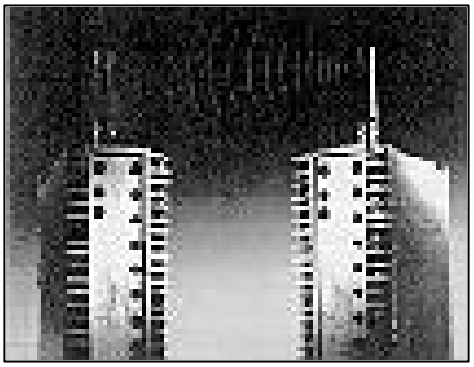
TELEMETRY LINK X6100

FEATURES

- No Operating Licence Required
- Range : Up to 10 km Line-of-sight
- 1-3 km Buildings
- Available in 420.00 MHz to 470.00 MHz
- Power Supply : 240/110Vac or 12/24 Vdc
- Approvals to : ETSI 300-220, MPT1329
- Small Foot Print
- DIN Rail Mounting



TX6100 TRANSMITTER

- 8 Opto-isolated inputs
- Up to 4 Analogue inputs 0-5V, 4-20mA
- Low Power Mode
- RF Output Power 5mW to 500mW

RX6100 RECEIVER

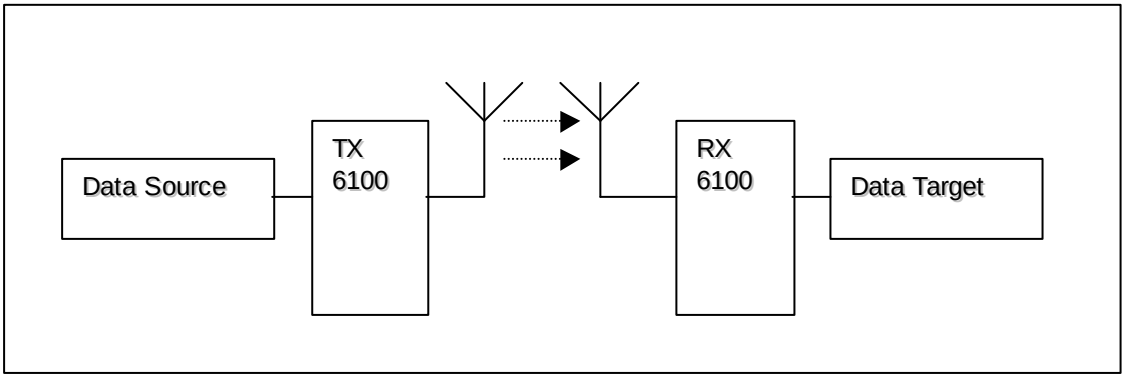
- 8 Relay Outputs
- Up to 4 Analogue Outputs 0-5V, 4-20mA
- Link Fail Alarm
- 0.3µV Sensitivity

DESCRIPTION

The X6100 Radio Telemetry Link consists of a TX6100 transmitter module and a RX6100 Receiver module. It is designed to continuously monitor and control remote processes at a distance of up to 10 km. Data is transmitted at 5 kbps with an overall system response of 60 mS.

8 opto-isolated inputs and up to 4 analogue inputs can be connected to the TX6100 via screw terminals along the top of the transmitter. A 12V external supply is also provided. The transmitter can be switched into a power save mode by means of the TX ON/OFF input.

The transmitter inputs are matched by 8 relay output contacts and up to 4 analogue outputs on the RX6100 receiver also terminated by screw terminals. A status relay indicates to the user that the transmitter is in range and coherent data is being received. The modules conforms to MPT1329 and ETSI300-220. On addition they comply with EMC Directive EN 50 081-1 for emissions and 50 082-1 for immunity.



