comnet
Communication Networks

INSTALLATION AND OPERATION MANUAL

FVT/FVR4014
4-CHANNEL 10-BIT DIGITALLY ENCODED VIDEO
+ 4 BI-DIRECTIONAL DATA CHANNELS

The FVT/FVR4014 is a four (4) channel ten (10) bit video transmission system. It combines four individual video signals into one high speed digital stream and transmits this over one optical fiber.

The link also transmits four channels of bi-directional data over the same fiber. Each data channel can be configured for an electrical interface of RS232, RS422 or RS485 (2- or 4-Wire).

There is also a RELAY connector on both the Video Transmitter and Video Receiver modules which indicates that the optical communication link is operating properly. The Relay is CLOSED when the optical communication is good.

The Data Channels are labeled A, B, C and D. Each data channel is configured for the electrical interface by means of the "DATA SELECT" switch on the front panel. **Figure 5** on **Page 4** illustrates the switch settings to set the type of data for each channel.

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 6 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.)

Figure 7 on **Page 5** illustrates the electrical connections between the "Customer Equipment" and the FVT4014 and FVR4014.
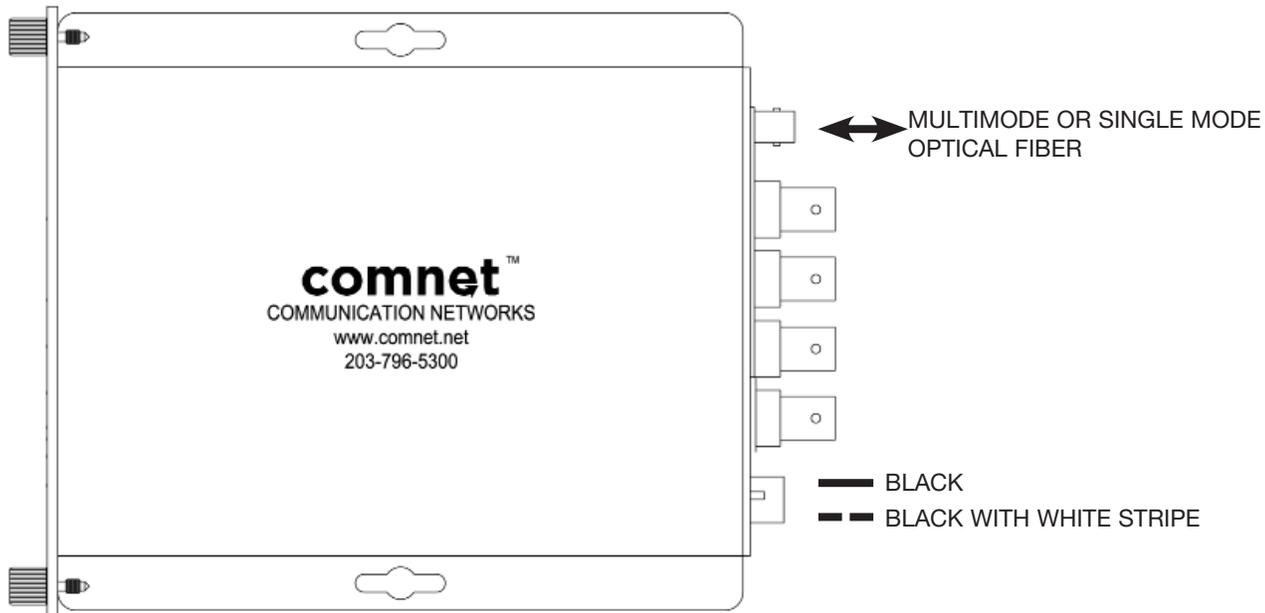
FIGURE 1 – FVT/FVR4014 TRANSMITTER AND RECEIVER

