

























## GENERAL

### SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve		Check Valve		RS3 Remote Controller
	Expansion Tank		Motorized 2 Way Valve		Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent		Differential Pressure Valve		Y-type strainer		Dry Contact
	Pressure Gauge		Thermostatic Mixing Valve		Flow Sensor		Wi-Fi Modem
	Flexible Connection		Shut Off Valve		Magnetic Contactor		Thermostat
	Drain		Pressure Reducing Valve		Shut Off Valve with Strainer		Cover Plate

### SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories		
Full Name	Description	Part No.
RS3 wired remote controller	A wired remote controller with built-in temperature sensor. Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
Wi-Fi Modem	A control device that enables wireless communication with internet router. Including USB cable 0.6m and extension cable 0.5m	PWFMDD200
Dry Contact	A control switch that enables turning THERMA V On/Off after receiving the signal from external control system.	PDRYCB000 PDRYCB320
Buffer Tank	The insertable water tank containing certain amount of water (40L) that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.	OSHB-40KT
Expansion Tank for DHW	The insertable water tank (8L) to absorb the volume changes by temperature of water for DHW circuit.	OSHE-12KT
Thermostatic Mixing Valve	A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.	OSHA-MV (3/4") OSHA-MV1 (1")

3rd party accessories	
Full Name	Description
External Pump	An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.
Magnetic Filter	A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.
2 Way Valve	A motorized isolation valve that blocks the water flow into underfloor coil in order to prevent water condensation during cooling mode. Controlled by THERMA V with 230V power. Required operating time : less than 90s.
Direct Digital Controller	A control device that uses the analogue or digital signals from various devices and then process and control the system based on the program written inside the controllers and has the capability to sends the information to another controller.
Differential Pressure Valve	A self pressure regulating valve that provides constant differential pressure between supply and return headers.
Thermostat	A control device that senses the temperature of a room and performs actions so that the room's temperature is maintained near a desired setpoint. Thermostat must be connected with Therma V, Valve, Pump, and FCU where applicable.
2 Way Valve for Thermostat	A isolation valve paired with thermostat to allow whether water flows into the water circuit.

### ACCESSORY LIST

Full Name	LG Part No.	Scope of supply	
		LG	3rd party
2 Remo Cable	PZCWRC2	O	
2way Valve	-		O
3way Valve	OSHA-3V	O	O
Air Vent Valve	-		O
Buffer Tank	For IWT, OSHB-40KT	O	O
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	O	
Back Up Heater	HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	O	O
Circuit Breaker	-	O	O
Check Valve	-		O
DHW Booster Heater	Integrated with DHW Tank	O	O
Dry Contact	PDRYCB000 PDRYCB320	O	
Direct Digital Controller	-		O
Differential Pressure Valve	-		O
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	O	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	O	
Drain Valve	-		O
External Boiler	-		O
Energy Meter	-		O
External Pump	-		O
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	O	O
Flexible Connection	-		O
Fan Coil Unit	-		O
Flow Sensor	-		O
Heat Meter	-		O
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	O	O
Isolation Valve	-		O
Magnetic Contactor	-	O	O
Magnetic Filter	-		O
Meter Interface	PENKTH000	O	
Mixing Pump	-		O
Mixing Zone Temperature Sensor	PRSTAT5K10	O	
Mixing Valve	-		O
Pressure Gauge	-		O
Plate Heat Exchanger	-		O
Radiator	-		O
Remote Room Air Temperature Sensor	PQRSTA0	O	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	O	
Solar Pump	-		O
Safety Relief Valve	-		O
Strainer	-		O
Solar Temperature Sensor (PT-1000)	-		O
Service Valve	-		O
Thermostat	-		O
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	O	O
Under Floor Heating Coil	-		O
Wi-Fi Modem	PWFMDD200	O	
Water Temperature Sensor	-		O
Extension Wire for RS3 Controller	PZCWRC1	O	
Cover Plate	PDC-HK10	O	
Drain Pan	PHDPC	O	
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	O	
PI485 Gateway	PMNFP14A1	O	

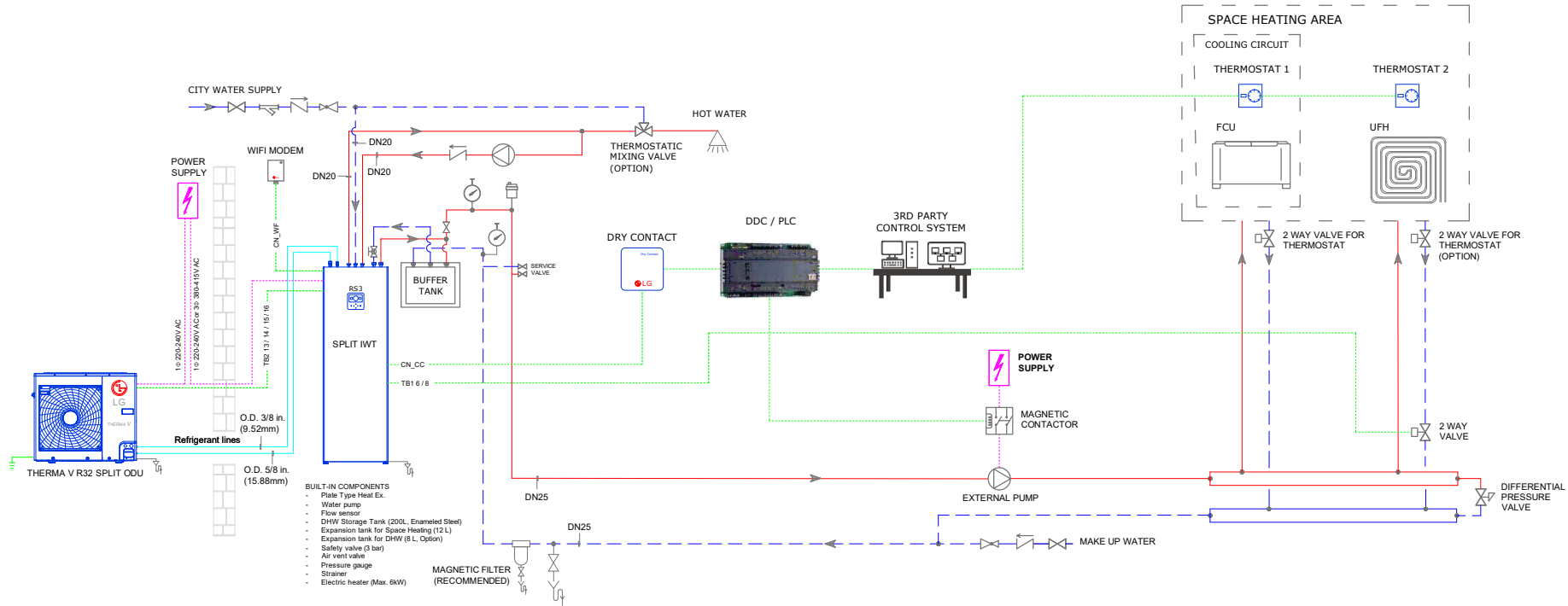
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating, Cooling, and DHW with Dry Contact
Product	R32 Split IWT (Integrated Water Tank, HN0916T NB1)
Terminal Device	UFH(H) + FCU(H&C)
Main Controller	3rd Party Controller
Control Setting of LG RS3 Controller	Based on Water Temp.
External Pump	Controlled by 3rd Party Controller

### SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve		Check Valve		RS3 Remote Controller
	Expansion Tank		Motorized 2 Way Valve		Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent		Differential Pressure Valve		Y-type strainer		Dry Contact
	Pressure Gauge		Thermostatic Mixing Valve		Flow Sensor		Wi-Fi Modem
	Flexible Connection		Shut Off Valve		Magnetic Contactor		Thermostat
	Drain		Pressure Reducing Valve		Shut Off Valve with Strainer		Cover Plate



### NOTE

1. This diagram should be used only for reference purpose. It does not contain all the required equipment and safety components in accordance with actual site conditions. Furthermore, please make sure to take into account the applicable standards and laws for each country. LG Electronics disclaims any direct or indirect responsibility for any consequences arising out of any inaccuracies or consequential changes to this general scheme.
2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.

### LG ACCESSORIES

#### RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.  
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWR1)

#### Wi-Fi Modem (PWFMD200)

A control device that enables wireless communication with internet router. Including USB cable 0.6m and extension cable 0.5m

#### Dry Contact (PDRYCB000, PDRYCB320)

A control switch that enables turning THERMA V On/Off after receiving the signal from external control system.

#### Buffer Tank (OSHB-40KT)

The insertable water tank containing certain amount of water (40L) that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

#### Expansion Tank for DHW (OSHE-12KT)

The insertable water tank (8L) to absorb the volume changes by temperature of water for DHW circuit.

#### Thermostatic Mixing Valve (OSHA-MV, OSHA-MV1)

A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.

### 3RD PARTY ACCESSORIES

#### External Pump

An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.

#### Magnetic Filter (Recommended)

A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.

#### 2 Way Valve

A motorized isolation valve that blocks the water flow into underfloor coil in order to prevent water condensation during cooling mode. Controlled by THERMA V with 230V power. Required operating time : less than 90s.

#### DDC (Direct Digital Controller)

A control device that uses the analogue or digital signals from various devices and then process and control the system based on the program written inside the controllers and has the capability to sends the information to another controller.

#### Thermostat

A control device that senses the temperature of a room and performs actions so that the room's temperature is maintained near a desired setpoint. Thermostat must be connected with Therma V, Valve, Pump, and FCU where applicable.

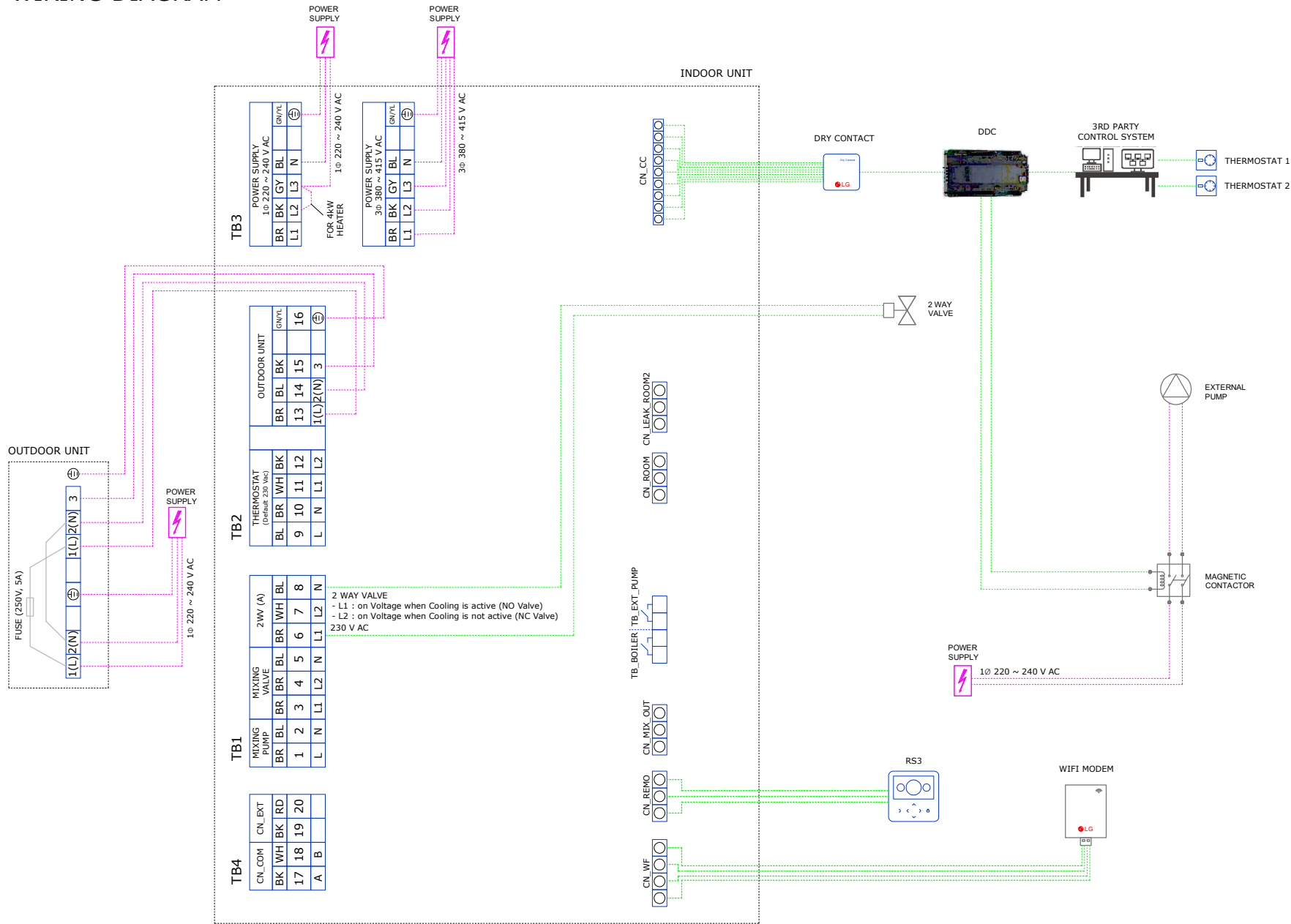
#### 2 Way Valve for Thermostat

A isolation valve paired with thermostat to allow whether water flows into the water circuit.

#### Differential Pressure Valve

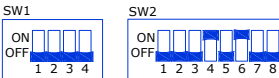
A self pressure regulating valve that provides constant differential pressure between supply and return headers.

## WIRING DIAGRAM



### DIP SWITCH SETTINGS

#### INDOOR UNIT MAIN PCB



		X: OFF / O: ON							
		DIP SW2	1	2	3	4	5	6	7
Indoor Unit Type Setting for Group Control	Ac Master	X							
	Ac Slave	O							
Accessory Installation Information	DHW Tank Integrated Indoor Unit + Outdoor Unit are installed		X	X					
			O	X					
Heat pump cycle	Heating only			X					
	Heating and cooling			O					
Selecting electric heater capacity	Electric heater is not used				X	X			
	Electric heater is used				O	X			
Thermostat Installation	Thermostat is not installed							X	
	Thermostat is installed							O	
		default setting	X	X	X	X	X	O	X

		DIP SW1	1
MODBUS communication type	Master (Link to LG controller)	X	
	Slave (Link to 3rd party controller)	O	
		default setting	X

		DIP SW3	1	2
Remote room air sensor (Accessories)	Remote room air sensor is not installed	X		
	Remote room air sensor is installed	O		
Antifreeze mode	Antifreeze is not applied		X	
	Antifreeze is applied (Adjustable anti-freeze temp.)		O	
		default setting	X	X

#### OUTDOOR UNIT MAIN PCB



























		DIP SW1	1	2	3
Low Noise Mode	Always mode: Maintain low noise mode for target temperature	X			
	Partial mode: Escape low noise mode for target temperature	O			
Peak Control	Max mode		X		
	Peak control: To limit maximum current (Power saving)		O		
		default setting	X	X	

### NOTE

- The wiring cable size and Circuit breaker selection must comply with installation manual and applicable local regulations.
- Make sure that Earth Leakage Circuit Breaker (ELCB) should be installed for power supply line.

