

Morster



Morster is a comprehensive morse code assistant for iOS devices.



**Interpret
Camera Feed**



**Interpret
Audio Feed**



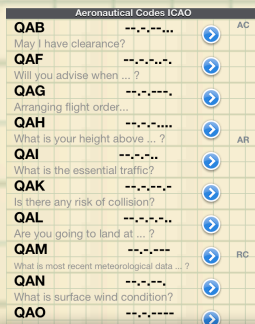
**Translate to and
from Morse**



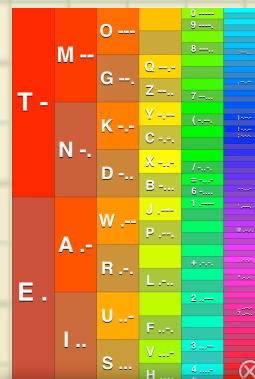
**Individual
Channel Settings**



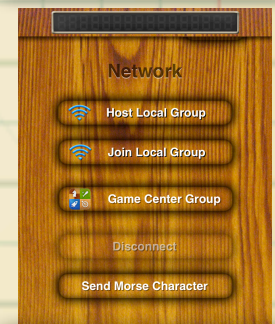
**Visual Playback
LED & Graphical**



**QCode, Prosign,
Morse Code
Reference**



**Dichotomic
Interactive Chart**



**Game Center &
Local
Networking**

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Introduction

Morster is the ultimate iOS morse code tool. Morster can interpret morse code that is created using the morse key. The morse code is displayed along with the letter, prosign or QCode affiliated with the morse sequence.

On devices that have a camera running iOS 4 or later, the camera video feed can be used to trigger the morse key. The threshold can be adjusted and the camera can be zoomed allowing the camera to focus on a morse code light sequence. This can be used to translate visual morse code coming from a light source.

On devices that have a microphone, the audio feed can be used to trigger the morse key. The volume threshold can be adjusted so any sound above the threshold will trigger the morse key signal and when the sound volume is below the

threshold the morse key trigger will stop. This can be used to translate audible morse code signals.

Type letters using the keyboard and translate them to morse code, or use a custom keyboard to type morse code characters and translate it into letters.

A comprehensive morse code reference is built into Morster. Display a list of characters and their corresponding morse code, pro signs or QCodes.

Pro signs are morse code letter sequences that have a special meaning, such as SOS, which means, "Serious distress and request for assistance."

QCodes are used in amateur radio, aeronautics, maritime and radio telegraphy. Morster presents these codes in list form that can be selected and

executed and Morster can also interpret these codes when keyed.

A dichotomic view of the morse characters can be used to execute morse code sequences or as reference to see the relationship between morse characters.

The audio settings can be adjusted to have any frequency played on either right or left channels of the device or the channels can be locked. The volume can also be adjusted individually.

Morse code that is entered into the notepad can be played back at adjustable speeds.

Farnsworth mode allows the space between letter sequences to be adjusted independently from the morse playback speed.

Morster can be used to signal visually in two fashions. Devices with a LED on the camera have the option to use the LED to signal. The screen can be used as a signal that can be configured in a variety of ways.

Morster is Game Center ready. You can communicate via morse code with your friends using Morster. Morster can also be used with other Morsters over wifi or blue tooth. When another Morster sends morse code it is displayed in the notepad.

Morse Code

Morse code is a communication method for transmitting letters and numbers as a series on/off signals. The signals can be communicated with sound, light or characters.

Morse code uses two characters, a short and a long often referred to as "dots" and "dashes" or "dits" and "dahs".

Every character in the alphabet has a unique sequence of dots and dashes in morse code. Morse code sequences are followed by a short silence to denote the end of the character sequence.

The shortest unit in morse code is the dot character. The dash character is the same duration as three dot characters. The space between morse code sequence characters is the

same duration as a dot character. The space between letters is the same duration as three dot characters. The space between words is the same duration as seven dot characters.

Morse code speed is measured in words per minute. Since characters have varying lengths when represented in morse code, a standard word length was chosen to measure words per minute. Two benchmark words are "PARIS" or "CODEX". Each of these words has a length equal to 50 dot characters.

