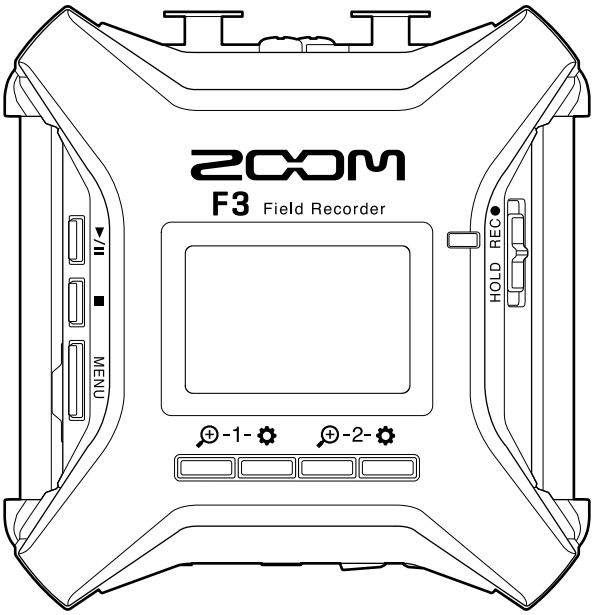
F3

Field Recorder



Version 2.20 Supplementary Manual

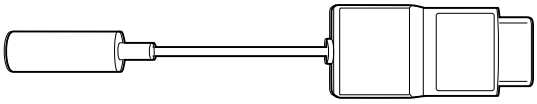
You must read the Usage and Safety Precautions before use.

Features added and changed from Version 2.20

■ Function added in Version 2.20

- Support for SMPTE timecode input/output using a ZOOM TCA-1 timecode adapter (sold separately) has been added.

TCA-1

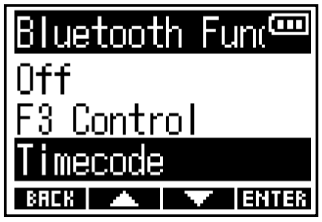


- Support for the ZOOM Handy Control & Sync controller application added

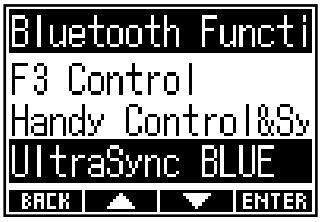
■ Function Modified in Version 2.20

- The item name in the Bluetooth menu has been changed.

Previous firmware versions

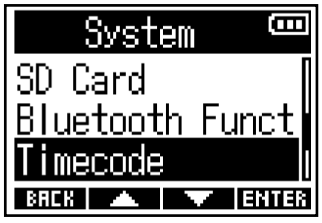


Firmware Ver. 2.20 and later

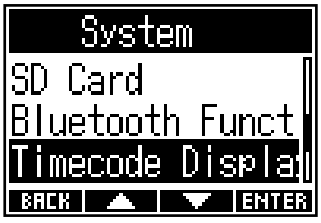


- The item name in the System menu has been changed.

Previous firmware versions

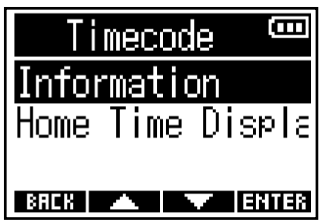


Firmware Ver. 2.20 and later

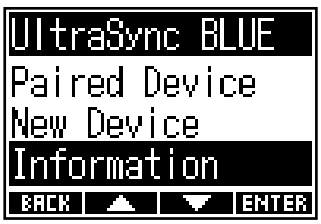


- The item name in the Timecode menu has been moved to the Bluetooth menu.

Previous firmware versions



Firmware Ver. 2.20 and later



Contents

Timecode Overview

Timecode is supplementary time information written into files when recording video or audio.
When recording with multiple cameras or recorders, synchronizing the timecode allows editing software to automatically align footage based on the timecode, significantly streamlining synchronization work.
The format is represented as "hh:mm:ss:ff" (hours:minutes:seconds:frames).

HINT
The TCA-1 utilizes a high-precision oscillator to generate accurate timecode with an error margin of ±0.5 frames every 24 hours.

