



PROPOSTA COMERCIAL

À
DEFENSORIA PÚBLICA DO ESTADO DO RIO DE JANEIRO (DPRJ)

Referente ao PREGÃO ELETRÔNICO PARA REGISTRO DE PREÇOS Nº 90001/24

A empresa SEGER COMERCIAL IMPORTADORA E EXPORTADORA S.A., CNPJ n.º 04.287.754/0001-25, sediada à Av Mauro Ramos, 1450, Sala 602 Edif Platinum Tower, Centro, Florianópolis/SC, CEP. 88.020-302, vem perante a Vossa Senhoria apresentar sua Proposta Comercial para o Processo referenciado.

A presente proposta é baseada nas especificações, condições e prazos estabelecidos no Pregão Eletrônico 024/2019, os quais comprometemos a cumprir integralmente.

DADOS GERAIS DA EMPRESA				
Nome de Fantasia	SEGER COMERCIO EXTERIOR			
Razão Social	SEGER COMERCIAL IMPORTADORA E EXPORTADORA S.A.			
CNPJ:	04.287.754/0001-25	OPTANTE PELO SIMPLES?	SIM ()	NÃO (X)
INSCR. ESTADUAL:	255.823.487	C.M.C.	453.826-9	
Endereço:	AV MAURO RAMOS, 1450, SALA 602 EDIF PLATINUM TOWER			
Bairro	CENTRO	Município	FLORIANOPOLIS	
Estado	SC	CEP:	88.020-302	
Fone/FAX	(11) 2924-8670	E-mail.	eliane@seger.com.br	

DADOS BANCÁRIOS					
Banco	Banco do Brasil	Agência	3174-7	Conta Corrente	122504-9

RESPONSÁVEL PELA EMPRESA E ASSINATURA DE CONTRATO					
Nome do Responsável	Eliane Aparecida da Cunha Maciel				
CPF	580.453.259-68	RG	7.959.912-SSP/SC	TELEFONE	48-3024-5688

OUTRAS INFORMAÇÕES	
Condição e prazo de pagamento	30 (trinta) dias corridos contados do adimplemento da obrigação Considera-se adimplida a obrigação a entrega do objeto com seu aceite definitivo pelo Fiscal do Contrato.
Validade da Proposta	60 (sessenta) dias
Garantia do objeto	60 (sessenta) Meses
Opção pela Garantia Contratual	Seguro Garantia

PRODUTOS						
LOTE	DESCRIÇÃO	MARCA	MODELO	QTDE	VALOR UNIT	VALOR TOTAL
	ITEM 1 - EQUIPAMENTO DE REDE SWITCH GERENCIÁVEL LAYER 3 MARCA : INTELBRÁS MODELO : SC 3170 GARANTIA: 60 MESES 7.1.1. O equipamento é novo, está atualmente em linha de produção e consta no catálogo do fabricante na data de publicação do edital. / 7.1.2. Permite a utilização das funcionalidades, tecnologias e recursos especificados de maneira perpétua e irrestrita, ou seja, o fornecimento de qualquer equipamento, componente, meio de comunicação ou software adicional é de responsabilidade da CONTRATADA. / 7.1.3. Será fornecido com todos os cabos, trilhos, tomadas, conectores, drivers, licenças, softwares, manuais e acessórios necessários para ligação, instalação, integração com a rede interna da CONTRATANTE para o perfeito funcionamento do switch no ambiente, fornecidos sem nenhum custo além da proposta. / 7.1.4. Será licenciado em sua totalidade para utilização de todos os softwares, hardwares, funcionalidades, entre outros, que sejam imprescindíveis para o pleno funcionamento de todas as funcionalidades do equipamento. /					

<p>1</p>	<p>7.1.5. Cada equipamento será fornecido com dois transceivers SFP ou SFP+ 1000BASE-T, totalmente compatíveis com o modelo do switch.</p> <p>7.1.6. Será entregue com cabo de alimentação padrão brasileiro. / 7.1.7. Possui tecnologia compatível com as seguintes especificações mínimas: / I - PORTAS ETHERNET: 24 100Mb/1Gb / II - PROCESSADOR: 1000 MHZ / III - RAM: 512 MB / IV - MEMÓRIA FLASH: 512 MB / V - PROTOCOLOS: FAST ETHERNET, GIGABIT ETHERNET / VI - GERENCIAMENTO REMOTO: SNMP V1, V2 e V3, TELNET, HTTP, HTTPS, SSH v1.5 e v2.0 / VII - TABELA DE ENDEREÇO MAC: 32K / VIII - CAPACIDADE DE ROUTING/SWITCHING: 56 Gbps / IX - THROUGHPUT: 42 Mpps / X - SUPORTE A JUMBO FRAMES / XI - SUPORTE A IPV6 / XII - ROTEAMENTO ESTÁTICO NA CAMADA 3 EM IPV4 E IPV6 / XIII - SUPORTE A ROTEAMENTO ENTRE VLANS / XIV - SUPORTE A OSPF, BGP RIP E PBR / XV - SUPORTE AOS PADRÕES: IEEE 802.3, IEEE / 802.3U, IEEE 802.1D, IEEE 802.1Q, IEEE 802.3AB, IEEE 802.1P, IEEE 802.3X, IEEE 802.3AD (LACP), IEEE 802.1W, IEEE 802.1X, IEEE 802.1S, IEEE 802.3AZ (ENERGY EFFICIENT ETHERNET (EEE)) / XVI - GERENCIAMENTO BASEADO EM CLI (PROMPT DE COMANDO), INTERFACE WEB E CONSOLE / XVII - MODO DE CHAVEAMENTO OU ESQUEMA DE PROCESSAMENTO UTILIZADO (STORED AND FORWARD E/OU CUT-THROUGH) / XVIII - DEVE SUPOORTAR SERVIÇOS DE QOS E SWITCHING EM CAMADA 3 PARA REDES IP, LISTAS DE CONTROLE DE ACESSO E VLANS / XIX - AUTO-MDI/MDIX, HALF/FULL-DUPLEX AUTONEGOTIATING EM TODAS AS PORTAS / XX - IGMP SNOOPING / XXI - SPANNING TREE PROTOCOL (STP) E RAPID SPANNING TREE PROTOCOL (RSTP) / XXII - O SWITCH DEVERÁ APRESENTAR STATUS DE TODAS AS PORTAS INDICANDO LINKS ATIVOS, ATRAVÉS DE LEDS NO PAINEL FRONTAL / XXIII - DEVE POSSUIR DIMENSÕES E ACESSÓRIOS QUE POSSIBILITEM SUA FIXAÇÃO EM RACK PADRÃO DE 19" / XXIV - ALIMENTAÇÃO/TENSÃO DE 100 ~ 240 VAC / XXV - SUPORTE A DHCPv4 e DHCPv6 CLIENT, SERVER e RELAY / XXVI - SLOTS DE EXPANSÃO: 02 SFP OU SFP+ / XXVII - SUPORTE A VOICE VLAN / XXVIII -SUPORTE A VRRP / XXIX - SUPORTE A LOOPBACK DETECTION</p>	<p>INTELBRÁS</p>	<p>SC 3170 / 3170-24G-4X</p>	<p>200</p>	<p>R\$ 3.885,00</p>	<p>R\$ 777.000,00</p>
	<p>ITEM 2 - EQUIPAMENTO DE REDE SWITCH GERENCIÁVEL LAYER 3 COM PoE + MARCA : INTELBRÁS MODELO : SC 3170 GARANTIA: 60 MESES</p> <p>7.2.1. O equipamento é novo, está atualmente em linha de produção e consta no catálogo do fabricante na data de publicação do edital. / 7.2.2. Permite a utilização das funcionalidades, tecnologias e recursos especificados de maneira perpétua e irrestrita, ou seja, o fornecimento de qualquer equipamento, componente, meio de comunicação ou software adicional é de responsabilidade da CONTRATADA. / 7.2.3. Será fornecido com todos os cabos, trilhos, tomadas, conectores, drivers, licenças, softwares, manuais e acessórios necessários para ligação, instalação, integração com a rede interna da CONTRATANTE para o perfeito funcionamento do switch no ambiente, fornecidos sem nenhum custo além da proposta. / 7.2.4. Será licenciado em sua totalidade para utilização de todos os softwares, hardwares, funcionalidades, entre outros, que sejam imprescindíveis para o pleno funcionamento de todas as funcionalidades do equipamento. /</p> <p>7.2.5. Cada equipamento será fornecido com dois transceivers SFP ou SFP+ 1000BASE-T, totalmente compatíveis com o modelo do switch.</p>					



2	<p>7.2.6. Será entregue com cabo de alimentação padrão brasileiro. / 7.2.7. Possui tecnologia compatível com as seguintes especificações mínimas: / I - PORTAS ETHERNET: 24 100Mb/1Gb / II - PROCESSADOR: 1000 MHZ / III - RAM: 512 MB / IV - MEMÓRIA FLASH: 512 MB / V - PROTOCOLOS: FAST ETHERNET, GIGABIT ETHERNET / VI - GERENCIAMENTO REMOTO: SNMP V1, V2, V3, TELNET, HTTP, HTTPS, SSH v1.5 e v2.0 / VII - GERENCIAMENTO LOCAL BASEADO EM CLI (PROMPT DE COMANDO), INTERFACE WEB E CONSOLE. / VIII - TABELA DE ENDEREÇO MAC: 32K / IX - THROUGHPUT: 42 Mpps / X - CAPACIDADE DE ROUTING/SWITCHING: 56 Gbps / XI - SUPORTE A JUMBO FRAMES / XII - SUPORTE A IPV6 / XIII - ROTEAMENTO ESTÁTICO NA CAMADA 3 EM IPV4 E IPV6 / XIV - SUPORTE A ROTEAMENTO ENTRE VLANS / XV - SUPORTE A OSPF, BGP RIP E PBR / XVI - SUPORTE AOS PADRÕES: IEEE 802.3, IEEE 802.3U, IEEE 802.1D, IEEE 802.1Q, IEEE 802.3AB, IEEE 802.1P, IEEE 802.3X, IEEE 802.3AD (LACP), IEEE 802.1W, IEEE 802.1X, IEEE 802.1S, IEEE 802.3af PoE, IEEE 802.3at PoE, IEEE 802.3AZ (ENERGY EFFICIENT ETHERNET (EEE)) / XVII - MODO DE CHAVEAMENTO OU ESQUEMA DE PROCESSAMENTO UTILIZADO (STORED AND FORWARD E/OU CUT-THROUGH) / XVIII - DEVE SUPORTAR SERVIÇOS DE QOS E SWITCHING EM CAMADA 3 PARA REDES IP, LISTAS DE CONTROLE DE ACESSO E VLANS / XIX - AUTO-MDI/MDIX, HALF/FULL-DUPLEX AUTONEGOTIATING EM TODAS AS PORTAS / XX - IGMP SNOOPING / XXI - SPANNING TREE PROTOCOL (STP) e RAPID SPANNING TREE PROTOCOL (RSTP) / XXII - O SWITCH DEVERÁ APRESENTAR STATUS DE TODAS AS PORTAS INDICANDO LINKS ATIVOS, ATRAVÉS DE LEDS NO PAINEL FRONTAL / XXIII - DEVE POSSUIR DIMENSÕES E ACESSÓRIOS QUE POSSIBILITEM SUA FIXAÇÃO EM RACK PADRÃO DE 19" / XXIV - ALIMENTAÇÃO/TENSÃO DE 100 ~ 240 VAC / XXV - SUPORTE A DHCPv4 e DHCPv6 CLIENT, SERVER e RELAY / XXVI - SLOTS DE EXPANSÃO: 02 SFP OU SFP+ / XXVII - SUPORTE A VOICE VLAN / XXVIII -SUPORTE A VRRP / XXIX - SUPORTE A LOOPBACK DETECTION / XXX - PoE</p>	INTELBRÁS	SC 3170 / 3170-24GP-4X	20	R\$ 5.087,00	R\$ 101.740,00
VALOR TOTAL						R\$ 878.740,00

Valor tota da Proposta **R\$ 878.740,00 - (Oitocentos e setenta e oito mil, setecentos e quarenta Reais)**

DECLARAÇÕES

Declaramos ainda para os devidos fins, sob as penas da lei:

- Para os devidos fins de direito que cumpre plenamente os requisitos da habilitação estabelecidos no edital em epigrafe.
- Que estamos cientes e concordamos com as condições contidas nos termos constantes do Edital e seus anexos, bem como que cumprimos plenamente os requisitos de habilitação definidos;
- Que os produtos ofertados são novos e estão em fase normal de produção.
- Que será fornecido com todos os cabos, trilhos, tomadas, conectores, drivers, licenças, softwares, manuais e acessórios necessários para ligação, instalação, integração com a rede interna da CONTRATANTE para o perfeito funcionamento do switch no ambiente, fornecidos sem nenhum custo além da proposta.
- Que os equipamentos ofertados serão entregues licenciados em sua totalidade para utilização de todos os softwares, hardwares, funcionalidades, entre outros, que sejam imprescindíveis para o pleno funcionamento de todas as funcionalidades do equipamento.
- Que será fornecido para cada switch dois transceivers SFP ou SFP+ 1000BASE-T, totalmente compatíveis com o modelo ofertado.
- Que serão entregue equipamentos com cabo de alimentação padrão brasileiro.

Florianópolis, 06 de junho de 2024

**ELIANE APARECIDA
DA CUNHA
MACIEL:58045325968**

Assinado de forma digital por
ELIANE APARECIDA DA CUNHA
MACIEL:58045325968
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Eliane Aparecida da Cunha Maciel
Presidente
CPF: 580.453.259-68



PROPOSTA DETALHE

SERVIÇO PÚBLICO ESTADUAL PROPOSTA DETALHE				ANEXO II Licitação por Pregão Eletrônico nº 90001/24. A Realizar-se: 28/02/2024, às 11:00H Processo nº E-20/001.011052/2022						
A firma ao lado mencionada propõe fornecer à DPRJ, pelos preços abaixo assinalados, obedecendo rigorosamente às condições estipuladas constantes do EDITAL.										
LOTE	ITEM	NÚMERO DE ESTOQUE (CATMAT)	ESPECIFICAÇÃO	UNID.	QTD	MARCA	PREÇO COM ICMS(R\$)		PREÇO SEM ICMS (R\$)	
							UNIT.	TOTAL	UNIT.	TOTAL
1	1	355848	SWITCH DE REDE 100 MB / 1 GB, LAYER 3, COM 24 (VINTE E QUATRO) PORTAS ETHERNET VALOR UNITÁRIO R\$: 20.000,00 VALOR TOTAL R\$: 3.000.000,00	un	200	INTELBRÁS	R\$ 3.885,00	R\$ 777.000,00	R\$ 3.317,10	R\$ 663.420,00
	2	609689	SWITCH DE REDE 100 MB /1 GB, LAYER 3, COM 24 (VINTE E QUATRO) PORTAS ETHERNET, POE VALOR UNITÁRIO R\$: 25.000,00 VALOR TOTAL R\$: 500.000,00	un	20	INTELBRÁS	R\$ 5.087,00	R\$ 101.740,00	R\$ 4.350,82	R\$ 87.016,40

Seger Comercial Importadora e Exportadora S.A.

Av. Mauro Ramos, 1450, sala 602 - Centro – Florianópolis – SC – CEP 88020-302

Fone: (48) 3024-5688 - www.seger.com.br



	<p>Prazo de entrega: De acordo com o Termo de Referência Validade da Proposta - Detalhe: preços válidos por 60 (sessenta) dias úteis. Local de entrega/execução: conforme o Termo de Referência. Declaramos inteira submissão ao presente termo e legislação vigente. Em 27/02/2024.</p> <p style="text-align: center;">SEGER COMERCIAL IMPORTADORA E EXPORTADORA S.A.</p>
<p>Florianópolis, 28 de fevereiro de 2024</p>	<p style="text-align: center;">_____ Eliane Aparecida da Cunha Maciel Presidente CPF: 580.453.259-68</p>

ELIANE APARECIDA DA CUNHA
MACIEL:58045325968
68

Assinado de forma digital
por ELIANE APARECIDA DA
CUNHA
MACIEL:58045325968
Dados: 2024.06.06
15:27:10 -03'00'

PONTO A PONTO

ITEM	DESCRIÇÃO EDITAL		
1	7.1. ITEM 1 - EQUIPAMENTO DE REDE SWITCH GERENCIÁVEL LAYER 3		
P/N	PRODUTO		
3170-24G-4X	SC 3170		
DESCRIÇÃO	FONTES	NOME DOCUMENTO	Pág / Seção
7.1.1. O equipamento deverá ser novo, estar atualmente em linha de produção e constar no catálogo do fabricante na data de publicação do edital. Não serão aceitos equipamentos usados, remanufaturados, de demonstração, versões anteriores aos modelos mais recentes ou composições feitas única e exclusivamente para o presente certame.	PROPOSTA COMERCIAL		
7.1.2. Deverá permitir a utilização das funcionalidades, tecnologias e recursos especificados de maneira perpétua e irrestrita, ou seja, o fornecimento de qualquer equipamento, componente, meio de comunicação ou software adicional é de responsabilidade da CONTRATADA.	PROPOSTA COMERCIAL		
7.1.3. Deverá ser fornecido com todos os cabos, trilhos, tomadas, conectores, drivers, licenças, softwares, manuais e acessórios necessários para ligação, instalação, integração com a rede interna da CONTRATANTE para o perfeito funcionamento do switch no ambiente, fornecidos sem nenhum custo além da proposta.	PROPOSTA COMERCIAL		
7.1.4. Deverá ser licenciado em sua totalidade para utilização de todos os softwares, hardwares, funcionalidades, entre outros, que sejam imprescindíveis para o pleno funcionamento de todas as funcionalidades do equipamento.	PROPOSTA COMERCIAL		
7.1.5. Cada equipamento deverá ser fornecido com dois transceivers SFP ou SFP+ 1000BASE-T, totalmente compatíveis com o modelo do switch.	PROPOSTA COMERCIAL		
7.1.6. Deverá ser entregue com cabo de alimentação padrão brasileiro.	PROPOSTA COMERCIAL		
7.1.7. Possuir tecnologia compatível com as seguintes especificações mínimas:			
I - PORTAS ETHERNET: 24 100Mb/1Gb	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág. 2 / Descrição do produto
II - PROCESSADOR: 1000 MHZ	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.6 / Especificações de Hardware
III - RAM: 512 MB	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.6 / Especificações de Hardware
IV - MEMÓRIA FLASH: 512 MB	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.6 / Especificações de Hardware
V - PROTOCOLOS: FAST ETHERNET, GIGABIT ETHERNET	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.12 / Conformidade com Padrões e Protocolos
VI - GERENCIAMENTO REMOTO: SNMP v1, v2 e v3, TELNET, HTTP, HTTPS, SSH v1.5 e v2.0	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.5 / Excelente Gerenciabilidade Pág.9 / Segurança
VII - TABELA DE ENDEREÇO MAC: 32K	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.9 / Especificações de performance
VIII - CAPACIDADE DE ROUTING/SWITCHING: 56 Gbps	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.6 / Especificações de Hardware
IX - THROUGHPUT: 42 Mpps	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.6 / Especificações de Hardware
X - SUPORTE A JUMBO FRAMES	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.10 / Especificações de performance

