RS-232 to RS-422 Converter
Model 422LCON

PRODUCT FEATURES

- Converts unbalanced RS-232 signals to balanced RS-422 signals
- Data rates up to 90 kbps
- Extends RS-232 line up to 1200 meters (4000 feet)
- RS-422 driver can drive ten RS-422 receivers in parallel
- Ten receivers can be connected to any one driver for use in multidrop systems

Model 422LCON, RS-232 to RS-422 converter, converts unbalanced RS-232 signals to balanced RS-422 signals. The RS-422 Standard uses a balanced voltage digital interface to allow communications of 90K bits per second on cable lengths of 1200 meters (4000 feet). Ten receivers can be connected to any one driver for use in multi-drop systems.

The RS-232 port uses a male DB-25 type of connector with pins 2 (TD input) and 3 (RD output) supported. Protective ground (pin 1) and Signal Ground (pin 7) are also connected. The RS-422 port uses a female DB-25 type of connector with the Send Data outputs on pins 2 and 14, and the Receive Data inputs on pins 5 and 17. Protective Ground (pin 1) and Signal Ground (pin 7) are connected through to the RS-232 connector.

Interconnection of the converter with another RS-422 device:

The polarity of the two RS-422 lines must be correct. With no data being sent the RS-232 line should be negative and the RS-422 "A" terminal should be negative with respect to the "B" terminal.

The RS-422 Standard wire recommended is number 24 AWG copper conductor, twisted-pair telephone cable with a shunt capacitance of 16 pF per foot.

For long runs and/or high data rates, it is recommended that the wires be terminated with a resistor at the receive end. The twisted pair usually used has an impedance of about 100 Ohms, therefore a 100 Ohm resistor is normally used for the termination. The RS-422 side of the converter requires more power as the transmission line is increased and as the termination resistor value is reduced, therefore it may be necessary to use a termination resistor that is greater than 100 Ohms.

The RS-422 driver has the ability to drive ten RS-422 receivers connected in parallel. A system of multiple receivers may require some experimentation with location and size of termination resistors, line lengths, grounding, etc.

The RS-422 Standard recommends that Protective Ground (pin 1) be connected to a good "green wire" ground. This may be already connected in your RS-232 equipment. Protective Ground and Signal Ground should be connected through to each end of the system and be connected to each other using a 100 Ohm 1/2 watt resistor at one end only. If a shielded twisted pair is used the shield be connected to Protective Ground.

ORDERING INFORMATION

MODEL NUMBER	DESCRIPTION	RS-232 CONNECTOR	RS-422 CONNECTOR
422LCON	RS-232 to RS-422 Converter	DB25 Male	DB25 Female

ACCESSORIES

SMI6-12-V-P230-C1 - Power Supply, 12 VDC 6 Watt, 2.5mm Plug, International AC Input, International AC Blades

SPECIFICATIONS

TECHNOLOGY	
Data Rate	Up to 90 kbps baud
Connectors	RS-232: DB25 male RS-422: DB25 female
Signals	TD, RD
Power Requirement	12 VDC @ 100 mA, external power source
REGULATORY APPROVALS	
FCC, CE	
Directives	2014/30/EU - Electromagnetic Compatibility Directive (ECD) 2011-65/EU - Reduction of Hazardous Substances Directive (RoHS) 2012/19/EU - Waste Electrical and Electronic Equipment (WEEE)
Standards	EN 55032:2015 Class B - Electromagnetic Compatibility of Multimedia Equipment - Emission Requirments EN 55024:2010 - Information Technology Equipment - Immuity Characteristics - Limits and Methods of Measurement EN 61000-6-3:2007+A1:2011 - Generic Emission Standard for Residential, Commercial and Light-industrial Environments (Class B) EN 61000-6-2:2005 - Generic Immunity Standard for Industrial Environments
MEANTIME BEFORE FAILURE (MTBF)	
MTBF	8888099 hours
MTBF Calc. Method	MIL 217F using Parts Count Reliability Prediction Method

All product specifications are subject to change without notice.
422LCON_3517ds

B+B SMARTWORX

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SCHEMATIC

MODEL 422LCON

DB25P MALE CONNECTOR

DB25S FEMALE CONNECTOR

PROTECTIVE GROUND

1 PROTECTIVE GROUND

+5V
R1 1K   R2 1K

TSC232 U2
+5V
16

D1   D2

U1
+5V
1

TD   2
8   R   9
7   D   10
13   R   12
14   D   11

8921
3   5
6
7
2   8
GND
4

2 TD(A)

RD   3

14 TD(B)

5 RD(A)

C1 1   +
VOLTAGE INVERTER
−V   6
C2 1   +

R4 *
1K
R3

17 RD(B)

C3 1   +
VOLTAGE DOUBLER
+V   2
C4 1   +

1K   +5V
R5

REMOTE POWER IN +12VDC

RTS   4
CTS   5

15
+5V

TO ALL +5V

25

12 SIGNAL GROUND

CE READY (DSR)   6
RLSD (CD)   8
TE READY (DTR)   20
SIGNAL GROUND   7

LM78L05ACM U3
1 VOUT   VIN 8
2 GND   GND 7
3 GND   GND 6
4 NC   NC 5

C6 +
10UFD

R6 100
R7 100
C5 +
.33UFD

EXT. POWER JACK 12VDC IN @ 100MA

DRAWS 30mA. TYPICAL

7 SIGNAL GROUND

* OPTIONAL TERMINATION RESISTOR