

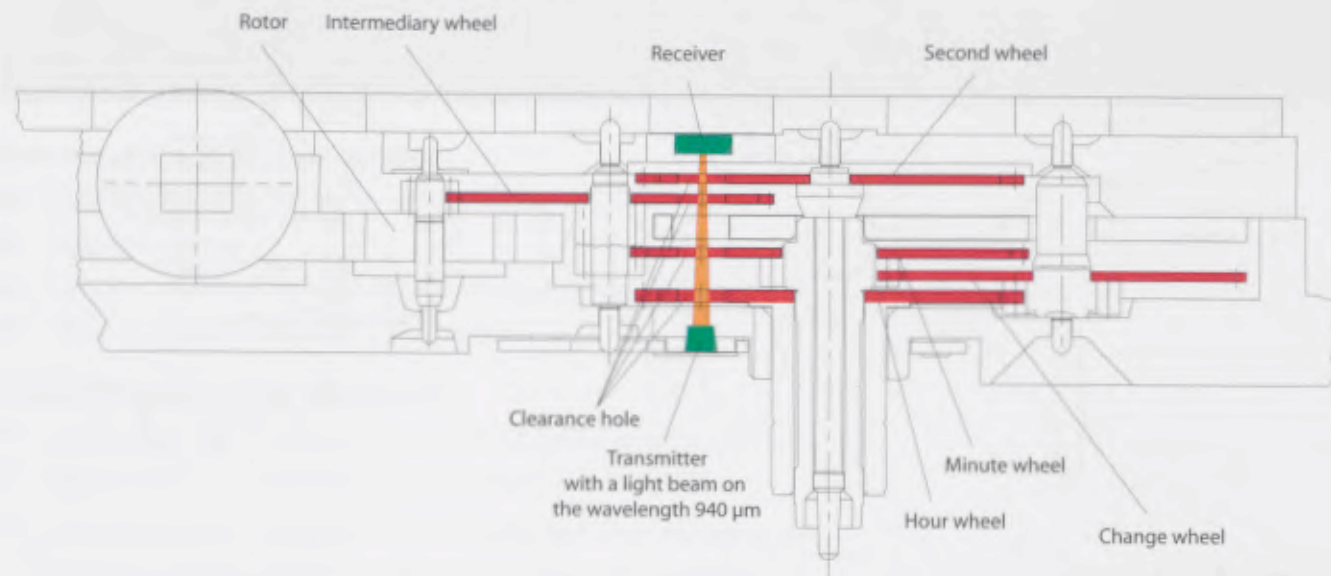
Light barrier technology for maximum precision

External mechanical forces can adjust the hands unintentionally. This visual time deviation is corrected automatically via the patented light barrier technology. In combination with the transmitter diode and the receiver the hand positions are compared to the time stored in the processor and corrected where necessary.

The second hand is monitored 1,440 times per day for deviations. The hour and minute hands are checked twice daily for the correct hand position, when passing 12.00 and 0.00.

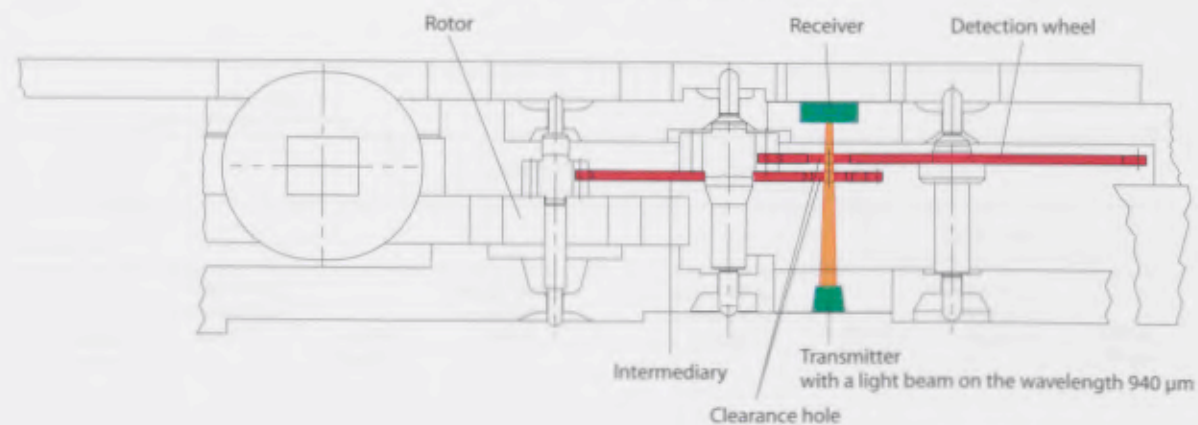
Light barrier control of the minute and hour hand position

