

JUNGHANS – THE GERMAN WATCH

Many congratulations on your purchase of a timepiece from Junghans.

What began in 1861 with the founding of the firm in Schramberg quickly developed into one of the most fascinating success stories of the German watchmaking industry. While since that time the demands made of watches may have changed, the Junghans philosophy has always remained the same. Innovative flair and the constant pursuit of precision right down to the smallest detail define how the company works and thinks. You can see and sense this in every watch that carries the Junghans name. For as diverse as the Junghans range may be, it pursues one single goal: to combine traditional craftsmanship with cutting-edge watch technology and exciting design. That makes every watch with the Junghans star unique.

We hope you will get great pleasure from this very special time-keeping instrument.

Yours,
Uhrenfabrik Junghans GmbH & Co. KG

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1. Radio technology – The most up-to-date way to keep time

5,000 years have passed since timekeeping began with sundials. In the interim there have been water clocks, the mechanical clocks of the 13th century and quartz watches. Now we have the radio-controlled watch. A watch that in good reception conditions never goes wrong and never has to be set. The Junghans radio-controlled watch is absolutely precise, as it is linked by radio frequency to the time control systems of the most accurate clocks in the world. For Europe this is the Caesium Time Base at the Physikalisch-Technischen Bundesanstalt in Braunschweig (Germany's Institute of Natural and Engineering Sciences). For North America it is the U.S. Commerce Department's Caesium Time Base at the National Institute of Standards and Technology (NIST) in Boulder, Colorado. For Japan the Ministry of Post and Telecommunication's Caesium Time Base at the Commercial Research Laboratory (CRL). All of these clocks are so accurate, that they are expected to deviate by no more than 1 second in a million years.

1.1. Usable time signal transmitters

Your Junghans multi-frequency radio-controlled watch is capable of automatic reception of time signals from the following transmitters:

- DCF77 in Mainflingen (Frankfurt am Main) for **Europe**
- WWVB in Fort Collins, Colorado (USA) for **North America**
- JJY40 on Mount Otakadoya (near Tokyo in the North East of the country) for **Japan**
- JJY60 on Mount Hagane (in the South West of Japan) for **Japan**, the **East Coast of China** (Shanghai), **South Korea** and parts of **Taiwan**



With good reception, the Junghans multi-frequency radio-controlled watch thus always shows the perfectly correct time within any of these four transmission areas. The watch automatically synchronises itself overnight with the DCF77, WWVB, JJY40 and JJY60 time signal transmitters. If reception fails due to interference (e.g. stormy weather, electrical appliances or dimmer switches), the Junghans multi-frequency radio-controlled watch will launch renewed attempts to pick up the signal fully automatically the following night. It is also possible to use a 'transmitter call' to synchronise the time manually, for example at a location where reception conditions are better. The latest time information received is stored in a time memory. This original time continues to be kept using a high-precision 32kHz quartz movement until the time is synchronised again. The radio-controlled time synchronisation of your Junghans multi-frequency watch not only ensures an always precise display of the time, but – given good reception – also takes care of switching from winter to summer time, and vice versa, fully automatically (at night). Please note that this does not apply to the USA's WWVB time signal transmitter (see section 3 – Automatic time synchronisation). If you travel to a country in a different time zone, the time adjustment facility on your Junghans multi-frequency radio-controlled watch makes it easy to switch to the appropriate local time.

2. Readiness for use

So that your watch is always ready for use, you should make sure that it does not run low on power. The watch regularly checks to see if it has sufficient battery power. If it no longer has enough (e.g. the battery has run out or the ambient temperature is too low, which impairs battery performance), the second hand stops at the 12 o'clock position. Whatever display is set at that time on the LCD also then flashes, alternating with the letters [L0]. In this event, the seconds may also be shown on the LCD display. If the battery does not recover (e.g. through an increase in the ambient temperature), you should take the watch as soon as possible to your authorised specialist to have the battery changed, or send it to the Junghans Service Centre to have this done.

Battery type: CR 1620

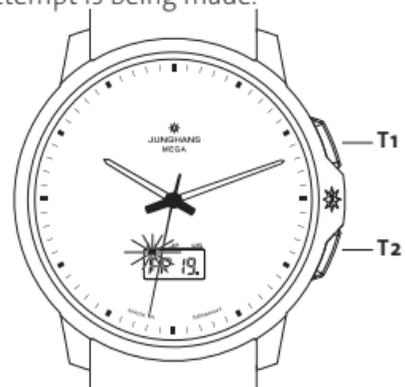
Typical life: Approx. 2 years

Please note that manual time synchronisation is not possible when battery power is low. Too much power would be needed.

