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Intelligent RS-485/422 to RS-232 converter

Model No.: R32TR1 AD-INT
Introduction

R32TR1 AD-INT is an intelligent RS-485/422 to RS-232 converter it is designed for connecting RS-232 devices to RS-485/422 network and other RS-485/422 devices.

Most widely used computer systems, PLCs, and measuring equipment and industrial devices, its transmission speed, communication distance, especially the network ability is limited due to unbalanced transmission. The converter solves this problem, so you can easily build a RS-485/422 multi-drop network with your RS-232 device address assignment for each to communicate more easily.
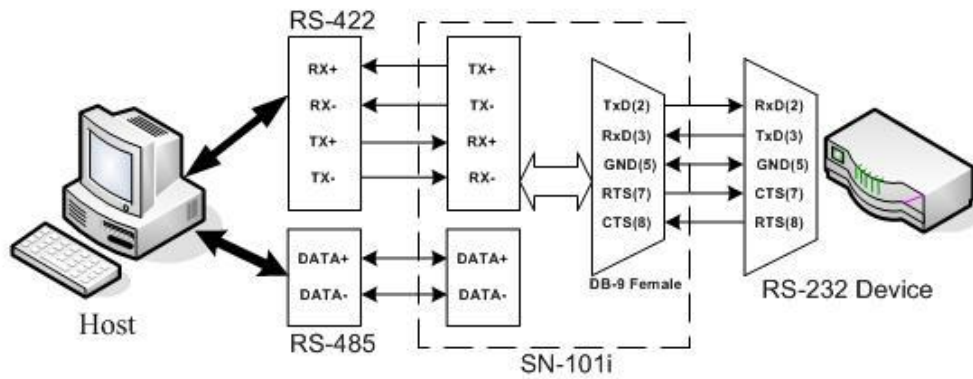
Feature

- RS-422/RS-485 transceiver
- RS-232 and RS-422/485 can be different baud rate
- Auto direction flow control on RS-485
- Addressable and non-addressable mode configurable
- Transmission speed up to 115.2 kbps
- High isolation voltage up to 3000Vrms
- Surge protection on RS-422/485 lines
- Easily setup and installation

- Built-in microprocessor
- Watchdog timer function included
- All communication setups stored in EEPROM
- Power and data flow indicator for troubleshooting

Specification

◆ **Transmission Speed (bps): 300 ~ 115,200 (RS-422/485 and RS-232 can set to different baud rate)**

◆ **Data Format: (RS-232) (RS-422/485 is fixed to 1 stop bit, non-parity, 8 data bits format)**

♦ Stop bits: 1, 2

♦ Parity type: None, Even, Odd

♦ Data bits: 5, 6, 7, 8

◆ **RS-232:**

♦ 9 pin D-sub female connector

♦ Support RXD, TXD, RTS, CTS signals

◆ **RS-422:**

♦ Differential 4 full duplex wires

♦ Support TX+, TX-, RX+, RX- signals

♦ Surge protection on signal pins

◆ **RS-485:**

♦ Differential 2 half duplex wires

♦ Support DATA+, DATA- signals

♦ Surge protection on signal pins

◆ **Isolation Voltage: 3000 V$_{DC}$**

◆ **Storage Temperature Range: -40 to 80 ° C**

◆ **Operating Temperature Range: -35 to 75 ° C**

◆ **Power Requirement: +10V to +30V$_{DC}$ Unregulated with against power reversal**

◆ **Case: PC with captive mounting hardware**

◆ **CE Class A Conformity**

Basic Application

Configuration

The utility software with the following capabilities:

- Baud rate configuration
- Address configuration
- Addressable or non-addressable mode selection
- RS-485 or RS-422 mode selection

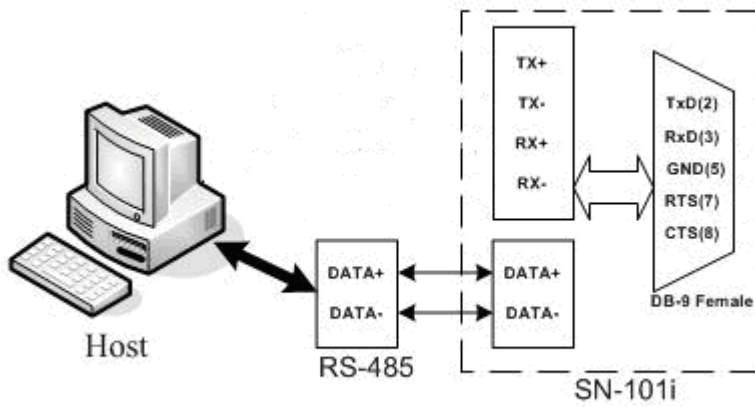## The utility tool configuration as below:

