DXF-200
DVI/HDMI Optical Extension System
User's Manual

M916-9900-102

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Miranda
Technologies Inc.
3499 Douglas-B.-Floreani
St-Laurent, Québec, Canada H4S 1Y6
Tel. 514-333-1772
Fax. 514-333-9828
www.miranda.com

Electromagnetic Compatibility

This equipment has been tested for verification of compliance with FCC Part 15, Subpart B requirements for class A digital devices.

This equipment has been tested and found to comply with the requirements of the EMC directive 2004/108/CE:

- EN 55022 Class A Radiated and conducted emissions
- EN 55024 Immunity characteristics
- EN 61000-3-2 Limits for harmonic current emissions
- EN 61000-3-3 Limitation of voltage changes, voltage fluctuations and flicker
- EN 61000-4-2 Electrostatic discharge immunity
- EN 61000-4-5 Surge transient Immunity
- EN 61000-4-6 Conducted disturbances immunity
- EN 61000-4-11 Voltage dips, short interruptions and voltage variations immunity

How to contact us:
For technical assistance, please contact the Miranda Technical support centre nearest you:

Americas
Telephone:
+1-800-224-7882
e-mail:
techsupp@miranda.com

Asia
Telephone:
+852-2539-6987
e-mail:
asiatech@miranda.com

China
Telephone:
+86-10-5873-1814
e-mail:
asiatech@miranda.com

Europe, Middle East, Africa, UK
Telephone:
+44 (0) 1491 820222
e-mail:
eurotech@miranda.com

France (only)
Telephone:
+33 (0) 1 55 86 87 88
e-mail:
eurotech@miranda.com

Visit our web site at www.miranda.com

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CAUTION

1. This device is a Class 3R Laser device (per IEC 60825-1:2007) and can cause damage to eye sight if used improperly
2. When not connected to a fiber, place a dust cap (provided with your unit) on the SC connector.
3. Do not place heavy objects on top of the DXF-100 transmitter or receiver.
4. Be careful not to drop the transmitter or receiver.
5. Keep away from high temperatures (over 50°C) and low temperatures (under 0°C), or high humidity. These conditions may cause a fire and electrical shock hazard.
6. Use the DC power adapter provided with your DXF-200. Otherwise, there is a risk of fire.
7. Do not twist or pull forcefully on either end of the optical cable, as the connection may be damaged. (Minimum bending diameter:75mm)
8. Dismantling the housing or modifying the module may result in electrical shock or burn
9. Keep the transmitter and receiver modules away from liquids. Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls/spills into the housing, unplug the module immediately. Have the module checked by a qualified service technician before using it again.

1 DXF-200 HDMI Optical Extension System

1.1 Introduction

The DXF-200 DVI/HDMI Optical Extension System allows the interconnection of any DVI/HDMI device and a display at distances up to 1000m without any loss of signal integrity. It consists of small transmitter and receiver modules that are connected with a single multimode fiber. The DXF-200 offers automatic EDID detection. Devices supporting EDID will be able, amongst other things, to offer the best picture quality by reading the native resolution of the display. Moreover the DXF-200 comes with a multi-status LED which is helpful in troubleshooting both cable and fiber connectivity problems. A rack-mounted tray supporting up to 8 DXF-200 transmitters or receivers is also available. The DXF-Tray comes with redundant power supplies and may conveniently be installed at the back of a rack, conserving rack space while offering a robust installation for DXF-200 modules.

The DXF-200 is very useful in the installation of Kaleido systems, which support multiple displays that may be located in different venues. There is a different DXF-200 kit for each Kaleido family product.

