ATG SOLUTIONS

IFLEX-D: Intermediate Frequency Converter (IFC)
*High Port Capacity Digital IF and L-Band IF Conversion*

For SATCOM operators migrating legacy analog modem systems or deploying greenfield digital IF architectures, ATG Solutions offers the IFLEX-D to translate signals between digital IF and analog L-band IF. The IFLEX-D is a high port density IFC platform that supports application virtualization and IEEE Standard 4900-2022 Digital IF Interoperability (DIFI) digital IF protocol for 1000 MHz RF spectrum. Unlike other IFC solutions, ATG Solutions designed and built the IFLEX-D on common hardware to support the extensibility of new virtualized customer applications on IFC platforms. In addition, the IFLEX-D can support up to 12 channels in a 1U form factor, provides digitization to support next-generation applications and removes bottlenecks in ground segments where analog switching systems limit capacity.

Legacy Analog Modem to Digital IF Migration

As L-band switching systems bottleneck capacity, the ground segment will transition to digital IF networks. Migrating legacy devices to digital IF requires a stop-gap before a fully digitized deployment. The IFLEX-D provides 12 TX/12 RX analog ports in a single rack unit form factor to migrate analog modems into a digital IF architecture.
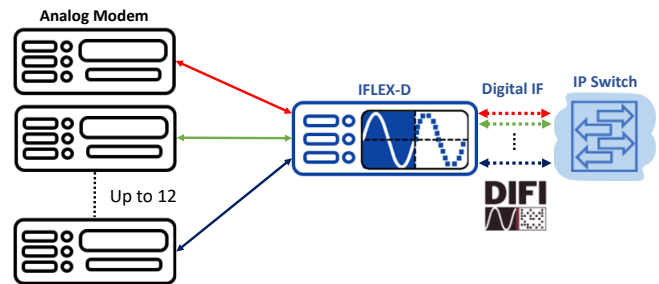
Virtualized Signal Processing

As virtualized processing evolves, applications such as waveforms and signal analysis require digitized access for the analog domain. The IFLEX-D digitizes up to 1000 MHz of analog bandwidth for each port.
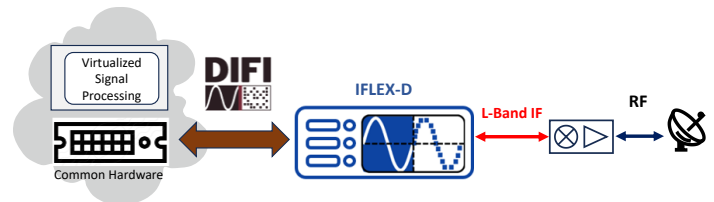

Digital Inter-Facility Link

Analog L-band transmission and switching systems can introduce slope distortion and power loss degrading signals. Additionally, digital IF expands flexibility for site antenna and site diversity. Replacing analog transmission systems with IP switching systems supports the ground segment's agility and routing. The IFLEX-D supports two 100 GbE interfaces for digitized inter-facility transport.
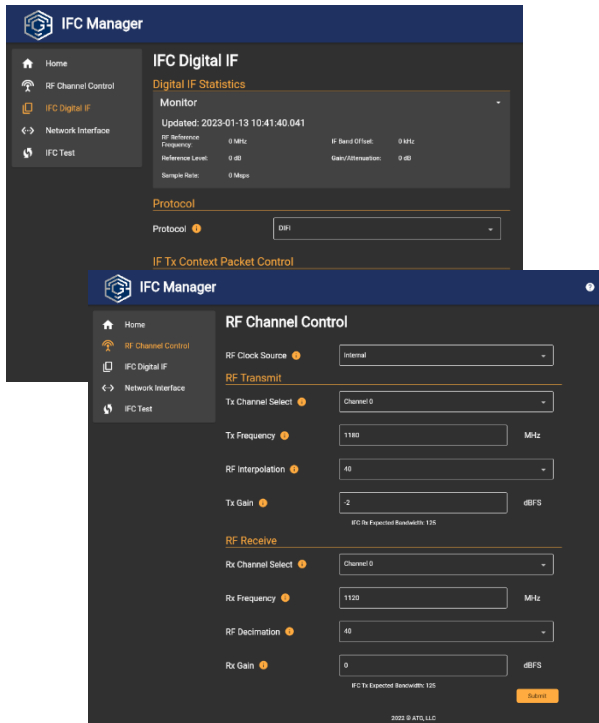
IFLEX-D: Intermediate Frequency Converter (IFC)
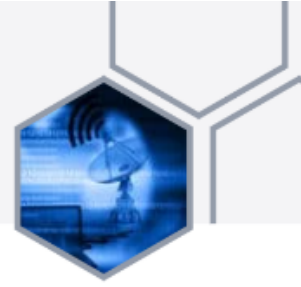
Front panel

Back panel

User Interface

Technical Specifications

Analog Interfaces

Analog Connections	Transmit/Receive Ports
• SMA (50 Ohms)	• IFLEX-D4: 4 TX/4 RX • IFLEX-D8: 8 TX/8 RX • IFLEX-D12: 12 TX/12 RX
Frequency • L-Band (950-2150MHz)	**Instantaneous Bandwidth** • 10MHz - 1000MHz per port (Configurable)
Variable Gain • Input -40 to 0 dBm • Output -40 to 0 dBm	**Clocks and Reference** • 10 MHz In, SMA (50Ohms) • 10 MHz Out, SMA (50Ohms) • 1 PPS*

Digital IF Interfaces

Digital IF Physical	Digital IF Data Transport
• IFLEX-D4: 2 x QSFP28 • IFLEX-D8: 4 x QSFP28 • IFLEX-D12: 6 x QSFP28	• IEEE 4900-2022: DIFI V1.2 **Sampling** • 4-16 bits per sample • 10 ksps-1.25 Gsps (configurable)
Digital IF MAC • 100/40*/10* GbE	**Digital Conversion** • 14-Bit ADC at 5 Gsps • 14-Bit DAC at 6 Gsps

Mechanical & Power

1RU: 17.55" x 1.72" x 28" (445.77mm x 43.68mm x 711.2 mm)	Input Power: 100-240VAC 50/60Hz IFLEX-D4: 75 W Max IFLEX-D8: 130 W Max IFLEX-D12: 190 W Max

Management Interfaces

SNMP, Web GUI, REST API	RJ45 Ethernet

Other Specifications

Operational Temperature: 5 to 35 °C

* Future Capability