

# Network Base Station

## BA0031-A

User Manual



#### Table of Contents

FCC Warning	3
General	4
Installation	4
Installation Steps	4
Software Package Installation	4
Device Configuration	5
Device Mode Setting	5
Device Mode – NTR (BA0031-I & BA0031-E models)	7
Device Mode – NBS (all models)	8
RF Parameters Setting	9
Subscriber List Setting (NTR mode, BA0031-I & BA0031-E models)	10



## FCC Warning

## FCC Warning

Modifications not expressly approved by the manufacturer could void the user authority to operate the equipment under FCC Rules.

To comply with FCC RF Exposure requirements, the antenna(s) used for this transmitter must be fixed-mounted on outdoor permanent structures with a separation distance of at least 2 meters from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

#### Installation of BA0031 NTR:

Installation of Model BA0031 and associated antennae (internal and external) must be performed by trained professionals only.

The following antennae (or equivalent) should be used for the various BA0031 models.

BA0031-I:	Antenna Model – Internal Patch (Sensus Drawing Number 7300574), (4dBi)
BA0031-E:	Amphenol Antel BCD-8243 (5.15dBi Omni)

BA0031-R: Amphenol Antel BCD-87066 (8.15dBi Omni)



## General

This document describes the installation of the *Network Base Station* (NBS) / *Network Repeater* (NTR).

The device has 3 different models:

- BA0031-I Two-way device with internal antenna. Works as NBS or NTR.
- **BA0031-E** Two-way device with connector for external antenna. Works with Antel's BCD-8243, 3dBd omni antenna (ONLY). Works as NBS or NTR.
- **BA0031-R** Receive only device with connector for external antenna. Antenna type is not restricted. Works as 'receive only' NBS. Does not support NTR mode.

## Installation

#### **Installation Steps**

- 1. Install the supplied 'LabVIEW' Run-Time engine and the configuration program 'Base II v1.12' in your PC by following the procedure described in Software Package Installation.
- 2. Disassemble the device top cover.
- 3. Insert the Ethernet backbone communication cable (not supplied, used in Base Station mode only) and the output cord of the 115VAC to 9VAC transformer (supplied) via the cable entries and connect them.
- 4. Plug the transformer to 115VAC source.
- 5. Use the serial communication cable (supplied) to connect available COM port on your PC to the device Console Port (RJ45 connector).
- 6. Configure the device by following the procedure described in Device Configuration
- 7. Disconnect the serial communication cable and assemble the top cover.
- 8. Mount the device and connect to external antenna if applicable.

#### Software Package Installation

- 1. Insert the supplied CD-ROM. Open the folder 'LabVIEW Run-Time' and double click on 'lvrteinstall.exe'. Next, follow the instructions of the installation program.
- 2. Create new folder on your PC and copy the file 'Base II v1.12.exe' from the supplied CD-ROM to the new folder.
- 3. Double click the file to run the program 'Base II v1.12'.



### **Device** Configuration

Device Mode Setting

- 1. Run the 'Base II v1.12' program.
- 2. Select 'General' tab.

General	RF	Subscriber List	Programmer
Device Mode	a an	BS ID	
NTR T	Set Read	0	Set Read
Debug Mode		85 Tx ID	
Dicaple	Jet Read	0	Set Read
Vercion Me	del	BS MAC Address	
	Read	FREE FERE FEFE	Set Read
Time		BS IP	
08:00:00	Set Read	255.255.255	Set Read
NTR ID		BS Port	a a a a
0	Set Read	0	Set Read
NTR Mode		Dectination IP	
SL T		295.295.255.255	Set Read
	Set Read	Destination Port	Internet Internet
Single Hop		10	Set Read
Diagnostic Period		Gatel@ev.hin	
Penadios Polo	26231	(SateWay IP	Sat Dead
reporting reale	Set Read	255 265 255 255	334 1.030

3. Set to proper PC COMM port.

	V COMM 1	
1	COMM 2	
	COMM 3	
	COMM 4	



4. Press 'Read All'. Verify the device model (BA0031-I, E or R) and version.

Subscriber List	Programm	er
BS ID		
Read 35	Set Read	
BS Tx ID		
Read	3et Read	
BS MAC Address		1
Read 004A 004F 71CC	Set Read	
BS IP		
Read 62.0.26.205	Set Reed	
BS Port		
Read 19	Set Read	
Dectination IP		
141.226.2.1	Set Read	
Read Dectination Port		
11562	Set Read	
Cototetau tra		
Read Catelylaw ID	En David	
Gatarvay in	Sec Head	
	BS ID   Read 75   BS Tx ID   I   BS MAC Address   DOMA CONF 73CC   BS IP   Read   BS Port   19   Dectination IP   141.225.2.1   Dectination Port   11562   Read   GateWay IP	BS ID Jet Read   Read JS Jet Read   I Jet Read   BS TX ID Jet Read   I Jet Read   BS MAC Address Down COMP 73CC Set   Read BS Port Set   IP Set Read   Dectination IP I41.225.2.1 Set   Read GateWay No Set Read   Read GateWay IP Set Read

5. Set 'Device Mode' to 'NTR' (BA0031-I & BA0031-E models) or 'NBS' (all models). Set 'Debug Mode' to 'Disable'.

Device Mode		
✓ NTR Base Station	Set	Read
Disable	Set	Read



#### Device Mode – NTR (BA0031-I & BA0031-E models)

1. Set the 'NTR ID' – The device uses this ID when transmits diagnostics and report messages. The ID range is 1 to 16,777,215.

