

# CEFA-C-BD

ONE OR TWO BI-DIRECTIONAL FIBER AMPLIFIERS IN ONE RACK



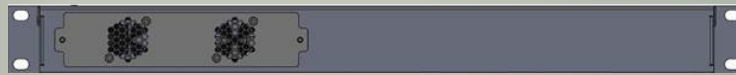
1.5  $\mu\text{m}$

B 140

Front face



Rear face



B 130



Up to 5 dBm of saturated output power,  
Homogenized pumping of the gain media,  
...

The CEFA-C-BD series are Erbium Fiber Amplifiers for bidirectional amplification.

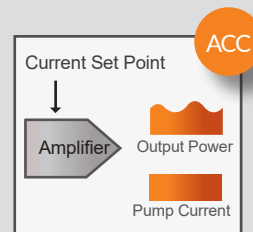
They are designed to amplify very weak optical signals, down to -60 dBm and can deliver a saturated output power up to +5 dBm. They offer a very low noise figure and a high optical signal to noise ratio at the output.

The CEFA-C-BD amplifiers are real bidirectional fiber amplifiers, which means that the two 1550 nm signals are travelling in the same optical fiber. This unique optical design is therefore interesting for application requiring the same propagation time in both directions.

The CEFA-C-BD series are available in 1U turnkey benchtops and can integrate one or two BD amplifiers in the same 1U rack. The amplifiers can be controlled via the front panel or remotely via serial USB and Ethernet ports.

## Modes of operation

The devices offer one mode of operation :



ACC (Automatic Current Control) mode is standard for all devices. The amplifier is controlled from diodes current set point.

## Key features

- Two bi-directional amplifiers in one rack
- Up to 5 dBm of saturated output power
- Homogenized pumping of the gain media
- Easy integration in telecom networks
- Low power consumption
- Low input power range
- Low ASE
- USB - RS232 and Ethernet ports

## What applications

- Very high speed data transmission and communication
- Two way optical frequency comparisons
- Optical reference frequency dissemination
- Temporal variation of fundamental constant
- Atomic clock comparison
- Relativistic geodesy
- Navigation

# CEFA-C-BD

ONE OR TWO BI-DIRECTIONAL FIBER AMPLIFIERS IN ONE RACK



<b>Optical Specifications</b> @ 25 °C	<b>CEFA-C-BD</b>
Wavelength range	1540 – 1565 nm
Saturated output power	Up to 5 dBm
Number independent amplifiers	1 or 2
Gain	12 to 21 dB
Input power range	-50 to -10 dBm (option -60 dBm* IP1)
Polarization	Random
Output monitoring	Automatic Current Control, ACC
Power stability (rms over 1 hr)	< 1 %
Optical port fiber	SMF 28
Input/output termination	FC/APC (other on request)
Associated platform	B140

**The CEFA-C-BD is available as turn key benchtop.**

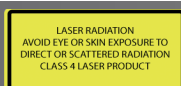
## RELIABILITY

The Lumibird range of fiber amplifiers are manufactured with tested components and are submitted to several inspections during the manufacturing process under a rigorous quality management certified in accordance with the ISO 9001:2015 standard. Our all-in-fiber systems offer maintenance-free operation. Countless units are continuously running in demanding environments with no failure.

## GUARANTEE

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# CEFA-C-HG

CW ERBIUM FIBER AMPLIFIER C-BAND HIGH GAIN



1.5  $\mu\text{m}$

B 130



M 201



High small signal gain up to 50 dB  
Low noise figure, ...

The CEFA-C-HG series are Erbium Fiber Amplifiers designed for amplification on the C-Band of very weak optical signals, down to -50 dBm.

A near quantum-limited noise figure and a small gain up to 50 dB are achieved through a specific Lumibird patented optical design.

Quantum cryptography, optical metrology, tests and measurements or low sensitivity transmission systems are among all applications of this high gain amplifier.

The optical design guarantees a very low noise figure and a limited amplified spontaneous emission in profit of a high optical to signal to noise ratio.(OSNR)

The series includes polarization maintaining models.

The CEFA-C-HG are available in benchtops or compact OEM modules. The benchtop platforms offer the possibility to monitor the amplifier via the front panel or remotely via serial USB and Ethernet ports. Both models offer robustness and reliability.

## Key features

- High sensitivity with very low input power (- 50 dBm)
- High small signal gain up to 50 dB
- Near quantum-limited noise figure
- Polarization-maintaining (optional)
- Benchtop or OEM module versions available

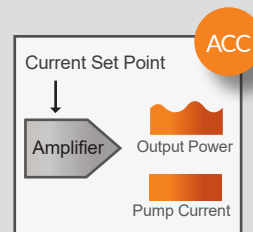
## What applications

- High sensitivity optical preamplification
- Quantum cryptography
- Optical metrology
- Optical remote sensing
- Test and measurement

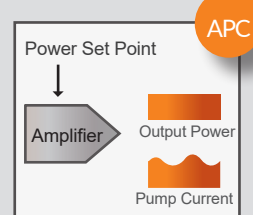


## Modes of operation

The devices offer several modes of operation :



ACC (Automatic Current Control) mode is standard for all devices. The amplifier is controlled from diodes current set point.



