



Advanced features

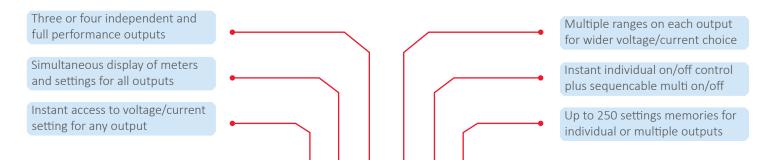
Three or four high performance outputs
Wide choice of voltage/current combinations
Graphic LCD with simultaneous display of outputs

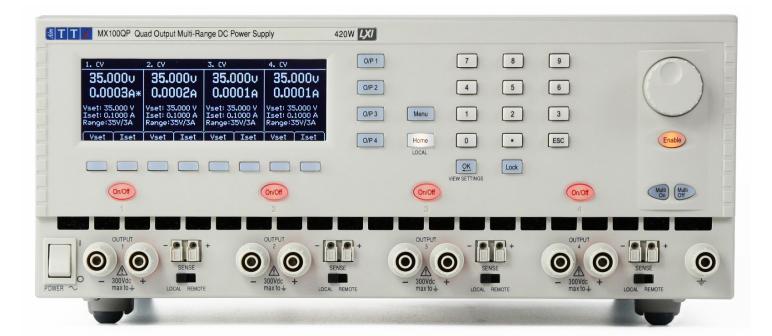


MX SERIES

315W to 420W Multi output dc power supplies

KEY FEATURES













The MX series uses mixed mode regulation to provide up to 420W of power split across up to four outputs, this series differs from most other multi-output power supplies in offering full capabilities on all outputs.

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

When higher power is required, up to two outputs can be disabled to provide twice the power from one or two outputs- up to 210 watts for the MX100T/MX100Q and up to 360 watts for the MX180T.

- ▶ Three or four high performance outputs each with full functionality
- ► Range switching gives variable voltage/current combinations
- ▶ Shared power mode provides double power from a single output
- 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
- ▶ 50 setting memories per output plus 50 linked memories
- Selectable voltage tracking (isolated tracking)
- Selectable current meter averaging
- Switchable remote sense capability
- Graphic LCD provides simultaneous output metering
- Numeric or spin-wheel control of all parameters
- ▶ Individual or combined output on/off control with programmable delay sequencing
- ▶ 3U ½ rack or ¾ rack case for bench or rack mounting
- ► GPIB, RS-232, USB and LAN (LXI) interfaces (P models)
- Duplicate power and sense terminals at rear (P models)

| Model Comparison | MX100T/TP (page 4) | MX100Q/QP (page 4) | MX180T/TP (page 5) | |
|---|---|---|--|--|
| No. of outputs | 3 | 4 | | |
| Max. total power | 315 watts | 420 watts | 378 watts | |
| Max. power per output | 105W + 105W + 105W or 105W + 210W | 105W + 105W + 105W + 105W or 105W +105W + 210W or 210W + 210W | 180W + 180W + 18W or 360W + 18W | |
| Max. Volts/Amps from a single output | 70V or 6A | 70V or 6A | 120V or 20A | |
| Output 1 ranges | 16V/6A, 35V/3A | 16V/6A, 35V/3A, 35V/6A* | 15V/10A, 30V/6A, 60V/3A, 15V/20A*, 30V/12A*, 60V/6A*, 120V/3A* | |
| Output 2 ranges | 16V/6A, 35V/3A, 35V/6A* | 16V/6A, 35V/3A, 35V/6A* | 15V/10A, 30V/6A, 60V/3A | |
| Output 3 ranges 35V/3A, 70V/1.5A, 70V/3A* | | 35V/3A, 70V/1.5A, 70V/3A* | 5.5V/3A, 12V/1.5A | |
| Output 4 ranges | | 35V/3A, 70V/1.5A, 70V/3A* | | |
| Case Size | 212 x 130 x 375mm (WxHxD) (½ rack x 3U height) | 317 x 130 x 375mm (WxHxD) (¾ rack x 3U height) | 212 x 130 x 375mm (WxHxD) (½ rack x 3U height) | |

^{*} 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.

