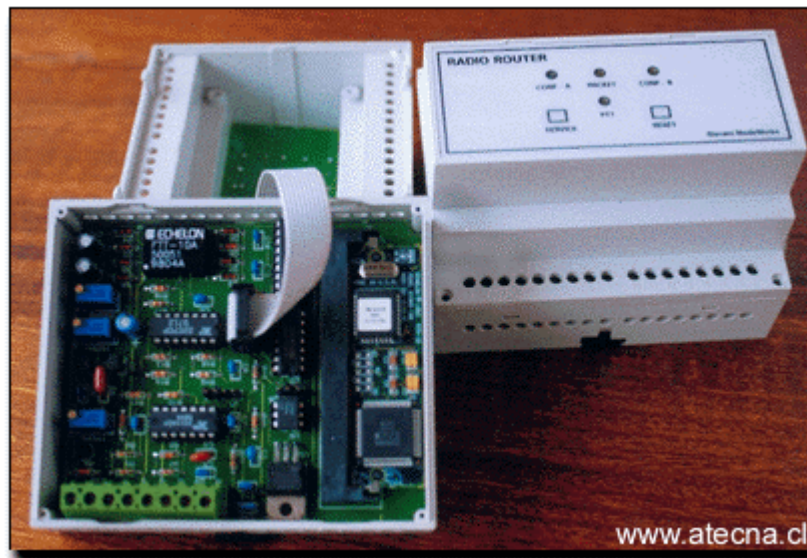


ATECNA ING.

RADIO ROUTER RR1200

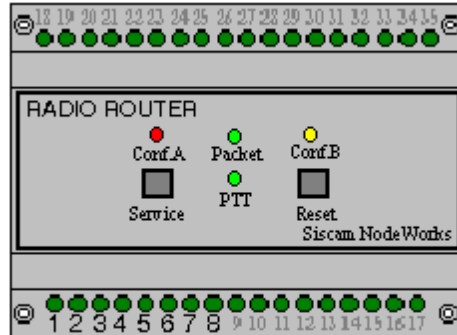
RADIO ROUTER RR1200
Modular and Flexible Radio Router
Connects LonWorks® Networks



ATECNA ING. LonWorks Radio Router

Radio Router RR1200

Modular and flexible Radio Router that connects LonWorks® Networks over a Standard Radio Frequency Channel, using standard VHF/UHF radios.



The geographical complexity in some applications (mountains obstructs line of sight) demand the use of standardized radio channels. One of the best radio to do this, is a standard VHF/UHF radio like the new Motorola® SM50; an economical synthesized voice radio transceiver with 25 Watts of output power. Very technicians are instructed with this regulations and practical installations.



Network Specifications:

1. Lontalk protocol, to perform communications from Node to Node and to perform an open system with all the benefits of the Lontalk protocol.
2. Define a new channel (user channel: we named RF-1200) to perform communications over the Standard Radio frequency channel that complies with the following specifications:
 - Data-Rate: 1200 Baud, using Manchester code.
 - Turn -on delay: setting located in the Radio Router, from 100 to 200 msec. before sending a message.
 - Standard Channel to communicate with nodes (78kbps FTP).
3. Use of router capabilities to perform communications over the two channels.
 - Router Side B, run with a clock of 1.25Mhz.
 - Channel A, run at 78.1kbps with FTT10 transceiver.
 - Channel B, run at 1200bps single ended connects to an adapter named RR-1200 that performs all functionality to connect to a Standard Radio.
 - Channel B, buffer messages coming from Channel A. Detection and valid message from Channel A outputs a message to Channel B. Message in channel B will stay in buffer until time delay of RTS line expire. (RTS line outputs a signal to the push to talk line (PTT) of the radio).
 - When programmable time delay expire, a flag signals side B to output Lontalk message.

