energy saving), if the interface status has been down for a period of time, the system automatically stops the interface power and the system enters power-saving mode. They also support EEE energy feature, by which if a port stays idle for a period of time, the system will set the port to energy-saving mode. The SC 3130 switch series is also compliant with material environmental protection and the EU RoHS safety standard.

## Specifications

### Hardware Specifications

Features	SC 3130-8M2U-2X	SC 3130-24GP-2M10-2X	SC 3130-48GP-2M10-2X
Port Switching capacity	80Gbps	128Gbps	176Gbps
Forwarding capacity	60Mpps	96Mpps	131Mpps
Box Switching capacity	336Gbps	336Gbps	336Gbps
CPU	1 Core, 800MHz	1 Core, 800MHz	1 Core, 800MHz
Flash/SDRAM	256MB/512MB	256MB/512MB	256MB/512MB
Dimensions(W× D×H)	300*260*43.6 mm	440*320*43.6 mm	440*320*43.6 mm
Weight	≤3.5kg	≤ 4.5kg	≤6kg
10/100/1000 Base-T port	/	24 (PoE+ AT)	48 (PoE+ AT)
SFP+ port	2	2	2
Multigiga port	8*1G/2.5GBASE-T (UPoE BT)	2*1/2.5/5/10G BASE-T (Non-PoE)	2*1/2.5/5/10G BASE-T (Non-PoE)
Maximum bandwidth	Stacking 16Gbps	80Gbps	80Gbps

Features	SC 3130-8M2U-2X	SC 3130-24GP-2M10-2X	SC 3130-48GP-2M10-2X
Maximum stacking num	9	9	9
Input voltage	AC: Rated voltage range: 100V~240V AC, 50/60Hz DC: Rated voltage range -54V~-57V DC	AC: Rated voltage range: 100V~240V AC, 50/60Hz	AC: Rated voltage range: 100V~240V AC, 50/60Hz
Power consumption(full configuration)	Min:AC:22.2 DC:17.38 MAX:AC:447(poe 370) DC:794.2(poe 740)	MIN: AC: 24.5W MAX: AC: 420W (PoE 370W)	MIN: AC: 34.5W MAX: AC: 430W (PoE 370W)
Fan NUM	3	2	2
MTBF(Year)	33.81	97.74	85.69
Operating temperature	-5°C ~ 50°C(normal operating temperature) -5°C ~ 45°C(When using transceiver modules with maximum transmission distance < 80km) -5°C ~ 40°C(When using transceiver modules with maximum transmission distance ≥ 80km)	-5°C ~ 50°C(normal operating temperature) -5°C ~ 45°C(When using transceiver modules with maximum transmission distance < 80km) -5°C ~ 40°C(When using transceiver modules with maximum transmission distance ≥ 80km)	-5°C ~ 50°C(normal operating temperature) -5°C ~ 45°C(When using transceiver modules with maximum transmission distance < 80km) -5°C ~ 40°C(When using transceiver modules with maximum transmission distance ≥ 80km)
Storage temperature	-40°C ~ 70°C	-40°C ~ 70°C	-40°C ~ 70°C
Operating & storage Relative humidity(noncondensing)	5% ~ 95%	5% ~ 95%	5% ~ 95%

## Software Specifications

Feature	SC 3130 switch series
Port aggregation	GE/10GE port aggregation Dynamic aggregation Static aggregation Cross-device aggregation
Broadcast/Multicast/Unicast storm suppression	Storm suppression based on port bandwidth percentage Storm suppression based on PPS Storm suppression based on BPS Broadcast traffic/Multicast traffic/Unknown unicast traffic suppression
IRF2	Distributed device management, distributed link aggregation, and distributed resilient routing Stacking through standard Ethernet interfaces Local device stacking and remote device stacking

