WARNING:
Improper installation, setup, modification, operation or maintenance of the heating system can cause personal injury and property damage.
Follow each appliances' instructions precisely.
For assistance or further information, contact a trained and certified installer, service provider, or the gas supply company.

In Massachusetts, the boiler must be installed by a licensed plumber or gas fitter.

Application drawings in this manual are conceptual only and do not purport to address all design, installation, code, or safety considerations.

The diagrams in this manual are for reference use by code officials, designers and licensed installers. It is expected that installers have adequate knowledge of national and local codes, as well as accepted industry practices, and are trained on equipment, procedures, and applications involved. Drawings are not to scale.

Refer to the boiler, control and module installer manuals for additional detailed information!

Gas Condensing Wall Hung & Floor Standing Boilers

Bosch Greenstar™

Greenstar & Greenstar FS 100, 151, 131 Combi Boiler
Greenstar & Greenstar FS 57, 79, 100, 131, 151 Regular Boiler

BOSCH

Applications Manual

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Explanation Of Symbols

Key To Symbols

Warnings

Warnings in this document are identified by a warning triangle printed against a grey background.
Keywords at the start of a warning indicate the type and seriousness of the ensuing risk if meas-

The following keywords are defined and can be used in this document:

- **DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.
- **WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.
- **CAUTION** indicates a hazardous situation which, if not avoided, could result in minor to moderate injury.
- **NOTICE** is used to address practices not related to personal injury.

Important information

This symbol indicates important information where there is no risk to people or property.

System # 1

Single Zone
Combi Wall Boiler
Baseboard
On/off Tstat

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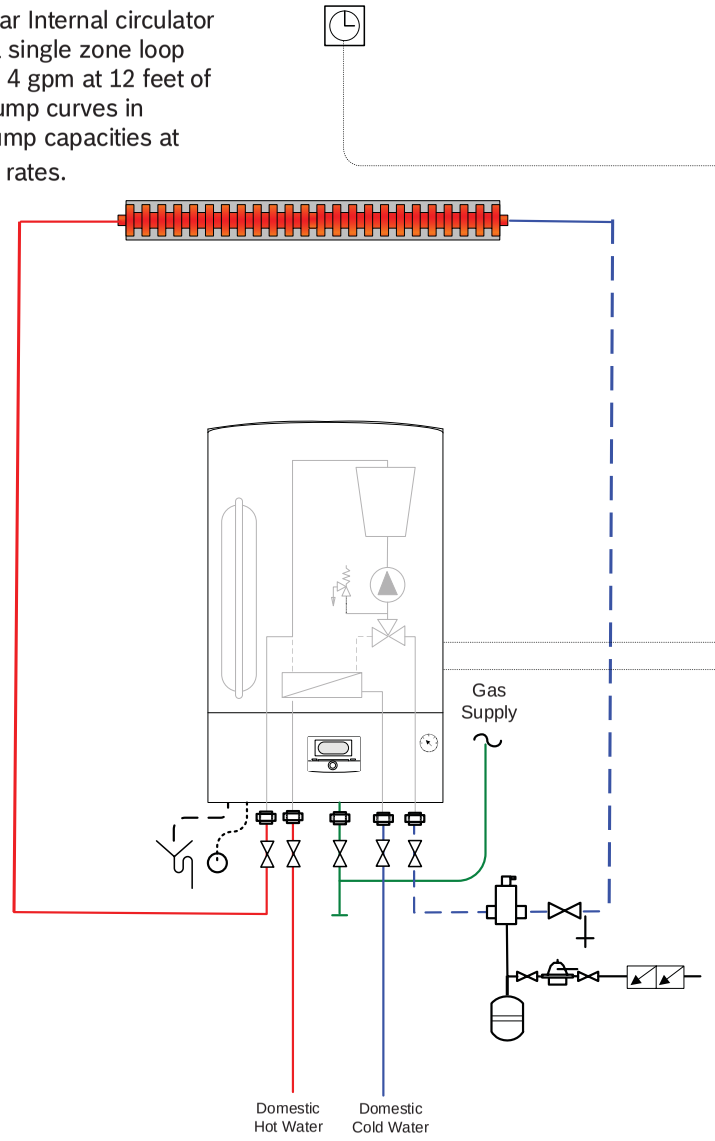
Created	
Released	
Changed	
Bases	
No.	.
State	

Bosch

	FW200
	PRV Relief piping
	Purge Drain
	Room Thermostat
	Condensate drain
	Relief valve & pressure gauge
	Back-flow preventer
	Isolation valve
	Outdoor air sensor
	Baseboard
	Expansion Tank
	Auto-Fill
	Air Eliminator

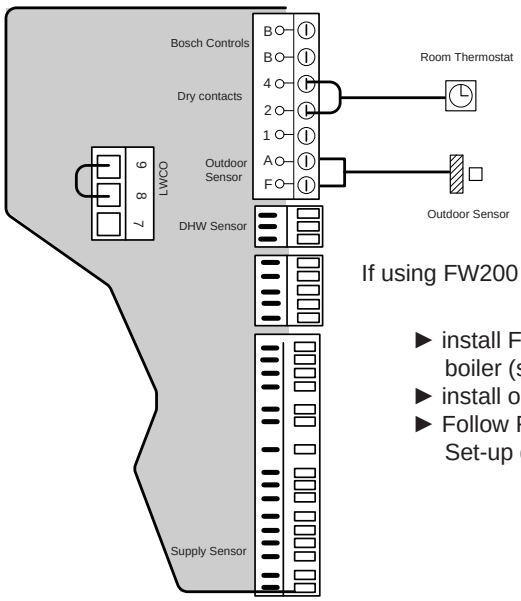
Note: Greenstar Internal circulator can support a single zone loop not to exceed 4 gpm at 12 feet of head. See pump curves in manual for pump capacities at alternate flow rates.

(Use of FW200 and outdoor air sensor is optional)



System #1

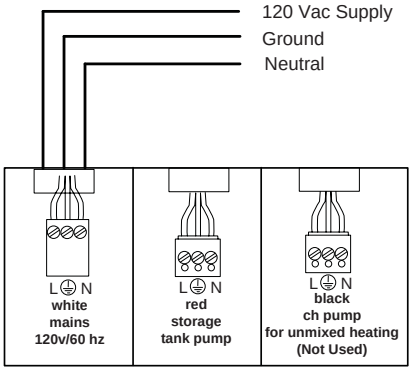
Heatronic Internal Wiring



Note: For Low Water Cutoff Wiring see Appendix D of this manual

If using FW200 (Optional):

- ► install FW200 on front of boiler (see manual)
- ► install outdoor air sensor
- ► Follow FW200 Quick Set-up guide in Appendix C



External Boiler Junction box

Wiring:

Low Voltage

► Remove factory jumper from terminal #2 & #4 inside Heatronic control and connect non-power robbing thermostat (dry contacts only)

If using FW200 (Optional):

- ► install FW200 on front of boiler (see manual)
- ► install outdoor air sensor
- ► Follow FW200 Quick Set-up guide in Greenstar Manual

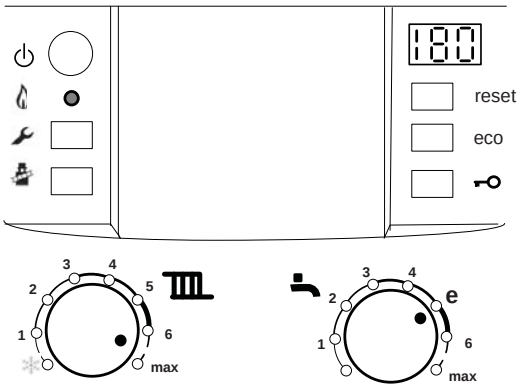
Line Voltage

► Wire Main power supply (120 v) to White molex

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system

DHW thermostat	Typical DHW temperatures
min	approx. 104 °F (40 °C)
e	approx. 122 °F (50 °C)
max	approx. 140 °F (60 °C)



System # 2

Single zone
Combi wall boiler
Baseboard
NSC Controls

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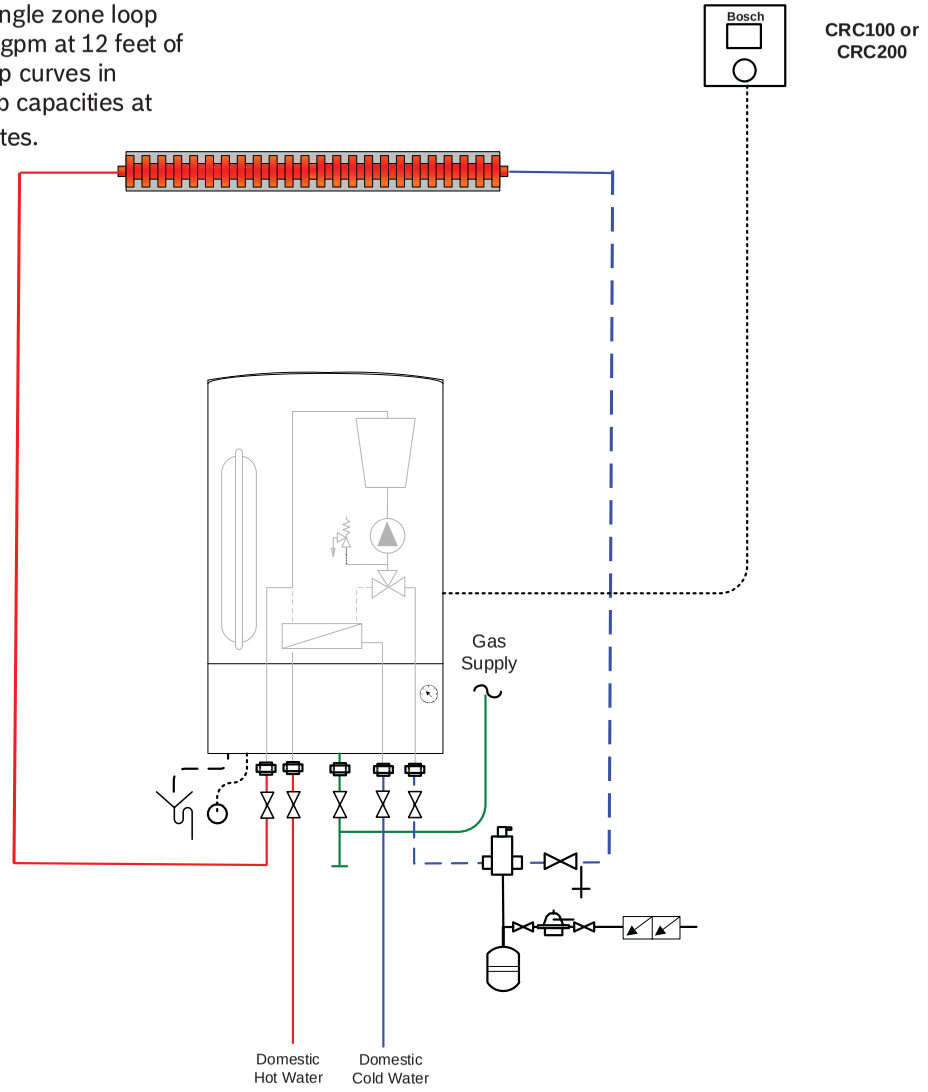
Created	TK 02/20/15
Released	
Changed	
Bases	
No.	.
State	

Bosch

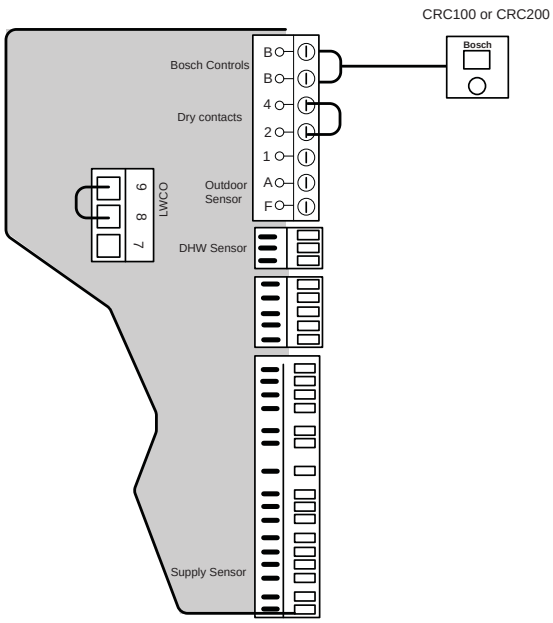
	PRV Relief piping
	Purge Drain
Bosch	Comfort Room Controller
	Condensate drain
	Relief valve & pressure gauge
	Back-flow preventer
	Isolation valve
	Outdoor air sensor
	Baseboard
	Expansion Tank
	Auto-Fill
	Air Eliminator

Note:Greenstar Internal circulator can support a single zone loop not to exceed 4 gpm at 12 feet of head. See pump curves in manual for pump capacities at alternate flow rates.

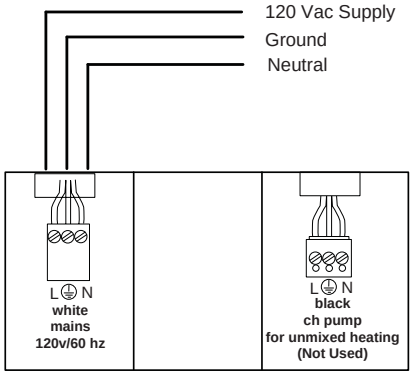


System #2

Heatronic Internal Wiring



Note: For Low Water Cutoff Wiring see Appendix D of this manual



External Boiler Junction box

Wiring:

Low Voltage

► Wire Comfort Room Controller (CRC100 or CRC200) to Terminals B B of Heatronic control

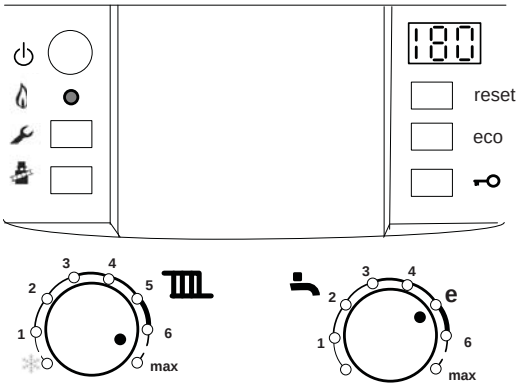
► See Appendix A for Room Controller Settings

Line Voltage

► Wire Main power supply (120 v) to White molex

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



DHW thermostat	Typical DHW temperatures
min	approx. 104 °F (40 °C)
e	approx. 122 °F (50 °C)
max	approx. 140 °F (60 °C)

System #3

Single Zone
Combi floor boiler
Baseboard
On/off Thermostat

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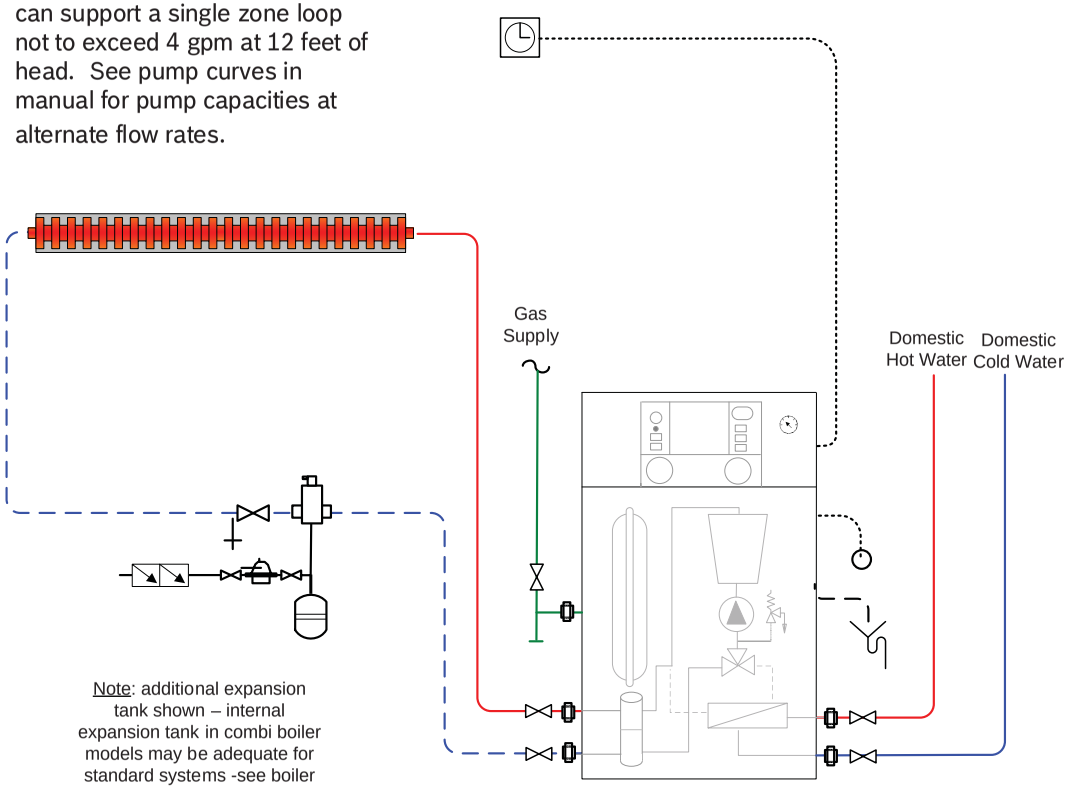
Created	
Released	
Changed	
Bases	
No.	.
State	

Bosch

	PRV Relief piping
	Purge Drain
	Room Thermostat
	Condensate drain
	Relief valve & pressure gauge
	Back-flow preventer
	Isolation valve
	Outdoor air sensor
	Baseboard
	Expansion Tank
	Auto-Fill
	Air Eliminator

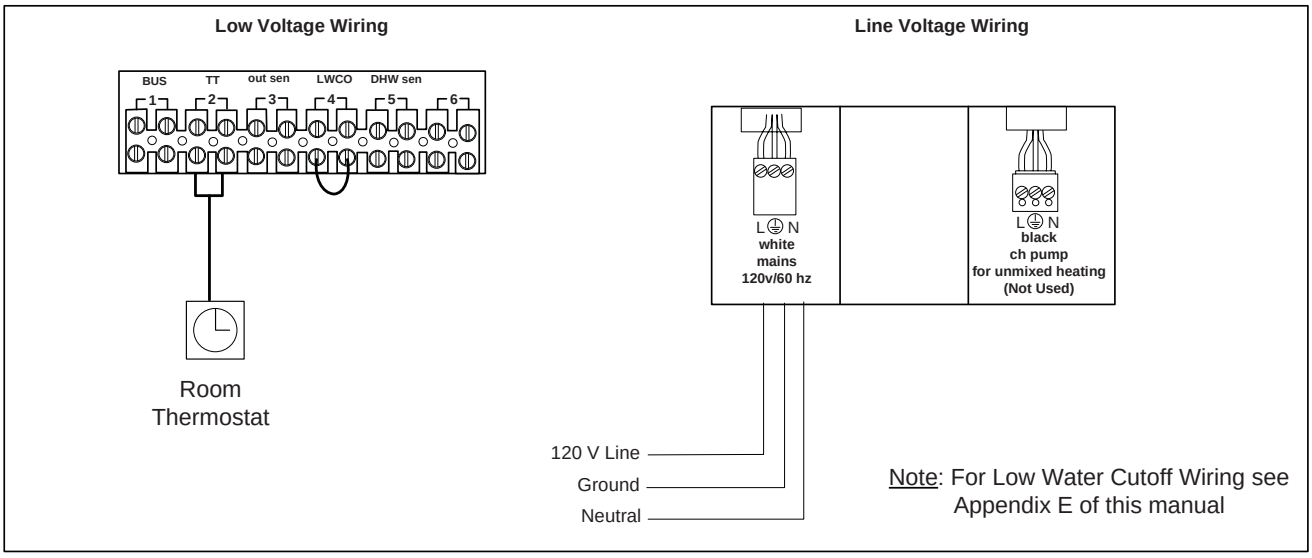
Note:Greenstar Internal circulator can support a single zone loop not to exceed 4 gpm at 12 feet of head. See pump curves in manual for pump capacities at alternate flow rates.



Note: additional expansion tank shown – internal expansion tank in combi boiler models may be adequate for standard systems -see boiler manual for details.

Note: Internal Low Loss Header in closed position

System #3



Wiring:

Low Voltage

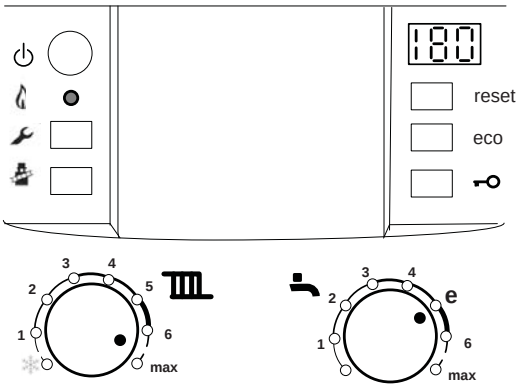
► Remove factory jumper from terminal #2 and connect non-power robbing thermostat (dry contacts only) to terminal #2

Line Voltage

► Wire Main power supply (120 v) to White molex

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



DHW thermostat	Typical DHW temperatures
min	approx. 104 °F (40 °C)
e	approx. 122 °F (50 °C)
max	approx. 140 °F (60 °C)

System #4

Single Zone
Combi floor boiler
Baseboard
NSC Controls

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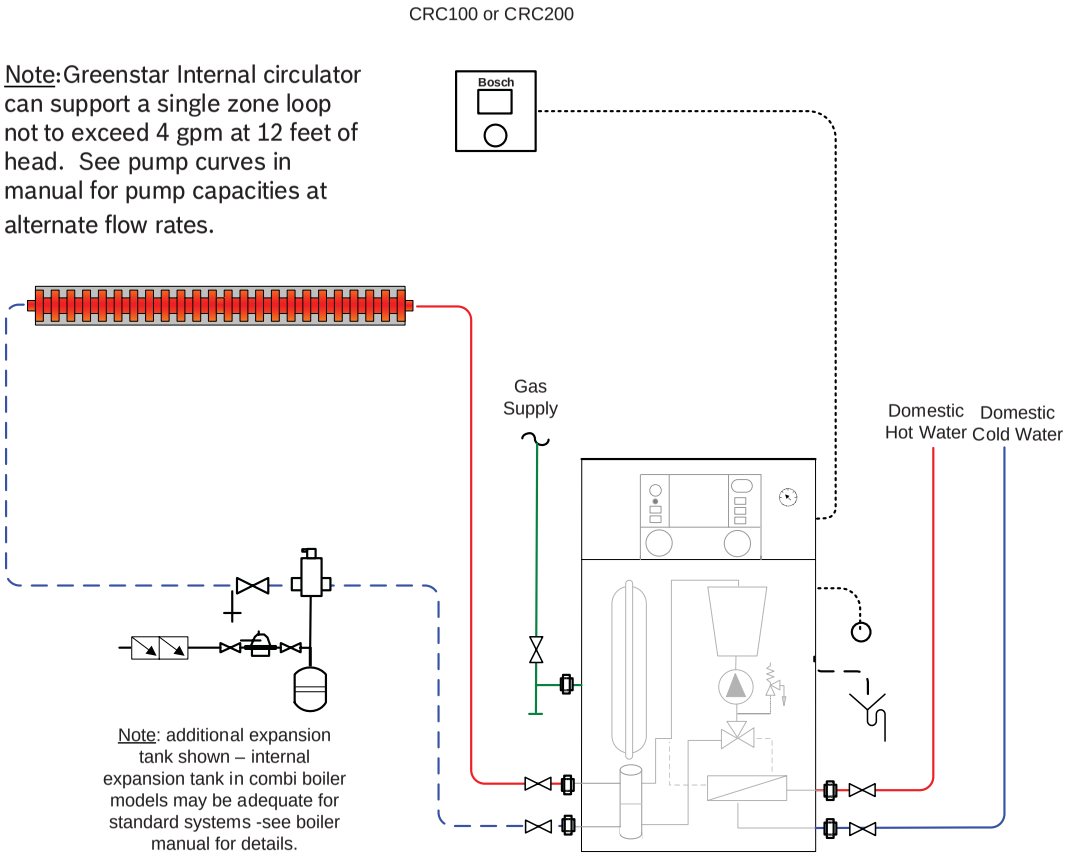
Created	
Released	
Changed	
Bases	
No.	.
State	

Bosch

	PRV Relief piping
	Purge Drain
	Supply Sensor
Bosch	Comfort Room Controller
	Condensate drain
	Relief valve & pressure gauge
	Back-flow preventer
	Isolation valve
	Baseboard
	Expansion Tank
	Auto-Fill
	Air Eliminator

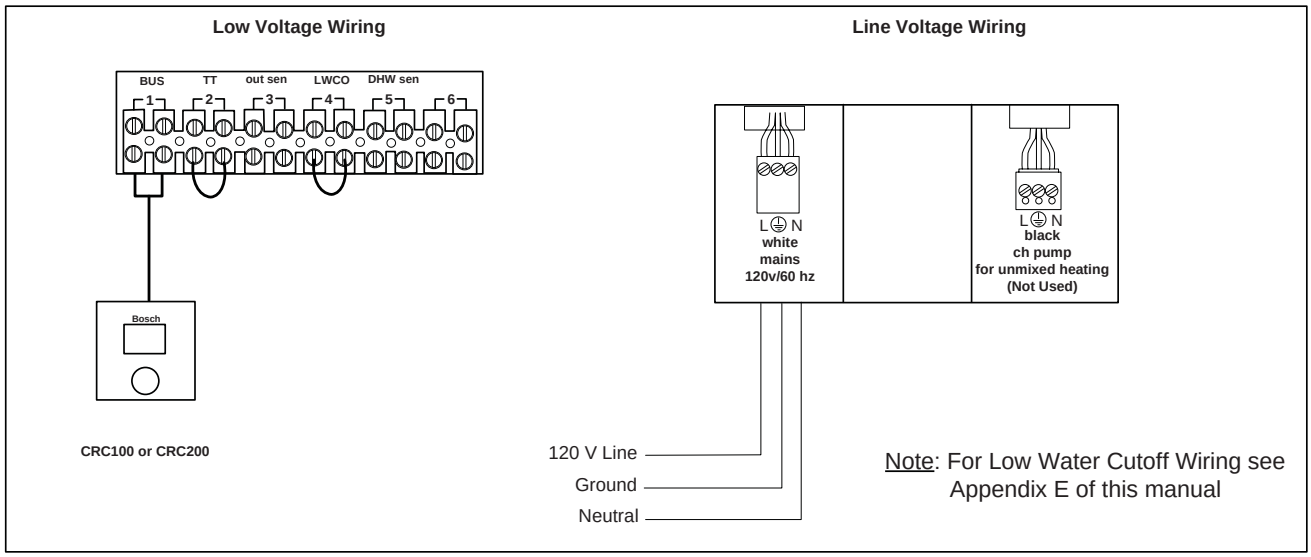
Note: Greenstar Internal circulator can support a single zone loop not to exceed 4 gpm at 12 feet of head. See pump curves in manual for pump capacities at alternate flow rates.



Note: additional expansion tank shown – internal expansion tank in combi boiler models may be adequate for standard systems -see boiler manual for details.

Note: Internal Low Loss Header in closed position

System #4



Wiring:

Low Voltage

► Wire Comfort Room Controller (CRC100 or CRC200) to Terminal # 1 on back of Greenstar FS Boiler

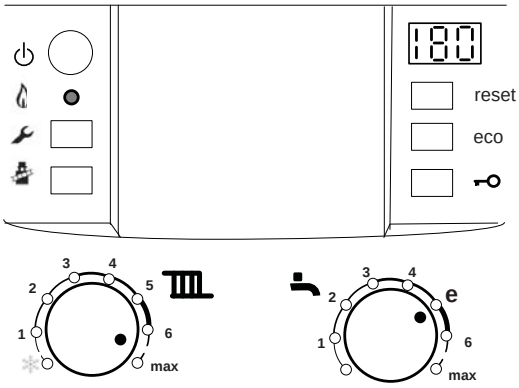
► See Appendix A for Room Controller Settings

Line Voltage

► Wire Main power supply (120 v) to White molex

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



DHW thermostat	Typical DHW temperatures
min	approx. 104 °F (40 °C)
e	approx. 122 °F (50 °C)
max	approx. 140 °F (60 °C)

System # 5

Single Zone
Heat only wall boiler
Baseboard
On/off Thermostat

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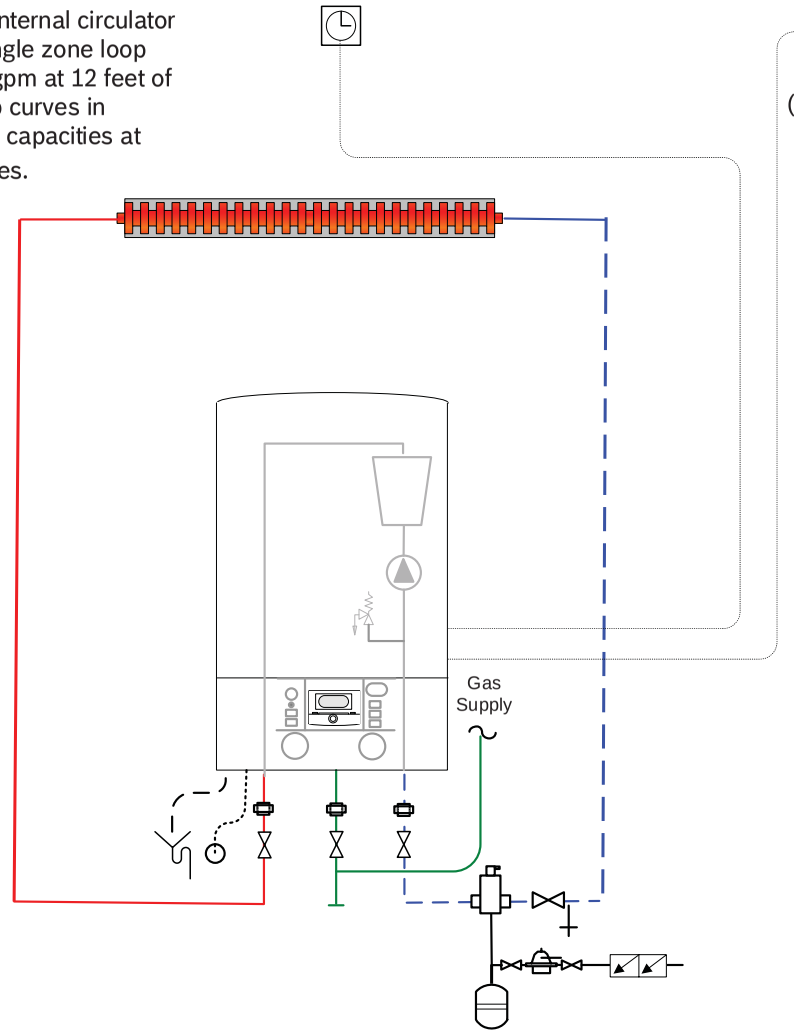
Created	TK 02/20/15
Released	
Changed	
Bases	

No.	.
State	

Bosch

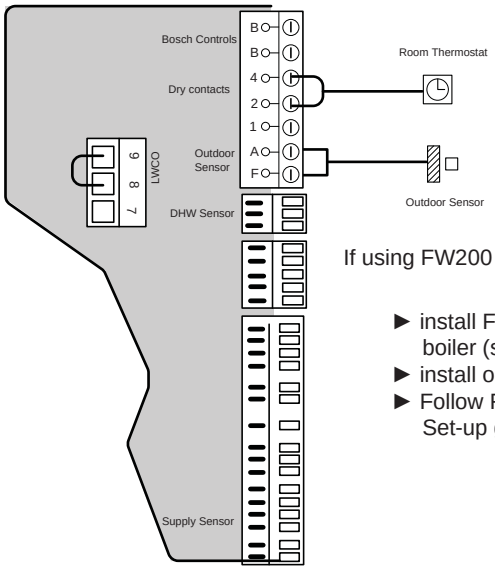
	PRV Relief piping
	Purge Drain
	Room Thermostat
	Condensate drain
	Relief valve & pressure gauge
	Back-flow preventer
	Isolation valve
	Outdoor air sensor
	Baseboard
	Expansion Tank
	Auto-Fill
	Air Eliminator

Note: Greenstar Internal circulator can support a single zone loop not to exceed 4 gpm at 12 feet of head. See pump curves in manual for pump capacities at alternate flow rates.