GENERAL

SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve		Check Valve		RS3 Remote Controller
	Expansion Tank		Motorized 2 Way Valve		Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent		Differential Pressure Valve		Y-type strainer		Dry Contact
	Pressure Gauge		Thermostatic Mixing Valve		Flow Sensor		Wi-Fi Modem
	Flexible Connection		Shut Off Valve		Magnetic Contactor		Thermostat
	Drain		Pressure Reducing Valve		Shut Off Valve with Strainer		Cover Plate

SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories		
Full Name	Description	Part No.
RS3 wired remote controller	A wired remote controller with built-in temperature sensor. Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
Buffer Tank	The insertable water tank containing certain amount of water (40L) that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.	OSHB-40KT
Expansion Tank for DHW	The insertable water tank (8L) to absorb the volume changes by temperature of water for DHW circuit.	OSHE-12KT
Thermostatic Mixing Valve	A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.	OSHA-MV (3/4") OSHA-MV1 (1")

3rd party accessories	
Full Name	Description
External Pump	An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.
Magnetic Filter	A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.
2 Way Valve	A motorized isolation valve that blocks the water flow into underfloor coil in order to prevent water condensation during cooling mode. Controlled by THERMA V with 230V power. Required operating time : less than 90s.
Differential Pressure Valve	A self pressure regulating valve that provides constant differential pressure between supply and return headers.
Thermostat	A control device that senses the temperature of a room and performs actions so that the room's temperature is maintained near a desired setpoint. Thermostat must be connected with Therma V, Valve, Pump, and FCU where applicable.
2 Way Valve for Thermostat	A isolation valve paired with thermostat to allow whether water flows into the water circuit.

ACCESSORY LIST

Full Name	LG Part No.	Scope of supply	
		LG	3rd party
2 Remo Cable	PZCWRC2	O	
2way Valve	-		O
3way Valve	OSHA-3V	O	O
Air Vent Valve	-		O
Buffer Tank	For IWT, OSHB-40KT	O	O
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	O	
Back Up Heater	HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	O	O
Circuit Breaker	-	O	O
Check Valve	-		O
DHW Booster Heater	Integrated with DHW Tank	O	O
Dry Contact	PDRYCB000 PDRYCB320	O	
Direct Digital Controller	-		O
Differential Pressure Valve	-		O
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	O	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	O	
Drain Valve	-		O
External Boiler	-		O
Energy Meter	-		O
External Pump	-		O
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	O	O
Flexible Connection	-		O
Fan Coil Unit	-		O
Flow Sensor	-		O
Heat Meter	-		O
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	O	O
Isolation Valve	-		O
Magnetic Contactor	-	O	O
Magnetic Filter	-		O
Meter Interface	PENKTH000	O	
Mixing Pump	-		O
Mixing Zone Temperature Sensor	PRSTAT5K10	O	
Mixing Valve	-		O
Pressure Gauge	-		O
Plate Heat Exchanger	-		O
Radiator	-		O
Remote Room Air Temperature Sensor	PQRSTA0	O	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	O	
Solar Pump	-		O
Safety Relief Valve	-		O
Strainer	-		O
Solar Temperature Sensor (PT-1000)	-		O
Service Valve	-		O
Thermostat	-		O
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	O	O
Under Floor Heating Coil	-		O
Wi-Fi Modem	PWFMD200	O	
Water Temperature Sensor	-		O
Extension Wire for RS3 Controller	PZCWRC1	O	
Cover Plate	PDC-HK10	O	
Drain Pan	PHDPC	O	
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	O	
PI485 Gateway	PMNFP14A1	O	



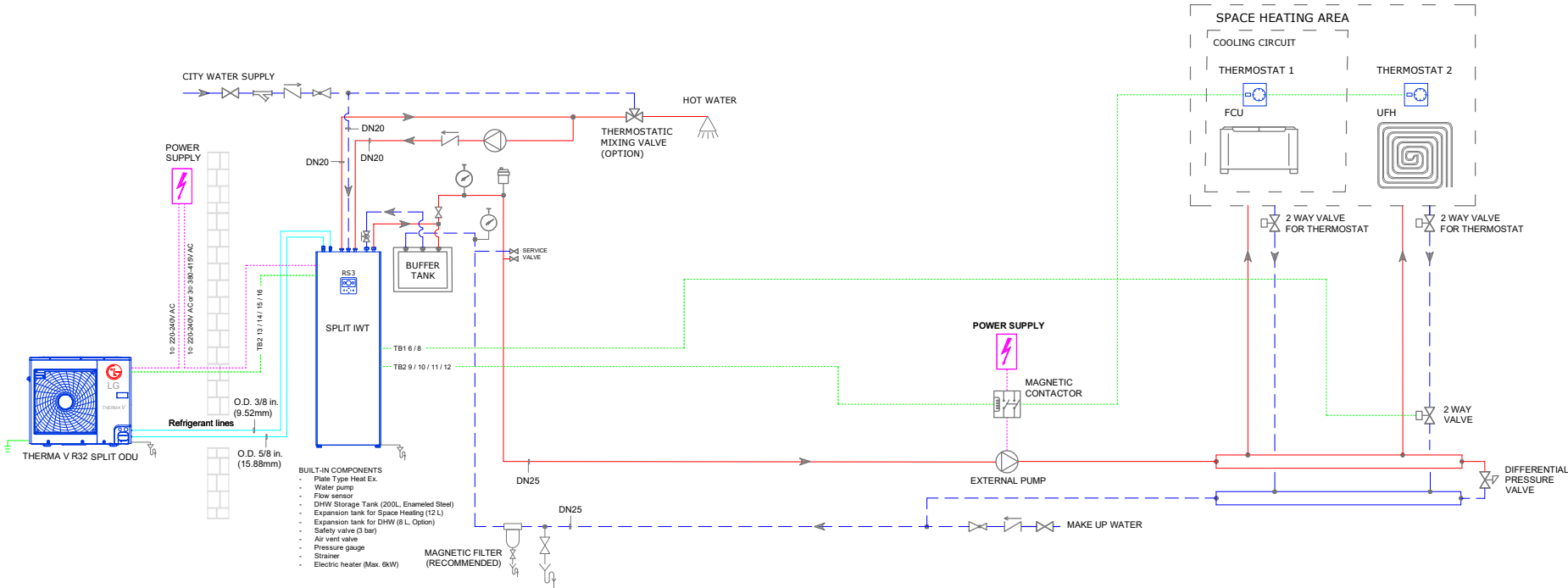
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating, Cooling, DHW with Thermostat
Product	R32 Split IWT (Integrated Water Tank, HN0916T NB1)
Terminal Device	UFH(H) + FCU(H&C)
Main Controller	Thermostat
Control Setting of LG RS3 Controller	Based on Water Temp.
External Pump	Controlled by Thermostat

SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve		Check Valve		RS3 Remote Controller
	Expansion Tank		Motorized 2 Way Valve		Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent		Differential Pressure Valve		Y-type strainer		Dry Contact
	Pressure Gauge		Thermostatic Mixing Valve		Flow Sensor		Wi-Fi Modem
	Flexible Connection		Shut Off Valve		Magnetic Contactor		Thermostat
	Drain		Pressure Reducing Valve		Shut Off Valve with Strainer		Cover Plate



NOTE

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4. In a cold climate region, water drainage from outdoor unit must be frost-proof.

LG ACCESSORIES

RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.  
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWR1)

Buffer Tank (OSHB-40KT)

The insertable water tank containing certain amount of water (40L) that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

Expansion Tank for DHW (OSHE-12KT)

The insertable water tank (8L) to absorb the volume changes by temperature of water for DHW circuit.

Thermostatic Mixing Valve (OSHA-MV, OSHA-MV1)

A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.

3RD PARTY ACCESSORIES

External Pump

An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.

Magnetic Filter (Recommended)

A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.

2 Way Valve

A motorized isolation valve that blocks the water flow into underfloor coil in order to prevent water condensation during cooling mode.  
Controlled by THERMA V with 230V power.  
Required operating time : less than 90s.

Thermostat

A control device that senses the temperature of a room and performs actions so that the room's temperature is maintained near a desired setpoint. Thermostat must be connected with Thermo V, Valve, Pump, and FCU where applicable.

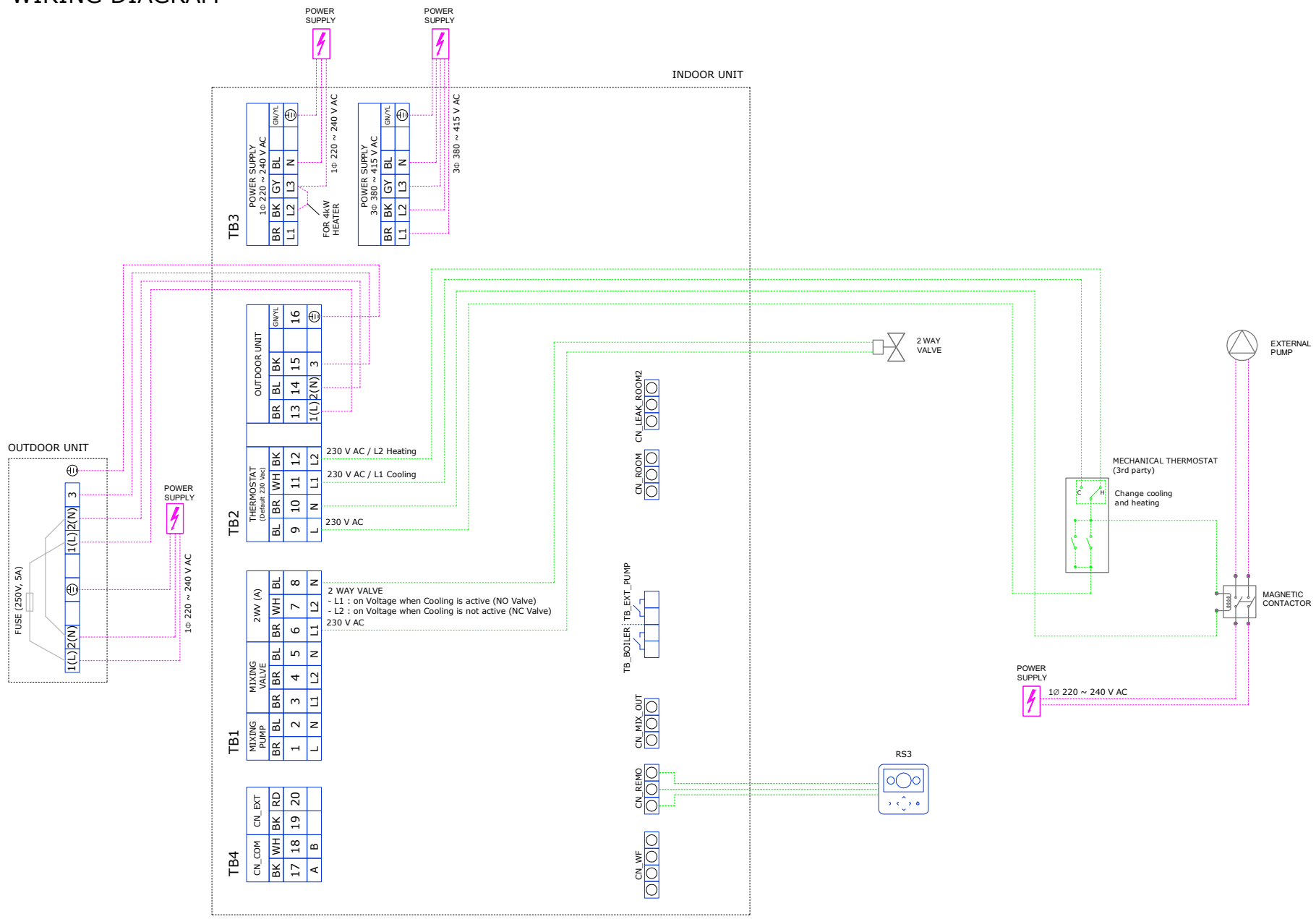
2 Way Valve for Thermostat

An isolation valve paired with thermostat to allow whether water flows into the water circuit.

Differential Pressure Valve

A self pressure regulating valve that provides constant differential pressure between supply and return headers.

WIRING DIAGRAM



DIP SWITCH SETTINGS

INDOOR UNIT MAIN PCB

**SW1**

ON OFF 1 2 3 4

**SW2**

ON OFF 1 2 3 4 5 6 7 8

























**SW3**

ON OFF 1 2 3 4

		X: OFF / O: ON							
		DIP SW2							
		1	2	3	4	5	6	7	8
Indoor Unit Type Setting for Group Control	As Master	X							
	As Slave	O							
Accessory Installation Information	DHW Tank Integrated Indoor Unit + Outdoor Unit are installed	X	X	X	X				
		O	X						
Heat pump cycle	Heating only				X				
	Heating and cooling				O				
Selecting electric heater capacity	Electric heater is not used				X		X	X	
	Electric heater is used				O				
Thermostat Installation	Thermostat is not installed				X			X	O
	Thermostat is installed				O				
		default setting							
		X	X	X	X	X	O	X	O
		DIP SW 1							
		1							
MODEM communication type	Master (Link to LG controller)	X							
	Slave (Link to 3rd party controller)	O							
		default setting							
		X							
		DIP SW3							
		1	2						
Remote room air sensor (accessory)	Remote room air sensor is not installed	X							
	Remote room air sensor is installed	O							
Antifreeze mode	Antifreeze is not applied	X							
	Antifreeze is applied (Adjustable anti-freeze temp.)	O							
		default setting							
		X	X						

## GENERAL

### SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve		Check Valve		RS3 Remote Controller
	Expansion Tank		Motorized 2 Way Valve		Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent		Differential Pressure Valve		Y-type strainer		Dry Contact
	Pressure Gauge		Thermostatic Mixing Valve		Flow Sensor		Wi-Fi Modem
	Flexible Connection		Shut Off Valve		Magnetic Contactor		Thermostat
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3way Valve	OSHA-3V	O	O
Air Vent Valve	-		O
Buffer Tank	For IWT, OSHB-40KT	O	O
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	O	
Back Up Heater	HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	O	O
Circuit Breaker	-	O	O
Check Valve	-		O
DHW Booster Heater	Integrated with DHW Tank	O	O
Dry Contact	PDRYCB000 PDRYCB320	O	
Direct Digital Controller	-		O
Differential Pressure Valve	-		O
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	O	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	O	
Drain Valve	-		O
External Boiler	-		O
Energy Meter	-		O
External Pump	-		O
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	O	O
Flexible Connection	-		O
Fan Coil Unit	-		O
Flow Sensor	-		O
Heat Meter	-		O
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	O	O
Isolation Valve	-		O
Magnetic Contactor	-	O	O
Magnetic Filter	-		O
Meter Interface	PENKTH000	O	
Mixing Pump	-		O
Mixing Zone Temperature Sensor	PRSTAT5K10	O	
Mixing Valve	-		O
Pressure Gauge	-		O
Plate Heat Exchanger	-		O
Radiator	-		O
Remote Room Air Temperature Sensor	PQRSTA0	O	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	O	
Solar Pump	-		O
Safety Relief Valve	-		O
Strainer	-		O
Solar Temperature Sensor (PT-1000)	-		O
Service Valve	-		O
Thermostat	-		O
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	O	O
Under Floor Heating Coil	-		O
Wi-Fi Modem	PWFMD200	O	
Water Temperature Sensor	-		O
Extension Wire for RS3 Controller	PZCWRC1	O	
Cover Plate	PDC-HK10	O	
Drain Pan	PHDPC	O	
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	O	
PI485 Gateway	PMNFP14A1	O	

