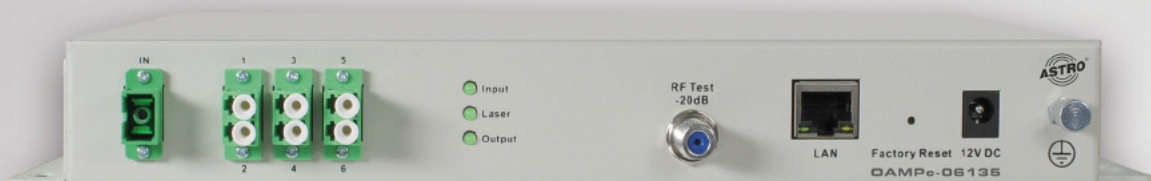


GOING FUTURE TODAY.



OAMPc

Optical Amplifier



Operating Manual

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Before starting operation of the device


HINWEIS: Read this operating manual attentively! It contains important information about installation, ambient conditions and maintenance of the device. Keep this operating manual for future use and for handover in the event of a change of owner. A PDF version of this manual is available to download on the ASTRO website (there may be a more recent version). The ASTRO company confirms that the information in this manual was correct at the time of printing, but it reserves the right to make changes, without prior notice, to the specifications, the operation of the device and the operating manual.


Symbols and conventions used


Symbols used in these instructions


Pictograms are visual symbols with specific meanings. You will encounter the following pictograms in this installation and operating manual:


- 

Warning about situations in which electrical voltage and non-observance of the instructions in this manual pose a risk of fatal injuries.
- 

Warning about various dangers to health, the environment and material.
- 

Warning about thermal dangers (risk of burns).
- 

Warning about high laser radiation emitted from a device, connector or adapter (risk of eye damage).
- 

Recycling symbol: indicates components or packaging materials which can be recycled (cardboard, inserts, plastic film and bags). Used batteries must be disposed of at approved recycling points. Batteries must be completely discharged before being disposed of.
- 

This symbol indicates components which must not be disposed of with household rubbish.

Proper use

The OAMPc module can only be used as an amplifier for analogue modulated TV and Data services signals in optical fibre networks. Modification of the devices or use for any other purpose is not permitted, and will immediately void any guarantee provided by the manufacturer.

Target group of this manual

Installation and starting operation

The target group for installation and starting operation of the ASTRO optical transmission technology are qualified experts who have training enabling them to perform the work required in accordance with EN 60728-11 and EN 60065. Unqualified person are not allowed to install and start operation of the device.

Device configuration

Target group for the configuration of the ASTRO transmitters are persons who have received instructions and have training enabling them to perform a configuration. Knowledge of EN 60728-11 and EN 60065 is not necessary for configuration.

Device description

The delivery consists of the following parts:

- ☐ OAMPc amplifier
- ☐ Power supply
- ☐ Operating manual

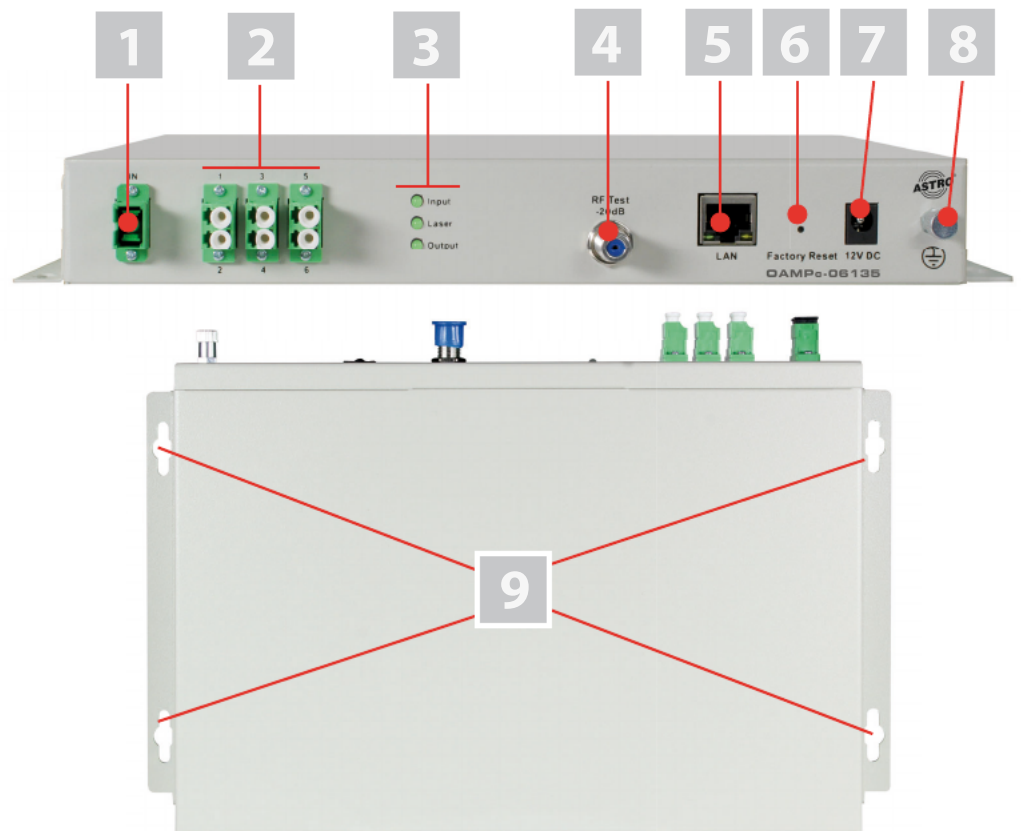


Figure 1: OAMPc front and upper side

Prior to connecting/disconnecting any of the output ports, make sure that the laser is switched off by disconnection of the input fibre cable to avoid burn in of the optical surfaces of the connection.



**LED indicators**

- ☐ Input :
green: when optical input > -10dBm detected
off: no optical input detected
- ☐ Laser :
off: laser switched off (via keylock or via setting)
green: laser pumps working state is normal
flashing red: laser pump serious problem, see alarm information panel for more details
red: laser pump not working, see alarm information panel for more details
- ☐ Output :
off: output power is below +10dBm
green: output power is > +10dBm

The OAMPc module features a CE marking. This confirms that the product conforms to the relevant EC directives and adheres to the requirements specified therein.

Important safety information

To avoid any hazardous situations to the extent possible, you must adhere to the following safety information:

ACHTUNG: *Failure to observe this safety information may result in personal injury due to electrical and thermal dangers!*

Proper use

- ☐ Only use the device at the approved operating sites and in the ambient conditions allowed (as described in the following), and only for the purpose described in the section "Proper use".

Before starting operation of the device

HINWEIS: *Read this operating manual attentively! It contains important information about installation, ambient conditions and maintenance of the device. Keep this operating manual for future use and for handover in the event of a change of owner or operator. A PDF version of this manual is available to download on the ASTRO website (there may be a more recent version).*

- ☐ Check the packaging and the device for transport damage immediately. Do not start operation of a device that has been damaged.
- ☐ Transporting the device by the power cable may damage the mains cable or the strain relief, and is therefore not permitted.

Danger of optical radiation

This product is laser class 1M (according IEC 60825-1 Safety of Laser Products) and therefore several safety precautions must be applied.

- ☐ Exposure to class 1M laser radiation is possible on open connectors or connected fibre patch cords. Do not view exposed fibre or connector ends when handling or maintaining optical equipment. Do not view with optical instruments into open connectors or fibre ends on switched on devices. Make sure all wherever a fibre inspection is required, that the inspected fibre or connector is completely optical radiation free.
- ☐ Due to the high optical radiation and improper handling of optical fibre connections and devices, there could be risks for the operating and service personnel. Access should be restricted to trained personnel only.
- ☐ Never look directly or with optical inspection tools into the end of a fibre which is connected to a transmitter or optical amplifier and which is in operation. If the eyes are exposed to optical radiation, which are above the acceptable maximum, this could cause permanent damage to the eye.

