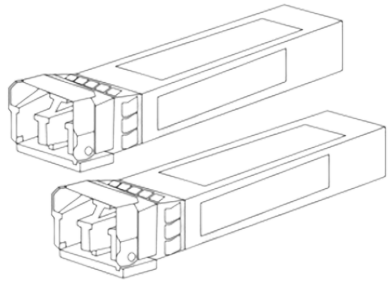
IRD-SFP-10G-SM-10x2 | Par de Módulo SFP+, 10G, fibra monomodo, 1310nm, conector LC

- **Taxa de Dados:** Suporta taxas de 9,95 Gbps a 10,5 Gbps.
- **Compatível com taxas** de 1, 2.5 e 5Gbps
- **Comprimento de Onda:** Laser DFB de 1310 nm.
- **Alcance:** Até 10 km em fibra monomodo 9/125 µm.
- **Conector:** Interface óptica LC duplex.
- **Hot-Pluggable:** Facilita a instalação e substituição sem necessidade de desligamento.
- **Carcaça Metálica:** Proporciona desempenho EMI superior.
- **Conformidade:** Compatível com RoHS6 (isento de chumbo).
- **Consumo de Energia:** Inferior a 2,5 W.
- **Clock de Referência:** Não requer clock de referência externo.
- **Monitoramento Diagnóstico Digital (DDM):** Funções integradas para monitoramento em tempo real.
- **Temperatura de Operação:** -5°C a +70°C.



10/5/2.5/1G | SFP+ | 2xLC | Monomodo

Introdução

O **IRD-SFP-10G-SM-10x2** é um par de módulos **transceptores SFP+** de alto desempenho, projetado para aplicações de comunicação óptica de **10 Gbps.** Utilizando um laser DFB de **1310 nm e um fotodetector PIN**, estes módulos permitem transmissões de até **10 km sobre fibra monomodo (SMF) de 9/125 µm**. Com interface óptica **LC duplex** e recursos de monitoramento diagnóstico digital **(DDM),** são ideais para redes Ethernet 10GBASE-LR e canais de fibra 1200-SM-LL-L.

Especificações Técnicas

- **Tipo de Módulo:** SFP+ de uso geral.
- **Interface ótica compatíve**l com IEEE 802.3ae 10GBASE-LR
- **Interface elétrica compativel** com SFF-8431
- **Velocidade de Transmissão:** 10 Gbps.
- **Outras velocidades compatíveis:** 1, 2.5 e 5Gbps
- **Fibra:** Monomodo (SMF).
- **Distância Máxima:** Até 10 km.
- Frequências de Operação:
- **Modelo padrão:**
  - Transmissão (TX): 1310 nm.
  - Recepção (RX): 1310 nm.
- **Conector:** LC duplex.
- **Alimentação:** 3.3V.
- **Potência de Transmissão:** Compatível com os padrões de segurança óptica para ambientes de rede.
- **Temperatura de Operação:** 0°C a 70°C.
- **Compatibilidade:** Com qualquer dispositivo com slot SFP+ para 10G.
- **DDM incluso**
- **Padrões e Protocolos**
  - Totalmente compatível com XFP MSA Rev.4.5.
  - Compatível com IEEE802.3ae 2002.

Parâmetros Ópticos:

Parâmetro	Símbolo	Mínimo	Típico	Máximo	Unidade	Nota
Transmissor						
Comprimento de Onda Central	λc	1290	1310	1330	nm	
Largura Espectral (-20 dB)	Δλ			1	nm	
Razão de Supressão de Modo Lateral	SMSR	30			dB	
Potência Óptica Média	Pout	-8,2		0,5	dBm	1
Potência com Laser Desligado	Poff			-30	dBm	
Extinção de Razão	ER	3,5			dB	2
Ruído de Intensidade Relativa	RIN			-128	dB/Hz	
Tempo de Subida/Queda Óptico	tr/tf			50	ps	3
Tolerância de Retorno Óptico				12	dB	
Máscara do Olho Óptico de Saída			Compatível com IEEE802.3ae quando filtrado			2
Receptor						
Comprimento de Onda Central	λc	1260		1620	nm	
Sensibilidade do Receptor	Sen			-14,4	dBm	4
Perda de Sinal (Assertiva)	LOSA	-25			dBm	
Perda de Sinal (Desativada)	LOSD			-16	dBm	
Histerese de Perda de Sinal	LOSH	0,5		5	dB	
Sobrecarga	Pin-max			0,5	dBm	4
Refletância do Receptor				-12	dB	
Potência do Receptor (Dano)				1,5	dBm	

Notas:

1. A potência óptica é lançada em fibra monomodo (SMF) de 9/125 µm.
2. Medido com padrão de teste $PRBS^{231}$-1 @ 10,3125 Gbps.
3. Não filtrado, 20-80%. Medido com padrão de teste $PRBS^{231}$-1 @ 10,3125 Gbps.
4. Medido com padrão de teste $PRBS^{231}$-1 @ 10,3125 Gbps, ER=4 dB, BER < 10^{-12}.

