

Introduction

Welcome to our Winter Newsletter !

While AFE manufactures in the UK, we source our components and sell our products from all parts of the world. This means our pricing is very competitive, and our markets are varied. Despite the world wide economic problems, this has resulted in a steady increase in our business throughout 2009. We enter 2010 strongly and with some exciting new developments.

Our core custom fibre-optic products continue to offer customers great performance at excellent value, and our growth is proving that. More customers have been asking us to do design and assembly work. We have responded by fitting out a designated, fully-equipped build area.

Our services include design, sourcing and full build options.

We have also picked up on customers looking to simplify their sourcing, and to assist this we are starting to sell a range of products, including patchcords, mux and breakout products, all sourced from our network from around the world. As a manufacturer we are able to use our sources to offer excellent value products, and this is detailed later in the newsletter.

We wish all our customers and suppliers a very happy and successful new year !

AFE welcomes Jason Mann to the sales team

In light of a strong market for optical fibre and components, Jason will bring his 11 years expertise in sales to support the recently expanded product portfolio.



Jason comes from a sales background in electronics, having looked after European sales at E&E Magnetic Products (Transformers/Inductors) and south-east UK sales at Rhopoint Components.

“ It is a pleasure to join AFE’s team. There is a wealth of opportunities out there right now. AFE has the know-how and the fast-turn around, custom manufacturing to support this. I am looking forward to making the most of these opportunities and introducing our new low-cost standard products into the mix. “

Meet AFE at OFC in San Diego



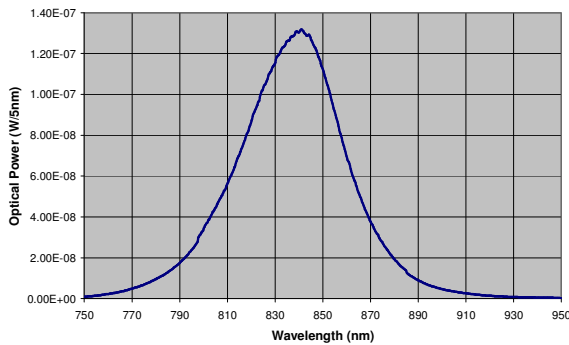
We will be exhibiting at OFC in San Diego next March and would like to meet as many of our customers as possible. We are planning to showcase our technology with a new exciting demonstrator, which will highlight the power of our TO can technology, our module assembly capability and some of our new armoured cables that we have recently been producing. If you are at OFC please visit us on booth 1010 and we will be very pleased to see you.



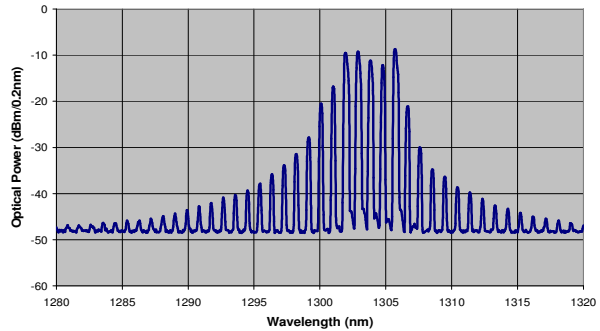
If you wish to make an appointment beforehand, please contact ones of our sales team on +44 (0) 1993 709030.

The AFE Guide to Semiconductor Light Sources

AFE are able to offer our customers a large portfolio of light sources, together with a range of packaging options. The simplest light sources that can be used with multimode optical fibre are light emitting diodes (LED). LEDs emit light over a large area and are suitable for use with multimode optical fibre. LEDs were used with some of the earliest optical fibre systems deployed at speeds of 10 Mbits and 100 Mbits. AFE can provide LEDs at 850 nm and 1310 nm wavelengths, the typical power coupled into multimode fibre is about 20-50 uW. Some older legacy systems with 50/125 and 62/125 optical fibre still use these LEDs and they are also widely used as sources within test and measurement equipment. The output against wavelength from an 850 nm LED is shown below. The output is smoothly varying with wavelength and emits over about a 50 nm window.

