

Installation and Servicing Instructions

Alpha FlowSmart FS50

**Hot Water System incorporating an Alpha Condensing Combination
Boiler with GasSaver - Flue Gas Heat Recovery Device and floor
standing 50L Primary Store.**

For Technical help or for Service call ...

ALPHA HELPLINE

Tel: 0344 871 8764

Alpha
HEATING INNOVATION

Nepicar House, London Road,
Wrotham Heath, Sevenoaks,
Kent TN15 7RS

Leave these instructions with the User

CONTENTS

1.0 Introduction

2.0 System Operation

3.0 Important Information

4.0 Technical Data

5.0 Cylinder Connections & Clearances

6.0 FlowSmart System Options

7.0 Installation

7.1 Flushing

7.2 Secondary circulation (optional)

7.3 InTec 40GS2 + Alpha Diverter + Alpha Controls + 1CH zone

7.4 InTec 40GS2 + Alpha Diverter + Alpha Controls + 2CH zone

7.5 InTec 40GS2 + S Plan / S Plan Plus

7.6 E-Tec Combi + Alpha Diverter + Alpha Controls + 1CH zone

7.7 E-Tec Combi + S Plan / S Plan Plus

8.0 Commissioning

8.1 Final Commissioning

8.2 Routine inspection

8.3 Short parts list

9.0 Product Data Sheet (ErP)

1.0 INTRODUCTION

The Alpha FlowSmart system is a domestic hot water system designed to provide a high level of heating and hot water performance more efficiently. The combination boiler provides high volume and flow of instantaneous hot water using a patented pre-heat system and central heating via a sealed heating system.

2.0 SYSTEM OPERATION

The Alpha FlowSmart system has been designed to deliver domestic hot water at a high level of performance more efficiently, for example up to 18 l/min for temperatures of 50°C and above for long periods of demand using less energy than a typical hot water storage system utilizing a large cylinder.

The cold water supply first passes through the GasSaver where the reclaimed heat from the hot flue gasses is used to pre-heat the cold water supply. This pre-heated water then enters the coil in the primary store where it is heated to a higher temperature.

This hot water is then blended into the inlet of the combination boiler at a temperature of approximately 30°C to give a constant pre-heated supply to the boiler. The boiler then further heats the water to the required outlet temperature. When the flow of hot water is stopped, the FlowSmart store is reheated and then the system is ready to provide the same performance again.

3.0 IMPORTANT INFORMATION

The Alpha FlowSmart must be installed as described in these instructions. The Alpha boiler must be installed in accordance with the instructions supplied with it. Failure to do so will negate the warranty supplied with this unit.

The FlowSmart system has been approved to the relevant requirements of the building regulations for primary hot water storage systems and the UK Water Regulations. It is the law that all gas appliances are installed by a competent person, i.e. Gas Safe registered engineer, in accordance with Current Gas Safety (Installation and use) Regulations and all current Building Regulations.

Failure to install any part of the FlowSmart system correctly could lead to prosecution. It is in your own interest and that of safety to ensure that the law is complied with. Manufacturer's instructions must **not** be taken in any way as over-riding statutory obligations.

It is essential that the central heating system is thoroughly cleaned and flushed before fitting an Alpha FlowSmart system. Failure to do so will invalidate the warranty.

If it is not possible to clean the system before fitting the new boiler, the system should be cleaned using a proprietary cleaner and a magnetic filter connected in the return before the boiler as this is the most effective method of ensuring that any magnetite and rust particles are prevented from entering and damaging the boiler. Once the system condition has been restored, an effective magnetic filter and strainer should be fitted permanently to the system as a method of collecting any magnetite and rust from the system during operation.

Before installation, check that the incoming mains water supply is adequate to provide the required flow rate. High outlet flow rates can only be achieved with a good mains supply pressure and flow. In certain high flow demands serving many outlets simultaneously, a boosted supply may be required.

IMPORTANT! The incoming mains water pressure should be between 1 and 5 Bar to ensure efficient operation. If the pressure is above 5 Bar a pressure reducing valve must be fitted. A small expansion device should also be added to supply circuit to take up any thermal expansion of the water within the pipes.

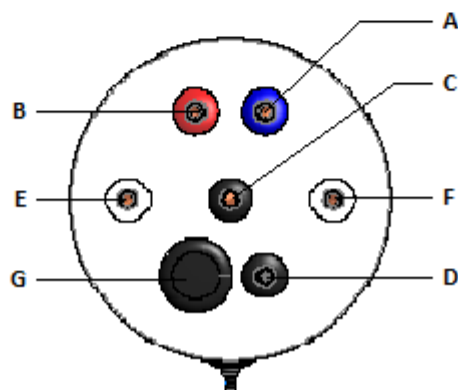
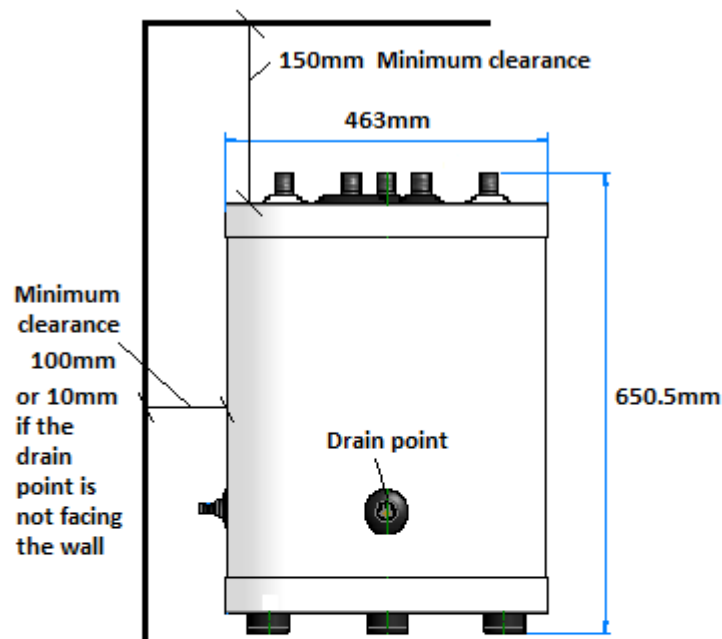
Consideration should be given to correct pipe sizing to and from the FlowSmart system to ensure optimum performance. All pipe runs should be as short as possible using suitably sized pipes to enable sufficient flow rates, the pipework should also be insulated to reduce heat loss. Before the mains water supply pipe is connected to the boiler, it should be thoroughly flushed out to avoid the danger of dirt or foreign matter entering the boiler.

4.0 TECHNICAL DATA

| | |
|---|---------------------------------------|
| Cylinder dimensions (mm) | H650 x D463 |
| Cylinder insulation material | injected polyurethane |
| Cylinder insulation thickness | 30 mm |
| Standing energy loss | 0,68 kWh/24h |
| Max inlet water pressure | 5 Bar |
| Min inlet water pressure | 1 Bar |
| Recommended inlet water pressure | 2-4 Bar |
| Recommended incoming cold mains flow rate | 20 litres per minute |
| Outlet water temperature (approx. max.) | 62°C |
| Mains water inlet pipe connection | 3/4" BSP to 15mm (fitting supplied) |
| Mains water outlet pipe connection | 3/4" BSP to 15mm (fitting supplied) |
| Coil material | copper |
| Secondary Circulation connections | 3/4" BSP |
| Maximum Working Pressure Central Heating | 2.5 Bar |
| Minimum System Pressure Central Heating | 0.5 Bar |
| Maximum System Temperature (approx.) Heating | 82°C |
| Boiler Pressure relief Valve Setting | 3 Bar |
| Boiler Exp. Vessel (pre-charge press.) | 8 L at 1.0 Bar |
| Recommended Heating System Pressure (cold) | 1.0 Bar |
| Flow and Return Connections | 3/4" BSP to 22 mm (fittings supplied) |
| Cylinder Material | Mild Steel |
| Plugged Connection (immersion heater if required) | 1 1/4" BSP |
| Blending Valve Connections | 15 mm |
| Additional Primary System Expansion Vessel Capacity | 5 L at 1 Bar |

5.0 FLOWSMART CYLINDER CONNECTIONS + CLEARANCES

| | | |
|---|------------------------------|-------|
| Minimum clearances for servicing | Top | 150mm |
| | Side | 10mm |
| | Side at drain point position | 100mm |
| Lift weight empty | | 24 Kg |
| Weight full Inc. DHW and Primary circuits | | 80 Kg |



- A** Mains water inlet $\frac{3}{4}$ BSP (Blue collar)
- B** Hot water outlet $\frac{3}{4}$ BSP (Red collar)
- C** Primary Return $\frac{3}{4}$ BSP (Black collar)
- D** Primary Flow $\frac{3}{4}$ BSP (Black collar)
- E** Secondary circulation $\frac{3}{4}$ BSP (White collar)
- F** Secondary circulation $\frac{3}{4}$ BSP (White collar)
- G** Plugged connection $1\frac{1}{4}$ " BSP (for optional immersion)

Note: It is recommended that the drain point and thermostat/sensor are easily accessible for servicing and adjustment.

6.0 FLOWSMART SYSTEM OPTIONS

The floor standing* FlowSmart system is available in two options:

1.) An Alpha InTec 40GS2 combination boiler with built in GasSaver, and floor mounted 50L thermal store

Or

2.) An Alpha E-Tec combination boiler**, separate GasSaver and floor mounted 50L thermal store.

The system is controlled using either an optional Alpha E-Tec system diverter kit (plus optional Alpha Climatic controller recommended) or a standard S plan controls kit can be used.

It is important to purchase the correct FlowSmart system components and controls to ensure the system works efficiently and as intended.

Note: Please ensure you have all kit components and controls BEFORE commencing installation.

** Wall hung FlowSmart is a separate product and has separate installation instructions.*

*** For FlowSmart systems using other Alpha combination boilers please see previous installation instructions*

7.0 INSTALLATION

When delivered on site do not unpack until ready for installation and store in a dry area. Depending on the system type you have, FlowSmart should be installed as shown in the sections below.

Note: Please ensure you have all kit components and controls BEFORE commencing installation.

7.1 FLUSHING

If it is not possible to clean the system before fitting the new boiler, the system should be cleaned using a proprietary cleaner and a magnetic filter connected in the return before the boiler as this is the most effective method of ensuring that any magnetite and rust particles are prevented from entering and damaging the boiler. Once the system condition has been restored, an effective magnetic filter and strainer should be fitted permanently to the system as a method of collecting any magnetite and rust from the system during operation.

7.2 SECONDARY CIRCULATION (OPTIONAL)

Note: Additional fittings will be required to connect to the cylinder secondary circulation connections – 3.019591 x 2no. (3/4" BSP to 15mm)

The FlowSmart 50 cylinder incorporates a secondary circulation coil in the store (connections E & F)

A DHW expansion vessel (not included) of the correct size must be fitted to the secondary circulation system.

The vessel must be a minimum of 10% of the secondary pipe work volume. e.g. if the secondary circulation circuit has a water volume of 20 litres then the vessel size must be 2 litres.

