

Novra A75 Receiver Instructions

Subject to change without notification



Model: A75-0100

S/N: XXXX

Input: 6VDC --- 800mA

FCC ID: POIA750100

MAC:00-06-76-00-00-00



This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Made in CANADA

CAUTION: Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

These Files have been optimized for printing.

Novra A75 Receiver Instructions

Subject to change without notification

Document version: DRAFT 2004APR29

Important- Please read this entire manual before installing or operating this product.

Disclaimer

While reasonable effort has been made in the preparation of this document to assure its accuracy, Novra Technologies Inc. assumes no responsibility for errors or omissions that may appear in this manual. Novra reserves the right to change the contents of this manual at any time without notice.

Copyright

© 2004 Novra Technologies Inc. All rights reserved.

Information in this manual is subject to change without notice. No part of this manual may be reproduced or transmitted in any form, by photocopy, microfilm, xerography, or any other means, or incorporated into any information retrieval system, electronic or mechanical, for any purpose, without the express written permission of Novra Technologies Inc.

For additional information or details on Novra's product offerings, please contact us at:
North American Headquarters 1100-330 St. Mary Avenue, Winnipeg, MB Canada R3C-3Z5
t. 204.989.4724 f. 204.989.4640 e. info@novra.com w. www.novra.com

INDEX		Page
1.0	MINIMUM SYSTEM REQUIREMENTS	3
2.0	INTRODUCTION	4
2.1	Principle Of Operations	4
3.0	INSTALLATION	5
4.0	MANAGEMENT CONSOLE SYSTEM CONFIGURATIONS	6
4.1	Configuring the A75 Data Receiver	6
6.0	A75 RECEIVER SPECIFICATIONS	8
APPENDIX		
	Miscellaneous Terms and Definitions	9

1.0 Minimum System Requirements

Your computer must have **at least** the following:

- Processor: Pentium 566 MHz
- RAM: 32 MB
- Free disk space: 40 MB
- Video: card and driver that support 256 or more colours
- CD drive (required for software installation only)
- Ethernet network interface card (NIC): 100 Mbps (100 BaseT)



NOTE: - The receiver **may** work with system parameters below those specified but performance may be lacking.



NOTE: - Performance will be dependant on other applications that your computer is running.

2.0 INTRODUCTION

2.1 Principles of Operation

Somewhere in the world is a location that transmits your signal, along with many others, to your location and others. Your A75 sifts through all the signals for your signal, a DVB data stream. The A75 then de-encapsulates the IP information from the DVB stream and forwards it onto its final destination via a 100 Base-T Ethernet link.

The A75 also transmits status packets to your computer where the A75 Management Console is located.

The A75 Management Console is used to configure addresses, specify tuning parameters and select DVB information streams (PIDS). Once configured, the A75 will retain its settings and continue to forward data transmitted to you by your service provider even after restarting the A75 or your computer.

The A75 Receiver is meant to run in the background. In most cases, once the options have been set, you will have no need to change them.