NOTE

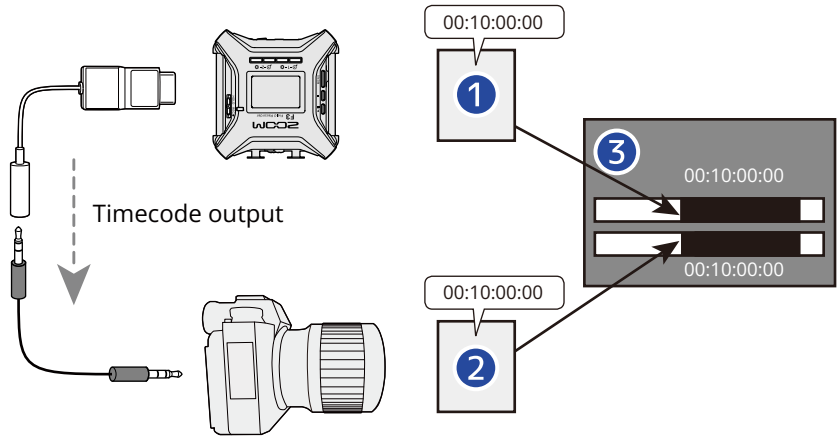
- The same frame rate settings must be used by all equipment and all video and audio data.
- The SMPTE timecode standard supports frame rates up to 30 fps. When shooting at high frame rates (60 fps, 59.94 fps, etc.), set the value to half the camera's setting. (→ Setting the frame rate for the internal timecode)

Connection Examples

As examples of timecode connection, we explain two methods: Using an F3 as the reference and Using an external timecode generator as the reference.

Using an F3 as the reference (synchronizing with a camera)

Use the TCA-1 to output timecode from the F3 to the camera. By setting the F3 as the "reference," timecode can be recorded that matches (synchronizes) the audio data from this unit with the video data from the camera.
For this connection, the following modes can be selected: Int Free Run, Int Rec Run, Time of Day (→ Setting the mode)



1 Recorder
Records the timecode output by the TCA-1 together with the audio into the file.

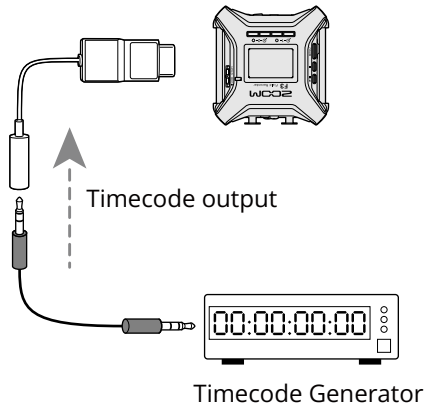
2 Camera
Records the received timecode into the file along with the video.

3 During Editing
Video and audio can be synchronized based on the timecode.

Synchronization when using a timecode generator or external device as the reference

Connect the TCA-1 to an external timecode generator.
Use the timecode generator as the "reference" to synchronize the F3 and camera, recording the same timecode to the audio and video.

■ Using in jam mode



NOTE: No cable needed after jamming

The F3 receives timecode once from an external timecode generator, synchronizing (jamming) to it. After jamming, the F3's clock maintains the timecode even if the connection is disconnected.

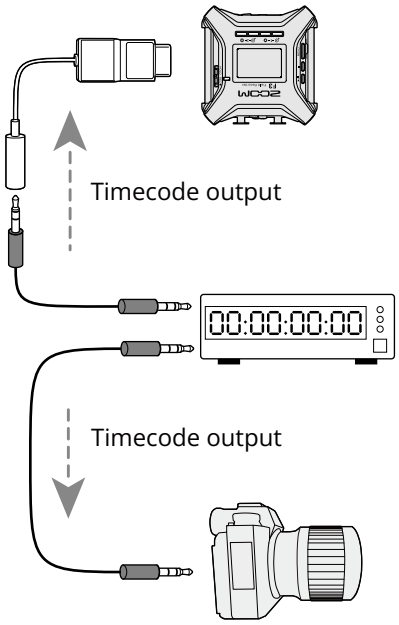
- Set the operating mode to match other devices used at the same time.
- The default sync mode is "Int Free Run". In this mode, the timecode continuously advances. Jamming before recording video allows maintaining synchronization across multiple devices. (→ Setting the mode)

HINT

Jamming overview

This function synchronizes the timecode of the connected device with the timecode of the reference device. Jamming matches the F3's timecode with the externally input value. Once synchronized, even if the cable is disconnected, the unit will continue counting (running free) using its internal high-precision clock.

■ Using with a constant connection



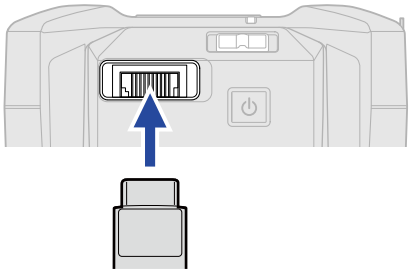
Synchronize by continuously receiving timecode from a timecode generator or similar source.
For this connection, you can select the following modes: "Ext" or "Ext Auto Rec". (→ Setting the mode)
Selecting "Ext Auto Rec" automatically starts/stops recording in sync with the external timecode output.