System #5

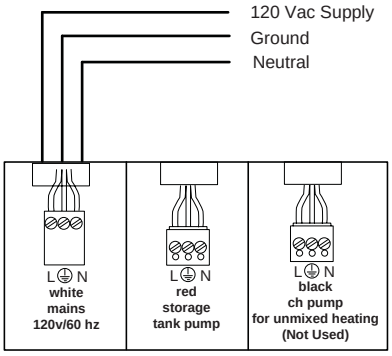
Heatronic Internal Wiring



If using FW200 (Optional):

- ► install FW200 on front of boiler (see manual)
- ► install outdoor air sensor
- ► Follow FW200 Quick Set-up guide in Appendix C

Note: For Low Water Cutoff Wiring see Appendix D of this manual



External Boiler Junction box

Wiring:

Low Voltage

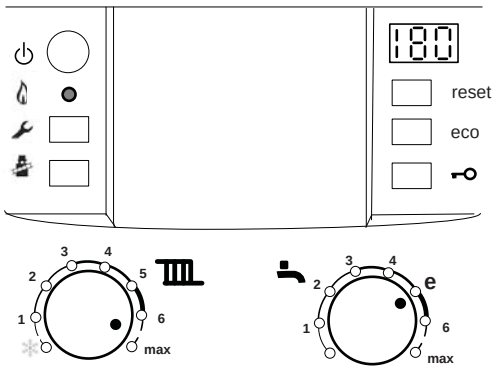
► Remove factory jumper from terminal #2 & #4 inside Heatronic control and connect non-power robbing thermostat (dry contacts only)

Line Voltage

► Wire Main power supply (120 v) to White molex

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



System # 6

Single Zone
Heat only wall boiler
Baseboard
NSC Controls

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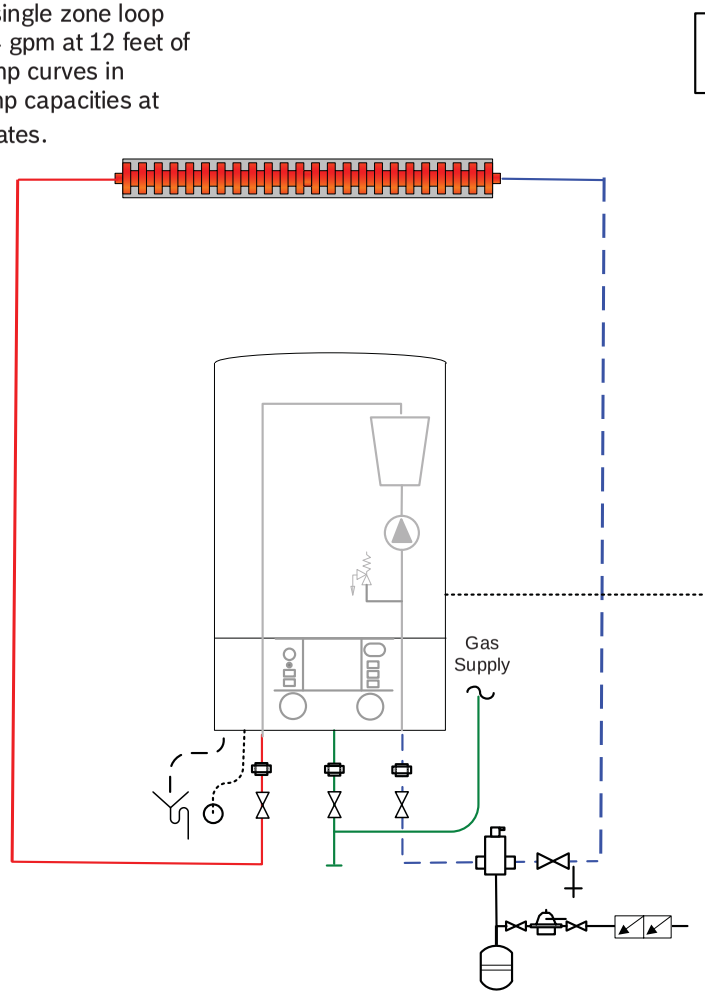
Created	TK 02/20/15
Released	
Changed	
Bases	
No.	.
State	

Bosch

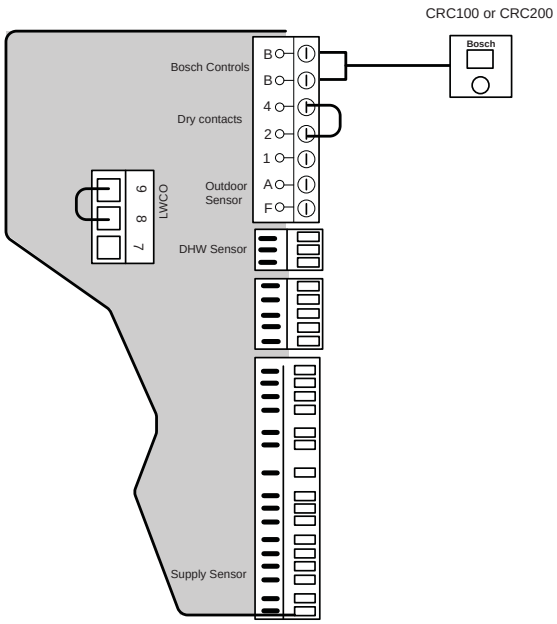
	PRV Relief piping
	Purge Drain
Bosch	Comfort Room Control
	Condensate drain
	Relief valve & pressure gauge
	Back-flow preventer
	Isolation valve
	Outdoor air sensor
	Baseboard
	Expansion Tank
	Auto-Fill
	Air Eliminator

Note:Greenstar Internal circulator can support a single zone loop not to exceed 4 gpm at 12 feet of head. See pump curves in manual for pump capacities at alternate flow rates.

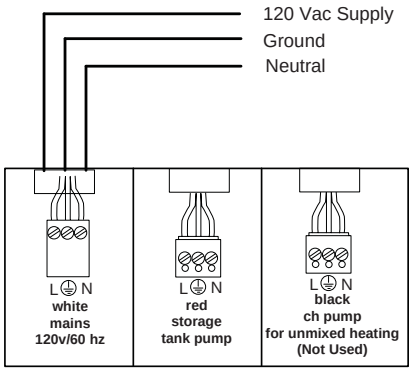


System #6

Heatronic Internal Wiring



Note: For Low Water Cutoff Wiring see Appendix D of this manual



External Boiler Junction box

Wiring:

Low Voltage

► Wire Comfort Room Controller (CRC100 or CRC200) to Terminals B B of Heatronic control

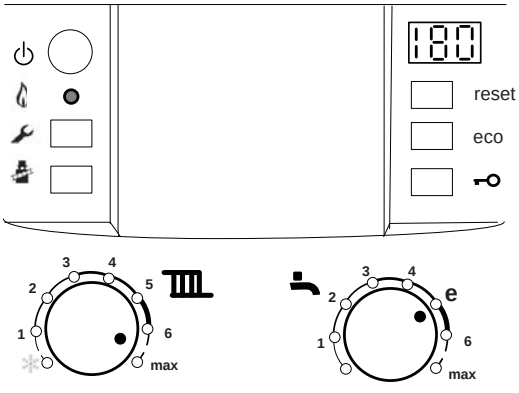
► See Appendix A for Room Controller Settings

Line Voltage

► Wire Main power supply (120 v) to White molex

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



System # 7

Single Zone
Heat only floor boiler
Baseboard
On/Off Thermostat

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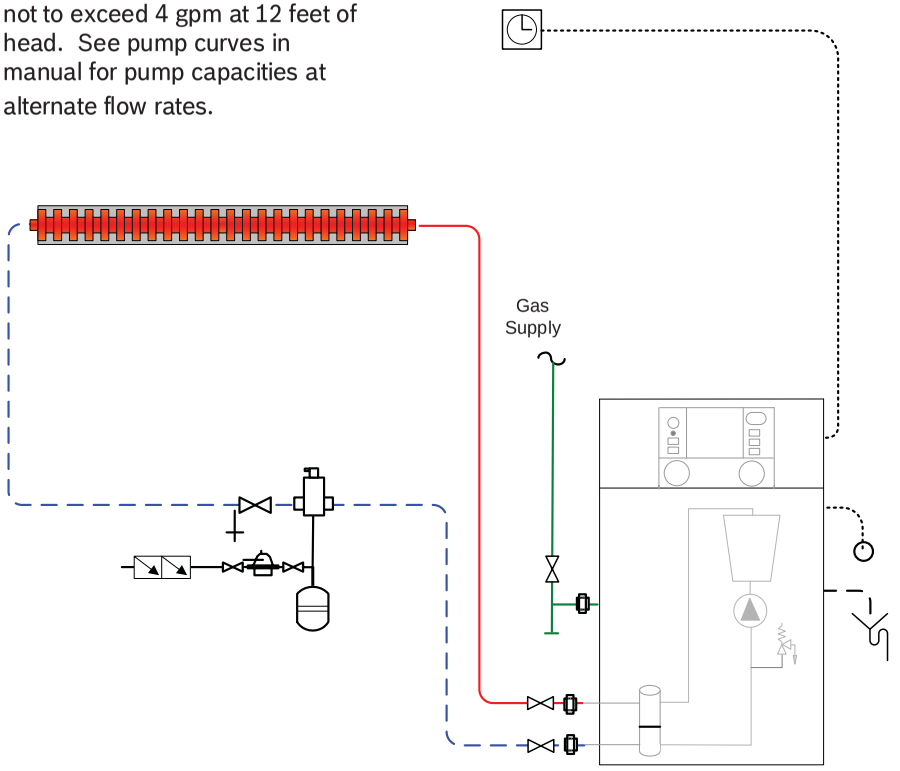
Created	
Released	
Changed	
Bases	
No.	.
State	

Bosch

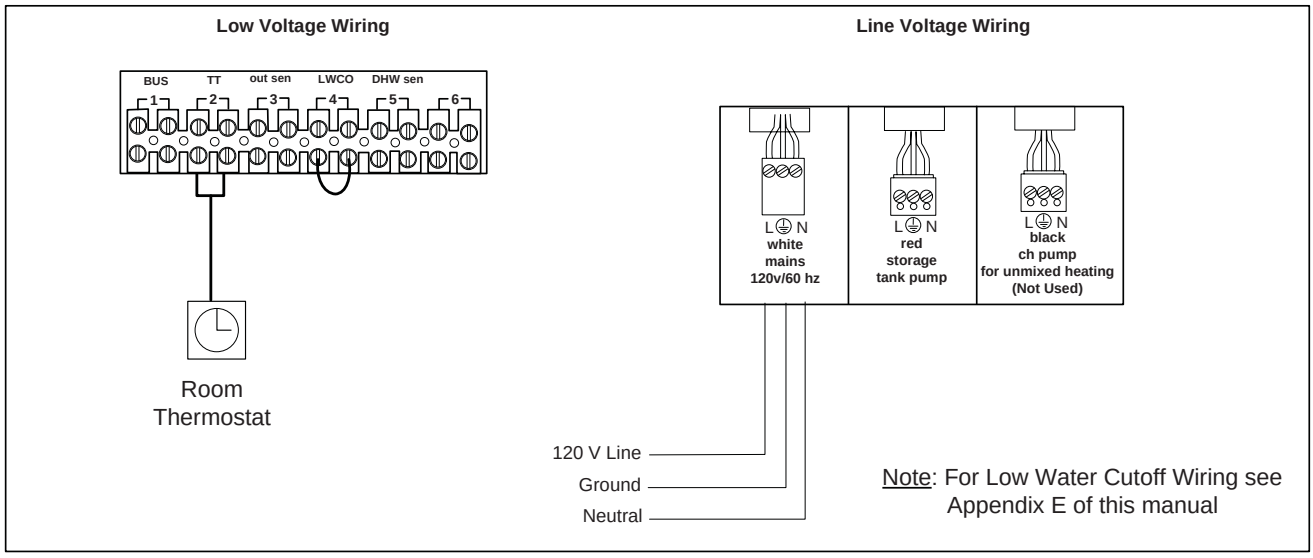
	PRV Relief piping
	Purge Drain
	Room Thermostat
	Condensate drain
	Relief valve & pressure gauge
	Back-flow preventer
	Isolation valve
	Outdoor air sensor
	Baseboard
	Expansion Tank
	Auto-Fill
	Air Eliminator

Note: Greenstar Internal circulator can support a single zone loop not to exceed 4 gpm at 12 feet of head. See pump curves in manual for pump capacities at alternate flow rates.



Note: Internal Low Loss Header in closed position

System #7



Wiring:

Low Voltage

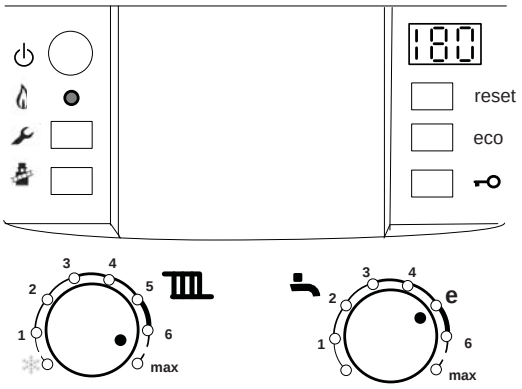
► Remove factory jumper from terminal #2 and connect non-power robbing thermostat (dry contacts only) to terminal #2

Line Voltage

► Wire Main power supply (120 v) to White molex

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



System # 8

Single Zone
Heat only floor boiler
Baseboard
NSC Controls

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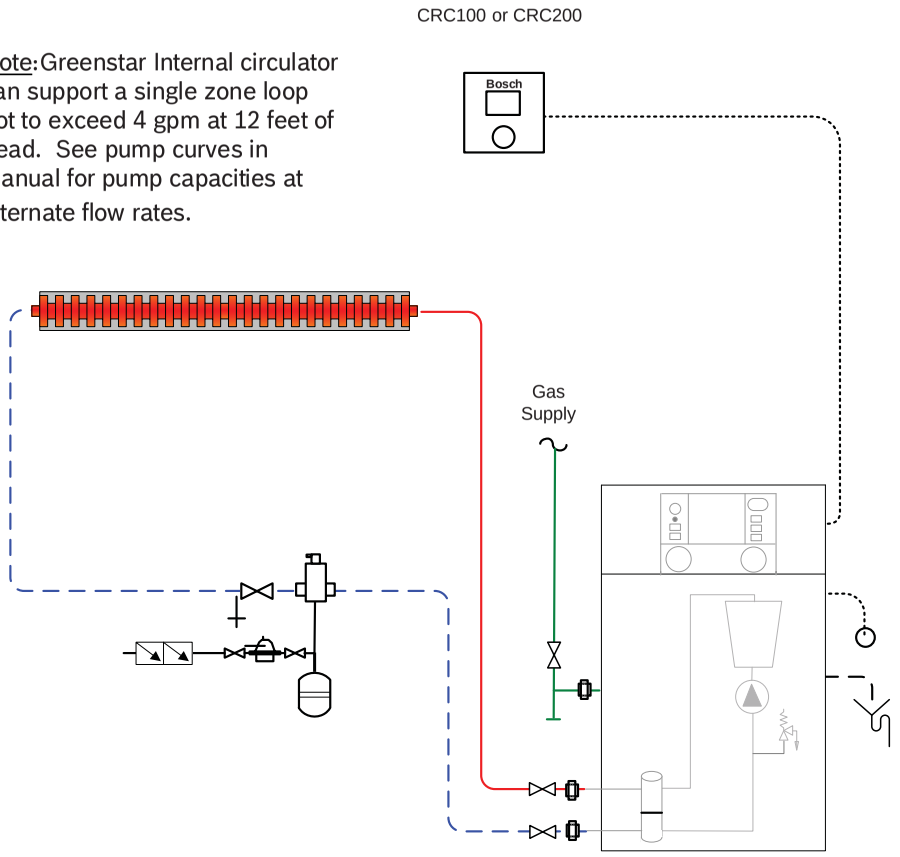
Created	
Released	
Changed	
Bases	
No.	.
State	

Bosch

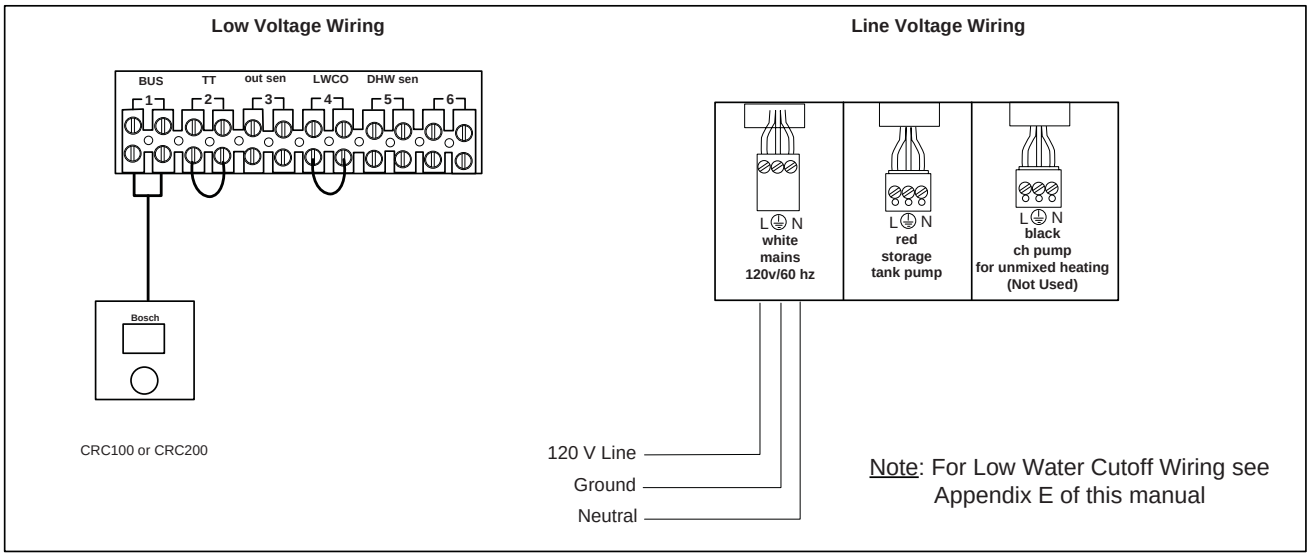
	PRV Relief piping
	Purge Drain
	Room Thermostat
	Condensate drain
	Relief valve & pressure gauge
	Back-flow preventer
	Isolation valve
	Outdoor air sensor
	Baseboard
	Expansion Tank
	Auto-Fill
	Air Eliminator

Note: Greenstar Internal circulator can support a single zone loop not to exceed 4 gpm at 12 feet of head. See pump curves in manual for pump capacities at alternate flow rates.



Note: Internal Low Loss Header in closed position

System #8



Wiring:

Low Voltage

► Wire Comfort Room Controller (CRC100 or CRC200) to Terminal # 1 on back of Greenstar FS Boiler

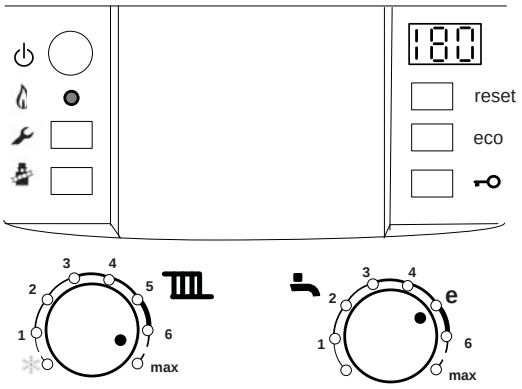
► See Appendix A for Room Controller Settings

Line Voltage

► Wire Main power supply (120 v) to White molex

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



System # 9

Multi Zone
Combi wall boiler
Circulators
Zone Relay

...

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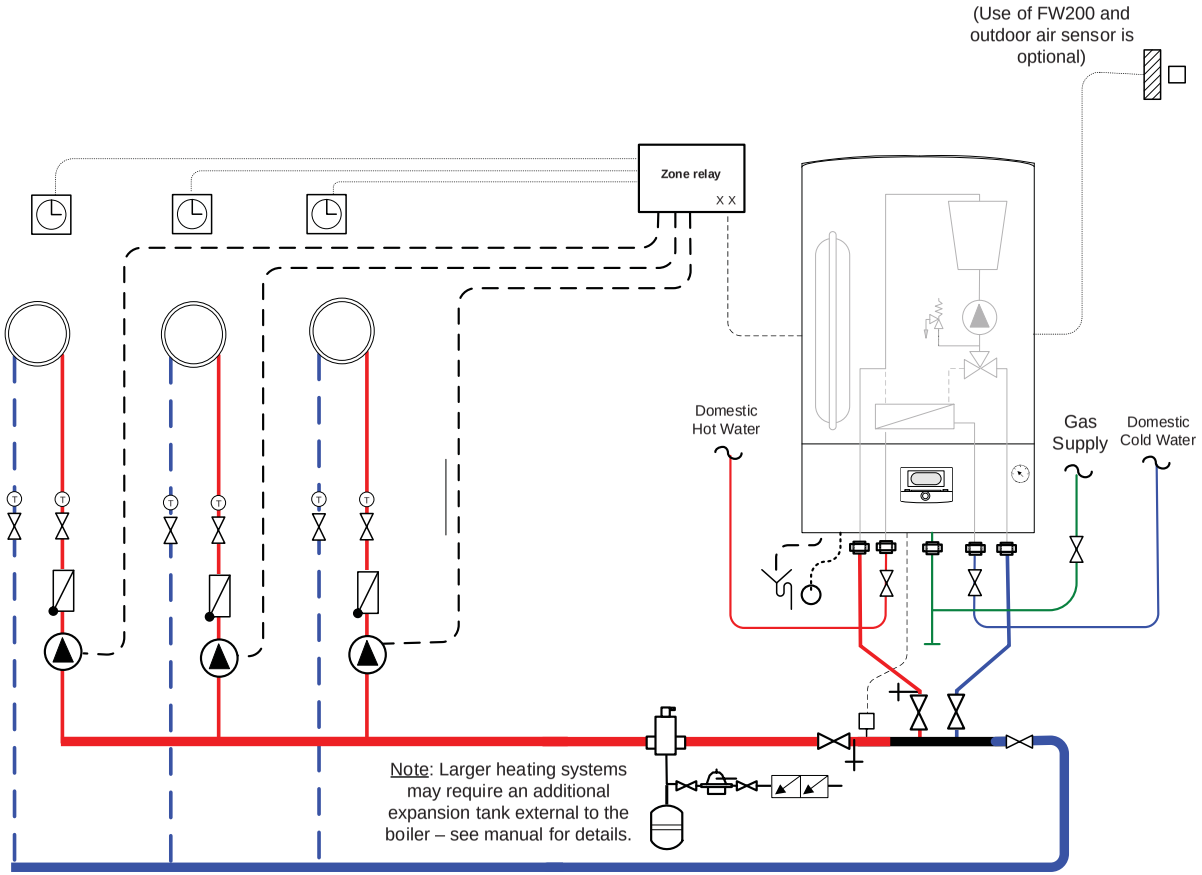
Created	
Released	
Changed	
Bases	
No.	
Date	

Bosch

	FW200
	Purge Drain
	Heating zone
	Auto-Fill
	Air Eliminator
	Flow Check
	Condensate drain
	Room Thermostat
	Expansion Tank
	PRV Relief Piping
	Back-flow preventer
	Shut-off valve
	Circulator
	Supply Sensor
	Outdoor Sensor



Note: See Appendix B for Primary/Secondary piping requirements

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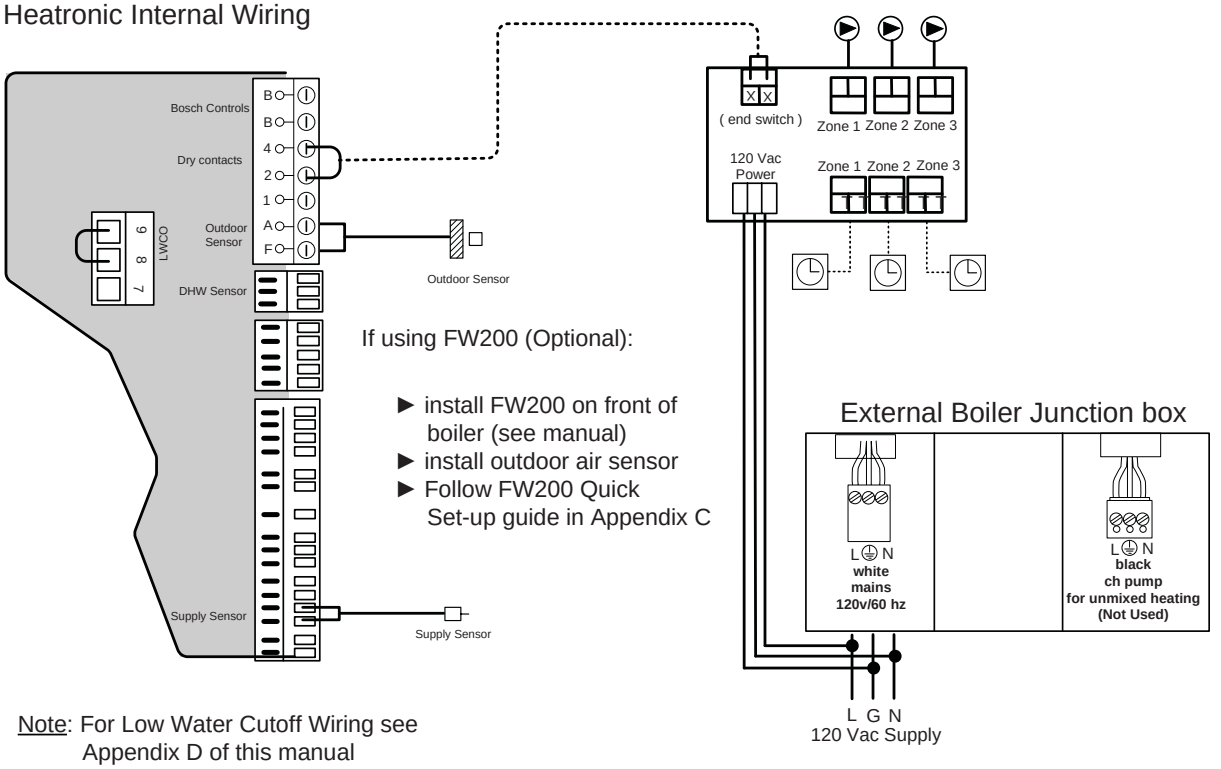
System # 9

Heatronic Internal Wiring



Note: For Low Water Cutoff Wiring see Appendix D of this manual

Wiring:

Low Voltage

► Remove factory jumper from terminal #2 & #4 and connect to End Switch of Mult-Zone relay (dry contacts only)

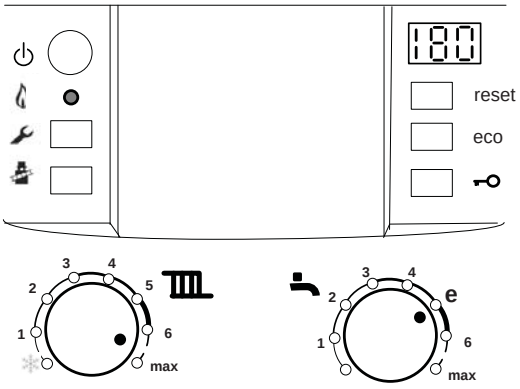
Line Voltage

► Wire Main power supply (120 v) to White molex of Boiler external junction box

► Wire 120 Vac power supply to zone relay

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



DHW thermostat	Typical DHW temperatures
min	approx. 59 °F (15 °C)
e	approx. 131 °F (55 °C)
max	approx. 158 °F (70 °C)

System # 10

Multi Zone
Combi wall boiler
Circulators
NSC Controls

...

