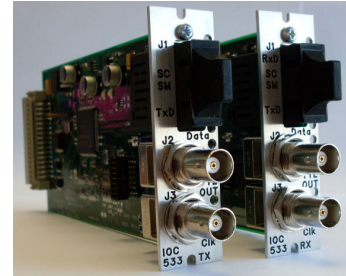# APOGEE LABS

IOC535
FIBEROPTIC / RS-422
TRANSMIT / RECEIVE MODULE

IOC533 TX/RX Shown

FEATURES

- RS-422 data and clock input / output
- 100 bps to 40 Mbps data rate
- Single or Multimode fiber optic input / output
- Single or Multimode fiber SC connector
- Single or Multimode fiber moves both data and clock signals
- DC isolated link
- Inputs illuminate front panel indicators
- Ethernet remote control and status (AL2873 chassis)
- Input code - NRZ-L
- Output code selectable - RNRZ; NRZ-L, M, S; BiØ-L, M, S
- Optical repeater function (IOC535RX module)
- Low latency

FUNCTIONAL OVERVIEW

The IOC535 Pluggable Interface Module (PIM) provides the ability to transfer electrical signals over optical cables. These modules are used to provide a DC isolated data link, provide a medium length (up to a few miles) data path, and reduce radiated emissions. The transmitter accepts a RS-422 serial synchronous data stream (data and clock) and converts it to an optical signal for transmission over single or multimode fiber optic cable. The packetized data is received by the receiver module, which converts the optical signal back to its original RS-422 data and clock form. The IOC535 uses industry standard Triax and SC connectors, operates from 100 bps to 40 Mbps, and requires one of the 14 available slots in the AL2073 or AL2873 chassis. Also support by the single-slot AL2073-S "brick" chassis.

SPECIFICATIONS

GENERAL
- Triax connectors
- SC fiber connectors
- Single slot (3" x 6" x 0.9")
- Single or Multimode
- Model AL2073 pluggable interface module (PIM)

ELECTRICAL SIGNAL INPUT
- RS-422
- 120Ω termination

LINK LATENCY
The following represent the latency from input of the IOC533\5TX to the output of the IOC533\5RX.

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 54 mS at   10 Kbps
5.4 mS at 100 Kbps
540 uS at    1 Mbps
100 uS at    5 Mbps
 57 uS at   10 Mbps
 39 uS at   15 Mbps
 30 uS at   20 Mbps
 21 uS at   30 Mbps
 17 uS at   40 Mbps
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ELECTRICAL SIGNAL OUTPUT
- RS-422
- High current

OPTICAL SIGNAL I/O
- SC type connectors
- Single or Multimode
- 1300 nm wavelength

APPLICATION INFORMATION

The IOC535 is used to distribute data across long lengths (15km) of fiber cable. It utilizes industry standards for both the electrical and optical signal interfaces. The units are self adjusting to any data rate within its specified range requiring no operator setup. The IOC535RX functions as an optical repeater when its SC optical TX port is used to drive another IOC535RX. The RS-422 outputs are not disturbed when functioning as an optical repeater.

The AL2073 Chassis Front Panel LEDs which correspond to a specific IOC535 module offers a quick look status of the module's operation. When installed in the AL2873 chassis, RS-422 data/clock and Fiber status will be available on the front panel and via the Ethernet control port.

This module can also be plugged into Apogee Models:

AL2873

AL2073

AL2073-S

210 South Third Street, North Wales, PA 19454
Ph. 215-699-2060

When installed in the AL2073 rotary switched slot or the AL2073-S the module can take advantage of the input Daisy Chain bus DC (AL2073 only) and output data and clock polarity based on the factory programmed configuration as follows (NOTE : Input is NRZ-L):

IOC535TX

Switch Position	Data Polarity	Clock Polarity	Input Source
1	+	+	Triax
2	+	-	Triax
3	-	+	Triax
4	-	-	Triax
5	+	+	DC
6	+	-	DC
7	-	+	DC
8	-	-	DC

The IOC535RX module provides numerous configuration options which are best configured when installed in the AL2873 chassis. The following factory programmed settings are available when installed in the AL2073 Chassis with a rotary switched slot and in the AL2073-S chassis. Custom configurations available at time or order.

IOC535RX

Switch Position	Data Polarity	Clock Polarity	Output Code
1	+	+	NRZ-L
2	+	-	NRZ-L
3	-	+	NRZ-L
4	-	-	NRZ-L
5	+	+	BIO-L
6	+	+	RNRZ
7	+	-	RNRZ
8	-	+	RNRZ