ITEM	DESCRIÇÃO EDITAL			
XI - SUPORTE A IPV6	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.2 / Visão Geral do Produto Pág.14 / Conformidade com Padrões e Protocolos	
XII - ROTEAMENTO ESTÁTICO NA CAMADA 3 EM IPV4 E IPV6	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.8 / Especificações de Software Pág.10 / Especificações de performance	
XIII - SUPORTE A ROTEAMENTO ENTRE VLANS	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.8 / Especificações de Software	
XIV - SUPORTE A OSPF, BGP RIP E PBR	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.8 / Especificações de Software Pág.13 / Conformidade com Padrões e Protocolos	
XV - SUPORTE AOS PADRÕES: IEEE 802.3, IEEE802.3U, IEEE 802.1D, IEEE 802.1Q, IEEE 802.3AB, IEEE 802.1P, IEEE 802.3X, IEEE 802.3AD (LACP), IEEE 802.1W, IEEE 802.1X, IEEE 802.1S, IEEE 802.3AZ (ENERGY EFFICIENT ETHERNET (EEE))	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.11 - 12 - / Conformidade com Padrões e Protocolos	
XVI - GERENCIAMENTO BASEADO EM CLI (PROMPT DE COMANDO), INTERFACE WEB E CONSOLE	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.8 / Especificações de Software	
XVII - MODO DE CHAVEAMENTO OU ESQUEMA DE PROCESSAMENTO UTILIZADO (STORED AND FORWARD E/OU CUT-THROUGH)	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.8 / Especificações de Software	
XVIII - DEVE SUPOORTAR SERVIÇOS DE QOS E SWITCHING EM CAMADA 3 PARA REDES IP, LISTAS DE CONTROLE DE ACESSO E VLANS	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.4 / Recursos Abundantes de QoS (Qualidade de Serviço) Pág.8 / Especificações de Software	
XIX - AUTO-MDI/MDIX, HALF/FULL-DUPLEX AUTONEGOTIATING EM TODAS AS PORTAS	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.7 / Especificações de Hardware	
XX - IGMP SNOOPING	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.8 / Especificações de Software	
XXI - SPANNING TREE PROTOCOL (STP) E RAPID SPANNING TREE PROTOCOL (RSTP)	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.8 / Especificações de Software	
XXII - O SWITCH DEVERÁ APRESENTAR STATUS DE TODAS AS PORTAS INDICANDO LINKS ATIVOS, ATRÁVÉS DE LEDS NO PAINEL FRONTAL	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.7 / Especificações de Hardware	
XXIII - DEVE POSSUIR DIMENSÕES E ACESSÓRIOS QUE POSSIBILITEM SUA FIXAÇÃO EM RACK PADRÃO DE 19"	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.6 / Especificações de Hardware	
XXIV - ALIMENTAÇÃO/TENSÃO DE 100 ~ 240 VAC	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.7 / Especificações de Hardware	
XXV - SUPORTE A DHCPv4 e DHCPv6 CLIENT, SERVER e RELAY	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.8 / Especificações de Software	
XXVI - SLOTS DE EXPANSÃO: 02 SFP OU SFP+	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág. 2 / Descrição do produto	
XXVII - SUPORTE A VOICE VLAN	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.8 / Especificações de Software	
XXVIII -SUPORTE A VRRP	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.15 / Conformidade com Padrões e Protocolos	
XXIX - SUPORTE A LOOPBACK DETECTION	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.9 / Especificações de Software	

ITEM	DESCRIÇÃO EDITAL			
2	7.2. ITEM 2 - EQUIPAMENTO DE REDE SWITCH GERENCIÁVEL LAYER 3 COM PoE +			
P/N	PRODUTO			
3170-24GP-4X	SC 3170			
DESCRIÇÃO	FONTE	NOME DOCUMENTO	Pág / Seção	

ITEM	DESCRIÇÃO EDITAL		
7.2.1.	O equipamento deverá ser novo, estar atualmente em linha de produção e constar no catálogo do fabricante na data de publicação do edital. Não serão aceitos equipamentos usados, remanufaturados, de demonstração, versões anteriores aos modelos mais recentes ou composições feitas única e exclusivamente para o presente certame.	PROPOSTA COMERCIAL	
7.2.2.	Deverá permitir a utilização das funcionalidades, tecnologias e recursos especificados de maneira perpétua e irrestrita, ou seja, o fornecimento de qualquer equipamento, componente, meio de comunicação ou software adicional é de responsabilidade da CONTRATADA.	PROPOSTA COMERCIAL	
7.2.3.	Deverá ser fornecido com todos os cabos, trilhos, tomadas, conectores, drivers, licenças, softwares, manuais e acessórios necessários para ligação, instalação, integração com a rede interna da CONTRATANTE para o perfeito funcionamento do switch no ambiente, fornecidos sem nenhum custo além da proposta.	PROPOSTA COMERCIAL	
7.2.4.	Deverá ser licenciado em sua totalidade para utilização de todos os softwares, hardwares, funcionalidades, entre outros, que sejam imprescindíveis para o pleno funcionamento de todas as funcionalidades do equipamento.	PROPOSTA COMERCIAL	
7.2.5.	Cada equipamento deverá ser fornecido com dois transceivers SFP ou SFP+ 1000BASE-T, totalmente compatíveis com o modelo do switch.	PROPOSTA COMERCIAL	
7.2.6.	Deverá ser entregue com cabo de alimentação padrão brasileiro.	PROPOSTA COMERCIAL	
7.2.7.	Possuir tecnologia compatível com as seguintes especificações mínimas:		
I - PORTAS ETHERNET: 24 100Mb/1Gb	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág. 2 / Descrição do produto
II - PROCESSADOR: 1000 MHZ	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.6 / Especificações de Hardware
III - RAM: 512 MB	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.6 / Especificações de Hardware
IV - MEMÓRIA FLASH: 512 MB	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.6 / Especificações de Hardware
V - PROTOCOLOS: FAST ETHERNET, GIGABIT ETHERNET	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.12 / Conformidade com Padrões e Protocolos
VI - GERENCIAMENTO REMOTO: SNMP V1, V2, V3, TELNET, HTTP, HTTPS, SSH v1.5 e v2.0	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.5 / Excelente Gerenciabilidade Pág.9 / Segurança
VII - GERENCIAMENTO LOCAL BASEADO EM CLI (PROMPT DE COMANDO), INTERFACE WEB E CONSOLE.	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.8 / Especificações de Software
VIII - TABELA DE ENDEREÇO MAC: 32K	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.9 / Especificações de performance
IX - THROUGHPUT: 42 Mpps	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.6 / Especificações de Hardware
X - CAPACIDADE DE ROUTING/SWITCHING: 56 Gbps	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.6 / Especificações de Hardware
XI - SUPORTE A JUMBO FRAMES	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.10 / Especificações de performance
XII - SUPORTE A IPV6	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.2 / Visão Geral do Produto
XIII - ROTEAMENTO ESTÁTICO NA CAMADA 3 EM IPV4 E IPV6	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.8 / Especificações de Software
XIV - SUPORTE A ROTEAMENTO ENTRE VLANS	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.8 / Especificações de Software
XV - SUPORTE A OSPF, BGP RIP E PBR	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.8 / Especificações de Software

ITEM	DESCRIÇÃO EDITAL		
XVI - SUPORTE AOS PADRÕES: IEEE 802.3, IEEE 802.3U, IEEE 802.1D, IEEE 802.1Q, IEEE 802.3AB, IEEE 802.1P, IEEE 802.3X, IEEE 802.3AD (LACP), IEEE 802.1W, IEEE 802.1X, IEEE 802.1S, IEEE 802.3af PoE, IEEE 802.3at PoE, IEEE 802.3AZ (ENERGY EFFICIENT ETHERNET (EEE))	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.11 - 12 - / Conformidade com Padrões e Protocolos
XVII - MODO DE CHAVEAMENTO OU ESQUEMA DE PROCESSAMENTO UTILIZADO (STORED AND FORWARD E/OU CUT-THROUGH)	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.8 / Especificações de Software
XVIII - DEVE SUPOORTAR SERVIÇOS DE QOS E SWITCHING EM CAMADA 3 PARA REDES IP, LISTAS DE CONTROLE DE ACESSO E VLANS	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.4 / Recursos Abundantes de QoS (Qualidade de Serviço) Pág.8 / Especificações de Software
XIX - AUTO-MDI/MDIX, HALF/FULL-DUPLEX AUTONEGOTIATING EM TODAS AS PORTAS	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.7 / Especificações de Hardware
XX - IGMP SNOOPING	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.8 / Especificações de Software
XXI - SPANNING TREE PROTOCOL (STP) e RAPID SPANNING TREE PROTOCOL (RSTP)	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.8 / Especificações de Software
XXII - O SWITCH DEVERÁ APRESENTAR STATUS DE TODAS AS PORTAS INDICANDO LINKS ATIVOS, ATRAVÉS DE LEDS NO PAINEL FRONTAL	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.7 / Especificações de Hardware
XXIII - DEVE POSSUIR DIMENSÕES E ACESSÓRIOS QUE POSSIBILITEM SUA FIXAÇÃO EM RACK PADRÃO DE 19"	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.6 / Especificações de Hardware
XXIV - ALIMENTAÇÃO/TENSÃO DE 100 ~ 240 VAC	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.7 / Especificações de Hardware
XXV - SUPORTE A DHCPv4 e DHCPv6 CLIENT, SERVER e RELAY	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.8 / Especificações de Software
XXVI - SLOTS DE EXPANSÃO: 02 SFP OU SFP+	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág. 2 / Descrição do produto
XXVII - SUPORTE A VOICE VLAN	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.8 / Especificações de Software
XXVIII -SUPORTE A VRRP	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.15 / Conformidade com Padrões e Protocolos
XXIX - SUPORTE A LOOPBACK DETECTION	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.9 / Especificações de Software
XXX - PoE+	DATASHEET	Intelbras Campus Switches SC 3170 Series_0.pdf	Pág.11 / Capacidade de Energia PoE

DOCUMENTOS

Intelbras Campus Switches SC 3170 Series_0.pdf

intelbras




Série de Switch Campus Intelbras SC 3170



Visão Geral do Produto

O switch SC 3170 adota a tecnologia ASIC líder do setor para desenvolver uma nova geração de switches Ethernet Gigabit gerenciados por rede, de alto desempenho, alta densidade de portas, alta segurança e fácil instalação. Esses switches oferecem suporte à gestão e encaminhamento dual-stack IPv4/IPV6. Eles suportam protocolos de roteamento estático, bem como protocolos de roteamento como RIP e OSPF, e contam com recursos avançados de gerenciamento e segurança.

Os produtos SC 3170 são principalmente posicionados na camada de acesso e na camada de agregação de empresas e campi, atendendo a acessos Gigabit de alta densidade, portas de uplink fixas de 10 Gigabits, suporte a PoE+ e construindo redes IP de ponta a ponta de alto desempenho em conjunto com outras soluções de produtos Intelbras.

Descrição do produto	Foto do produto
<ul style="list-style-type: none">SC 3170-24G-4X <p>24 portas Ethernet 10/100/1000BASE-T, 4 portas SFP+ 1G/10G BASE-X.</p>	 A front view of the Intelbras SC 3170-24G-4X switch. It features 24 RJ45 ports on the left, 4 SFP+ ports in the middle, and a console port on the right. The device is black with a silver faceplate.
<ul style="list-style-type: none">SC 3170-48G-6X <p>48 portas Ethernet 10/100/1000BASE-T, 6 portas SFP+ 1G/10G BASE-X.</p>	 A front view of the Intelbras SC 3170-48G-6X switch. It features 48 RJ45 ports on the left, 6 SFP+ ports in the middle, and a console port on the right. The device is black with a silver faceplate.
<ul style="list-style-type: none">SC 3170-24GP-4X <p>24 portas Ethernet 10/100/1000BASE-T (PoE+), 4 portas SFP+ 1G/10G BASE-X.</p>	 A front view of the Intelbras SC 3170-24GP-4X switch. It features 24 RJ45 ports on the left, 4 SFP+ ports in the middle, and a console port on the right. The device is black with a silver faceplate.

Descrição do produto	Foto do produto
<ul style="list-style-type: none">• SC 3170-48GP-6X <p>48 portas Ethernet 10/100/1000BASE-T (PoE+), 6 portas SFP+ 1G/10G BASE-X.</p>	

Recursos

Intelbras Intelligent Resilient Framework 2 (IRF2)

O Intelbras Intelligent Resilient Framework 2 (IRF 2) virtualiza vários switches SC 3170 em um único switch virtual e oferece os seguintes benefícios:

Escalabilidade: O IRF 2 permite adicionar dispositivos ao sistema IRF 2 facilmente. Ele fornece um ponto único de gerenciamento, permite plug-and-play no switch e suporta atualização automática de software para sincronização de software do mestre para os novos dispositivos membros. Isso proporciona agilidade nos negócios com menor custo total de propriedade, permitindo a adição de novos switches à estrutura sem alteração na topologia da rede à medida que os negócios crescem.

Alta disponibilidade: A tecnologia exclusiva de backup dinâmico de roteamento da Intelbras garante redundância e backup de todas as informações nos planos de controle e dados, além de encaminhamento contínuo de dados na Camada 3 em uma estrutura IRF 2. Isso também elimina pontos únicos de falha e garante a continuidade do serviço.

Redundância e balanceamento de carga: A tecnologia de agregação de link distribuída suporta compartilhamento de carga e backup mútuo entre várias conexões ascendentes, melhorando a redundância da rede e a utilização de recursos de link.

Flexibilidade e resiliência: O switch utiliza portas GE padrão em vez de portas especializadas para as conexões IRF entre dispositivos membros do IRF. Isso permite que os clientes aloquem largura de banda conforme necessário entre conexões ascendentes, descendentes e do sistema IRF. Além disso, um sistema IRF SC 3170 pode abranger um rack, vários racks ou vários campi.

Políticas Abrangentes de Controle de Segurança

O Endpoint Admission Defense (EAD), em conjunto com o sistema backend, integra a segurança de endpoint (incluindo antivírus e aplicação de patches) e a segurança de rede (incluindo controle de acesso à rede e controle de direitos de acesso) em um sistema de segurança interativo. Ao verificar, isolar, reparar, gerenciar e monitorar os endpoints, esse sistema transforma a defesa reativa de ponto único em uma defesa pró-ativa abrangente, e a gestão dispersa em gestão centralizada de políticas. Esse sistema aprimora a proteção geral da rede contra inúmeras ameaças de segurança e melhora a capacidade de resposta a novas ameaças.

O switch suporta autenticação unificada de endereço MAC, autenticação 802.1x e autenticação de portal; associação dinâmica ou estática de identificadores de usuário, como conta de usuário, endereço IP, endereço MAC, VLAN e número de porta; e aplicação dinâmica de perfis ou políticas de usuário (como VLAN, QoS e ACL). Usando o switch em conjunto com o software centralizado On-premise da Intelbras, você pode gerenciar e monitorar usuários online em tempo real e tomar medidas imediatas contra comportamentos ilegítimos.

O switch oferece um grande número de ACLs de entrada e saída, bem como atribuição de ACL baseada em VLAN.

O switch suporta Unicast Reverse Path Forwarding (uRPF), que protege uma rede contra ataques de falsificação de origem, prevenindo ataques DoS e DDoS.

Alta Disponibilidade

A série de switches SC 3170 possui várias medidas de redundância nos níveis do dispositivo e do link, suportando controle de surtos de corrente e voltagem, proteção contra superaquecimento, resolução de problemas e alertas de energia e ventoinhas, além do ajuste da velocidade da ventoinha conforme a variação da temperatura.

Além da redundância a nível de dispositivo, a série de switches SC 3170 também oferece suporte a diversas formas de redundância de link, como protocolos LACP/STP/RSTP/MSTP/Smart Link. Ele suporta IRF2 e backup de redundância 1: N, bem como agregação de link entre dispositivos, o que aumenta substancialmente a confiabilidade da rede.

Recursos Abundantes de QoS (Qualidade de Serviço)

Os switches da série SC 3170 oferecem recursos abundantes de QoS, incluindo:

Filtragem de pacotes com base em campos de cabeçalho de pacote da Camada 2 à Camada 4, incluindo endereço MAC de origem, endereço MAC de destino, endereço IP de origem, endereço IP de destino, número de porta TCP/UDP, tipo de protocolo e VLAN.

Algoritmos flexíveis de filas e agendamento configurados em uma base por porta ou por fila, incluindo prioridade estrita (SP), round robin ponderado (WRR) e SP+WRR.

Taxa de acesso comprometida (CAR) com uma granularidade mínima de 16 kbps.

Espelhamento de porta em ambas as direções, de saída e de entrada, para monitoramento e solução de problemas de rede.

Função Profissional de Proteção contra Surtos

Os switches da série SC 3170 utilizam tecnologia profissional de proteção contra surtos incorporada e suportam uma capacidade líder na indústria de proteção contra surtos na porta de serviço de 10KV, o que reduz significativamente a taxa de danos causados por raios às equipamentos, mesmo em ambientes de trabalho adversos.

Excelente Gerenciabilidade

A série de switches SC 3170 facilita a gestão do switch com o suporte a SNMPv1/v2c/v3, que pode ser gerenciado por plataformas INC, como o software centralizado On-premise. O gerenciamento do switch é simplificado com CLI e Telnet, e a segurança do gerenciamento do switch é aprimorada com a criptografia SSH 2.0.

O switch SC 3170 suporta o protocolo BIMS e pode fazer o download automático de arquivos de configuração e aplicativos do servidor para alcançar uma inicialização de configuração zero, reduzindo significativamente a carga inicial de configuração em redes grandes e complexas.

Empoderamento na Nuvem, Rede Simplificada

A série de switches SC 3170 suporta a solução em nuvem INC. A nuvem capacita a rede por meio da operação e manutenção unificadas na nuvem, permitindo implantação mínima da rede, alcançando implantação em minutos, operação e manutenção zero no local e reduzindo o tempo para a ativação dos negócios do cliente; o empoderamento da inteligência artificial (IA) permite operação e manutenção mínimas da rede, otimização inteligente da rede, previsão de falhas e oferece aos clientes uma excelente experiência do usuário; a nuvem também pode capacitar negócios e proporcionar aos clientes inovação nos negócios por meio de fortes capacidades de operação de dados. Melhora a eficácia das operações corporativas.

