User Manual
For
RS232, RS422 & RS485 on Fibre Transceiver

LLD422

Picture

Model:…… Serial Number:……. Job Number:……..

Date: 2011/02/02 Advanced Digital Devices (Pty) Ltd

Contents

1 Introduction

1.1 General

The LLD422 is a selectable RS232, RS422 and RS485 to Fibre communication transceiver.
The unit is packaged in a small plastic enclosure and requires a 9-12V external DC power supply.

1.2 Basic System Description

The LLD422 has full duplex communication in RS422 mode (4-Wire) and requires a TX and a RX fibre.

In the RS485 mode (2-Wire) the unit will operate in half duplex communication. In this mode the unit can also by used in a party line configuration. (Figure 3)

In the RS232 mode (3-Wire) the unit will operate in full duplex communication.

The fibre interface for this unit remains compatible regardless of the selection for RS232, RS422 or RS485. The units can thus each be configured for another communication format with the fibre interfacing between them. This feature makes a very versatile system allowing the master controller to communicate at RS232 level and the peripheral equipment to communicate at RS485 or RS422 level.

1.3 Features

- Compact.
- 3 Communication Standards in one unit.
- Repeats data without interference.
- Economical RS485 operation.
- Din Rail Mountable.

1.4 Uses

- Ideally suited for Pan tilt zoom systems in video applications.
- Access control.
- Other Security and Control Systems.

1.5 Ordering Information

This unit must be ordered by using the following Order Number Selection table. Replace the 'X', in the left hand column, with the appropriate option selected to get the correct Order Number for the equipment required.

X	I	12VDC PSU	Input Power Option
	F	110VDC PSU	
	C	48VDC PSU	
	B	110VAC PSU	
	A	220VAC PSU	
X	B	SMA Optic Connection	Optic Connector Option
X	A	850nm Optic Wavelength, Multi Mode	Optic Wavelength Option
422		RS232, RS422 or RS485 Transceiver on Fibre	
LLD		Optic Solutions Din Rail Mountable	

Example: **LLD422ABI –** RS232, RS422 or RS485 Transceiver on Fibre in a **Din Rail Mountable Enclosure** with **850nm Optics with ST Connectors. Requires an external 9VDC PSU.**

1.6 Package Items

When the box is opened make sure of the contents by checking it using the Order Number.

Also check for damage during shipping. The manufacturer checked all equipment before packing and packed it in protective packaging and thus cannot be held responsible for damage during shipment.

2 Installation Procedure

2.1 Unpacking

The system is factory tested and packed in protective packaging.
Inspect the packaging for any visual damage.

The manufacturer is not liable for damage during shipment.

Use the checklist in Section 1.3 and make sure everything ordered are supplied.

2.2 Mode Configuration

Before this unit can function it must be configured for the communication mode it is going to function in.
By using the following Table select the dipswitches for the Operation Mode.

Operational Mode	**Mode Description**	**Dip 2**	**Dip 3**	**Dip 4**
RS485 & RS232	RS485 – 2Wire – Half Duplex	OFF	OFF	OFF
	RS232 – 3Wire – Full Duplex			
RS485	RS485 – 2Wire – Half Duplex	OFF	ON	ON
Party Line Master	Master Control Party Line Coms			
RS485 & RS232	RS485 – 2Wire – Half Duplex	OFF	OFF	ON
Party Line Slave	Slave for Party Line			
RS422	RS422 – 4Wire – Full Duplex	ON	OFF	OFF

2.3 Power Connection

Before connecting the power to the unit make sure of the ordered power option. Connection of the wrong input power to the unit may damage the power supply installed in the unit.

For **"I" option** the unit should be in a narrow DIN Rail Mountable Enclosure.
To connect the power, a 2Pin screw terminal should be supplied. When looking at the terminal with the screws on top and facing the open wire clamps insert the positive wire into the right hand opening.

For all other options the unit should be in a wide DIN Rail Mountable Enclosure.
To connect the power make sure of polarity of markings indicated on the enclosure.

The Power indicators should light up when the power is switched on.

2.4 Fibre Connection

Before trying to connect the fibre make sure of the fibre and connector option ordered.

Make sure the fibre is of a good quality and the loss over the fibre is within specification of the equipments power budget.

