

SCT-DEMO

Instruction manual

With Sensory SC-6x Technology

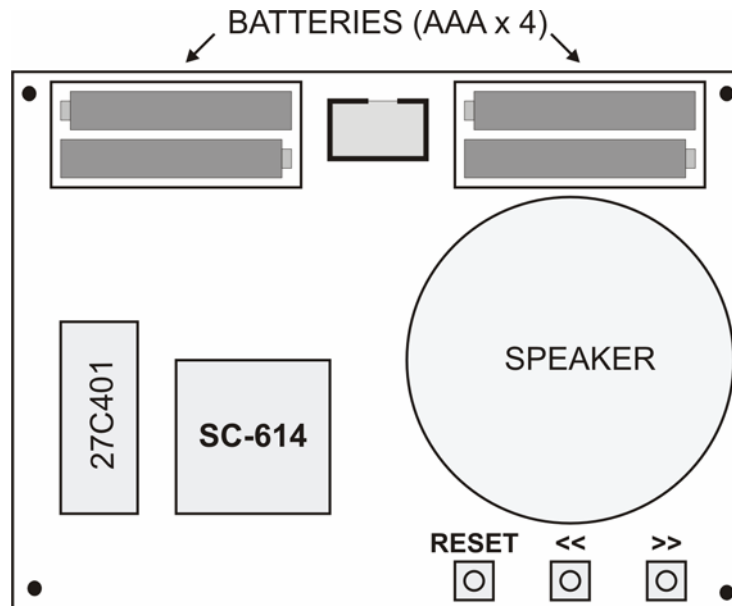


S E N S O R Y[®]

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Using the SCT-DEMO

The SCT-DEMO exemplifies some of the speech compression technologies currently available on the Sensory SC-6x Speech Controller Family.



To starting the demo, make sure the four AAA batteries are correctly inserted in the batteries holder. The demo can then be operated using the three buttons:

- ▶ **RESET**
This is the unit hardware reset button.
- ▶ **<<**
This button skips to the next demo/sample.
- ▶ **>>**
This button skips to the previous demo/sample.

The demo cycles through all the compression technologies, with each sample preceded by announcing the type of compression. Pressing the << or >> buttons will jump to the next or previous sample.

Power

The unit doesn't have a power button; to power down please press << and >> buttons at the same time. The message "Powering down" announces that the unit is now in the power down mode, waiting for any button press to restart.

About the SC-6x Family of Speech Controllers

From talking toys to security systems, products that include Sensory's cost-effective speech solutions stand out because they speak out. Every speech synthesizer from Sensory also gives you the benefits of a microprocessor at a price to compete with non-processor based devices. Whether you need your product to say a few words or talk for several minutes, Sensory's speech processors can deliver a few seconds to several hours of speech.

With Sensory's full range of speech products, you can select a device that is precisely right for your application. Not only can you choose the optimum combination of price and capacity, you can adopt any of these digital storage alternatives: on-chip mass programmable ROM, one-time programmable ROM, external memory.

Sensory also offers development tools that support the speech design cycle from initial prototyping to field testing and final production.

Types of Synthesis

- ▶ **MX** synthesis is your solution for producing long durations of great speech and sound effects at the lowest possible system cost. MX offers data rates as low as 1K bits-per-second, yielding high quality speech with minimal development effort.
 - Data rate Kbps: **1.0 – 3.5**
 - Memory required per minute of speech: **7.5 – 26.2 KB**
- ▶ **CX** synthesis provides optimal speech and sound effects. Its highly sophisticated analysis can reproduce the subtle qualities of a broad range of character voices. CX offers up to six choices of data rates to help you optimize speech quality and memory cost.
 - Data rate Kbps: **30 – 11.2**
 - Memory required per minute of speech: **22.5 – 84.0 KB**
- ▶ **LX** is mathematically simpler than MX or CX, requiring less processing power but more editing.
 - Data rate Kbps: **1.8**
 - Memory required per minute of speech: **13.5 KB**

Music Synthesis

Sensory also provides a way to enhance your products with high quality music synthesis. Sensory's music synthesizer provides polyphonic music using standard Musical Instrument Digital Interface (MIDI) files that have been converted into compact bit streams. This gives the ability to play up to 14 channels of music.

Music + Speech

The music synthesizer can also play polyphonic music simultaneously with speech (MX or CX), adding even more excitement to your products.

