

# t2sp Intex Talker

## *Intex Talker*

Dropbox

### **Datasheet Intex Talker TM Professional Voice Quality Text-To-Speech Synthesiser**



#### **1. Features:**

1. Phoneme based speech synthesiser
2. 6502 Microprocessor based text-to-speech algorithm
3. 64 crystal controlled inflection levels
4. 750 character buffer (3000 character available)
5. 6K byte text-to-phoneme algorithm
6. Complete ASCII character set recognition and echo
7. Adjustable baud rates (75-9600)
8. RS232C and parallel input interface
9. Phoneme access modes
10. Serial X-on/X-off handshaking
11. User expandable memory (4K ROM or 2K RAM Capacity)
12. One watt amplifier and volume control
13. Onboard power supply
14. Music and sound effects capacity
15. Power-on indicator
16. Extensive quality control and burn-in

#### **General Description**

INTEX-TALKER is a completely self-contained professional voice quality text-to-speech synthesizer.

INTEX-TALKER may be easily interfaced to any computer, modem, RS232C serial or parallel output device. It combines a SC-01A phoneme based speech synthesizer chip with a 6502 microprocessor based text-to-speech algorithm to create an unlimited vocabulary.

INTEX-TALKER provides a real time audio interface for applications in data processing, telecommunications, automation, education or for handicapped uses. Equipped with a keyboard, INTEX-TALKER can serve as a typewriter for the blind

or a communicator for the vocally impaired. Every ASCII character is recognized (including punctuation).

INTEX-TALKER text-to-speech translations are performed completely independent of the host computer. This allows the host computer to be free to perform other processing tasks while INTEXTALKER is speaking. As a computer aided educational unit, INTEXTALKER can provide interactive student instruction on literally any subject. It adds a user friendly environment, enhancing the learning process, and encouraging the development of student familiarity with the computer keyboard.

The vocabulary spoken by INTEX-TALKER is unlimited and consists of the 64 phonemes, or variations thereof, which define the English language. The microprocessor based text-to-speech algorithm converts the incoming ASCII text to the proper phoneme strings to create intellegible speech. Pronunciation of the input data can be a letter at a time, a line at a time, the entire 10000-3000 character buffer, or on a programmably delayed basis.

Interaction between the host computer and INTEX-TALKER is as simple as PRINT statements in BASIC programs or data messages sent via a modem. No extra memory, RAM or ROM, is required to interface with INTEX-TALKER other than that normally associated with writing ASCII characters to a printer or CRT.

INTEX-TALKER adds both fun and utility to home computers. Computer games come to life and the computer can speak instructions, warnings or praise. In addition, INTEX-TALKER has the facility to produce music and sound effects through its special music programming language.

The INTEX-TALKER is fully documented and the 6502 based circuit board is not encapsulated or potted. The user is provided with a full schematic, memory map and parts list to encourage custom programming and application.

INTEX-TALKER adds a new dimension to existing programs. Its versatility is unlimited. You can easily apply its capabilities to both personal computer and industrial uses.

### Physical Description

A single control knob and LED are provided on the front panel. The LED indicates that power is on and the knob serves as a volume control. The rear panel contains: DB-25 RS-232C serial input port connector Speaker jack 34 pin parallel input edge connector Inside the INTEX-TALKER are two 8 position DIP switches. One selects among eight baud rates between 150 and 9600 bps (75 bps is selected through a separate jumper). The other DIP switch is used to select various speech options, internal test programs, and configuration formats.

### Interconnections

Power INTEX-TALKER is supplied with a 115 volt power supply (50-60 Hz). It uses a low voltage transformer which can be plugged into any standard AC outlet. The output of this transformer is connected to the INTEX-TALKER board and converted to +12V, -12V, and +5V for internal use. (220 VAC 50 Hz transformers are optionally available).

Audio A one watt audio output form the INTEX-TALKER is available via a standard 1/4 mini-jack connector on the rear panel. This output can be used with any standard 8-Ohm speaker or connected to the AUX input of a larger amplifier for increased volume.

Input Interface Connections The unit has both a serial and parallel input port. Serial input is used for interfacing to modems and to most computers. The parallel port is useful for computers which have parallel (such as a Centronics printer port), but not serial ports, and for computers which have both parallel and serial ports. A

DIP switch setting determines which input is to be accepted. The serial input is R&232C and uses a standard D~255 25 pin connector. All conventional signals are supplied to support full hardware handshaking (7 signals including GND, TD, RD, CTS, RTS, DCD, and DTR) but it is not required for unit operation. The INTEX-TALKER can receive ASCII input data through its 8 bit parallel interface in addition to the serial port. The port is 8 bits parallel with strobe and acknowledge handshaking. If standard parallel or R~232C serial connections are used, the host computer hardware will detect whether the unit is ready to receive a signal or is busy and will, if properly programmed, take appropriate action. However, many micro-computers lack the hardware to detect handshaking signals and such handshaking signals do not pass through modems. It is possible to use the INTEX-TALKER with no handshaking. Software X-on/X-off handshaking signals are provided for these purposes. The data can be sent at any baud rate but time must be allowed between transmissions so that input buffer does not overflow (1000-3000 characters). Note: Various cable configurations are required depending upon whether the unit is to be attached through its serial or parallel input. An assortment of cables for specific computers is available from INTEX.