following successful seconds detection

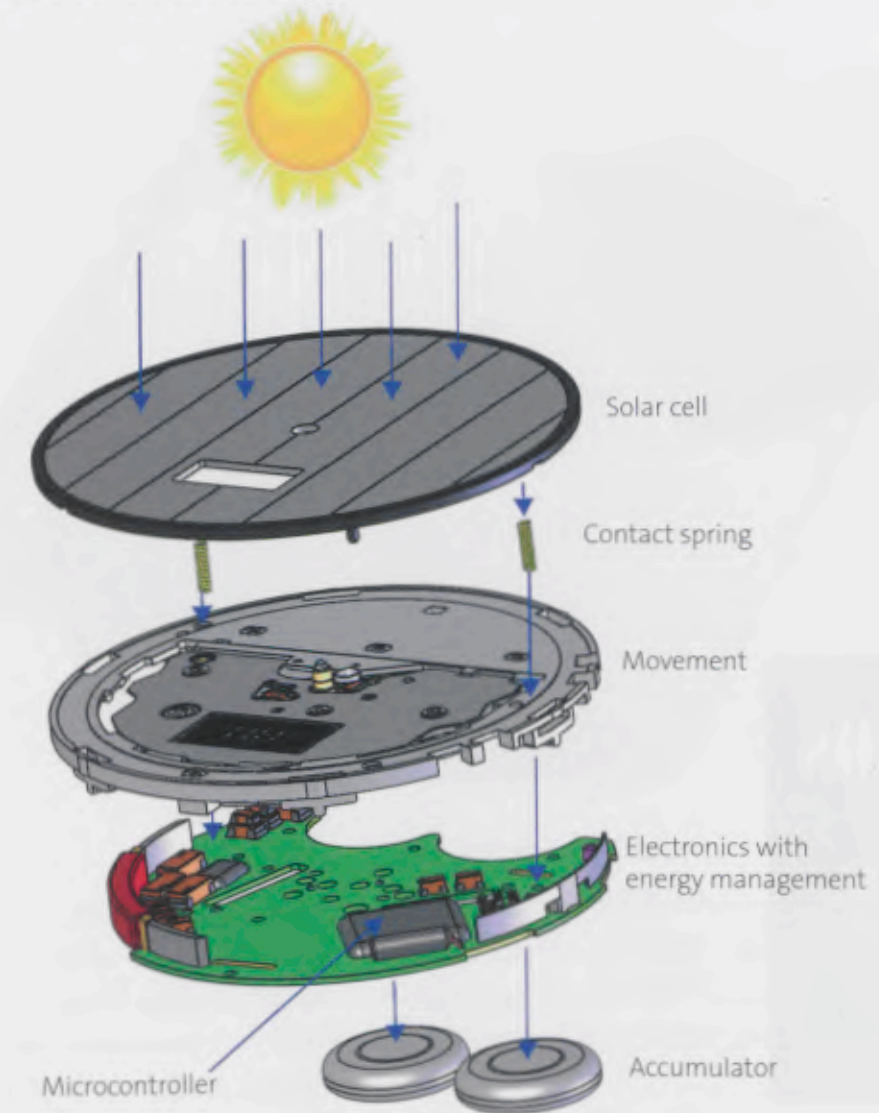


Light barrier control of second hand position

via additional detection wheel



9. Junghans solar technology



- * Light (sunlight or artificial light) meets the 0.5 mm glass solar cell, where it is converted into electrical energy.
- * In order to achieve the required voltage (open circuit voltage = 3.6 V) 6 panels are switched in series (therefore the lines on the solar cell)
- * The current reaches the electronics via the contact springs (to the microcontroller)
- * The microcontroller also includes a charge regulator and passes on energy to the accumulator until it is full. The microcontroller regulates the flow of energy to avoid damaging the accumulator.
- * If the accumulator is nearly empty, the microcontroller prevents further release of energy to avoid damage (deep discharge) to the accumulator.
- * The accumulator is state of the art for this purpose – CTL (cobalt titanium lithium)
- * The theoretical power reserve totals 6 months, however, after 72 hours of darkness the watch switches to a 'sleep mode'. The hands no longer move, although the microcontroller continues to keep time in the background. In this mode the power reserve amounts to up to 21 months.