Various fields that use morse code have devised abbreviations for common messages known as prosigns and QCodes.

For example, "...-." represents the characters 'S' and 'N'. When these codes are played together without a space between them, they have

another meaning, in this case the prosign meaning: "Understood".

QCodes all start with the letter Q and are used in amateur radio, aeronautics, radiotelegraphy and maritime. For example, "--...-." represents that characters 'Q', 'R' and 'V'. When coded together they have another meaning: "Are you ready?".

Morse Coding Tips

Morster can translate morse code sequences keyed using the morse armature key. Morster will measure the duration of the signals and determine whether the signal is a dot or a dash character.

Morster will automatically adjust to the speed of the signals and display the current morse speed.

If a dot is shorter than the current speed, it will be interpreted as a dot and the morse speed will be adjusted, if signal is longer than a dash at the current speed, it will be interpreted as a dash and the current speed will be updated.

If morse signaling is faster or slower than the currently analyzed speed, characters may be interpreted incorrectly. Once the speed is consistent and each morse character has been

keyed, the interpreter will become more accurate.

To calibrate the interpreter for a given speed, Morse a character that contains both the dot and the dash characters such as 'V', '...-'.

When keying Morse characters, try to use a consistent speed. This will increase the accuracy of the Morse interpreter and it will also help train you to become a better Morse code communicator.

If dot characters are too short, the average Morse speed will be increased and successive signals will have to maintain this speed to be interpreted properly. If a dash character is too long, it will slow down the average Morse speed and successive signals will have to be within the average speed and tolerance for proper interpretation.

The current speed is calculated based on averaging the speed of morse characters. This provides a way to compare characters to each other and the expected speed. This means that a series of dots and dashes must be keyed before the speed can adequately be determined.

Otherwise any given signal duration could be considered a slow dot or a fast dash. It is only when they can be compared to each other that they can be interpreted properly.

These considerations apply to manually keying morse code, or when using a decoding feature such as the camera or microphone. It also applies to devices that use Key Up/Down as a communication method for local networking or Game Center.

Main Interface



The main interface of Morster consists of the morse key. The morse key is design like an authentic morse key and may be interacted with.

To actuate the morse key and begin a morse signal, press the armature's black key.

To stop the morse signal, release the armature key.

To short the circuit so that the signal is always on, move the lever to the left so that it touches the metal contact. Move the lever to the right to stop the short.

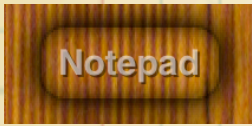
To display settings and additional options, press the SOS button in the top right.

The SOS button on the iPhone will display additional options to the right of the morse key.

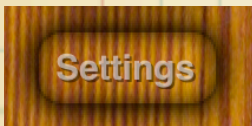
On the iPad, some of the features are accessible from the top of the notepad and an Options button is available to access the settings.

The notepad is always visible on the iPad and is optionally visible on the iPhone. When display on the iPhone, the notepad covers the top half of the morse key.

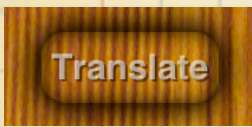




The Notepad button is only available on the iPhone. It is used to show and hide the notepad.



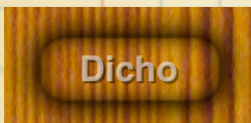
To access the settings, use the Settings button on the iPhone and the Options button on the iPad.



The Translate button is used to enter and exit translate mode. Translate mode enables either alphabetical characters or morse characters to be entered into the notepad and translate to and from morse code. On the iPad, the Translate button is located at the top of the notepad. On the iPhone, the Translate button is located to the right of the morse key, accessed with the SOS button.



The Morse button, Prosigns button and QCodes button each display a list of morse code sequences for reference. The Morse list contains all the recognized morse letters. Prosigns are sequences of morse characters that have significant means. QCodes are morse sequences that all begin with the letter 'Q' that have special meanings in specific fields. On the iPad, these features are available in the Signs menu on the notepad. On the iPhone, these features are located to the right of the morse key, accessed with the SOS button.