- Use "Auto Rec Delay" to adjust the delay time between receiving the timecode and starting recording. (→ Setting the delay time for automatic timecode recording)
- The behavior when timecode output is interrupted can be selected using the "Ext Continuous" setting. (→ Making internal timecode run on its own when external timecode input is lost)

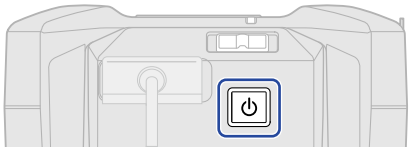
Synchronize with external devices using a TCA-1 timecode adapter

Connecting the TCA-1 to the F3

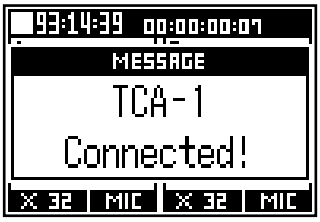
1. With the F3 powered off, remove the cover from the REMOTE terminal on the right side and connect the TCA-1.



2. Press and hold the ⏻ (POWER) switch to turn the power on.



Confirm that "TCA-1 Connected!" is shown.

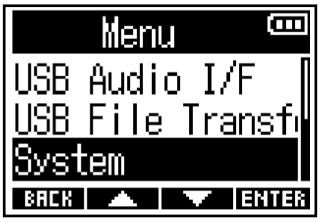


Show timecode on the Home/Recording Screen

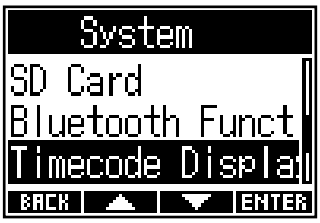
Change the display settings to show the timecode on the Home/Recording Screen.

1. Press the MENU (MENU) button.
The Menu Screen will appear.

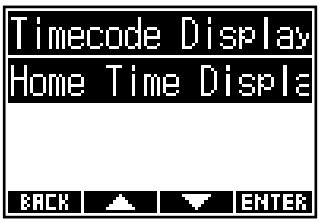
2. Use ▲ / ▼ to select "System" and press ENTER to confirm.



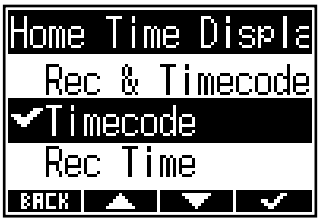
3. Use ▲ / ▼ to select "Timecode Display" and press ENTER to confirm.

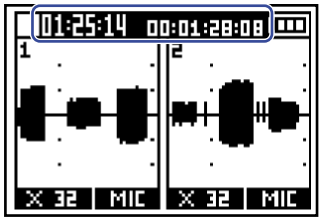
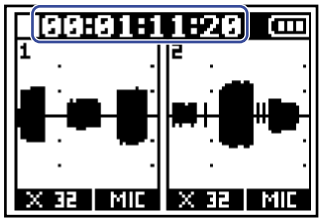


4. Use ▲ / ▼ to select "Home Time Display" and press ENTER to confirm.



5. Use ▲ / ▼ to select "Rec & Timecode" / "Timecode" and press ✓ to confirm.



Setting Value	Description
Rec & Timecode	Both the recording time and the timecode will be shown. 
Timecode	Only the timecode will be shown. 

NOTE
If a TCA-1 is not connected, the timecode will be shown as “--:--:--:--”.

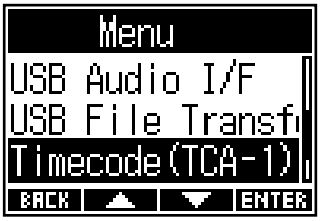
Setting the mode

The following settings can be made, for example.

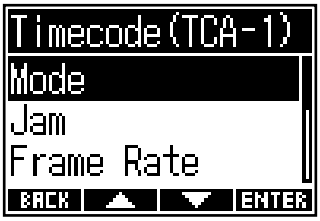
- Outputting timecode from the TCA-1 and inputting timecode from an external source
- Enable/disable timecode running independently outside of recording

1. Press the MENU (MENU) button.
The Menu Screen will appear.

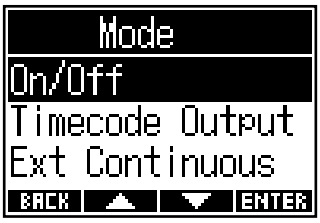
2. Use ▲ / ▼ to select "Timecode (TCA-1)" and press ENTER to confirm.



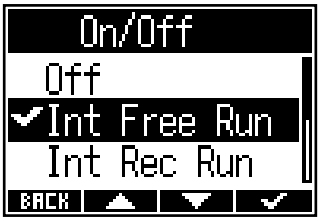
3. Use ▲ / ▼ to select "Mode" and press ENTER to confirm.