Tecnologia Verde

A série de switches SC 3170 utiliza os mais recentes chips econômicos de energia e soluções inovadoras de design de arquitetura para alcançar o menor consumo de energia em switches gigabit, proporcionando aos usuários produtos de acesso à rede novos, verdes, e energeticamente eficientes, reduzindo os custos de manutenção para os usuários.

Ao mesmo tempo, os switches da série SC 3170 adotam várias soluções verdes de economia de energia, incluindo o auto-desligamento (economia automática de energia). Se o status da interface estiver sempre inativo por um período, o sistema interromperá automaticamente o fornecimento de energia para a interface e entrará automaticamente no modo de economia de energia. Suporta a função de economia de energia EEE, se a porta estiver ociosa por um período, o sistema definirá a porta no modo de economia de energia, e quando houver um pacote a ser enviado e recebido, a porta será despertada para retomar os serviços por meio do fluxo de código de monitoramento enviado regularmente para alcançar o efeito de economia de energia. Atende ao padrão ambiental e de segurança de materiais RoHS da UE.

Ativar recursos de economia de energia em uma interface Ethernet, que inclui desligamento automático e Ethernet eficiente em energia (EEE) em uma interface Ethernet nas portas RJ-45 e operações de baixa potência para a indústria.

Especificações

Especificações de Hardware

Recurso	SC 3170-24G-4X	SC 3170-48G-6X	SC 3170-24GP-4X	SC 3170-48GP-6X
Capacidade de Comutação da porta(bps)	128Gbps	216Gbps	128Gbps	216Gbps
Capacidade de Comutação do Sistema (bps)	598Gbps	598Gbps	598Gbps	598Gbps
Capacidade de Encaminhamento	96Mpps	161Mpps	96Mpps	161Mpps
Flash	512M	512M	512M	512M
SDRAM	1G	1G	1G	1G
Buffer(byte)	2M	2M	2M	2M
CPU	1GHz, 2Cores	1GHz, 2Cores	1GHz, 2Cores	1GHz, 2Cores
Dimensões (L x P x A)	440mm×160mm ×43.6mm	440mm×260mm ×43.6mm	440mm×320mm×43.6mm	440mm×320mm×43.6mm

Recurso	SC 3170-24G-4X	SC 3170-48G-6X	SC 3170-24GP-4X	SC 3170-48GP-6X
Peso	≤2.2kg	≤4.0kg	≤5kg	≤5.5kg
Portas 10/100/1000Base-T	24	48	24	48
Auto MDI/MDIX	Sim	Sim	Sim	Sim
Auto HALF/FULL-DUPLEX	Sim	Sim	Sim	Sim
LEDs Energia, SYS, Link/Act, PoE e FAN	Sim	Sim	Sim	Sim
SFP+ port	4	6	4	6
Tensão de entrada	CA: Faixa de tensão nominal: 100V~240V CA, 50/60Hz Faixa máxima de tensão: 90V~ 264V CA, 47~63HZ	CA: Faixa de tensão nominal: 100V~240V CA, 50/60Hz Faixa máxima de tensão: 90V~ 264V CA, 47~63HZ	CA: Faixa de tensão nominal: 100V~240V CA, 50/60Hz Faixa máxima de tensão: 90V~ 264V CA, 47~63HZ	CA: Faixa de tensão nominal: 100V~240V CA, 50/60Hz Faixa máxima de tensão: 90V~ 264V CA, 47~63HZ
Consumo de Energia (configuração completa)	37W	53W	460W (incluindo PoE 370W)	470W (incluindo PoE 370W)
Número de Fans	1	1	2	2
MTBF(Ano)	105.515	34.74	44.59	38.25
Temperatura de operação	-5~45°C	-5~45°C	-5~45°C	-5~45°C
Temperatura de armazenamento	-40~+70°C	-40~+70°C	-40~+70°C	-40~+70°C
Umidade Relativa de Operação e Armazenamento (sem condensação)	5%~95%	5%~95%	5%~95%	5%~95%

Especificações de Software

Recurso	Switches série SC 3170
Agregação de Portas	Agregação de Portas GE/10GE Agregação Dinâmica Agregação Estática Agregação entre Dispositivos
Supressão de Tempestades Broadcast/Multicast /Unicast	Supressão de Tempestades baseada na porcentagem de largura de banda da porta Supressão de Tempestades baseada em PPS (Pacotes por Segundo) Supressão de Tempestades baseada em BPS (Bits por Segundo) Supressão de Tráfego de Broadcast/Tráfego de Multicast/Tráfego de Unicast Desconhecido
IRF2	Gerenciamento de Dispositivos Distribuído, Agregação de Links Distribuída e Roteamento Resiliente Distribuído Empilhamento através de interfaces Ethernet padrão Empilhamento local de dispositivos e empilhamento remoto de dispositivos

Recurso	Switches série SC 3170
Tabela de endereço MAC	Endereço MAC Estático Endereço MAC Blackhole
VLAN	VLAN baseada em Porta VLAN baseada em MAC VLAN baseada em Protocolo QinQ e QinQ Seletivo Mapeamento de VLAN VLAN de Voz/VLAN Privada/Super VLAN GVRP (Protocolo de Registro de VLAN Genérico) Switching mode Store-and-forward LLDP, LLDP-MED (MED-TLV política de rede)
DHCP IPV4 & IPV6	Cliente DHCP DHCP Snooping Option82 do DHCP Snooping DHCP Relay Servidor DHCP Autoconfiguração DHCP
Roteamento IP	Roteamento Estático RIPv1/v2 e RIPv6 OSPFv1/v2 e OSPFv3 IS-IS (Intermediate System to Intermediate System) Roteamento Baseado em Política (PBR)
Multicast	IGMP Snooping V2/V3 MLD Snooping VLAN de Multicast PIM-SM/PIM-SSM/PIM-DM (Protocolo de Informação de Multicast - Sparse Mode, Source-Specific Multicast, Dense Mode) MSDP (Multicast Source Discovery Protocol)
Protocolo de Rede em Anel da Camada 2	STP/RSTP/MSTP/PVST/PVST+ Root Guard BPDU Guard Proteção BPDU Filtro BPDU Loop Guard TC Guard Guarda contra Flaps Porta de Borda (Quando a ligação para uma porta é estabelecida e o 802.1W detecta que a porta é uma porta de Borda, a porta entra instantaneamente no estado de encaminhamento) Smart Link RRPP (Rapid Ring Protection Protocol) ERPS G.8032 (Ethernet Ring Protection Switching)
ACL	Filtragem de Pacotes da Camada 2 à Camada 4 Classificação de Tráfego com base em endereços MAC de origem, endereços MAC de destino, endereços IPv4/IPv6 de origem, ACL baseada em intervalo de tempo ACL baseada em VLAN ACL Bidirecional
QoS	Limite de Taxa da Porta (Recebimento e Transmissão) Redirecionamento de Pacotes Taxa de Acesso Comprometida (CAR) Oito filas de saída em cada porta Algoritmos flexíveis de agendamento de filas com base em portas e filas, incluindo SP, WRR e SP+WRR

Recurso	Switches série SC 3170
	Reformulação 802.1p DSCP
Estatísticas de Tráfego	Sflow
Espelhamento	Espelhamento de portas RSPAN
Segurança	Gerenciamento hierárquico de usuários e proteção de senha Suporte à autenticação AAA Autenticação RADIUS HWTACACS SSH2.0 por padrão. Por comando, é possível torná-lo compatível com o ssh1.X. Isolamento de Porta Autenticação 802.1X, autenticação centralizada de MAC Segurança de Porta Controle de Fluxo IP Source Guard HTTPS EAD (Endpoint Admission Defense)
Gerenciamento e Manutenção	Carregamento e Atualização via XModem/FTP/TFTP Zero Touch Provisioning Configuração via CLI, Telnet e porta de console Configuração através de interface Web (http e https), CLI, SSH, Telnet e porta console Operação de backup/restauração de configurações e upgrade/downgrade de firmware por meio da interface Web (http e https), CLI, SSH, Telnet e porta de console SNMPv1/v2c/v3 e NMS baseado na Web Restful HTTP REST APIs Python 5 grupos RMON: Grupo de Estatísticas RMON (Número de colisões, Erros de alinhamento CRC, Número de pacotes abaixo ou acima do tamanho mínimo, Número de transmissões, Número de transmissões múltiplas, Número de bytes recebidos, Número de pacotes recebidos); Grupo de Histórico (Utilização de largura de banda, Número de Pacotes com Erro, Número Total de Pacotes); Grupo de Eventos (Log, Trap, Log-Trap); O grupo de eventos controla a geração e notificação de eventos acionados pelos alarmes definidos no grupo de alarmes e no grupo de alarmes privado. Os seguintes são os métodos de tratamento de eventos de alarme RMON: Grupo de Alarmes (O grupo de alarmes RMON monitora variáveis de alarme, como a contagem de pacotes recebidos (etherStatsPkts) em uma interface.); Grupo de Alarmes Privado (O grupo de alarmes privado permite realizar operações matemáticas básicas em várias variáveis e comparar o resultado do cálculo com os limites de subida e descida.) INC – Intelbras Network Center INC Cloud – Intelbras Network Center Cloud Registro do sistema, alertas com base em severidades e saída de informações de depuração NTP Ping, Tracert Teste de cabo virtual (VCT) Protocolo de Detecção de Link do Dispositivo (DLDP) Detecção de Loopback

Especificações de performance

Entradas	SC 3170-24G-4X	SC 3170-48G-6X	SC 3170-24GP-4X	SC 3170-48GP-6X
Entradas de endereço MAC	32768	32768	32768	32768
Tabela VLAN	4094	4094	4094	4094
Active vlan	4094	4094	4094	4094
Interface VLAN	32	32	32	32
Entradas de Roteamento IPv4	6144	6144	6144	6144
Entradas ARP IPv4 ARP	4096	4096	4096	4096
Entradas ACL IPv4	Entrada:1280 Saída:512	Entrada:1280 Saída:512	Entrada:1280 Saída:512	Entrada:1280 Saída:512
Entradas de Multicast L2 IPv4	2000	2000	2000	2000
Entradas de Multicast L3 IPv4	2000	2000	2000	2000
Entradas de Roteamento Unicast IPv6	2048	2048	2048	2048
Filas de Encaminhamento QoS	8	8	8	8
Entradas ACL IPv6	Entrada:1280 Saída:512	Entrada:1280 Saída:512	Entrada:1280 Saída:512	Entrada:1280 Saída:512
Entradas ND IPv6	2048	2048	2048	2048
Entradas L2 de Multicast IPv6	1000	1000	1000	1000
Entradas L3 de Multicast IPv6	1000	1000	1000	1000
Comprimento Máximo de Quadro (Jumbo Frame)	12288	12288	12288	12288

Entradas	SC 3170-24G-4X	SC 3170-48G-6X	SC 3170-24GP-4X	SC 3170-48GP-6X
Membros Máximos para Empilhamento	9	9	9	9
Largura de Banda Máxima para Empilhamento	80Gbps	80Gbps	80Gbps	80Gbps
Número Máximo em um Grupo de Links	8	8	8	8
Número de Grupos de Links	126	126	126	126

Capacidade de Energia PoE

Nome do produto	Capacidade Total de Energia PoE	Quantidade de portas PoE
SC 3170-24GP-4X	370W	15.4W (802.3af): 24 30W (802.3at): 12 35W: 10
SC 3170-48GP-6X	370W	15.4W (802.3af): 24 30W (802.3at): 12 35W: 10

Conformidade com Padrões e Protocolos

Organização	Padrões e Protocolos
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
	802.1v VLAN classification by Protocol and Port

Organização	Padrões e Protocolos
	802.1w Rapid Reconfiguration of Spanning Tree
	IEEE 802.3 Type 10BASE-T
	802.3ad Link Aggregation Control Protocol
	802.3af Power over Ethernet
	802.3at 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
IETF	RFC 768 User Datagram Protocol
	RFC 783 TFTP Protocol
	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 854 TELNET
	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

Organização	Padrões e Protocolos
	RFC 922 Broadcasting Internet Datagrams in the Presence of Subnets (IP_BROAD)
	RFC 951 BOOTP
	RFC 1027 Proxy ARP
	RFC 1157 Simple Network Management Protocol (SNMP)
	RFC 1213 MIB-2 Stands for Management Information Base
	RFC 1757 Remote Network Monitoring Management Information Base
	RFC 1122 Requirements for Internet Hosts - Communications Layers
	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 1403 BGP OSPF Interaction
	RFC 1519 Classless Inter-Domain Routing (CIDR)
	RFC 1573 Evolution of the Interfaces Group of MIB-II
	RFC 1542 BOOTP Extensions
	RFC 1583 OSPF Version 2
	RFC 1591 Domain Name System Structure and Delegation
	RFC 1657 Definitions of Managed Objects for BGP-4 using SMIv2
	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 1997 BGP Communities Attribute
	RFC 1998 An Application of the BGP Community Attribute in Multi-home Routing
	RFC 2030 Simple Network Time Protocol (SNTP) Version 4 for IPv4, IPv6 and OSI
	RFC 2131 Dynamic Host Configuration Protocol (DHCP)

Organização	Padrões e Protocolos
	<p>RFC 2132 DHCP Options and BOOTP Vendor Extensions</p> <p>RFC 2236 Internet Group Management Protocol, Version 2 (IGMPv2)</p> <p>RFC 2273 SNMPv3 Applications</p> <p>RFC 2328 OSPF Version 2</p> <p>RFC 2375 IPv6 Multicast Address Assignments</p> <p>RFC 2385 Protection of BGP Sessions via the TCP MD5 Signature Option</p>
	<p>RFC 2401 Security Architecture for the Internet Protocol</p> <p>RFC 2402 IP Authentication Header</p> <p>RFC 2439 BGP Route Flap Damping</p> <p>RFC 2460 Internet Protocol, Version 6 (IPv6) Specification</p>
	<p>RFC 2464 Transmission of IPv6 over Ethernet Networks</p> <p>RFC 2545 Use of BGP-4 Multiprotocol Extensions for IPv6 Inter-Domain Routing</p> <p>RFC 2571 An Architecture for Describing SNMP Management Frameworks</p> <p>RFC 2572 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)</p>
	<p>RFC 2576 (Coexistence between SNMP V1, V2, V3)</p> <p>RFC 2579 Textual Conventions for SMIv2</p> <p>RFC 2580 Conformance Statements for SMIv2</p> <p>RFC 2710 Multicast Listener Discovery (MLD) for IPv6</p> <p>RFC 2711 IPv6 Router Alert Option</p> <p>RFC 2787 Definitions of Managed Objects for the Virtual Router Redundancy Protocol</p>
	<p>RFC 2865 Remote Authentication Dial in User Service (RADIUS)</p> <p>RFC 2918 Route Refresh Capability for BGP-4</p> <p>RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations</p> <p>RFC 2934 Protocol Independent Multicast MIB for IPv4</p> <p>RFC 3101 OSPF Not-so-stubby-area option</p>

Organização	Padrões e Protocolos
	RFC 3019 MLDv1 MIB
	RFC 3046 DHCP Relay Agent Information Option
	RFC 3056 Connection of IPv6 Domains via IPv4 Clouds
	RFC 3065 Autonomous System Confederation for BGP
	RFC 3137 OSPF Stub Router Advertisement sFlow
	RFC 3376 IGMPv3
	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 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6
	RFC 3973 PIM Dense Mode
	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
	RFC 4254 SSHv6 Connection
	RFC 4271 A Border Gateway Protocol 4 (BGP-4)
	RFC 4273 Definitions of Managed Objects for BGP-4

Organização	Padrões e Protocolos
	RFC 4291 IP Version 6 Addressing Architecture
	RFC 4292 IP Forwarding Table MIB
	RFC 4293 Management Information Base for the Internet Protocol (IP)
	RFC 4360 BGP Extended Communities Attribute
	RFC 4419 Key Exchange for SSH
	RFC 4443 ICMPv6
	RFC 4456 BGP Route Reflection: An Alternative to Full Mesh Internal BGP (IBGP)
	RFC 4486 Subcodes for BGP Cease Notification Message
	RFC 4541 IGMP & MLD Snooping Switch
	RFC 4552 Authentication/Confidentiality for OSPFv3
	RFC 4601 PIM Sparse Mode
	RFC 4607 Source-Specific Multicast for IP
	RFC 4724 Graceful Restart Mechanism for BGP
	RFC 4750 OSPFv2 MIB partial support no SetMIB
	RFC 4760 Multiprotocol Extensions for BGP-4
	RFC 4861 IPv6 Neighbor Discovery
	RFC 4862 IPv6 Stateless Address Auto-configuration
	RFC 4940 IANA Considerations for OSPF
	RFC 5059 Bootstrap Router (BSR) Mechanism for PIM, PIM WG
	RFC 5065 Autonomous System Confederation for BGP
	RFC 5095 Deprecation of Type 0 Routing Headers in IPv6
	RFC 5120 M-ISIS: Multi Topology (MT) Routing in Intermediate System to Intermediate Systems (IS-ISs)
	RFC 5187 OSPFv3 Graceful Restart
	RFC 5280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
	RFC 5308 Routing IPv6 with IS-IS

Organização	Padrões e Protocolos
	RFC 5340 OSPFv3 for IPv6
	RFC 5381 Experience of Implementing NETCONF over SOAP
	RFC 5424 Syslog Protocol
	RFC 5492 Capabilities Advertisement with BGP-4
	RFC 5519 Multicast Group Membership Discovery MIB (MLDv2 only)
	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
ITU	ITU-T Y.1731
	ITU-T Rec G.8032/Y.1344 Mar. 2010

Informação do Produto

Modelo do produto	Descrição do produto
SC 3170-24G-4X	SWITCH GERENCIÁVEL SC 3170-24G-4X
SC 3170-48G-6X	SWITCH GERENCIÁVEL SC 3170-48G-6X
SC 3170-48GP-6X	SWITCH GERENCIÁVEL POE SC 3170-48GP-6X
SC 3170-24GP-4X	SWITCH GERENCIÁVEL POE SC 3170-24GP-4X

DEFENSORIA PUBLICA DO ESTADO DO RIO DE JANEIRO-DPE
CNPJ: 31.443.526/0001-70

Ref.: PREGÃO ELETRÔNICO PARA REGISTRO DE PREÇOS Nº 90001/24
OBJETO: Registro de preços para AQUISIÇÃO DE EQUIPAMENTO DE REDE TIPO SWITCH.

