ABSTRACT

A single-fiber bidirectional optical assembly (1), comprising: an optical emitter (11), an optical receiver (12), a lens assembly (13), a first filter (151), a second filter (152), an optical power attenuator (17) and an optical fiber interface end (16). The optical fiber interface end (16) is used for being connected to an optical fiber (2), a downlink optical signal emitted by the optical emitter (11) is focused by the lens assembly (13) and is then emitted to the optical fiber (2) sequentially through the first filter (151) and the optical fiber interface end (16) and is transmitted by the optical fiber, and an uplink optical signal transmitted by the optical fiber (2) passes through the second filter (152) and is then received by the optical receiver (12). The optical power attenuator (17) is arranged between the optical emitter (11) and the optical fiber interface end (16), and the transmittance of the optical power attenuator (17) varies with the wavelength of the optical signal. Under a synergistic action of the optical power attenuator (17) and the optical emitter (11), the output optical power difference of the single-fiber bidirectional optical assembly (1) in high-temperature and low-temperature working environments is reduced, and in a passive external modulation manner, the optical power adjustment range is extended to the maximum under the condition that high-frequency bandwidth and other properties of the optical emitter (11) are not affected.

Fig. 1