PRE5901 Infra-red Programming Handset With Numeric Keypad & Macro Function

PRE5901 Dimensions

94mm 25mm

158mm
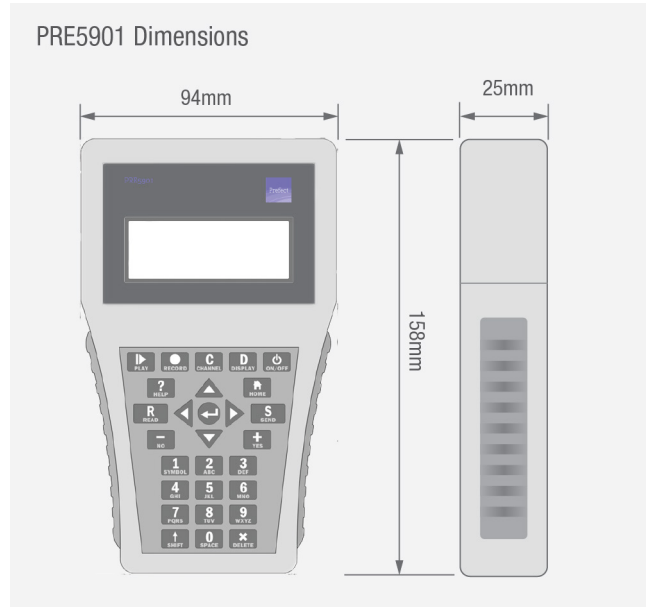
Specification:

INPUT CONTROLS: Full numeric keypad, navigation keys, send and receive.

FUNCTIONS: Send settings, read current settings, macro function, product control (selected products only).

INDICATORS: LCD Display with adjustable back-light.

ADJUSTMENT: Time, temperature, auto-on events, Lux levels, product setup. (Please note products may have more or less functionality that is set by the handset).

MACRO FUNCTION: Yes.

COMMUNICATION: AUTO LOCK SYSTEM © Secure Infra-red programming.

FIRMWARE UPDATE: USB port for firmware updates from external flash drives.

UPDATE FLASH DRIVE COMPATIBILITY: 128MB min to 16GB max, FAT or FAT32, single partition drive.

BATTERY SIZE: 4x AAA 1.5V.

CONFORMANCE: EMC-2004/108/EC

COMPATIBLE PRODUCTS		
Lighting	Heating	Timers
PRE3201 (all variants excluding standard)	PRE5003e & ec	PRE9276TXRX
PRE3205 (all variants)	PRE5004e & ec	
PRE3207 (all variants)	PRE5203e & ec	
PRE3208 (all variants)	PRE5204e & ec	
PRE4201 (all variants)	PRE5502e & ec	
PRE4202 (all variants)	PRE5005TXRX	
PRE4203 (all variants)		
PRE4204 (all variants)		

