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LLT908T/R

**8 Channel Digital Video /
2 Channel Bi-directional Data /
4 Channel Bi-directional Audio/
4 Channel Bi-directional Contact
Closure**

Fibre Interface User Manual

November 2010

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LLT908T/R USER MANUAL

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1. PRODUCT DESCRIPTION

The LLT908T/R Series video / data / audio / contact closure transmitter and receiver supports the simultaneous transmission of eight channels of 8-bit digitally encoded video, two channels of bi-directional data, four channels of bi-directional audio and four channel contact closure over one single-mode optical fiber. The modules are universally compatible with major camera systems, and support RS485 data protocol, line level audio signals as well as contact closure inputs. Plug and Play design ensures ease of installation, and electronic and optical adjustments are never required.

2. FEATURES:

Easy to install (Plug and Play).
Provides long distance noise free video / data / audio transmission.
Distances of up to 30km on Singlemode Fibre
Compatible with PAL / NTSC / SECAM composite video standards.

3. INDICATIONS

The unit has leds that indicate the following :

PWR	The unit is powered.
LINK	Indicates fibre link ok.
VID 1 to 8	The unit is locked onto a valid video signal.
T/RX	Indicates data activity.

4. STOCK CODE SELECTION

ORDERING INFORMATION:

LLT908TCBA	-	Transmitter Unit, 30km Singlemode, 220Vac.
LLT908RCBA	-	Receiver Unit, 30km Singlemode, 220Vac.

5. PREPARATION FOR USE

5.1 UNPACKING

Check for any physical damage caused during transportation. Return any damaged equipment to the supplier. The manufacturer is not responsible for any damage caused during transportation to the end user.

5.2 INSTALLATION

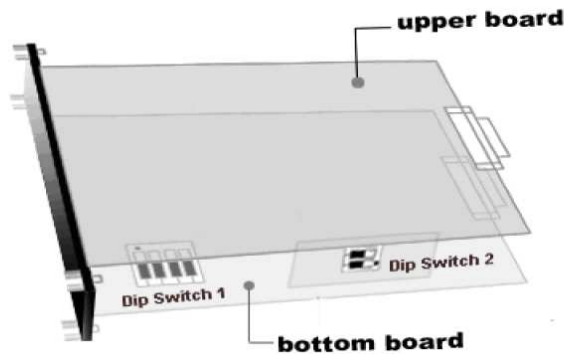
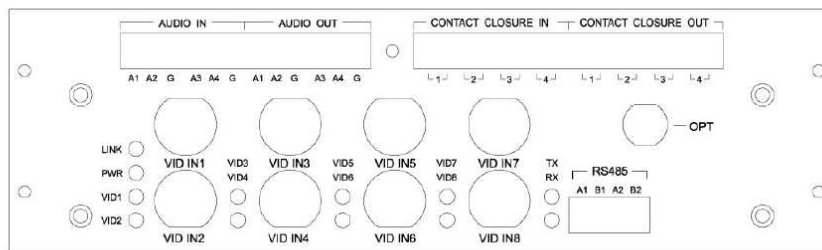
Check that the supply voltage matches that of the equipment, before installation commences. Connect the power cable. The equipment has no ON/OFF switch and is therefore active as soon as power is connected.

5.3 CONNECTION:

1. Apply correct power to both the transmitter and receiver.
2. Connect the video sources (cameras) to the video input BNC connectors on the transmitter unit using 75 ohm coaxial cables.
3. Connect the video outputs from the BNC connectors on receiver unit to the video matrix / DVR / monitors using 75 ohm coaxial cable.
3. Connect the singlemode fiber optic cable between the transmitter and receiver.

Once power is applied, the orange POWER LED will light. The status LEDs will give an indication of the video / data signals as explained below. The LLT908 video transmission system series is preset for use with RS485 data protocols.

