

# Tode Manual

## *Users Guide*

### Setup and Operation Guide

by TGit-Tech [ <http://www.tgit-tech.com> ]

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# 1. Introduction

- ✓ The Tode Project is a Universal Platform of...
  - Face - UI Options
  - Tode – Backplane with optional Radio & Arduino Micro-Controller
  - Extensions - IO Interfaces, Battery Trays

## Face Options ( User Interface )

Model	Components	Resources
#TFT18KB6	1.8" TFT LCD Color Screen (6) Key keypad	Design Files <a href="https://github.com/TGit-Tech/Tode-RC">https://github.com/TGit-Tech/Tode-RC</a>
#COVER	A Cover Only	<i>Not available at this time</i>

## Tode Models (post-fix RC=Remote/Radio Control equipped)

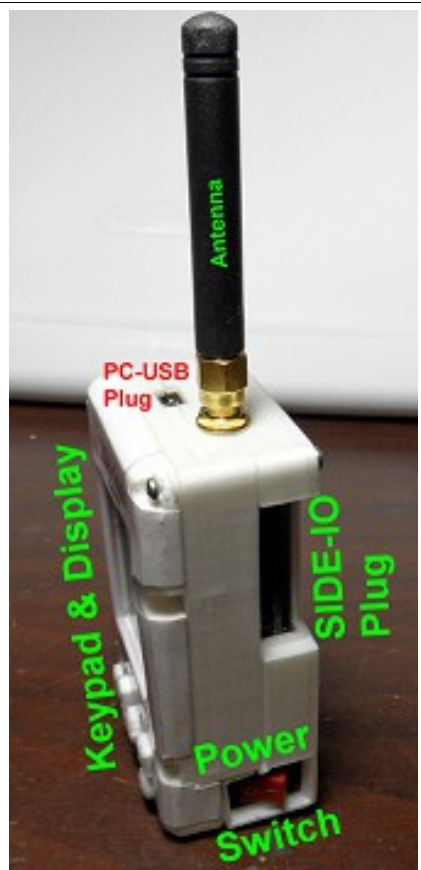
Model	Components
Tode #AMP	Arduino Mega Pro (AtMega2560)
Tode-RC #AMPE32T30	Arduino Mega Pro (AtMega2560) Ebyte E32-433T30D Radio (1W/30dbm)
Tode-RC #AMPE32T20	Arduino Mega Pro (AtMega2560) Ebyte E32-433T20D Radio (250mW/20dbm)
Tode-RC #AMPXBEE	Arduino Mega Pro (AtMega2560) Digi Xbee Radio

## SIO Stations ( Input/Output by Tode's Side-IO [SIO] plug )

Model	Components	Resources
#SIOST	Screw Terminals	Design Files <a href="https://github.com/TGit-Tech/Tode-SIOST">https://github.com/TGit-Tech/Tode-SIOST</a>
#SIOAP	Aviation Plugs	<i>Not available at this time</i>

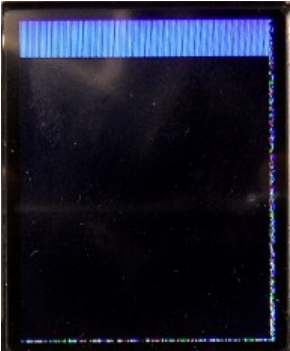

The Tode System is licensed under the MIT License. It's hosted on Github.com at:


<https://github.com/TGit-Tech/Tode-RC>



## 2. Menu Structure

- ✓ Top-Level Menu Structure ( Introduced at Power-ON )
  - Each Tode in a remote-control network of Tode's has ONE Top-Level Screen.
  - This-Tode has (2) Top-Level Display Screens
    - 1<sup>st</sup> Screen is This-Todes IO-Control Screen (This is the first screen on Power-ON)
    - 2<sup>nd</sup> Screen is This-Todes SETUP Screen
    - 3<sup>rd</sup> , 4<sup>th</sup> , etc.... Screens are Remote Controllable Todes (Not This-Tode)




<div><div><div>1<sup>st</sup> Screen</div><div>This-Todes</div><div>IO-Control Screen</div></div><div>On initial Power-ON this screen is blank because This-Tode hasn't been configured yet. Press Right ➡</div><div></div></div>	<div><div><div>2<sup>nd</sup> Screen</div><div>This-Todes</div><div>SETUP Screen</div></div><div>Where all configuration is done Press Right ➡</div><div></div></div>	<div><div><div>3<sup>rd</sup> , 4<sup>th</sup> , etc.. Screens</div><div>Remote-Todes</div><div>Control Screens</div></div><div>Remote Tode's</div><div>On Initial Power-ON the SETUP Screen doesn't change because there are NO other Remote Tode's added at this Time.</div></div>
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- ✓ Sub-Level Menu Screens ( *From This-Todes **SETUP** Screen* )
  - Selecting **Radio** and Pressing **GET** will produce the Radio Settings Sub-Level Screen
  - Selecting **Devices** and Pressing **GET** will produce the Devices Sub-Level Screen
  - Selecting **Todes** and Pressing **GET** will produce the Todes Sub-Level Screen
  - To Exit a Sub-Level Screen press the  button.





