



# HYDRA

## Mid-Power Booster Erbium-Doped Fiber Amplifier

The HYDRA is a booster optical fiber amplifier designed for space and harsh environments.

HYDRA is developed using Gooch & Housego's highest manufacturing standards and high-reliability components manufactured by G&H.

The amplifier can operate under thermal vacuum and in demanding vibration and radiation environments.

Offered in an OEM module, HYDRA can be controlled and monitored through an electrical interface, making it ideal for system integration into laser communication terminals.

The electronics monitoring, control and I/O circuitry embedded in the flight unit employ space-qualified components. Printed circuit board layout and assembly follows space standards and guidelines. The system design ensures operation in space environments and provides necessary protection against single event effects.

Customized optical performance, enclosures, port configurations and amplifier arrays in a single housing are available on request.

Interfaces, electronics functionality and redundancy can be tailored according to the specific user requirements.



### Key Features

- High reliability
- Digital interface
- Low power consumption
- Control and monitoring electronics included
- Multiple amplifiers in a single housing

### Options

- Redundancy options
- Analog interface
- Polarization maintaining
- Different quality levels (EM / EQM / FM)

### Applications

- Satellite laser communications
- WDM optical communications
- RF/microwave photonic links
- Sensing

Specifications (BOL)	Random Polarization	Polarization Maintaining
Saturated output power <sup>1</sup> (dBm)	+16 to +21	
Wavelength range (nm)	C-band (1530 - 1565)	
Small signal gain <sup>2</sup> (dB)	> 28	> 31
Static gain flatness <sup>1</sup> (dB)	< 0.5	
Noise figure (typ. @1550 nm) <sup>3</sup>	< 4.5	< 5.5
Polarization extinction ratio (dB)	-	> 24
Optical interface	Mini-AVIM	
Electrical interface	44-pin high-density D-sub	
Power supply (VDC)	5 ± 5%	
Power consumption <sup>4</sup> (Watt)	< 2.5	< 3.5
Operating temperature <sup>5</sup> (°C)	0 to 50	
Size W x D x H <sup>6</sup> (mm) (EM)	143 x 158 x 27.5	
Size W x D x H <sup>6</sup> (mm) (EQM/FM)	143 x 153 x 24	
Mass (g) <sup>6</sup>	< 700	

1 For input power  $P_{IN} = 0$  dBm for random polarization model and  $P_{IN} = -6$  dBm for polarization maintaining model

2 For input power  $P_{IN} = -10$  dBm

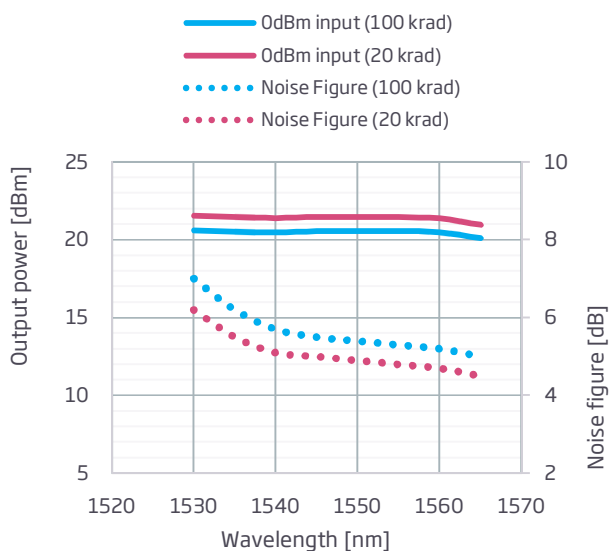
3 For input power  $P_{IN} = 0$  dBm

4 Typical @ 25°C with digital interface

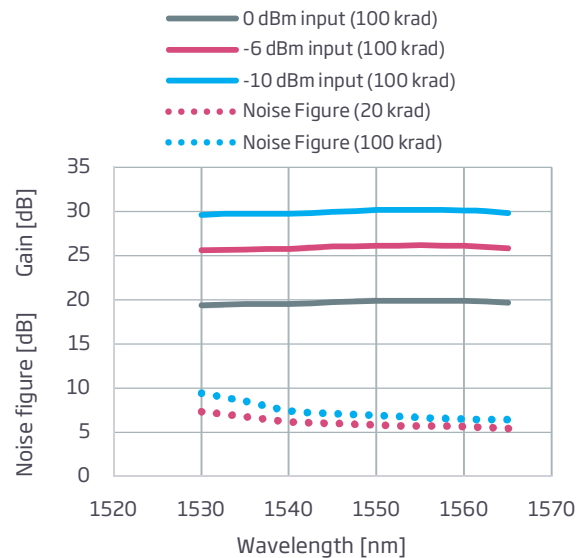
5 Absolute maximum operating temperature  $T_{ABS\_MAX} = +65$ °C

6 Excludes mounting fixtures

### Random polarization model performance



### Polarization-maintaining model performance



For further information

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