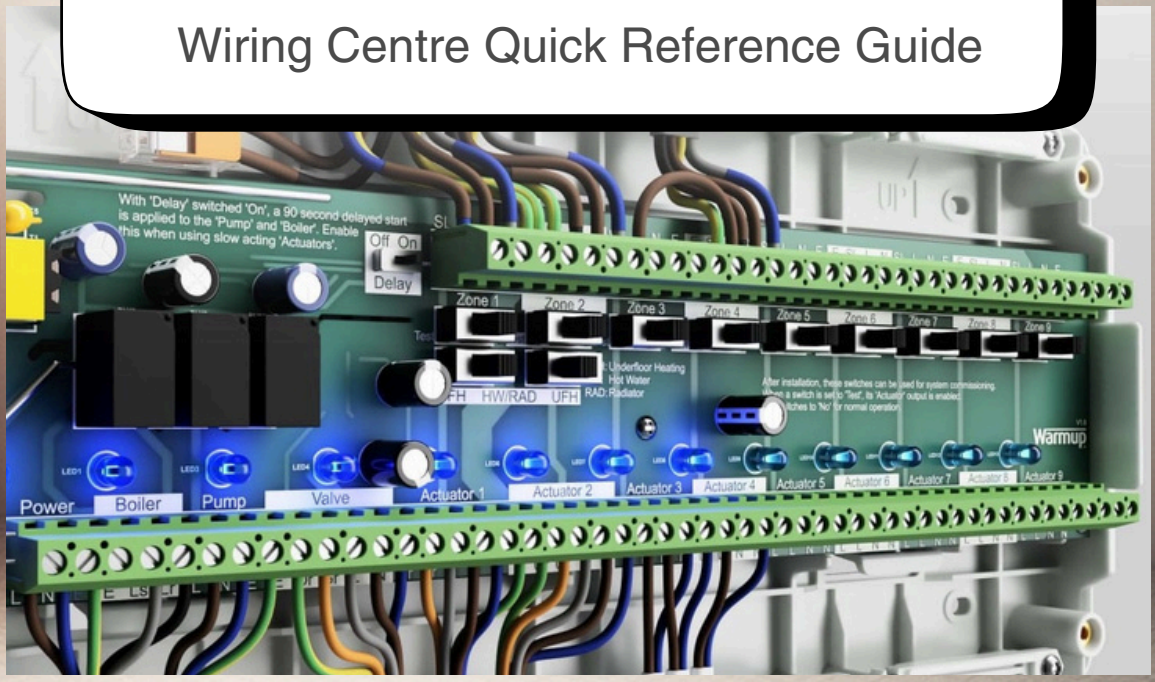
UNDERFLOOR HEATING

Wiring Centre Quick Reference Guide



What You'll Learn:

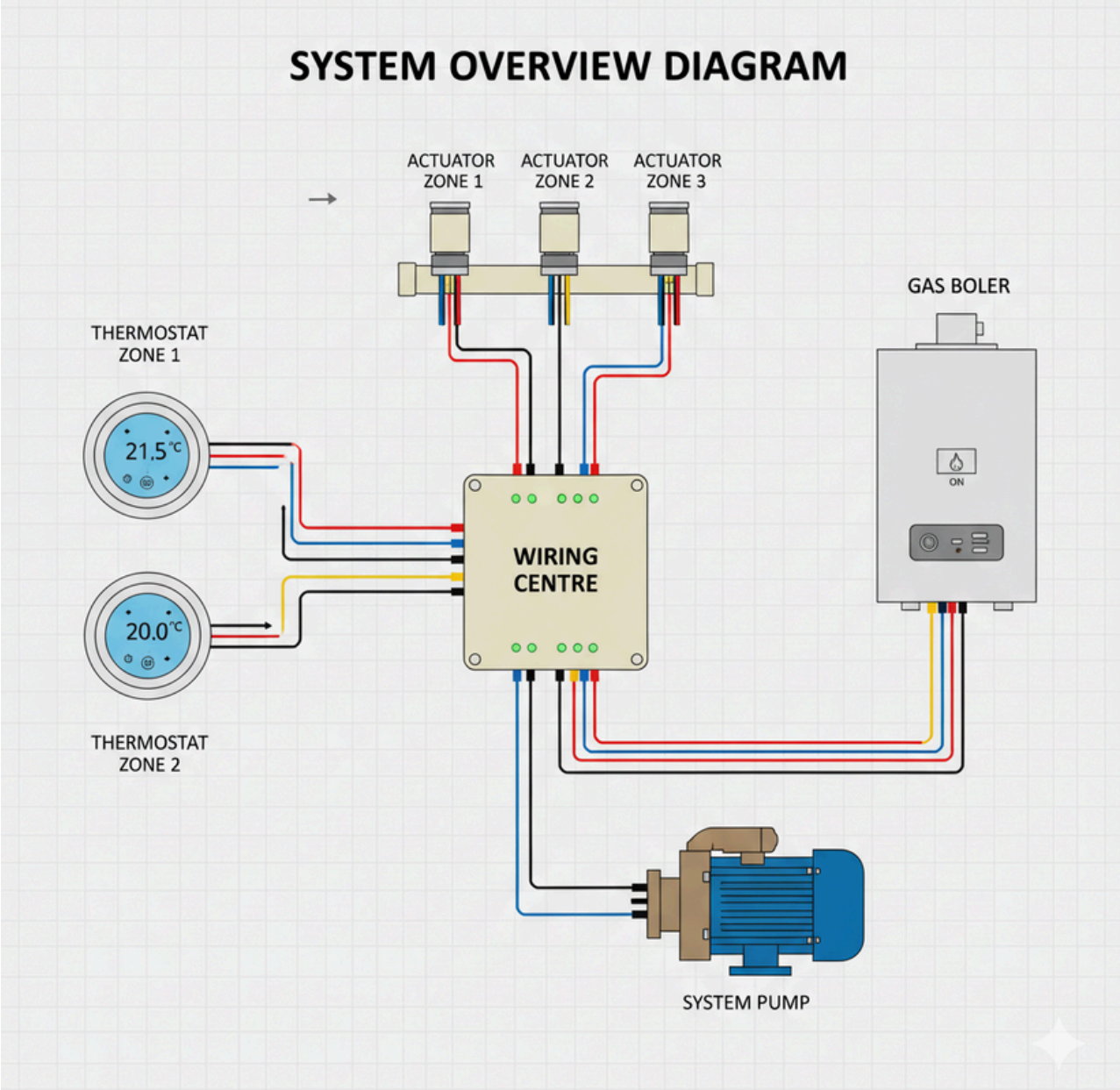
- What a wiring centre is and why it's essential
- Key components and their functions
- How the system works together
- Installation and wiring basics
- Quick troubleshooting tips

What is a Wiring Centre?

A wiring centre (also called a control centre or zone controller) is the central hub of an underfloor heating system. It coordinates all the electrical components to ensure your heating operates efficiently and safely.

For Homeowners: Think of it as the 'brain' of your heating system - it receives temperature requests from your thermostats and tells the pump and valve actuators when to open, close, or circulate water.

For Professionals: The wiring centre manages zone control through actuator switching, pump activation/deactivation, and integration with multiple thermostats. Most units feature volt-free switching for boiler/heat source control.