Note: due to firmware upgrades to both handset and products, slight variations may appear between this manual and the handset or the product to be set. Please ensure to acquire the latest product manual and handset firmware from:
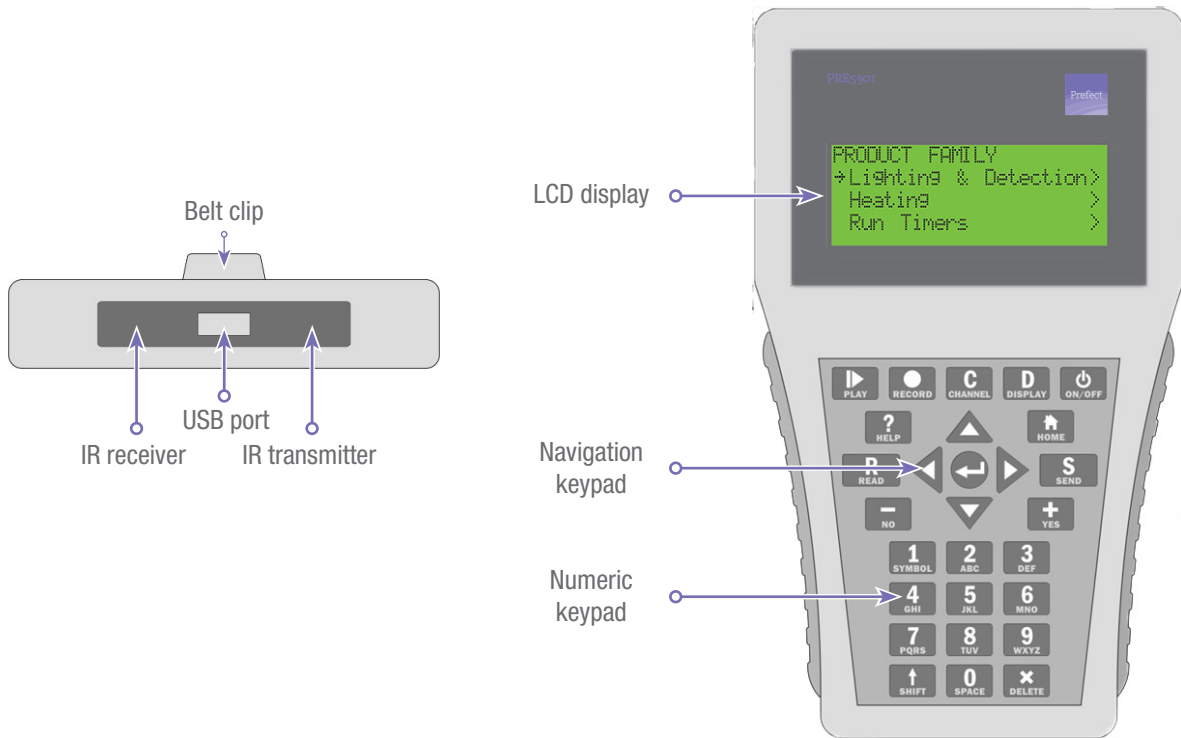*http://www.prefectcontrols.com/our-products/handsets/pre5901/*
Alternatively scan QR

Overview:

The PRE5901 Infra-red programming handset is used to input settings into a range of Prefect products. All commands are sent and read using infra-red (IR). The handset is universal between selected Prefect products, one handset can set multiple devices from thermostats to microwave sensors. The handset is equipped with a USB port for updating firmware, this makes the handset future proof for new Prefect products. The handset also has the capability of creating and storing macros, this function means that you can save most used settings in one place and send all settings with a single button push, please see page 5 for details on macro use.

Handset features:

Belt clip

USB port

IR receiver   IR transmitter

LCD display

Navigation keypad

Numeric keypad

Menu navigation:

Press and hold the "ON/OFF" Key for 2 seconds to start the handset. A handset test is initiated and the last used menu is displayed. All settings are stored into the handset, the last used settings will be present.

There are several menu options, all menu navigation is controlled via the navigation keypad. Using the up and down keys. Move the arrow at the left of the screen to the required menu options.

PRODUCT FAMILY
→Lighting & Detection>
Heating   >
Run Timers   >
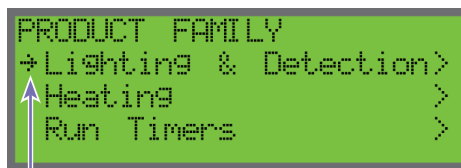
Selection arrow

Once the required option is selected press the right button to enter the option. The centre key may also be used to enter an option. Options with a "⟩" symbol indicates that option is another menu. To return to the previous menu use the left key.

Press and hold the "home" button at any point to return to the home menu.

Pressing the "display" button will enable the LCD back-light. Press again to increase the brightness.

Values can be changed by either using the "+" key to increase the value and "-" to decrease a value. Alternatively use the numeric keypad to enter the required value directly.

Pressing the help button while a parameter is selected will open a dialogue box. The dialogue box will describe the selected parameter function

Setback Temperature
Target
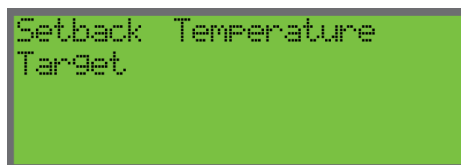
for example pressing the help button while the "setback temperature" is selected will open a dialogue box (see left) describing the function, in this case "Setback Temperature Target".