When mounting the fibres make sure not to bend the fibre to sharply.

Connect the outgoing fibre to the TX optic connection and the incoming fibre to the RX optic connection as indicated on the unit.

2.5 RS485 Connection

To connect the RS485 data to the unit, use the connections Table. This connector is numbered from Left to Right, when looking at the open wire clamps with screws on top.

	5Way Data Connector				
Pin Number	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
Connection	Shield	NC	NC	RS485-	RS485+

The "TX" indicator should light up if RS485 data are present on that connection.

2.6 RS232 Connection

To connect the RS232 data to the unit, use the connection Table.
This connector is numbered from Left to Right, when looking at the open wire clamps with screws on top.

	5Way Data Connector				
Pin Number	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
Connection	Ground	RS232TX-Out	RS232RX-In	NC	NC

The “TX” indicator should light up if RS232 Incoming data are present on that connection and “RX” on any RS232 Outgoing data.

2.7 RS422 Connection

To connect the RS422 data to the unit, use the connection Table.
This connector is number from Left to Right, when looking at the open wire clamps with screws on top.

	5Way Data Connector				
Pin Number	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
Connection	Shield	RS422-In	RS422+In	RS422-Out	RS422+Out

The “TX” indicator should light up if RS422 Incoming data are present on that connection and “RX” on any RS422 Outgoing data.

3 Maintenance Procedure

No routine maintenance is required on this equipment.

4 Specifications

Power Supply	I Option	Connector	2Pin Screw Terminal
		Supply Voltage	9 to 18VDC
		Max Supply Current	150mA Max
	A Option	Connector	3Pin Screw Terminal
		Supply Voltage	190 to 265VAC
		Max Supply Current	15mA Max
	B Option	Connector	3Pin Screw Terminal
		Supply Voltage	75 to 140VAC
		Max Supply Current	20mA Max
	C Option	Connector	3Pin Screw Terminal
		Supply Voltage	36 to 72VDC
		Max Supply Current	80mA Max
	F Option	Connector	3Pin Screw Terminal
		Supply Voltage	75 to 140VAC
		Max Supply Current	20mA Max
Data Specification	Connector Options		5Pin Screw Terminal
	Specifications	RS485 – 2Wire – Half Duplex	1.2Mbps
		RS232 – 3Wire – Full Duplex	115.2kbps
		RS422 – 4Wire – Full Duplex	1.2Mbps
Optical Characteristics	Connector Options		ST or SMA
	Transmission & Reception Wavelength		850nm to 1310nm
	Responsivety		7mV/µW Typically or 13mV/µW
	Fibre Compatibility		50/125 µm diameter
	Minimum Receive Level		-30dB
Physical Characteristics	Unit Dimensions (Depth, Width, Height, Weight)	Narrow Enclosure	58 x 35 x 90mm @1.2kg
		Wide Enclosure	58 x 70x 90mm @ 1.8kg
	Packaging Dimensions (Depth, Width, Height)		230 x 530 x 95mm
	Packed Unit Overall Weight		2.3kg

5 Contact Details

Email: support@addvid.co.za
Web: www.addvid.co.za

Manufactured by: Advanced Digital Devices
Unit 17 Bond Street Business Park
Co Bond and Kent
Randburg
Johannesburg
South Africa

P.O. Box 2549
Randburg 2125
Johannesburg
South Africa

Tel: +27 11 789-4420
Fax: +27 11 789-4422

6 Test Certificate

Unit Serial Number:		**Model:**	
Tested By:		**Date:**	
Measurement Test	**Criteria**		**Result**
Power Supply	+9-18VDC or Other Options		
Power Consumption	1.4Watt		
RS485 Baudrate	Half Duplex @ 1.2Mbps		
RS232 Baudrate	Full Duplex @ 115.2kbps		
RS422 Baudrate	Full Duplex @ 1.2Mbps		
Optic TX Level	- dB		
Optic RX Level	- dB		
Power Budget	dB		
Functional Tests	**Criteria**		**Results**
Power Indication	Light up with Power connected		
TX Indications	Light up with TX data		
RX Indications	Light up with RX data		
RS485 & RS232 Or RS422	Function at Full Baud rates		
Internal PSU	Functional if installed		