# 3. Configuring

## 3.1 Name

### 1. Enter a Name for This-Tode

<p><b>SETUP</b></p> <p>Press ↵ to the blank [NAME] field. Press <b>SET</b></p> 	<p><b>SETUP – 'Set Name'</b></p> <p>The 'Set Name' Screen appears Press ↵</p> 	<p><b>SETUP – 'Set Name' – Entry Field</b></p> <p>Text Entry field highlights (Blue) Character Position highlights (White) ↵ ⇐ ⇨ to change character position.</p> 
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**SETUP – 'Set Name' –  
Enter Name**


Use     to select a character  
Press **SET** to put character at position.  
Repeat until Name is entered.

Use the 'Entry Field' (Under 'Set Name') to highlight (White) unwanted character; then pick the blank character ( Under Exit before ! ) **SET** to clear it.

**SETUP – 'Set Name' –  
SAVE & EXIT**

Once desired Name is Entered (RC1 in picture). Highlight **SAVE** and press **SET**

Then highlight **EXIT** press 

*Note: On Setup the  can often be correlated as the 'OKAY' button.*

**SETUP**

SETUP screen should now show the [NAME] just entered.



















## 3.2 Radio Settings



- ✓ Radio Settings that **must be identical** for Tode Communication.
  - SecNet – This is a Security Code selected by you ( 0x01 to 0x7F ) that prevents unauthorized access.



- Frequency - This is the radio frequency the Tode Communication will operate on
  - ✓ Radio Setting that **must be Unique**
    - Address - This is a Unique Address selected by you of the Radio ( 0x0001 to 0xFFFE ) do not use 0000 or FFFF.
  - ✓ Other Radio Settings
    - Tx Power - This is the POWER of transmission. Run lower to preserve power, run higher for longer distance.
    - PC Connex - This option when set to ON will allow the Radio to be connected to a PC via the USB Port.
  - ✓ Name → Value Pair Settings
    - All Settings on the Radio Screen are set by going to the Value, changing the Value and then **SET**-ing it.
    - **SecNet** and **Address** Value is set PER-DIGIT using ⇐ and ⇒
    - All other settings are simply incremental by using just ↑ or ↓
- \*\* Below Demonstrates the procedure for changing the **SecNet** \*\*
- \*\* other settings are changed in the same manner \*\*

<p><b>SETUP - RADIO</b></p> <p>Press  to select</p> <p><b>Radio.</b></p> <p>Press </p> 	<p><b>SETUP – RADIO - SecNet</b></p> <p>Press  to select</p> <p><b>SecNet</b></p> 	<p><b>SETUP – RADIO - SecNet</b></p> <p>Press  to select</p> <p><u>Value</u> '23'</p> 
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<p><b>SETUP – RADIO - SecNet</b></p> <p>Press  to set a <u>Value</u></p> <p>The Value field turns (Yellow) with ONE-DIGIT '4' (White).</p> 	<p><b>SETUP – RADIO - SecNet</b></p> <p>Use   to change digit Up/Down.</p> <p>Use   to move digit (White) Left/Right.</p> 	<p><b>SETUP – RADIO – SecNet - SET</b></p> <p>Once the <u>Value</u> is where you want it.</p> <p>Press  to SET the Value.</p> 
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✓ To return to the SETUP screen press  then again 



### 3.3 IO HDW & Add Devices

1. The Tode must know what IO attachment ability it has. At the time of this writing the only option is a 'Side-IO' Plug (SIO).
  - a) Set the IO HDW attachment ability as shown
  - b) Add an 'OnOff' Device as shown

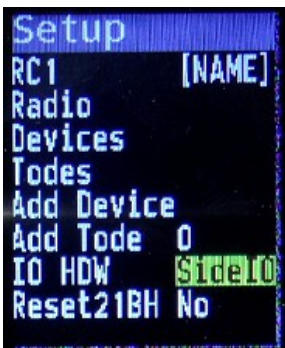
#### SETUP - IO HDW

Press  $\downarrow$  to select **IO HDW.**

Press  $\rightarrow$  to select  
Value 'NotSet'

Use  $\uparrow$   $\downarrow$  to change  
to 'SideIO'

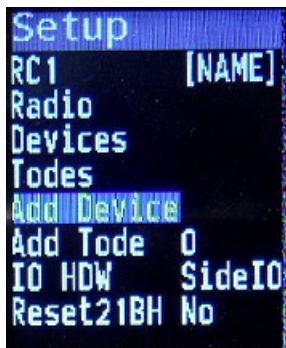
Press **SET** to set the  
Value



#### SETUP - Add Device

Press  $\uparrow$  to select  
**Add Device**

Press **GET**



#### SETUP - Add Device - OnOff

Press  $\downarrow$  to select  
'OnOff'




Press **GET**

Only Press once;  
nothing changes but  
the selected device  
was added.