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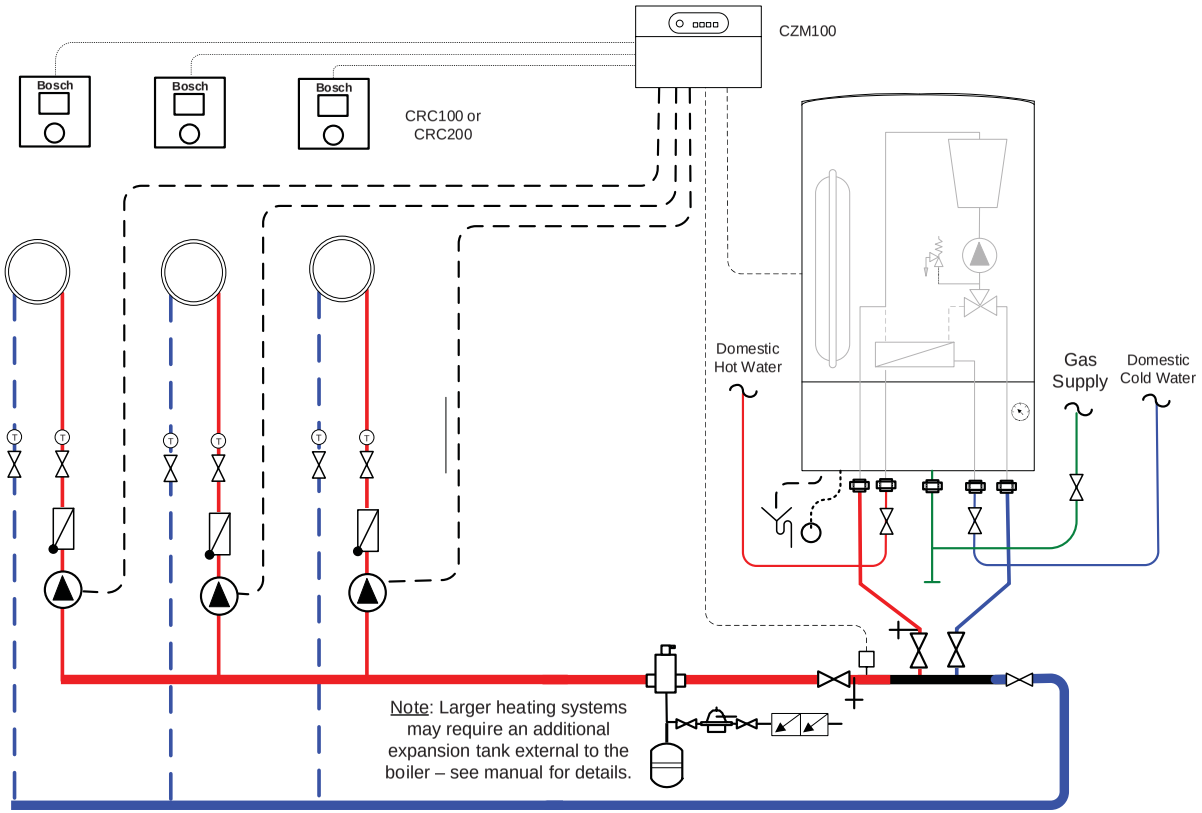
Created	
Released	
Changed	
Bases	
No.	
Date	

Bosch

	Comfort Zone Manager (CZM100)
	Purge Drain
	Heating zone
	Auto-Fill
	Air Eliminator
	Flow Check
	Condensate drain
	Room Thermostat
	Expansion Tank
	PRV Relief Piping
	Back-flow preventer
	Shut-off valve
	Circulator
	Supply Sensor
	Comfort Room Controller



Note: See Appendix B for Primary/Secondary piping requirements

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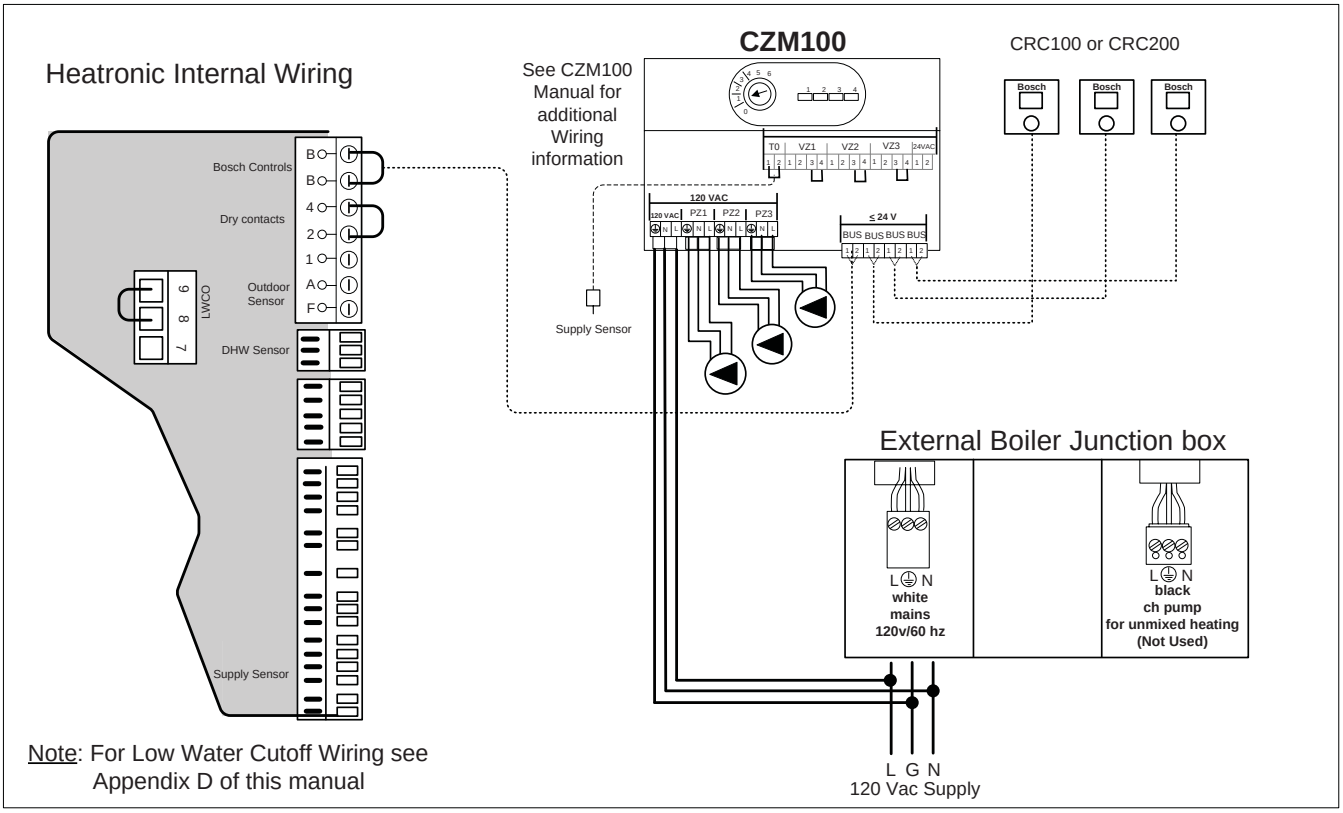
System #10



Note: For Low Water Cutoff Wiring see Appendix D of this manual

Wiring:

Low Voltage

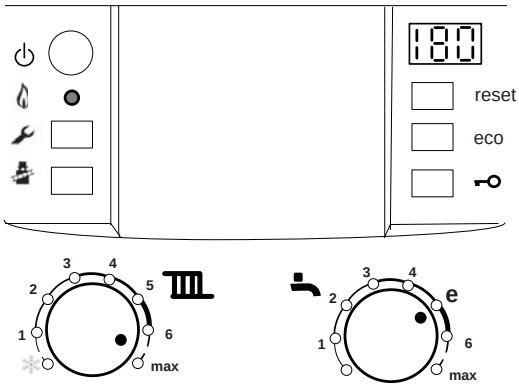
- ► Wire BUS terminal of CZM100 to Terminal BB of Greenstar boiler
- ► Wire CRC controllers to BUS terminals of CZM100
- ► See Appendix A for Room Controller Settings
- ► Wire Supply Sensor to “TO” connection on CZM100

Line Voltage

- ► Wire Main power supply (120 v) to White molex of Boiler (external junction box) and to 120 VAC input of CZM100
- ► Wire 120 VAC ouputs of PZ1, PZ2 and PZ3 of CZM100 to Zone Circulators

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



DHW thermostat	Typical DHW temperatures
min	approx. 59 °F (15 °C)
e	approx. 131 °F (55 °C)
max	approx. 158 °F (70 °C)

System # 11

Multi Zone
Combi floor boiler
Circulators
Zone Relay

...

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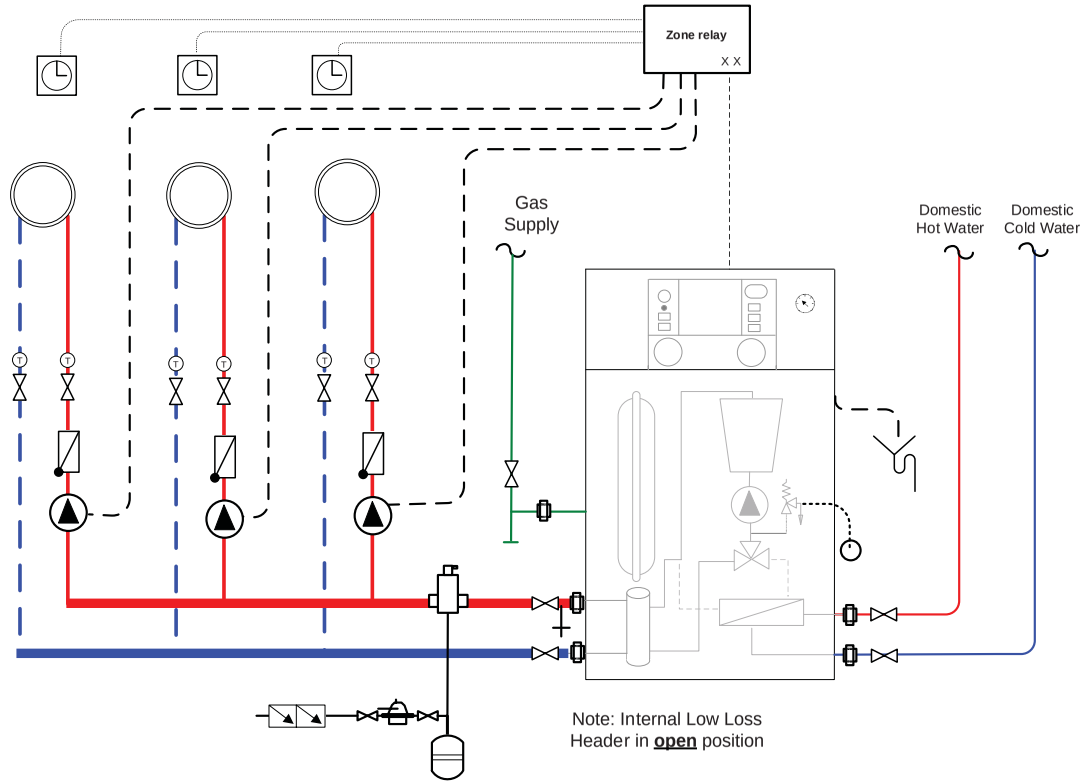
Created	
Released	
Changed	
Bases	
No.	
Date	

Bosch

	Purge Drain
	Heating zone
	Auto-Fill
	Air Eliminator
	Flow Check
	Condensate drain
	Room Thermostat
	Expansion Tank
	PRV Relief Piping
	Back-flow preventer
	Shut-off valve
	Circulator



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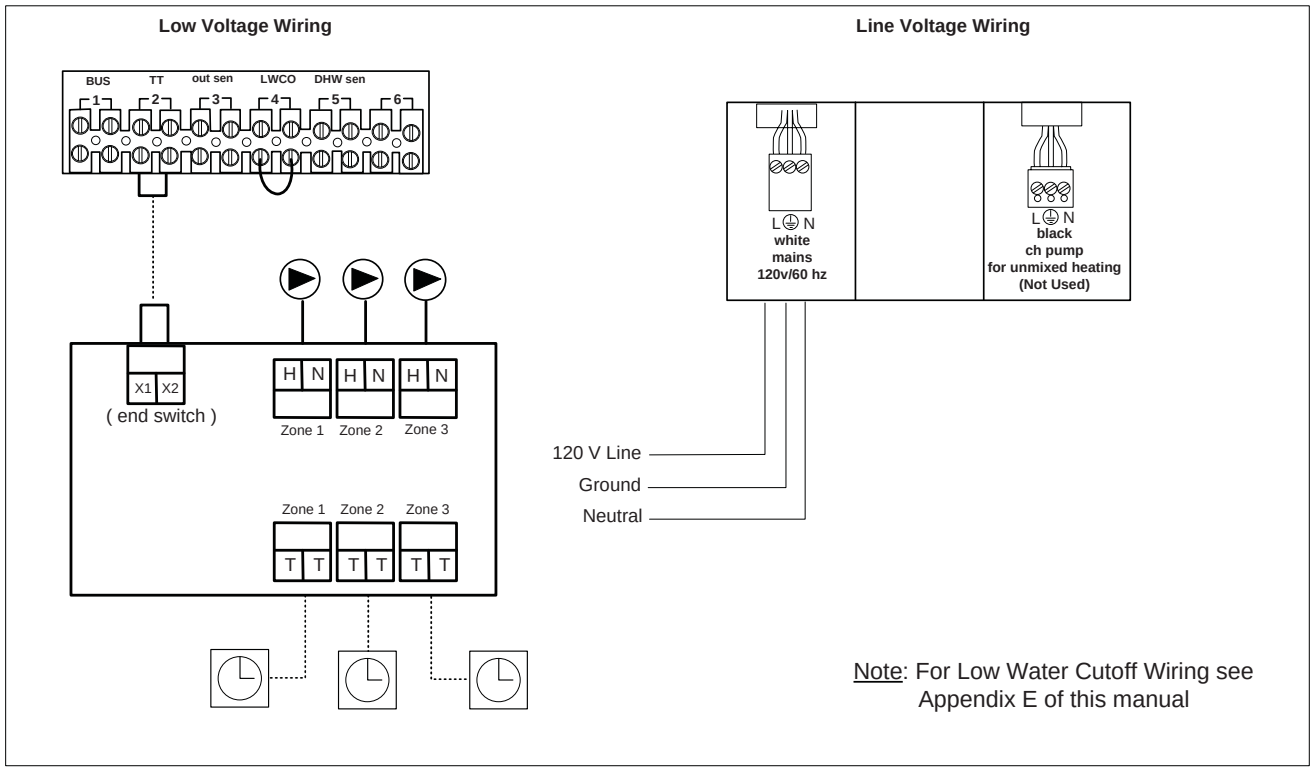
System #11



Wiring:

Low Voltage

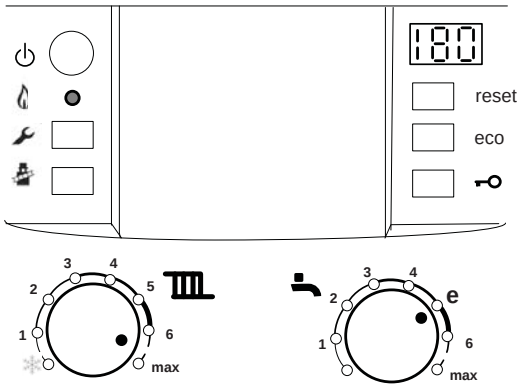
► Remove factory jumper from terminal #2 and connect End Switch of Mult-Zone relay (dry contacts only) to terminal #2

Line Voltage

► Wire Main power supply (120 v) to White molex of Boiler

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



DHW thermostat	Typical DHW temperatures
min	approx. 104 °F (40 °C)
e	approx. 122 °F (50 °C)
max	approx. 140 °F (60 °C)

System #12

Multi Zone
Combi floor boiler
Circulators
NSC Controls

...

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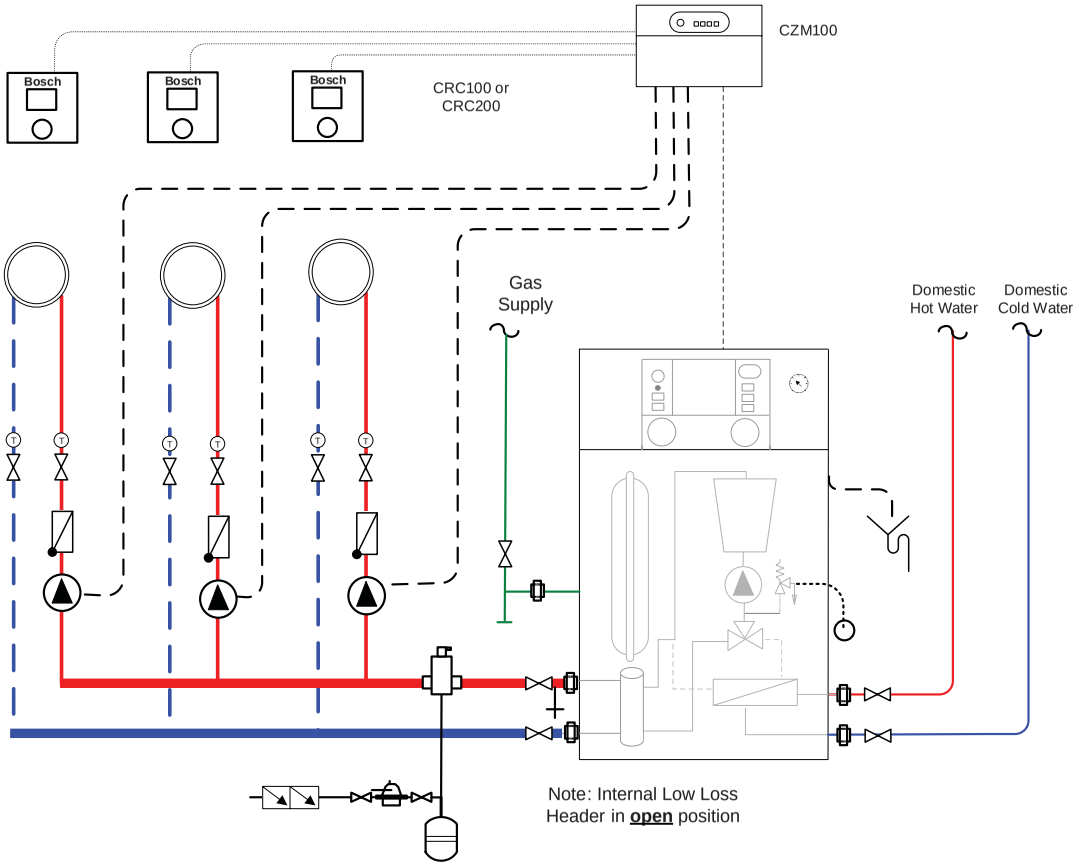
Created	
Released	
Changed	
Bases	
No.	
Date	

Bosch

	Comfort Zone Manager (CZM100)
	Purge Drain
	Heating zone
	Auto-Fill
	Air Eliminator
	Flow Check
	Condensate drain
	Comfort Room Controller
	Expansion Tank
	PRV Relief Piping
	Back-flow preventer
	Shut-off valve
	Circulator



Note: Larger heating systems may require an additional expansion tank external to the boiler – see manual for details.

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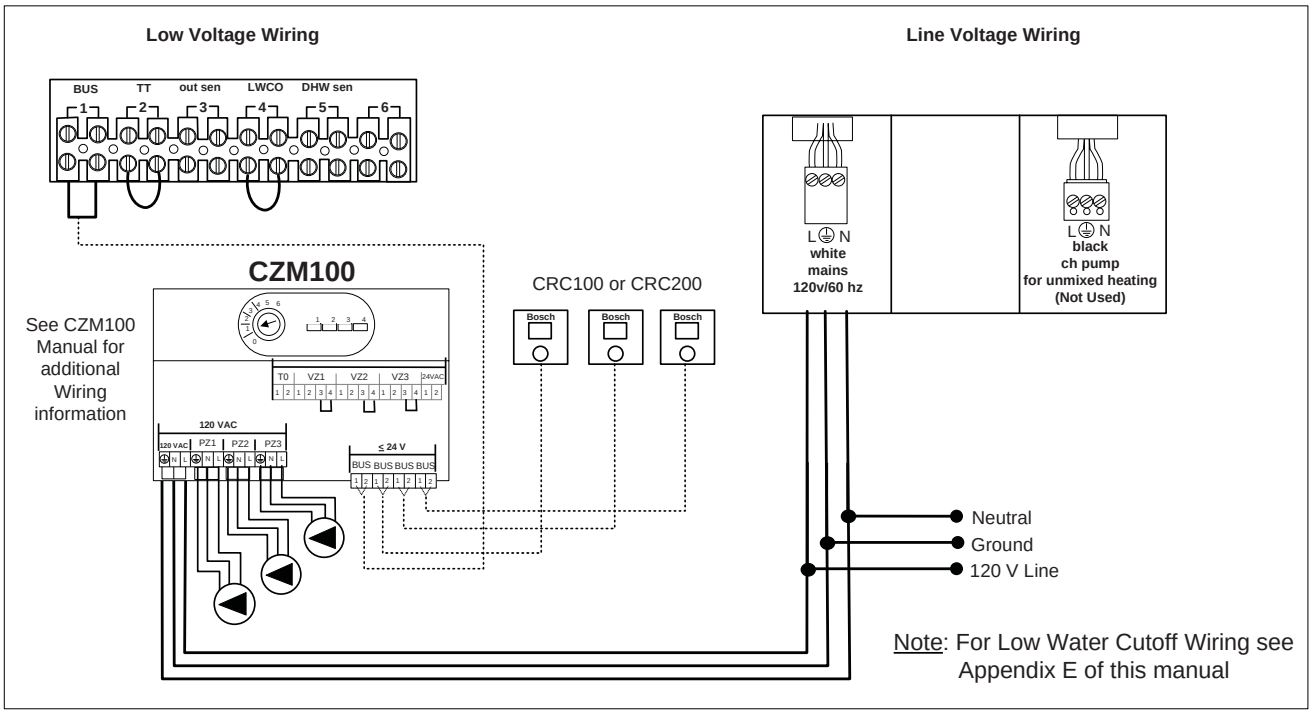
System #12



Wiring:

Low Voltage

► Wire BUS terminal of CZM100 to Terminal #1 of Greenstar FS boiler

► Wire CRC controllers to BUS terminals of CZM100

► See Appendix A for Room Controller Settings

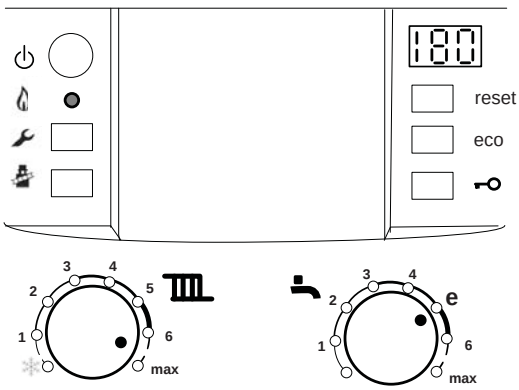
Line Voltage

► Wire Main power supply (120 v) to White molex of Boiler and to 120 VAC input of CZM100

► Wire 120 VAC ouputs of PZ1, PZ2 and PZ3 to Zone Circulators

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



DHW thermostat	Typical DHW temperatures
min	approx. 104 °F (40 °C)
e	approx. 122 °F (50 °C)
max	approx. 140 °F (60 °C)

System # 13

Multi Zone
Heat only wall boiler
Circulators
Indirect Tank
Zone Relay

...

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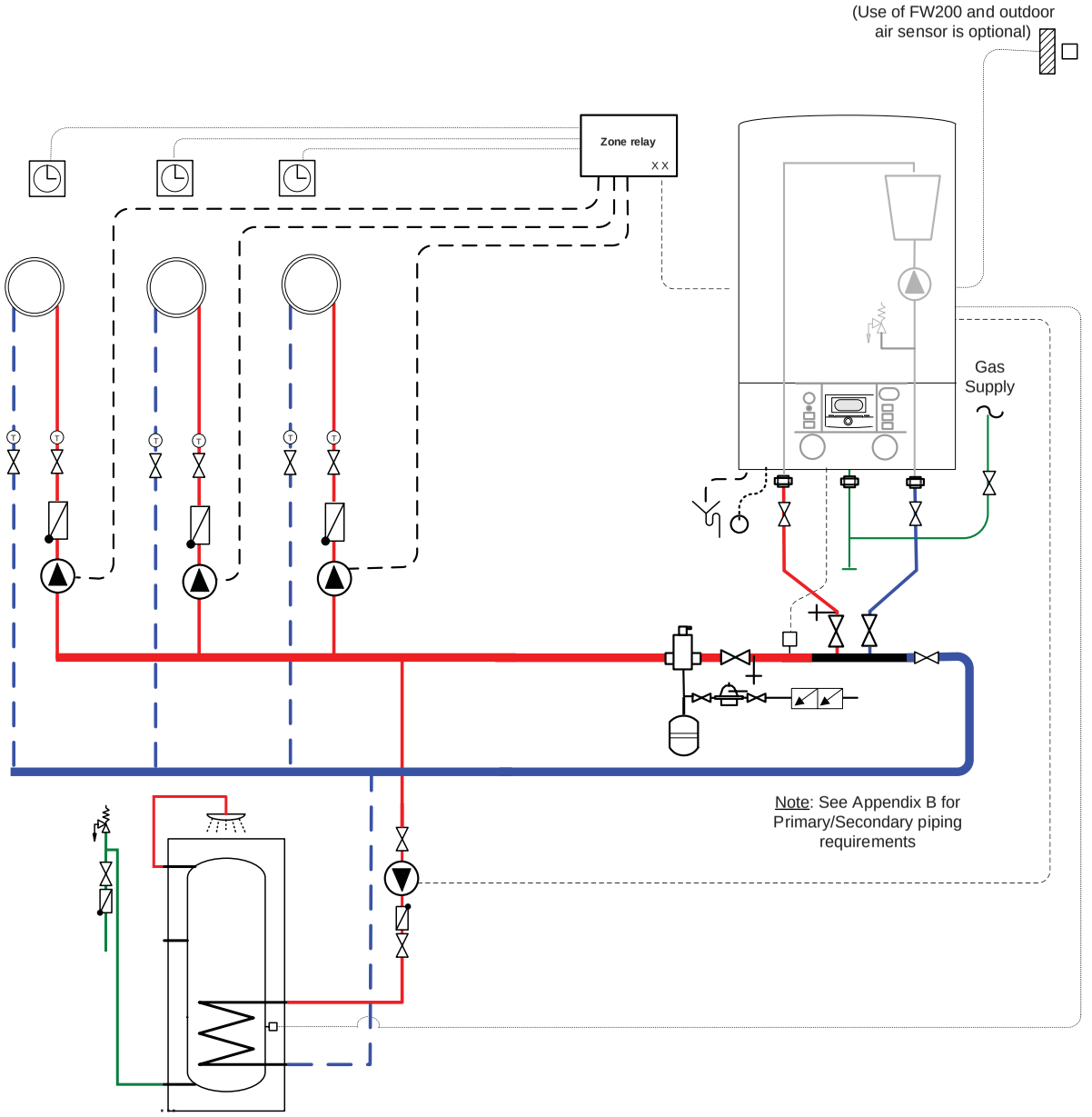
Created	
Released	
Changed	
Bases	

No.	
Date	

Bosch

	FW200
	DHW Thermistor
	Purge Drain
	Heating zone
	Auto-Fill
	Air Eliminator
	Flow Check
	Condensate drain
	Room Thermostat
	Expansion Tank
	PRV Relief Piping
	Back-flow preventer
	Shut-off valve
	Circulator
	Supply Sensor
	Outdoor Sensor



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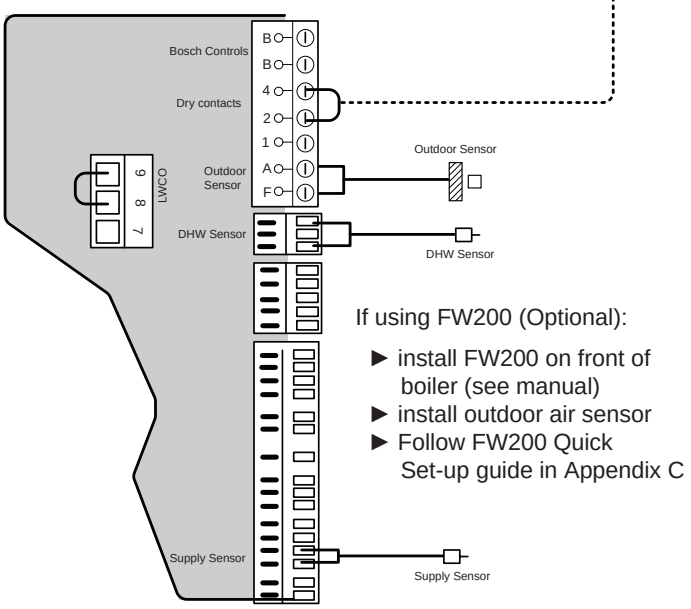
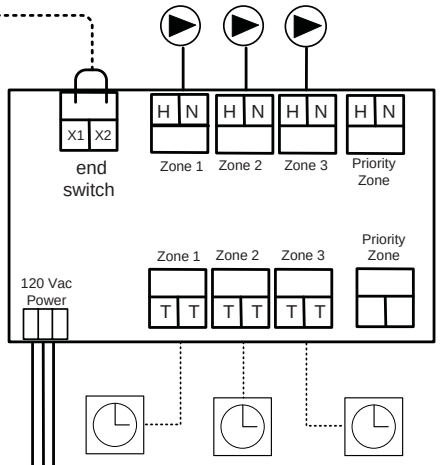
System # 13

Heatronic Internal Wiring



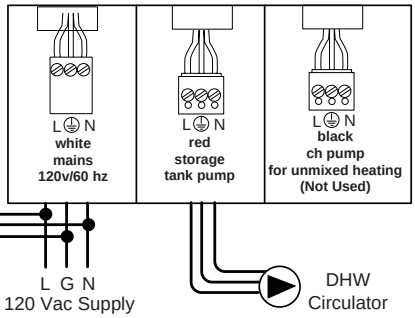
If using FW200 (Optional):

- ► install FW200 on front of boiler (see manual)
- ► install outdoor air sensor
- ► Follow FW200 Quick Set-up guide in Appendix C



Note: Only use a priority zone for DHW indirect zone when not using the FW200 outdoor reset control. If using FW200 wire as shown

External Boiler Junction box



Note: For Low Water Cutoff Wiring see Appendix D of this manual

Wiring:

Low Voltage

► Remove factory jumper from terminal #2 & #4 and connect to End Switch of Mult-Zone relay (dry contacts only)

Line Voltage

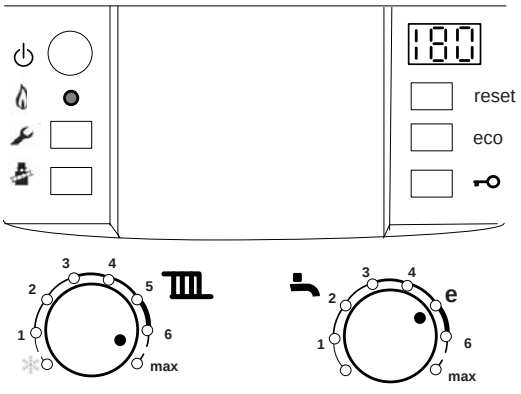
► Wire Main power supply (120 v) to White molex of Boiler (external junction box)

► Wire 120 Vac power supply to zone relay

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system

DHW thermostat	Typical DHW temperatures
min	approx. 59 °F (15 °C)
e	approx. 131 °F (55 °C)
max	approx. 158 °F (70 °C)



System # 14

Multi Zone
Heat only wall boiler
Circulators
Indirect Tank
NSC Controls

...

