Extension of RS232 LD232

A set for extending an RS232 line up to 1,200 m conductively separated

LD232

Datasheet

Created: 1/27/2006

Last update: 2/3/2006 13:30

Numer of pages: 12

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TABLE OF CONTENTS

BASIC INFORMATION

Description

A pair (set of the LD232A and LD232B modules is used for extending an RS232 line to a distance of up to 1,200 m. Both modules contain conductive separation and excessive voltage protection units on the connecting line. The layout is shown in Fig. 1.

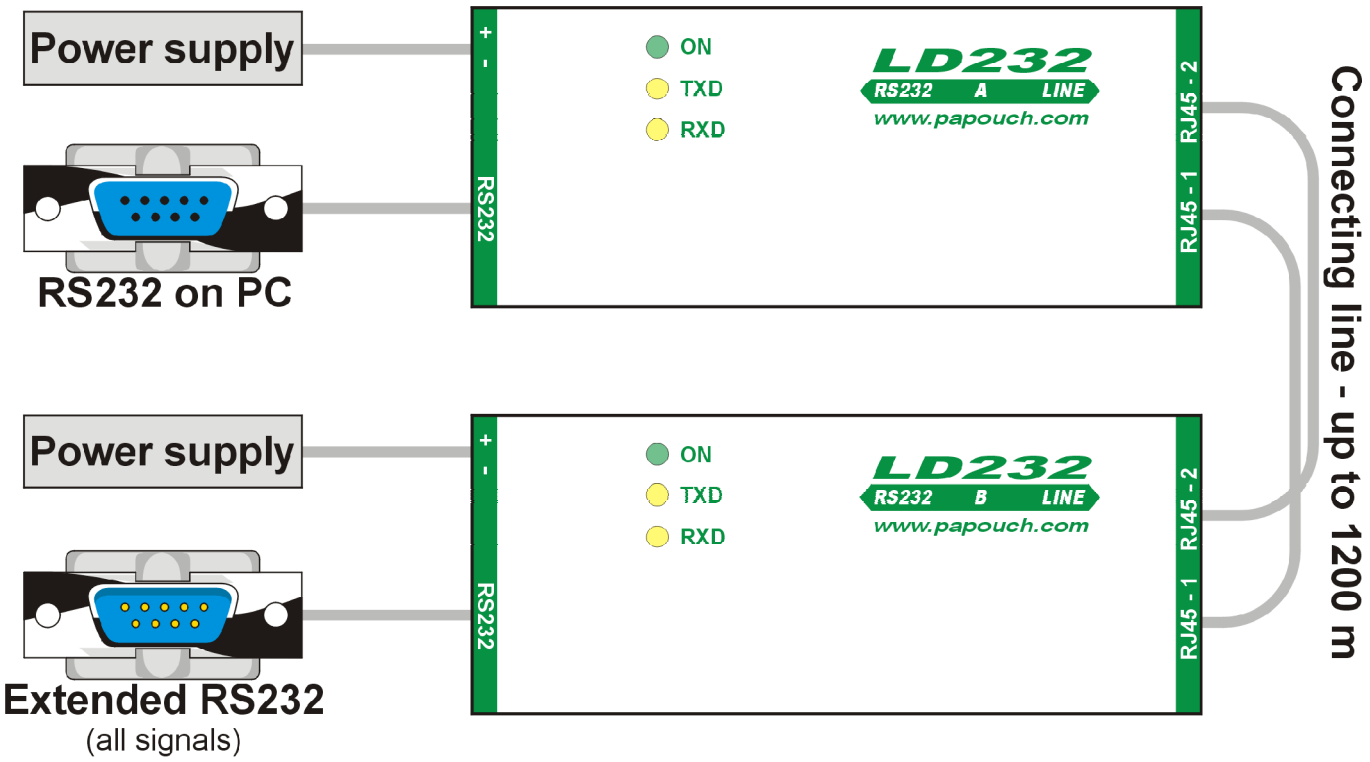

Fig. 1 – layout of the LD232

An RS232 from a PC (or another device) is connected to the LD232A module via an uncrossed cable. In the module, the signals are separated and transmitted to the remote LD232B module. Each signal is transmitted via a pair of conductors of the RS422 line, which is highly resistant to interference and enables transmission to a distance of up to 1,200 m. The signals are again conductively separated in the LD232B module. Signals of the RS232 line output from the LD232B module are identical with the signals on the input to the LD232A module.

Features

- All signals of the RS232 line are transmitted to a distance of 1,200 m. The connected equipment is not affected by utilisation of the modules and the software need not be adapted.
- Conductive separation of the input and output RS232 lines from the transmission line
- Transmission speed up to 480 kBd
- Protection of the transmission line from excessive voltage
- The output connector's layout is identical with that of the connector on the PC
- A wide range of power supply voltage values (from 4.5 to 75 V)
- Indication of power supply and communication
- The modules have no controls to be set

Technical Parameters

Transmission line:

Line type ..... differential, RS422

Connector ..... 2 × RJ45

RS232:

Connection – module A ..... D-SUB 9F (socket)

Connection – module B ..... D-SUB 9M (plug)

General information:

Transmitted signals .....complete RS232 line (TxD, RxD, RTS, CTS, DTR, RI, DSR, and DCD)

Power supply voltage .....7 V to 40 V (optional 4.5 – 75 V) with protection from polarity reversal

Power supply connector .....slip-on terminal block

Maximum transmission speed .....480 kBd

Operational temperature.....0 °C to +70 °C

Dimensions .....120 × 55 × 24 mm

Weight .....130 g (one module; one-half of the set)

Installing options

Bracket:

- Without a DIN rail *(standard)*
- With a DIN rail holder

Power supply:

- 7 to 40 V [1] *(standard version)*
- 5 V ±10% [1,2]
- 4.5 to 9.0 V [2,3]
- 9 V ±10% [2,3]
- 18 V to 36 V [2,3]
- 36 V to 75 V [2,3]

Please do not hesitate to contact us if you have specific requirements for the LD232 module's workmanship and functionality.