Setting input:

Press and hold the home key on the handset to return to the home page. The following screen will be displayed:

```
PRODUCT FAMILY
→Lighting & Detection>
 Heating            >
 Run Timers         >
```
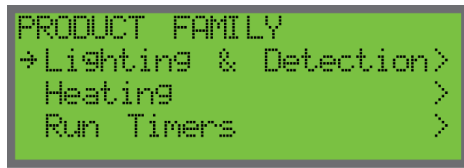
Select the product type that is to be set. "Lighting & Detection" is lighting and detection controls, control with a part number of PRE3xxx or PRE4xxx.
"Heating" Is thermostatic heating products. Part number PRE5xxxx
"Run Timers" Is run timer & time controls. Part number PRE9xxxx.

```
Select product
 AT-THERMOSTAT      >
 AT-HEATER-SU       >
 PRE5000e Series    >
```

Select the appropriate part number and press the right button. The part number can be found on the front of all heating and timing products, all lighting product part numbers can be found on the rear of the unit. Products are displayed in numerical order. Some products may be grouped under one series, for example all ecostat thermostats starting with a part no. of PRE5 will be grouped under "PRE5000e Series" likewise product variations such as DD, AD and VFC variants are grouped within the main product part number, for example the PRE3201-DD settings are found under "PRE3201".

```
Product
 Device Addressing  >
 Temperature        >
 Device Config      >
```
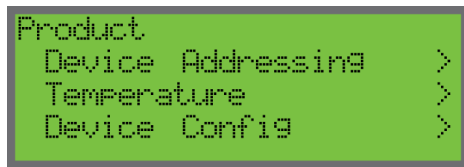
This menu displays the setting types. Navigate to your required setting type and press the right key. These types differ between products and functionalities. Some menus may also show options for "All" & "SET 101" please see page 6 for details on these menu groups.

```
TEMPERATURE
 Frost (C)          5
 Setback (C)        18
 Boost (C)          22
```
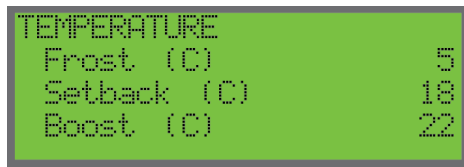
Once you have selected a setting type by pressing the right or enter key, the settings will be displayed. The text on the left displays the setting and unit of measurement. The text on the right shows the setting value. To alter the value you can either use the "+" & "-" keys or directly enter the value using the numeric keypad. Please note that some settings may have a decimal place, the value will need to be entered as a decimal, for example 18°C would be typed as "180", for example "18.0" the decimal place is automatically added.

```
PIR
 Detection Mode     Abs
 Timeout (mins)     15
```

When a value is not a numeric value but an option, for instance "Detection Mode" with options of absence "Abs" or presence "Pres" the value is altered via the "+" and "-" keys.

```
DEVICE CONFIG
 Deep Sleep
 IR enabled         Yes
 Soft Reset
```
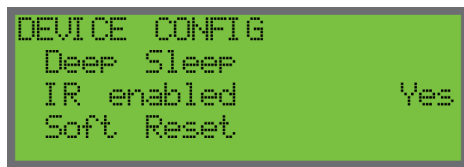
When there is no value on the right hand side of the screen, for example "Soft Reset", this is a command rather than a setting. This is a send only command that actions a process on the product, in the case of "Soft Reset" this is a command that restarts the thermostat.

All installed settings are saved, if the handset is turned off or the handset powers down the last input settings will not be lost. The settings will also be saved if you have navigated to a different menu or product. *Note: settings will be lost when the handset firmware is updated, macros however will be unaffected.*

Handset Configuration:

Press and hold the home key on the handset to return to the home page. At the bottom of the menu enter "Handset Config" The following screen will be displayed:

```
HANDSET CONFIGS
→Sleep Timeout    120
 Contrast          50
 Backlight          0
```

NOTE: in the handset configuration menu any values that have been changed must be confirmed, once a parameter has been altered press the centre button to confirm the alteration.

→ Sleep timeout - Time until the handset will power down automatically

→ Contrast - LCD contrast, 50 is the default value, range from 1 to 100

→ Backlight - Default backlight level. Default is 0 which is off, 100 is the maximum. Note: Utilising the backlight will reduce battery life.

```
 IR Spacing         4
→IR TX Power     HIGH
 Key Click          2
 Key Repeat
```
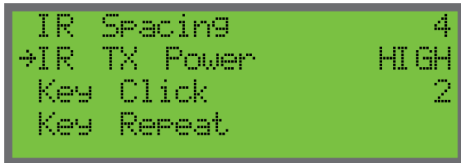
→ IR Spacing - When sending a macro or send all command, IR spacing is the delay between sending each setting. A low setting will result in messages bieng sent very quickly, however this reduces setting reliability. A high setting will result in a longer setting time however this will improve setting reliability. Default level is 5, this is recommended.

