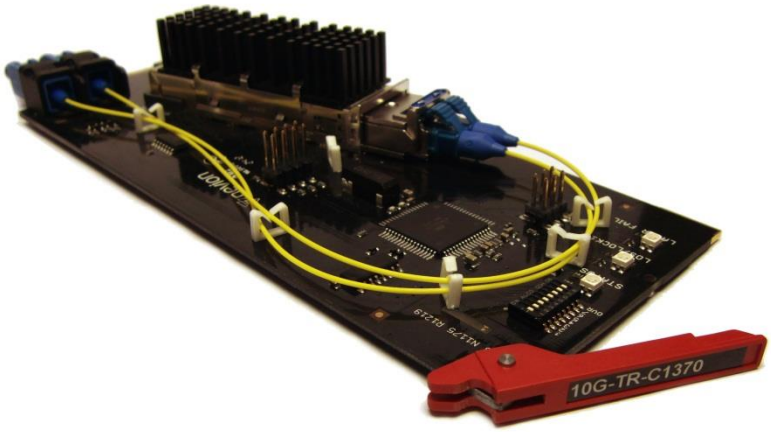
10G-TR-C1xxx

Optical to optical 10Gbps CWDM transponder

User manual

Rev. B



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Revision history

Current revision of this document is the uppermost in the table below.

Rev.	Repl.	Date	Sign	Change description
B	A	2015-05-11	MB	Cover page update; DoC removed; no other changes to content
A	-	2013-01-31	BA	Initial revision

Contents

Revision history 2

1 Product overview 4

2 Specifications 5
2.1 General 5
2.1 SUPPORTED STANDARDS 5
2.2 OPTICAL INPUT 5
2.3 OPTICAL OUTPUT 5

3 Configuration 6

4 Connections 7
4.1 Mounting the connector module 7

5 Module status 8
5.1 Front panel – Status monitoring 8
5.2 Multicon Gyda 9

General environmental requirements for Nevion equipment 10

Product Warranty 11

Appendix A Materials declaration and recycling information 12
A.1 Materials declaration 12
A.2 Recycling information 12

1 Product overview

The 10G-TR-C1XXX receives, re-clocks and retransmit a 10G optical signal. The product uses XFPs for optical interfaces and thru those the 10G-TR supports all 18 channels of CWDM wavelengths ranging from 1270 to 1610, enabling wavelength conversion. XFPs are also available in different distance grades, 10km, 40km and 70km. The distance relates to obtainable maximum distance given the correct type of fiber. The module is monitored and controlled over RS422 by Multicon Gyda, enabling SNMP support. The module can also be controlled thru DIP switches on the card, and 4 LEDs will indicate the status of the module.

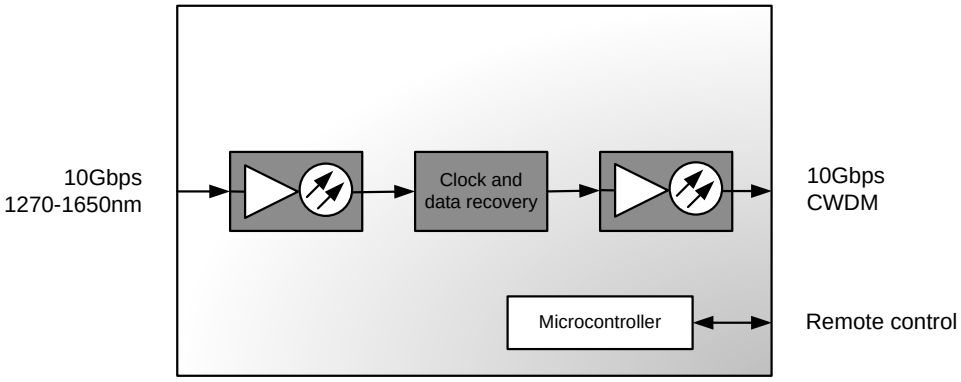

Figure 1: Block diagram of the 10G-TR-C1xxx

The figure below shows a typical setup for adding 10G switches to an optical Flashlink network. Switches already having CWDM wavelengths can be added to a Flashlink network, without the use of the 10G-TR, but the 10G-TR also brings the optical link into the management system of the Flashlink network.