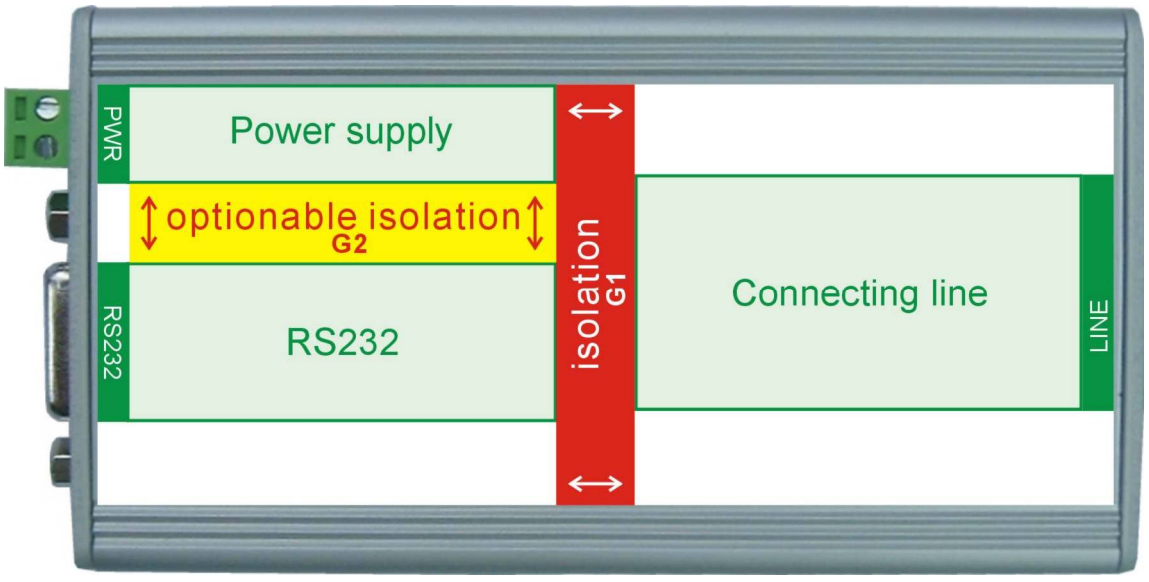

Fig. 2 – block diagram of conductive separation

[1] The **transmission line** is completely **conductively separated from RS232** and from the power supply (G1 separation cf. Fig. 2). The power supply and the RS232 line have common grounding.

[2] The time limit for delivery of this workmanship is between one and three weeks.

[3] The **RS232** line's grounding is, **moreover conductively separated from the power supply's grounding** (cf. Fig. 2 to see the G2 separation).

CONNECTIONS

Connection of the LD232A module

The LD232A module is connected to the RS232 serial line from a PC (or another device with identical connector) via an uncrossed cable 1:1, for example, a standard modem cable. The table shows the cable connection for D-SUB 25 and D-SUB 9 connectors.

RS232 D-SUB 9	RS232 D-SUB 25	LD232A D-SUB 9	Line
3	2	3	TxD
2	3	2	RxD
7	4	7	RTS
8	5	8	CTS
6	6	6	DSR
4	20	4	DTR
1	8	1	DCD
5	7	5	GND

Connection of the LD232B module

The D-SUB 9 connector on the LD232B module is electrically identical with that on the PC if the modules A and B are correctly connected. The connection is given in the table for the sake of completeness. If the output connector is to be connected, for example, with the controlled device, the same cable as for direct connection to a PC is to be used.

LD232B D-SUB 9	Line
3	TxD
2	RxD
7	RTS
8	CTS
6	DSR
4	DTR
1	DCD
5	GND

Interconnection between LD232A and LD232B

These modules are interconnected with two eight-wire cables. The signals that need not be transmitted do not have to be connected. The transmission utilises the RS422 electrical standard; hence a pair of conductors is necessary for each signal. The cable requires a twist pair for each signal – pins denoted + and – (for example, standard cables used for computer networks). The cable is uncrossed, 1:1 according to the table.

LD232A RJ45 – 1	LD232B RJ45 – 1	Signál
1	1	TxD+
2	2	TxD-
3	3	RTS+
4	4	RxD+
5	5	RxD-
6	6	RTS-
7	7	CTS+
8	8	CTS-
LD232A RJ45 – 2	**LD232B RJ45 – 2**	**Signál**
1	1	DTR+
2	2	DTR-
3	3	RI+
4	4	DSR+
5	5	DSR-
6	6	RI-
7	7	DCD+
8	8	DCD-

PROTECTION OF THE COMMUNICATION LINE FROM EXCESSIVE VOLTAGE

In addition to transmitting the signal to a long distance, the LD232A and LD232B modules protect both endpoints from excessive voltage and prevent occurrence of a grounding loop. However, the modules have to be protected from excessive voltage of the communication line.

For that reason, there is 12 V bipolar transil diode on each line in each module. The transmission line is completely conductively separated from RS232 in both A and B modules.

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