Key Components

Component	Function	Connection Type
Thermostat Inputs	Receives heating demand signals from room thermostats	3-core cable (L, N, SL)
Actuator Outputs	Powers zone valve actuators (usually 230V, 2-3W)	2-core cable (L, N)
Pump Control	Activates circulation pump when any zone calls for heat	3-core cable (L, N, E)
Boiler/Heat Source	Volt-free contacts to signal heating demand	2-core cable
Power Supply	230V AC input to power the control center	3-core mains cable

How the System Works
Step-by-Step Operation:

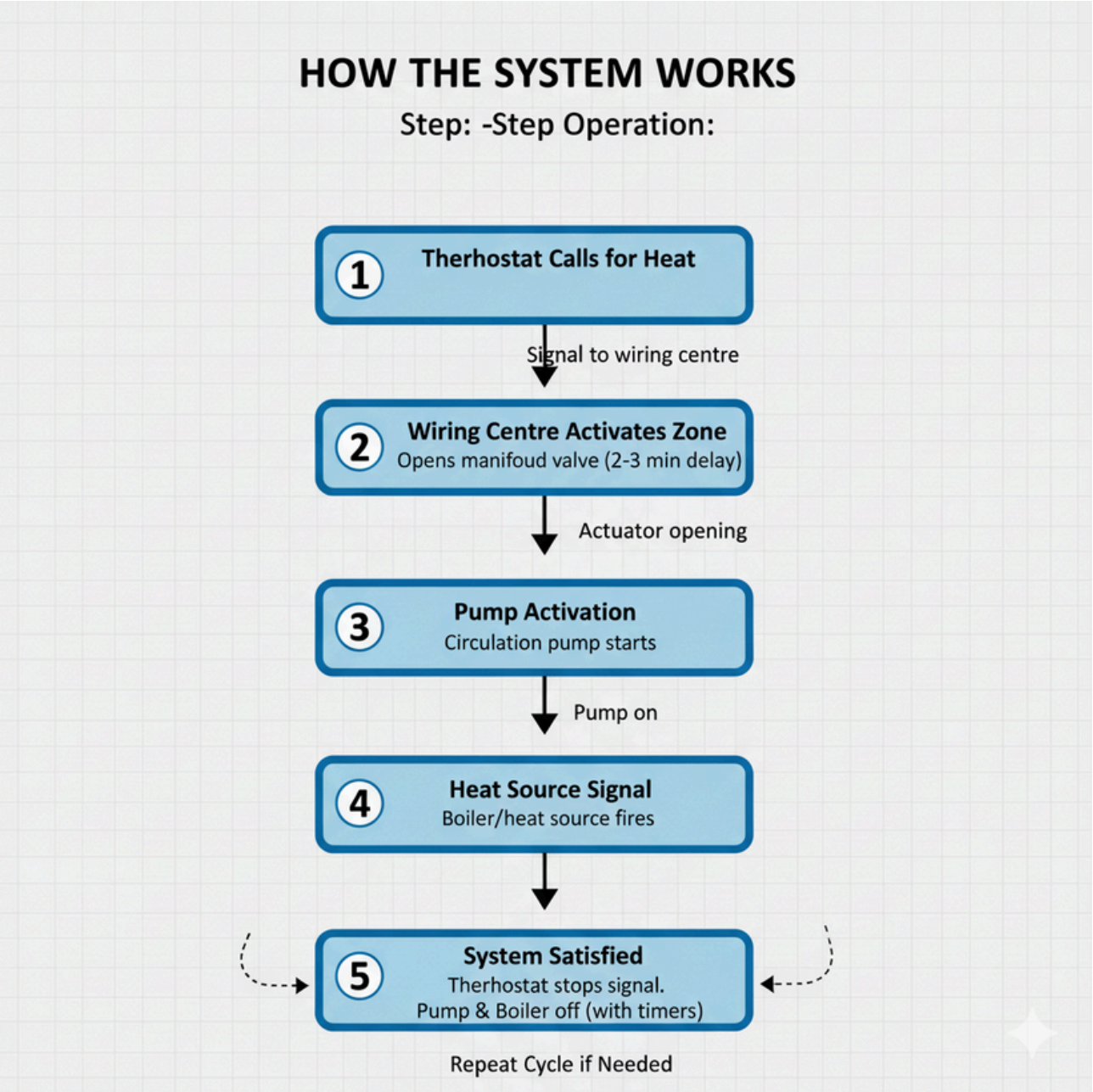
1. Thermostat Calls for Heat When room temperature drops below the setpoint, the thermostat sends a signal to the wiring centre.