→ IR TX Power - This is the power setting of the infra-red transmitter within the handset. Power can be set in 3 power modes low, medium & high. If you have multiple products in line if sight and you only wish to set one product set the power to low. If there is only one product in line of sight set the power to high. Setting power to high is recommended for ease of use and reliability.

→ Key Click - Adds an audible beep when a button is pressed, this is set between 0 to 100, 100 being the loudest and 0 as muted.

→ Key Repeat - This is the repeat rate of the buttons, altering this value changes how long a button has to be held for. Set in milliseconds from 1-99.

```
 Repeat Send Rate  22
→Mute              No
 To Bootloader
 Security           >
```

→ Repeat Send Rate - When utilising the send all command repeat send rate is the period of time between each message being sent. Set in milliseconds a high value will result in a long send duration however accuracy will be improved, a low setting will result in a short send time at the cost of accuracy.

→ To Bootloader - Enters Bootloader for updating firmware (see Page 8 for details).

→ Security - Security menu.

All installed settings are saved, if the handset is turned off or the handset powers down the last input settings will not be lost. The settings will also be saved if you have navigated to a different menu or product. *Note: settings will be lost when the handset firmware is updated, macros however will be unaffected.*

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Sending or reading settings and commands:

To install settings into a product the settings must be "sent". Settings can also be "read" from the product. The settings are sent and read via an infra-red (IR) transmitter and receiver in the top of the handset. The settings are received by a infra-red (IR) receiver on the product. The infra-red is direct line of sight, meaning there must be a clear path between the handset and the product to be set. The product to be set must be powered, the product can be set at anytime regardless of its current process. Installation of the settings is immediate.
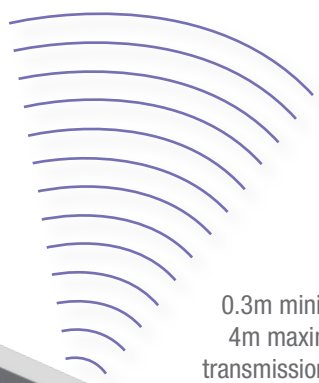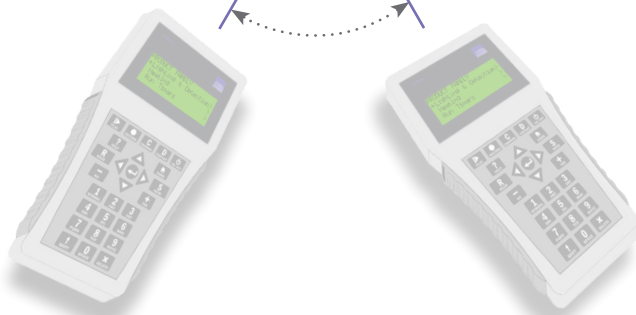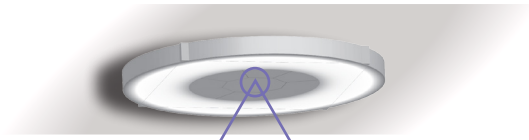
Wall mounted control
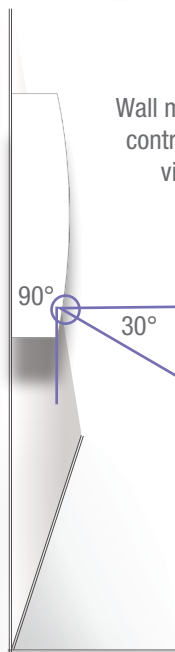front view

Ceiling mounted control
front view
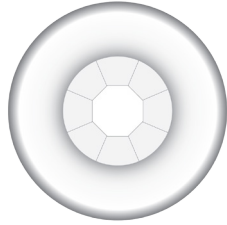
Ceiling mounted control
side view

60°

0.3m minimum
4m maximum
transmission range
(read transmission
range may be
less depending on
product)