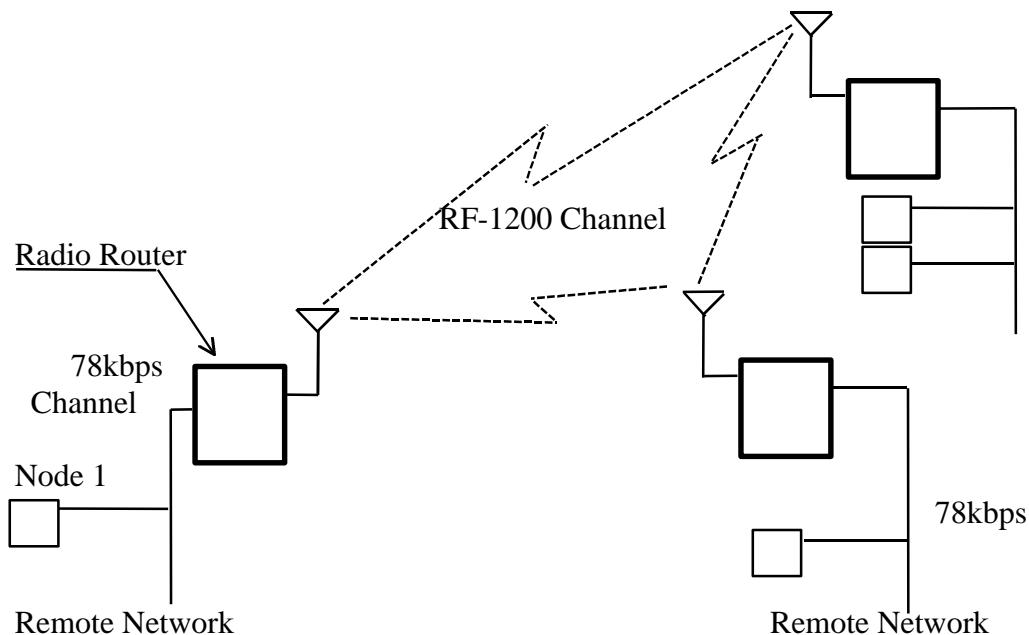
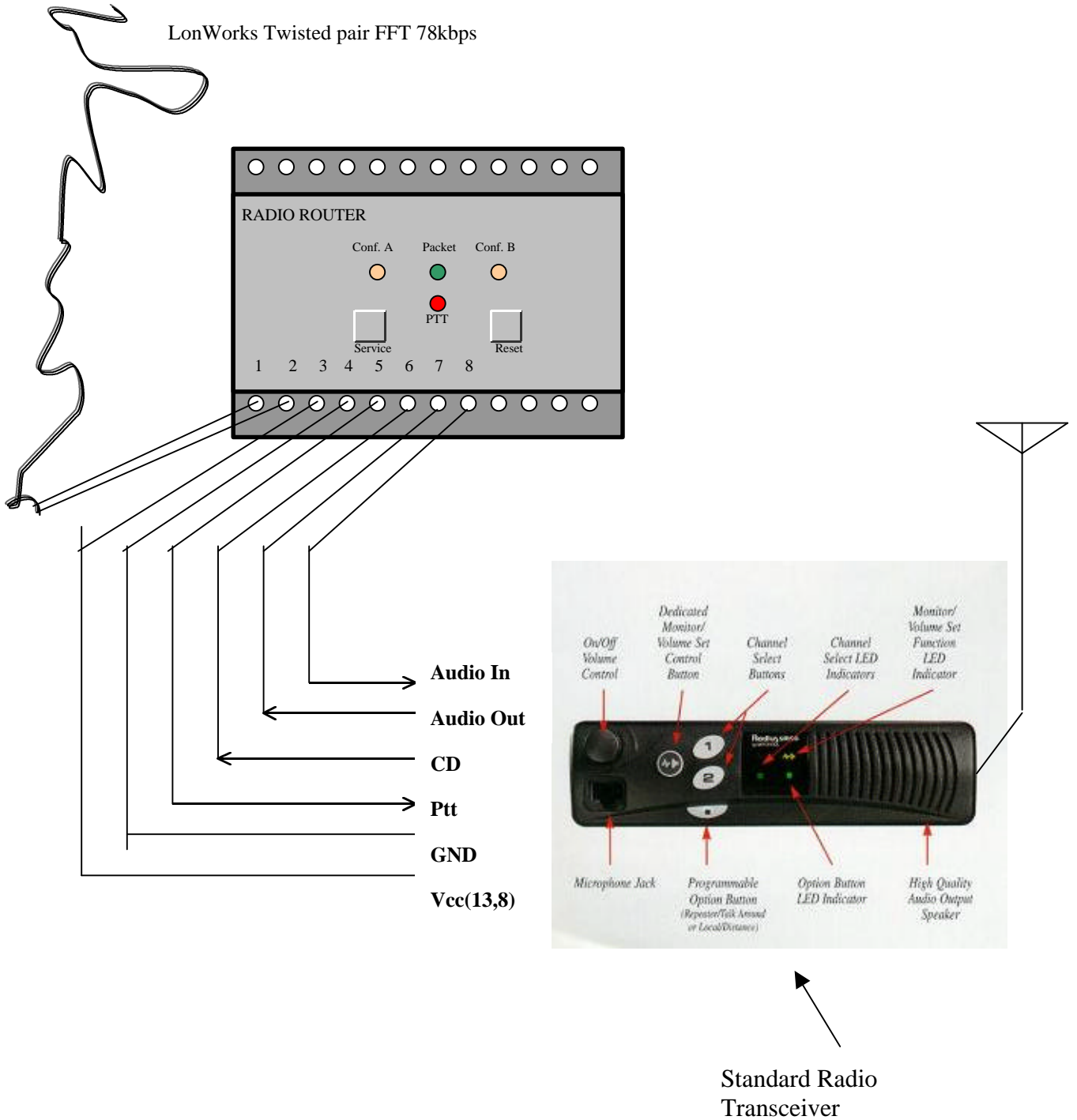