DOUBLE POWER FROM A SINGLE OUTPUT

When a higher power level is needed, up to two outputs can be disabled to provide 210 watts (MX100T/ MX100Q) or 360 watts (MX180T) from a single output.

| 1. CV | 2. SET | 3. CV | REM 品 |
|----------------------------------|---|----------------------|------------------|
| 35.000v | | 70.0 |)0v |
| 3.0000A | Output 2 is not available when output 3 range | 3.00 |)0a |
| Vset: 35.000 V Iset: 3.0000 A | is 70V/3A | Vset: 70 Iset: 3. | 000 A |
| Range:35V/3A Vset Iset | | Range:7 Vset | UV/JA Iset |

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/ MX100Q) and 1mV/1mA (MX180T).

TYPICAL APPLICATION AREAS INCLUDE:

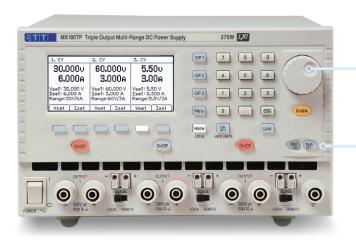
- ► Medium to high power bench-top applications requiring multiple outputs
- Situations where voltage and current requirements may vary widely between projects
- Powering rail sensitive circuits using the on/off synchronism and sequencing.
- ► Repetitive testing applications requiring multioutput settings 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.



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.

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

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.

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

A unique capability of the products is synchronous on/off switching and programmable on/off 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.



| SET PROGRAMMED ON/OFF | | | | |
|-----------------------|--------------------------------|--|--|--|
| | MultiOn Action MultiOff Action | | | |
| Output 1 | Quick Off after 250ms | | | |
| Output 2 | On after 400ms Off after 500ms | | | |
| Output 3 | On after 880ms 🕨 Quick | | | |
| Tab < | Tab > Quick None Delay OK/Exit | | | |

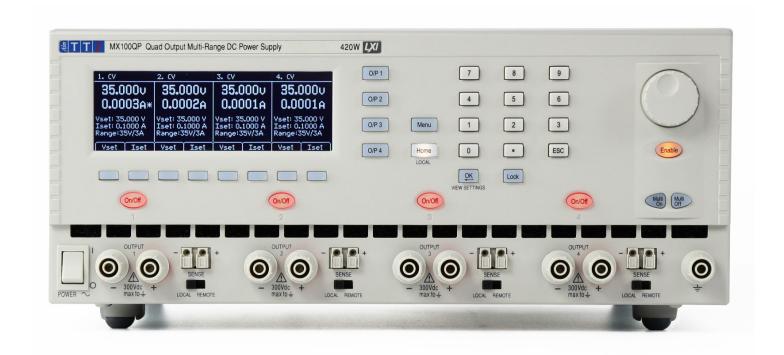
FRONT PANEL LOCKING

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 OPTIONS | | | | | | |
|--------------------------|--------------|--------------|-----------------------------|--|--|--|
| | Option 1 | Option 2 | Option 3 | | | |
| MX180T | V2 tracks V1 | - | - | | | |
| MX100T | V2 tracks V1 | V3 tracks V2 | V2 & V3 track V1 | | | |
| MX100Q | V2 tracks V1 | V4 tracks V3 | V2 tracks V1 & V4 tracks V3 | | | |

MX100T AND MX100Q - TRIPLE AND QUAD OUTPUTS



- ► Three or four high performance outputs of 105 watts each 3 x (0 to 35V at 0 to 3A) or 4 x (0 to 35V at 0 to 3A)
- ▶ Total power of 315 or 420 watts in a compact package
- ▶ Range switching gives up to 70 volts and up to 6 amps
- Many range combinations for maximum flexibility
- ▶ Up to 210 watts from a single output
- ► High setting resolution of up to 1mV and 0.1mA

FULL PERFORMANCE OUTPUTS - 105W EACH

The MX100T and MX100Q differ from most other multi output power supplies in having three or four outputs of equal power, each with the ability to provide 35V at 3A.

Each output features CV or CI operation, simultaneous high resolution metering, switchable remote sense, and an individual output switch.

MULTIPLE RANGES | POWER SHARING

Outputs can also be combined internally to provide up to 210 watts of power as either 35V/6A or 70V/3A from a single output.