DECLARAÇÃO

A Intelbras S/A – Indústria de Telecomunicação Eletrônica Brasileira, pessoa jurídica de direito privado, inscrita sob o CNPJ 82.901.000/0001-27, localizada na Rodovia BR 101, km 210 – Área Industrial, CEP: 88.104-800 – São José – SC, vem por meio desta DECLARAR, que a licitante **SEGER COMERCIAL IMPORTADORA E EXPORTADORA S.A.**, inscrita sob o CNPJ nº **04.287.754/0001-25**, é nossa revenda autorizada, estando apta a comercializar os produtos de nossa fabricação, ora ofertados para esta licitação.

Declaramos ainda, que a mesma ofertará os equipamentos constantes na tabela abaixo, para o referido pregão, com **garantia total de 60 meses** no Brasil, e que atendem os padrões de qualidade pretendidos pela DEFENSORIA PUBLICA DO ESTADO DO RIO DE JANEIRO-DPE.

Item	Garantia Total
SWITCH GERENCIAVEL POE SC 3170-24GP-4X	60 meses
SWITCH GERENCIAVEL SC 3170-24G-4X	60 meses

São José/SC, 27 de fevereiro de 2024.

SUSANA AURORA
BROCKVELD:8064
1466900

Assinado de forma digital
por SUSANA AURORA
BROCKVELD:80641466900
Dados: 2024.02.27
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INTELBRAS S.A
CNPJ: 82.901.000/0001-27

ID: 2024.117

intelbras

User guide
Series SC 3170

Data protection and security

Observe local laws regarding the protection and use of such data and the regulations that prevail in the country.

The aim of data protection legislation is to prevent infringements of individual privacy rights based on the misuse of personal data.

Processing of personal data

This system uses and processes personal data such as passwords, detailed call records, network addresses and customer data records, for example.

Guidelines that apply to Intelbras employees

» Intelbras employees are subject to safe trading practices and data confidentiality under the terms of the company's work procedures.

» It is imperative that the following rules are observed to ensure that statutory provisions relating to services (be they in-house services or remote administration and maintenance) are strictly followed. This preserves the client's interests and provides additional personal protection.

Guidelines controlling data processing

» Ensure that only authorized persons have access to customer data.

» Use password assignment facilities, without allowing any exceptions. Never share passwords with unauthorized persons.

» Ensure that no unauthorized person can process (store, change, transmit, disable or erase) or use customer data.

» Prevent unauthorized persons from gaining access to data media, for example, backup disks or protocol printouts.

» Ensuring that data media that are no longer needed are completely destroyed and that documents are not stored or left in generally accessible places.

» Working together with the client builds trust.

Misuse and hacking

» Access passwords allow access and alteration of any facility, such as external access to the company's system to obtain data. of misuse.

Important: This product does not have encryption. Intelbras does not access, transfer, capture, or carry out any other type of processing of personal data from this product, with the exception of data necessary for the operation of the product itself.

All images in this document are for illustrative purposes only.

Contents

Preparing for installation	1
Safety recommendations	1
Examining the installation environment	1
Cleanliness	3
Corrosive gas limit	4
Examining the installation site	4
Checking power distribution or power supply environment	5
Laser safety	6
Installation tools	6
Installation accessories	6
Installing the switch	8
Installing the switch in a 19-inch rack	9
Installation methods	9
Installation procedure at a glance	9
Rack-mounting the switch by using front mounting brackets	9
Mounting the switch on a workbench	12
Grounding the switch	12
Grounding the switch by using a grounding strip	12
Grounding the switch by using a grounding conductor buried in the earth ground	13
Verifying the connection after grounding the switch	14
Installing and removing a power supply	14
Installing/removing a power supply (1)	15
Installing/removing a power supply (2)	16
Connecting the power cord	19
Connecting the power cord for a built-in power supply	19
Connecting the power cord for a CA-70A12 or PSR75-12A power supply	20
Connecting the power cord for a PSR150-D1 or PSR560-56D power supply	21
Connecting the power cord for a PSR180-56A, PSR360-56A, PSR720-56A, PSR1110-56A, PSR600-54A-B, PSR920-54A-B, or PSR1600-54A-B power supply	22
Verifying the installation	23
Accessing the switch for the first time	24
Connecting the switch to a configuration terminal	24
Connecting a DB9-to-RJ45 console cable	24
Setting terminal parameters	25
Starting the switch	26
Pre-start checklist	26
Powering on the switch	26
Setting up an IRF fabric	27
IRF fabric setup flowchart	27
Planning IRF fabric setup	28
Planning IRF fabric size and the installation site	28
Identifying the master switch and planning IRF member IDs	28
Planning IRF topology and connections	29
Identifying physical IRF ports on the member switches	30
Planning the cabling scheme	30
Configuring basic IRF settings	32
Connecting the physical IRF ports	32
Verifying the IRF fabric setup	32
Maintenance and troubleshooting	34
Power supply failure	34
Built-in power supply failure	34
Fan tray failure	34
Configuration terminal display issues	34

No display.....	34
Garbled display.....	35

Preparing for installation

This document is applicable to the following Ethernet switches:

Table 1 Switch series and models

Switch series	Model
SC 3170 switch series	SC 3170-24G-4X
	SC 3170-48G-6X
	SC 3170-24GP-4X
	SC 3170-48GP-6X

Safety recommendations


To avoid any equipment damage or bodily injury caused by improper use, read the following safety recommendations before installation. Note that the recommendations do not cover every possible hazardous condition.

- Before cleaning the switch, remove all power cords from the switch. Do not clean the switch with wet cloth or liquid.
- Do not place the switch near water or in a damp environment. Prevent water or moisture from entering the switch chassis.
- Do not place the switch on an unstable case or desk. The switch might be severely damaged in case of a fall.
- Ensure good ventilation of the equipment room and keep the air inlet and outlet vents of the switch free of obstruction.
- Make sure the power input voltage is as required by the power supply.
- To avoid electrical shocks, do not open the chassis while the switch is operating or when the switch is just powered off.
- During switch installation, wear an ESD wrist strap. Make sure the strap makes good skin contact and is reliably grounded.

Examining the installation environment

To ensure correct operation of your switch, make sure the installation environment meets the requirements listed in [Table 2](#).

Table 2 Checking list for the installation environment

Item	Requirements
Ventilation and heat dissipation	 CAUTION: To ensure correct operation of your device, make sure the installation

Item	Requirements
	<p>environment is adequately ventilated to prevent the switch from overheating.</p> <ul style="list-style-type: none"> • Ensure a minimum clearance of 10 cm (3.94 in) around the chassis. • Do not install the device near a heat source, for example, a stove or heater. • Ensure air ventilation in the installation environment. • Do not block the ventilation holes in the device or power adapter.
Anti-moisture	<p>⚠ CAUTION:</p> <p>Water or moisture might damage the circuits of the device.</p> <ul style="list-style-type: none"> • Do not place the device near water or in a damp environment. • Install the switch in a clean, dry, and ventilated place where temperature is controlled in a stable range. • Make sure the installation environment is free from water leakage or condensation. If required, install a dehumidification device (such as an air conditioner with a dehumidification function or a dedicated dehumidifier). • Do not operate the device under or near the water source, such as the wash basin, laundry room, or areas with high humidity. • Do not touch the device with wet hands.
Temperature/humidity	<p>For correct operation and long service life of your switch, maintain the temperature and humidity in the equipment room at acceptable ranges.</p> <ul style="list-style-type: none"> • Lasting high relative humidity can cause poor insulation, electricity leakage, mechanical property change of materials, and metal corrosion. • Lasting low relative humidity can cause washer contraction and ESD and cause issues including loose mounting screws and circuit failure. • High temperature can accelerate the aging of insulation materials and significantly lower the reliability and lifespan of the switch. <p>For the temperature and humidity requirements of the switch, see technical specifications in <i>Intelbras SC 3170 Switch Series Hardware Information and Specifications</i>.</p>
Lightning protection	<p>⚠ CAUTION:</p> <p>Ground the switch correctly and verify the grounding. For more information, see "Grounding the switch."</p> <ul style="list-style-type: none"> • If you ground the switch by using a grounding strip, make sure the grounding resistance of the grounding strip in the equipment room is less than 1Ω. • If you ground the switch by using a grounding conductor buried in the earth ground, make sure the grounding resistance of the grounding conductor in the ground is less than 10Ω. • Route the signal cables along indoor walls, bury the cables in the earth ground, or thread the cables through steel tubes. Install a signal lightning arrester with a nominal discharge current for a corresponding network interface. • Keep the signal cables far from power cords and lightning rod down conductors. • As a best practice, route power cords indoors. If an AC power cord is routed from outdoors, connect the AC power cord first to a power lightning arrester before leading it to the AC power port on the switch. Make sure the power lightning arrester has a nominal discharge current and the total length of the power cord from the power lightning arrester to the power port on the switch is less than 5 m (16.40 ft).

Item	Requirements
	<ul style="list-style-type: none"> Ground the switch, rack, independent power supplies, and lightning arresters separately. You must ground optical fibers with reinforcing metal stiffener from outdoors on an optical distribution frame (ODF) or fiber splice enclosure.
Cable routing	<p>⚠ CAUTION: Do not run an Ethernet cable and power cord in parallel.</p> <ul style="list-style-type: none"> Route different types of cables separately. Keep power cords a minimum of 5 cm (1.97 in) away from other cables.
ESD prevention	<ul style="list-style-type: none"> Ground the switch correctly. To avoid ESD damage to the device or FRUs, always wear an ESD wrist strap when you install or remove the device or FRUs. Make sure the wrist strap has good skin contact and is reliably grounded.
Cleanliness	For more information, see " Cleanliness ."
Corrosive gas prevention	The installation site must be free from corrosive gases such as acid gases and alkaline gases. For more information, see " Corrosive gas limit ."
EMI	<ul style="list-style-type: none"> If AC power is used, use a single-phase three-wire power receptacle with protection earth (PE) to filter interference from the power grid. Keep the device far away from radio transmitting stations, radar stations, and high-frequency devices. Use electromagnetic shielding, for example, shielded interface cables, when necessary.

Cleanliness

Dust buildup on the chassis might cause electrostatic adsorption and dust corrosion, resulting in poor contact of metal connectors and contact points. This might shorten the device's lifetime and even cause device failure in the worst case. [Table 3](#) describes the switch requirement for cleanliness.

Table 3 Switch requirement for cleanliness

Substance	Particle diameter	Concentration limit
Dust particles	≥ 0.5 μm	≤ 1.8 × 10 ⁷ particles/m ³

To maintain cleanliness in the equipment room, follow these guidelines:

- Keep the equipment room away from pollution sources. Do not smoke, eat, or drink in the equipment room.
- Use double-layer glass in windows and seal doors and windows with dust-proof rubber strips. Use screen doors and window screens for doors and windows open to the outside and make sure the external windows are air tight.
- Use dustproof materials for floors, walls, and ceilings and use wallpaper or matt paint that does not produce powders.
- Clean the equipment room regularly and clean the air filters of the rack each month.
- Wear ESD clothing and shoe covers before entering the equipment room, keep the ESD clothing and shoe covers clean, and change them frequently.

Corrosive gas limit

Corrosive gases can accelerate corrosion and aging of metal components. Make sure the corrosive gases do not exceed the concentration limits as shown in [Table 4](#).

Table 4 Corrosive gas concentration limits

Gas	Average concentration (mg/m ³)	Maximum concentration (mg/m ³)
SO ₂	0.3	1.0
H ₂ S	0.1	0.5
Cl ₂	0.1	0.3
HCl	0.1	0.5
HF	0.01	0.03
NH ₃	1.0	3.0
O ₃	0.05	0.1
NO _x	0.5	1.0

CAUTION:

As a best practice, control the corrosive gas concentrations in the equipment room at their average values. Make sure the corrosive gas concentrations do not exceed 30 minutes per day at their maximum values.

To control corrosive gases, use the following guidelines:

- As a best practice, do not build the equipment room in a place with a high concentration of corrosive gases.
- Make sure the equipment room is not connected to sewer, vertical shaft, or septic tank pipelines and keep it far away from these pipelines. The air inlet of the equipment room must be away from such pollution sources.
- Use environmentally friendly materials to decorate the equipment room. Avoid using organic materials that contains harmful gases, such as sulfur or chlorine-containing insulation cottons, rubber mats, sound-proof cottons, and avoid using plasterboards with high sulfur concentration.
- Place fuel (diesel or gasoline) engines separately. Do not place them in the same equipment room with the device. Make sure the exhausted air of the engines will not flow into the equipment room or towards the air inlet of the air conditioners.
- Place batteries separately. Do not place them in the same room with the device.
- Employ a professional company to monitor and control corrosive gases in the equipment room regularly.

Examining the installation site

Before you install the switch, verify that the installation site meets the installation requirements. The switch can operate correctly in an A1 or A2 installation site. Availability issues might occur if you install the switch in an A3, B1, B2, or C installation site.

Table 5 Installation sites

Category	Definition	Example
A1: indoor controlled	<ul style="list-style-type: none"> • Indoor environments where temperature and humidity are 	Central equipment rooms, IDC equipment rooms, mobile cabins

Category	Definition	Example
environment	<p>controlled.</p> <ul style="list-style-type: none"> Completely enclosed or shielded indoor environments. 	with air conditioners, outdoor air conditioner cabinets, and heat exchanger cabinets.
A2: indoor partially controlled environment	<ul style="list-style-type: none"> Indoor environments where temperature and humidity are partially controlled. Incompletely enclosed or shielded places. Places far from pollution sources. 	Simple equipment rooms, ordinary houses, garages, corridors, and direct ventilation cabinets far from pollution sources, houses without direct exposure to sunlight or rain, railway station platforms, and stadiums.
A3: indoor uncontrolled environment	<ul style="list-style-type: none"> Indoor environments where temperature and humidity are uncontrolled. Incompletely enclosed or shielded places. Places near pollution sources. 	Simple equipment rooms, ordinary houses, garages, corridors, and direct ventilation cabinets near pollution sources, houses without direct exposure to sunlight or rain, railway station platforms, stadiums, uncleaned rooms after decoration, and rooms under decoration.
B1: outdoor general environment	<ul style="list-style-type: none"> Unshielded places where the temperature and humidity are not controlled. Places far from pollution sources. 	Completely exposed outdoor places far from pollution sources.
B2: harsh environment	<ul style="list-style-type: none"> Unshielded places where the temperature and humidity are not controlled. Sea environments or outdoor land environments near pollution sources. 	Islands, ships, and completely exposed outdoor places near pollution sources.
C: special environments	Special application environments	Buried, underwater, or undersea environments and manholes.

Table 6 Pollution sources

Category	Radius range
Saline water areas such as oceans and saline lakes	≤ 3.7 km (2.30 miles)
Serious pollution sources such as metallurgic plants, coal mines, and heat and power plants	≤ 3 km (1.86 miles)
Medium pollution sources such as chemical factories, rubber plants, and electroplating factories	≤ 2 km (1.24 miles)
Light pollution sources, such as food factories, tanneries, and heating boilers	≤ 1 km (0.62 miles)

Checking power distribution or power supply environment

Table 7 Requirements for power distribution or power supply environment

Item	Requirements
Preparation	The power supply must be available before you install the switch.
Voltage	The voltage provided to the switch must be within the operating voltage range.

Item	Requirements
Power receptacle and cables	<ul style="list-style-type: none"> If the external power supply system provides an AC power outlet, prepare a country-specific AC power cord yourself. Make sure the PE wire of the AC power supply is grounded reliably. If the external power supply system provides a DC distribution box, prepare DC power cords yourself. Do not use the power cord provided with the switch on other devices.

Laser safety

⚠ WARNING!

The switch is Class 1 laser device. Disconnected optical fibers or transceiver modules might emit invisible laser light. Do not stare into beams or view directly with optical instruments when the switch is operating.

Installation tools




No installation tools are provided with the switch. Prepare the following tools yourself as required:

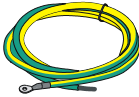


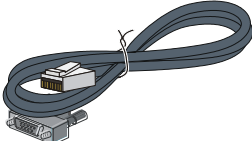

- ESD wrist strap
- Flat-blade screwdriver
- Phillips screwdriver
- Needle-nose pliers
- Marker

Installation accessories

Before installation, make sure you have all the required installation accessories. If an installation accessory is damaged or lost, purchase a new one by using the BOM code in [Table 8](#).

Table 8 Installation accessories

Code	Description	Quantity	Applicable device models
N/A	Front mounting kit, including a pair of front mounting brackets and eight M4 screws 	1 pair, provided	All models
N/A	M6 screw and cage nut 	User supplied	All models
N/A	Rubber feet 	Four, provided	All models
N/A	Grounding cable	1, provided	All models

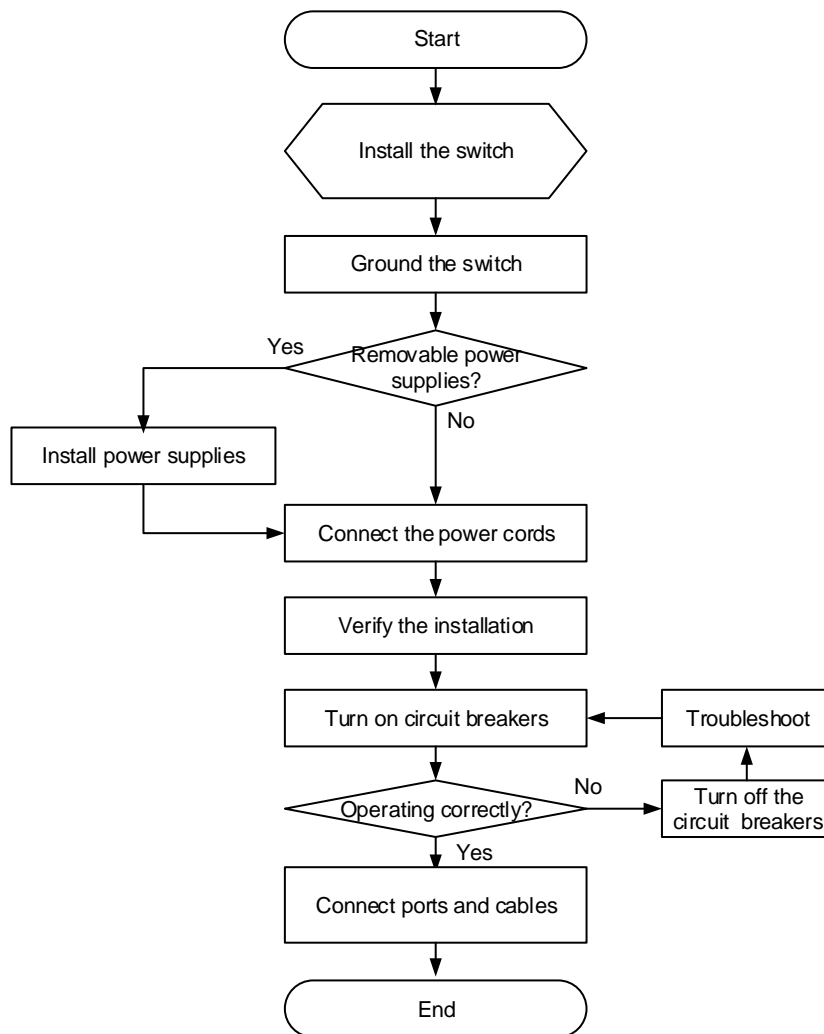
Code	Description	Quantity	Applicable device models
			
N/A	Grounding screw 	1, provided	All models
N/A	AC power cord 	1, provided for the switch with a built-in power supply 1, provided with removable power supplies	All models
04042967	DB9-to-RJ45 console cable 	1, optional	All models
0404A1EE	USB-to-RJ45 console cable 	1, optional	All models

Installing the switch

△ CAUTION:

Keep the tamper-proof seal on a mounting screw on the chassis cover intact, and if you want to open the chassis, contact Intelbras for permission. Otherwise, Intelbras shall not be liable for any consequence.