4. Use ▲ / ▼ to select "On/Off" and press ENTER to confirm.



5. Use ▲ / ▼ to select the desired setting item and press ✓ to confirm.



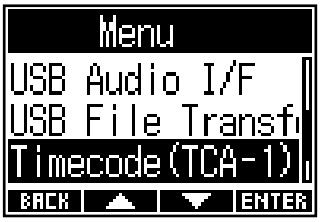
Setting Value	Description
Off	Timecode is not recorded to the recording file. Timecode is not output from the TCA-1.
Int Free Run	The internal timecode continues counting regardless of the recording start/stop state. The start timecode can be set from the following menu items. • Jam (→ Jamming the internal timecode) • Restart (→ Restarting the internal timecode at any set value) Timecode output can be switched between "Always" and "Rec Only" using the "Timecode Output" setting.
Int Rec Run	The internal timecode advances only during recording and stops when recording is paused. The start timecode can be set from the following items. • Jam (→ Jamming the internal timecode) • Restart (→ Restarting the internal timecode at any set value) After resuming recording, timecode will restart from the value at the time it stopped. Timecode is only output while recording and is not output when stopped.
Time of Day	This mode synchronizes the internal timecode with the F3's internal clock (current time). This is applied automatically when this mode is selected or when the F3's date/time (Date/Time) is changed. This time-based timecode is continuously output from the TCA-1.
Ext	This mode operates using timecode input from an external device as the reference. When external timecode is input, the internal timecode follows that external signal. The internal timecode can be set to run independently if the external timecode signal is interrupted. (→ Making internal timecode run on its own when external timecode input is lost)
Ext Auto Rec	In addition the functions of Ext mode, this mode automatically switches the recording state using external timecode detection. Recording starts when external timecode input is detected and stops when the external timecode stops.

Outputting timecode only during recording

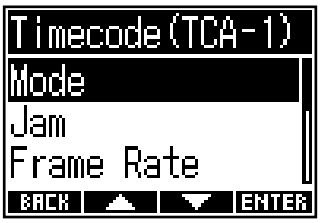
Whether or not timecode is output from the TCA-1 when the recorder is stopped can be set.

1. Press the MENU (MENU) button.
The Menu Screen will appear.

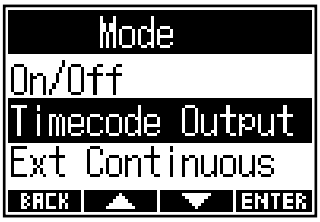
2. Use ▲ / ▼ to select "Timecode (TCA-1)" and press ENTER to confirm.



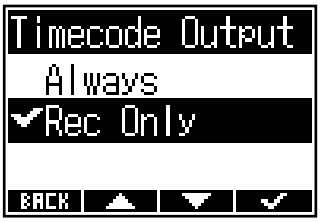
3. Use ▲ / ▼ to select "Mode" and press ENTER to confirm.



4. Use ▲ / ▼ to select "Timecode Output" and press ENTER to confirm.



5. Use ▲ / ▼ to select "Rec Only" and press ✓ to confirm.



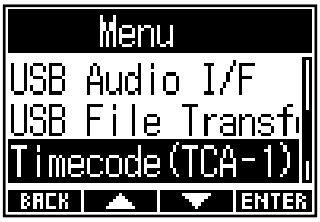
NOTE
Timecode continues to be output when recording is paused.

Making internal timecode run on its own when external timecode input is lost

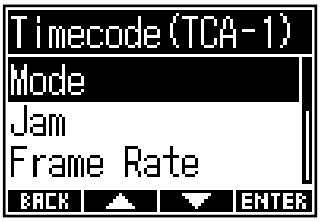
Internal timecode can be set to run independently to maintain continuity when external timecode is lost.

1. Press the MENU (MENU) button.
The Menu Screen will appear.

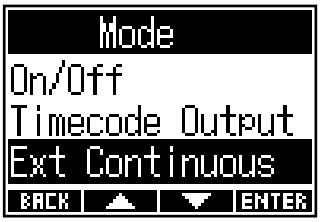
2. Use ▲ / ▼ to select "Timecode (TCA-1)" and press ENTER to confirm.



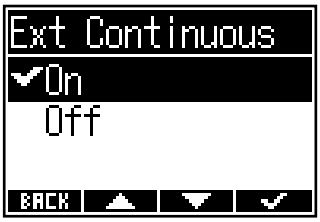
3. Use ▲ / ▼ to select "Mode" and press ENTER to confirm.



4. Use ▲ / ▼ to select "Ext Continuous" and press ENTER to confirm.



5. Use ▲ / ▼ to select "On" and press ✓ to confirm.



Synchronizing (jamming) the timecode

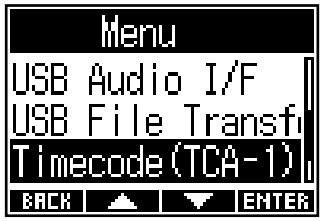
Jamming the internal timecode

You can synchronize the F3's internal timecode with the timecode from an external device.
After jamming, it will automatically continue counting up (running free) even if the cable is disconnected.

