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INSTALLATION AND OPERATION MANUAL

FVT/FVR40D4SFP
4-CHANNEL 10-BIT DIGITAL VIDEO WITH
4 BI-DIRECTIONAL DATA CHANNELS WITH
SMALL FORM-FACTOR PLUGGABLE OPTICAL DEVICES

The FVT/FVR40D4SFP series optical video link provides transmission of four 10-bit medium-haul quality digital video channels and four bi-directional data channels through a selectable small form factor pluggable module (SFP).

Figure 4 on **Page 3** illustrates the data electrical connections from the RJ45 Data connectors and also the connection cable and "breakout box" connections.

Figure 5 on **Page 4** illustrates the specific data connections for RS232, 2-Wire RS485 and RS422/4-Wire RS485. (This last data connection also applies to Manchester & Bi-Phase data transmission.)

Each data channel is configured for the electrical interface by means of the "DATA SELECT" switch on the front panel. **Figure 6** on **Page 4** illustrates the switch settings to set the type of data for each channel.

Figure 7 on **Page 5** illustrates the electrical connections between the "Customer Equipment" and the FVT40D4SFP and FVR40D4.SFP.

Bi-color (Red/Green) LED indicators are provided for confirming operating status. See **Figure 8** on **Page 5** for LED indication explanations.

These units are interchangeable between stand-alone or card mount configurations. See **Figure A** on **Page 6** for mounting instructions.

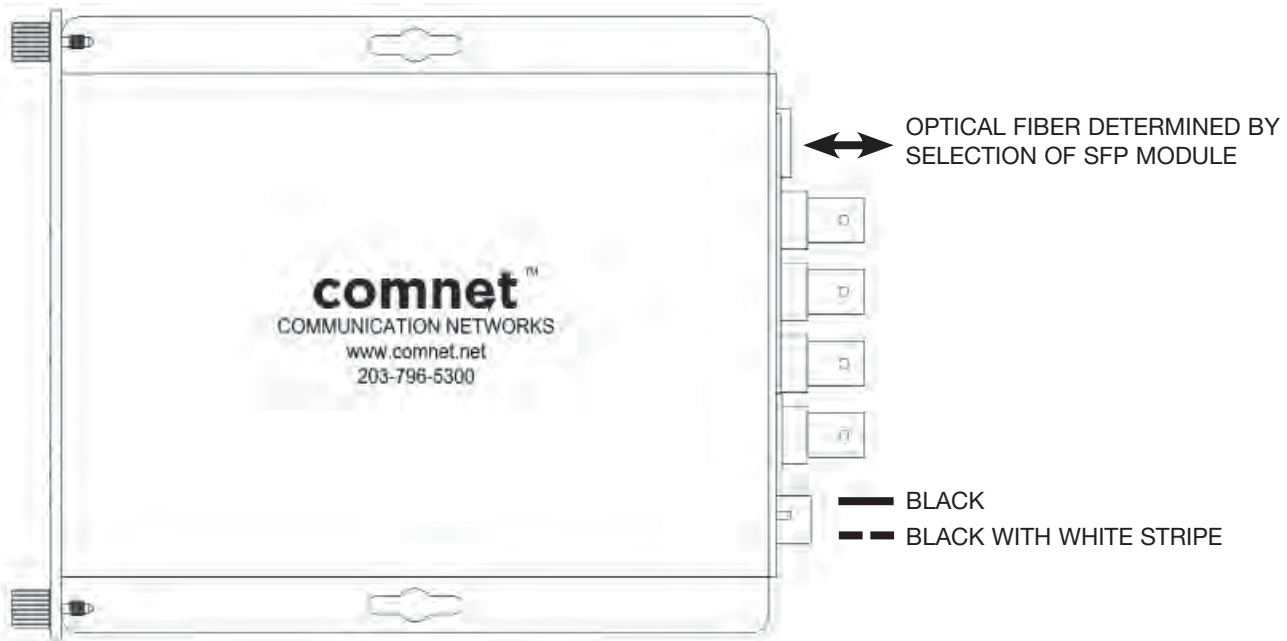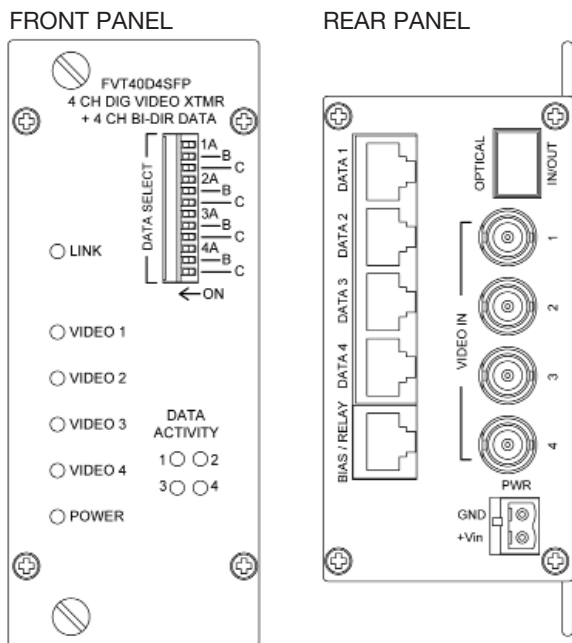## FIGURE 1 – FVT/FVR40D4SFP TRANSMITTER AND RECEIVER