Feature	SC 3130 switch series
MAC address table	Static MAC address Blackhole MAC address
VLAN	Port-based VLAN MAC-based VLAN Protocol-based VLAN QinQ and selective QinQ VLAN mapping Voice VLAN Private VLAN Subnet-based VLAN Guest VLAN Auth-Fail VLAN/Fallback GVRP LLDP, LLDP-MED (MED-TLV política de rede)
DHCP	DHCP Client DHCP Snooping DHCP Snooping option82 DHCP Relay DHCP Server DHCP auto-config
IP routing	Static routing RIPv1/v2 and RIPv6 OSPFv1/v2 and OSPFv3 Policy based route (PBR)
IPv4/IPv6	Ping, Traceroute, Telnet, SSH, SNMP, DNS HTTP e HTTPs para gerenciamento do switch Support IPv4 e IPV6 para todas as interfaces vlan
Multicast	IGMP Snooping V2/V3 MLD Snooping Multicast VLAN
Layer 2 ring network protocol	STP/RSTP/MSTP/PVST/PVST+ Smart Link RRPP G.8032 ERPS (Ethernet Ring Protection Switching)
ACL	Packet filtering at Layer 2 through layer 4 Traffic classification based on source MAC addresses, destination MAC addresses, source IPv4/IPv6 addresses, Time range-based ACL VLAN-based ACL Bidirectional ACL
QoS	Port rate limit (receiving and transmitting) Packet redirection Committed access rate (CAR)

Feature	SC 3130 switch series
	<p>Eight output queues on each port</p> <p>Flexible queue scheduling algorithms based on ports and queues, including SP, WRR and SP+WRR</p> <p>802.1p DSCP remarking</p>
Traffic Statistic	Sflow
Forwarding	Wire-speed/Line-rate architecture
Mirroring	<p>Port mirroring</p> <p>RSPAN</p>
Security	<p>Hierarchical user management and password protection</p> <p>AAA authentication support</p> <p>RADIUS authentication</p> <p>HWTACACS</p> <p>SSH2.0</p> <p>Port isolation</p> <p>802.1X authentication, centralized MAC authentication</p> <p>Port-based access control—Once an 802.1X user passes authentication on a port, any subsequent user can access the network through the port without authentication. When the authenticated user logs off, all other users are logged off.</p> <p>MAC-based access control—Each user is separately authenticated on a port. When a user logs off, no other online users are affected.</p> <p>Auth-Fail VLAN</p> <p>Mac-authentication parallel-with-dot1x</p> <p>MAC Authentication Bypass (MAB), mac-authentication parallel-with-dot1x</p> <p>EAP pass-through (EAP relay)</p> <p>Port security</p> <p>Port-security mac-limit</p> <p>IPv4/IPv6 source Guard</p> <p>IPv4/IPv6 spoofing</p> <p>ND attack detection</p> <p>RA guard</p> <p>HTTPs</p> <p>EAD</p> <p>Gerenciamento hierárquico de usuários e proteção de senha</p> <p>Controle de acesso baseado em funções (RBAC)</p> <p>Suporte de autenticação AAA</p> <p>Autenticação RADIUS (suporte a COA)</p> <p>HWTACACS</p> <p>SSH2.0 por padrão. Por comando, é possível torná-lo compatível com o ssh1.X.</p> <p>SSH - chave pública</p> <p>Cópia segura (Secure Copy)</p> <p>SSL 3.0, TLS 1.0 e TLS 1.1</p> <p>802.1x max-user max-number - o padrão é 4294967295</p> <p>Mac-authentication parallel-with-dot1x</p> <p>MAC Authentication Bypass (MAB), mac-authentication parallel-with-dot1x</p>



Feature	SC 3130 switch series
	<ul style="list-style-type: none"> <li>EAP pass-through (EAP relay)</li> <li>Support BPDU guard</li> <li>Root guard</li> <li>Loop guard</li> <li>Edge port/portfast</li> <li>Gerenciamento completo da tabela ARP</li> <li>Gratuitous ARP</li> <li>ARP snooping</li> <li>ARP direct route advertisement</li> <li>Static ARP</li> <li>Common ARP Proxy and Local ARP Proxy</li> <li>ARP Source Suppression</li> <li>Dynamic ARP inspection (DAI)</li> <li>ARP detection baseado em entradas de segurança DHCP Snooping, entradas 802.1X e entradas de associação estática IP/MAC</li> <li>ARP source suppression</li> <li>ARP blackhole routing</li> <li>ARP packet rate limit</li> <li>ARP packet source MAC consistency check</li> <li>ARP active acknowledgement</li> <li>Authorized ARP</li> <li>ARP attack detection</li> <li>ARP packet validity check</li> <li>ARP restricted forwarding</li> <li>ARP attack detection logging</li> <li>ARP scanning and fixed ARP</li> <li>Automatic ARP scanning</li> <li>ARP gateway protection</li> <li>ARP filtering</li> <li>ARP spoofing</li> <li>ARP sender IP address checking</li> <li>Unresolvable IP attack protection</li> <li>Source MAC-based ARP attack detection</li> </ul>
<p>Management and maintenance</p>	<ul style="list-style-type: none"> <li>Loading and upgrading through XModem/FTP/TFTP</li> <li>Zero Touch Provisioning</li> <li>Configuration through CLI, Telnet, and console port</li> <li>SNMPv1/v2c/v3 and Web-based NMS</li> <li>Restful</li> <li>Python</li> <li>Remote monitoring (RMON ) alarm, event, and history recording</li> <li>INC – Intelbras Network Center</li> <li>INC Cloud – Intelbras Network Center Cloud</li> <li>System log, alarming based on severities, and output of debugging information</li> <li>NTP</li> </ul>