Installation, operation, maintenance

- ☐ The device may only be installed and operated by qualified persons (in accordance with EN 60065) or by persons who have been instructed by qualified persons. Maintenance work may only be carried out by qualified service personnel.
- ☐ The installation site must be planned in a way that prevents children from playing with the device and its connections.
- ☐ Dangerous voltages and the threat of optical laser radiation are present within the powered on unit at all times.
- ☐ Always replace protective caps on optical connectors and patch cords when not in use to avoid dust intake. Before connecting clean connectors with lint free cloth and pure alcohol or with any professional tools for cleaning connectors and adapters. The typical connectors fitted are SC/APC 8° or LC/APC 8° (green couplers).
- ☐ The electrical connection conditions must correspond to the specifications on the device type plate.
- ☐ The ambient temperatures specified in the technical data must be complied with, even when climatic conditions change (e.g. due to sunlight). If the device overheats, the insulation used to isolate the mains voltage may be damaged.
- ☐ The device and its cable may only be operated away from radiant heat and other sources of heat.
- ☐ To avoid trapped heat, ensure there is good ventilation on all sides. Installing the device in recesses or covering the installation location, e.g. with curtains, is not permitted. Ventilation openings may not be covered.
- ☐ If the device is installed in a cabinet, ensure adequate air convection is possible to avoid exceeding the maximum ambient temperature permitted for the device.





- ☐ No objects may be placed on the device.
- ☐ The subscriber network must be earthed in accordance with EN 60728-11, and must remain earthed even when the device is removed. Furthermore, the earth connection on the device can be used. Devices within hand's reach must be integrated into the potential equalisation together. Operating the device without an earth conductor, without earthing the device or without using device potential equalisation is not permitted.
- ☐ The device does not feature protection against water and may therefore only be operated and connected in dry rooms. It must not be exposed to spraying or dripping water, to condensation, or to similar sources of moisture.
- ☐ The electrical system supplying current to the device, e.g. a house installation, must incorporate safety devices against excessive current, earth leakages and short-circuiting in accordance with EN 60950-1.
- ☐ To operate the device (protection class I), it must be connected to mains power sockets with a protective earth conductor.
- ☐ All adhere to all applicable national safety regulations and standards.
- ☐ The mains plug is used as a mains voltage disconnect unit in the event of servicing and danger, and must therefore be accessible and be able to be operated at any time. The device is operational when connected to the mains power.
- ☐ Excess mechanical loads (e.g. falling, impacts, vibrations) may damage insulation used to provide protection from mains voltage.
- ☐ High excess currents (lightning strike, surges in the power utility grid) may damage insulation used to provide protection from mains voltage.
- ☐ Do not insert any objects through the ventilation slots.
- ☐ If there is no information about intended use (e.g. operating site, ambient conditions), or the operating manual does not include the corresponding information, then you must consult the manufacturer of this device to ensure that the device may be installed. If you do not receive any information on this from the manufacturer, do not start operating the device.

Maintenance

- ☐ The operating display only shows whether the DC current, which supplies the device components, has been disconnected. However, operating displays (on the power supply unit or the device) that are not lit up in no way indicate that the device is completely disconnected from the mains.
- ☐ Read carefully: EN 60728 - Part 1 Safety requirements: No service work during thunderstorms.

Repair

- ☐ Repairs may only be performed by the manufacturer. Improperly performed repairs may result in considerable dangers for the user.
- ☐ If malfunctions occur, the device must be disconnected from the mains and authorised experts must be consulted. The device may need to be sent to the manufacturer.

Description of performance

The optical amplifier OAMPc is an Erbium Doped fibre amplifier for CATV Signals. The amplifier provides one input port and 6 output ports. **By using additional mounting angles (not within the scope of delivery) the device can also be installed in 19 inch cabinets. Please contact the ASTRO customer service when you need these angles.**

Optical amplifiers are used to boost the optical signal for Broadcasting applications. The application is normally the usage within optical links for long distance, or smaller sized FTTH Networks where RF Overlay signals for CATV must to be provided.

Features

- ☐ Mini EDFA 1550 nm for indoor use
- ☐ output power 6 x 13,5 dBm
- ☐ flexible power supply: Connect directly to 48 VDC (battery power), using a 2 wire cable with a fork 2.5mm/5.5 mm standard connector
- ☐ temperature range -5 °C - +55 °C / high reliability
- ☐ low noise figure
- ☐ SNMP / web Interface

Applications

- ☐ HFC & FTTH Networks forward path transmission
- ☐ optical link amplification of PAL, NTSC and QAM signals for HFC & FTTH Networks

Warranty conditions

The general terms and conditions of ASTRO Bit GmbH apply. You will find these in the current catalogue or on the Internet under "www.astro-kom.de".

Disposal

All of our packaging material (cardboard boxes, inserts, plastic film and bags) is completely recyclable. Electronic devices must not be disposed of with household waste, but rather – according to DIRECTIVE 2012/19/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL from 4 July 2012, on waste electrical and electronic equipment – must be properly disposed of. When it is no longer of use, please bring the device for disposal to one of the public collection points for this purpose.

