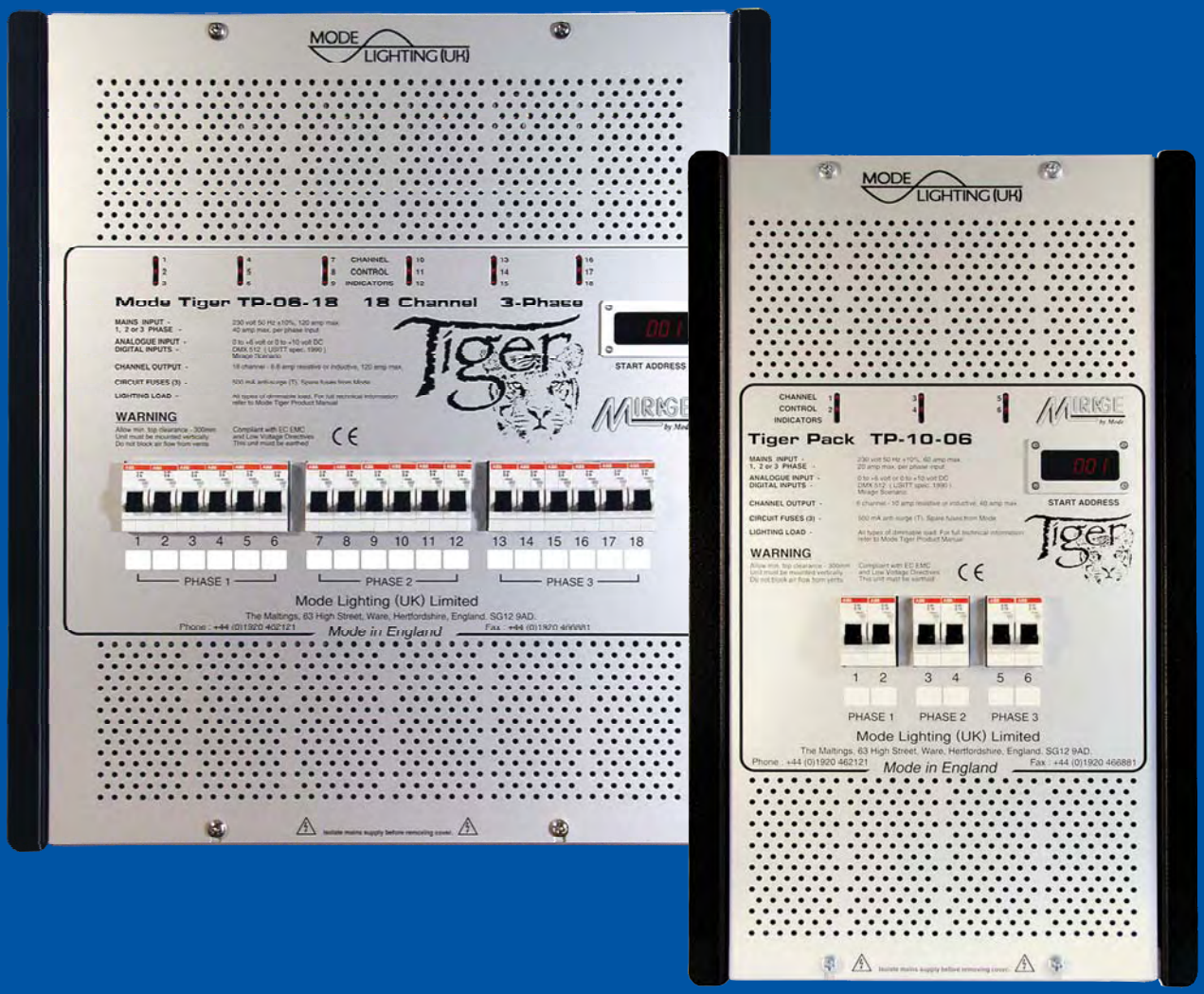
Mode Tiger
Dimmable Power Unit



MODE LIGHTING (UK) LIMITED
The Maltings, 63 High Street, Ware, Hertfordshire, SG12 9AD, England.
Tel: +44 (0) 1920 462121 e-mail: sales@modelighting.com Fax: +44 (0) 1920 466881

TIGER INSTALLATION MANUAL
TP-10-12 and TP-06-18

Page

Mode Lighting (UK) Limited.
The Maltings, 63 High Street, Ware, Herts, England. SG12 9AD.
Tel : +44 (0)1920 462121 Fax : +44 (0)1920 466881
e-mail: sales@modelighting.com

"Reliability from Mode"

MODE POLICY: To create superior products and to provide our customers with long term reliability, serviceability and value for money. The Company does not make economies which are of short term benefit only.

FOUNDATION: Mode was established in 1970 as an Original Equipment Manufacturer in Hertfordshire, England. Mode designs and manufacturers in the U.K. Architectural Lighting Control Equipment, Electronic Transformers, Cold Cathode (Neon) Convertors and many other Electronic Lighting products. Mode is a subsidiary of a privately owned Holding Company known as TCL and has four associated electronic companies who together trade as "The Mode Group".

PREMISES: The Mode Group occupies well equipped factories, offices and large warehouses in Ware and Hertford, having a commercial area of 10,000m^2. We are situated 40Km from London, 50Km from Heathrow Airport and 20Km from Stansted Airport.

STAFF: The Mode Group employs more than 140 persons, including thirty Managers, twenty Engineers and Technicians and over eighty Manufacturing Staff. There are three Principal Directors and seven other Directors who between them own all of the issued share capital of the Holding Company.

CLIENTS: The Mode Group has over 500 clients in over 30 countries.

Mode Lighting (UK) Limited.
The Maltings, 63 High Street, Ware, Herts, England. SG12 9AD.
Tel : +44 (0)1920 462121 Fax : +44 (0)1920 466881
e-mail: sales@modelighting.com