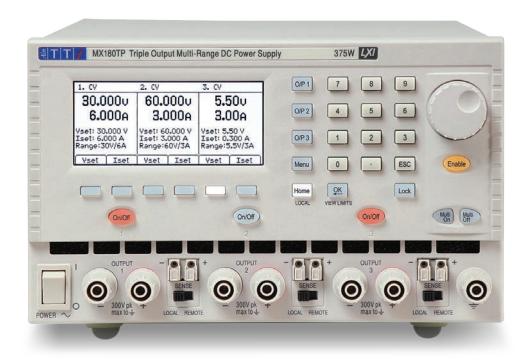
| MX100T RANGE CHOICES | | | | | |
|----------------------|----------|----------|----------|--|--|
| | Output 1 | Output 2 | Output 3 | | |
| Range 1 | 35V/3A | 35V/3A | 35V/3A | | |
| Range 2 | 16V/6A | 16V/6A | 70V/1.5A | | |
| Range 3 | - | 35V/6A* | 70V/3A* | | |

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

| MX100Q 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 another output being disabled (shared power mode)

MX180T - TRIPLE OUTPUT WITH HIGHER POWER



- ► Two high power outputs plus one low power output 2 x 180 watts plus 1 x 18 watts
- ▶ Total power of over 375 watts in a highly compact package
- ► Range switching gives up to 120 volts and up to 20 amps
- ► Twenty six range combinations for maximum flexibility
- ▶ Up to 360 watts from a single output
- ► High setting resolution of 1mV and 1mA

HIGH POWER MAIN OUTPUTS - 180W EACH

The MX180T offers significantly higher power than most triple output supplies with two identical outputs that can be set as 30V/6A, 15V/10A or 60V/3A.

The third lower power output is fully variable from 0 to 12V with both CV and CI operation, OVP/OCP trips, remote sensing other facilities as per the main outputs.

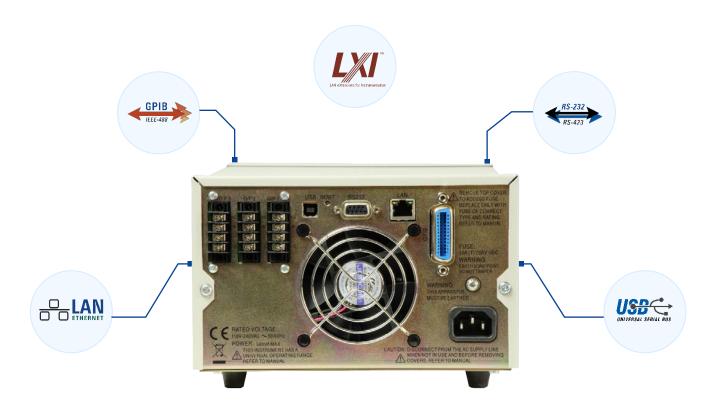
MULTIPLE RANGES | POWER SHARING

Outputs one and two can also be combined internally to provide up to 360 watts of power as either 15V/20A, 30V/12A, 60V/6A or 120V/3A from a single output.

| MX180T 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)

P-MODELS - REMOTE CONTROL INTERFACES





USB provides a simple and convenient means of connection to a PC and is particularly appropriate for small system use.

The interface uses a standard USB 2.0 hardware connection and is implemented as virtual-COM port. A Windows* USB driver is provided.



An RS-232 interface is also provided for use with legacy systems.



The GPIB interface is compliant with IEEE-488.1 and IEEE-488.2. GPIB remains one of the most widely used interfaces for system applications.



The LAN interface uses a standard 100/10 base-T Ethernet hardware connection with ICMP and TCP/IP Protocol for connection to a Local Area Network or direct connection to a single PC.

This interface supports LXI and is the most appropriate for larger system use because of its scalable nature.



The LAN interface is compliant with LXI (LAN eXtensions for Instrumentation).

LXI is the next-generation, LAN-based modular architecture standard for automated test systems managed by the LXI Consortium, and is expected to become the successor to GPIB in many systems.

REAR OUTPUT TERMINALS

On the-P versions of each product, output and remote sense terminals are mounted both on the front and rear panels.