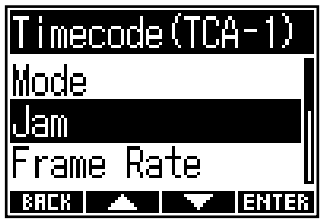
> **NOTE**
> First, connect the external device to the TCA-1. Set the mode to "Int Free Run" or "Int Rec Run".

1. Press the MENU (MENU) button.
The Menu Screen will appear.

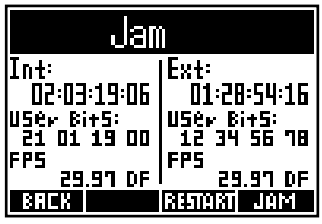
2. Use ▲ / ▼ to select "Timecode (TCA-1)" and press ENTER to confirm.



3. Use ▲ / ▼ to select "Jam" and press ENTER to confirm.



4. press JAM to confirm.



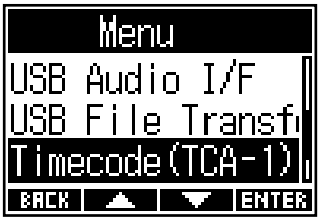
Restarting the internal timecode at any set value

The F3's internal timecode can be set to any value, and counting up can be resumed from that value.

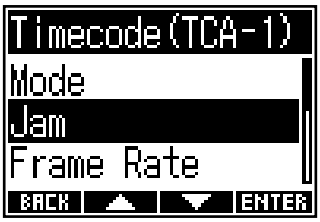
> **NOTE**
> Set the mode to "Int Free Run" or "Int Rec Run".

1. Press the MENU (MENU) button.
The Menu Screen will appear.

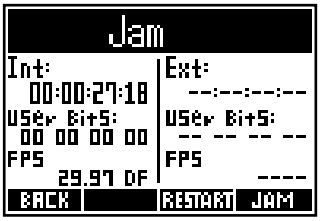
2. Use ▲ / ▼ to select "Timecode (TCA-1)" and press ENTER to confirm.



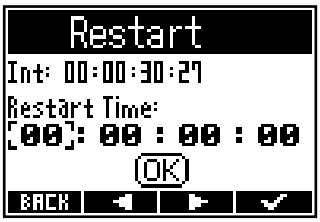
3. Use ▲ / ▼ to select "Jam" and press ENTER to confirm.



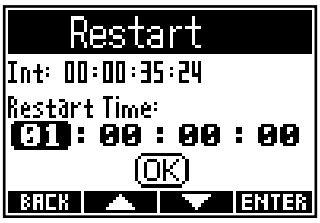
4. press RESTART to confirm.



5. Use ◀ / ▶ to select the desired setting item and press ✓ to confirm.

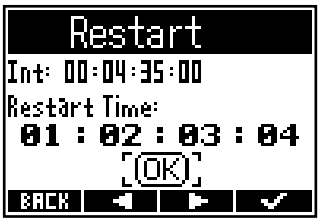


6. Use ▲ / ▼ to to change the value and press ENTER to confirm.



7. Repeat steps 5 and 6 to change all setting values.

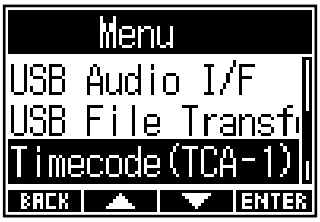
8. After setting all values, use ◀ / ▶ to select "OK" and press ✓ to confirm.



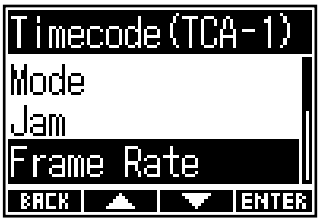
Setting the frame rate for the internal timecode

1. Press the MENU (MENU) button.
The Menu Screen will appear.

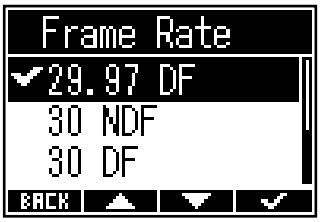
2. Use ▲ / ▼ to select "Timecode (TCA-1)" and press ENTER to confirm.



3. Use ▲ / ▼ to select "Frame Rate" and press ENTER to confirm.



4. Use ▲ / ▼ to select the frame rate and press ✓ to confirm.



Setting Value	Description
23.976 NDF	This common frame rate is used for high-definition recording, such as with HD cameras. It counts 0.1% slower than real time.
24 NDF	This standard frame rate is used for film shooting and in HD cameras.
25 NDF	This frame rate is for PAL format video, which is used in Europe and other regions.
29.97 NDF	This frame rate is for NTSC color video and HD cameras. It counts 0.1% slower than real time. This is used for NTSC-format video, which is used in Japan, the United States, and other countries.
29.97 DF	This frame rate is adjusted using drop frame timing to match NTSC to the actual time. This is used for broadcast video that requires synchronization with actual time frames.
30 NDF	This is used to synchronize sound to film being transferred to NTSC video. This is the standard frame rate for black-and-white television in Japan, the United States, and other regions.
30 DF	This specialized frame rate is used to synchronize film sound to NTSC using 29.97fps drop frame timing. It counts 0.1% faster than actual time.