OPTICAL FIBER DETERMINED BY
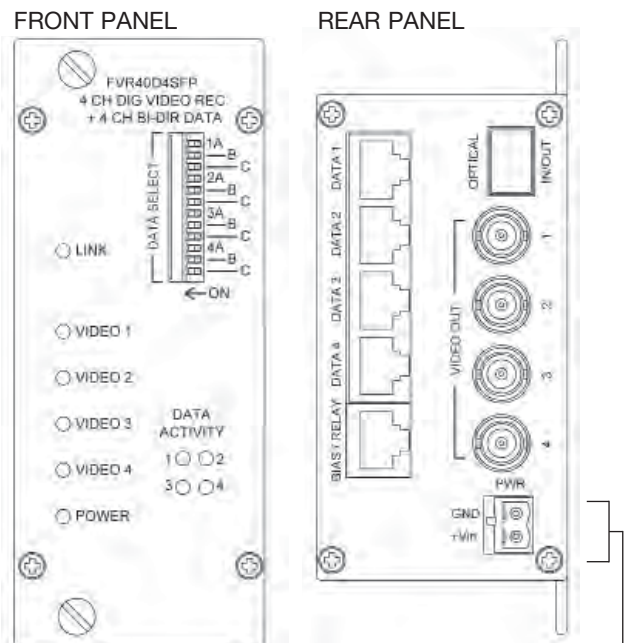SELECTION OF SFP MODULE

BLACK
BLACK WITH WHITE STRIPE

FIGURE 2 – FVT40D4SFP TRANSMITTER

FRONT PANEL　　　　　　　REAR PANEL

FIGURE 3 – FVR40D4SFP RECEIVER
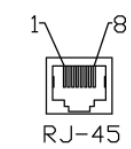
FRONT PANEL　　　　　　　REAR PANEL