Figure 1: DXF-200 TX and RX unit

1.2 Features

- Multimode fiber with SC connector (50/125 um or 62.5/125 um)
- Maximum distance up to 1000 m (3300 ft)
- Provides EDID detection from the display allowing automatic resolution adjustment
- Multi-status LED for easy fiber and cable troubleshooting
- Tray option for rack mount installation of up to 8 units
- Maximum resolution WUXGA (1920 x 1200)

2 Installation

2.1 Unpacking

Before you start installing DXF-200 module, please check the package contents:

- DXF-200-TX Transmitter (1)
- DXF-200-RX Receiver (1)
- Power Adapter 6VDC/2A (1 or 2)
- Power cord (2)
- Cable kit (1, consisting of 3 cables)
- User's Manual

2.2 Mounting

The DXF-200 can be mounted in various ways to best fit your installation:

2.2.1 Free standing

After securing all connections, you can lay the unit flat on a surface, attach it to part of the rack (using tie-wrap) or leave it hanging from its HDMI connection. Make sure there is no stress on the fiber connection, as the SC connector is not made to withstand the weight of the unit.

2.2.2 Hanging on a rack mount screw

Figure 2: Back view of the DXF-200

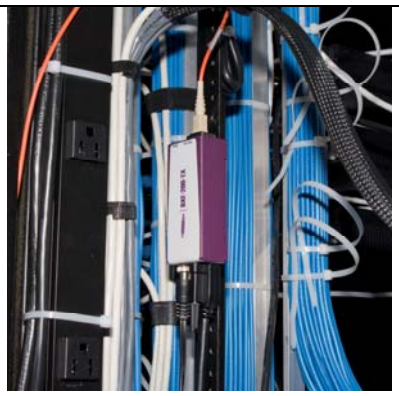


Figure 3: Rack mounted DXF-200

You can mount your DXF-200 to the back rail of your rack using a standard rack mount screw and the slot provided at the back of the unit

2.2.3 DXF-Tray

Figure 4: DXF-Tray

The DXF-Tray provides an ideal solution for mounting up to eight DXF-200s on a 1 RU shelf. With the DXF-Tray you have a redundant power supply as well as a GPI status of each supply. The GPI provides a "High" (6V) signal when the power is applied and a GND on power fail. This GPI signal is compatible with the entire Kaleido family of products.

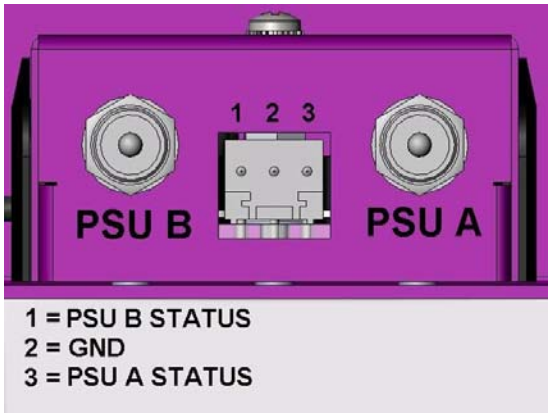


Figure 5: DXF-Tray Connectors

2.3 Connection

The DXF-200 consists of a transmitter and a receiver. The transmitter (TX) should be connected to the source (Kaleido) HDMI or DVI port, and the receiver (RX) should be connected to the DVI port of the digital display. The transmitter and receiver were designed to be used with an SC type multimode optical cable (not supplied).

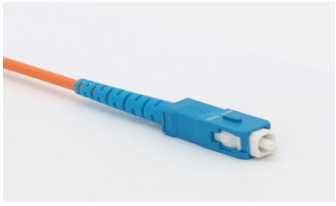


Figure 6: SC type standard optical cable connector

2.4 Connecting the DXF-200 Modules

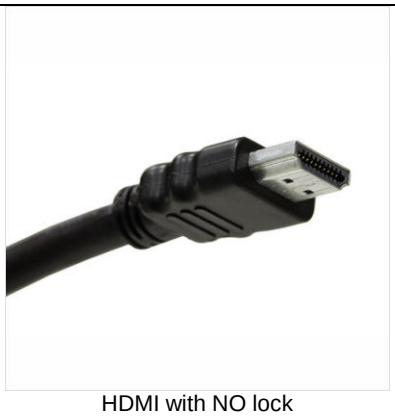
To connect your DXF-200 modules between a Kaleido and a display:

1. Connect an optical fiber cable between the DXF-200 transmitter and receiver (be sure to use the appropriate multimode fiber cable).
2. Connect a DXF-200 power adapter to each unit, making sure to lock the connection.
3. Ensure the power adapter is connected to an AC supply.
4. Using the appropriate cables, connect the transmitter to the Kaleido and the receiver to the display. Tighten the cable retaining screw.
5. Start or Restart your Kaleido.

