

# 2e

91-149

Thanks for purchasing 2e for further information on using your device please visit: [www.dfxtech.co.uk](http://www.dfxtech.co.uk)

## How it works

2e monitors the energy consumption of your cooler for one week in teach mode. After this it manages the power to your cooler according to your programmed opening hours, optimising the time when power is first provided to the cooler to maximise energy savings. Out of normal trading hours the 2e device manages the temperature of the product at an elevated temperature, saving energy and money. 2e maintains the temperature of the python utilising the unique Python Refresh function in order to help maintain product quality. 2e displays useful information such as power consumption, money saved etc..

## Installing 2e

Insert the plug of the cooler fully into the 2e. Turn the 2e on and set the date and time as instructed - INC changes the value of the highlighted digit, SET moves to the next digit. By default daylight saving (DAY LIGHT) should remain ON. Ensure that the trading hours have been programmed correctly (see later) - **THIS IS ESSENTIAL FOR THE 2e TO WORK CORRECTLY.** 2e will enter teach mode for one week after which it will manage the energy supply to the cooler.

## Main menu

Press the MENU button to navigate through the menu.

**Current Status screen:** displays current power consumption, time and status of the cooler i.e. on or off.



**Monetary Savings:** view calculated monetary savings (since the date shown) based upon the estimated energy saved and the programmed, user-set, unit price for electricity.



**CO2 Savings:** view calculated CO2 savings based upon the estimated energy saved and the programmed kg carbon dioxide/kW value.



**kVAh Savings:** view the weekly average kVAh consumption of the cooler before installing 2e and the current weekly average consumption with 2e managing the power supply.



**Date/Time:** view and change the current date/time settings.



**Trading Hours:** views the current programmed trading hours.



**Python Refresh:** views the current Python Refresh settings.



**Reset:** reset the 2e device to its factory default settings.



**Engineer Mode:** enter engineer mode to change the programmed settings.



**Return:** return to the current status screen.

## Engineer Mode

Enter the engineer mode by entering the engineer code: 1966. When in engineer mode a spanner will flash at the bottom of the screen. All user definable settings are programmed while in the engineer mode.

## Trading Hours

Trading hours are the times during which the cooler must be turned on to permit beverage dispense (typically the establishments trading hours). The 2e will turn the cooler on before the beginning of every trading period and complete a pull-down cycle to bring the temperature of the beverage down to serving temperature before the trading period starts. The time at which the pull-down cycle commences is dynamically calculated and optimised by the 2e device to maximise energy savings.

By default, the 2e is programmed with trading hours from 11:00 to 24:00 every day. However, **it is essential** that the establishment's own trading hours are programmed to ensure that the 2e works correctly.

Up to four trading periods can be set for each day and are programmed into the 2e device via the **trad-**

**ing hours screen while in engineer mode.** Each trading period consists of an open (on) and close (off) time. Both times must be entered in order to program a complete trading period.

Trading periods must begin and end within the same day and therefore a single trading period cannot run overnight e.g. from 10am on a Monday to 2am on a Tuesday. To achieve uninterrupted power to the cooler over midnight, two trading periods must be programmed. In the latter example the two trading periods would be: 10:00 to 24:00 on Monday and 00:00 to 02:00 on Tuesday. This will ensure uninterrupted power to the cooler overnight from 10am to 2am the next morning.

Trading hours must be programmed chronologically and are programmed in 10 minutes intervals. Any trading periods that are not being utilised should be set to OFF by highlighting the first digit of the selected time and pressing INC until OFF is displayed. It is advisable to allow extra time either side of trading periods to allow for fluctuations, however, this will decrease the energy savings made.

To program a trading period, navigate to the required open or close time and press the > button, then use the INC and SET buttons to set the time.

Should any trading hours be programmed incorrectly, the 2e device will declare an error. All errors must be corrected before leaving the programming trading hours screen. If an error is declared, **both** the open and close times should be checked.

Once all of the trading hours have been programmed they should be checked carefully, incorrectly programmed trading hours may result in the cooler being turned on and off at incorrect times.

The example table given shows how the example trading hours would be programmed. A blank table is given and may be used to assist in programming trading hours.

## Override Mode

Occasionally, trading hours will vary. To turn the cooler on outside normal trading hours, press the override button (OVR) which is accessed from the current status screen. This will turn the cooler on until the OVR button is pressed again or the next trading period begins.

## Standby/Clean Mode

To turn the cooler off for cleaning during normal trading hours press the SBY button, which is accessed from the current status screen. This will turn the cooler off for two hours or until the SBY button is pressed again. **Please note: the 2e device only switches the 'live' on and off. It does not isolate the attached refrigeration unit. The refrigeration unit must be unplugged from the 2e device before any maintenance work is carried out.**

## Date/Time Settings

Navigate to the Date/Time screen to adjust the settings as required.

## Unit Cost of Electricity

To adjust the unit cost of electricity per kWh, navigate to the monetary savings screen while in engineer mode and press OK. Adjust the cost as required. To change the currency in which the savings are displayed, press the UNIT button to select the desired unit of currency (GBP, EURO, DOLLAR, OTHER C). Please note that changing the unit of currency will not change the value of the savings made, it will simply change the currency symbol being displayed. For savings in currencies that are not listed, OTHER C should be selected.