LOW NOISE COOLING

The MX series uses an intelligent fan controller which monitors both ambient temperature and power loading.

BENCH OR RACK MOUNTING

The MX Series power supplies are housed in compact cases that use minimum bench space. For triple output units, the case is half-rack width by 3U high and a rack kit capable of mounting one or two units is available as an option. For quad output units, the case is three quarter rack width by 3U high. Front input ventilation ensures that no additional space is needed top or bottom.

LABVIEW & IVI DRIVER

An IVI driver for Windows* is included. This provides support for common high-level applications such as LabView*, LabWindows*, and Keysight VEE*.

TECHNICAL SPECIFICATIONS

MX100T & MX100TP

MODEL

| OUTPUT SPECIFICATI | ONS | | | |
|---|--|--|---|--|
| OUTPUT 1 | | | | |
| Range 1: | 0V to 35V | at 1mA- 3A | 0V to 15V at 1mA to 10A | |
| Range 2: | 0V to 16V | at 1mA- 6A | 0V to 30V at 1mA to 6A | |
| Range 3: | - | 0V to 35V at 1mA to 6A* | 0V to 60V at 1mA to 3A | |
| 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 | |
| Range 2: | 0V to 16V | at 1mA to 6A | 0V to 30V at 1mA to 6A | |
| Range 3: | 0V to 35V a | at 1mA to 6A* | 0V to 60V at 1mA to 3A | |
| ОИТРИТ 3 | | | | |
| | 01/ 251/ | + 1 m A + a 2 A | 0//+0 5 5// -+ 10 | |
| Range 1: | | t 1mA to 3A 1mA to 1.5A | 0V to 5.5V at 10mA to 3A | |
| Range 2: | | 1mA to 1.5A : 1mA to 3A* | 0V to 12V at 10mA to 1.5A | |
| Range 3: | UV-70V at | . TIIIA LU SA | - | |
| OUTPUT 4 | | | | |
| Range 1: | - | OV to 35V at 1mA to 3A | - | |
| Range 2: | - | 0V to 70V at 1mA to 1.5A | - | |
| Range 3: | - | 0V to 70V at 1mA to 3A* | - | |
| | | | * Available with at least one other output disal | |
| ALL OUTPUTS | | | | |
| Operating mode: | Constant voltage or constant current wi | ith automatic cross over and mode indica | tion. | |
| Voltage setting: | By direct numeric entry or quasi-analog rotary wheel | | | |
| | Resolution 1mV , (Resolution 10mV: 70 | V range outputs 3 & 4) | Resolution 1mV , (Resolution 10mV: Output 3) | |
| Current setting: | By direct numeric entry or quasi-analog | rotary wheel | | |
| | Resolution 0.1mA | Resolution 0.1mA | | |
| | | | Resolution 10mA (Output 3 only) | |
| Setting stores: | <u> </u> | lled via the keyboard (or the digital interf | aces on the p-versions) | |
| Load regulation: | <0.01% +5mV (CV mode) for any load of | | | |
| Line regulation: | <0.01% +5mV (CV mode) for a 10% line | voltage change | | |
| Sensing: | Selectable local or remote sensing | | | |
| OUTPUT 1 & 2 | | | | |
| Setting accuracy: | Voltage: 0.05% of reading ± 3mV | | Voltage: 0.05% of reading ± 3mV (± 30mV on 120V range) | |
| | Current: 0.3% of reading ± 3mA - 3A 0.5% of reading ±3mA - 6A | | Current: 0.3% of reading ± 3mA to 3A 0.5% of reading ± 3mA to 10A 0.5% of reading ± 4mA to 20A | |
| Ripple and noise: (20MHz bandwith) | Typically <0.5mV rms, <5mV pk-pk, 1m\ | / rms max. | Typically <2mV rms, <15mV pk-pk, 3mV rms m 120V range: <4mV rms, <30mV pk-pk, 6mV rm max. | |
| | | Rear terminals 10mV pk-pk max | ··· | |
| Fransient response: | Front terminals: <100µs | Front terminals: <150µs | Front terminals: <150µs (ranges 4,5 & 6 <400µ | |
| | ' | Rear terminals: <500µs (range 3) | | |
| To within 50mV of set evel for 5% to 95% load | | | | |
| (To within 50mV of set level for 5% to 95% load change) Over voltage trip: | Settable 1V- 40V in 0.1V steps | | Output 1 Settable 1V to 130V in 0.1V steps | |
| (To within 50mV of set level for 5% to 95% load change) | Settable 1V- 40V in 0.1V steps Settable 0.1A- 7A in 0.01A steps | | Output 1 Settable 1V to 130V in 0.1V steps Output 2 Settable 1V to 70V in 0.1V steps Output 1 Settable 0.1A to 21A in 0.01A steps | |