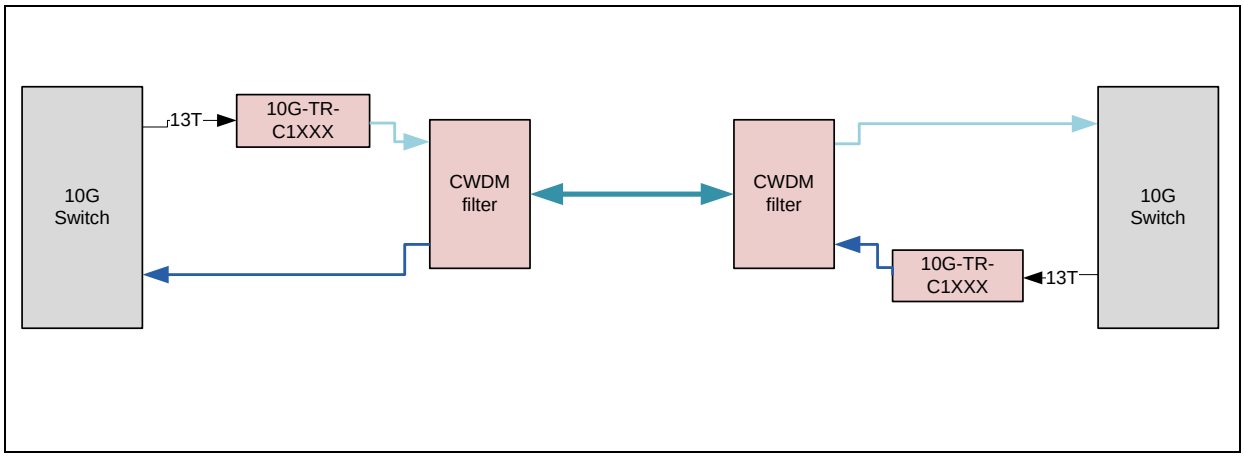

Figure 2: This figure shows a typical setup for wavelength conversion

2 Specifications

2.1 General

Power	+5V DC / 3W, max
Control	DIP configuration and SNMP monitoring
Temperature range	0 to +40 °C
Optical transport distance	(Long haul/Short haul) 70km / 40km / 10km

2.1 SUPPORTED STANDARDS

10GBASE-ER/EW 10G Ethernet,

1200-SM-LL-L 10G Fiber Channel

SONET OC-192 IR-2

SDH STM S-64.2b

SONET OC-192 IR-3

SDH STM S-64.3b

ITU-T G.709

2.2 OPTICAL INPUT

Number of inputs	1
Connectors	LC/UPC

Rx Sensitivity

• 10km short haul	-15dBm
• 40km long haul	-16dBm
• 70km ultra-long haul	-23dBm

Overload

• 10km short haul	0dBm
• 40km long haul	-1dBm
• 70km ultra-long haul	-10dBm

2.3 OPTICAL OUTPUT

Number of outputs	1
Connector	LC/UPC

Tx optical power

• 10km short haul	-5 to +0dBm
• 40km long haul	-2 to +4dBm
• 70km ultra long haul	0 to +4dBm

Optical wavelengths	1270-1610nm (18 channels)

3 Configuration

The correct configuration can either be set with a DIP switch or with the GYDA Control System. The layout of 10G-TR-C1XXX is shown in the drawing below with the DIP switch to the upper left position.

Switch #	Label	Function, DIP = ON	Function, DIP = OFF	Comment
1	1	Laser enable	Laser disable	
2	2			n/a
3	3			n/a
4	4			n/a
5	5			n/a
6	6			n/a
7	7			n/a
8	OVR	Override GYDA control. Configuration with DIP switch	GYDA control. Configuration with GYDA	Select configuration from GYDA

All DIP switches are off when pointing towards the release handle.