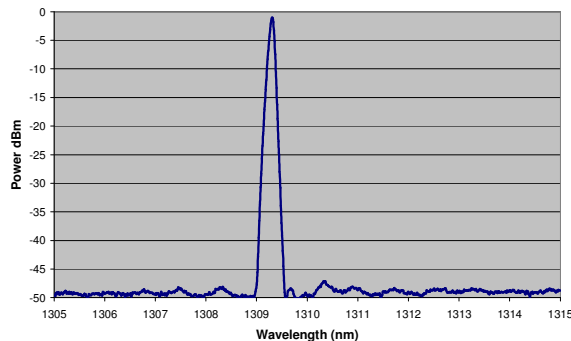


In many applications LEDs have been replaced by Fabry Perot (FP) laser diodes. In an FP laser, two mirrors are separated by a semiconductor waveguide which acts as an amplifier. The laser emits light at several different wavelengths, determined by the cavity length. An example FP laser diode spectrum is shown below.



As the drive current is changed, the laser output wavelengths can vary, leading to noise in some optical systems. FP laser diodes are available from AFE at 650, 780, 850, 1310 and 1550 nm. Typical coupling powers are 100-500 uW into single mode fibre and 0.5-1 mW into multimode fibre. FP laser diodes can be modulated at speeds up to 2.5 Gbits.

In some applications, the wavelength fluctuations in FP laser diodes can be undesirable and Direct Feedback Lasers (DFB) are used. The DFB laser has a grating built into the cavity which ensures that the laser only emits at a single wavelength, giving much better stability. An example of a DFB spectrum is shown below.



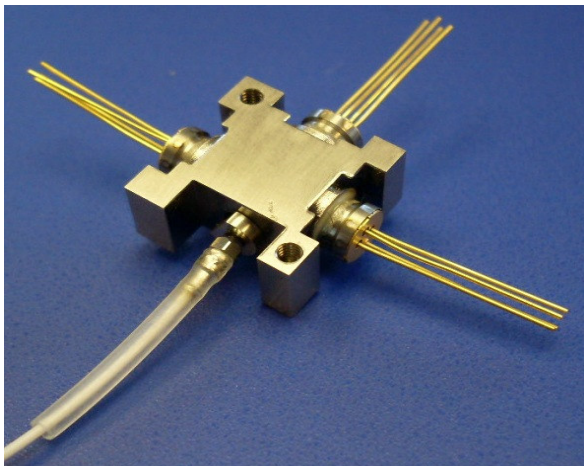
AFE are able to provide DFB laser diodes at 1310, 1490, 1550 and 1625 nm. DFB lasers can be modulated at up to 10 Gbits and will couple around 1-2 mW into optical fibre.

Wavelength multiplexing is a simple technique for increasing the information capacity of optical fibre systems. The simplest approach is to combine two wavelengths onto an optical fibre. For example AFE are able to offer a range of laser combiners such as 850/1310; 1310/1550 or more recently 1490/1550.

Increasingly customers require more than two wavelengths. The 3 wavelength combiners that we had started sampling in the spring newsletter with 1310/1550/ 1625 lasers are now in production and proving very popular.

Coarse Wavelength Division Multiplexing (CWDM) offers a range of wavelengths from 1270 nm to 1610 nm. We are able to offer the full range of CWDM lasers.

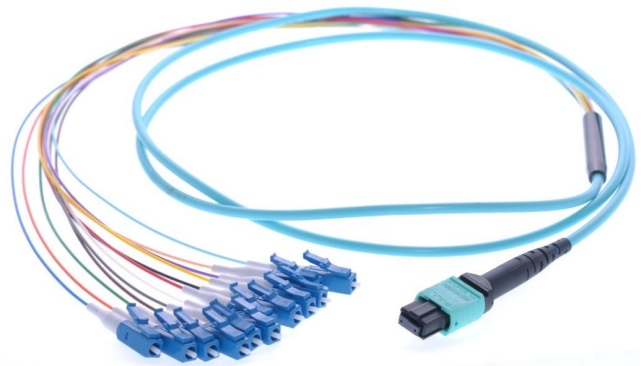
All of the light sources described above can be supplied in either a receptacle housing, with a fibre pigtail, or in a receptacle with a miniature fibre stub. The miniature fibre stub receptacle ensures better coupling efficiency and more reproducible coupling than a standard receptacle.



