

Compact devices aid integration



Microwave Photonic Systems (West Chester, Pennsylvania, USA) has released a range of new transmitters and receivers that are designed to suit incorporation into radiofrequency (RF) photonic transport subsystems. The Ultra Compact Transmitter and Ultra Compact Receiver are aimed for use in systems where size, weight and power are critical. The MP-2320, MP-5000 and MP-6000 series of RF photonic links operate across the frequency range of 5 MHz to 26.5 GHz. The transmitter comes with a bulkhead-mounted connector or a single-mode fibre pigtail, where the length of the pigtail and type of connector can be specified by the customer. Visual indicators alert the user to any faults in the system. A DB-15 interconnect powers the module and relays its status through RS-232 and RS-422 protocols. The receiver has a single-mode fibre pigtail and a replaceable SMA/F output connector.

www.b2bphotonics.com

Links promise 40 GHz bandwidth

The latest microwave photonic links from Photonic Systems (Billerica, Massachusetts, USA) operate at frequencies of more than 40 GHz. They are designed for applications such as remote antenna distribution and radio/intermediate frequency signal distribution in military systems, satellite communications and cellular base stations. The PSI 1600 series transmits analog signals at frequencies of up to 12 GHz with high dynamic range — typically better than 112 dB Hz⁻¹. The PSI 2600 series relies on lithium niobate Mach-Zehnder modulators to provide a very high dynamic range, and has an operating bandwidth of 0.045–20 GHz. Both series are available with no amplifier, a pre-amplifier, a post-amplifier, or both. The PSI 3600 series operates without an amplifier and covers a frequency range of 0.045–18 GHz. A narrowband version is optimized for operation with channel bandwidths of less than one octave within a total possible

operating bandwidth of 18 GHz, providing a dynamic range of more than 120 dB Hz⁻¹.
www.photonicsinc.com

Add-on modules check fibres

The Sidelighter optical module from Artisan Laboratories (Jamison, Pennsylvania, USA) connects to most RF and microwave signal analysers, from suppliers including Anritsu, Agilent and Bird Technologies, to provide optical measurement capability for checking fibre transmission. It can be used to convert a handheld microwave analyser into a high-performance optical-distance-to-fault locator. Artisan says that its optical module does not suffer from the large ‘dead zone’ that is characteristic of an optical time-domain reflectometer, whose spatial resolution is limited by the duration of the optical pulses it employs. The module is designed for installing, verifying, troubleshooting and repairing fibre-optic cables and communication systems. Potential applications include aircraft, shipboard, distributed antenna and fibre-to-the-premises systems and satellite ground stations. The module allows both coaxial and fibre-optic cable measurements for hybrid systems. The device has a 5 cm event resolution, and it can resolve two events separated by less than 15 cm in a single fibre-optic cable.

www.artisanlabs.com

Low-noise phase-locked loop



An optical phase-locked loop system from Redfern Integrated Optics (Santa Clara, California, USA) is aimed at applications in RF and microwave photonics that require accuracy, reliability in demanding field conditions and high resolution. The system was designed around the company’s Planex laser system. It provides turnkey operation and reduces the development cycle time by providing easy integration into advanced fibre-optic sensing and monitoring systems. The unit offers ultralow phase noise and relative intensity noise, and includes ports for monitoring the optical signal, RF beat frequency and phase-locked loop lock

signal. It contains two lasers with specified wavelengths, narrow linewidths of <15 kHz with long coherence lengths, polarization-maintaining output fibres, optional higher output, selectable frequency-offset locking and monitoring, and fast wavelength tunability. A graphical user interface and a USB connector provide external monitoring and control. It comes in a 2U, 19-inch rack-mount version, with an OEM version planned for the first quarter of 2012.

www.rio-inc.com

Microwave receiver is wideband

The latest microwave receiver from Mireo (Brisbane, Queensland, Australia) offers a wideband response of 2–18 GHz in two distinct bands. The unit offers both crystal video receiver and super-heterodyne receiver capabilities. The crystal video receiver mode has a gain of 19–22.5 dB (±1.25 dB ripple) in the range of 2–8 GHz, and 20–23.5 dB (±1.25 dB ripple) in the range of 8–18 GHz, with a maximum noise figure of 5.5 dB and a minimum interchannel isolation value of 60 dB. The super-heterodyne mode has a gain of 33–38 dB (±1 dB unit-to-unit tracking) and a maximum noise figure of 7.5 dB. The device is designed as a general purpose amplifier or downconverter, as well as for use with electronic front ends. It operates at a d.c. voltage of 10 V with a maximum current of 1.2 A and an operating temperature of –54 °C to 85 °C.

www.mireo.com

Transceivers offer large dynamic range

Pharad (Glen Burnie, Maryland, USA) has introduced a new series of eight high-dynamic-range RF photonic transceivers. The various models operate from as low as 3 MHz up to 40 GHz. The company says the devices offer a spurious-free dynamic range of up to 120 dB Hz^{2/3} for use in high-performance RF photonic links that require large bandwidths. The multiband devices allow users to distribute many different RF signals remotely using a single transceiver. The company has designed the transceivers to be off-the-shelf products because of the growing demand for such equipment. The devices are aimed at applications such as communications, radar, electronic warfare, remote antenna distribution, aircraft and shipboard RF distribution systems, commercial wireless networks and satellite communications platforms.

www.pharad.com