

Multichannel Transceiver

MICROCONTROLLED EMBEDDED 10 CHANNELS

XTR-7020 A4

P.N. 650200925G

Descrizione

Il transceiver multicanale XTR-7020A-4 rappresenta una ulteriore **soluzione semplice ed economica al problema della ricetrasmisione dati a radiofrequenza**. Il microprocessore integrato incapsula i dati entranti in logica TTL RS-232 in pacchetti evitando all'utente la necessità di scrivere routine software per la gestione della ricetrasmisione.

L' XTR-7020A-4 permette, tramite la programmazione di registri interni, la gestione della canalizzazione (10 canali sulla banda a 434MHz), della velocità dei dati seriali (9600-19200-38400-57600-115200 bps, impostabili tramite pin di input) e della potenza RF irradiata (da -8 a +10 dBm).

Le velocità seriali RS232 possono essere settate diversamente tra i due moduli del collegamento radio.

La tecnica di invio dei dati store & forward consente una lunghezza massima dei pacchetti a 240 byte.

Una sofisticata tecnica di trasmissione dei dati digitali unita al controllo della validità dei pacchetti permette di ottenere un **raggio di copertura in aria libera pari a 300 metri**.

Come esempio applicativo, se in un collegamento si utilizzano le due seriali a 115200 bps e pacchetti di 64 byte, il tempo di latenza risulta di circa 15 msec.

Applicazioni

Automazione industriale, Radio modems, Controllo accessi.

Description

The XTR-7020A-4 multichannel transceiver represent a simple and inespensive additional solution to the problem of wireless data transmission.

The integrated microprocessor is accepting data entering from a TTL logic RS-232 line, creating packets, avoiding user to write software routines for the transmission management.

The XTR-7020A-4 features, using programmable internal registers, channel setting (10 channels in the 434MHz License Free band), choice of serial data rate (9600-19200-38400-57600-115200 bps, chosen via module input pins) and choice of emitted RF power (from -8 to +10 dBm). RS232 serial speeds may be differently setted in the two modules of the radio link. The store and forward technique used to send the data allows 240 bytes of maximum data packet length.

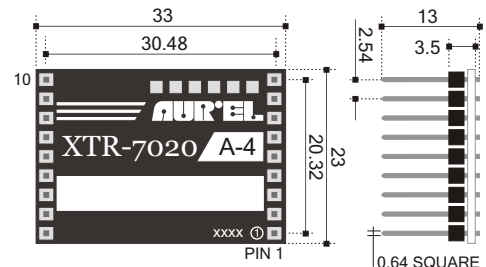
A sophisticated transmission technique used on the digital data, plus validation of received data, **support a distance, in free air, of 300 meters**.

For example, if in a radio link the two serial speeds are setted at 115200 bps and packet length is 64 bytes, the latency time is about 15ms.

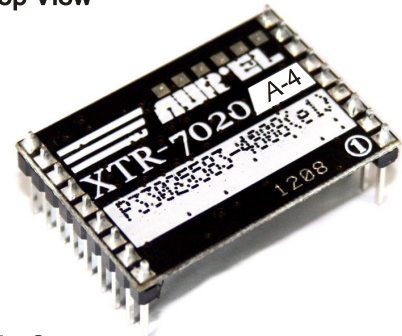
Applications

Industrial automation, Radio modems, Access control.

Dimensions (mm)



Top View



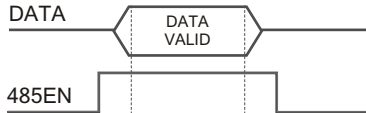
Pin-Out

- | | |
|------------|-----------|
| 1) RF GND | 13) 485EN |
| 2) Antenna | 14) RSTX |
| 3) RF GND | 15) SP2 |
| 9) GND | 16) PWRDN |
| 10) GND | 17) Vcc |
| 11) SP1 | 18) GND |
| 12) RSRX | |

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Pin description

Pin	Description																								
1,3,9,10,18	GND Ground connection																								
2	ANT Antenna connection																								
11,15	SP1,SP2 Serial data rate selection pins. The selection must be done before to turn on the device.																								
<table border="1"> <thead> <tr> <th colspan="2">Jumper</th> <th colspan="2">Serial speed</th> </tr> <tr> <th>S1</th> <th>S2</th> <th>S5=0</th> <th>S5=1</th> </tr> </thead> <tbody> <tr> <td>Vcc</td> <td>GND</td> <td>38400</td> <td>115200</td> </tr> <tr> <td>GND</td> <td>Vcc</td> <td>19200</td> <td>57600</td> </tr> <tr> <td>Vcc</td> <td>Vcc</td> <td>9600</td> <td>9600</td> </tr> <tr> <td>GND</td> <td>GND</td> <td>Test Mode: pseudonoise</td> <td>Test Mode : data packets</td> </tr> </tbody> </table>		Jumper		Serial speed		S1	S2	S5=0	S5=1	Vcc	GND	38400	115200	GND	Vcc	19200	57600	Vcc	Vcc	9600	9600	GND	GND	Test Mode: pseudonoise	Test Mode : data packets
Jumper		Serial speed																							
S1	S2	S5=0	S5=1																						
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GND	Vcc	19200	57600																						
Vcc	Vcc	9600	9600																						
GND	GND	Test Mode: pseudonoise	Test Mode : data packets																						
12	RSRX TTL RS-232 receiver data output with 1 start bit (0V), 8 data bits and 1 stop bit (3V). The line must be kept at high logic voltage.																								
13	485EN This signal allows to drive an RS-232/RS-485 interface. It assumes high logic level in presence of data on RSTX line (pin 14).																								
																									
14	RSTX TTL RS-232 transmitter data input with 1 start bit (0V), 8 data bits and 1 stop bit (3V). The line must be kept at high logic voltage.																								
16	PWRDN State of device. In Power Down mode the consumption is less than 10µA.																								
<table border="1"> <thead> <tr> <th>PWRDN</th> <th>STATE</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>ON</td> </tr> <tr> <td>1</td> <td>OFF</td> </tr> </tbody> </table>		PWRDN	STATE	0	ON	1	OFF																		
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1	OFF																								
17	Vcc Positive supply voltage connection (3V).																								