SC-6x Family of Processors

SC-605

The SC-605 has a 2.36 Mb (288 KB) ROM to support up to 37 minutes of internally-stored MX speech or up to 12 minutes of CX speech. This device is a perfect one-chip system solution, functioning as master controller, speech processor, and data memory.

SC-601

The SC-601 has a 1.5 Mb ROM to support up to 24 minutes of internally-stored MX speech or up to 8 minutes of CX speech.

SC-614

The SC-614 expands the capability of the SC-6x family by incorporating 64 I/O pins for interfacing with the outside world.

SC-604

The SC-604 contains the same RAM and core as the other SC-6xx devices. It can be used as a host processor in applications that don't require large amounts of I/O, or as a slave processor, controlled through a parallel interface by a master processor.

	SC-604	SC-605	SC-601	SC-614
ROM type	ROM	ROM	ROM	ROM
ROM (bytes)	64K	288K	192K	64K
RAM (bits)	10880	10880	10880	10880
I/O Pins (packaged)	16	32	32	64
I/O Pins (die)	16	32	32	64
Pin Count (package)	64	100	100	100
Pin Count (die)	36	53	53	85
Built-In DAC	Yes	Yes	Yes	Yes
Built-In Comparator	Yes	Yes	Yes	Yes
Max Speech Duration (1.0 Kbps)	6.5 min	37 min	24 min	6.5 min
Any of these parts can also be interfaced to external memory for longer speech duration				

The Interactive Speech™ Product Line

The Interactive Speech line of ICs and software was developed to "bring life to products" through advanced speech recognition and audio technology.

The Interactive Speech Product Line was designed for consumer telephony products and cost-sensitive consumer electronic applications such as home electronics, personal security, and personal communication.

The product line includes award-winning RSC series general-purpose microcontrollers and tools, SC series of speech microcontrollers, plus a line of easy-to-implement chips that can be pin-configured or controlled by an external host microcontroller. Sensory's software technologies run on a variety of microcontrollers and DSPs.

RSC Microcontrollers and Tools

The RSC product line contains low-cost 8-bit speech-optimized microcontrollers designed for use in consumer electronics. All members of the RSC family are fully integrated and include A/D, pre-amplifier, D/A, ROM, and RAM circuitry. The RSC family can perform a full range of speech/audio functions including speech recognition, speaker verification, speech and music synthesis, and voice record/playback. The family is supported by a complete suite of evaluation tools and development kits.



SC Microcontrollers and Tools

The SC-6x product line feature the highest quality speech synthesis ICs at the lowest data rate in the industry. The line includes a 12.32 MIPS processor for high-quality low data-rate speech compression and MIDI music synthesis, with plenty of power left over for other processor and control functions. Members of the SC-6x line can store as much as 37 minutes of speech on chip and include as much as 64 I/O pins for external interfacing. Integrating this broad range of features onto a single chip enables developers to create products with high quality, long duration speech at very competitive price points.

Application Specific Standard Products (ASSPs)

Voice Direct™ 364 provides inexpensive speaker-dependent speech recognition and speech synthesis. This easy-to-use, pin-configurable chip requires no custom programming and can recognize up to 60 trained words in slave mode, and 15 words in stand-alone mode. Ideal for speaker-dependent command and control of household consumer products, Voice Direct 364 is part of a complete product line that includes the IC, module, and Voice Direct 364 Speech Recognition Kit.

Voice Extreme™ simplifies the creation of fully custom speech-enabled products by offering developers the capability of programming the chip in a high-level C-like language. Program code, speech data, and even record and playback information can be stored on a single off-chip Flash memory. Based on Sensory's RSC-364 speech processor, Voice Extreme includes a highly efficient on-chip code interpreter, and is supported by a comprehensive suite of low-cost development tools.



Software and Technology

Voice Activation™ micro footprint software provides advanced speech technology on a variety of microcontroller and DSP platforms. A flexible design with a broad range of technologies allows manufacturers to easily integrate speech functionality into consumer electronic products.



Fluent Speech™ small footprint software recognizes up to 50,000 words; offers Animated Speech with the ability to automate enunciation and articulation; performs text-to-speech synthesis in either male or female voices; provides noise and echo cancellation, performs Wordspotting for natural language usage; offers telephone barge-in; and provides continuous digit recognition.

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