Wall mounted
control side
view

90°

30°

Wall

Floor

Point the top of handset at the IR window of the control (see individual product manual for IR window location). As above hold the handset between 90 and 30 degrees from the wall. Hold the handset between 30cm to 4m from the control. The handset only needs to be pointed at the thermostat while the settings are being sent or read. The handset needs to be kept pointing towards the thermostat until the read or send function is complete. Short pressing the send or read key will read the current selected parameter. For example if the boost time is highlighted and the read button is pressed, only the boost time is read. Long (press & hold) pressing either the send or read key, will send or read all parameters in one operation. Keep the send or read key pressed until the handset sounds a bleep to confirm all parameters have either been read or sent. The handset must be kept pointing towards the control during this operation until the beep is heard. The control will blink it's LED to confirm infra-red contact. If the LED does not light the infra-red signal is not being received, adjust the angle and or the distance of the handset until the control receives the commands.

Creating macros:

The macro function is used for saving sets of preset settings, for example if multiple rooms require different settings, a macro could be created for each room, macro 1 for kitchens, macro 2 for bedrooms and a third macro for common rooms etc. Macros therefore negate the problem of continuously changing the settings between rooms and or different control products. Macros are compatible with all products that are programmable with the PRE5901. All macros are stored in the same library regardless of product type, therefore allowing switching between lighting, run-timers and heating control settings quick and easy with a few button presses. Selection only or all parameters can be saved as a macro.

Navigate to the product that you wish to create a macro for. Enter the settings type that you wish to set. Note that you can add several setting types to one macro, for example you can save time and temperature settings along with PIR setup to one macro.

```
TEMPERATURE
▣Frost (C)          5
▣Setback (C)        18
▣Boost (C)          22
```
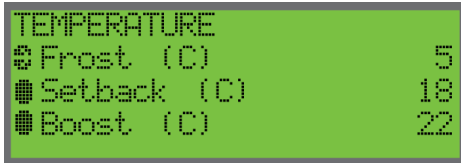
Move the selection arrow to the desired parameter, enter the desired setting value. Once the correct value has been input press the record key located at the top of the handset. A black dot and an inverse arrow will appear beside the parameter name. This black spot shows which parameters have been selected. Select as many or as few parameters as required. If necessary the setting values can still be altered at this stage.

```
PIR
▣Detection Mode    Abs
  Timeout (mins)    15
```
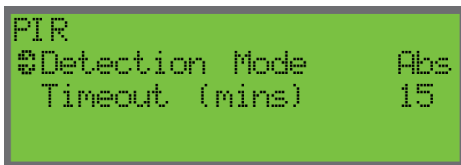
Different parameters for differing setting types can be added to the same macro. Enter a setting type and select the appropriate parameters using the afore mentioned method, once all the necessary parameters have been selected in that setting type exit the type and enter the next setting type and select the required parameters to be saved if required or applicable.

```
MACRO REVIEW
→Frost (C)          5
 Setback (C)        18
 Boost (C)          22
```