Figure 1 Hardware installation flow



Installing the switch in a 19-inch rack

Installation methods

Table 9 Installation methods

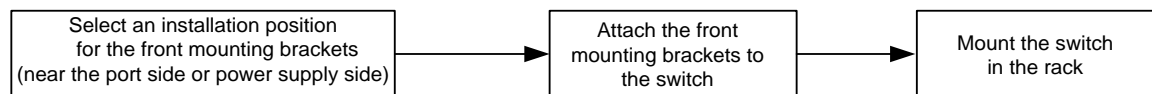
Applicable switch models	Installation method	Requirements and guidelines	Installation procedure
SC 3170-24G-4X SC 3170-48G-6X SC 3170-24GP-4X SC 3170-48GP-6X	Using front mounting brackets	Select an installation position for the front mounting brackets as required: near the power supply side or port side. For the SC 3170-24G-4X and SC 3170-48G-6X, switches, the front mounting brackets can be installed only near the port side.	See "Rack-mounting the switch by using front mounting brackets."

! IMPORTANT:

For the rack doors to close easily after switch installation, make sure the distance requirements described in [Table 9](#) are met.

Installation procedure at a glance

Figure 2 Procedure for installing the switch in a 19-inch rack by using front mounting brackets



NOTE:

If a rack shelf is available, you can put the switch on the rack shelf, slide the switch to an appropriate location, and attach the switch to the rack by using the mounting brackets.

Rack-mounting the switch by using front mounting brackets

Attaching the front mounting brackets to the switch

For the SC 3170-24G-4X and SC 3170-48G-6X switches, you can install front mounting brackets only at the port side.

The switch has one mounting position near the network ports and the other mounting position near the power supplies for the front mounting brackets. Select one position as needed.

To attach the front mounting brackets to the chassis:

1. Place the wide flange of the mounting bracket against the chassis side panel. Align the mounting bracket installation holes with the screw holes in the chassis.
 - o To install the mounting brackets at the port-side mounting position, see [Figure 3](#).
 - o To install the mounting brackets at the power supply-side mounting position, see [Figure 4](#).
2. Fasten the M4 screws to secure the mounting bracket to the switch. As a best practice, use a torque of 12 kgf-cm (1.18 Nm) to fasten the M4 screws.

3. Attach the front mounting bracket to the other side of the chassis in the same way.

Figure 3 Attaching the front mounting brackets to the port-side mounting position

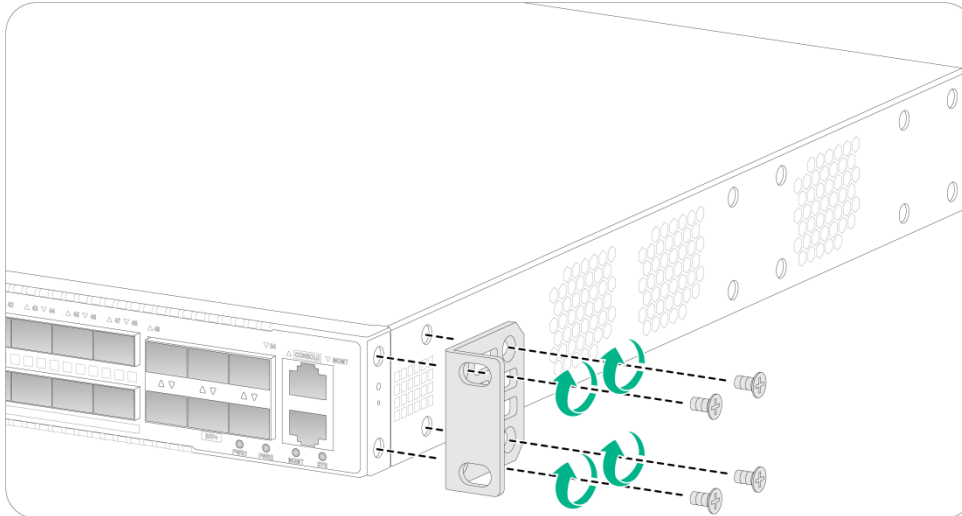
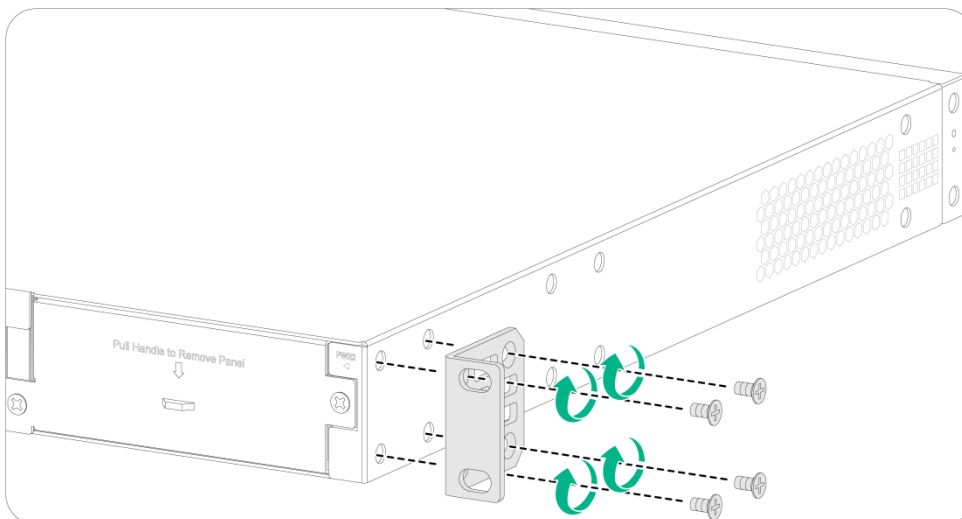


Figure 4 Attaching the front mounting brackets to the power supply-side mounting position



Mounting the switch in the rack

This task requires two people.

To mount the switch in the rack:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Verify that the front mounting brackets have been securely attached to the switch chassis. See "[Attaching the front mounting brackets to the switch.](#)"
3. Attach cage nuts to the front rack posts.
4. One person supports the bottom of the switch, and moves the switch to an appropriate position based on the installation positions of the front mounting brackets.
5. Another person uses user supplied M6 screws and cage nuts to attach the mounting brackets to the rack and verifies that the brackets are level and secure. As a best practice, use a torque of 30 kgf-cm (2.94 Nm) to fasten the M6 screws.

Figure 5 Mounting the switch in the rack (port-side mounting position for the front mounting brackets)

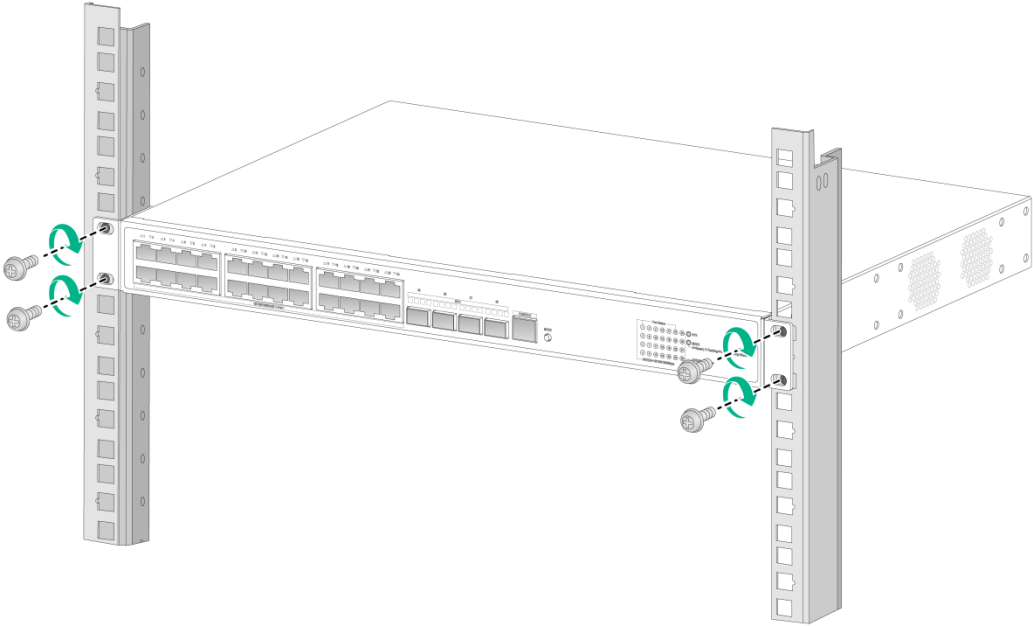
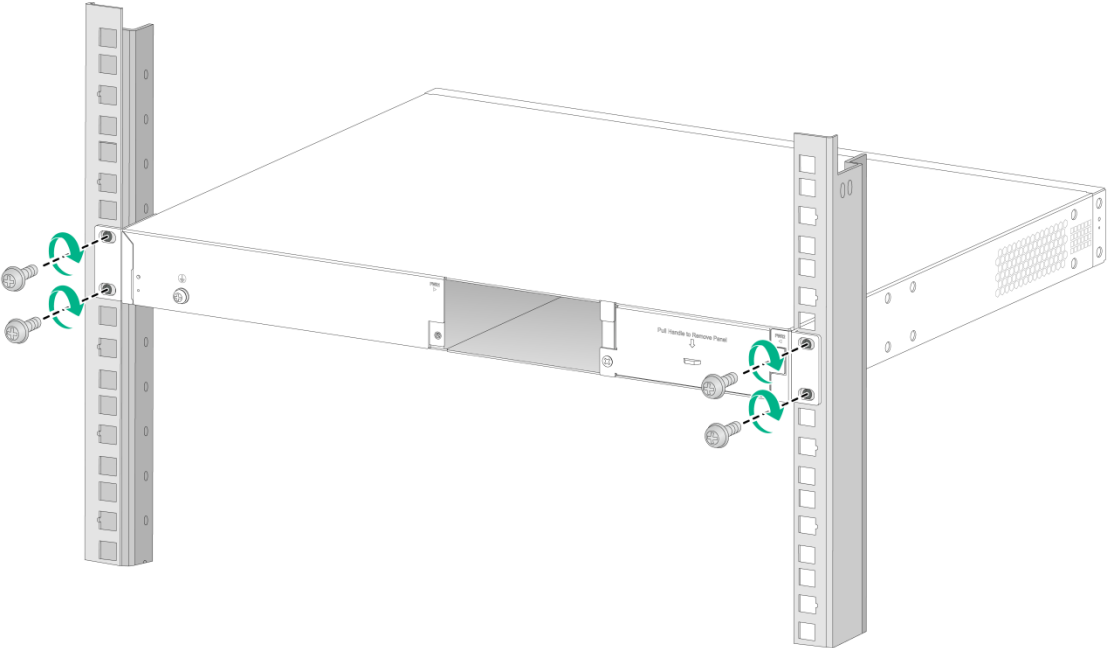


Figure 6 Mounting the switch in the rack (power supply-side mounting position for the front mounting brackets)



Mounting the switch on a workbench

⚠ IMPORTANT:

- Reserve a minimum clearance of 10 cm (3.9 in) around the chassis for heat dissipation.
 - Do not place heavy objects on the switch.
-

To mount the switch on a workbench:

1. Verify that the workbench is sturdy and reliably grounded.
2. Place the switch with bottom up, and clean the round holes in the chassis bottom with dry cloth.
3. Attach the rubber feet to the four round holes in the chassis bottom.
4. Place the switch with upside up on the workbench.

Grounding the switch

⚠ WARNING!

- Correctly connecting the grounding cable is crucial to lightning protection and ESD and EMI protection. You must connect the grounding cable correctly and reliably for the switch.
-

The power input end of the switch has a noise filter, whose central ground is directly connected to the chassis to form the chassis ground (commonly known as PGND). You must securely connect this chassis ground to the earth to minimize the potential for system damage, maximize the safety at the site, and minimize EMI susceptibility of the system.

Select a grounding method based on the installation environment.

NOTE:

The power and grounding terminals in this section are for illustration only.

Grounding the switch by using a grounding strip

⚠ CAUTION:

- Connect the grounding cable to the grounding strip in the equipment room. Do not connect it to a fire main or lightning rod.
 - To guarantee the grounding effect and avoid switch damage, use the grounding cable provided with the switch to connect the switch to a grounding strip in the equipment room.
-

If a grounding strip is available at the installation site, use the grounding cable provided with the switch to connect the switch to the grounding strip.

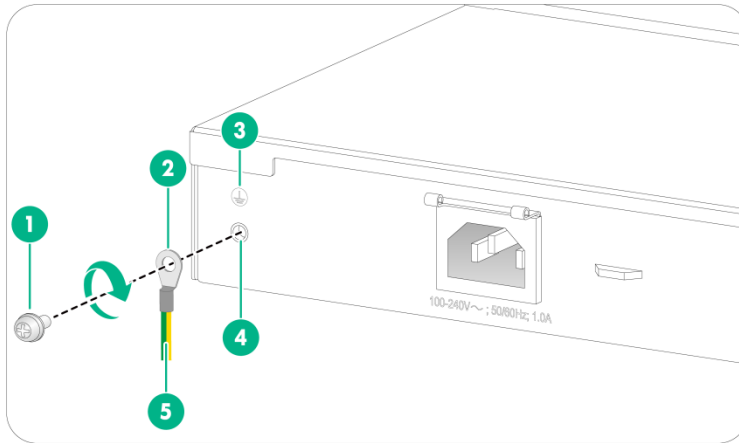
Connecting the grounding cable to the chassis

1. Remove the grounding screw from the grounding hole in the chassis.
 2. Use the grounding screw to attach the ring terminal of the grounding cable to the grounding screw hole. Fasten the screw. As a best practice, use a torque of 5 kgf-cm (0.49 Nm) to fasten the grounding screw.
-

⚠ IMPORTANT:

Orient the grounding cable as shown in [Figure 7](#) so that you can easily install or remove the removable components.

Figure 7 Connecting the grounding cable to the chassis



(1) Grounding screw

(2) Ring terminal

(3) Grounding sign

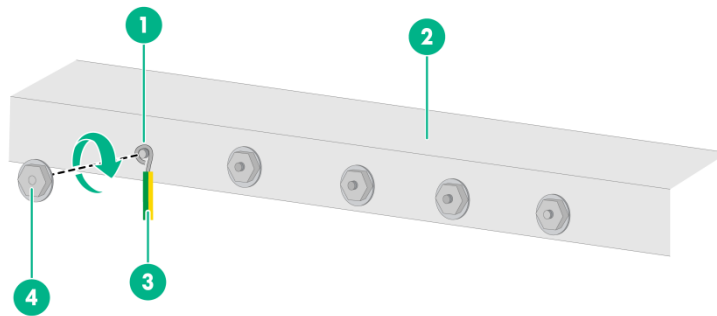
(4) Grounding hole

(5) Grounding cable

Connecting the grounding cable to a grounding strip

1. Use needle-nose pliers to bend the bare metal part to the shape as shown in [Figure 8](#). Make sure the bended part can securely attached to the grounding post on the grounding strip.
2. Attach the bended part of the grounding cable to the grounding post and use the hex nut to fasten the bended part to the post.

Figure 8 Connecting the grounding cable to a grounding strip



(1) Grounding post

(2) Grounding strip

(3) Grounding cable

(4) Hex nut

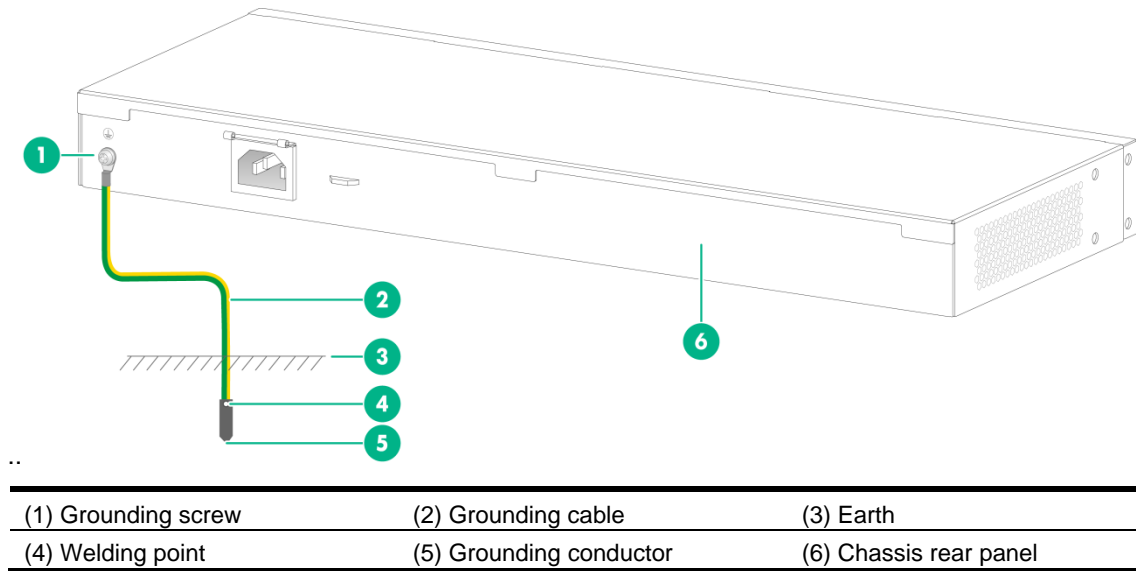
Grounding the switch by using a grounding conductor buried in the earth ground

If the installation site does not have grounding strips, but earth ground is available, hammer a 0.5 m (1.64 ft) or longer angle iron or steel tube into the earth ground to act as a grounding conductor.

