

Cautions for your Safety

*This consists of Warning and Notice. Please make sure of reading them before you use the products.

If you don't follow the directions, it could cause a personal injury, damage to the equipment or explosion

Warning!

- Do not assemble the products and wire with power applied to the system. Else it may cause an electric arc, which can result into unexpected and potentially dangerous action by field devices. Arching is explosion risk in hazardous locations. Be sure that the area is non-hazardous or remove system power appropriately before assembling or wiring the modules.
- Do not touch any terminal blocks or IO modules when system is running. Else it may cause the unit to an electric shock or malfunction.
- Keep away from the strange metallic materials not related to the unit and wiring works should be controlled by the electric expert engineer. Else it may cause the unit to a fire, electric shock or malfunction.

If you disobey the instructions, there may be possibility of personal injury, damage to equipment or explosion. Please follow below Instructions.

Caution!

- Check the rated voltage and terminal array before wiring. Avoid the circumstances over 55 °C of temperature. Avoid placing it directly in the sunlight.
- Avoid the place under circumstances over 85% of humidity.
- Do not place Modules near by the inflammable material. Else it may cause a fire.
- Do not permit any vibration approaching it directly.
- Go through module specification carefully, ensure inputs, output connections are made with the specifications. Use standard cables for wiring.
- Use Product under pollution degree 2 environment.

1. Serial Module Specification

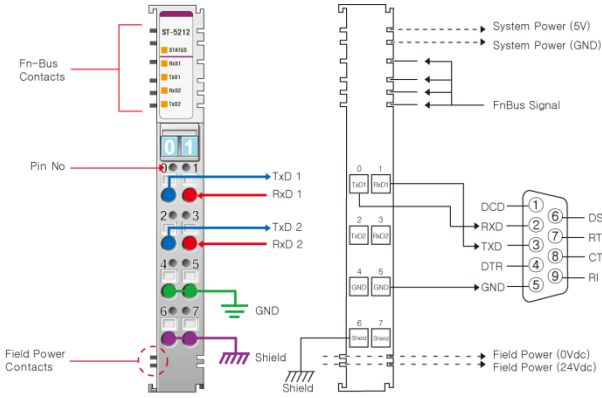
model	ST-5211	ST-5212	ST-5252	ST-5221	ST-5231	ST-5232	ST-5272
Specificity	Serial Interface						
Communicat. Type	RS 232			RS 422	RS 485		
Channel Number	1 Channel	2 Channels		1 Channel		2 Channels	
Transfer Type	Full Duplex Type				Half Duplex Type		
Transfer Rate	300~115200bps		1200bps ~ 115200bps	300~115200bps			1200bps ~ 115200bps
Data bit	7bits, 8bits, 9bits						
Parity bit	None, Odd, Even						
Stop bit	1bit, 2bits						
Flow Control	RTS, CTS	--					
Bit Distortion	<1.6%						
Connection	Spring force of RTB						
Cable Length	Max. 15m			1Km twisted pair			
Low Signal voltage	-18V ~ -3V			--			
High Signal voltage	3V ~ 18V			--			
Isolation	Photocoupler Isolation, Isolation Voltage:1000Vrms/Vac						
Input Buffer size	1024 bytes		256 byte/ channel	1024 bytes			256 byte/ channel
Output Buffer size	256 bytes		256 byte/channel	256 bytes			
Line Impedance	--			120Ω			
Input Image size	6 Bytes	12 Bytes	38 Bytes	6 Bytes		12 Bytes	38 Bytes
Output Image size	6 Bytes	12 Bytes	38 Bytes	6 Bytes		12 Bytes	38 Bytes
Power Dissipation	95mA Max. @5.0Vdc	110mA Max. @5.0Vdc		155mA Max. @5.0Vdc	110mA Max. @5.0Vdc	155mA Max. @5.0Vdc	

Class 2, adjacent to voltage rating (30Vmax.)