ASTRO Bit is a member of the Elektro system solution for the disposal of packaging materials. Our contract number is 80395.



Installing the device

To install or commission the device, please follow the steps in the sequence as mentioned below.

Mounting the device/ grounding to protective earth

Mount the device on a wall by screwing it through the holes [9] (see figure 1b below) in the the preinstalled angles or if necessary in a 19 inch cabinet. **To do so you will need additional mounting angles which are not in the scope of delivery. Please contact the ASTRO customer service.**

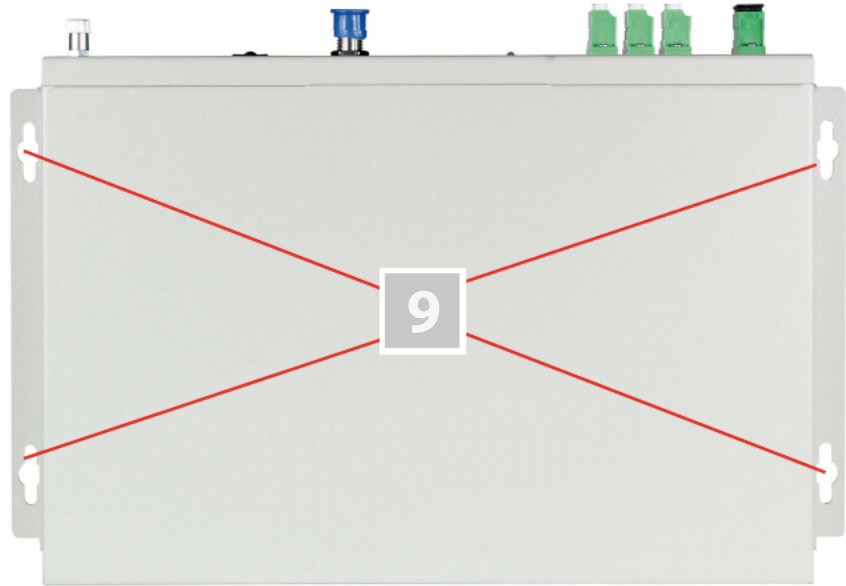


Figure 1b: mounting the OAMPc

When the device must be installed in a 19 inch cabinet, mount the angles as shown in figure 1c below. The mounting angels feature standard drills for mounting in a 19 inch cabinet..



Figure 1c: mounting the OAMPc in a 19 inch cabinet

After physical installation, connect the protective earth cable (PE) to the grounding point of the device with an appropriate eyelet connection. The grounding point is marked with the grounding symbol.

Attach power cord

The PSU jack can be found on the front side of the device, just beside the earthing terminal on the right side of the panel. Please use the cable provided with the device. .

In case of device problem

In case of any problems please contact ASTRO Bit GmbH or resend the device with the established valid RMA Procedure (RMA code/ Error description).



Configuring the device via webinterface

Login

To login in the web interface, check first the IP address of the device.

Connect your computer to the same IP subnet as the amplifier. With a ping test make sure that physical connection via the IP Network is obtained.

With any web browser you can type in the address line of the browser the IP address of the transmitter. The address reads as follows: 192.168.178.100

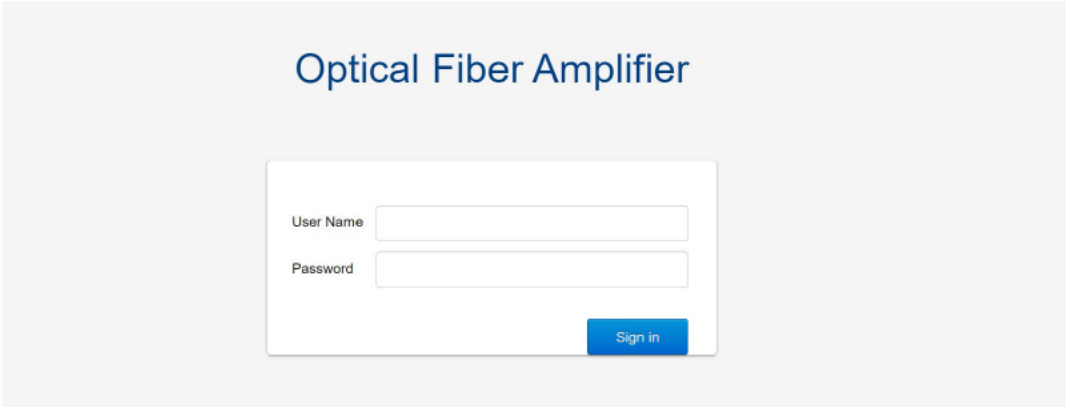


Figure 2: Login

Log in with the following data:

User Name: admin
Password: 123456

Menu „Status“

After logging in you will see the „Status“ page.

status	
Input power	-1.2 dBm
Ouput power	13.5 dBm
Pump bias	669 mA
Pump temperature	24.8 °C
Pump tec	-235 mA
Device temperature	29.1 °C
DC +5V	4.8 V
DC +12V	11.6 V

Figure 3: Menu „Status“

Here the following parameters are displayed:

- ☐ optical input power (in dBm)
- ☐ optical output power (in dBm)
- ☐ laser bias current (in mA)
- ☐ laser temperature (in °C)
- ☐ device temperature (in °C)
- ☐ Supply voltage (in V)

Menu „Settings“ Click on

Click on „Settings“ in the main menu on the left side to show a list of parameters to edit.

settings		
Set Output power	13.5 dB	<input type="text"/> dB (10.5~13.5)
<input type="button" value="Apply"/>		
settings		
LOW Input Threshold	-5.0 dBm	<input type="text"/> dBm (-5~10)
<input type="button" value="Apply"/>		
settings		
HIGH Input Threshold	10.0 dBm	<input type="text"/> dBm (-5~10)
<input type="button" value="Apply"/>		
set pump		
Set Pump Status	ON	<input type="button" value="OFF v"/>
<input type="button" value="Apply"/>		

Figure 4: Menu „Settings“

Here you can enter the following parameter values into the input fields:

- ☐ Output power: Type in the desired output power in dB. After changing the value you must click on the „Apply“ button to store the new value.
- ☐ Low Input Threshold: Type in the lower threshold value of the input power in dBm. After changing the value you must click on the „Apply“ button to store the new value.
- ☐ High Input Threshold: Type in the higher threshold value of the input power in dBm. After changing the value you must click on the „Apply“ button to store the new value.
- ☐ Set Pump Status: Here you can select to activate or deactivate the pump laser by choosing the appropriate option in the drop down list (ON or OFF). After changing the value you must click on the „Apply“ button to store the new value.

Menu „Network“

Click on „Network“ in the main menu on the left side to show the list of the editable network parameters.

IP settings	
MAC address	30:71:B2:43:E7:02
IP address	192.168.178.100
Subnet mask	255.255.255.0
Default gateway	192.168.178.1
Apply	

Web password	
New UserName	
New password	
Confirm new password	
Apply	

SNMP settings	
Read-only community	public
Read-write community	public
Apply	

SNMP trap address	
Trap address1	192.168.1.77
Trap address2	192.168.1.78
Apply	

NTP settings	
UTC Offset	UTC+1:00 UTC-12:00 ▼
NTP server IP address1	85.214.143.181
NTP server IP address2	141.82.25.201
Apply	

Figure 5: Menu „Network“

Here you can enter the following parameter values into the input fields:

- ☐ IP settings: Type in the desired MAC address, IP address, subnet mask and gateway. After changing the value you must click on the „Apply“ button to store the new value.
- ☐ Web password: Type in the user name and password. After changing the value you must click on the „Apply“ button to store the new value.
- ☐ SNMP settings: Type in the desired user groups for read only or read/write permission. After changing the value you must click on the „Apply“ button to store the new value.
- ☐ SNMP trap address: Type in the SNMP address. After changing the value you must click on the „Apply“ button to store the new value.
- ☐ NTP settings: Select the desired UTC time offset from the drop down list. Below you can type in the IP address of the NTP server. After changing the value you must click on the „Apply“ button to store the new value.

Menu „Update“

Click on „Update“ in the main menu on the left side if you want to make a firmware update.

Update firmware	
Step 1: upload new firmware file	
<input type="button" value="Datei auswählen"/>	<input type="button" value="Keine Dat...ausgewählt"/> <input type="button" value="Upload"/>
Upload status: awaiting upload	
Step 2: once upload is successful , restart to update firmware	

Figure 6: Menu „Update“

First select a firmware file by clicking on „Select file“ and choose it from your local hard drive. Then click on „Upload“.
Finally you must restart the device to finish the update.