NTR ID		
1000	Set	Read

2. Set the 'NTR Mode'. In 'ReTx All' mode the device retransmits every message it receives. In 'SL' mode the device retransmits received messages that were initiated by subscribers listed in the Subscriber List (SL). When working in 'SL' mode the device either retransmits the received messages as it receives them ('Single Hop' mode) or replaces the 'Type' of the received message with 'ReTx Type' taken from the stored Subscriber List ('Chain' mode).



3. Set the 'Diagnostic Period' and 'Reporting Rate'. Once every 'Diagnostic Period', in minutes, the device is generating diagnostics message summarizing the reception and transmission activity in last 'Diagnostic Period' minutes. After the transmission of the diagnostics message the device transmits number of Subscriber List report messages according with the number set in the 'Reporting Rate' field. In every report message the device reports the contents of two lines from the Subscriber List. And so, if, for example, the Subscriber List contains 100 lines (100 subscribers) it takes 50 report messages to send the whole list.

Diagnostic Period		
60	Set	Read
Reporting Rate		
1	Set	Read



#### Device Mode – NBS (all models)

 Set 'BS ID' and 'BS Tx ID'. The device uses the 'BS ID' for identification when sending or receiving messages in the backbone communication link. The range of 'BS ID' is 1 to 65,635. The device uses the 'BS Tx ID' when transmitting air messages. The range of the 'BS Tx ID' is 1 to 16,777, 215.



2. Set the device IP parameters. Set 'BS IP' and 'BS Port' address. The 'BS MAC Address' is configured in the factory.

BS IP		
62.0.26.205	Set	Read
BS Port		
19	Set	Read

3. Set the destination IP address. If necessary set a gateway address also.

Destination IP		
62.0.26.243	Set	Read
Destination Port		
19	Set	Read
GateWay - No 🛛 🤝		
GateWay IP	Set	Read
255.255.255.255		- Contraction of the second



#### **RF** Parameters Setting

1. Select 'RF' tab.

General	RF	Subscriber List	Programmer
Receiver		Trancmitter	
Rx RF Channel		Tx RF Ghannel	
Б	Set Read	27	Set Read
Freq. Offset		Preamble Length	
0	Set Read	150	Set Read
Fred Width			
20000	Set Read		
Min Threehold			
400	Set Read		
Auto Threshold			
Enable 🕂	Set Read		
Actual Throchold	interest interested		
400	Feed		

- Set 'Rx RF Channel' and 'Tx RF Channel' (BA0031-I & BA0031-E models). The Channel range is 5 (904.6MHz) to 57 (925.4MHz). The channel spacing is 0.4MHz.
- 3. The rest of the parameters are configured in the factory to:
  - Freq. Offset -0
  - Freq. Width 20000
  - Min Threshold 300
  - Auto Threshold Enable
  - Preamble Length 150.
- 4. When 'Auto Threshold' is enabled, the threshold is reset to the 'Min Threshold' value once every hour. The device increases automatically the threshold if the false alarm rate is high. The current value can be read in the 'Actual Threshold' field.



#### Subscriber List Setting (NTR mode, BA0031-I & BA0031-E models)

1. Select the 'Subscriber List' tab

General		RF		Subscriber List	Programm
SL Monitor					
Tx ID	Туре	ReTx Type	The L		
			T	o Screen 🕫	
			т	o File 🦵	
			- 1	1	100
SL Commands					
SL Comman	ndc	Tx ID	Туре	ReTx Type	
Add Tx	17	0	0	0	Run
Command	File		-		
7			-		Run

- 2. The stored Subscriber List can be read from the device to the screen, file or both.
- 3. You can add or remove subscriber from the list or clear the whole list. These commands can also be generated from a command file.

SL Commands	Tx ID	Туре	ReTx Type	
✓ Add Tx	1000	12	13	Run
Remove Tx				
Clear SL				
Command File				
9				Run

- 4. Command file examples:
  - Command file's text line 'ADD 400 1 2', adds subscriber 400 with message type 1 and retransmit type 2 to the subscriber list.
  - Command file's text line 'REMOVE 400 1', removes subscriber 400 with message type 1 from the subscriber list.
  - Command file text line 'CLEAR' clears the subscriber list.