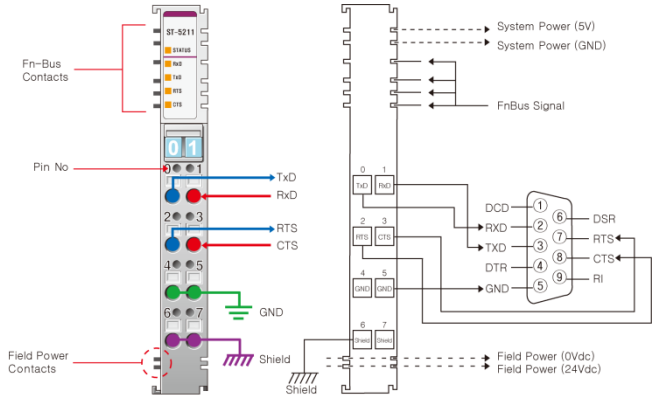


2. Wiring Diagram

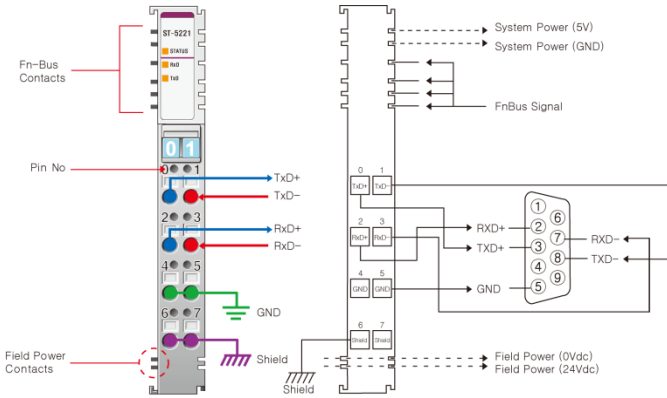
ST-5211 : 1Channel Serial Interface RS 232



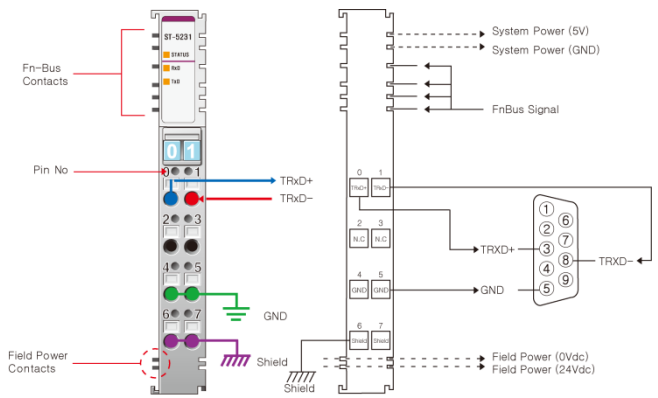
ST-5212 : 2Channels Serial Interface RS 232



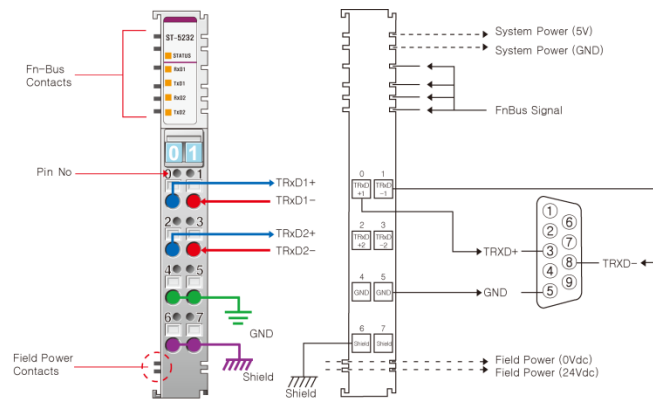
ST-5221 : 1Channel Serial Interface RS 422



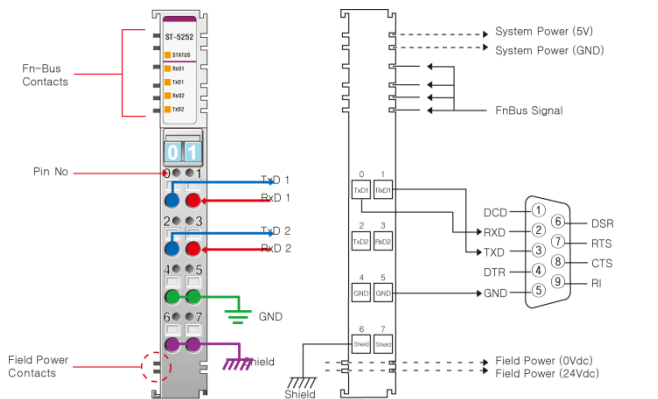
ST-5231 : 1Channel Serial Interface RS 485