Once you have selected all the required parameters press the play button, "Macro review" will be displayed, this menu displays all selected parameters. If any of the parameters need to be removed, select the parameter that needs to be removed and press the delete key. If any of the values are incorrect press the left button to return to the settings menu and make any necessary adjustments. Once the adjustments have been made press play to return to the macro review.

```
MACRO NAME
kitchen he_
```
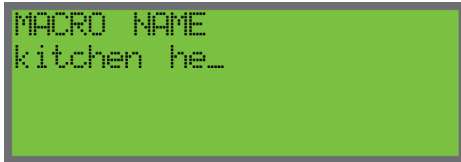
Once the macro parameters are correct, you can send the macro otherwise known as "playing" the macro to the control. If the macro needs to be saved for future use press the record key. Enter a macro name, this name will be later displayed in a list with all other saved macros. Both letters and numbers may be used in the title. This example is "kitchen heating". It is recommended to give each macro an individual and descriptive title.

```
Macro Saved
kitchen heating
```
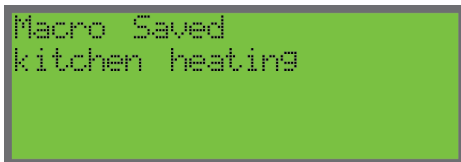
Once the macro name has been entered press the centre key of the navigation keypad. The macro has now been saved. Saved macros will be saved to the handsets non-volatile memory, meaning that the macros will not be lost if the handset batteries are removed. Press the home key to return to the settings menus. The pre-selected parameters will still be highlighted. Press and hold the record key to deselect the parameters if no further macros are to be created. If further macros are required simply alter the values select or de-select any parameters as necessary then follow the afore mentioned process to save the next macro.

```
SELECT MACRO
  room heating
  corridor lighting
→kitchen heating
```
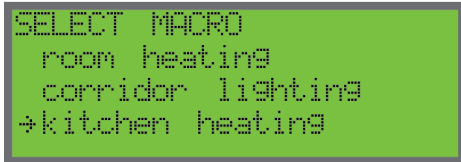
To view saved macros press and hold the shift key while pressing the play key. This menu can be entered at any time, there is no need to return to the home menu first. Saved macros are displayed in chronological order. Use the up and down navigation keys to scroll through the saved macros.

```
PLAYING MACRO...
Chan: 0
Boost (C)           18
```
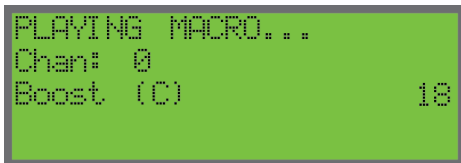
To play a macro (send settings to control) move the selection arrow to the required macro and press the right key. The macro parameters will be displayed. To play the macro point the handset at the control to be set as shown on page 4. Press the play key, all parameters within the macro will be sent to the control, the parameters being sent will be displayed on the screen as they are sent. The handset will bleep to confirm the parameters have been sent. It is important to keep the handset pointed at the control until the beep is heard.

Programming clock functions:

The PRE5901 is used for setting Prefect products with an integral clock function for instance a PRE5003ec (Note: compatible products only). Use the handset to set the current time and the required timed events. Note that the handset does not keep current time, meaning once the current time is entered the time will not advance. When entering the current time into the products, the current time must be entered into the handset at the time of setting.

Navigate to the product that is to be set. Enter the "Events" menu.

```
Events
  Event  1  Hr        7
  Event  1  Min       30
  Event  2  Hr        16
```

A range of selectable event times are displayed. Event times are set in a 24 hour period, settable in a 24hr format. Event times are selectable to the nearest minute. The hour and the minute within that hour are individually set, input the hour and the minutes of the event that is to take place, for example if the heating is required at 5:25PM input the hour as 17, input the minutes as 25. Repeat this process for other events if required. To disable the event, set the hour and minute values to 0. When set to 0 the event will not function, only events set to 0 will be disabled, other events will be unaffected. To disable all time events set the current time hours and minutes to 0.

```
CLOCK
→Current  Time  Hr      0
  Current  Time  Min     0
```

The handset does not keep time, this means current time must be input into the handset at time of setting the control. The clock is in a 24hr format. Enter the clock menu. Input the current time to the nearest minute into each value: hour and minute. Once input into the handset, send the time to the control using the afore mentioned process. The time can also be read from the control.
Note: clock and event times are also accessible in the "All" menu. Selected products only. See below for details.

"All" and "SET" menu groups:

Some products may have an "All" and "SET" menu group. Note that not all products will utilise this function. These functions will not be displayed if not applicable to the product selected.

```
PRE5000e  Series
→All              >
  SET  101         >
  SET  102         >
```

The "All" menu group includes all parameters in one menu, this means that time, temperature, events, PIR detection and device configuration can all be sent simultaneously from one menu. This menu group is particularly useful when setting the controls for the first time when all parameters need to be set along with current time.

```
ALL
→Current  Time  Hr      17
  Current  Time  Min     35
  Event  1  Hr           7
```

When using the all command to input settings into multiple controls input the desired settings. Before sending the settings to the control, input the current time at the top of the all menu (if required), press and hold the send key until a beep is heard. This will send all settings to the control including the current time. Leave the handset in this menu with current time selected, simply alter the current time before sending all settings to the next control, repeat this process until all units have been set. Values can also be read in the all menu group, this is a useful feature for checking the control has been set successfully.

```
SET  102
→Boost  (C)        17
  Boost  (mins)     35
  Setback  (C)       7
```

If you wish to use a selection of different settings between rooms for example: bedroom, kitchen and corridors, different temperature and run time settings can be added to each "SET". The values input into the set menu will be saved into the handsets memory, however the settings can be altered at any time unlike a macro which cannot be altered once saved. Depending on product there may be 1 to up to 4 sets, the set menus operate in the same fashion as the standard menus.