INSTALLATION PROCEDURE

1. Remove all packaging.

2. Read instructions and retain for future reference.

3. Fit unit to wall and observe spacing instructions.

4. Remove front plate and store in a safe place.

5. Fit trunking (4" minimum) to desired option.

6. Install all input supply wiring to National Wiring Regulations and other applicable Regulations.

7. Install all output load wiring to National Wiring Regulations and other applicable Regulations.

8. Install all low voltage control wiring.

9. Set all switches and jumper links.

10. Ensure that all wiring is tidy and that all ventilation grilles are unobstructed.

11. Switch on supply to unit.

12. Test all loads are operating correctly.

13. Set "start" address.

14. Program operating system.

15. Test operation.

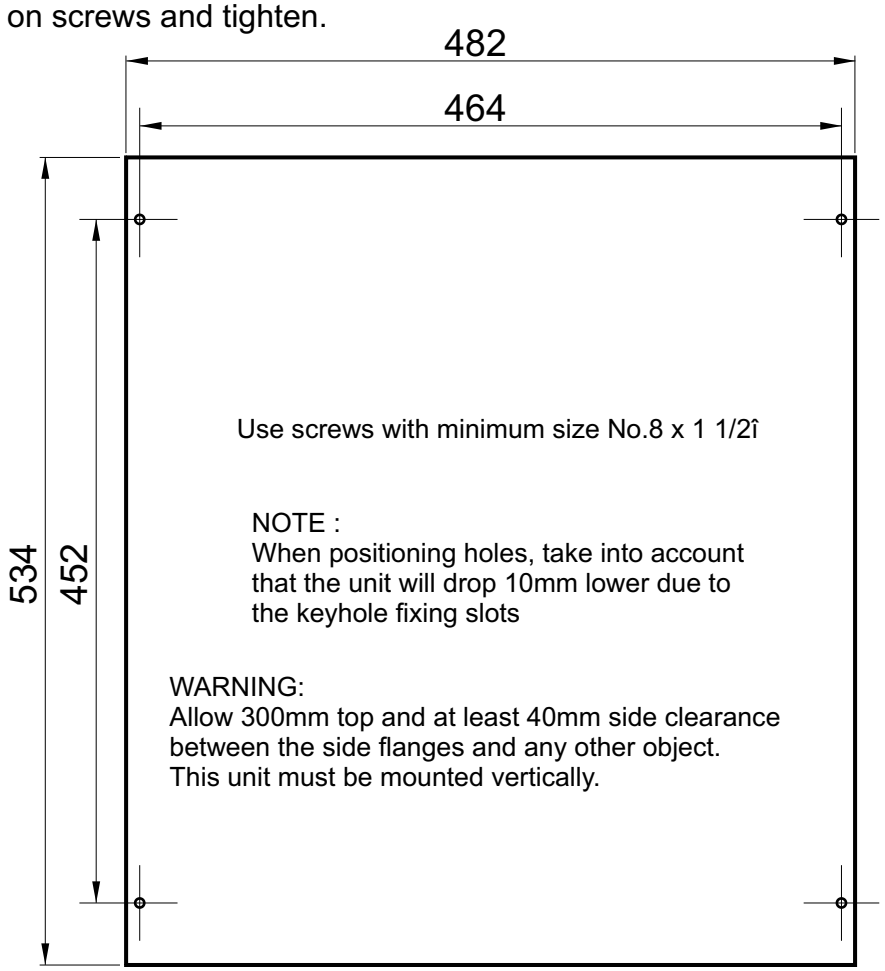
16. Re-fit front plate.

Mode Lighting (UK) Limited.
The Maltings, 63 High Street, Ware, Herts, England. SG12 9AD.
Tel : +44 (0)1920 462121 Fax : +44 (0)1920 466881
e-mail: sales@mode-lighting.co.uk

MECHANICAL FIXING

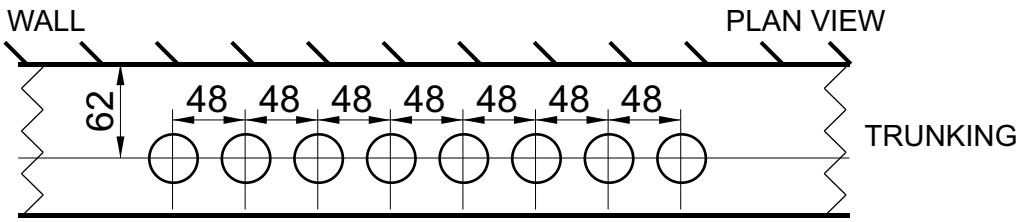
Mark positions, drill holes and fit screws to wall, see diagram below.

Dimensions in millimetres.
Hang unit on screws and tighten.



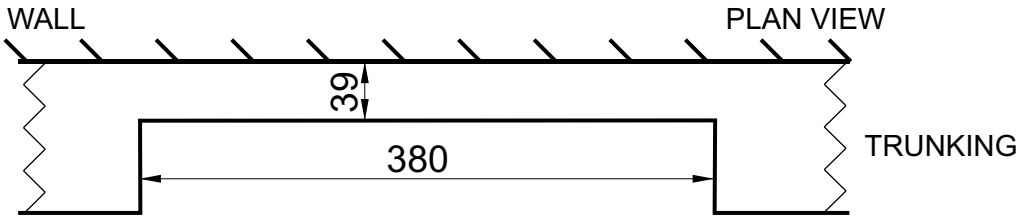
TRUNKING OPTIONS

Connect unit to trunking (4î trunking min.) using up to eight 32mm couplers. These are pitched 48mm apart and centred 62mm from the wall. See diagram below.

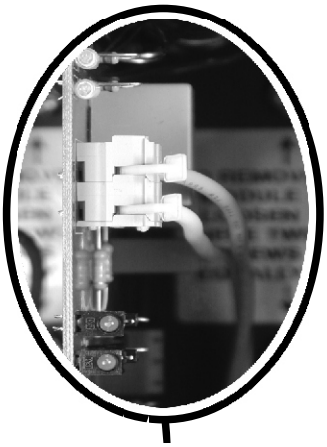


OR

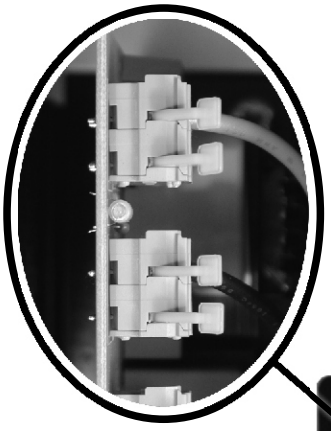
Cut notch in trunking 380mm wide as shown in the diagram below. Remove the knockout plate from the Tiger Power Unit underside and fit trunking to wall, butting up underneath the Power Unit. Ensure all sharp edges are covered to prevent damage to cable insulation.



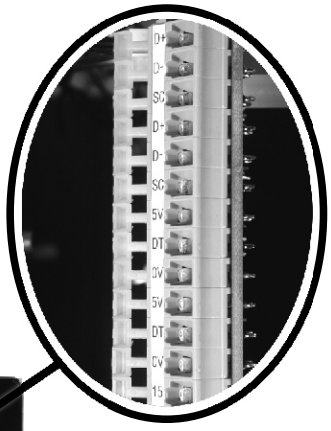
IDENTIFICATION OF TERMINALS TP-10-12 (12 CHANNEL)