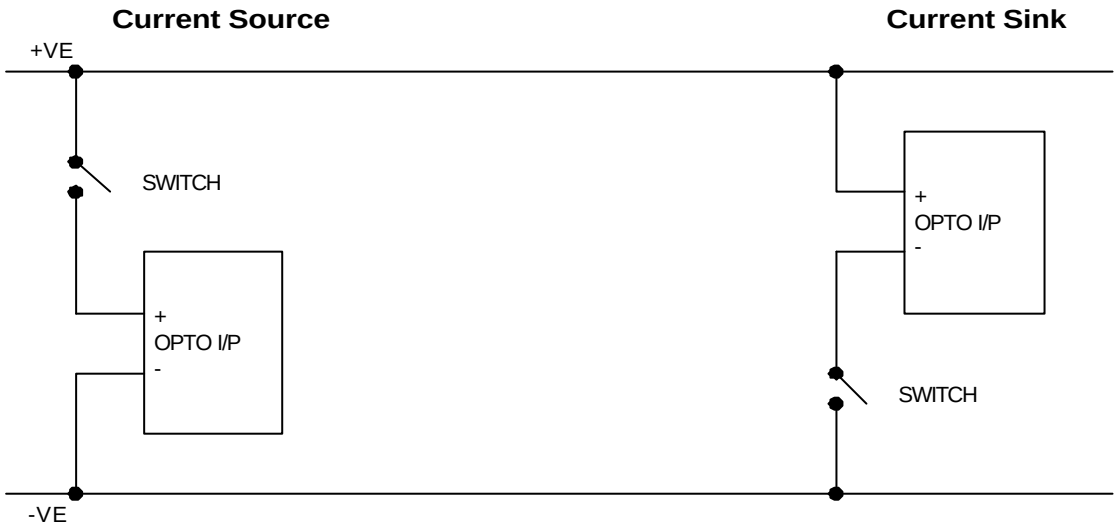
POWER SUPPLY

The X6100 Modules are powered from either a 240V/110V ac supply or a 12 to 24 Vdc supply depending on internal links.
A yellow led indicates that the internal dc power supply is operating. It is the users responsibility to configure the unit in accordance with the current wiring regulations.

DIGITAL INPUTS/OUTPUTS

Each opto-isolated input on the transmitter energises the corresponding relay on the receiver.

The TX6100 has 8 independent opto-isolated inputs with an input impedance of 4.7 kΩ. A dc supply between 5 to 30 V is needed to activate each input.



The RX6100 has 8 Voltage free contacts rated 24 Vdc @ 1A or 120 Vac @ 0.5 A. Each set of contacts relates to an input on the transmitter. The minimum response time from activating an input to closing a contact is 60 mS.

ANALOGUE INPUTS/OUTPUTS (OPTIONAL)

Each of the 4-20 mA inputs on the transmitter correspond to a 4-20 mA output on the receiver. The X6100 telemetry Link can have up to 4 analogue channels – A,B,C,D.

Each analogue input on the TX6100 is terminated by a 100Ω precision resistor which is connected differentially. The –Ve input can be left floating for high common mode rejection or connected to common analogue 0V to provide a good signal reference .

The analogue outputs on the RX6100 will source an analogue current with a voltage set by the SIG VOLTS input. Each –Ve output is connected internally to 0V. A load is therefore connected between +Ve and –Ve outputs with the –Ve output at 0V.
Analogue outputs can be powered either from the RX6100 internal 12 Vdc supply or from an external supply of between 12 V and 35 Vdc.

Voltage Selection

Internal	Link 12V terminal to SIG VOLTS terminal
External	Connect external power supply to SIG VOLTS terminal and 0V terminal.

POWER SAVE MODE

The TX6100 transmitter can be switched off by means of the TX ON/OFF terminals. When they are open circuit the TX6100 will be continuously transmitting. If they are shorted together the transmitter will be disabled. This state is indicated by a red LED.

COMMUNICATION ERROR OUTPUT

The communication error relay is energised if no coherent data has been received by the RX6100 for 45 seconds. A voltage free, normally open set of contacts rated 24 Vdc @ 1 A or 120 Vac @ 0.5 A. In addition a red LED is lit to indicate the error state.