MULTIMODE OR SINGLE MODE
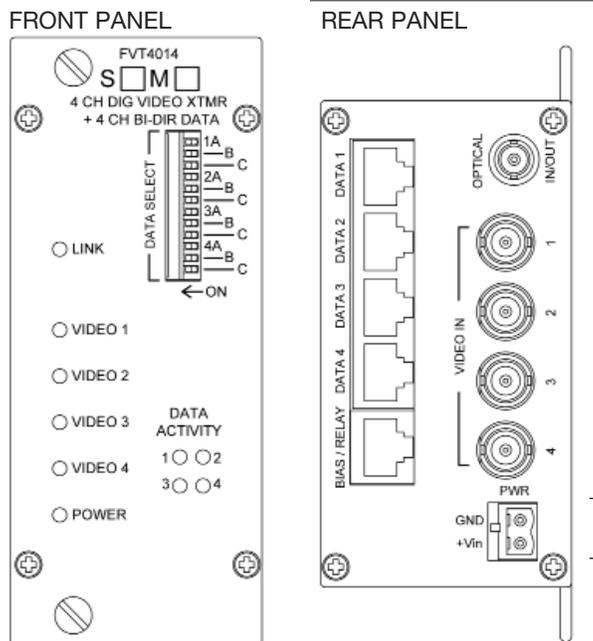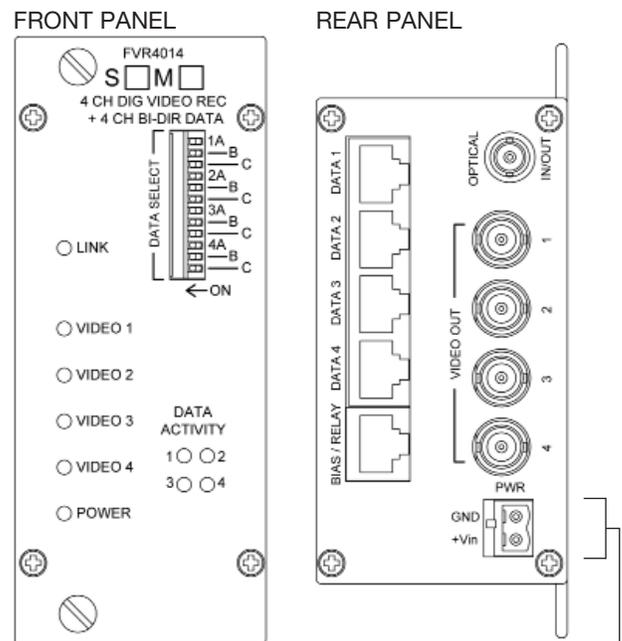OPTICAL FIBER

