

# NoviConnect™ 516 1G SFP CU Transceiver

**NoviConnect 516 1.25Gbps Copper Transceiver.** This Industry Standard 1000Base-TX SFP copper transceiver supports 1.25 Gbps bi-directional data links, is certified for optimal performance with NoviFlow switching products, and is fully compliant with MSA (Multi-Source Agreement) standards. All NoviConnect products from NoviFlow are 100% functionally tested to ensure trouble-free installation and operation when used with NoviFlow's NoviSwitch network products.



NoviConnect Transceivers are factory programmed with specific configuration data required for seamless networking compliance and for optimal network performance when used with NoviFlow switching products. These transceivers can be mixed and connected to devices with MSA industry standard compliant transceivers, for outstanding network performance.

**NoviFlow Inc.™** aims to change the traditional approach to networking by making switching smarter. The company was founded to deliver upon the promise of SDN. Our SDN data plane products combine the benefits of virtualization and programmability with network processors that can handle complex flows, making it possible for data center and network operators to keep up with today's exponentially growing networking demand. In order to ensure the highest levels of network performance, seamless compatibility and trouble-free upgrades with our NoviSwitch and products, NoviFlow offers a complete line of high-performance and cost-effective SFP transceiver modules.

## PRODUCT DESCRIPTION

The NoviConnect 516 1G SFP CU Transceiver (1.25 Gbps over copper cable) is a high performance, cost effective module compliant with the Gigabit Ethernet and 1000-BASE-T standards, which supports 1000Mbps data-rate up to 100 meters reach over unshielded twisted-pair CAT 5 cable. The module supports 1000Mbps (or 10/100/1000Mbps) full duplex data-links with 5-level Pulse Amplitude Modulation (PAM) signals.

All four pairs in the cable are used with symbol rate at 250Mbps on each pair. The module provides standard serial ID information compliant with SFP MSA, which can be accessed with address of A0h via the 2-wire serial CMOS EEPROM protocol. The physical IC can also be accessed via 2-wire serial bus at address ACh.

## KEY FEATURES:

- Up to 1.25Gb/s bi-directional data links
- Hot-pluggable SFP footprint
- Extended case temperature range (0°C to +85°C)
- Fully metallic enclosure for low EMI
- Low power dissipation (1.05 W typical)
- Compact RJ-45 connector assembly
- Access to physical layer IC via 2-wire serial bus
- 1000Base-TX operation in host systems with SERDES interface
- 10/100/1000Mbps compliant in host systems with SGMII interface

## GENERAL SPECIFICATIONS

PARAMETER	SYMB.	MIN.	TYP.	MAX.	UNIT	NOTES
Data Rate	BR	10		1000	Mb/sec	1,4-6
Distance Supported	L			100	m	2

## ENVIRONMENTAL SPECIFICATIONS

PARAMETER	SYMB.	MIN.	TYP.	MAX.	UNIT	NOTES
Operating Temp.	Top	0		85	°C	
Storage Temp.	Tsto	-40		85	°C	

### Notes:

1. IEEE 802.3 compatible
2. Category 5 UTP. BER <10<sup>-12</sup>
3. Clock tolerance is +/- 50 ppm
4. By default, the GE-GB-P is a full duplex device in preferred master mode
5. Automatic crossover detection is enabled. External crossover cable is not required
6. 1000Base-T operation requires the host system to have an SGMII interface with no clocks, and the module PHY to be configured per Application Note AN-2036. With a SERDES that does not support SGMII, the module will operate at 1000Base-T only.

**+3.3 VOLT ELECTRICAL POWER INTERFACE**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Current	Is		320	375	mA	1
Input Voltage	Vcc	3.13	3.3	3.47	V	2
Maximum Voltage	Vmax			4	V	
Surge Current	Isurge			30	mA	3

**Notes:**

1. 1.2W max power over full range of voltage and temperature. Power consumption and surge current are higher than the specified values in SFP MSA.
2. Referenced to GND
3. Hot plug above steady state current. Power consumption and surge current are higher than the specified values in SFP MSA.

**LOW-SPEED SIGNALS**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
SFP Output LOW	VOL	0		0.5	V	1
SFP Output High	VOH	Host_Vcc-0.5		Host_Vcc+0.3	V	1
SFP Input LOW	VIL	0		0.8	V	2
SFP Input HIGH	VIH	2		Vcc+0.3	V	2

**Notes:**

1. 4.7k to 10k pull-up to Host\_Vcc, measured at host side of connector
2. 4.7k to 10k pull-up to Vcc, measured at SFP side of connector

**HIGH-SPEED SIGNALS**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
<b>Transmission Line-SFP</b>						
Line Frequency	fL		125		MHz	1
TX Output Impedance	Zout, TX		100		Ohm	2
Rx Input Impedance	Zin, RX		100		Ohm	2
<b>Host-SFP</b>						
Single ended data input swing	Vinsing	250		1200	mV	3
Single ended data output swing	Voutsing	350		800	mV	3
Rise/Fall Time	Tr,Tf		175		Psec	4
Tx Input Impedance	Zin		50		Ohm	3
Rx Output Impedance	Zout		50		Ohm	3

**Notes:**

1. 5-level encoding, per IEEE 802.3
2. Differential, for all Frequencies between 1MHz and 125MHz
3. Single ended
4. 20%-80%

**ORDERING INFORMATION**

MODEL NUMBER 400000516

## FOR MORE INFORMATION


[www.noviflow.com](http://www.noviflow.com)

[contact@noviflow.com](mailto:contact@noviflow.com)