TX7120/RX7120
Radio Telemetry Link

FEATURES

- Operates on international licensed and licence free radio telemetry bands.
- Range:

  X7120 – 179 MHz 3km in free space, 0.2 - 0.5km in buildings
  X7120 – 433 MHz 2km in free space, 0.2 - 0.5km in buildings
  X7120 – 458 MHz 20km in free space, 1 – 3km in buildings
  X7120 – 868 MHz 10km in free space, 0.7 – 2km in buildings
  X7120 –VHF-5W 147-174MHz, 40km in free space, 7km in buildings

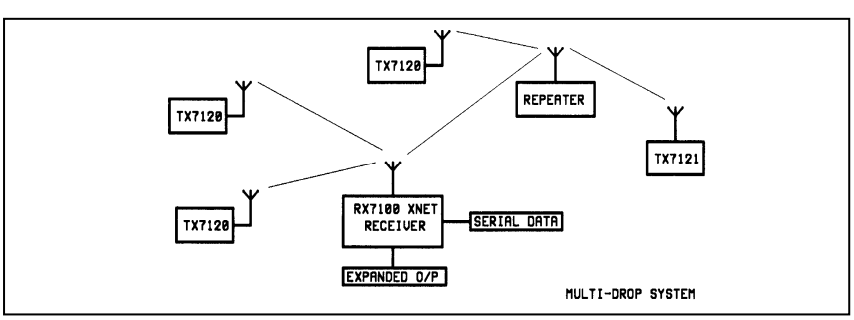
- Type approved to ETSI 300-220, ETSI 300-683
- 4 Digital Inputs Activated Low
- 4 Digital Outputs, Voltage Free Contacts 30Vdc @ 1A
- 1 Pulse Counter (Factory set Option)
- 1 Analogue Channel 0-20mA, 0-10V, 0-500mV, J, K Cold Compensated Thermocouple (factory set option)
- 1 Serial Output Port for SCADA System
- LCD Display for Scaled Analogue Input, Pulse Counter Total, Digital Inputs and Program Menu.
- IP65 Polycarbonate Enclosure
- Powered from 8-30Vdc, 110Vac, 240Vac
- Size 160mm by 80mm by 55mm

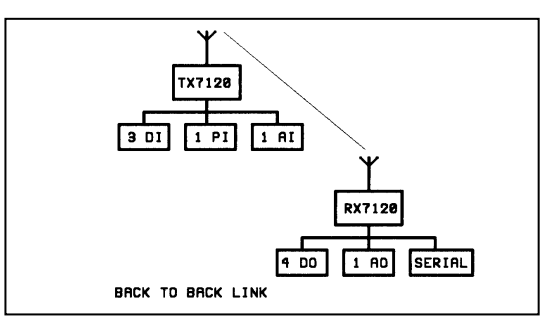
DESCRIPTION

The X7120 Radio Telemetry Link transmits analogue, digital and pulse counter data by means of low power VHF or UHF radio. An LCD display is provided so that the digital inputs, pulse counter total and scaled analogue inputs can be continually displayed in real time at the both the transmitter and receiver. Dots will appear on the LCD display to indicate a radio transmission. The display is also used for the set up menu.

A number of TX7120 transmitters can be used to transmit data to a single RX8100 XNET Receiver. The destination of each input is programmed into a TX7120 by means of a set up menu along with a transmission time. The TX7120 then transmits the status of its analogue and digital inputs at its time slot to the outputs on the RX8100 Receiver. The receiver data can be presented as physical outputs or in serial form direct to a SCADA package.

The TX7121 low power, battery operated variant will transmit the status of its digital and analogue outputs at preset times or when any change occurs. In addition, a battery status indication is displayed and transmitted to a digital output on the receiver.





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SPECIFICATION

ABSOLUTE MAXIMUM RATINGS
Storage Temperature.....-30 to +85 Celsius
Operating Temperature .....-10 to +55 Celsius
Power Supply Voltage .....+/- 35Vdc dc option
.....300Vac ac option
Digital Inputs .....+30Vdc to –5V
Analogue Inputs.....+15V to –5V
External Regulated Power Source.....+100mA