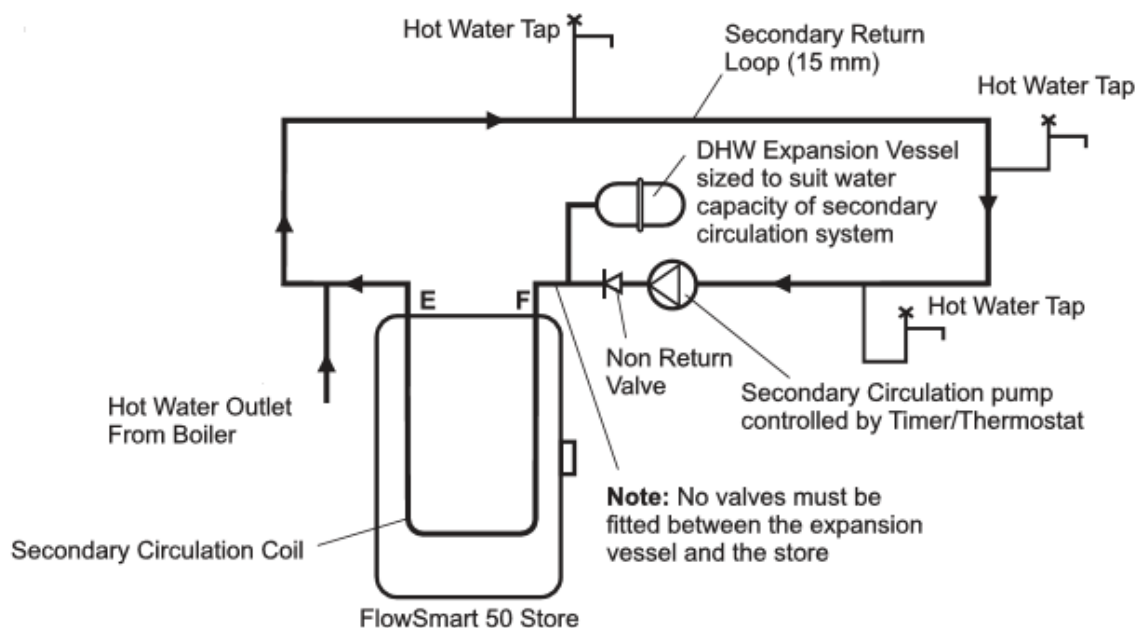
The vessel pre-charge must be set to the same pressure as the static mains water supply.

The secondary circulation pump should be controlled by a timer and correspond with the timer settings of the FlowSmart system i.e. do not operate the pump when the store is not heated.

A thermostat should also be used on the secondary circulation pump control and set such that it does not exceed the FlowSmart cylinder thermostat setting.

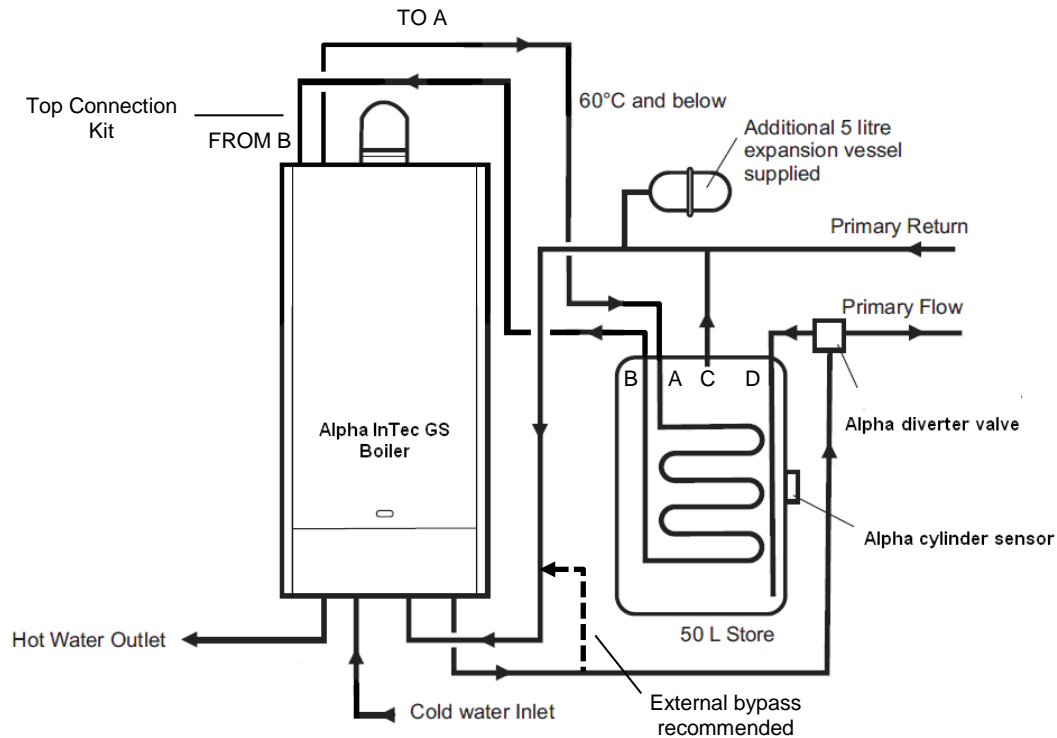
Ensure there are no dead legs or areas where there is no circulation within the pipe work of the secondary circulation system.

Optional Secondary Circulation Example.



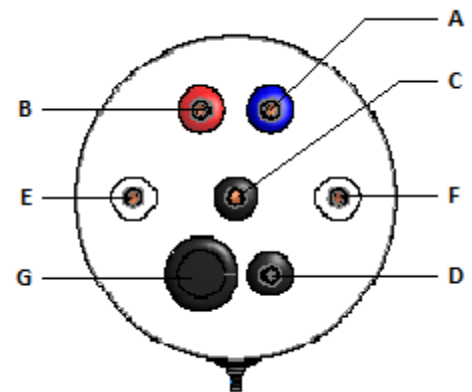
7.3 SYSTEM TYPE 1

InTec 40GS2 boiler with floor standing cylinder + Alpha Diverter + Alpha Controls (1 CH zone)



Cylinder connections

- A** From top boiler connection $\frac{3}{4}$ BSP (Blue collar)
- B** Back to top boiler connection $\frac{3}{4}$ BSP (Red collar)
- C** Primary Return $\frac{3}{4}$ BSP (Black collar)
- D** Primary Flow $\frac{3}{4}$ BSP (Black collar)
- E** Secondary circulation $\frac{3}{4}$ BSP (White collar)
- F** Secondary circulation $\frac{3}{4}$ BSP (White collar)
- G** Plugged immersion heater connection $1\frac{1}{4}$ BSP



For optional DHW secondary circuit schematic (if required), see page 7

Recommended Alpha Equipment List

Alpha Intec 40GS2 boiler (3.028276)

FlowSmart 50 (6.2003020) floor standing cylinder c/w cylinder connection kit.

Boiler top pipework connection kit (3.022913)

Alpha E-Tec diverter kit (6.5500048) complete with 3-port valve and cylinder sensor

Controls:

Alpha Climatic controller (3.022143 Wireless or 3.022144 hard wired)

Optional Alpha external weather compensation probe (3.022383)

FITTING THE BOILER

Intec 40GS2 Boiler

The boiler and flue **must** be mounted as described in the instructions supplied with the boiler.

When installing a floor standing cylinder to an InTec 40 GS2 boiler, a pipe kit **MUST** be used to convert the top connections to connect 15mm copper pipe (part number 3.022913). Installation pipe work can be installed behind the boiler if required.

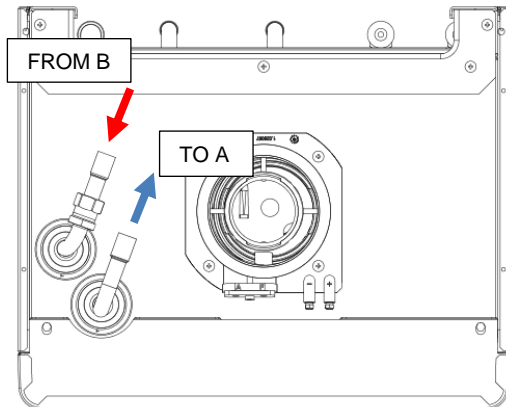
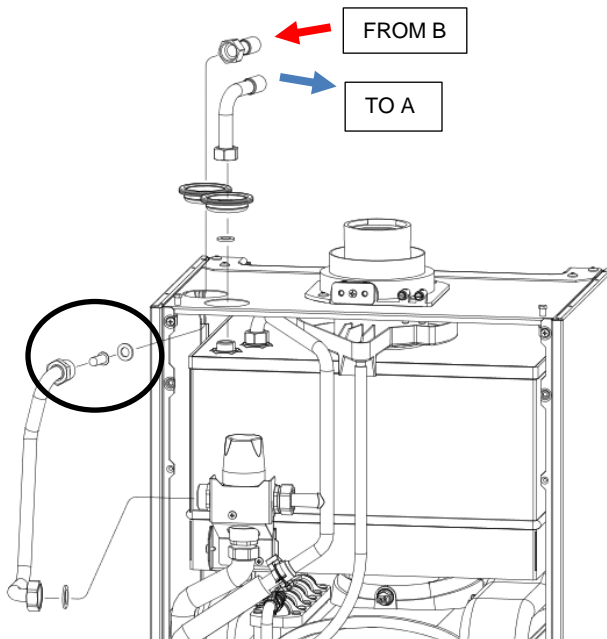
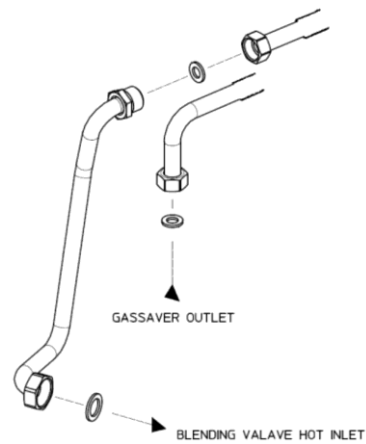


Fig 2 Top connection kit (3.022913)



IMPORTANT

To achieve maximum DHW flow rate the inlet mesh filter and flow regulator **MUST** be removed from the brass inlet manifold of the boiler cold inlet connection (not shown). The flow regulator should be discarded, and the mesh filter put into the top connection kit joint as shown above.

FIT THE FLOWSMART PRIMARY STORE

1. Locate the primary store as close to the boiler as possible ensuring there are at least the minimum clearances available.

2. The primary flow and return pipe work to the store should be no more than 1.5m in length. The pipe work **must** be insulated.

3. Ensure the floor on which the store is mounted is capable of withstanding the weight of the store, i.e. 80 kg.

Note: If an immersion heater is fitted, sufficient top clearance **must** be allowed to enable the immersion heater to be replaced.

4. Fit the 3/4" BSP fittings supplied to the primary store connections using the washers supplied as follows:-

a. The 3/4" BSP to 22 mm fittings to the primary flow and return connections (with the black collars)

b. The 3/4" BSP to 15 mm fittings to the cold inlet (with the blue collar) and hot water outlet connections (with the red collar).

5. Connect the pipework - Refer to the relevant schematic drawing for your installation type.

6. Fit the 5 litre expansion vessel (using the 'T' connection supplied) to the primary return pipework from the store.

7. Connect the Alpha E-Tec diverter kit 3-port valve as shown below.

Note: If a DHW secondary circulation circuit is used, see page 7.

8. Connect all cold mains and hot water pipework as shown

9. Thoroughly flush out all water pipework.

CONTROL VALVE INSTALLATION

Alpha E-Tec Diverter Kit (6.5500048)

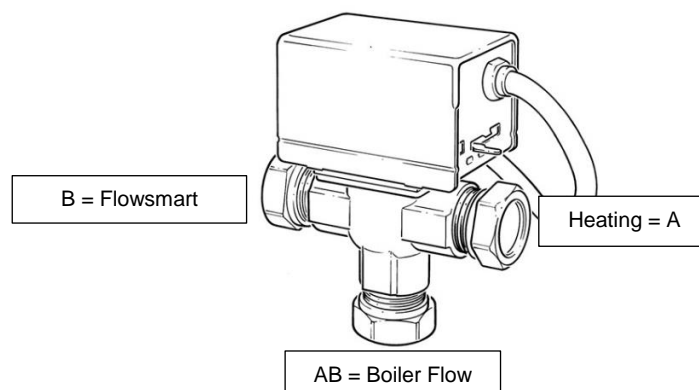
Install 3 port valve supplied with Alpha E-Tec diverter kit according to instructions provided.