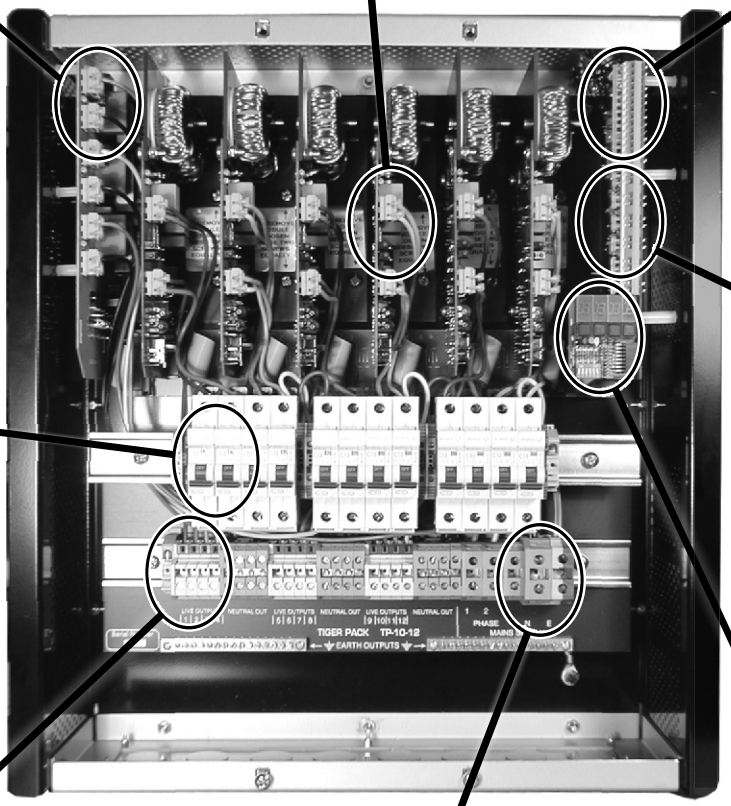
CHANNEL MAINS PRESENT
AND LEVEL INDICATORS

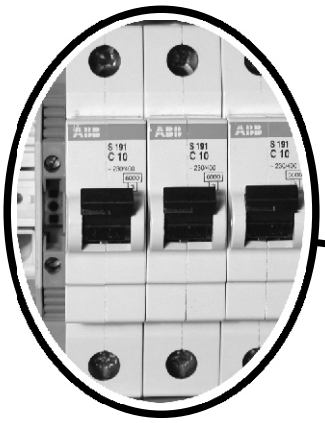


PHASE INPUT NEONS

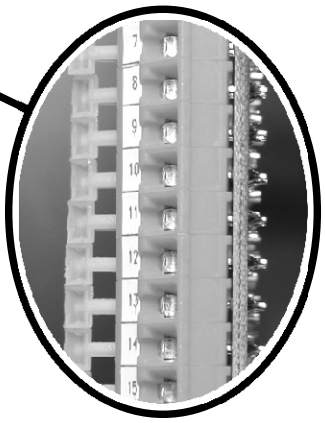


DMX / SCENARIO
INPUT TERMINALS

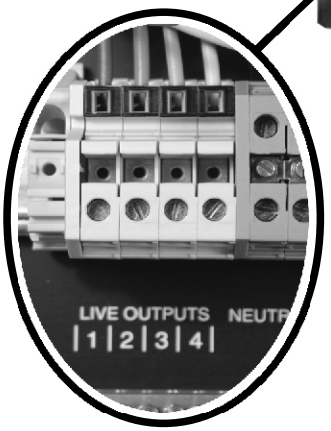




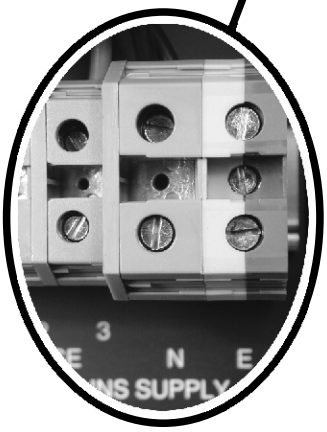
EMERGENCY
TERMINALS
AND MCBíS



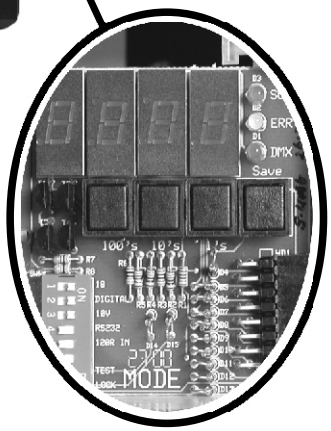
ANALOGUE INPUT /
OUTPUT TERMINALS



CHANNEL OUTPUT
TERMINALS

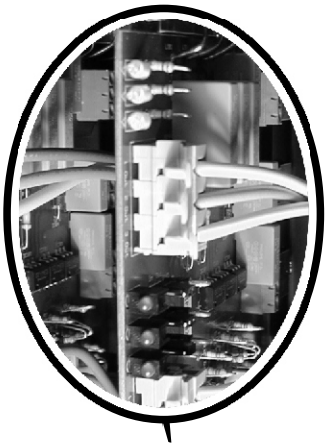


MAINS INPUT
TERMINALS

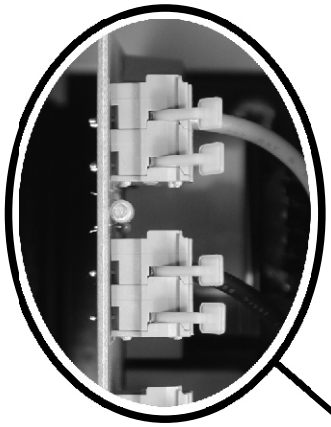


START ADDRESS
AND FUNCTION SWITCHES

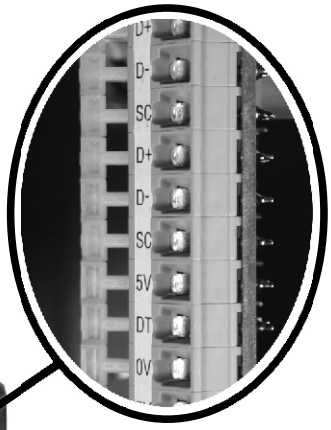
IDENTIFICATION OF TERMINALS TP-06-18 (18 CHANNEL)



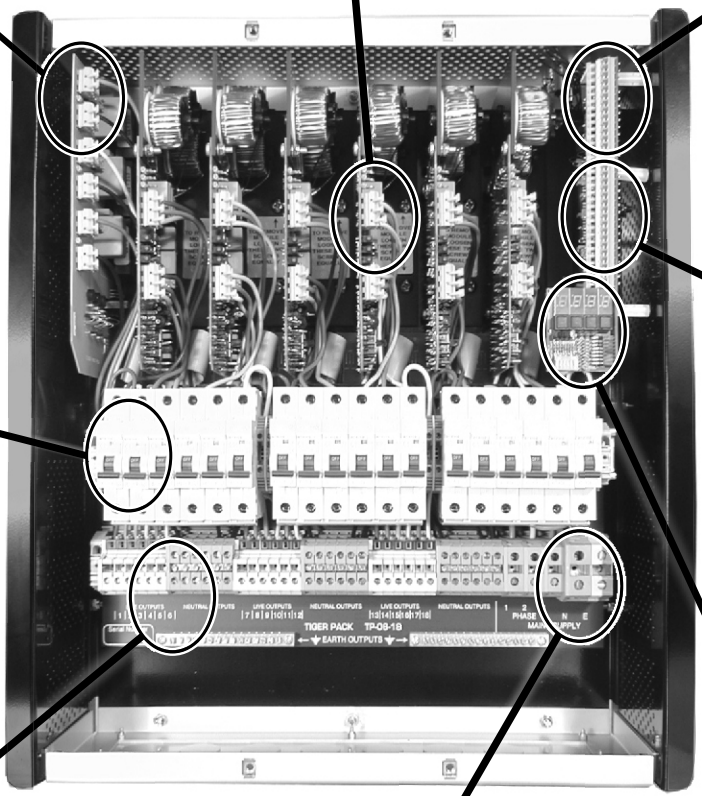
CHANNEL MAINS PRESENT
AND LEVEL INDICATORS

