

After Sales Technical Documentation NHE-5 Series Transceiver

Chapter 3

TRANSCEIVER OVERVIEW

CHAPTER 2 – TRANSCEIVER OVERVIEW

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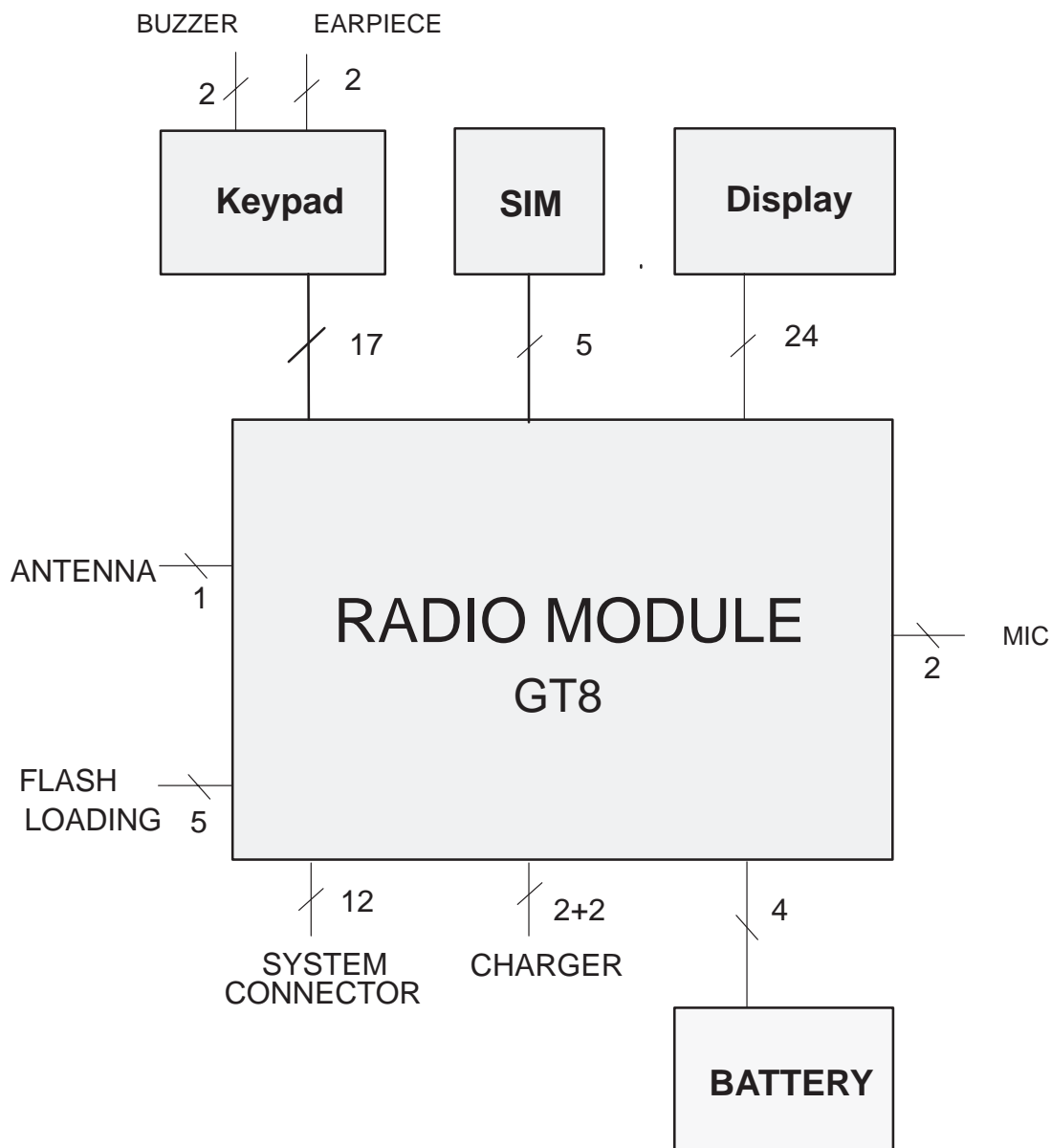
Introduction

The NHE-5 is a radio transceiver unit for the pan-European GSM network. It is a GSM phase 1 power class 4 transceiver providing 11 power levels with a maximum output power of 2 W.

The transceiver consists of a Radio module (GT8) and assembly parts

The full-size SIM (Subscriber Identity Module) card is located inside the phone.

Block Diagram of External Connections



Modes of Operation

There are five different operation modes

- power off mode
- idle mode
- active mode
- charge mode
- local mode

In the power off mode only the circuits needed for power up are supplied.

In the idle mode circuits are in reset, powered down and clocks are stopped as long as possible.

