

RS-232 TO RS-422/RS-485 Electromagnetic Isolation Converter ATC-105N User's Manual



1.0 General introduction:

ATC-105N Electromagnetic Isolation Interface Converter is compatible with RS-232C, RS-422, RS-485 standards and capable of converting single end RS-232 signal into RS-422 or RS-485 signal of balanced signal. ATC-105N electromagnetic isolated interface converter, capable of RS-232 signal converter RS-422 or RS-485 signals, very suitable to work in harsh electrical environments, or frequent plug RS-232 cable for the occasion; application iCoupler & reg technology can be simultaneously used to isolate the logic signals and integrated isoPower isolated DC-DC converter, so ATC-105N can provide total isolation solution provides 2500V isolation voltage, the rapid Transient Voltage Suppressor (TVS) can effectively inhibit lightning and ESD, prevent lightning strike and common code interference. Connect PC, IPC, or portable computer via a DB9 female connector at RS-232 interface, and connect RS-422, RS-485 end via convenient 4-bit terminal. The RS-485 supports dual-line half duplex, namely, the only two lines of RS-485 shall both send and receive data. Handshake signal (e.g. RTS, Request To Send) usually controls the data direction. The inner circuit of ATC-105N Electromagnetic Isolation Interface Converter can detect data direction and switch to control it automatically, conveniently to form a RS-485 network without any shake hand signal. This kind of RS-485 control is fully transparent and need no software amendment for the former working modes basing on RS-232C.

ATC-105N Electromagnetic Isolation Interface Converter

can provide credible connection for point to point, point to multi-point communication. The point to multi-point allows connecting 32 RS-422 or RS-485 interface devices with data transmission speed of 0-460KBPS. The dual color data flow indication light can indicate malfunction. It supports communication modes including RS-232C to RS-422, RS-232 to RS-485 conversion.

2.0 Performance parameter

- 2.1 Interface feature: Compatible with EIA/TIA RS-232C, RS-485/RS-422 standard
- 2.2 Electric interface: RS-232C interface DB9 Female connector RS-422/RS-485 interface 4-bit terminal
- 2.3 Transmission media: twisted-pair cable or shielded cable
- 2.4 operation mode: asynchronous half or full duplex
- 2.5 Signal indication: 3 signal indication lights indicate TD, RD and PWR
- 2.6 Isolation: isolation voltage 2500VRMS 500VDC sequence
- 2.7 Transmission speed: 0-230KBPS
- 2.8 Protecting grade: RS-232 interface+15KV ESD protection, RS-422, RS-485 interface 600W lightning strike and surge protection on each line
- 2.9 Transmission distance: 1.2 kilometers (9600BPS)
- 2.10 Size: 85mmx54mmx25mm
- 2.11 Working environment: -40℃ to 70℃, 5% to 95% relative humidity

3.0 Connector and signal

RS-232 DB9 Female Connector Pinout

DB9 Female	RS-232
PIN2	TXD
PIN3	RXD
PIN5	GND

RS-422/485 Terminal Pinout:

Terminal No	1	2	3	4
RS-422	T+	T-	R-	R+
RS-485	485+	485-	-	-

4.0 Installation setup and application:

Before installing ATC-105N Electromagnetic Isolation Interface Converter. Please read the user manual carefully. The product on the + 9-24VDC socket power converter. RS-422 or RS-485 device four terminals connected to pin definition instruction based on end. ATC-105N product has 2 toggle switch. One on the left is the selector switch for the RS-422 interface or 485 (dial to the left for the RS-422, set aside to the right for the RS-485). The right is the selector switch for switching baud rate less than 9600bps baud dial to the left. (TS1). Dial to right is greater than 9600bps (TS2). The user can choose according to their needs.

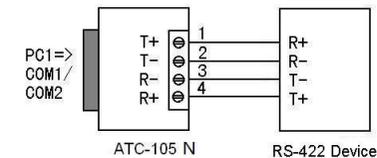
ATC-105N interface converter supports following communication modes:

1. point to point/4 wire full duplex
 2. point to multi-point/4 wire full duplex (Four wire RS-485)
 3. point to point/dual-line half duplex
 4. point to multi-point/ dual-line half duplex
- RS-232 to RS-422 conversion: set ATC-105N interface converter switch to RS-422 position.
RS-232 to RS-485 conversion: set ATC-105N interface converter switch to RS-485 position.

