Measurably better value

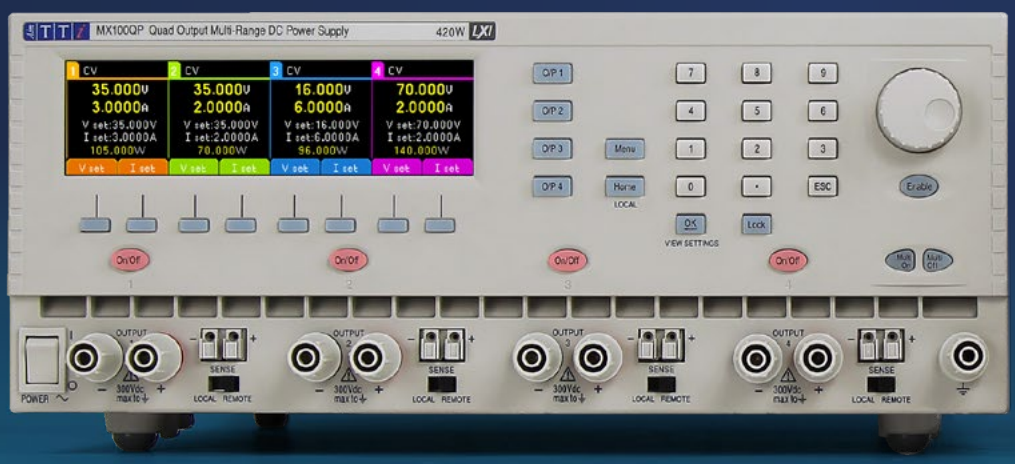
DESIGNED IN THE UK · MANUFACTURED IN THE UK

## Advanced features

## Three or four high performance outputs

## Wide choice of voltage/current combinations

## Graphic LCD with simultaneous display of outputs



# MX SERIES

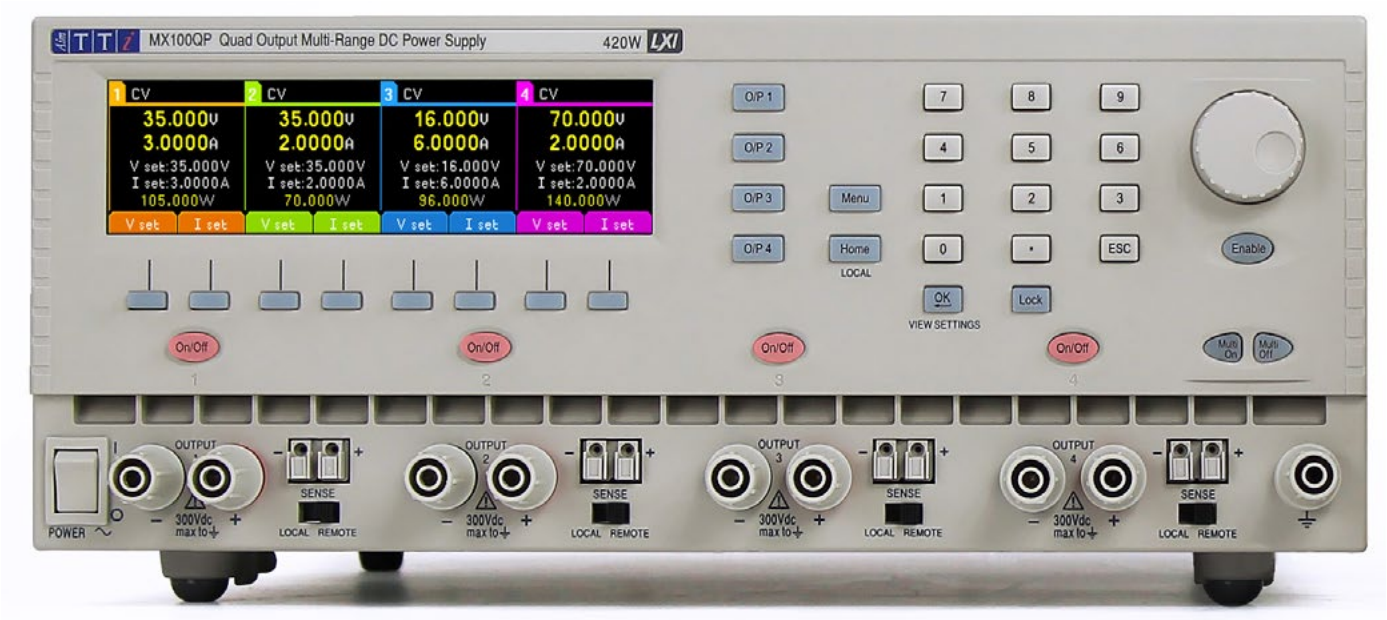
315W to 420W

Multi output dc power supplies

aimtti.com | aimtti.us

# KEY FEATURES

- Three or four independent and full performance outputs
- Simultaneous display of meters and settings for all outputs
- Instant access to voltage/current setting for any output
- Multiple ranges on each output for wider voltage/current choice
- Instant individual on/off control plus sequencable multi on/off
- Up to 250 settings memories for individual or multiple outputs




SELV
MX103Q /P

GPIB IEEE-488 OPTIONAL

USB UNIVERSAL SERIAL BUS

LAN ETHERNET LXI

RS-232 RS-423

The MX series uses mixed mode regulation to provide up to 420W of power split across up to four outputs, offering full capabilities on all outputs.