When you will configure, please make sure device in **INIT** mode and the ACC

led will flash slowly. **INIT SW pin1 ON**

Configuration only RS-485 mode

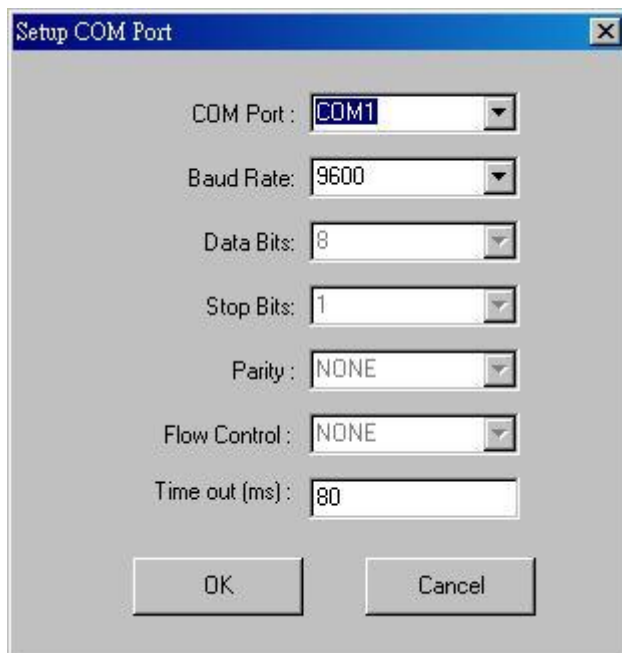| INIT* state default settings:	
Baud Rate:	9600 bps
Protocol:	RS-485
Address:	00h