APC (Automatic Power Control) mode allows controlling the amplifier at a fixed output power set point. The device maintains a constant optical output power monitored with a photodiode. The current is adjusted automatically.

# CEFA-C-HG

CW ERBIUM FIBER AMPLIFIER C-BAND HIGH GAIN



Optical Specifications @ 25 °C	CEFA-C-HG	
	CW	
Mode of operation	CW	
Polarization	Random (SM) or linear (PM with PER>20 dB)	
Output power (-6 dBm input)	15 dBm	20 dBm
Wavelength range	1529-1562 nm	
Input power range*	-50 dBm to 0 dBm	
Small signal gain (-40 dBm, 1530 nm input)	>40 dB	>50 dB
Noise figure (-40 dBm, 1550 nm input)	< 4 dB for SM, < 5 dB for PM	
Control mode	ACC, APC	
APC Tunability	10 to 100 %	
Power stability (rms over 1 hr)	<1 %	
Input / Output termination	FC/APC, SC/APC, FC/UPC, SC/UPC	

The CEFA-C-HG is available as turn-key benchtop or as OEM module.

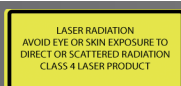
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# CEFA-C-PB-LP

CW ERBIUM FIBER AMPLIFIER C-BAND LOW POWER



1.5  $\mu\text{m}$

B 130

M 201



M 160



Up to 23 dBm of saturated output power,  
Low noise figure,  
...

The CEFA-C-PB-LP series are Erbium Fiber Amplifiers designed for single channel amplification in the C-Band.

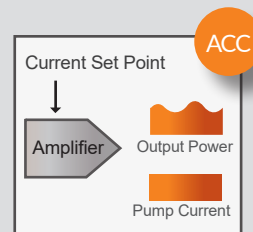
These amplifiers can deliver a saturated output power up to 23 dBm. They include a Pre Amplifier stage which allows them to be seeded with low input power (down to -20 dBm). They offer a very low noise figure and a high optical signal to noise ratio (OSNR) at the output.

The series include polarization maintaining models. A mid stage access option is also available for adding a fiber component like a DCM module.

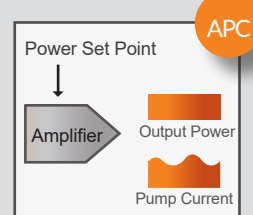
The CEFA-C-PB-LP are available in benchtops or compact OEM modules. The benchtop platforms offer the possibility to control the amplifier via the front panel or remotely via serial USB and Ethernet ports. Both models offer robustness and reliability.

## Modes of operation

The devices offer several modes of operation :



ACC (Automatic Current Control) mode is standard for all devices. The amplifier is controlled from diodes current set point.



APC (Automatic Power Control) mode allows controlling the amplifier at a fixed output power set point. The device maintains a constant optical output power monitored with a photodiode. The current is adjusted automatically.

## Key features

- Up to 23 dBm of saturated output power
- Low noise figure
- Low power consumption
- Benchtop or OEM module versions available
- Polarization-maintaining (optional)
- Mid-stage access (optional)
- Wide range operating temperature (-20 °C to +65 °C for modules)

## What applications

- Test and measurement
- Lidar
- Microwave optics
- Nanotechnology
- Optical transmission networks
- FTTH / CATV



# CEFA-C-PB-LP

CW ERBIUM FIBER AMPLIFIER C-BAND LOW POWER



Optical Specifications @ 25°C	CEFA-C-PB-LP			
	CW			
Mode of operation	CW			
Polarization	Random (SM) or linear (PM with PER>20 dB)			
Output power (-6 dBm input)	15 dBm	18 dBm	21 dBm	23 dBm
Wavelength range	1529-1562 nm			
Input power range	-20 dBm to 0 dBm			
Noise figure (-6 dBm, 1550 nm input)	< 5 dB for SM, < 5.5 dB for PM			
Control mode	ACC, APC			
APC Tunability	10 to 100 %		30 to 100 %	
10 dB loss mid-stage access (optional)	Non applicable	Option		
Input / Output termination	FC/APC, SC/APC, FC/SPC, SC/SPC			

The CEFA-C-PB-LP is available as turn-key benchtop or as OEM module.