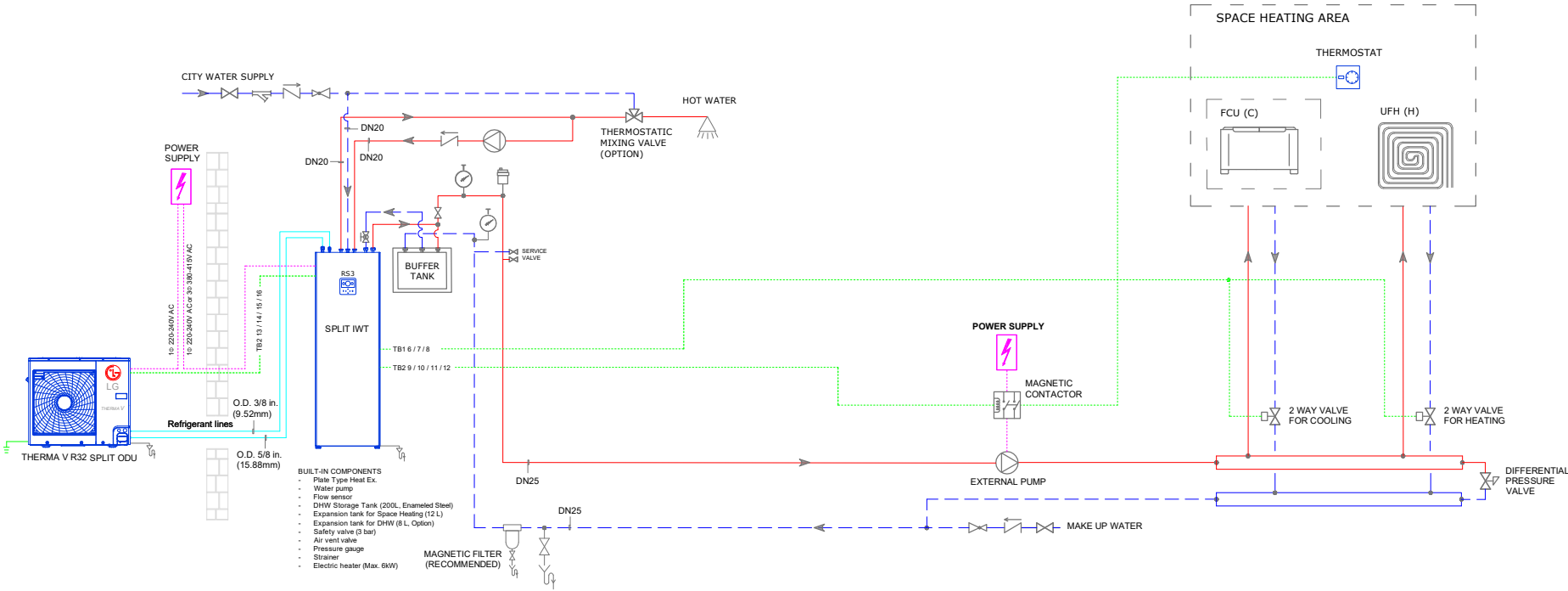
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating, Cooling, DHW with Thermostat
Product	R32 Split IWT (Integrated Water Tank, HN0916T NB1)
Terminal Device	UFH(H) + FCU(C)
Main Controller	Thermostat
Control Setting of LG RS3 Controller	Based on Water Temp.
External Pump	Controlled by Thermostat

### SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve		Check Valve		RS3 Remote Controller
	Expansion Tank		Motorized 2 Way Valve		Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent		Differential Pressure Valve		Y-type strainer		Dry Contact
	Pressure Gauge		Thermostatic Mixing Valve		Flow Sensor		Wi-Fi Modem
	Flexible Connection		Shut Off Valve		Magnetic Contactor		Thermostat
	Drain		Pressure Reducing Valve		Shut Off Valve with Strainer		Cover Plate



### NOTE

1. This diagram should be used only for reference purpose. It does not contain all the required equipment and safety components in accordance with actual site conditions. Furthermore, please make sure to take into account the applicable standards and laws for each country. LG Electronics disclaims any direct or indirect responsibility for any consequences arising out of any inaccuracies or consequential changes to this general scheme.
2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.

### LG ACCESSORIES

#### RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.  
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWR1)

#### Buffer Tank (OSHB-40KT)

The insertable water tank containing certain amount of water (40L) that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

#### Expansion Tank for DHW (OSHE-12KT)

The insertable water tank (8L) to absorb the volume changes by temperature of water for DHW circuit.

#### Thermostatic Mixing Valve (OSHA-MV, OSHA-MV1)

A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.

### 3RD PARTY ACCESSORIES

#### External Pump

An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.

#### Magnetic Filter (Recommended)

A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.

#### 2 Way Valve

A motorized isolation valve that blocks the water flow into underfloor coil in order to prevent water condensation during cooling mode.  
Controlled by THERMA V with 230V power.  
Required operating time : less than 90s.

#### Thermostat

A control device that senses the temperature of a room and performs actions so that the room's temperature is maintained near a desired setpoint. Thermostat must be connected with Thermo V, Valve, Pump, and FCU where applicable.

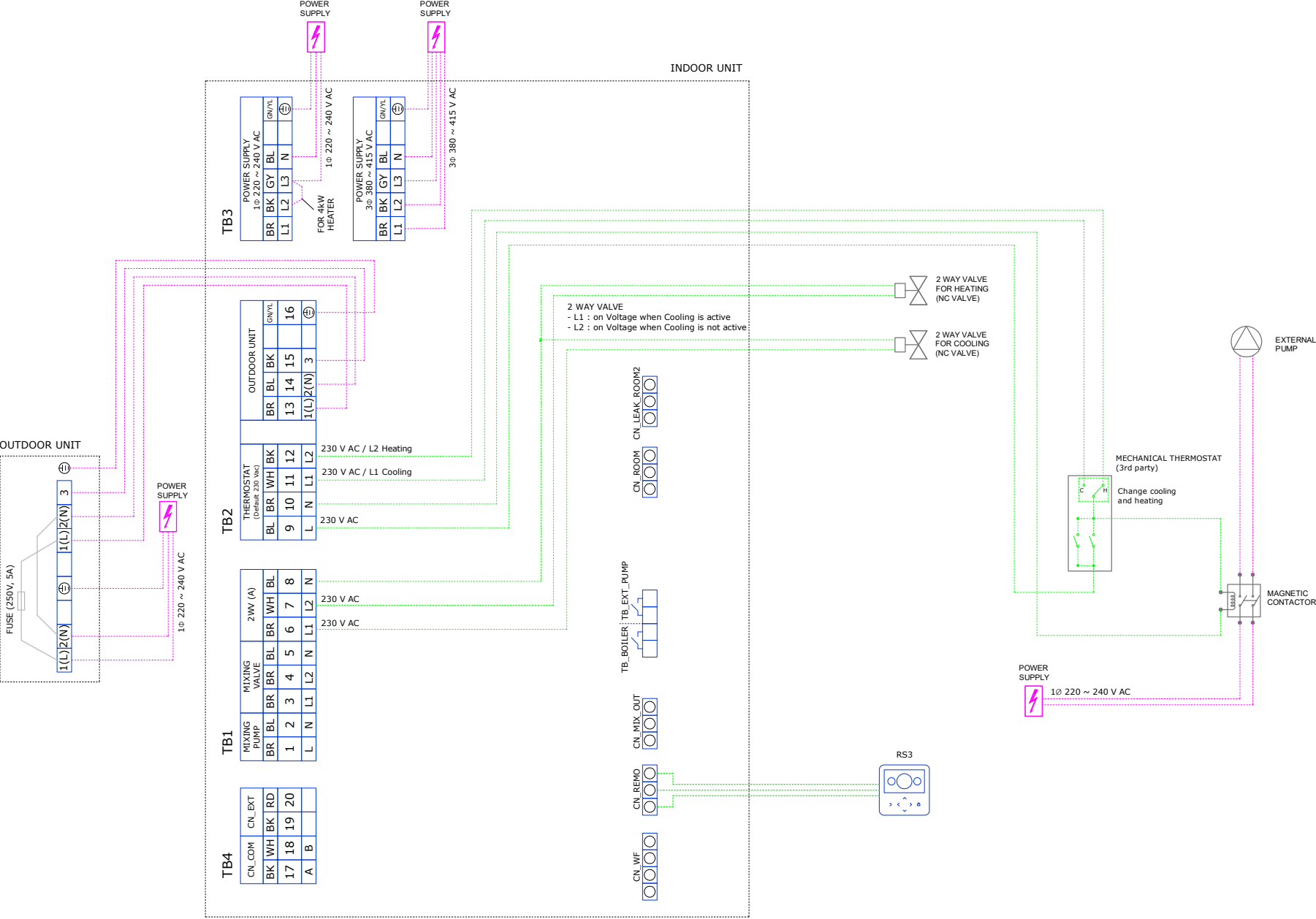
#### 2 Way Valve for Thermostat

An isolation valve paired with thermostat to allow whether water flows into the water circuit.

#### Differential Pressure Valve

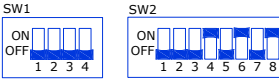
A self pressure regulating valve that provides constant differential pressure between supply and return headers.

## WIRING DIAGRAM



### DIP SWITCH SETTINGS

#### INDOOR UNIT MAIN PCB



		X: OFF / O: ON							
		DIP SW2	1	2	3	4	5	6	7
Indoor Unit Type Setting for Group Control	As Master		X						
	As Slave		O						
Accessory installation information	DHW Tank Integrated Indoor Unit + Outdoor Unit are installed		X	X					
			X	O					
Heat pump cycle	Heating only			X					
	Heating and cooling			O					
Selecting electric heater capacity	Electric heater is not used				X	X			
	Electric heater is used				O	X			
Thermostat installation	Thermostat is not installed								X
	Thermostat is installed								O
default setting			X	X	X	X	X	O	X
		DIP SW1	1	2					
MODBUS communication type	Master (Link to LG controller)		X						
	Slave (Link to 3rd party controller)		O						
default setting			X						
		DIP SW3	1	2					
Remote room air sensor (Accessories)	Remote room air sensor is not installed		X						
	Remote room air sensor is installed		O						
Antifreeze mode	Antifreeze is not applied		X						
	Antifreeze is applied (Adjustable anti-freeze temp.)		O						
default setting			X	X					

#### OUTDOOR UNIT MAIN PCB



























		X: OFF / O: ON		
		DIP SW 1		
		2	3	
Low Noise Mode	Always mode : Maintain low noise mode for target temperature	X		
	Partial mode : Escape low noise mode for target temperature	O		
Peak Control	Max mode		X	
	Peak control : To limit maximum current (Power saving)		O	
default setting		X	X	

### NOTE

- The wiring cable size and Circuit breaker selection must comply with installation manual and applicable local regulations.
- Make sure that Earth Leakage Circuit Breaker (ELCB) should be installed for power supply line.

## GENERAL

### SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve		Check Valve		RS3 Remote Controller
	Expansion Tank		Motorized 2 Way Valve		Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent		Differential Pressure Valve		Y-type strainer		Dry Contact
	Pressure Gauge		Thermostatic Mixing Valve		Flow Sensor		Wi-Fi Modem
	Flexible Connection		Shut Off Valve		Magnetic Contactor		Thermostat
	Drain		Pressure Reducing Valve		Shut Off Valve with Strainer		Cover Plate

### SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories		
Full Name	Description	Part No.
RS3 wired remote controller	A wired remote controller with built-in temperature sensor. Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
Buffer Tank	The insertable water tank containing certain amount of water (40L) that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.	OSHB-40KT
Expansion Tank for DHW	The insertable water tank (8L) to absorb the volume changes by temperature of water for DHW circuit.	OSHE-12KT
Thermostatic Mixing Valve	A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.	OSHA-MV (3/4") OSHA-MV1 (1")

3rd party accessories	
Full Name	Description
External Pump	An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.
Magnetic Filter	A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.
3 Way Valve	A motorized 3-way diverting valve determining flow direction to underfloor coil or FCU. Controlled by THERMA V with 230V power. Operating time 3s.
Differential Pressure Valve	A self pressure regulating valve that provides constant differential pressure between supply and return headers.
Thermostat	A control device that senses the temperature of a room and performs actions so that the room's temperature is maintained near a desired setpoint. Thermostat must be connected with Therma V, Valve, Pump, and FCU where applicable.
2 Way Valve for Thermostat	A isolation valve paired with thermostat to allow whether water flows into the water circuit.