NOTE

- Frame rate settings must be the same across all equipment, video data, and audio data used.
- The SMPTE timecode standard supports frame rates up to 30 fps. When shooting at high frame rates (60 fps, 59.94 fps, etc.), set the value to half the camera's recording frame rate.
  - When shooting at 60fps: "30 NDF" or "30 DF"
  - When shooting at 59.94fps: "29.97 NDF" or "29.97 DF"
  - When shooting at 50fps: "25 NDF"

Setting the User Bits of the Internal Timecode

HINT

Definition of User Bits

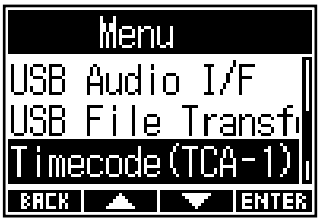
"User Bits" refers to an 8-digit data field that can be recorded in the timecode signal, separately from the "Hour:Minute:Second:Frame" time information. Using the digits 0-9 and the letters A-F (hexadecimal), this field can be used to record identifying information such as the shooting date, camera ID, or scene number. This information can be read by video editing software and is useful for organizing footage from multiple cameras or recorders.

Setting the user bit mode

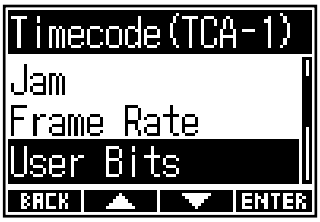
1. Press the MENU (MENU) button.

The Menu Screen will appear.

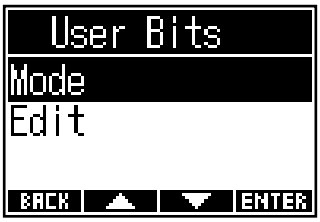
2. Use ▲ / ▼ to select "Timecode (TCA-1)" and press ENTER to confirm.



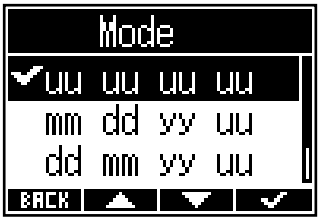
3. Use ▲ / ▼ to select "User Bits" and press ENTER to confirm.



4. Use ▲ / ▼ to select "Mode" and press ENTER to confirm.



5. Use ▲ / ▼ to select the desired setting item and press ✓ to confirm.

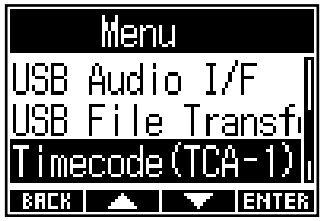


Setting Value	Description
uu uu uu uu	This can be set to any value on the Edit Screen.
mm dd yy uu	The date set in the F3 is automatically entered in the order of month, day, year, and user bit, which can be set to any value on the Edit Screen.
dd mm yy uu	The date set in the F3 is automatically entered in the order of day, month, year, and user bit, which can be set to any value in the "edit" screen.
yy mm dd uu	The date set in the F3 is automatically entered in the order of year, month, day, and user bit, which can be set to any value in the "edit" screen.

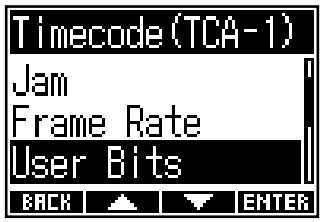
Setting User Bits

1. Press the MENU (MENU) button.
The Menu Screen will appear.

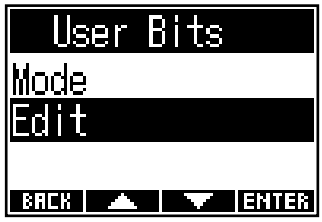
2. Use ▲ / ▼ to select "Timecode (TCA-1)" and press ENTER to confirm.



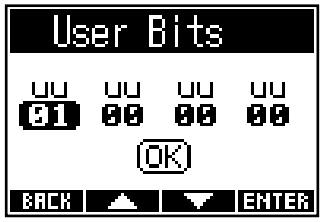
3. Use ▲ / ▼ to select "User Bits" and press ENTER to confirm.



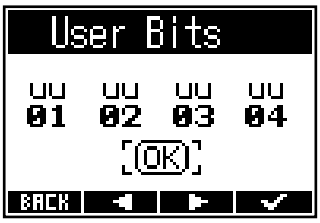
4. Use ▲ / ▼ to select "Edit" and press ENTER to confirm.