The DXF-200 comes with 3 cables offering different connector configuration. Each one of them will allow you to connect it to various devices and displays. Always use the HDMI with lock side of the cable connected to the DXF-200 itself for a secure and reliable connection.

DVI Connector

HDMI with lock



HDMI with NO lock

Figure 7: Connector type

2.4.1 DXF-200-A

The DXF-200-A is supplied with 3 cables to allow easy interconnection to various types of displays and the Kaleido-X DVI connector.

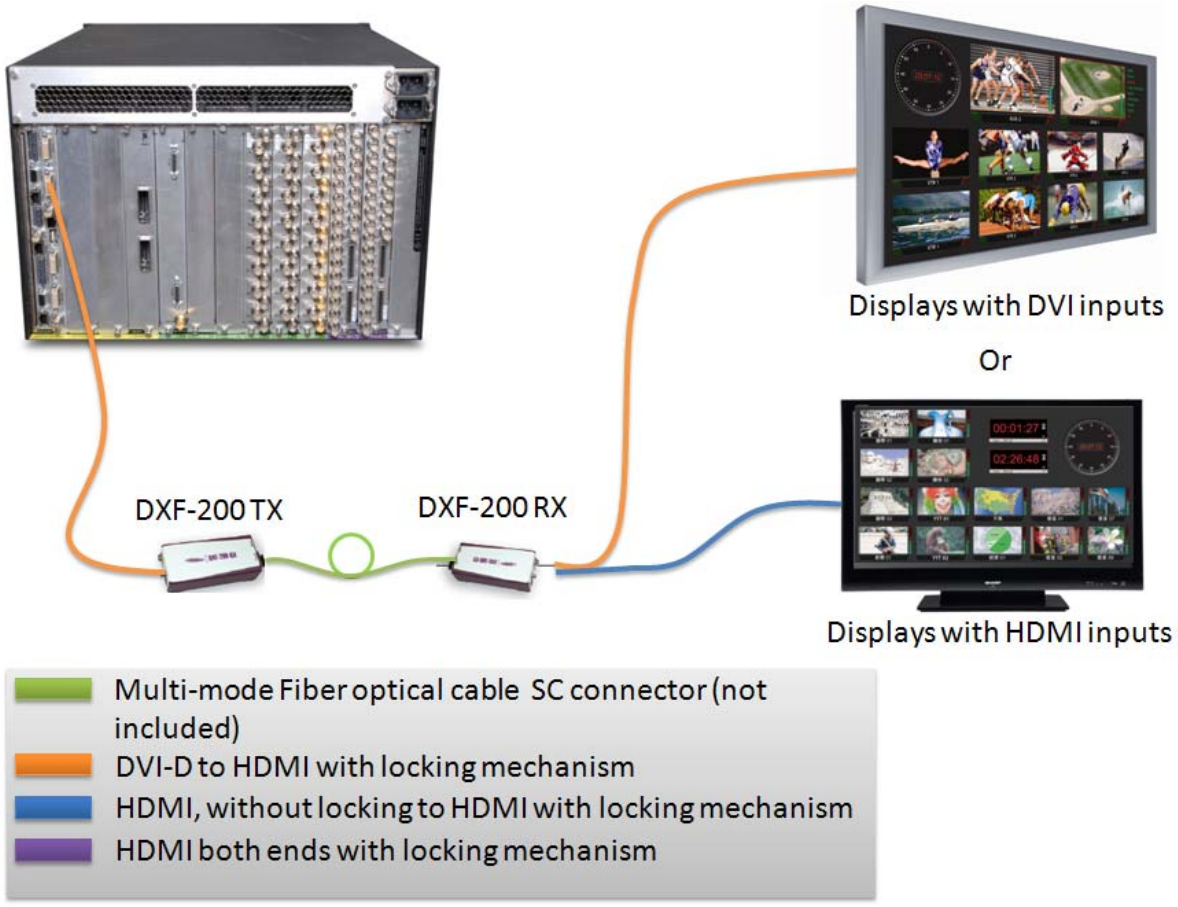


Figure 8: DXF-200-A installed with Kaleido-X

2.4.2 DXF-200-B

The DXF-200-B is supplied with 3 cables to allow easy interconnection to various types of displays and the Kaleido-X16 HDMI with locking nut mechanism.