### ACCESSORY LIST

Full Name	LG Part No.	Scope of supply	
		LG	3rd party
2 Remo Cable	PZCWRC2	O	
2way Valve	-		O
3way Valve	OSHA-3V	O	O
Air Vent Valve	-		O
Buffer Tank	For IWT, OSHB-40KT	O	O
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	O	
Back Up Heater	HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	O	O
Circuit Breaker	-	O	O
Check Valve	-		O
DHW Booster Heater	Integrated with DHW Tank	O	O
Dry Contact	PDRYCB000 PDRYCB320	O	
Direct Digital Controller	-		O
Differential Pressure Valve	-		O
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	O	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	O	
Drain Valve	-		O
External Boiler	-		O
Energy Meter	-		O
External Pump	-		O
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	O	O
Flexible Connection	-		O
Fan Coil Unit	-		O
Flow Sensor	-		O
Heat Meter	-		O
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	O	O
Isolation Valve	-		O
Magnetic Contactor	-	O	O
Magnetic Filter	-		O
Meter Interface	PENKTH000	O	
Mixing Pump	-		O
Mixing Zone Temperature Sensor	PRSTAT5K10	O	
Mixing Valve	-		O
Pressure Gauge	-		O
Plate Heat Exchanger	-		O
Radiator	-		O
Remote Room Air Temperature Sensor	PQRSTA0	O	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	O	
Solar Pump	-		O
Safety Relief Valve	-		O
Strainer	-		O
Solar Temperature Sensor (PT-1000)	-		O
Service Valve	-		O
Thermostat	-		O
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	O	O
Under Floor Heating Coil	-		O
Wi-Fi Modem	PWFMD200	O	
Water Temperature Sensor	-		O
Extension Wire for RS3 Controller	PZCWRC1	O	
Cover Plate	PDC-HK10	O	
Drain Pan	PHDPC	O	
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	O	
PI485 Gateway	PMNFP14A1	O	

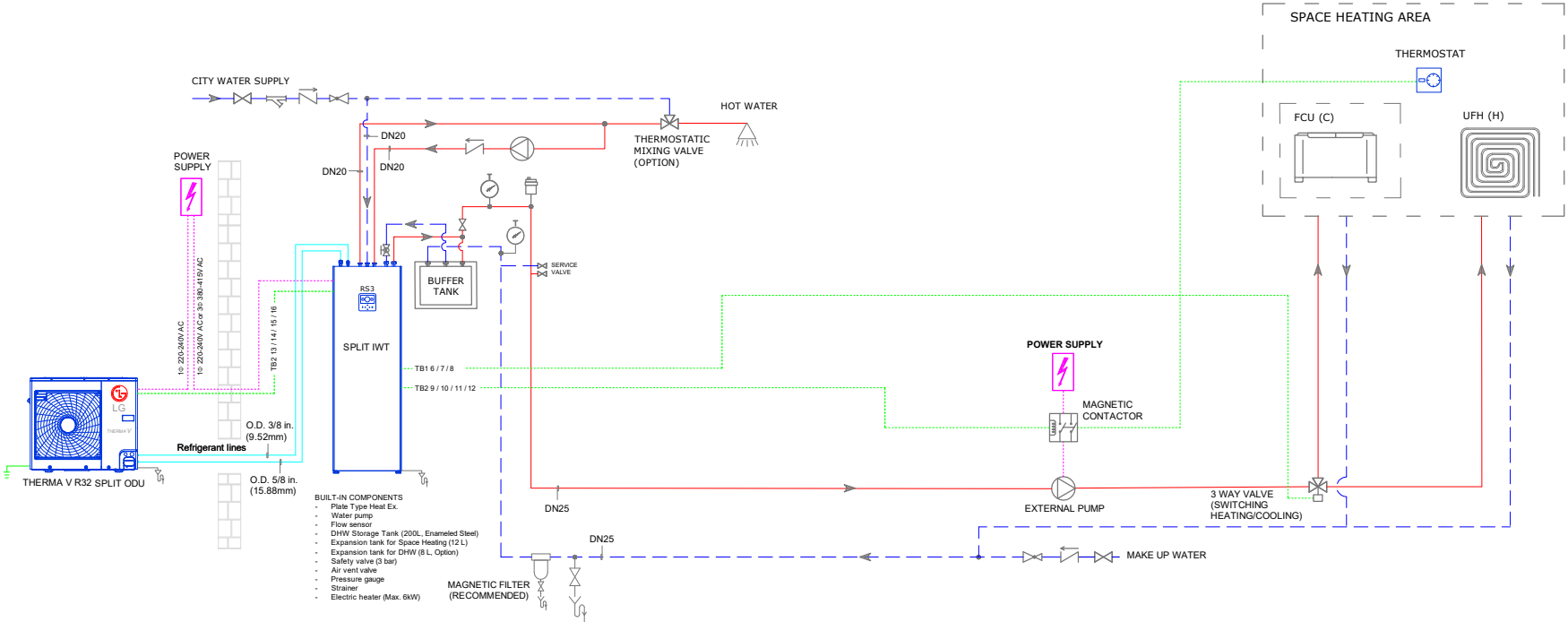
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating, Cooling, DHW with Thermostat
Product	R32 Split IWT (Integrated Water Tank, HN0916T NB1)
Terminal Device	UFH(H) + FCU(C)
Main Controller	Thermostat
Control Setting of LG RS3 Controller	Based on Water Temp.
External Pump	Controlled by Thermostat

### SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve		Check Valve		RS3 Remote Controller
	Expansion Tank		Motorized 2 Way Valve		Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent		Differential Pressure Valve		Y-type strainer		Dry Contact
	Pressure Gauge		Thermostatic Mixing Valve		Flow Sensor		Wi-Fi Modem
	Flexible Connection		Shut Off Valve		Magnetic Contactor		Thermostat
	Drain		Pressure Reducing Valve		Shut Off Valve with Strainer		Cover Plate



### NOTE

1. This diagram should be used only for reference purpose. It does not contain all the required equipment and safety components in accordance with actual site conditions. Furthermore, please make sure to take into account the applicable standards and laws for each country. LG Electronics disclaims any direct or indirect responsibility for any consequences arising out of any inaccuracies or consequential changes to this general scheme.
2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.

### LG ACCESSORIES

#### RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.  
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWR1)

#### Buffer Tank (OSHB-40KT)

The insertable water tank containing certain amount of water (40L) that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

#### Expansion Tank for DHW (OSHE-12KT)

The insertable water tank (8L) to absorb the volume changes by temperature of water for DHW circuit.

#### Thermostatic Mixing Valve (OSHA-MV, OSHA-MV1)

A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.

### 3RD PARTY ACCESSORIES

#### External Pump

An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.

#### Magnetic Filter (Recommended)

A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.

#### 3 Way Valve

A motorized 3-way diverting valve determining flow direction to underfloor coil or FCU. Controlled by THERMA V with 230V power. Operating time 3s.

#### Thermostat

A control device that senses the temperature of a room and performs actions so that the room's temperature is maintained near a desired setpoint. Thermostat must be connected with Thermo V, Valve, Pump, and FCU where applicable.

#### 2 Way Valve for Thermostat

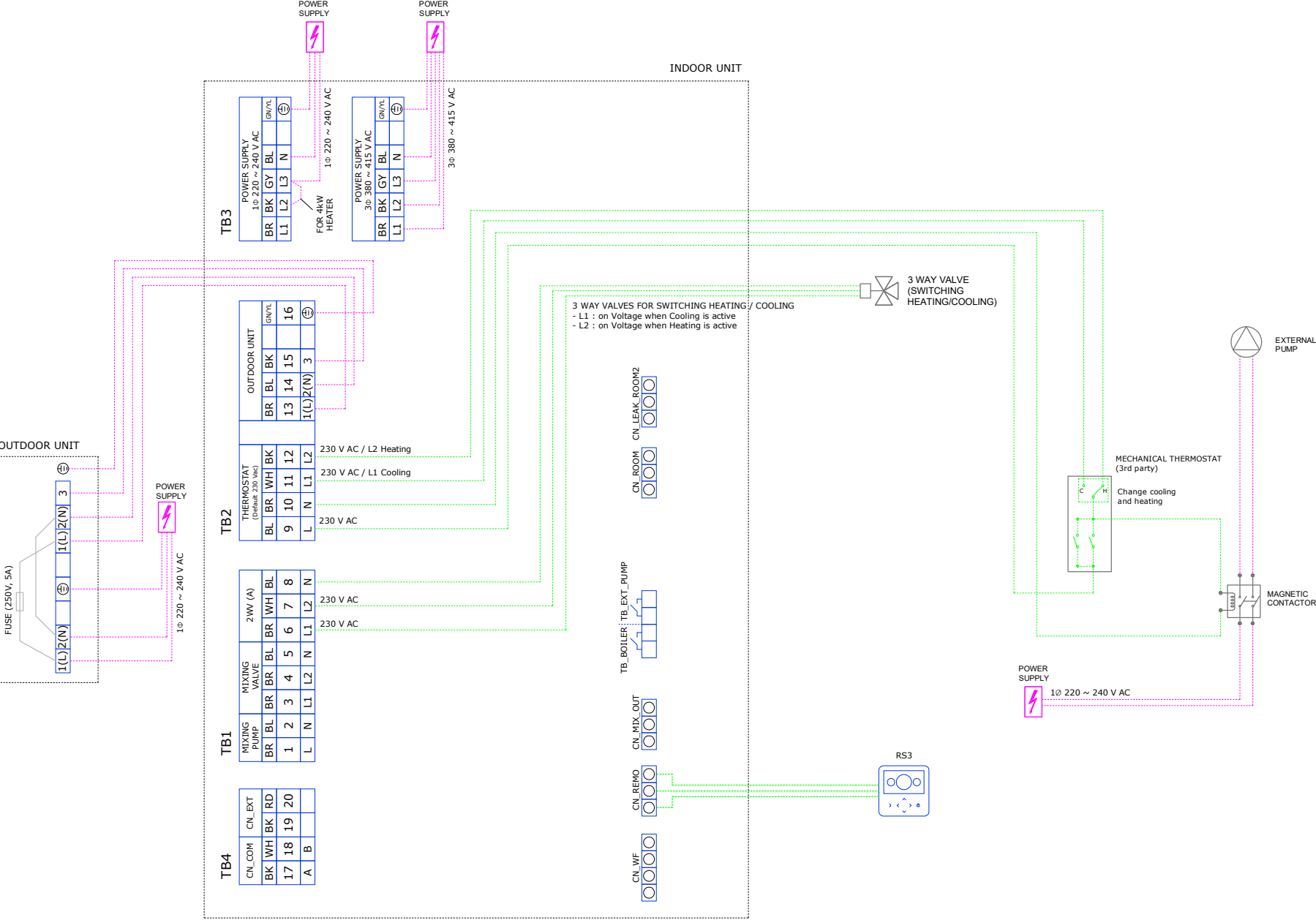
A isolation valve paired with thermostat to allow whether water flows into the water circuit.

#### Differential Pressure Valve

A self pressure regulating valve that provides constant differential pressure between supply and return headers.

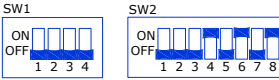


WIRING DIAGRAM



DIP SWITCH SETTINGS

INDOOR UNIT MAIN PCB



		DIP SW2								X: OFF / O: ON	
		1	2	3	4	5	6	7	8		
Indoor Unit Type Setting for Group Control	As Master	X									
	As Slave	O									
Accessory Installation Information	DHW Tank Integrated Indoor + Outdoor Unit are Installed		X	X							
			X	O							
Heat pump cycle	Heating only										
	Heating and cooling			X							
Selecting electric heater capacity	Electric heater is not used					X	X				
	Electric heater is used					O	X				
Thermostat Installation	Thermostat is not installed								X		
	Thermostat is installed								O		
		default setting									

		DIP SW1		X: OFF / O: ON	
		1	2		
MOBUS communication type	Master (Link to LG controller)	X			
	Slave (Link to 3rd party controller)	O			
		default setting			

		DIP SW3		X: OFF / O: ON	
		1	2		
Remote room air sensor (Accessories)	Remote room air sensor is not installed				
	Remote room air sensor is installed	O			
Antifreeze mode	Antifreeze is not applied		X		
	Antifreeze is applied (Adjustable anti-freeze temp.)	O			
		default setting			

OUTDOOR UNIT MAIN PCB



























		DIP SW1			X: OFF / O: ON	
		1	2	3		
Low Noise Mode	Always mode: Maintain low noise mode for target temperature	X				
	Partial mode: Escape low noise mode for target temperature	O				
Peak Control	Max mode		X			
	Peak control: To limit maximum current (Power saving)		O			
		default setting				

NOTE

- The wiring cable size and Circuit breaker selection must comply with installation manual and applicable local regulations.
- Make sure that Earth Leakage Circuit Breaker (ELCB) should be installed for power supply line.

## GENERAL

### SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve		Check Valve		RS3 Remote Controller
	Expansion Tank		Motorized 2 Way Valve		Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent		Differential Pressure Valve		Y-type strainer		Dry Contact
	Pressure Gauge		Thermostatic Mixing Valve		Flow Sensor		Wi-Fi Modem
	Flexible Connection		Shut Off Valve		Magnetic Contactor		Thermostat
	Drain		Pressure Reducing Valve		Shut Off Valve with Strainer		Cover Plate

### SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories		
Full Name	Description	Part No.
RS3 wired remote controller	A wired remote controller with built-in temperature sensor. Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
Extension Wire for RS3 Controller	Cable length 10m	PZCWRC1
Cover Plate	A device to fill the blank space of the Indoor Unit front panel when the remote controller is relocated indoors.	PDC-HK10
Wi-Fi Modem	A control device that enables wireless communication with internet router. Including USB cable 0.6m and extension cable 0.5m	PWFMDD200
Remote Room Air Temperature Sensor	Temperature sensor for the room. Cable length 15m.	PQRSTA0
Mixing Zone Temperature Sensor	A temperature sensor for the mixed circuit. Cable length 10m.	PRSTAT5K10
Buffer Tank	The insertable water tank containing certain amount of water (40L) that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.	OSHB-40KT
Expansion Tank for DHW	The insertable water tank (8L) to absorb the volume changes by temperature of water for DHW circuit.	OSHE-12KT
Thermostatic Mixing Valve	A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.	OSHA-MV (3/4") OSHA-MV1 (1")

3rd party accessories	
Full Name	Description
External Pump	An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.
Magnetic Filter	A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.
Mixing Pump	An external water pump that circulates the water inside mixed circuit (zone 1). Controlled by THERMA V with 230V power.
Mixing Valve	A motorized 3-way mixing valve throttling mixing ratio of heated water and return water. Controlled by THERMA V with 230V power supply. Operating times: 60-900 sec.
Differential Pressure Valve	A self pressure regulating valve that provides constant differential pressure between supply and return headers.

### ACCESSORY LIST

Full Name	LG Part No.	Scope of supply	
		LG	3rd party
2 Remo Cable	PZCWRC2	O	
2way Valve	-		O
3way Valve	OSHA-3V	O	O
Air Vent Valve	-		O
Buffer Tank	For IWT, OSHB-40KT	O	O
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	O	
Back Up Heater	HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	O	O
Circuit Breaker	-	O	O
Check Valve	-		O
DHW Booster Heater	Integrated with DHW Tank	O	O
Dry Contact	PDRYCB000 PDRYCB320	O	
Direct Digital Controller	-		O
Differential Pressure Valve	-		O
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	O	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	O	
Drain Valve	-		O
External Boiler	-		O
Energy Meter	-		O
External Pump	-		O
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	O	O
Flexible Connection	-		O
Fan Coil Unit	-		O
Flow Sensor	-		O
Heat Meter	-		O
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	O	O
Isolation Valve	-		O
Magnetic Contactor	-	O	O
Magnetic Filter	-		O
Meter Interface	PENKTH000	O	
Mixing Pump	-		O
Mixing Zone Temperature Sensor	PRSTAT5K10	O	
Mixing Valve	-		O
Pressure Gauge	-		O
Plate Heat Exchanger	-		O
Radiator	-		O
Remote Room Air Temperature Sensor	PQRSTA0	O	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	O	
Solar Pump	-		O
Safety Relief Valve	-		O
Strainer	-		O
Solar Temperature Sensor (PT-1000)	-		O
Service Valve	-		O
Thermostat	-		O
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	O	O
Under Floor Heating Coil	-		O
Wi-Fi Modem	PWFMDD200	O	
Water Temperature Sensor	-		O
Extension Wire for RS3 Controller	PZCWRC1	O	
Cover Plate	PDC-HK10	O	
Drain Pan	PHDPC	O	
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	O	
PI485 Gateway	PMNFP14A1	O	

