OUTSIDE SENSOR KIT

IMAX W
IMAX W P
IMAX XTRA

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INTRODUCTION

Kit Contents: **Outside Air Sensor** .... 1 off

This kit is suitable only for the following boilers listed:

• **imax W45 - 100**
• **imax W45P - W80P**
• **imax Xtra 80 - 280**

This kit provides the facility to apply outside air temperature control to the boiler water flow temperature. The warmer the outside air, the lower the set boiler flow temperature. To condense, a return temperature of 55ºC or lower is required. Therefore with an outside air sensor fitted the boilers run more frequently in condensing mode. Once the sensor is fitted it is automatically detected. The sensor operation may be configured by adjustment of the boiler operating parameters, if necessary.

LOCATING THE KIT

The air sensor comprises of an electrical sensor and wiring connection strip enclosed within a plastic weatherproof housing.
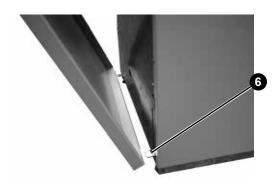
1   FITTING THE KIT

1. The air sensor should be located on an external wall of the building to be heated. Fix the sensor to a north/north-east facing wall to avoid direct radiation from the sun. The air sensor should be located to avoid any heating effect from the boiler flue.

2. To fix the air sensor to the wall, unscrew the sensor box plastic cover and screw/plug the sensor body to the wall. Wire a twin core $0.5mm^2$ cable to the sensor via cable gland provided. Cable length between sensor and boiler should be no greater than 20m. Avoid running this cable alongside mains voltage cables.
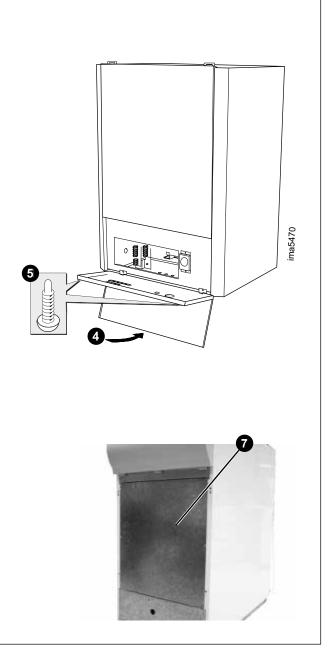
Wiring the Air Sensor to the Imax W boiler

3. Switch off and disconnect the electricity supply to the boiler and any external controls.

4. Press the centre of the lower casing door to unlatch the magnetic catch and lower it.

5. Remove the two screws from the control fascia and lower it to expose the interior of the control box.

Wiring the Air Sensor to the Imax Xtra boiler

6. Pull the front panel forwards at the top, lift off the bottom retaining lugs and remove.

7. Loosen 3 screws on one side of the inner front panel and undo the 3 screws from the other side. The panel will now slide to one side for removal.

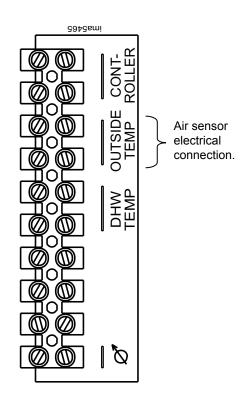## 2   AIR SENSOR CABLE ELECTRICAL CONNECTION

Imax W

1. Route the air sensor cable into the boiler control box via the cable gland fittings located on the bottom panel. Wire the cable directly to the boiler's installer connection rail as shown in the diagram.

Note.

The air sensor operates irrespective of polarity.

2. Re-assemble the controls fascia in reverse order.
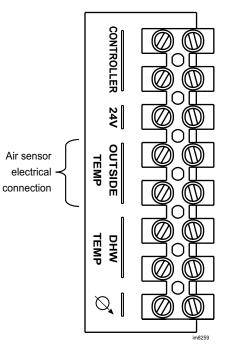
Air sensor electrical connection.

ima5465

Imax Xtra

3. Route the air sensor cable onto the boiler control panel through the low voltage cable conduit running from the rear of the boiler on the left side. Wire the cable directly to the terminals shown in the diagram. Anchor the cable using one of the cable clamps provided on the control panel.
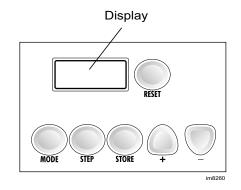
Note.

The air sensor operates irrespective of polarity.

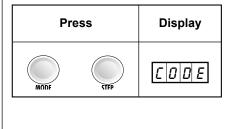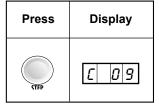4. Re-assemble the front panels in reverse order.