The dimensions of the angle iron must be a minimum of 50 × 50 × 5 mm (1.97 × 1.97 × 0.20 in). The steel tube must be zinc-coated and its wall thickness must be at least 3.5 mm (0.14 in).

Weld the yellow-green grounding cable to the angel iron or steel tube and treat the joint for corrosion protection.

Figure 9 Grounding the switch by burying the grounding conductor into the earth ground



Verifying the connection after grounding the switch

- If you ground the switch by using a grounding strip, perform the following tasks:
 - a. Use a multimeter to measure the resistance between the switch grounding terminal and grounding point, and make sure the resistance is less than 0.1Ω .
 - b. Use a grounding resistance tester to measure the grounding resistance of the grounding strip, and make sure the grounding resistance is less than 1Ω .
- If you ground the switch by using a grounding conductor buried in the earth ground, perform the following tasks:
 - a. Use a multimeter to measure the resistance between the switch grounding terminal and grounding point, and make sure the resistance is less than 0.1Ω .
 - b. Use a grounding resistance tester to measure the grounding resistance of the angle iron in the ground, and make sure the grounding resistance is less than 10Ω . For locations with high soil resistivity, sprinkle some resistance reducer to reduce soil resistivity or replace soil around the grounding strip with soil with lower resistance.

Installing and removing a power supply

Table 10 Power supply installation method

Power supply model	Installation method
CA-70A12 PSR75-12A PSR150-D1	See "Installing/removing a power supply (1)."
PSR180-56A PSR360-56A PSR560-56D PSR720-56A PSR1110-56A PSR600-54A-B	See "Installing/removing a power supply (2)."

Power supply model	Installation method
PSR920-54A-B PSR1600-54A-B	

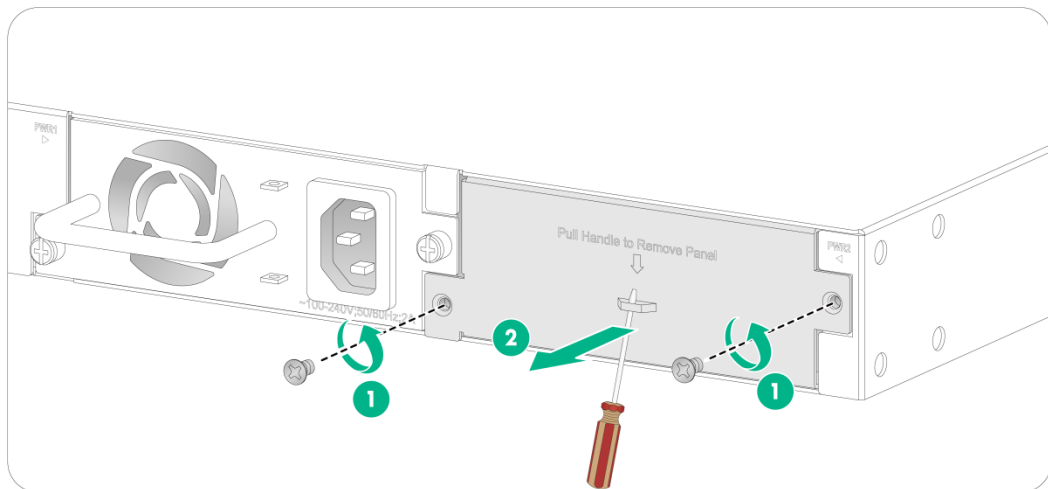
Installing/removing a power supply (1)

This section applies to the CA-70A12, PSR75-12A, and PSR150-D1 power supplies, which use a similar installation/removal procedure. A PSR75-12A power supply is used as an example.

Installing a power supply

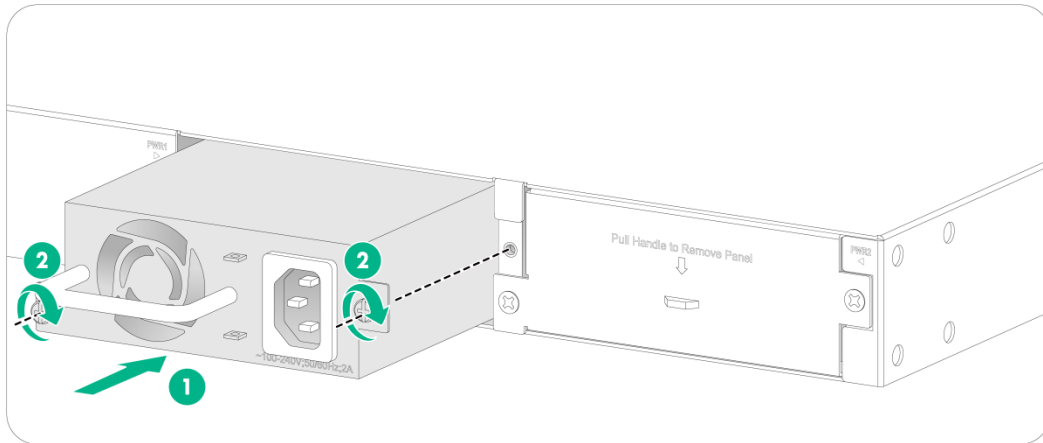
1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Remove the filler panel from the target power supply slot as follows:
 - a. Remove the screws from the filler panel.
 - b. Use a flathead screwdriver to remove the filler panel.

Figure 10 Removing the filler panel



3. Unpack the power supply and verify that the power supply model is correct.
4. Correctly orient the power supply with the power supply slot (use the letters on the power supply faceplate for orientation), grasp the handle of the power supply with one hand and support its bottom with the other, and slide the power supply slowly along the guide rails into the slot (see callout 1 in [Figure 11](#)).
5. Fasten the captive screws on the power supply with a Phillips screwdriver to secure the power supply in the chassis (see callout 2 in [Figure 11](#)). If the captive screw cannot be tightly fastened, verify the installation of the power supply.
As a best practice, use a torque of 5 kgf-cm (0.49 Nm) to fasten the captive screws.
6. Install the filler panel over the empty power supply slot to prevent dust and ensure good ventilation if you install only one power supply.

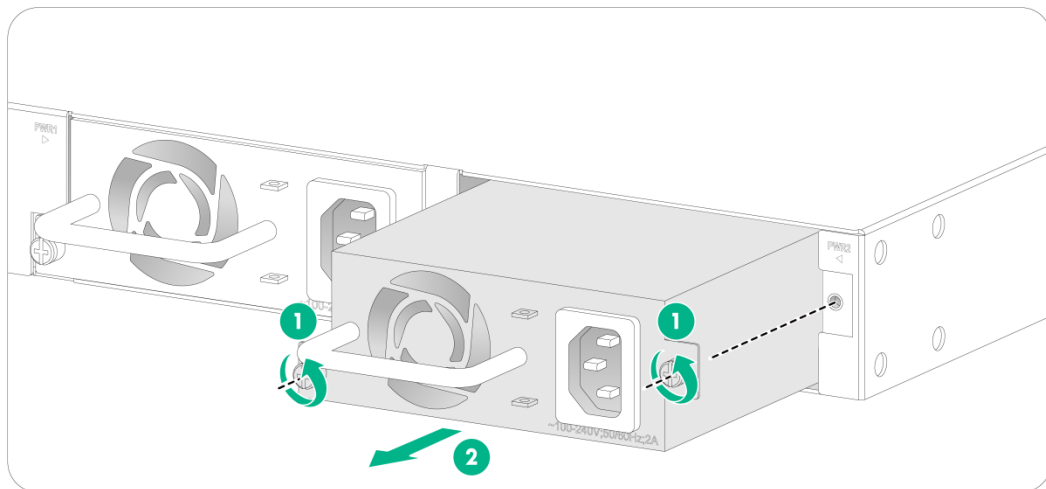
Figure 11 Installing a power supply



Removing a power supply

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Disconnect the power cord.
3. Loosen the captive screws on the power supply with a Phillips screwdriver until they are completely disengaged.
4. Grasp the handle of the power supply with one hand and pull it out a little, support the bottom with the other hand, and pull the power supply slowly along the guide rails out of the slot. Put away the removed power supply in an antistatic bag or the power supply package bag for future use.

Figure 12 Removing a power supply



Installing/removing a power supply (2)

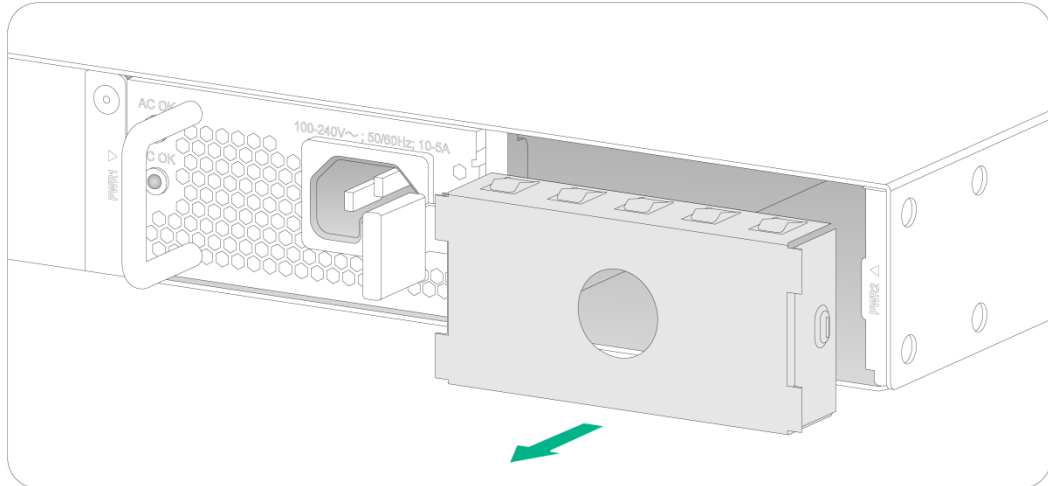
This section applies to the PSR180-56A, PSR360-56A, PSR560-56D, PSR720-56A, PSR1110-56A, PSR600-54A-B, PSR920-54A-B, and PSR1600-54A-B power supplies, which use a similar installation/removal procedure. A PSR360-56A power supply is used as an example.

Installing a power supply

1. Wear an ESD wrist strap. Make sure the strap makes good skin contact and is reliably grounded.

2. Remove the filler panel, if any, from the target power supply slot.
Put your forefinger into the hole in the filler panel and then pull the filler panel out of the slot gently.
Keep the removed filler panel secure for future use.

Figure 13 Removing the filler panel from the target power supply slot



3. Unpack the power supply. Make sure the power supply model is as required.
Keep the packaging box and packaging bag for the power supply secure for future use.
4. Correctly orient the power supply. Make sure the lettering on the power supply is upward.
5. Align the power supply with the power supply slot. Grasping the handle of the power supply with one hand and supporting its bottom with the other, slide the power supply slowly into the slot along the guide rails until the latch of the power supply clicks into the slot.
To prevent damage to the power supply or the connectors on the backplane, insert the power supply gently. If you encounter a hard resistance when inserting the power supply, pull out the power supply and insert it again.

Figure 14 Installing a power supply

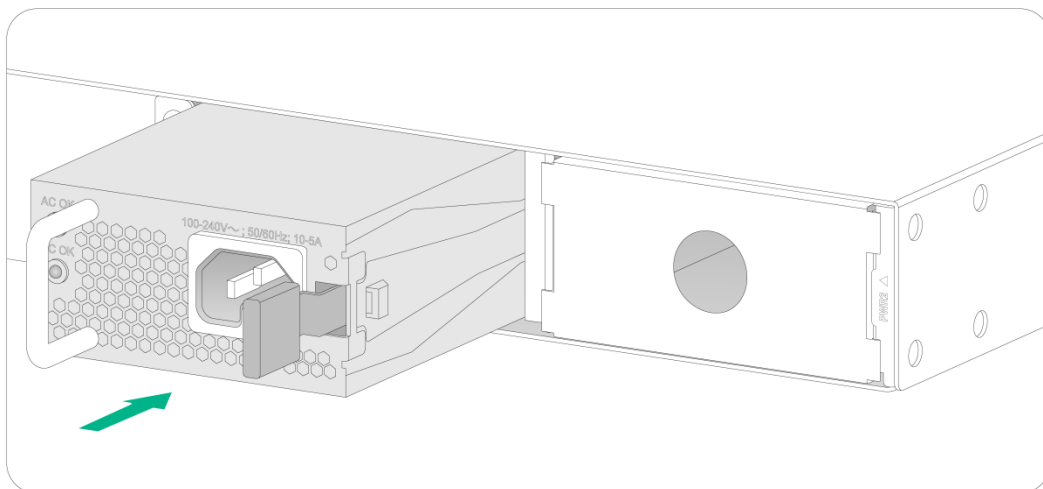
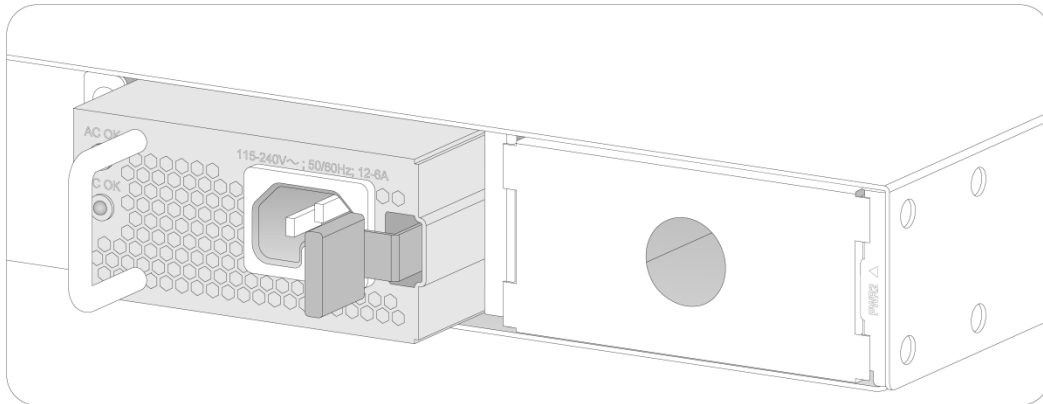


Figure 15 Installation completed



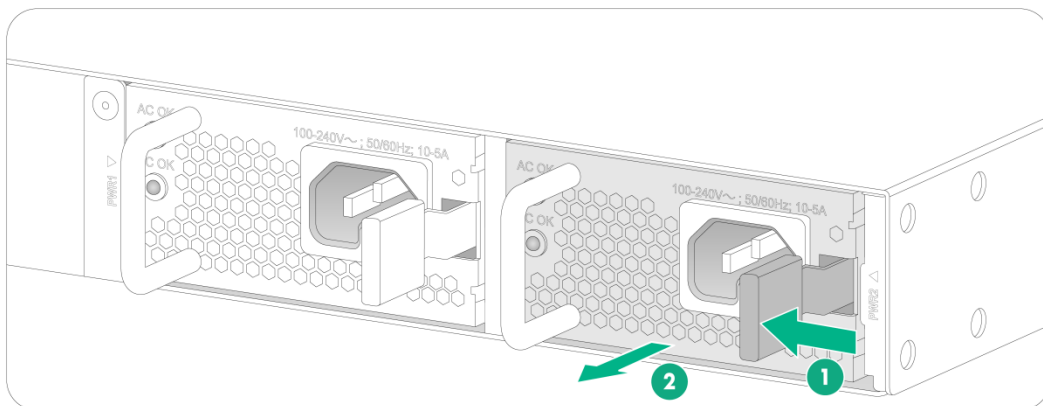
NOTE:

The PSR1110-56A power supply, including its handle, adds 64 mm (2.52 in) to chassis depth.

Removing a power supply

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Disconnect the power cord.
3. Press the latch towards the handle, and pull the power supply along the guide rails until it is part-way out.
4. Grasp the handle of the power supply with one hand, support the bottom with the other hand, and pull the power supply slowly along the guide rails out of the slot.
Keep the removed power supply in an antistatic bag or the power supply package bag for future use.
5. Install the filler panel to prevent dust and ensure good ventilation if no power supply is installed in the slot.

Figure 16 Removing the power supply



Connecting the power cord

⚠ CAUTION:

- CA-70A12 and PSR75-12A power supplies use C13 power cords, and PSR180-56A, PSR360-56A, PSR720-56A, PSR1110-56A, PSR600-54A-B, PSR920-54A-B, and PSR1600-54A-B power supplies use C15 power cords (used in high temperature). Do not mix power cords for different power supplies.
- Provide a circuit breaker for each power supply and make sure the circuit breaker is off before installation.

Table 11 Power cord connection procedures at a glance

Power supply model	Available power source	Connection procedure reference
Built-in power supply	AC power source	Connecting the power cord for a built-in power supply
CA-70A12	AC power source	Connecting the power cord for a CA-70A12 or PSR75-12A power supply
PSR75-12A		
PSR150-D1	–48 VDC power source in the equipment room	Connecting the power cord for a PSR150-D1 or PSR560-56D
	RPS800-A or RPS1600-A	
PSR560-56D	–48 VDC power source in the equipment room	Connecting the power cord for a PSR150-D1 or PSR560-56D
	RPS1600-A	
PSR180-56A	AC power source	Connecting the power cord for a PSR180-56A, PSR360-56A, PSR720-56A, PSR1110-56A, PSR600-54A-B, PSR920-54A-B, or PSR1600-54A-B
	240 V HVDC power source	
PSR360-56A/PSR720-56A/PSR1110-56A	AC power source	
PSR600-54A-B/PSR920-54A-B/PSR1600-54A-B	AC power source	
	240 V HVDC power source	

Connecting the power cord for a built-in power supply

1. Wear an ESD wrist strap. Make sure the strap makes good skin contact and is reliably grounded.
2. Plug the female connector of the power cord into the power receptacle on the power supply, as shown in [Figure 17](#).
3. Use a cable tie to secure the power cord to the handle of the power supply, as shown in [Figure 17](#).
4. Connect the other end of the power cord to an AC power source.