Each output features simultaneous high resolution metering, switchable remote sensing, OVP and OCP trips, CV or CI operation and an individual output switch.

To increase its ability to match the widest range of applications, each output has more than one range giving the choice of higher voltage or higher current.

Power sharing in the MX100Q/QP & MX103Q/QP allows up to 210 watts from a single output (105 watts O/P4 on the MX103Q/QP), without disabling other outputs.

When a higher power level is needed on the MX100T/TP & MX180T/TP models, up to two outputs can be disabled to provide twice the power from one or two outputs- up to 210 watts for the MX100T/TP and up to 360 watts for the MX180T/TP.

- Three or four high performance outputs each with full functionality
- Range switching gives variable voltage/current combinations
- Power sharing provides up to 210W per output without disabling other outputs[1]
- Low output noise and ripple via linear final regulation
- High setting resolution of up to 1mV and 0.1mA
- Variable OVP and OCP trips on all outputs
- TripLink feature can link OCP OVP trips to trip other outputs[2]
- 50 setting memories per output plus 50 linked memories
- Selectable voltage tracking (isolated tracking)
- Selectable current meter averaging
- Switchable remote sense capability
- Simultaneous output metering of all outputs
- Numeric or spin-wheel control of all parameters
- Individual or combined output on/off control with programmable delay sequencing
- Intelligent fan controller which monitors both ambient temperature and power loading
- 3U ½ rack or ¾ rack case for bench or rack mounting
- RS-232, USB, LAN (LXI) and GPIB[3] interfaces (P models)
- Duplicate power and sense terminals at rear (P models)
- Compatible with Test Bridge logging and control software (Page 7)

| Model Comparison | MX100T/TP | MX180T/TP | MX100Q/QP | MX103Q/QP |
|---|---|---|---|---|
| Number of outputs: | 3 | 3 | 4 | 4 |
| Total output power: | Up to 315W | Up to 378W | Up to 420W | Up to 420W |
| Maximum power per output: | 105W + 105W, 210W[4] + 105W, 210W[4] | 180W, 360W[5] + 180W + 18W | 210W + 210W + 210W + 210W | 210W + 210W + 210W + 105W |
| Maximum volts/ amps from a single output: | 70V or 6A | 120V or 20A | 70V or 6A | 35V or 6A |
| Output 1 ranges: | 16V/6A, 35V/3A | 15V/10A, 30V/6A, 60V/3A,15V/20A, 30V/12A, 60V/6A[4], 120V/3A[4] | 16V/6A, 35V/3A, 35V/6A | 16V/6A, 35V/3A, 35V/6A |
| Output 2 ranges: | 16V/6A, 35V/3A, 35V/6A[4] | 15V/10A, 30V/6A, 60V/3A | 16V/6A, 35V/3A, 35V/6A | 16V/6A, 35V/3A, 35V/6A |
| Output 3 ranges: | 35V/3A, 70V/1.5A, 70V/3A[4] | 5.5V/3A, 12V/1.5A | 35V/3A, 70V/1.5A, 70V/3A | 16V/6A, 35V/3A, 35V/6A |
| Output 4 ranges: | -- | -- | 35V/3A, 70V/1.5A, 70V/3A | 35V/3A |
| Case Size (WxHxD): | 212 x 130 x 375mm (½ rack x 3U height) | | 317 x 130 x 375mm (¾ rack x 3U height) | |

[1]MX100Q/QP & MX103Q/QP models, excluding O/P4 MX103Q/QP, [2] MX- Q models, [3]GPIB Optional, [4] Range available subject to another output being disabled (shared power mode).

# MX SERIES - CAPABILITIES AND APPLICATIONS

## MIXED-MODE REGULATION

To provide its impressive power density the MX series combines high frequency switch-mode pre-regulation with linear post-regulation to offer performance that comes close to that of an all-linear design.

Excellent line and load regulation is matched by low noise and good transient response.

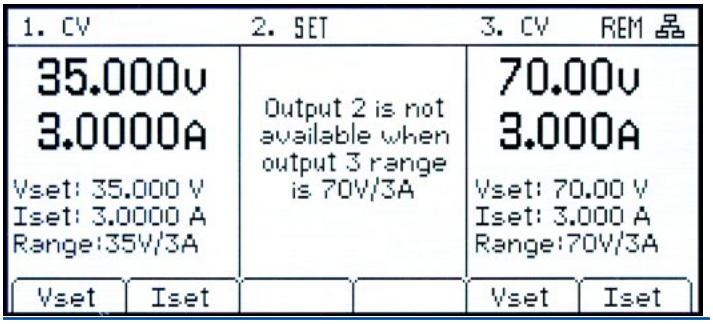
## POWER SHARE FEATURE

**(MX-Q/QP Models)**

The MX quad output models provide up to 210W of power per output, up to 420W total power, at any time without the need to disable another output.

**DOUBLE POWER FROM A SINGLE OUTPUT (MX-T/TP Models)**

When a higher power level is needed on the MX triple output models, up to two outputs can be disabled to provide 210 watts (MX100T/TP) or 360 watts (MX180T/TP) from a single output.