2. Wiring Centre Activates Zone
The control centre powers the corresponding zone actuator, which opens the manifold valve for that zone
(actuators typically take 2-3 minutes to fully open).

3. Pump Activation
Once any actuator begins opening, the wiring centre starts the circulation pump. Many units include a pump
overrun timer (typically 2-5 minutes) to ensure proper circulation.

4. Heat Source Signal
The wiring centre closes volt-free contacts to signal the boiler/heat source to fire. This ensures hot water is
available when the system needs it.

5. System Satisfied
When the thermostat reaches its setpoint, the signal stops. The actuator closes, and if no other zones are
calling, the pump and boiler signal turn off after their respective timers.



Installation Basics

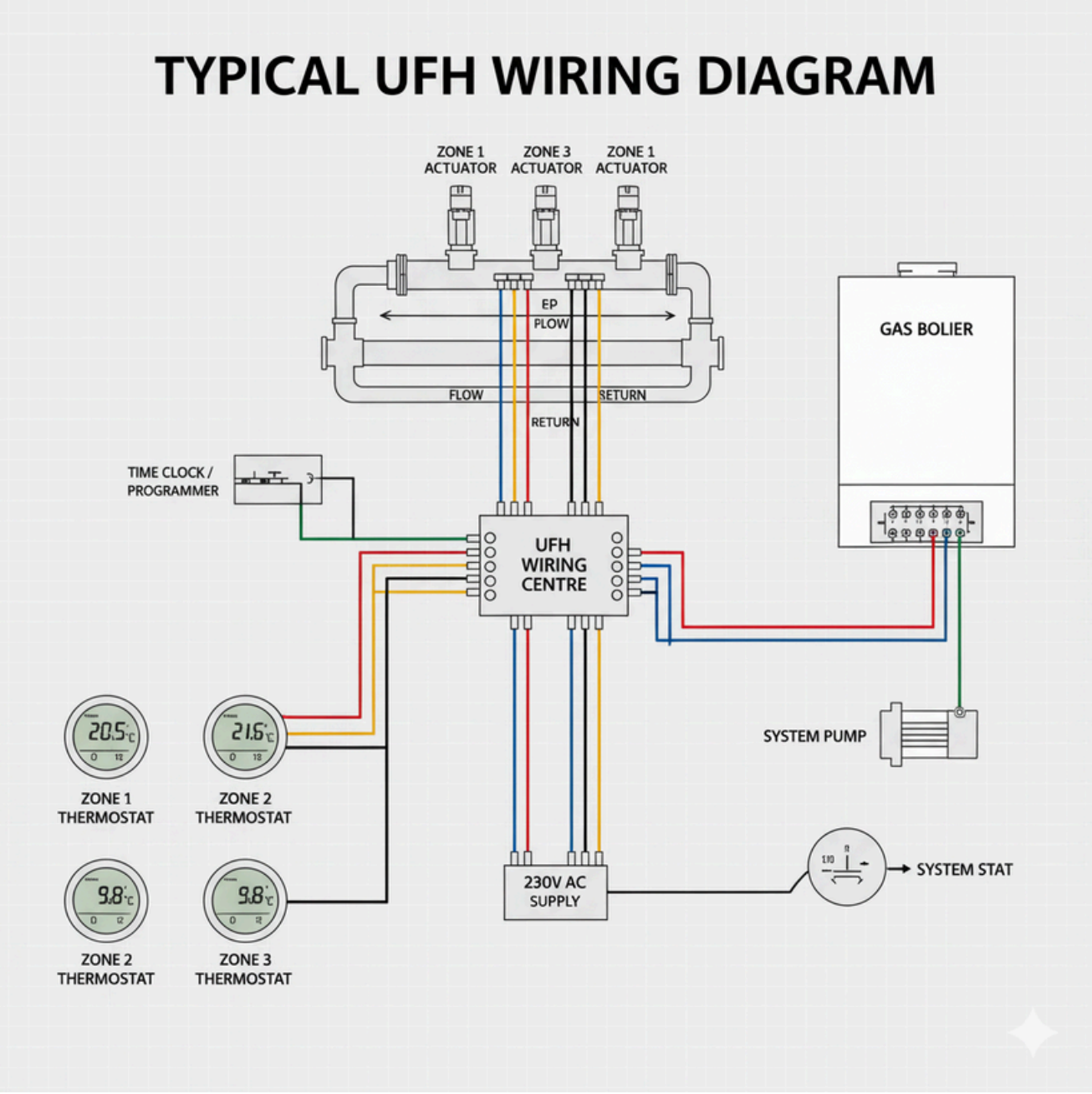
■ **SAFETY FIRST:** All electrical work must comply with local regulations. In many jurisdictions, a qualified electrician must perform or verify all mains voltage connections. Always isolate power before working on the system.

