Data sheet pulse stretcher PS-800

with two transmission gratings for fiber dispersion compensation at wavelength around 800 nm

Aim of the pulse stretcher PS-800

The pulse stretcher can be placed in front of an optical fiber to compensate the fiber dispersion of short optical pulses so that the pulse at the fiber end has approximately the same duration as before it hits the pulse stretcher.

The pulse stretcher introduces a negative dispersion with values for compensation of the dispersion of standard fibers with lengths between 2 m and 5 m at wavelengths around 800 nm.

To adjust the dispersion of the pulse stretcher the distance between two transmission gratings can be fine adjusted.

Restrictions

This PS-800 compensates only the second order dispersion and cannot compensate the third order dispersion. Therefore the dispersion compensation of the optical fiber using the diffraction gratings is not complete. For instance an optical pulse with 100 fs pulse duration going through the pulse stretcher and 2 m optical fiber leafs the fiber end with pulse duration of about 120 fs.

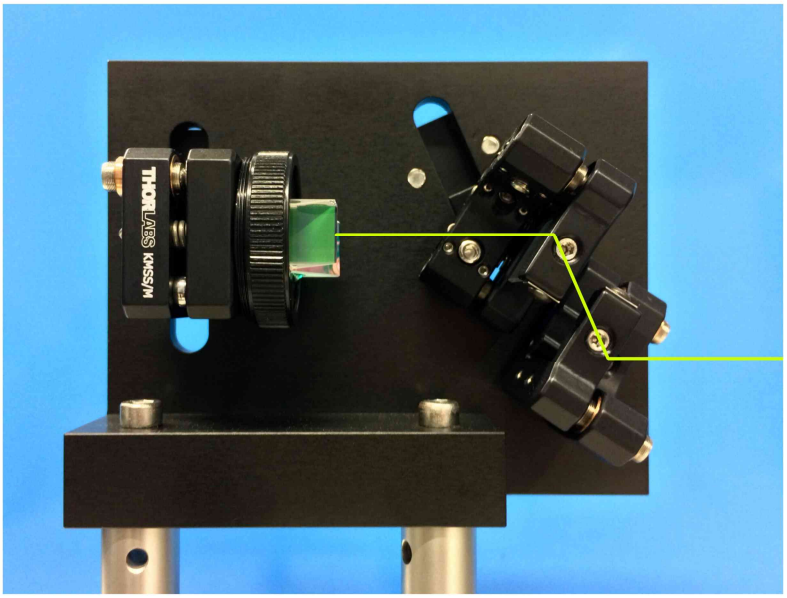
The pulse energy in the fiber must be restricted to a low value to avoid nonlinear effects which result in longer pulses. Therefore the average optical power in the fiber must be kept below 10 mW in case of a pulse repetition rate of ~ 100 MHz.

Main data

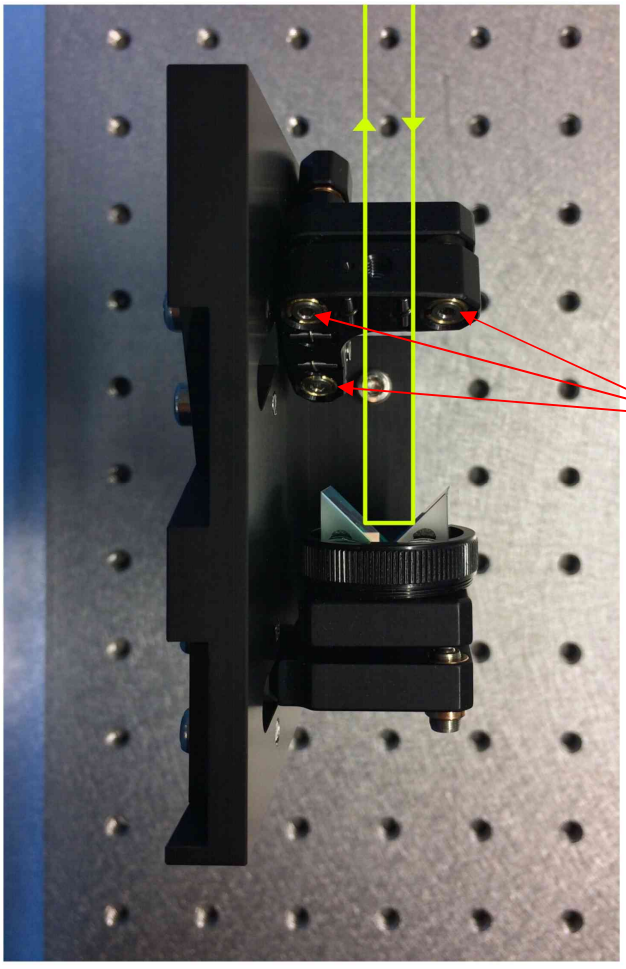
Wavelength	~ 800 nm
Dispersion compensation for fiber lengths between 2 m and 5 m	
Input	Free space
Output	Free space, can be used with a fiber collimator
Transmittance	> 70 %
Dimensions	12 cm x 8 cm x 4 cm (LXHXW)

The PS-800 comes pre-adjusted for dispersion compensation of fiber lengths between 1.5 m and 5 m according to the needs of the customer.

Top view



Side view



Screws for fine adjustment of the grating distance