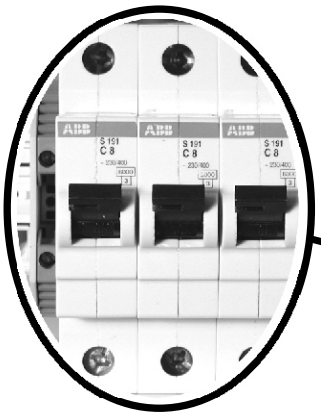


PHASE INPUT NEONS

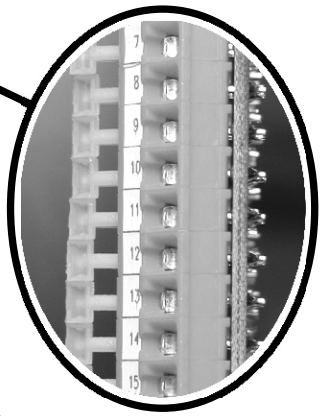


DMX / SCENARIO
INPUT TERMINALS

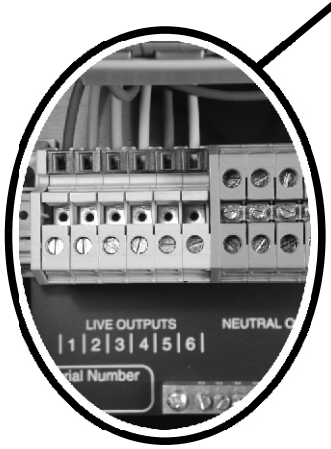




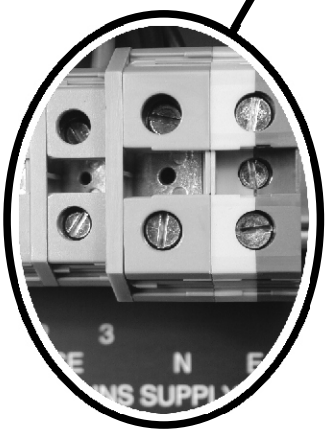
EMERGENCY
TERMINALS
AND MCBíS



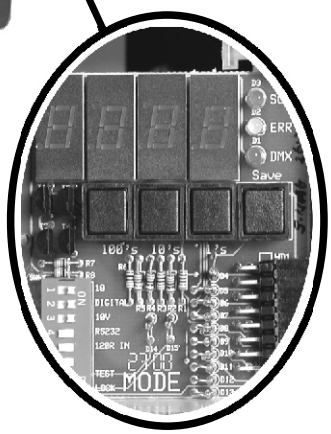
ANALOGUE INPUT /
OUTPUT TERMINALS



CHANNEL OUTPUT
TERMINALS



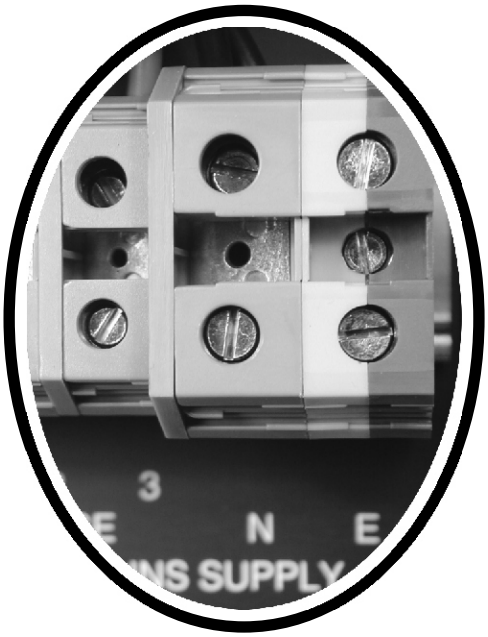
MAINS INPUT
TERMINALS



START ADDRESS
AND FUNCTION SWITCHES

MAINS SUPPLY WIRING

This unit is to be wired by a suitably qualified electrician in accordance with National Wiring Regulations and other applicable Regulations.



TERMINALS

Three Live phase input terminals (40 amp max.).

One Neutral input terminal (120 amp max.).

One Earth input terminal (120 amp max.).

TERMINAL SPECIFICATIONS

Terminal	Wire sizes mm^2 Stranded	Solid	Strip length mm	Tightening torque Nm	lb/in
Phase 1	4 - 16	4 - 25	14	1.2 - 1.4	10.6 - 12.3
Phase 2	4 - 16	4 - 25	14	1.2 - 1.4	10.6 - 12.3
Phase 3	4 - 16	4 - 25	14	1.2 - 1.4	10.6 - 12.3
Neutral	10 - 35	10 - 50	17	2.8 - 3.0	21.8 - 26.1
Earth	10 - 35	10 - 50	17	2.8 - 3.0	21.8 - 26.1

CONNECTION

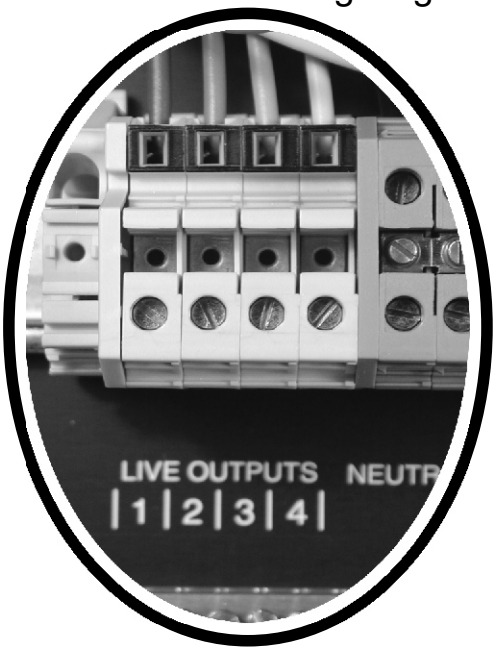
Connect three live input feeds using wire of between the values stated above and in accordance with the calculated loadings. The live feeds do not have to be from different phases. Any combination of phases is acceptable.

Connect Neutral feed using wire of between the values stated above and in accordance with the calculated loadings.

Connect Earth using wire of between the values stated above and in accordance with the calculated loadings.

OUTPUT WIRING TP-10-12 (12 CHANNEL)

This unit is to be wired by a suitably qualified electrician in accordance with National Wiring Regulations and other applicable Regulations.