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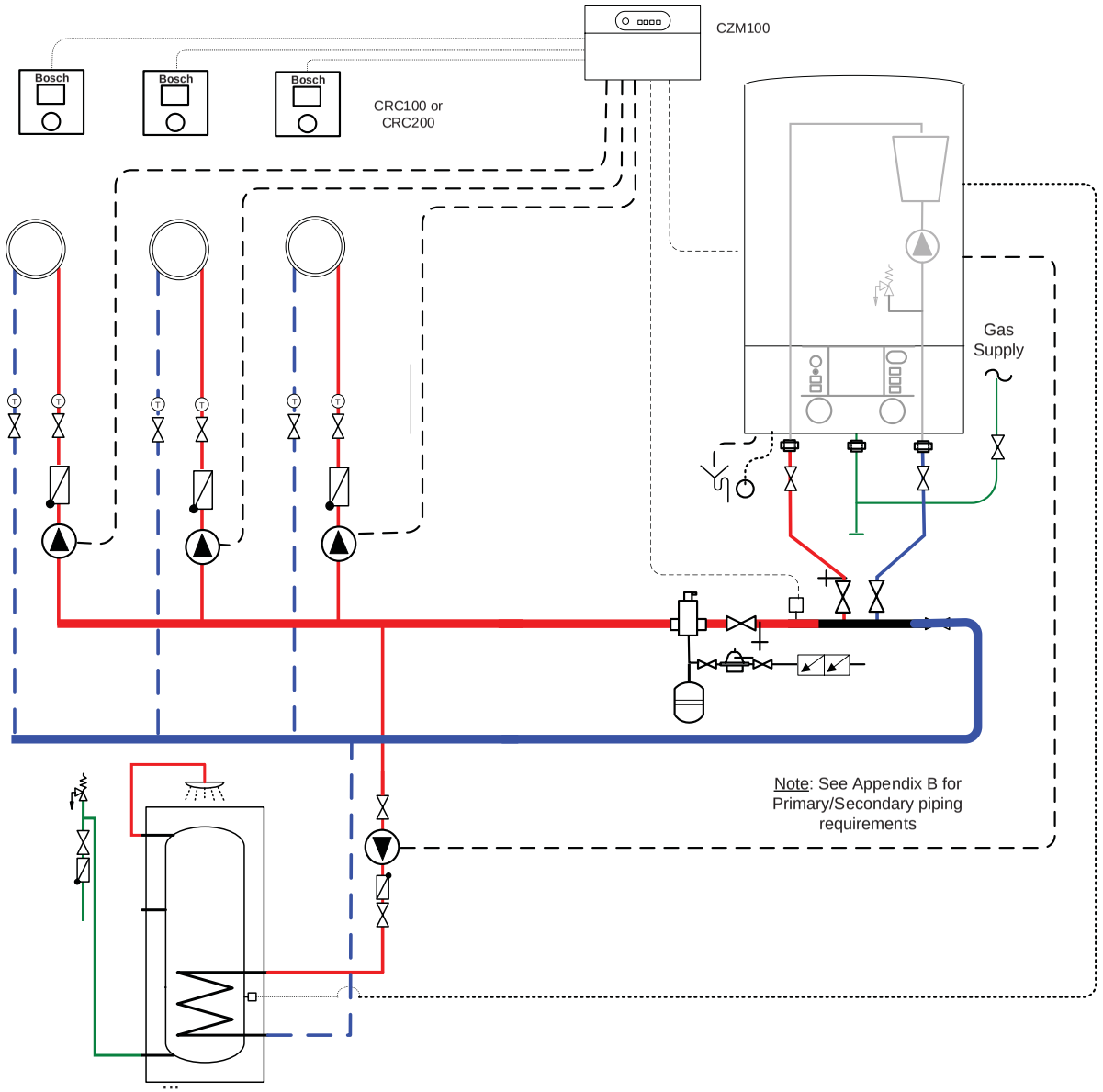
Created	
Released	
Changed	
Bases	

No.	
Date	

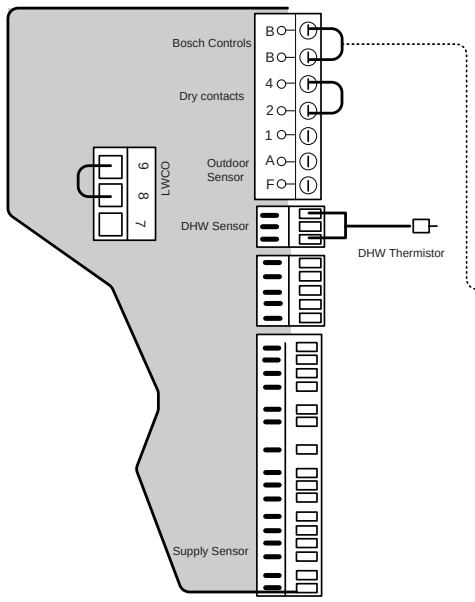
Bosch

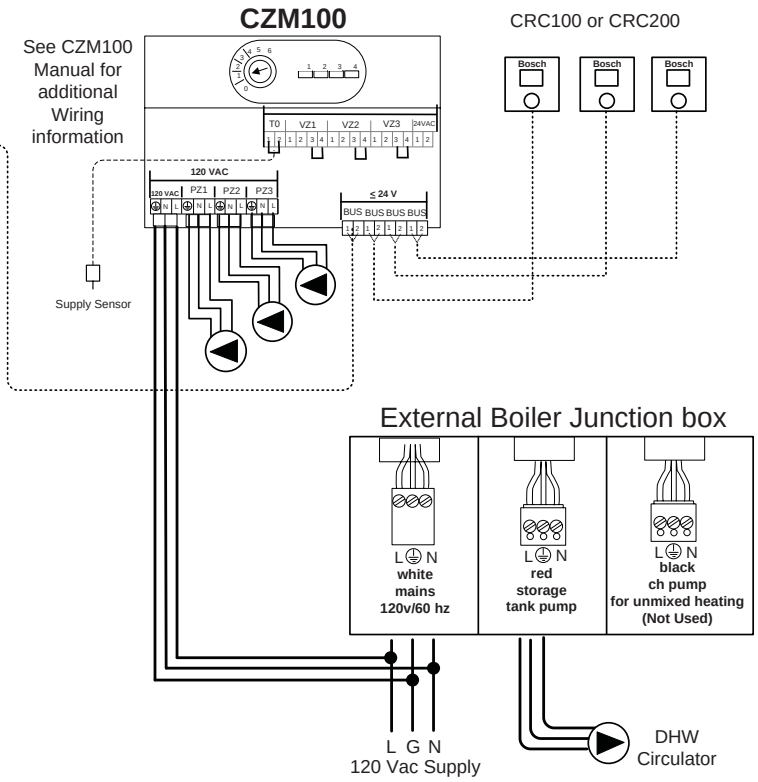
	Comfort Zone Manager (CZM100)
	Purge Drain
	Heating zone
	Auto-Fill
	Air Eliminator
	Flow Check
	Condensate drain
	Room Thermostat
	Expansion Tank
	PRV Relief Piping
	Back-flow preventer
	Shut-off valve
	Circulator
	Supply Sensor
	Comfort Room Controller



System #14

Heatronic Internal Wiring





Note: For Low Water Cutoff Wiring see Appendix D of this manual

Wiring:

Low Voltage

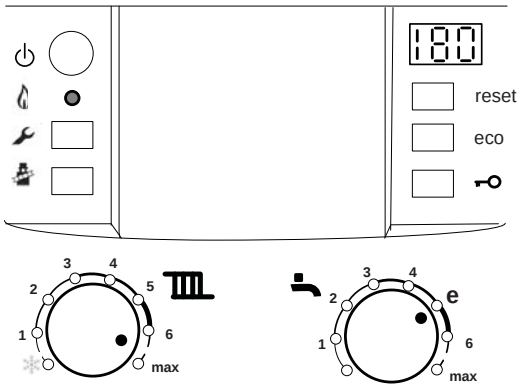
- ► Wire BUS terminal of CZM100 to Terminal BB of Greenstar boiler
- ► Wire CRC controllers to BUS terminals of CZM100 (See Appendix A for Room Controller Settings)
- ► Wire Greenstar Tank thermistor sensor to blue molex adaptor in Greenstar boiler wire harness
- ► Wire Supply Sensor to “TO” connection of CZM100

Line Voltage

- ► Wire Main power supply (120 v) to White molex of Boiler (external junction box) and to 120 VAC input of CZM100
- ► Wire 120 VAC ouputs of PZ1, PZ2 and PZ3 of CZM100 to Zone Circulators
- ► Wire 120 VAC of Red Molex to DHW Circulator

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



DHW thermostat	Typical DHW temperatures
min	approx. 59 °F (15 °C)
e	approx. 131 °F (55 °C)
max	approx. 158 °F (70 °C)

System # 15

Multi Zone
Heat only floor boiler
Circulators
Indirect Tank
Zone Relay

...

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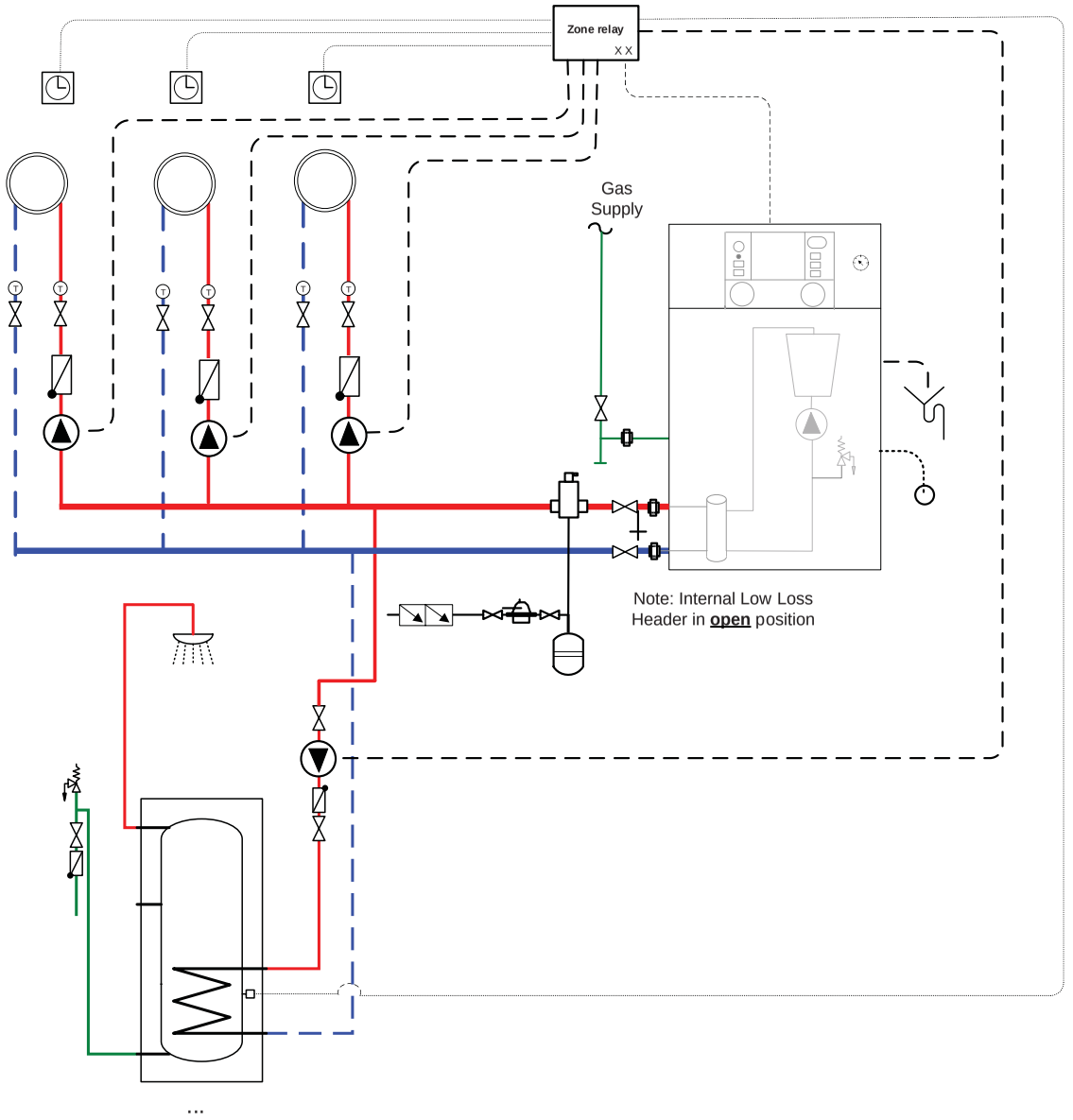
Created	
Released	
Changed	
Bases	

No.	
Date	

Bosch

	Purge Drain
	DHW Aquastat
	Heating zone
	Auto-Fill
	Air Eliminator
	Flow Check
	Condensate drain
	Room Thermostat
	Expansion Tank
	PRV Relief Piping
	Back-flow preventer
	Shut-off valve
	Relief Valve
	Domestic Hot Water
	Circulator



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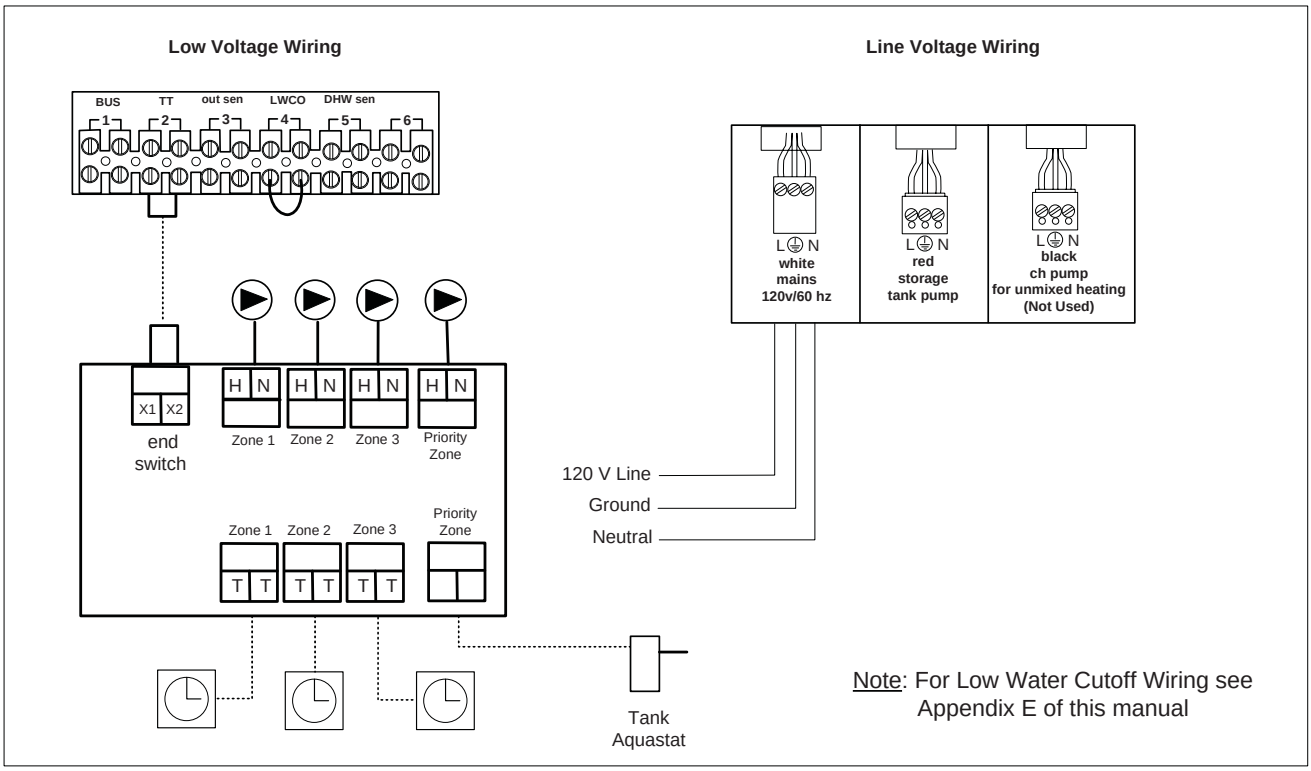
System #15



Wiring:

Low Voltage

► Remove factory jumper from terminal #2 and connect End Switch of Mult-Zone relay (dry contacts only) to terminal #2

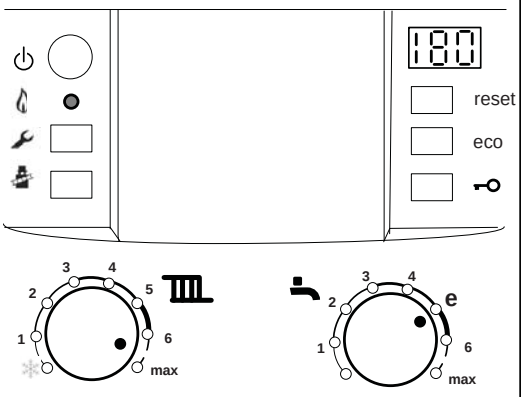
Line Voltage

► Wire Main power supply (120 v) to White molex of Boiler

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system

DHW thermostat	Typical DHW temperatures
min	approx. 59 °F (15 °C)
e	approx. 131 °F (55 °C)
max	approx. 158 °F (70 °C)



System # 16

Multi Zone
Heat only floor boiler
Circulators
Indirect Tank
NSC Controls

...

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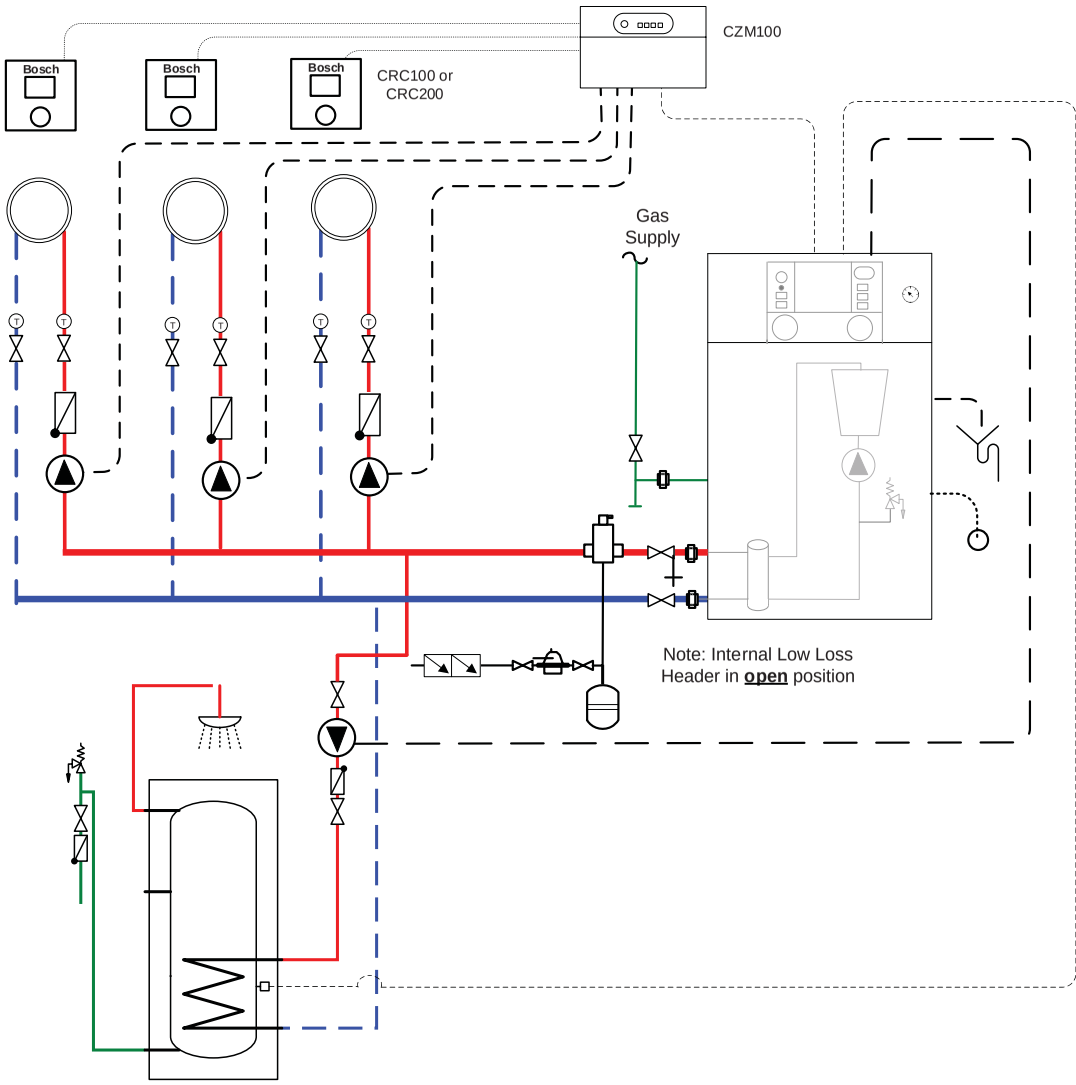
Created	
Released	
Changed	
Bases	

No.	
Date	

Bosch

	Comfort Zone Manager (CZM100)
	Purge Drain
	DHW Sensor
	Heating zone
	Auto-Fill
	Air Eliminator
	Flow Check
	Condensate drain
	Comfort Room Controller
	Expansion Tank
	PRV Relief Piping
	Back-flow preventer
	Shut-off valve
	Relief Valve
	Domestic Hot Water
	Circulator



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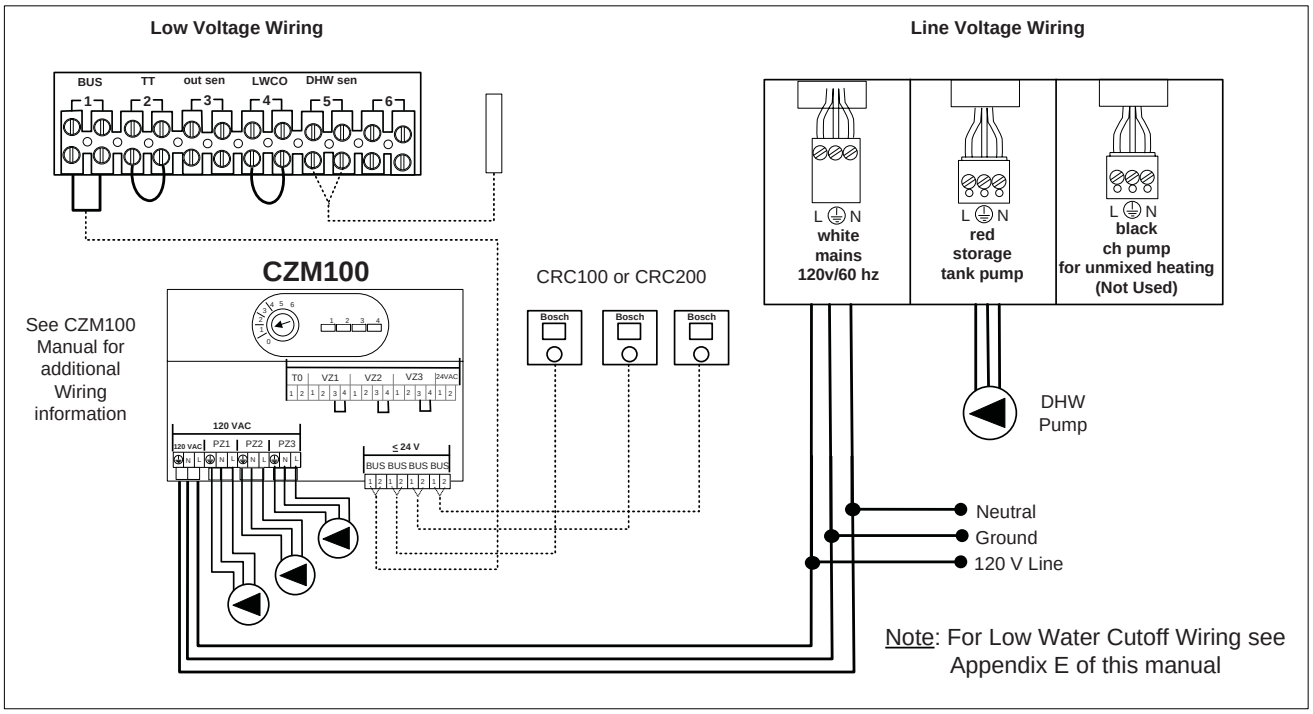
System #16



Wiring:

Low Voltage

► Wire BUS terminal of CZM100 to Terminal #1 of Greenstar FS boiler

► Wire CRC controllers to BUS terminals of CZM100

► Wire Greenstar Tank sensor to Terminal #5 of Greenstar FS boiler

► See Appendix A for Room Controller Settings

Line Voltage

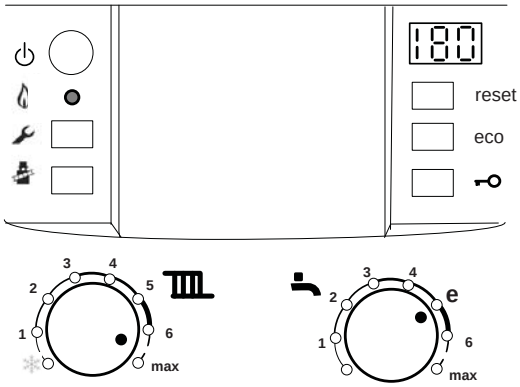
► Wire Main power supply (120 v) to White molex of Boiler and to 120 VAC input of CZM100

► Wire 120 VAC ouputs of PZ1, PZ2 and PZ3 to Zone Circulators

► Wire Red molex on back of Greenstar FS boiler to DHW indirect tank pump

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



DHW thermostat	Typical DHW temperatures
min	approx. 59 °F (15 °C)
e	approx. 131 °F (55 °C)
max	approx. 158 °F (70 °C)

System #17

Multi Zone
Combi wall boiler
Zone Valves
Zone Relay

...

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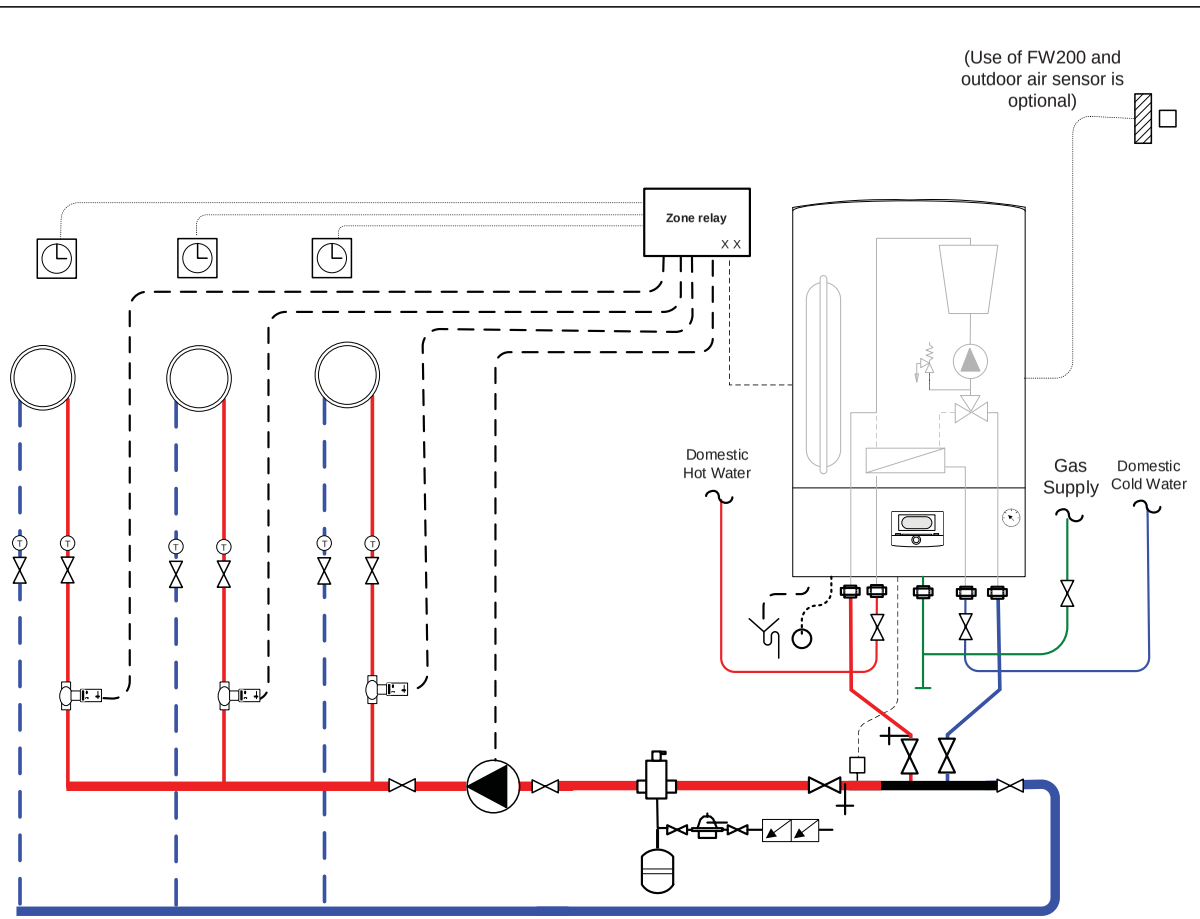
Created	
Released	
Changed	
Bases	

No.	
Date	

Bosch

	Supply Sensor
	Outdoor Sensor
	FW200
	Purge Drain
	Heating zone
	Auto-Fill
	Air Eliminator
	Flow Check
	Condensate drain
	Room Thermostat
	Expansion Tank
	PRV Relief Piping
	Back-flow preventer
	Shut-off valve
	Circulator
	Zone Valve



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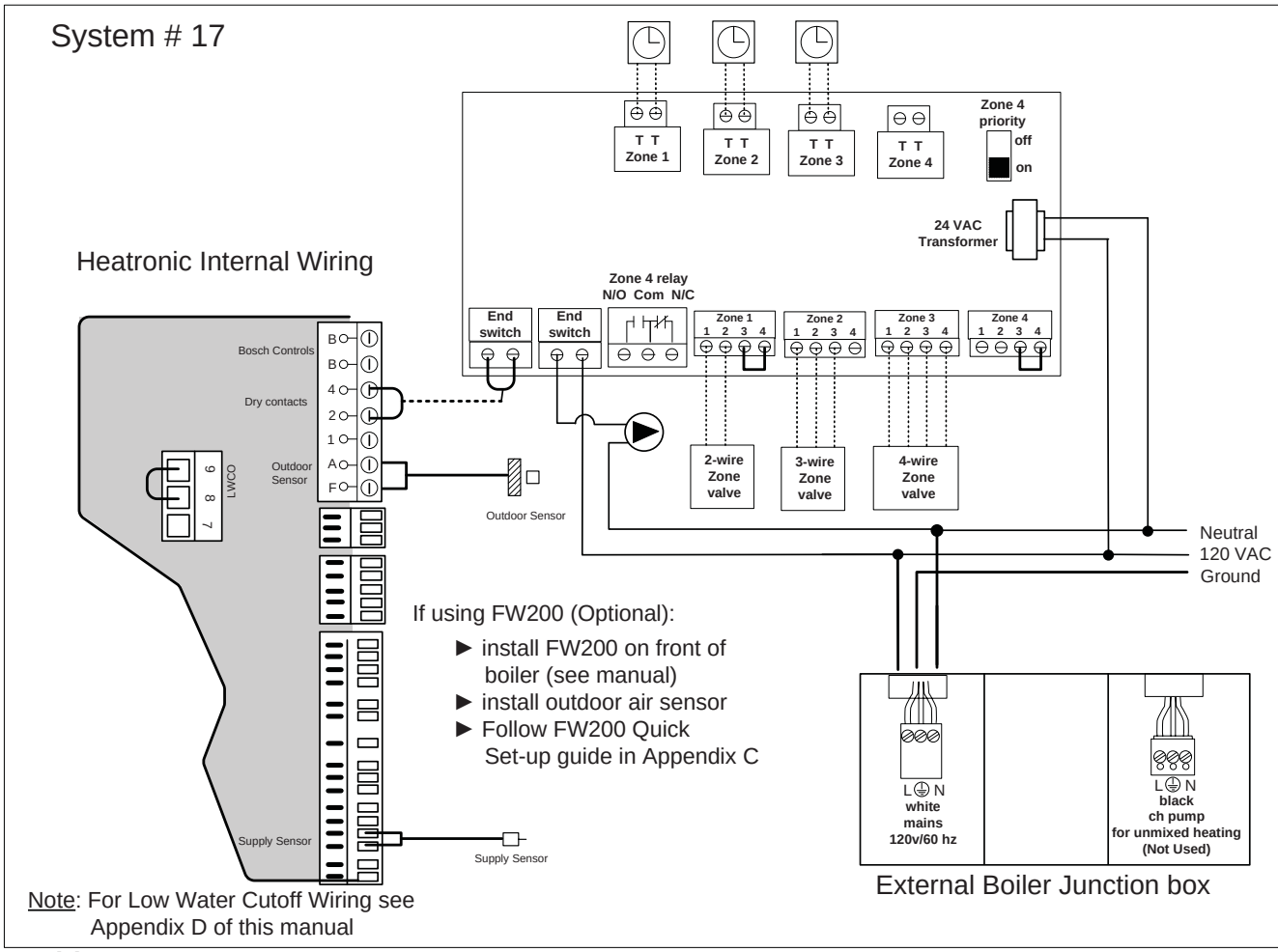
System # 17



Note: For Low Water Cutoff Wiring see Appendix D of this manual

Wiring:

Low Voltage

► Remove factory jumper from terminal #2 & #4 and connect to End Switch of Mult-Zone relay (dry contacts only)

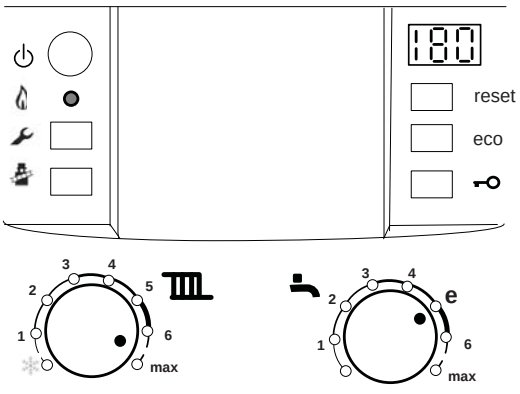
Line Voltage

► Wire Main power supply (120 v) to White molex of Boiler external junction box

► Wire 120 Vac power supply to zone relay

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



DHW thermostat	Typical DHW temperatures
min	approx. 104 °F (40 °C)
e	approx. 122 °F (50 °C)
max	approx. 140 °F (60 °C)

System # 18

Multi Zone
Combi wall boiler
Zone Valves
NSC Controls

...

