# Quick Start Guide

**TWR-AUDIO-SGTL**

Audio peripheral module with
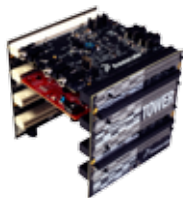SGTL5000 codec

*freescale*

TOWER SYSTEM

# Get to Know the TWR-AUDIO-SGTL

Stereo Headphones
DC Isolated
(3.5 mm)

Stereo Headset
(3.5 mm)

Stereo Headphones
Virtual Ground
(3.5 mm)

Microphone In
(3.5 mm)

Analog Stereo
Audio Line In
(3.5 mm)

Analog Stereo
Audio Line
Out (3.5 mm)

**Figure 1: Front Side of TWR-AUDIO-SGTL Module**

## TWR-AUDIO-SGTL
## Freescale Tower System

The TWR-AUDIO-SGTL module is part of the Freescale Tower System, a modular development platform that enables rapid prototyping and tool re-use through reconfigurable hardware. Take your design to the next level and begin constructing your Tower System today.

# TWR-AUDIO-SGTL Features

- SGTL5000 low-power stereo codec with headphone amplifier
- Tunable clock generator
- Stereo line in on 3.5 mm jack
- Stereo line out on 3.5 mm jack
- Headphone output on 3.5 mm jack
- Virtual ground capacitor-less headphone output on 3.5 mm jack
- Smartphone compatible headset (headphone output/microphone input) on 3.5 mm jack
- Microphone input on 3.5 mm jack
- Space provided on board to mount an electret microphone
- Compatible with Tower System processor modules using ColdFire+, Kinetis K and L series MCUs and Vybrid controllers

# Step-by-Step Installation Instructions

To evaluate and develop with the modular Freescale Tower System development platform, a minimum of three basic modules are required for complete assembly.

**1** **MCU/MPU module**

Acts as the main control module for the system

**2** **Peripheral module (i.e., TWR-AUDIO-SGTL)**

Adds features and functionality to your system

**3** **Two elevator modules (primary and secondary)**

Provides power, easy signal access and side mounting expansion

The TWR-AUDIO-SGTL module comes with its jumpers in the default positions, as shown in the jumpers section. Please consult the TWR-AUDIO-SGTL User Manual (found on **freescale.com/Tower**) for more information on the TWR-AUDIO-SGTL functionality and for other jumper configurations.

When assembling the TWR-AUDIO-SGTL module and the MCU module into the elevator modules, please ensure that the modules occupy adjacent slots and that the primary edge connector (marked with a white stripe along the primary edge of the module) is inserted into the primary elevator module (denoted with white connectors). See the instructions in the TWR-ELEV Quick Start Guide for the elevator modules for proper Tower System assembly.

# TWR-AUDIO-SGTL Jumper Options

The following is a list of all jumper options. The default installed jumper settings are indicated by the white text within the black boxes.

## TWR-AUDIO-SGTL Jumpers

| Jumper | Option | Setting | Description |
| --- | --- | --- | --- |
| J1 | Adds 4.7k Ohm pull-up resistor to I²C SDA data line | **ON** | Pull-up added |
| | | OFF | Resistor disconnected |
| J2 | Adds 4.7k Ohm pull-up resistor to I²C SCL data line | **ON** | Pull-up added |
| | | OFF | Resistor disconnected |
| J3 | Reset shutdown selection | **1-2** | No shutdown |
| | | 2-3 | Hardware reset causes shutdown cycle |
| J5 | Disable audio codec | **ON** | Audio codec enabled |
| | | OFF | Audio codec disabled |
| J6 | Master clock source selection | **OFF** | Si5351A (24.576 MHz default) |
| | | ON | MCLK from processor module |
| J11 | Microphone input selection | **3-5** | External microphone |
| | | 3-4 | Internal microphone |
| | | 1-3 | Smartphone headset |
| J14 | Microphone bias | **1-2** | Microphone bias applied |
| | | OFF | Microphone bias not applied |

## Support

Visit **freescale.com/support** for a list of phone numbers within your region.

## Warranty

Visit **freescale.com/warranty** for complete warranty information.

**For more information, visit freescale.com/Tower**

**Join the online Tower community at towergeeks.org**