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Shatian Town, Dongguan City, Guangdong Province
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CERTIFICATE OF CONFORMITY

No: JAT25040302947EC-1

Applicant	:	IRD Produtos de Informática Ltda
Address	:	RUA MARIA LOPES BORBA, 474, NAVEGANTES-SC, 88370340, BRAZIL
Manufacturer	:	IRD Produtos de Informática Ltda
Address	:	RUA MARIA LOPES BORBA, 474, NAVEGANTES-SC, 88370340, BRAZIL
EUT	:	Commercial and Industrial Grade SFP Modules (Optical Modules)
Trade Mark	:	IRD.Net
M/N	:	See model list

The submitted sample of the above equipment has been tested and found to comply with the following European Directive:

Electromagnetic Compatibility Directive 2014/30/EU

The standard(s) used for showing compliance with the essential requirements:

Applicable Standard(s)	Test Report(s) Number
EN 55032:2015+A11:2020 **EN 55035:2017+A11:2020** **EN IEC 61000-3-2:2019+A2:2024** **EN 61000-3-3:2013+A2:2021+AC:2022-01**	**JAT25040302947ER-1**

This certificate is part of the full test report(s) and should be read in conjunction with it. This certificate is based on an evaluation of one sample of above mentioned product. It does not imply assessment of the production of the product. Without the written approval of Dongguan Jun'an Testing & Certification Co., Ltd., this certificate is not permitted to be reproduced, except in full. It is not permitted to use the test lab's logo. The CE marking may only be used if all the relevant and effective European Directive are applicable.

CE

Dongguan Jun'an Testing & Certification Co., Ltd. APPROVED

.....

(Manager)

March 31, 2025

Model list:

The IRD-SFP-T2.5G, IRD-SFP-T1G, IRD-SFP-T10G, IRD-SFP-X-Y-ZW and IRD-SFP-X-Y-Z-IW model families follow a naming convention where each part of the code corresponds to a specific characteristic of the module. Below is a detailed explanation of each field:

1. **X (Speed)**
    - Possible values: *100M*, *622M*, *1G*, *2.5G*, *10G*, *16G*, *25G*, *40G*, *50G*, or *100G*.
    - Indicates the supported data rate, covering anything from Fast Ethernet (100 Mbps) up to 100 Gbps.
2. **Y (Fiber Type)**
    - Possible values: *SM* (singlemode) or *MUM* (multimode).
    - Specifies the type of fiber optic cable for which the transceiver is designed.
3. **Z (Maximum Distance)**
    - Possible values: *0.1*, *0.3*, *0.5*, *2*, *10*, *20*, *40*, *60*, *80*, *100*, *120*, and *160*.
    - Typically expressed in kilometers (km), it refers to the approximate reach of the module according to its optical specification.
4. **Temperature/Operating Grade**
    - After the value **Z**, the presence of **I** indicates an *industrial-grade* product (extended operating temperature range), whereas the absence of I (NULL) means it is *commercial-grade*.
    - Examples:
        - **IRD-SFP-X-Y-ZW** → "Commercial-grade" version
        - **IRD-SFP-X-Y-Z-IW** → "Industrial-grade" version
5. **W (Additional Type)**
    - Possible values: *NULL*, *A*, *B*, *C*, *D*, *E*, *F*, *G*, or *H*.
    - This suffix provides additional information about the product variant. It may indicate extra features, extended compatibility, special applications, and so on.

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Shatian Town, Dongguan City, Guangdong Province
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CERTIFICATE OF CONFORMITY

No: JAT25040302947RC-1

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Manufacturer	:	IRD Produtos de Informática Ltda
Address	:	RUA MARIA LOPES BORBA, 474, NAVEGANTES-SC, 88370340, BRAZIL
EUT	:	Commercial and Industrial Grade SFP Modules (Optical Modules)
Trade Mark	:	IRD.Net
M/N	:	See model list

The submitted sample of the above equipment has been tested and found to comply with the following European Directive:

RoHS Directive 2011/65/EU & (EU) 2015/863 & (EU) 2017/2102

The standard(s) used for showing compliance with the essential requirements:

Applicable Standard(s)	Test Report(s) Number
IEC 62321-1:2013, IEC 62321-2:2013 IEC 62321-3-1:2013, IEC 62321-3-2:2020 IEC 62321-4:2013, IEC 62321-5:2013 IEC 62321-6:2015, IEC 62321-7-1: 2015 IEC 62321-7-2:2017, IEC 62321-8:2017	**JAT25040302947RR-1**

This certificate is part of the full test report(s) and should be read in conjunction with it. This certificate is based on an evaluation of one sample of above mentioned product. It does not imply assessment of the production of the product. Without the written approval of Dongguan Jun'an Testing & Certification Co., Ltd., this certificate is not permitted to be reproduced, except in full. It is not permitted to use the test lab's logo.

RoHS

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(Manager)

March 31, 2025

Model list:

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SDoC's Compliance Information Statement

No: JAT25040302947FC-1

Applicant	:	IRD Produtos de Informática Ltda
Address	:	RUA MARIA LOPES BORBA, 474, NAVEGANTES-SC, 88370340, BRAZIL
Manufacturer	:	IRD Produtos de Informática Ltda
Address	:	RUA MARIA LOPES BORBA, 474, NAVEGANTES-SC, 88370340, BRAZIL
EUT	:	Commercial and Industrial Grade SFP Modules (Optical Modules)
Trade Mark	:	IRD.Net
M/N	:	See model list

The submitted sample of the above equipment has been tested and found to comply with the following requirement of 47 CFR of PART 15.
The assessment of compliance of the product with the requirements relating to FCC rules was based on the following standards and procedure:

Applicable Standard(s)	Test Report(s) Number
FCC Part 15, Subpart B:2017 ANSI C63.4:2014	**JAT25040302947FR-1**

This verification is part of the full test report(s) and should be read in conjunction with it. This verification is based on an evaluation of one sample of above mentioned product. It does not imply assessment of the production of the product. Without the written approval of Dongguan Jun'an Testing & Certification Co., Ltd., this verification is not permitted to be reproduced, except in full. It is not permitted to use the test lab's logo.

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(Manager)

March 31, 2025

Model list:

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