MiG2 TIME SWITCHES

1, 2 & 4 Channel, 365 Day, Energy Saving Time Switches

The **MiG2** series of timers are programmable 365-day time-switches, incorporating:

- Multiple switching times per day
- Single and block holidays
- Daylight saving
- Energy saving temperature optimised start
- After hour's pushbutton override
- Extreme temperature override

Features include:

- Easy to read super high contrast display
- Easy to follow menu
- External socket for programming via PC
- DIN-rail or wall mounting
- Pluggable screw terminals
- Supply voltage: 240V or 24V AC (internally selectable)

Models: **MiG2-T1** Single Channel Time Switch
MiG2-T2 2 Channel Time Switch
MiG2-T4 4 Channel Time Switch

All settings of the MiG2 Time-Switches can be programmed via the front panel buttons and easy to follow menu. Alternatively they can be programmed using the MiG2 PC Interface Software and a USB Programming Cable.

CONTENTS

WARNING: The MiG2 must be installed and maintained by qualified service personnel. The installer should follow **all** relevant building and electrical compliance codes.

MOUNTING INSTRUCTIONS

The MiG2 can be wall or 35mm DIN Rail mounted. It must not be installed in a public area if the snap out section of the cover has been removed.

It is recommended that the MiG2 be mounted more than 500mm away from contactors, large power cables and devices that create an arc when switching.

Do not mount outdoors or in direct sunlight.

Mount in a well-ventilated area, ambient air temperature between +5°C & 40°C.

The maximum relative humidity must not exceed 80% for temperatures up to 31°C.

Wall Mounting

1. Loosen the two front screws and remove the cover.
2. Position the MiG2 on the wall, mark locations of the two screw bosses and mark the wiring slots.
3. For concealed wiring cut holes in the wall under the MiG2.
4. Feed the wires through the slots in the MiG2 base.
5. Attach the MiG2 base to the wall using suitable screws.
   Only use pan-head screws (countersink screws may split the bosses).
6. Connect the wiring to the screw terminals as required.
7. Replace the cover and tighten the front screws.

Din Rail Mounting

1. Position the top two catches of the MiG2 base onto the top edge of the DIN Rail.
2. Locate and pull down the DIN Clip (bottom edge of MiG2 base) while pushing the bottom edge of the base onto the DIN Rail. Then release the Clip and ensure the base has been retained correctly.
3. Loosen the two front screws and remove the cover.
4. Feed the wires through the slots in the MiG2 base OR
   remove the snap out section of the cover.
5. Connect the wiring to the screw terminals as required.
6. Replace the cover and tighten the front screws.

