



Fiber Optic Video/Audio/Contact Mapping Transmission System

Installation Instructions

Part Number:

FT-AiphoneAX1-SFP

(Video transmitter, 1-channel Audio & 2-channel Contact Closure Transceiver)

FR- AiphoneAX1-SFP

(Video receiver, 1-channel Audio & 2-channel Contact Closure Transceiver)

Meridian Technologies, Inc.
700 Elmont Road, Elmont NY 11003, USA
Telephone: +1. 516. 285. 1000 Fax: +1. 516. 285. 6300
E-mail: sales@meridian-tech.com Web: www.meridian-tech.com

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FT/FR- AiphoneAX1-SFP **Fiber Optic Video/Audio/CC Transmission System** **Installation Instructions**

1.0 Product Description

Meridian's product series FT/FR-AipnoneAX1-SFP are fiber optic modems that transmit & receive one channel of 10-bit NTSC/PAL video channel (one direction), one uni-directional audio channel and two channel of bi-directional contact closure over SFP optical fiber using digital transmission technologies. This product series uses Meridian's standard 1- slot wide chassis mount card assembly and plugs into the following Meridian chassis: SR-500/S, 1002/S, SR-1600/S and SR-2001 & SR-2000 series 19" equipment chassis.

SFP optical modules are supported. Optional conformal coating provides an additional level of protection from environments with high humidity.

2.0 Installation

Series FT/FR-AipnoneAX1-SFP products are one-slot wide cards and occupy one slot in Meridian's standard chassis. To install in these chassis, orient the card with the Meridian logo at the top of the module and slide onto the top and bottom card guides in the chassis. Press securely on the top and bottom of the module to ensure that it is fully seated in the chassis so that the electrical connector mates with the chassis-mounted motherboard. Once installed, manually tighten the two thumbscrews located at the top and bottom of the card. Do not use tools to secure these and do not over tighten.

Note: A fully loaded 19" subrack should have forced-air cooling to avoid excessive heat generation inside the chassis. A fan assembly tray (P/N FA-2000) with three (3) fans is available and should be installed under the 19" SR-2000/1 whenever possible.

3.0 Product Signal Format & Specifications

The FT/FR- AipnoneAX1 series products can transmit and receive the following signals:

Signal Type	Channels
NTSC/PAL Video	1
Audio	1
Contact Mapping	2

The tables below identify the specifications for the various signals that these modems transmit/receive.

Video	
Format	NTSC, PAL, SECAM
Voltage/Impedance	1 Vp-p, 75 Ohm, 1.5 Vp-p (max)
Differential Gain	<0.6%
Differential Phase	<0.3°
SNR	>67dB (weighted)
Return Loss	>30dB
Field Tilt	<0.5%
Audio	
In/Out Impedance	600 Ohm balanced or 47K Ohm unbalanced
Frequency Response	10Hz to 20KHz
SNR	>90dB (weighted) @ 1KHz
In/Out Level	-8 to +8 dBm (4Vp-p, max)
THD	<0.01% @ 1KHz
Digitized Resolution	24 bit
Contact Mapping	
Contact type	Relay, normally-open, normally-closed, jumper selectable, Isolated contacts
Contact rating	0.3 amps, 30 VAC/VDC
Contact bounce	5 ms
Max switching rate	10 Hz (Per Channel)
Connectors	
Video	75 Ohm BNC w/gold center pin
Audio	14 pin terminal strip (one 5 pin connectors)
Contact Mapping	14 pin terminal strip (one 4 & one 5 pin connectors)
Optical	LC, SC – SFP dependent

3.1 Optical Specifications

The SFP series products are available for both single-mode and multimode fiber applications and either one or two fiber versions. Recommended optical speed for this product 155Mbps. Refer to optical SFP table for complete part and ordering information.

For more specifications on a SFP optic devices refer to SFP data sheet on Meridian website:

http://www.meridian-tech.com/downloads/datasheets/datasheet_SFP_optical_devices-x.pdf



Compliant with Class 1 Laser Safety Rating.