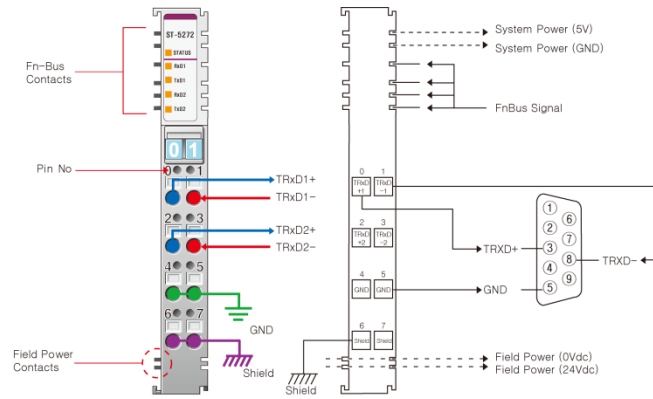
ST-5232 : 2Channels Serial Interface RS 485



ST-5252 : 2Channels Serial Interface RS 232



ST-5272 : 2Channels Serial Interface RS 485



3. Configuration Parameter Table

► 3-1. ST-5211, ST-5221, ST-5231

Offset	Decimal Bits							
Byte #0	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	Parity Bit 00 : No Parity 01 : Odd Parity 10 : Even Parity Others : Unused * Default : 00		Data Bit 00 : 7 Data bit 01 : 8 Data bit 10 : 9 Data bit Others : Unused * Default : 01		Baud Rate 0000 : 300bps 0010 : 2400bps 0100 : 9600bps(*Default) 0110 : 38400bps 1000 : 115200bps 0001 : 1200bps 0011 : 4800bps 0101 : 19200bps 0111 : 57600bps Others : Unused			
Byte #1	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	Reserved				CTS/RTS Flow Control 00 : RTS/CTS Disable 01 : RTS Enable 10 : CTS Enable 11 : RTS/CTS Enable * Default : 00 * Note 1		TxD Process 0 : Disable 1 : Enable * Default : 0 * Note 2	Stop Bit 0 : 1bit 1 : 2bit * Default : 0
Byte #2	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	Reserved							
Byte #3	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	Reserved							

► 3-2. ST-5212, ST-5232

Offset	Decimal Bits							
Byte #0	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	Parity Bit 00 : No Parity 01 : Odd Parity 10 : Even Parity Others : Unused * Default : 00		Data Bit 00 : 7 Data bit 01 : 8 Data bit 10 : 9 Data bit Others : Unused * Default : 01		Baud Rate 0000 : 300bps 0010 : 2400bps 0100 : 9600bps(*Default) 0110 : 38400bps 1000 : 115200bps 0001 : 1200bps 0011 : 4800bps 0101 : 19200bps 0111 : 57600bps Others : Unused			
Byte #1	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	Reserved						TxD Process 0 : Disable 1 : Enable * Default : 0 * Note 2	Stop Bit 0 : 1bit 1 : 2bit * Default : 0
Byte #2	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	Parity Bit 00 : No Parity 01 : Odd Parity 10 : Even Parity Others : Unused * Default : 00		Data Bit 00 : 7 Data bit 01 : 8 Data bit 10 : 9 Data bit Others : Unused * Default : 01		Baud Rate 0000 : 300bps 0010 : 2400bps 0100 : 9600bps(*Default) 0110 : 38400bps 1000 : 115200bps 0001 : 1200bps 0011 : 4800bps 0101 : 19200bps 0111 : 57600bps Others : Unused			
Byte #3	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	Reserved						TxD Process 0 : Disable 1 : Enable * Default : 0 * Note 2	Stop Bit 0 : 1bit 1 : 2bit * Default : 0

* Note 1 :

When RTS Enable, if Size of received Data is bigger than 80%(1024 x 0.8 = 819) of RxD Buffer Size, RTS output actives.

* Note 2 :

Disable : Transmit immediately Output Data #0 ~ Output Data #4.

