



# IQ 310

## Intelligent Frame Relay Performance Monitoring

### Product Features

- Layer 1-3 performance monitoring
- Modular network interface-56/64k, T1/FT1, T1 Probe and T1/FT1 with DSX-1
- Safe-T-Net dial backup support to avoid service interruption
- Embedded Java applet, N-Formant, for GUI configuration and real time monitoring
- Complete N-Form network management software support
- Real-time measurement of throughput, bandwidth utilization, bursting, congestion, and network delay on each PVC
- Bandwidth utilization by port, PVC, protocol, and top talkers
- End-to-end network roundtrip delay measurements for network optimization
- Easy configuration from N-Form, Telnet, VT100, front panel, or Internet browser
- Standard V.35 DTE interface
- Industry-leading five-year North American warranty

**The IQ™ Series from ADTRAN® provides extensive Frame Relay performance management at a significant cost savings.**

The IQ 310 provides the visibility and control you need for both the physical and logical connections made in Frame Relay networks. This intelligent solution for managed Frame Relay access allows you to enjoy the monetary savings of Frame Relay without giving up management visibility and control.

The IQ 310 is a modular CSU/DSU that provides two expansion slots for network interface and dial backup cards and a 10Base-T Ethernet port for management. With network interface cards that provide for 56/64k, T1/FT1, T1 Probe, and T1/FT1 with DSX-1 capability, the IQ 310 protects your investment and enables performance monitoring on all your Frame Relay circuits. Optional dial backup cards are available that support analog, ISDN BRI, ISDN PRI, and DTE applications.

Real-time measurement of Frame Relay metrics are stored in the IQ 310. These metrics include statistics on throughput and utilization per port and PVC, availability, utilization by protocol, top talkers, lost frames, PVC state, excess bursting above CIR, network congestion (FECN, BECN, and DE), and end to end delay on any or all PVCs. This data is crucial for pinpointing specific traffic demands and problem sources in the network, for analyzing traffic patterns, and for general maintenance and troubleshooting of the Frame Relay circuit. These statistics are stored in SNMP v.2 enterprise specific MIBS.

The IQ 310 supports multiple ways to access the collected performance data. Options include simple VT100 connection, front panel, management access through in-band dedicated or shared PVCs, or the integrated Ethernet port. The IQ 310 also supports N-Formant, an embedded

web-based Java applet that provides a GUI interface for real-time monitoring and configuration.

Optional dial backup functionality is available for business continuity planning. Safe-T-Net™ is ADTRAN's technology that provides dial backup for network recovery of Frame Relay Traffic. Using Safe-T-Net, the IQ 310 provides automatic dial backup upon interruption of Frame Relay services. Safe-T-Net monitors both the physical link and the Frame Relay signal to determine if an interruption has occurred. Once detected, the unit automatically initiates a dial-up call around the Frame Relay network. A host IQ unit initiates and accepts calls to and from IQ units at remote sites. Once connected, the host unit merges backup traffic with the primary traffic still being received from unaffected remote sites. The router or Frame Relay device connected to the IQ still receives all data as Frame Relay traffic over the primary connection, allowing a virtually transparent transition. Once the failed condition has been cleared and the Frame Relay interruption is over, the IQ unit automatically restores traffic to the primary link. Safe-T-Net is compatible with the IQ, ATLAS™, and Express 5000 Series product lines.

The IQ 310 is complemented by a network management software suite from ADTRAN called N-Form®. N-Form is a modular, Java-enabled, Windows-based platform combining the features of an SNMP management platform with a network trend analysis tool in one easy-to-use, web-based, cost-effective package. With N-Form, the IQ 310 can be remotely configured through a graphical interface. N-Form also monitors alarm conditions and reports on both Frame Relay and physical link metrics in either graphical or tabular formats.