4.0 Connector Pin Assignment

The one 14-pin screw connectors on the front of the module are used for the Audio interfaces and Contact Closure. The diagrams below indicate the video, audio input/output & contact closure input/output connection terminals.

FT-AIPHONEAX1-SFP

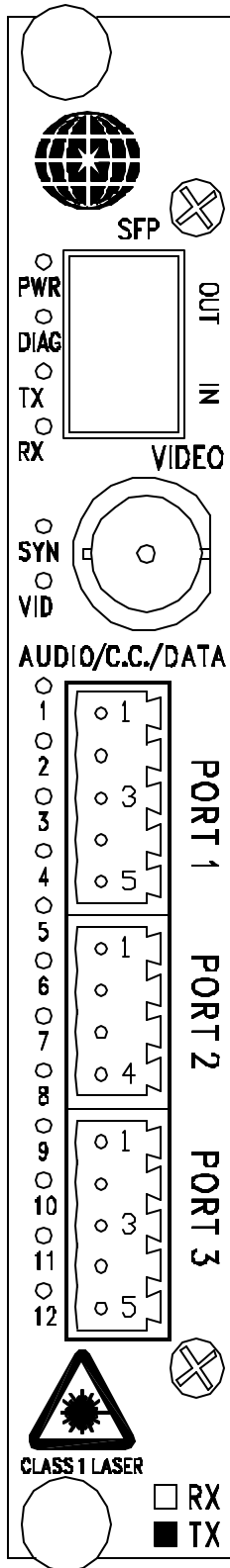
PINOUT DIAGRAM

STATUS INDICATORS

PWR - POWER (GREEN)
 DIAG - CARD DIAGNOSTIC*
 (GREEN-OK, RED-ALARM)
 TX C/L - TX CARRIER (GREEN)
 /OVERLOAD (RED)
 RX C/E - RX CARRIER (GREEN)
 /ERROR (RED)
 SYN - SYNC PRESENT (GREEN)
 VID - VIDEO PRESENT (GREEN)
 /OVERLOAD (RED)

STATUS INDICATORS

1 - (CH.1) AUDIO INPUT
 2 - NA
 3 - (CH.1) AUDIO OUTPUT
 4 - NA
 5 - (CH.1) C/C INPUT
 6 - (CH.2) C/C INPUT
 7 - (CH.1) C/C OUTPUT
 8 - (CH.2) C/C OUTPUT
 9 - NA
 10 - NA
 11 - NA
 12 - NA



SFP OPTICAL PORT

VIDEO INPUT

PORT 1 AUDIO INPUT/OUTPUT

1. (CH.1) AUDIO INPUT+
2. (CH.1) AUDIO INPUT-
3. (CH.1) AUDIO OUTPUT+
4. (CH.1) AUDIO OUTPUT-
5. GND

PORT 2 CC IN/OUT (CH.1)

1. (CH.1) CC INPUT
2. (CH.1) GND
3. (CH.1) CC OUTPUT+
4. (CH.1) CC OUTPUT-

PORT 3 CC IN/OUT (CH.2)

