# Aastra DECT Base Stations

## On-site mobility for professionals

**The Aastra BS3xx range of base stations offers a variety of coverage patterns to suit different situations. By choosing the right mix of base stations and the appropriate antennas you can ensure quality coverage and sufficient traffic capacity exactly where you need it. Based on the GAP/CAP standard, the base stations deliver high quality telephony, messaging and alarm handling through out the entire system. All Aastra BS3xx base stations are compact, lightweight and easy to install in small as well as very large systems.**

## *BS330 Base Station*

The BC330 is the standard solution for most business premises. Although typical indoor coverage is 30 m, actual coverage depends on factors such as the spacing of walls and the building materials used. The BS330 supports up to 8 simultaneous speech calls per base station. Remaining signaling capacity is reserved for DECT SMS messaging and alarm handling. Whilst the BS330 is primarily designed for indoor coverage, an outdoor housing is available for outdoor applications. Outdoor coverage is up to 300 m.

The basic function of the base station is the transmission and reception of DECT radio signals. To this end, the base station is equipped with a radio, capable of accessing a spectrum of 120 radio channels. The base station is controlled and powered from the radio exchange board via two twisted pairs. Extra power pairs can be used to increase the powering range of the base station. The base station can also be powered using a local AC adapter. This base station is designed for indoor use and is compatible with the integrated cordless solutions of the MX-ONE, BusinessPhone and MD Evolution telephony systems.

### Antennas

The BS330 has two internal antennas. At any time during the transmission or reception cycle only one antenna is active. However, fading of the radio signal is corrected by switching to the other antenna for transmission and reception. This switching, also called spatial and polarization diversity can be done per time slot and results in a more stable radio performance and hence better speech quality.

### Interface

The connection between the base station and the radio exchange is established via two proprietary U-interfaces using 2B+D. Each U-interface uses one twisted pair. The two bidirectional U-interfaces provide a data rate of 128 kbits/s for each speech channel, which is sufficient for 8 simultaneous calls.

### Connectors

Two RJ45 and one RJ12 modular 'jack' type connectors are located on the rear of the base station. The two RJ45 jacks are for data/power connection and the RJ12 jack is for direct connection to PC. The two data/power connectors are interconnected inside the base station. This arrangement allows an easy connection of extra power to the base station.

### Distances

The maximum length of the cable between the exchange and the base station depends on the supply voltage, the wire thickness of the twisted pair cables and the number of extra power pairs used. The length of the cable between the telephony system and base stations can be up to 1.9 km. The radio coverage radius of the base station depends on the propagation characteristics and varies between 20 m and 300 m.

BS330 Base Station

### Easy software upgrade

The software of this base station resides in programmable non-volatile memory. This memory can be programmed using the Cordless System Manager or Base Station Manager software.

### Power

When powering the base station from the PBX, the voltage offered to the base station may vary, depending on the distance between base stations and exchange (i.e. power supply). The base station requires a minimum voltage of 21 V DC and maximum input voltage to the base station is 56 V DC (the voltage polarity is unimportant).

### Mounting

The BS370 can be mounted on a wall, ceiling, pole or beam, using the same type of mounting bracket as used for BC330 /BS340. The bracket shall be secured first and thereafter the BS370 can be easily fixed on to it. This makes mounting and exchanging of the BS370 relatively simple.

### Versions

- NTM/KRCNB 301 03/1 for use with DECT 1880-1900 MHz GAP/CAP systems
- NTM/KRCNB 301 02/1 for use with DECT 1900-1920 MHz GAP/CAP systems
- NTM/KRCNB 301 04/1 for use with DECT 1910-1930 MHz GAP/CAP systems

## BS340 Base Station

### General

The BS340 shares the basic characteristics of the BS330, but comes with two external omni-directional dipole antennas. These default antennas provide a spherical coverage pattern and a number of directional antennas is available as alternatives. The directional antennas radiate more in certain directions than in others. The benefit with the alternative antennas is the ability to direct coverage exactly where you need it, reducing overall cost in cases where the ideal coverage shape is not a sphere.

Any combination of external antennas must cover/face the same area.