5. Use ▲ / ▼ to change the value and press ENTER to confirm.



6. After setting all values, use ◀ / ▶ to select "OK" and press ✓ to confirm.



NOTE
Only items set to "uu" in "Mode" can be changed.

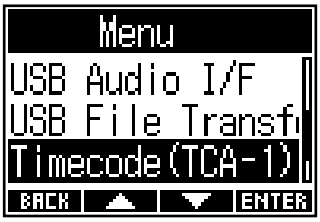
HINT
Values can be set within the range 00 to FF.

Setting the delay time for automatic timecode recording

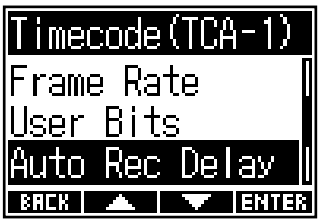
When configured to automatically record upon receiving external timecode, momentary timecode reception may trigger unwanted recordings.
To avoid this, a delay can be set between receiving the timecode and starting recording.

1. Press the MENU (MENU) button.
The Menu Screen will appear.

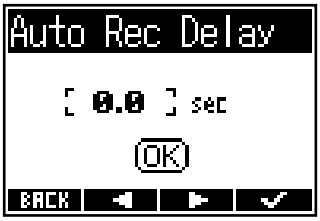
2. Use ▲ / ▼ to select "Timecode (TCA-1)" and press ENTER to confirm.



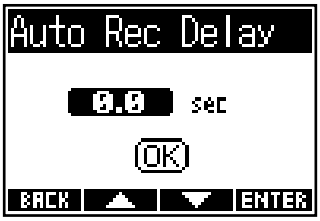
3. Use ▲ / ▼ to select "Auto Rec Delay" and press ENTER to confirm.



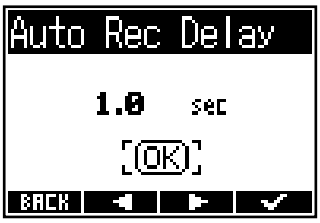
4. Use ◀ / ▶ to select the value and press ✓ to confirm.



5. Use ▲ / ▼ to change the value and press ENTER to confirm.



6. Use ◀ / ▶ to select "OK" and press ✓ to confirm.



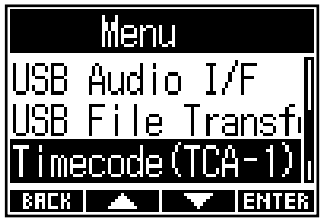
HINT
This can be set in a range from 0.0 to 8.0 seconds.

Changing connector settings to match the connected device

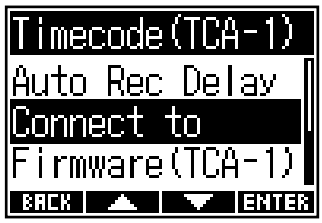
Configure whether the 3.5mm jack connected to the TCA-1 handles signals via the tip or ring to suit the external device.

1. Press the MENU (MENU) button.
   The Menu Screen will appear.

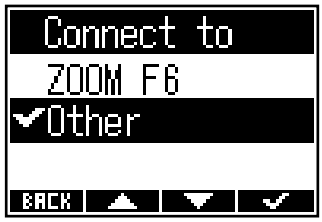
2. Use ▲ / ▼ to select "Timecode (TCA-1)" and press ENTER to confirm.



3. Use ▲ / ▼ to select "Connect to" and press ENTER to confirm.

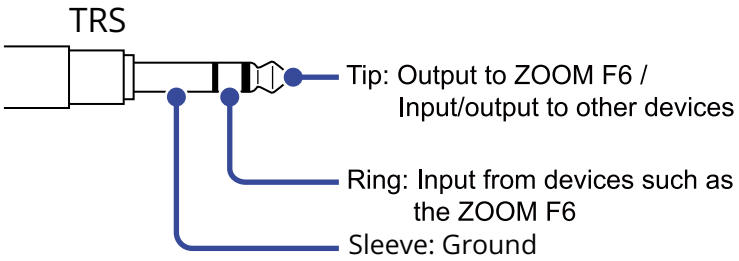


4. Use ▲ / ▼ to select the item for the connected device and press ✓ to confirm.



Setting Value	Description
ZOOM F6	This mode assigns the tip for output and the ring for input. Select this when connecting to a ZOOM F6 or another device with similar connector specifications. **Signal passing through the tip:** This outputs the timecode signal generated by the TCA-1 to external devices. **Signal passing through the ring:** This inputs the timecode signal generated by an external device into the TCA-1.
Other	This mode handles timecode input/output solely through the tip. On the Jam Screen, the signal passing through the tip switches automatically. **Signal passing through the tip:** • This outputs the timecode signal generated by the TCA-1 to external devices. • This inputs the timecode signal generated by an external device into the TCA-1.