RS-485 Wiring
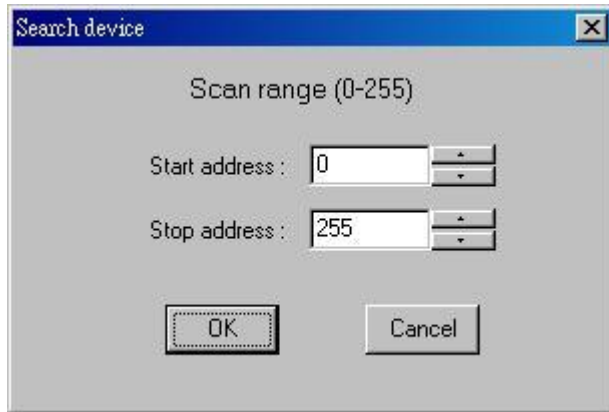**DATA+=D+ ,DATA-=D-**

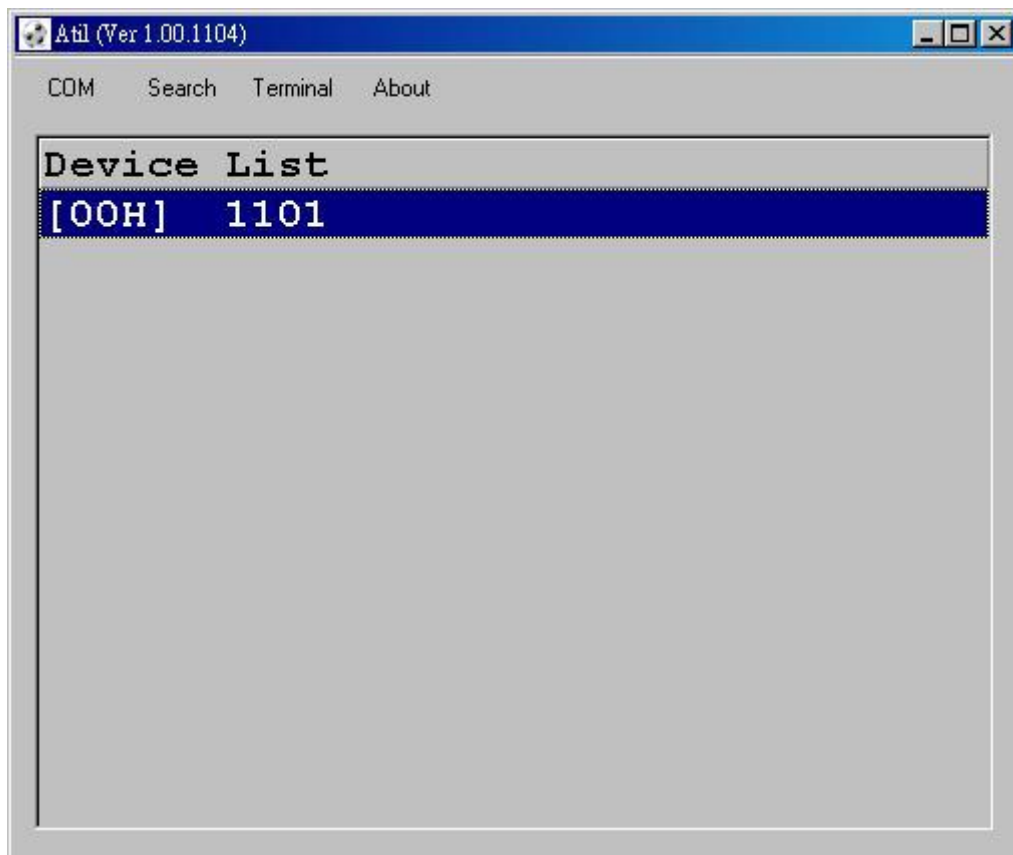## utility tool configuration

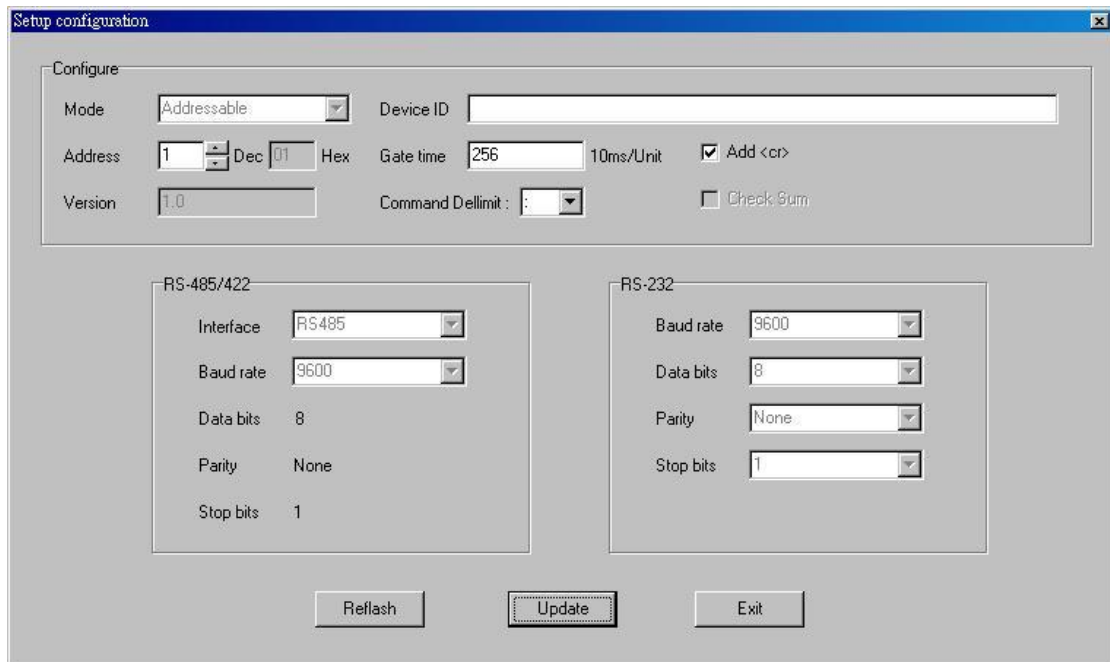Step1. Select COM Port and Baud Rate

Step2. Search device

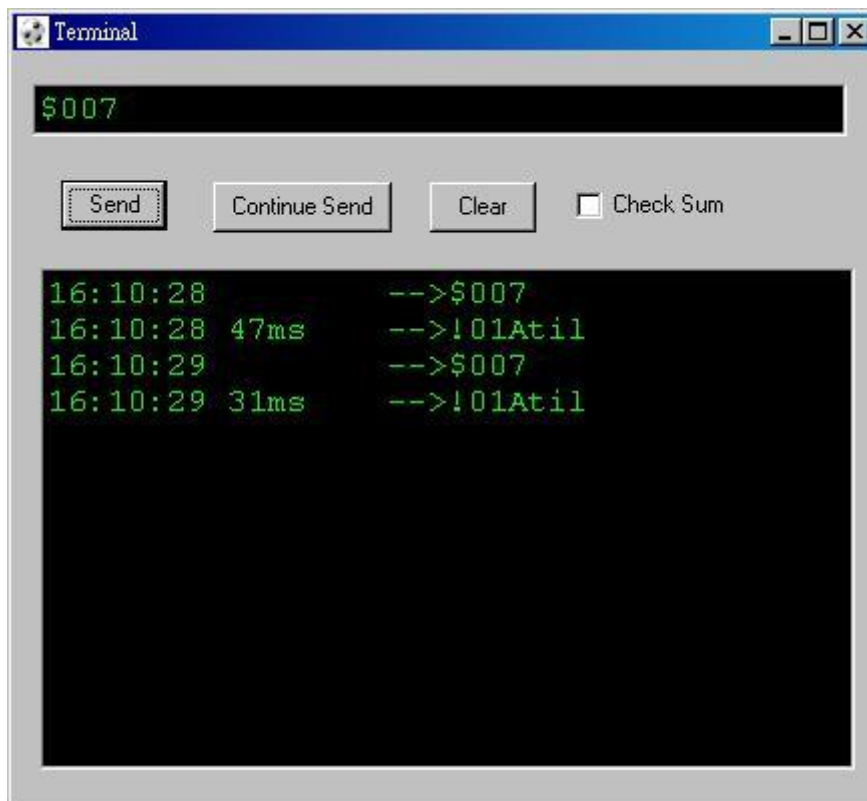Step3. Select device and double click

Step4. Configuration device

Terminal

This option allows you to directly send and receive commands on RS-485 or RS-422 cable.

Command Message Framing

A command message is placed by the transmitting device into a frame that has a known beginning and ending point. When receive a new frame to begin at the start of the message,

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and to know when the message is completed.

Start	Address	Command	Data	Checksum	End
1 char	2 chars	1 char	n char(s)	2 chars	1 char

Start: Start code include delimiter chars,$,... etc

Address: Module's address, the value range 00 to FF

Command: Command codes

Data: The delimiter command output data

Checksum: Optional. Only checksum is enabled then the checksum is needed

End: Ending code is <CR>(0x0D)

Calculate Checksum Value

Checksum = ((Start)+(Address)+(Command)+(Data)) MOD 0x100

Example 1: Checksum disable

    command: $10D<CR>

    response: !10[<CR>

Example 2: Checksum enable

    command: $10D**C9**<CR>

    response: !10[**DD**<CR>

    $=0x24, 1=0x31, 0=0x30, D=0x44

    C9=(0x24+0x31+0x30+0x44) MOD 0x100

    !=0x21, 1=0x31, 0=0x30, [=0x5B

    DD=(0x21+0x31+0x30+0x5B) MOD 0x100

Command Messages