Note: When using the optional Alpha E-Tec Diverter Kit, the valve must be connected in the following way:

Connection AB to boiler flow

Connection A to heating flow

Connection B to FlowSmart cylinder primary flow (cylinder connection D)



EXTERNAL BYPASS

An external automatic type bypass is strongly recommended.

CYLINDER SENSOR

The FlowSmart cylinder insulation has a label indicating the location of the sensor mounting position.

Cut a slit in the insulation and fix the sensor directly to the cylinder metal surface ensuring good contact. Fix into position using foil tape. Once fitted, cover sensor with insulation if necessary.

Note: Do not simply push the sensor into the foam insulation as it will not read temperature correctly.

ELECTRICAL CONNECTIONS

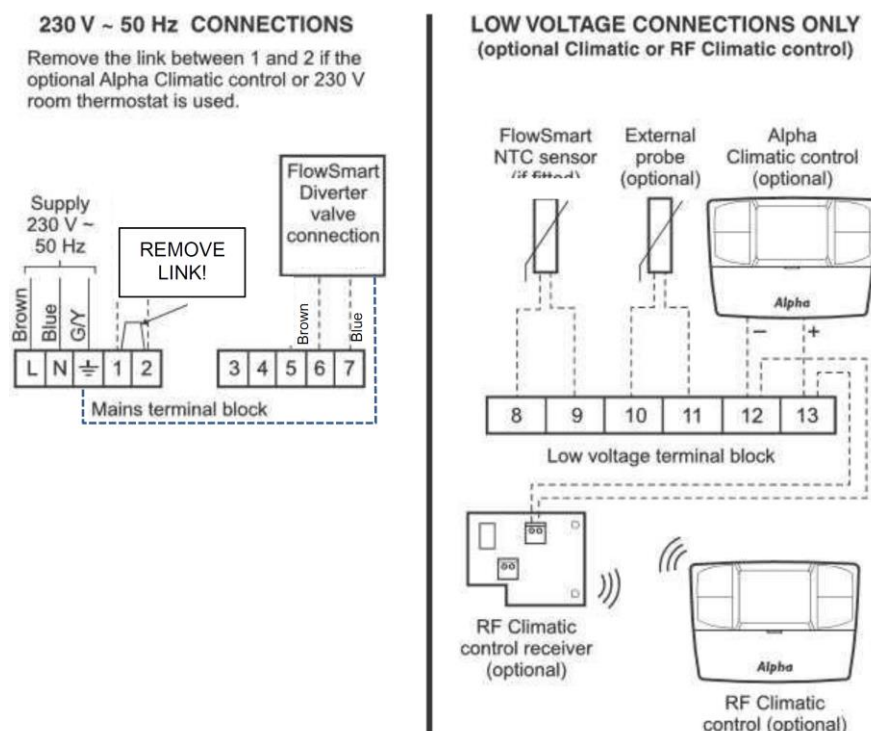
All electrical wiring must be carried out by a competent person to BS 7671 - Requirements for Electrical Installations, IEE Wiring Regulations.

Connect the mains supply to the boiler terminal block as described in the instructions supplied with the boiler.

Note: An internal clock should not be fitted to the boiler when a FlowSmart system is connected.

Alpha InTec 40GS2 boiler with floor standing cylinder + Alpha Diverter + Alpha Controls (1 CH zone)

General wiring connections:



Main Zone Controls

Connect Climatic to boiler terminals 12 & 13 (can be connected either way round)

Note: Remove link from terminals 1 & 2. **Do not** fit Climatic wires into terminals 1 & 2!

Diverter

Connect to boiler terminals as follows:

Brown (live) to boiler terminal 6

Blue (neutral) to boiler terminal 7

Green/Yellow (Earth) to boiler terminal Earth terminal

Cylinder Sensor

Connect to boiler terminals 8 & 9 (can be connected either way round)

Junction box

A 10 way wiring junction box can be used to simplify wiring, if required.

Weather compensation probe (optional)

Connect to boiler terminals 10 & 11 (can be connected either way round)

FLOWSMART FUNCTION

When using an Alpha InTec 40GS2 boiler with an Alpha E-Tec diverter kit (including cylinder sensor), the boiler will automatically recognize the cylinder sensor connection and activate the cylinder heating function. This is confirmed with the word "BOOST" on the boiler display.

To turn the FlowSmart function on/off press and hold the RESET and INFO buttons together (>3 seconds) until the BOOST symbol is shown/goes. The Flowsmart cylinder temperature will be maintained when the "BOOST" symbol is activated.

Note: In periods of lower demand/occupancy (i.e. fewer people at home/holidays, etc.) the FlowSmart cylinder function can be turned off to conserve energy, if required. The boiler will continue to deliver hot water on demand.

It is strongly recommended that the cylinder heating periods are timed using an Alpha Climatic controller hot water time periods. (The "BOOST" function must be kept activated to control the cylinder heating).

FLOWSMART PRIMARY TEMPERATURE

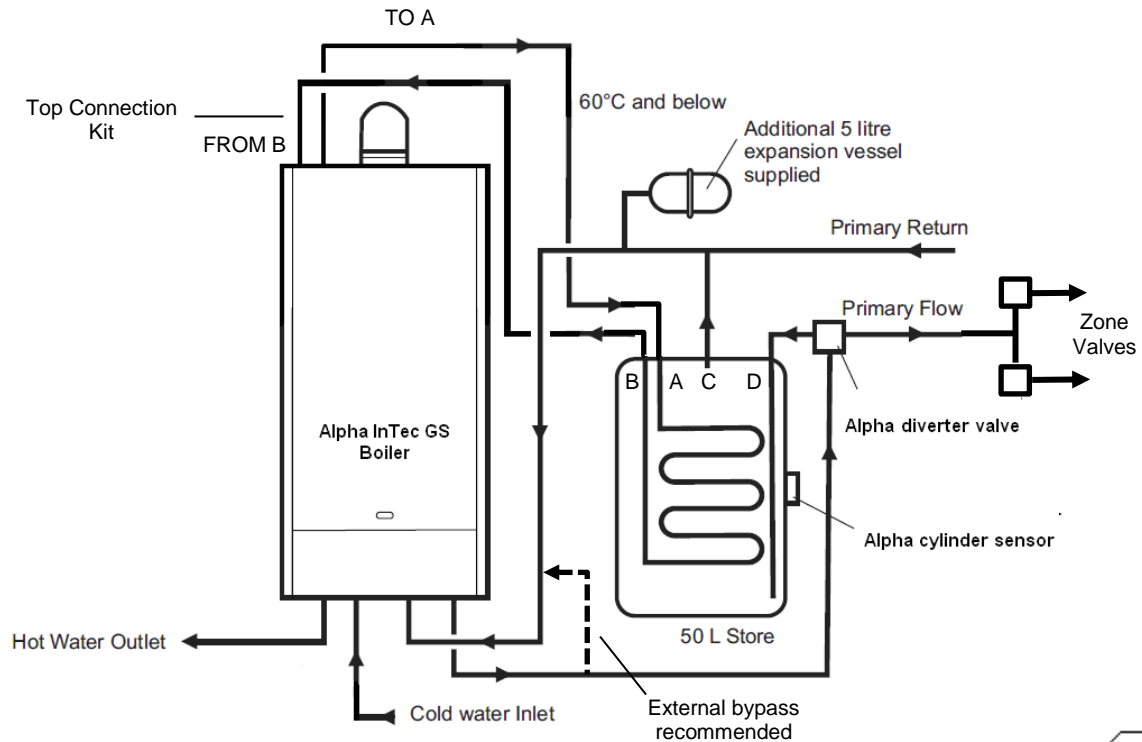
When using the FlowSmart system with the Alpha diverter valve kit the thermal store primary temperature setting can be adjusted by pressing the INFO button on the boiler.

Press INFO, "d0" will be displayed, alternating with the cylinder set temperature value. Turning the DHW thermostat knob will adjust this temperature reading. Stop turning the knob and "88" will flash to show the new setting is saved.

Recommended setting is 65°C

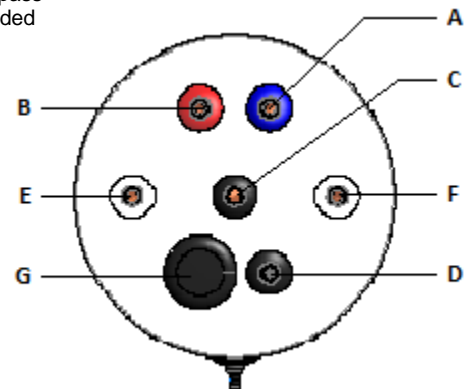
7.4 SYSTEM TYPE 2

InTec 40GS2 boiler with floor standing cylinder + Alpha Diverter + Alpha Controls (2 CH zones)



Cylinder connections

- A** From top boiler connection $\frac{3}{4}$ BSP (Blue collar)
- B** Back to top boiler connection $\frac{3}{4}$ BSP (Red collar)
- C** Primary Return $\frac{3}{4}$ BSP (Black collar)
- D** Primary Flow $\frac{3}{4}$ BSP (Black collar)
- E** Secondary circulation $\frac{3}{4}$ BSP (White collar)
- F** Secondary circulation $\frac{3}{4}$ BSP (White collar)
- G** Plugged immersion heater connection $1\frac{1}{4}$ BSP



For optional DHW secondary circuit schematic (if required), see page 7

Recommended Alpha Equipment List

Alpha Intec 40GS2 boiler (3.028276)

FlowSmart 50 (6.2003020) floor standing cylinder c/w cylinder connection kit.

Boiler top pipework connection kit (3.022913)

Alpha E-Tec diverter kit (6.5500048) complete with 3-port valve and cylinder sensor

Controls

Alpha Climatic controller (3.022144 hard wired only – zone 1)

Alpha RF Digital Easystat (7.2000050 – zone 2)

Optional Alpha external weather compensation probe (3.022383)

Installer To Provide

2no. 2-port zone control valves (motor open, spring return type only)

FITTING THE BOILER

Intec 40GS2 Boiler

The boiler and flue **must** be mounted as described in the instructions supplied with the boiler.

When installing a floor standing cylinder to an InTec 40 GS2 boiler, a pipe kit **MUST** be used to convert the top connections to connect 15mm copper pipe (part number 3.022913). Installation pipe work can be installed behind the boiler if required.

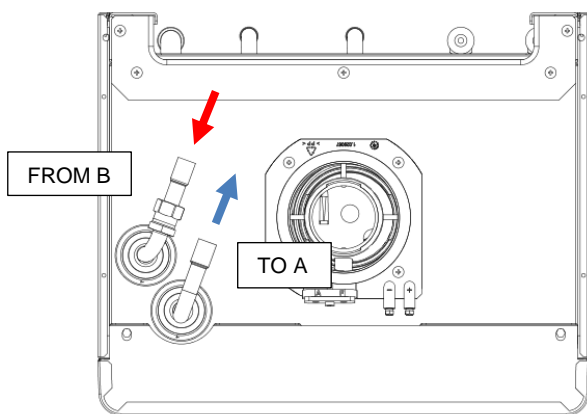
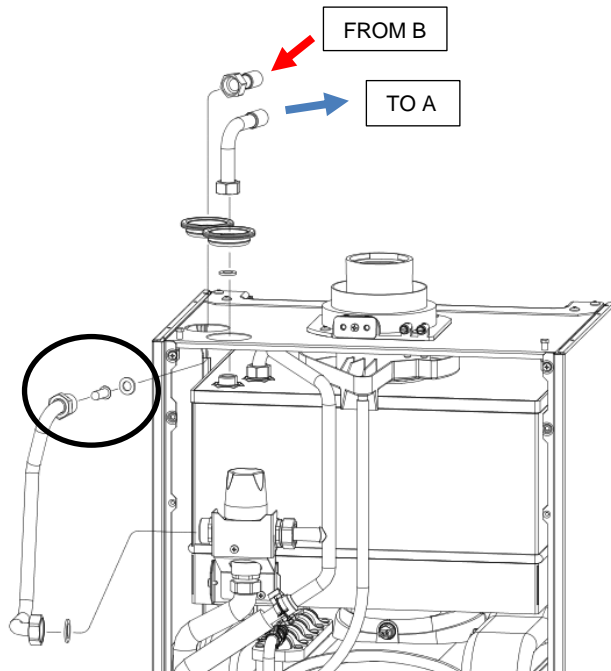
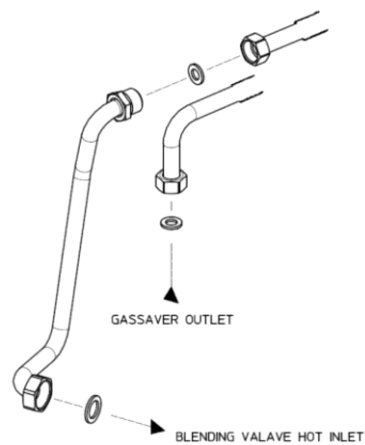


Fig 2 Top connection kit (3.022913)



IMPORTANT

To achieve maximum DHW flow rate the inlet mesh filter and flow regulator **MUST** be removed from the brass inlet manifold of the boiler cold inlet connection (not shown). The flow regulator should be discarded, and the mesh filter put into the top connection kit joint as shown above.