## HIGH SETTING RESOLUTION

For applications requiring the highest accuracy and resolution, up to 5 digit setting and metering is provided for voltage and current. Best resolution is 1mV/0.1mA (MX100T/TP, MX100Q/QP & MX103Q/QP) and 1mV/1mA (MX180T/TP).

## TYPICAL APPLICATION AREAS INCLUDE:

- Medium to high power bench-top applications requiring multiple outputs
- Situations where voltage and current requirements may vary widely between projects
- Powering rail sensitive circuits using the on/off synchronism and sequencing
- Repetitive testing applications requiring multi-output settings memories
- High density system applications requiring multiple outputs from limited rack space
- Remote control applications where bus interface requirements may change

## UP TO 250 SETTING STORES

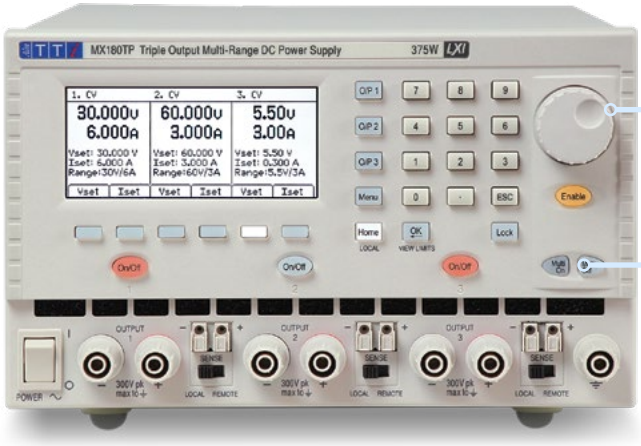
Non-volatile stores are incorporated for rapid recall of voltage and current settings (along with Range, OVP and OCP).

Each output has its own set of 50 setting stores.

**MULTI-OUTPUT LINKED MEMORIES**

In addition to the individual memories for each output, 50 further memories are provided that store settings for all outputs together.

Display illustrations are representative of the MX100T model




## CLARITY AND EASE-OF-USE

Unlike some other multi-output power supplies, the MX Series displays voltage, current and other essential information for all outputs simultaneously.

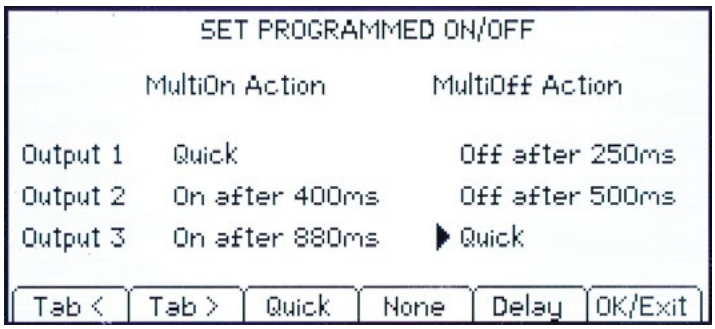
The illuminated keypad includes soft keys via which voltage or current can be instantly set for any output, or which can be used to set up other functions using a menu system.

Values can be set numerically direct from the keypad or can be adjusted in a quasi-analog manner using the control knob.

## ON/OFF SYNCHRONISM AND SEQUENCING

Many circuits can be damaged if one voltage rail is present without the other, or if voltage rails are not applied in the correct order. In addition to the individual output on/off buttons there are further buttons for Multi-On and Multi-Off.

By default these turn all of the outputs on or off simultaneously. They can also be set to operate any combination of outputs in a user defined sequence with delays between 10 milliseconds and 20 seconds.




## 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 4A; the current limit could be set to 5A and the OCP to 4.1A to ensure that a faulty unit will trip the supply off and not be damaged by over dissipation.

## TRIPLINK (MX-Q/QP MODELS)

TripLink allows the OVP and OCP trips of one output to be linked to other outputs. If a trip occurs, all linked outputs will be tripped simultaneously.

## CURRENT METER AVERAGING

When measuring rapidly varying loads it can become difficult to get useful readings from a digital current meter.

By selecting meter averaging, the reading is stabilised by displaying the average of several readings to reduce the speed and extent of the variation.

## INDIVIDUAL OUTPUT DISPLAY

Each output also has an individual display mode which provides larger digits and enables OVP, OCP, current meter averaging and range to be viewed and changed. Access to 50 memory stores for the output is also available from this screen.

## FRONT PANEL LOCKING

An illuminated front panel key locks out the keypad to guard against accidental mis-setting.

For even greater security, as might be required when the PSU is incorporated into a fixed system, the keypad can optionally be locked using a pass code chosen by the user.