Technical Specification

Ta = 25 °C

Characteristics	Min	Typ	Max	Unit
Supply voltage	2.7	3.3	3.6	Vdc
Supply current (RX mode)		26		mA
Supply current (TX mode @ -8 dBm)		20		mA
Supply Current (TX mode @ 10 dBm)		31		mA
Supply current (Stand-by mode)		8	10	µA
Modulation type		FSK		
Receiver sensitivity (RF speed @115200 bps)		-100		dBm
RF Power out (Tx)	- 8		10	dBm
Input Bit rate ⁽¹⁾	9600, 19200, 38400, 57600, 115200			bps
Outdoor range		300		m
RF channels ⁽²⁾	433.19	433.96 ⁽²⁾	434.57	MHz
Number of channels ⁽³⁾		7		

⁽¹⁾ Input signal has to be made up of 1 start bit, 8 data bit and 1 stop bit, no parity.

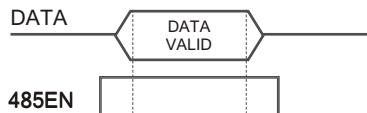
⁽²⁾ Default value.

⁽³⁾ At maximum power only the 6 central channels are utilizable.

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Descrizione dei pin

Pin		Descrizione																								
1,3,9,10,18	GND	Connessione al piano di massa.																								
2	ANT	Connessione d'antenna, impedenza 50 Ohm																								
11,15	SP1,SP2	Pin di selezione della velocità seriale. La selezione deve essere effettuata prima di accendere il dispositivo.																								
<table border="1"> <thead> <tr> <th colspan="2">Jumper</th> <th colspan="2">Velocità seriale</th> </tr> <tr> <th>S1</th> <th>S2</th> <th>S5=0</th> <th>S5=1</th> </tr> </thead> <tbody> <tr> <td>Vcc</td> <td>GND</td> <td>38400</td> <td>115200</td> </tr> <tr> <td>GND</td> <td>Vcc</td> <td>19200</td> <td>57600</td> </tr> <tr> <td>Vcc</td> <td>Vcc</td> <td>9600</td> <td>9600</td> </tr> <tr> <td>GND</td> <td>GND</td> <td>Test Mode: pseudonoise</td> <td>Test Mode: pacchetti dati</td> </tr> </tbody> </table>			Jumper		Velocità seriale		S1	S2	S5=0	S5=1	Vcc	GND	38400	115200	GND	Vcc	19200	57600	Vcc	Vcc	9600	9600	GND	GND	Test Mode: pseudonoise	Test Mode: pacchetti dati
Jumper		Velocità seriale																								
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GND	GND	Test Mode: pseudonoise	Test Mode: pacchetti dati																							
12	RSRX	Uscita dati seriali in logica TTL RS-232 con 1 start bit (0V), 8 data bits and 1 stop bit (3V). La linea deve essere pilotata a livello logico alto (3V). Questo segnale consente di pilotare un interfaccia RS-232/RS-485. Assume livello logico alto in corrispondenza di dati sulla linea RSTX (pin 14).																								
																										
14	RSTX	Ingresso dati seriali in logica TTL-RS-232 con 1 start bit (0V), 8 data bit e 1 stop bit (3V). La linea deve essere pilotata a livello logico alto (3V).																								
16	PWRDN	Stato del dispositivo. In Power Down il consumo del modulo è inferiore a 10µA.																								
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PWRDN	STATE																									
0	ON																									
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17	Vcc	Alimentazione del modulo (3V), opportunamente filtrata e regolata.																								

Caratteristiche tecniche

Ta = 25 °C

Caratteristiche	Min	Typ	Max	Unità
Tensione di alimentazione	2.7	3.3	3.6	Vdc
Corrente consumata (RX mode)		26		mA
Corrente consumata (TX mode @ -8 dBm)		20		mA
Corrente consumata (TX mode @ 10 dBm)		31		mA
Corrente consumata (Stand-by mode)		8	10	µA
Tipo di modulazione		FSK		
Sensibilità in ricezione (velocità RF @115200 bps)		-100		dBm
Potenza in trasmissione (Tx)	- 8		10	dBm
Bit rate seriale ⁽¹⁾	9600, 19200, 38400, 57600, 115200			bps
Outdoor range		300		m
Banda di frequenza ⁽²⁾	433.19	433.96 ⁽²⁾	434.57	MHz
Numero di canali ⁽³⁾		10		

⁽¹⁾ Il segnale di ingresso seriale è inteso 8,n,1.

⁽²⁾ Valore di default.

⁽³⁾ Alla massima potenza solo i 6 canali centrali sono utilizzabili.