In the active mode all the circuits are supplied with power although some parts might be in the idle state part of the time.

The charge mode is in parallel of all previous modes. The charge mode itself consists of three different state: fast charge, discharge and trickle.

The local mode is used for alignment and testing.

Circuit Description

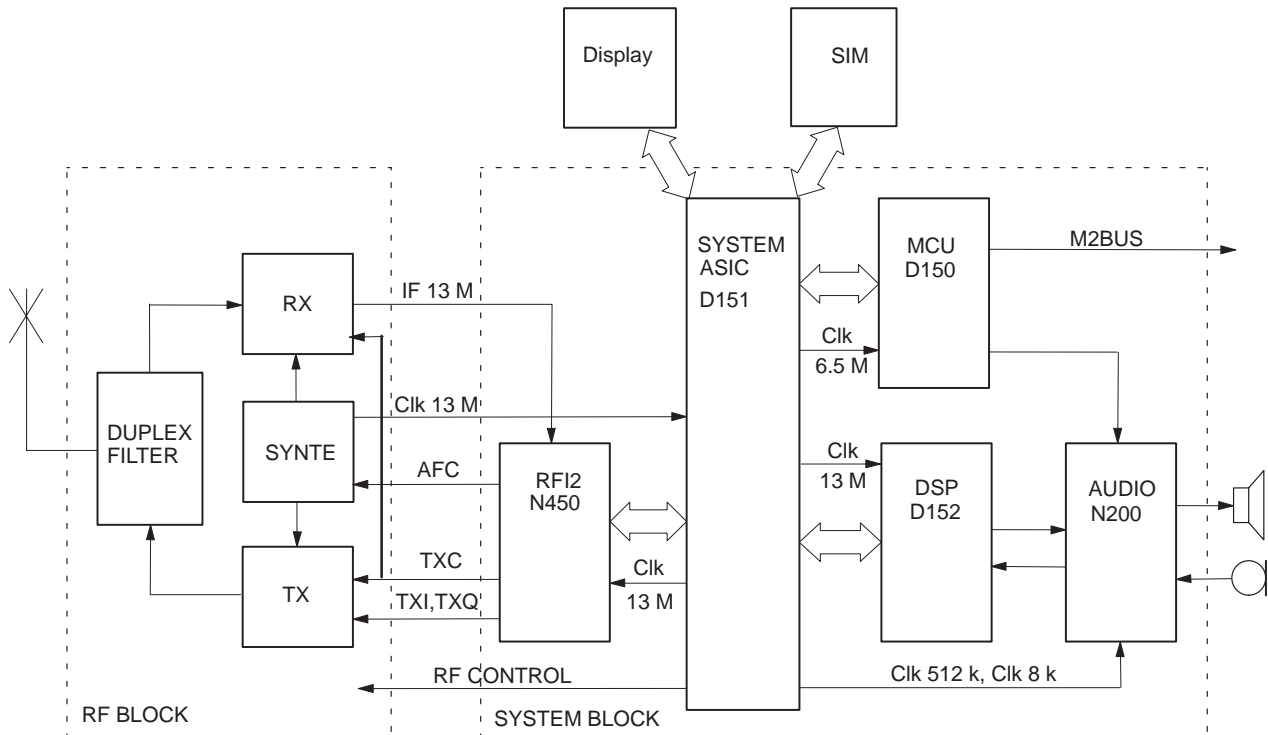
The transceiver electronics consist of the Radio Module (RF + System blocks), the UI PCB, the display module and audio components. The keypad and the display module are connected to the Radio Module with a connectors. System blocks and RF blocks are interconnected with PCB wiring. The Transceiver is connected to accessories via a bottom system connector with charging and accessory control.

The System blocks provide the MCU and DSP environments, Logic control IC, memories, audio processing and RF control hardware (RFI2). On board power supply circuitry (PSCLD) delivers operating voltages for both System and RF blocks.

The general purpose microcontroller, Hitachi H8, communicates with the DSP, memories and Logic control IC with an 8-bit data bus.

The RF block is designed for a handportable phone which operates in the GSM system. The purpose of the RF block is to receive and demodulate the radio frequency signal from the base station and to transmit a modulated RF signal to the base station.

Block Diagram



Power Distribution Diagrams

The power supply is based on the ASIC circuit PSCLD. The chip consists of regulators and control circuits providing functions like power up, reset and watchdog functions. External buffering is required to provide more current.

The MCU and the PSCLD circuits control charging together, detection being carried out by the PSCLD and higher level intelligent control by the MCU. The MCU measures battery and charger voltages as well as the temperature and size of the battery via DSP by means of RF12 internal ADC to sense the condition of the battery.

The detailed power distribution diagrams are given in Baseband blocks and RF blocks documents.

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