BLACK
BLACK WITH WHITE STRIPE

FIGURE 2 – FVT4014 TRANSMITTER

FRONT PANEL   REAR PANEL

FIGURE 3 – FVR4014 RECEIVER

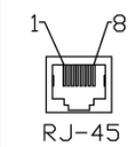FRONT PANEL   REAR PANEL

NOTE: Remove Electrical Connector for Rack Mount Units

FIGURE 4 – RJ45 BREAK-OUT

5 pc. Factory Supplied

CONNECTIONS FOR EACH DATA CHANNEL

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
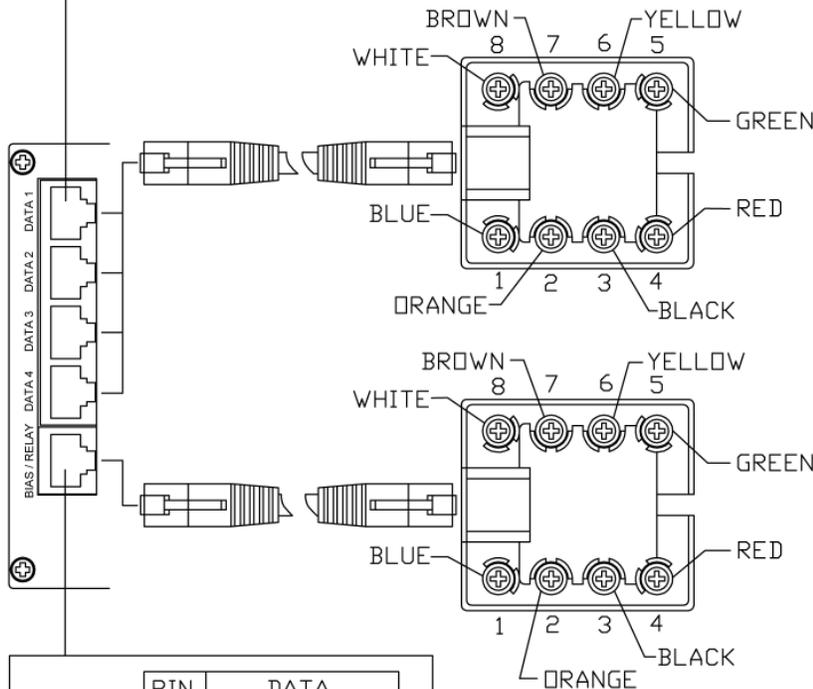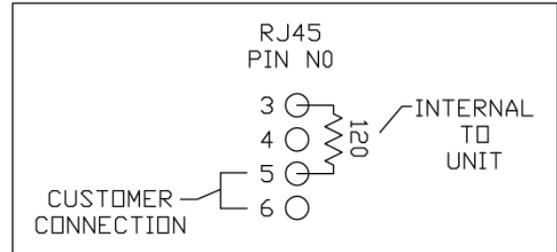
NOTE: A 120 OHM TERMINATION RESISTOR IS APPLIED TO THE DIFFERENTIAL INPUTS WHEN "TERMINATION (PIN 5)" IS WIRED DIRECTLY TO "DIN− (PIN 6)" SEE DIAGRAM BELOW

RJ45 PIN NO

3
4   120   INTERNAL TO UNIT
5
CUSTOMER CONNECTION   6

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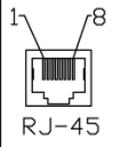
PIN NO	DATA CONNECTION
1	+5V BIAS
2	+5V BIAS
3	+5V BIAS
4	GND
5	GND
6	GND
7	ALARM RELAY
8	ALARM RELAY

RJ-45

VIEW INSIDE PORT

FIGURE 5 – SWITCH POSITIONS

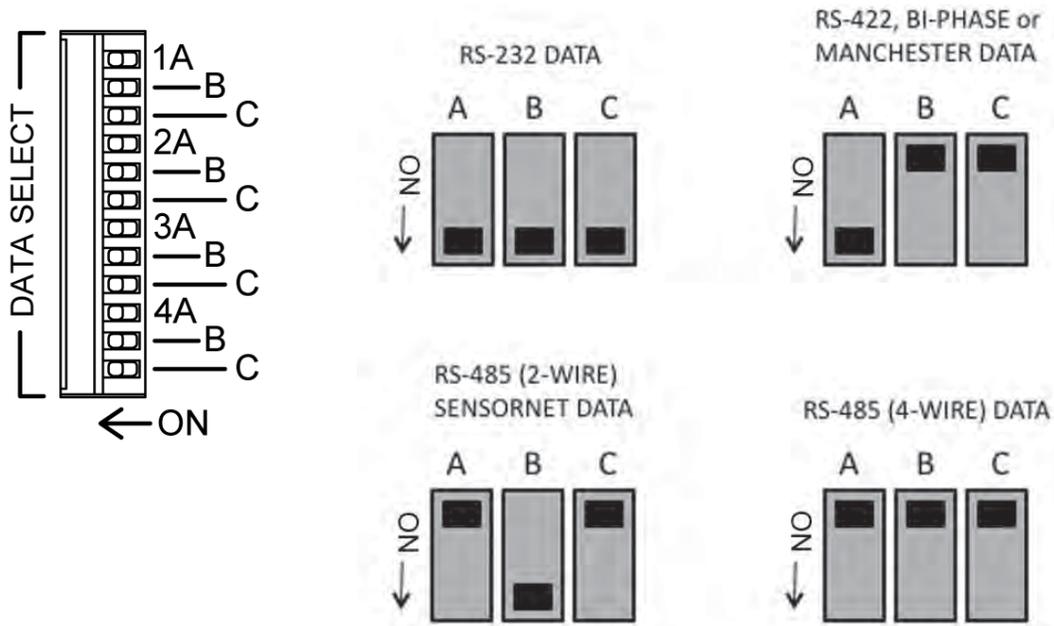*The mode for each data channel is configured using a set of three switches on the front panel of the unit.*