MX100Q & MX100QP

MX180T & MX180TP

| | MX100T & MX100TP | MX100Q & MX100QP | MX180T & MX180TP | | |
|--|--|---|---|--|--|
| OUTPUT 3 & 4 (OUTPU | T 4 MX100Q & MX100QP ONLY) | | | | |
| Setting accuracy: | Voltage: 0.1% of reading ± 10mV | | Voltage: 0.3% of reading ± 20mV | | |
| | Current: 0.3% of reading ± 3mA to 3A | | Current: 0.3% of reading ± 20mA | | |
| Ripple and noise: (20MHz bandwith) | Front terminals: Typically <0.5mV rms, < 70V range: typically <1mV rms, <10mV p | Front terminals: Typically <2mV rms, <15mV pk pk, 3mV rms max. | | | |
| | | Rear terminals: <15mV pk-pk max. | | | |
| Transient response: | <100µs to within 50mV of set level for 5% to 95% load change | <150μs to within 50mV of set level for 5% to 95% load change | | | |
| Over voltage trip: | Settable 1V to 80V in 0.1V steps | | Settable 1V to 14V in 0.1V steps | | |
| Over current trip: | Settable 0.1A to 3.5A in 0.01A steps | | Settable 0.1A to 3.5A in 0.01A steps | | |
| OUTPUT PROTECTION | | | | | |
| External voltage: | Output will withstand forward voltages or 80V (O/P3, O/P4). | of up to 50V (O/P1 & O/P2), | Output will withstand forward voltages of up to 140V (O/P 1), 70V (O/P 2) or 20V (O/P 3) | | |
| | Reverse protection by diode clamp, 3A n | nax. | | | |
| Fault trip: | The output will be shut down if a trip co | ndition listed below occurs. | | | |
| OVP or OCP: | Exceeding the over-voltage or over-curre | ent settings for the output. | | | |
| Over temperature: | Monitors internal temperature rise to pr | otect against excess ambient temperatur | e or blocked ventilation slots. | | |
| CONNECTIONS | | | | | |
| Output terminals: | | .9mm (0.75") at front. Screw terminals at plugs, standard 4mm plugs, fork terminal | •••••• | | |
| Sense terminals: | Sprung loaded screw-less terminals at fr | ont. Screw terminals at rear (P-models or | nly) | | |
| OUTPUT ON/OFF S | WITCHING | | | | |
| Individual on/off: | Individual keys for each output. On state | e indicated by key illumination. | | | |
| Multi-on/ multi-off: | Separate keys enable any combination of outputs to be turned on or off either simultaneously (default) or with timed delays from 10ms to 20s. Delayed operation indicated by flashing key illumination. | | | | |
| s.a on, maid off. | , | · | nuitaneously (delault) or with timed delays from | | |
| VOLTAGE TRACKING | 10ms to 20s. Delayed operation indicate | · | nuitaneousiy (delauit) or with timed delays from | | |
| VOLTAGE TRACKING | 10ms to 20s. Delayed operation indicate | d by flashing key illumination. | | | |
| VOLTAGE TRACKING | 10ms to 20s. Delayed operation indicate | d by flashing key illumination. | | | |
| VOLTAGE TRACKING | 10ms to 20s. Delayed operation indicate upply can be set so that the voltage of an out V2 tracks V1 V3 tracks V2 V2 & 3 both track V1 | tput is automatically set equal to that of a V2 tracks V1 V4 tracks V3 | another output and tracks any changes. | | |
| VOLTAGE TRACKING The power su Tracking modes: SETTING MEMORIES | 10ms to 20s. Delayed operation indicate upply can be set so that the voltage of an out V2 tracks V1 V3 tracks V2 V2 & 3 both track V1 | tput is automatically set equal to that of a V2 tracks V1 V4 tracks V3 | another output and tracks any changes. | | |
| The power so Tracking modes: SETTING MEMORIES | 10ms to 20s. Delayed operation indicate upply can be set so that the voltage of an out V2 tracks V1 V3 tracks V2 V2 & 3 both track V1 S MEMORIES | tput is automatically set equal to that of a V2 tracks V1 V4 tracks V3 | another output and tracks any changes. | | |
