



Measurably better value



## QPX SERIES

Single and dual output PowerFlex DC power supplies, 750 to 1200 watts



Up to 80V or 50A per output limited by power curve

Low ripple and noise of <3mV rms at full power

High setting resolution and metering down to 1mV

Analog control interface, LAN/LXI, USB, RS232<sup>†</sup> & GPIB\* on P versions

Bench or System use with rear and front terminals\*\*

[aimtti.com](http://aimtti.com)

\*Optional on QPX750SP

\*\*QPX600D Excluded

<sup>†</sup> Not available on QPX750SP

# QPX SERIES Bench/system DC power supplies | PowerFlex/ PowerFlex +

## CAPABILITIES

### THE QPX SERIES

QPX series laboratory power supplies are designed to provide flexibility in the choice of voltage and current so as to meet multiple diverse applications. Voltages up to 80V and currents up to 50A are available within a defined power envelope. Unlike most power supplies of this power level, the QPX series is well suited to bench top applications in addition to system use.

MODEL	OUTPUTS	TOTAL POWER	MAX VOLTS	MAX AMPS	INTERFACES	POWER-FLEX	POWER-FLEX+
QPX750SP	1	750 Watts	80V	50A	Analog, GPIB*, USB, LAN (LXI)		•
QPX600D	2	1200 Watts	80V	50A	Analog		•
QPX600DP	2	1200 Watts	80V	50A	Analog, GPIB, RS-232, USB, LAN (LXI)		•
QPX1200S	1	1200 Watts	60V	50A	Analog	•	
QPX1200SP	1	1200 Watts	60V	50A	Analog, GPIB, RS-232, USB, LAN (LXI)	•	

\*Optional

### POWERFLEX & POWERFLEX+

A conventional PSU has a fixed current limit giving a power capability that reduces directly with the output voltage.

The Aim-TTi PowerFlex and PowerFlex+ regulation systems enable higher currents to be generated at lower voltages within an overall power limit envelope.

For PowerFlex+ models the output can provide more than six times the current of a conventional PSU of the same maximum voltage and power. For PowerFlex models the increase is three times.

### LOW RIPPLE AND NOISE

PowerFlex and PowerFlex+ use either a balanced multi-phase converter system or linear final regulation to minimise ripple and improve dynamic performance. This provides unusually low noise for the power level coupled with good transient response.

### POWER CALCULATION

The meter for each output can be set to show the total power currently being provided to the load ( $V \times A$ ) to a resolution of 0.1 watts. The power is shown in addition to the voltage and current values.

### CURRENT METER AVERAGING

When measuring rapidly varying loads it can become difficult to get accurate readings from the current meter. By selecting meter averaging, the reading is stabilised by averaging the last four readings to reduce the speed and extent of the variation.

### OVP AND OCP TRIPS

Variable trips for over-voltage and over-current are provided on each output. Unlike a limit setting, the trip setting turns the output off and provides a different level of protection.

For example, when repetitively testing a unit which normally takes a peak current of 10A, the current limit could be set to 11A and the OCP to 10.1A to ensure that a faulty unit will trip the supply off and not be damaged by over dissipation.

The output trip can also be activated by other fault conditions including over temperature and remote sense mis-wiring. The cause of the trip is shown on the display.

### LOW RESISTANCE CALCULATION

The meter for each output can be set to show the equivalent resistance of the load by displaying voltage divided by current. This function enables low resistance measurements to be made at high currents by using the remote sense terminals to create a four terminal connection. This gives more reliable results for certain component types, such as magnetics, which operate at ampere levels.