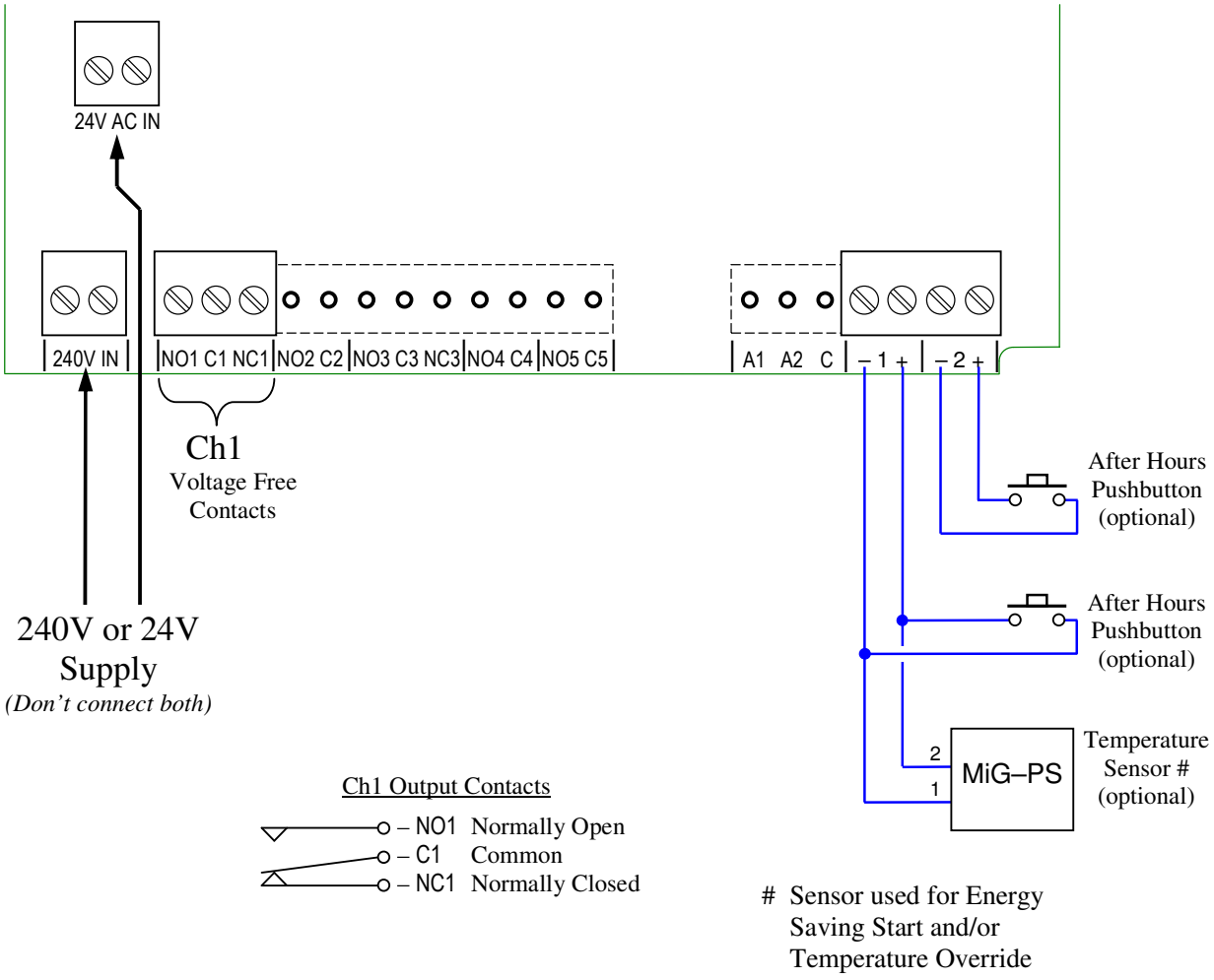
WIRING GUIDE

The cables to be connected to the terminals must be at least single insulated wires, with a rating higher than 240V~.

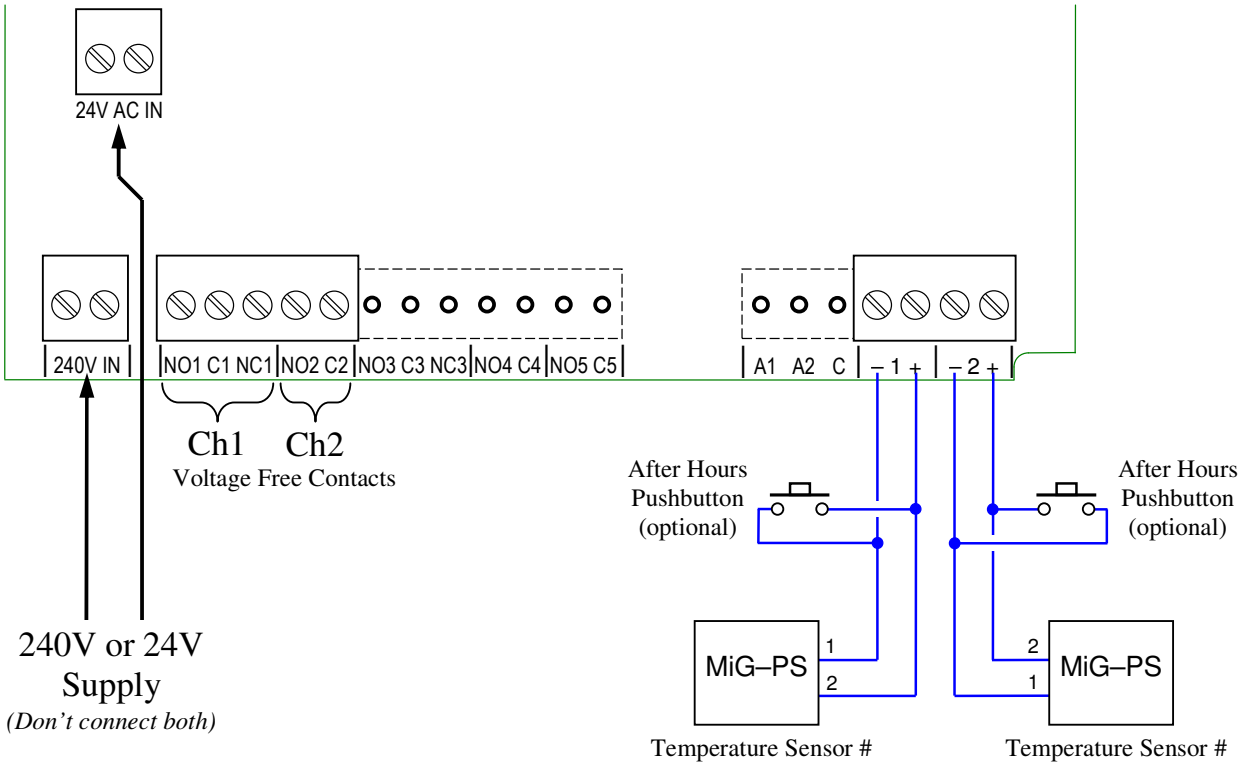
For 240V Supply and 240V Switching: The same phase should be used to power the MiG2 as the voltage supply to all relay contacts.

For 240V Supply: As there is no ON/OFF switch on the MiG2, the installer must ensure that there is a switch or a circuit breaker provided in the building installation. It shall be in proximity to the equipment and within easy reach of the operator. The switch or the circuit breaker shall be marked as the disconnecting device for the MiG2. If a circuit breaker is used it shall be rated at 1A 240VAC with a breaking capacity of 500A. If an isolating switch is used a fuse with a 1A 250V rating is to be incorporated.