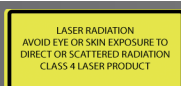
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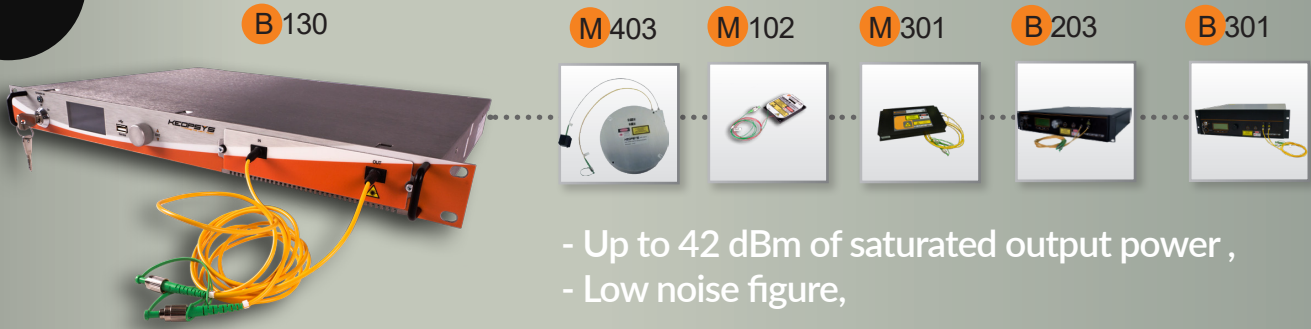


# CEFA-C-PB-HP

CW ERBIUM FIBER AMPLIFIER C-BAND HIGH POWER



1.5  $\mu\text{m}$



- Up to 42 dBm of saturated output power ,
- Low noise figure,
- ...

The CEFA-C-PB-HP series are Erbium Fiber Amplifiers designed for single channel amplification in the C-Band.

These amplifiers can deliver a saturated output power up to 42 dBm. They include a Pre Amplifier stage which allows them to be seeded with low input power (down to -20 dBm). They offer a very low noise figure and a high optical signal to noise ratio (OSNR) at the output.

Their unique optical design allows the amplification of narrow linewidth sources. The series includes polarization maintaining models.

The CEFA-C-PB-HP are available in benchtops or compact OEM modules. The benchtop platforms offer the possibility to control the amplifier via the front panel or remotely via serial port. The B130 platform also includes an Ethernet port. Both models offer robustness and reliability.

## Key features

- Up to 42 dBm of saturated output power
- Low noise figure
- Pre-amplifier built-in for low power input
- Polarization-maintaining (optional)
- Narrow linewidth amplification
- Benchtop or OEM module versions available
- Low power consumption
- High reliability

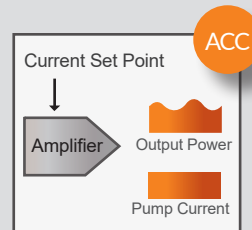
## What applications

- Optical component testing
- Atomic cooling
- Quantum optics
- Nano technologies
- Tests and measurements
- Microwave optics
- Non-linear optics
- Free space communications

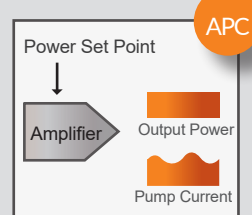


## Modes of operation

The devices offer several modes of operation :



ACC (Automatic Current Control) mode is standard for all devices. The amplifier is controlled from diodes current set point.



APC (Automatic Power Control) mode allows controlling the amplifier at a fixed output power set point. The device maintains a constant optical output power monitored with a photodiode. The current is adjusted automatically.



# CEFA-C-PB-HP

CW ERBIUM FIBER AMPLIFIER C-BAND HIGH POWER



Optical Specifications @ 25 °C	CEFA-C-PB-HP						
	CW						
Mode of operation	CW						
Polarization	Random (SM) or linear (PM with PER>20 dB)				Random (SM) or linear (PM with PER>17 dB)		
Output power (-6 dBm input)	25 dBm	27 dBm	30 dBm	33 dBm	37 dBm	40 dBm	42 dBm
Wavelength range	1540-1565 nm				1545-1565 nm		
Input power range	-20 to 0 dBm						
Noise figure (-6 dBm, 1550 nm input)	<5 dB for SM, <5.5 dB for PM		<5.5 dB for SM, 6 dB for PM		<6.5 dB for SM, 7.5 dB for PM		
Control mode	ACC, APC				ACC, APC (option)		
APC Tunability	10 to 100 %						
Narrow linewidth (<100 kHz) amplification	Included			Option			
Optical port fiber type	SMF28 or PANDA						
Input / output termination	FC/APC, SC/APC FC/SPC, SC/SPC		FC/APC, SC/APC, E2PS, C1				

The CEFA-C-PB-HP is available as benchtop or as OEM module.

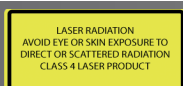
## RELIABILITY

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# CEFA-C-BO-HP

CW ERBIUM FIBER AMPLIFIER C-BAND HIGH POWER



1.5  $\mu\text{m}$

B 130

M 102

M 403

M 301

B 203

B 301



Up to 42 dBm of saturated output power  
Polarization-maintaining (optional)  
...