Enable : Store the value of Output Data continually at RxD Buffer of Serial Interface Module, when TPA bit and TPR bit of Control Byte and Status Byte are different, transmit all Data that saved at TxD Buffer

3. Configuration Parameter Table

► 3-3. ST-5252, ST-5272

Offset	Decimal Bit							
Byte #00	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0-ch Stop Bit 0: 1bit 1: 2bit (*default : 0)	0-ch Parity Bit 00:No Parity(*default) 01:Odd Parity 10:Even Parity Others: Unused		0-ch Data bit 00: 7 Data Bit 01: 8 Data Bit(*default) Others: Unused		0-ch Baud Rate 000 : 1200bps 001 : 2400bps 010 : 4800bps 011 : 9600bps (*default) 100 : 19200bps 101 : 38400bps 110 : 57600bps 111 : 115200bps		
Byte #01	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	1-ch Stop Bit 0: 1bit 1: 2bit (*default : 0)	1-ch Parity Bit 00: No Parity(*default) 01: Odd Parity 10: Even Parity Others: Unused		1-ch Data bit 00 : 7 Data Bit 01 : 8 Data Bit(*default) Others: Unused		1-ch Baud Rate 000 : 1200bps 001 : 2400bps 010 : 4800bps 011 : 9600bps (*default) 100 : 19200bps 101 : 38400bps 110 : 57600bps 111 : 115200bps		
Byte #02	0- Channel (Set Parameter about Start and end Character)							
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	TxD End Character 00 : Disable(*default) 01 : TxD 1-E/C 10 : TxD 2-E/C 11 : Reserved(Disable)		TxD Start Character 00 : Disable(*default) 01 : TxD 1-S/C 10 : TxD 2-S/C 11 : Reserved(Disable)		RxD End Character 00 : Disable(*default) 01 : RxD 1-E/C 10 : RxD 2-E/C 11 : Reserved(Disable)		RxD Start Character 00 : Disable(*default) 01 : RxD 1-S/C 10 : RxD 2-S/C 11 : Reserved(Disable)	
Byte #03	1- Channel (Set Parameter about Start and end Character)							
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	TxD End Character 00 : Disable(*default) 01 : TxD 1-E/C 10 : TxD 2-E/C 11 : Reserved(Disable)		TxD Start Character 00 : Disable(*default) 01 : TxD 1-S/C 10 : TxD 2-S/C 11 : Reserved(Disable)		RxD End Character 00 : Disable(*default) 01 : RxD 1-E/C 10 : RxD 2-E/C 11 : Reserved(Disable)		RxD Start Character 00 : Disable(*default) 01 : RxD 1-S/C 10 : RxD 2-S/C 11 : Reserved(Disable)	
	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte #04	0-ch RxD 1-S/C (*default : 0x00)							
Byte #05	0-ch RxD 2-S/C (*default : 0x00)							
Byte #06	0-ch RxD 1-E/C (*default : 0x00)							
Byte #07	0-ch RxD 2-E/C (*default : 0x00)							
Byte #08	0-ch TxD 1-S/C (*default : 0x00)							
Byte #09	0-ch TxD 2-S/C (*default : 0x00)							
Byte #10	0-ch TxD 1-E/C (*default : 0x00)							
Byte #11	0-ch TxD 2-E/C (*default : 0x00)							
Byte #12	1-ch RxD 1-S/C (*default : 0x00)							
Byte #13	1-ch RxD 2-S/C (*default : 0x00)							
Byte #14	1-ch RxD 1-E/C (*default : 0x00)							
Byte #15	1-ch RxD 2-E/C (*default : 0x00)							
Byte #16	1-ch TxD 1-S/C (*default : 0x00)							
Byte #17	1-ch TxD 2-E/C (*default : 0x00)							
Byte #18	1-ch TxD 1-E/C (*default : 0x00)							
Byte #19	1-ch TxD 2-E/C (*default : 0x00)							
Byte #20	0-Channel Fixed Length Function 0x00 : F/L Mode Disable(*default) 0x01 ~ 0xFF : F/L Mode Enable and Fixed Length Value							
Byte #21	1-Channel Fixed Length Function 0x00 : F/L Mode Disable(*default) 0x01 ~ 0xFF : F/L Mode Enable and Fixed Length Value							
Byte #22	0-Ch Timeout Value Setting 0(dec) : Timeout Disable 1(dec) : 100ms 50(dec) : 5,000ms(5sec) *default 100(dec) : 10,000ms(10sec) 200(dec) : 20,000ms(20sec) 255(dec) : 25,500ms(25.5sec)							
Byte #23	1-Ch Timeout Value Setting 0(dec) : Timeout Disable 1(dec) : 100ms 50(dec) : 5,000ms(5sec) *default 100(dec) : 10,000ms(10sec) 200(dec) : 20,000ms(20sec) 255(dec) : 25,500ms(25.5sec)							