

## User's guide MR703 models A, B and D

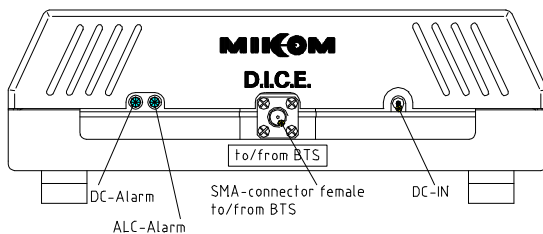
### Installation and setting to work

The electrical installation has to be performed in accordance with the safety regulations of the local authorities. Due to safety reasons the electrical installation must be performed by qualified personnel only. The Repeater must not be opened !

### Mechanical installation

The mechanical installation has to be done according to the attached wall mounting sheet. Mount the Unit horizontally only. Otherwise the radiation pattern of the internal antenna is not optimised.

### Configuration of the LEDs and connectors



First of all the difference between the models A, B and D is given. The difference between models A and B is simply the different gain whereas model D provides an additional duplexer for the connection of an antenna to/from the mobiles. That means that the model D has got an additional RF port at the opposite side to the RF port to/from the BTS. A block diagram of both models (A,B and D) is given on the next page.

The following explanation is made with respect to the figure shown above. The RF connector (SMA female) is situated in the middle of the Repeater. This port has to be connected to the RF cable of the antenna to/from the BTS.

The socket for the DC supply is situated to the right of the RF connector. Power supply voltage is 6.7 Vdc, current is 1.2 A typ.

You have two possibilities to provide the MR703 with power.

The first one is to use an external power supply and connect it to the DC socket of the Repeater and the other one is to bias the MR703 via the cable to the RF port to/from BTS. If you use an external power supply use only the power supply that was shipped with the unit. If you want to bias the MR703 make sure that the correct voltage is fed into the MR703. Furthermore the DC socket of the MR703 must not be connected if the bias via RF cable is carried out.

The indication of the LEDs is as follows: The LED on the left hand side (DC alarm) can show green light or red light. A green LED indicates the normal operation of the Repeater. It shows that power is present and that the current consumption of the Unit is correct. A red indication of this LED means that the current consumption of the Repeater is not within a defined window and that the Repeater thus might not work properly. If the LED is switched off the MR703 doesn't get DC power at all.

The LED next to this LED is the ALC/APAC alarm LED. If this LED is on it indicates that the input power into the Repeater is too high, so that the output power of the Repeater has to be limited. This can be either the UL ALC or APAC or the DL ALC! This limitation ensures that the final stage is not overdriven and that intermodulations are kept below the CEPT limits (- 30 dBm).

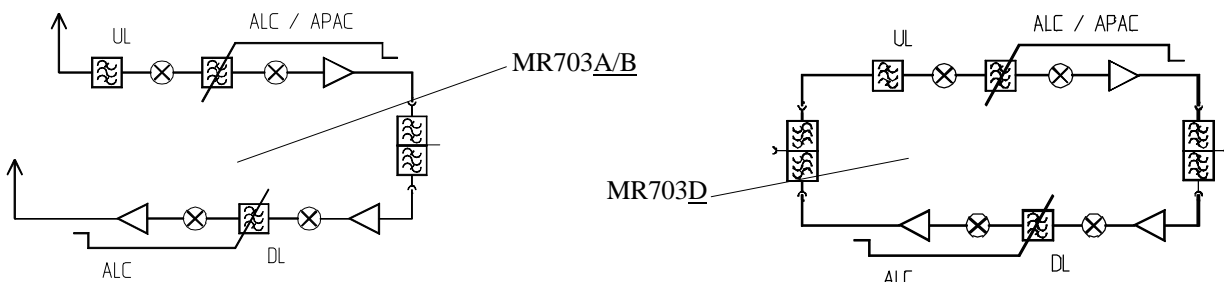
The RF port that is only implemented in the model D has to be connected to the external antenna that establishes the communication with the mobile phones.

### Electrical specification

The electrical specification can be found on a separate sheet on which the values of the final measurements are noted.

## Functional Description

The MR703 is a Repeater operating in the PCS1900 frequency range. The operation principle is given with regard to the following block diagrams.



Downlink signals reach the duplexer. The duplexer is the frequency separation unit that splits and recombines uplink (UL) and downlink (DL).

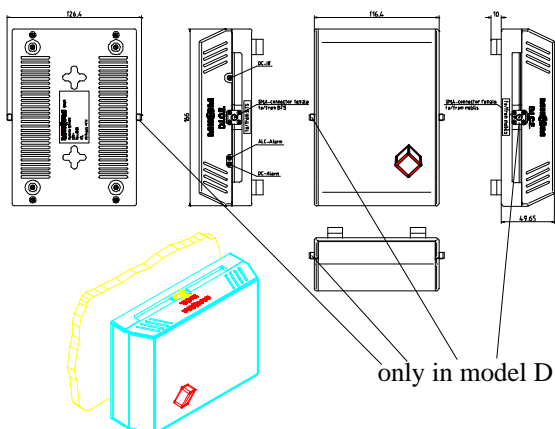
After the duplexer the signals get to a pre-amplifier and afterwards to a mixer. The mixer converts the signals down to an intermediate frequency (IF). An IF filter provides the selectivity of the Repeater. After the IF filter the signals are reconverted to the original frequency again by means of another mixer. A final amplifier amplifies the signal again and provides the required output power.

After the final amplifier a power detection measures the output power and controls the gain. This is called automatic gain control (ALC) and keeps intermodulations below - 30 dBm. Finally, the signals are fed to the built-in antenna of the Repeater (MR703A/B) or the duplexer and thus to the external antenna (MR703D).

The uplink signals are received by the integrated antenna of the Repeater (MR703A/B) or the external antenna and then to the duplexer (MR703D). After the antenna or duplexer a preselection of the frequency is made. After that the signals are converted down to IF by means of a mixer and an IF filter provides the selectivity against other frequencies. After the reversion the signals are amplified in an amplifier that provides the output power. The signals are then fed to the antenna via the duplexer.

In this link an ALC and an automatic power adjust circuit (APAC) is provided. APAC limits the output power if two carriers are present at the UL input. This again keeps intermodulations below the desired limit.

## Cabinet drawing



## Mechanical

Dimensions:

(W x H x D) approx. 166 x 120 x 60 mm

Weight:

approx. 550 g

## Environmental and safety

The specifications for environmental and safety are according to ETS 300 019 (European Telecommunication Standard). For further details please ask your supplier for a leaflet.

All data is subject to change without notice !