| The power so Tracking modes: SETTING MEMORIES INDIVIDUAL OUTPUT MODES No. of stores: | 10ms to 20s. Delayed operation indicate supply can be set so that the voltage of an out V2 tracks V1 V3 tracks V2 V2 & 3 both track V1 S MEMORIES 50 per output | tput is automatically set equal to that of a V2 tracks V1 V4 tracks V3 | another output and tracks any changes. | | |
| The power so Tracking modes: SETTING MEMORIES INDIVIDUAL OUTPUT M No. of stores: Parameters stored: | 10ms to 20s. Delayed operation indicate upply can be set so that the voltage of an out V2 tracks V1 V3 tracks V2 V2 & 3 both track V1 S MEMORIES 50 per output Range, set volts, set current, OVP, OCP | tput is automatically set equal to that of a V2 tracks V1 V4 tracks V3 | another output and tracks any changes. | | |
| The power storacking modes: SETTING MEMORIES INDIVIDUAL OUTPUT M No. of stores: Parameters stored: LINKED OUTPUT MEMORIES | 10ms to 20s. Delayed operation indicate upply can be set so that the voltage of an out V2 tracks V1 V3 tracks V2 V2 & 3 both track V1 S MEMORIES 50 per output Range, set volts, set current, OVP, OCP | tput is automatically set equal to that of a V2 tracks V1 V4 tracks V3 | another output and tracks any changes. | | |
| The power so Tracking modes: SETTING MEMORIES INDIVIDUAL OUTPUT M No. of stores: Parameters stored: LINKED OUTPUT MEMORIES No. of stores: | 10ms to 20s. Delayed operation indicate upply can be set so that the voltage of an out V2 tracks V1 V3 tracks V2 V2 & 3 both track V1 S MEMORIES 50 per output Range, set volts, set current , OVP, OCP DRIES | tput is automatically set equal to that of a V2 tracks V1 V4 tracks V3 V2 tracks V1 & V4 tracks V3 | another output and tracks any changes. | | |
| VOLTAGE TRACKING The power so Tracking modes: | 10ms to 20s. Delayed operation indicates upply can be set so that the voltage of an out V2 tracks V1 V3 tracks V2 V2 & 3 both track V1 S MEMORIES 50 per output Range, set volts, set current , OVP, OCP DRIES 50 Range, set volts, set current, OVP, OCP, or | tput is automatically set equal to that of a V2 tracks V1 V4 tracks V3 V2 tracks V1 & V4 tracks V3 | another output and tracks any changes. | | |
| The power standard Tracking modes: SETTING MEMORIES INDIVIDUAL OUTPUT MODES Parameters stored: LINKED OUTPUT MEMORIES Parameters stored: Parameters stored: | 10ms to 20s. Delayed operation indicates supply can be set so that the voltage of an out V2 tracks V1 V3 tracks V2 V2 & 3 both track V1 S MEMORIES 50 per output Range, set volts, set current , OVP, OCP DRIES 50 Range, set volts, set current, OVP, OCP, or UTPUT) | tput is automatically set equal to that of a V2 tracks V1 V4 tracks V3 V2 tracks V1 & V4 tracks V3 | another output and tracks any changes. V2 tracks V1 | | |
| The power standard Tracking modes: SETTING MEMORIES INDIVIDUAL OUTPUT MODES Parameters stored: LINKED OUTPUT MEMORIES Parameters stored: METERING (EACH O | 10ms to 20s. Delayed operation indicates upply can be set so that the voltage of an out V2 tracks V1 V3 tracks V2 V2 & 3 both track V1 S MEMORIES 50 per output Range, set volts, set current , OVP, OCP DRIES 50 Range, set volts, set current, OVP, OCP, of UTPUT) Output 1: 5 digit voltage and current meters Output 2 & 3: | tput is automatically set equal to that of a V2 tracks V1 V4 tracks V3 V2 tracks V1 & V4 tracks V3 Output on/off status (for all outputs) All outputs: 5 digit voltage and current meters Output 3 & 4 at 70V: | Output 1 & 2: 5 digit voltage and 4 digit current meters Output 3: | | |
