

# DATA SHEET

**HT OT840**

**HITAG<sup>TM</sup> Antenna Tuning Device**

Product Specification  
Revision 1.1

November 1996



**PHILIPS**

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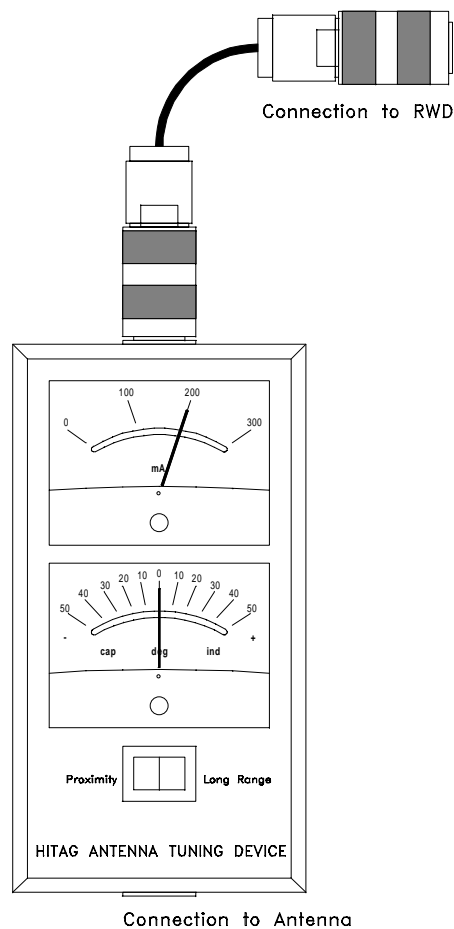
## 1. General Remarks

For optimal performance HITAG antennas have to be tuned during production, respectively by start-up or, for service purposes, during operation. The HITAG Antenna Tuning Device is a very easy to handle and cost effective solution for the tuning of 125 kHz HITAG antennas. The device is - besides the HITAG antenna training - the optimal complement for antenna design. The HT OT840 therefore is an unrenouncable tool for everybody who designs, produces or even uses HITAG antennas.

The HITAG Antenna Tuning Device can be used for tuning HITAG long range as well as HITAG proximity antennas.

## 2. Specifications

- temperature range: 0 .. 50°C
- protection class: IP40
- precision at room temperature: measuring current: class 5  
measuring phase: class 10
- phase sensitivity:  $\pm 50$  parts of scale are  $\pm 50^\circ$  (for rough tuning of an antenna with  $L \approx 1$  mH and  $Q \approx 40$ .)
- connection: three-pole DIN - connectors



### 3. Ordering Information

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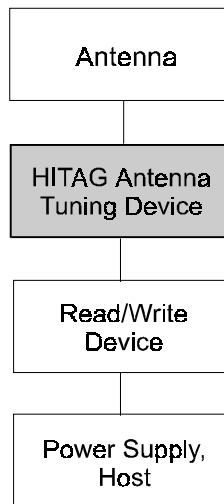
Type Name	Description	Ordering Number
HT OT840	HITAG Antenna Tuning Device	9352 341 60122

## 4. Using the HITAG Antenna Tuning Device

The HITAG Antenna Tuning Device is a combined current- and phase measurement device. It can be used for tuning HITAG long range as well as HITAG proximity antennas. Selection between long range and proximity is done with the help of a switch.

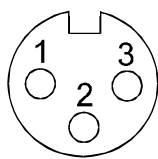
The tuning device is connected between antenna and read/write device as described in the following:

The cable with plug (DIN 41524) has to be connected to the read/write device, the antenna cable is to be connected to the jack (DIN 41524) of the tuning device.



Adapters - if they are necessary - e.g. for connection of a proximity system, can be built up very easily.

Pin assignment of the DIN connectors:



Pin 1: Ground

Pin 2: Rx (not used for long range antennas)

Pin 3: Tx

Moreover, the cable with one of the two DIN connectors (plugs) can be used to build up an adapter.

After connection of the Antenna Tuning Device the operation mode (proximity or long range) has to be chosen with the help of the switch.

Afterwards power supply and read/write device can be switched on.

## 4.1. Tuning HITAG Long Range Antennas

The device has to be switched to long range mode.

The current should be about 200 mA, a tolerance of  $\pm 10$  mA is acceptable.

A current below the tolerance limit implies, that the antenna is badly detuned.

If the current is over the upper tolerance limit you should check the output current of the read/write device. It should be  $200 \text{ mA} \pm 10 \text{ mA}$ . Otherwise the function of the read/write device should be checked.

For tuning of the antenna refer to the measured phase. The phase should be  $0^\circ \pm 15^\circ$  (at a current of 200 mA).

- **If the phase is too high (direction: inductive) the tuning capacity has to be decreased.**
- **If the phase is too low (direction: capacitive) the tuning capacity has to be increased.**

After tuning of the antenna the tuning device should be removed.

## 4.2. Tuning HITAG Proximity Antennas

The device has to be switched to proximity mode (changing the sensitivity).

For tuning of the antenna refer to the measured phase. The phase should be  $0^\circ \pm 10^\circ$ .

- **If the phase is too high (direction: inductive) the tuning capacity has to be decreased.**
- **If the phase is too low (direction: capacitive) the tuning capacity has to be increased.**

**For HITAG proximity systems the current reaches its maximum when the antenna is tuned exactly. An approximate value for the current is:  
60 to 70 mA  $\pm 10$  mA.**

## Definitions

<b>Data sheet status</b>	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
<b>Limiting values</b>	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics section of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

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