LBB6071 Dual Location Transmitter (DLT) family

- **Single as well as dual operation**
- **More than one million location codes**
- **Two location codes per locator**
- **Ferrite antennas as well as loop antennas**
- **Bluetooth (low energy) used for programming/configuration and diagnostics**
- **Protected against unauthorized access**

The LBB6071 Dual Location Transmitter (DLT) is used in combination with Atus Personal Security systems. The unit transmits programmable location codes which are picked up by passing Personal Security mobiles. The mobile stores the last received location code in memory and transmits this to the central system in alarm situations. In this way the system is enabled to track the movements of personal security mobiles i.e. current position and direction of movement.

Due to its double location code functionality, one location transmitter can be used to determine the last position of a mobile carrier as well as the person's direction of movement. This can be either to determine if somebody is inside or outside a room or area. Alternatively this can be to determine the location and direction of movement in a corridor or similar situation.
The location transmitter can also be used in a single antenna application.

As standard the unit is covered and protected by a heavy duty pc/abs blend cover. Screwcaps are included to esthetically conceal the screws. For high security applications a specifically designed mounting plate can be used to allow for installation in hostile environments. In such situation the location transmitter cover is mounted to this mounting plate using special safety bolts (supplied with frame).

Functions

Dual location addresses

The LBB6071 Dual Location Transmitter is intended to be used as a two direction/two location beacon consisting of a main and a remote unit. In the dual location application it allows for specification of two different location codes to monitor movement.
The main LBB6071/00 transmits location code 1 and the remote unit LBB6071/01 location code 2. If the main and remote unit are installed on either side of a transition point (i.e. a door) exactly opposite of each other, this is called a Back to Back (B2B) application.
Per location code, in principle one antenna is used. However, to cope with a more complex transition point two ferrite antennas can be used to detect movement on one side of the location beacon using the same location code. This principle can also be applied on the other side of the beacon (only dual application).

Dual Location Transmitter (DLT)				
Front \ Back	No antenna	1 rigid antenna	2 rigid antennas	1 loop antenna
1 rigid antenna	Single	Dual / B2B	Dual / B2B	Dual
2 rigid antennas	Single	Dual / B2B	Dual / B2B	Dual
1 loop antenna	Single	Dual	Dual	Dual
Applications				

Possible configurations

The difference between a Dual application and a Dual/B2B application:

- Dual: This means that 2 antennas (either ferrite or loop or combination) are connected to one and the same DLT Main. A field overlap is not allowed and must be prevented during installation.
  This configuration resembles the operation of two single location transmitters.
- Dual/B2B: This means that 2 ferrite antennas are connected to one and the same DLT in such a way that the electromagnetic field radiated by the DLT Main antenna conceals the radiated field of the DLT Remote antenna at the DLT Remote side of the wall and vice versa. This results in an optimal separation of the transmitted location codes on either side of the wall.
- Masking: this is a special mode of Dual/B2B, with the only difference that a location code is transmitted to only one side of the DLT unit while on the other side a special masking signal is transmitted.

Single DLT application

The main unit can also be used in a single antenna application consequently using a single location address. The LBB6071/00 main unit typically allows for a coverage range of 1.0-3.75m.

Dual DLT application (no overlap)

In this application both the LBB6071/00 DLT Main as well as the LBB6071/01 DLT Remote (connected to the Main unit) operate similar to an application of two single location transmitters. In this application overlap is not allowed. Both the Main as well as Remote units typically allow for a coverage range of 1.0-3.75m.

Dual/B2B or Masking mode DLT application

In this application both the LBB6071/00 DLT Main as well as the LBB6071/01 DLT Remote (connected to the Main unit) operate as one unit allowing determination of the location of a mobile on either side of the transition point/door as well as determination of the direction of movement.
In Masking mode only on one side of the transition point a mobile's location can be determined.
Typically the coverage range in these configurations is adjustable up to 10x the distance between the DLT Main and DLT Remote (e.g. wall thickness min. 15cm).

Loop antenna

Standardly the Main and Remote DLT units are equipped with built-in antennas. However, a dedicated Main unit LBB6071/02 is made available to allow for loop antennas only. To install loop antennas the optional Dual loop adapter LBB6071/52 is required in addition to this Main unit.

The Dual loop adapter comprises 2 individual loop adapters. The unit can be applied as supplied to accommodate up to 2 loop antenna's per Main unit. Alternatively the Dual adapter can be separated into 2 parts, each to accommodate a connection of one single loop antenna.

When loop adapters are applied, there is no need for a Remote unit. The dual functionality is in this case fulfilled by loop antenna's installed on either side of the door or transition point.
The ideal installation point for a loop adapter is close to the loop while the connection between adapter and main unit is done via a twisted wire. In this way the twisted connection wire is monitored for short-circuit and both twisted wire and the loop antenna for open-circuit as well.