The CEFA-C-BO-HP series are Erbium Fiber Amplifiers designed for single channel amplification in the C-Band.

Their unique optical design allows the amplification of narrow linewidth sources and offer a cost-effective solution to amplify source with minimum power starting from +5 dBm. The series includes polarization maintaining models.

The CEFA-C-BO-HP are available in benchtops or compact OEM modules. The benchtop platforms offer the possibility to monitor the amplifier via the front panel or remotely via serial port. The B130 platform also includes an Ethernet port.

The wide range of operation make these amplifiers suitable for many applications, such remote sensing, tests and measurements, non linear optics, etc ...

## Key features

- Up to 42 dBm of saturated output power
- Polarization-maintaining (optional)
- Narrow linewidth amplification
- Benchtop or OEM module versions available
- Very compact OEM module (up to 30 dBm) available
- Low power consumption
- High reliability
- Cost effective solution

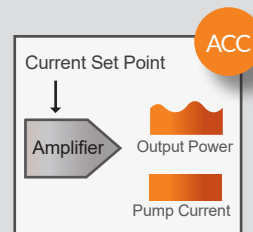
## What applications

- Optical component testing
- Remote sensing (LIDAR)
- Test and measurement
- Microwave optics
- Non-linear optics

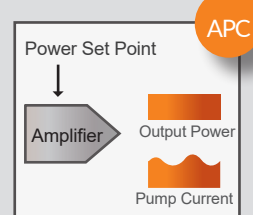


## Modes of operation

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ACC (Automatic Current Control) mode is standard for all devices. The amplifier is controlled from diodes current set point.



APC (Automatic Power Control) mode allows controlling the amplifier at a fixed output power set point. The device maintains a constant optical output power monitored with a photodiode. The current is adjusted automatically.

# CEFA-C-BO-HP

CW ERBIUM FIBER AMPLIFIER C-BAND HIGH POWER



Optical Specifications  
@ 25 °C

CEFA-C-BO-HP

Mode of operation	CW						
	Output power (@ minimum input)	25 dBm	27 dBm	30 dBm	33 dBm	37 dBm	40 dBm
Wavelength range	1540-1565 nm				1545-1565 nm		
Input power range	5 to 15 dBm		10 to 20 dBm		15 to 25 dBm		
Power stability (rms over 1 hr)	<1%				<2%		
Polarization	Random (SM) or linear (PM with PER>20 dB)				Random (SM) or linear (PM with PER>17 dB)		
Input monitoring	Yes						
Output monitoring	Yes				Yes (option)		
Control mode	ACC, APC				ACC, APC (option)		
APC Tunability	10 to 100 %						
Narrow linewidth (<100 kHz) amplification	Included			Option			
Optical port fiber type	SMF28 or PANDA						
Input / output termination	FC/APC, SC/APC FC/SPC, SC/SPC		FC/APC, SC/APC, E2PS, C1				

The CEFA-C-BO-HP is available as turn key benchtop or as OEM module.

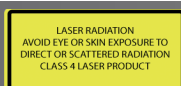
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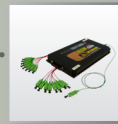
# CEFA-C-MP-SPIDERLITE

## CW ERBIUM FIBER AMPLIFIER C-BAND MULTI-PORT



M 301

M 102



High power 1550 nm amplifier,  
Multiple ports (up to 64),

...

SPIDERLITE series Erbium-doped fiber amplifiers are high reliability, high power amplifiers with multiple output ports. They are optimized for use in analog and single channel digital applications.

The optical engine combines high output power with low noise figure and low analog signal distortion. Various output splitting ratios are available with up to 64 output ports depending on the type platform chosen.

The Spiderlite amplifiers are packaged in module or rack. Ultra-compact modules in MSA format have up to 8 output ports with 21 dBm per port. A larger module can accommodate up to 32 ports with 19 dBm per port. The rack can be configured with up to 64 ports with 16 dBm per port.

Easy supervision and remote control is allowed thanks to SNMP V2c implementation in the rack. In addition, a web server (option) is available for fast and easy supervision or software upgrading through any web browser.

Parameters for diagnostics or operational requirements can be selected via the front panel on a large LCD display or in RS232 link.