Figure 17 Connecting the power cord for a built-in power supply(1)

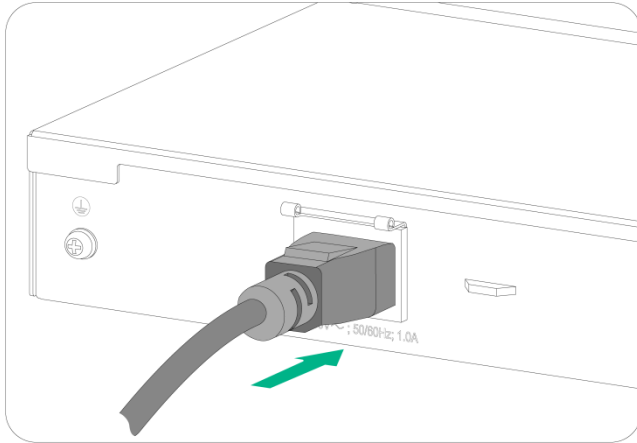
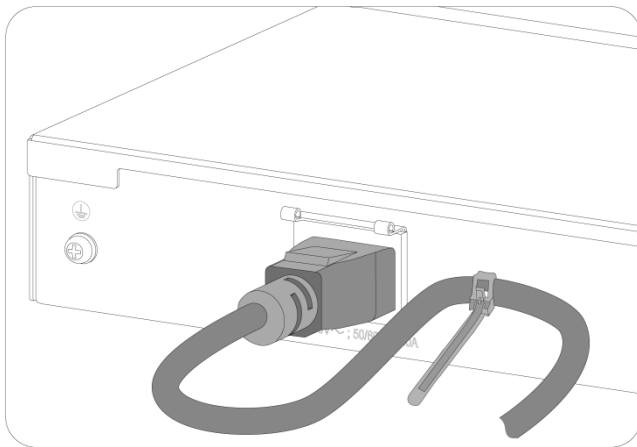


Figure 18 Connecting the power cord for a built-in power supply(2)



Connecting the power cord for a CA-70A12 or PSR75-12A power supply

The power cord connection procedure is similar for the CA-70A12 and PSR75-12A power supplies. The following procedure connects the power cord for a PSR75-12A power supply.

To connect the power cord for a PSR75-12A power supply:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Attach the power cord retainer clip (supplied with the power supply) into the two holes next to the AC-input power receptacle on the power supply, and pull the retainer clip leftwards (see [Figure 19](#)).
3. Connect the female connector of the AC power cord supplied with the power supply to the power receptacle (see callout 1 in [Figure 20](#)).
4. Pull the retainer clip rightwards to secure the connector to the AC-input power receptacle (see callout 2 in [Figure 20](#)).
5. Connect the other end of the power cord to an AC power source.

Figure 19 Connecting a power cord (1)

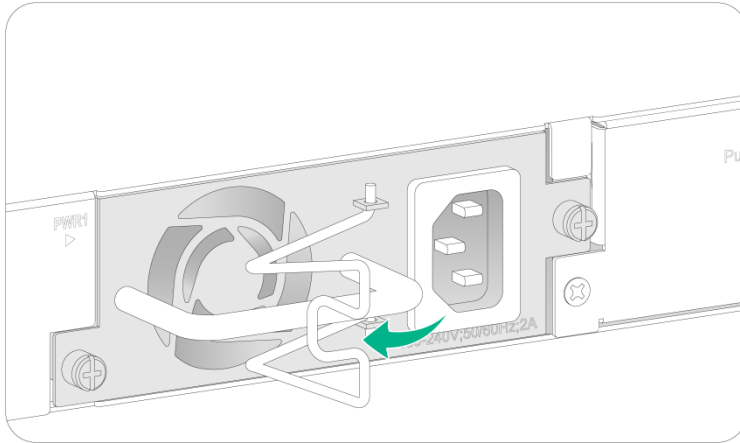
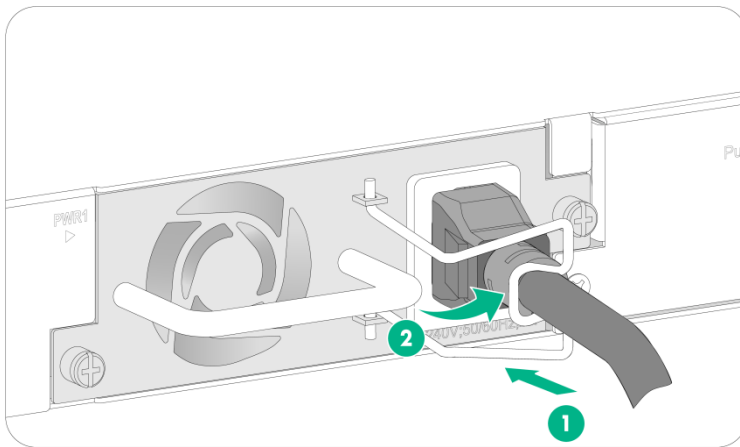


Figure 20 Connecting a power cord (2)



Connecting the power cord for a PSR150-D1 or PSR560-56D power supply

⚠ CAUTION:

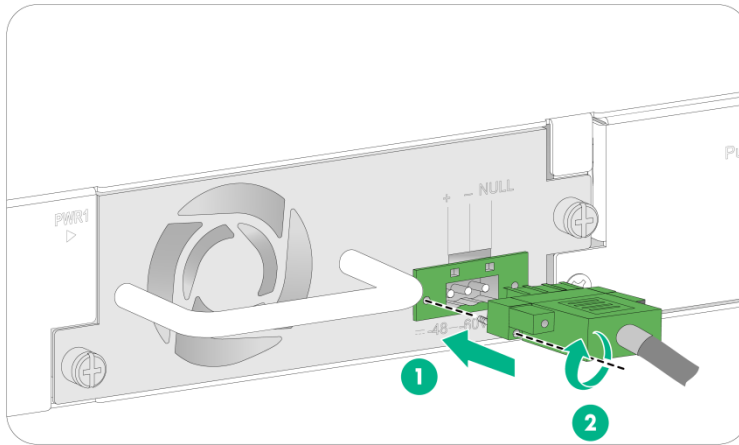
- Connect the other ends of the wires for a PSR150-D1 power supply to a –48 VDC power source, with the negative wire (– or L–) to the negative terminal (–) and the positive wire (+ or M/N) to the positive terminal (+).
- To use a –48 VDC power source to supply power to the power supply, use the DC power cord supplied with the power supply.
- To use an Intelbras RPS (–54 VDC) to supply power to the power supply, use a compatible RPS power cord to connect the RPS to the power supply.
- The power cord color code scheme in [Figure 21](#) is for illustration only. The cable delivered for your country or region might use a different color scheme. When you connect the power cord, always identify the polarity symbol on its wires.

The power cord connection procedure is the same for the PSR150-D1 and PSR560-56D power supplies. The following procedure uses a PSR150-D1 power supply as an example.

To connect the power cord for a PSR150-D1 power supply:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Unpack the power cord, correctly orient the plug at one end of the cable with the power receptacle on the power supply, and insert the plug into the power receptacle (see callout 1 in [Figure 21](#)).
The power receptacle is foolproof. If you cannot insert the plug into the receptacle, re-orient the plug rather than use excessive force to push it in.
3. Tighten the screws on the plug with a flat-blade screwdriver to secure the plug in the power receptacle (see callout 2 in [Figure 21](#)).
4. Connect the two wires at the other end of the power cord to a –48 VDC power source or an RPS.

Figure 21 Connecting the power cord for a PSR150-D1 power supply



Connecting the power cord for a PSR180-56A, PSR360-56A, PSR720-56A, PSR1110-56A, PSR600-54A-B, PSR920-54A-B, or PSR1600-54A-B power supply

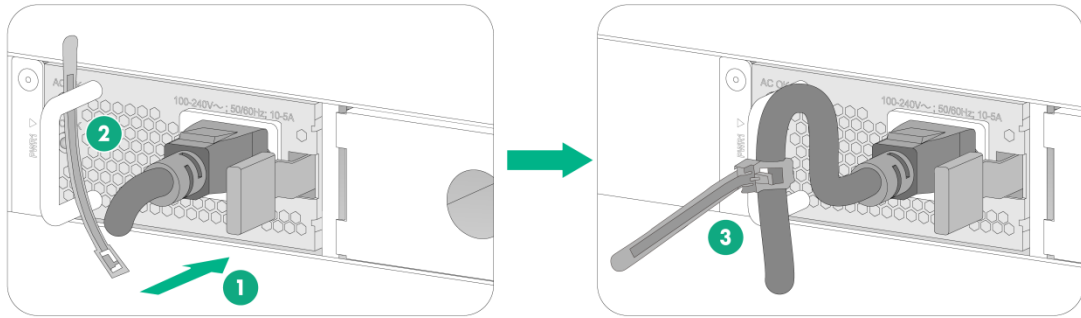
The power cord connection procedure is the same for the PSR180-56A, PSR360-56A, PSR720-56A, PSR1110-56A, PSR600-54A-B, PSR920-54A-B, and PSR1600-54A-B power supplies. The following procedure uses a PSR360-56A power supply as an example.

To connect the power cord for a PSR360-56A power supply:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Plug the female connector end of the power cord into the input socket of the power supply (see callout 1 in [Figure 17](#)).
3. Use a cable tie to secure the power cord to the handle of the power supply (see callout 2 and callout 3 in [Figure 17](#)).
4. Connect the other end of the power cord to a power source.

For a PSR360-56A, PSR720-56A, or PSR1110-56A power supply, you can connect the power cord only to an AC power source. For a PSR180-56A, PSR600-54A-B, PSR920-54A-B, or PSR1600-54A-B power supply, you can connect the power cord to an AC or HVDC power source.

Figure 22 Connecting the power cord for a PSR360-56A power supply



Verifying the installation

Before powering on the switch, verify the following items:

- There is enough space around the switch for heat dissipation.
- The rack or workbench on which the switch is mounted is stable.
- The grounding cable is securely connected.
- The power source specifications are as required by the device.
- The power cords are correctly connected.
- If part of the network cable for a port is routed outdoors, verify that a network port lightning protector is used for the port.
- If a power line is routed from outdoors, verify that a surge protected power strip is used for the switch.

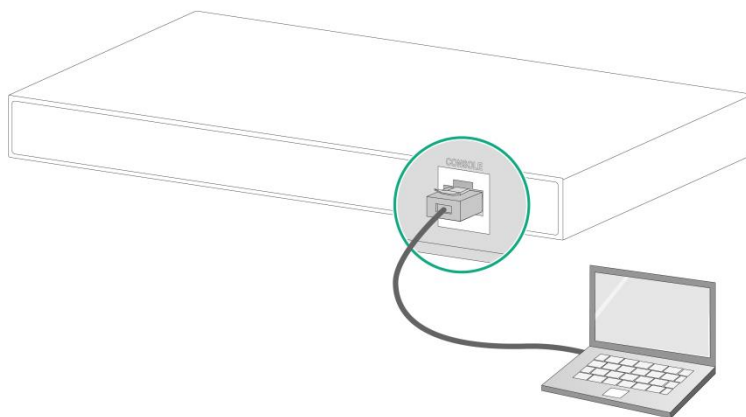
Accessing the switch for the first time

Connecting the switch to a configuration terminal

The SC 3170 series switches each provide a serial console for connecting to a configuration terminal.

In [Figure 23](#), the switch is connected to a configuration terminal (PC as an example) from the serial console port.

Figure 23 Connecting the switch to a configuration terminal



As shown in [Table 12](#), two types of console cables can be used for connecting the switch to a configuration terminal.

Table 12 Connection methods and console cables

Connection method	Console cable type	Configuration terminal-side connector	Switch-side connector
Using the serial console port for connection	DB9-to-RJ45 console cable	DB-9 female connector	RJ-45 connector
	USB-to-RJ45 console cable	USB connector	RJ-45 connector

The signal pinout for a DB9-to-RJ45 console cable depends on the vendor of the cable. To avoid abnormal configuration terminal display, use a serial console cable provided by Intelbras. For more information, see [Table 8](#). To prepare a serial console cable yourself, make sure the signal pinout for the RJ-45 connector is the same as that shown in [Table 13](#).

Connecting a DB9-to-RJ45 console cable

⚠ CAUTION:

Follow these guidelines when you connect a DB9-to-RJ45 console cable:

- Identify the mark on the serial console port and make sure you are connecting to the correct port.
- The serial ports on PCs do not support hot swapping. To connect a PC to an operating switch, first connect the PC end. To disconnect a PC from an operating switch, first disconnect the switch end.

A DB9-to-RJ45 console cable is an 8-core shielded cable, with a crimped RJ-45 connector at one end for connecting to the serial console port of the switch, and a DB-9 female connector at the other end for connecting to the serial port on the console terminal.

Figure 24 DB9-to-RJ45 console cable

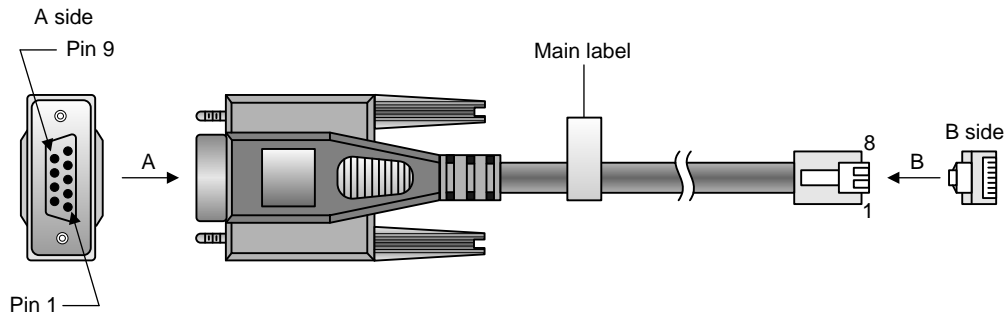


Table 13 DB9-to-RJ45 console cable signal pinout

RJ-45	Signal	DB-9	Signal
1	RTS	8	CTS
2	DTR	6	DSR
3	TXD	2	RXD
4	SG	5	SG
5	SG	5	SG
6	RXD	3	TXD
7	DSR	4	DTR
8	CTS	7	RTS

To connect the switch to a configuration terminal (for example, a PC) through a DB9-to-RJ45 console cable:

1. Plug the DB-9 female connector of the DB9-to-RJ45 console cable to the serial port on the PC.
2. Connect the RJ-45 connector to the serial console port on the switch.

Setting terminal parameters

To configure and manage the switch through the console port, you must run a terminal emulator program, such as TeraTermPro, on your configuration terminal. You can use the emulator program to connect a network device, a Telnet site, or an SSH site. For more information about the terminal emulator programs, see the user guides for these programs.

Configure the terminal parameters as follows:

- **Bits per second**—9,600.
- **Data bits**—8.
- **Parity**—None.
- **Stop bits**—1.
- **Flow control**—None.

Starting the switch

Pre-start checklist

Before powering on the switch, verify the following items:

- The power cord is correctly connected.
- The input power voltage is as required by the switch.
- The console cable is correctly connected.
- The PC has started, and the terminal parameters have been correctly configured.

Powering on the switch

During the startup process, you can access Boot ROM menus to perform tasks such as software upgrade and file management. The Boot ROM interface and menu options differ with software versions. For more information about Boot ROM menu options, see the software-matching release notes for the device.

After the startup process is completed, you can access the CLI to configure the switch.

For more information about the configuration commands, see the configuration guides and command references for the switch.

Setting up an IRF fabric (Stacking)

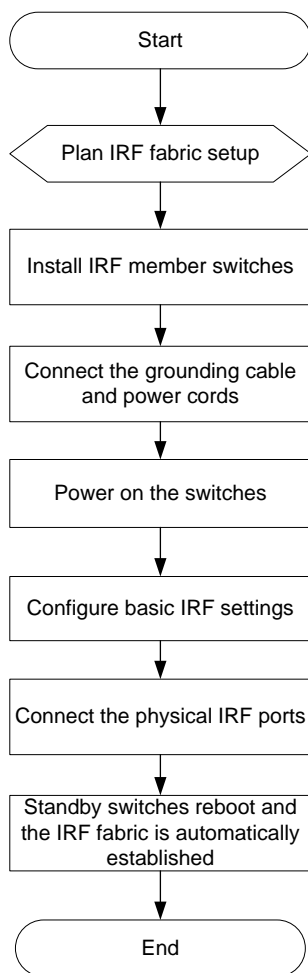
You can use Intelbras IRF technology to connect and virtualize SC 3170 switches into a large virtual switch called an "IRF fabric" for flattened network topology, and high availability, scalability, and manageability.

A SC 3170 switch can set up an IRF fabric only with switches from the same switch series.

All IRF member devices must run the same software image version. Make sure the software auto-update feature is enabled on all member devices.

IRF fabric setup flowchart

Figure 25 IRF fabric setup flowchart



To set up an IRF fabric:

Step	Description
1. Plan IRF fabric setup	<p>Plan the installation site and IRF fabric setup parameters:</p> <ul style="list-style-type: none">• Planning IRF fabric size and the installation site• Identifying the master switch and planning IRF member IDs• Planning IRF topology and connections

Step	Description
	<ul style="list-style-type: none"> Identifying physical IRF ports on the member switches Planning the cabling scheme
2. Install IRF member switches	See "Installing the switch in a 19-inch rack" or "Mounting the switch on a workbench."
3. Connect grounding cables and power cords	See "Grounding the switch" and "Connecting the power cord."
4. Power on the switches	N/A
5. Configure basic IRF settings	See the IRF configuration guide for the switch series.
6. Connect the physical IRF ports	Connect physical IRF ports on switches. All switches except the master switch automatically reboot, and the IRF fabric is established.

Planning IRF fabric setup

This section describes issues that an IRF fabric setup plan must cover.

Planning IRF fabric size and the installation site

Choose switch models and identify the number of required IRF member switches, depending on the user density and upstream bandwidth requirements. The switching capacity of an IRF fabric equals the total switching capacities of all member switches.

Plan the installation site depending on your network solution, as follows:

- Place all IRF member switches in one rack for centralized high-density access.
- Distribute the IRF member switches in different racks to implement the ToR access solution for a data center.

NOTE:

For the maximum IRF member devices supported by the switch, see the release notes that come with the switch.

Identifying the master switch and planning IRF member IDs

Determine which switch you want to use as the master for managing all member switches in the IRF fabric.

An IRF fabric has only one master switch. You configure and manage all member switches in the IRF fabric at the CLI of the master switch. IRF member switches automatically elect a master.

You can affect the election result by assigning a high member priority to the intended master switch. For more information about master election, see the configuration guides and command references for the switch.

Prepare an IRF member ID assignment scheme. An IRF fabric uses member IDs to uniquely identify and manage its members, and you must assign each IRF member switch a unique member ID.

Planning IRF topology and connections

You can create an IRF fabric in daisy chain topology or more reliable ring topology. In ring topology, the failure of one IRF link does not cause the IRF fabric to split as in daisy chain topology. Instead, the IRF fabric changes to a daisy chain topology without interrupting network services.