### Versions

- NTM/KRCNB 302 01/1 for use with DECT 1880-1900 MHz GAP/CAP Aastra systems

BS340 Base Station

## BS370 Base Station

### General

This base station is suitable for low to medium traffic capacity areas where cabling is a problem. The BS370 is connected to the cordless PBX via a radio link to a BS330 or BS340 host base station. The radio signals from the cordless phones to the BS370 are retransmitted from the BS370 towards the host base station. The host base station sends the signals to the system. The other way round, the BS370 receives radio signals of the host base station and retransmits them to the cordless phones within the BS370's coverage area. It extends the coverage area of the host base station without the need to lay a new cable, saving man hours and avoiding disruption. The BS370 only needs a local power adapter, so it can for instance be mounted on a lamppost and use the same power supply.

A combination of the host base station and the BS370 gives a capacity of up to 8 simultaneous calls across the combined coverage area of the BS370 and the host base station, or up to 5 simultaneous calls within the coverage radius of the BS370 base station. The BS370 is usually positioned so that its coverage sphere overlaps with the coverage of the host base station. However, it also has an input for a third antenna, usually a directional single antenna for additional reach.

### Applications

With the BS370 you can easily and quickly extend the coverage area of a base station. Examples of installations are: a separate parking house, a small office annex on the other side of the street, etc. The BS370 is designed for indoor use, but can be complemented with an outdoor housing.

### Host base stations

The BS330 (KRCNB 301 03/n) and BS340 (KRCNB 302 01/1) can be used as host base stations. The host base station must have base station software with revision level R2A or higher. It is possible to lock more than one BS370 to the same host base station. This could be useful when there is a need to cover large areas with low traffic. It is not possible to lock a BS370 to another BS370.

## Connection to host base station

The BS370 can be setup to communicate with the host base station in two ways:

- Without an extra directional antenna. The BS370 has to be in the coverage area of the host base station. The maximum distance between the BS370 and its host base station is ca 30 m in a building. In the open field the distance can be much more; up to 300 m. The possible distance depends on propagation characteristics.

- With an extra directional antenna. The BS370 no longer has to be in the coverage area of the host base station. The maximum distance between BS370 and host BS is 1000 m.

## Call handling

The BS370 can handle 5 calls simultaneously and the host base station can handle 8 calls simultaneously. When a call is being made via the BS370, the host base station uses one speech channel to communicate with the BS370. Thus, each call on the BS370 reduces the maximum number of simultaneous calls on the host base station with one.

## Antennas

The BS370 is equipped with two omni-directional dipole external antennas. At any time during the transmission or reception cycle only one antenna is active. However, fading of the radio signal is corrected by switching to the other antenna for transmission and reception. This switching, also called spatial diversity, can be done per time slot. Special directional antennas are available for installations where there is a need for more horizontal than vertical coverage, e.g. parking lots or other special environments. For communication with the host base station an extra directional antenna can be used.

## Connectors

Three modular 'jack' type connectors are located on the rear of the BS370: one RJ12 and two RJ45. The RJ12 jack is used for configuration and service. Either one of the two RJ45 jacks can be used to power the BS370.

## Mounting

The BS370 can be mounted on a wall, ceiling, pole or beam, using the same type of mounting bracket as used for BC330 /BS340. The bracket shall be secured first and thereafter the BS370 can be easily fixed on to it. This makes mounting and exchanging of the BS370 relatively simple.

## Power

The BS370 has to be powered by a local AC-adapter. This circuitry requires a minimum voltage of 10.8 V DC and the maximum input voltage to the base station is 56 V DC (the polarity of the supply voltage is not important).

BS370 Base Station

## Software management

The software of the BS370 resides in programmable non-volatile memory. As the BS370 has no physical connection to the telephony network, a maintenance PC must be connected directly to the BS370. Once the BS370 is installed, the Base Station Manager (Windows-based) can be used if changes in the default configuration are needed or for detailed configuration, as well as for download of new SW to the base station and other maintenance tasks.

