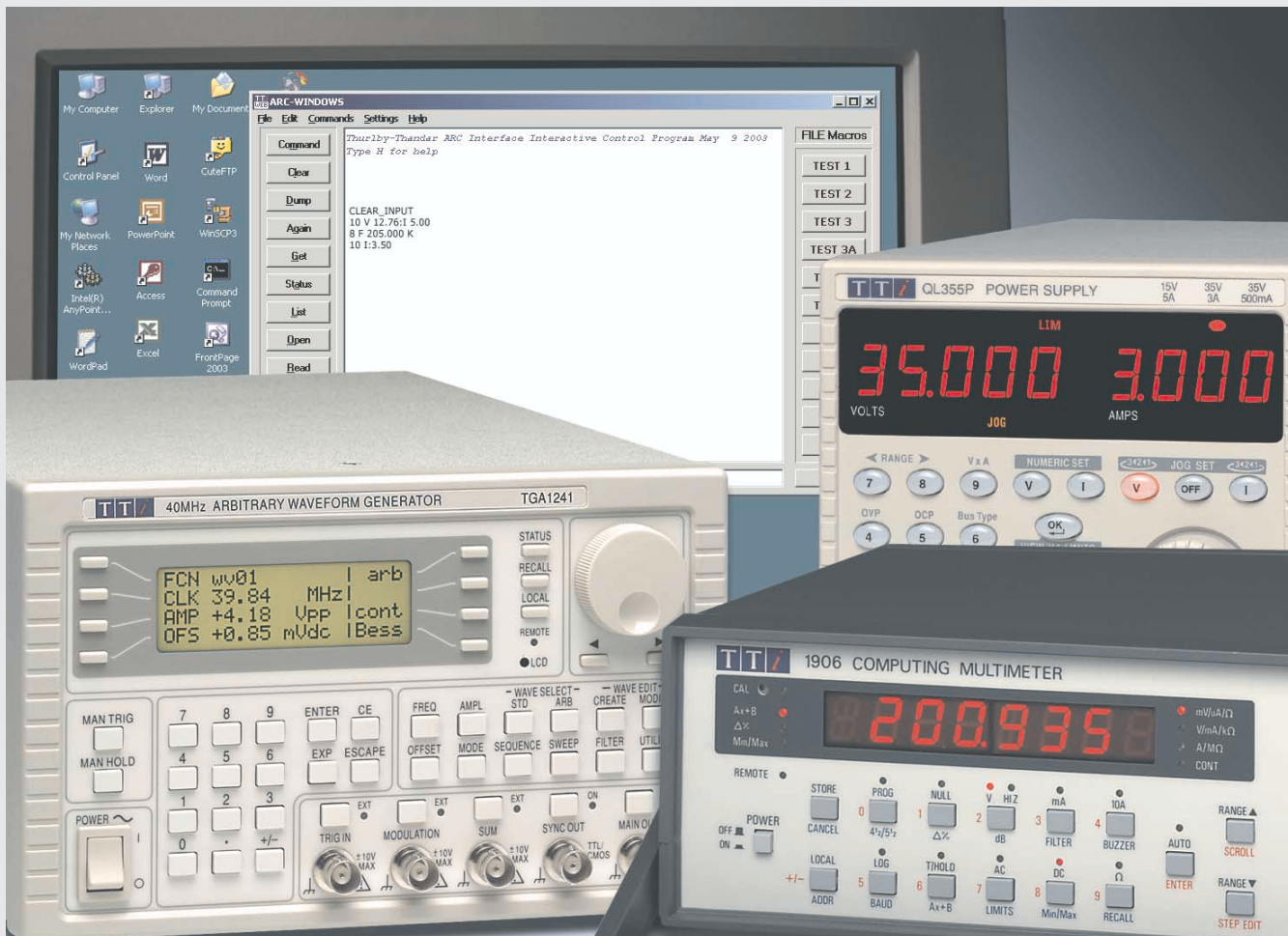# TTi

THURLBY THANDAR INSTRUMENTS

ARC System • ARC-Windows

ARC - Addressable RS-232 Chain

Multi-instrument control via a single RS-232 port

- ▶ Instrument control from a personal computer
- ▶ Up to 32 instruments via a single serial port
- ▶ No special interface card required
- ▶ Inexpensive lightweight cabling
- ▶ Operation via standard serial port driver software
- ▶ Windows based software available

ARC System   Addressable RS-232 Chain

What is ARC ?

ARC stands for "Addressable RS-232 Chain" and is a low-cost system for linking instruments together so that they can be controlled and monitored by a personal computer.

The ARC interface is an extension of the industry standard RS-232 interface and is exclusive to TTi instruments.

The interface differs from conventional RS-232 in that it allows up to 32 instruments to be controlled using the normal RS-232 (or RS-422/423) port of a PC.