AFE expands product range to include low cost standard / custom products

In response to customer demand and an effort to bring lower costs to our customers we have expanded our product range by sourcing low cost materials from Asia.

Combined with our expertise in optical fibre this presents an excellent range for our customers.



Fibre Patchcords and Pigtails

AFE's new range of premium quality patchcords and pigtails are manufactured to high precision and available in all options, be it harsh environment, custom colour/lengths, or custom break-out options.

We thoroughly test our parts, including 100% insertion loss and back-reflection testing, plus interferometer testing.

With a well-equipped production line in the UK and our offshore capabilities, we can offer a complete fibre solution to all our customers.

The range is comprehensive:

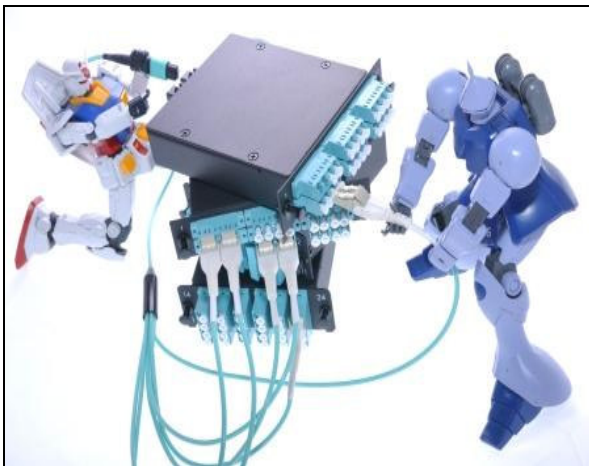
- Single-mode (9/125, 5/80)
- Multi-mode (50/125, 62.5/125, 100/140)
- MTP and custom multiple breakout options.
- PM, SM, MM, Special, HCS, PCS & Polymer
- Custom termination of customer products
- Population of 19" racks to customer specification

Patch Panel Boxes

Rack mounted 19" Patch Panels available populated with any combination of connector style. They have universal mounting and glanding options and are available with an easy access slide-out option.

AFE also offer a range of smaller plug & play boxes which can again be built to match customer requirements.

- Patching and splicing capabilities.
- Pre-terminated cabling / pigtails options.
- Design according to GB/T3047.2-92



Fibre Connectors and Adaptors

AFE's range of connectors and adaptors is just as comprehensive as the patchcords and pigtails.

We provide all the standard parts in both PC or APC, and multi-mode or single-mode:

- FC, SC, LC, ST, MTRJ, E2000, SMA.
- Standard and non-standard boots and light crimps

If you have a non-standard requirement, then give us a try.



Couplers / Switches

- Single and Multimode couplers
 - Low Excess Loss
 - High Return Loss
 - Various Coupling Ratio
 - Compact Size
 - Terminated to customer requirements
- Applications :
- Long-haul Telecommunications
 - CATV Systems & Fibre-optic Sensors
 - LAN System
 - Broadcast/ Satellite / Mixing Desks
 - Many others

CWDM Modules – DeMux / Mux

AFE brings you standard or customized Coarse Wavelength Division Multiplexer modules, available with 1, 2, 4 8 or 16 channels and 13nm wide passband within 0.4dB limits.

They have low insertion loss and center wavelengths of 1271nm to 1611nm in 20nm steps.

Upgrade options to include non-standard wavelengths available.

- Operating temperature 0°C to 70°C
- 1m long 9/125µm single-mode fibre per port.

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