Menu „Alarm“

Click on „Alarm“ in the main menu on the left side to show a list with alarms.

Active Alarm Table				
No.	Time	Status	Value	Description
1	2022-7-7,7:39:18	Major	-99.9 dBm	input optical power too Low
2	2022-7-7,7:39:18	Major	-99.9 dBm	output optical power too Low
3	2022-7-7,7:39:19	Major	10 mA	laser bias current too Low

Figure 7: Menu „Alarm“

In the alarm table the status, the improper value and a description of the parameter are displayed.

Menu „About“

Click on „About“ in the main menu on the left side to show system informations.

System information	
Device model	OAMPc-06135
Serial number	OAMPc0613500220729010001
Firmware version	V1.10
Contact Information	kontakt@astro-kom.de
Company	ASTRO Strobel Kommunikationssysteme GmbH

System identification	
Contact	SysContact
Name	SysName
Location	SysLocation

Figure 8: Menu „About“

Troubleshooting

If the device is not functioning correctly, please perform the following checks:

- ☐ Check whether the device is connected to the required mains voltage (230 V~, 50 Hz).
- ☐ Check whether the signal cable is connected correctly, and that there are no breaks or short circuits in the connectors.

If the problem cannot be resolved, please contact the ASTRO customer service.

Maintenance and repair

ACHTUNG: *The following safety information must be observed when performing maintenance and repair work. Failure to observe this safety information may result in personal injury due to electrical and thermal dangers!*

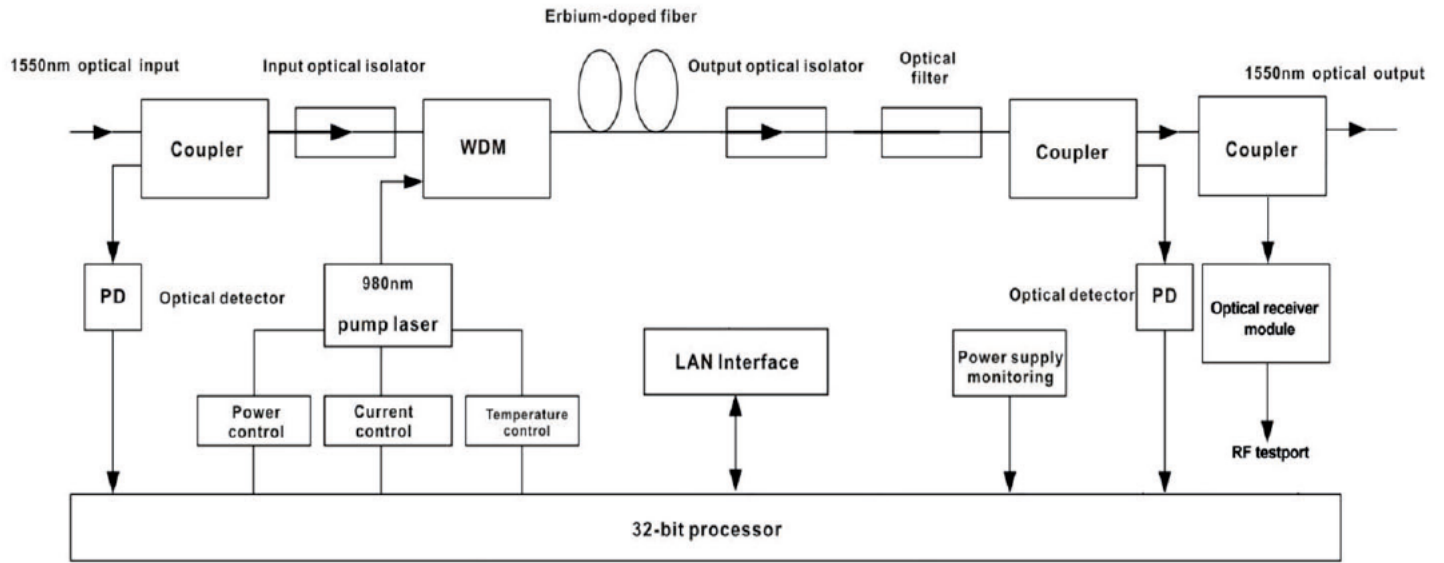
- ☐ The operating display only shows whether the DC current, which supplies the device components, has been disconnected from the mains voltage. If the operating display (for the power supply unit or the device) does not light up, this does not mean that the device has been fully disconnected from the mains voltage. There may still be voltages in the device that are dangerous to touch. You may therefore not open the device.
- ☐ The cover for the power supply unit is designed to prevent accidental contact with voltages that are dangerous to touch, and must not be removed.
- ☐ Read carefully: EN 60728 - Part 1 Safety requirements: No service work during thunderstorms.
- ☐ A defective device may only be repaired by the manufacturer to ensure that components with the original specification are used (e.g. power cable, fuse). Improperly performed repairs may result in considerable dangers for the user or installer. If malfunctions occur, the device must therefore be disconnected from the mains and authorised experts must be consulted. The device may need to be sent to the manufacturer.