CHANNEL OUTPUT TERMINALS

12 Live output terminals (10 amp max.).

12 Neutral output terminals (10 amp max.).

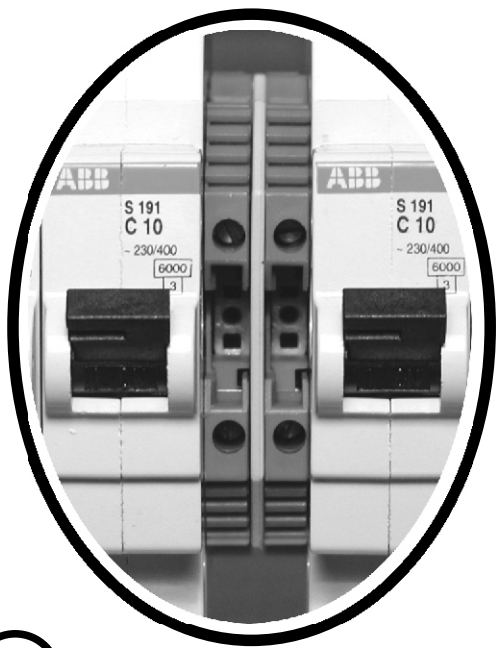
Two 15 way Earth common bars (10 amp max.).

CONNECTION

Connect loads using wire of between the values stated below and in accordance with the calculated loadings. Live, Neutral and Earth wires of the same channel must pass out through the same coupler.

TERMINAL SPECIFICATIONS

Terminal	Wire sizes mm^2 Stranded	Solid	Strip length mm	Tightening torque Nm	lb/in
Live outputs	1 - 6	1 - 10	12	0.8 - 1.0	7.1 - 8.9
Neutral outputs	1 - 6	1 - 10	12	0.8 - 1.0	7.1 - 8.9
Earth outputs	1 - 6	1 - 10	12	0.8 - 1.0	7.1 - 8.9
Emergency outs	1 - 2.5	1 - 2.5	10	0.5 - 0.7	4.4 - 6.2



EMERGENCY OUTPUT TERMINALS

6 Live monitor output terminals for channels 1,4,5,8,9 and 12 located adjacent to the channel MCBís.

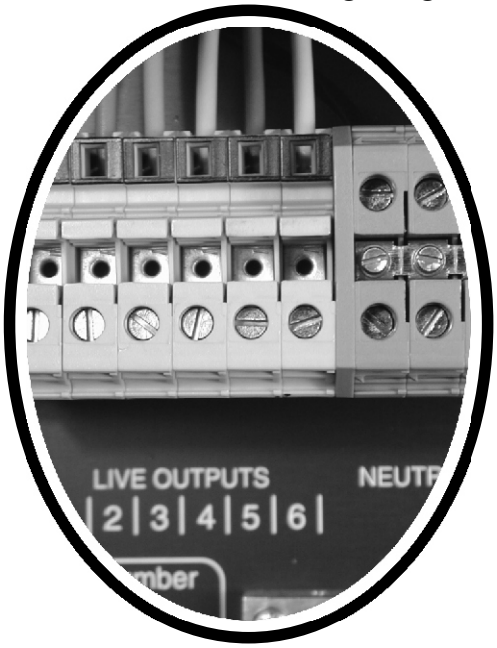
These terminals provide a live monitor for emergency light fittings. If the channel MCB trips the emergency fittings switch over to battery operation.

CONNECTION

Connect emergency fittings using wire between the values stated above and in accordance with the calculated loadings. Live, Neutral and Earth wires of the same channel must pass out through the same coupler.
NOTE : The emergency current and channel load current added together should not exceed the maximum channel current.

OUTPUT WIRING TP-06-18 (18 CHANNEL)

This unit is to be wired by a suitably qualified electrician in accordance with National Wiring Regulations and other applicable Regulations.



CHANNEL OUTPUT TERMINALS

18 Live output terminals (6.6 amp max.).

18 Neutral output terminals (6.6 amp max.).

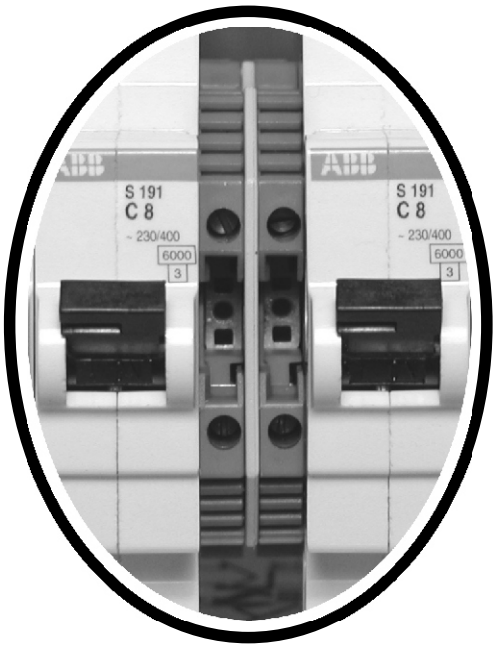
Two 15 way Earth common bars (6.6 amp max.).

CONNECTION

Connect loads using wire of between the values stated below and in accordance with the calculated loadings. Live, Neutral and Earth wires of the same channel must pass out through the same coupler.

TERMINAL SPECIFICATIONS

Terminal	Wire sizes mm^2 Stranded	Solid	Strip length mm	Tightening torque Nm	lb/in
Live outputs	1 - 6	1 - 10	12	0.8 - 1.0	7.1 - 8.9
Neutral outputs	1 - 6	1 - 10	12	0.8 - 1.0	7.1 - 8.9
Earth outputs	1 - 6	1 - 10	12	0.8 - 1.0	7.1 - 8.9
Emergency outs	1 - 2.5	1 - 2.5	10	0.5 - 0.7	4.4 - 6.2



EMERGENCY OUTPUT TERMINALS

6 Live monitor output terminals for channels 1,6,7,12,13 and 18 located adjacent to the channel MCBís.

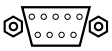
These terminals provide a live monitor for emergency light fittings. If the channel MCB trips the emergency fittings switch over to battery operation.

CONNECTION

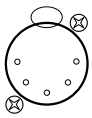
Connect emergency fittings using wire between the values stated above and in accordance with the calculated loadings. Live, Neutral and Earth wires of the same channel must pass out through the same coupler.
NOTE : The emergency current and channel load current added together should not exceed the maximum channel current.

CONTROL WIRING (LOW VOLTAGE)

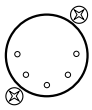
EXTERNAL CONNECTORS (top plate)



RS-232 9 way D connector - for future use.