# IQ 310

ADTRAN, Inc.  
Attn: Enterprise Networks  
901 Explorer Boulevard  
Huntsville, AL 35806

P.O. Box 140000  
Huntsville, AL 35814-4000

256 963-8000 voice  
256 963-8699 fax  
256 963-8200 fax back

**General Information**  
800 9ADTRAN  
info@adtran.com  
www.adtran.com

**Pre-Sales  
Technical Support**  
800 615-1176 toll-free  
application.engineer@adtran.com  
www.adtran.com/support

**Where to Buy**  
877 280-8416 toll-free  
channel.sales@adtran.com  
www.adtran.com/where2buy

**Post-Sales  
Technical Support**  
888 423-8726  
support@adtran.com  
www.adtran.com/support

**ACES Installation &  
Maintenance Service**  
888 874-ACES  
aces@adtran.com  
www.adtran.com/support

**International Inquiries**  
256 963 8000 voice  
256 963-6300 fax  
international@adtran.com  
www.adtran.com/international

**For the regional office  
nearest you, visit:**  
www.adtran.com/where2buy



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## Intelligent Frame Relay Performance Monitoring

### Product Specifications

#### Operating Modes

- 100 DLCIs monitored
- 56/64k, T1/FT1, T1 Probe, and T1/FT1 + DSX-1 Frame Relay
- Automatic LMI detection

#### Access Line Statistics

- T1 BPVs, CRCs, ES, SES, UAS, %AS, %EFSEC, Alarm, Errors
- Telco loop test in progress

#### PVC Statistics

- PVC state
- Bytes Tx/Rx; frame Tx/Rx
- Frames with BECN/FECN/DE
- Max/Min/Avg frame size
- Throughput/bandwidth utilization per PVC
- Lost frames/sequence check
- Continuous PVC delay measurement
- Max/Min/Avg end-to-end PVC delay
- Burst rate
- Congested seconds

#### Port Statistics

- Byte Tx/Rx; frame Tx/Rx
- Throughput/utilization
- Frame size violations (invalid frames)
- CRC errors/abort frames
- Non-octet aligned frames

#### LMI Statistics

- LMI state/state changes
- Polls in; Responses in
- Timeouts/link integrity frames
- Polls with protocol error

#### Layer 3 Statistics

- Monitor protocols on port and PVC
- Protocols supported: IP/IPX, ARP, SNA, other
- Top talkers

#### Layer 4 Statistics

- Monitor protocols by Tx and Rx on each PVC
- Protocols supported: TCP, UDP, ICMP, and others

#### Diagnostics

##### Frame Relay

- PVC loopback with test pattern/sequence check
- PVC round trip delay

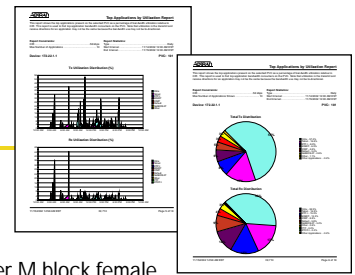
##### Network/User

- CSU loopbacks

#### Network Interface Options

- 56/64k Network Interface Module
- T1/FT1 Network Interface Module
- T1/FT1 + DSX-1 Network Interface Module
- T1 Probe Module

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#### DTE Interface

- V.35 Winchester M block female
- 56 to 1.536, Nx56 or Nx64 kbps

#### Configuration

- ADTRAN N-Form web-based network management suite
- Local and remote VT100 terminal via the Control port
- Remote configuration via Frame Relay network connection
- Telnet
- Front panel
- Embedded Java-based web application

#### Management Options

- ADTRAN N-Form web-based network management suite
- In-band access through shared or dedicated PVC
- VT100 control port
- 10Base-T Ethernet interface

#### Environment

- **Operating Temperature:** 0° to 50° C, (32° to 122°F)
- **Storage Temperature:** -20° to 70° C, (-4° to 158°F)
- **Relative Humidity:** Up to 95%, non-condensing

#### Physical

- **Dimensions:** 10" D x 8" W x 2.75" H
- **Weight:** 4.5 lbs ■ **Power:** 115 VAC, 60 Hz, 7 W

#### Product Includes

- One 8-pin to 8-pin modular cables
- Product manual CD

### Ordering Information

Equipment	Part #
IQ 310 with 56/64k Network Interface	4203801L1
IQ 310 with T1/FT1 Network Interface	4203802L1
IQ 310 with T1/FT1 + DSX-1 Network Interface	4203803L1
IQ 310 with T1 Probe Module	4203804L1
IQ Series 56/64k Network Interface Module	1202801L1
IQ Series T1/FT1 Network Interface Module	1202802L1
IQ Series T1/FT1 + DSX-1 Network Interface Module	1202803L1
IQ Series T1 Probe Module	1202804L1
IQ Series V.34 DBU Module	1204002L3
IQ Series ISDN BRI DBU Module	1204004L2
IQ Series External DCE DBU Module	1204006L2
IQ Series ISDN PRI DBU Module	1204008L2