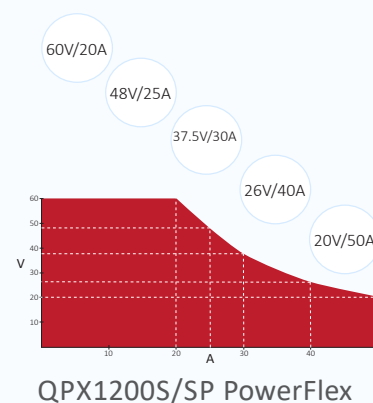
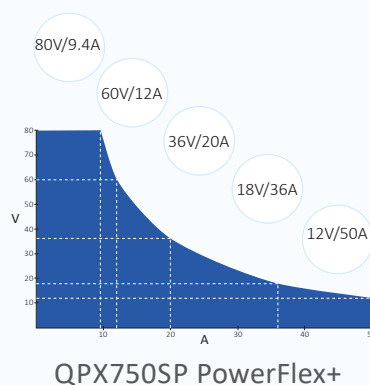
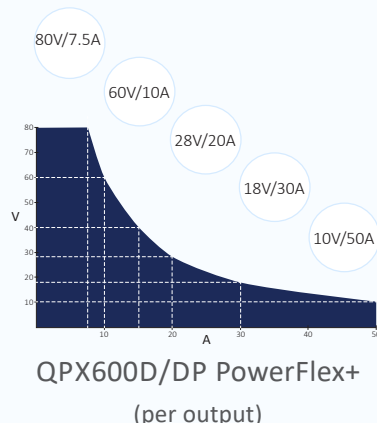
### QUASI ANALOG CONTROL

All models incorporate analog interfaces for voltage control of both output voltage and output current (non-isolated). An isolated logic control signal is provided for control of output on/off. An isolated open-collector logic output signal is also available. This can be menu selected as true or false for output enabled or disabled, current limit, power limit, or any fault trip.

### SELV MODE

QPX750SP provides an added safety feature where voltages above 50V require authorisation from the user.

## POWER ENVELOPES AND EXAMPLE RANGES



# QPX SINGLE OUTPUT QPX750SP & QPX1200S/ SP

## QPX750SP

The QPX750SP is a single output DC power supply with a maximum output power of 750 watts. It is suited to both bench-top and system applications.

**SELV  
MODE**



PowerFlex+ design with up to 750 Watts

Ultra-wide range of voltage/ current combinations (see graph)

Up to 80V and up to 50A within the power envelope

Low output noise and ripple of <3mV rms at full power

High setting resolution of 1mV

Variable OVP and OCP trips

Three automatic modes: CV, CC & CP

Analog control interfaces for voltage and current

Half-rack size, front and rear terminals for bench or system

USB, LAN (LXI) and GPIB\* interfaces.



\*Optional

PowerFlex design with up to 1200 watts

Wide range of voltage/current combinations

Up to 60V and up to 50A within a power envelope

Linear final regulation provides very low output noise and fast transient response

Variable OVP and OCP trips

Bench or rack mounting with front and rear terminals

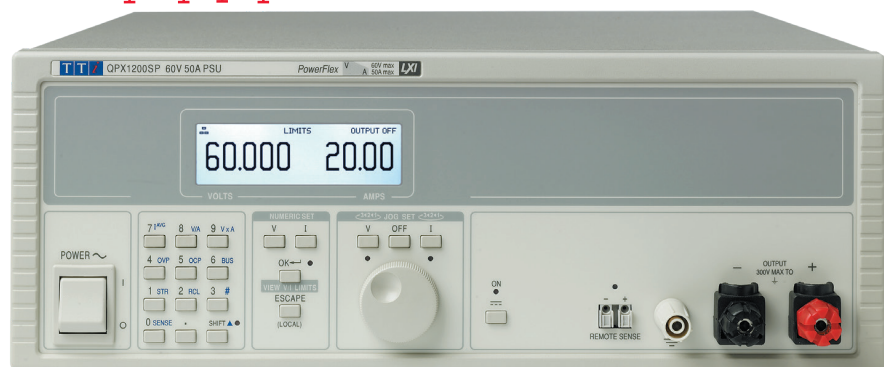
High setting resolution of 1mV in up to 60 volts

GPIB, RS-232, USB & LAN (LXI) interfaces (QPX1200SP)

Multiple non-volatile setting memories

Low resistance and power calculation

Analog control interfaces for voltage and current



## QPX1200S/SP

The QPX1200S/SP is a single output laboratory DC power supply with a maximum output power of 1200 watts. It is suited to both bench-top and system applications.



