



RS-232 to RS-485



User Manual
DA-70161

I .Summary

In order to carry through remote digital communication between computers with various standard series interfaces converter facilities or intelligent instruments, it needs inter exchange of standard series interface converter of compatible RS-232C and RS-485 standard is able to convert mono-end RS-232 signal to balance difference RS-485 signal and extend the communication distance to 1.2km. No external power but adopts a particular RS-232 charge pump to drive the system, and gains electricity without initializing the RS-232 series interface. An internal zero delay auto transceiver and particular I/O circuit automatically control the data stream direction instead of a handshake signal (for example: RTS, DTR... etc.) There by in guarantees the function under RS-485 without changing the program compiled under RS-232 half-duplex mode and assures the adaptation to current operation software and interface hardware. The transmission rate of 300-115.2kbps is capable of applying between host computers, host computer and is extensions or external equipment and forms dot to dot, dot to dots remote and multi-communication network. It implements multi-machine response communication and commonly used in systems of industrial automation control all-one-card for door safe, car parking, ATM, bus charge, eatery sell out, staff attendance management, and toll highway etc.

II. Capabilities parameter

Interface feature:	RS-232C, RS-485 standard interface compatible with EIA, TIA
Electric interface:	RS-232 end DB9 hole connector, RS-485 end DB9 needle connector with connection pole
Working mode:	Asynchronism half-duplex difference transmission
Transmission media:	twisted -pair or STP
Transmission rate:	300-115.2KBPS
External discharge dimension:	63 x 33x 17 mm
Working circumstance:	- 25 to 70 degree C, relative humidity 5% to 95%
Transmission distance:	1,200m (RS-485 end), 5m (RS-232 end)

III. Connector a signal

RS-232C bay-line distribution

DB9 Female(PIN)	RS-232C Interface Signal
1	Protective
2	RXD SIN
3	TXD SOUT
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

RS-485 data output & connector and bay-line distribution

DB9 Male(PIN)	Data Output	RS-485 Half-Duplex
1	T/R+	RS-485 (A+)
2	T/R-	RS-485 (A-)
3	RXD+	N/C
4	RXD-	N/C
5	GND	Ground Wire
6	VCC	+5V Standby Power input

IV. Hardware installation & application

The product exterior adopts DB-9 to DB-9 all-purpose transit plugs, output plug carries ordinary connection pole, can use TP or STP and easy connection and disassembly, T/R+, T/R- stands for dispatching A+, B-, VCC stands for standby power input, GND stands for public ground wire, Point-to-point or point-to-multipoint , half-duplex communication need 2 connection (T/R+, T/R-), connection principle is T/R+ connects to opposite T/R+, T/R- connects to opposite T/R-, RS-485 half-duplex mode connection is to connect T/R+ to opposite A+, and T/R-to opposite B-.

Remark: A+ for (485+), B- for (485-)

UT-201 interface supports 2 communication modes as below:

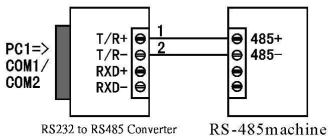
- 1 Point-to-point 2 wires half-duplex
- 2 point-to-multipoint 2 wires half-duplex

When converter works under half-duplex connection, it needs to install a matching resistance (data 120 ohm 1/4W) for preventing signal reflection and interference.

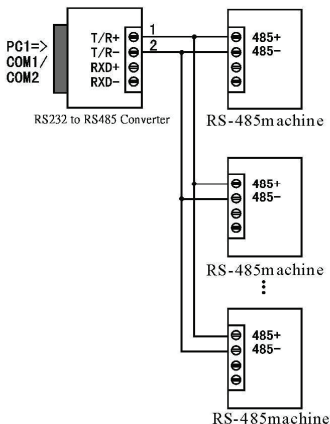
V. Communication sketch map

RS-232 to RS-485 converter

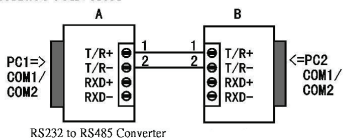
1. RS-485 Point-to-point 2 wires half-duplex



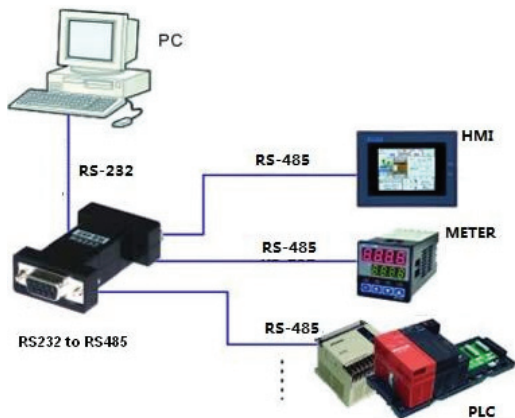
2. RS-485 point-to-multipoint 2 wires half-duplex



3. half-duplex communication connect between interface converter



VI. Application diagram



VII. Problem and resolution

1. Data communication failure
 - A. Check if RS-232 interface connection is correct
 - B. Check if RS-232 output connection is correct
 - C. Check if connection ends are well connected
2. Data loss or mistake
 - A. Check if data rate and format is consistent on both communication ends.

Note: If wrongly installed or improperly used in the living area, the device can cause interference in radios and other electronic devices. Appropriate use is when the device, as far as feasible, is operated with shielded connection cables (with network products in addition to category 5 shielded cables and higher). The device has been tested and falls within the limits of class B computing equipment according to the requirements of EN 55022.

Warning: This device conforms with test category B - it can cause radio interference in the living area; in this case the operator may demand that appropriate measures are implemented and arise for this reason. Declaration of conformity: The device fulfills the EMV requirements according to EN 55022 for ITE and EN 55024. Devices with external or integrated power supply furthermore fulfill the requirements of EN 61000-3-2 and EN 61000-3-3. In this way, the fundamental protection requirements of the EMV-2004/108/EC guideline are fulfilled. The CE conformity has been proven. The pertinent declarations are deposited with the manufacturer.

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