Feature	SC 3130 switch series
	Ping, Tracert Virtual cable test (VCT) Device link detection protocol (DLDP) Loopback-detection

## Performance Specification

Entries	SC 3130 series switches
MAC address entries	16K
VLAN table	4094
VLAN interface	32
IPv4 routing entries	1024
IPv4 ARP entries	1024
IPv4 ACL entries	512
IPv4 multicast L2 entries	1000
IPv6 unicast routing entries	240
QOS forward queues	8
IPv6 ACL entries	512
IPv6 ND entries	240
Jumbo frame length	10000
MAX num in one link group	8
Link group num	124

## PoE Power Capacity

Product Name	Total PoE power capacity	PoE Ports Quantity
SC 3130-24GP-2M10-2X	370W	15.4W (802.3af): 24

Product Name	Total PoE power capacity	PoE Ports Quantity
		30W (802.3at): 12
SC 3130-48GP-2M10-2X	370W	15.4W (802.3af): 24 30W (802.3at): 12
SC 3130-8M2U-2X	AC: 370	15.4W (802.3af): 8 30W (802.3at): 8 60W (802.3bt): 6 90W (802.3bt): 4
	DC: 740	15.4W (802.3af): 8 30W (802.3at): 8 60W (802.3bt): 8 90W (802.3bt): 8

## Standards and Protocols Compliance

Organization	Standards And Protocols
IEEE	802.1x Port based network access control protocol
	802.1ab Link Layer Discovery Protocol
	802.1ak MVRP and MRP
	802.1ax Link Aggregation
	802.1d Media Access Control Bridges
	802.1p Priority
	802.1q VLANs
	802.1s Multiple Spanning Trees
	802.1ag Connectivity Fault Management

Organization	Standards And Protocols
	802.1v VLAN classification by Protocol and Port
	802.1w Rapid Reconfiguration of Spanning Tree
	802.3ad Link Aggregation Control Protocol
	802.3af Power over Ethernet
	802.3at Power over Ethernet
	802.3bt Power over Ethernet
	802.3az Energy Efficient Ethernet
	802.3ah Ethernet in the First Mile
	802.3x Full Duplex and flow control
	802.3u 100BASE-T
	802.3ab 1000BASE-T
	802.3z 1000BASE-X
	802.3ae 10-Gigabit Ethernet
	802.3bz 2.5GBASE-T and 5GBASE-T
IETF	RFC 768 User Datagram Protocol (UDP)
	RFC 791 Internet Protocol (IP)
	RFC 792 Internet Control Message Protocol (ICMP)
	RFC 793 Transmission Control Protocol (TCP)
	RFC 813 Window and Acknowledgement Strategy in TCP
	RFC 815 IP datagram reassembly algorithms
	RFC 826 Address Resolution Protocol (ARP)
	RFC 879 TCP maximum segment size and related topics
	RFC 896 Congestion control in IP/TCP internetworks
	RFC 917 Internet subnets
RFC 919 Broadcasting Internet Datagrams	

Organization	Standards And Protocols
	RFC 922 Broadcasting Internet Datagrams in the Presence of Subnets (IP_BROAD)
	RFC 951 BOOTP
	RFC 1027 Proxy ARP
	RFC 1122 Requirements for Internet Hosts - Communications Layers
	RFC 1213 MIB-2 Stands for Management Information Base
	RFC 1215 Convention for defining traps for use with the SNMP
	RFC 1256 ICMP Router Discovery Messages
	RFC 1350 TFTP Protocol (revision 2)
	RFC 1393 Traceroute Using an IP Option
	RFC 1519 Classless Inter-Domain Routing (CIDR)
	RFC 1542 BOOTP Extensions
	RFC 1583 OSPF Version 2
	RFC 1591 Domain Name System Structure and Delegation
	RFC 1757 Remote Network Monitoring Management Information Base
	RFC 1772 Application of the Border Gateway Protocol in the Internet
	RFC 1812 Requirements for IP Version 4 Router
	RFC 1918 Address Allocation for Private Internet
	RFC 2131 Dynamic Host Configuration Protocol (DHCP)
	RFC 2132 DHCP Options and BOOTP Vendor Extensions
	RFC 2273 SNMPv3 Applications
	RFC 2328 OSPF Version 2
	RFC 2375 IPv6 Multicast Address Assignments
	RFC 2401 Security Architecture for the Internet Protocol
	RFC 2402 IP Authentication Header
	RFC 2460 Internet Protocol, Version 6 (IPv6) Specification

