

PRODUCT MODEL NUMBER: TL-3000C

G.hn WAVE-2 MIMO SFP



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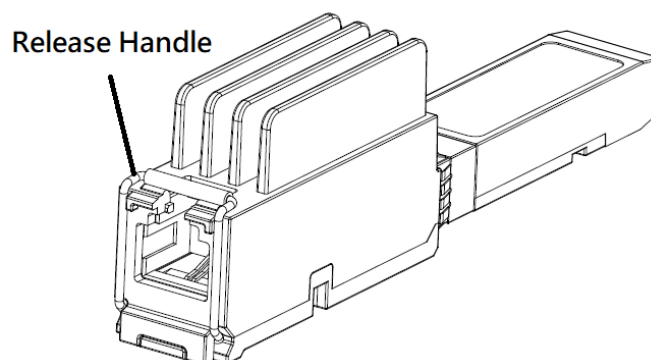
PRODUCT OVERVIEW

Translite Global's TL-3000C is a SFP (small form-factor pluggable) hot-pluggable module enabling the most compact method of high-speed G.hn Wave-2 MIMO connectivity and using either existing phone line or twisted pair cables, with up to 2 Gbps PHY rate.

The TL-3000C supports an industrial temperature range. It is intended for infrastructure and smart grid applications. TL-3000C integrates a G.hn Wave-2 digital baseband processor along with a corresponding analog front-end, system power supplies and surge protection circuitry into a compact SFP module.

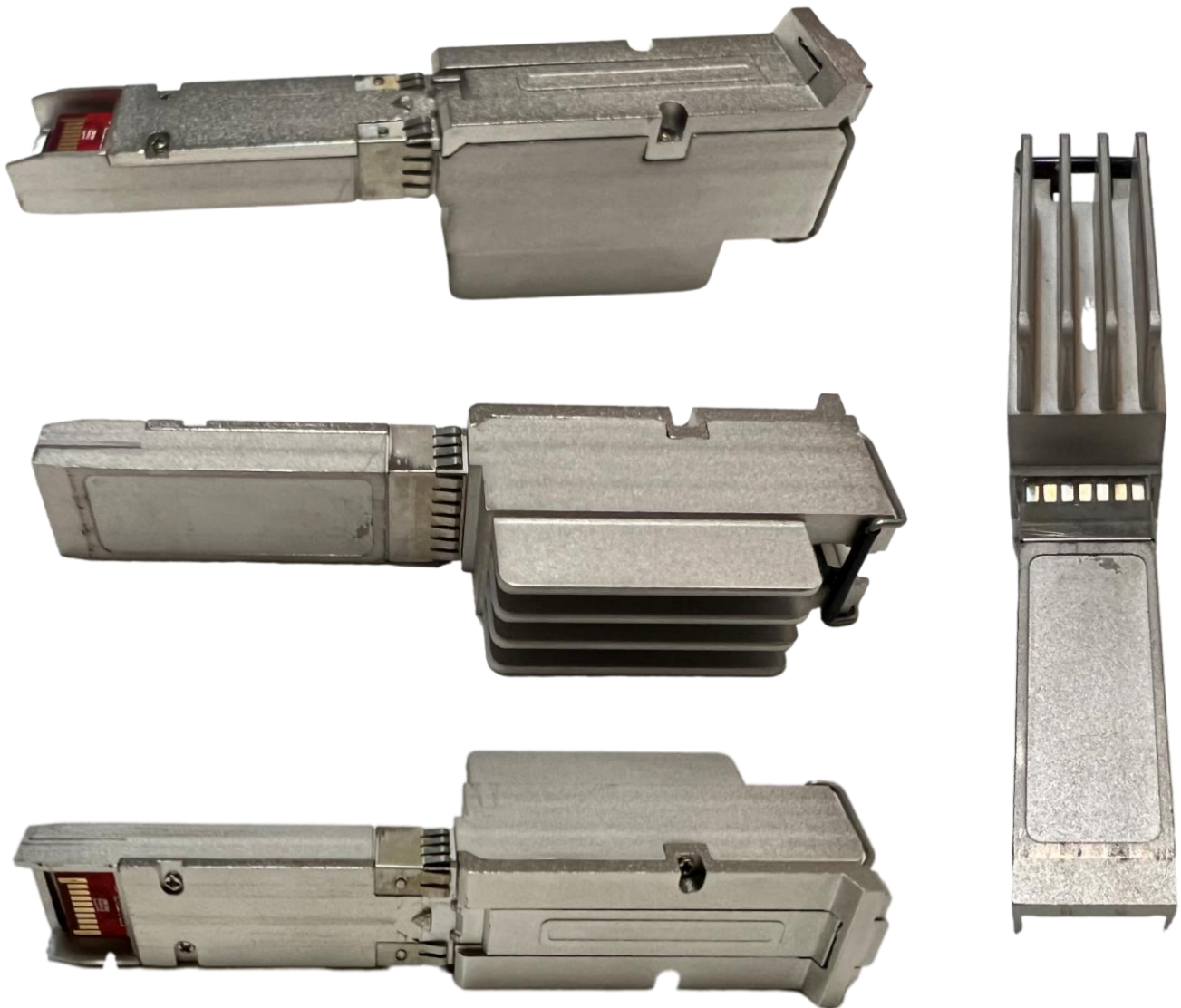
This SFP is designed to meet the industrial standard of Small Form-Factor Pluggable (SFP), with an integrated heat sink for the maximum heat dissipation.

