

tSH-700 Series

Tiny Serial Port Converter / Sharer with PoE

Features

- Supports Baud Rate and Data Format conversion application
- Supports Modbus RTU/ASCII protocol conversion
- Raw data mode for most query-response protocols
- Built-in web server for easy confi guration (HTTP)
- Read-cache ensures faster response
- Power or Signal isolation for i versions

Introduction

The tSH-700 module provides a number of functions, including "Baud Rate and Data Format Conversion", "Modbus RTU/ ASCII Conversion" and "Two Masters Share One Slave". The built-in web server provides easy configuration interface, and no console commands are required.

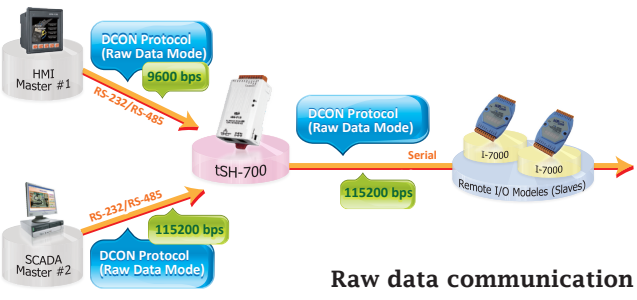
Baud Rate Conversion:
This function allows a single master device to communicate with slave devices using different baud rates and data formats. Most query-response protocols (half-duplex), e.g. DCON, are supported in the raw data mode. Full-duplex communication should also work when the data size is smaller than the built-in 512 bytes buffer on each serial port.



Modbus RTU/ASCII Conversion:
This function allows a single Modbus RTU/ASCII master device to communicate with Modbus RTU/ASCII slave devices using different protocols, baud rates and data formats.

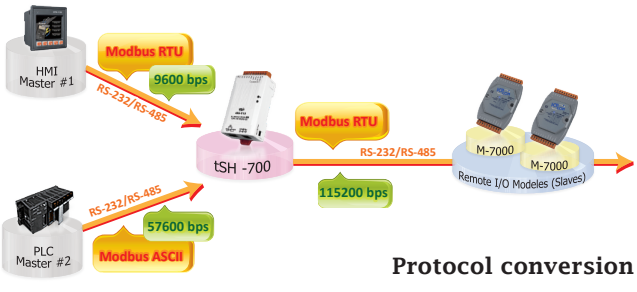


Two Masters Share One Slave (for tSH-73x Series Only):
This function allows two master devices connected to different serial ports to share slave devices. The queries from the masters are queued in the tSH-700 module and then processed one-by-one. Modbus mode can be used to convert the Modbus RTU/ASCII protocols, while raw data mode can be used for DCON or other query-response protocols. Different baud rates and data formats can also be used on the different serial ports.



Raw data communication

Read-Cache Function:
The built-in read-cache function is used to store previous requests and responses of the Modbus messages in the memory buffer of the tSH-700 module. When other HMI/ SCADA master controllers requiring the same information from the same salve RTU device, the cached response is returned immediately. This feature dramatically reduces the loading on the slave serial port communication, ensures faster responses to the master, and improves the stability of the entire system.