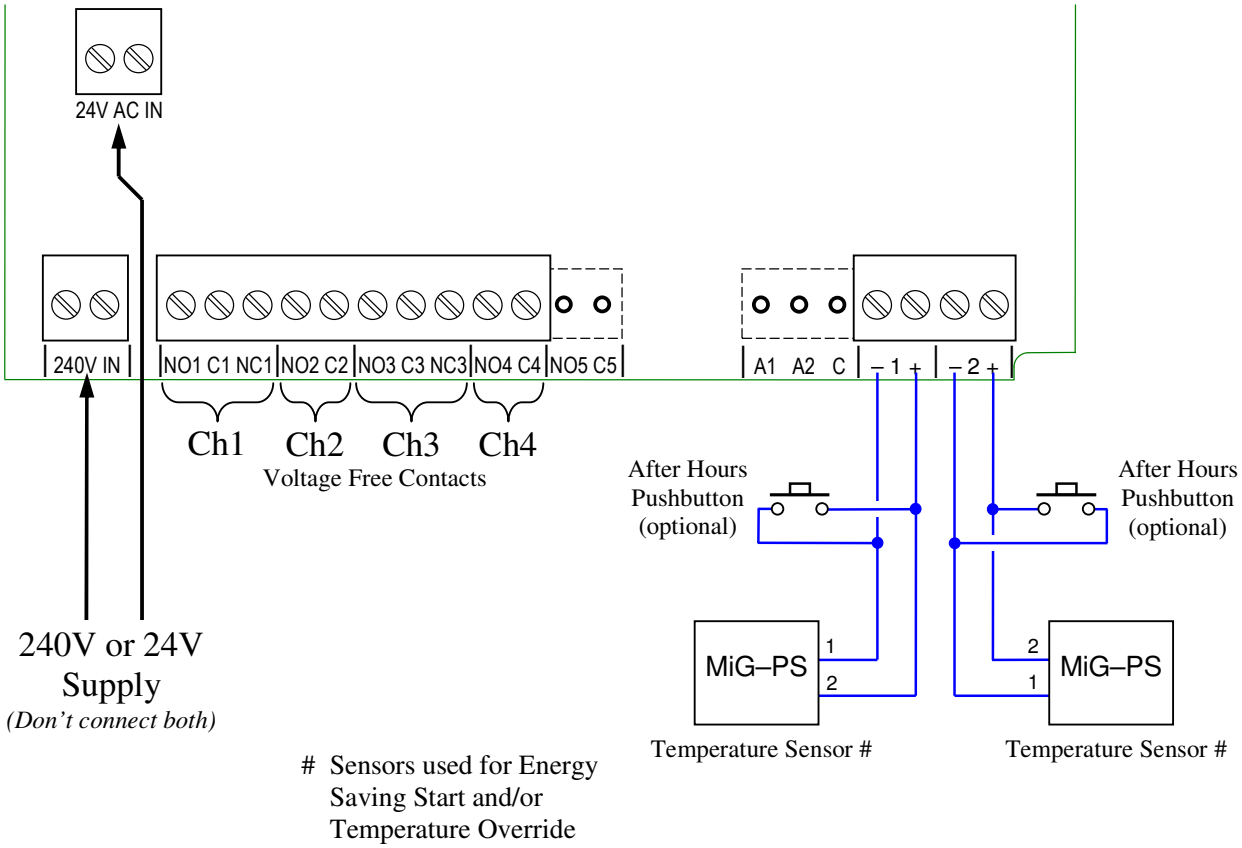
MiG2–T1 WIRING



MiG2–T2 WIRING



MiG2–T4 WIRING



Sensors used for Energy Saving Start and/or Temperature Override

PROGRAMMING

The MiG2s are easily programmed using the front panel menu, the buttons have consistent functions throughout the whole menu.

Menu [▼] & [▲] buttons moves you up and down through the menu screens.

[**SEL**] button moves you into a menu level, moves the cursor for editing settings or saves changes.

Edit [**+**] & [**–**] buttons change the values when editing.

[**EXIT**] button quits editing without saving changes or moves you back one menu level.

If no button is pressed for 2 minutes the MiG2 will return to the home screens without saving any changes.

MENU STRUCTURE

The MiG2 Time-Switches have a number of home screens that continually cycle, these display the current:

'Channel Status',
'Time and Date' and
'Update/Confirm Holiday Settings'.

Channel status includes the override time remaining if running in override mode, input temperatures and 'short circuit' when an after hours button is pressed.

Update/Confirm Holiday Settings is an indication that one or more holidays have passed. Each holiday will repeat on the same date each year unless changed or deleted. In the calendar menu, holidays that have passed are shown with an asterisk.

CHANGE INDIVIDUAL SETTINGS

For safety reasons, any programming changes should be done with the cover on.

1. [**SEL**] "Main Menu" will be displayed
2. [▼] or [▲] until the required sub-menu is displayed
3. [**SEL**] to enter that Sub Menu
4. [▼] or [▲] until the required screen is displayed
5. [**SEL**] to highlight the first value on this screen
6. [**+**] or [**–**] to change this value
7. [**SEL**] to highlight the next value (if any)
   Repeat step 6 above.
8. **[SEL]** to save changes and return to the sub-menu.

[**Exit**] at any time, to quit editing this screen **without** saving changes.