Camera Site



RS-485 2-Wire Connection (2-Channel Bi-directional)

Channel 1

Pin A1 — RS485A1

Pin B1 — RS485B1

Channel 2

Pin A2 — RS485A2

Pin B2 — RS485B2

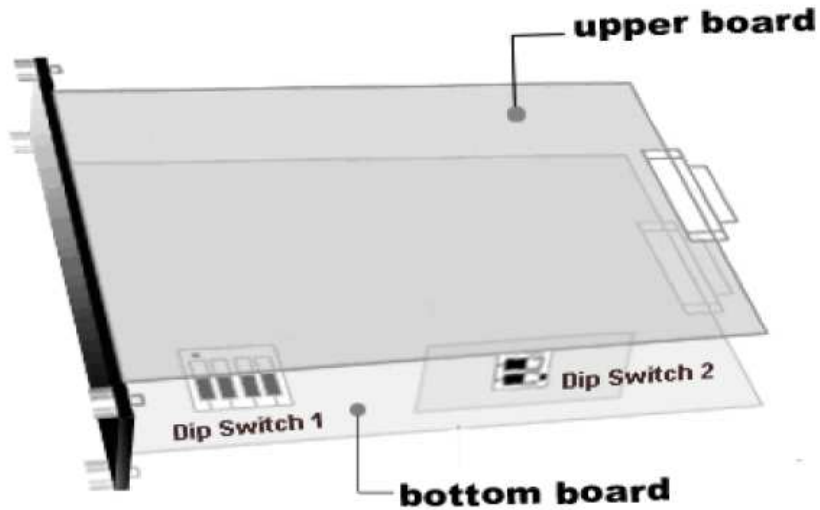
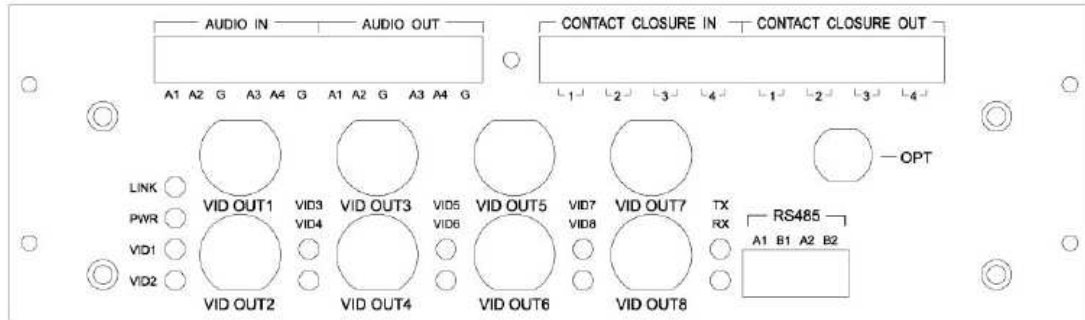
Control Distance for RS485 Channel 1 (Dip Switch 1)

Control Distance (From Transmitter to Controlled Unit)	50M	50 — 300M
Dip 1	Off	Off
Dip 2	Off	On
Dip 3	Off	On
Dip 4	Off	Off

Control Distance for RS485 Channel 2 (Dip Switch 2)

Control Distance (From Transmitter to Controlled Unit)	50M	50 — 300M
Dip 1	Off	On
Dip 2	Off	On

Control Site (Receiver Module)



RS-485 2-Wire Connection (2-Channel Bi-directional)

Channel 1

Pin A1 — RS485A1

Pin B1 — RS485B1

Channel 2

Pin A2 — RS485A2

Pin B2 — RS485B2

Control Distance for RS485 Channel 1 (Dip Switch 1)

Control Distance (From Transmitter to Controlled Unit)	50M	50—300M
Dip 1	Off	Off
Dip 2	Off	On
Dip 3	Off	On
Dip 4	Off	Off

Control Distance for RS485 Channel 2 (Dip Switch 2)

Control Distance (From Transmitter to Controlled Unit)	50M	50—300M
Dip 1	Off	On
Dip 2	Off	On

Indicator LEDs

- PWR -** indicates operating power is present.
- VID1 to VID8 -** light when video input/output signals are detected.
- TX/RX -** blinks at the rate of data sent/received.
- LINK -** Indicates normal fiber link.