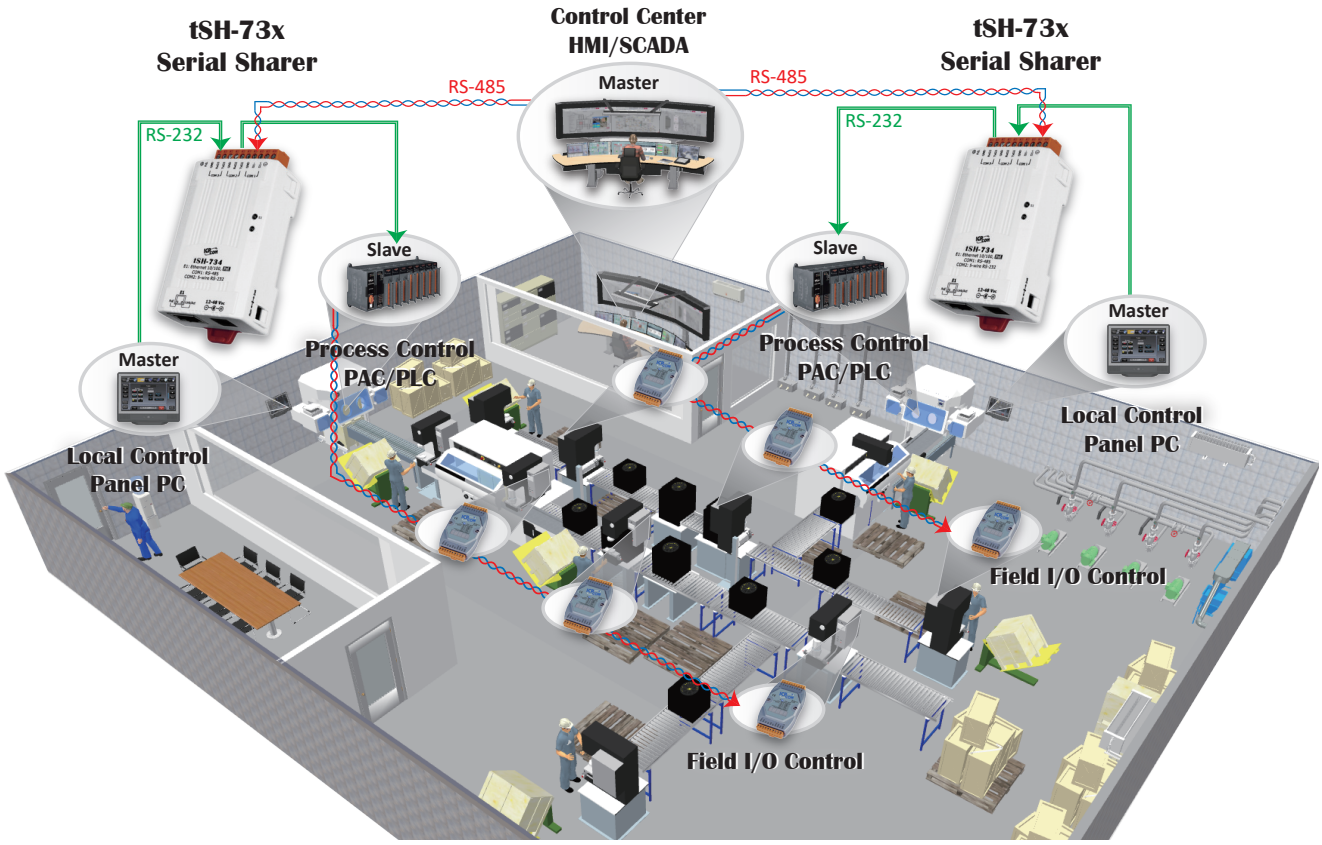


Protocol conversion

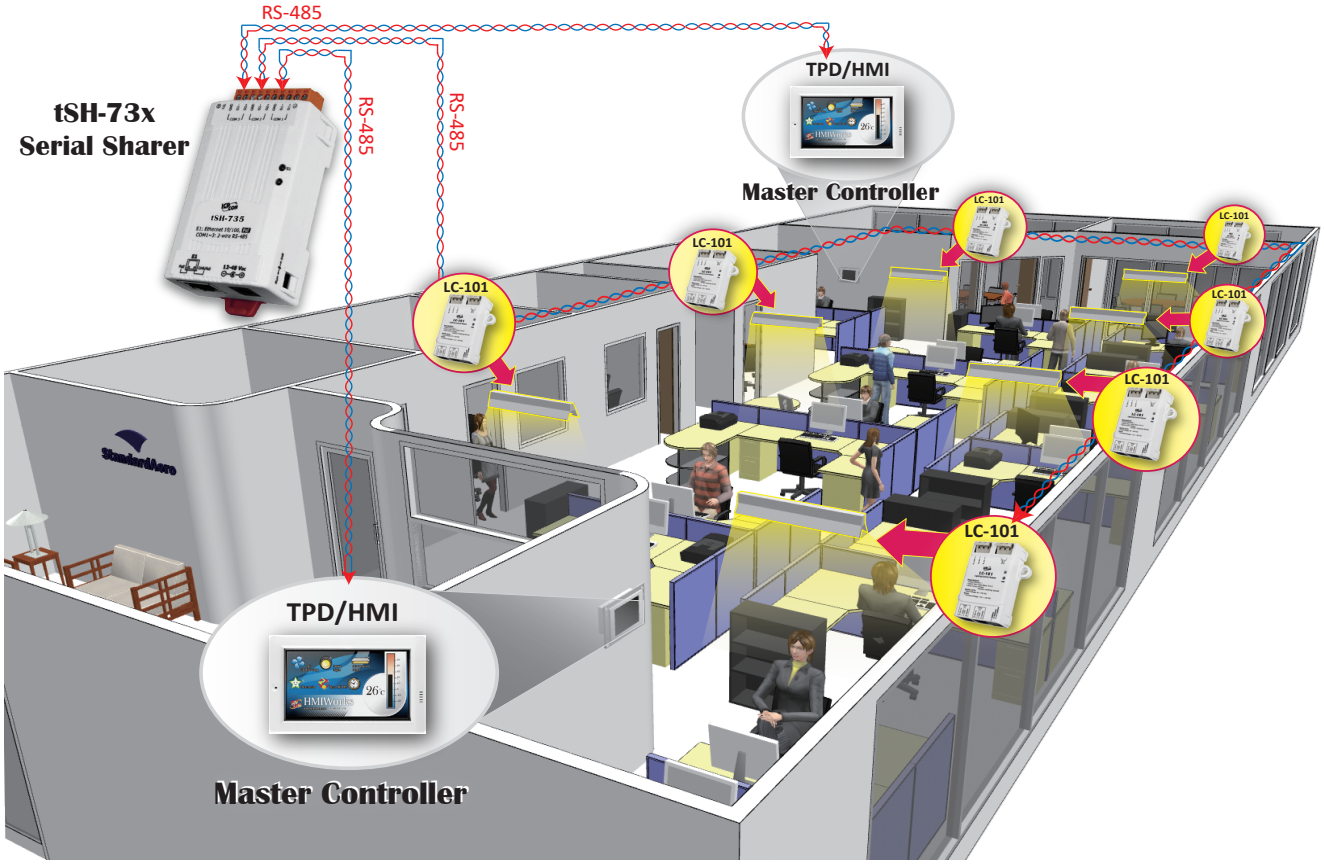
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Applications

Accessing a Process Controller from Local Panel and Control Center



Control Office Lightings from Two HMI Devices (Masters) in Different Places

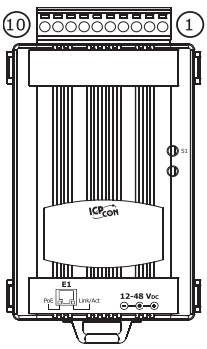


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Specifications

Models	tSH-722 tSH-722i	tSH-732 tSH-732i	tSH-725 tSH-725i	tSH-735 tSH-735i	tSH-724 tSH-724i	tSH-734 tSH-734i
System						
CPU	32-bit MCU					
Communication Interface						
Ethernet	10/100 Base-TX, 8-pin RJ-45 x 1, (Auto-negotiating, Auto-MDI/MDIX, LED indicator)					
PoE	IEEE 802.3af, Class 1					
COM Port	2 x RS-232	3 x RS-232	2 x RS-485	3 x RS-485	1 x RS-485 1 x RS-232	1 x RS-485 2 x RS-232
Self-Tuner	–		Yes, automatic RS-485 direction control			
Power Isolation	1000 VDC for only tSH-722i/ 732i					
Signal Isolation	3000 VDC for only tSH-725i/ 735i /724i /734i					
ESD Protection	+/-4 kV					
COM Port Capability (16C550 or compatible UART)						
Baud Rate	115200 bps Max.					
Data Bit	5, 6, 7, 8					
Parity	None, Odd, Even, Mark, Space					
Stop Bit	1, 2					
Power						
Power Input	IEEE 802.3af, Class 1 for PoE; +12 ~ 48 VDC for DC Jack					
Power Consumption	0.07 A @ 24 VDC					
Mechanical						
Connector	10-pin Removable Terminal Block x 1					
Dimensions (W x L x H)	52 mm x 27 mm x 95 mm					
Installation	DIN-Rail mounting					
Case	Plastic					
Environment						
Operating Temperature	-25 °C ~ +75 °C					
Storage Temperature	-30 °C ~ +80 °C					
Humidity	10 ~ 90% RH, non-condensing					

