

RS-232/RS-485

TMC-05 Interface Converter Instruction

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 RS-232 series interface. An internal zero delay auto transceiver and particular I/O circuit automatically control the data stream direction instead of an 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 forms point to point, point to multi-point remote and multi communication network, It implements multi-machine response communication and commonly used in systems of industrial automation control all-one -card. 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-485/422 end DB9 needle connector, with connection pole

Working mode: a synchronism Half-duplex difference transmission

Transmission media: twisted-pair or STP

Transmission rate: 300-115.2 KBPS

External is charge dimension: 63mmX33mmX17mm

Working circumstance: -25 to 70 degree C, relative humidity 5 % to 95 %

Transmission distance: 1,200 mm (RS-485 end), 5m (RS-232 end)

III. Connector and signal:

RS-232C bay-line distribution

DB-9 Female PIN	RS232 Interface line
1	Protective
2	RX Data Signal Input
3	TX Data Signal Output
4	DTR
5	GND
6	DSR
7	RST
8	CTS
9	RI

RS-485 data output & connector bay-line distribution

DB-9 Male PIN	Data Output	RS-4485 Half-Duplex
1	T/R+	RS485 (A+)
2	T/R-	RS485 (B-)
3	RXD+	NC
4	RXD-	NC
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 principles T/R+ connects to opposite T/R-, T/R - connects to opposite T/R+, RS-85 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-)

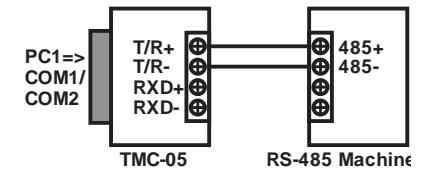
TMC-05 interface supports 2 communication modes as below

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

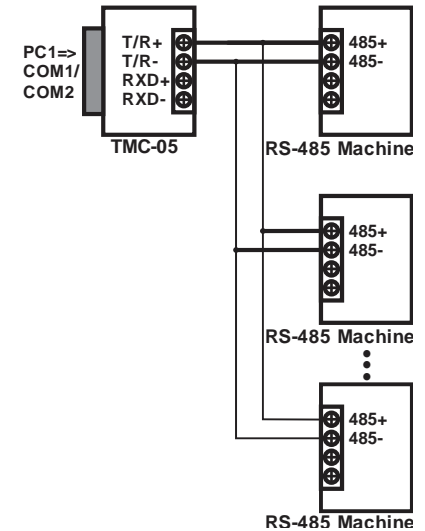
When converter works under Half-duplex connection, it Needs to install a matching resistance (data 120 ohm 1/4W) For preventing signal reflection and interference

V. Communication sketch map RS-232 to RS-485 conversion

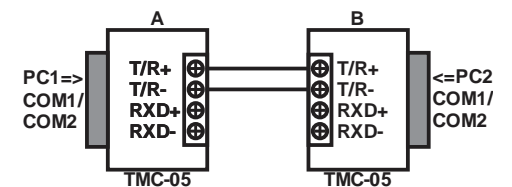
1.RS-485 point-to-point 2 wires Half-duplex



2.RS-485 point-to-multipoint 2 wire Half-duplex



3.TMC-05 Half-duplex communication connect between Interface converter



VI. Problem and resolution

Data communication failure

- Check if RS-232 interface connection is correct
- Check if RS-485 output connection is correct
- Check if connection ends are well connected

Data loss or mistake

- Check if data rate and format is consistent on both communication end.