The Dicho button displays the morse code characters in a dichotomic format. This demonstrates the relationship between the various morse characters. On the iPad, the Dicho button is available in the Signs menu on the notepad. On the iPhone, this feature

is located to the right of the morse key, accessed with the SOS button.

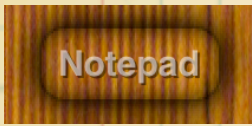


The Sticky button shows and hides the sticky note near the morse key that displays the morse character alphabet.

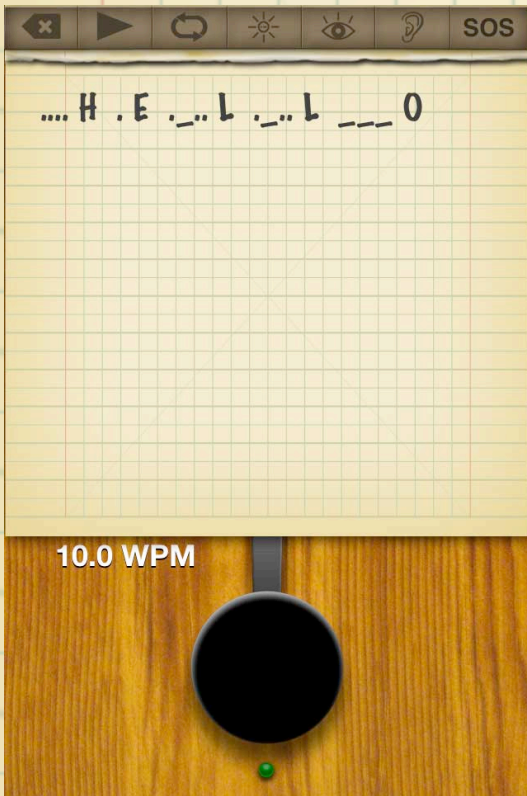
Using up and down swipe gestures cycles through the pages.



The Invert option enables the morse key to create tone while not depressed and no tone when it is depressed.



Notepad

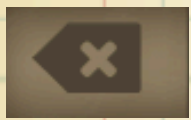


The notepad is used to display the morse code that is being coded with the morse key. It also displays the morse code being coded by members of a connected group via either Game Center or local networking.

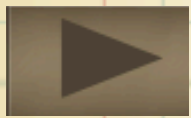
Morse code can be entered into the notepad from the morse key, the keyboard and the morse keyboard in Translate mode.

When characters are entered into the notepad, they can only be added to the end of the note. It is not possible to go back and change or insert characters in the notepad. The exception is when in Translate mode.

To clear the notepad shake the device or turn the page. Grab the bottom of the page and pull up, or tap the bottom of the page.



The Delete button is used to delete the last character from the notepad. A character consists of the alphabetical character as well as the morse code sequence. To clear the entire notepad, press and hold the delete button for a few seconds.



The Play button is used to start and stop the playback of the morse code sequence in the notepad.



The Loop button is used to repeat the playback of the notepad contents. The playback will repeat until stopped.



The LED/Light button is used to enable the visual morse feature for playback. There

are three possible configurations, LED, graphical or both. If the device does not have a LED, only the graphical option is available. If the LED option is enabled, the LED on the front of the device will turn on when the morse key is activated. If the graphical option is enabled, the screen can be configured to flash during morse code playback. Either method can be used to signal visually from a distance.



The Visual button is used to enable the camera for visual morse recognition.

Visual morse recognition uses the camera feed to trigger the morse key. When the adjustable light threshold is surpassed the morse key will activate, when below the light threshold the morse key will deactivate. This feature is only available on devices with a camera running iOS 4 or greater.



The Listen button is used to enable the microphone for audio morse recognition. Audio morse recognition used the audio input to trigger the morse key. When the adjustable volume threshold is surpassed the morse key will activate, when below the volume threshold the morse key will deactivate.

Settings

The Settings provide access to additional features and preferences that affect the appearance and behavior of Morster.