Service tasks

HINWEIS: *The device must only be operated with the original power module!*



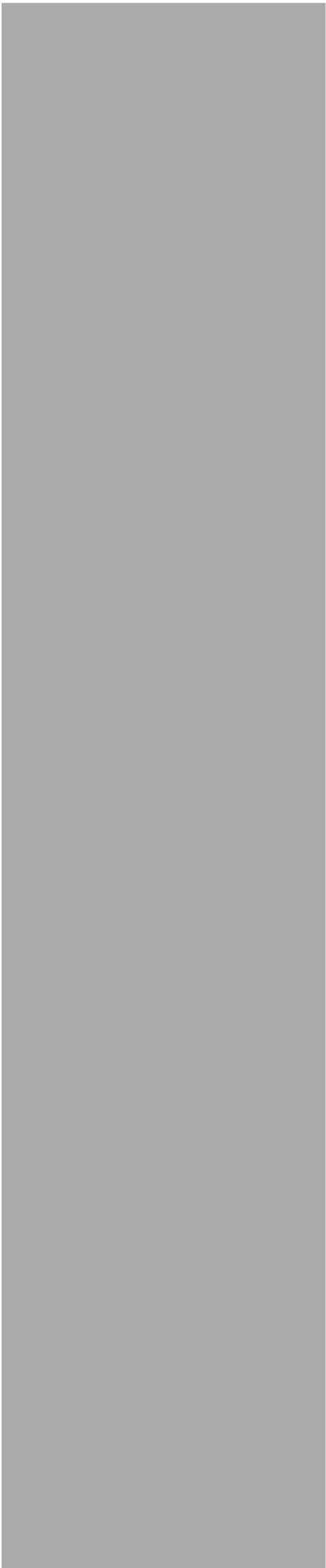
Block diagram



Technical data

Type		OAMPc-06135
Order number		212 208
EAN-Code 4026187...		270001
RF and optical characteristics		
Optical input wavelength	[nm]	1545 - 1565
Optical input range	[dBm]	-5...+10
Rec. optical input power range	[dBm]	-2... +3
Optical output power (P _{tot})	[dBm]	6 x 13,5
Output power stability	[dB]	±0,5
Noise figure (P _{in} =0dBm, λ=1550 nm)	[dB]	≤ 5
Number of optical output ports		6
Return loss at input	[dB]	≥ 45
Return loss output	[dB]	≥ 45
Optical Isolation input to output	[dB]	≥ 30
Optical output adjustable range	[dB]	-3 ..0
RF testport	[dBμV]	ca. 70
RF bandwidth	[MHz]	45 -1006
Optical connector type		input: SC/APC output: LC/APC
Common data		
Management		SNMP and web interface
Chassis type		Compact metal sheet housing
External power supply	[pcs]	1
AC Power supply (external)	[VAC]	Primary: 90 .. 264 VAC (C14 connection) / Secondary 12 VDC (with 2,5 mm/5,5 mm fork type)
DC Power connection	[VDC]	12 VDC (with 2 wire cable and 2, 5m m/5,5 mm fork type)
Power consumption	[W]	≤ 10
Dimensions (W x H x D)	[mm]	ca. 300 x 200 x 80
Mounting		wall mountable or in a 19" rack with additional mounting set
Ambient temperature	[°C]	-15 .. +55







ASTRO Strobel Kommunikationssysteme GmbH

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These operating instructions have been written by:

ASTRO Bit GmbH

Olefant 1-3, D-51427 Bergisch Gladbach (Bensberg)

Tel.: 02204/405-0, Fax: 02204/405-10

eMail: kontakt@astro.kom.de

Internet: www.astro-kom.de

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