NOTE: Remove Electrical Connector for Rack Mount Units
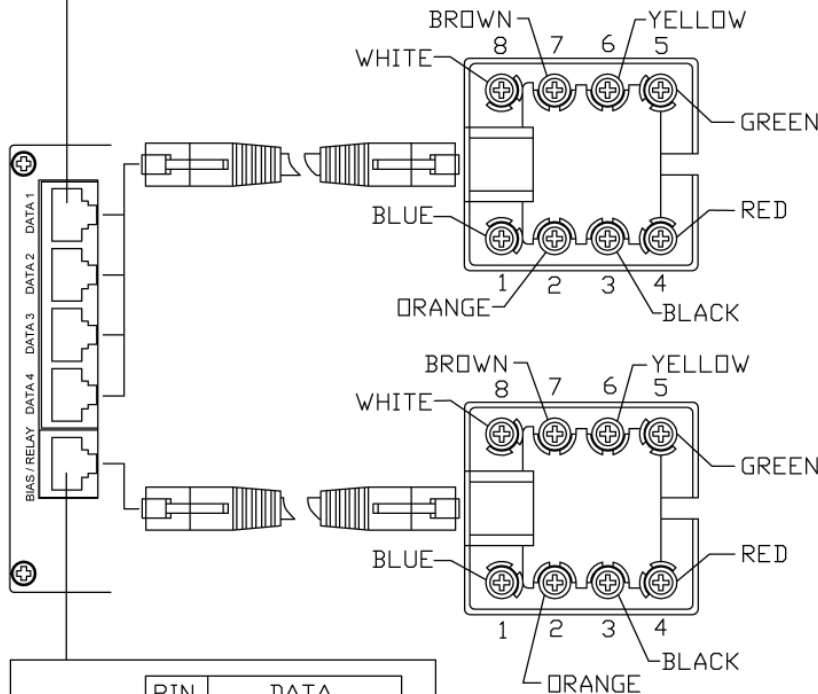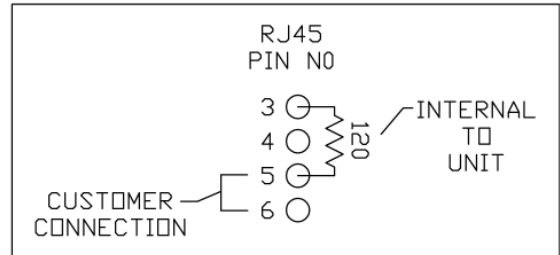
FIGURE 4 – RJ45 BREAK-OUT

5 pc. Factory Supplied

CONNECTIONS FOR EACH DATA CHANNEL

NOTE: A 120 OHM TERMINATION RESISTOR IS APPLIED TO THE DIFFERENTIAL INPUTS WHEN "TERMINATION (PIN 5)" IS WIRED DIRECTLY TO "DIN– (PIN 6)" SEE DIAGRAM BELOW
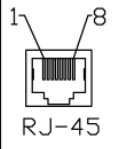
PIN NO	DATA CONNECTION
1	DOUT+
2	DOUT–
3	DIN+
4	NC
5	TERMINATION
6	DIN–
7	GND
8	+5V BIAS

RJ-45

VIEW INSIDE PORT

RJ45 PIN NO

3
4   120
5
6

CUSTOMER CONNECTION

INTERNAL TO UNIT

RJ45 PIN NO	WIRE COLOR	DATA CONNECTION
1	BLUE	DOUT+
2	ORANGE	DOUT–
3	BLACK	DIN+
4	RED	NC
5	GREEN	TERMINATION
6	YELLOW	DIN–
7	BROWN	GND
8	WHITE	+5V BIAS

RJ45 PIN NO	WIRE COLOR	DATA CONNECTION
1	BLUE	+5V BIAS
2	ORANGE	+5V BIAS
3	BLACK	+5V BIAS
4	RED	GND
5	GREEN	GND
6	YELLOW	GND
7	BROWN	ALARM RELAY
8	WHITE	ALARM RELAY

BIAS AND RELAY CONNECTIONS

PIN NO	DATA CONNECTION
1	+5V BIAS
2	+5V BIAS
3	+5V BIAS
4	GND
5	GND
6	GND
7	ALARM RELAY
8	ALARM RELAY

RJ-45

VIEW INSIDE PORT

FIGURE 5 – RJ45 SWITCH SETTINGS

RJ45 PIN NO	WIRE COLOR	DATA CONNECTION
1	BLUE	DOUT+
2	ORANGE	DOUT−
3	BLACK	DIN+
4	RED	NC
5	GREEN	TERMINATION
6	YELLOW	DIN−
7	BROWN	GND
8	WHITE	+5V BIAS
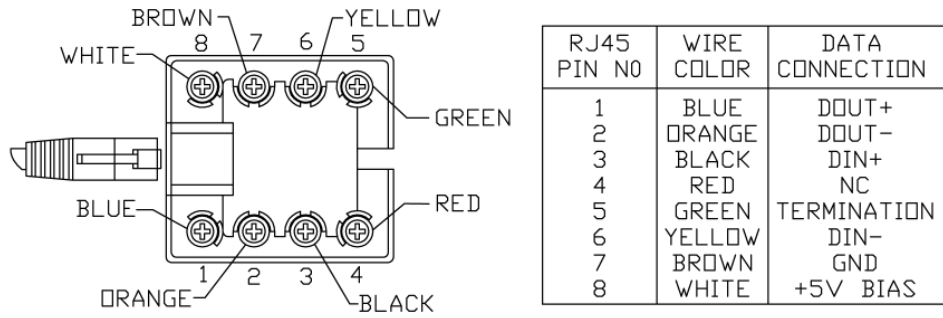
RS232
1 NC
2 Out (-)
3 Ground
4 NC
5 NC
6 IN (-)
7 NC
8 NC