It has a Release Handle, shown as follows:



When the SFP is plugged into a SFP cage and the Release Handle is fully latched, the locking tab of SFP will secure the SFP into the cage.

To remove the SFP from a SFP cage, fully unlatch the Release Handle.



KEY FEATURES

- SFF-8432 and INF-8074i SFP MSA Compliant
- Supports an industrial temperature range (only for TL-3000C)
- Security 128 AES CCMP encryption
- Supports VectorBoost™ technology for broadband access
- Based on GigaWire specification and multi-vendor interoperable
- Incorporates AES-128 encryption

- Configurable as a domain master or end-point
- Functions as a G.hn Wave-2/ Ethernet SGMII bridge
- Surge protection
- Point-to-point security inside a domain
- K.21 protection for lightning surge voltage
- Flexible downlink/uplink bit-rate ratio
- Very low noise receive path
- Robust - high immunity to disturbances
- Very short train/retrain time
- Fast Online Reconfiguration (OLR)
- Flexible DTU size

SPECIFICATIONS

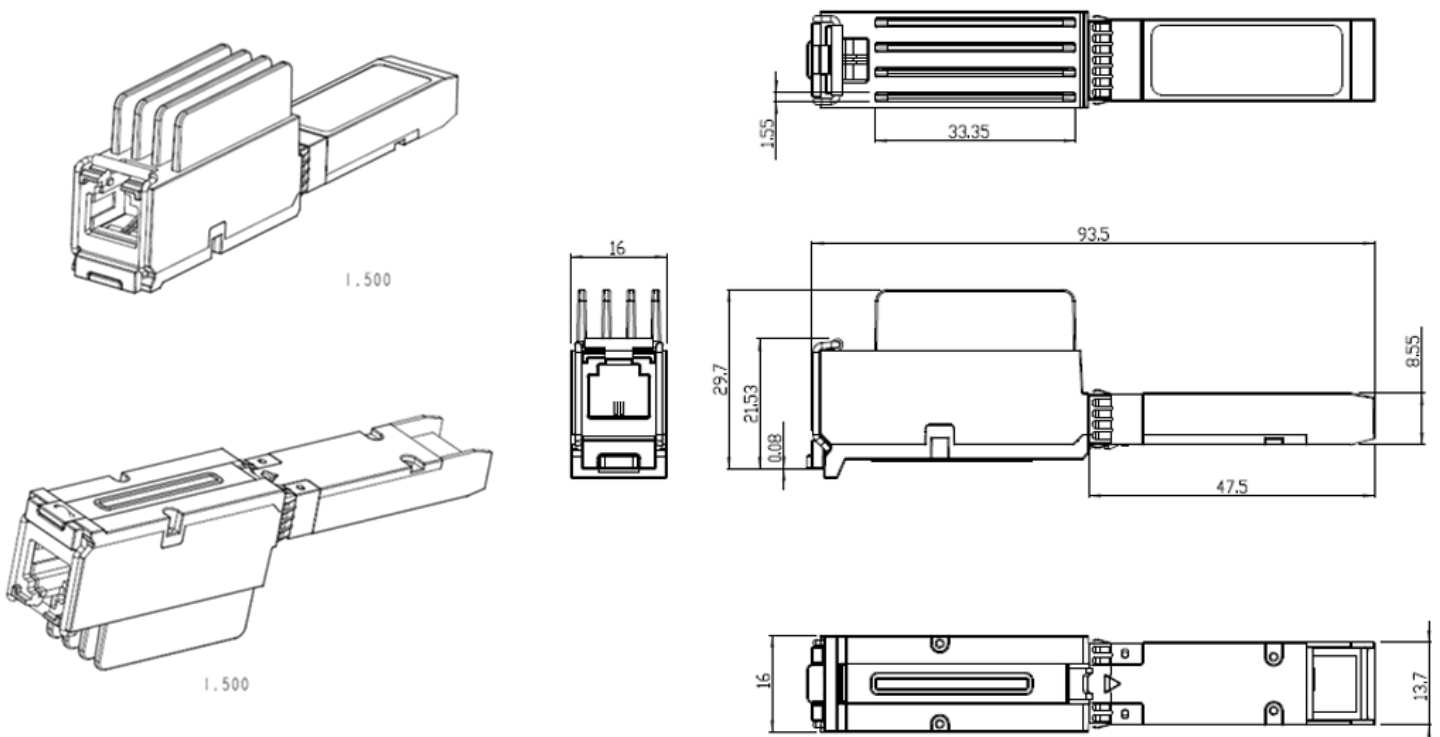
Model	
Model name	TL-3000C
G.hn Chip (MaxLinear)	88LX5153A + 88LX2741 + 88LX2741
Model Feature	G.hn Wave-2 MIMO SFP (Industrial Grade)
G.hn Chipsets	
TL-3000C (G.hn Wave-2 MIMO, Industrial Grade) MaxLinear 88LX5153A (DBB; Digital Baseband) MaxLinear 88LX2741 (AFE; Analog Front End)	
General	
Up to 2 Gbps PHY rate	
Low-power and sleep mode support	
G.hn Standards	