| The power standard Tracking modes: SETTING MEMORIES INDIVIDUAL OUTPUT MODES Parameters stored: LINKED OUTPUT MEMORIES Parameters stored: METERING (EACH O | 10ms to 20s. Delayed operation indicate pupply can be set so that the voltage of an out V2 tracks V1 V3 tracks V2 V2 & 3 both track V1 S MEMORIES 50 per output Range, set volts, set current , OVP, OCP DRIES 50 Range, set volts, set current, OVP, OCP, or UTPUT) Output 1: 5 digit voltage and current meters Output 2 & 3: 4 digit voltage and current meters | tput is automatically set equal to that of a V2 tracks V1 V4 tracks V3 V2 tracks V1 & V4 tracks V3 V2 tracks V1 & V4 tracks V3 V3 tracks V1 & V4 tracks V3 Putput on/off status (for all outputs) All outputs: 5 digit voltage and current meters Output 3 & 4 at 70V: 4 digit voltage meters | Output 1 & 2: 5 digit voltage and 4 digit current meters | | |
| The power state of the power sta | 10ms to 20s. Delayed operation indicates supply can be set so that the voltage of an out V2 tracks V1 V3 tracks V2 V2 & 3 both track V1 S MEMORIES 50 per output Range, set volts, set current , OVP, OCP DRIES 50 Range, set volts, set current, OVP, OCP, or UTPUT) Output 1: 5 digit voltage and current meters Output 2 & 3: 4 digit voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters | tput is automatically set equal to that of a V2 tracks V1 V4 tracks V3 V2 tracks V1 & V4 tracks V3 Toutput on/off status (for all outputs) All outputs: 5 digit voltage and current meters Output 3 & 4 at 70V: 4 digit voltage meters alues. 1mV/0.1mA | Output 1 & 2: 5 digit voltage and 4 digit current meters Output 3: 3.5 digit voltage and current meters | | |
| The power state of the power sta | 10ms to 20s. Delayed operation indicates upply can be set so that the voltage of an out V2 tracks V1 V3 tracks V2 V2 & 3 both track V1 S MEMORIES 50 per output Range, set volts, set current, OVP, OCP DRIES 50 Range, set volts, set current, OVP, OCP, of UTPUT) Output 1: 5 digit voltage and current meters Output 2 & 3: 4 digit voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters | tput is automatically set equal to that of a V2 tracks V1 V4 tracks V3 V2 tracks V1 & V4 tracks V3 V2 tracks V1 & V4 tracks V3 V3 tracks V1 & V4 tracks V3 All outputs: 5 digit voltage and current meters Output 3 & 4 at 70V: 4 digit voltage meters alues. | Output 1 & 2: 5 digit voltage and 4 digit current meters Output 3: 3.5 digit voltage and current meters | | |
| The power state of the power sta | 10ms to 20s. Delayed operation indicates supply can be set so that the voltage of an out V2 tracks V1 V3 tracks V2 V2 & 3 both track V1 S MEMORIES 50 per output Range, set volts, set current, OVP, OCP DRIES 50 Range, set volts, set current, OVP, OCP, or UTPUT) Output 1: 5 digit voltage and current meters Output 2 & 3: 4 digit voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters Simultaneous display of actual and set voltage and current meters | tput is automatically set equal to that of a V2 tracks V1 V4 tracks V3 V2 tracks V1 & V4 tracks V3 Toutput on/off status (for all outputs) All outputs: 5 digit voltage and current meters Output 3 & 4 at 70V: 4 digit voltage meters alues. 1mV/0.1mA | Output 1 & 2: 5 digit voltage and 4 digit current meters Output 3: 3.5 digit voltage and current meters | | |