Timecode Input / Output

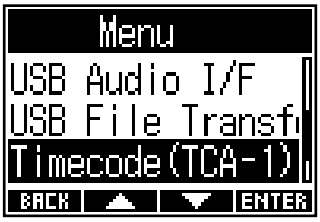


Managing the TCA-1 firmware

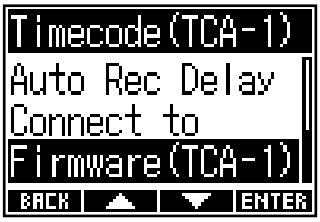
Checking the firmware version

1. Press the MENU (MENU) button.
The Menu Screen will appear.

2. Use ▲ / ▼ to select "Timecode (TCA-1)" and press ENTER to confirm.



3. Use ▲ / ▼ to select "Firmware (TCA-1)" and press ENTER to confirm.

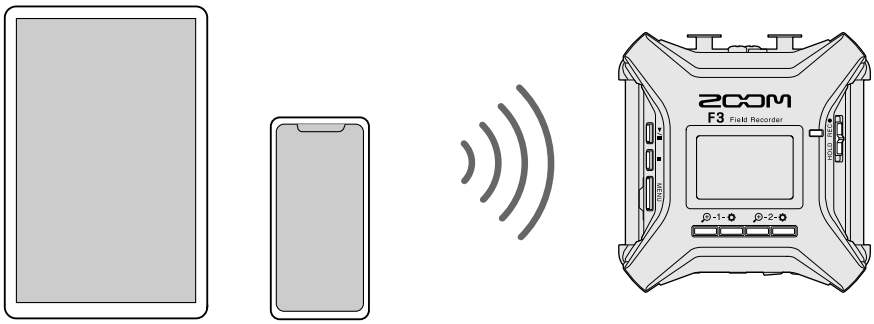


Updating the firmware

The TCA-1 firmware can be updated to the latest version.
The latest firmware update file can be downloaded from the ZOOM website (zoomcorp.com/help/tca-1).
Follow the instructions in the "TCA-1 Firmware Update Guide" on the TCA-1 download page.

Operating the F3 from a smartphone/tablet (ZOOM Handy Control & Sync)

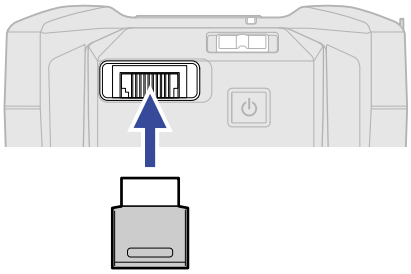
The F3 can be operated wirelessly from a smartphone or tablet by connecting a BTA-1 or another dedicated wireless adapter and using the ZOOM Handy Control & Sync app designed to control it.
ZOOM Handy Control & Sync can be connected to multiple recorders and used to simultaneously start and stop recording, synchronize timecode and set the date and time.



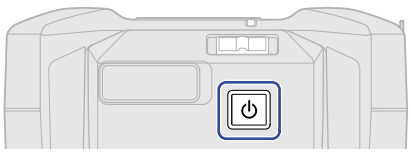
NOTE

- The ZOOM Handy Control & Sync app must be installed on the smartphone or tablet beforehand.
  The ZOOM Handy Control & Sync app can be downloaded from the App Store, for example. Refer to the manual for the ZOOM Handy Control & Sync app for details about app settings and operation procedures.
- The F3 cannot be controlled wirelessly from a smartphone or tablet during audio interface operation.
- An F3 cannot have both ZOOM Handy Control & Sync and an UltraSync BLUE connected at the same time.

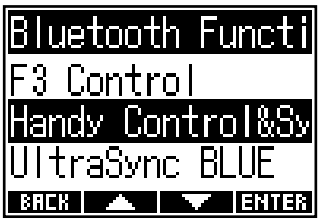
1. With the F3 power off, remove the cover from the REMOTE terminal on the right side and connect a BTA-1 or other dedicated wireless adapter.



2. Press and hold the ⏻ (POWER) switch to turn the power on.



3. Use ▲ / ▼ to select "Handy Control & Sync" and press ENTER to confirm.



Searching for the device to connect will begin and “Searching...” will appear on the display.

HINT
Searching can be canceled by pressing any button.

4. Operate ZOOM Handy Control & Sync and select the F3 as the connected device.
This starts pairing.
When pairing completes, “Handy Control & Sync Connected!” will appear on the F3 display.

Disconnecting from smartphones and tablets

Disconnection is possible by quitting the app on the smartphone or tablet.
Removing the BTA-1 from the F3 will also disconnect it from ZOOM Handy Control & Sync.

About This Manual

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