RS485 (2W) & SENSORNET
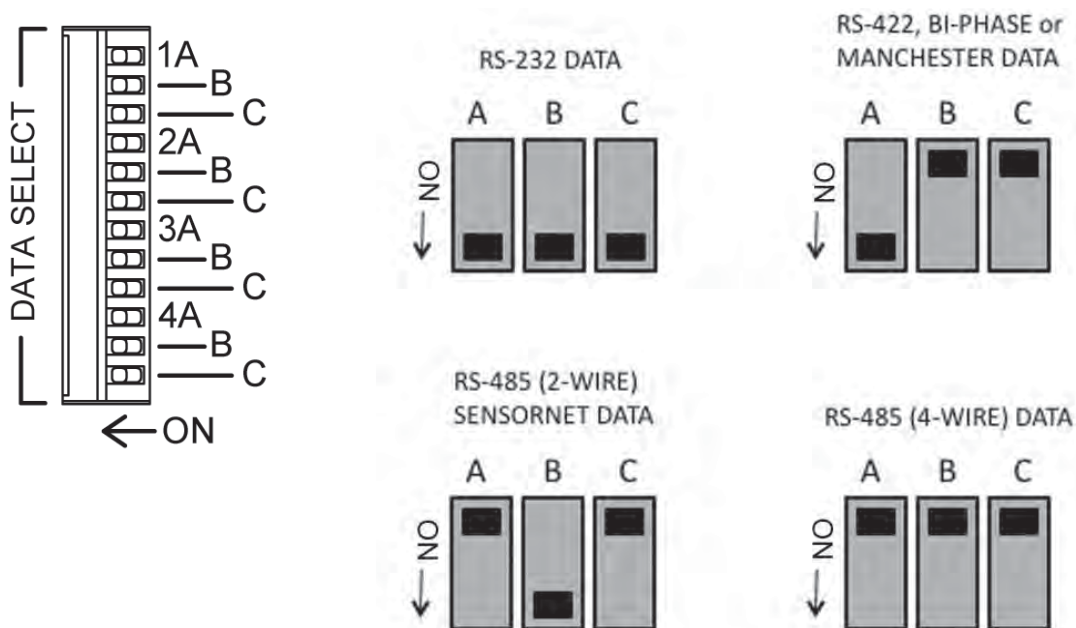1 NC
2 NC
3 IN (+)
4 NC
5 NC
6 IN (-)
7 NC
8 NC