Please ensure that the battery is disposed of properly in accordance with statutory regulations.

3. Automatic time synchronisation

The daily, fully automatic time synchronisation takes place at night. While the watch is receiving the signal, the second hand temporarily stops in the 3 o'clock position. During reception, the flashing bar in the LCD display shows that the reception attempt is being made.



For the USA's WWVB time signal transmitter the following specific feature applies:

After a successful transmitter call or battery change (restart), your Junghans multi-frequency radio-controlled watch always reads in Pacific Standard Time. Due to the non-uniform changeover from summer to winter time and the differing time zones in the individual US states, you are given the opportunity to adjust winter time, summer time and time zone settings (see 6.5) manually. If, due to where you are, the time zone or summer / winter time that you have set differs from PST, it is nevertheless retained during any subsequent transmitter call or automatic synchronisation.

Following successful automatic synchronisation, the transmitter from which the signal was picked up is permanently displayed. Thus if no signal was picked up, no transmitter is displayed.

The date is always advanced automatically by the time signal. This process also takes the 29th of February into account in leap years.

If all of the attempts at picking up a signal lead to no clear synchronisation, the reception display is switched off (see also description of the 'Reception Display' in section 6.3). On any such days without synchronisation, your watch continues to run with the accuracy of a quartz timepiece, using the internal time memory. As soon as the signal is picked up again successfully, your watch is synchronised and the reception display is switched back on.

Recommendation: To ensure the best possible conditions for overnight reception of the synchronisation signal, the watch should not be worn and, if possible, not left near to any electrical appliances, mobile or cordless phones.

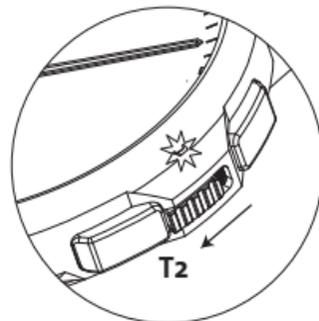
Important note:

When travelling into a different reception area (e.g. going from Germany to Japan) no automatic time or thus transmitter synchronisation occurs until the watch's next attempt to pick up a signal. If the watch fails to pick up any transmitter signal, please perform a manual transmitter call (see section 6.4 on manual synchronisation).

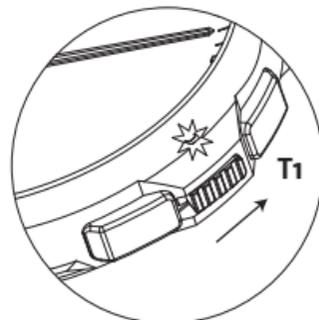
4. Functions

Please note: Depending on the model, your Junghans radio-controlled watch is equipped with buttons or recessed correctors. Please use a suitable pointed object to operate the recessed correctors.

Pusher lock (depending on model)



Depending on the model of your Junghans radio-controlled watch you can block the T2 button. To do this, move the safety lever between T1 and T2 downwards (in direction of T2) until it engages and the red marking becomes visible.



To restore all T2 functions, move the safety lever upwards (in direction of T1).

LCD display: Day, date, transmitter display, 2nd time, stopwatch function, language for day of week, power control display (if power is too low the second hand positions itself in the 12 o'clock position and the LCD display flashes, alternating between the then current display and 'Lo'). The seconds may also be shown on the LCD display).



- T1 button
Accessing the
- Day and date display adjustment
 - Transmitter call
 - 2nd time
 - Stopwatch function (resetting the stopwatch hand to 0 and exiting the function)
 - Weekday language

- T2 button
Setting the
- Time zone
 - 2nd time
 - Weekday language
 - Stopwatch function's start/stop

5. Selectable LCD displays

LCD display:

Date – Stopwatch function – 2nd time

Briefly press button T1 once:

Display switches from date to stopwatch function.

Briefly press button T1 once again:

Display switches from the stopwatch function to 2nd time.

Hold down button T1 for > 3 seconds until what is shown in the LCD display switches to [00]. Then briefly press the T2 button once. The language setting display now appears.

After 9 seconds, the language display reverts automatically to showing the date.

If power is low, the LCD display shows the seconds (flashing in alternation with [Lo]). The second hand stops at the 12 o'clock position. By pressing T1, however, you can still switch to date or 2nd time.

6. Description of watch functions and how to use them

6.1 Addition timer function

Press the T1 button repeatedly until you reach the [00:00] display. The stopwatch function is started and paused again by pressing the T2 button. The stopwatch hand can be paused and started again any number of times. The split times are added together. While the stopwatch function is active the leading [C] flashes.

