

# Multichannel Transceiver

MICROCONTROLLED EMBEDDED 7 CHANNELS

## XTR-7020 A8

P.N. 650200998G

### Descrizione

Il transceiver multicanale XTR-7020A-8 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-8 permette, tramite la programmazione di registri interni, la **gestione della canalizzazione** (7 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-8 multichannel transceiver represent a **simple and inexpensive 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.

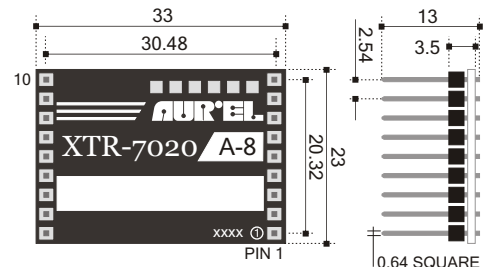
The XTR-7020A-8 features, using programmable internal registers, **channel setting** (7 channels in the 868MHz License Free band), **choice of serial data rate** (9600-19200-38400-57600-115200 bps, chosen via module input pins) and **choice of emitted RF power** (from -8 to +10 dBm). RS232 serial speeds 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.

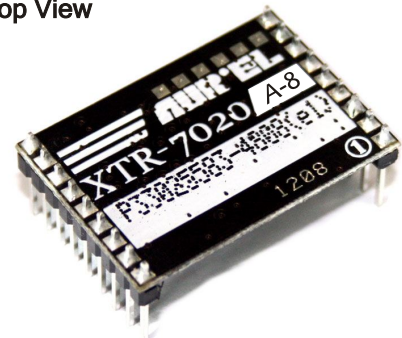
### Applications

Industrial automation, Radio modems, Access control.

### Dimensions (mm)



### Top View



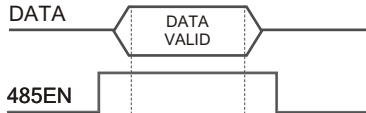
### Pin-Out

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 <sup>(1)</sup>	9600, 19200, 38400, 57600, 115200			bps
Outdoor range		300		m
RF channels <sup>(2)</sup>	869.19		869.87	MHz
Number of channels <sup>(3)</sup>		7		

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

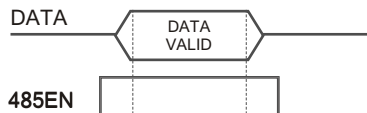
<sup>(2)</sup> Default value.

<sup>(3)</sup> At maximum power only the 6 central channels are utilizable.

# Multichannel Transceiver

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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																									
1	OFF																									
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 <sup>(1)</sup>	9600, 19200, 38400, 57600, 115200			bps
Outdoor range		300		m
Banda di frequenza <sup>(2)</sup>	869.19		869.87	MHz
Numero di canali <sup>(3)</sup>		7		

<sup>(1)</sup> Il segnale di ingresso seriale è inteso 8,n,1.

<sup>(2)</sup> Valore di default.

<sup>(3)</sup> Alla massima potenza solo i 6 canali centrali sono utilizzabili.

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