RS422, RS485 (4W), Manchester & Bi-Phase
1 OUT (+)
2 OUT (-)
3 IN (+)
4 NC
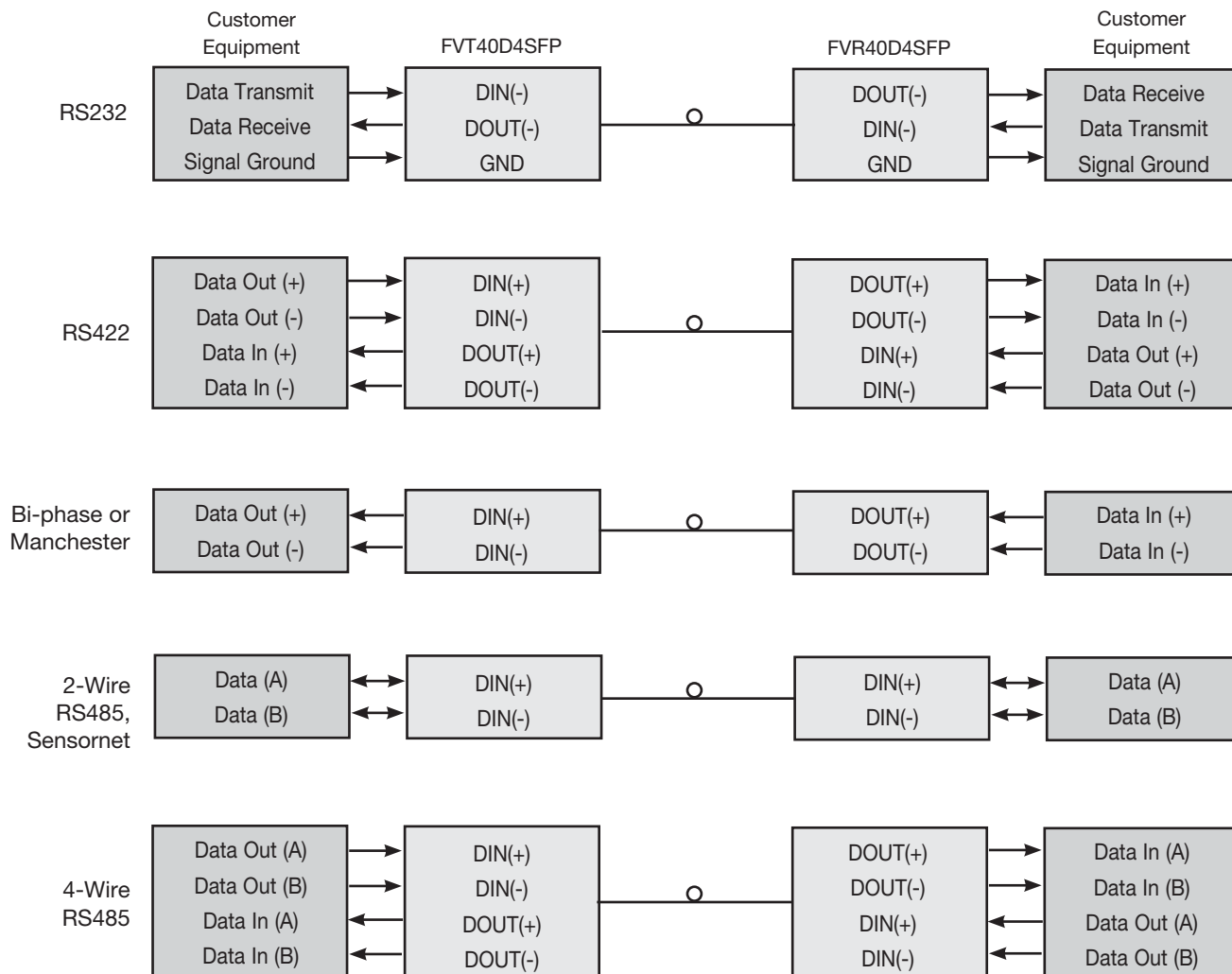5 NC
6 IN (-)
7 NC
8 NC

NC = No Connection

FIGURE 6 – SWITCH POSITIONS

The mode for each data channel is configured using a set of three switches on the front panel of the unit.

FIGURE 7 – DATA CONNECTIONS

See Page 4 for Switch Settings

	Customer Equipment	FVT40D4SFP		FVR40D4SFP	Customer Equipment
RS232	Data Transmit →	DIN(-)		DOUT(-)	→ Data Receive
	Data Receive ←	DOUT(-)		DIN(-)	← Data Transmit
	Signal Ground →	GND		GND	→ Signal Ground
RS422	Data Out (+) →	DIN(+)		DOUT(+)	→ Data In (+)
	Data Out (-) →	DIN(-)		DOUT(-)	→ Data In (-)
	Data In (+) ←	DOUT(+)		DIN(+)	← Data Out (+)
	Data In (-) ←	DOUT(-)		DIN(-)	← Data Out (-)
Bi-phase or Manchester	Data Out (+) ←	DIN(+)		DOUT(+)	← Data In (+)
	Data Out (-) ←	DIN(-)		DOUT(-)	← Data In (-)
2-Wire RS485, Sensornet	Data (A) ↔	DIN(+)		DIN(+)	↔ Data (A)
	Data (B) ↔	DIN(-)		DIN(-)	↔ Data (B)
4-Wire RS485	Data Out (A) →	DIN(+)		DOUT(+)	→ Data In (A)
	Data Out (B) →	DIN(-)		DOUT(-)	→ Data In (B)
	Data In (A) ←	DOUT(+)		DIN(+)	← Data Out (A)
	Data In (B) ←	DOUT(-)		DIN(-)	← Data Out (B)