To access the settings on the iPhone or iPod touch, press the SOS button at the top of the screen or the top of the notepad, then press the Settings button.

To access the settings on the iPad, press the Options button at the top of the morse key.

Audio Settings



The Audio settings provide a way to change the morse tone frequency and volume, add well as playback and interpretation settings.

The Frequency options for Chan 1 and Chan 2 determine the tone or tones that are played for the morse key activation sound. If the Lock switch is enabled, the frequencies for channel 1 and channel 2 will stay locked together on the same frequency.

The Volume options for Chan 1 and Chan 2 determine the volume that each channel will play during morse key activation. If the Lock switch is enabled, the volumes for channel 1 and channel 2 will be locked together.

The Playback Speed setting determines how fast morse code is played back. The speed is measured in words per minute.

When enabled, the Farnsworth speed is applied to the time between morse character sequences. Character sequences will be played at the specified playback speed, but the space between is determined by the Farnsworth speed.

Changing Settings with Knobs

To adjust settings that use a turntable knob, touch the knob, drag your finger away from the knob and rotate around knob. The farther through is from the center of the knob, the more resolution the knob can attain. When knobs are turned, the value is displayed at the top of the settings in a digital display.

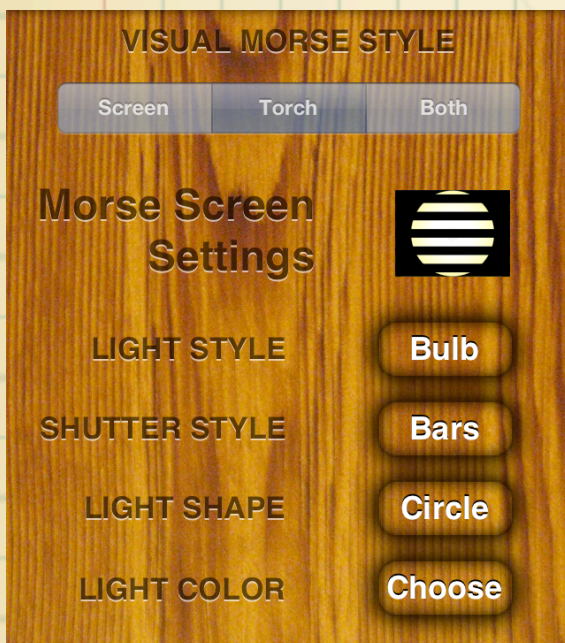


The Morse While Typing option will automatically play morse characters as they are typed with the keyboard.



Visual Morse Style

The Visual Morse Style section of the settings determines the appearance and behavior of the visual morse feature.



The first setting in the Visual Morse Style section is the Screen/Torch/Both option.

Screen: The screen will be used to flash morse code sequences.

Torch: The LED for the forward facing camera will be used to flash morse code sequences.

Both: The screen and the LED will both be used at the same time to flash morse code sequences.

The following settings pertain to the screen visual morse feature. At the top of the section, a preview is available to show what the morse screen will look like.

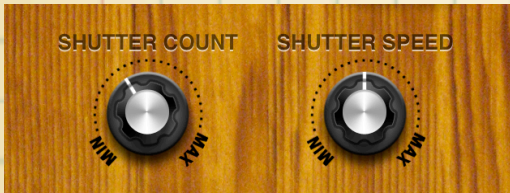
The Light Style setting determines whether a color is used or whether an image of a light bulb is used.

The Shutter Style option determines whether a shutter effect is used when the morse screen flashes. The possible values are Shutters or None.

The Light Shape option determines the shape of the morse screen. The possible values are Circle or Rect.

The Light Color option determines the color of the light when the Light Style setting is set to Color.

Selecting this option will display a color picker to select a color for the background.