9. [▼] or [▲] to find another screen within that Sub Menu

LOCKED

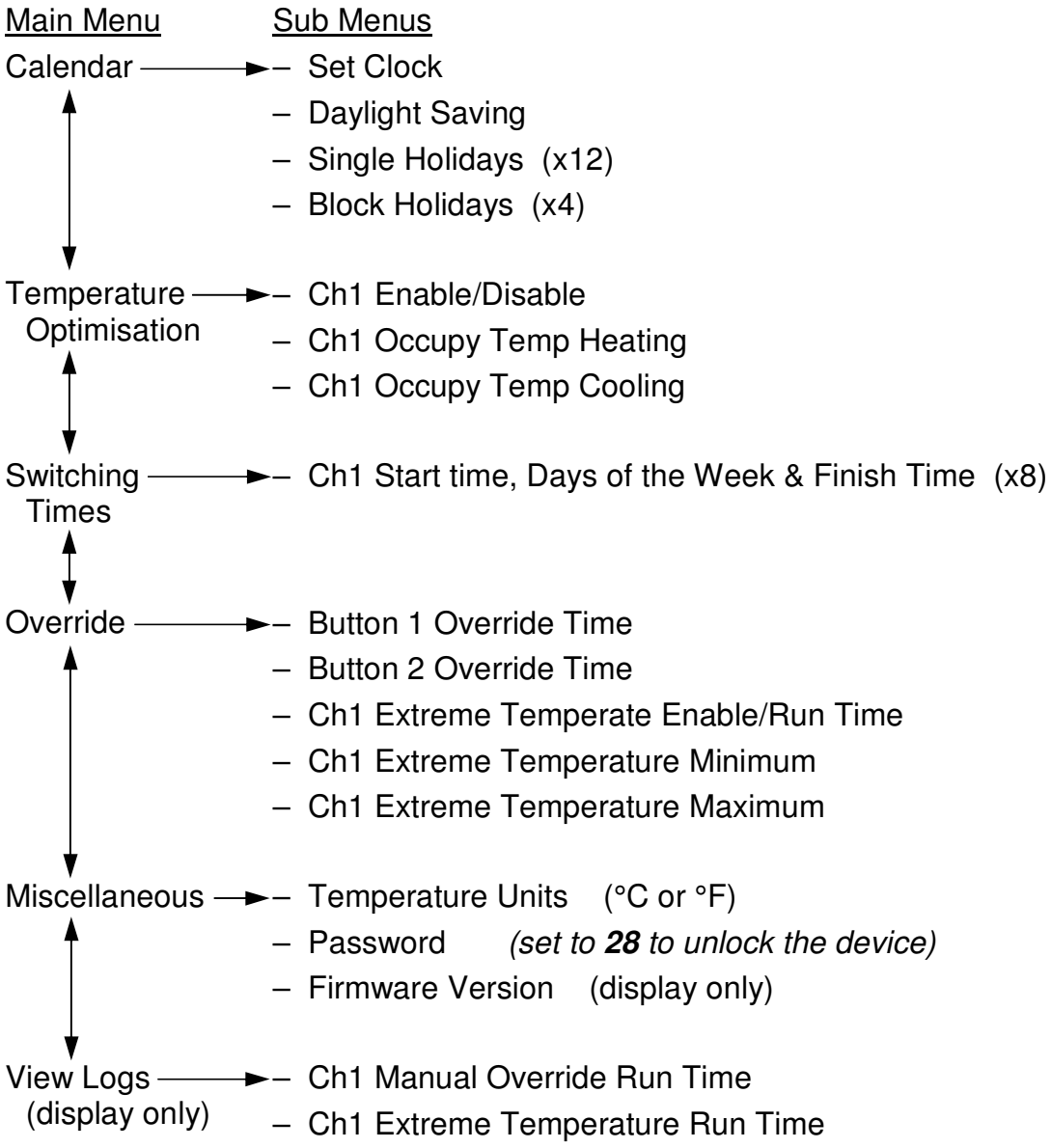
If "Locked" is displayed when attempting to edit values:

- [**EXIT**] to return to "Main Menu"
- [▼] or [▲] until "Miscellaneous" is displayed
- [**SEL**] to enter sub-menu
- [▼] or [▲] until "Password" is displayed
- [**SEL**] to edit value
- [**+**] or [**–**] to change value to **'28'**
- [**SEL**] to save (the MiG2 is now unlocked)

To lock the MiG2 again change the password to any value other than 28 (eg. 31).