Air sensor electrical connection

CONTROLLER 24V OUTSIDE TEMP DHW TEMP

im8259

3   CHANGING CONTROL PARAMETERS - METHOD OF PROGRAMMING PARAMETERS FOR OUTSIDE AIR SENSOR OPERATION

Display

The operating characteristics of outside air temperature sensors are set on the control panel using the parameter mode (with code) function.

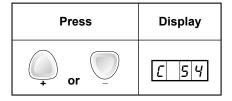im8260

Code Mode is entered from standby mode by pressing and holding the 'mode' and 'step' buttons.

Press	Display
MODE STEP	$CODE$

Press	Display
STEP	$C\ 09$

Press the 'step' button once and the display will show 'c' as the first digit and a random number in the 3rd and 4th digits.

Press	Display
+ or −	$C\ 54$

Use the '+' or '-' button to change the code to 54.

Press	Display
STORE	FLASHING $C\ 54$

Press and release the 'store' button, the display flashes to show the code has been accepted.

Press the 'mode' button until the 'PARA' mode is displayed. After making any desired changes 'code' mode can be exited by pressing 'reset'. If no buttons are pressed the boiler automatically leaves code mode after 15 minutes.

4 CHANGING CONTROL PARAMETERS CONT'D

Access the 'PARA' mode using the 'mode' button and adjust the following parameters if necessary, whilst also referring to Frames 5 and 6. Press the '+' or '-' buttons to change the values.

The parameter setting can be stored by pressing and releasing the 'store' button, the new setting flashes twice to show it has been accepted. The new setting will become active when the parameter mode is left.

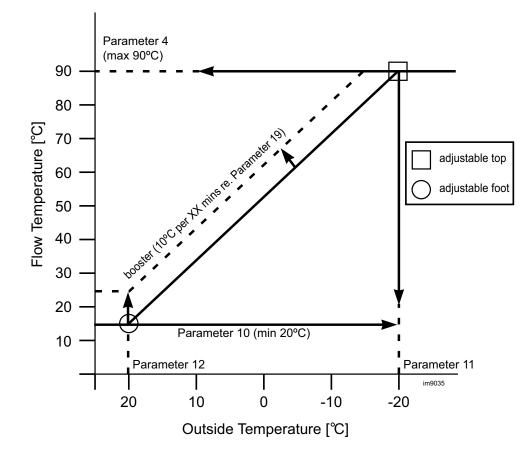| Press	Display	Description	Lower Limit	Upper Limit	Factory Setting
MODE	`PARA`				
STEP	P04 `4. 8 2`	**CH set flow temperature (ºC)**	20	90	82
STEP	P10 appears for 1 second `. 2 0`	**CH flow temperature (min) (ºC)** When using outside temperature sensor compensation	15	60	25
STEP	P11 `. - 0 5`	**Minimum outside temperature (ºC)** Coldest outside temp. the system is designed to work against	-30	10	-05
STEP	P12 `. 2 0`	**Maximum outside temperature (ºC)** Warmest outside temp. the system is designed to work against	15	25	20
STEP	P13 `. - 0 2`	**Outside temperature (ºC)** At which frost protection starts	-30	10	-02
STEP	P14 `. 0 0`	**Outside temperature correction (ºC)** For boiler reading of outside temperature	-01	05	00
STEP	P18 `. 2 5`	**Blocking CH flow temperature (ºC)** Boiler will not fire if the CH flow temperature set point is less than this. note 00 = Off	01	60	25
STEP	P19 `. 0 0`	**Booster time (minutes)** note 00 = Off	01	30	00
STEP	P20 `. 1 0`	**CH flow parallel shift** Flow temperature reduction for night time periods for use with outside temperature sensor	00	80	10
STEP	P35 `. 0 5`	**CH modulation hysteresis off (ºC)**	00	10	05
STEP	P40 `. 0 0`	**Blocking time CH** (seconds) Minimum off period between CH demands to reduce cycling	00	30	00
STEP	P45 `. 0 0`	**CH type** x0=Room thermostat x1=Outside temperature x2=N/A x3=N/A x4=0-10V: capacity (using BMS 0-10V kit) x5=0-10V: temperature (using BMS 0-10V kit) x6=+/- control 0x=N/A - First digit factory set to '0'. Do not adjust 1x=N/A - First digit factory set to '0'. Do not adjust 2x=N/A - First digit factory set to '0'. Do not adjust 3x=N/A - First digit factory set to '0'. Do not adjust 4x=N/A - First digit factory set to '0'. Do not adjust 5x=N/A - First digit factory set to '0'. Do not adjust 6x=N/A - First digit factory set to '0'. Do not adjust 7x=N/A - First digit factory set to '0'. Do not adjust 8x=N/A - First digit factory set to '0'. Do not adjust			00

5   BOILER CONTROL BY ROOM THERMOSTAT OR PROGRAMMABLE ROOM THERMOSTAT KIT AND OUTSIDE SENSOR KIT

A boiler controlled by a room thermostat or our programmable room thermostat kit can be easily upgraded to compensate for outside temperature.