### Key features

- High power 1550 nm amplifier
- Multiple ports (up to 64)
- Several power configurations per port (64x16 dBm, 32x19 dBm, 16x21 dBm, 8x21 dBm...)
- Low noise figure
- Low analog signal distortion (CNR, CSO, CTB)
- Low power consumption (over the entire operating temperature range)
- Ultra-compact module or highly sophisticated rack
- Network management interface based on SNMP V2c (rack only)
- Web server option (rack only)
- Redundant backup of hot pluggable power supply (rack only)
- High speed remote maintenance service (rack only)
- High reliability

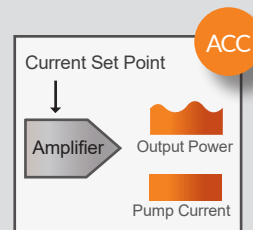
### What applications

- Broadband/video distribution
- Digital communication
- FTTx / CATV networks

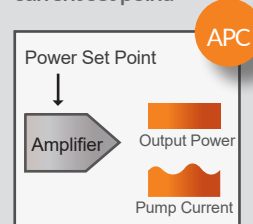


### Modes of operation

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ACC (Automatic Current Control) mode is standard for all devices. The amplifier is controlled from diodes current set point.



APC (Automatic Power Control) mode allows controlling the amplifier at a fixed output power set point. The device maintains a constant optical output power monitored with a photodiode. The current is adjusted automatically.

# CEFA-C-MP-SPIDERLITE

## CW ERBIUM FIBER AMPLIFIER C-BAND MULTI-PORT



### Optical Specifications

@ 25 °C

Optical Specifications	CEFA-C-MP-SPIDERLITE				
	4	8	16	32	64
Number of ports	4	8	16	32	64
Saturated output power per port <sup>1</sup>	21 dBm			19 dBm	16 dBm
Total seed input power	-5 to + 10 dBm				
Bandwidth	1545 to 1565 nm				
Optical polarization	Random				
Noise figure	<5.5 dB with Pin=0 dBm@1550 nm				
Input/output fiber	SMF				
Input/output pigtail for modules	900 µm, PVC, 1 m				
Input/output termination	SC/APC, LC/APC, E2000/APC				LC/APC

1 : Other output powers available on request

The CEFA-C-MP is available as turn key benchtop or as OEM module.

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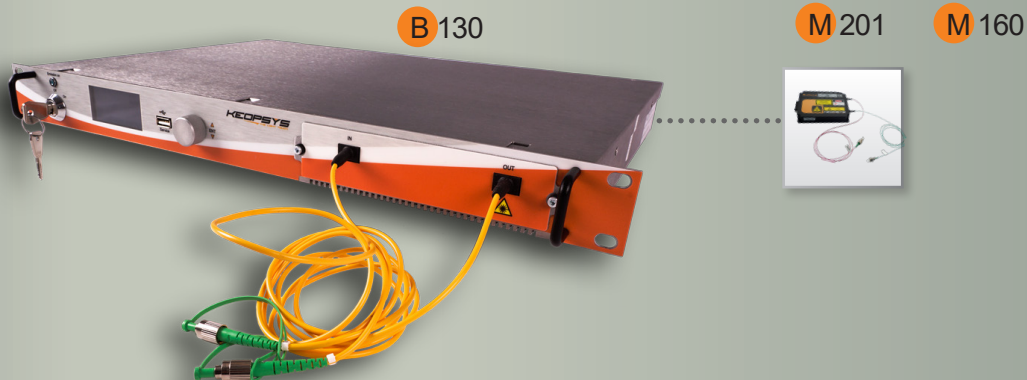


# CEFA-C-WDM-LP

CW ERBIUM FIBER AMPLIFIER C-BAND GAIN  
FLATTENED LOW POWER



1.5  $\mu\text{m}$



CEFA-C-WDM-LP Erbium doped fiber amplifiers provide amplification of multiple channels in the C-band, up to 23 dBm of saturated output power.

These amplifiers are optimized for use in Dense Wavelength Division Multiplexing applications. They provide dynamic gain control to operate at the point of optimum gain flatness. Composite output power varies in order to maintain a constant per-channel gain over a dynamic range of 12 dB.

A selection of 2 different bandwidths in the C-Band is available with excellent gain flatness. The series include polarization-maintaining models and mid-stage access option.

These products are proposed in turnkey benchtop instruments or in OEM modules.

## Key features

- Up to 23 dBm of saturated output power
- Up to 39 nm of gain bandwidth
- Selection of 2 different bandwidths
- Gain flattened at +/-0.5 dB typical
- Low noise figure
- Mid-stage access option
- Polarization-maintaining (optional)
- Low power consumption
- Choice between turnkey benchtop or OEM module
- Wide range operating temperature (-20 °C to +65 °C for modules)

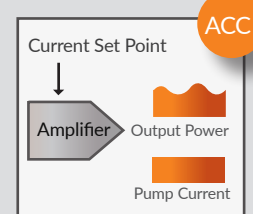
## What applications

- Regional and metro DWDM networks
- FTTH/CATV networks
- Free space communication
- Test and measurement

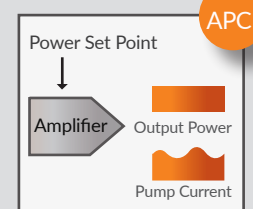


## Modes of operation

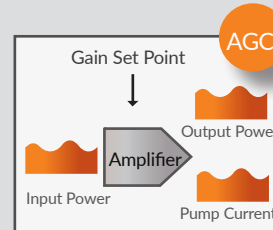
The devices offer several modes of operation :



ACC (Automatic Current Control) mode is standard for all devices. The amplifier is controlled from diodes current set point.