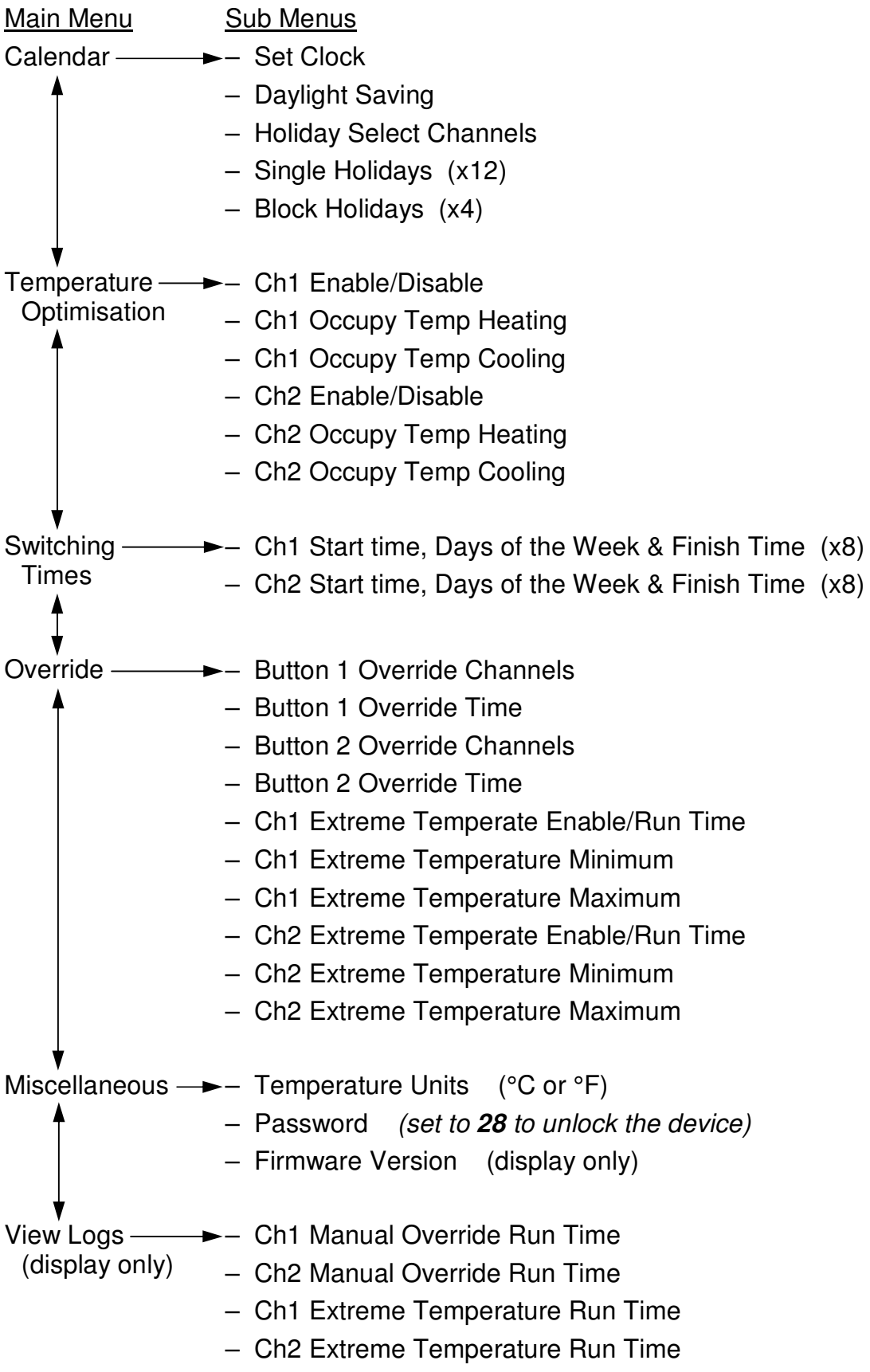
Note: It is advisable to lock MiG2's that are located in public accessible areas. However MiG2's located in locked cabinets and equipment rooms are commonly left unlocked.