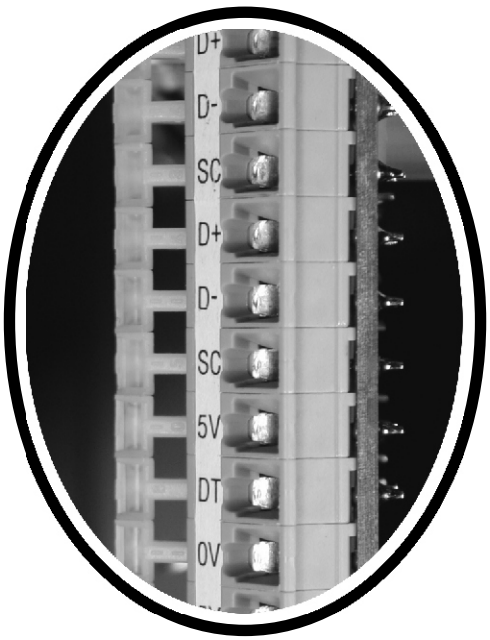


5 Pin XLR chassis socket for DMX connection.
Connections:- DMX^{+} = pin 3, DMX^{-} = pin 2, Screen = pin 1.



5 Pin XLR chassis plug for DMX connection.
Connections:- DMX^{+} = pin 3, DMX^{-} = pin 2, Screen = pin 1.

25mm conduit entry for hard wired control cables.



DATA INPUT TERMINALS (for digital control only)

Lever operated screwless terminals as follows:-

D+ = DMX+
D- = DMX-
SC = DMX Screen
} Inputs

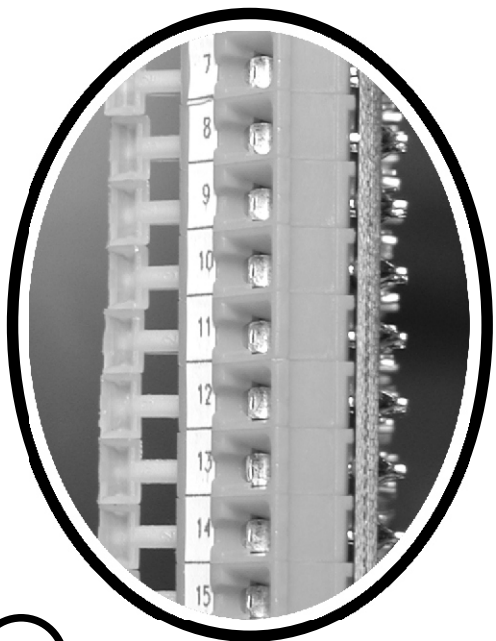
D+ = DMX+
D- = DMX-
SC = DMX Screen
} Outputs

5 V = +5V supply to Scenario plate
DT = Scenario Data line
0 V = 0V reference
} Inputs

5 V = +5V supply to Scenario plate
DT = Scenario Data line
0 V = 0V reference
} Outputs

AUXILIARY TERMINALS

15 = +15V DC output to supply remote equipment
AL = Alarm input



TERMINALS 1 - 18

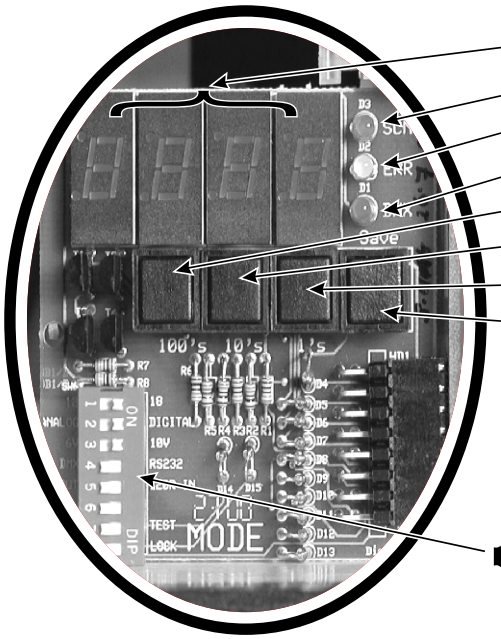
In Digital Mode

These terminals provide either 0 to +6V or 0 to +10V DC control signals.
Capable of sourcing 50µA and sinking 100mA.
For 12 channel type terminals 13-18 are not used.

In Analogue Mode

Terminals 1-18 to be supplied with a DC control signal of 0 to +6V or 0 to +10V.
For 12 channel type terminals 13-18 are not used.

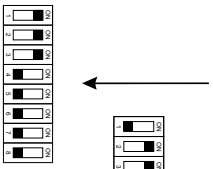
CONTROL MODULE SETTINGS



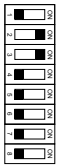
Display showing start address.
Scenario data indicator.
Data error indicator.
DMX data received indicator.
Push button increment 100's for start address.
Push button increment 10's for start address.
Push button increment 1ís for start address.
For future use.
DIP switches - RIGHT=ON.

1 - 12 / 18 channels (12 = off).
2 - Digital / Analogue (Analogue = off).
3 - 6V / 10V Operation (6V = off).
4 - DMX / RS232 (DMX = off).
5 - Set DMX terminator, not used in Scenario systems.
6 - For future use.
7 - Normal / Test (Normal = Off).
8 - Unlock / Lock (Unlock = Off).

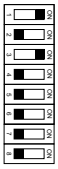
NOTE - For Scenario operation switch 4 should be set to DMX. The processor will sense that DMX is not present and will operate in Scenario mode. If a DMX signal is detected it will override the Scenario data bus. The terminator switch should always be set to off for Scenario installations.
Switch setting examples - the first two examples are the factory settings.



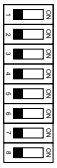
18 channel, Digital, 10V, DMX or Scenario, Not last in DMX line.
When in digital mode the 10V refers to the output voltage available for driving ballasts etc..



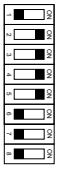
12 channel, Digital, 10V, DMX or Scenario, Not last in DMX line.



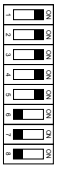
18 channel, Analogue, 10V, DMX or Scenario, Not last in DMX line.
When in analogue mode the position of switch 4 is ignored. The 10V refers to a voltage of 0-10V required to drive the channel between off and full on.



12 channel, Analogue, 6V, DMX or Scenario, Not last in DMX line.



12 channel, Digital, 10V, RS232, Last in DMX line.



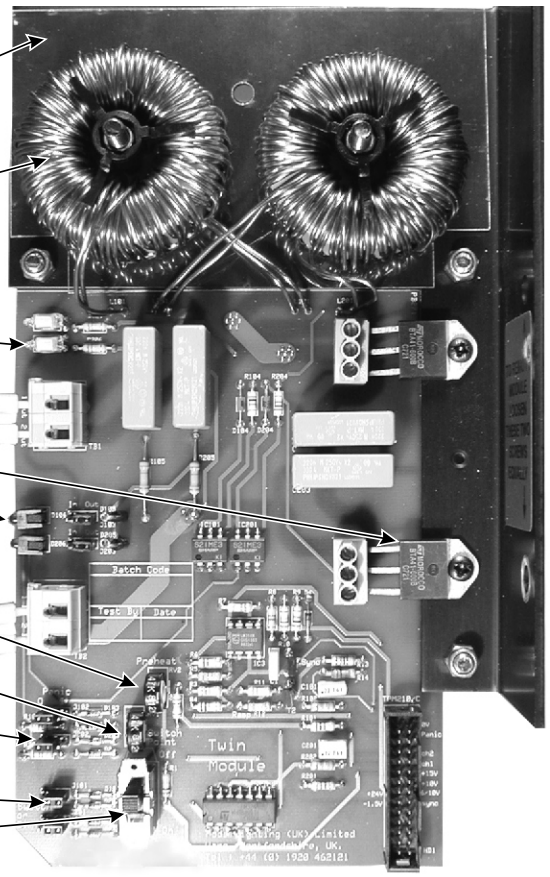
18 channel, Digital, 10V, RS232, Last in DMX line.