1. (CH.2) CC INPUT
2. (CH.2) GND
3. (CH.2) CC OUTPUT+
4. (CH.2) CC OUTPUT-

Figure 4.1
FT-AiphoneAX1-SFP
Front Panel Layout Diagram

FR-AIPHONEAX1-SFP

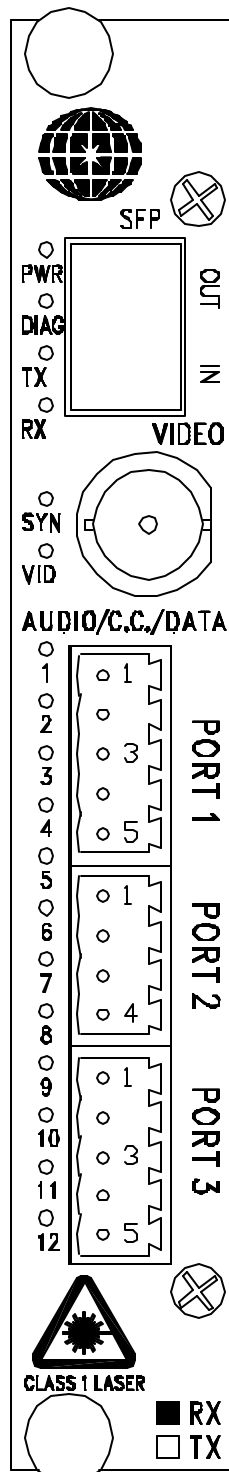
PINOUT DIAGRAM

STATUS INDICATORS

PWR - POWER (GREEN)
 DIAG - CARD DIAGNOSTIC*
 (GREEN-OK, RED-ALARM)
 TX C/L - TX CARRIER (GREEN)
 /OVERLOAD (RED)
 RX C/E - RX CARRIER (GREEN)
 /ERROR (RED)
 SYN - SYNC PRESENT (GREEN)
 / LOAD ABSENT (RED)
 VID - VIDEO PRESENT (GREEN)
 /OVERLOAD (RED)

STATUS INDICATORS

1 - (CH.1) AUDIO INPUT
 2 - NA
 3 - (CH.1) AUDIO OUTPUT
 4 - NA
 5 - (CH.1) C/C INPUT
 6 - (CH.2) C/C INPUT
 7 - (CH.1) C/C OUTPUT
 8 - (CH.2) C/C OUTPUT
 9 - NA
 10 - NA
 11 - NA
 12 - NA



SFP OPTICAL PORT

VIDEO OUTPUT

PORT 1 AUDIO INPUT/OUTPUT

1. (CH.1) AUDIO INPUT+
2. (CH.1) AUDIO INPUT-
3. (CH.1) AUDIO OUTPUT+
4. (CH.1) AUDIO OUTPUT-
5. GND

PORT 2 CC IN/OUT (CH.1)

1. (CH.1) CC INPUT
2. (CH.1) GND
3. (CH.1) CC OUTPUT+
4. (CH.1) CC OUTPUT-

PORT 3 CC IN/OUT (CH.2)