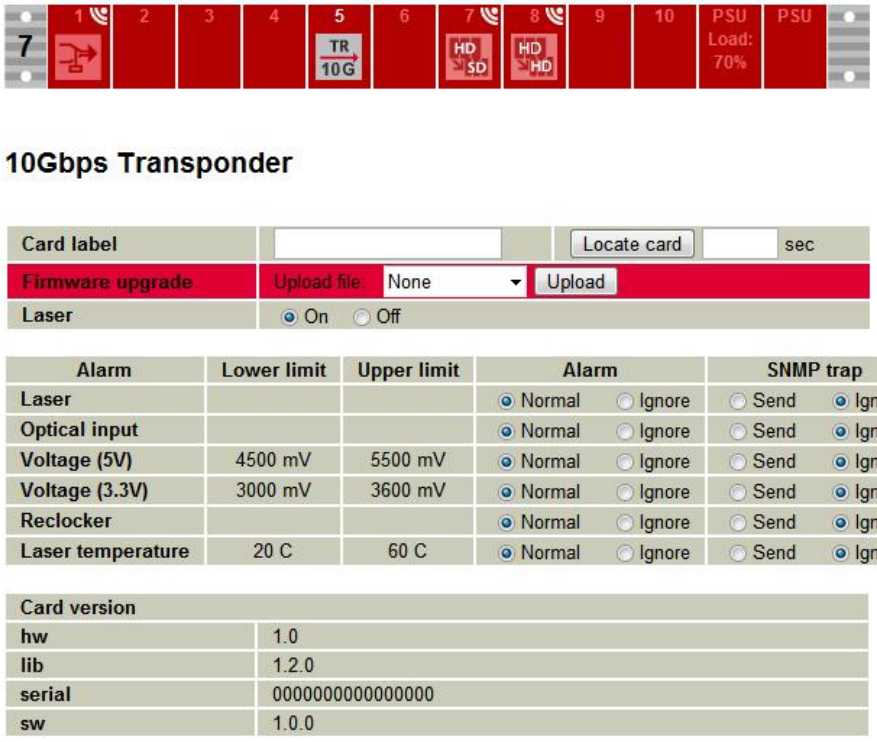

Figure 3: Multicon GYDA System Controller settings (optional)

4 Connections

Figure 4: Connector module for 10G-TR

Terminal	Function
OPT2	Optical output
OPT1	Optical input

4.1 Mounting the connector module

The details of how the connector module is mounted, is found in the user manual for the sub-rack frame FR-2RU-10-2.

This manual is also available from our web site:

http://www.nevion.com/.

5 Module status

The status of the module can be monitored in two ways.

1. Multicon GYDA System Controller (optional).
2. LED's at the front of the sub-rack.

The LED's are mounted on the module itself, whereas the GYDA System Controller is a separate module giving detailed information on the card status.

5.1 Front panel – Status monitoring

The status of the module can be easily monitored visually by the LED's at the front of the module. The LEDs are visible through the front panel as shown in the figure below.

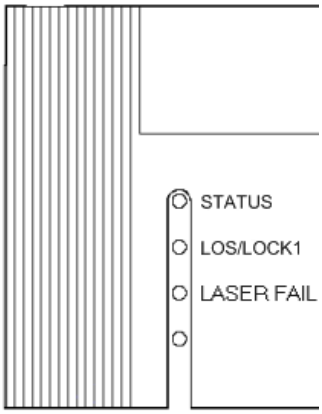

Figure 5: The 10G-TR has 3 LED's each showing a status.

Diode \ State	Red LED	Yellow LED	Green LED	No light
Status	Module is faulty, or module is initializing.	N/A	Module is OK Module power is OK	Module has no power
LOS/LOCK1	No input signal on input	Channel is not in lock or unsupported format.	Channel is in lock and supported format.	N/A
LASER FAIL	Laser is faulty or turned off by DIP or control system	N/A	Laser is turned on	N/A

Table 1: LED states and what they mean

5.2 Multicon Gyda

With the optional Multicon GYDA System Controller the module can by monitored for multiple alarms such as signal lock/loss etc.