Organization	Standards And Protocols
	RFC 2464 Transmission of IPv6 over Ethernet Networks
	RFC 2576 (Coexistence between SNMP V1, V2, V3)
	RFC 2579 Textual Conventions for SMIv2
	RFC 2580 Conformance Statements for SMIv2
	RFC 2711 IPv6 Router Alert Option
	RFC 2787 Definitions of Managed Objects for the Virtual Router Redundancy Protocol
	RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations
	RFC 3101 OSPF Not-so-stubby-area option
	RFC 3046 DHCP Relay Agent Information Option
	RFC 3056 Connection of IPv6 Domains via IPv4 Clouds
	RFC 3137 OSPF Stub Router Advertisement sFlow
	RFC 3416 (SNMP Protocol Operations v2)
	RFC 3417 (SNMP Transport Mappings)
	RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)
	RFC 3484 Default Address Selection for IPv6
	RFC 3509 Alternative Implementations of OSPF Area Border Routers
	RFC 3580 IEEE 802.1X Remote Authentication Dial In User Service (RADIUS) Usage Guidelines
	RFC 3623 Graceful OSPF Restart
	RFC 3768 Virtual Router Redundancy Protocol (VRRP)
	RFC 4022 MIB for TCP
	RFC 4113 MIB for UDP
	RFC 4213 Basic Transition Mechanisms for IPv6 Hosts and Routers
	RFC 4251 The Secure Shell (SSH) Protocol
	RFC 4252 SSHv6 Authentication
	RFC 4253 SSHv6 Transport Layer

Organization	Standards And Protocols
	RFC 4254 SSHv6 Connection
	RFC 4291 IP Version 6 Addressing Architecture
	RFC 4292 IP Forwarding Table MIB
	RFC 4293 Management Information Base for the Internet Protocol (IP)
	RFC 4419 Key Exchange for SSH
	RFC 4443 ICMPv6
	RFC 4486 Subcodes for BGP Cease Notification Message
	RFC 4541 IGMP & MLD Snooping Switch
	RFC 4552 Authentication/Confidentiality for OSPFv3
	RFC 4750 OSPFv2 MIB partial support no SetMIB
	RFC 4861 IPv6 Neighbor Discovery
	RFC 4862 IPv6 Stateless Address Auto-configuration
	RFC 4940 IANA Considerations for OSPF
	RFC 5095 Deprecation of Type 0 Routing Headers in IPv6
	RFC 5187 OSPFv3 Graceful Restart
	RFC 5280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
	RFC 5340 OSPFv3 for IPv6
	RFC 5381 Experience of Implementing NETCONF over SOAP
	RFC 5424 Syslog Protocol
	RFC 5798 VRRP (exclude Accept Mode and sub-sec timer)
	RFC 5880 Bidirectional Forwarding Detection
	RFC 5905 Network Time Protocol Version 4: Protocol and Algorithms Specification
	RFC 6620 FCFS SAVI
	RFC 6987 OSPF Stub Router Advertisement
	RFC 8201 Path MTU Discovery for IP version 6

Organization	Standards And Protocols
ITU	ITU-T Y.1731
	ITU-T Rec G.8032/Y.1344 Mar. 2010

## Product Information

Product Description
SC 3130-24GP-2M10U-2X: 24*10/100/1000Base-T Ports and 2*10G BASE-X SFP+ Ports and 2*1/2.5/5/10G BASE-T Ports,(PoE+,AC)
SC 3130-48GP-2M10-2X: 48*10/100/1000Base-T Ports and 2*10G BASE-X SFP+ Ports and 2*1/2.5/5/10G BASE-T Ports,(PoE+,AC)
SC 3130-8M2U-2X: 8*1G/2.5GBase-T(UPoE) Ports and 2*1G/10GBase-X SFP Plus Ports,(AC/DC)