TRANSMITTER and RECEIVER:

- Power: ON: (Red)** Indicates that correct power has been applied
- LINK: ON: (Green)** indicates that the unit received optic signal from the other.

6. FAULT DIAGNOSIS

When arriving at a suspect unit, it is necessary to check that all connections are correctly made. Check that all BNC, screw-terminal block and fibre connectors are plugged in correctly, and that none of the copper and fibre cables are damaged. Ensure that the correct power is being supplied to the unit, and that it is present on the power cable (check with multimeter). If the power led is off, the unit is probably faulty and needs to be sent in for repair. If any of the VID leds are off, then the unit is not receiving valid video signals. If valid video signals are present on the cables (check with oscilloscope), then the unit's input ports may be damaged, and the unit will need to be sent for repair.

The fibre link should be checked for consistency, and the losses measured. Ensure that the correct type of fiber is being used for the particular mode of transmitter and receiver combination. Also be certain that the attenuation and bandwidth of the fiber optic cable being used is within the range of the system's budget specifications. Use an optic power meter to measure the optic level coming out of the transmitter fibre port. If this level is too low or not present, then the unit may be faulty. The level of the optic signal being received at the receiver end should also be checked to be within specification. If it is too low, the unit will not operate correctly. If it is ok, then the receiver unit may be faulty.

7. MAINTENANCE INSTRUCTIONS

No routine maintenance is required on this equipment.

8. SPECIFICATIONS

VIDEO

Video Input : 1 volt pk-pk (75 ohms)

Input/Output Channels : 8

Bandwidth : 6.5 MHz

Bit Resolution : 10-bit

Differential Gain : < 1%

Differential Phase : < 0.6°

Tilt : < 1%

Sampling Rate : 15.36MHz

DATA

Data Interface : RS-485

Data Channel : 2

Data Rate : 100Kbps

Bit Error Rate : 10⁻⁹

AUDIO

Audio Impedance: 600 ohms

Input/output Level: 0dBm(typical)

Input/output Channel: 4

Frequency Response: 10Hz-20KHz

Bit Resolution: 24-bit

S/N Ratio: 88Db

CONTACT CLOSURE

Relay 24 VAC/200mA (Normally Open)

Input/output Channel: 4

WAVELENGTH 1550/1310nm Multimode
1310/1550nm Singlemode

OPTICAL EMITTER: Laser Diode

NUMBER OF FIBERS 1

CONNECTORS

Optical : ST Video : BNC

Data/Audio : Terminal Block with Screw Clamps

GENERAL

Power Supply : DC12V

Size : 209×202×55mm (Standalone)

MTBF : > 100,000 hours

Operating Temp : -30°C to +50°C

Storage Temp : -40°C to +85°C

Relative Humidity : 0% to 95% (no condensing)

INDICATOR

Green : Video Sync Present

Green : Data Sync Present

Green : Link Sync Present

Red : Power On

* Optical transmission distance is limited to optical loss of the fiber and additional loss caused by connectors, splices, and patch panels.

9. CAUTION

The transmitter and receiver unit contains a laser-emitting diode located in the optical connector. This device emits powerful invisible infrared radiation that can be harmful to human eyes. The radiation from this optical connector, if viewed closely without any protection, may cause permanent damage to the retina of the eye. Direct viewing of this Laser should be avoided at all times.

10. CONTACT DETAILS

Email: support@addvid.co.za

Web: www.addvid.co.za

Supplied By :

**Advanced Digital Devices (Pty) Ltd
Unit 17 Bond Street Business Park
cnr Bond & Kent Streets
Randburg
Johannesburg
South Africa
2125**

**P.O. Box 2549
Randburg
Johannesburg
South Africa
2125**

Tel: +27 11 789 4420

Fax: +27 11 789 4422

