



Part Name	Check Points																																				
<p>3-way valve</p>	<p>(1) Check the movement of the red indicator. The red indicator normally points to A in DHW mode and to B in Heating mode as shown to the left.</p> <p>(2) If each indicator position is correct but the 3-way valve does not work properly, the motor may not fit onto the valve securely, so remove the motor by pressing the release button, and reinstall it.</p>																																				
<p>Thermistors</p>	<p>Disconnect the connector then measure the resistance with a tester. (At ambient temperatures of 10–30°C.)</p> <table border="1"> <thead> <tr> <th>Thermistor</th> <th>Normal</th> <th>Abnormal</th> </tr> </thead> <tbody> <tr><td>TH1</td><td></td><td></td></tr> <tr><td>TH2</td><td></td><td></td></tr> <tr><td>THW1</td><td></td><td></td></tr> <tr><td>THW2</td><td></td><td></td></tr> <tr><td>THW5</td><td>4.3–9.5 kΩ</td><td>Open or short</td></tr> <tr><td>THW6</td><td></td><td></td></tr> <tr><td>THW7</td><td></td><td></td></tr> <tr><td>THW8</td><td></td><td></td></tr> <tr><td>THW9</td><td></td><td></td></tr> <tr><td>THWB1</td><td>40–100 kΩ</td><td>Open or short</td></tr> <tr><td>THWB2</td><td></td><td></td></tr> </tbody> </table>	Thermistor	Normal	Abnormal	TH1			TH2			THW1			THW2			THW5	4.3–9.5 kΩ	Open or short	THW6			THW7			THW8			THW9			THWB1	40–100 kΩ	Open or short	THWB2		
Thermistor	Normal	Abnormal																																			
TH1																																					
TH2																																					
THW1																																					
THW2																																					
THW5	4.3–9.5 kΩ	Open or short																																			
THW6																																					
THW7																																					
THW8																																					
THW9																																					
THWB1	40–100 kΩ	Open or short																																			
THWB2																																					

<Thermistor Characteristics Charts>

- Room temperature thermistor (TH1)
- Liquid refrigerant temperature thermistor (TH2)
- Flow water temperature thermistor (THW1)
- Return water temperature thermistor (THW2)
- DHW tank temperature thermistor (THW5)
- Zone1 flow water temperature thermistor (THW6)
- Zone1 return water temperature thermistor (THW7)
- Zone2 flow water temperature thermistor (THW8)
- Zone2 return water temperature thermistor (THW9)

Thermistor R0 = 15kΩ ± 3%

B constant = 3480 ± 2%

$$R_t = 15 \exp \left\{ 3480 \left(\frac{1}{273+t} - \frac{1}{273} \right) \right\}$$

0°C	15 kΩ
10°C	9.6 kΩ
20°C	6.3 kΩ
25°C	5.2 kΩ
30°C	4.3 kΩ
40°C	3.0 kΩ

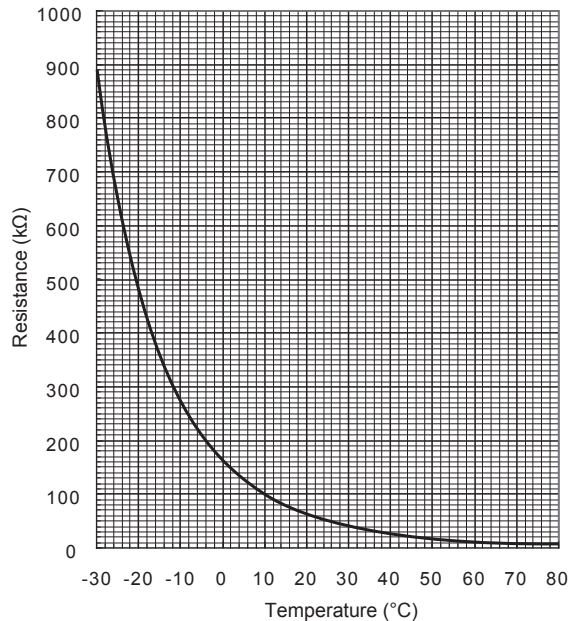
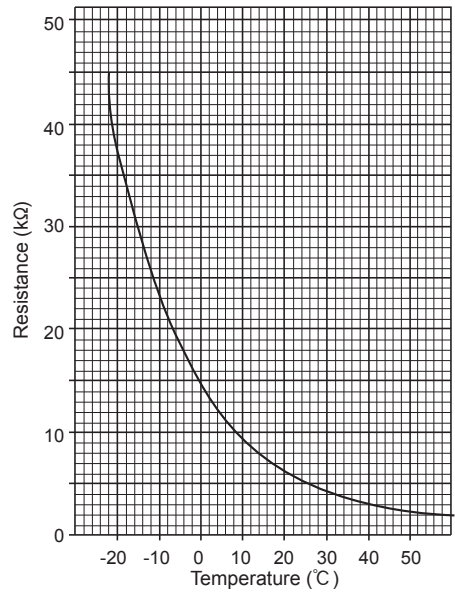
- Boiler flow water temperature thermistor (THWB1)
- Boiler return water temperature thermistor (THWB2)

