

# **OTX 1310-10 Optical Transmitter**

## **Operation Instructions**





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Competence in Communication Technologies

- The core part of OTX 1310-10 is a ESD laser.
- Please obey the operation rule strictly and carefully when disassemble and assemble. The wrist belt and the union suit should be also grounded.
- All electric power and optical transmitter should be given a good grounding connection.
- The electric power of the optical transmitter should be 90...265VAC and a regulated AC power is suggested.
- The RF signal must not be connected until the optical transmitter arrives at it's normal working point. The amplitude of the RF signal should follow the instructions in the test report of the optical transmitter. An abnormal RF signal power will overload and damage the laser.
- The optical transmitter should be stored in a ESD protection environment (such as a ESD protection container) and cannot be stored with corrosive cargo. The store temperature should be within -20°C ~ +50°C.
- Forced cooling should be added when multiple optical transmitters are mounted on the same rack.
- Please don't open or repair any part of the transmitter, otherwise the producer don't pay the fiddler.
- Eyes may be hurt if you watch the optical output directly.
- The heat elimination hole should not be blocked. The transmitter need good airing to work properly.
- The optical output should be covered with our dust-proof if the transmitter don't work for a long period.
- When failure occurs, the transmitter should be sent to the producer in time. And please don't open or repair any part of the transmitter, otherwise the producer don't pay the fiddler



Direct eye exposure to laser beam may cause physical damage

## 1. Description

The OTX 1310-10 is a high performance optical transmitter, based on ORTEL and AOI transmission technology. The optical transmitter has following functions:

- AGC/MGC mode
- Low noise DFB laser
- Adjustable OMI
- SNMP (Simple Network Management Protocol) for administration and monitoring
- ٠

Furthermore, it has two redundant plug-in power supply modules.

OTX 1310-10 is used for long-distance optical fiber transmission of television TV signals. It uses a highperformance DFB laser and RF power automatic processing technology, which assures excellent performance. It can be used for large-scale HFC networks.

#### 1.1. Block Diagram



## 2. Front and rear panel

#### 2.1. Operating elements on the front panel



- 1. LCD Display
- Output power P(mW)
- Laser BIAS (mA)
- Laser Temperature T (°C)
- COOL CURRENT (mA)
- Power supply +24.4V, +5.4V, -5.4V's Voltage detecting
- IP address
- Gateway
- 0MI
- Inner temperature
- 2. LEDs (green means that it works fine, red means failed):
- RF is for input level status
- LASER is for laser working status
- PWR1 is for power supply one working status
- PWR2 is for power supply two workingstatus
- 3. Back button, UP and DOWN Button, Enter button
- 4. RF TEST: Output with -20dBuV output level

#### 2.2. Connectors on the rear panel



- 1. RF Input Port
- 2. Grounding
- 3. RJ45 Web Management Interface
- 4. RS-232
- 5. Output Optical Connector
- 6. Fans
- 7. Power Supply Two
- 8. Power Supply One

## 3. Installation

- → Check and make sure that the equipment, enclosure and electric power have a good grounding connection.
- $\rightarrow$  Check and make sure that the electric power is within 90...265VAC.
- $\rightarrow$  Connect the optical fibre with the optical output. Make sure the connection is cleanded before use.
- → Connect the electric power and turn on the power switch. The power supply LEDs are displaying the working status.
- → Touch the display choice button, check the index such as the output laser power, the laser's offset current, temperature, cooling current, etc.
- → If the status is normal and the RF input level matches the requirements, connect the RF signal to the RF input.

#### 3.1. Menu Interface







## 4. WEB Management

→ Enter 192.168.1.1 into your web browser to get the following web interface. The default password is *admin* 



| Password: | Enter |
|-----------|-------|
|           |       |

After the login, 5 items are displayed on the web interface:

- "Parameters"
- "Settings"
- "Information"
- "Network configuration"
- "Change password"

#### 4.1. Parameters

Here all parameters you get from the optical transmitter with their different working status are shown.



| arameters Settings Information Network configuration | Change password |
|------------------------------------------------------|-----------------|
| Parameter                                            | Value           |
| Laser Wavelength, nm                                 | 1310nm          |
| System Temperature, °C                               | 32.1            |
| RF Gain Mode                                         | AGC             |
| RF Attenuation, dB                                   | 0.0             |
| OMI Level                                            | Low             |
| OMI Adjustment (-5.0 5.0 dB), dB                     | 0.0             |
| Laser Power, mW                                      | 10.6            |
| Laser Temperature, °C                                | 25.3            |
| Laser Cooling Current, mA                            | 124             |
| Laser Bias Current, mA                               | 57.2            |
| Voltage +24V                                         | 24.5            |
| Voltage +5V                                          | 5.3             |
| Voltage -5V                                          | -5.3            |
| Voltage +24V                                         | 0.0             |
| Voltage +5V                                          | 0.0             |
| Voltage -5V                                          | 0.0             |
| UpTime, sec                                          | 362             |



#### 4.2. Settings

The parameters, which are displayed here can be changed:

- →AGC and MGC mode can be selected.
- $\rightarrow$  RF Attenuation from 0~12dB can be set , when MGC mode is activated
- →OMI can be set from -5~5dB



#### 4.3. Information

Here general information about the model, serial number, firmware version, SNMP private OID, admin contact, system name and location are displayed.

|       | <b>N</b> X              | Competence in<br>Communication<br>Technologies |      |
|-------|-------------------------|------------------------------------------------|------|
| ОТХ   | K 1310-10 We            | b Management User: Admin                       | Exil |
| Param | ieters Settings Informa | ation Network configuration Change passw       | /ord |
|       | Parameter               | Value                                          |      |
|       | Model                   | OTX 1310-10                                    |      |
|       | Serial number           | 104K-101-55320000                              |      |
|       | Firmware version        | 10.02                                          |      |
|       | SNMP Private OID        | .1.3.6.1.4.1.39091.3.3                         |      |
|       | Admin Contact           | technik@axing.com                              |      |
|       | System Name             | OTX 1310-10                                    |      |
|       | Location                | location                                       |      |

#### 4.4. Network configuration

Here the following parameters according to customer network can be set.

| DTX 1     | 310-10        | Web N       | Managen        | nent      | User: Admin     |
|-----------|---------------|-------------|----------------|-----------|-----------------|
| arameters | Settings      | Information | Network config | uration   | Change password |
| Para      | meter         |             |                | Valu      | e               |
| DHO       | CP On/Off     |             |                | Off       | 0               |
| IP-a      | ddress        |             | [              | 192.168.  | 1.1             |
| Mas       | k             |             | [              | 255.255.2 | 255.0           |
| Gat       | eway          |             | [              | 0.0.0.0   |                 |
| SNA       | IP Server IP- | address     | [              | 0.0.0.0   |                 |
| SNA       | IP Read Con   | nmunity     | .[             | public    |                 |
| SNN       | IP Read/Writ  | e Community | [              | admin     |                 |
|           | addroop       |             | 0.0            | D7-00-0   | E-20-00         |

#### 4.5. Change password

Here the password can be changed. The default password is *admin*.

Change

| Competence in<br>Communication<br>Technologies                                                                           |  |
|--------------------------------------------------------------------------------------------------------------------------|--|
| OTX 1310-10 Web Management User: Admin East                                                                              |  |
| Parameters Settings Information Network configuration Change password Change password Admin password Select user Admin v |  |
| New password                                                                                                             |  |



## 5. Troubleshooting

General Recovery Processing

| Failure Phenomenon                                                                                                                                                     | Reason                                                                                                                                                         | Settle Method                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| LED does not work                                                                                                                                                      | no electric power or fuse<br>burn out                                                                                                                          | Power ON or Fuse replace                                                               |
| LED is black                                                                                                                                                           | Temperature maybe too<br>high                                                                                                                                  | Force Cooling                                                                          |
| LED displays the status is normal,<br>but there is no laser output or the<br>output does not match the display                                                         | The measurement of the<br>output laser power is not<br>correct.<br>Ring flange or test jumper<br>connection is dirty.<br>Test jumper connection<br>mismatches. | Change the output laser power sensor<br>Clean the connection<br>Change the test jumper |
| Both, the laser power of the<br>optical transmitter and receiver<br>are normal, but there is no RF<br>output signal at the receiver or the<br>output level is too low. | No input RF signal or RF connection is not good.                                                                                                               | Check the RF level and reconnect the RF input.                                         |

If you checked everything mentioned above and the failure phenomenon still exists, the transmitter should be shut down immediately. Please contact the producer directly.

## 6. Specification

#### 6.1. Optical characteristics

| Parameter          | Unit | Value     |
|--------------------|------|-----------|
| Working Wavelength | nm   | 1290~1330 |
| Output Power       | mW   | 10        |
| Optical Fiber Type |      | SM        |
| Optical Connector  |      | SC/APC    |

#### 6.2. RF characteristics

| Parameter            | Unit | Value  |
|----------------------|------|--------|
| Frequency Range      | MHz  | 471002 |
| RF Input Return Loss | dBm  | ≥16    |
| RF Input Level       | dBµV | 75~85  |
| Flatness             | dB   | ±0.75  |
| CNR1                 | dB   | >50    |
| CS01                 | dBC  | ≤-60   |
| CTB1                 | dBC  | ≤-65   |

Testing condition: OIM=3.5%, optical input power @-1dBm, 98chs signal output, above 550MHz at -10dB offset.

#### 6.3. Other characteristics

| Parameter             | Unit | Value        |
|-----------------------|------|--------------|
| Operating Voltage     | V    | 90∼260, 50Hz |
| Power Consumption     | W    | ≤30          |
| Operating Temperature | °C   | 0~50         |
| Dimension (L*W*H)     | mm   | 484*370*44   |
| Weight                | Kg   | <3.5         |



### 6.4. Outlines Drawing



Dimensions are in mm.

Hersteller | Manufacturer AXING AG Gewerbehaus Moskau 8262 Ramsen EWR-Kontaktadresse | EWR contact adress Bechler GmbH Am Rebberg 44 78239 Rielasingen