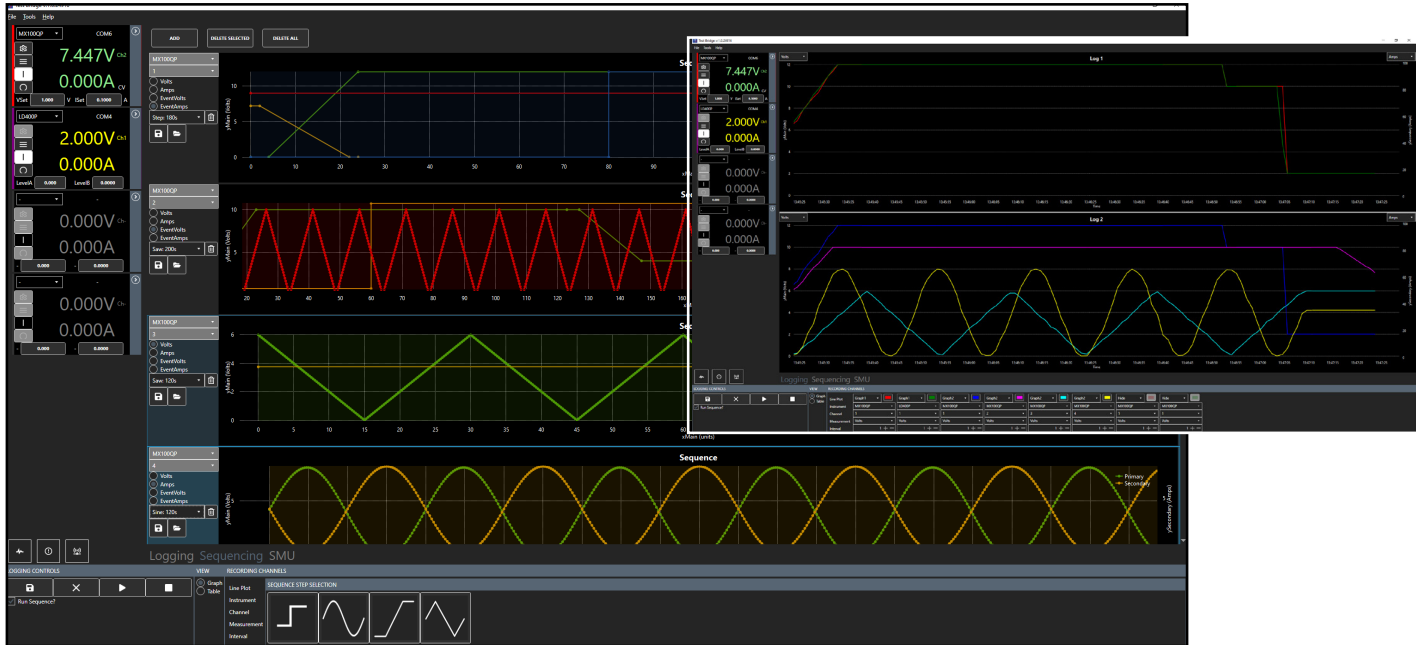
The image shows the rear panel of a Raspberry Pi 4 Model B. It features a variety of ports and connectors, including two USB-A ports, two USB-C ports, a 40-pin GPIO header, a micro-HDMI port, a micro-USB port, a 3.5mm audio jack, and a DC power input jack. The panel is labeled with various technical specifications and warnings, such as 'CAUTION: COMPONENTS ARE HOT TO THE TOUCH', 'WARNING: DO NOT TOUCH THE BOARD WHEN POWER IS ON', and 'DO NOT TOUCH THE BOARD WHEN POWER IS ON'. The panel is also marked with 'Raspberry Pi' and 'Model B'.