Command	Description
$XX6(ID)	Set ID(32 bytes)

$XX7	Read ID
$XXC(Delimiter)	Set Delimiter
$XXD	Read Delimiter
(Delimiter) XX(data)	Data Pass(240 bytes)
XX is address	

Set ID

Description: Set an ID up to 32 bytes to the module, which address is XX.

Syntax: $XX6(ID)<CR>

Response: !XX<CR>

Example:

command: $106Network 1<CR>

response: !10<CR>

Set ID "Network 1"   to the module at address 10h

Read ID

Description: Read ID from the module, which address is XX.

Syntax: $XX7<CR>

Response: !XX<CR>

Example:

command: $107<CR>

response: !10Network 1<CR>

The ID on the module at address 10h is "Network 1"

Set Delimiter

Description: Set the delimiter character for the Data Pass command to the module,

which address is XX. There are 8 special characters to choose from:

: [ ] ^ { | } ~

Syntax: $XXC(Delimiter)<CR>

Response: !XX<CR>

Example:

command: $10C[<CR>

response: !10<CR>

Set Delimiter command "[" to the module at address 10h

Read Delimiter

Description: Read the delimiter character for the Data Pass command from the

module, which address is XX.

Syntax: $XXD<CR>

Response: !XX<CR>

Example:

command: $10D<CR>

response: !10[<CR>

Read Delimiter command ""["" from the module at address 10h

Data Pass

Description: Make the module to pass up to 240 bytes of data to the RS-232 device,

which address is XX.

Syntax: (Delimiter)XX6(Data)<CR>

Response: depends on the RS-232 device.

Example:

command: [10ABCD<CR>

response:

Send ABCD<CR> data to RS-232 port from the module at address 10h.