

# Model: UT-503

(Product Name: Industrial RS-232 to RS-485/422 Converter with Isolation )

# Datasheet

## 1. Overview

UT-503 is an industrial converter with optoelectronic isolation. It complies with RS-232C, RS422, and RS-485 standards; it converts single side RS-232 signal to a balanced differential RS-422 or RS-485 signal. The built-in optoelectronic isolator can provide as high as 2,500V<sub>rm</sub> isolated voltage; the fast transient voltage suppression is designed to protect RS-422/RS-485 interface; it adopts advanced TVS (TRANSIENT VOLTAGE SUPPRESSOR); normally, TVS tube is in high impedance state; when both sides of TVS tube suffer from high power impact in a sudden, the voltage suppression will fast lower the impedance from both sides, and absorb in big current; with this, the voltage on both sides are fixed at presupposed value, protects the component of circuit from damage. This voltage suppression provides 600W each wire with lightning and ESD protection, and surge voltage, transient overvoltage protection on circuit which causing by all reasons; the tiny interelectrode capacitance ensures high speed transmission for RS-422/485 ports. RS-232 connects with RS-232C standard port by DB9 female connector; RS-422/RS-485 adopts 10 bits terminal block as output. This converter is with built-in zero delay auto receiving and transmitting conversion and unique I/O circuit auto control data flow direction without any handshake signal (RTU, DTR); there is no need jumper wire setting for full duplex (RS-422) and half duplex (RS-485) mode, plug & play. It is compatible with current communication software and hardware, no need to set the previous working mode which base on RS-232.

## 2. Major Functions & Features

- Industrial RS-232 to RS-485/422 Converter with Isolation

## 3. Technical Parameters

- Standards: RS-232C/ RS-485, /RS-422 EIA/TIA
- Connector: RS-232 DB9 female connector input; RS-422/485 10 bits terminal block output
- Protect level: RS-232  $\pm 15$ KV ESD protection; RS-422/RS-485 600W surge protection
- Isolation: isolated voltage 2,500VRMS 500VDC
- Working mode: asynchronous half-duplex or full-duplex
- Signal indicators: three signal indicators power (PWR), transmit (TXD), receive (RXD)
- Transmission media: twisted-pair or shielded cable
- Baudrate: 115.2Kbps to 300m  
38.4Kbps to 2.4Km  
9,600bps to 5Km
- Dimension: 117mm×80mm×25mm
- Operating temperature: -40°C to 85°C
- Relative humidity: 5% to 95 % ( Non-condensing)
- Transmission distance: 0-5,000m (115,200bps-9,600bps)

## 4. Hardware Definition and Initial Setup

### RS-232C pin assignment

DB9 Female (PIN)	Signal definition
1	DCD
2	Send data SOUT(TXD)
3	Receive data SIN(RXD)
4	DTR
5	GND
6	DSR
7	RTS
8	CTD
9	RI