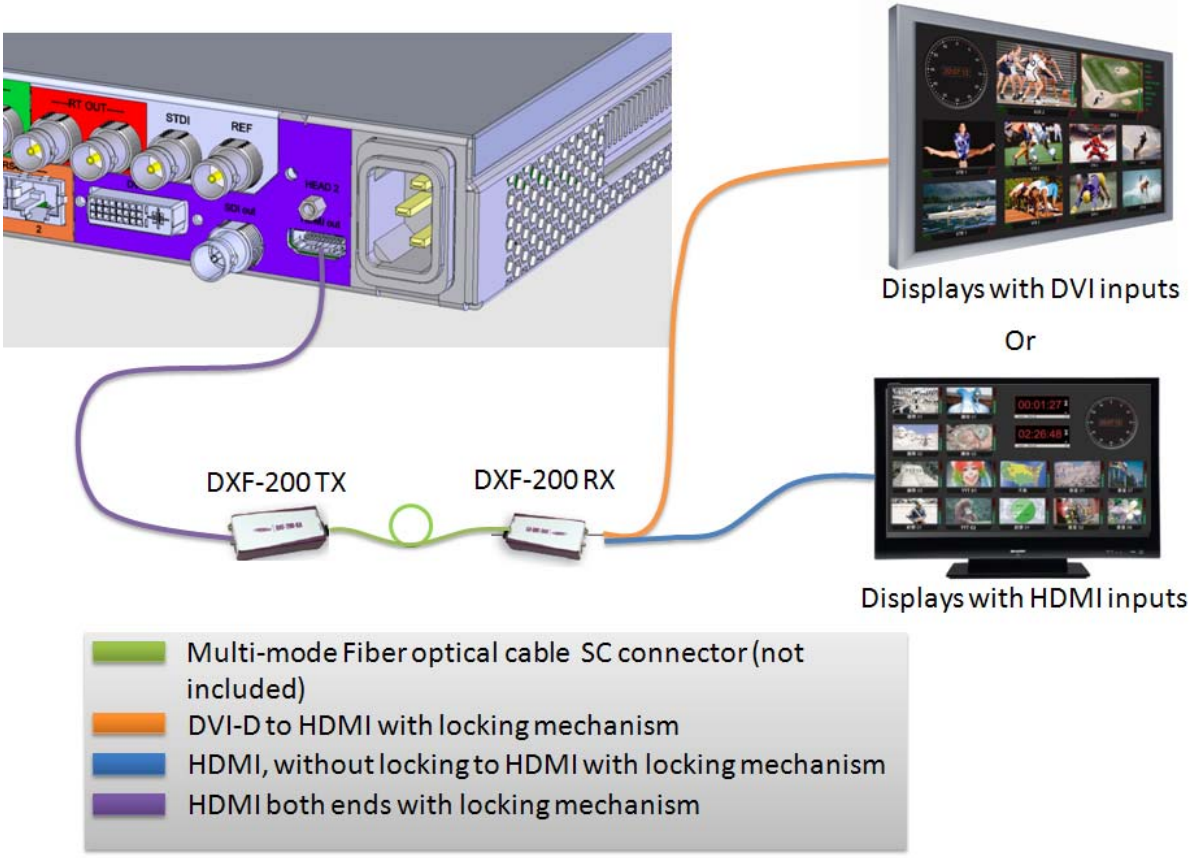


Figure 9: DXF-200-B installed with Kaleido-X16

2.4.3 DXF-200-C

The DXF-200-C is supplied with 3 cables to allow easy interconnection to various types of displays and the Kaleido-Modular HDMI, in which case the cable cannot use the locking screw mechanism since a different mechanism is supplied with the product.