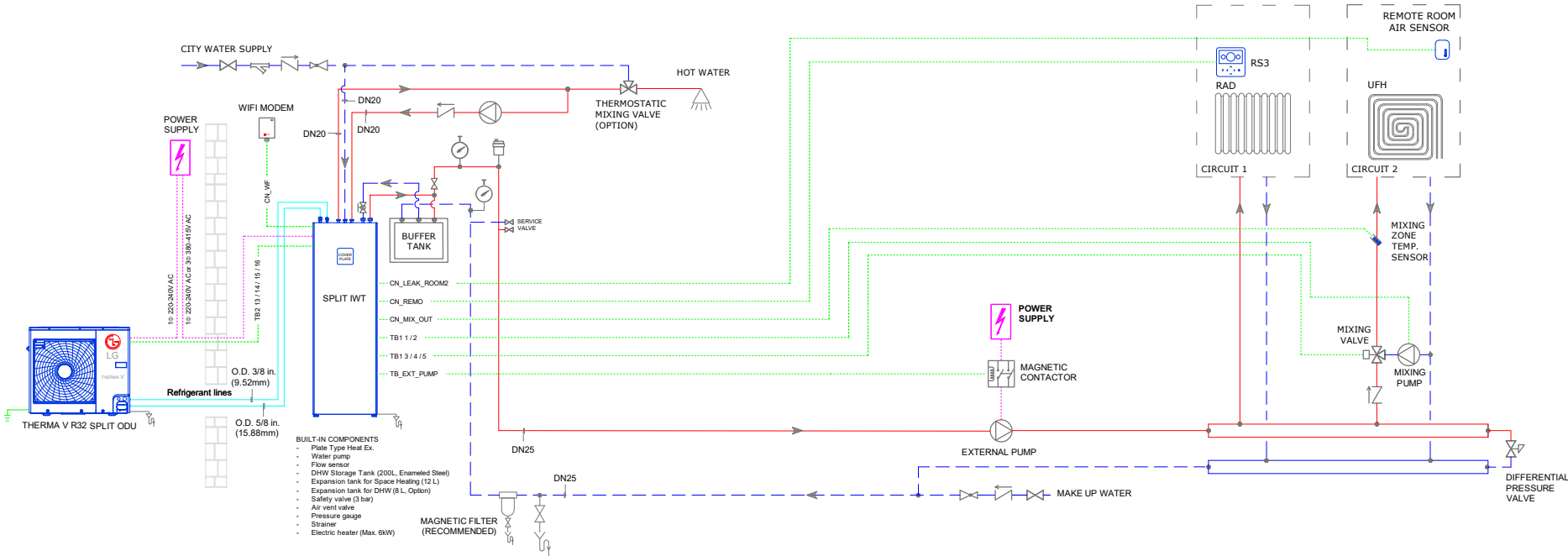
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating and DHW with 2nd Circuit
Product	R32 Split IWT (Integrated Water Tank, HN0916T NB1)
Terminal Device	UFH + RAD
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Air Temp. or Water Temp.
External Pump	Controlled by THERMA V

SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve		Check Valve		RS3 Remote Controller
	Expansion Tank		Motorized 2 Way Valve		Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent		Differential Pressure Valve		Y-type strainer		Dry Contact
	Pressure Gauge		Thermostatic Mixing Valve		Flow Sensor		Wi-Fi Modem
	Flexible Connection		Shut Off Valve		Magnetic Contactor		Thermostat
	Drain		Pressure Reducing Valve		Shut Off Valve with Strainer		Cover Plate



NOTE

1. This diagram should be used only for reference purpose. It does not contain all the required equipment and safety components in accordance with actual site conditions. Furthermore, please make sure to take into account the applicable standards and laws for each country. LG Electronics disclaims any direct or indirect responsibility for any consequences arising out of any inaccuracies or consequential changes to this general scheme.
2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.

LG ACCESSORIES

RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.  
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)

Extension Wire for RS3 Controller (PZCWRC1)

Cable length 10m

Cover Plate (PDC-HK10)

A device to fill the blank space of the Indoor Unit front panel when the remote controller is relocated indoors.

Wi-Fi Modem (PWFMDDD200)

A control device that enables wireless communication with internet router. Including USB cable 0.6m and extension cable 0.5m

Remote Room Air Temperature Sensor (PQRSTA0)

Temperature sensor for the room. Cable length 15m.

Mixing Zone Temperature Sensor (PRSTAT5K10)

A temperature sensor for the mixed circuit. Cable length 10m.

Buffer Tank (OSHB-40KT)

The insertable water tank containing certain amount of water (40L) that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

Expansion Tank for DHW (OSHE-12KT)

The insertable water tank (8L) to absorb the volume changes by temperature of water for DHW circuit.

Thermostatic Mixing Valve (OSHA-MV, OSHA-MV1)

A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.

3RD PARTY ACCESSORIES

External Pump

An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.

Magnetic Filter (Recommended)

A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.

Mixing Pump

An external water pump that circulates the water inside mixed circuit (zone 1). Controlled by THERMA V with 230V power.

Mixing Valve

A motorized 3-way mixing valve throttling mixing ratio of heated water and return water. Controlled by THERMA V with 230V power supply. Operating times: 60-900 sec.

Differential Pressure Valve

A self pressure regulating valve that provides constant differential pressure between supply and return headers.

The diagram illustrates the electrical wiring for the LG Inverter Air Conditioner system, divided into two main sections: OUTDOOR UNIT and INDOOR UNIT.

### OUTDOOR UNIT

**FUSE (250V, 5A)**

**MIXING PUMP TB1**

MIXING VALVE		MIXING PUMP	
BR	BL	BR	BL
1	2	3	4
L	N	L1	L2

230 V AC / mixing valve open (mixing)  
230 V AC / mixing valve close (no mixing)  
230 V AC

**TB2 THERMOSTAT (Default: 230 Vac)**

THERMOSTAT		OUTDOOR UNIT	
BL	BR	WH	BK
9	10	11	12
L	N	L1	L2

**TB3 POWER SUPPLY 1φ 220 ~ 240 V AC**

POWER SUPPLY		FOR 4kW HEATER	
BR	BK	GY	BL
L1	L2	L3	N

**TB4 CN\_COM, BK WH RD, 17 18 19 20, A B**

### INDOOR UNIT

**POWER SUPPLY 3φ 380 ~ 415 V AC**

POWER SUPPLY		3φ 380 ~ 415 V AC	
BR	BK	GY	BL
L1	L2	L3	N

**CN\_ROOM, CN\_LEAK ROOM2**

**TB\_BOILER: TB\_EXT\_PUMP**

**CN\_MIX\_OUT, CN\_REMO, CN\_WIF**

**DIRECT CIRCUIT (CIRCUIT 1)**

- RAD
- RS3

**MIXED CIRCUIT (CIRCUIT 2)**

- UFH
- REMOTE ROOM TEMP. SENSOR
- MIXING VALVE
- MIXING PUMP
- MIXING ZONE TEMPERATURE SENSOR

**EXTERNAL PUMP**

**MAGNETIC CONTACTOR**

**POWER SUPPLY 1φ 220 ~ 240 V AC**

**WIFI MODEM**

		DIP SW 3		1	2
Remote room air sensor (accessory)	Remote room air sensor is not installed		X		
	Remote room air sensor is installed		O		
Antifreeze mode	Antifreeze is not applied			X	
	Antifreeze is applied (Adjustable anti-freeze temp.)				O
default setting				X	X

				X: OFF / O: ON		
				DIP SW 1		
				2	3	
Low Noise Mode	Always mode: Maintain low noise mode for target temperature				X	
	Partial mode: Escape low noise mode for target temperature			O		
Peak Control	Max. mode				X	
	Peak control: To limit maximum current (Power saving)					O
				/default setting		

1. The wiring cable size and Circuit breaker selection must comply with installation manual and applicable local regulations.
2. Make sure that Earth Leakage Circuit Breaker (ELCB) should be installed for power supply line.



LG  
Life's Good

# REFERENCED APPLICATION #4 SPACE HEATING, COOLING, AND DHW WITH 2 REMOTE CONTROLLERS

DWG NO. :

REV. 00

13/08/2021

## GENERAL

### SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve		Check Valve		RS3 Remote Controller
	Expansion Tank		Motorized 2 Way Valve		Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent		Differential Pressure Valve		Y-type strainer		Dry Contact
	Pressure Gauge		Thermostatic Mixing Valve		Flow Sensor		Wi-Fi Modem
	Flexible Connection		Shut Off Valve		Magnetic Contactor		Thermostat
	Drain		Pressure Reducing Valve		Shut Off Valve with Strainer		Cover Plate

### SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories		
Full Name	Description	Part No.
RS3 wired remote controller (MASTER)	A wired remote controller with built-in temperature sensor. Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
Wi-Fi Modem	A control device that enables wireless communication with internet router. Including USB cable 0.6m and extension cable 0.5m	PWFMDD200
RS3 wired remote controller (SLAVE)	An additional wired remote controller with built-in temperature sensor that enables controlling THERMA V using two remote controller. Including extension wire(PZCWRC1) and 2 remo cable(PZCWRC2)	PREMTW101
Extension Wire for RS3 Controller	Cable length 10m	PZCWRC1, Included in PREMTW101.
2 Remo Cable	A cable that enables connecting two remote controller on the one indoor unit.	PZCWRC2, Included in PREMTW101.
Buffer Tank	The insertable water tank containing certain amount of water (40L) that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.	OSHB-40KT
Expansion Tank for DHW	The insertable water tank (8L) to absorb the volume changes by temperature of water for DHW circuit.	OSHE-12KT
Thermostatic Mixing Valve	A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.	OSHA-MV (3/4") OSHA-MV1 (1")

3rd party accessories	
Full Name	Description
External Pump	An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.
Magnetic Filter	A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.
2 Way Valve	A motorized isolation valve that blocks the water flow into underfloor coil in order to prevent water condensation during cooling mode. Controlled by THERMA V with 230V power. Required operating time : less than 90s.
Differential Pressure Valve	A self pressure regulating valve that provides constant differential pressure between supply and return headers.

### ACCESSORY LIST

Full Name	LG Part No.	Scope of supply	
		LG	3rd party
2 Remo Cable	PZCWRC2	O	
2way Valve	-		O
3way Valve	OSHA-3V	O	O
Air Vent Valve	-		O
Buffer Tank	For IWT, OSHB-40KT	O	O
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	O	
Back Up Heater	HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	O	O
Circuit Breaker	-	O	O
Check Valve	-		O
DHW Booster Heater	Integrated with DHW Tank	O	O
Dry Contact	PDRYCB000 PDRYCB320	O	
Direct Digital Controller	-		O
Differential Pressure Valve	-		O
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	O	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	O	
Drain Valve	-		O
External Boiler	-		O
Energy Meter	-		O
External Pump	-		O
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	O	O
Flexible Connection	-		O
Fan Coil Unit	-		O
Flow Sensor	-		O
Heat Meter	-		O
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	O	O
Isolation Valve	-		O
Magnetic Contactor	-	O	O
Magnetic Filter	-		O
Meter Interface	PENKTH000	O	
Mixing Pump	-		O
Mixing Zone Temperature Sensor	PRSTAT5K10	O	
Mixing Valve	-		O
Pressure Gauge	-		O
Plate Heat Exchanger	-		O
Radiator	-		O
Remote Room Air Temperature Sensor	PQRSTA0	O	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	O	
Solar Pump	-		O
Safety Relief Valve	-		O
Strainer	-		O
Solar Temperature Sensor (PT-1000)	-		O
Service Valve	-		O
Thermostat	-		O
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	O	O
Under Floor Heating Coil	-		O
Wi-Fi Modem	PWFMDD200	O	
Water Temperature Sensor	-		O
Extension Wire for RS3 Controller	PZCWRC1	O	
Cover Plate	PDC-HK10	O	
Drain Pan	PHDPC	O	
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	O	
PI485 Gateway	PMNFP14A1	O	

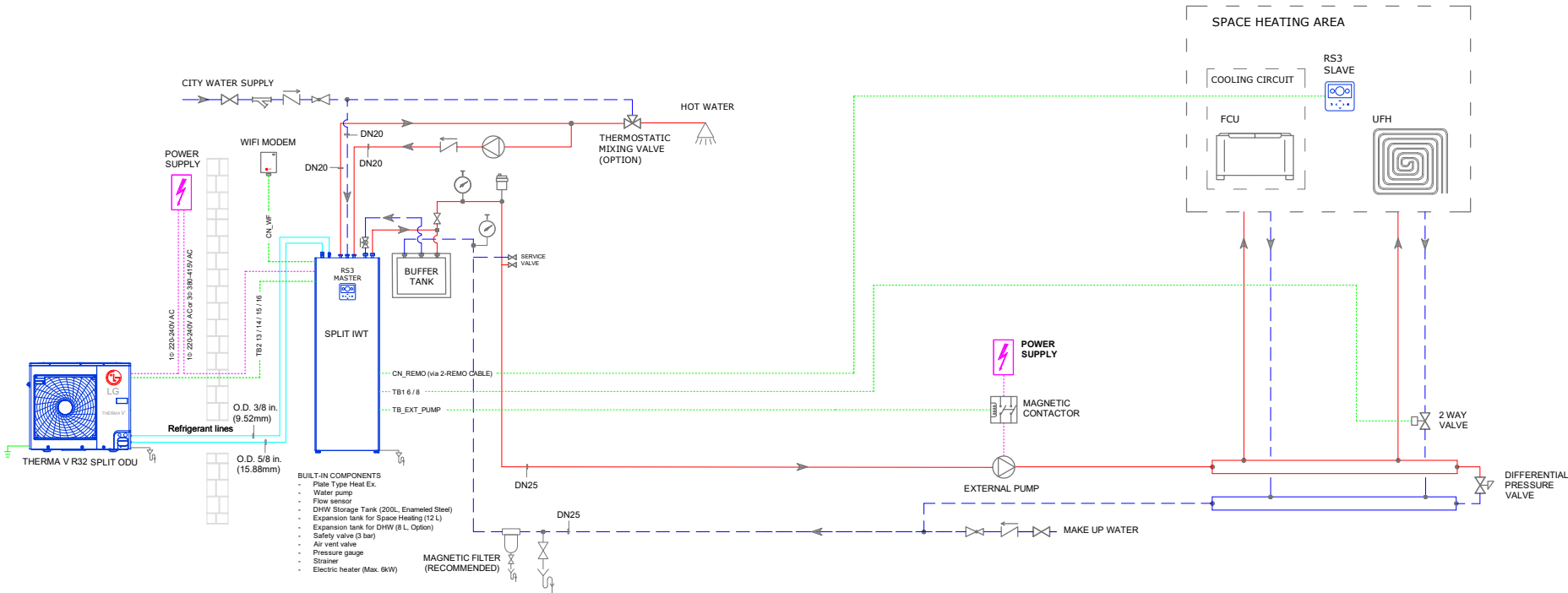
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating, Cooling, DHW with 2 Remote Controllers
Product	R32 Split IWT (Integrated Water Tank, HN0916T NB1)
Terminal Device	UFH(H) + FCU(H&C)
Main Controller	LG RS3 Controllers
Control Setting of LG RS3 Controller	Based on Air Temp. or Water Temp.
External Pump	Controlled by THERMA V
Remark	In 2-remo control, RS3 MASTER shows a temperature measured by built-in sensor in RS3 SLAVE. (Temperature value measured by RS3 MASTER is overridden.)

SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve		Check Valve		RS3 Remote Controller
	Expansion Tank		Motorized 2 Way Valve		Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent		Differential Pressure Valve		Y-type strainer		Dry Contact
	Pressure Gauge		Thermostatic Mixing Valve		Flow Sensor		Wi-Fi Modem
	Flexible Connection		Shut Off Valve		Magnetic Contactor		Thermostat
	Drain		Pressure Reducing Valve		Shut Off Valve with Strainer		Cover Plate



NOTE

1. This diagram should be used only for reference purpose. It does not contain all the required equipment and safety components in accordance with actual site conditions. Furthermore, please make sure to take into account the applicable standards and laws for each country. LG Electronics disclaims any direct or indirect responsibility for any consequences arising out of any inaccuracies or consequential changes to this general scheme.
2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.

LG ACCESSORIES

RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.  
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWR1)

Wi-Fi Modem (PWFMD200)

A control device that enables wireless communication with internet router.  
Including USB cable 0.6m and extension cable 0.5m

RS3 SLAVE Controller (PREMTW101)

An additional wired remote controller with built-in temperature sensor that enables controlling THERMA V using two remote controller.  
Including extension wire(PZCWR1) and 2 remo cable(PZCWR2)

Extension Wire for RS3 Controller (PZCWR1)

Cable length 10m. Included in PREMTW101.

2 Remo Cable (PZCWR2)

A cable that enables connecting two remote controller on the one indoor unit.  
Included in PREMTW101.

Buffer Tank (OSHB-40KT)

The insertable water tank containing certain amount of water (40L) that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

Expansion Tank for DHW (OSHE-12KT)

The insertable water tank (8L) to absorb the volume changes by temperature of water for DHW circuit.

Thermostatic Mixing Valve (OSHA-MV, OSHA-MV1)

A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.

3RD PARTY ACCESSORIES

External Pump

An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.

Magnetic Filter (Recommended)

A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.

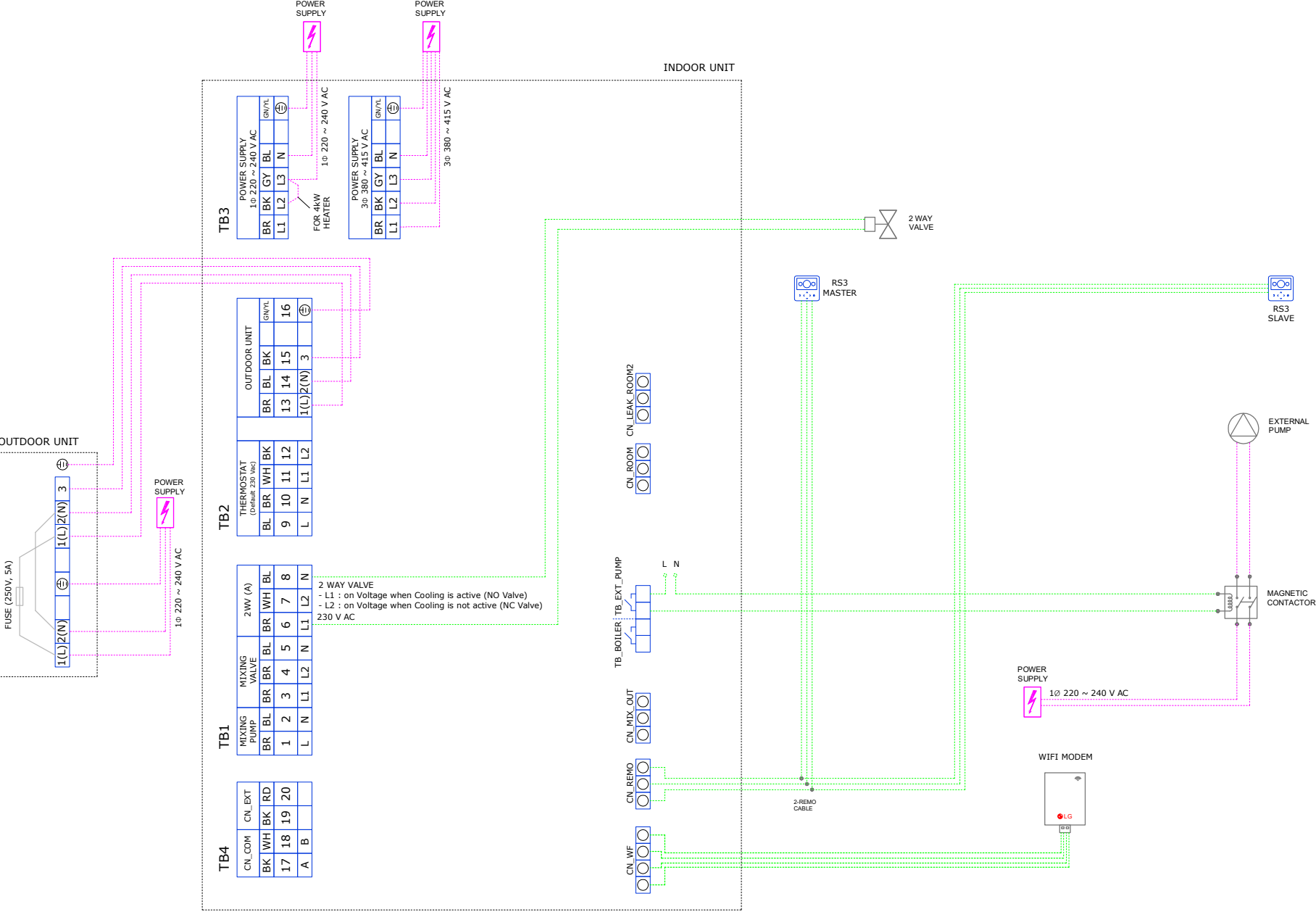
2 Way Valve

A motorized isolation valve that blocks the water flow into underfloor coil in order to prevent water condensation during cooling mode.  
Controlled by THERMA V with 230V power.  
Required operating time : less than 90s.

Differential Pressure Valve

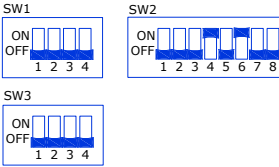
A self pressure regulating valve that provides constant differential pressure between supply and return headers.

## WIRING DIAGRAM



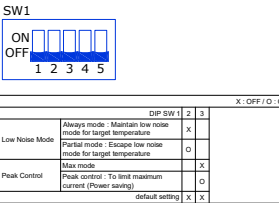
### DIP SWITCH SETTINGS

#### INDOOR UNIT MAIN PCB



		X: OFF / O: ON							
		DIP SW 2	1	2	3	4	5	6	7
Indoor Unit Type Setting for Group Control	As Master		X						
	As Slave		O						
Accessory Installation Information	DHW Tank Integrated Indoor Unit + Outdoor Unit are installed		X	X					
			X	O					
Heat pump cycle	Heating only			X					
	Heating and cooling			O					
Selecting electric heater capacity	Electric heater is not used				O	X	X		
	Electric heater is used				O	X			
Thermostat Installation	Thermostat is not installed							X	
	Thermostat is installed							O	X
		default setting	X	X	X	X	O	X	X
		DIP SW 1	1						
MOBUS communication type	Master (Link to LG controller)		X						
	Slave (Link to 3rd party controller)		O						
		default setting	X						
		DIP SW 3	1	2					
Remote room air sensor (Accessories)	Remote room air sensor is not installed		X						
	Remote room air sensor is installed		O						
Antifreeze mode	Antifreeze is not applied			X					
	Antifreeze is applied (Adjustable anti-freeze temp.)			O					
		default setting	X	X					

#### OUTDOOR UNIT MAIN PCB



### NOTE

- The wiring cable size and Circuit breaker selection must comply with installation manual and applicable local regulations.
- Make sure that Earth Leakage Circuit Breaker (ELCB) should be installed for power supply line.





Life's Good

# REFERENCED APPLICATION #5 SPACE HEATING AND DHW WITH 3RD PARTY CONTROLLER (MODBUS)

DWG NO. :

REV. 00

13/08/2021

## GENERAL

### SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve		Check Valve		RS3 Remote Controller
	Expansion Tank		Motorized 2 Way Valve		Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent		Differential Pressure Valve		Y-type strainer		Dry Contact
	Pressure Gauge		Thermostatic Mixing Valve		Flow Sensor		Wi-Fi Modem
	Flexible Connection		Shut Off Valve		Magnetic Contactor		Thermostat
	Drain		Pressure Reducing Valve		Shut Off Valve with Strainer		Cover Plate

### SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories		
Full Name	Description	Part No.
RS3 wired remote controller	A wired remote controller with built-in temperature sensor. Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
Extension Wire for RS3 Controller	Cable length 10m	PZCWRC1
Cover Plate	A device to fill the blank space of the Indoor Unit front panel when the remote controller is relocated indoors.	PDC-HK10
PI485 Gateway	A gateway device that communicates and controls through the central controller. (converting LG protocol to RS485 protocol) It should be installed onto the outdoor unit.	PMNFP14A1
MODBUS RTU Gateway	A gateway for MODBUS communication. External power supply DC 12V.	PMBUSB00A
Buffer Tank	The insertable water tank containing certain amount of water (40L) that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.	OSHB-40KT
Expansion Tank for DHW	The insertable water tank (8L) to absorb the volume changes by temperature of water for DHW circuit.	OSHE-12KT
Thermostatic Mixing Valve	A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.	OSHA-MV (3/4") OSHA-MV1 (1")

3rd party accessories	
Full Name	Description
External Pump	An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.
Magnetic Filter	A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.
Direct Digital Controller	A control device that uses the analogue or digital signals from various devices and then process and control the system based on the program written inside the controllers and has the capability to sends the information to another controller.
Differential Pressure Valve	A self pressure regulating valve that provides constant differential pressure between supply and return headers.

### ACCESSORY LIST

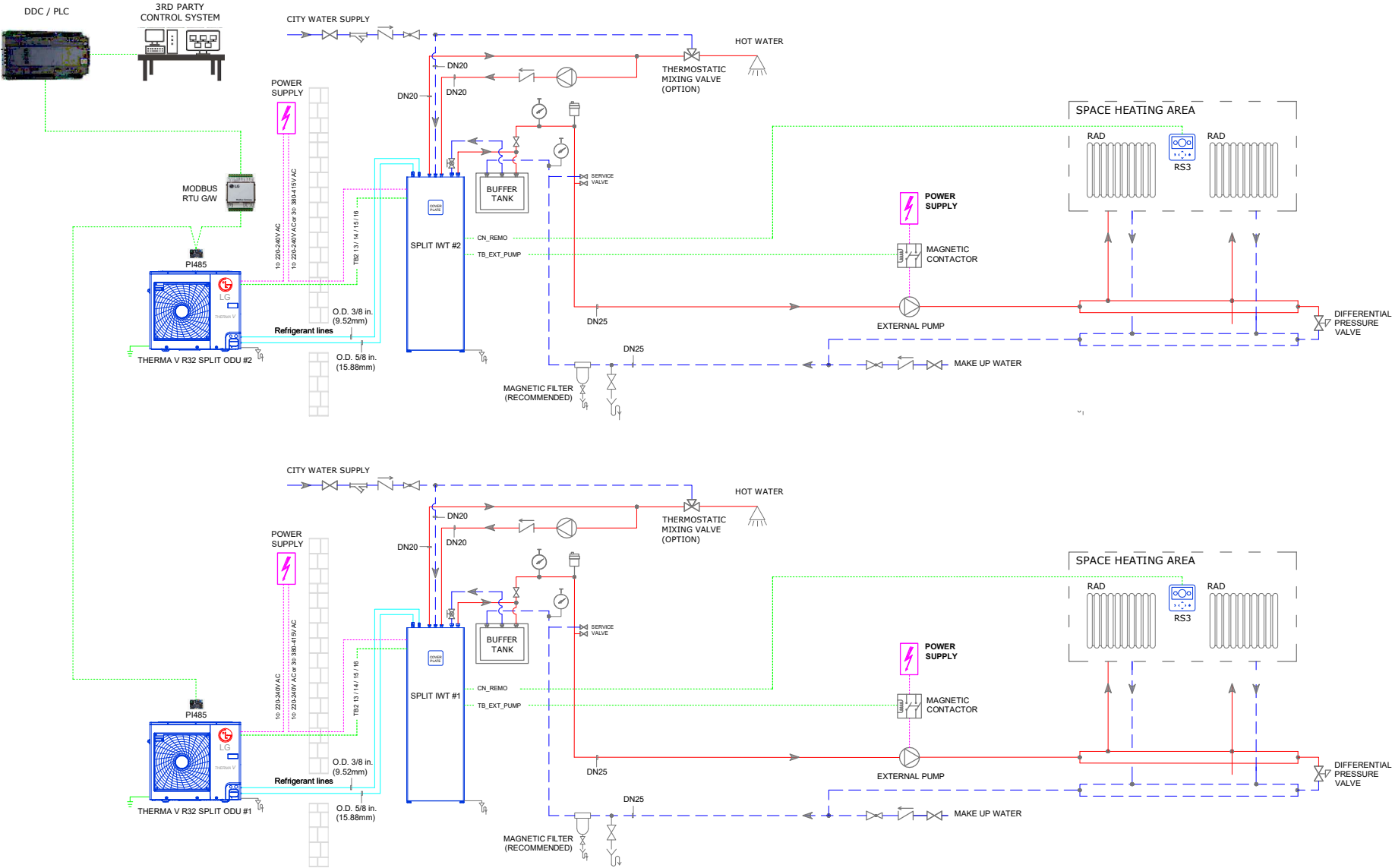
Full Name	LG Part No.	Scope of supply	
		LG	3rd party
2 Remo Cable	PZCWRC2	O	
2way Valve	-		O
3way Valve	OSHA-3V	O	O
Air Vent Valve	-		O
Buffer Tank	For IWT, OSHB-40KT	O	O
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	O	
Back Up Heater	HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	O	O
Circuit Breaker	-	O	O
Check Valve	-		O
DHW Booster Heater	Integrated with DHW Tank	O	O
Dry Contact	PDRYCB000 PDRYCB320	O	
Direct Digital Controller	-		O
Differential Pressure Valve	-		O
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	O	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	O	
Drain Valve	-		O
External Boiler	-		O
Energy Meter	-		O
External Pump	-		O
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	O	O
Flexible Connection	-		O
Fan Coil Unit	-		O
Flow Sensor	-		O
Heat Meter	-		O
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	O	O
Isolation Valve	-		O
Magnetic Contactor	-	O	O
Magnetic Filter	-		O
Meter Interface	PENKTH000	O	
Mixing Pump	-		O
Mixing Zone Temperature Sensor	PRSTAT5K10	O	
Mixing Valve	-		O
Pressure Gauge	-		O
Plate Heat Exchanger	-		O
Radiator	-		O
Remote Room Air Temperature Sensor	PQRSTA0	O	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	O	
Solar Pump	-		O
Safety Relief Valve	-		O
Strainer	-		O
Solar Temperature Sensor (PT-1000)	-		O
Service Valve	-		O
Thermostat	-		O
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	O	O
Under Floor Heating Coil	-		O
Wi-Fi Modem	PWFMD200	O	
Water Temperature Sensor	-		O
Extension Wire for RS3 Controller	PZCWRC1	O	
Cover Plate	PDC-HK10	O	
Drain Pan	PHDPC	O	
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	O	
PI485 Gateway	PMNFP14A1	O	

HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating and DHW with 3rd Party Controller (MODBUS)
Product	R32 Split IWT (Integrated Water Tank, HN0916T NB1)
Terminal Device	RAD
Main Controller	LG RS3 Controller & 3rd Party Controller
Control Setting of LG RS3 Controller	Based on Air Temp. or Water Temp.
External Pump	Controlled by Therna V

SYMBOL & LEGENDS

ACCESSORIES LG

RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.  
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)

Extension Wire for RS3 Controller (PZCWRC1)

Cable length 10m

Cover Plate (PDC-HK10)

A device to fill the blank space of the Indoor Unit front panel when the remote controller is relocated indoors.