## CO2 Savings kg per kW

The amount of CO2 generated to create 1kW of electricity varies from country to country. By default, this value is set to 0.62 kg/kW. To change this value, navigate to the CO2 savings screen while in engineer mode and press OK, then change the value as required.

## Python Refresh

The Python Refresh function refreshes the fluid in the python out of trading hours in order to help maintain the product quality. The fluid in the python can be refreshed every 60 minutes for 5 minutes, every 30 minutes for 2.5 minutes, every 15 minutes for 1 minute or this function can be turned off. To change the selected option navigate to the python refresh screen while in engineer mode. Press OK to cycle through the options until the desired option is displayed, then press exit to save this choice. Users should choose the option that will best help prolong the life of their product.

## Bath Refresh Function

During days when no trading hours have been programmed, the 2e will allow the cooler to run a complete compressor cycle at 15:30 in order to maintain the cooler ice bank.

## Daylight Saving

The 2e device will automatically adjust its clock to accommodate leap years or the summer time clock change until the year 2030. However, the

clock be checked *at least* once every year in order to ensure that the clock has not experienced any drift.

## Voltage Variation Asset Protection

The 2e device automatically protects the cooler from over and under voltage conditions of the power supply. Should the power supply become unstable in this way, the 2e device will disconnect the cooler from the power supply until the power supply stabilises. 'POWER FAULT' will be displayed. Once the supply has stabilised, the cooler will be reconnected.

## Reset

To reset the device navigate to the reset screen while in engineer mode. Press OK to reset the device. All settings will be reset to their factory defaults apart from the trading hours, which will remain stored.

## Important Information

**WARNING: The 2e (Graphic) device only switches the 'live' on and off. It does not isolate the attached refrigeration unit. The refrigeration unit must be unplugged from the 2e (Graphic) device before any maintenance work is carried out.**

The operating voltage of the universal input variant is 85-265V AC rms; please refer to the ratings label on the unit. Do not use outside this range.

The maximum output current is 13A.

The 2e (Graphic) device is suitable for indoor use only.

To prevent fire or shock hazard, do not expose the 2e (Graphic) device to rain or moisture.

To avoid electrical shock do not open the device.

No user serviceable parts inside.

**Ensure that the refrigeration unit plug is inserted fully into the 2e device. Ensure that the 2e device is inserted fully into the power socket.**

The user should determine the applicability of this device for their equipment and product range. DFX Technology Ltd. accepts no liability for loss, damage or injury of any kind arising from the inappropriate use of this device.

The amount of energy saved is dependent upon the establishment's trading hours, equipment and other factors. Individual savings will vary.

These instructions are suitable for use with 2e (Graphic) devices running software version 1.5 or above. Other instructions may supercede the

## Trading Hours Tables

Monday:	10am – 2pm	Friday:	10am – 2pm
Tuesday:	11am – 2pm, 3pm – 6pm	Saturday:	11am – 2pm, 3pm – 6pm, 7pm – 9pm, 10pm – 11pm
Wednesday:	10am – 2pm	Sunday:	10am – 2pm
Thursday:	11am – 2am		

## Example Table

		MON	TUE	WED	THU	FRI	SAT	SUN
Period 1	OPEN 1	10:00	11:00	10:00	11:00	<b>00:00</b>	11:00	10:00
	CLOSE 1	14:00	14:00	14:00	<b>24:00</b>	<b>02:00</b>	14:00	12:00
Period 2	OPEN 2	OFF	15:00	OFF	OFF	10:00	15:00	OFF
	CLOSE 2	OFF	18:00	OFF	OFF	14:00	18:00	OFF
Period 3	OPEN 3	OFF	OFF	OFF	OFF	OFF	19:00	OFF
	CLOSE 3	OFF	OFF	OFF	OFF	OFF	21:00	OFF
Period 4	OPEN 4	OFF	OFF	OFF	OFF	OFF	22:00	OFF
	CLOSE 4	OFF	OFF	OFF	OFF	OFF	23:00	OFF

## Blank Table

		MON	TUE	WED	THU	FRI	SAT	SUN
Period 1	OPEN 1							
	CLOSE 1							
Period 2	OPEN 2							
	CLOSE 2							
Period 3	OPEN 3							
	CLOSE 3							
Period 4	OPEN 4							
	CLOSE 4							

advice given herewithin.

RMS Voltage: universal input variant 85-265V AC rms; please refer to the ratings label on the unit  
RMS Current: 0.00 ~ 13.00 A rms  
Active power: Typically 3,000 Watts  
Apparent power: 0 ~ 3750 VA  
Line Frequency: auto detect; please refer to the ratings label on the unit  
kWh Hour: 00:00 ~ 99,999  
Clock: 24 Hour, Calendar, Leap Year and Daylight Saving  
Dimensions: Base Unit: 130 mm (H) x 65 mm (W) x 85 mm (D)  
Weight: 217g