FIT THE FLOWSMART PRIMARY STORE

1. Locate the primary store as close to the boiler as possible ensuring there are at least the minimum clearances available.

2. The primary flow and return pipe work to the store should be no more than 1.5m in length. The pipe work **must** be insulated.

3. Ensure the floor on which the store is mounted is capable of withstanding the weight of the store, i.e. 80 kg.

Note: If an immersion heater is fitted, sufficient top clearance **must** be allowed to enable the immersion heater to be replaced.

4. Fit the 3/4" BSP fittings supplied to the primary store connections using the washers supplied as follows:-

a. The 3/4" BSP to 22 mm fittings to the primary flow and return connections (with the black collars)

b. The 3/4" BSP to 15 mm fittings to the cold inlet (with the blue collar) and hot water outlet connections (with the red collar).

5. Connect the pipework - Refer to the relevant schematic drawing for your installation type

6. Fit the 5 litre expansion vessel (using the 'T' connection supplied) to the primary return pipework from the store.

7. Connect the Alpha E-Tec diverter kit 3-port valve as shown below.

Note: If a DHW secondary circulation circuit is used, see page 7.

8. Connect all cold mains and hot water pipework as shown

9. Thoroughly flush out all water pipework.

CONTROL VALVE INSTALLATION

Alpha E-Tec Diverter Kit (6.5500048)

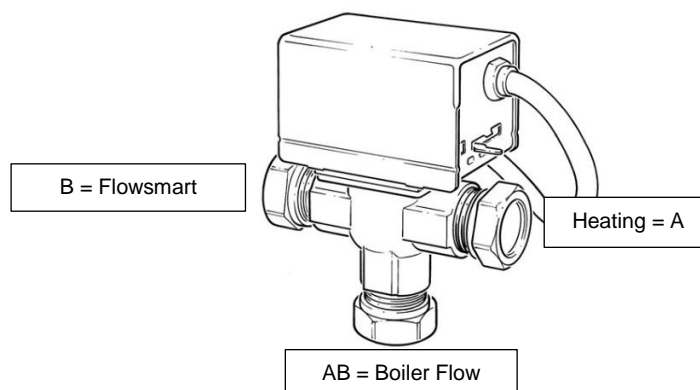
Install 3 port valve supplied with Alpha E-Tec diverter kit according to instructions provided.

Note: When using the optional Alpha E-Tec Diverter Kit, the valve must be connected in the following way:

AB Connection to boiler flow

Connection A to heating flow

Connection B to FlowSmart cylinder primary flow (cylinder connection D)



Zone Valves (not supplied)

Install 2-port zone valves (motor open, spring return type only) as per manufacturer's instructions provided.

EXTERNAL BYPASS

An external automatic type bypass is strongly recommended.

CYLINDER SENSOR

The FlowSmart cylinder insulation has a label indicating the location of the sensor mounting position. Cut a slit in the insulation and fix the sensor directly to the cylinder metal surface ensuring good contact. Fix into position using foil tape. Once fitted, cover sensor with insulation if necessary.

Note: Do not simply push the sensor into the foam insulation as it will not read temperature correctly.

ELECTRICAL CONNECTIONS

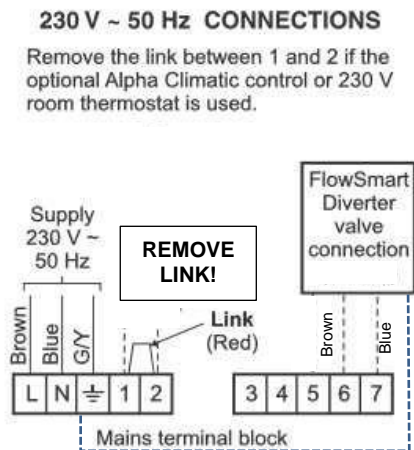
All electrical wiring must be carried out by a competent person to BS 7671 - Requirements for Electrical Installations, IEE Wiring Regulations.

Connect the mains supply to the boiler terminal block as described in the instructions supplied with the boiler.

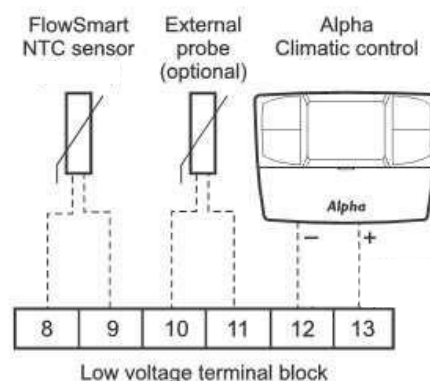
Note: An internal clock should not be fitted to the boiler when a FlowSmart system is connected.

Alpha InTec 40GS2 boiler with floor standing cylinder + Alpha Diverter + Alpha Controls (2 CH zones)

General wiring connections:



LOW VOLTAGE CONNECTIONS ONLY (optional Climatic or RF Climatic control)



Main Zone Controls

Alpha Climatic control (**must** be hardwired version)

Note: It is recommended that the MODUL setting = "off" - see Climatic instructions

Connect to boiler terminals 12 & 13 (can be connected either way round)

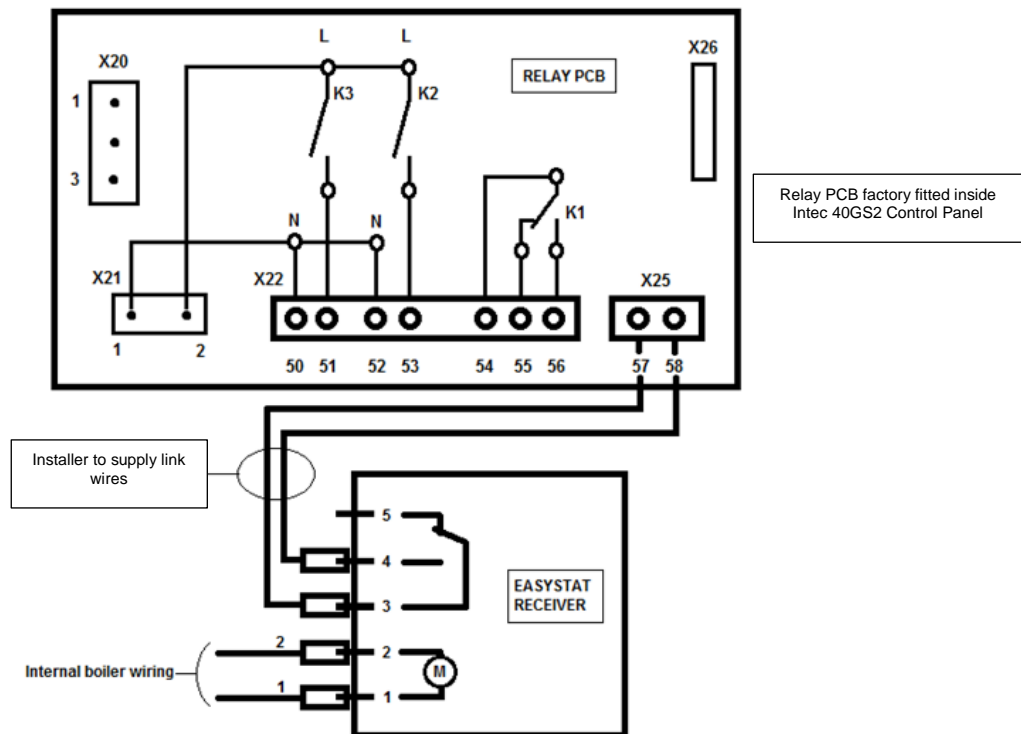
Note: Remove link from terminals 1 & 2. **Do not** fit Climatic wires into terminals 1 & 2!

Second Zone Controls

Fit the EasyStat RF receiver as described in the boiler installation manual, but **do not** connect the boiler wires 3 and 4 to terminals 3 and 4 on the receiver!

Instead fit 2no. spade connections (not supplied) to the receiver connections 3 and 4, and the other ends to terminals 57 and 58 of the Relay PCB within boiler (wires can be connected either way round)

Alpha RF Easy Stat receiver connection to relay PCB:



Control Valves

Diverter:

Connect to boiler terminals as follows:

Brown (live) to boiler terminal 6

Blue (neutral) to boiler terminal 7

Green/Yellow (Earth) to boiler terminal Earth terminal

Heating Zone Valves:

These connect to the relay PCB factory fitted within boiler control panel.

Connect to boiler terminals as follows:

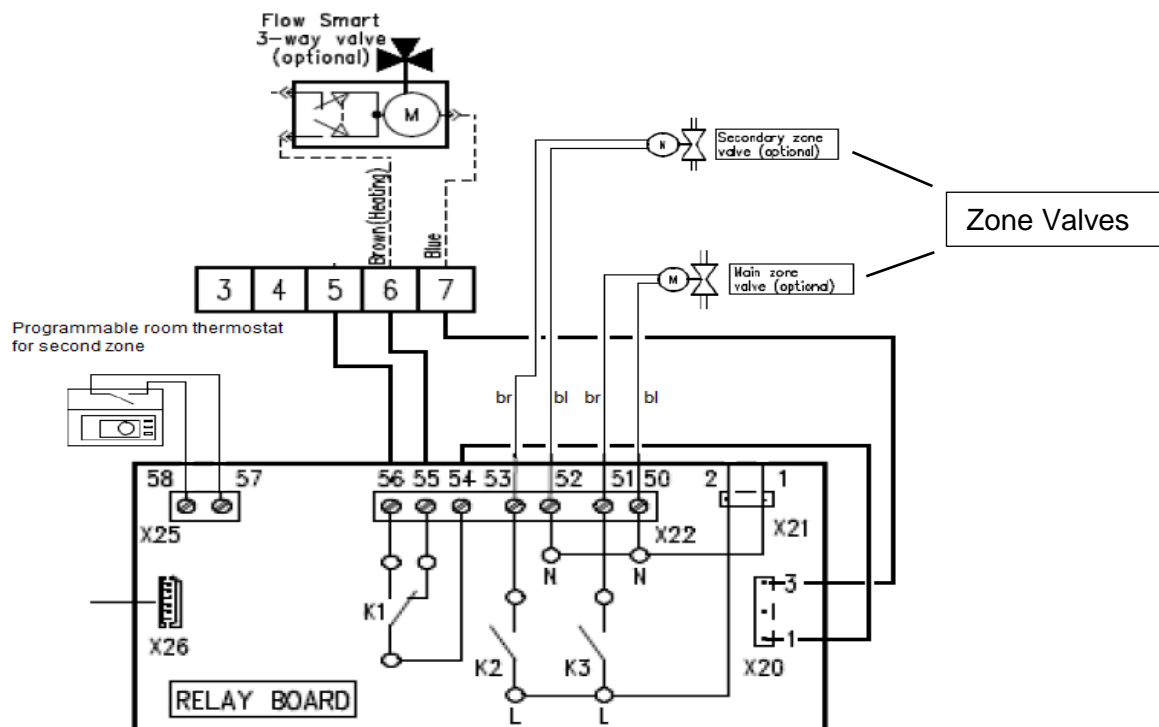
Main zone valve brown (live) to relay PCB terminal 51

Main zone valve blue (neutral) to relay PCB terminal 50

2nd zone valve brown (live) to relay PCB terminal 53

2nd zone valve blue (neutral) to relay PCB terminal 52

Zone valve connections:



Cylinder Sensor

Connect to boiler terminals 8 & 9 (can be connected either way round)

Junction box

A 10 way wiring junction box can be used to simplify wiring, if required.