Fig: 01
Connecting LonWorks Networks over Radio.

General specifications:

Power Supply	:	10- 18 VDC
Nominal	:	13,8 VDC
Consumption	:	100 mA
Router	:	RTR-10 core module.
Side A:		
Network Connection	:	78 KBPS standard FTT10.
Side B:		
Audio Out	:	0 dB.
Audio In	:	-15 -> 0 dB
Delay for PTT	:	100 ->400 msec.
Modulation	:	V.23 CCITT
Baud Rate	:	600 to 1200 bps
Dimensions	:	140x90x70 mm
Mounting	:	Standard symmetric DIN rail
Operating Temp.	:	-10 to 50 deg. Celcius
Operating Humidity	:	25% to 90%, non condensing.





Calibration Data:

Modem Section:

Delay Time for PTT : 100 msec
 Tx modulation tone high : 2300 Hz +/-5%
 Tx modulation tone low : 1500 Hz +/- 5%
 Rx demodulation tone : 1700 Hz +/- 5%
 Output Impedance : 1 kohm
 Input Impedance : 10 kohm.

Node Instalation's for applications with Radio Router:

Operation Mode : Learning router.

The router parameters was defined in ATECNA. Do not change without information from ATECNA.

You must define the following channel in Lonbuilder in accordance with parameters been charge to the router.

LonBuilder Channel definition:

Channel Name : Radio_channel.
 Std Xcr Type : CUSTOM
 Com Mode : Single- Ended
 Com Rate : 0.610kbps
 Num Priorities : 0
 Min Clock Rate : .625 MHz
 Avg Packet Size : 50
 Osc Accuracy : 200 ppm
 Osc Wake Up :0 uSec
 Collision Detect : Yes.
 CD Terminate After Preamble: Yes.
 CD Trough packet End: No.
 Bit Sync Thershold : 4 bits

Rcv Start Delay : 20 Bits.
 Rcv End Delay : 50 Bits
 Indeterm Time : 30 bits
 Min. Interpacket : 50 bits
 Turnaround : 26000 usec
 Missed Preamb : 12.0 bits

Use Raw Data : No
 Raw Data Claock Rate: .625 MHz.
 Raw Data: a4 45 b2 b9 00

Node Installation:

The objective of the node installation is that databases get the same information about the hardware installation. Therefore the software must know Neuron number from pin service. During installation DO NOT recharge communication parameters, because you could lost the communication with nodes.

The router must connected to 2 channels:

Definition of Router Hardware:

Router Mode: Learning.

The near router:

Channels: A: default channel

B: Radio_channel

The far router:

Channels: A: Far_channel (FTT)

B: Radio_channel