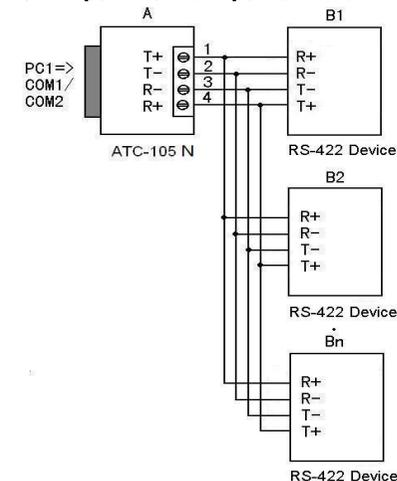
5.0 Sketch map for communication connection

RS-232 to RS-422 conversion

5.1 RS-422 point to point/4 wire full duplex communication

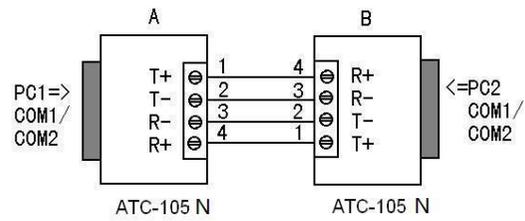


5.2 RS-422 point to multi-point/4 wire full duplex RS-485

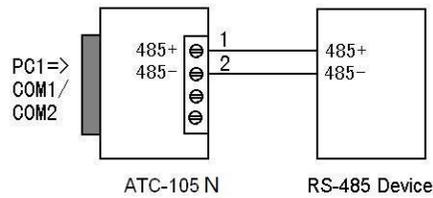


5.3. Full duplex communication connection between

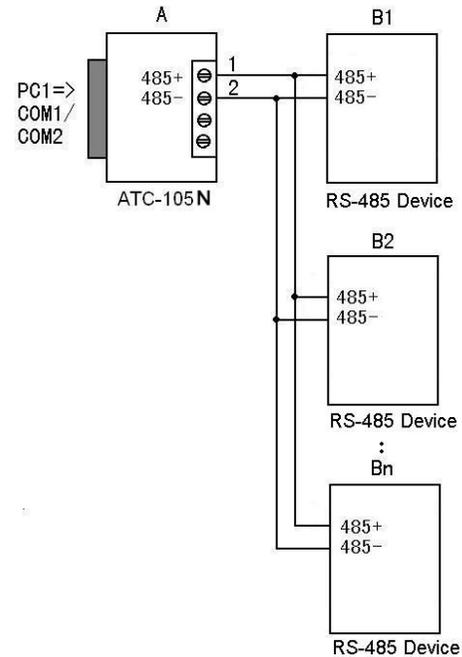
ATC-105N interface converters



5.4 RS-485 point to point/ dual-line half duplex

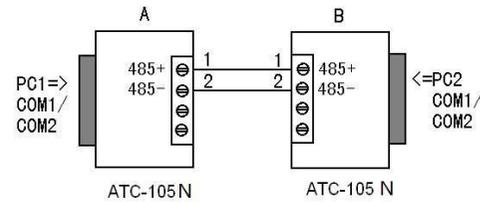


5.5 RS-485 point to multi- point /dual-line half duplex



5.6 Half duplex communication connection between

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6.0 Trouble shooting

6.1 Data transmission failure:

- check to make sure the RS-232 interface is correctly connected
- check to make sure the RS-422 interface is correctly connected
- check to make sure the RS-485 interface is correctly connected
- check to make sure the power supply is normal
- check to make sure the switch setup is in the correct conversion mode
- Check to make sure the RS-422, RS-485 interface settings switch is in the correct mode.

6.2 Data loss or error:

- Check the consistency of the data speeds and formats at the both ends of the data communication device.