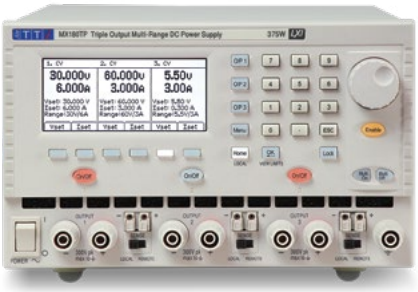
## VOLTAGE TRACKING

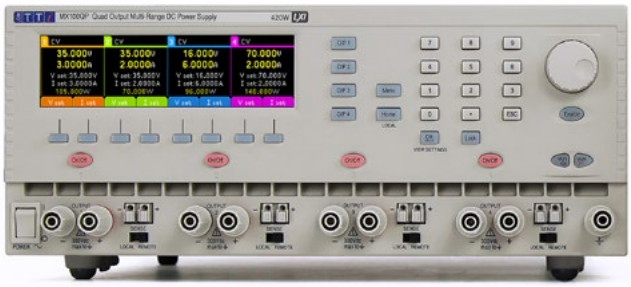
All outputs are completely independent and isolated. However, it is possible to configure the power supply so that the voltage on an output automatically tracks the voltage on another output.

Because the outputs are isolated, tracking can be used to set equal voltage of the same polarity or opposite polarities. It can be particularly useful when outputs have been wired in parallel or series where control can be made by adjusting a single output voltage.

**VOLTAGE TRACKING OPTIONS**

| | Option 1 | Option 2 | Option 3 |
|---|---|---|---|
| **MX180T/TP** | V2 tracks V1 | - | - |
| **MX100T/TP** | V2 tracks V1 | V3 tracks V2 | V2 & V3 track V1 |
| **MX100Q/QP & MX103Q/QP** | V2 tracks V1 | V4 tracks V3 | V2 tracks V1 & V4 tracks V3 |





## MX100T/TP

- Three high performance outputs of 105 watts each
- Total power of 315 watts
- Range switching gives up to 70 volts and up to 6 amps
- Up to 210 watts from a single output
- High setting resolution of up to 1mV and 0.1mA

## MX180T/TP

- Two high power & one low power outputs 2 x 180 watts plus 1 x 18 watts
- Total power of over 375 watts
- Range switching gives up to 120 volts and up to 20 amps
- Up to 360 watts from a single output
- High setting resolution of 1mV and 1mA

## MX100Q/QP

- Four high power outputs of 210 watts each
- Total power of 420 watts
- Range switching gives up to 70 volts and up to 6 amps
- Power share provides up to 210 watts from a single output
- High setting resolution of up to 1mV and 0.1mA

## MX103Q/QP

- Three high power outputs of 210 watts each plus one output of 105 watts
- Total power of 420 watts
- Power share provides up to 210 watts from a single output
- High setting resolution of up to 1mV and 0.1mA

### MX100T/TP RANGE CHOICES

| | Output 1 | Output 2 | Output 3 |
|---|---|---|---|
| Range 1 | 35V/3A | 35V/3A | 35V/3A |
| Range 2 | 16V/6A | 16V/6A | 70V/1.5A |
| Range 3 | - | 35V/6A* | 70V/3A* |

* = subject to another output being disabled (shared power mode)

### MX100Q/QP RANGE CHOICES

| | Output 1 | Output 2 | Output 3 | Output 4 |
|---|---|---|---|---|
| Range 1* | 35V/3A | 35V/3A | 35V/3A | 35V/3A |
| Range 2* | 16V/6A | 16V/6A | 70V/1.5A | 70V/1.5A |
| Range 3* | 35V/6A | 35V/6A | 70V/3A | 70V/3A |

*= subject to power sharing, 210W max

### MX180T/TP RANGE CHOICES

| | Output 1 | Output 2 | Output 3 |
|---|---|---|---|
| Range 1 | 30V/6A | 30V/6A | 5.5V/3A |
| Range 2 | 15V/10A | 15V/10A | 12V/1.5A |
| Range 3 | 60V/3A | 60V/3A | - |
| Range 4 | 30V/12A* | - | - |
| Range 5 | 15V/20A* | - | - |
| Range 6 | 60V/6A* | - | - |
| Range 7 | 120V/3A* | - | - |

* = output 2 disabled (shared power mode)

### MX103Q/QP RANGE CHOICES

| | Output 1 | Output 2 | Output 3 | Output 4 |
|---|---|---|---|---|
| Range 1* | 35V/3A | 35V/3A | 35V/3A | 35V/3A |
| Range 2* | 16V/6A | 16V/6A | 16V/6A | - |
| Range 3* | 35V/6A | 35V/6A | 35V/6A | - |

*= subject to power sharing, 210W max (105W O/P 4)

SELV
MX103Q /P

RACK MOUNTING: Front input ventilation ensures that no additional space is needed top or bottom.

Triple versions: ½ rack x 3U height a rack kit capable of mounting one or two units is available as an option.

Quad versions: ¾ rack x 3U height a rack kit capable of mounting one unit is available as an option.