### **User Option Control Codes**

Device control signals may be sent from the host computer to select among many different user options. In general, unit control signals are in the form: ! (letter) (option) (option). The exclamation point is a signal to the INTEX-TALKER that a control code follows. Options can be changed at any time by sending the appropriate codes preceding or imbedded within the text. Some of the typical codes are:

!K - synchronize speech and text and provide end of message character

!L - line by line pronunciation

!W - whole text pronunciation

!E - each letter pronunciation

!C - pronounce by direct phoneme input

!N - pronounce by text-to-speech algorithm

!A, !M, or S - speak all, most, or some punctuation

!F - set monotone or flat intonation

!I - set automatic inflected intonation

!P and !R - set intonation base pitch and clock rate

!Q - turn off

!O - turn on

!Dn - where n = 1 to 8 provides variable delay from 100 to 800 msec. When the unit is initially powered up, the processor selects the following default options: flat intonation, text-to-speech mode, some punctuation, and line-by-line pronunciation (initiated by a carriage return). Dip switch selections set input port mode (serial or parallel), hardware or software handshaking, and serial protocol. All option switch settings are explained in detail in the INTEX-TALKER Operation Manual.

### **Intonation**

The pitch at which individual phonemes are pronounced may be controlled automatically by the text-to-speech algorithm, kept fixed, or altered by user command. Some people prefer automatic inflection, because of the variety it gives to the speech. Others think a computer should sound like a computer and prefer the flat speech to artificially intoned speech. Still others may wish to directly control the pitch to make the unit "sing" or pronounce words with special emphasis. The INTEX-TALKER hardware allows direct digital control of output pitch. The synthesizer can be set to 64 different pitch levels. This is

accomplished by setting one of four base pitch levels and one of sixteen different clock rates about that base. The use of this crystal controlled clock circuit completely eliminates temperature drifting and the spurious operation typical of other synthesizers. The user may control the base pitch setting independently of the clock rate. The user options are:

!P1 (low pitch)

!P2 (medium low pitch)

!P3 (medium high pitch)

!P4 (high pitch) The user may also control the clock rate.

!R1 (slowest rate - lowest level for the given base pitch)

!R2 (slightly faster)

!R3... !R16 (increasingly faster rates) When the unit is first turned on, the synthesizer is set to pitch level 2 (medium low). The intonation is generated by an algorithm which selects an appropriate clock rate for each phoneme.

Pitch and rate codes may be mixed with phoneme codes to produce "singing"

## **Music**

The music mode can be turned on by !N. In music mode, the following notation is used. There are 3 octaves, indicated by numbers from 1 to 3. Notes are A, B, C, D, E, F, G. Sharp is indicated by +, flat by "-". Length of note may be from 1 (whole note) to 128 (one hundred twenty-eighth note). Rests are indicated by R. (In addition to conventional length notes, e.g. quarter notes, odd lengths, e.g. thirty seventh notes are allowed. A three quarter note may be made by a half note followed by a quarter note.) For instance 3F+4 means third octave, F sharp, quarter note. R16 means a sixteenth note rest. Tempo may set from 50 to 128 ~ T128. Default Tempo is 80.

## **Physical Specifications**

Width 8.1 inches (206 mm) Depth 6.3 inches (155 mm) Height 2.6 inches (66 mm) Weight 2 lbs. (0.896 Kg) Temperature Operating: 40 to 100 degrees F.(4 to 38 degrees C) Storage: -35 to 150 degrees F. (-37 to 65 degrees C) Humidity Operating: 20% to 90% (non condensing) Power Input to transformer 120 VAC, 60 Hz, 25W Input to INTEX-TALKER 22VCT at 300 mA. The equipment described herein is covered by patents and copyrights licensed or proprietary to INTEX MICRO SYSThMS, CORP. INTEX MICRO SYSTEMS CORP. reserves the right to alter its product line or change this specification or design at any time without obligation.

## **Federal Communications Commission Regulation Statement**

This unit generates radio frequency energy and if not installed and used properly - that is, in strict accordance with the manufacturer's instructions - it may cause interference to radio and television reception. It has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this unit does cause interference to radio or television reception, which can be determined by turning the unit OFF and ON, the user is encouraged to try to correct the interference by following one or more of the following measures: (1) reorient the receiving antenna; (2) relocate the unit with respect to the receiver; (3) move the unit away from the receiver; (4) plug the unit into a different outlet so that the unit and receiver are on different branch circuits. If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal

Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington D.C. 20402, Stock #004-000-00345-4.

**Limited Warranty**

INTEX MICRO SYSTEMS CORP. warrants for a period of ninety (90) days from the date of delivery to the original purchaser, that the INTEX-TALKER is free from defects in workmanship and materials under normal use and service, provided the equipment is used in accordance with the user's manual. Intex Micro System. Corporation 755 West Big Beaver Road - Suite 1717 Troy, Michigan 48084 (313) 362-4280

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