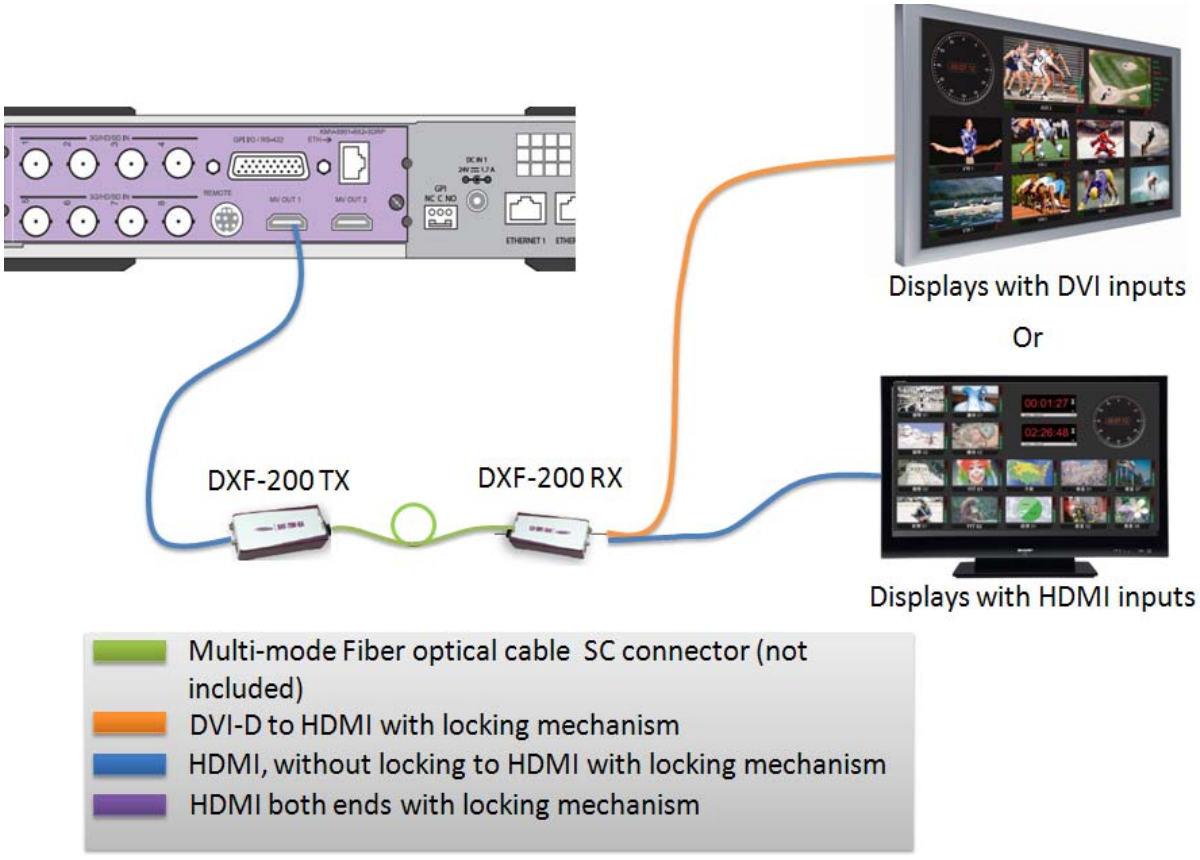


Figure 10: DXF-200-C installed with Kaleido-Modular

Connector Pin Assignments

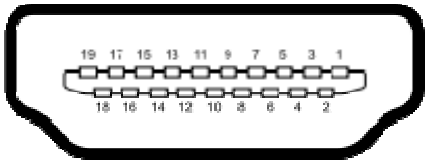


Figure 11: HDMI Pinout

Pin	Signal Assignment	Pin	Signal Assignment
1	T.M.D.S. Data2+	11	T.M.D.S. Clock Shield
2	T.M.D.S. Data2 Shield	12	T.M.D.S. Clock-
3	T.M.D.S. Data2-	13	CEC (Not Supported)
4	T.M.D.S. Data1+	14	No Connect
5	T.M.D.S. Data1 Shield	15	SCL (DDC Clock)
6	T.M.D.S. Data1-	16	SDA (DDC Data)
7	T.M.D.S. Data0+	17	Ground (for DDC)
8	T.M.D.S. Data0 Shield	18	+5V Power
9	T.M.D.S. Data0-	19	Hot Plug Detect
10	T.M.D.S. Clock+		

2.5 Device Status

Led Color	Description
Green	OK: A proper link is established between TX and RX
Orange	No graphics: An optical link is established, but there is no HDMI source or display connected
Blinking	No fiber: There is no optical connection between the TX and RX unit
Red	Error: The device was not powered up properly. Disconnect the HDMI and power cable, make sure the power adapter is connected and powered up and then reconnect the HDMI

3 Troubleshooting

Problem	Possible solutions…
Screen is not displayed, but status LED is green	• Make sure the display supports the resolution set on your Kaleido. If your device supports it, turn the automatic resolution detection on. • Make sure the TX unit is on the Kaleido side and the RX unit is on the display side. • Make sure the display is turned on.
Status led is BLINKING even with a fiber present	• Make sure you are using the right multimode fiber type • Make sure there is a powered-up DXF-200 at each end of the fiber • Check the fiber for any damage • Make sure your fiber length is below 1000m. *Note: depending on fiber type and if splices are done on your fiber the actual maximum length will be reduced*