2. Name the 'OnOff' Device just added.

### SETUP - DEVICES

Press  to return to  
**SETUP.**  
Press  and select  
**Devices**  
Press 




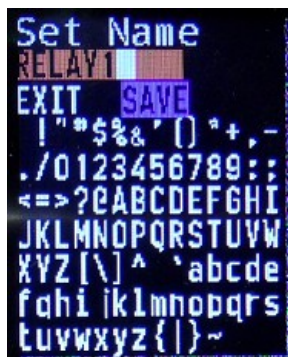
### SETUP – DEVICES – NAME?

Press  to select  
**NAME?.**  
Press 





### SETUP – DEVICES – Name the Device

Use the same  
procedure to  
[Enter Name](#) for the  
Device.  
Select **SAVE** and  
press  then **EXIT**






3. Set the IO Pin for the 'OnOff' Device just added.




**SETUP - DEVICES**

Press  to select  
**RELAY1** just named  
 Press 

**SETUP - DEVICES - PIN**

Press  to select  
**PIN.**  
 Press  to select  
Value 'NotSet'  
 Press 









**SETUP - DEVICES - Set IO  
Pin #**

Use   to change  
Value to 33.  
 Press   
*Check IO HDW if  
 value won't change*



4. To return to the SETUP screen press  then again  then again 

5. Test the new device as shown below

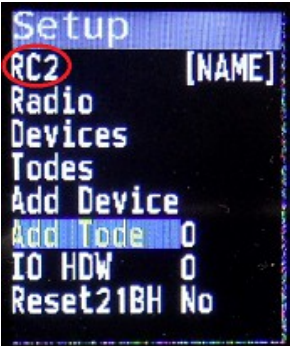
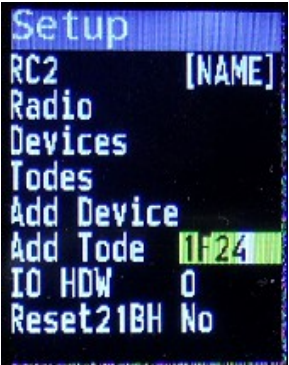

SETUP	THIS TODE	THIS TODE – DEVICE CONTROL
<p>From the SETUP screen press  to return to <b>THIS TODE</b></p>	<p>Press  to select <b>RELAY1</b>. Press  to select <u>Value 'Off'</u> Press <b>SET</b></p>	<p>Use   to change <u>Value</u> to 'On'. Press <b>SET</b> Relay1 on pin 33 should activate.</p>
		

6. NOTE: To READ the Devices on a Tode Screen (one's with '?' as their value) press 

# 4. REMOTE TODE'S

## 4.1 Add Tode

- ✓ To Remotely Control another Tode's Devices. That "Remote" Tode must be added to THIS-TODE as shown
  - In this Example we have setup a 2<sup>nd</sup> Tode with the Name 'RC2'
    - Check Radio settings **SecNet**, **Frequency** and **Address** of 'RC1' ( shown as pictured in [#2.2.Radio Settings|outline.](#) )
      - SecNet = 44
      - Frequency = 434 MHz
      - Address = **1F24**
  - Set 'RC2' Tode Radio Settings for SecNet and Frequency exactly the same as 'RC1'
  - Add 'RC1' Device Controls to 'RC2' as shown below

SETUP	Add Tode by Radio-Address	Check Tode Add Success.
Press ↵ to select <b>Add Tode</b>	Press ⇨ to select <u>Value</u> Change to <b>1F24</b> ( RC1 – Address ) Press SET	Press ⇨ again for Next-Tode See <a href="#">#2.1.1.Turn the Power ON</a> for screen order.
		



- ✓ If the Add Tode was successful it will have a screen for it. If there is no Screen for it try to Add it again closer to the other RC.
- **Add Tode** gets the Name and Devices from it's Target Tode as Configured.
- Once Successful use **GET** to retrieve Remote Tode's Device Readings or Select a Devices Value and **SET**

## 5. Deleting Todes & Devices

As of this writing the firmware only allows the 'Reset' option which will erase all Todes and Devices. You will have to re-configure from the beginning to erase a Device or Tode.

Reset is the last item on the **SETUP** menu – Set the Value to YES and press **SET**

NOTE; The four digits after 'Reset' on the menu is the current firmware version. As shown above the Tode has firmware version 21BH loaded on it.