MiG2–T1 MENU GUIDE

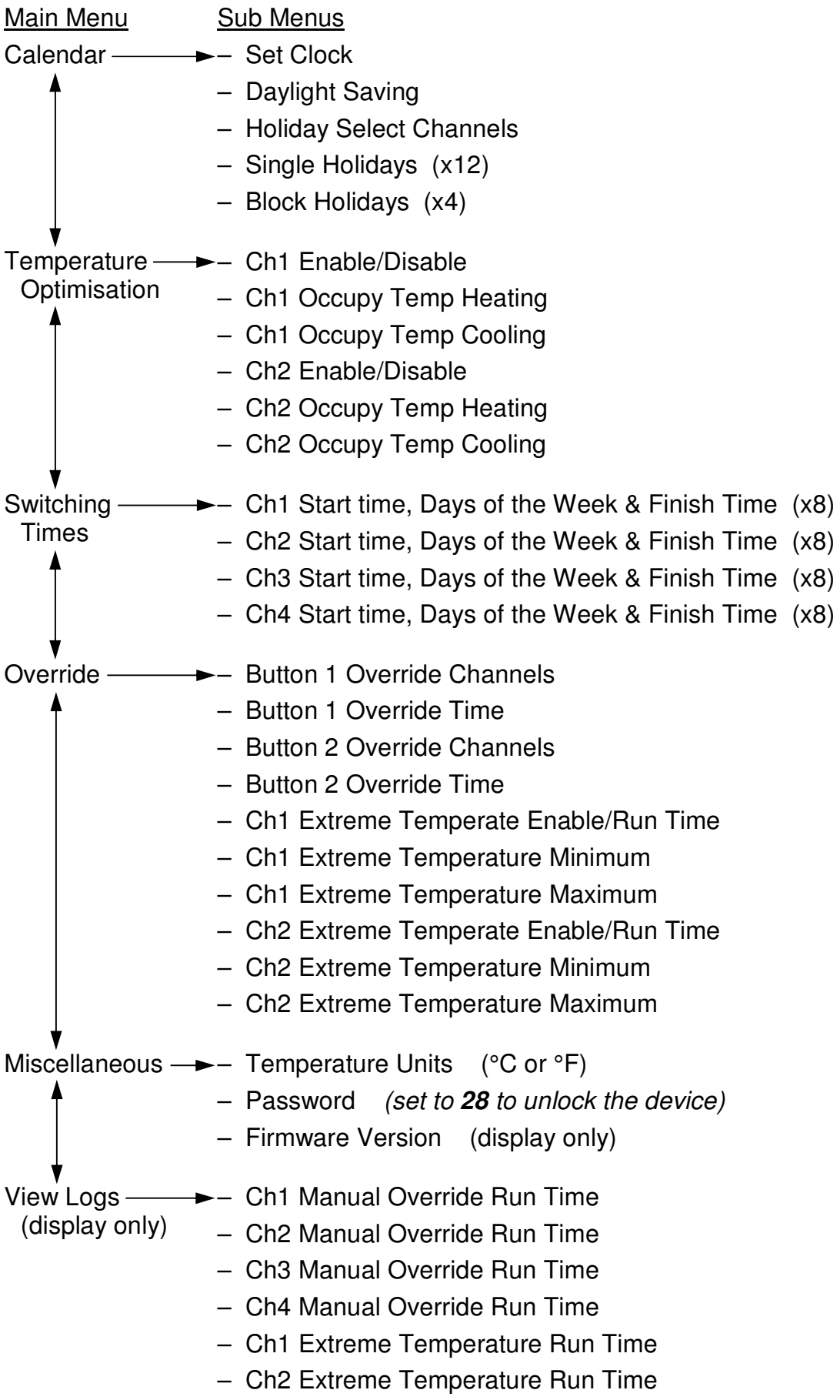


Note: Some screens only appear when certain parameters are enabled.
Eg: When "Ch1 Extreme Temperate" is disabled then "Ch1 Extreme Minimum & Maximum" screens will not be displayed.

MiG2–T2 MENU GUIDE



MiG2–T4 MENU GUIDE



ENERGY SAVING TEMPERATURE OPTIMISED START

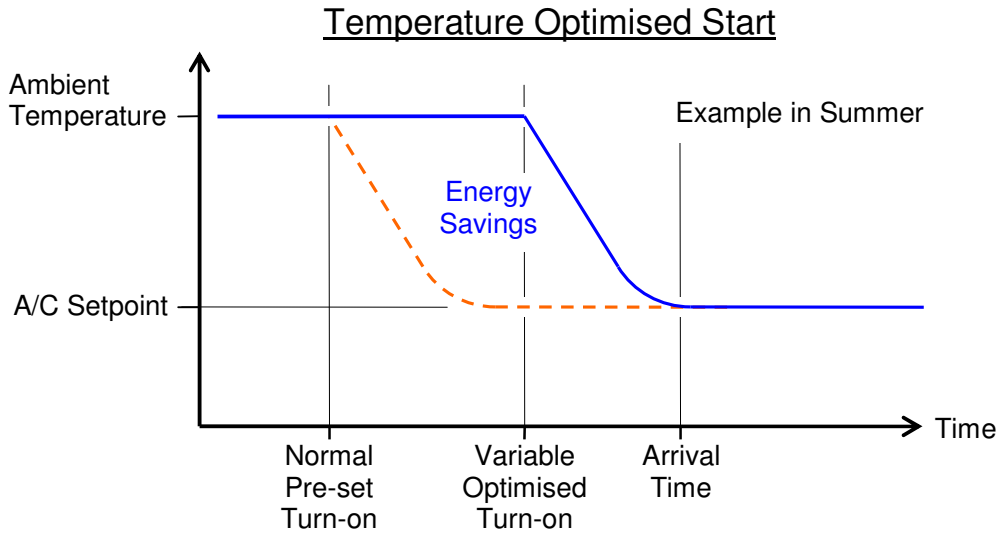
EXPLAINATION

Temperature Optimised Start allows for further energy savings with air conditioning and heating systems. It does this by varying the start time each day, to align with the ambient temperature.

In many installations the time-switch is used to turn on the air-conditioning early, so the zone is comfortable by the time the occupants arrive. Technicians program the turn-on time for what they think is enough time to reach optimum temperature, generally this time is set to allow for extreme temperatures. Consequently, for many days of the year, the system turns on much earlier than is necessary.

The MiG2s overcome this problem by calculating the optimum start-up time for each day. Using an extra temperature sensor in the zone, the MiG2 monitors the ambient temperature prior to turn-on. After the air-conditioning has turned on, the rate at which the temperature changes is monitored and this is used to build a history of the previous 5 starts. The Time-Switch learns the temperature profile of the zone and turns the air-conditioning on at the 'last possible time' prior to occupancy.

Temperature Optimised Start can result in an addition 5-10% of energy savings, with the maximum benefit being in areas with seasonal extremes of temperature.

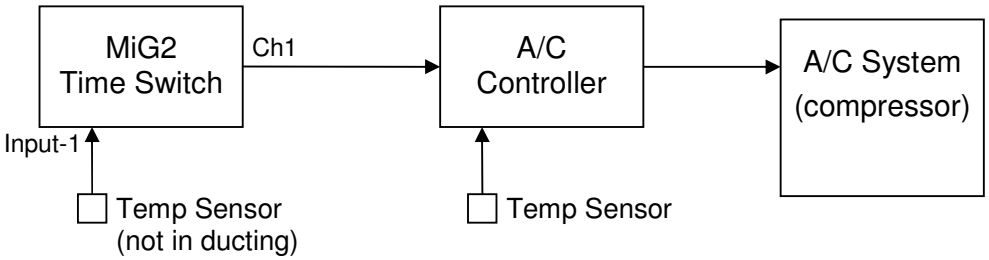


Temperature Optimisation is available on

MiG2–T1: output channel 1
MiG2–T2: output channels 1 & 2
MiG2–T4: output channels 1 & 2