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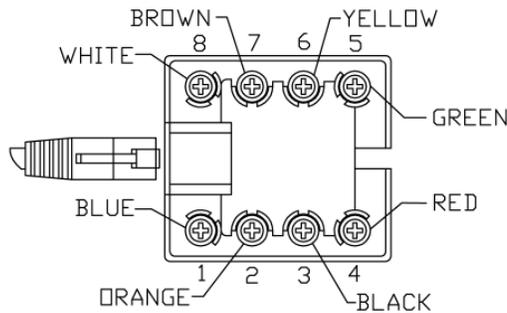
RJ45 PIN NO	WIRE COLOR	DATA CONNECTION
1	BLUE	DOUT+
2	ORANGE	DOUT−
3	BLACK	DIN+
4	RED	NC
5	GREEN	TERMINATION
6	YELLOW	DIN−
7	BROWN	GND
8	WHITE	+5V BIAS

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

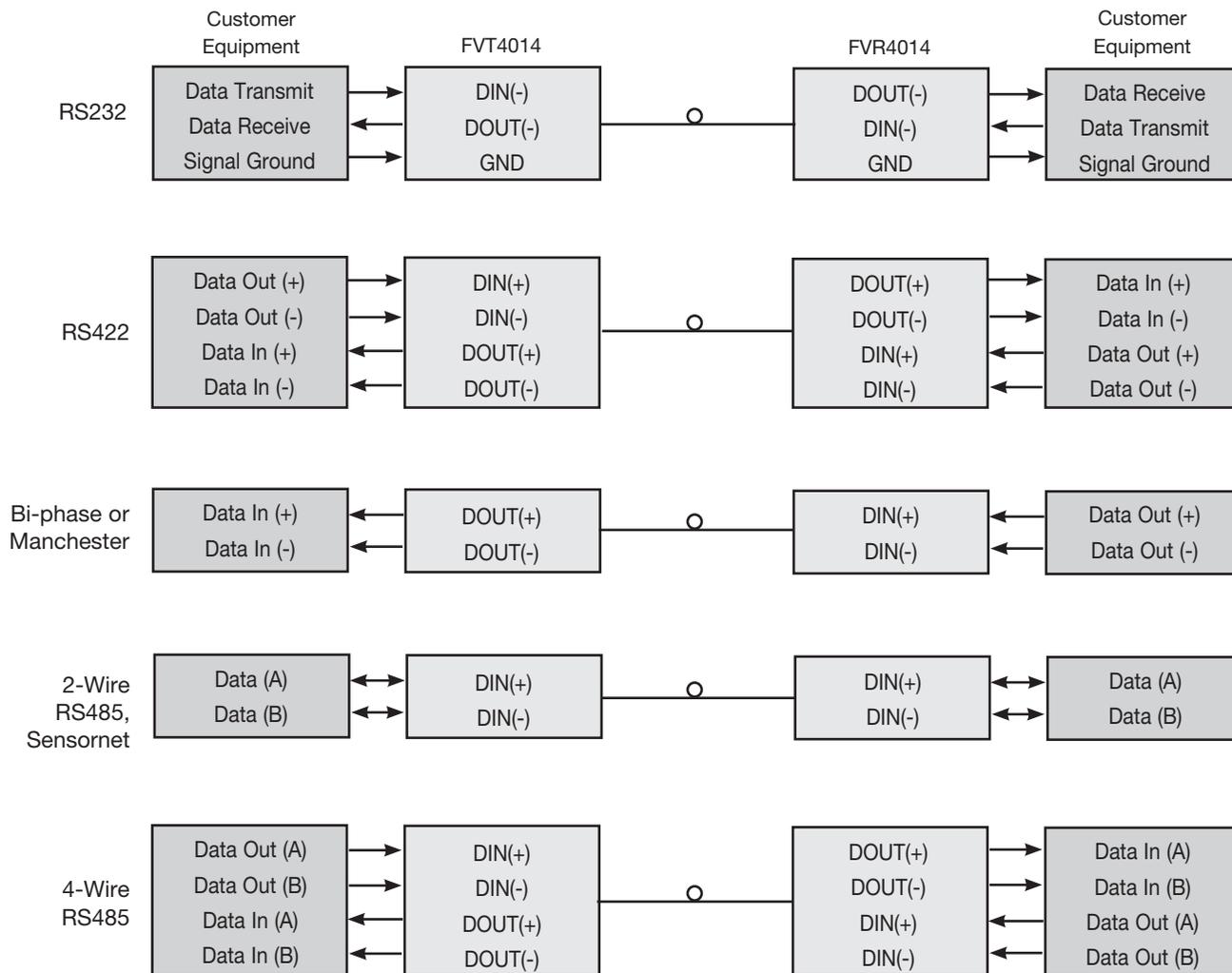## FIGURE 7 – DATA CONNECTIONS

See Page 4 for Switch Settings

	Customer Equipment	FVT4014		FVR4014	Customer Equipment
RS232	Data Transmit → Data Receive ← Signal Ground →	DIN(-) DOUT(-) GND		DOUT(-) DIN(-) GND	→ Data Receive ← Data Transmit → Signal Ground
RS422	Data Out (+) → Data Out (-) → Data In (+) ← Data In (-) ←	DIN(+) DIN(-) DOUT(+) DOUT(-)		DOUT(+) DOUT(-) DIN(+) DIN(-)	→ Data In (+) → Data In (-) ← Data Out (+) ← Data Out (-)