Prefect

Updating handset firmware

The handsets firmware has the capability of being updated. Updates ensure the handset is future proof for new Prefect products. We will also release firmware upgrades to improve the handsets reliability and ease of use, it is therefore highly recommended to keep handset firmware fully up to date.

To download the latest firmware, Visit : http://www.prefectcontrols.com/downloads/handset-firmware/
Or scan the QR code.

Only download firmware directly from: Prefectcontrols.com, or if directly received from Prefect Controls under an email address of xxxxx@prefectcontrols.com if requested.

1. Once the firmware has downloaded, locate the download folder on you PC or Mac. Identify the firmware file, the file will be a zip file with a title similar to "PRE5901 FW 1.1a 01.12.2015". Once located fully unzip the folder.
2. Once the files are unzipped, copy both the "HS_Data.cfg" and "HS_Fw.hex" files to the root of a USB drive (the USB drive itself. The files must not be saved into a folder on the USB drive). See page one for memory stick/flash drive specification.
3. Once the files have been successfully copied to the memory stick, remove the memory stick and insert into the handset.

4. Turn on the handset, press and hold the home button until the home screen appears. Press the down button until "Handset Config" is selected, enter the menu. Navigate down the menu until "To Bootloader" is selected, press enter or right key. The handset will appear to turn off.

```
Handset Config        >
```

5. Press 'Delete' while pressing 'On/Off' until the handset reboots. Once rebooted the handset will read the USB flash drive and automatically update the firmware. If the update fails repeat step 4, if the update continues to fail, use a different USB drive. Some USB flash memory drives may require too much power.

```
 To Bootloader
 Security             >
 Handset Test         >
```
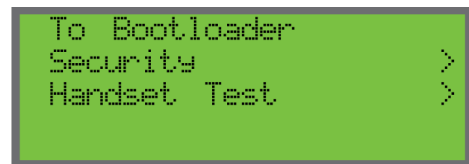
6. The progress of the update is shown, depending on the size of the update the process can take from 1 to 5 minutes, the handset may appear to freeze during the update, this is normal the process will continue shortly. Do not remove the memory stick or power down the handset during the update process as the software may become corrupted.

```
HS_FW.HEX found
HS_DATA.CFG found
Verifying App..
Progress: 33%
```
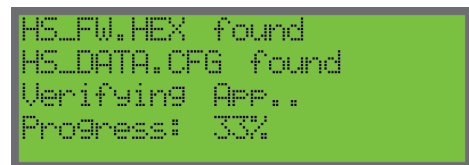
7. Once the update has completed successfully the handset will beep to confirm the update has succeed and is restarting. Once restarted the handset is ready to use and the memory stick may be removed.

```
  Prefect Controls
  _____

FW Issue: 1.18b
Variant: Prefect
```
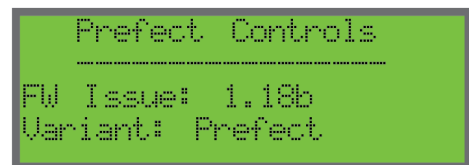
Handset care and maintenance:

Replacing the handset battery's:
1. Remove the rear battery cover by sliding the battery cover downward.
2. Remove the existing batteries (caution: if the existing cells have ruptured avoid direct skin contact).
3. Insert four AAA battery's, ensure the batteries are inserted in the correct orientation.
4. Replace the battery cover. *Note: the handset will initiate a self test during the initial boot cycle after battery replacement.*

Cleaning:

The outer case and screen may be cleaned using a damp cloth, a mild detergent may be used to remove stubborn marks. Note: always remove the batteries before cleaning. Strong detergents may be detrimental to the handset components and screen printing. Never expose to excessive moisture.

DO NOT dismantle the handset, the handset does not contain any user serviceable components. The handset may be returned to Prefect Controls for service and repairs.

Press and slide

If any of these symbols are on the product or batteries, the product or batteries must be disposed of in the correct manner and must not be treated as household or general waste.

Prefect