# TEST BRIDGE SOFTWARE

- ▶ MULTI INSTRUMENT CONTROL
- ▶ LOGGING TO TABLE AND GRAPH FORMAT
- ▶ TIMED SEQUENCE CONTROL ACROSS ALL INSTRUMENTS AND CHANNELS
- ▶ USB, LAN AND RS232 COMPATIBLE



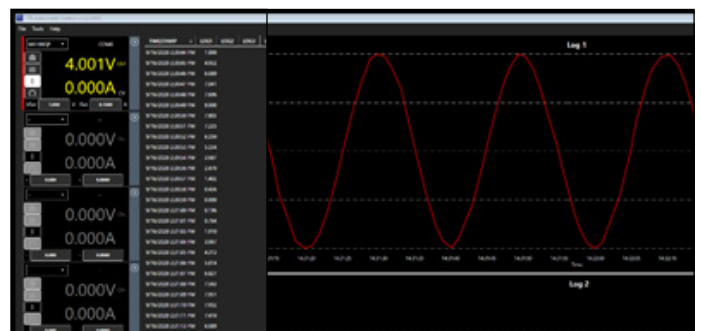
## MULTI INSTRUMENT CONTROL

Up to four instruments can be connected at one time, each one can be controlled by the instrument panel; settings and limits can be viewed and amended in the settings menu. Live and set data can be displayed for all channels on a multiple channel instrument, each one colour coded for ease of identification.

Compatible with Aim-TTi PSU and Loads: PL, QL, MX, CPX, TSX, QPX, and LD.

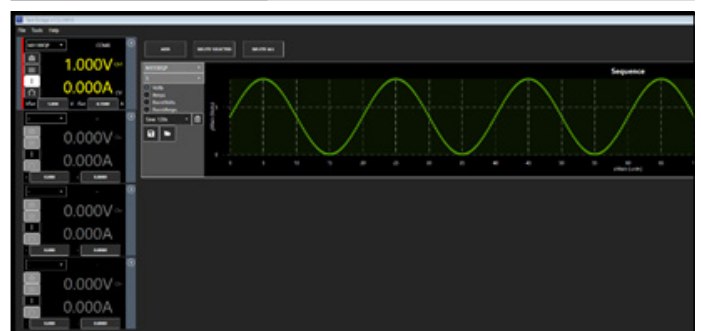
## LOGGING TO TABLE AND GRAPH

Logging channels capture live data, they can be set to record values from any output on an active instrument at specified time intervals. Varying measurement intervals can be set alongside units and plot line colour. The results are plotted on one of the two available graphs and can also be viewed in a table. The graph provides advanced zooming and panning functions, allowing efficient data analysis. The data can be exported as a .TSV file.



## TIMED SEQUENCE CONTROL

Each sequence is allocated to a specified channel on an instrument. Two different units can be added to each sequence, along with two events. A range of built in step options are available including: sine, triangle, ramp and step.