APC (Automatic Power Control) mode allows controlling the amplifier at a fixed output power set point. The device maintains a constant optical output power monitored with a photodiode. The current is adjusted automatically.



AGC (Automatic Gain Control) mode allows to control the amplifier at a fixed gain set point. The pump current is adjusted automatically to maintain the gain constant.

# CEFA-C-WDM-LP

CW ERBIUM FIBER AMPLIFIER C-BAND  
GAIN FLATTENED LOW POWER



## Optical Specifications

@ 25 °C

## CEFA-C-WDM-LP

Mode of operation		CW					
Polarization		Random (SM) or linear (PM with PER>20 dB)					
Composite saturated output power		10 dBm	13 dBm	15 dBm	18 dBm	21 dBm	23 dBm
Wavelength range		1529-1562 nm (BW00), 1527-1566 nm (BW01)					
Composite input power range for	BW00	-25 to -13 dBm	-22 to -10 dBm	-20 to -8 dBm	-17 to -5 dBm	-14 to -2 dBm	-12 to 0 dBm
	BW01	-22 to -10 dBm	-19 to -7 dBm	-17 to -5 dBm	-14 to -2 dBm	-11 to +1 dBm	-9 to +3 dBm
Nominal signal gain		23 dB for BW00 and 20 dB for BW01					
Gain ripple		+/- 0.5 dB typ., +/-0.75 dB max					
Noise figure	@ 23 dB	< 5 dB for SM, < 6 dB for PM				< 5.5 dB for SM, < 6.5 dB for PM	
	@ 20 dB	< 5.5 dB for SM, < 6.5 dB for PM				< 6 dB for SM, < 7 dB for PM	
Input / Output monitoring		Yes					
Control mode		ACC, APC, AGC <sup>1</sup>					
Polarization mode dispersion (SM type)		0.4 ps					
Polarization dependent gain (SM type)		0.4 dB					
10 dB loss Mid-stage access (optional)		Yes					
Input / output fiber type		SMF28 or PANDA					
Input / Output termination		FC/APC, SC/APC, FC/SPC, SC/SPC					

1 : Not available for B130 platform

The CEFA-C-WDM-LP series amplifiers are available as benchtop or as OEM module.

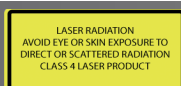
### RELIABILITY

The Lumibird range of fiber lasers are manufactured with tested components and are submitted to several inspections during the manufacturing process under a rigorous quality management certified in accordance with the ISO 9001:2015 standard. Our all-in-fiber systems offer maintenance-free operation. Countless units are continuously running in demanding environments with no failure.

### GUARANTEE

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# CEFA-L-HG

CW ERBIUM FIBER AMPLIFIER L-BAND HIGH GAIN



1.5  $\mu\text{m}$

B 130

M 310



High sensitivity with very low input power (- 40 dBm),  
High signal gain up to 50 dB,  
Low noise figure,  
...

The CEFA-L-HG series are Erbium Fiber Amplifiers designed for amplification on the L-Band of very weak optical signals, down to -40 dBm.

A near quantum-limited noise figure and a small gain up to 50 dB are achieved through a specific Lumibird patented optical design.

Quantum cryptography, optical metrology, tests and measurements, low sensitivity transmission systems are among all applications of this high gain amplifier.

The optical design guarantees a very low noise figure and a limited amplified spontaneous emission in profit of a high optical to signal to noise ratio.(OSNR)

The series includes polarization maintaining models.

The CEFA-L-HG are available in benchtops or compact OEM modules. The benchtop platforms offer the possibility to monitor the amplifier via the front panel or remotely via serial USB and Ethernet ports. Both models offer robustness and reliability.

## Key features

- High sensitivity with very low input power (- 40 dBm)
- High signal gain up to 50 dB
- Optical bandwidth from 1570 to 1607 nm
- Near quantum-limited noise figure
- Polarization-maintaining (optional)
- Turnkey benchtop or OEM module versions available

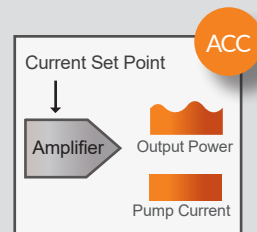
## What applications

- High sensitivity optical preamplification
- Quantum cryptography
- Optical metrology
- Optical remote sensing
- Test and measurement

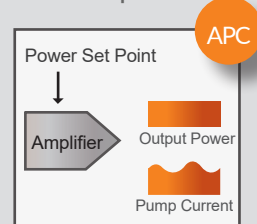


## Modes of operation

The devices offer several modes of operation :



ACC (Automatic Current Control) mode is standard for all devices. The amplifier is controlled from diodes current set point.