Maximum number of channels for DMX operation is 512.
Maximum number of channels for Scenario operation is 99.
In the event of a DMX or Scenario error the last level received will be maintained.

Refer to Mirage Scenario programming guide for functions associated with the architectural scene setting system.

POWER MODULE FUNCTIONS

TWIN MODULE
used in 12 channel model TP-10-12



Heatsink and mounting bracket

RFI noise suppression chokes

Channel mains feed indicators 2 (green)

User replaceable triac

Channel control signal indicators 2 (red)

Output pre heat adjustment control

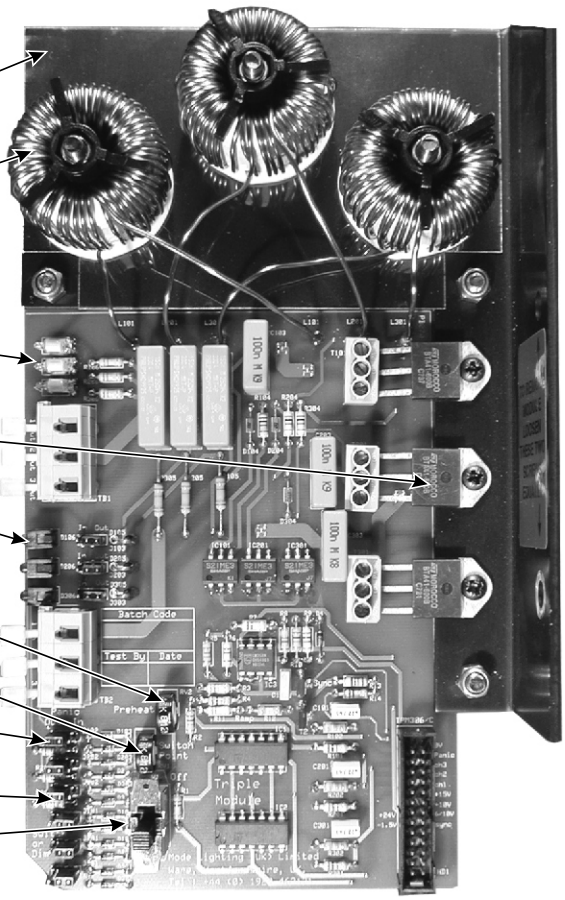
Set switch point for switching channels

Set alarm enable for selected channel

Set a channel to switch or dim

Module full on test switch

TRIPLE MODULE
used in 18 channel model TP-06-18



Heatsink and mounting bracket

RFI noise suppression chokes

Channel mains feed indicators (green)

User replaceable triac

Channel control signal indicators (red)

Output pre heat adjustment control

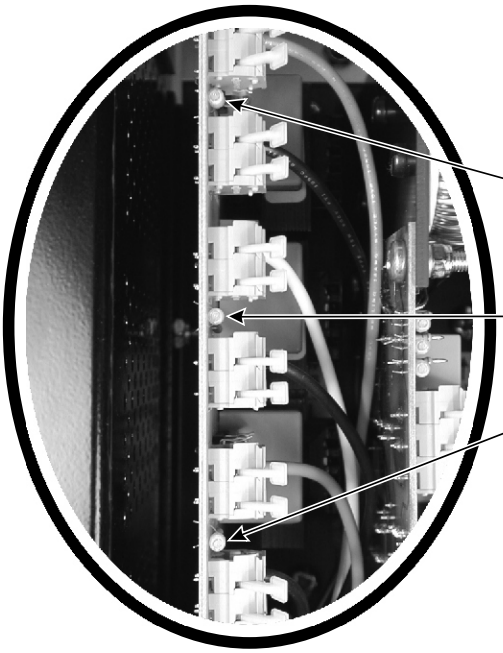
Set switch point for switching channels

Set alarm enable for selected channel

Set a channel to switch or dim

Module full on test switch

INDICATOR IDENTIFICATION

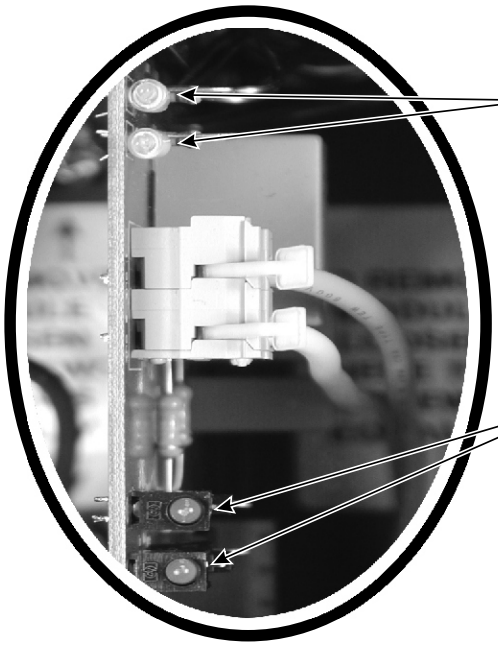


The three neons shown indicate when the phase input is live.

Phase 1

Phase 2

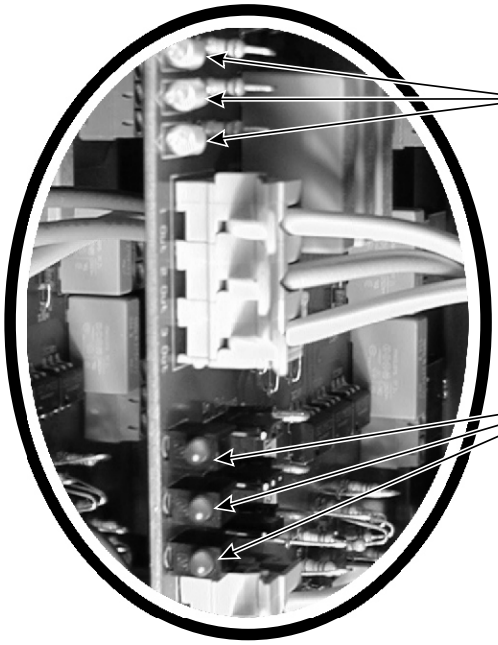
Phase 3



TP-10-12 (12 channel)

The two green neons shown indicate when the channel input is live i.e. when the MCB is on.

The two red LED's indicate a control signal is present. These still operate if the mains to the module is not switched on.



TP-06-18 (18 channel)

The three green neons shown indicate when the channel input is live i.e. when the MCB is on.

The three red LED's indicate a control signal is present. These still operate if the mains to the module is not switched on.