Weather compensation probe (optional)

Connect to boiler terminals 10 & 11 (can be connected either way round)

FLOWSMART FUNCTION

When using an Alpha InTec 40GS2 boiler with an Alpha E-Tec diverter kit (including cylinder sensor), the boiler will automatically recognize the cylinder sensor connection and activate the cylinder heating function. This is confirmed with the word "BOOST" on the boiler display.

To turn the FlowSmart function on/off press and hold the RESET and INFO buttons together (>3 seconds) until the BOOST symbol is shown/goes. The Flowsmart cylinder temperature will be maintained when the "BOOST" symbol is activated.

Note: In periods of lower demand/occupancy (i.e. fewer people at home/holidays, etc.) the FlowSmart cylinder function can be turned off to conserve energy, if required. The boiler will continue to deliver hot water on demand.

It is strongly recommended that the cylinder heating periods are timed using an Alpha Climatic controller hot water time periods. (The "BOOST" function must be kept activated to control the cylinder heating).

FLOWSMART PRIMARY TEMPERATURE

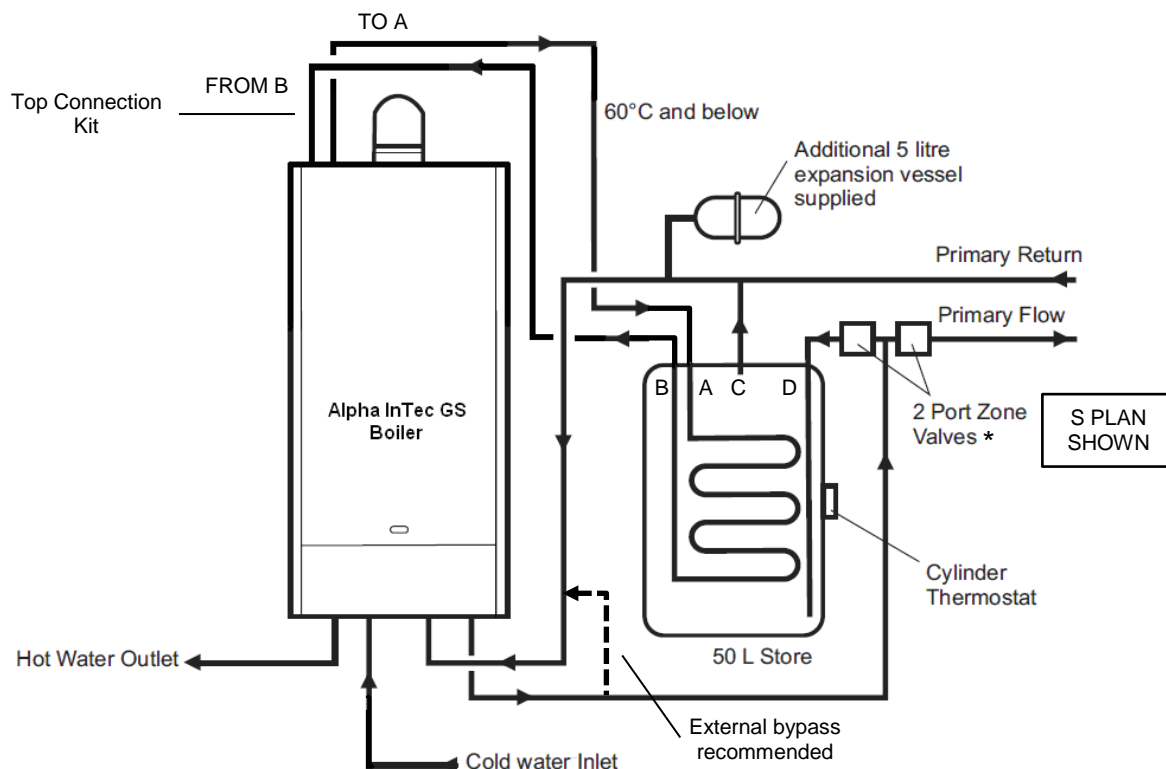
When using the FlowSmart system with the Alpha diverter valve kit the thermal store primary temperature setting can be adjusted by pressing the INFO button on the boiler.

Press INFO, “d0” will be displayed, alternating with the cylinder set temperature value. Turning the DHW thermostat knob will adjust this temperature reading. Stop turning the knob and “88” will flash to show the new setting is saved.

Recommended setting is 65°C

7.5 SYSTEM TYPE 3

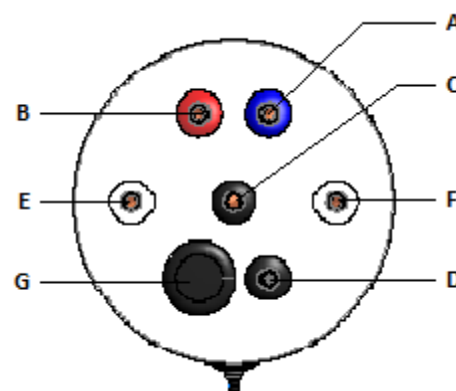
Alpha InTec GS Plus with floor standing cylinder + S Plan or S Plan Plus* Controls (*S Plan Plus not shown)



Note: Weather compensation is NOT possible with this configuration

Cylinder connections

- A** from top boiler connection ¾ BSP (Blue collar)
- B** back to top boiler connection ¾ BSP (Red collar)
- C** Primary Return ¾ BSP (Black collar)
- D** Primary Flow ¾ BSP (Black collar)
- E** Secondary circulation ¾ BSP (White collar)
- F** Secondary circulation ¾ BSP (White collar)
- G** Plugged immersion heater connection 1 1/4 BSP



For optional DHW secondary circuit schematic (if required), see page 7

Recommended Alpha Equipment List

Alpha InTec 40GS2 boiler (3.028276)
FlowSmart 50 (6.2003020) floor standing cylinder c/w with cylinder connection kit.
Boiler top pipework connection kit (3.022913)

Installer To Provide

2 Zone control valves (S Plan) or 3 Zone control valves (S Plan Plus*) – Motor open/spring return type only

Standard cylinder thermostat
2 channel programmer
Room thermostats

Note: It is strongly recommended that expert advice is sought from the controls manufacturer when obtaining correct controls for S Plan / S Plan Plus systems

FITTING THE BOILER

InTec 40GS2 Boiler

The boiler and flue **must** be mounted as described in the instructions supplied with the boiler.

When installing a floor standing cylinder to an InTec 40 GS2 boiler, a pipe kit **MUST** be used to convert the top connections to connect 15mm copper pipe (part number 3.022913). Installation pipe work can be installed behind the boiler if required.

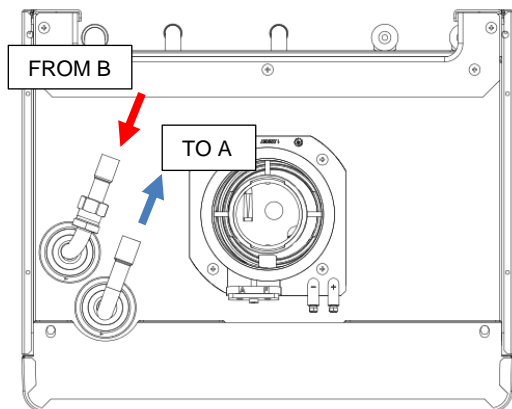
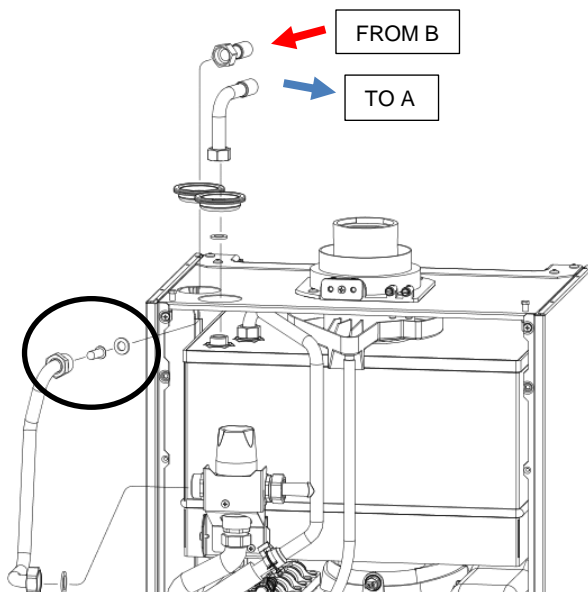
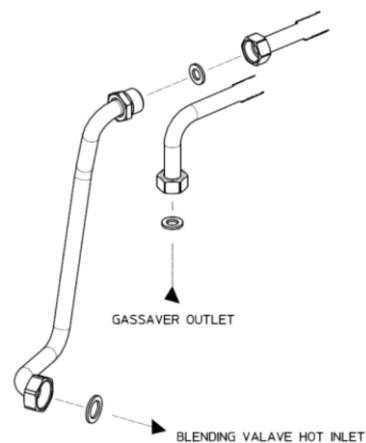


Fig 2 Top connection kit (3.022913)



IMPORTANT

To achieve maximum DHW flow rate the inlet mesh filter and flow regulator **MUST** be removed from the brass inlet manifold of the boiler cold inlet connection (not shown). The flow regulator should be discarded, and the mesh filter put into the top connection kit joint as shown above.

FIT THE FLOWSMART PRIMARY STORE

1. Locate the primary store as close to the boiler as possible ensuring there are at least the minimum clearances available.

2. The primary flow and return pipe work to the store should be no more than 1.5m in length. The pipe work **must** be insulated.

3. Ensure the floor on which the store is mounted is capable of withstanding the weight of the store, i.e. 80 kg.

Note: If an immersion heater is fitted, sufficient top clearance **must** be allowed to enable the immersion heater to be replaced.

4. Fit the 3/4" BSP fittings supplied to the primary store connections using the washers supplied as follows:-

a. The 3/4" BSP to 22 mm fittings to the primary flow and return connections (with the black collars)

b. The 3/4" BSP to 15 mm fittings to the cold inlet (with the blue collar) and hot water outlet connections (with the red collar).

5. Connect the pipework - Refer to the relevant schematic drawing for your installation type

6. Fit the 5 litre expansion vessel (using the 'T' connection supplied) to the primary return pipework from the store.

7. Connect the 'S' plan/ valves as shown on schematics

Note: If a DHW secondary circulation circuit is used,

8. Connect all cold mains and hot water pipework as shown

9. Thoroughly flush out all water pipework.

CONTROL VALVE INSTALLATION

Install zone valves (not supplied) as per manufacturer's instructions.

EXTERNAL BYPASS

An external automatic type bypass is strongly recommended

CYLINDER THERMOSTAT

The FlowSmart cylinder insulation has a label indicating the location of the thermostat mounting position.

Carefully cut the insulation and remove a sufficient area to allow good contact between the thermostat and the cylinder metal surface. Place the cylinder thermostat in position and secure using the fixing method supplied with the thermostat.