Compliant with the ITU-T G.hn recommendation ITU-T G.9960 Support (G.hn PHY) ITU-T G.9961 Support (G.hn MAC) ITU-T G.9962 Support (Management Plane) ITU-T G.9963 Support ITU-T G.9964 Support	
Interfaces	
One G.hn MIMO link port with RJ-11 connector	

Power Consumption	
TL-3000C (G.hn Wave-2 MIMO) < 3W	
Compliance	
CE FCC Part 15B FCC Part 68 K.21 (Standard) UL62368-1	
Operating & Storage Temperature	
Operating temperature	-40 °C ~ 65°C
Operating humidity	80% RH (non-condensing)
Storage temperature	-40°C ~ 65°C
Storage humidity	80% RH (non-condensing)
Reliability Test	
MTBF (Mean Time Between Failure) Test	
Temperature	40°C
Confidence	90%
Test Time	System: 300,000hrs (follow "Telcordia SR-322 Issue 3") ※ Lifetime has to be over 10,000 hours
Drop Test (With Packing)	
Height	65 cm
One Corner	Front – Bottom – Right
Three Edges	Shortest edge radiating from corner Medium edge radiating from corner Longest edge radiating from corner
Six Faces	Bottom, Top, Left, Right, Rear, Front
Random Vibration Test (With Packing)	
Frequency Range: 5 ~ 300Hz; Acceleration Level: 1.5 Grms Duration Times: 30min in each X, Y, Z direction	
Frequency (Hz)	ASD Level (g ² /Hz)
5	0.0005
10	0.0200
100	0.0200
300	0.00002

Safety Test	
ESD (Electric Static Discharge) Test	
Demonstration	IEC 61000-4-2
Discharge voltage	± 4 KV (Contact)
	± 8 KV (Air)
Indirect discharge voltage	± 4 KV (Contact)
R/C	330 ohms/ 150pF
Surge Test	
Demonstration	IEC 61000-4-5
Tip to Ring	± 6 KV
Tip + Ring to GND	± 6 KV
Test Time	Each step test 1 min (5 cycle)