TECHNICAL SPECIFICATION TP-10-12 (12 CHANNEL)

POWER SUPPLY	Voltage 230V AC nominal. (207V - 253V), 50Hz. (110V 60Hz AC nominal available to order) Single phase neutral and earth - three 40 amp live feeds. Three phase neutral and earth Star configuration - 40 amp/phase. (Three phase Delta configuration available to order) Connection - hard wired to din rail mounting screw terminals. TOTAL CURRENT 120 AMP.
DIMMING OUTPUTS	Hard fired leading edge triac triggering. Maximum load 10 amps per channel resistive, 9 amps inductive. Minimum load 40 watts per channel (200 watts for fluorescent - ballasts, when channel set to switch output). Output connections hard wired :- Live and Neutral outputs - din rail mounting screw terminals. Earth outputs - brass earth common bars.
EMERGENCY OUTPUTS	Six switched live outputs on channels 1,4,5,8,9 and 12. These outputs will normally give full mains output and under fault conditions which trip the channel circuit breaker give zero output. The total current on these channels emergency + dimmed must not exceed the maximum channel rating.
PROTECTION	Individual 10 amp Type C channel feed circuit breakers. Green channel feed live indicators. PSU module phase fuses 500mA anti-surge (3).
CONTROL INPUTS	0-6V or 0-10V analogue, hard wired to screwless terminals. Mirage Scenario data bus, hard wired to screwless terminals. USITT DMX512 (1990), hard wired or via 5 pin XLR. RS-232 interface via 9 pin D connector. Alarm input - will set all alarm enabled channels to full output. Control options set by DIP switches.
DC OUTPUTS	+5V at 50mA and +15V at 50mA hard wired to screwless terminals.

DIMENSIONS `

	Packed	Unpacked
Height	600mm	534mm
Width	560mm	482mm
Depth	240mm	160mm
Weight	15kgs	14kgs

FIXING CENTRES Vertical = 452mm Horizontal = 464mm

WARNING - Allow 300mm top and at least 40mm side clearance Between the side flanges and any other object. This unit must be mounted vertically.

ENVIRONMENT Operating temperature 0^{0}C to $+40^{0}$C.
Maximum case temperature $+90^{0}$C.

STANDARDS Complies with CE EMC and LVD requirements.

CE

EMC Emissions BSEN 55014

TECHNICAL SPECIFICATION TP-06-18 (18 CHANNEL)

POWER SUPPLY	Voltage 230V AC nominal. (207V - 253V), 50Hz. (110V 60Hz AC nominal available to order) Single phase neutral and earth - three 40 amp live feeds. Three phase neutral and earth Star configuration - 40 amp/phase. (Three phase Delta configuration available to order) Connection - hard wired to din rail mounting screw terminals. TOTAL CURRENT 120 AMP.
DIMMING OUTPUTS	Hard fired leading edge triac triggering. Maximum load 6.6 amps per channel resistive, 6 amps inductive. Minimum load 40 watts per channel (200 watts for fluorescent ballasts, when channel set to switch output). Output connections hard wired :- Live and Neutral outputs - din rail mounting screw terminals. Earth outputs - brass earth common bars.
EMERGENCY OUTPUTS	Six switched live outputs on channels 1,6,7,12,13 and 18. These outputs will normally give full mains output and under fault conditions which trip the channel circuit breaker give zero output. The total current on these channels emergency + dimmed must not exceed the maximum channel rating.
PROTECTION	Individual 8 amp Type C channel feed circuit breakers. Green channel feed live indicators. PSU module phase fuses 500mA anti-surge (3).
CONTROL INPUTS	0-6V or 0-10V analogue, hard wired to screwless terminals. Mirage Scenario data bus, hard wired to screwless terminals. USITT DMX512 (1990), hard wired or via 5 pin XLR. RS-232 interface via 9 pin D connector. Alarm input - will set all alarm enabled channels to full output. Control options set by DIP switches.
DC OUTPUTS	+5V at 50mA and +15V at 50mA hard wired to screwless terminals.

DIMENSIONS

	Packed	Unpacked
Height	600mm	534mm
Width	560mm	482mm
Depth	240mm	160mm
Weight	16kgs	15kgs

FIXING CENTRES Vertical = 452mm Horizontal = 464mm

WARNING - Allow 300mm top and at least 40mm side clearance Between the side flanges and any other object. This unit must be mounted vertically.

ENVIRONMENT Operating temperature 0¼C to +40¼C.
Maximum case temperature +90ºC.

STANDARDS Complies with CE EMC and LVD requirements.

EMC Emissions	BSEN 55014
EMC Immunity	BSEN 61547
Harmonics	BSEN 61000-3-2
Safety	BSEN 60439-1 / BSEN 60950

CE

MAINTENANCE

Periodically inspect the wiring for damage.

Ensure the ventilation holes have not become covered or blocked with dust.

Check overall condition of unit.

SPARES

The following spare parts are available:-

Item	Reference
PSU Module	TP-120-PSU
Twin Module	TPM-210
Triple Module	TPM-306
Digital Module	TP-120-DCM

ASSOCIATED PRODUCTS

TP-10-06 Tiger Dimmable Power Unit 10 x 6A

TP-06-09 Tiger Dimmable Power Unit 6 x 9A

MS-00-12 Scenario Master Switch Plate

RS-00-06 Scenario Remote Switch Plate

RT-00-10 Scenario Remote 7-day Time Clock

Remote Dimmer Outstations - Rotary or Slider Control

Dimmable Electronic Transformers for low voltage Tungsten Halogen Lighting.

Dimmable Neon Convertors for Cold Cathode (Neon) Lighting.

For further information, please contact:-

Mode Lighting (UK) Limited.

The Maltings, 63 High Street, Ware, Herts, England. SG12 9AD.

Tel : +44 (0)1920 462121 Fax : +44 (0)1920 466881

e-mail: sales@modelighting.com

Mode Lighting (UK) Limited was established in 1970 as a manufacturer of electronic componets for the lighting industry. Mode has an enviable reputation for quality, reliability and customer service. The Mode Group employs more than 140 people in over 10,000m2 of well equipped factories, offices and warehouses.

Products include:-

Electronic Transformers for Low Voltage.

Electronic Cold Cathode Convertors.

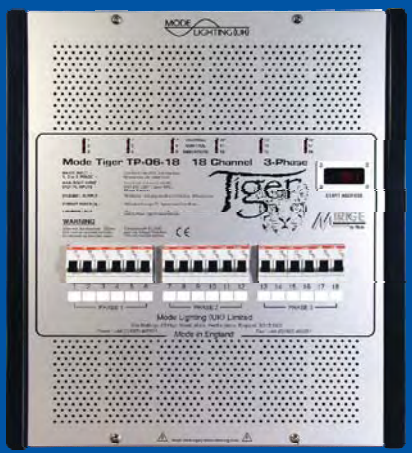
Architectural Dimming Systems.

Electronic Ballasts.

LED Systems.

TP-10-12

TP-06-09



TP-06-18

TP-10-06

"Controlling the Future of Lighting"