APC (Automatic Power Control) mode allows controlling the amplifier at a fixed output power set point. The device maintains a constant optical output power monitored with a photodiode. The current is adjusted automatically.



# CEFA-L-HG

CW ERBIUM FIBER AMPLIFIER L-BAND HIGH GAIN



## Optical Specifications

@ 25 °C

	CEFA-L-HG	
Mode of operation	CW	
Polarization	Random (SM) or linear (PM with PER>20 dB)	
Saturated output power (-6 dBm input)	20 dBm	23 dBm
Wavelength range	1570-1607 nm	1571-1603 nm
Input power range*	-40 dBm to 0 dBm	
Small signal gain (-40 dBm input)	>40 dB	>50 dB
Noise figure (-40 dBm, 1595 nm input)	< 4.5 dB for SM, < 5.5 dB for PM	
Control mode	ACC, APC	
APC Tunability	30 to 100 %	
Input / Output termination	FC/APC, SC/APC, FC/UPC, SC/UPC	

**CEFA-L-HG amplifiers is available as turn-key benchtop or as OEM module.**

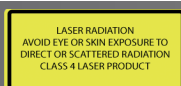
### RELIABILITY

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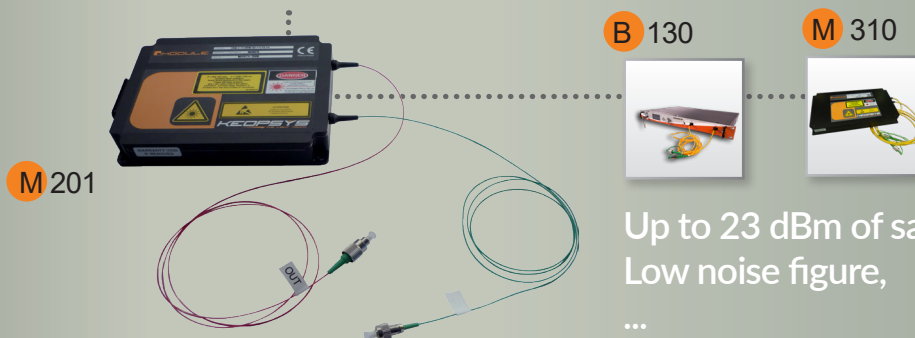


# CEFA-L-PB-LP

CW ERBIUM FIBER AMPLIFIER L-BAND LOW POWER



1.5  $\mu\text{m}$



Up to 23 dBm of saturated output power,  
Low noise figure,  
...

The CEFA-L-PB-LP series are Erbium Fiber Amplifiers designed for single channel amplification in the L-Band.

These amplifiers can deliver a saturated output power up to 23 dBm. They include a Pre Amplifier stage which allows them to be seeded with low input power (down to -20 dBm). They offer a very low noise figure and a high optical signal to noise ratio (OSNR) at the output.

The series includes polarization maintaining models. A mid stage access option is also available for adding a fiber component like a DCM module.

The CEFA-C-PB-LP are available in benchtops or compact OEM modules. The benchtop platforms offer the possibility to monitor the amplifier via the front panel or remotely via serial USB and Ethernet ports. Both models offer robustness and reliability.

## Key features

- Up to 23 dBm of saturated output power
- Low noise figure
- Low power consumption
- Benchtop or OEM module versions available
- Polarization-maintaining (optional)
- Mid-stage access (optional)
- Wide range operating temperature (-20 °C to +65 °C for modules)

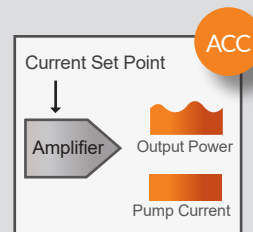
## What applications

- Optical transmission networks
- Test and measurement
- LIDAR
- Scientific

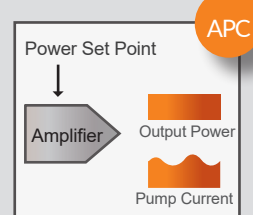


## Modes of operation

The devices offer several modes of operation :



ACC (Automatic Current Control) mode is standard for all devices. The amplifier is controlled from diodes current set point.



APC (Automatic Power Control) mode allows controlling the amplifier at a fixed output power set point. The device maintains a constant optical output power monitored with a photodiode. The current is adjusted automatically.