| Specifications | BS330 | BS340 | BS370 |
|---|---|---|---|
| Physical | | | |
| Dimensions (mm): | 200 (w) x 165 (d) x 56 (h) | 200 (w) x 165 (d) x 56 (h) | 200 (w) x 165 (d) x 56 (h) |
| Ext. antennas' dimension | NA | 107 (l) x 8.5 (d) mm | 107 (l) x 8.5 (d) mm |
| Weight (grams): | 470 | 496 (incl. standard ext. antennas) | 496 (incl. standard ext. antennas) |
| Material: | ABS molded plastic | ABS molded plastic | ABS molded plastic |
| Color: | light grey | light grey | light grey |
| Environmental | | | |
| Operating temperature | -10 to +55 °C | -10 to +55 °C | -10 to +55 °C |
| Storage temperature | -40 to +70 °C | -40 to +70 °C | -40 to +70 °C |
| Rel. operating humidity | 15 to 90 %, non condensing | 15 to 90 %, non condensing | 15 to 90 %, non condensing |
| Rel. storage humidity | 5 to 95 %, non condensing | 5 to 95 %, non condensing | 5 to 95 %, non condensing |
| Functional | | | |
| Supported systems | MX-ONE, BusinessPhone, MD Evolution | MX-ONE, BusinessPhone, MD Evolution | MX-ONE, BusinessPhone, MD Evolution |

| | | | |
|---|---|---|---|
| Operating voltage | 21 to 56 V DC | 21 to 56 V DC | 10.8 to 56 V DC |
| Power consumption | 1.3 - 2 W | 1.3 - 2 W | 1.3 - 2 W |
| RF carriers | Standard, LA, CN, US | Standard | Standard |
| RF output power | 19 - 24 dBm | 19 - 24 dBm | 19 - 24 dBm |
| Center frequency stability | +/- 25 ppm | +/- 25 ppm | +/- 25 ppm |
| Modulation method | Gaussian filtered Frequency Shift Keying (GFSK) | Gaussian filtered Frequency Shift Keying (GFSK) | Gaussian filtered Frequency Shift Keying (GFSK) |
| Typical RF output impedance | 50 Ohms | 50 Ohms | 50 Ohms |
| Receiver sensitivity | at least -86 dBm at B.E.R. = $10^{-3}$ | at least -86 dBm at B.E.R. = $10^{-3}$ | at least -86 dBm at B.E.R. = $10^{-3}$ |
| Input compression | better then -30 dBm at -1 dB compression point | better then -30 dBm at -1 dB compression point | better then -30 dBm at -1 dB compression point |
| Connectors | 2 RJ45, 1 RJ12 | 2 RJ45, 1 RJ12,<br>2 MCX SMT (female) | 2 RJ45, 1 RJ12<br>2+1 MCX SMT (female) |
| DECT GAP/CAP interface | yes | yes | yes |
| Broadcast and multicast messaging | yes | yes | yes |
| Non-blocked alarm channels | yes | yes | yes |
| Nr. of simultaneous calls | 8 | 8 | 5 |
| External LED indication | yes | yes | yes |
| External antennas | no | yes | yes |
| Distance between the radio board and BS | max. 1.9 km | max. 1.9 km | max. 1.9 km + 1 km |
| Compliance to European regulations | | | |
| Radio and Telecom. Terminal Equipment | 1999/5/EEC | 1999/5/EEC | 1999/5/EEC |
| Low Voltage Directive (LVD) | 73/23/EC | 73/23/EC | 73/23/EC |
| Electromagnetic Compatibility Directive (EMC) | 89/336/EEC | 89/336/EEC | 89/336/EEC |
| Standards | | | |
| EMC | EN 301489-1 v1.4.1;<br>EN 301489-6 v1.2.1 | EN 301489-1 v1.4.1;<br>EN 301489-6 v1.2.1 | EN 301489-6 v1.1.1; |
| Safety | EN 60950-1: 2001 | EN 60950-1: 2001 | EN 60950-1 |
| Radio | EN 301406 v1.4.1;<br>TBR 022 | EN 301406 v1.4.1;<br>TBR 022 | EN 301406 v1.5.1;<br>TBR 022/A1 ed.1 |

**Aastra Corporate Headquarters**
155 Snow Blvd.
Concord, Ontario
Canada
L4K 4N9
Tel: +1 905-760-4200
**www.aastra.com**

**Aastra USA Inc.**
2811 Internet Blvd.
Frisco, Texas
United States
75034
Tel: +1 800-468-3266
**www.aastrausa.com**

**Aastra Telecom United Kingdom**
Unit B3 Armstrong Mall
Southwood Business Park
Farnborough, Hampshire
United Kingdom
GU14 0NR
Tel: +44 (0) 1252 53210
**www.aastra.co.uk**

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