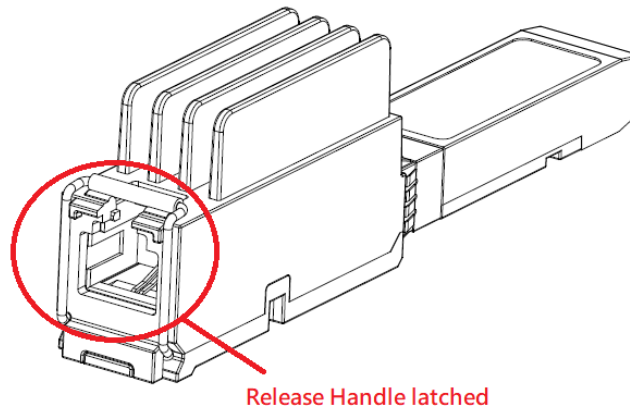
DIMENSIONS

Dimensions: 93.5 (L) x 16 (W) x 29.7 (H) mm



INSTALLING THE SFP

1. Always have the Release Handle of SFP (shown as follows) fully latched when inserting it into the SFP connector/cage.



2. Always make sure the SFP is completely plugged into the SFP cage. The locking tab automatically locks the SFP into the cage.
3. Always use a 4-wire/2-pair RJ-11 cable for SFP's MIMO feature to take effect.

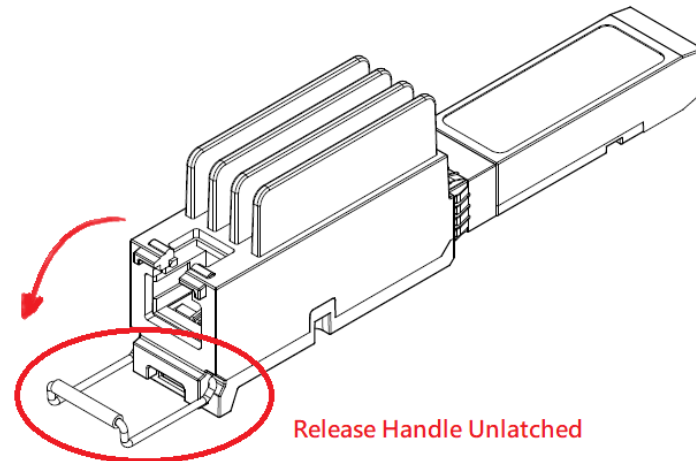
Note: Do not remove the SFP when its Release Handle is latched.

REMOVING THE SFP

Note: Read **Warning** section (below) before removing the SFP

1. Always have the Release Handle of SFP (shown as follows) **fully unlatched** when removing it from the SFP connector/cage.
2. After the SFP is removed, fully latch the Release Handle to avoid any damage in Release Handle.

Note: Do not remove the SFP when the Release Handle is latched.



Warning

Due to the small-form-factor design, this SFP becomes hot when it's working.

DO NOT touch any part of this SFP, including the heat sink, while it's working at any time.

Before removing the SFP from a DPU/media converter, please power off the DPU/media converter first and leave the DPU/media converter to cool down for at least 30 minutes in a cool ambient location.

THROUGHPUT & TEMPERATURE

The chipset will reset itself when the threshold of internal temperature is reached (approx. 98°C/209°F).

The SFP is configured to automatically adjust (lower) the throughput in order to protect the main chipset and keep the internal temperature lower than the threshold.

To have the maximum throughput, always keep the ambient temperature lower than 40°C /104°F.

Max Ambient Temperature

The SFP is currently based on the commercial grade chipset. Please **DO NOT** test the SFP in an ambient temperature over 50°Celsius / 120°Fahrenheit.

See the following table for the throughput in different ambient temperature.

Ambient Temperature (°C/°F)	Max Throughput in Tx (Mbps; bits per second)	Max Throughput in Rx (Mbps; bits per second)
Below 40°C /104°F	780	780
40°C /104°F ~ 50°C /120°F	340	340

Note: When the chipset’s internal temperature is lowered from the threshold, the SFP will automatically increase the throughput (to 780Mbps) until the threshold is again reached, in which the SFP decreases the throughput (to 340Mbps).

For Sales

North America:
sales@transliteglobal.com

Asia:
sales@translite.co.in

Rest Of The World:
sales@transliteglobal.com

For Support

North America :
support@transliteglobal.com

Asia:
support@translite.co.in

Rest Of The World:
support@transliteglobal.com