## P VERSIONS- REAR PANEL

Output and remote sense terminals are mounted both on the front and rear panels. An IVI driver for Windows* is included. This provides support for common high-level applications such as LabView*, LabWindows*, and Keysight VEE*. Test Bridge software is free to download from www.aimtti.com

GPIB IEEE-488 OPTIONAL · USB UNIVERSAL SERIAL BUS · LAN ETHERNET LXI · RS-232 RS-423 · TEST BRIDGE

*LabView and LabWindows are trademarks of National Instrauuments, *HPVEE (Keysight VEE) is a trademark of Keysight Technologies. * Windows is a trademark of Microsoft, GPIB optional

| Model | MX100T/P | MX180T/P | MX100Q/P | MX103Q/P |
|---|---|---|---|---|
| **OUTPUT SPECIFICATIONS** | | | | |
| Number of outputs: | 3 | 3 | 4 | 4 |
| Total output power: | Up to 315W | More than 375W (378W) | Up to 420W | Up to 420W |
| Maximum power per output: | 105W + 105W, 210W[1] + 105W, 210W[1] | 180W, 360W[2] + 180W + 18W | 210W + 210W + 210W + 210W | 210W + 210W + 210W + 105W |
| Maximum volts/amps from a single output: | 70V or 6A | 120V or 20A | 70V or 6A | 35V or 6A |
| Powershare: | N/A | | Allows up to 210 watts from a single output (105 watts O/P 4 on the MX103Q/QP), max of 420 watts. Power is dynamically shared across the outputs, based on the set voltage and current. This eliminates the need to disable other outputs | |
| **VOLTAGE/CURRENT RANGES** | | | | |
| Output 1: | | | | |
| Range 1 | 0V to 35V at 0.1mA to 3A | 0V to 15V at 1mA to 10A | 0V to 35V at 0.1mA to 3A | 0V to 35V at 0.1mA to 3A |
| Range 2 | 0V to 16V at 0.1mA to 6A | 0V to 30V at 1mA to 6A | 0V to 16V at 0.1mA to 6A | 0V to 16V at 0.1mA to 6A |
| Range 3 | - | 0V to 60V at 1mA to 3A | 0V to 35V at 0.1mA to 6A | 0V to 35V at 0.1mA to 6A |
| Range 4 | - | 0V to 15V at 1mA to 20A* | - | - |
| Range 5 | - | 0V to 30V at 1mA to 12A* | - | - |
| Range 6 | - | 0V to 60V at 1mA to 6A* | - | - |
| Range 7 | - | 0V to 120V at 1mA to 3A* | - | - |
| Output 2: | | | | |
| Range 1 | 0V to 35V at 1mA to 3A | 0V to 15V at 1mA to 10A | 0V to 35V at 0.1mA to 3A | 0V to 35V at 0.1mA to 3A |
| Range 2 | 0V to 16V at 1mA to 6A | 0V to 30V at 1mA to 6A | 0V to 16V at 0.1mA to 6A | 0V to 16V at 0.1mA to 6A |
| Range 3 | 0V to 35V at 1mA to 6A* | 0V to 60V at 1mA to 3A | 0V to 35V at 0.1mA to 6A | 0V to 35V at 0.1mA to 6A |
| Output 3: | | | | |
| Range 1 | 0V to 35V at 1mA to 3A | 0V to 5.5V at 10mA to 3A | 0V to 35V at 0.1mA to 3A | 0V to 35V at 0.1mA to 3A |
| Range 2 | 0V to 70V at 1mA to 1.5A | 0V to 12V at 10mA to 1.5A | 0V to 70V at 0.1mA to 1.5A | 0V to 16V at 0.1mA to 6A |
| Range 3 | 0V to 70V at 1mA to 3A* | - | 0V to 70V at 0.1mA to 3A | 0V to 35V at 0.1mA to 6A |
| Output 4: | | | | |
| Range 1 | N/A | N/A | 0V to 35V at 0.1mA to 3A | 0V to 35V at 0.1mA to 3A |
| Range 2 | N/A | N/A | 0V to 70V at 0.1mA to 1.5A | - |
| Range 3 | N/A | N/A | 0V to 70V at 0.1mA to 3A | - |
| **VOLTAGE SETTING** | | | | |
| Resolution | O/P 1: 1mV<br>O/P 2&3: 10mV | O/P 1: 1mV<br>(120V range): 10mV<br>O/P2: 1mV; O/P3 10mV. | 1mV<br>O/P 3&4 (70V range): 10mV | 1mV |
| Accuracy (of setting) | O/P 1: 0.05% ± 3mV<br>O/P 2&3: 0.1% ± 10mV | O/P 1: 0.05% ± 3mV<br>(120V range): ± 6mV<br>O/P 2: 0.05% ± 3mV<br>O/P 3: 0.3% ± 20mV | ± (0.05% + 3mV)<br>O/P 3&4 (70V range):<br>± (0.1% of setting + 10mV) | ± (0.05% + 3mV) |
| **CURRENT SETTING** | | | | |
| Resolution | O/P 1: 0.1mA<br>O/P 2&3: 1mA | O/P 1&2: 1mA<br>O/P3: 10mA | 0.1mA | 0.1mA |
| Accuracy (of setting) | ± (0·3% + 3mA) to 3A<br>± (0·5% + 3mA) to 6A | O/P 1:<br>± (0·3% + 3mA) to 3A<br>± (0·5% + 3mA) to 10A<br>± (0·5% + 4mA) to 20A<br>O/P 2:<br>± (0·3% + 3mA) to 3A<br>± (0·5% + 3mA) to 10A<br>O/P 3: ± (0·3% + 20mA) | ± (0·3% + 3mA) to 3A<br>± (0·5% + 3mA) to 6A | ± (0·3% + 3mA) to 3A<br>± (0·5% + 3mA) to 6A |
| Operating Mode: | Constant voltage or constant current with automatic cross-over. CV or CC mode indication in display. | | | |
| Output Switch: | Independent electronic switching with ON indication. In addition, Multi-On and Multi-Off keys permit the outputs to be switched on/off synchronously. | | | |