CONNECTIONS

TX6100

Row A	Row B
Power Input + [1]	OPTO 1 I/P +Ve
Power Input - [2]	OPTO 1 I/P -Ve
TX ON/OFF 0V	OPTO 2 I/P +Ve
TX ON/OFF SIGNAL	OPTO 2 I/P -Ve
12 V OUTPUT	OPTO 3 I/P +Ve
ANALOGUE I/P A -Ve	OPTO 3 I/P -Ve
ANALOGUE I/P A +Ve	OPTO 4 I/P +Ve
ANALOGUE I/P B -Ve	OPTO 4 I/P -Ve
ANALOGUE I/P B +Ve	OPTO 5 I/P +Ve
ANALOGUE I/P C -Ve	OPTO 5 I/P -Ve
ANALOGUE I/P C +Ve	OPTO 6 I/P +Ve
ANALOGUE I/P D -Ve	OPTO 6 I/P -Ve
ANALOGUE I/P D +Ve	OPTO 7 I/P +Ve
0V	OPTO 7 I/P -Ve
0V	OPTO 8 I/P +Ve
0V	OPTO 8 I/P -Ve

RX6100

Row A	Row B
Power Input + [1]	RELAY 1 O/P
Power Input - [2]	RELAY 1 O/P
STATUS RELAY	RELAY 2 O/P
STATUS RELAY	RELAY 2 O/P
NOT USED	RELAY 3 O/P
ANALOGUE O/P A -Ve	RELAY 3 O/P
ANALOGUE O/P A +Ve	RELAY 4 O/P
ANALOGUE O/P B -Ve	RELAY 4 O/P
ANALOGUE O/P B +Ve	RELAY 5 O/P
ANALOGUE O/P C -Ve	RELAY 5 O/P
ANALOGUE O/P C +Ve	RELAY 6 O/P
ANALOGUE O/P D -Ve	RELAY 6 O/P
ANALOGUE O/P D +Ve	RELAY 7 O/P
SIGNAL VOLTAGE (SIG VOLT)	RELAY 7 O/P
12 V OUTPUT	RELAY 8 O/P
0V	RELAY 8 O/P

Notes
1. 240/110 Vac or 24 Vdc
2. 240/110 Vac or 0 Vdc

RADIO FREQUENCY BANDS

The X6100 operates in the 458 MHz telemetry band. The frequencies available are –

458.525 Mhz
458.550 Mhz
458.575 Mhz
458.600 Mhz
458.625 Mhz
458.650 Mhz
458.675 Mhz
458.700 Mhz
458.725 Mhz
458.750 Mhz
458.775 Mhz

OPTIMUM PERFORMANCE

With any radio system there are a number of factors which affect the system performance. These are –

Transmitter power output / Receiver sensitivity
Height of Transmitter / Receiver
Length / type of feeder to antenna and type of antenna
Topography between transmitter / Receiver

ABSOLUTE MAXIMUM RATINGS

Storage Temperature -30 to +85 °C
Operating Temperature -25 to +55 °C

DIMENSIONS

(not including antenna) Length = 150mm Width = 115mm Height = 70 mm

TECHNICAL SPECIFICATION

Characteristic	Min.	Typ.	Max.	Dimension	Notes
Frequency Range	485.50 420.00		485.95 470.00	MHz MHz	UK World
Channels	1				
Channel Separation	12.5	25.0		kHz	
System Response Time	60.0	100.0	130.0	mS	
Modulation		GMSK			

TX6100 Transmitter

RF Output Power (ERP)	5		500	mW	
Digital Input	5	12	30	Vdc	
Analogue Input		4-20		mA	250Ω
Power Supply	12 240	 285 240/110	24 350	Vdc mA Vac	

RX6100 Receiver

Sensitivity		-112		dB	20dB SINAD
Digital Output	0.5	 24/120	1.0	A Vdc/Vac	
Analogue Output		4-20		mA	
Power Supply	12 98	 130 240/110	24 160	Vdc mA Vac	

PART NUMBERS

TX6100.xxx	Telemetry Transmitter 458.xxx MHz
RX6100.xxx	Telemetry Receiver 458.xxx MHz

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RF Solutions is a member of the Low Power Radio Association.

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