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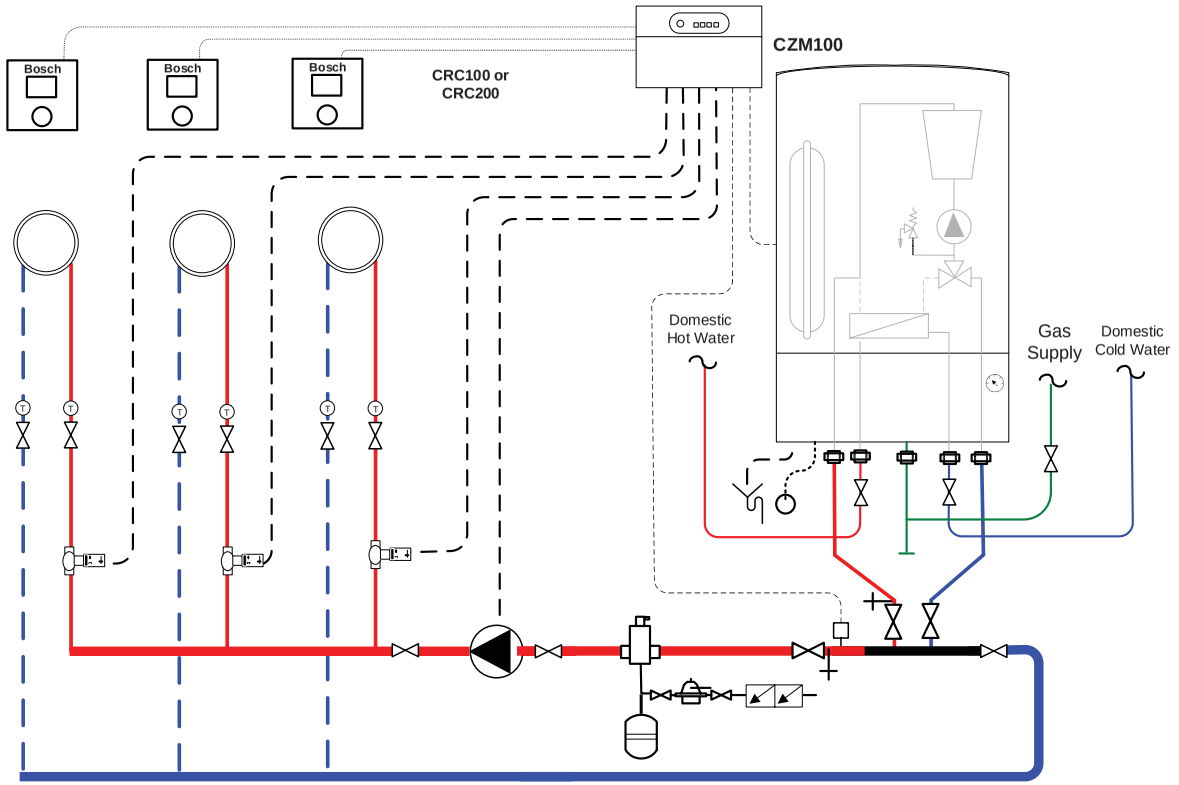
Created	
Released	
Changed	
Bases	
No.	
Date	

Bosch

	Supply Sensor
	Comfort Zone Manager
	Purge Drain
	Heating zone
	Auto-Fill
	Air Eliminator
	Flow Check
	Condensate drain
	Comfort Room Controller
	Expansion Tank
	PRV Relief Piping
	Back-flow preventer
	Shut-off valve
	Circulator
	Zone Valve



Note: Larger heating systems may require an additional expansion tank external to the boiler – see manual for details.

Note: See Appendix B for Primary/Secondary piping requirements

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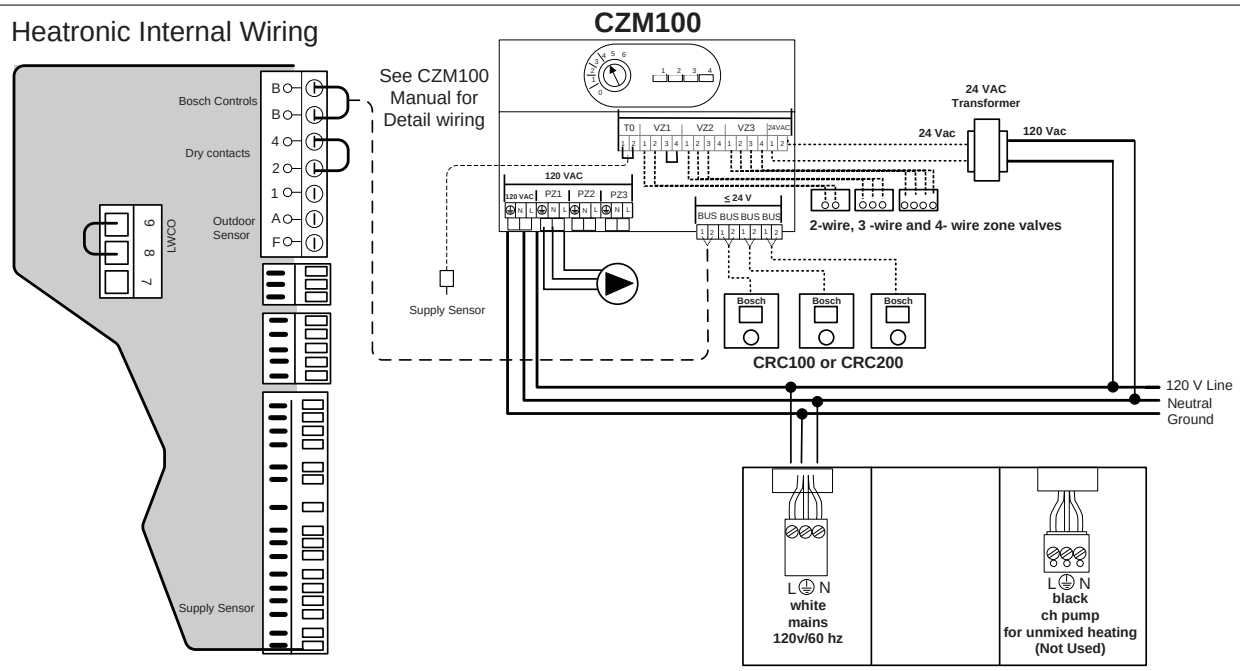
System # 18

Heatronic Internal Wiring



Note: For Low Water Cutoff Wiring see Appendix D of this manual

Wiring:

Low Voltage

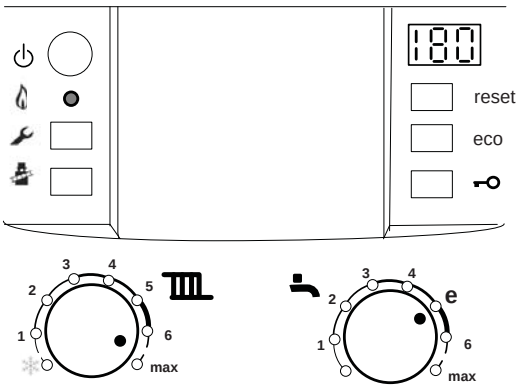
► Wire BUS terminal of CZM100 to Terminal BB of Greenstar boiler Heatronic control
► Wire CRC controllers to BUS terminals of CZM100 (See Appendix A for Room Controller Settings)
► Provide 24 Vac from transformer to Terminals 1 and 2 of CZM100 labeled “24 VAC”
►Wire zone valves to “VZ” terminals of CZM100 – remove jumper from terminal 3 and 4 for 3-wire and 4-wire zone valves
► Wire Supply Sensor to “TO” connection of CZM100

Line Voltage

► Wire Main power supply (120 v) to White molex of Boiler (external junction box) and to 120 VAC input of CZM100
► Wire 120 VAC ouput of PZ1 to system pump

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



DHW thermostat	Typical DHW temperatures
min	approx. 104 °F (40 °C)
e	approx. 122 °F (50 °C)
max	approx. 140 °F (60 °C)

System #19

Multi Zone
Combi floor boiler
Zone Valves
Zone Relay

...

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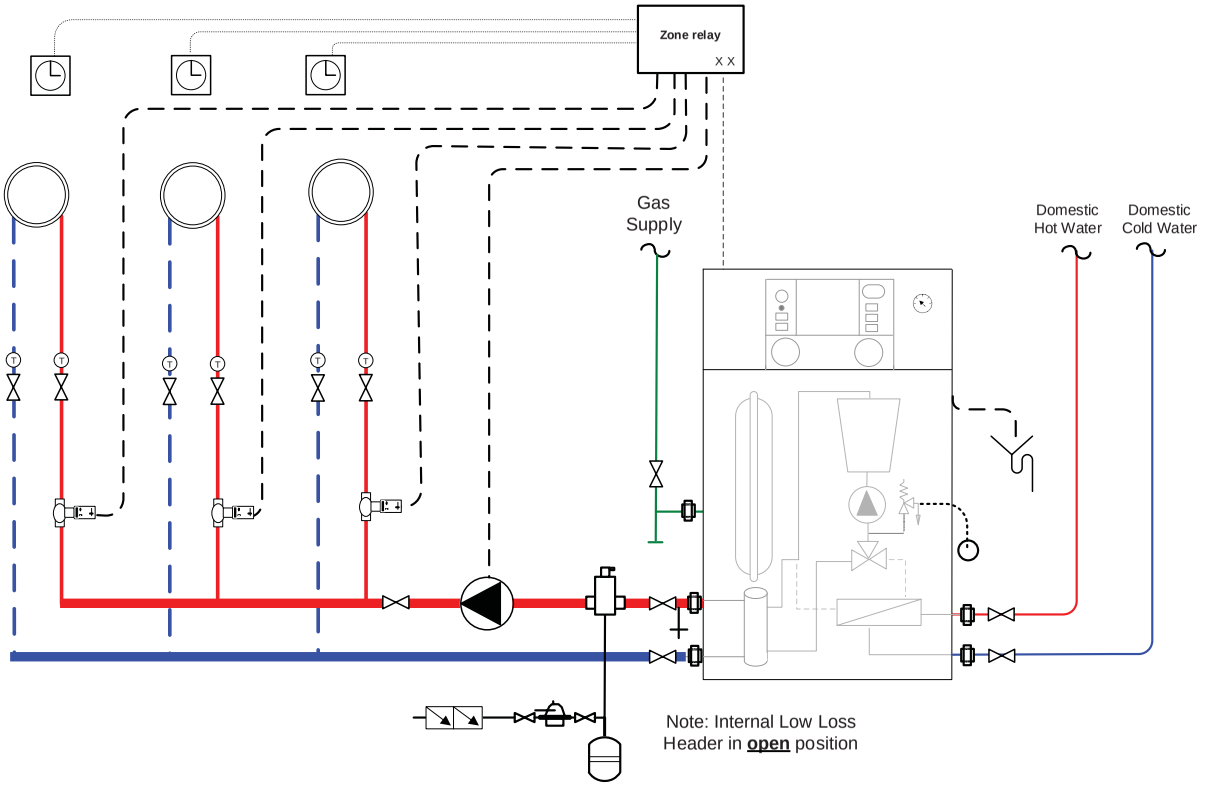
Created	
Released	
Changed	
Bases	
No.	
Date	

Bosch

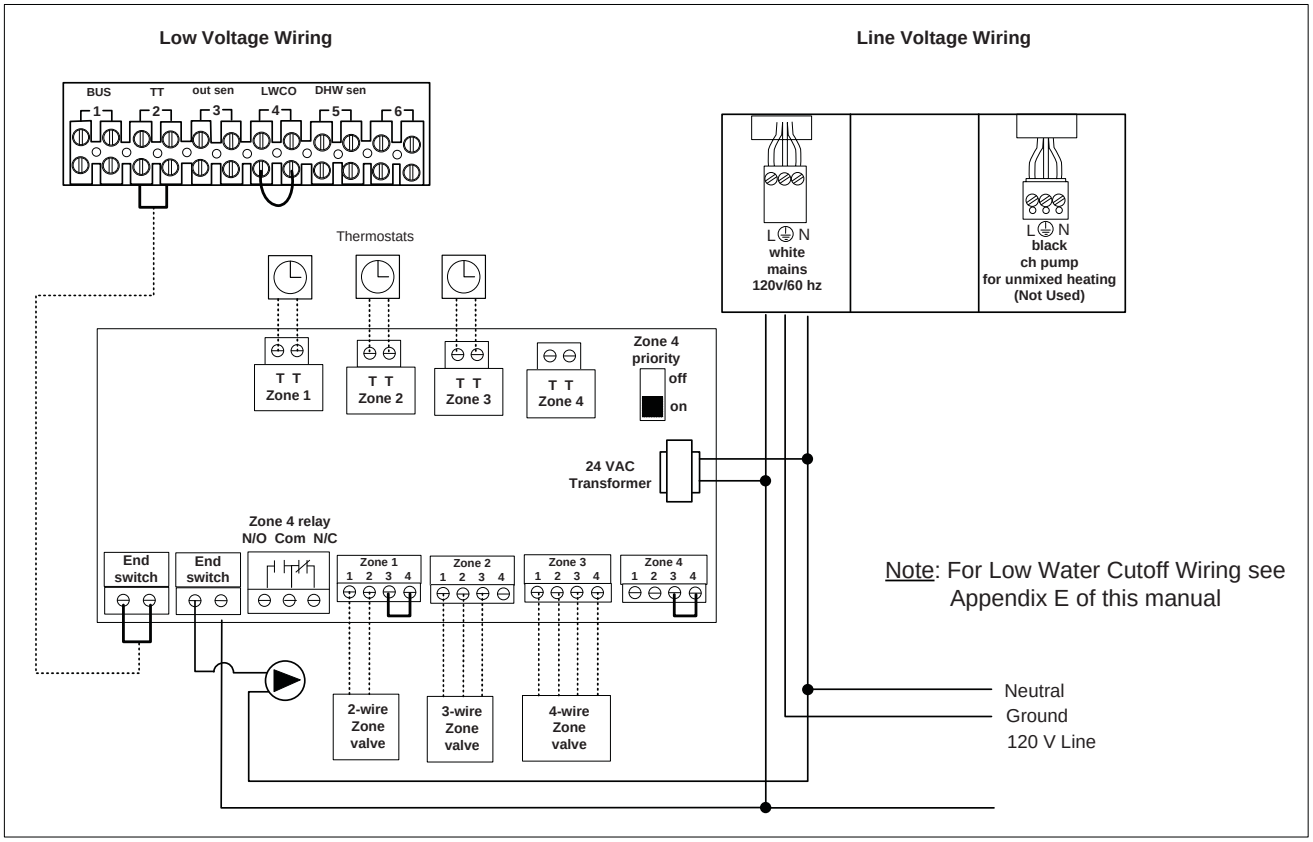
	Purge Drain
	Heating zone
	Auto-Fill
	Air Eliminator
	Flow Check
	Condensate drain
	Room Thermostat
	Expansion Tank
	PRV Relief Piping
	Back-flow preventer
	Shut-off valve
	Circulator
	Zone Valve



Note: Larger heating systems may require an additional expansion tank external to the boiler – see manual for details.

...

System # 19



Note: For Low Water Cutoff Wiring see Appendix E of this manual

Wiring:

Low Voltage

► Remove factory jumper from terminal #2 and connect End Switch of Multi-Zone relay (dry contacts only) to terminal #2

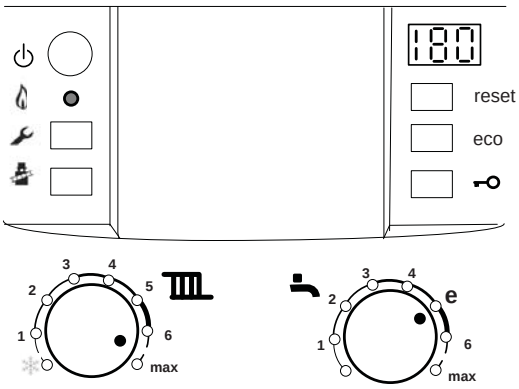
Line Voltage

► Wire Main power supply (120 v) to White molex of Boiler

► Wire System circulator to Zone Relay end switch

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



DHW thermostat	Typical DHW temperatures
min	approx. 59 °F (15 °C)
e	approx. 131 °F (55 °C)
max	approx. 158 °F (70 °C)

System # 20

Multi Zone
Combi floor boiler
Zone Valves
NSC Controls

...

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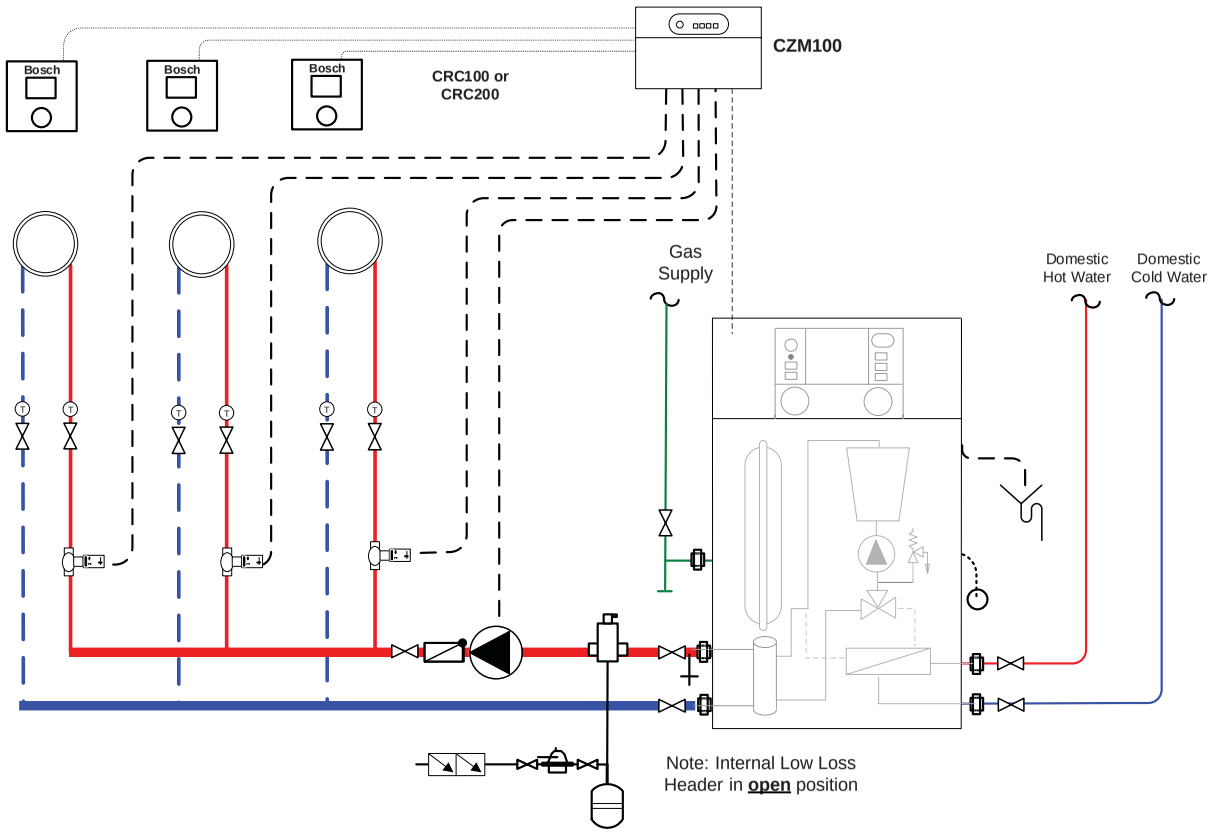
Created	
Released	
Changed	
Bases	
No.	
Date	

Bosch

	Comfort Zone Manager
	Purge Drain
	Heating zone
	Auto-Fill
	Air Eliminator
	Flow Check
	Condensate drain
	Comfort Room Controller
	Expansion Tank
	PRV Relief Piping
	Back-flow preventer
	Shut-off valve
	Circulator
	Zone Valve



Note: Larger heating systems may require an additional expansion tank external to the boiler – see manual for details.

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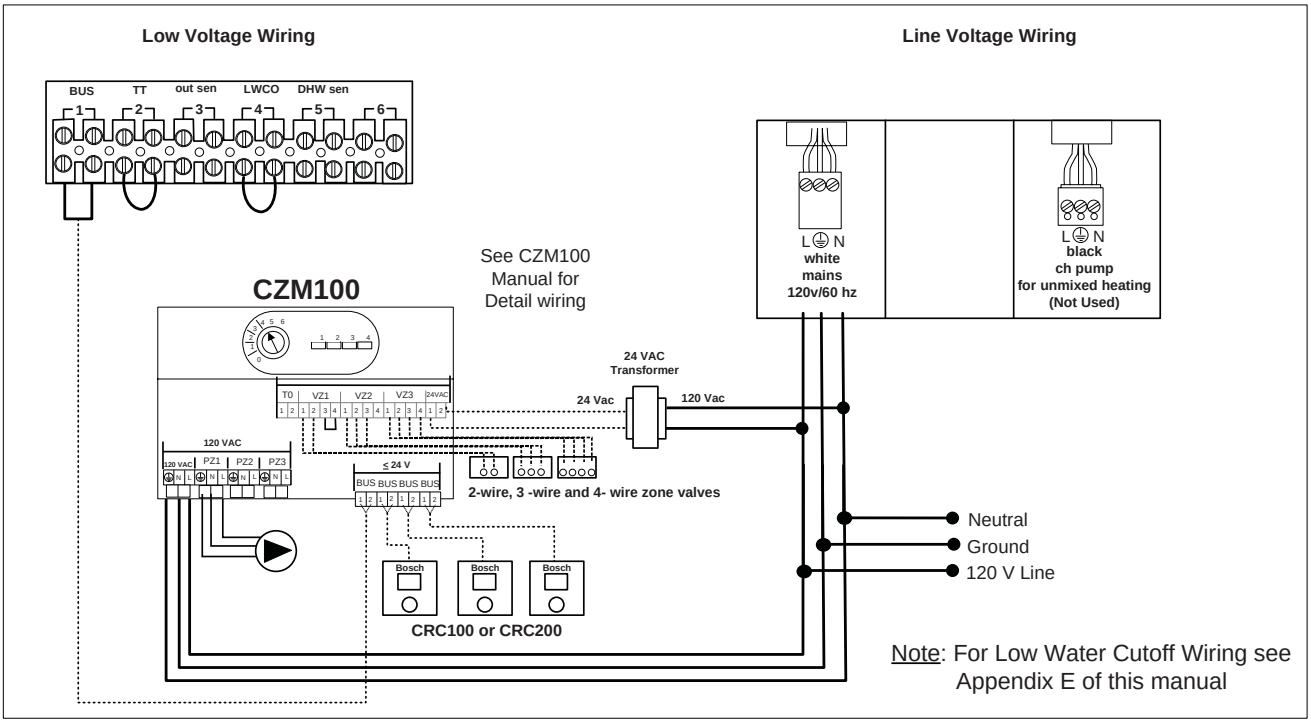
System #20



Wiring:

Low Voltage

► Wire BUS terminal of CZM100 to Terminal #1 of Greenstar FS boiler

► Wire CRC controllers to BUS terminals of CZM100

► Provide 24 Vac from transformer to Terminals 1 and 2 of CZM100 labeled “24 VAC”

►Wire zone valves to “VZ” terminals of CZM100 – remove jumper from terminal 3 and 4 for 3-wire and 4-wire zone valves

► See Appendix A for Room Controller Settings

Line Voltage

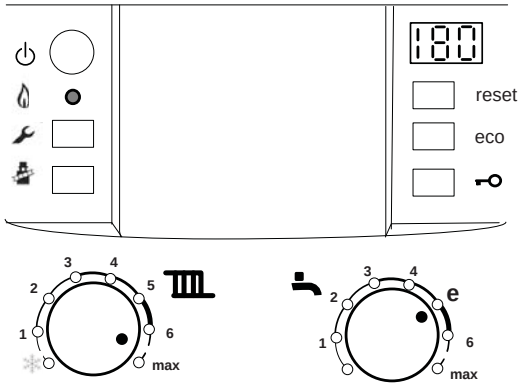
► Wire Main power supply (120 v) to White molex of Boiler and to 120 VAC input of CZM100

► Wire 120 VAC ouput of PZ1 to system pump

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system

DHW thermostat	Typical DHW temperatures
min	approx. 104 °F (40 °C)
e	approx. 122 °F (50 °C)
max	approx. 140 °F (60 °C)



System #21

Multi Zone
Heat only wall boiler
Zone Valves
Indirect Tank
Zone Relay

...

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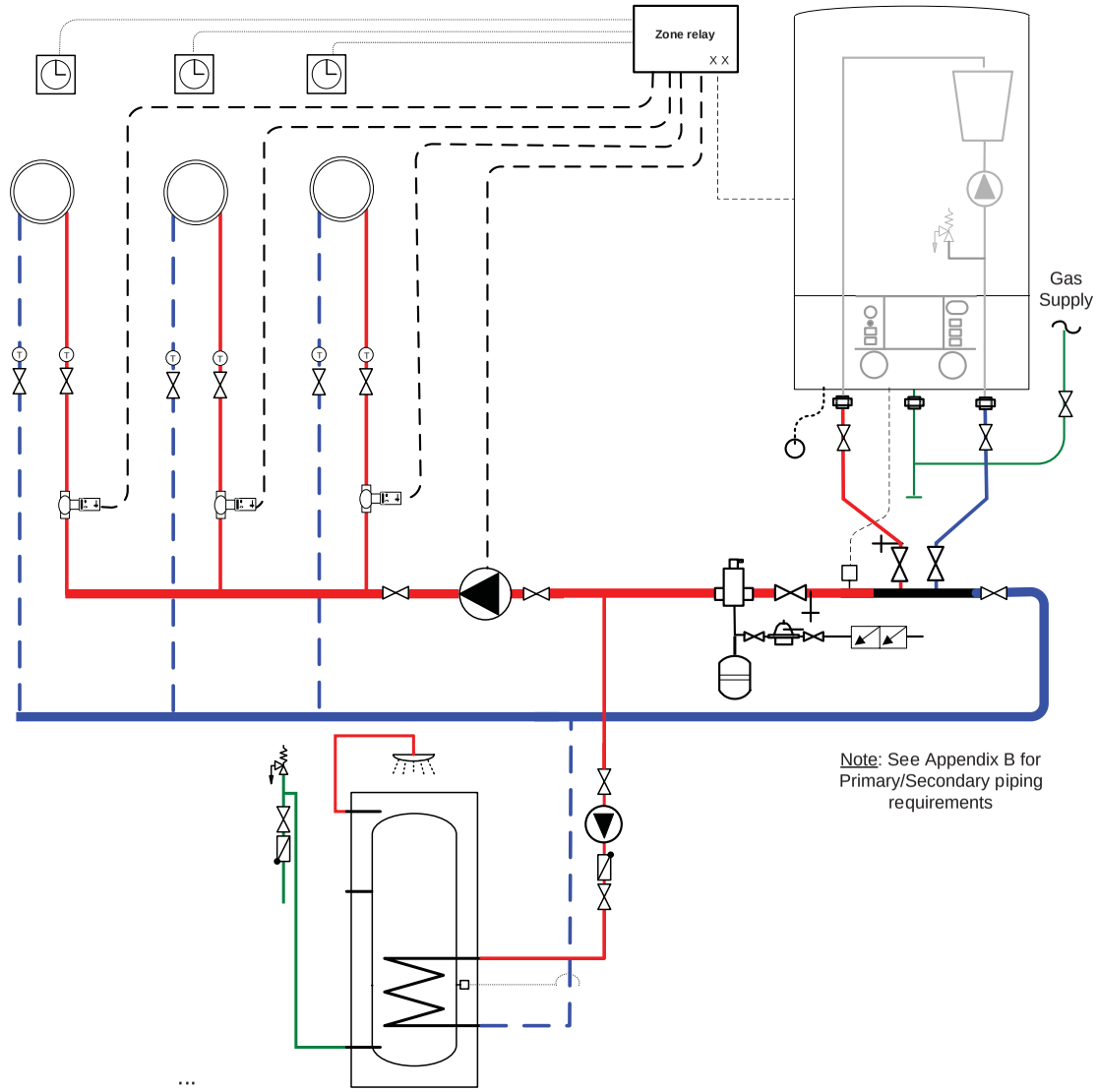
Created	
Released	
Changed	
Bases	

No.	
Date	

Bosch

	Supply Sensor
	Outdoor Sensor
	FW200
	Purge Drain
	Heating zone
	Auto-Fill
	Air Eliminator
	Flow Check
	Condensate drain
	Room Thermostat
	Expansion Tank
	PRV Relief Piping
	Back-flow preventer
	Shut-off valve
	Circulator
	Zone Valve



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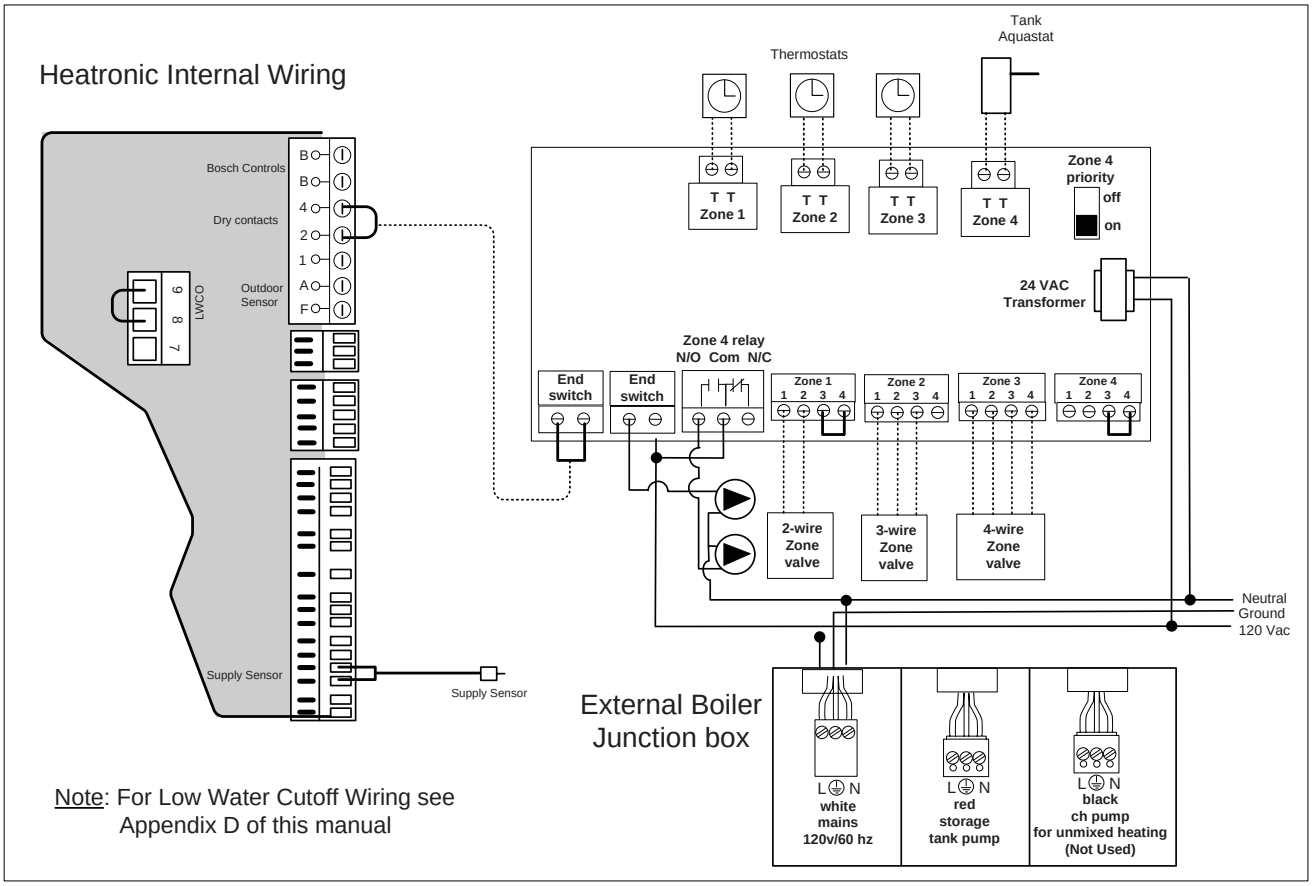
System # 21



Note: For Low Water Cutoff Wiring see Appendix D of this manual

Wiring:

Low Voltage

► Remove factory jumper from terminal #2 & #4 connect End Switch of Multi-Zone relay (dry contacts only)

Line Voltage

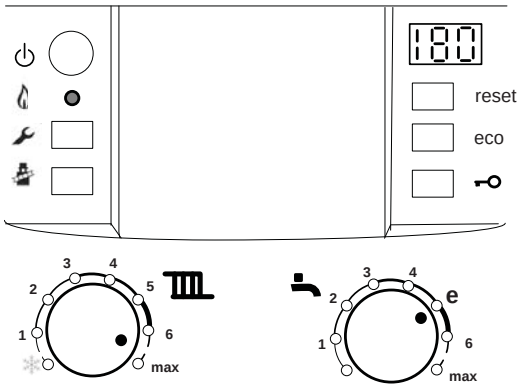
► Wire Main power supply (120 v) to White molex of Boiler

► Wire System Circulator to end switch of Relay

► Wire DHW Circulator to Normally Open priority contacts of Relay

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



DHW thermostat	Typical DHW temperatures
min	approx. 59 °F (15 °C)
e	approx. 131 °F (55 °C)
max	approx. 158 °F (70 °C)

System # 22

Multi Zone
Heat only wall boiler
Zone Valves
Indirect Tank
NSC Controls

...