| Model | MX100T/P | MX180T/P | MX100Q/P | MX103Q/P |
|---|---|---|---|---|
| Multi-On/Multi-Off Action: | Individually settable delay between pressing of the Multi-On or Multi-Off key and the turning on or off of the respective output. Delays settable between 10ms and 20 seconds. Separate delays for On and Off can be set. Outputs can also be omitted from Multi-On or Multi-Off control. | | | |
| Output Terminals: | Universal 4mm safety binding posts on 19mm (0·75”) spacing for Output; screwless terminals for Sense. Duplicate power and sense terminals at rear. | | | |
| Ripple & Noise (20MHz bandwidth): | O/P 1&2 loaded at 16V/6A O/P 3 loaded at 35V/3A (CV mode): All outputs typically <0.5mVrms, <5mV pk-pk; 1mVrms max. O/P 3 on 70V/3A range: typically <1mVrms, <10mV pk-pk; 1.5mVrms max. | O/P 1&2 loaded at 15V/10A O/P 3 loaded at 5.5V/3A or for O/P 1 loaded at 15V/20A, 30V/12A, or 60V/6A (O/P 2 disabled): All outputs typically <2mVrms, <20mV pk-pk; 3mVrms max. O/P 1 loaded at 120V/3A: typically <3mVrms, <20mV pk-pk; 6mVrms max. | For O/P 1&2 loaded at 16V/6A, O/P 3&4 loaded at 35V/3A, CV mode: All outputs typically <0.5mVrms, <5mV pk-pk; 1mVrms max. Rear terminals: 10mV pk-pk max. 1.5mVrms max. O/P 3&4 on 70V/3A range: Typically, <1mVrms, <10mV pk-pk; 1.5mVrms max. Rear terminals: 15mV pk-pk max. | For O/P 1&2 loaded at 16V/3A, O/P 3&4 loaded at 35V/3A, CV mode: All outputs typically <0.5mVrms, <5mVpk-pk; 1mVrms max. Rear terminals: 10mV pk-pk max. 1.5mVrms max. O/P 3&4 on 70V/3A range: Typically, <1mVrms, <10mV pk-pk; 1.5mVrms max. Rear terminals: 15mV pk-pk max. |
| Load Regulation: | Constant voltage: <0.01% ± 5mV Constant current: < 0.01% ±0.5mA | Constant voltage: <0.01% ± 5mV Constant current: <0.05% ± 1mA | Constant voltage: <0.01% ± 5mV Constant current: < 0.01% ±0.5mA | Constant voltage: <0.01% ± 5mV Constant current: < 0.01% ±0.5mA |
| Line Regulation: | Constant voltage: <0.01% ± 5mV Constant current: < 0.01% ± 250uA | Constant voltage: <0.01% ± 5mV Constant current: <0.01% ± 1mA | Constant voltage: <0.01% ± 5mV Constant current: < 0.01% ± 250uA | Constant voltage: <0.01% ± 5mV Constant current: < 0.01% ± 250uA |
| Transient Response (to within 50mV of set level for a 5% to 95% load change): | Front terminals: <100us | Front terminals: <150us <400us. O/P1 30V/12A, 15V/20A, 60V/6A and 120V/3A ranges | Front terminals: <150us Rear terminals: <300us <500us O/P 1&2: 35V/6A range. | Front terminals: <150us Rear terminals: <300us <500us O/P 1&3: 35V/6A, O/P 4: 35V/3A. |
| Temp. Coefficient: | Typically <100ppm/°C | | | |
| **VOLTAGE PROGRAMMING SPEEDS** | | | | |
| (Typical figures) Maximum time required for output to settle within 1% of its total excursion (for resistive load). Excludes command processing time. | | | | |
| **Up** | | | | |
| 90% Load | 35V 3A = 10ms<br>16V 6A = 10ms<br>70V 3A = 25ms<br>35V 6A = 10ms | 60V 3A = 15ms<br>30V 6A = 6ms<br>15V 10A = 6ms<br>120V 3A = 25ms<br>O/P 3: 5V 3A = 6ms<br>O/P 3: 12V 1.5A = 6ms | 35V 3A = 10ms<br>16V 6A = 10ms<br>70V 3A = 25ms<br>35V 6A = 10ms | 35V 3A = 10ms<br>16V 6A = 10ms<br>35V 6A = 10ms |
| No Load | 35V 3A = 10ms<br>16V 6A = 10ms<br>70V 3A = 12ms<br>35V 6A = 10ms | 60V 3A = 10ms<br>30V 6A = 6ms<br>15V 10A = 6ms<br>120V 3A = 15ms<br>O/P 3: 5V 3A = 6ms<br>O/P 3: 12V 1.5A = 6ms | 35V 3A = 10ms<br>16V 6A = 10ms<br>70V 6A = 12ms<br>35V 6A = 10ms | 35V 3A = 10ms<br>16V 6A = 10ms<br>35V 6A = 10ms |
| **Down** | | | | |
| 90% Load | 35V 3A = 60ms<br>16V 6A = 10ms<br>70V 3A = 80ms<br>35V 6A = 20ms | 60V 3A = 220ms<br>30V 6A = 50ms<br>15V 10A = 20ms<br>120V 3A = 220ms<br>O/P 3: 5V 3A = 10ms<br>O/P 3: 12V 1.5A = 40ms | 35V 3A = 60ms<br>16V 6A = 10ms<br>70V 3A = 300ms<br>35V 6A = 20ms | 35V 3A = 60ms<br>16V 6A = 10ms<br>35V 6A = 20ms |
| No Load | 35V 3A = 550ms<br>16V 6A = 350ms<br>70V 3A = 850ms<br>35V 6A = 550ms | 60V 3A = 5s<br>30V 6A = 3s<br>15V 10A = 2s<br>20V 3A = 5s<br>O/P 3: 5V 3A= 380ms<br>O/P 3: 12V 1.5A = 520ms | 35V 3A = 1400ms<br>16V 6A = 1000ms<br>70V 3A = 1400ms<br>35V 6A = 1400ms | 35V 3A = 1400ms |