1. (CH.2) CC INPUT
2. (CH.2) GND
3. (CH.2) CC OUTPUT+
4. (CH.2) CC OUTPUT-

Figure 4.2
FR-AiphoneAX1-SFP
Front Panel Layout Diagram

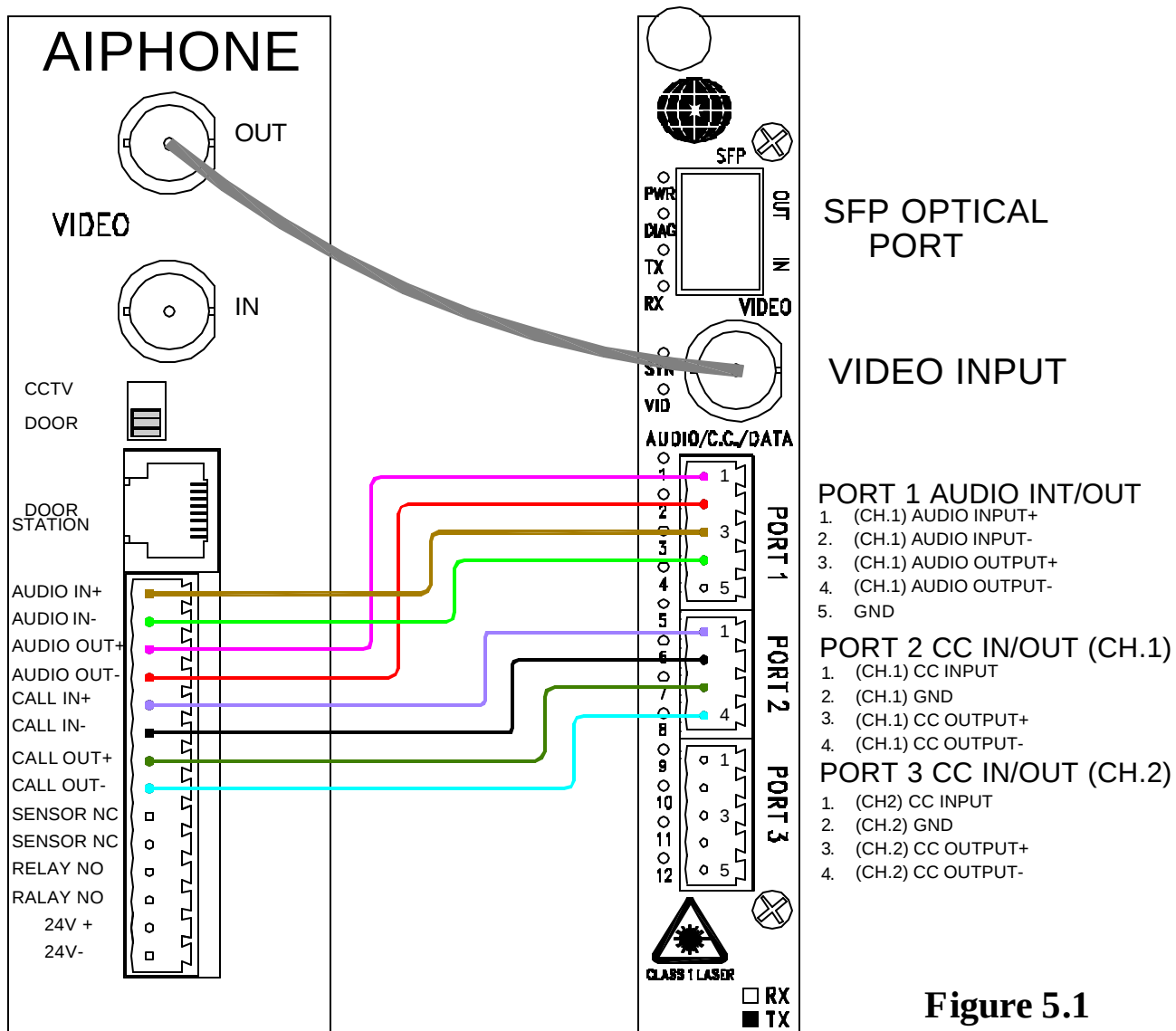
4.1 Front Panel Indicator Lights

There are 18 LED indicator lights mounted on the left side of the module's front panel. These indicators show the operation status of the module's power, optical carriers, video signal and the various cc/audio channels. These indicators can be used for troubleshooting the module, electrical and optical connections. Not all of the LEDs apply to all versions of these modules. Please refer to the module's part number for the appropriate signals, description.

*Note: The Card Diagnostic is optional and LED present only if applied.

5.0 Connection Diagram

The Figure below shows connection diagram for Transmitter and Receiver side.



FR-AiphoneAX1-SFP

AXW-AVR AIPHONE

SFP OPTICAL PORT
VIDEO OUTPUT

PORT 1 AUDIO IN/OUT

1. (CH.1) AUDIO INPUT+
2. (CH.1) AUDIO INPUT-
3. (CH.1) AUDIO OUTPUT+
4. (CH.1) AUDIO OUTPUT-
5. GND

PORT 2 CC IN/OUT (CH.1)

1. (CH.1) CC INPUT
2. (CH.1) GND
3. (CH.1) CC OUTPUT+
4. (CH.1) CC OUTPUT-

PORT 3 CC IN/OUT (CH.2)