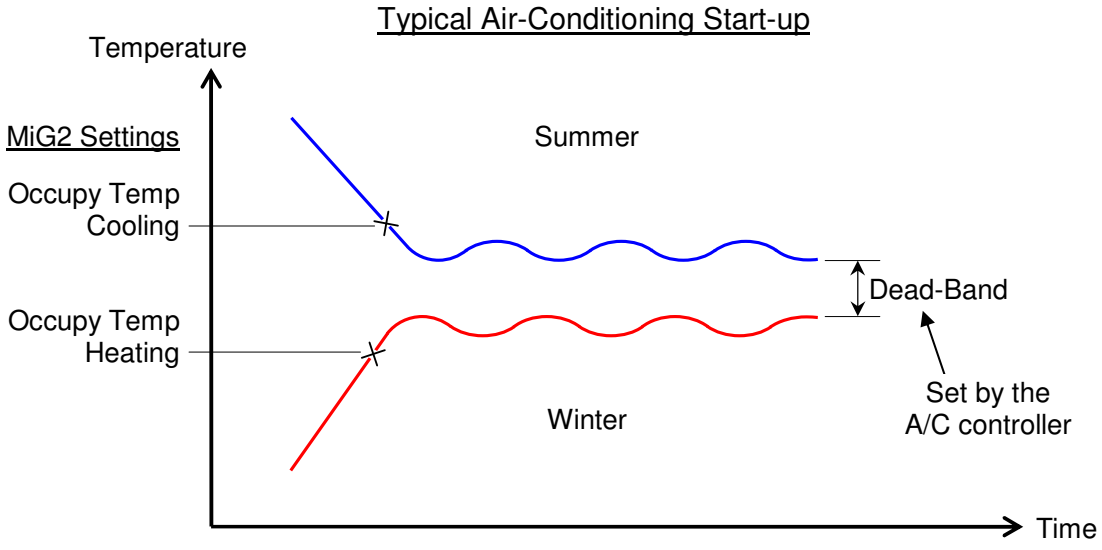
Note: Temperature Optimised Start in a MiG2, will turn on a maximum of 2hrs before the occupy time.

WIRING



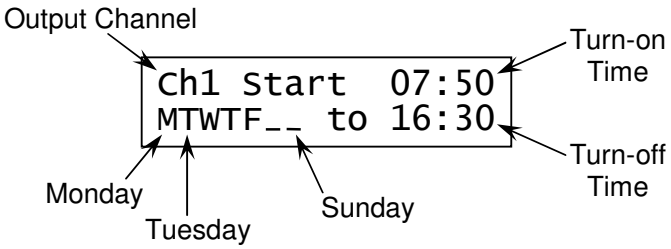
PROGRAMMING

- [**SEL**] to enter "Main Menu"
- [▼] or [▲] until "Temp Optimise" is displayed
- [**SEL**] to enter sub-menu
- "Ch1 Temperature Optimise" is displayed
- If Ch2 required [▼] until "Ch2 Temperature Optimise" is displayed
- Set to Enable [**SEL**], [**+**] and [**SEL**]
- [▼] once
- Set the Occupy Temp Heating (eg. 19.0ºC) [**SEL**], [**+**] or [**–**] and [**SEL**]
- [▼] once
- Set the Occupy Temp Cooling (eg. 23.0ºC) [**SEL**], [**+**] or [**–**] and [**SEL**]
- [**EXIT**] twice to return to the home screens



Note: The Occupy Temp Cooling and Heating **must** be set above and below the dead-band of the air conditioner (see diagram above), otherwise the optimisation learning will not work.

SWITCHING TIMES



In this screen:
Ch1 will turn on at 7:50am each weekday morning and turn off 4:30pm that afternoon.

The MiG2 allows 8 switching times for each channel. Overlapping times are acceptable as well as switching past midnight.

EXAMPLES

```
Ch1 Occupy 08:30
MTW_F__ to 17:00
```

```
Ch1 Occupy 08:30
___T___ to 21:00
```

```
Ch1 Occupy 09:30
_____S_ to 16:00
```

Energy Saving Temperature Optimised Start is enabled for Ch1.

The air-conditioning turns on and has the shop at a nice temperature by 8:30AM each weekday and 9:30AM on Saturday.

It turns off 5PM Mon Tue Wed & Fri
9PM Thursday night
4PM Saturday afternoon.

```
Ch1 Occupy 09:00
_______ to 17:00
```

← This represents a blank switching memory (note all the days of the week are off).

```
Ch2 Start  20:00
____FSS to 05:30
```

← Outside security lights turn on at 8PM every Friday, Saturday and Sunday night and turn off 5:30AM the next morning.

PROGRAMMING

- [**SEL**] to enter "Main Menu"
- [▼] or [▲] until "Switching Times" is displayed
- [**SEL**] to enter sub-menu
- [▼] or [▲] until the required switching time screen is displayed
- [**SEL**], and [**+**] or [**–**] to edit Hours of the Start/Occupy time
- [**SEL**], and [**+**] or [**–**] to edit Minutes
- [**SEL**], and [**+**] or [**–**] to turn each day On/Off
- [**SEL**], and [**+**] or [**–**] to edit Hours of the Stop time
- [**SEL**], and [**+**] or [**–**] to edit Minutes
- [**SEL**] to save the changes

MANUAL OVERRIDE

EXPLAINATION

Manual Override (after hours push-button) is used in situations like turning the air-conditioning on for employees working overtime on the weekend.