| Model | MX100T/P | MX180T/P | MX100Q/P | MX103Q/P |
|---|---|---|---|---|
| Output Protection: (Reverse protection by diode clamp for reverse currents up to 3A.) | Outputs will withstand an applied forward voltage of: O/P 1&2: 50V, O/P 3: 80V. | Outputs will withstand an applied forward voltage of: O/P 1&2: 70V, O/P 3: 16V, O/P 1 (120V mode) 140V. | Output will withstand an applied forward voltage of O/P 1&2: 50V or O/P 3&4 80V. | Output will withstand an applied forward voltage of up to 50V. |
| Over-voltage Protection (OVP) Trip: | O/P 1&2: 1V to 40V. O/P 3: 1V to 80V. Output trips off for OVP. Resolution 100mV. Response time: typically 500us. Accuracy: ± (2% ±0.5V) | O/P 1&2: 1V to 70V, typical response time 500us; O/P 1 (120V mode): 1V-140V, typical response time 200ms; O/P3: 1V to 14V, typical response time 500ms. Resolution 100mV, accuracy: ± (2% ±0.5V), all outputs. | O/P 1&2: 1V to 40V. O/P 3&4: 1V to 80V. Output trips off for OVP. Resolution 100mV. Response time: typically, 100us. Accuracy: ± (2% + 0.5V) | 1V to 40V Output trips off for OVP. Resolution 100mV. Response time: typically, 100us. Accuracy: ± (2% + 0.5V) |
| TripLink -OVP | N/A | | Max TripLink time- <300ms | |
| Over-current Protection (OCP) Trip: | Measure-and-compare over-current protection is implemented in firmware. Output trips off for OCP. Setting resolution: 10mA. Response time: typically 500ms. Accuracy: ± (0.3% ±2digits) | Measure-and-compare OCP for all outputs. OCP trips output off; typical response time 500ms. Setting range: O/P 1: 0.1A to 22A, O/P 2: 0.1A to 12A, O/P 3: 0.1A to 3.5A. Setting resolution: 10mA. Accuracy: ± (0.3% ±2digits) | Measure-and-compare over-current protection is implemented in firmware. Output trips off for OCP. Setting resolution: 10mA. Response time: typically, <100ms. Accuracy: ± (0.3% + 2digits) | Measure-and-compare over-current protection is implemented in firmware. Output trips off for OCP. Setting resolution: 10mA. Response time: typically, <100ms. Accuracy: ± (0.3% + 2digits) |
| TripLink -OCP | N/A | | Max TripLink time- <400ms | |
| Over-temperature Protection (OTP) Trip: | The output will be tripped off if a fault or blocked ventilation causes the internal temperature to rise excessively | | | |
| **METER SPECIFICATIONS (EACH OUTPUT)** | | | | |
| Voltage/Current Meters | O/P 1: 5 digit meters O/P 2&3: 4 digit meters | O/P 1&2: 5 digit meters O/P 3: 3.5 digit meters | 5 digit meters O/P 3&4 (70V range): 4 digit voltage meters | 5 digit meters |
| Voltage | Resolution: O/P 1: 1mV O/P 2&3: 10mV Accuracy: 0.1% of reading ± 2 digits | Resolution: O/P 1:1mV (120V range): 10mV O/P2: 1mV, O/P 3: 10mV Accuracy: O/P 1&2: 0.1% of reading ± 2 digits O/P 3: 0.3% of reading ± 2 digits | Resolution 1mV, O/P 3&4 (70V range): 10mV Accuracy: Accuracy: 0.1% of reading ± 2 digits | Resolution 1mV, Accuracy: Accuracy: 0.1% of reading ± 2 digits |
| Current | Resolution: O/P 1: 0.1mA; O/P 2&3: 1mA Accuracy: 0.3% of reading ± 2 digits | Resolution: O/P 1&2: 1mA; O/P 3: 10mA, Accuracy: O/P 1&2: 0.3% of reading ± 3 digits to 5A, 0.5% of reading ± 3 digits to 20A; O/P 3: 0.3% of reading ± 2 digits | Resolution: 0.1mA, Accuracy: ± (0·3% + 3mA) to 3A, ± (0·5% + 3mA) to 6A | Resolution: 0.1mA, Accuracy: ± (0·3% + 3mA) to 3A, ± (0·5% + 3mA) to 6A |
| Current Meter Averaging | User selectable On/Off per output with High, Medium or Low settings | | | |
| V x A: | O/P 1: 5-digits. Resolution 0.001W to 100W, 0.01W above 100W. O/P 2&3: 5-digits. Resolution 0.01W. Accuracy: 0.5% of reading ± 3 digits | O/P 1&2: Resolution 0.001W to 100W, 0.01W above 100W. O/P 3: Resolution 0.01W. Accuracy: 0.5% of reading ± 3 digits | O/P 1&2: Resolution 0.001W to 100W, 0.01W above 100W. O/P 3&4: Resolution 0.01W | Resolution 0.001W to 100W, 0.01W above 100W. |
| **SETTING MEMORY STORES** | | | | |
| Stores for Individual Outputs: | 50 store positions for each output. Values stored are Range, Voltage, Current, OVP and OCP | | | |
| Stores for All Outputs: | 50 store positions operating on all three outputs simultaneously. Values stored are Range, Voltage, Current, OVP, OCP, Output On/Off, Current Meter Averaging, Multi-On/Multi-Off Setup | | | |