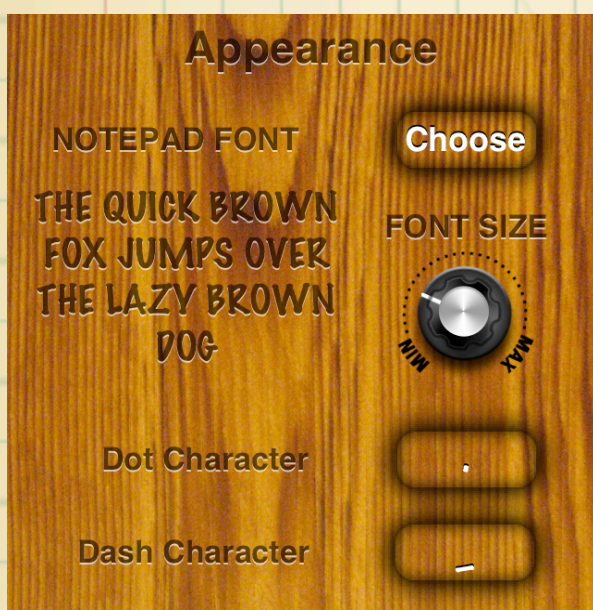


The Shutter Count option determines the number of shutters that are used when the Shutter Style is set to Bars.

The Shutter Speed setting determines how fast the shutters open and close when the Shutter Style setting is set to Bars. The Shutter Speed values range from 80% being the slowest shutter speed and 10% being the fastest speed. The value indicates the percentage of a dot character duration as indicated by the Morse Speed setting.

Appearance

The Appearance section of the settings contain options that affect the appearance of the morse code in the note pad.



The Notepad Font option determines the font that is used for the notepad. Press the Choose button to select from a list of available fonts.

The Font Size option determines the size of the font displayed in them morse notepad.

A 'Quick Brown Fox' sample shows the current font configuration.

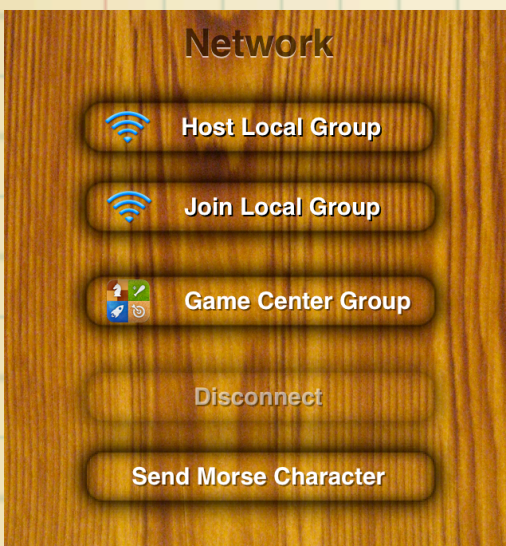
The Dot Character option is used to select the character that is displayed in the notepad that represents a morse dot character. The most common value for this would be a period (.).

The Dash Character option is used to select the character that is displayed in the notepad that represents a morse dash character. The most common value for this would be a hyphen (-) or an underscore (_).

To select a character to use as the dot or dash character, press the button that is showing the current character. Use the keyboard to press the new character to use. These settings will only apply to morse code entered after the setting change.

Network

The network section is used to establish morse code groups either locally using wifi or blue tooth, or using Game Center.



The Host Local Group option is used to start hosting a morse code group on a local network using wifi or using blue tooth. Other devices can then join the group and communicated using morse code.

The Join Local Group option is used to join a group that is being hosted by another device in the same network using wifi, or using blue tooth.

Note : Selection of wifi or blue tooth is done automatically by the device. To force the devices to connect using a specific method it may be necessary to disable the other communication method on at least one of the devices.

The Game Center option is used to establish a morse code group using Game Center.

