

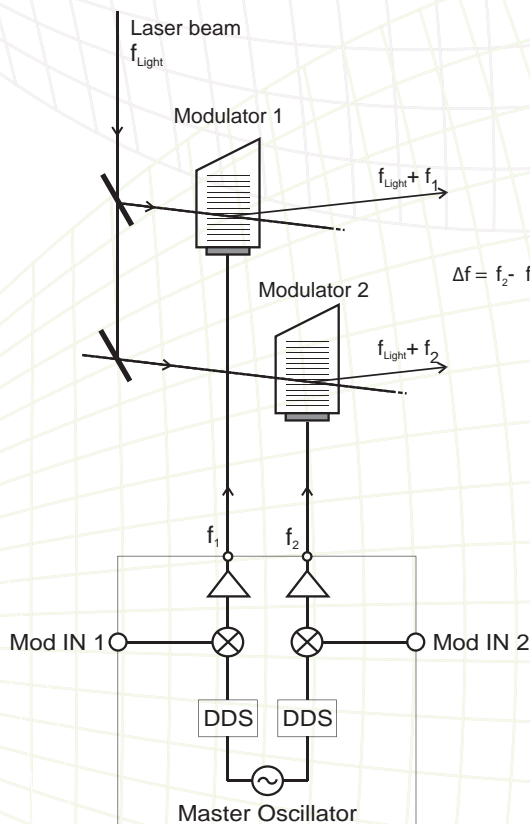
# DFD-40/80

## ACOUSTOOPTICAL DUAL FREQUENCY SHIFTER



The acoustooptical dual frequency shifter **DFD-40/80** is a two-channel device for shifting the frequency of laser light based on the acoustooptical effect. Since the two output channels are driven by the same master clock oscillator they are phase-locked and make the **DFD-40/80** the ideal source for heterodyne experiments. It consists of the driver electronics and two AO modulator elements.

Each modulator element contains an optical crystal with a piezo transducer at one side. By applying an RF signal generated by the driver electronics to the piezo transducer ultrasonic waves are induced in the crystal. This causes modulations of density and refractive index inside the crystal which act as an optical grating for an incident laser beam. This way a part of the beam will be deflected. The deflected part of the beam in the 1st diffraction order is frequency shifted by the amount of the applied RF frequency (35-45 or 70-90 MHz, respectively). By changing the field intensity (RF drive power) the intensity of the deflected beam can be varied.



Complete and tested systems

2 phase locked RF outputs with variable frequency

Quartz stable oscillator

Analog or digital modulation input

Overload safety circuit to avoid damage to AO modulator element

Ultrafast Pulse Diagnostics

Spectral Analysis

Acoustooptics

Pulse Management

Wavelength Conversion

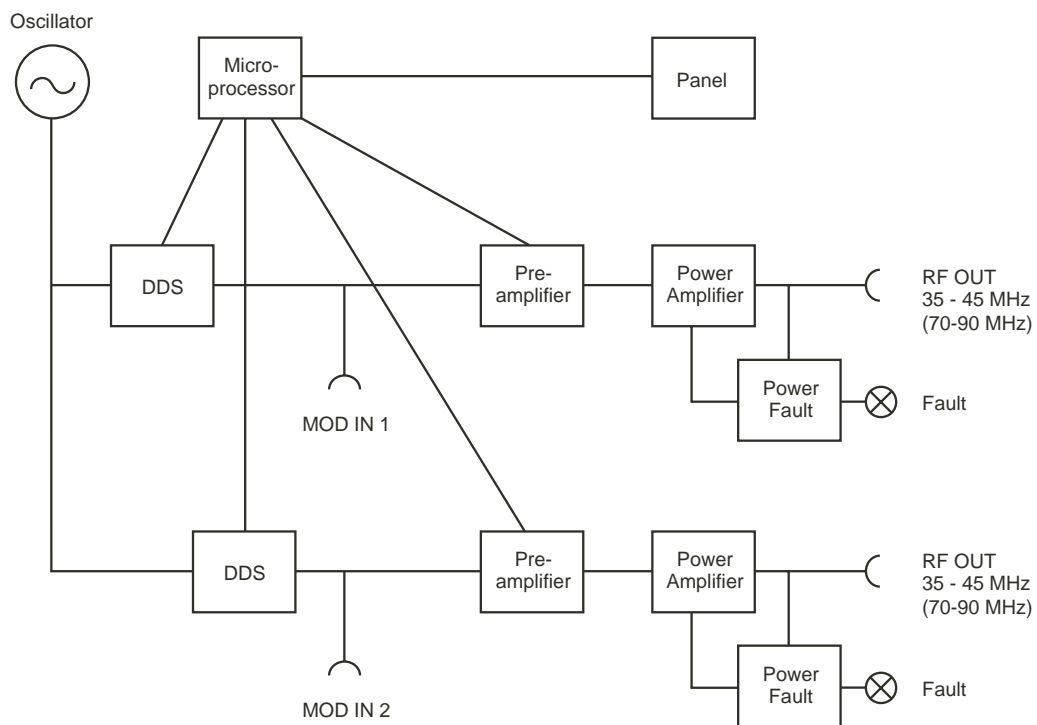
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## SPECIFICATIONS

Driver	
Frequency channel 1 (f1)	35 - 45 MHz (DFD-40) 70 - 90 MHz (DFD-80)
Frequency channel 2 (f2)	35 - 45 MHz (DFD-40) 70 - 90 MHz (DFD-80)
Resolution	10 kHz
Stability	10 ppm
Amplitude control	Independent for each channel Digitally set at front panel
Max. RF output power	1 W @ 50 $\Omega$ each channel
Modulation input 1	Digital (on/off): TTL, 600 $\Omega$ , 100 kHz max.
Modulation input 2	Digital (on/off): TTL, 600 $\Omega$ , 100 kHz max.

### AO modulator element

Different AO modulator elements can be offered according to the particular application.



Distributors  
see APE website

APE GmbH / Plauener Straße 163-165 / Haus N / 13053 Berlin / Germany  
Phone +49.30.986.01130 / Fax +49.30.986.97885 / Web [www.ape-berlin.com](http://www.ape-berlin.com) / Email [ape@ape-berlin.de](mailto:ape@ape-berlin.de)

APE follows a policy of continued product improvement. Therefore, specifications are subject to change without notice.