# CEFA-L-PB-LP

CW ERBIUM FIBER AMPLIFIER L-BAND LOW POWER



## Optical Specifications

@ 25 °C

## CEFA-L-PB-LP

Optical Specifications		CEFA-L-PB-LP				
Mode of operation	CW					
Polarization	Random (SM) or linear (PM with PER>20 dB)					
Output power (-6 dBm input)	10 dBm	13 dBm	15 dBm	18 dBm	21 dBm	23 dBm
Wavelength range	1570-1603 nm					
Input power range	-20 to 0 dBm					
Noise figure (-6 dBm, 1595 nm input)	< 5.5 dB for SM, < 6.5 dB for PM					
Control mode	ACC, APC					
APC Tunability	10 to 100 %		30 to 100 %			
10 dB loss mid-stage access (optional)	Yes					
Input / Output termination	FC/APC, SC/APC, FC/SPC, SC/SPC					

CEFA-L-PB-LP amplifiers are available as turn-key benchtop or as OEM module.

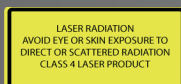
### RELIABILITY

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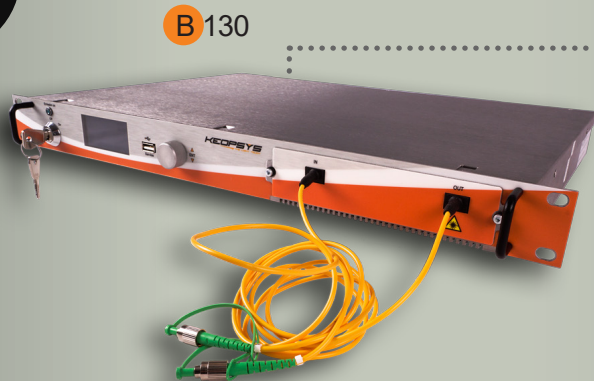


# CEFA-L-PB-HP

CW ERBIUM FIBER AMPLIFIER L-BAND HIGH POWER



1.5  $\mu\text{m}$



M 301



Up to 33 dBm of saturated output power,  
Low noise figure,...

The CEFA-L-PB-HP series are Erbium Fiber Amplifiers designed for single channel amplification in the L-Band.

These amplifiers can deliver a saturated output power up to 33 dBm. They include a Pre Amplifier stage which allows them to be seeded with low input power (down to -20 dBm). They offer a very low noise figure and a high optical signal to noise ratio (OSNR) at the output.

Their unique optical design allows the amplification of narrow linewidth sources. The series includes polarization maintaining models.

The CEFA-L-PB-HP are available in benchtop or compact OEM module. The benchtop platform offers the possibility to control the amplifier via the front panel or remotely via serial USB and Ethernet ports. Both models offer robustness and reliability.

## Key features

- Up to 33 dBm of saturated output power
- Low noise figure
- Pre-amplifier built-in for low input power
- Narrow linewidth amplification
- Polarization-maintaining (optional)
- Benchtop or OEM module versions available
- Low power consumption
- High reliability

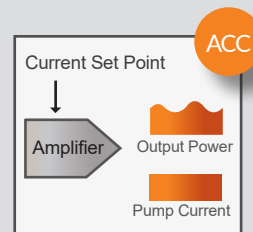
## What applications

- Optical transmission network
- Free space communication
- Remote sensing (LIDAR)
- Test and measurement
- Scientific
- Optical component testing

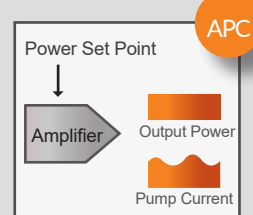


## Modes of operation

The devices offer several modes of operation :



ACC (Automatic Current Control) mode is standard for all devices. The amplifier is controlled from diodes current set point.



APC (Automatic Power Control) mode allows controlling the amplifier at a fixed output power set point. The device maintains a constant optical output power monitored with a photodiode. The current is adjusted automatically.

# CEFA-L-PB-HP

CW ERBIUM FIBER AMPLIFIER L-BAND HIGH POWER



## Optical Specifications

@ 25 °C

## CEFA-L-PB-HP

	CEFA-L-PB-HP			
Mode of operation	CW			
Polarization	Random (SM) or linear (PM with PER>17 dB)			
Output power (-6 dBm input)	25 dBm	27 dBm	30 dBm	33 dBm
Wavelength range	1565-1605 nm			
Input power range	-20 to +0 dBm			
Noise figure (-6 dBm, 1595 nm input)	<6 dB for SM <7 dB for PM	<6.5 dB for SM <7.5 dB for PM	<7 dB for SM <8 dB for PM	
Control mode	ACC, APC			
APC Tunability	10 to 100 %			
Optical port fiber type	SMF28 or PANDA			
Input / output termination	FC/APC, SC/APC, FC/SPC, SC/SPC			

The CEFA-L-PB-HP series amplifiers are available as benchtop or as OEM module.

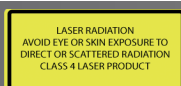
### RELIABILITY

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