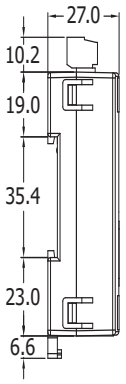
Pin Assignments



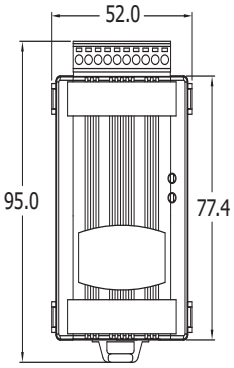
tSH-722(i)		tSH-724(i)		tSH-725(i)		tSH-732(i)		tSH-734(i)		tSH-735(i)	
	10 F.G.		10 F.G.		10 F.G.		10 F.G.		10 F.G.		10 F.G.
	09 CTS2		09 N/A		09 N/A		09 GND		09 GND		09 GND
COM2	08 RTS2		08 CTS2		08 N/A	COM3	08 RxD3	COM3	08 RxD3	COM3	08 D3-
	07 RxD2		07 RTS2		07 N/A		07 TxD3		07 TxD3		07 D3+
	06 TxD2	COM2	06 GND		06 GND		06 GND		06 GND		06 GND
	05 GND		05 RxD2	COM2	05 D2-	COM2	05 RxD2	COM2	05 RxD2	COM2	05 D2-
	04 CTS1		04 TxD2		04 D2+		04 TxD2		04 TxD2		04 D2+
COM1	03 RTS1		03 GND		03 GND		03 GND		03 GND		03 GND
	02 RxD1	COM1	02 D1-	COM1	02 D1-	COM1	02 RxD1	COM1	02 D1-	COM1	02 D1-
	01 TxD1		01 D1+		01 D1+		01 TxD1		01 D1+		01 D1+

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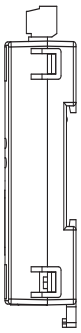
Dimensions (Units: mm)

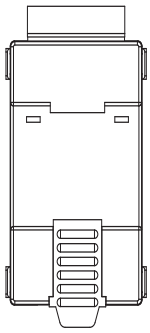


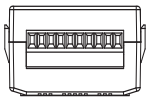
Left Side View

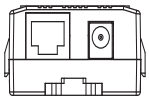


Front View


Right Side View


Rear View


Top View


Bottom View

Ordering Information

Non-Isolated	Isolated	Serial Port Converter/Sharer and DC Jack: Include one CA-002 cable
tSH-722 CR	tSH-722i CR	Tiny (2x RS-232) Serial Port Converter with PoE (RoHS)
tSH-725 CR	tSH-725i CR	Tiny (2x RS-485) Serial Port Converter with PoE (RoHS)
tSH-724 CR	tSH-724i CR	Tiny (1x RS-232 and 1x RS-485) Serial Port Converter with PoE (RoHS)
tSH-732 CR	tSH-732i CR	Tiny (3x RS-232) Serial Port Sharer with PoE (RoHS)
tSH-735 CR	tSH-735i CR	Tiny (3x RS-485) Serial Port Sharer with PoE (RoHS)
tSH-734 CR	tSH-734i CR	Tiny (2x RS-232 and 1x RS-485) Serial Port Sharer with PoE (RoHS)

Accessories

CA-PC09F

DB9 connector Female with plastic cover (Solder Type) (RoHS)



CA-0915

DB9 Male to DB9 Female Cable, 1.5 M (RoHS)



CA-0910F

DB9 Female to DB9 Female Cable [RS-232: Pin1-Pin9] 1 M (RoHS)



CA-0910N

DB9 Female to DB9 Female crossover Cable [RS-232: Pin2, Pin3 and Pin5] , 1M (RoHS)



UP0061D-12PA58G CR

Wall mount power supply; Input range 90-240 VAC; Output 12 VDC/0.5 A, 6 W; two pins USA plug (RoHS)



NS-205PSE CR

Unmanaged 5-port 10/100 Mbps PoE (PSE) Ethernet Switch (RoHS)



NS-205PSE-24V CR

Unmanaged 5-port 10/100 Mbps PoE (PSE) Ethernet Switch; +24 VDC Input (RoHS)



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