1. (CH2) CC INPUT
2. (CH.2) GND
3. (CH.2) CC OUTPUT+
4. (CH.2) CC OUTPUT-

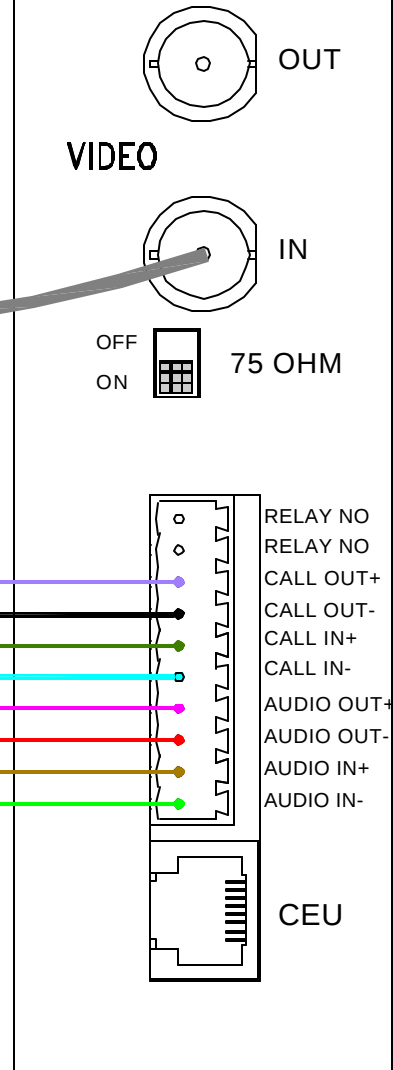
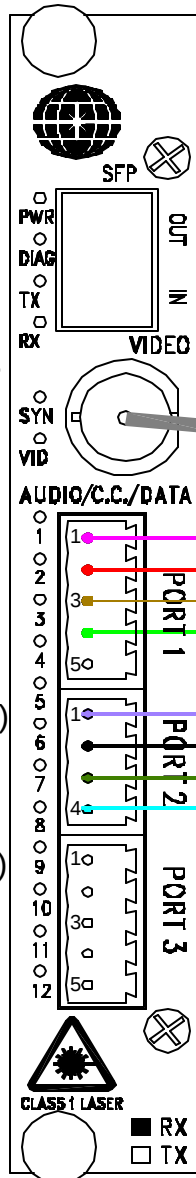