PI485 Gateway (PMNFP14A1)

A gateway device that communicates and controls through the central controller. (converting LG protocol to RS485 protocol)  
It should be installed onto the outdoor unit.

MODBUS RTU Gateway (PMBUS00A)

A gateway for MODBUS communication.

External power supply DC 12V.

Buffer Tank (OSHB-40KT)

The insertable water tank containing certain amount of water (40L) that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

Expansion Tank for DHW (OSHE-12KT)

The insertable water tank (8L) to absorb the volume changes by temperature of water for DHW circuit.

Thermostatic Mixing Valve (OSHA-MV, OSHA-MV1)

A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.

3RD PARTY ACCESSORIES

External Pump

An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.

Magnetic Filter (Recommended)

A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.

DDC (Direct Digital Controller)

A control device that uses the analogue or digital signals from various devices and then process and control the system based on the program written inside the controllers and has the capability to send the information to another controller.

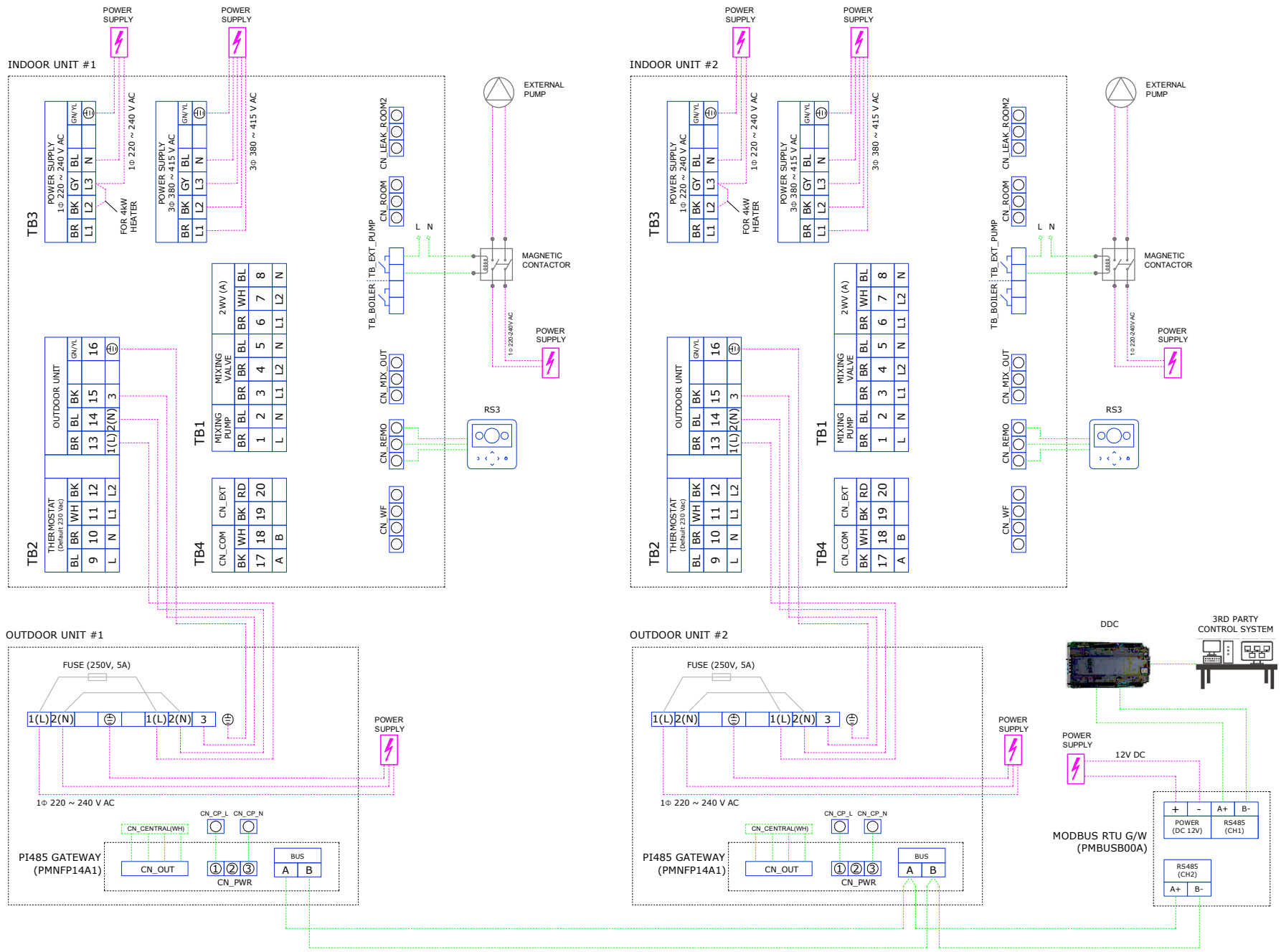
Differential Pressure Valve

A self pressure regulating valve that provides constant differential pressure between supply and return headers.

NOTE

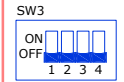
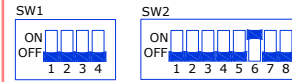
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2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.

## WIRING DIAGRAM



### DIP SWITCH SETTINGS

#### INDOOR UNIT MAIN PCB

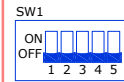


		X: OFF / O: ON							
		DIP SW2	1	2	3	4	5	6	7
Indoor Unit Type Setting for Group Control	As Master	X							
	As Slave	O							
Accessory information	CHW Tank Integrated Indoor Unit + Outdoor Unit are installed		X	X					
	CHW Tank Integrated Indoor Unit + Outdoor Unit are not installed		O	X					
Heat pump cycle	Heating only			X					
	Heating and cooling			O					
Selecting electric heater capacity	Electric heater is not used					X	X		
	Electric heater is used					O	X		
Thermostat installation	Thermostat is not installed							X	
	Thermostat is installed							O	X

		DIP SW1	1	2
MODBUS communication type		Master (Link to LG controller)	X	
		Slave (Link to 3rd party controller)	O	
		default setting	X	

		DIP SW3	1	2
Remote room air sensor (Accessories)	Remote room air sensor is not installed	X		
	Remote room air sensor is installed		O	
Antifreeze mode	Antifreeze is not applied		X	
	Antifreeze is applied (Adjustable anti-freeze temp.)		O	
		default setting	X	X

#### OUTDOOR UNIT MAIN PCB



























		DIP SW1	1	2	3
Low Noise Mode	Always mode: Maintain low noise mode for target temperature	X			
	Partial mode: Escape low noise mode for target temperature		O		
Peak Control	Max mode		X		
	Peak control: To limit maximum current (Power saving)		O		
		default setting	X	X	

### NOTE

- The wiring cable size and Circuit breaker selection must comply with installation manual and applicable local regulations.
- Make sure that Earth Leakage Circuit Breaker (ELCB) should be installed for power supply line.

GENERAL

SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve		Check Valve		RS3 Remote Controller
	Expansion Tank		Motorized 2 Way Valve		Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent		Differential Pressure Valve		Y-type strainer		Dry Contact
	Pressure Gauge		Thermostatic Mixing Valve		Flow Sensor		Wi-Fi Modem
	Flexible Connection		Shut Off Valve		Magnetic Contactor		Thermostat
	Drain		Pressure Reducing Valve		Shut Off Valve with Strainer		Cover Plate

SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories		
Full Name	Description	Part No.
RS3 wired remote controller	A wired remote controller with built-in temperature sensor. Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
Extension Wire for RS3 Controller	Cable length 10m	PZCWRC1
Cover Plate	A device to fill the blank space of the Indoor Unit front panel when the remote controller is relocated indoors.	PDC-HK10
Wi-Fi Modem	A control device that enables wireless communication with internet router. Including USB cable 0.6m and extension cable 0.5m	PWFMDD200
Meter Interface	An interface module between energy meter or heat meter and THERMA V that enables energy metering function. External power supply DC 12V.	PENKTH000
Buffer Tank	The insertable water tank containing certain amount of water (40L) that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.	OSHB-40KT
Expansion Tank for DHW	The insertable water tank (8L) to absorb the volume changes by temperature of water for DHW circuit.	OSHE-12KT
Thermostatic Mixing Valve	A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.	OSHA-MV (3/4") OSHA-MV1 (1")

3rd party accessories	
Full Name	Description
External Pump	An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.
Magnetic Filter	A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.
Flow Sensor	A flow measuring device that measures actual water flow rate in the water piping.
Energy Meter	A device that measures the amount of electric energy consumed by THERMA V
Heat Meter	A device that measures produced thermal energy by measuring the flow rate of the water and the change in its temperature (ΔT) between the outlet and inlet.
Water Temperature Sensor	A sensor that measures the temperature of the water.
Differential Pressure Valve	A self pressure regulating valve that provides constant differential pressure between supply and return headers.

ACCESSORY LIST

Full Name	LG Part No.	Scope of supply	
		LG	3rd party
2 Remo Cable	PZCWRC2	O	
2way Valve	-		O
3way Valve	OSHA-3V	O	O
Air Vent Valve	-		O
Buffer Tank	For IWT, OSHB-40KT	O	O
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	O	
Back Up Heater	HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	O	O
Circuit Breaker	-	O	O
Check Valve	-		O
DHW Booster Heater	Integrated with DHW Tank	O	O
Dry Contact	PDRYCB000 PDRYCB320	O	
Direct Digital Controller	-		O
Differential Pressure Valve	-		O
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	O	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	O	
Drain Valve	-		O
External Boiler	-		O
Energy Meter	-		O
External Pump	-		O
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	O	O
Flexible Connection	-		O
Fan Coil Unit	-		O
Flow Sensor	-		O
Heat Meter	-		O
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	O	O
Isolation Valve	-		O
Magnetic Contactor	-	O	O
Magnetic Filter	-		O
Meter Interface	PENKTH000	O	
Mixing Pump	-		O
Mixing Zone Temperature Sensor	PRSTAT5K10	O	
Mixing Valve	-		O
Pressure Gauge	-		O
Plate Heat Exchanger	-		O
Radiator	-		O
Remote Room Air Temperature Sensor	PQRSTA0	O	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	O	
Solar Pump	-		O
Safety Relief Valve	-		O
Strainer	-		O
Solar Temperature Sensor (PT-1000)	-		O
Service Valve	-		O
Thermostat	-		O
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	O	O
Under Floor Heating Coil	-		O
Wi-Fi Modem	PWFMDD200	O	
Water Temperature Sensor	-		O
Extension Wire for RS3 Controller	PZCWRC1	O	
Cover Plate	PDC-HK10	O	
Drain Pan	PHDPC	O	
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	O	
PI485 Gateway	PMNFP14A1	O	

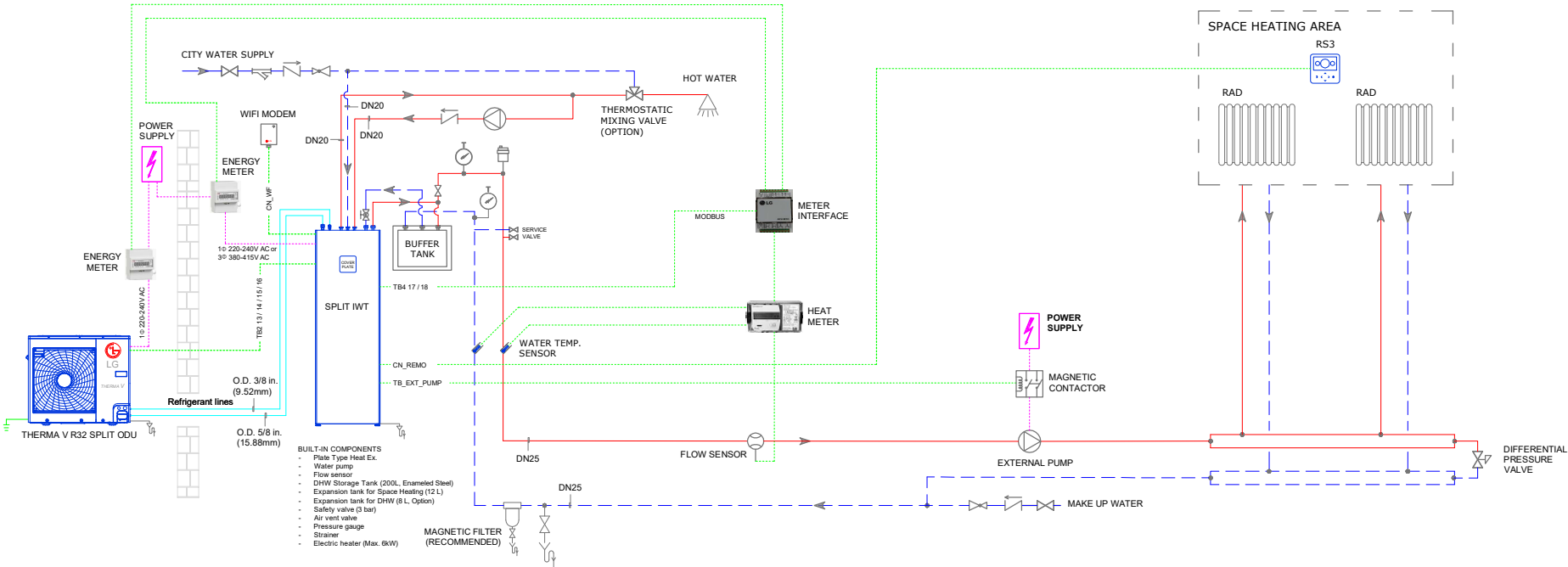
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating and DHW with Meter Interface
Product	R32 Split IWT (Integrated Water Tank, HN0916T NB1)
Terminal Device	RAD
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Air Temp. or Water Temp.
External Pump	Controlled by THERMA V

SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve		Check Valve		RS3 Remote Controller
	Expansion Tank		Motorized 2 Way Valve		Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent		Differential Pressure Valve		Y-type strainer		Dry Contact
	Pressure Gauge		Thermostatic Mixing Valve		Flow Sensor		Wi-Fi Modem
	Flexible Connection		Shut Off Valve		Magnetic Contactor		Thermostat
	Drain		Pressure Reducing Valve		Shut Off Valve with Strainer		Cover Plate



NOTE

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2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.
5. Heat Meter can only measure the amount of heat generated for space heating purposes. (The amount of heat generated for DHW cannot be measured.)

ACCESSORIES LG

RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.  
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)

Extension Wire for RS3 Controller (PZCWRC1)

Cable length 10m

Cover Plate (PDC-HK10)

A device to fill the blank space of the Indoor Unit front panel when the remote controller is relocated indoors.