DIMENSIONS

Length = 160mm Width = 80mm Height = 55mm

ELECTRICAL CHARACTERISTICS	MIN	TYPICAL	MAX	DIMENSION	NOTE
Frequency Range	130 400 860		180 500 960	MHz MHz MHz	VHF UHF UHF
Channel Separation	12.5		25.0	KHz	
Modulation		GMSK			
RF Power	10		500	mW	
Digital Inputs	5		30	V	Active Low
Analogue Inputs	0 0	20 5 J, K	20 10	mA V	Current I/P Voltage I/P Thermocouple
Volt Free Contacts			30 125	Vdc Vac	At 1A At 0.5A
Analogue Outputs	0 0.5	20 5	20 10	MA V	12 bit resolution
Power Supply Voltage	8 110		30 240	Vdc Vac	DC PSU AC PSU
Transmit Current	80 240	90 280	120 350	mA mA	10mW ERP 500mW ERP
Standby Current	0.7	0.8	0.9	mA	
Transmit Time	0.15	0.2	2.5	Sec	
Up Date Time		1		Sec	Note 1

Note 1: The up date time on TX7121 Battery powered part can be programmed from 0.5 mins to 50 mins in 0.5min steps or 0.5 hr to 50hrs in 0.5hr steps. A transmission also occurs when an analogue or digital input changes. Continous transmission can be selected by setting 55 on the red and blue switches.

LCD DISPLAY

The LCD display will show either the status of the digital inputs, pulse counter total or the scaled value of the analogue input. The displayed analogue full-scale reading can be set from 1000 to 9000. The analogue and digital displays are toggled by pressing the red switch.

CONFIGURATION

Each digital and analogue input can be programmed to appear as an output on either a RX7120 Telemetry Receiver or a RX8100 XNET Telemetry Receiver. In addition, variable transmission times can be programmed into the unit so that a number of TX7120 can operate on the same frequencies. All parameters are stored on non-volatile EEPROM

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CONNECTIONS

TX7120 TELEMETRY TRANSMITTER

PIN	FUNCTION	DESCRIPTION	DIRECTION
1	+VE	8 - 12V Positive DC Input from PSU	IN
2	- VE	0V Negative DC Input	IN
3	EX + VE	5V, 100mA Positive DC Output	OUT
4	EX - VE	0V Negative DC Output	OUT
5	DG1	Digital Input pulled up to 5V, active low	IN
6	DG2	Digital Input pulled up to 5V, active low	IN
7	DG3	Digital Input pulled up to 5V, active low	IN
8	PLS/DG4	Digital Input pulled up to 5V, active low Used as a Pulse counter Input (factory set)	IN
9	AN1	Analogue Input 0-20mA, 0-0.5V 0 – 10V, Thermocouple (factory set)	IN

RX7120 TELEMETRY RECEIVER

PIN	FUNCTION	DESCRIPTION	DIRECTION
1	+VE	12V Positive DC Input from PSU	IN
2	- VE	0V Negative DC Input	IN
3	DGO	Digital Output 1 Volt Free Contacts Rated at 1A,30V	OUT
4	DGI	Digital Output 2 Volt Free Contacts Rated at 1A,30V	OUT
5	DG2	Digital Output 3 Volt Free Contacts Rated at 1A,30V	OUT
6	DG3	Digital Output 4 Volt Free Contacts Rated at 1A,30V Pulse Output (factory set option)	OUT
7	ALM	Communication Fail Alarm Volt Free Contacts Rated at 1A,30V	OUT
8	COM	Common Connection to all Five Contacts	OUT
9	AN1	Analogue Output 0-20mA, 0-10V, 0-0.5V (factory set)	OUT
10	OV	Common 0V Connected Internally to – VE PIN 1	OUT
11	SER	RS232 Serial Output (factory set) 9600 Baud, No Parity, 1 Stop Bit	OUT

REVIEW TX7120 CONFIGURATION MENU

The current settings can be displayed as follows:

a) Press the grey push button switch. The node number will be displayed.
nn 00

b) Press the grey push button switch. The time delay between transmission in low power mode will be displayed.
tt 10

c) Press the grey push button switch. The destination of the first digital input will be displayed 00 to 99.
1d 00

d) Press the grey push button switch. The destination of the second digital input will be displayed 00 to 99.
2d 01

e) Press the grey push button switch. The destination of the third digital input will be displayed 00 to 99.
3d 02

f) Press the grey push button switch. The destination of the fourth digital input will be displayed 00 to 99.
4d 03

g) Press the grey push button switch. The destination of the analogue input will be displayed 00 to 99.
1A 00

h) Press the grey push button switch. A value from 1-9 will be displayed representing a full scale analogue reading of 1000 to 9000.
Sc 2

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REVIEW RX7120 CONFIGURATION MENU

a) Press the grey push button switch. The time delay for the Communication Fail Relay will be displayed.
tt 20 This should be at least twice the value set at the TX7120.