FIGURE 8 – LED INDICATORS

	LINK	VIDEO	DATA	POWER
GREEN	Communication link has been established over optical fiber	An active video signal is present on the BNC connector.	An active data signal is present on the input pins of the data connector.	Unit powered up
RED	Communication link has not been established.	No video signal	–	–
OFF	Not powered up correctly	–	No data signal	Unit powered down

MECHANICAL INSTALLATION INSTRUCTIONS

INSTALLATION CONSIDERATIONS

This fiber-optic link is supplied as a Standalone/Rack module. Units should be installed in dry locations protected from extremes of temperature and humidity.

C1-US, C1-EU, C1-AU OR C1-CH CARD CAGE RACKS

CAUTION: Although the units are hot-swappable and may be installed without turning power off to the rack, ComNet recommends that the power supply be turned off and that the rack power supply is disconnected from any power source. **Note:** Remove electrical connector before installing in card cage rack.

1. Make sure that the card is oriented right side up, and slide it into the card guides in the rack until the edge connector at the back of the card seats in the corresponding slot in the rack's connector panel. Seating may require thumb pressure on the top and bottom of the card's front panel.

CAUTION: Take care not to press on any of the LEDs.

2. Tighten the two thumb screws on the card until the front panel of the card is seated against the front of the rack.

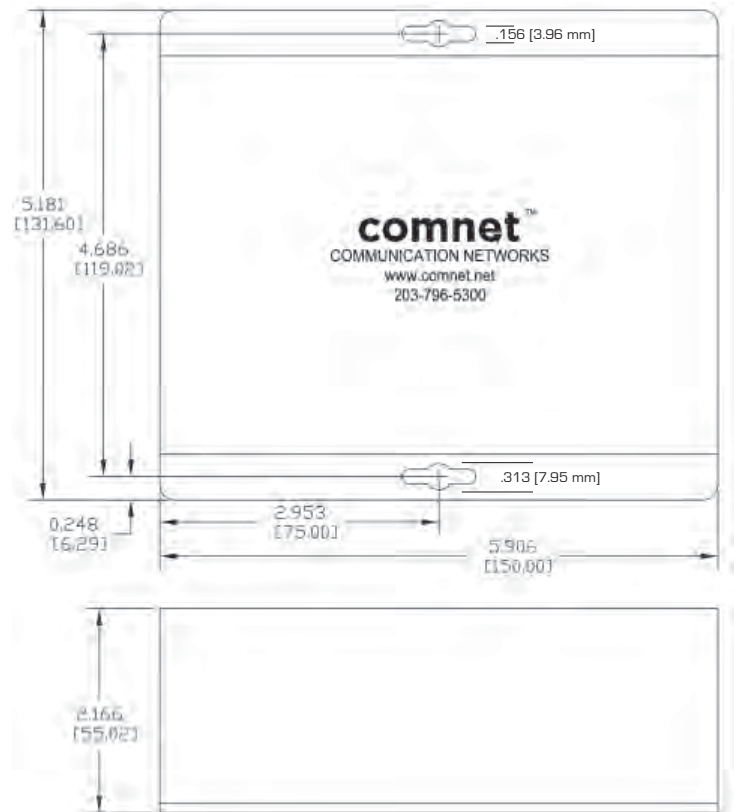**WARNING**: Unit is to be used with a Listed Class 2 or LPS power supply rated 9-12 VDC @ 1A.

IMPORTANT SAFEGUARDS:

A) **Elevated Operating Ambient** - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

B) **Reduced Air Flow** - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

FIGURE A

Dimensions are for a standard ComNet™ two slot module

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