Recommended cylinder thermostat setting is 65*

*** Please note that the boiler CH thermostat must always be set higher than the cylinder thermostat.**

ELECTRICAL CONNECTIONS

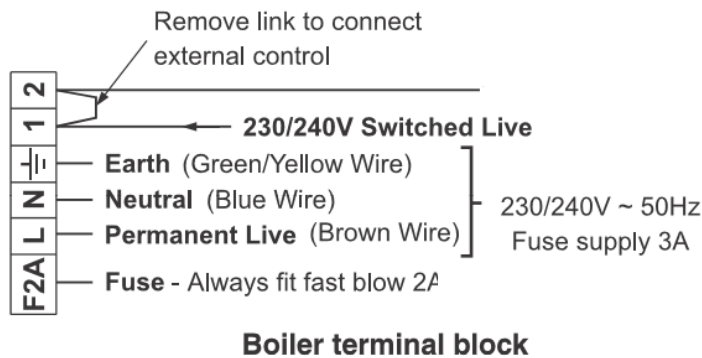
All electrical wiring must be carried out by a competent person to BS 7671 - Requirements for Electrical Installations, IEE Wiring Regulations.

Connect the mains supply to the boiler terminal block as described in the instructions supplied with the boiler.

Note: An internal clock should not be fitted to the boiler when a FlowSmart system is connected.

WIRING

General boiler wiring connections:



Junction box

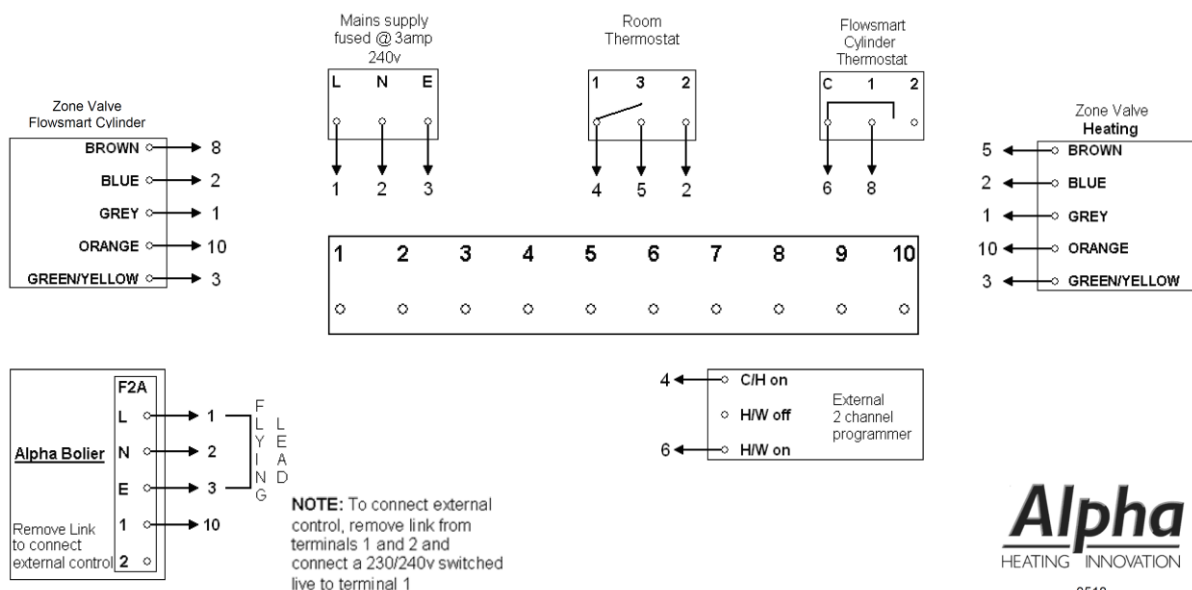
A 10 way wiring junction box can be used to simplify wiring, if required.

Weather compensation probe

Note: Weather compensation is **NOT** compatible with S Plan or S Plan Plus systems

Note: Controls wiring should be carried out as per the controls manufacturer's instructions. The following wiring diagrams are typical examples provided for general guidance only.

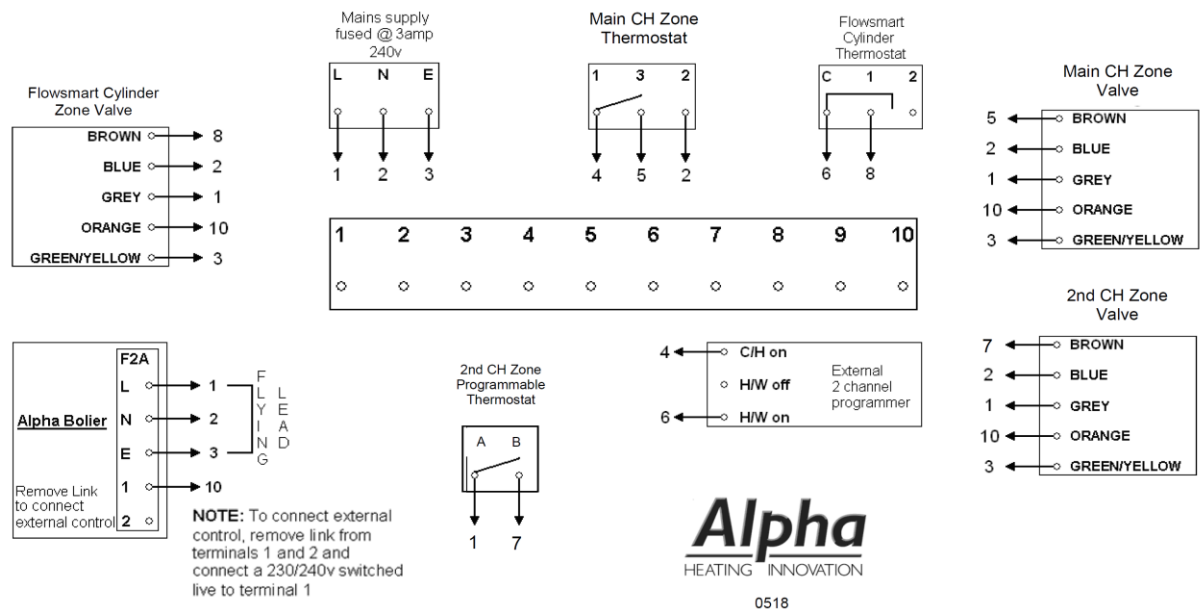
Typical S Plan Wiring Diagram:



Alpha
HEATING INNOVATION

0518

Typical S Plan Plus wiring diagram (if applicable):

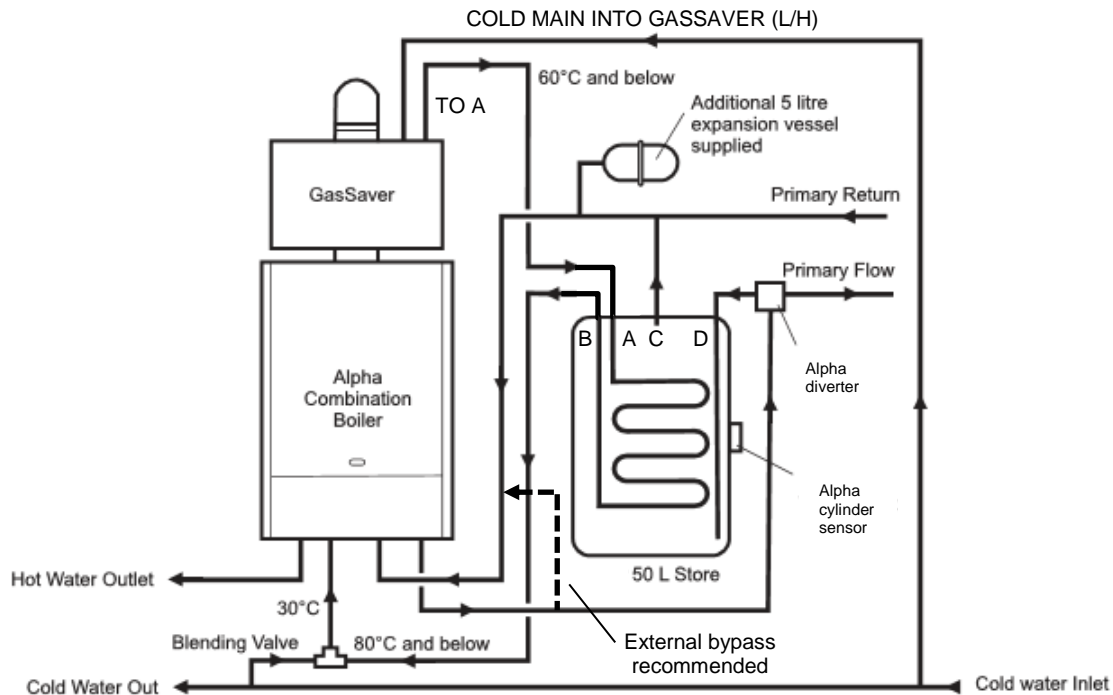


FLOWSMART FUNCTION

No boiler parameter changes are required.

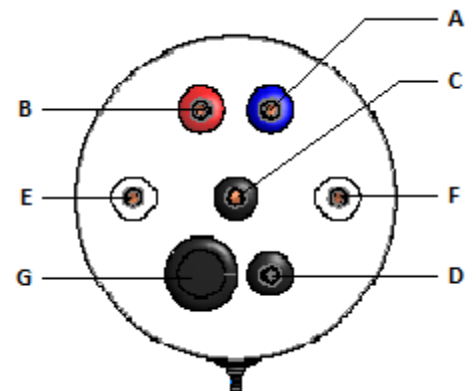
7.6 SYSTEM TYPE 4

Alpha E-Tec Combi, GasSaver2, floor standing cylinder + Alpha E-Tec Diverter



Cylinder connections

- A** From Gassaver (r/h) ¾ BSP (Blue collar)
- B** To blending valve ¾ BSP (Red collar)
- C** Primary Return ¾ BSP (Black collar)
- D** Primary Flow ¾ BSP (Black collar)
- E** Secondary circulation ¾ BSP (White collar)
- F** Secondary circulation ¾ BSP (White collar)
- G** Plugged immersion heater connection 1 1/4 BSP



For optional DHW secondary circuit schematic (if required), see page 7

Recommended Equipment List

- Alpha E-Tec combination boiler
- Alpha GasSaver2 (6.2002000) complete with blending valve
- FlowSmart 50 (6.2003020) floor standing cylinder c/w cylinder connection kit.
- Alpha E-Tec diverter kit (6.5500048) complete with 3-port valve and cylinder sensor

Controls:

Alpha Climatic controller (3.022143 Wireless or 3.022144 hard wired)

Optional Alpha external weather compensation probe (3.022383)

Note: 2 zone heating controls not recommended

FITTING THE BOILER & GASSAVER

Alpha E-Tec Combi

The boiler, flue and GasSaver **must** be mounted as described in the instructions supplied with the boiler and the GasSaver.

Fit the blending valve supplied with GasSaver as shown in schematic above.

FIT THE FLOWSMART PRIMARY STORE

1. Locate the primary store as close to the boiler as possible ensuring there are at least the minimum clearances available.

2. The primary flow and return pipe work to the store should be no more than 1.5m in length. The pipe work **must** be insulated.

3. Ensure the floor on which the store is mounted is capable of withstanding the weight of the store, i.e. 80 kg.

Note: If an immersion heater is fitted, sufficient top clearance **must** be allowed to enable the immersion heater to be replaced.

4. Fit the 3/4" BSP fittings supplied to the primary store connections using the washers supplied as follows:-

a. The 3/4" BSP to 22 mm fittings to the primary flow and return connections (with the black collars)

b. The 3/4" BSP to 15 mm fittings to the cold inlet (with the blue collar) and hot water outlet connections (with the red collar).