Test Bridge software can be downloaded from:  
<https://www.aimtti.com/support>

# Technical Specifications

MODEL	QPX600D/QPX600DP	QPX750SP	QPX1200/QPX1200P
OUTPUT SPECIFICATIONS			
VOLTAGE/CURRENT LEVELS			
Voltage Range:	Range 1- 0V to 60V Range 2- 0V to 80V	Range 1- 0V to 50V Range 2- 0V to 80V	0V to 60V
Current Range:	10mA to 50A	10mA to 50A	10mA to 50A
Power Range:	Up to 600W	Up to 750W	Up to 1200W
OUTPUT SETTING			
Operating Mode:	Constant voltage or constant current with automatic cross-over and mode indication.	Constant voltage, constant current or constant power with automatic cross-over dependent on output setting parameters CV, CC or CP mode indication in display.	Constant voltage or constant current with automatic cross-over and mode indication.
Voltage Setting:	By floating point numeric entry or rotary jog wheel.		
	Resolution- 1mV for 60V range, (2mV for 80V range).	Resolution- 1mV for 50V range, (2mV for 80V range).	Resolution- 1mV.
Current Setting:	By floating point numeric entry or rotary jog wheel; Resolution 10mA.		
Setting Accuracy:	Voltage- 0.1% ± 2mV on 60V range, (0.1% ± 4mV on 80V range) Current- 0.3% ± 20mA.	Voltage- 0.1% ± 2mV on 50V range, (0.1% ± 4mV on 80V range) Current- 0.3% ± 20mA.	Voltage- 0.1% ± 2mV    Current- 0.3% ± 20mA.
OUTPUT PERFORMANCE			
Load regulation	<0.01% +5mV (CV mode) for any load change within the PowerFlex envelope,using remote sense.		
Line regulation:	<0.01% +5mV for a 10% line voltage change.		
Ripple & Noise: (20MHz bandwidth).	Typically <3mV rms, <20mV pk-pk.		
Transient Response:	<2ms to within 100mV of set level for 5% to 95% load change.	To within 100mV of set level for a 5% to 95% load change. Rear Terminals: <2ms Front Terminals: <2.5ms	<250µs to within 100mV of set level for 5% to 95% load change.
Sensing:	Selectable local or remote sensing.		
Output Protection:	Output will withstand forward voltages of up to 90V. Reverse protection by diode clamp.		Output will withstand forward voltages of up to 70V. Reverse protection by diode clamp.
Over Voltage protection (OVP):	Settable 2V to 90V in 0.1V steps.		Settable 2V to 65V in 0.1V steps.
Over Current protection (OCP):	Settable 2A to 55A in 0.1A steps.		
Over Temperature protection:	Monitors internal temperature rise to protect against excess ambient temperature or blocked ventilation slots.		
Temp. Coefficient:	Typically <100ppm/°C.		
Sense Error:	Monitors the voltage between the remote sense terminals and output terminals to protect against mis-wiring.		
METER SPECIFICATIONS			
Display Type:	Large dot-matrix black-on-white backlit LCD.	4.3 inch (10.9 cm) backlit TFT LCD, 480 x 272 pixels total, 16 colours, resistive touch screen.	Large dot-matrix black-on-white backlit LCD.
Meter Function:	5 digit voltage meter and 4 digit current meter. Display of limits values,memory contents etc. Wide range of alpha-numeric messages/menus.		
Limits Display:	Limits settings can be displayed simultaneously with measurements.		
Meter Resolution:	Voltage- 1mV (2mV on 80V range). Current- 10mA.		Voltage- 1mV. Current- 10mA.
Meter Accuracy:	Voltage: 0.1% of reading ± 2 digits (CI mode and Unreg). Current: 0.3% of reading ± 2 digits (CV mode and Unreg).	Voltage: 0.1% of reading ± 2 digits. Current: 0.3% of reading ± 2 digits.	Voltage: 0.1% of reading ± 2 digits (CI mode and Unreg). Current: 0.3% of reading ± 2 digits (CV mode and Unreg).
V x A:	Display shows calculated power in watts. Resolution- 0.1W. Accuracy- 0.5% ± 0.1W.		
V/A:	Display shows calculated resistance. Resolution up to 5 digits. Measurement uncertainty is shown on display*.		