A momentary push-button (purchased separately) is wired across either input. The MiG2 is then programmed so if this push-button is pressed after hours one or more of the channels will turn on for a programmable time (15min to 8hrs) and after that automatically switches off. The occupants can deactivate the override earlier by pressing the pushbutton a 2nd time.

The override must run for a minimum of two minutes before a second button press will turn the override off. This is to prevent problems from people pressing the push-button several times because they think the A/C hasn't started yet.

PROGRAMMING

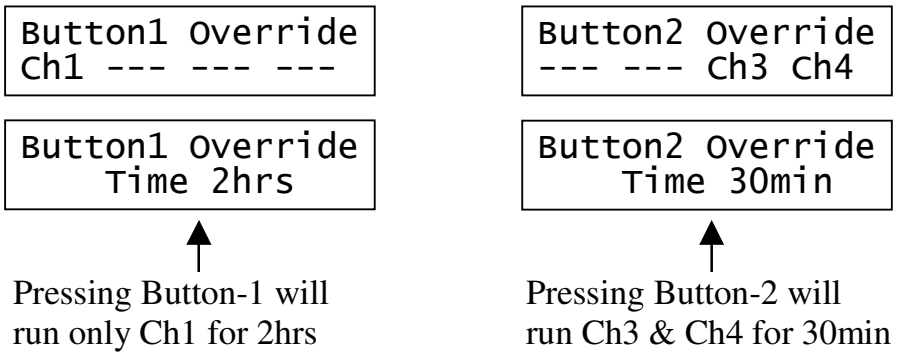
1Ch Time Switch

- [**SEL**] to enter "Main Menu"
- [▼] or [▲] until "Override" is displayed
- [**SEL**] to enter sub-menu
- Set the Button1 Override Time (eg. 2hrs) [**SEL**], [**+**] or [**–**] and [**SEL**]
- [▼] once
- Set the Button2 Override Time (eg. 30min) [**SEL**], [**+**] or [**–**] and [**SEL**]
- [**EXIT**] twice to return to the home screens

2Ch & 4Ch Time Switches

With the 2Ch & 4Ch devices either button can be programmed to override any of the 2 or 4 channels. Programming is the same as 1Ch above, except there are addition of screens to selected which channels each button controls.

Example on a MiG2–T4



EXTEREME TEMPERATURE OVERRIDE

EXPLAINATION

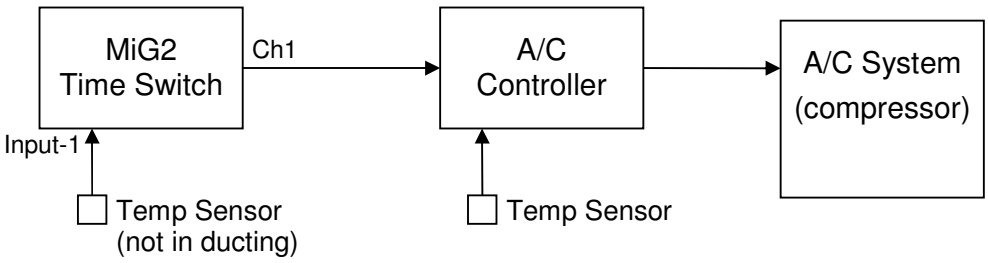
Extreme Temperature Override prevents the temperature from varying outside selected limits when the zone is unoccupied.

This feature is idle for places like computer rooms and fruit shops, where even when there are no people present, the room should not become excessively hot. It is also valuable where the user wants to utilise the buildings' heat sink benefits to avoid lengthy start up periods.

Using an extra temperature sensor in the zone, while the channel is off the MiG2 monitors the temperature. If this temperature rises above or falls below the preset limits the channel will be turned on for an override period (30min to 2hrs). At the end of this time the MiG2 will check the temperature again, if within the preset limits then turn off, if still outside the preset limits then leaves the channel on (starting a new override period).

Extreme Temperature Override is available only on channels 1 & 2

WIRING



PROGRAMMING

- [**SEL**] to enter "Main Menu"
- [▼] or [▲] until "Override" is displayed
- [**SEL**] to enter sub-menu
- [▼] or [▲] until Ch1 or Ch2 "Extreme Temp Run Time" is displayed
- Set to Enable [**SEL**], [**+**] and [**SEL**]
- [▼] once
- Set the Extreme Temp Minimum (eg. 5.0ºC) [**SEL**], [**+**] or [**–**] and [**SEL**]
- [▼] once
- Set the Extreme Temp Maximum (eg. 45.0ºC) [**SEL**], [**+**] or [**–**] and [**SEL**]
- [**EXIT**] twice to return to the home screens

SPECIFICATION

Power Supply	230Vac / 30mA @ 50/60Hz or 24Vac / 300mA @ 50/60Hz
Relay Contacts	Voltage: Rated to 240V AC Current: 10 Amps (resistive loads)
Ambient Temperature	5ºC to 40ºC
Humidity	Max 80% relative humidity up to 31ºC, decreasing linearly to 50% at 40ºC
Weight	550g
Size	160mm (W) x 110mm (H) x 65mm (D)

Also available from Micro-Air

MiG2–C2: 2 Stage Controller

MiG2–C4: 4 Stage Controller

MiG2–CT5: 4 Stage Controller with 365 Day Timer Switch

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