Location Requirements:

- Mount in a dry, accessible location near the manifold
- Maintain adequate ventilation around the unit
- Protect from extreme temperatures and moisture
- Ensure easy access for maintenance and troubleshooting

Cable Requirements:

- **Thermostats:** Multi-core flex (2-4 cores depending on thermostat type)
- **Actuators:** 2-core 0.75mm² flex (low voltage, minimal current)
- **Pump:** 3-core 1.5mm² cable (L, N, E) - sized for pump load
- **Boiler:** 2-core flex for volt-free contacts
- **Mains Supply:** 3-core 1.5mm² cable from dedicated breaker



Wiring Tips:

- Label all cables at both ends before connection
- Keep low-voltage thermostat cables separate from mains cables
- Use cable ties and trunking for neat installation
- Double-check polarity and zone assignments before testing
- Take photos of all connections before closing covers

Common Wiring Configurations

Configuration 1: Standard Zoned System

Most common setup with multiple zones, each controlled by its own thermostat:

- 4-8 zones typical for residential applications
- One thermostat per room/zone
- Single pump serving all zones
- One boiler call for all zones

Configuration 2: Mixed System

Combines underfloor heating with radiators:

- UFH zones controlled via wiring centre
- Radiator circuits may have separate zone valves
- Requires careful coordination between systems
- May need flow/return temperature management

Configuration 3: Multi-Temperature System

For installations requiring different flow temperatures:

- Separate manifolds for different areas

- Blending valve(s) to manage temperatures

- May require multiple wiring centres • Common in homes with screed and suspended floor systems

Quick Troubleshooting Guide

Symptom	Possible Cause	Check/Solution
Pump doesn't run	• No power • Failed relay • Wiring issue	• Verify mains supply • Check pump connections • Test relay operation
Zone not heating	• Thermostat issue • Actuator fault • Wiring problem	• Test thermostat signal • Check actuator LED • Verify zone wiring
All zones heat together	• Actuators wired incorrectly • Failed zone control	• Check actuator wiring • Verify zone isolation • Test individual zones
Boiler won't fire	• Volt-free contacts issue • Boiler interlock fault	• Test boiler call signal • Check boiler wiring • Verify boiler operation
System short-cycles	• Oversized pump • Timer settings • Circulation issue	• Adjust pump overrun • Check flow rates • Balance manifold

Professional Tip: When troubleshooting, always work systematically. Start with the simplest checks (power, connections) before moving to component testing. A multimeter is essential for diagnosing electrical issues.

Need More Information?

This quick reference guide covers the essentials of underfloor heating wiring centres. For comprehensive guides, detailed wiring diagrams, installation videos, and expert advice, visit:

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