3.0 INSTALLATION

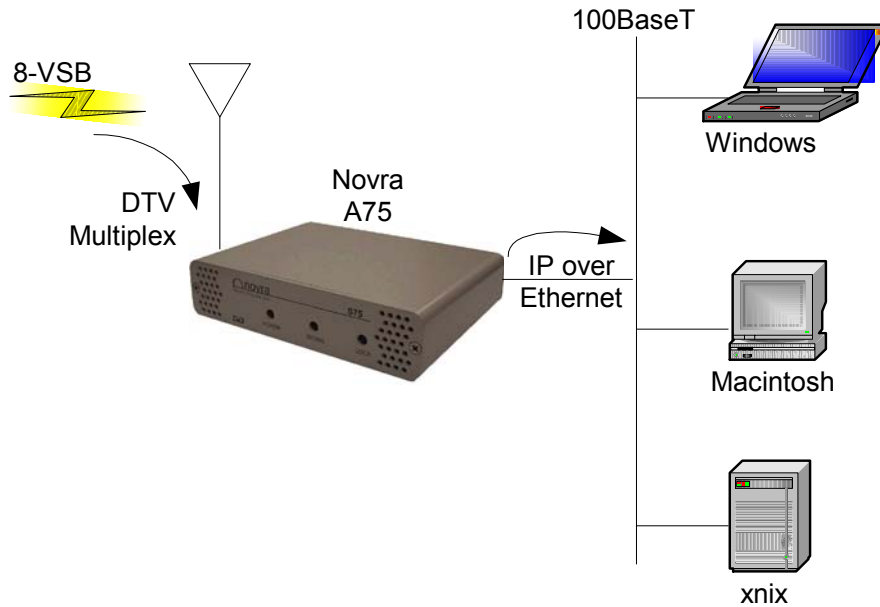


Figure 1: A75 Hardware Connections

- 1) Connect the S75 Receiver to the RG6 coax cable that is attached your outdoor antenna.



CAUTION: There are grounding requirements and other safety considerations associated with your outdoor antenna. Be sure to follow all local electrical standards and codes when installing and using an antenna.

- 2) Connect the 6 VDC adapter to the A75 .
- 3) Connect the Crossover Ethernet cable (Null-modem) between your computer's 100 BaseT NIC card and the A75. (Or the A75 can be connected to the computer via a Hub with regular Ethernet cables.)
- 4) On your computer, create a file folder called "A75." The file folder can be under "Program Files" or in any other location.

Note: The system will create additional files containing various configuration aspects as they are created. The system will locate these additional files in the same directory as the A75 Management Console.exe program.

- 5) Copy the file **A75 Management Console.exe** from the CD ROM to the "A75" file folder.
- 6) Shortcuts can be created if desired through the normal Windows procedures.
- 7) Open (run) the A75 Management Console.exe and proceed to section 4.0.

4.0 MANAGEMENT CONSOLE SYSTEM CONFIGURATIONS

4.1 Configuring the A75 Data Receiver

The data receiver configuration is very straightforward and can be shown in four basic steps:

1. Open (run) the A75 Management Console application
2. Configure the receiver IP addresses.
3. Set the receive channel.
4. Set the PID.

Each of these three basic steps is presented below.

Step 2: In **figure 2**, the A75 receiver IP addresses are configured according to the LAN at the receive site.



Figure 2: Receiver IP Addresses

Step 3: In **figure 3**, the receiver is tuned to channel 14, to match the broadcast modulator.



The screenshot shows the 'Channel' configuration window of the Novra A75 Receiver. The window has a title bar with a power icon, 'Lock' (red square), 'Data' (green square), and 'Device List' (dropdown). Below the title bar is a status box with a sun icon and the following text: 'Device Type: A75', 'MAC Address: 00-06-76-00-0D-AD', 'IP Address: 192.168.201.12', and 'Device Status: Online'. Below the status box are three buttons: 'Configure', 'Load / Save', and 'Status'. The main area is divided into two sections. The left section has a 'Channel' button. The right section has a 'Channel Number (2 - 69)' label and a text input field containing '14'. At the bottom right of the main area are two checkboxes, one checked (red square) and one unchecked (red square with an X).

Figure 3: Set the Channel

Step 4: In figure 4, the PID is selected to match the data PID defined in the transmitting end.



The screenshot shows the 'Content' configuration window of the Novra A75 Receiver. The window has a title bar with a power icon, 'Lock' (red square), 'Data' (green square), and 'Device List' (dropdown). Below the title bar is a status box with a sun icon and the following text: 'Device Type: A75', 'MAC Address: 00-06-76-00-0D-AD', 'IP Address: 192.168.201.12', and 'Device Status: Online'. Below the status box are three buttons: 'Configure', 'Load / Save', and 'Status'. The main area is divided into two sections. The left section has a 'Content' button. The right section has an 'Enter PID Value' label and a text input field containing '1234'. Below the input field are two buttons: a red square with a right arrow and a red square with a left arrow. Below these buttons are two checkboxes: 'Decimal' (checked, red square) and 'HexDecimal' (unchecked, red square with an X). At the bottom right of the main area are two checkboxes, one checked (red square) and one unchecked (red square with an X).