Connection of the outside sensor is automatically detected. The set flow temperature is then calculated on the basis of measured outside temperature using the graph below. (Any variations between measured and actual outside air temperature can be corrected by adjusting parameter 14.

The outside sensor can vary the set flow temperature between a minimum set by parameter 10 or 20ºC (whichever is higher) and a maximum set by parameter 4 or 90ºC (whichever is lower).

A booster function is also available with this controls configuration and becomes active when parameter 19 is not set to '00'. The

purpose of the booster function is to increase the set flow temperature by 10ºC for every XX minutes the thermostat remains closed (where XX minutes = parameter 19) this value is factory limited to 90ºC. Once the thermostat contacts have opened, the set flow temperature will decrease by 1ºC for every minute of open contacts.

6   BOILER CONTROL BY OUTSIDE SENSOR

A boiler can be controlled by outside temperature measurement without room thermostats. To enable this, Parameter 45 must be set to '01'.
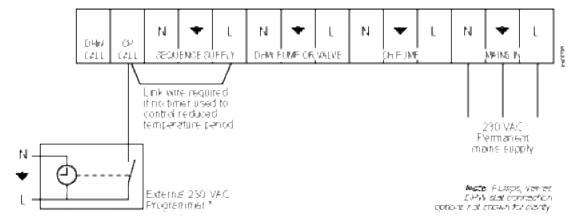
The set flow temperature is calculated on the basis of measured outside temperature, using the graph below. (Any variations between measured and actual outside air temperature can be corrected by adjusting Parameter 14).

The outside sensor can vary the set flow temperature between a minimum set by Parameter 10 or 20ºC (whichever is higher) and a maximum set by Parameter 4 or 90ºC (whichever is lower).

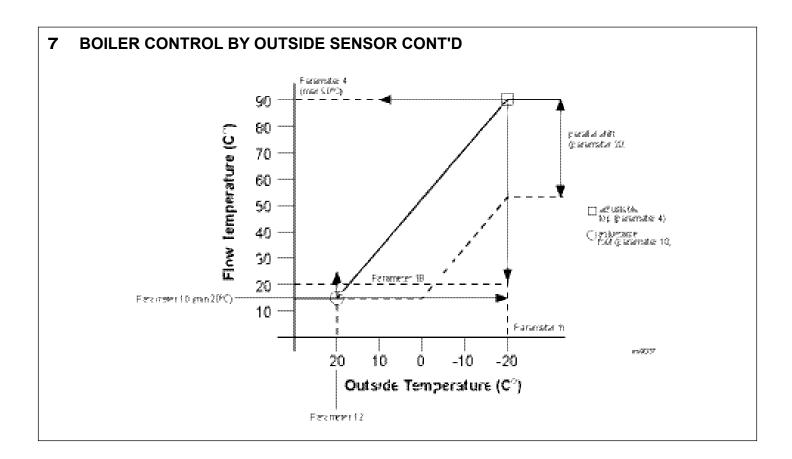If at any time the set flow temperature is calculated to be lower than the value limited by parameter 18, then the heat request is blocked.

To control periods of reduced temperature (i.e. night time) a timer should be used to open and close the mains voltage circuit shown below. Open circuit enables a CH flow parallel shift (Parameter 20) which controls the reduced temperature. If this feature is not required then an internal link wire should be fitted between the terminals shown.

* The switched live from external controls must be from the same phase supply as the boiler mains supply to ensure that when the boiler supply is switched off the controls are also isolated

7 BOILER CONTROL BY OUTSIDE SENSOR CONT'D

8 FROST PROTECTION

With an outside air sensor fitted, the boiler will switch on the circulating pump whenever the outside air temperature falls below the value set by Parameter 13.

Technical Training

The Ideal Boilers Technical Training Centre offers a series of first class training courses for domestic, commercial and industrial heating installers, engineers and system specifiers. For details of courses please ring: 01482 498 432

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