| Model | MX100T/P | MX180T/P | MX100Q/P | MX103Q/P |
|---|---|---|---|---|
| **USER INTERFACE** | | | | |
| Display: | Black on white backlit graphic LCD, 256 x 112 pixels. Multiple font sizes and graphic icons. | | 5.2-inch Bar Type TFT LCD Display Module, 480 x 128 pixels. Multiple font sizes and graphic icons. | |
| Soft Keys: | Six illuminated multi-function keys annotated from the display. | | Eight illuminated multi-function keys annotated from the | |
| Home Screen: | Simultaneous display of meters and settings for all outputs. Direct access to voltage or current setting for any output. | | | |
| Individual Screens: | Display of meters and extended settings for an individual output (meters in larger font). Direct access for all settings for that output. | | | |
| Numeric Setting: | Floating point numeric entry of voltage, current, OVP or OCP. | | | |
| Spin Wheel Setting: | Voltage, current and other parameters can be adjusted using the spin wheel in quasi-analog fashion. Wheel can be disabled. | | | |
| Menu Screen | System level functions are selected from a scrollable list. | | | |
| Help Text | Multi-page help text is available for system level functions. | | | |
| Front Panel Locking: | The lock key can be used to disable front panel control (hold to unlock). If required locking can alternatively be done using a secure passcode. | | | |
| Compatibility mode | N/A | | Designed to work with the command set of the original MX models (black and white display), this mode allows user to enable high power usage (210W) with at least one other output disabled. | |
| **REMOTE INTERFACES** | | | | |
| (P versions only) Full digital remote control facilities are available through the USB, RS232, LAN and GPIB interfaces. Setting and readback resolutions are the same as for the Output and Meter specifications respectively. | | | | |
| RS232: | Standard 9-pin D-connector. Baud rate 9600. | | | |
| USB: | Standard USB 2.0 hardware connection. | | | |
| LAN: | Ethernet 100/10base-T hardware connection. 1.4 LXI Core 2011. | | | |
| GPIB (optional): | Conforms with IEEE488.1 and IEEE488.2. (Option GPIB 1A) | | | |
| Remote Command Processing Time: | Typically <120ms (80ms min, 160ms max) between receiving the command terminator for a step voltage change at the instrument and the output voltage beginning to change. | | | |
| **GENERAL** | | | | |
| AC Input: | 100V – 240V AC ± 10%, 50/60Hz. Installation Category II. | 100V – 240V AC ± 10%, 50/60Hz. Installation Category II. | 110V – 240V AC ± 10%, 50/60Hz. Installation Category II. | 110V – 240V AC ± 10%, 50/60Hz. Installation Category II. |
| Power Consumption: | 500VA max. | 600VA max. | 650VA max. | 650VA max. |
| Operating Range: | +5ºC to +40ºC, 20% to 80% RH. | | | |
| Storage Range: | -40ºC to + 70ºC. | | | |
| Environmental: | Indoor use at altitudes up to 2000m, Pollution Degree 2. | | | |
| Safety & EMC: | Complies with EN61010-1 & EN61326-1. For details, request the EU Declaration of Conformity for this instrument via http://www.aimtti.com/support (serial no. needed). | | | |
| Size: | 210 x 130 x 375mm (WxHxD) half rack width x 3U height. | 210 x 130 x 375mm (WxHxD) half rack width x 3U height. | 320 x 130 x 375mm (WxHxD) x 3U height. | 320 x 130 x 375mm (WxHxD) x 3U height. |
| Weight: | 4.9kg | 5.8kg | 7.3kg (MX100Q) 7.5 kg (MX100QP) | 7.3kg (MX103Q) 7.5 kg (MX103QP) |
| Options: | 19-inch rack kit for one or two units. (RM460) | 19-inch rack kit for one or two units. (RM460) | 19-inch rack kit. (RM460) | 19-inch rack kit. (RM460) |

*Allow 10mm for rear terminals

## 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

www.aimtti.us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