5. Connect the pipework - Refer to the relevant schematic drawing for your installation type

6. Fit the 5 litre expansion vessel (using the 'T' connection supplied) to the primary return pipework from the store.

7. Connect the Alpha E-Tec diverter kit 3-port valve as shown.

Note: If a DHW secondary circulation circuit is used, see page 7

8. Connect all cold mains and hot water pipework as shown

9. Thoroughly flush out all water pipework.

CONTROL VALVE INSTALLATION

Alpha E-Tec Diverter Kit (6.5500048)

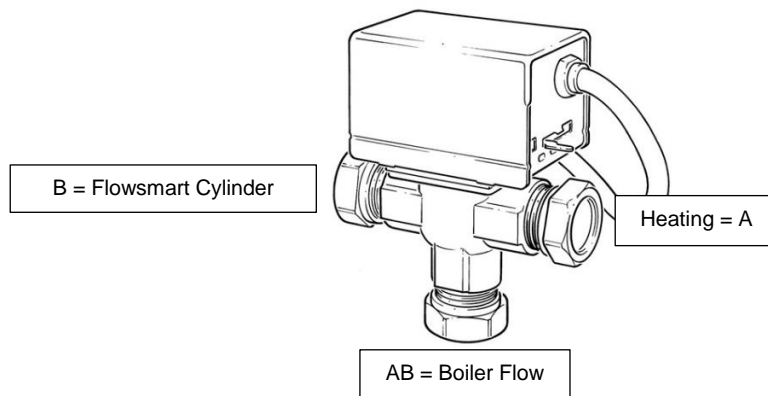
Install 3 port valve supplied with Alpha E-Tec diverter kit according to instructions provided.

Note: When using the optional Alpha E-Tec Diverter Kit, the valve must be connected in the following way:

Connection AB to Boiler Flow

Connection A to Heating Flow

Connection B to FlowSmart Cylinder Primary Flow (cylinder connection D)



Zone Valves

2 zone heating controls not recommended

EXTERNAL BYPASS

An external automatic type bypass is strongly recommended.

CYLINDER SENSOR

The FlowSmart cylinder insulation has a label indicating the location of the sensor mounting position.

Cut a slit in the insulation and fix the sensor directly to the cylinder metal surface ensuring good contact. Fix into position using foil tape. Once fitted, cover sensor with insulation if necessary.

Note: Do not simply push the sensor into the foam insulation as it will not read temperature correctly.

ELECTRICAL CONNECTIONS

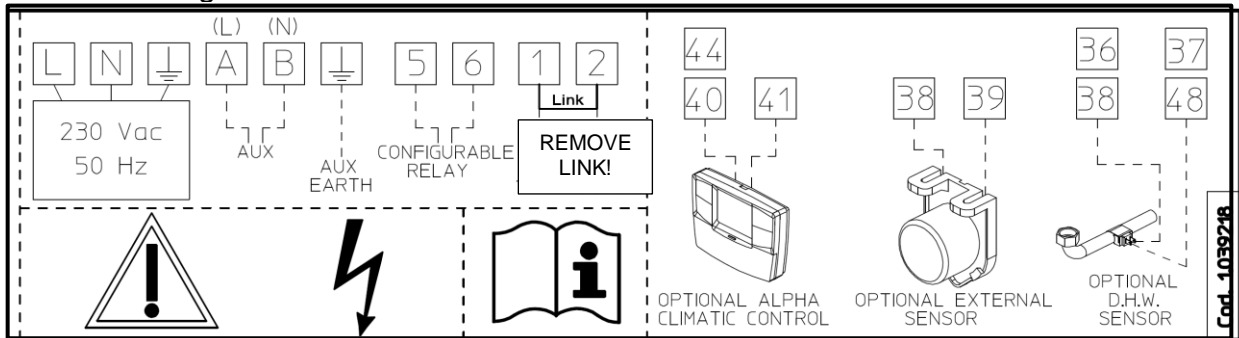
All electrical wiring must be carried out by a competent person to BS 7671 - Requirements for Electrical Installations, IEE Wiring Regulations.

Connect the mains supply to the boiler terminal block as described in the instructions supplied with the boiler.

Note: An internal clock should not be fitted to the boiler when a FlowSmart system is connected.

Alpha E-Tec Combi, GasSaver2, floor standing cylinder + Alpha Diverter

General wiring connections:



Main Zone Controls

Fit Alpha Climatic control (RF or hardwired) as per instructions supplied
Connect Climatic to boiler terminals 41 & 44 (can be connected either way round)

Note: Remove link from terminals 1 & 2. **Do not** fit Climatic wires into terminals 1 & 2!

Second Zone Controls

2 zone heating controls not recommended

Diverter

Connect to boiler terminals as follows:

Brown (live) to boiler terminal 5

Blue (neutral) to boiler terminal 6

Green/Yellow (Earth) to boiler terminal Earth terminal

Note: Enabling the flowsmart function (P3 = 9) within boiler will give 230v live to terminal 5 during CH demand

Cylinder Sensor

Connect to boiler terminals 36 & 37 (can be connected either way round)

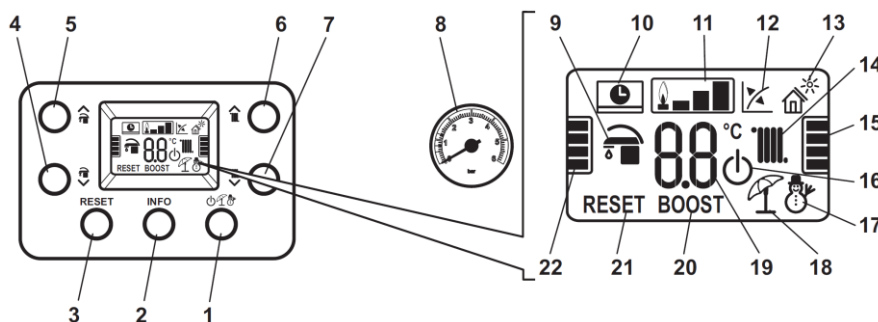
Junction box

A 10 way wiring junction box can be used to simplify wiring, if required.

Weather compensation probe (optional)

Connect to boiler terminals 38 & 39 (can be connected either way round)

FLOWSMART FUNCTION



E-Tec Boiler control panel

Turning on/off the FlowSmart cylinder function

Enter the parameter menu as described in the boiler manual and set parameter P3 = 9 (FlowSmart enabled).

To turn the FlowSmart function on/off press and hold (>2 seconds) the DHW up and down temperature buttons (4 and 5) together until the BOOST symbol (20) is shown/goes.

Note: In periods of lower demand/occupancy (i.e. fewer people at home/holidays, etc.) the FlowSmart cylinder function can be turned off to conserve energy, if required. The boiler will continue to deliver hot water on demand.

FLOWSMART PRIMARY TEMPERATURE

Set FlowSmart Storage Temperature

Press the info button (2) for >1second to access the Information menu and scroll through the information using the DHW up and down temperature buttons (4 and 5) until "d0" is displayed.

Press the OFF/Stand-by/summer/Winter button (1) to show the value and use the CH up and down temperature buttons (4 and 5) to adjust the new temperature setpoint between 45-78 °C.

Recommended setting is 65°C

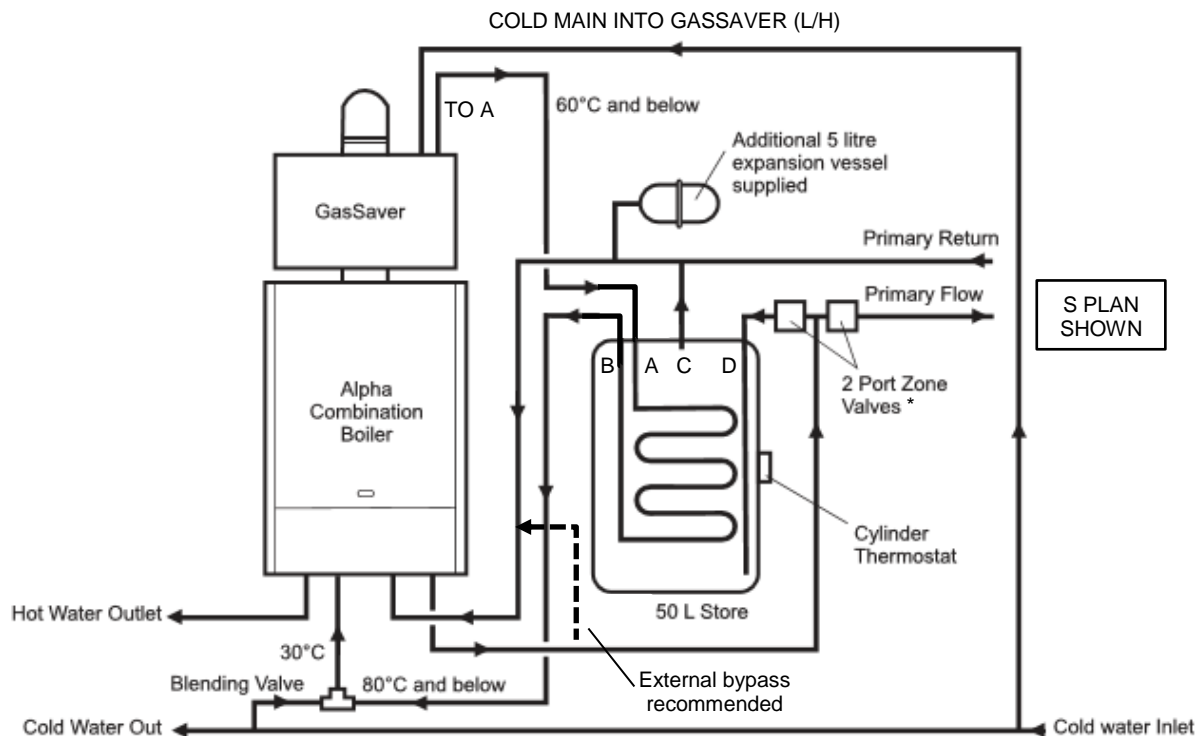
Then press and hold (>2 seconds) the OFF/Stand-by/summer/Winter button (1) to store the temperature value. "88" will flash for confirmation.

Press the reset button (3) to return to the standard display.

It is recommended that the cylinder heating periods are timed using an Alpha Climatic controller hot water time periods.

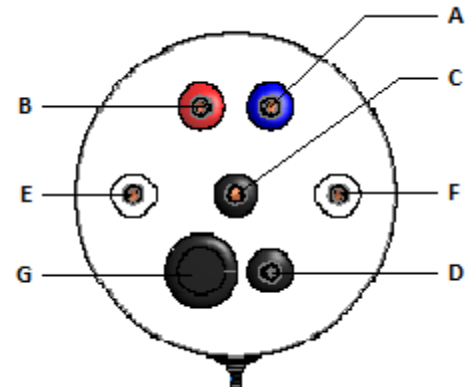
7.7 SYSTEM TYPE 5

Alpha E-Tec Combi, GasSaver2, floor standing cylinder + S Plan or S Plan Plus* Controls (*S Plan Plus not shown)



Cylinder connections

- A** From Gassaver (r/h) ¾ BSP (Blue collar)
- B** To blending valve ¾ BSP (Red collar)
- C** Primary Return ¾ BSP (Black collar)
- D** Primary Flow ¾ BSP (Black collar)
- E** Secondary circulation ¾ BSP (White collar)
- F** Secondary circulation ¾ BSP (White collar)
- G** Plugged immersion heater connection 1 1/4 BSP



For optional DHW secondary circuit schematic (if required), see page 7

Note: Weather compensation is NOT possible with this configuration

Recommended Equipment List

Alpha E-Tec combination boiler
Alpha GasSaver2 (6.2002000) complete with blending valve
FlowSmart 50 (6.2003020) floor standing cylinder c/w cylinder connection kit.

