



TIM 2015 Speaking Clock

You must read this first!

TIM 2015 is part-funded by the Telecommunications Heritage Group (THG) and designed by



Our thanks to you — and your guarantee

Thank you for investing in this unique product, which we hope will provide years of satisfaction and good service. It is guaranteed for 12 months and should last many more years. We hope you will be delighted with it but if for any reason you are not happy with either the product or the service please get in contact and we will be happy to investigate.

We have total confidence in TIM 2015, so feel free to get in touch if you encounter any problems. We prefer to receive enquiries by e-mail; send your messages to andrew.emmerson@btinternet.com and they will be answered as soon as humanly possible (but please bear in mind this is a spare-time activity).

First things first

Even if you don't normally read instructions, please read the User Manual supplied as a PDF document on the data disc included with TIM 2015. If you need another copy, just send an e-mail to andrew.emmerson@btinternet.com. The sheer number of clever features built into this product will take a little bit of figuring out, meaning that you may remain unaware of all of its functions unless you read the User Manual.

Trivial point: the 'window' of the liquid crystal display (LCD) is protected by some clear plastic film. You will probably want to remove this. A sample 'spectacles wipe' is included; these are great for keeping the display clean and you can buy boxes of these at pound shops and most supermarkets.

How to get the best from TIM 2015

In order to make TIM 2015 as compact as possible, the loudspeaker used for monitoring the audio output is remarkably small. That's how we manage to squeeze it behind the front panel of the unit. Inevitably loudspeakers as small as this cannot handle high audio volume and are rated at 0.5 watts maximum. On the other hand the amplifier chip inside TIM 2015 is capable of driving much larger loudspeakers, with up to 3 watts of power. Delivering three watts of audio into a half-watt loudspeaker will result in rapid and painful death (of the loudspeaker, not of you).

When you switch on the monitor speaker (right-hand control knob), please advance the control only as far as necessary. **Please resist the temptation to 'turn up the wick' and see how loud you can make the sound.** Yes, you can make it shout but this will rapidly destroy the loudspeaker, causing the internal fuse to blow and protect the rest of the circuitry. Loudspeakers destroyed in

this way can be replaced but at the user's expense. Another thing: please avoid straining the connecting cables. Never withdraw a cable by pulling the cable; please use the connectors instead. Thanks for your understanding. We wish you and your TIM 2015 a long and happy life!

Problem solving

We hope you will not encounter any problems but if you do, here are some pointers...

Weak audio

The volume control on the front panel (right-hand knob) adjusts only the loudness of the monitor speaker. There is also a 'master' volume control that you can operate by pressing the left-hand knob and entering the Settings menu. Scroll through until the arrow points to Voice Volume and press the knob again. You can now alter the volume by rotating the knob; this displays the volume from 1 to 30 and also lets you hear what the new volume is. Finally press the knob once more to store the new setting.

No audio at all

The most likely cause is misalignment of the micro SD card that carries the sound files. Unpower TIM 2015 temporarily and eject the sound card by pushing it in gently, after which it will pop out. The circular label should be on the *upper* side and the gold-plated contacts on the *lower* side. The end with the gold contacts goes in first. Even if the card was positioned correctly, you may find that ejecting and replacing it cures the problem. This happened with clock no. 24, for no apparent reason, but ejecting and replacing the card put paid to the issue. Then re-apply power to check the result.

If this doesn't solve your problem an internal fault may exist. Please contact us for help.

Failure to synchronise to a radio timecode transmitter (MSF, DCF77, etc.) if you use one of these

When using a radio time code receiver to synchronise TIM 2015 to the exact time please remember that local interference can easily swamp or desensitise the radio receiver, rendering it unable to pick up the transmissions from the timecode transmitter. Sources of interference include computers, electronically-controlled soldering irons and some switchmode ('wall wart') plug-in power supplies. Occasionally radio timecode transmitters are off the air for maintenance purposes but if TIM 2015 refuses to synchronise and the yellow light fails to come on, suspect local interference before other causes.

The interference problem in more detail

The reception of the long wave radio signal is easily disturbed by interference sources, however. These include atmospheric disturbances and electro-mechanical sources near the antenna of the receiver such as motors, computers, monitor screens, power tools, relay racks, switchmode power supplies and so on. The antenna should therefore be positioned with care.

My clock doesn't synchronise at all

Most radio-controlled clocks work great, as evidenced by the hundreds of thousands of units that have been sold throughout the world. However, if your radio clock or receiver isn't working, we suggest:

- The antennas are directional and you might be able to improve the signal strength by turning the antenna.
- Place the receiver box along a wall or near a window that faces the transmitter location. For instance Anthorn (Cumbria) for MSF, Frankfurt am Main, Germany (DCF77), Fort Collins, Colorado (USA) for WWVB. .

- Locate the receiver box at least 1 or 2 metres away from any computer monitors, which can cause interference (some monitors have a scan frequency at or near the WWVB carrier frequency of 60 kHz).
- If nothing else works, power it down (unplug it), then power it up again to force it to look for the signal. If it works outdoors but not indoors, you probably have a local interference problem inside your house or building. If it doesn't work outdoors at night, it's probably best to return it and try a different receiver module.
- The shielding provided by a metal building might prevent the receiver box from working. For example, if you live in a mobile home or a house with steel siding, the clock might not work.

My clock is off by one or more hours

Remember, minutes and seconds are the same in all time zones within the WWVB coverage area; only hours are different. If your TIM 2015 is off (out) by one or more hours, it probably has to do with the time zone setting. Make sure you have properly selected your time zone using the instructions provided in this manual.

If you live in an area that does not observe Daylight Saving Time (Arizona, Hawaii, parts of Indiana), make sure that DST is disabled on your radio-controlled clock. Not all clocks have this feature, so you might have to select another time zone to make your clock display the correct time when DST is in effect.

My clock is off by a few minutes or seconds

If your clock isn't currently receiving the signal, the time will 'drift' and gradually get further and further from the correct time. Remember, if the signal isn't being received, your clock isn't radio-controlled any longer; it's now just a regular RTC clock. Its accuracy will depend on the quality of the quartz crystal. TIM 2015 can keep time to within one or two seconds per day or better, unlike other clocks that will be off by several seconds per day.

The yellow LED on the front panel of TIM 2015 indicates whether the signal is being received properly. If you are not sure if the signal is being received, try powering down the clock (unplug it), then turn it on again to see if it can synchronise. If it doesn't, see the tips above for improving your reception.

Copyright notice

TIM 2015 has been designed as a collaborative shareware and 'pro bono' production, with nobody taking a single penny of payment for the very many hours of time spent bringing it to reality. The design principles and circuit schematic have been put into the public domain and are freely available. The only 'protected' element is the encrypted code used in the microcontroller, for which a design royalty is included in the price of the programmed chip.

- **Please note.** The TIM 2015 team supports recycling and sustainability, so as far as possible we re-use packing material. This helps keep the price that *you* pay as low as possible too!