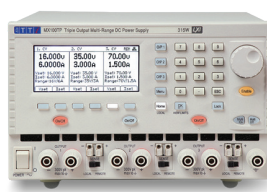
# Technical Specifications

MODEL	QPX600D/QPX600DP	QPX750SP	QPX1200/QPX1200P
FRONT PANEL CONTROLS			
Output Switching:	Push switch operating electronic power control. LED indication of On state.		
Output Terminals:	Front and Rear mounted safety terminals accepting 6mm wire diameter, 6mm plugs or 8mm spades at 50 Amps max, or 4mm plugs at 30 Amps max.		
Sensing Terminals:	Screw-less terminals on front and rear panel.		
Setting Stores:	Up to 50 set-ups (or 10 with QPX1200S & 600D) can be saved and recalled via the keyboard, and the digital interfaces with P-versions.		
Keyboard Control:	All functions, including the selection and set-up of the remote control interfaces, can be set from the keyboard.		
Rotary control:	The rotary Jog control can be used to adjust output voltage and current settings in a quasi-analogue mode. The output to be controlled is first selected with the appropriate control key.		
ANALOG & LOGIC INTERFACES			
ANALOG REMOTE CONTROL AND MONITORING			
Non-isolated inputs and outputs to set voltage and current limit and to monitor actual output voltage and current. These signals are referenced to the negative output and have a range of 0 to 10V or 0 to 5V (selectable via the keyboard). Note that the analog control voltage is digitised within the power supply.			
Control Accuracy:	Voltage: 0.3% ± 4mV; Current: 0.5% ± 40mA.		
Monitor Accuracy:	Voltage: 0.3% ± 4mV; Current: 0.5% ± 40mA.		
LOGIC CONTROL INPUT AND OUTPUT			
LOGIC IN:	A rear-panel opto-isolated input that is activated at an input current greater than approximately 1mA. User can set LOGIC IN (via the keyboard) to enable the output, disable the output, or be ignored when it is activated.		
LOGIC OUT:	An isolated rear-panel open-collector output that will sink up to 2mA when activated ('switch closure'); the maximum voltage that can be applied to LOGIC OUT is 30VDC. User can set LOGIC OUT to be 'closed' or 'open' for output enabled or disabled, current limit (CI mode),power limit (UNREG mode), or for any fault trip.		
DIGITAL BUS INTERFACES (P VERSIONS ONLY)			
The QPX-P offers full remote control and read-back using RS-232, USB, GPIB or LAN (compliant with LXI class C). All interfaces are at ground potential and opto-isolated from the output terminals.			
RS-232:	Standard 9-pin D connector. Baud rate 9,600. (not available on QPX750SP).		
USB:	USB 2.0 connection (backwards compatible with USB 1.x). Operates as a virtual COM port.		
GPIB:	(IEEE-488) The interface conforms with IEEE-488.1 and IEEE-488.2. (Optional on QPX750SP).		
Ethernet (LAN):	Standard 10/100 base-T hardware connection. ICMP and TCP/IP Protocol for connection to Local Area Network or direct connection to a single PC.		
LXI Compliance:	LAN interface is compliant with LXI class C. For more information visit: <a href="http://www.aimtti.com/go/lxi">www.aimtti.com/go/lxi</a>		
Remote command processing time:	Typically <100ms between receiving the command terminator for a step voltage change at the instrument and the output voltage beginning to change.		
DRIVER SOFTWARE SUPPLIED			
IVI Driver:	An IVI driver for Windows is supplied. This provides support for common applications such as LabView*, LabWindows*, KeysightVEE* etc.		
USB Driver:	An installation file is supplied which calls a standard Windows* USB driver.		
GENERAL SPECIFICATIONS			
AC Input:	110V to 240V AC ±10%, 50/60Hz. Installation Category II.		
Input Power:	1600VA Max.	1000VA Max.	1600VA Max.
Temperature:	Operating: +5°C to +40°C, 20% to 80% RH, Storage: -40°C to + 70°C.		
Environmental:	Indoor use at altitudes up to 2000m, pollution Degree 2.		
Cooling:	Intelligent variable-speed fans.		
Safety:	Complies with EN61010-1.		
EMC:	Complies with EN61326.		
Size:	350 x 130 x 413mm (WxHxD) (3U high).	215 x 130 x 460mm (WxHxD) (3U High) Including terminals	350 x 130 x 413mm (WxHxD) (3U height).
Weight:	9.2kg (20lb).	<6.4kg (14lb)	9.2kg (20lb).
Benchtop Operation:	Folding legs are incorporated that can be used to angle the front panel upwards.		
Rack mount options:	19 inch rack mount- RM460 (Provides ventilation space above and below PSU).		

Aim & Thurlby Thandar Instruments Ltd. operates a policy of continuous development and reserves the right to alter specifications without prior notice.

Accuracy specifications apply for the temperature range 18°C to 28°C after 1 hour warm-up.