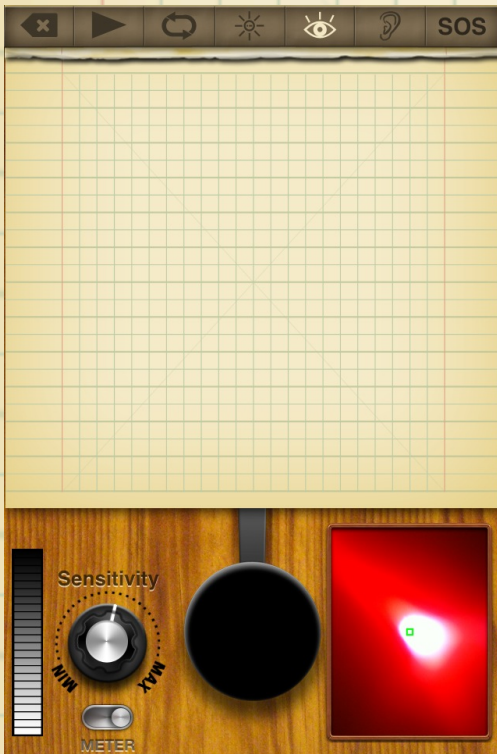
The Disconnect button is available when connected to a morse group. Pressing this button will disconnect from the group.

The Send Morse Character/Send Letter/Send Key Up/Down option is used to determine what kind of information is sent. If set to Send Morse Character, every dot and dash is sent to the group. If set to Send Letter, only complete alphabetical letters are sent. If set to Send Key Up/Down, ever time the morse armature key is pressed, it will be sent to the group.

Note: Sending Key Up/Down will send the most information and has the most potential for error. The transcription is done on the receiving device and is subject to the receiving device's settings. This feature effectively makes receiving devices act in sync with the sending device as if it was a remote.



Visual Morse Decoder



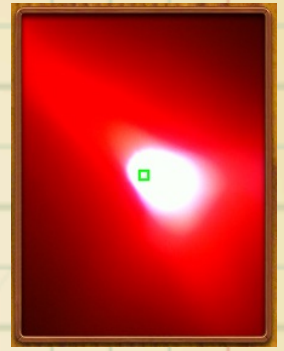
Using the cameras, Morster is capable of using the brightness threshold to trigger the morse key. When a camera triggers the morse key, it has the same affect as pressing the morse key and is subject to the current morse settings for interpretation.

Note: This feature is only available on devices that have a camera and running iOS 4 or later.

1. Turn on the Visual Morse Interpreter feature by pressing the button with an eye icon.



2. Point the device's camera in the direction of the morse signal. Use the green square in the center of the preview window to focus on the center of the signal.



3. Use the Sensitivity knob to adjust the trigger threshold as needed. The trigger threshold determines how bright the center of the frame must be to activate the morse key.



4. If needed, enable the meter using the switch below the Sensitivity knob. The meter indicates the relative brightness at the center if the camera's field of vision, indicated by the green square in the preview window. When the meter is full, the morse key is activated.



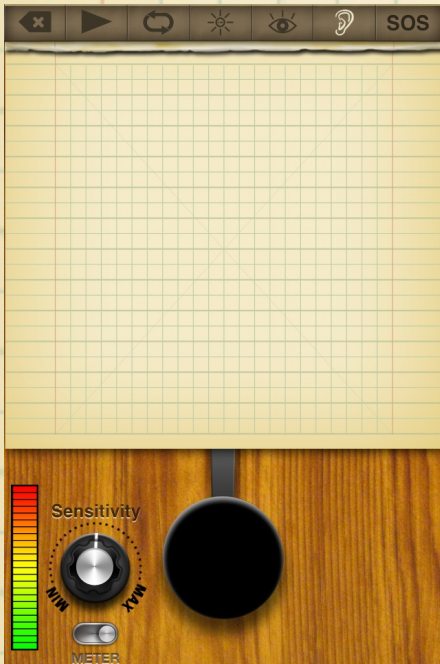
Adjust the Sensitivity knob so that when the visual morse signal is on, the morse key is active and when it is off, the morse key is off.

5. If the device has more than one camera, double tapping the preview display window will change to the other camera.

6. To zoom the camera, touch the camera once to display the zoom slider. Use the slider to zoom in or out. When the slider is released it is automatically hidden.



Audio Morse Decoder



Using the microphone, Morster can use an adjustable volume level to trigger the morse key. When the microphone registers a sound louder than the threshold, the morse key will be activated. When the volume goes below the threshold, the morse key will be deactivated.