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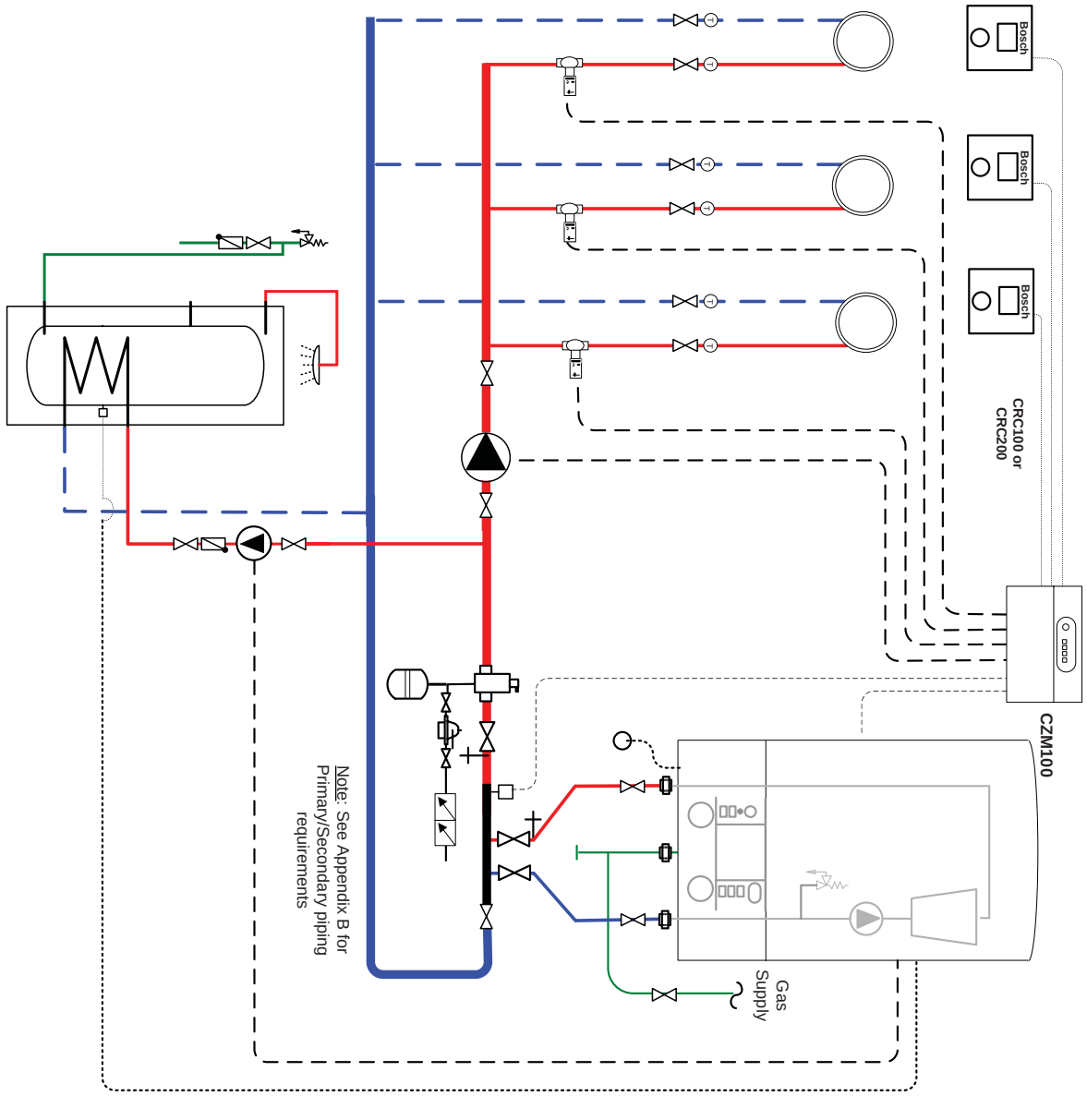
Created	
Released	
Changed	
Bases	

No.	
Date	

Bosch

Supply Sensor	Zone Valve
Comfort Zone Manager	Circulator
Purge Drain	Shut-off valve
Heating zone	Back-flow preventer
Auto-Fill	PRV Relief Piping
Air Eliminator	Expansion Tank
Flow Check	Comfort Room Controller
Condensate drain	



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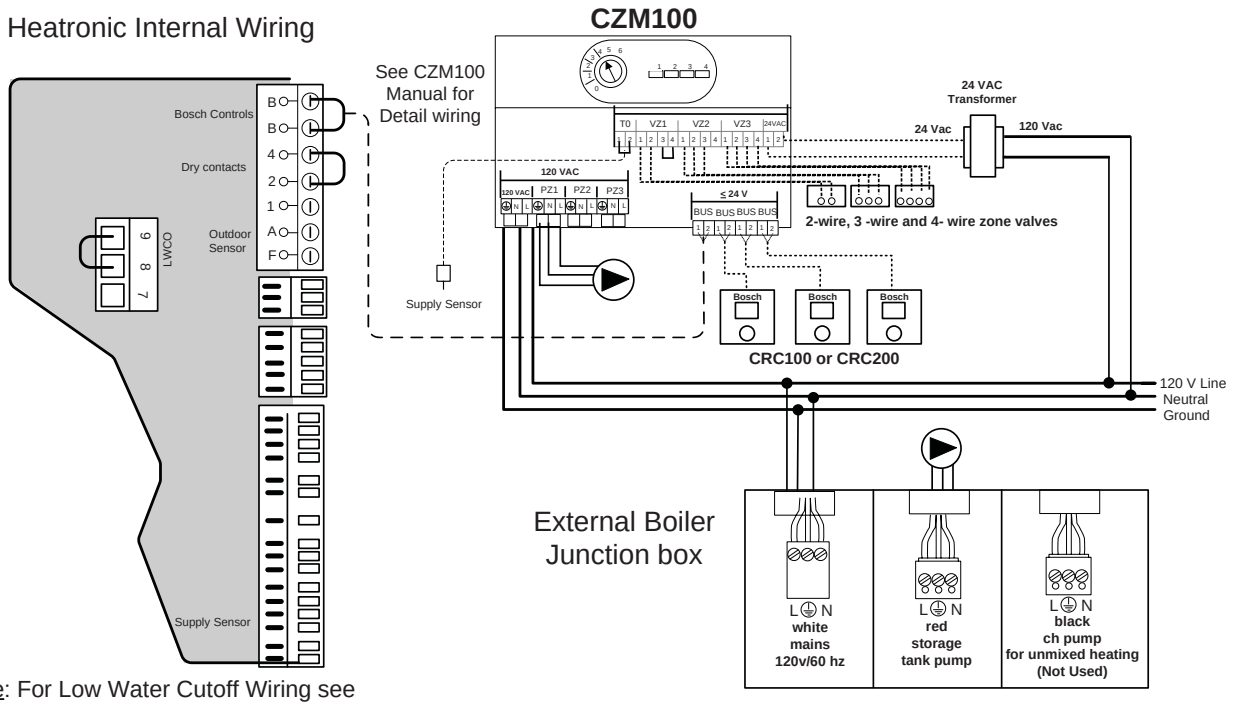
System # 22

Heatronic Internal Wiring



Note: For Low Water Cutoff Wiring see Appendix D of this manual

Wiring:

Low Voltage

► Wire BUS terminal of CZM100 to Terminal BB of Greenstar boiler Heatronic control

► Wire CRC controllers to BUS terminals of CZM100 (See Appendix A for Room Controller Settings)

► Provide 24 Vac from transformer to Terminals 1 and 2 of CZM100 labeled “24 VAC”

►Wire zone valves to “VZ” terminals of CZM100 – remove jumper from terminal 3 and 4 for 3-wire and 4-wire zone valves

► Wire Supply Sensor to “TO” connection of CZM100

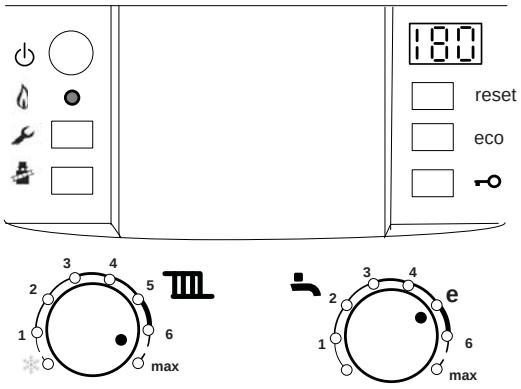
Line Voltage

► Wire Main power supply (120 v) to White molex of Boiler (external junction box) and to 120 VAC input of CZM100

► Wire 120 VAC ouput of PZ1 to system pump

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



DHW thermostat	Typical DHW temperatures
min	approx. 59 °F (15 °C)
e	approx. 131 °F (55 °C)
max	approx. 158 °F (70 °C)

System #23

Multi Zone
Heat only floor boiler
Zone Valves
Indirect Tank
Zone Relay

...

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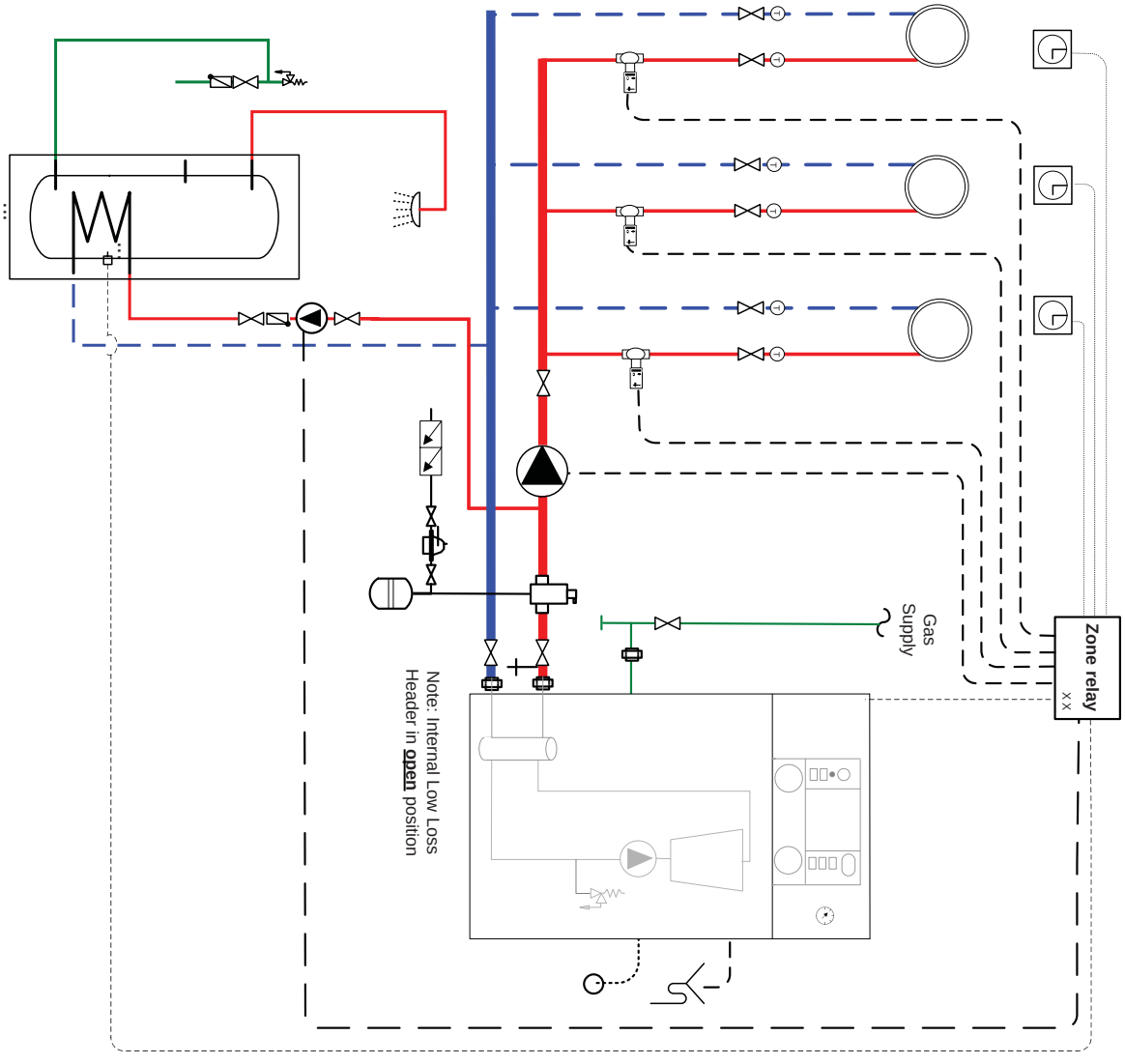
Created	
Released	
Changed	
Bases	

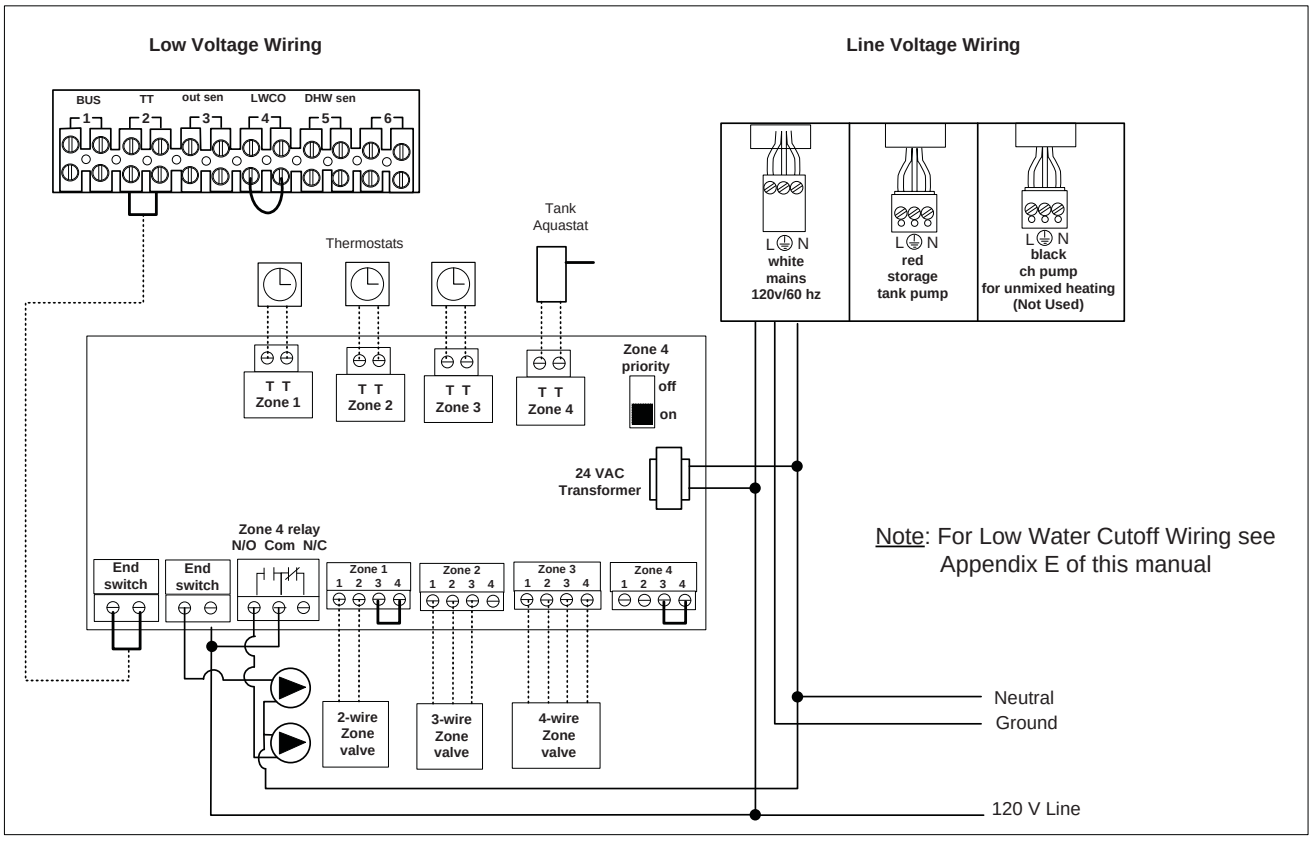
No.	Date

Bosch

Tank thermistor	
Purge Drain	
Heating zone	
Auto-Fill	
Air Eliminator	
Flow Check	
Condensate drain	
Room Thermostat	
Expansion Tank	
PRV Relief Piping	
Back-flow preventer	
Shut-off valve	
Circulator	
Zone Valve	



System # 23



Note: For Low Water Cutoff Wiring see Appendix E of this manual

Wiring:

Low Voltage

► Remove factory jumper from terminal #2 and connect End Switch of Multi-Zone relay (dry contacts only) to terminal #2

Line Voltage

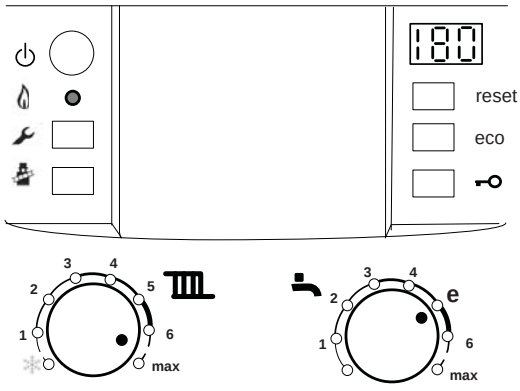
► Wire Main power supply (120 v) to White molex of Boiler

► Wire System Circulator to end switch of Relay

► Wire DHW Circulator to Normally Open priority contacts of Relay

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



DHW thermostat	Typical DHW temperatures
min	approx. 59 °F (15 °C)
e	approx. 131 °F (55 °C)
max	approx. 158 °F (70 °C)

System # 24

Multi Zone
Heat only floor boiler
Zone Valves
Indirect Tank
NSC Controls

...

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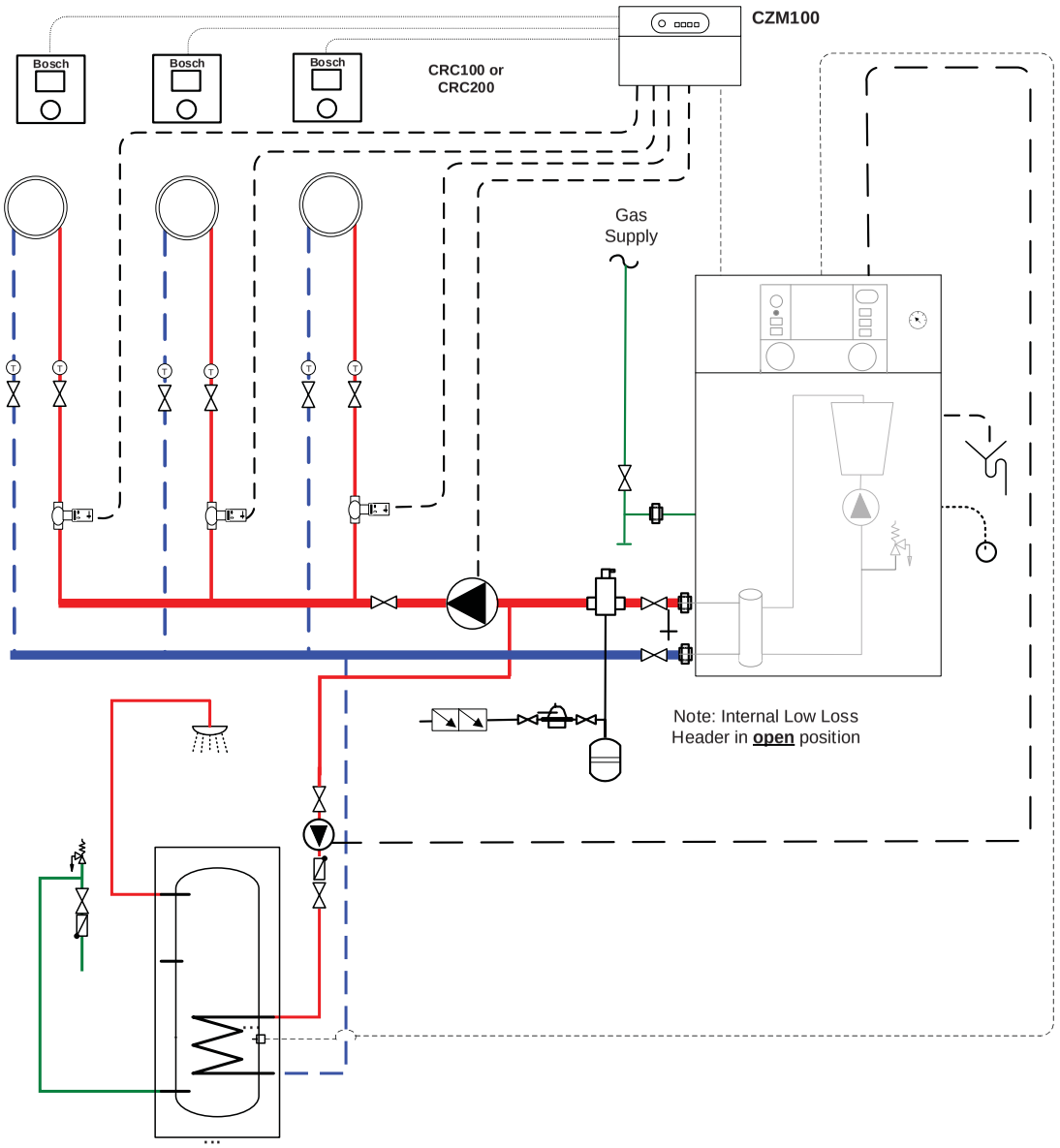
Created	
Released	
Changed	
Bases	

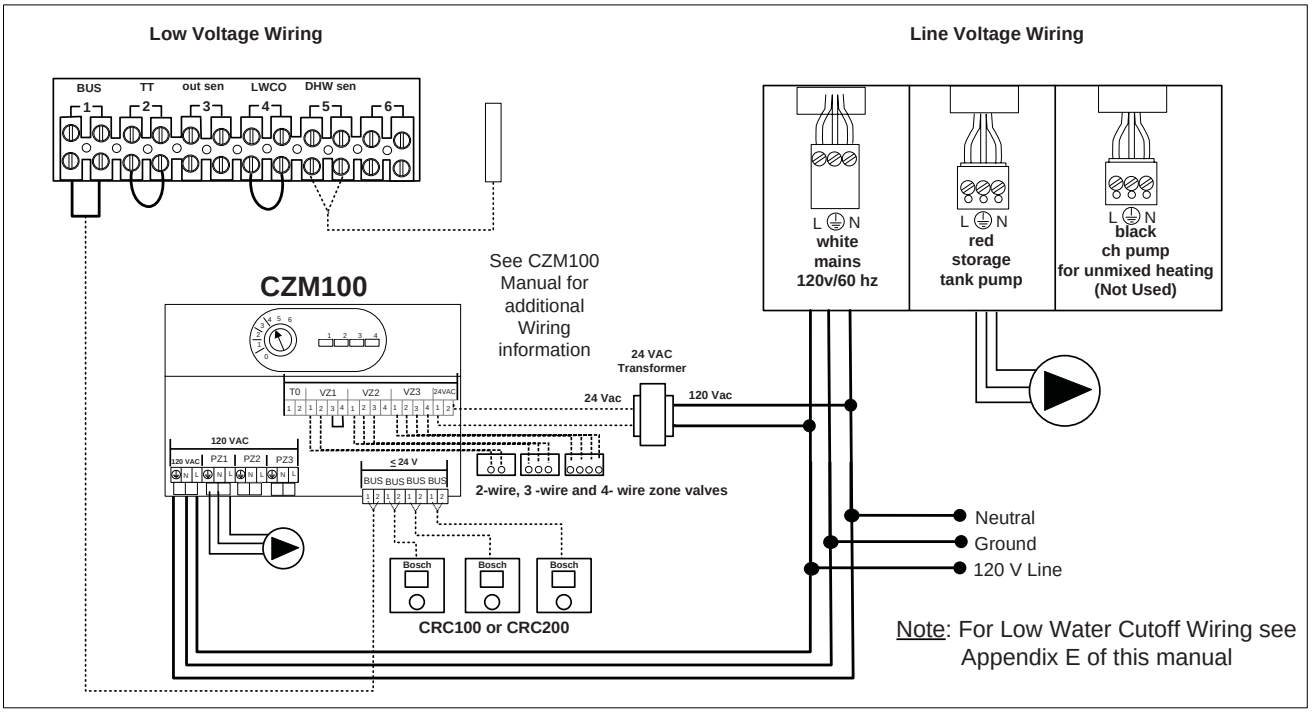
No.	
Date	

Bosch

	Tank thermistor
	Comfort Zone Manager
	Purge Drain
	Heating zone
	Auto-Fill
	Air Eliminator
	Flow Check
	Condensate drain
	Comfort Room Controller
	Expansion Tank
	PRV Relief Piping
	Back-flow preventer
	Shut-off valve
	Circulator
	Zone Valve



System #24



Wiring:

Low Voltage

► Wire BUS terminal of CZM100 to Terminal #1 of Greenstar FS boiler
► Wire CRC controllers to BUS terminals of CZM100
► Provide 24 Vac from transformer to Terminals 1 and 2 of CZM100 labeled “24 VAC”
►Wire zone valves to “VZ” terminals of CZM100 – remove jumper from terminal 3 and 4 for 3-wire and 4-wire zone valves
► Wire Greenstar DHW sensor to Terminal 5 of Boiler
► See Appendix A for Room Controller Settings

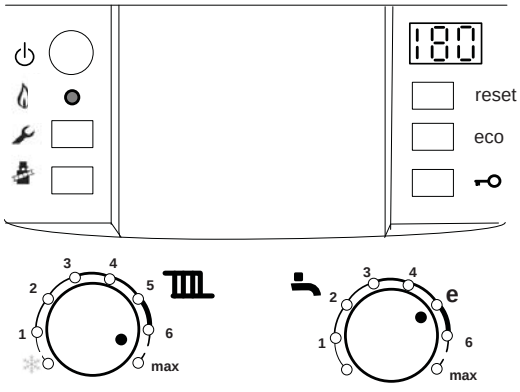
Line Voltage

► Wire Main power supply (120 v) to White molex of Boiler and to 120 VAC input of CZM100
► Wire 120 VAC ouput of PZ1 on CZM 100 to system pump
► Wire 120 VAC ouput of RED Molex on Greenstar to DHW Circulator

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system

DHW thermostat	Typical DHW temperatures
min	approx. 59 °F (15 °C)
e	approx. 131 °F (55 °C)
max	approx. 158 °F (70 °C)



System # 25

Single zone
Combi wall boiler
Baseboard
Bosch Control

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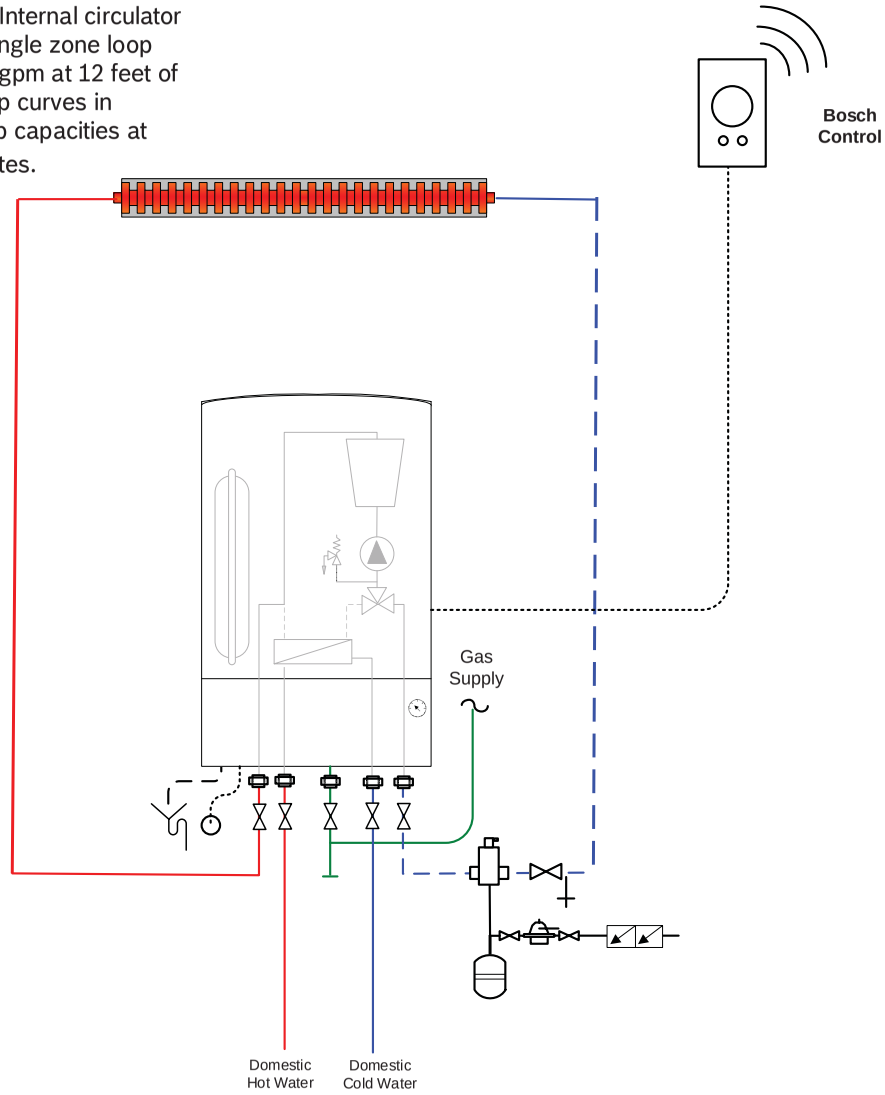
Created	
Released	
Changed	
Bases	
No.	.
State	

Bosch

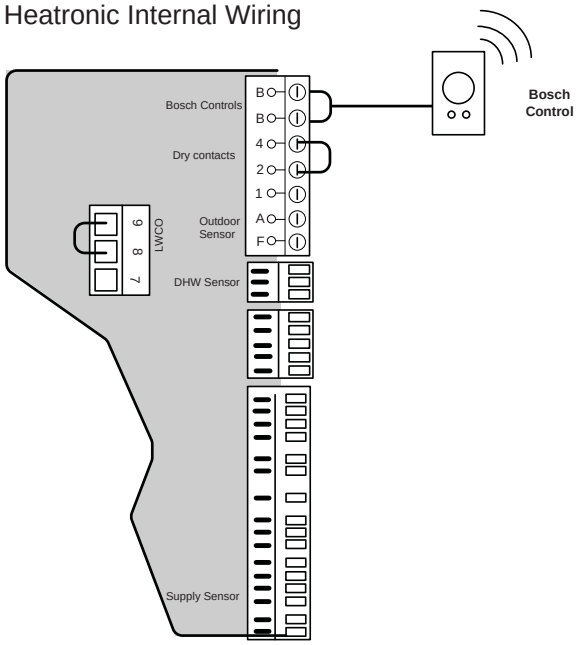
	PRV Relief piping
	Purge Drain
	Bosch Control
	Condensate drain
	Relief valve & pressure gauge
	Back-flow preventer
	Isolation valve
	Outdoor air sensor
	Baseboard
	Expansion Tank
	Auto-Fill
	Air Eliminator

Note: Greenstar Internal circulator can support a single zone loop not to exceed 4 gpm at 12 feet of head. See pump curves in manual for pump capacities at alternate flow rates.