Installer To Provide

2 Zone control valves (S Plan) or 3 Zone control valves (S Plan Plus*) – Motor open/spring return type only

Standard cylinder thermostat
Programmer
Room thermostats

FITTING THE BOILER

Alpha E-Tec Combi

The boiler, flue and GasSaver **must** be mounted as described in the instructions supplied with the boiler and the GasSaver.

Fit the blending valve supplied with GasSaver as shown in schematic above.

FIT THE FLOWSMART PRIMARY STORE

1. Locate the primary store as close to the boiler as possible ensuring there are at least the minimum clearances available.
2. The primary flow and return pipe work to the store should be no more than 1.5m in length. The pipe work **must** be insulated.
3. Ensure the floor on which the store is mounted is capable of withstanding the weight of the store, i.e. 80 kg.
Note: If an immersion heater is fitted, sufficient top clearance **must** be allowed to enable the immersion heater to be replaced.
4. Fit the 3/4" BSP fittings supplied to the primary store connections using the washers supplied as follows:-
 - a. The 3/4" BSP to 22 mm fittings to the primary flow and return connections (with the black collars)
 - b. The 3/4" BSP to 15 mm fittings to the cold inlet (with the blue collar) and hot water outlet connections (with the red collar).
5. Connect the pipework - Refer to the relevant schematic drawing for your installation type
6. Fit the 5 litre expansion vessel (using the 'T' connection supplied) to the primary return pipework from the store.
7. Connect 'S' plan valves as shown on schematics.
Note: If a DHW secondary circulation circuit is used, see page 7.
8. Connect all cold mains and hot water pipework as shown
9. Thoroughly flush out all water pipework.

CONTROL VALVE INSTALLATION

Install zone valves (not supplied) as per manufacturer's instructions.

EXTERNAL BYPASS

An external automatic type bypass is strongly recommended

CYLINDER THERMOSTAT

The FlowSmart cylinder insulation has a label indicating the location of the thermostat mounting position.

Carefully cut the insulation and remove a sufficient area to allow good contact between the thermostat and the cylinder metal surface. Place the cylinder thermostat in position and secure using the fixing method supplied with the thermostat.

Recommended cylinder thermostat setting is 65*

*** Please note that the boiler CH thermostat must always be set higher than the cylinder thermostat.**

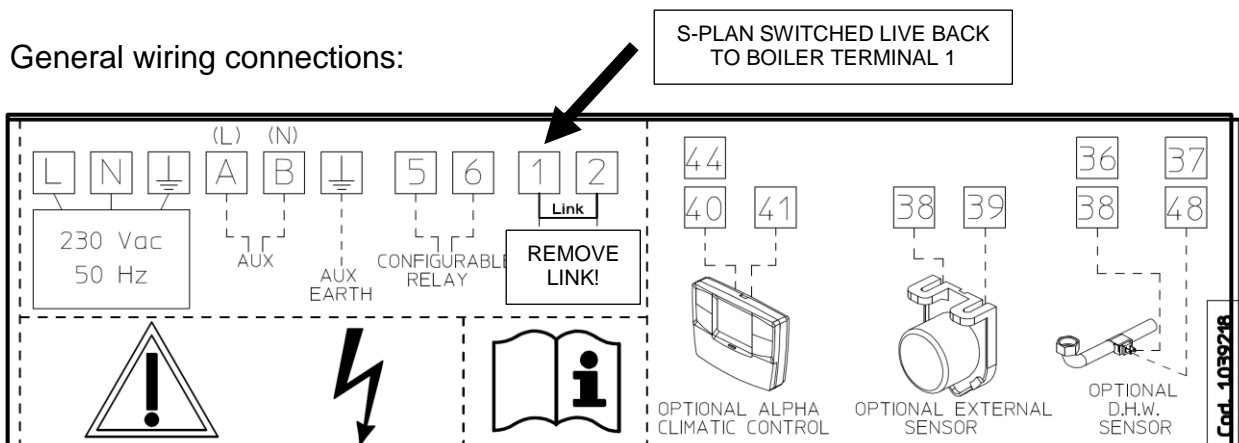
ELECTRICAL CONNECTIONS

All electrical wiring must be carried out by a competent person to BS 7671 - Requirements for Electrical Installations, IEE Wiring Regulations. Connect the mains supply to the boiler terminal block as described in the instructions supplied with the boiler.

Note: An internal clock should not be fitted to the boiler when a FlowSmart system is connected.

Alpha E-Tec Combi, GasSaver2, floor standing cylinder + S Plan / S Plan Plus* Controls

General wiring connections:



Junction box

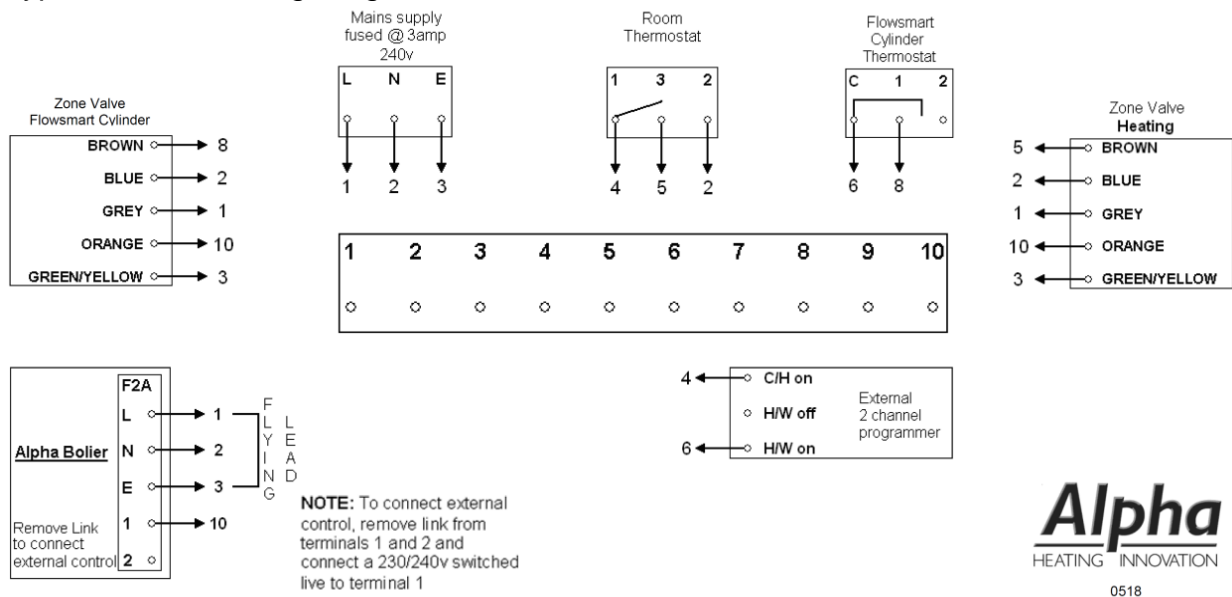
A 10 way wiring junction box can be used to simplify wiring, if required.

Weather compensation probe

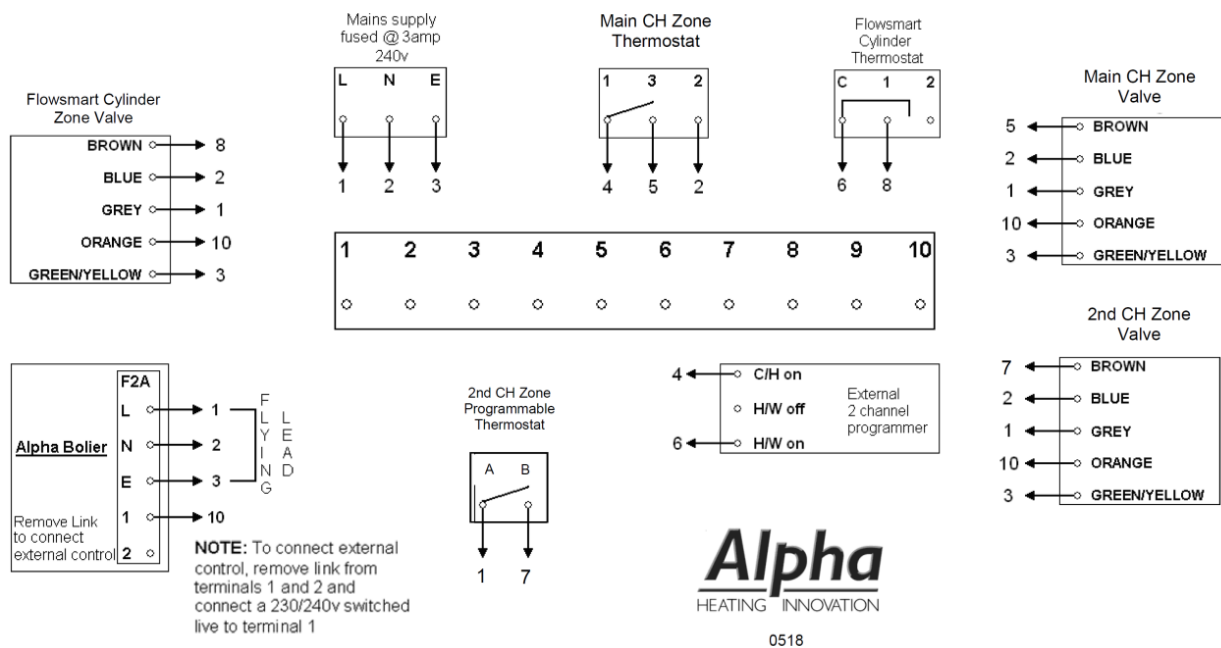
Note: Weather compensation is NOT compatible with S Plan or S Plan Plus systems

Note: Controls wiring should be carried out as per the controls manufacturer's instructions. The following wiring diagrams are typical examples provided for general guidance only.

Typical S Plan Wiring Diagram:



Typical S Plan Plus wiring diagram:



FLOWSMART FUNCTION

No boiler parameter changes are required.

8.0 COMMISSIONING

8.1 FINAL COMMISSIONING

1. Fill all the systems, i.e. primary and secondary circuits and check for leaks. Refer to the boiler instructions.

2. Ensure the system has been flushed and cleaned and inhibitor added to the primary system.

Note: All cleaning agent **must** be removed and inhibitor added to the primary system, failure to do so will invalidate the warranty.

3. Intec 40 GS2 models - Commission the boiler as described in the installation instructions.

4. E-Tec models - Commission the boiler and GasSaver as described in the Installation instructions.

5. Check all controls and wiring are complete

6. Check all controls are functioning correctly

7. Check FlowSmart function settings/parameter changes (if required) are correct.

8. If fitted: ensure that the cylinder thermostat is set at or below the boiler central heating thermostat temperature setting.

9. E-Tec models only - ensure blending valve is set to 30 degrees C.

8.2 ROUTINE INSPECTION

It is recommended that the FlowSmart cylinder should be subject to a general condition inspection at each boiler maintenance interval.

If the system pressure exceeds 2.5 Bar when operating at maximum temperature, the additional 5 litre expansion vessel as well as the boiler expansion vessel should be checked and re-pressurized, if necessary.

Notes: Check the expansion vessel charge only when the system pressure is zero. The expansion vessel pressure should be charged to 1 Bar.

8.3 SHORT PARTS LIST

| Item. | Qty. | Part No. |
|-------------------------------|------|-----------|
| 5 litre expansion vessel | 1 | 1.026991 |
| Drain tap | 1 | 1.0113 |
| Connector ¾" BSP to 15 mm | 2 | 3.019591 |
| Connector ¾" BSP to 22 mm | 2 | 3.019592 |
| 'T' connector 22 mm to ½" BSP | 1 | 3.019539 |
| Plug 1¼" BSP | 1 | 6.0001140 |
| 'O' ring for 1¼" BSP plug | 1 | 6.2003040 |

9.0 Product Data Sheet (ErP)

FLOWSMART FS 50 CYLINDER PRODUCT DATA SHEET (IN COMPLIANCE WITH REGULATION 811/203)