1. Enable the Audio Morse Decoder by pressing the button with the ear icon.



2. Position the microphone near the audio source and try to reduce ambient noise and interference. Be sure not to position the microphone too close! Vary the distance if needed to achieve better results.

3. Use the Sensitivity knob to adjust the trigger threshold. The trigger threshold determines the volume required to activate the morse key. When the volume is below the threshold the key is deactivated.



4. If needed, enable the meter with the switch below the Sensitivity knob. Increasing the sensitivity will allow lower volumes to trigger the key. Decreasing the sensitivity will require louder volume sound to trigger.

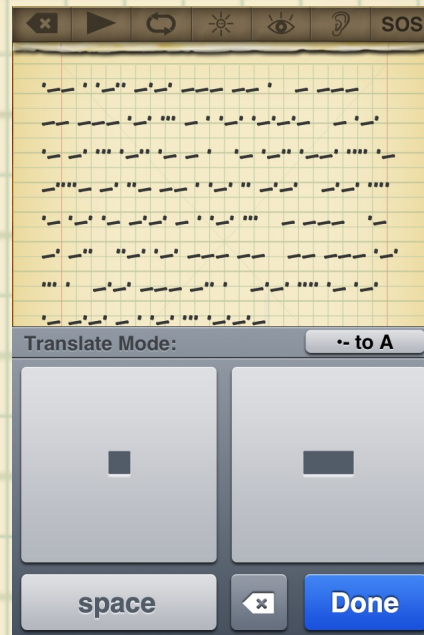
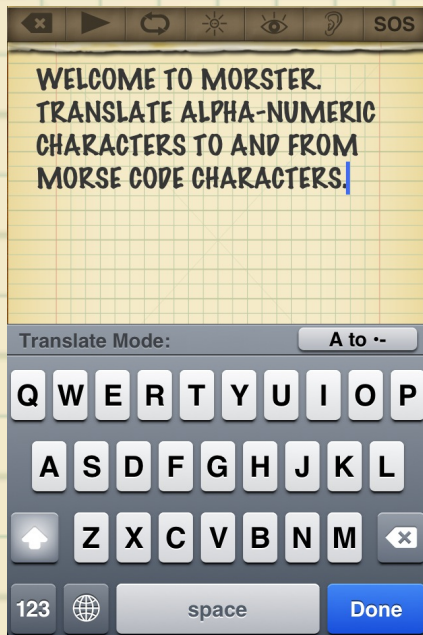


Adjust the sensitivity until the morse signal triggers the key and when the morse signal is absent, the morse key is deactivated.

Note: Audio Morse Interpreter speed limits may vary between devices. To increase performance, turn off the meter.

Translate

Morse Code Translation



Morster provides a translation mode to translate alpha-numeric characters to and from morse code characters.

To enter translation mode, press the Translate button. To exit translation mode, press the button again. When in translation mode, the keyboard will display "Translate Mode" and a Translate button.

Use the keyboard to enter text into the notepad. To translate the contents of the notepad to morse code, press the translation mode button above the keyboard.

A to ·-

When the translate mode is set to morse code, the keyboard only displays the characters necessary for morse code. Enter morse code into the notepad and use the translation mode button to turn it into alphanumeric characters.

·- to A

Local Network Group

Morster can use a wifi network or blue tooth to communicate with Morsters on other iOS devices. For Morsters to participate in a group, one must create a group and the rest must join that group.



Hosting a Group:

1. Open the settings, scroll to the bottom and press the Host Local Group button.

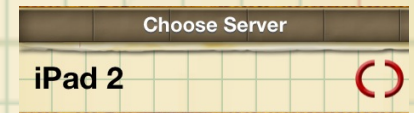
An empty list will appear. As other Morsters join the group, they will appear in the list.

Joining a Group:

1. To join a group, another device must already be hosting a group on the same network or in range of blue tooth.

2. Open the settings, scroll to the bottom and press the Join Local Group button.

3. Select the group host from the list when it appears.



4. When successfully connected to the group, all members of the group will appear in the list. A notice will drop down indicating the connection of other devices, as well as disconnections.