Alternatively the loop adapter can be installed inside the Main unit. In this case the connection wire between loop antenna and main unit is monitored for open-circuit, but not for short-circuit.

Power Supply

The Dual Location Transmitter main unit is powered by 12 VDC 350mA (minimal) power supply (Ripple max. 150 mVtt). This can be the Atus LBB5934/01 (12 VDC 1,25A) or the Atus LBB5319/15 (12 VDC 500mA) power adapter or any other 12 VDC power unit of sufficient quality. This can also be a so-called encapsulated power supply to be installed behind the DLT Main unit in a flush-mounted box. Please note the EMC guide lines in this case.

Frame (wall) mounting

For high security applications or in situations where double flush-mounted boxes (mounted vertically) are used, the LBB6071/90 Frame can be used. This frame can be firmly attached to the wall, while the location transmitter cover is attached to the frame using safety bolts (supplied with frame).

External antennas with line guarding

The external (ferrite) antennas LBB6071/20 and LBB6071/25 are fully encapsulated and equipped with line guarding electronics. These antennas should be applied in conjunction with either a LBB6071/00 (instead of the LBB6071/01) or LBB6071/02 main unit and is intended for special installation types like inside vertical ¾" tubes fully concealed inside walls.
Typically the LBB6071/20 external antenna allows for a coverage range of 1.0-3.75m similar to the LBB6071/00 with internal antenna. The LBB6071/25 external antenna allows typically for a coverage range of 1.0-4.75m.

LED indications

The Main DLT unit is equipped with a LED indication. This LED lights green indicating that the unit is powered and working well.
The LED is also used for diagnostic purposes and error reporting (via different lighting patterns) or can be configured to be always off.

Self Monitoring

The DLT is equipped with self-monitoring functionality and reporting.
The following issues are monitored:

- Antenna line guarding fault
- Internal µP fault
- Bluetooth related fault

Reporting is possible in different ways:

- Via red LED (on or flashing)
- By transmitting a special location code; when picked up by a mobile and forwarded to the central, this is interpreted as a DLT failure. The received DLT address gives directions to the malfunctioning DLT
- By an on-board relay with normally closed contact a potential DLT failure is reported by contact switch

Programming/Configuration

The Atus Main Dual location Transmitter is configured via Bluetooth Low energy. Via a configuration tool is determined how the location transmitter should work. Various settings are possible like application type (dual or single), ferrite antenna, loop antenna, working range, etc.

Certifications and Approvals

CE marking	acc. to Telecom directive 1999/5/EC
Safety	acc. to IEC/EN 60950-1
EMC	acc. to ETSI EN 301 489-1
	acc. to ETSI EN 301 489-3
	acc. to ETSI EN 301 489-17
Telecom	acc. to ETSI EN 300 330-2
	acc. to ETSI EN 300 328
Bump and vibration	acc. to IEC 60068-2-6

Technical specifications

Mechanical

Dimensions (H x W x D)	164 x 118 x 27 mm
Weight approx.	250 g (DLT Main)
Color	light grey

Electrical

Power source	12 VDC
Current consumption	350 mA (max. transmission power)

Location transmission:

- Modulation: DP6000 code + checksum
- Carrier frequency: 55 kHz
- Propagation type: varying magnetic field
- Modulation type: differential biphase PSK
- Working range: Adjustable between typically 1.0 to 3.75m in a single or Dual DLT application (no field overlap allowed).
  In Back-to-Back/Masking mode adjustable up to typically 10x the distance between DLT Main and DLT Remote (e.g. wall thickness).
  Minimum distance 15 cm.

Connections

- Power connections (12 Vdc and Gnd)
- Backup power connections (12 Vdc and Gnd)
- (External) antenna 1 (driver A/location code 1)
- (External) antenna 2 (driver A/location code 1)
- (External) antenna 1 (driver B/location code 2)
- (External) antenna 2 (driver B/location code 2)
- Monitoring relay (common and normally closed)

Environment

Operating temperature	-20 °C to +55 °C
Relative humidity	≤95%

Ordering Information

Main Dual Location Transmitter wall mount LBB6071/00	8900 607 10001
Remote Dual Location Transmitter Wall mount LBB6071/01	8900 607 10101

Accessories

DLT Dual loop adapter (dual units) LBB6071/52 (4 pcs.)	8900 607 15201
DLT External antenna with line guarding LBB6071/20 (4 pcs.)	8900 607 12001
DLT External antenna with line guarding LBB6071/25 (4 pcs.)	8900 607 12501
DLT Frame (10 pcs.) LBB6071/90	8900 607 19001
DLT Software Configuration Tool (PC) LBB6071/70	8900 607 17001
DLT Handheld Configuration Tool LBB6071/75	8900 607 17501