Bi-phase or Manchester	Data In (+) ← Data In (-) ←	DOUT(+) DOUT(-)		DIN(+) DIN(-)	← Data Out (+) ← Data Out (-)
2-Wire RS485, Sensornet	Data (A) ↔ Data (B) ↔	DIN(+) DIN(-)		DIN(+) DIN(-)	↔ Data (A) ↔ Data (B)
4-Wire RS485	Data Out (A) → Data Out (B) → Data In (A) ← Data In (B) ←	DIN(+) DIN(-) DOUT(+) DOUT(-)		DOUT(+) DOUT(-) DIN(+) DIN(-)	→ Data In (A) → Data In (B) ← Data Out (A) ← 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.
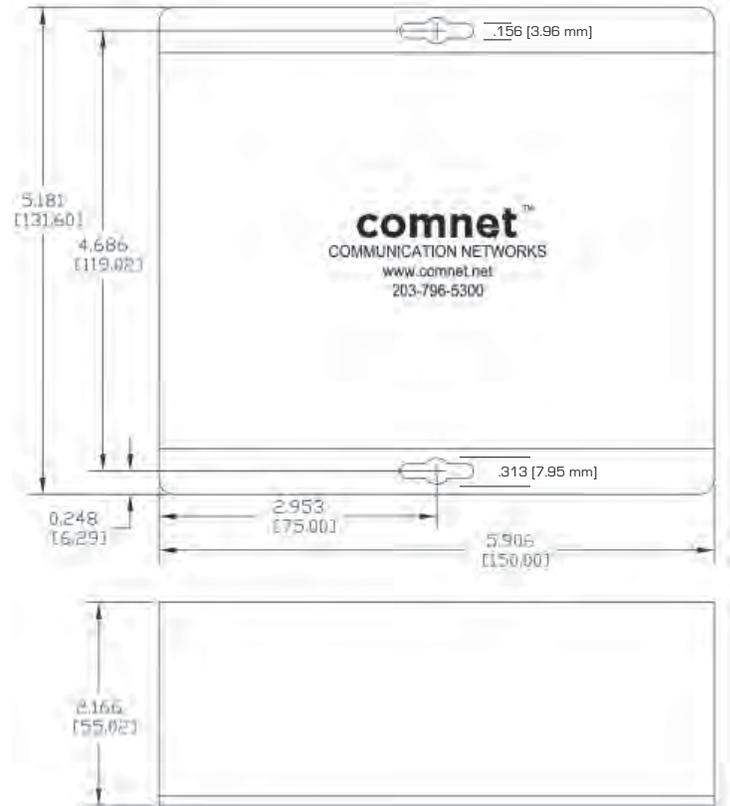
IMPORTANT SAFEGUARDS:

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.

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FIGURE A

Dimensions are for a standard ComNet™ two slot module