



# RS-232/485/422 UT-242E SELF-POWERED CONVERTER USER MANUAL

## I. Summary

Compatible with RS-232C, RS-422 and RS-485, UT-242E self-powered converter can convert RS-232 signal into balance differential RS-422 or RS-485 signal and extend the communication distance to 1.2km, no external-power needed. Auto-adapt data stream direction without any handshaking signal (for example RTS, DTR etc). Plug-and-play without any jumper settings needed for RS-422 or RS-485. Baud rate is 300-115.2Kbps.

Suit for industrial automation, all-one-card, door safe, car parking, ATM, bus charge, eatery sell out, staff attendance management, and highway's tolling etc.

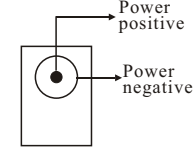
## II. Performance

1. Interface: RS-232C & RS485/RS-422 EIA/TIA.
2. DB9 female RS-232, 6 Pin post for RS-422/RS-485
3. Operation mode : asynchronous half duplex or asynchronous full duplex, without any jumper setting needed.
4. Transmission media : STP/UTP
5. Transmission rate : 300-115.2KBPS
6. Dimensions: 62mm × 40.5mm × 21mm.
7. Working circumstance: -40°C to 80°C, relative humidity 5%- 95%.
8. Transmission distance: 1,200m (RS-485 end), 5m (RS-232 end).
9. Protection grade: 2000A lightning strike surge protection

## III. Connector and signal

RS-232 pin definition

DB9 Female (PIN)	RS-232C Interface signal
1	Earth protection
2	Receive data SIN(RXD)
3	Send data SOUT(TXD)
4	Data terminal ready DTR
5	Ground signal GND
6	Data setting ready DSR
7	Request send RTS
8	Clear send CTS
9	Ring indication RI



While the serial port voltage running low, 9V ± 1/50mA DC could be supplied

RS-485/422 data output & connector and bay-line distribution

PIN	Signal Output	RS-422 Full-Duplex	RS-485 Half-Duplex
1	T/R+	(A+)	RS-485 (A+)
2	T/R-	(A-)	RS-485 (B-)
3	RXD+	(A+)	None
4	RXD-	(B-)	None
5	GND	Ground Wire	Ground Wire
6	VCC	Power: 9 ± 1V/50mA	None

## IV. Hardware installation & application

The product exterior adopts 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 Full-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-422 Full-duplex mode connection is to connect T/R+ to opposite A+, and T/R- to opposite B-. Remark: A+ for (422+), B- for (422-).

UT-242E Using STP/UTP for the installation, 4 working modes as below:

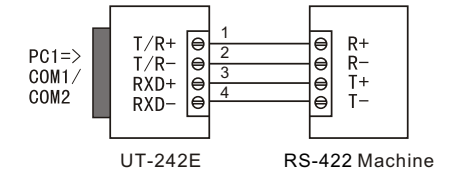
1. Point-to-point 4-line full duplex
2. Point-to-multipoint 4-line full duplex
3. Point-to-point 2-line half duplex
4. Point-to-multipoint 2-line half duplex

In order to prevent interference in RS485/422, a 120Ω 1/4W terminal resistor may be used according to particular situation.

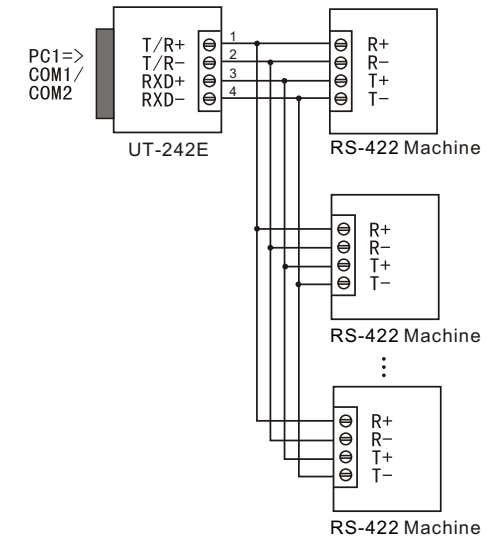
## V. Communication sketch map

RS-232 to RS-422

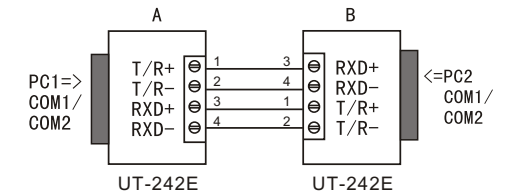
1. RS-422 point to point 4 wires Full-duplex



2. RS-422 point to multipoint 4 wires Full-duplex

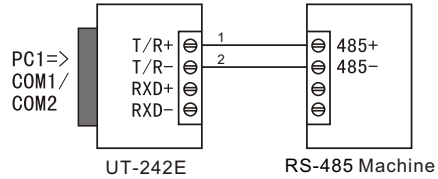


3. UT-242E Full-duplex communication connect between interface converter

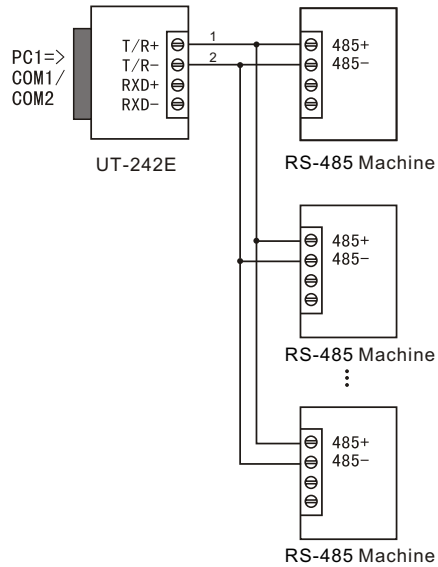


## RS-232 to RS-485 conversion

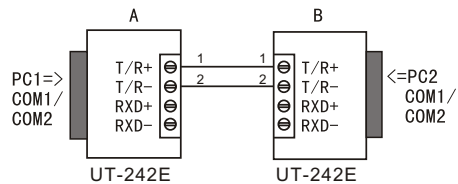
### 1. RS-485 point to point 2 wires Full-duplex



### 2. RS-485 point to multipoint 2 wires Full-duplex



### 3. UT-242E Half-duplex communication connect between interface converter



## VI. Problem and resolution

### 1. Communication failure

- A. Make sure RS-232 interface connection is correct.
- B. Make sure RS-485/RS-422 output interface connection is correct.
- C. Make sure the wire terminal connection is OK.

### 2. Data missing or incorrect

- A. Check to see whether if the data rate and format at both ends of the communication equipment are consistent.

## VII. Product outline