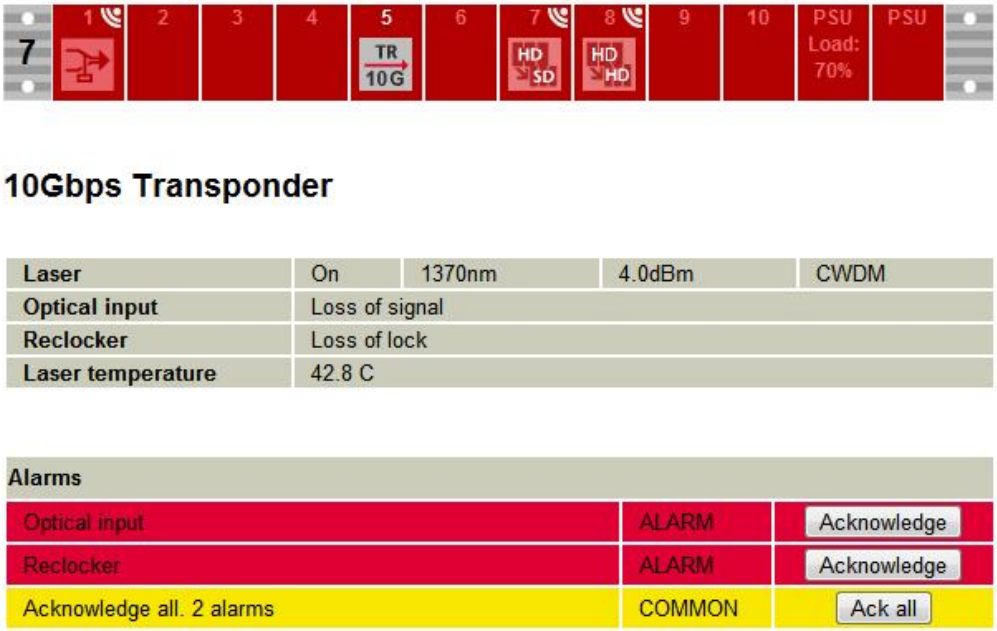

Figure 6: info page example of 10G-TR-C1XXX.

General environmental requirements for Nevion equipment

1. The equipment will meet the guaranteed performance specification under the following environmental conditions:
   - Operating room temperature range: 0°C to 40°C
   - Operating relative humidity range: <90% (non-condensing)

2. The equipment will operate without damage under the following environmental conditions:
   - Temperature range: -10°C to 55°C
   - Relative humidity range: <95% (non-condensing)

Product Warranty

The warranty terms and conditions for the product(s) covered by this manual follow the General Sales Conditions by Nevion, which are available on the company web site:

www.nevion.com

Appendix A Materials declaration and recycling information

A.1 Materials declaration

For product sold into China after 1st March 2007, we comply with the “Administrative Measure on the Control of Pollution by Electronic Information Products”. In the first stage of this legislation, content of six hazardous materials has to be declared. The table below shows the required information.

組成名稱 Part Name	Toxic or hazardous substances and elements					
	鉛 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Hexavalent Chromium (Cr(VI))	多溴联苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
10G-TR-C1XXX	O	O	O	O	O	O
O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006. X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.						

This is indicated by the product marking:

A.2 Recycling information

Nevion provides assistance to customers and recyclers through our web site http://www.nevion.com/. Please contact Nevion’s Customer Support for assistance with recycling if this site does not show the information you require.

Where it is not possible to return the product to Nevion or its agents for recycling, the following general information may be of assistance:

- Before attempting disassembly, ensure the product is completely disconnected from power and signal connections.
- All major parts are marked or labeled to show their material content.
- Depending on the date of manufacture, this product may contain lead in solder.
- Some circuit boards may contain battery-backed memory devices.