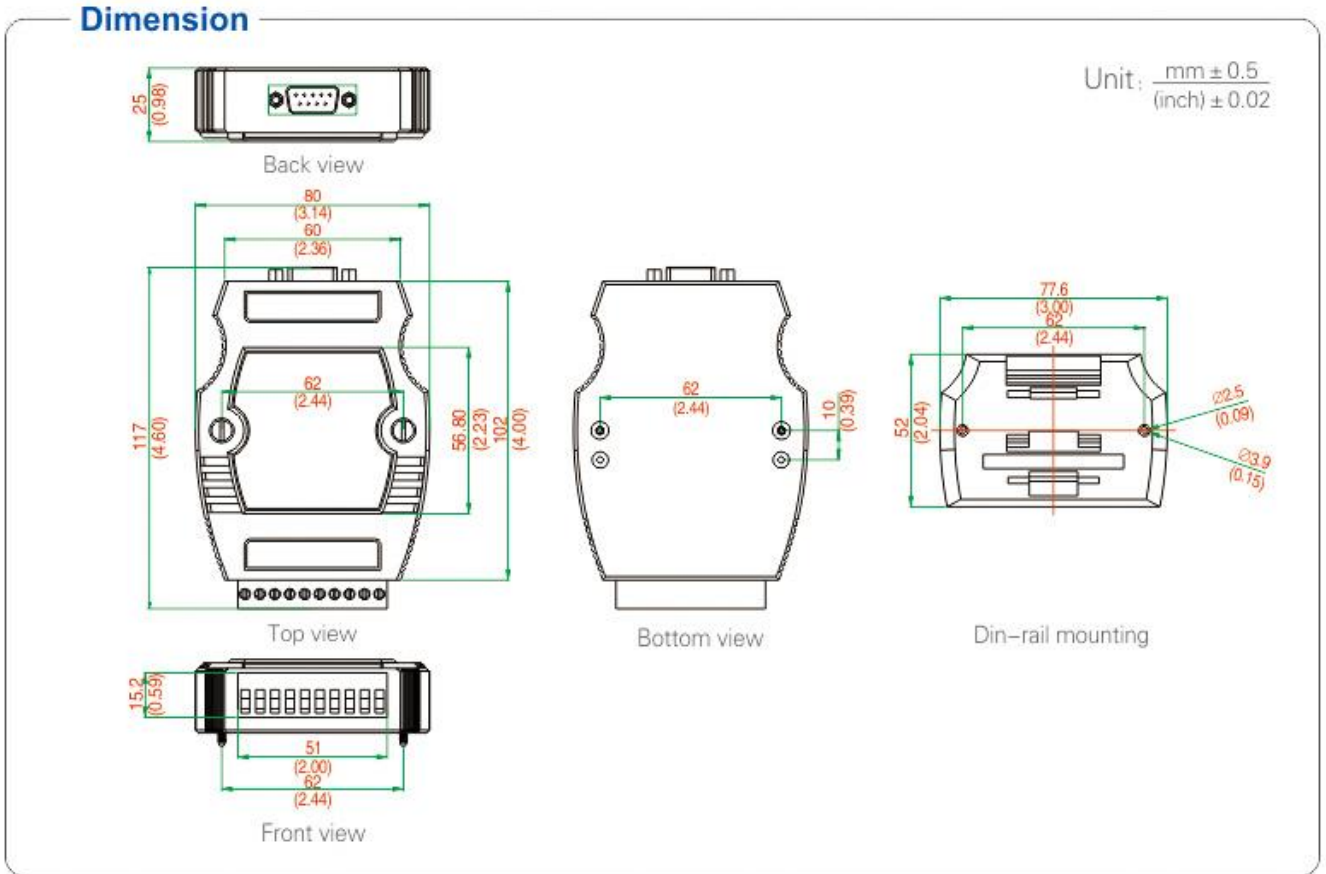
### RS-485/RS-422 output signal and terminal pin assignment

Terminal	Singal	RS-422 Full-duplex	RS-485 Half-duplex
1	T/R+	Sending(A+)	RS-485(A+)
2	T/R-	Sending(B-)	RS-485(B-)
3	RXD+	Receive(A+)	-
4	RXD-	Receive(B-)	-
5	N/A	-	-
6	N/ A	-	-
7	N/ A	-	-
8	N/ A	-	-
9	VCC	9-30VDC input power	9-30VDC input power
10	GND	GND	GND

## 5. Product View (Appearance)



## 6. Structure dimensions



## 7. Ordering

Ordering											
Model	Signal/Port			Protection		Baudrate	Environment			Power	
	RS-232	RS-485	RS-422	RS-232	RS-485/422		Temperature		Humidity	Port-Powered	External Power
	DB9 female	Terminal block					-25/70°C	-40/85°C	5-95%		
UT-503	✓	✓	✓	±15KV ESD	600W Surge	300bps-115.2kbps		✓	✓		9-30VDC

Accessories: Din-rail mounting