| MODEL | MX100T & MX100TP | MX100Q & MX100QP | MX180T & MX180TP |
|-------|------------------|------------------|------------------|
| | | | |

DIGITAL BUS INTERFACES (P-MODELS ONLY)

The P-models in the MX series offer full remote control and read back using USB, RS-232, GPIB or LAN (compliant with LXI). All interfaces are at ground potential and opto-isolated form the output terminals.

| RS-232 | Standard 9 pin D connector |
|-----------------|---|
| 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 |
| 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 core 2011. (LXI is the abbreviation for Lan eXtensions for instrumentation) For more information visit: www.aimtti.com/go/lxi |

DIGITAL PROGRAMMING PERFORMANCE (P-MODELS ONLY)

PROGRAMMING SPEED

Command delay:

Typically <120ms between receiving the command terminator for a step voltage change at the instrument and the output beginning to change.

OUTPUT RESPONSE

| MX100T & MX100TP / MX100Q & MX100QT | | | | | | |
|-------------------------------------|-----------|----------|---------|-----------|----------|---------|
| Range | Direction | 90% load | No load | Direction | 90% load | No load |
| 16V/6A | Up | 10ms | 10ms | Down | 10ms | 350ms |
| 35V/3A | Up | 10ms | 10ms | Down | 35ms | 550ms |
| 35V/6A | Up | 10ms | 10ms | Down | 20ms | 550ms |
| 70V/3A | Up | 25ms | 12ms | Down | 60ms | 600ms |

The above figures are indicative only and will be affected by load and load capacitance.

| MX180T & MX180TP | | | | | | | |
|------------------|-----------|----------|---------|-----------|----------|---------|--|
| Range | Direction | 90% load | No load | Direction | 90% load | No load | |
| 30V/6A | Up | 6ms | 6ms | Down | 50ms | 3s | |
| 15V/10A | Up | 6ms | 6ms | Down | 20ms | 2s | |
| 60V/3A | Up | 15ms | 10ms | Down | 220ms | 5s | |

The above figures are indicative only and will be affected by load and load capacitance.

DRIVER SOFTWARE SUPPLIED (P-MODELS ONLY)

| IVI driver· | n IVI driver for Windows* is supplied. This provides support for common applications such as LabView* LAbWindows* eysightVEE* ect | | |
|-------------|--|--|--|
| USB driver: | driver: An installation file is supplied which calls a standard Windows * USB driver | | |

^{*}LabView and LabWindows are trademarks of National Instrauuments, *Keysight VEE is a trademark of Keysight Technologies. * Windows is a trademark of Microsoft.

Rack mount:

| GENERAL SPECIFICATIONS | | | | | | | |
|---|--|--|--|--|--|--|--|
| INPUT: | | | | | | | |
| AC input: | 110V to 240V AC ± 10%, 50/60Hz. Installation category II | | | | | | |
| Input power: | 500VA max. | 650V max. | 600VA max. | | | | |
| TEMPERATURE & ENVIRONMENTAL | | | | | | | |
| Operating range: | +5°C to +40°C, 20% to 80% RH | | | | | | |
| Storage range: | -40°C to +70°C | | | | | | |
| Environmental: | Indoor use at altitudes up to 2000m, Pollution degree 2 | | | | | | |
| Cooling: | Intelligent variable speed fans | | | | | | |
| SAFETY & EMC | | | | | | | |
| Safety: | Complies with EN61010-1 | | | | | | |
| EMC: | Complies with EN61326 | | | | | | |
| PHYSICAL | | | | | | | |
| Size: (Excludes feet, knob & terminals) | 212 x 130 x 375mm* (WxHxD) Half rack x 3U height. | 320 x 130 x 375mm* (WxHxD) Three quarter rack x 3U height | 212 x 130 x 375mm* (WxHxD) Half rack x 3U height. | | | | |
| Weight: | 4.8kg (MX100T) 4.9kg (MX100TP) | 7.3kg (MX100Q) 7.5kg (MX100QP) | 5.0kg (MX180T) 5.1kg (MX180TP) | | | | |
| OPTIONS | | | | | | | |

19" rack mount for one unit

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

19" rack mount for one or two units

General specifications apply for the temperature range 5°C to 40°C. Accuracy specification apply for the temperature range 18°C to 28°C after 1 hour warm up.

19" rack mount for one or two units



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

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.