Pressing the T1 button resets the counter to [00:00]. Please note: The reset function can only be operated if the stopwatch function has first been paused.

6.2 2nd time

The 2nd time function gives you the option, independent of the analogue time, to have another time shown on the LCD display (e.g. if you are on holiday in another time zone and want to see the time at home).

Press the T1 button repeatedly until the 2nd time is digitally displayed on the LCD. The 2nd time can be set in 30-minute steps using the T2 button.

To do this, with the 2nd time displayed on the LCD, press the T2 button. The 2nd time starts to flash. Each press of the T2 button then lets you advance the 2nd time by 30 minutes. If you hold down the T2 button, you can set the 2nd time in fast forward mode.

6.3 Reception display

The reception display shows you whether the watch has synchronised itself with the signal from any of the four transmitters. This is shown by the position of the bar in the LCD display. There are four possible displays:

DCF 77 (Europe)

WWVB (USA)

JJY 40 (Japan)

JJY 60 (Japan)

If the reception display is shown on the LCD, the watch has picked up the signal properly during the overnight automatic synchronisation. If all of the reception times on the LCD display are switched off, this means that due to

poor reception conditions the watch was not able to synchronise automatically. The next time that a signal is successfully picked up from one of the 4 transmitters, the reception display will be shown again.

6.4 Manual time synchronisation (transmitter calls)

Your Junghans multi-frequency radio-controlled watch can also be synchronised manually, by performing what is called a 'transmitter call'.

You do this by pressing the T1 button for over 3 seconds. The second hand starts to move and positions itself at 12 o'clock. In parallel with this, the hour and minute hands continue to show the current time. The reception phase then starts. The reception display flashes on the LCD for the transmitter with which synchronisation last took place and, instead of the date, the seconds [00] are now digitally displayed. Please hold the watch still or put it down while the signal is being received.

If synchronisation with the transmitter is not possible, all of the other transmitters are then checked for possible reception of any of their signals. As soon as a signal has been picked up, the digital seconds on the LCD display start to advance. When the watch has picked up the signal, the hands automatically set themselves to the transmitter's local time and the second hand advances to the current second. On the LCD the date is shown and the transmitter that was successfully received is represented by the corresponding reception display.

Should you be in a time zone different from that of the transmitter that the watch picked up, then after one-off synchronisation you will need to set the applicable local time for that location using the time zone setting function.

The time zones displayed when picking up the signal from the respective transmitters are as follows:

Transmitter	Time zone displayed
DCF77 (Europe)	CET or CEST
WWVB (North America)	Pacific Standard Time
JJY40	Japanese local time
JJY60	Japanese local time

If you wish, you can interrupt the manual synchronisation process as soon as the second hand is in the 12 o'clock position.

To do so, briefly press the T1 button. The second hand then returns to the original time.

Please note that manual synchronisation is not possible if battery power is too low and the [Lo] symbol is showing on the LCD display.

6.5 Setting the time zone

The Junghans multi-frequency radio-controlled watch can pick up the signals from the DCF77, WWVB, JJY40 and JJY60 transmitters. Within the transmitter coverage areas your watch will thus reliably display summer or winter time respectively (except for WWVB, see section 3 – Automatic time synchronisation). If you travel to a country in another time zone, you can have the local time there displayed as a 2nd time on the LCD display (for how to set this, see section 2 – 2nd time) and/or adjust the analogue time shown to the current local time.

You do this by pressing the T1 button, if necessary repeatedly, until the date is shown on the LCD display. You then press the T2 button. The hour is now also shown digitally on the LCD display (e.g.: [12] for 12 noon). You adjust the time zone, and thus also the hands, to the time in the zone in question by pressing the T2 button again. You can use the digital hour display to help you set the correct time. Repeatedly pressing the T2 button enables you to set the hour in fast forward mode. You can set all time zones using the T2 button. As you do so, the date, if necessary, is also automatically adjusted.

If you want to set the 1st time, and thus the analogue time display, back again to the original time, then please do so by following the same procedure.

6.6 Set language (day of the week display)

Your Junghans multi-frequency radio-controlled watch is shipped with the language for the day of the week display set to German.

To change the day of week display to a different language, press the T1 button for over 3 seconds / until [00] is shown on the LCD display. If you then briefly press the T2 button, [DE] for German is displayed. By pressing briefly the T2 button again, you can change the date display to English. [EN] for English will now be showing on the LCD display.

In order to switch back and forth between the two languages, simply use the T2 button.

You quit this menu by pressing the T1 button or automatically if you use none of the buttons for 9 seconds.