Status led is ORANGE	• Make sure the source is active. • Make sure you are connected to a HDMI or DVI output on the Kaleido side (there is also a DVI input on the Kaleido-X and Kaleido-X16)
Status led is RED	• Disconnect the HDMI and power cable. Then, reconnect the power cable, make sure the LED is on and connect the HDMI cable
Status led is off	• Make sure the power adapter connection is secure and that it is connected to a live AC source
GPI Status are not working	• Make sure you connected the GND of the DXF-Tray to the GND of your Kaleido GPIO connector. • Make sure your Kaleido GPI is set as an input (on KX) • Make sure you are using a Kaleido GPI input (KMV-3901 and X16)

4 Specifications

General

Frequency Bandwidth:	1.65 Gbps (Single Link)
Supported Graphic Resolution:	WUXGA resolution (1920 x 1200)
Distance between TX and RX:	up to 1 Km (3,300 ft)
Connectors:	HDMI and SC connector
Supply Voltage:	6VDC
Power Consumption:	
Tx:	1.5 Watt (max)
Rx:	1.0 Watt (max)

Optical

Optical Source:	778, 800, 825 & 850nm VCSEL (High Speed)
	911 & 980 nm VCSEL (Low Speed)
O/E Converter:	PIN Photo Diode
Fiber Type:	50 or 62.5/125 SC Multi-mode

Environmental

Operating Temperature Range:	0 to 50 degrees Centigrade
Storage Temperature Range:	-30 to 70 degrees Centigrade

Power Supply Safety Approvals

The external power adapters supplied by Miranda with the DXF-200, and the power supplies installed in the DXF-Tray, comply with the requirements of:

- UL 60950-1
- IEC/EN 60950-1