Figure 4: Set the PID

5.0 A75 RECEIVER SPECIFICATIONS

Receiver

- Receiving Frequency: 54 to 806 MHz
- ATSC Channels: 2 to 69
- Input Signal Level: -80 dBm to 0 dBm
- Channel Bandwidth: 6 MHz
- Phase Noise: -89 dBc/Hz @ 10kHz
- Demodulation: 8-VSB
- Channel Bit Rate (raw): 19.38 Mbps
- FEC: Reed-Solomon and Viterbi
- Noise Figure: 8 dB
- Image Rejection: > 70dBc

Data

- DSM-CC Multiprotocol Encapsulation per ATSC A/90
- Symbol Rate: 10.7 Msps
- Throughput: 19.39 Mbps
- MAC filtering
- Section packing

Configuration Points

- IP Address
- PID selection
- RF Channel

Configuration Tools

- MS Windows GUI application and DLL
- Linux library

Status Indicators

- Power: Red LED
- Packet Error: Amber LED
- Lock: Green LED
- Ethernet Link and Transmit

Hardware Capabilities

- PID Filters: 16
- Internal Hardware Watchdog
- Non-Volatile Configuration Storage

Operating Systems

- Once Configured, Receiver Supports all Operating Systems

Physical Interfaces

- RF Input Connector: F-Type, 75 ohms
- Ethernet 10/100 Base-T
- LAN Interface: RJ-45

Physical/Environmental

- Height: 1.23 in (3.12 cm)
- Width: 5.22 in (13.27 cm)
- Depth: 3.90 in (9.92 cm)
- Operating Temperature: 0C to 60C
- Storage Temperature: -40C to 85C
- Operating Humidity: 10 to 90% Non-Condensing

Standards/Regulatory

- UDP/TCP/IP Protocol
- IP Multicast
- IGMP: V1.0, V2.0
- ETSI 301.192 DVB
- ISO/IEC 13818-1
- ISO/IEC 13818-6
- ATSC A/90
- IEEE 802.3 10/100 Mbps
- FCC

APPENDIX

Miscellaneous Terms and Definitions

Crossover Cable	A crossover cable is a cable that is used to connect two computers by reversing, or crossing over, the cable pin contacts. This eliminates the need to use a hub when connecting two computers. It is also referred to as a "Null Modem" cable.
DVB	Digital Video Broadcasting (DVB) is a set of standards that define digital broadcasting using satellite, cable, and terrestrial infrastructures.
FEC	Forward Error Correction. A system of error control for data transmission where the receiving device can detect and correct certain errors.
IP	Internet Protocol. The network communication protocol used on Ethernet networks and the Internet.
IP Address	The 32-bit computer address defined by the Internet Protocol. It is usually represented in dotted decimal notation. Example: 192.168.111.112
MAC Address	The Media Access Control (MAC) address is the unique hardware address for any piece of electronic equipment attached to a network. The MAC Address for your Novra A75 Receiver is displayed on a sticker on the bottom of the receiver.
Mbps	Mega bits per second. (Million bits per second)
MBps	Mega Bytes per second. One "Byte" in computer terms is the same as 8 bits. It is often referred to as a word. 1 MBps = 8 Mbps = 1 million Bytes (Words) per second = 8 million bits per second.
Packet	A packet is the unit of data that is routed between an origin and a destination. When any file is sent from one place to another (the Internet as an example) it is divided into "chunks" of an efficient size for routing. Each of these packets is separately numbered and includes the Internet address of the destination.
PID	Packet Identification Code. This code is used by the receiver to sift through the different packets of the transport stream. The transport stream contains data representing many different signals. The A75 software running on your computer, uses the PID number to find only those packets of data that contain the information you have requested.
RAM	Random access memory. Used for short term storage of information requiring quick access on a computer. Information stored in RAM can be accessed by the computer much faster than information on the Hard Drive can be accessed.
Subnet	A portion of a network, which may be a physically independent network segment, and which shares a network address with other portions of the network.

Viterbi

"Convolutional encoding with Viterbi decoding is a Forward Error Correction technique that is particularly suited to a channel in which the transmitted signal is corrupted mainly by additive white gaussian noise." Further information can be found by searching the Internet or looking at any of these sites.

<http://pw1.netcom.com/~chip.f/Viterbi.html>

<http://hiss.nist.gov/dads/HTML/viterbiAlgorithm.html>

<http://www.mathworks.com/access/helpdesk/help/toolbox/commblks/ref/viterbidecoder.shtml>

end.