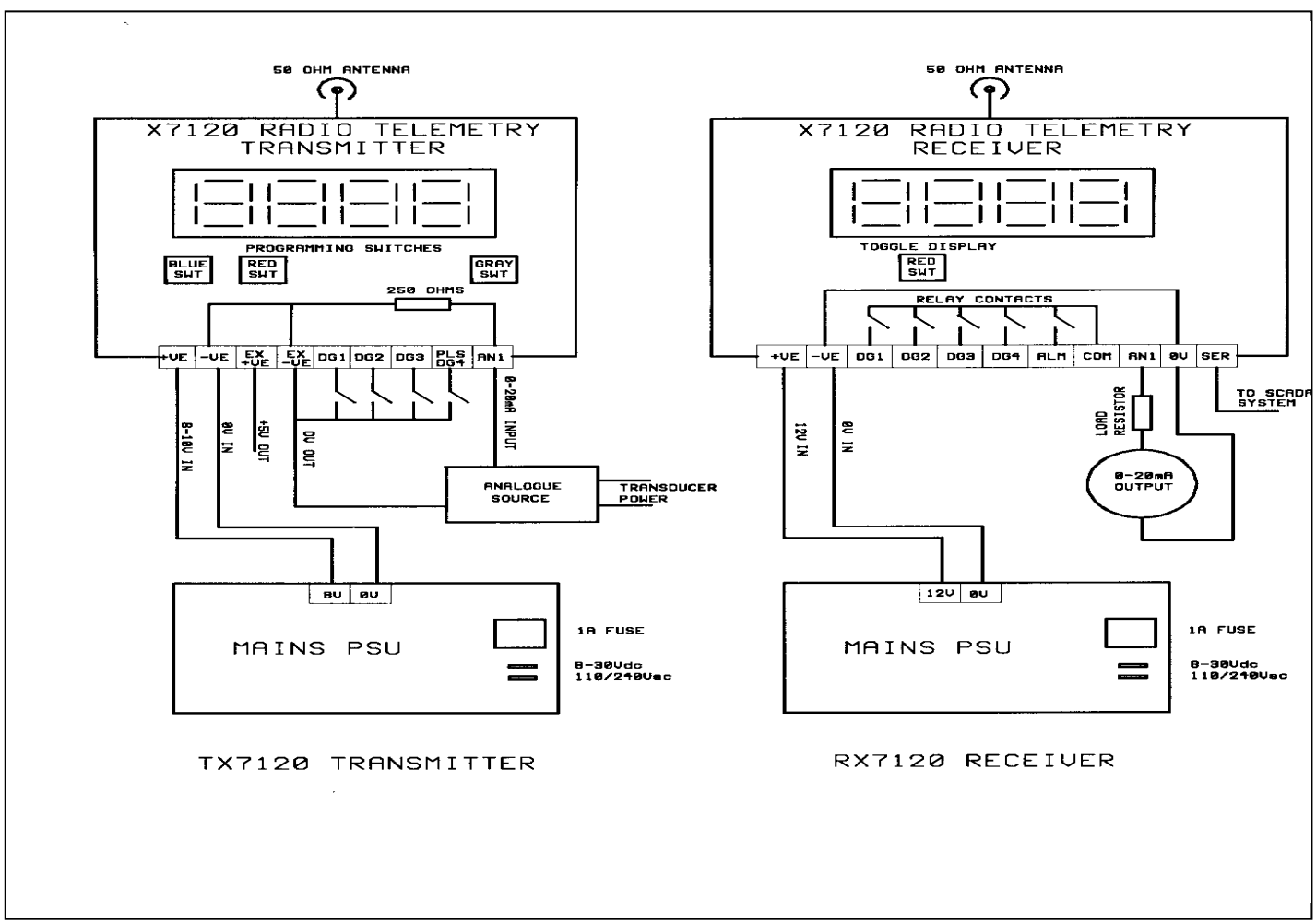
b) Press the grey push button switch. A value from 1-9 will be displayed representing a full scale analogue
Sc 2 reading of 1000 to 9000.

CHANGE CONFIGURATION MENU

The current settings can be changed as follows:

a) Set 99 on the Red and Blue switches and press the grey button.
b) The above sequence is repeated, but at each stage the values can be changed by either the blue or red switches.

CIRCUIT DIAGRAM



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