Figure 5.2

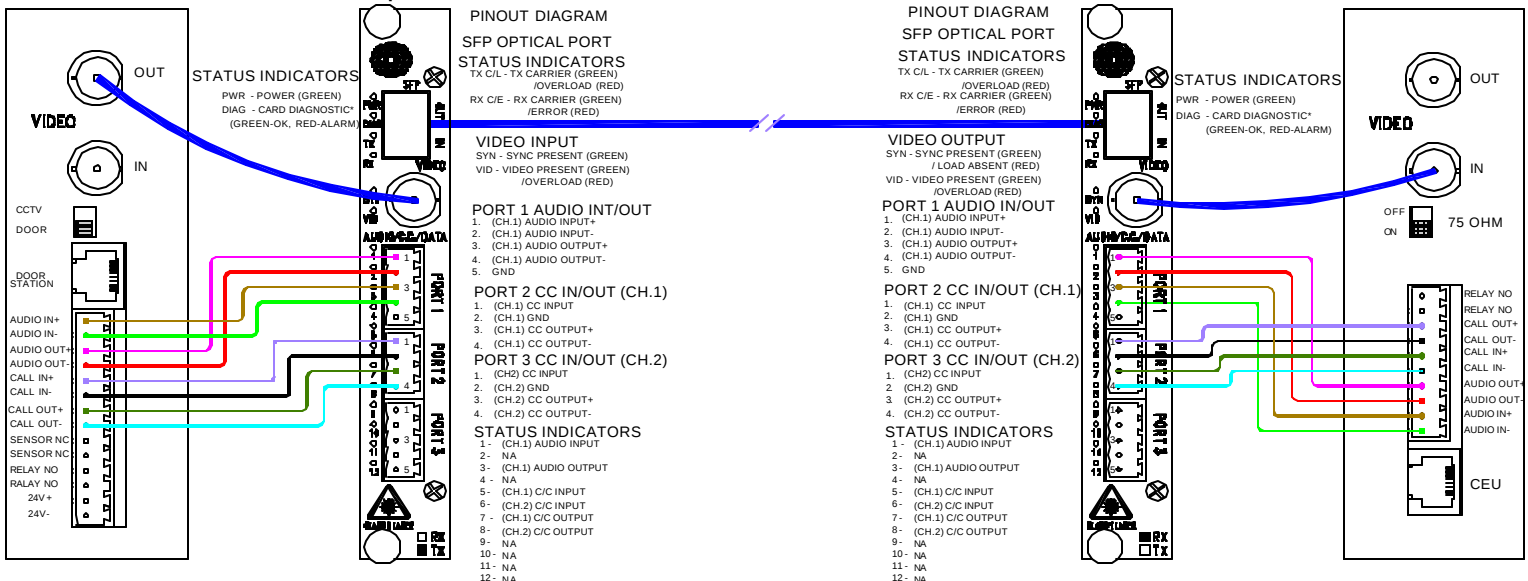
CONNECTION DIAGRAM

AXW-AVT AIPHONE

FT-AiphoneAX1-SFP

FR-AiphoneAX1-SFP

AXW-AVR AIPHONE



6.0 SpectraView™ Network Monitoring System

This module series is equipped with Meridian's SpectraView network diagnostics that continuously monitors the fiber system and associated equipment to provide real-time information regarding the integrity of the system.

SpectraView supports the following diagnostic functions:

1. Fiber continuity
2. Presence/loss of video

Notification and identification of faults for the above conditions is automatically displayed on the monitor connected to the video output on the receiver module.

The table below lists the detected faults and associated alert messages that are displayed on the monitor:

Fault	Video Display Message
Broken optical fiber between Tx & Rx units	8 vertical gray-scale bars across the monitor screen
Loss of video signal at CCTV (Tx) side	4 vertical gray-scale bars across the monitor screen

In addition to the loss of video on the monitor, these messages alert the operator as to the cause of the associated video loss. Upon receiving one of these messages, the operator should inform their technical service center to remedy the situation.

7.0 Troubleshooting

Below is a listing of several problems that may arise during the installation & operation of the modules. If you are having difficulty installing or operating the modules please refer to this list below.

Problem: *Module does not fit in chassis slots*

Action: Check module orientation. Meridian "Globe" must be oriented on the top left hand side of the module. Make sure the card guides in the chassis are aligned with the extrusion on the module

Problem: *Card power LED does not light when power to the module/subrack is applied or power indicator turns on and off*

Action: Check power supply to ensure that it is plugged in and turned on. If flashing continues, move module to another chassis or location in the same chassis, if available.

Problem: *Tx signal light*

Action: Check to see that the correct SFP module properly installed into socket.

Problem: *Rx signal light*

Action: Red - Received optical signal absent or low. Check fiber connection and optical power at receiver.

Problem: *No video at output of module*

Action: Check the SpectraView display on the monitor for an indication of what the problem may be. Also, check to ensure that the video channel-specific LEDs are on (Green). Also, check to ensure that the optical LEDs are ON. If no video is still present, check to ensure that the monitor is ON and the video cable is connected to the correct video port on the Rx module.

Problem: *Video image is dark*

Action: Check the iris control on the camera to ensure that it is open to the proper amount for the conditions.

Problem: *Video image is too bright and appears overexposed*

Action: Check the Video overload indicator on the Rx module. If it is Red, the video signal level is too high and the CCTV iris should be checked to ensure that it is open properly for the conditions.

Problem: *No or distorted Audio*

Action: Check to ensure that the audio input/output connections are correct and that the Input/Output impedance jumpers are set correctly. The I/O impedance of each audio channel can be set independently so be sure to check that the appropriate channel is configured properly.

Problem: *Contact closure not working*

Action: Input side – Ensure that the input contact is connected between the appropriate input connection and ground
Output side – Ensure that the terminal device is connected to the proper output contact pinouts and that the individual contact channel jumpers are set to the appropriate normally-open or normally-closed position.

Problem: *No Contact Closure transmission*

Action: Check the individual contact closure channel input status indicator lights to ensure that the lights toggle on and off as the contact is closed and opened. These lights are located on the side of screw terminal connector. Also check the corresponding contact closure output lights on the receiver module to see if the corresponding lights are activated when the corresponding input contact is closed. If not, please check the data input/output and fiber connections.

If the problem still persists after reviewing the above items, please contact Meridian technical support : +1-516-285-0570 / support@meridian-tech.com

Notes:

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Meridian Technologies, Inc.
700 Elmont Road, Elmont NY 11003, USA
Telephone: +1-516-285-1000 Fax: +1-516-285-6300
E-mail: support@meridian-tech.com Web: www.meridian-tech.com
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