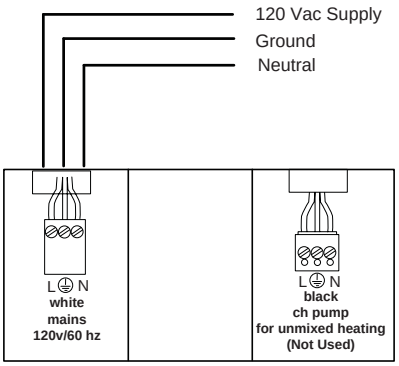


System #25

Heatronic Internal Wiring



Note: For Low Water Cutoff Wiring see Appendix D of this manual



External Boiler Junction box

Wiring:

Low Voltage

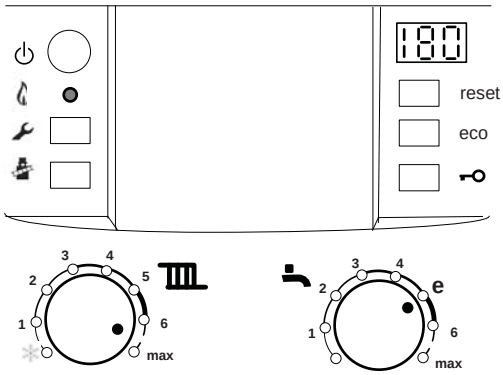
► Wire Bosch Control to Terminals B B of the Heatronic control

Line Voltage

► Wire Main power supply (120 v) to White molex

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



DHW thermostat	Typical DHW temperatures
min	approx. 104 °F (40 °C)
e	approx. 122 °F (50 °C)
max	approx. 140 °F (60 °C)

System #26

Single Zone
Combi floor boiler
Baseboard
Bosch Control

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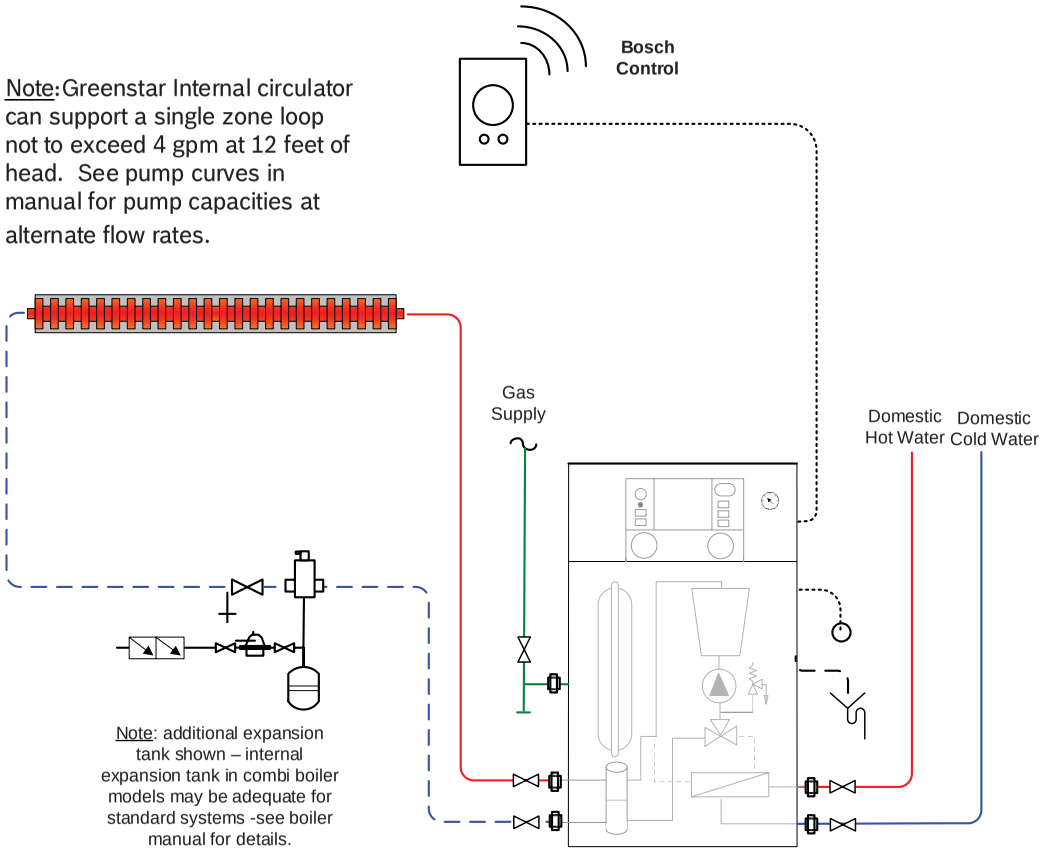
Created	
Released	
Changed	
Bases	
No.	.
State	

Bosch

	PRV Relief piping
	Purge Drain
	Supply Sensor
	Bosch Control
	Condensate drain
	Relief valve & pressure gauge
	Back-flow preventer
	Isolation valve
	Baseboard
	Expansion Tank
	Auto-Fill
	Air Eliminator

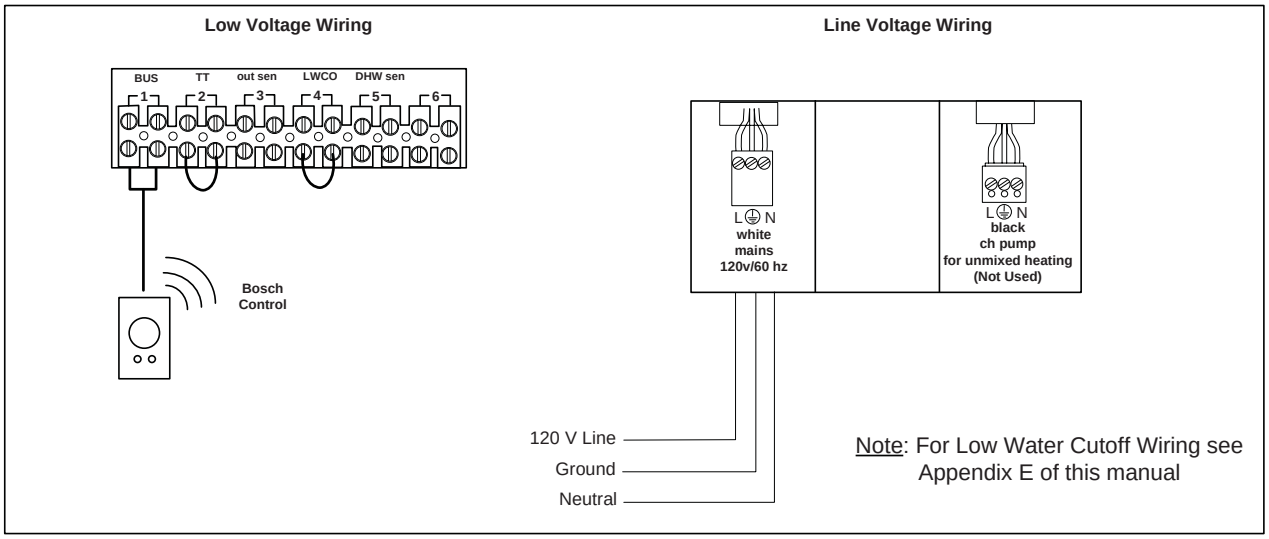
Note: Greenstar Internal circulator can support a single zone loop not to exceed 4 gpm at 12 feet of head. See pump curves in manual for pump capacities at alternate flow rates.



Note: additional expansion tank shown – internal expansion tank in combi boiler models may be adequate for standard systems -see boiler manual for details.

Note: Internal Low Loss Header in closed position

System #26



Wiring:

Low Voltage

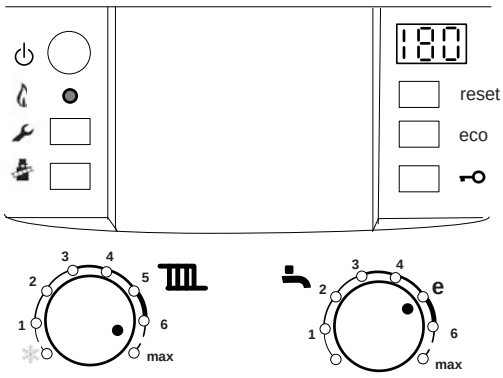
► Wire Bosch Control to Terminal # 1 on back of Greenstar FS Boiler

Line Voltage

► Wire Main power supply (120 v) to White molex

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



DHW thermostat	Typical DHW temperatures
min	approx. 104 °F (40 °C)
e	approx. 122 °F (50 °C)
max	approx. 140 °F (60 °C)

System # 27

Single Zone
Heat only wall boiler
Baseboard
Bosch Control

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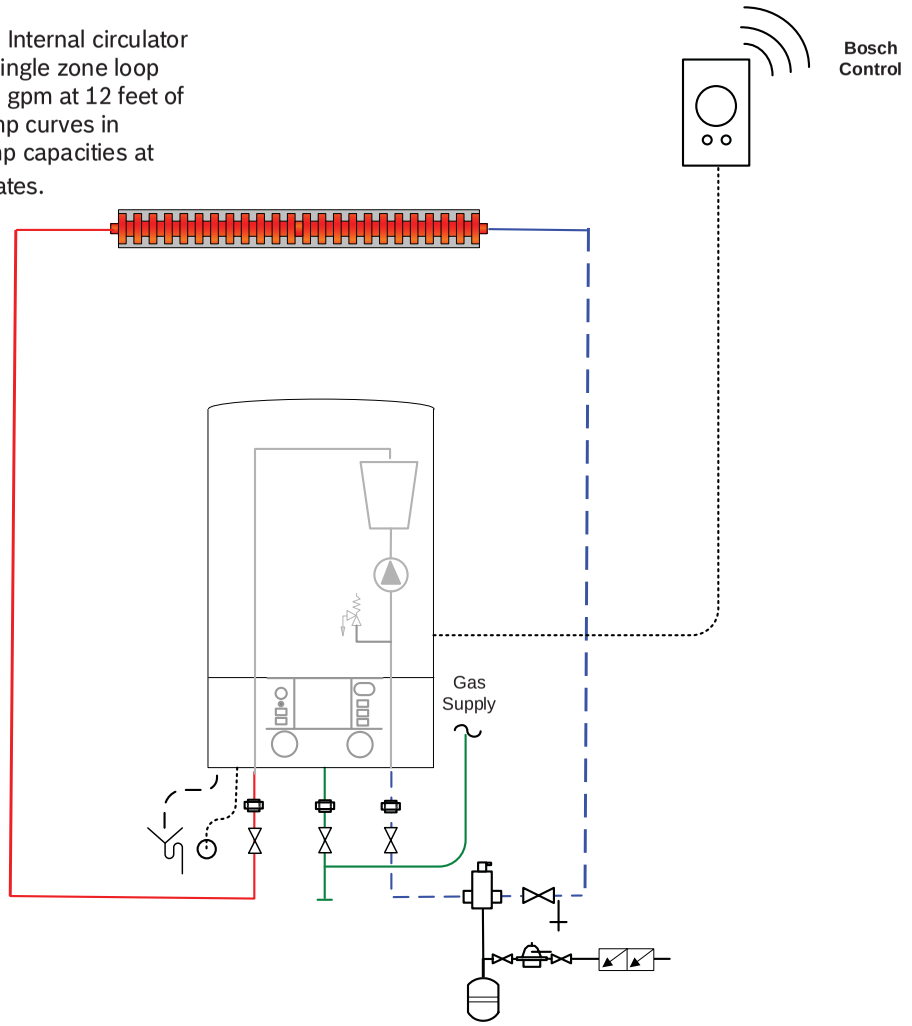
Created	TK 02/20/15
Released	
Changed	
Bases	
No.	.
State	

Bosch

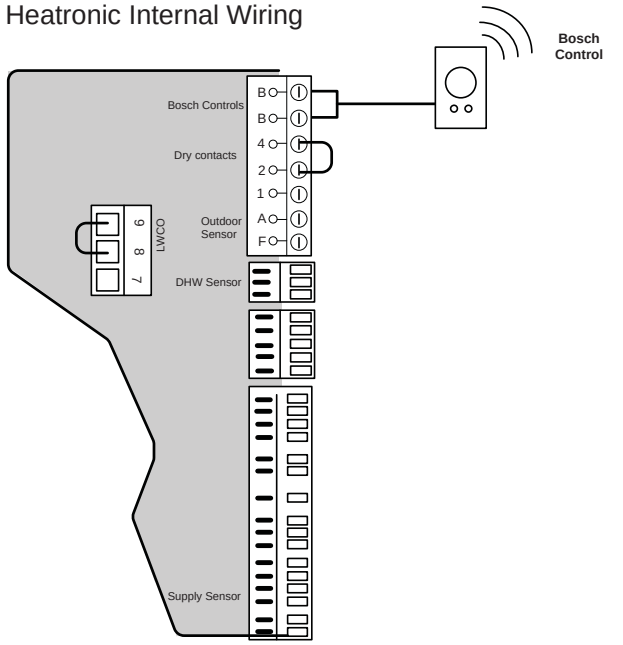
	PRV Relief piping
	Purge Drain
	Bosch Control
	Condensate drain
	Relief valve & pressure gauge
	Back-flow preventer
	Isolation valve
	Outdoor air sensor
	Baseboard
	Expansion Tank
	Auto-Fill
	Air Eliminator

Note:Greenstar Internal circulator can support a single zone loop not to exceed 4 gpm at 12 feet of head. See pump curves in manual for pump capacities at alternate flow rates.

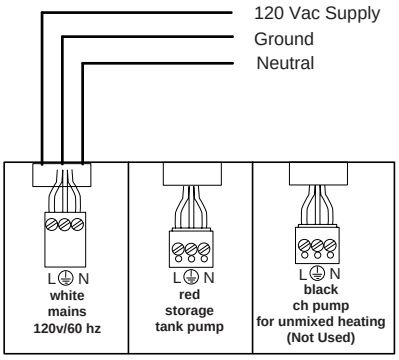


System #27

Heatronic Internal Wiring



Note: For Low Water Cutoff Wiring see Appendix D of this manual



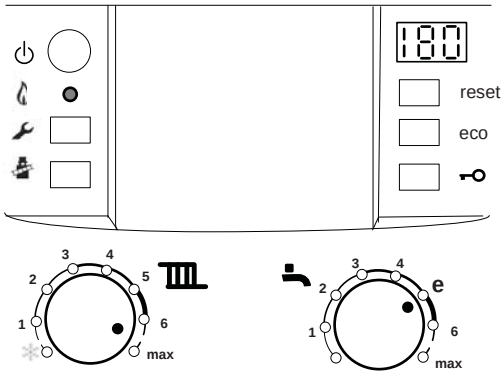
External Boiler Junction box

Wiring:

Low Voltage	Line Voltage
► Wire Bosch Control to Terminals B B of Heatronic control	► Wire Main power supply (120 v) to White molex

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



System # 28

Single Zone
Heat only floor boiler
Baseboard
Bosch Control

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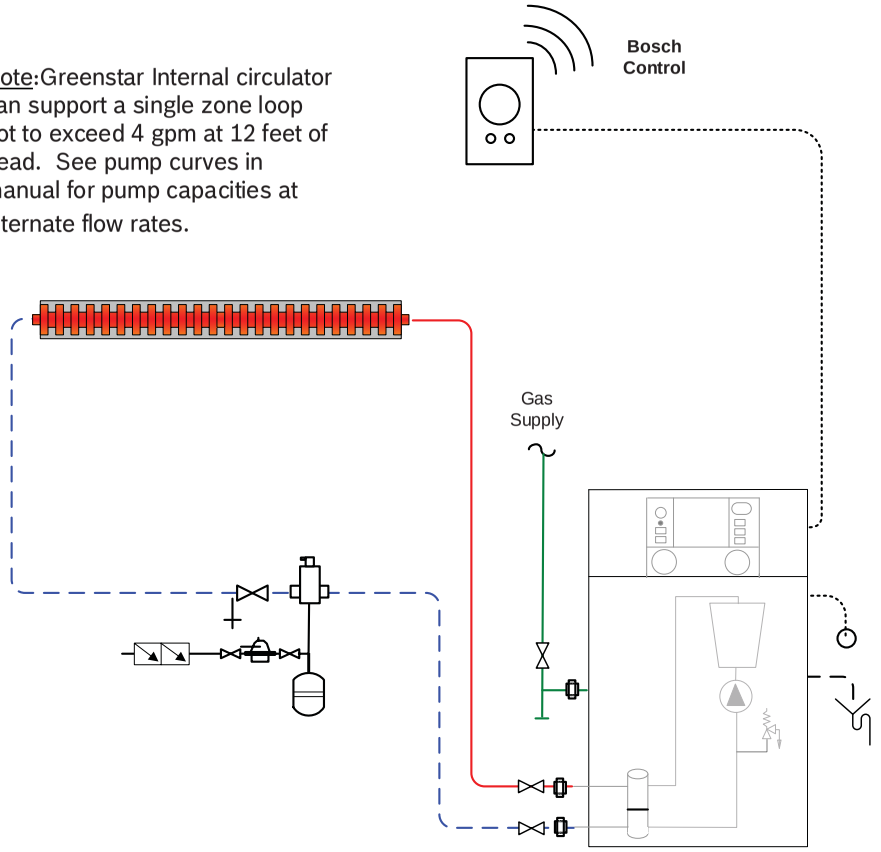
Created	
Released	
Changed	
Bases	

No.	.
State	

Bosch

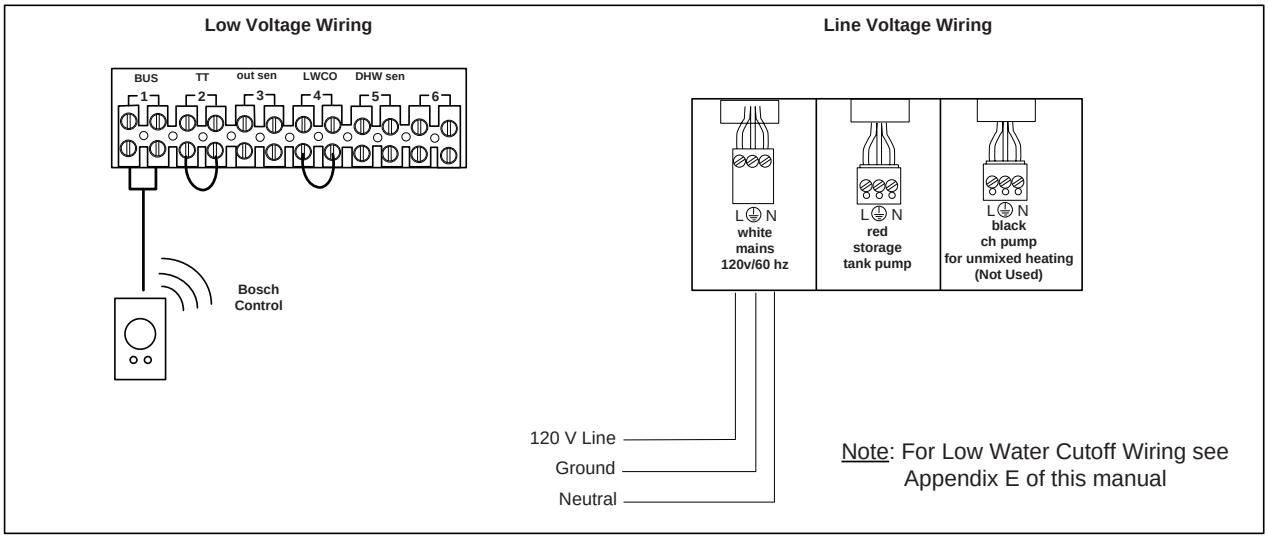
	PRV Relief piping
	Purge Drain
	Bosch Control
	Condensate drain
	Relief valve & pressure gauge
	Back-flow preventer
	Isolation valve
	Outdoor air sensor
	Baseboard
	Expansion Tank
	Auto-Fill
	Air Eliminator

Note:Greenstar Internal circulator can support a single zone loop not to exceed 4 gpm at 12 feet of head. See pump curves in manual for pump capacities at alternate flow rates.



Note: Internal Low Loss Header in closed position

System #28



Wiring:

Low Voltage

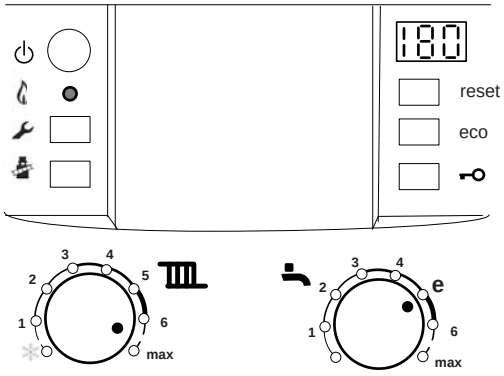
► Wire Bosch Control to Terminal # 1 on back of Greenstar FS Boiler

Line Voltage

► Wire Main power supply (120 v) to White molex

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



System # 29

Single Zone
Heat only wall boiler
Indirect Tank
Bosch Control

...

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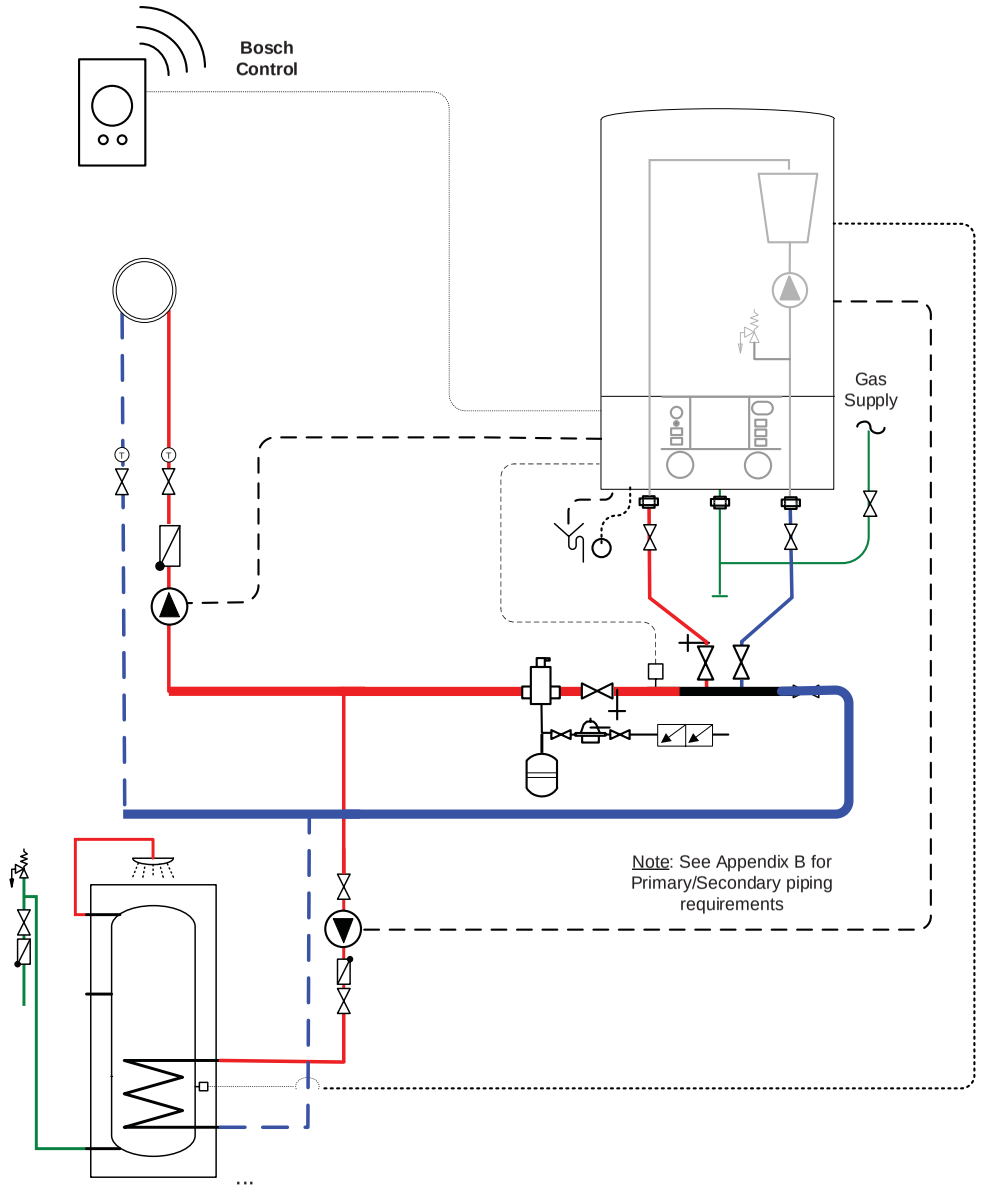
Created	
Released	
Changed	
Bases	

No.	
Date	

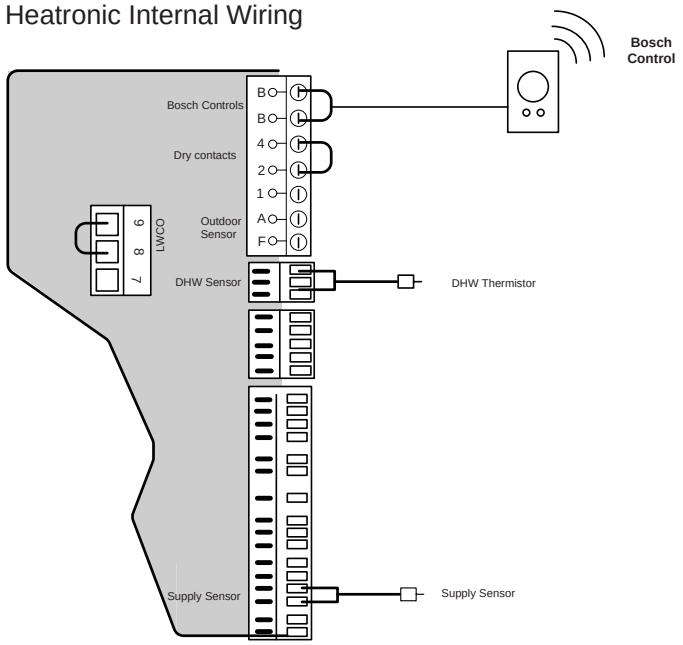
Bosch

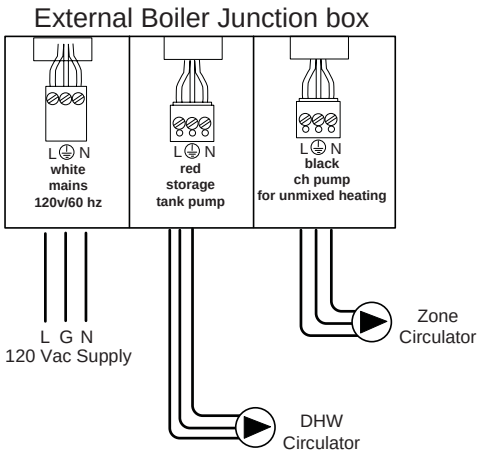
	Bosch Control
	Purge Drain
	Heating zone
	Auto-Fill
	Air Eliminator
	Flow Check
	Condensate drain
	DHW Thermistor
	Expansion Tank
	PRV Relief Piping
	Back-flow preventer
	Shut-off valve
	Circulator
	Supply Sensor



System #29

Heatronic Internal Wiring





Note: For Low Water Cutoff Wiring see Appendix D of this manual

Wiring:

Low Voltage

► Wire BUS terminal of the Bosch Control to Terminal BB of Greenstar boiler

► Wire Greenstar Tank thermistor sensor to blue molex adaptor in Greenstar boiler wire harness

► Wire Supply Sensor to terminals in the Heatronic control

Line Voltage

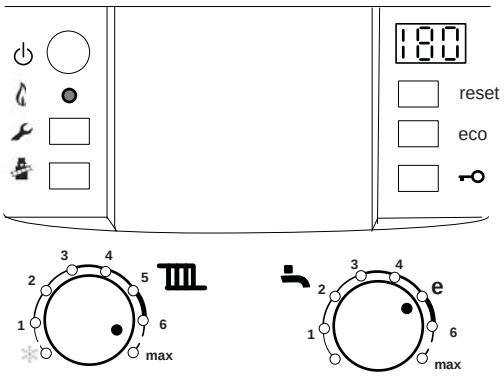
► Wire Main power supply (120 v) to White molex of Boiler (external junction box)

► Wire 120 VAC of Black Molex to Zone Circulator

► Wire 120 VAC of Red Molex to DHW Circulator

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system



DHW thermostat	Typical DHW temperatures
min	approx. 59 °F (15 °C)
e	approx. 131 °F (55 °C)
max	approx. 158 °F (70 °C)

System # 30

Multi Zone
Combi wall boiler
Circulators
Bosch Control with
Zone Relay

...