You connect the IRF member switches through IRF ports, the logical interfaces for the connections between IRF member switches. Each IRF member switch has two IRF ports: IRF-port 1 and IRF-port 2. To use an IRF port, you must bind a minimum of one physical port to it.

When connecting two neighboring IRF member switches, you must connect the physical ports of IRF-port 1 on one switch to the physical ports of IRF-port 2 on the other switch. See [Table 14](#) for the available IRF physical ports. You can bind several IRF physical ports to an IRF port for increased bandwidth and availability.

[Figure 26](#) and [Figure 27](#) show the topologies of an IRF fabric made up of three SC 3170-24G-4X switches. The IRF port connections in the two figures are for illustration only, and more connection methods are available.

Figure 26 IRF fabric in daisy chain topology

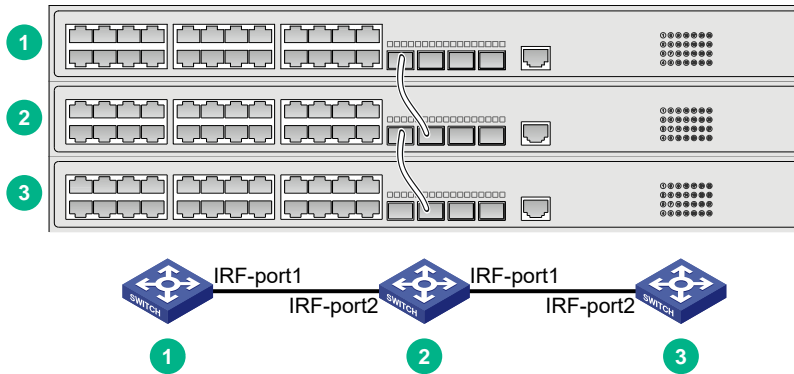
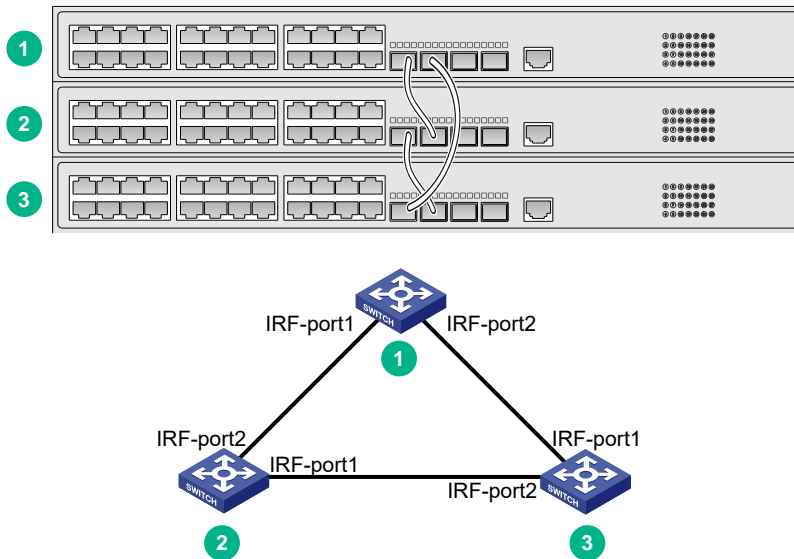


Figure 27 IRF fabric in ring topology



Identifying physical IRF ports on the member switches

Identify the physical IRF ports on the member switches according to your topology and connection scheme.

Table 14 shows the physical ports that can be used for IRF connection and the port use restrictions.

Table 14 Candidate physical IRF ports and their use restrictions

Chassis	Candidate physical IRF ports	Use restrictions
SC 3170-24G-4X SC 3170-48G-6X SC 3170-24GP-4X SC 3170-48GP-6X	<ul style="list-style-type: none"> SFP+ ports on the front panel 10/100/1000BASE-T autosensing Ethernet ports on the front panel 	<ul style="list-style-type: none"> Physical ports on interface modules and the front panel can be bound to the same IRF logical interface. All physical ports to be bound to an IRF logical interface must have the same data rate. A 10/100/1000BASE-T autosensing Ethernet port or SFP port can be used as an IRF physical port only when it operates at 1 Gbps. A 100BASE-TX/1000BASE-T/2.5GBASE-T autosensing Ethernet port can be used as an IRF physical port only when it operates at 2.5 Gbps. An SFP+ port can be used as an IRF physical port only when it operates at 10 Gbps. For a switch that has six SFP+ ports, use the four SFP+ ports with the highest numbers as IRF ports. For a switch that has four SFP+ ports, use the two SFP+ ports with the highest numbers as IRF ports. Using these ports as IRF ports can prevent issues such as IRF split, because IRF protocol packets from these ports can be forwarded in a queue with a higher priority.

Planning the cabling scheme

Use the following cables to connect the IRF physical ports on the switch:

- 10/100/1000BASE-T autosensing Ethernet port**—Category 5 or above twisted-pair cable.
- 100BASE-TX/1000BASE-T/2.5GBASE-T autosensing Ethernet port**—Category 5e or above twisted-pair cable.
- SFP port**—GE SFP fiber transceiver module and optical fiber, GE SFP copper transceiver module and twisted pair cable or GE SFP cable. For the available transceiver models and cables, see ports in *Intelbras SC 3170 Switch Series Hardware Information and Specifications*.
- SFP+ port**—SFP+ fiber transceiver module and optical fiber or SFP+ cable. For the available transceiver models and cables, see ports in *Intelbras SC 3170 Switch Series Hardware Information and Specifications*.

For a short-distance IRF connection in an equipment room, use a twisted pair/SFP+/SFP cable.

For a long-distance IRF connection, use transceiver modules and optical fibers.

The following subsections describe several Intelbras recommended IRF connection schemes by using SFP+ cables and SFP+ transceiver modules and fibers. All these schemes use a ring topology.

! IMPORTANT:

In these schemes, all physical IRF ports are located on the same side. If physical IRF ports are on different sides, you must measure the distance between them to select an appropriate cable.

Connecting the IRF member switches in one rack

Connect the IRF member switches (4 switches in this example) in a rack as shown in [Figure 28](#). The switches in the ring topology (see [Figure 29](#)) are in the same order as connected in the rack.

Figure 28 Connecting the switches in one rack

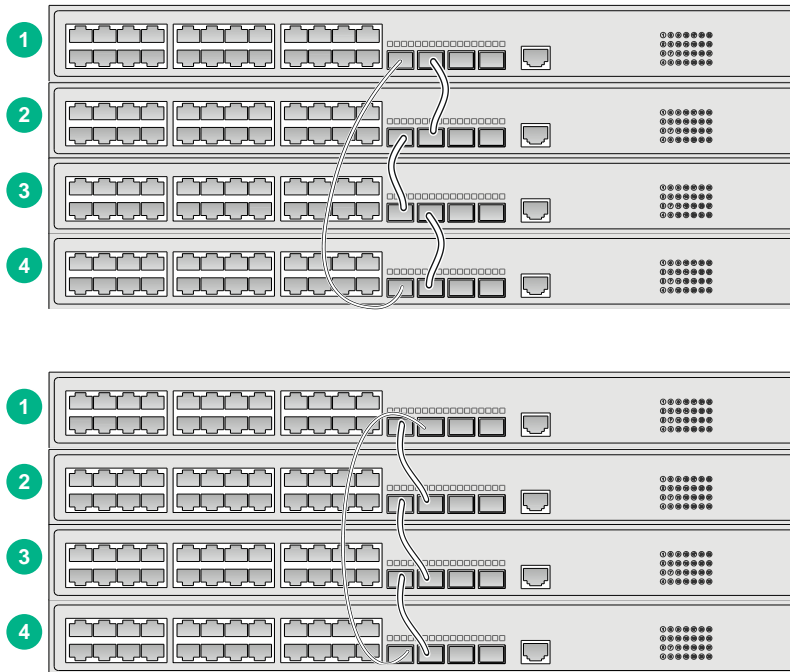
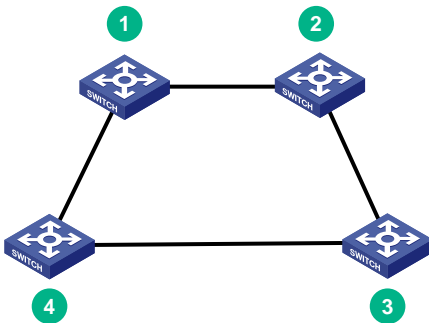


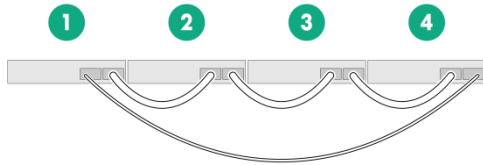
Figure 29 IRF fabric topology



Connecting the IRF member switches in a ToR solution

You can install IRF member switches in different racks side by side to deploy a top of rack (ToR) solution.

Figure 30 ToR cabling



Configuring basic IRF settings

After you install the IRF member switches, power on the switches, and log in to each IRF member switch to configure their member IDs, member priorities, and IRF port bindings.

Follow these guidelines when you configure the switches:

- Assign the master switch higher member priority than any other switch.
- Bind physical ports to IRF port 1 on one switch and to IRF port 2 on the other switch. You perform IRF port binding before or after connecting IRF physical ports depending on the software release.
- To bind the ports on an interface module to an IRF port, you must install the interface module first.
- Execute the `display irf configuration` command to verify the basic IRF settings.

For more information about configuring basic IRF settings, see IRF configuration in the configuration guide for the switch.

Connecting the physical IRF ports

Connect the IRF member switches as planned.

Wear an ESD wrist strap when you connect cables or transceiver modules and fibers.

Verifying the IRF fabric setup

To verify the basic functionality of the IRF fabric after you finish configuring basic IRF settings and connecting IRF ports:

1. Log in to the IRF fabric through the console port of any member switch.
2. Create a Layer 3 interface, assign it an IP address, and make sure the IRF fabric and the remote network management station can reach each other.
3. Use Telnet, web, or SNMP to access the IRF fabric from the network management station. (See the configuration guides and command references for the switch.)
4. Verify that you can manage all member switches as if they were one node.
5. Display the running status of the IRF fabric by using the commands in [Table 15](#).

Table 15 Displaying and maintaining IRF configuration and running status

Task	Command
Display information about the IRF fabric.	display irf
Display all members' IRF configurations that take effect at a reboot.	display irf configuration
Display IRF fabric topology information.	display irf topology

NOTE:

To avoid IP address collision and network problems, configure a minimum of one multi-active detection (MAD) mechanism to detect the presence of multiple identical IRF fabrics and handle collisions. For more information about MAD detection, see IRF configuration in the configuration guides for the switch.

Maintenance and troubleshooting

Power supply failure

Built-in power supply failure

The SC 3170 switch series uses built-in power supplies.

- **SC 3170-24G-4X, SC 3170-48G-6X, SC 3170-24GP-4X and SC 3170-48GP-6X** — You can observe the system status LED on the switch to identify power supply failure.

Symptom

- **SC 3170-24G-4X, SC 3170-48G-6X, SC 3170-24GP-4X and SC 3170-48GP-6X** —The system status LED on the switch is off.

Solution

To resolve the issue:

1. Verify that the power receptacle on the switch is in good condition.
2. Verify that the power cord is correctly connected.
3. Verify that the power source is operating correctly.
4. Verify that the operating temperature of the switch is in the acceptable range, and the power supply has good ventilation. Overtemperature can cause the power supply to stop working and enter protection mode.
5. If the issue persists, contact Intelbras Support.

Fan tray failure

Symptom

The system status LED on the switch indicates a fan tray failure.

Solution

When a fan tray issue occurs, contact Intelbras Support.

Configuration terminal display issues

If the configuration environment setup is correct, the configuration terminal displays booting information when the switch is powered on. If the setup is incorrect, the configuration terminal displays nothing or garbled text.

No display

Symptom

The configuration terminal does not have display when the switch is powered on.

Solution

To resolve the issue:

1. Verify that the power supply is supplying power to the switch correctly.

2. Verify that the console cable is correctly connected.
3. Verify that the console cable does not have any issues and the terminal settings are correct.
4. If the issue persists, contact Intelbras Support.

Garbled display

Symptom

The display on the configuration terminal is garbled.

Solution

To resolve the issue:

1. Verify that the following settings are configured for the terminal:
 - **Baud rate**—9,600.
 - **Data bits**—8.
 - **Stop bits**—1.
 - **Parity**—None.
 - **Flow control**—None.
2. If the issue persists, contact Intelbras Support.

Warranty term

It is expressly stated that this contractual guarantee is granted subject to the following conditions:

1. All parts, pieces and components of the product are guaranteed against any manufacturing defects that may occur, for a period of 3 (three) years – 3 (three) months of legal warranty and 33 (thirty-three) months months of contractual warranty -, counted from the date of delivery of the product to the Consumer, as stated on the product purchase invoice, which is an integral part of this Term throughout the national territory. This contractual warranty includes the free exchange of parts, pieces and components that present manufacturing defects, including the labor used in this repair. If no manufacturing defect is found, but rather defect(s) arising from inappropriate use, the Consumer will bear these expenses.
2. Installation of the product must be carried out in accordance with the Product Manual and/or Installation Guide. If your product requires installation and configuration by a qualified technician, look for a suitable and specialized professional, as the costs of these services are not included in the value of the product.
3. In the event that the Consumer requests home assistance, he or she must go to the nearest Authorized Service to consult the technical visit fee. If it is found necessary to remove the product, the costs resulting from transport and security to and from the product are the responsibility of the Consumer.
4. In the event that the Consumer requests home assistance, he or she must go to the nearest Authorized Service to consult the technical visit fee. If it is found necessary to remove the product, the resulting expenses, such as transport and security to and from the product, are the responsibility of the Consumer.
5. The guarantee will completely lose its validity in the occurrence of any of the following hypotheses: a) if the defect is not manufacturing, but caused by the Consumer or by third parties outside the manufacturer; b) if damage to the product arises from accidents, accidents, acts of nature (lightning, floods, landslides, etc.), humidity, voltage in the electrical network (overvoltage caused by accidents or excessive fluctuations in the network), installation/use in disagreement with the user manual or resulting from natural wear and tear of parts, pieces and components; c) if the product has been influenced by a chemical, electromagnetic, electrical or animal nature (insects, etc.); d) if the product's serial number has been tampered with or erased; e) if the equipment has been tampered with.
6. This warranty does not cover loss of data, therefore, it is recommended, if applicable to the product, that the Consumer makes a regular backup copy of the data contained in the product.
7. Intelbras is not responsible for the installation of this product, nor for any attempts at fraud and/or sabotage in its products. Keep the software and applications used up to date, if applicable, as well as the necessary network protections to protect against intrusions (hackers). The equipment is guaranteed against defects within its normal conditions of use, and it is important to be aware that, as it is electronic equipment, it is not free from fraud and scams that could interfere with its correct functioning.

The contractual guarantee of this term is complementary to the legal one, therefore, Intelbras S/A reserves the right to change the general, technical and aesthetic characteristics of its products without prior notice.

These being the conditions of this complementary Warranty Term, Intelbras S/A reserves the right to change the general, technical and aesthetic characteristics of its products without prior notice.

Termo de garantia

Fica expresso que esta garantia contratual é conferida mediante as seguintes condições:

1. Todas as partes, peças e componentes do produto são garantidos contra eventuais defeitos de fabricação, que porventura venham a apresentar, pelo prazo de 3 (três) anos – sendo 3 (três) meses de garantia legal e 33 (trinta e três) meses de garantia contratual –, contado a partir da data de entrega do produto ao Senhor Consumidor, conforme consta na nota fiscal de compra do produto, que é parte integrante deste Termo em todo o território nacional. Esta garantia contratual compreende a troca gratuita de partes, peças e componentes que apresentarem defeito de fabricação, incluindo a mão de obra utilizada nesse reparo. Caso não seja constatado defeito de fabricação, e sim defeito(s) proveniente(s) de uso inadequado, o Senhor Consumidor arcará com essas despesas.
2. A instalação do produto deve ser feita de acordo com o Manual do Produto e/ou Guia de Instalação. Caso seu produto necessite a instalação e configuração por um técnico capacitado, procure um profissional idôneo e especializado, sendo que os custos desses serviços não estão inclusos no valor do produto.
3. Na eventualidade de o Senhor Consumidor solicitar atendimento domiciliar, deverá encaminhar-se ao Serviço Autorizado mais próximo para consulta da taxa de visita técnica. Caso seja constatada a necessidade da retirada do produto, as despesas decorrentes de transporte e segurança de ida e volta do produto ficam sob a responsabilidade do Senhor Consumidor.
4. Na eventualidade de o Senhor Consumidor solicitar atendimento domiciliar, deverá encaminhar-se ao Serviço Autorizado mais próximo para consulta da taxa de visita técnica. Caso seja constatada a necessidade da retirada do produto, as despesas decorrentes, como as de transporte e segurança de ida e volta do produto, ficam sob a responsabilidade do Senhor Consumidor.
5. A garantia perderá totalmente sua validade na ocorrência de quaisquer das hipóteses a seguir: a) se o vício não for de fabricação, mas sim causado pelo Senhor Consumidor ou por terceiros estranhos ao fabricante; b) se os danos ao produto forem oriundos de acidentes, sinistros, agentes da natureza (raios, inundações, desabamentos, etc.), umidade, tensão na rede elétrica (sobretensão provocada por acidentes ou flutuações excessivas na rede), instalação/uso em desacordo com o manual do usuário ou decorrentes do desgaste natural das partes, peças e componentes; c) se o produto tiver sofrido influência de natureza química, eletromagnética, elétrica ou animal (insetos, etc.); d) se o número de série do produto tiver sido adulterado ou rasurado; e) se o equipamento tiver sido violado.
6. Esta garantia não cobre perda de dados, portanto, recomenda-se, se for o caso do produto, que o Consumidor faça uma cópia de segurança regularmente dos dados que constam no produto.
7. A Intelbras não se responsabiliza pela instalação deste produto, e também por eventuais tentativas de fraudes e/ou sabotagens em seus produtos. Mantenha as atualizações do software e aplicativos utilizados em dia, se for o caso, assim como as proteções de rede necessárias para proteção contra invasões (hackers). O equipamento é garantido contra vícios dentro das suas condições normais de uso, sendo importante que se tenha ciência de que, por ser um equipamento eletrônico, não está livre de fraudes e burlas que possam interferir no seu correto funcionamento.

A garantia contratual deste termo é complementar à legal, portanto, a Intelbras S/A reserva-se o direito de alterar as características gerais, técnicas e estéticas de seus produtos sem aviso prévio.

Sendo estas as condições deste Termo de Garantia complementar, a Intelbras S/A se reserva o direito de alterar as características gerais, técnicas e estéticas de seus produtos sem aviso prévio.