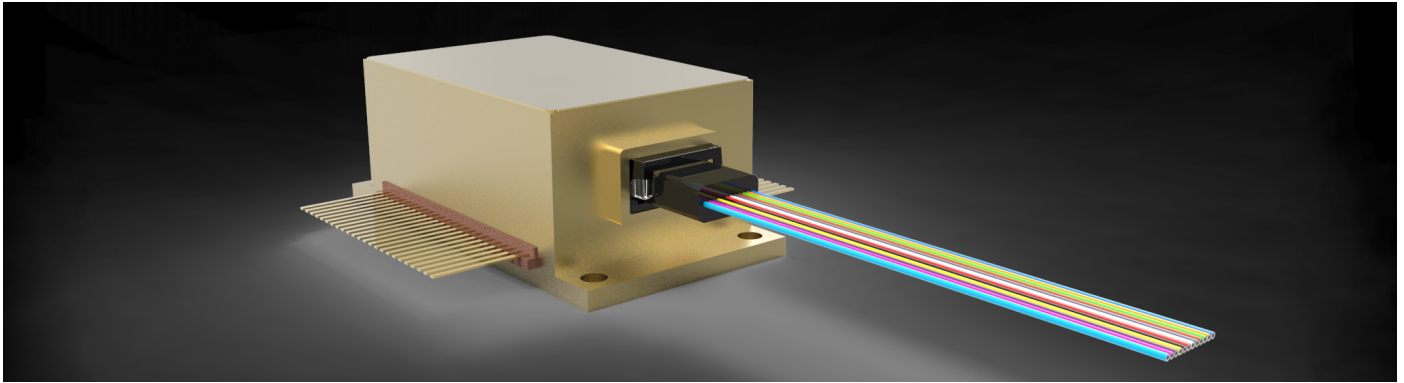


# OPTO-Fire® - FC8000 series

Harsh Environment 10Mbps to 12.5Gbps Optical Quad transceiver



- **Quad Tx & Rx**
- **Single and multi-channel**
- **10Mbps to 12.5Gbps per channel**
- **Operating temperature range -40°C to +95°C**
- **Storage temperature range -55°C to +125°C**
- **Average optical power per channel typically 2.2mW**
- **Built in test (BiT)**
- **50/125 um multimode ribbon fibre**
- **850nm wavelength**
- **I<sup>2</sup>C comms capable**
- **Optical Time Domain Reflectometry (OTDR) functionality**
- **1 KB (OTP) non-volatile memory**
- **Field replaceable fibre assembly**
- **Option of hermetic or low cost non-hermetic package**
- **Radiation tolerant circuitry**
- **High Rx dynamic range with AGC (Automatic Gain Control)**
- **Individual channel power down & software defined Squelch**
- **Tx “broadcast” mode - data stream replicated on up to 4 channels**

The OPTO-Fire® transceiver range is based on a high performance ruggedised optical interface from Ultra Communications Inc (qualified and operational in space). The modules are designed, qualified & manufactured in the UK for harsh environments on land, sea, air & space in accordance to MIL-PRF-38534 and are configurable for bidirectional optical data communications over multimode ribbon fibre links.

The module provides high-speed electrical-to-optical and optical-to-electrical conversion across four independent transmitter (Tx) and receiver (Rx) channels. It is sealed for use in harsh environments such as avionics and space and features Built-in-Test (BiT) capabilities and diagnostic monitoring through a digital serial interface.

## BiT Features includes:

- TSSI (Transmitter Signal Strength Indicator)
- TMSI (Transmitter Modulation Strength Indicator)
- Temperature sensor
- RSSI (Receiver Signal Strength Indicator)
- RMSI (Receiver Modulation Strength Indicator)
- Critical Transceiver operating conditions

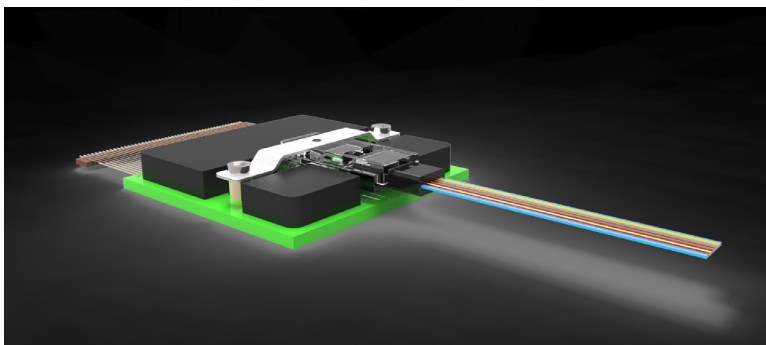
## Avionics and Space applications

- 100 - 800Mbps FireWire & SpaceWire
- 1x – 10x Fibre Channel
- 1 - 10Gbps Ethernet
- 2.5 Gbps PCI Express
- Serial Rapid IO
- Vita 17.2

Parameter (Tx)	Min	Typ	Max	Units
Data rate per chl		-	12.5	Gbps
Optical $\lambda$	830	850	860	nm
Pk to Pk differential input voltage	400	-	1600	mV
Input differential resistance	80	100	120	$\Omega$
Differential input common mode	-	0.85 $*V_{DDC}$	-	V
Differential input rise/fall time	-	-	200	ps
Output propagation delay	-	-	1	ns
Deterministic jitter contribution @ 10Gbps	-	-	55	ps <sub>p-p</sub>
Average Optical power per Chl	-	2.2	-	mW

Parameter (Rx)	Min	Typ	Max	Units
Data rate per Chl	0.01	-	12.5	Gbps
Pk to Pk differential output voltage	400	730	850	mV
Differential output rise/fall time	-	30	-	ps
CML differential load impedance	80	100	120	$\Omega$
Total Jitter contribution @ 10 Gbps	-	-	22	ps <sub>p-p</sub>
Deterministic jitter contribution @ 10 Gbps	-	2	10	ps <sub>p-p</sub>
Receiver overload @5 Gbps	-	+1.5	-	dBm
Receiver sensitivity @ 5 Gbps	-	-20	-	dBm
Receiver sensitivity @ 10 Gbps	-	-16.5	-	dBm

*Subject to design change*



**Custom  
Package  
Options  
Available**