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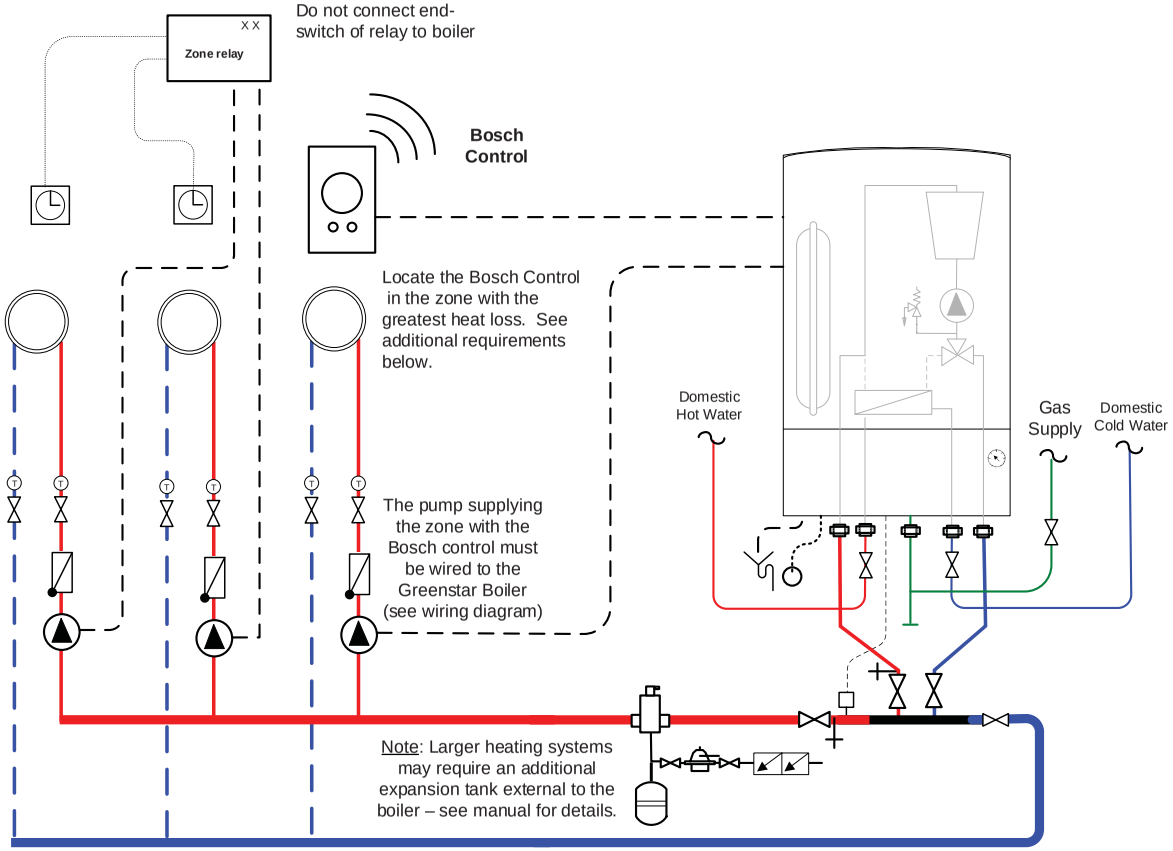
Created	
Released	
Changed	
Bases	
No.	
Date	

Bosch

	Bosch Control
	Purge Drain
	Heating zone
	Auto-Fill
	Air Eliminator
	Flow Check
	Condensate drain
	Room Thermostat
	Expansion Tank
	PRV Relief Piping
	Back-flow preventer
	Shut-off valve
	Circulator
	Supply Sensor



Requirements for the location of the Bosch Control in a multizone application :

→ The Bosch Control must be installed in the zone with the largest btu/hr heat loss

→ The zone must also have the highest or same supply temperature requirement as compared to all other zones in the system.

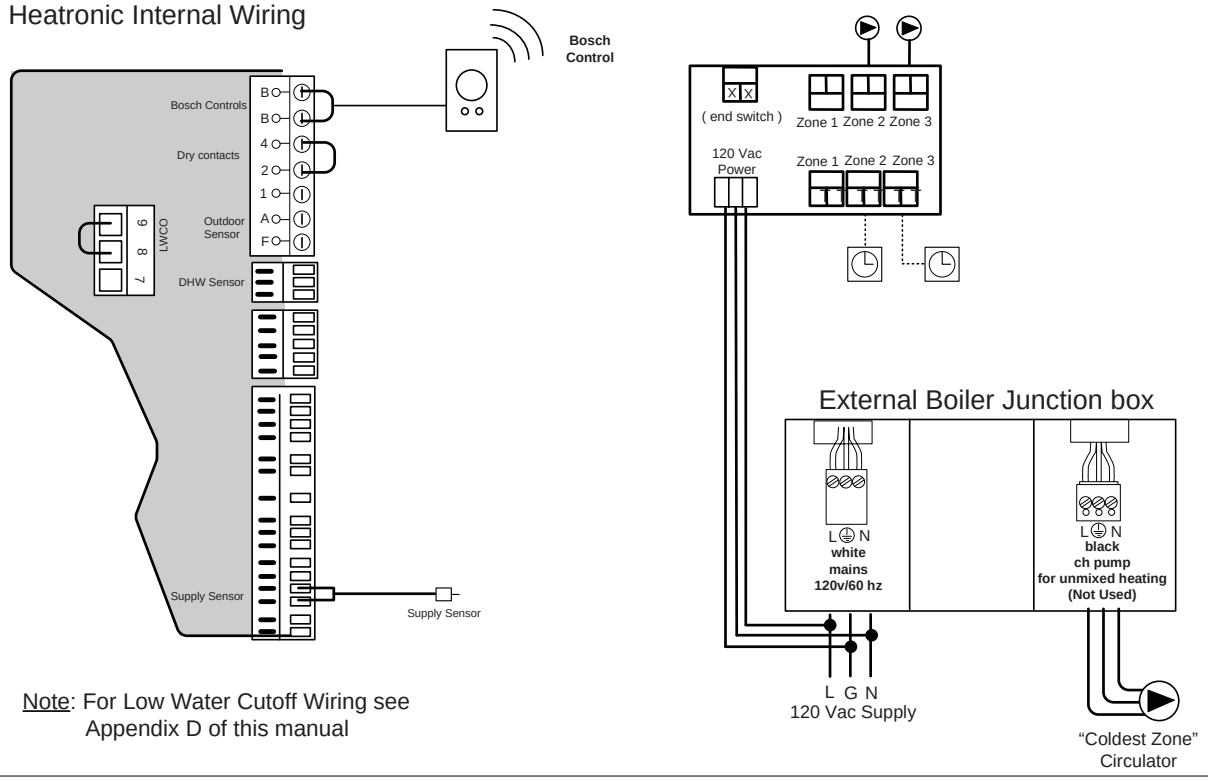
→ Thermostats located in all other zones will act as temperature limiters. A higher room temperature request in these zones may not be able to be achieved. Avoid large temperature setback due to potentially slow recovery during occupied periods.

...

Note: See Appendix B for Primary/Secondary piping requirements

System # 30

Heatronic Internal Wiring



Note: For Low Water Cutoff Wiring see Appendix D of this manual

Wiring:

Low Voltage

► Wire BUS terminal of the Bosch Control to Terminal BB of Greenstar boiler Heatronic control

Line Voltage

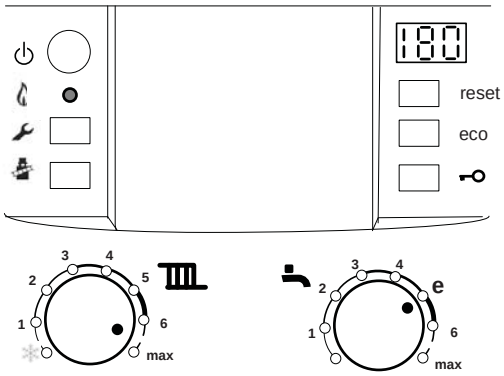
► Wire Main power supply (120 v) to White molex of Boiler external iunction box

► Wire 120 Vac power supply to zone relay

► Wire "coldest zone" circulator to Black molex of Greenstar boiler external junction box

Heatronic Settings:

Boiler Heating Dial	Typical supply temperatures	Application
1	approx. 95 °F (35 °C)	Frost protection
2	approx. 109 °F (43 °C)	
3	approx. 122 °F (50 °C)	Radiant floor heating
4	approx. 140 °F (60 °C)	Panel radiator system
5	approx. 153 °F (67 °C)	Cast Iron radiator system
6	approx. 167 °F (75 °C)	
max	Approx. 194 °F (90°C)	Baseboard & convector system

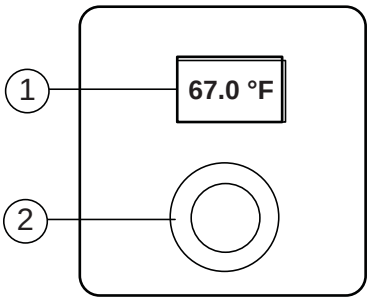


DHW thermostat	Typical DHW temperatures
min	approx. 59 °F (15 °C)
e	approx. 131 °F (55 °C)
max	approx. 158 °F (70 °C)

Appendix A: Quick Set-up Guide for Room Controllers

CRC100 - Operation

The following table shows how to change a value in the service menu of the CRC100



1 = Display

2 = Dial

Open the service menu	
1. press and hold dial until two dashes appear.	- -
2. Release dial to displaythe first setting.	A . 1

Changing the setting (e.g. heating zone H.C)	
1. Turn the dial to select a setting.	H.C
2. Press dial to show the current value.	3
3. Press dial to change the value.	3
4. Turn dial to set the required value.	2
5. Press the dial to store the value.	2
6. Press and hold dial until the setting is displayed again.	H.C

Close the service menu	
1. Press and hold idal until three dashes appear.	- - -
2. Release dial. The display changes to the standard display, and the user interface works with the changed setting.	67.0 °F

Appendix A: Quick Set-up Guide for Room Controllers

Note: Please consult the installation manual for a complete overview of the controller settings and proper installation. The following guide is not a substitute for the installation manual.

CRC100 control set-up:

For single zone application where CRC100 is connected directly to the boiler:
- ► Set A.1 value to “CO”

For a multi- zone application where CRC100 is connected to a CZM100:
- ► Set H.C on each CRC100 to the appropriate zone number (1 thru 8)

CRC200 control set-up:

For single zone application where the CRC200 is connected directly to the boiler:
- ►Set DHW to “yes – pr. pump” if indirect tank is connected to the system
- ► Set “Heat System” to “High Temp” or “Low Temp” depending upon system requirement
- ► Set “Max Supply Temp” to appropriate maximum temperature for the system

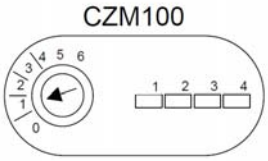
For a multi- zone application where CRC200 is connected to a CZM100:
- ► Set HC on each CRC200 to the appropriate zone number (1 thru 8)

For CRC200 located in Zone #1:
- ► Set DHW to “yes – pr. pump” if indirect tank is connected to the system
- ► Set “Heat System” to “High Temp” or “Low Temp” depending upon zone requirement
- ► Set “Max Supply Temp” to appropriate maximum temperature for the zone

For CRC200 located in zones 2 thru 8:
- ►Set “Heat System” to “High Temp” or “Low Temp” depending upon zone requirement
- ►Set “Max supply Temp” to appropriate maximum temperature for the zone

Zone number and corresponding pump/Zone valve output on CZM100:

The CZM100 can support systems using Pumps or Zone valves but not both. The maximum number of CZM100 in a system is 3. The CZM100 address can be set by adjusting the potentiometer screw on the front of the CZM100 (see image right). Address #1 thru #3 is for systems using pumps. Address #4 thru #6 is for systems using zone valves. Charts below show the heating zone number and the corresponding pump or zone valve contacts on the CZM100.

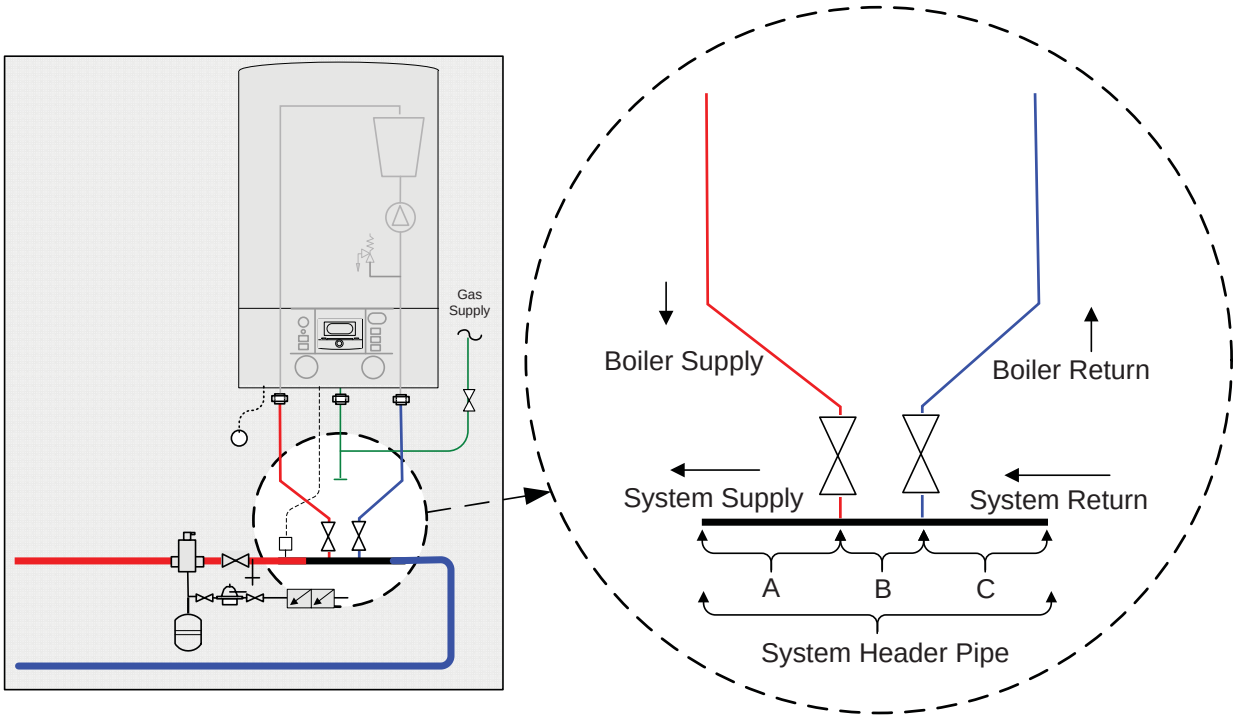


Pumps

Heating Zone Number	Coding and Connection to.....			Pump contacts
	CZM100 #1	CZM100 #2	CZM100 #3	
1	1	-	-	PZ1
2	1	-	-	PZ2
3	1	-	-	PZ3
4	-	2	-	PZ1
5	-	2	-	PZ2
6	-	2	-	PZ3
7	-	-	3	PZ1
8	-	-	3	PZ2

Heating Zone Number	Coding and Connection to.....			Zone Valve Contacts
	CZM100 #1	CZM100 #2	CZM100 #3	
1	4	-	-	VZ1
2	4	-	-	VZ2
3	4	-	-	VZ3
4	-	5	-	VZ1
5	-	5	-	VZ2
6	-	5	-	VZ3
7	-	-	6	VZ1
8	-	-	6	VZ2

Appendix B: Primary/Secondary piping for Greenstar Wall Boiler



Piping Section	Description	Requirements
A	System Supply	Minimum length of 4 x pipe diameter based on System header pipe size
B	Closely Spaced Tees	Maximum distance of 4 x pipe diameter (center-to-center) based on System header pipe size
C	System Return	Minimum length of 8 x pipe diameter based on System header pipe

Boiler Input (btu/hr)	Boiler Supply/Return pipe diameter	System Supply/Return Header pipe diameter*	
		system ΔT of 20°	system ΔT of 10°
57,000	1"	1"	1.25"
79,000	1"	1"	1.25"
100,000	1"	1.25"	1.5"
131,000	1"	1.25"	1.5"
151,000	1"	1.5"	2.0"

*based on 2 – 4 ft/sec flow velocity.

Appendix C: FW200 Quick Set-up Guide

This is a quick reference to highlight the BASIC programming of this control. For a more in depth understanding or complete programming of the control, please refer to the FW 200 Installation and Operating manuals.

At any time, pressing the Menu button (Fig.1, pos.3) will bring you back to the standard display.

The FW200 is sold separately, and is not compatible any of the NSC components (CZM100, CRC100, CRC200).

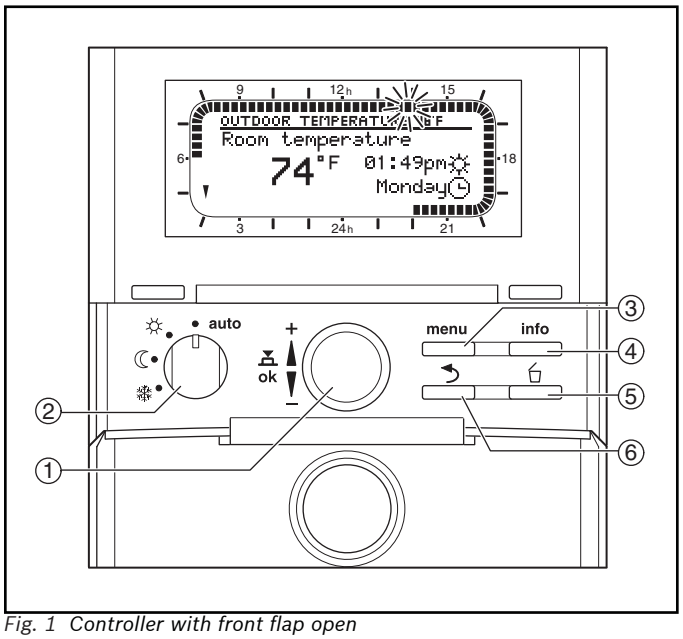


Fig. 1 Controller with front flap open

Instructions for programming

▶ Set Date and Time upon initial start-up

- Turn dial (Fig.1, pos.1) to adjust time and date. Press the dial to finalize your selection.
- You will be asked about System configuration, which is only necessary if you have added additional controls. If you see this prompt, press and hold the menu button (Fig.1, pos.3) until it disappears.

▶ Set Date and Time after intitial programming

- Push the menu button once and release. On the display ***Vacation*** will be highlighted.
- Turn dial counter-clockwise until ***General Settings*** is highlighted.
- Push dial once and release. ***Time and Date*** will be highlighted.
- Push dial again and ***Time*** will be highlighted. Set time by pushing dial and rotating. Once complete, push again to lock in time setting.
- Turn dial until **Date** is highlighted. Set date by pushing dial and turning to select. Push dial once to lock in date setting.

▶ Set for constant heating (no night set back)

This can be done two ways:

1. Turn selector (Fig.1, pos.2) to the Comfort Symbol (☼).
2. Or change programming.

To change programming:

- Press and release menu button. ***Vacation*** will be highlighted.
- Turn dial one click counter-clockwise to highlight ***Heating*** and push dial to select.
- Program will be highlighted. Push dial to select.
- ***Activate*** will be highlighted. Turn the dial one click to highlight ***Edit*** and push dial to select.
- Program A will be highlighted. Push dial to select.
- ***Replace with preset program*** will be highlighted. Turn the dial counter-clockwise to display ***All days*** and push dial to select.
- ***P1*** will be highlighted. Press the dial again and the display will flash.
- Turn dial one click clockwise to 12:00PM.
- Press the dial and rotate it until ***Comf.*** appears. The area around the display should fill in.
- Press dial again to lock in your program.
- Press the menu button to return to main display.

Appendix C: FW200 Quick Set-up Guide

▶ Set type of heating system

There are three seperate default presets: Baseboard, Radiators, Radiant Floor. They have an approximate basepoint of 75°F. With this basepoint, the heating system will take some time to raise the room temperature in warmer weather. Please see the FW 200 Installation and Operating Instructions, "Heating circuit parameters" for more details on those presets. For a custom preset, see below.

- To open **INSTALLER SETTINGS**: press and hold the menu button for approx. 5 seconds. ***System Configuration*** will be highlighted.
- Turn dial one click counter-clockwise to highlight ***Heating Parameters.***
- Press the dial, ***Heating Circuit 1*** will be highlighted.
- Press dial and ***Heating circuit type*** will be highlighted.
- Press dial and ***Radiators*** will be highlighted.
- Press dial again and ***Radiators*** will flash.
- Turn the dial to choose ***Baseline/Design temp.***
- Press the dial, ***Heating circuit type*** will be highlighted.
- Turn the dial counter-clockwise. ***Base Line*** will be displayed.
- Press the dial and ***78°F*** (25 °C) will flash. This is the supply temperature at 65 °F (18 °C) outdoor temperature.
- Set accordingly (Fig. 2).
- Press the dial to confirm the setting.

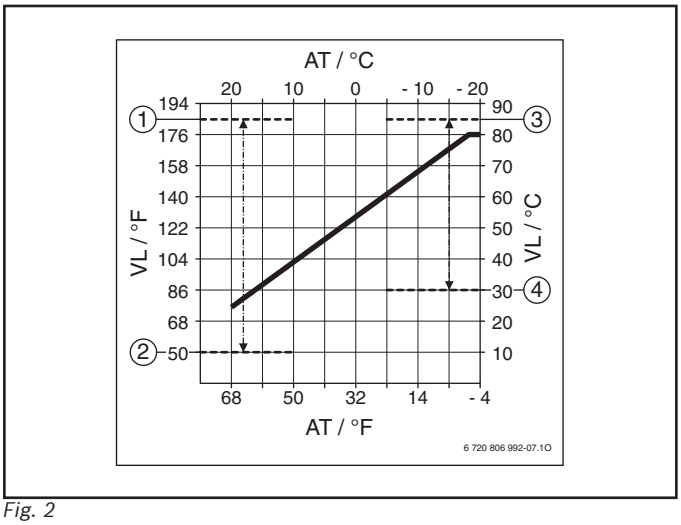


Fig. 2

Fig. 2 Legend

[1] Maximum Base Line Adjustment 186 °F (85 °C)
[2] Minimum Base Line Adjustment 50 °F (10 °C)
[3] Maximum Design Temperature Adjustment 186 °F (85 °C)
[4] Minimum Design Temperature Adjustment 86 °F (30 °C)
AT Outdoor temperature
VL Supply temperature

For hydroair systems, the minimum supply temperature must be raised to the turn on temperature for that coil.

- Turn the dial until ***Design Temp*** is highlighted. Press the dial and ***168°F*** (75°C) will flash. This is the supply temperature at 5 °F (– 15 °C) outdoor temperature.
- Set accordingly (Fig.2).
- Press the dial to confirm the setting.

Refer to FW 200 Installation and Operating Instructions for more custom settings.

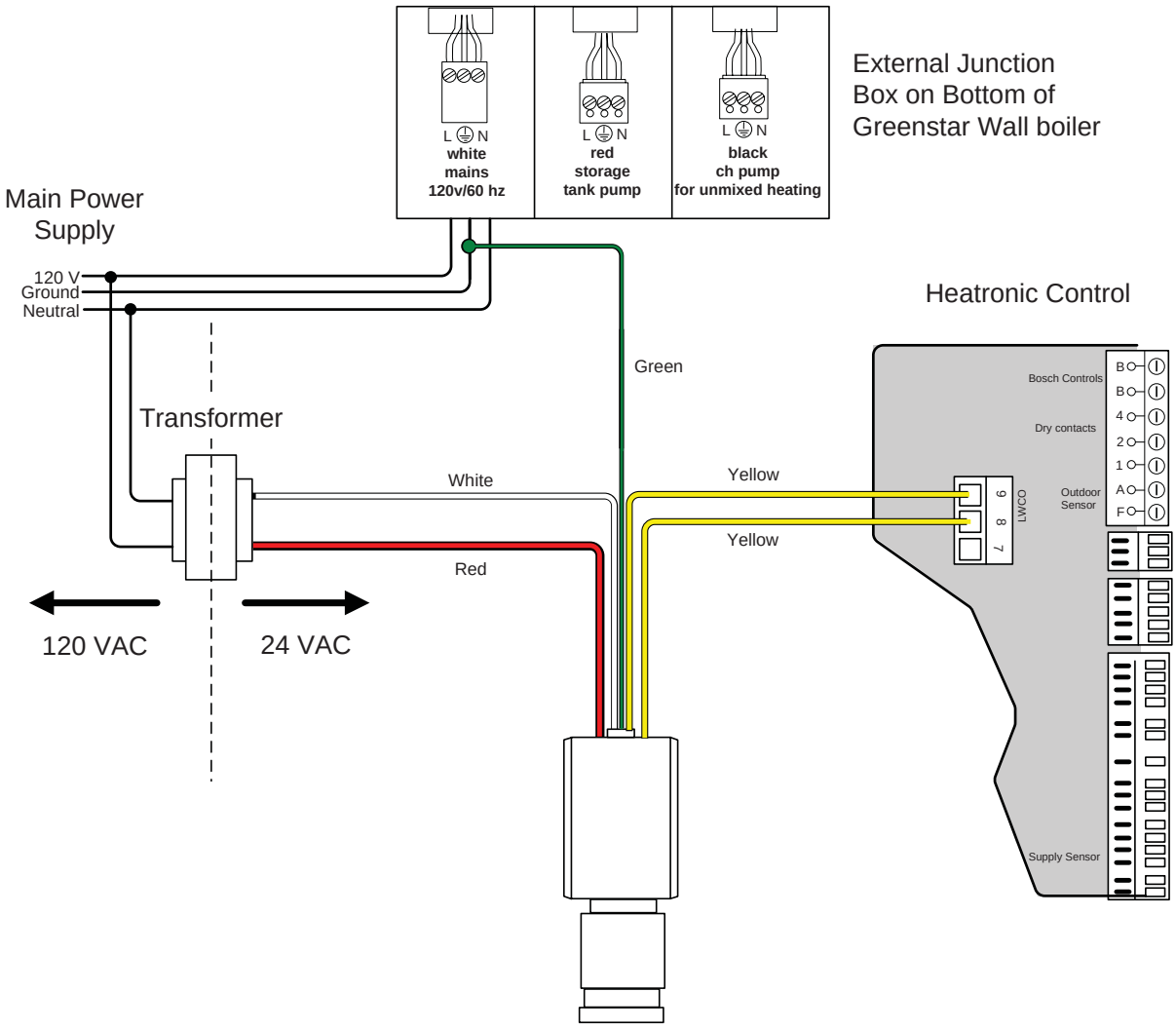
- Turn the dial counter-clockwise until ***Maximum heating supply temperature*** is highlighted.
- Press the dial
- Turn the dial to set the desired value.
- Press the dial to confirm the setting.
- Press menu button to return to main display.

▶ Adjust warm weather shut down (WWSD)

- Press and hold the menu button for about 5 seconds. ***System Configuration*** will be highlighted.
- Turn dial one click counter-clockwise to highlight ***Heating Parameters*** and push dial to select.
- ***Heating Circuit 1*** will be highlighted.
- Turn the dial counter-clockwise until ***Heating OFF at outdoor temperature*** is highlighted.
- Press the dial and the display will flash. The default value is 68 °F (20 °C) and is adjustable from 50 °F (10 °C) to 77 °F (25 °C). Turning above 77 °F (25 °C) will move it to 210 °F (99 °C), which disables WWSD.
- Press the dial to confi rm the setting.

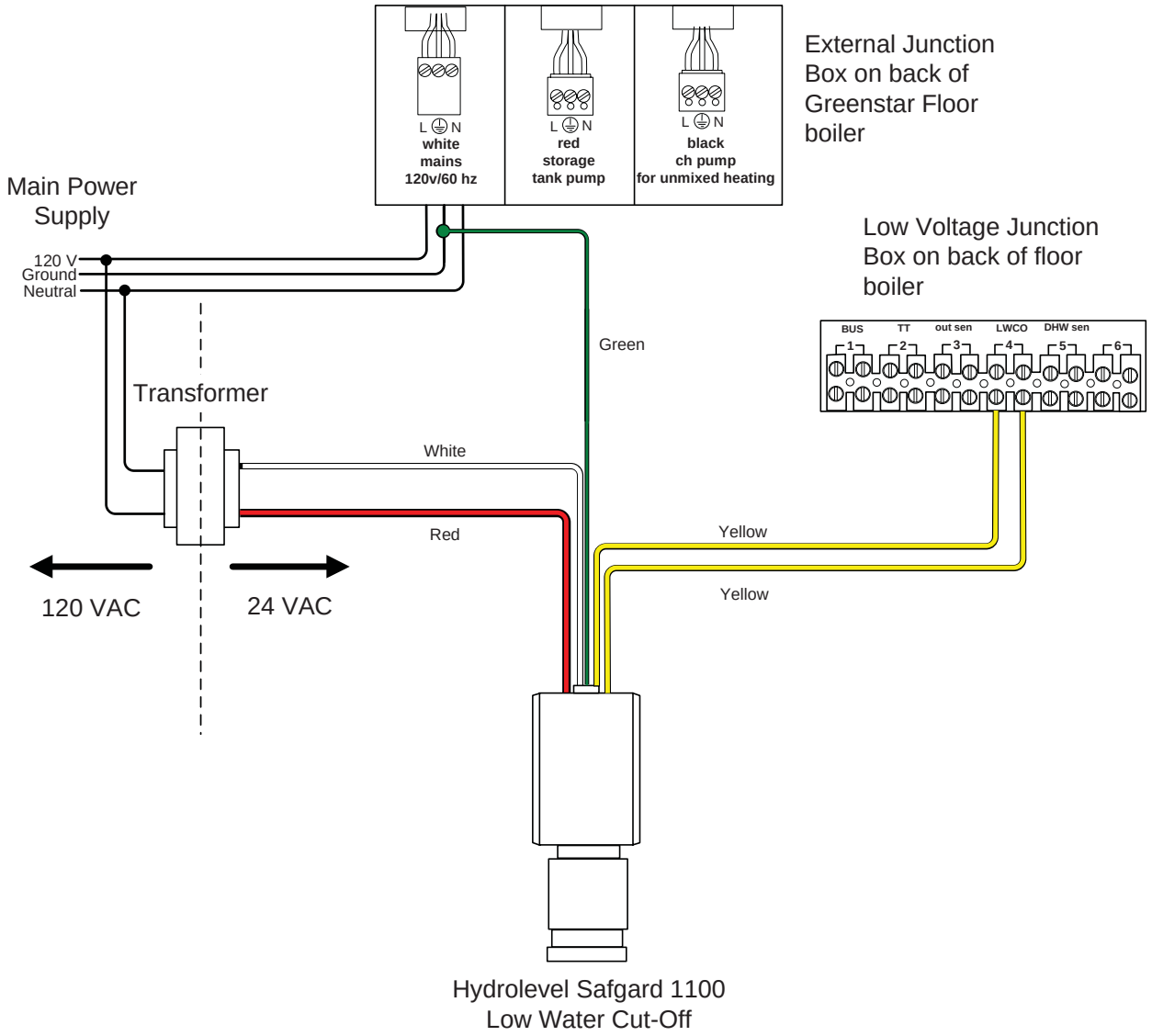
To restore to factory defaults, hold the Delete button (Fig.1, pos.5) and the Menu button simultaneously for about 10 seconds. A count down display will appear. This will restore factory defaults. The only program that will be held is the date and time.

Appendix D: Wiring Hydrolevel Safgard 1100 Low Water Cut-off to Greenstar Wall Boiler



►Install a 24VAC 20VA Transformer near the boiler
►Follow LWCO manufacturer's instructions
►Connect the lead labeled BOILER GROUND (green) to the ground wire of the white plug in the boiler junction box
►Connect the leads labeled 24V HOT(red) and 24V COMMON(white) to the external 24VAC transformer (field supplied)
►Inside the Heatronic Control of the boiler, remove jumper from terminal #8 and #9 and connect the leads labeled SWITCH CONTACT (yellow) to terminals #8 and #9

Appendix E: Wiring Hydrolevel safgard 1100 Low Water Cut-Of to Greenstar Floor Boiler



- ►Install a 24VAC 20VA Transformer near the boiler
- ►Follow LWCO manufacturer's instructions
- ►Connect the lead labeled BOILER GROUND (green) to the ground wire of the white plug in the boiler junction box
- ►Connect the leads labeled 24V HOT(red) and 24V COMMON(white) to the external 24VAC transformer (field supplied)
- ►AT the Low Voltage box on the rear of the boiler, remove the jumper acros the LWCO connections and connect the leads labeled SWITCH CONTACT (yellow) to these connections.

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