Thermistor R100 = 3.3kΩ ± 2%

B constant = 3970 ± 1%

$$R_t = 3.3 \exp \left\{ 3970 \left(\frac{1}{273+t} - \frac{1}{273} \right) \right\}$$

0°C	162.8 kΩ
10°C	97.4 kΩ
20°C	60.3 kΩ
25°C	48.1 kΩ
30°C	38.6 kΩ
40°C	25.4 kΩ
50°C	17.1 kΩ
60°C	11.9 kΩ
70°C	8.4 kΩ
80°C	6.0 kΩ



<Thermistor feature chart>

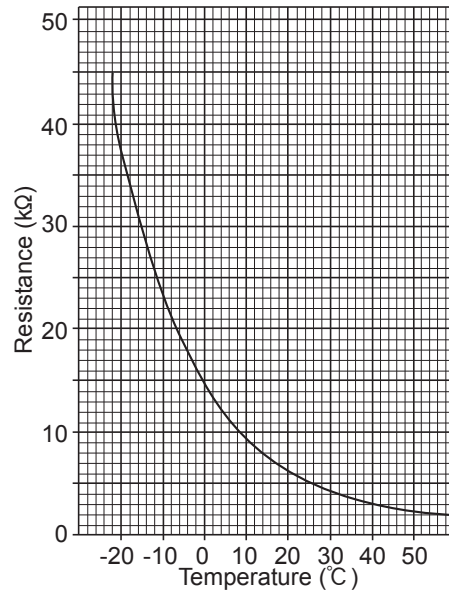
Low temperature thermistors

- Thermistor <Liquid> (TH3)
- Thermistor <2-phase pipe> (TH6)
- Thermistor <Ambient> (TH7)

Thermistor R0 = 15 kΩ ± 3%
 B constant = 3480 ± 2%

$$R_t = 15 \exp\left\{3480 \left(\frac{1}{273+t} - \frac{1}{273} \right)\right\}$$

0°C	15 kΩ	30°C	4.3 kΩ
10°C	9.6 kΩ	40°C	3.0 kΩ
20°C	6.3 kΩ		
25°C	5.2 kΩ		



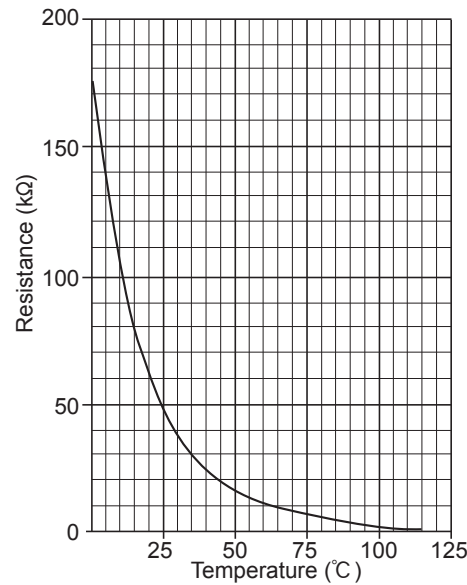
Medium temperature thermistor

- Thermistor <Heat sink> (TH8)
 (SW75V, SW100/120Y only)

Thermistor R50 = 17 kΩ ± 2%
 B constant = 4150 ± 3%

$$R_t = 17 \exp\left\{4150 \left(\frac{1}{273+t} - \frac{1}{323} \right)\right\}$$

0°C	180 kΩ
25°C	50 kΩ
50°C	17 kΩ
70°C	8 kΩ
90°C	4 kΩ



High temperature thermistor

- Thermistor <Discharge> (TH4)
- Thermistor <Comp. surface> (TH34)

Thermistor R120 = 7.465 kΩ ± 2%
 B constant = 4057 ± 2%

$$R_t = 7.465 \exp\left\{4057 \left(\frac{1}{273+t} - \frac{1}{393} \right)\right\}$$

20°C	250 kΩ	70°C	34 kΩ
30°C	160 kΩ	80°C	24 kΩ
40°C	104 kΩ	90°C	17.5 kΩ
50°C	70 kΩ	100°C	13.0 kΩ
60°C	48 kΩ	110°C	9.8 kΩ