7. Re-starting after changing battery

Following a change of battery, your watch will automatically begin a restart routine. After you insert the battery, the hands will move to the 12 o'clock position and your watch will start trying to pick up the time signal. As it does so, the reception symbol of the transmitter it is currently trying to pick up flashes. As soon as a signal is being received, the seconds on the LCD display start to advance. After a few minutes, if the reception process has been successful, the watch automatically sets itself to the correct transmitter time.

- On successful reception of the DCF77 transmitter, German local time is shown, the reception display for the DCF77 is activated on the LCD and the date is displayed with the day of the week in German.

- On successful reception of the WWVB transmitter, the Pacific time zone is shown, the reception display for the WWVB is activated on the LCD and the date is displayed with the day of the week in English.
- On successful reception of the JY40 or JY60 transmitter, Japanese local time is shown, the reception display for the JY40 or JY60 is activated on the LCD and the date is displayed with the day of the week in English.

If the watch goes 30 minutes without picking up a signal, the reception process is aborted in order to save power. The hands remain in the 12 o'clock position and 2 flashing dashes [--] are shown on the LCD display.

If you nevertheless want to use your watch, you are able to set the current time manually. It then runs like a quartz watch. The procedure is described in the next section, 7.1 – Manual start.

7.1 Manual start

After an unsuccessful restart (at least 30 minutes with no reception from any transmitter), you can trigger the manual start routine. This can also be done during the restart process.

After the hands have reached the 12 o'clock position in the restart routine, please press button T1. The watch is now in manual start mode.

Manual start mode is indicated by the year, e.g. 2007 [2007], being displayed.

Each press of the T2 button moves the display forward a year. Holding down the T2 button adjusts the year in fast forward mode. Once you have got to the current year, this needs to be confirmed by briefly pressing the T1 button.

What is shown on the LCD display switches to the month setting, e.g. [M 01]. You again perform the setting via the T2 button. The month you want must then again be confirmed by briefly pressing the T1 button.

Perform the following settings using the procedure described above:

- Set the date - what is shown on the LCD display switches to [0 01]
- Set the hour - what is shown on the LCD display switches to [00:]
- Set the minute - what is shown on the LCD display switches to [:00]

In order to get the seconds displayed correctly, please ensure that you always set the watch to the next full minute and confirm the time at the 60th second.

After you have set the minute and confirmed this by pressing button T1, the hands of your radio-controlled watch then move to the time that you set. The date is shown on the LCD display. A 2nd time can be set as normal.

If necessary, the programmed time can be corrected by holding down button T2 for longer than 3 seconds.

Your watch is now in quartz mode and will not make any automatic attempts to pick up a time signal. You can make a manual transmitter call, however, at any time.

If you make a transmitter call while in quartz mode, then in addition to the current seconds an [M] is displayed on the left. This indicates that the transmitter call is being launched in quartz mode.

A successful transmitter call overwrites the manually set time and afterwards your watch works as a radio-controlled watch.

8. General information

External influences can affect the watch's waterproof qualities, which may let in moisture. We therefore recommend that you have your watch regularly inspected by your Junghans specialist. Other servicing tasks or wrist strap repairs should also be done by your Junghans specialist. Your watch is fitted with a quality wrist strap that has undergone multiple inspections in our factory. If, however, you decide to change the strap, please fit a new one of the same quality, preferably an original Junghans wrist strap. Watch and wrist strap can be cleaned with a dry or slightly moistened cloth.

NB: Do not use chemical cleaners (e.g. benzine or paint thinners). These may harm the surface.

Impermeability

Marking	Instructions for use				
	 Washing, rain, splashes	 Shower	 Bath	 Swimming	 Diving without equipment
No mark	No	No	No	No	No
3 ATM	Yes	No	No	No	No
5 ATM	Yes	No	Yes	No	No
10 ATM	Yes	Yes	Yes	Yes	No

The designation "3–10 ATM" only applies to brand new watches. External influences can affect water resistance. Please have your watch checked regularly.

Declaration of Conformity

Uhrenfabrik Junghans GmbH & Co. KG herewith declares that this radio-controlled product conforms to the principle requirements and other relevant stipulations of Directive 1999/5/EC.

A corresponding declaration of conformity can be requested from info@junghans.de.

9. Technical information

Time taken to self-set with good reception	c. 3 -10 minutes
Time zone adjustment range (UTC)	+ /-12 hours
Switching from CET to CEST and vice versa	Automatic
Time comparison with the DCF77 time signal transmitter	2 a.m. and 3 a.m.
Synchronisation with the time signal transmitters JJY40, JJY60, WWVB	c. 2 a.m.
Operating temperature	0° to + 50° C

No licence fee. Approved by the German Post Office. Subject to technical modifications.