Is ARC compatible with standard RS-232 ?

Yes. The ARC interface can perform as a standard RS-232 interface when required. However, RS-232 instruments from other manufacturers can not be included within an ARC system.

What are the computer requirements ?

The computer acting as the controller must have one free serial port. This can be RS232, RS423 or RS422.

An ARC system can be operated from any software that supports the computer's serial port. For optimum performance, X-on/X-off handshaking should be used.

Alternatively, TTi offers a low-cost software package called ARC-Windows which runs under Win 95/98/ME/2000/XP and which supports the full range of ARC capabilities.

Why is there a need for ARC ?

The normal way of building up an automated instrumentation system is to use instruments fitted with a GPIB (IEEE-488) interface.

The disadvantage of this is that GPIB instruments are relatively expensive, the GPIB controller is expensive, and the interconnecting cables are expensive.

ARC is intended to provide a low-cost alternative which utilises lower cost instruments, inexpensive cables, and can be controlled by any personal computer without the need for a special interface card or special software.

ARC will be particularly appropriate for applications where automated systems need to be constructed using general purpose bench-top instruments which may be regularly required for other purposes.

ARC is not intended as a competitor to GPIB which offers much higher data transfer rates and a more comprehensive range of facilities. GPIB continues to be supported by an extensive and growing range of TTi instruments.

How does ARC work ?

The ARC interface is basically an RS-232 interface with special extensions to the hardware and software.

Unlike normal RS-232 systems, each instrument can be assigned a unique address which allows the controlling PC to communicate with it individually.

The instruments are "daisy chained" together using simple cables which are available from TTi or can be easily constructed using inexpensive parts.

Which instruments support ARC ?

TTi offers a full range of low-cost general purpose instruments which include the ARC interface. Currently the instruments offered are as follows:

▶ TSX-P series dc power supplies
▶ QL-P and PL-P series DC power supplies
▶ TF830-RS232 frequency counter
▶ 1705 and 1906 digital multimeters
▶ TG1010A DDS function generator
▶ TGA1240 series arbitrary generators
▶ TGR1040 synthesised RF generator
▶ TA320S logic analyser

Further instruments will be added to the range in the future. Please contact Thurlby-Thandar or your local agent/distributor for details of new product releases.

ARC Interface - technical specification

Connector:	9-pin female D connector (at instrument)
Signals used:	TXD, RXD, Ground
Handshaking:	X-ON/X-OFF or None
Baud rates:	9600 default, other baud rates may be used
Word format:	1 start bit, 1 stop bit, 8 data bits, no parity

ARC-Windows   Control Software

ARC-Windows is an optional piece of software which simplifies the control of an ARC system.

It operates under Windows 95/98/ME/2000/XP.

ARC-Windows features

▶ *Interactive Windows operation with on-line help*
▶ *Wide range of pre-programmed commands*
▶ *Macro facility via simple ASCII files*
▶ *Response file generation.*

Typical application areas

▶ *Low-cost ATE systems*
▶ *Data acquisition systems*
▶ *Automated experiments*
▶ *Education and training*

ARC-TALK

Also available is the original DOS based control program ARC-TALK.

ARC-TALK is a stand-alone .EXE file that runs under DOS or from the DOS Prompt under Windows.

Also supplied are a set of serial port driver routines for incorporation into Microsoft QuickBasic   programmes.

ARC-TALK can now be downloaded without charge from the Downloads page of the TTi website:

www.tti-test.com/downloads-tti.htm
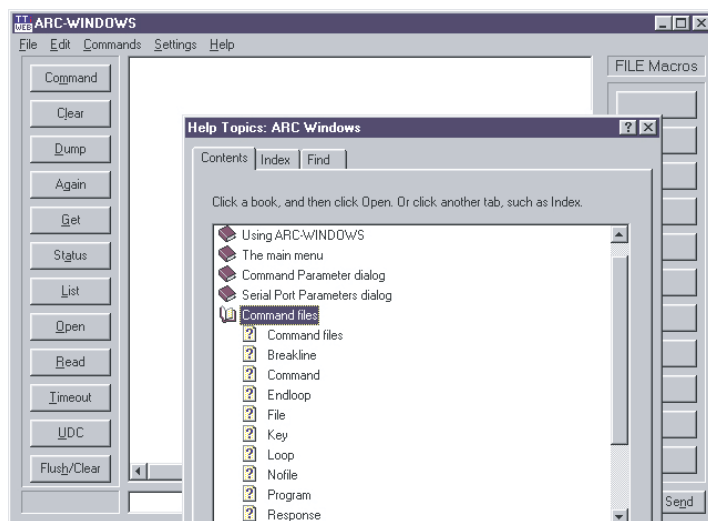
Thurlby Thandar Instruments Ltd. operates a policy of continuous development and reserves the right to alter specifications without prior notice.

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