# POWER SUPPLY RANGE

**EL SERIES****30 - 130 WATTS****LINEAR REGULATION****ANALOG CONTROLS****1, 2 & 3 OUTPUTS****RS232 & USB****PL SERIES****48 - 228 WATTS****LINEAR REGULATION****SMART ANALOG CONTROLS****1, 2 & 3 OUTPUTS****RS232, USB, LAN, GPIB\*****PLH SERIES****90 - 94 WATTS****LINEAR REGULATION****SMART ANALOG CONTROLS****1 OUTPUT****RS232, USB, LAN, GPIB\*****QL SERIES****105 - 242 WATTS****LINEAR REGULATION****DIGITAL CONTROLS****1 & 3 OUTPUTS****RS232, USB, LAN, GPIB****EX SERIES****175 - 420 WATTS****MIXED-MODE REGULATION****ANALOG CONTROLS****1, 2 & 3 OUTPUTS****RS232 & USB****TSX SERIES****350 - 360 WATTS****MIXED-MODE REGULATION****ANALOG & DIGITAL CONTROLS****1 OUTPUT****RS232, USB, LAN, GPIB\*****MX SERIES****315 - 420 WATTS****MIXED-MODE REGULATION****DIGITAL CONTROLS****3 & 4 OUTPUTS****RS232, USB, LAN, GPIB\*****CPX SERIES****360 - 840 WATTS****POWERFLEX****SMART ANALOG CONTROLS****1 & 2 OUTPUTS****RS232, USB, LAN, GPIB****QPX SERIES****750 - 1200 WATTS****POWERFLEX & POWERFLEX+****DIGITAL CONTROLS****1 & 2 OUTPUTS****RS232, USB, LAN, GPIB\***



# OTHER RANGES AVAILABLE

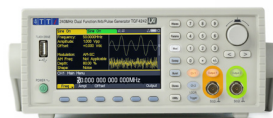
## WAVEFORM GENERATORS



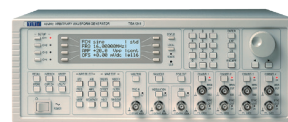
PULSE GENERATORS



ANALOG  
FUNCTION GENERATORS



DIGITAL  
FUNCTION GENERATORS



ARBITRARY GENERATORS

- ▶ Analog and Digital (DDS) function generators with frequency capability up to 240MHz.
- ▶ Dedicated pulse generators with true pulse capability.
- ▶ True variable-clock arbitrary generators with up to four channels.

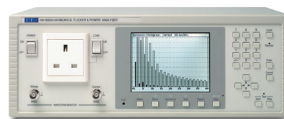
## RF & EMC TEST EQUIPMENT



SIGNAL  
GENERATORS



SPECTRUM  
ANALYSERS



HARMONICS  
ANALYSERS



LOW-DISTORTION SOURCE

- ▶ RF signal generators with frequency capability up to 6GHz.
- ▶ Handheld RF spectrum analyzers with frequency up to 6GHz.
- ▶ EMC analyzers for power Harmonics and Flicker.

## PRECISION MEASUREMENT



MULTIMETERS



POSITIONAL  
CURRENT PROBES



FREQUENCY  
MEASUREMENT



COMPONENT  
MEASUREMENT

- ▶ Bench-top digital multimeters for dual display, system and logging.
- ▶ Innovative DC to 5MHz current probes for PCB tracks.
- ▶ Handheld and bench-top frequency counters up to 6GHz.
- ▶ Precision component measurements.

## EXCELLENCE THROUGH EXPERIENCE

Aim-TTi is the trading name of Thurlby Thandar Instruments Ltd. (TTi), one of Europe's leading manufacturers of test and measurement instruments.

The company has wide experience in the design and manufacture of advanced test instruments and power supplies built up over more than thirty years.

The company is based in the United Kingdom, and all products are built at the main facility in Huntingdon, close to the famous university city of Cambridge.

## TRACEABLE QUALITY SYSTEMS

TTi is an ISO9001 registered company operating fully traceable quality systems for all processes from design through to final calibration.



ISO9001:2015

Certificate number FM 20695

## WHERE TO BUY AIM-TTI PRODUCTS

Aim-TTi products are widely available from a network of distributors and agents in more than sixty countries across the world.

To find your local distributor, please visit our website which provides full contact details.

[www.aimtti.com](http://www.aimtti.com)

Designed and built in Europe by:



**Thurlby Thandar Instruments Ltd.**

Glebe Road, Huntingdon, Cambridgeshire.

PE29 7DR United Kingdom

Tel: +44 (0)1480 412451 Fax: +44 (0)1480 450409

Email: [sales@aimtti.com](mailto:sales@aimtti.com) Web: [www.aimtti.com](http://www.aimtti.com)



8 2100-1580 01