Wi-Fi Modem (PWFMD200)

A control device that enables wireless communication with internet router. Including USB cable 0.6m and extension cable 0.5m

Meter Interface (PENKTH000)

An interface module between energy meter or heat meter and THERMA V that enables energy metering function.  
External power supply DC 12V.

Buffer Tank (OSHB-40KT)

The insertable water tank containing certain amount of water (40L) that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

Expansion Tank for DHW (OSHE-12KT)

The insertable water tank (8L) that absorbs the volume changes by temperature of water for DHW circuit.

Thermostatic Mixing Valve (OSHA-MV, OSHA-MV1)

A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.

3RD PARTY ACCESSORIES

External Pump

An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.

Magnetic Filter (Recommended)

A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.

Flow Sensor

A flow measuring device that measures actual water flow rate in the water piping.

Energy Meter

A device that measures the amount of electric energy consumed by THERMA V

Heat Meter

A device that measures produced thermal energy by measuring the flow rate of the water and the change in its temperature ( $\Delta T$ ) between the outlet and inlet.

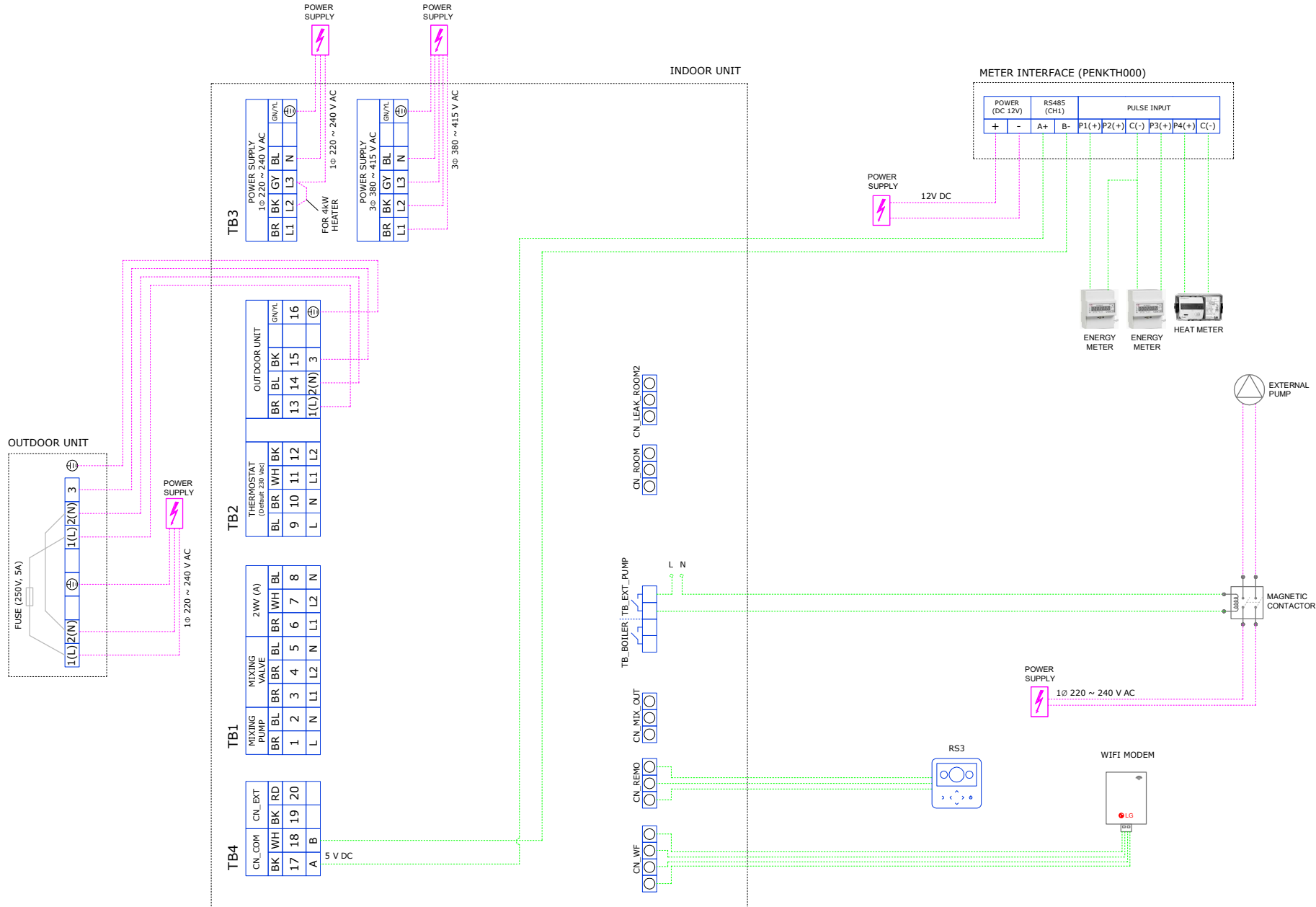
Water Temperature Sensor

A sensor that measures the temperature of the water.

Differential Pressure Valve

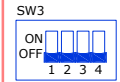
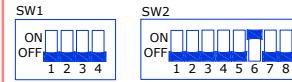
A self pressure regulating valve that provides constant differential pressure between supply and return headers.

## WIRING DIAGRAM



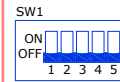
### DIP SWITCH SETTINGS

#### INDOOR UNIT MAIN PCB



		DIP SW2								X: OFF / O: ON	
Indoor Unit Type Setting for Group Control		1	2	3	4	5	6	7	8		
Accessory installation information	Ac Master	X									
	Ac Slave		O								
CHW Tank Integrated Indoor Unit + Outdoor Unit are installed	CHW Tank Integrated Indoor Unit + Outdoor Unit are installed		X	X							
	CHW Tank Integrated Indoor Unit + Outdoor Unit are installed		X	O							
Heat pump cycle	Heating only				X						
	Heating and cooling			O							
Selecting electric heater capacity	Electric heater is not used					X	X				
	Electric heater is used					O	X				
Thermostat installation	Thermostat is not installed								X		
	Thermostat is installed								O		
default setting		X	X	X	X	X	O	X	X		
MOCBUS communication type		DIP SW1									
Master (Link to LG controller)	Master (Link to LG controller)	X									
	Slave (Link to 3rd party controller)		O								
default setting		X									
Remote room air sensor (necessary)		DIP SW3									
Remote room air sensor is not installed	Remote room air sensor is not installed		X								
	Remote room air sensor is installed		O								
Antifreeze mode	Antifreeze is not applied			X							
	Antifreeze is applied (Adjustable anti-freeze temp.)			O							
default setting		X	X								

#### OUTDOOR UNIT MAIN PCB



























		DIP SW1			X: OFF / O: ON	
Low Noise Mode		1	2	3		
Always mode: Maintain low noise mode for target temperature	Always mode: Maintain low noise mode for target temperature	X				
	Partial mode: Escape low noise mode for target temperature		O			
Peak Control	Max mode		X			
	Peak control: To limit maximum current (Power saving)		O			
default setting		X	X			

### NOTE

- The wiring cable size and Circuit breaker selection must comply with installation manual and applicable local regulations.
- Make sure that Earth Leakage Circuit Breaker (ELCB) should be installed for power supply line.

## GENERAL

## SYMBOL &amp; LEGENDS

	Circulation Pump		Motorized 3 Way Valve		Check Valve		RS3 Remote Controller
	Expansion Tank		Motorized 2 Way Valve		Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent		Differential Pressure Valve		Y-type strainer		Dry Contact
	Pressure Gauge		Thermostatic Mixing Valve		Flow Sensor		Wi-Fi Modem
	Flexible Connection		Shut Off Valve		Magnetic Contactor		Thermostat
	Drain		Pressure Reducing Valve		Shut Off Valve with Strainer		Cover Plate

## SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories		
Full Name	Description	Part No.
RS3 wired remote controller	A wired remote controller with built-in temperature sensor. Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
Extension Wire for RS3 Controller	Cable length 10m	PZCWRC1
Cover Plate	A device to fill the blank space of the Indoor Unit front panel when the remote controller is relocated indoors.	PDC-HK10
Wi-Fi Modem	A control device that enables wireless communication with internet router. Including USB cable 0.6m and extension cable 0.5m	PWFMDD200
Buffer Tank	The insertable water tank containing certain amount of water (40L) that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.	OSHB-40KT
Expansion Tank for DHW	The insertable water tank (8L) to absorb the volume changes by temperature of water for DHW circuit.	OSHE-12KT
Thermostatic Mixing Valve	A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.	OSHA-MV (3/4") OSHA-MV1 (1")

3rd party accessories	
Full Name	Description
External Pump	An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.
Magnetic Filter	A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.
External Boiler	An external boiler supplied by a 3rd party that operates alternatively interlocking with THERMA V. The external boiler should have a intergrated or dedicated circulation pump. Controlled by THERMA V with voltage free contact switch.
Differential Pressure Valve	A self pressure regulating valve that provides constant differential pressure between supply and return headers.

## ACCESSORY LIST

Full Name	LG Part No.	Scope of supply	
		LG	3rd party
2 Remo Cable	PZCWRC2	O	
2way Valve	-		O
3way Valve	OSHA-3V	O	O
Air Vent Valve	-		O
Buffer Tank	For IWT, OSHB-40KT	O	O
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	O	
Back Up Heater	HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	O	O
Circuit Breaker	-	O	O
Check Valve	-		O
DHW Booster Heater	Integrated with DHW Tank	O	O
Dry Contact	PDRYCB000 PDRYCB320	O	
Direct Digital Controller	-		O
Differential Pressure Valve	-		O
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	O	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	O	
Drain Valve	-		O
External Boiler	-		O
Energy Meter	-		O
External Pump	-		O
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	O	O
Flexible Connection	-		O
Fan Coil Unit	-		O
Flow Sensor	-		O
Heat Meter	-		O
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	O	O
Isolation Valve	-		O
Magnetic Contactor	-	O	O
Magnetic Filter	-		O
Meter Interface	PENKTH000	O	
Mixing Pump	-		O
Mixing Zone Temperature Sensor	PRSTAT5K10	O	
Mixing Valve	-		O
Pressure Gauge	-		O
Plate Heat Exchanger	-		O
Radiator	-		O
Remote Room Air Temperature Sensor	PQRSTA0	O	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	O	
Solar Pump	-		O
Safety Relief Valve	-		O
Strainer	-		O
Solar Temperature Sensor (PT-1000)	-		O
Service Valve	-		O
Thermostat	-		O
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	O	O
Under Floor Heating Coil	-		O
Wi-Fi Modem	PWFMDD200	O	
Water Temperature Sensor	-		O
Extension Wire for RS3 Controller	PZCWRC1	O	
Cover Plate	PDC-HK10	O	
Drain Pan	PHDPC	O	
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	O	
PI485 Gateway	PMNFP14A1	O	



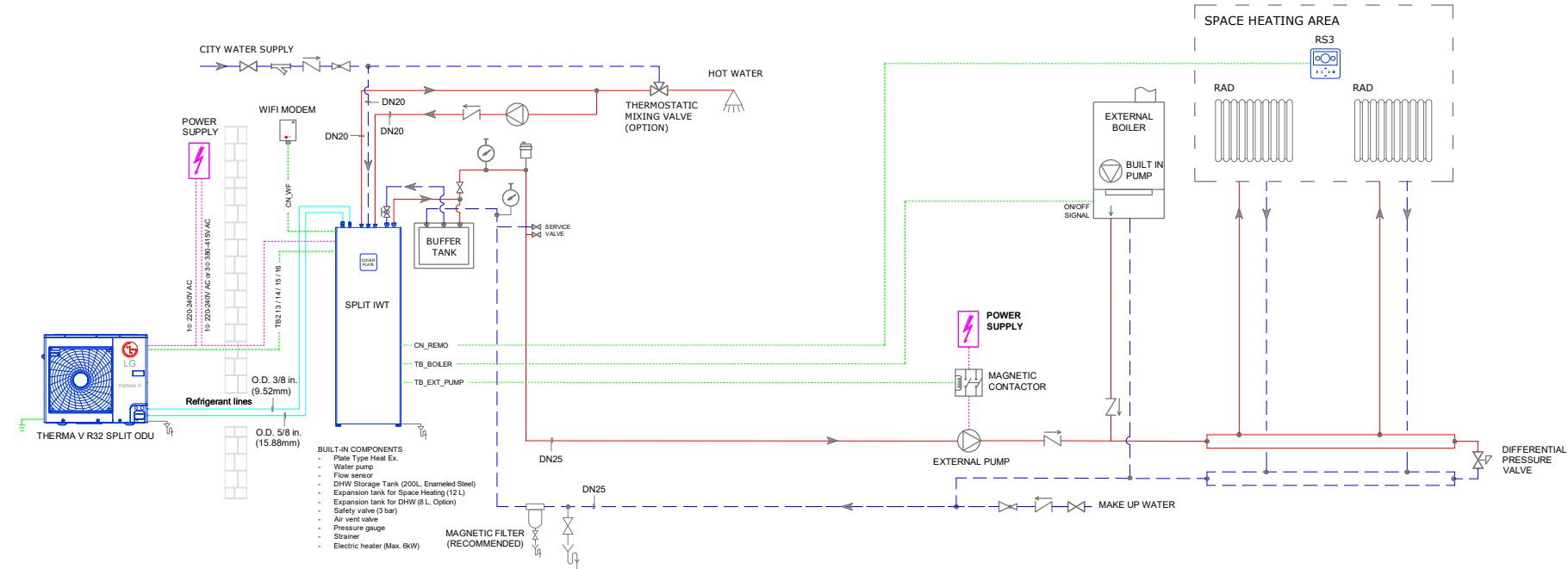
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating and DHW with External Boiler
Product	R32 Split IWT (Integrated Water Tank, HN0916T NB1)
Terminal Device	RAD
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Air Temp.
External Pump	Controlled by THERMA V

SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve		Check Valve		RS3 Remote Controller
	Expansion Tank		Motorized 2 Way Valve		Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent		Differential Pressure Valve		Y-type strainer		Dry Contact
	Pressure Gauge		Thermostatic Mixing Valve		Flow Sensor		Wi-Fi Modem
	Flexible Connection		Shut Off Valve		Magnetic Contactor		Thermostat
	Drain		Pressure Reducing Valve		Shut Off Valve with Strainer		Cover Plate



NOTE

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2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.

ACCESSORIES LG

RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.  
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)

Extension Wire for RS3 Controller (PZCWRC1)

Cable length 10m

Cover Plate (PDC-HK10)

A device to fill the blank space of the Indoor Unit front panel when the remote controller is relocated indoors.

Wi-Fi Modem (PWFMD200)

A control device that enables wireless communication with internet router.  
Including USB cable 0.6m and extension cable 0.5m

Buffer Tank (OSHB-40KT)

The insertable water tank containing certain amount of water (40L) that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

Expansion Tank for DHW (OSHE-12KT)

The insertable water tank (8L) to absorb the volume changes by temperature of water for DHW circuit.

Thermostatic Mixing Valve (OSHA-MV, OSHA-MV1)

A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.

3RD PARTY ACCESSORIES

External Pump

An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.

Magnetic Filter (Recommended)

A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.

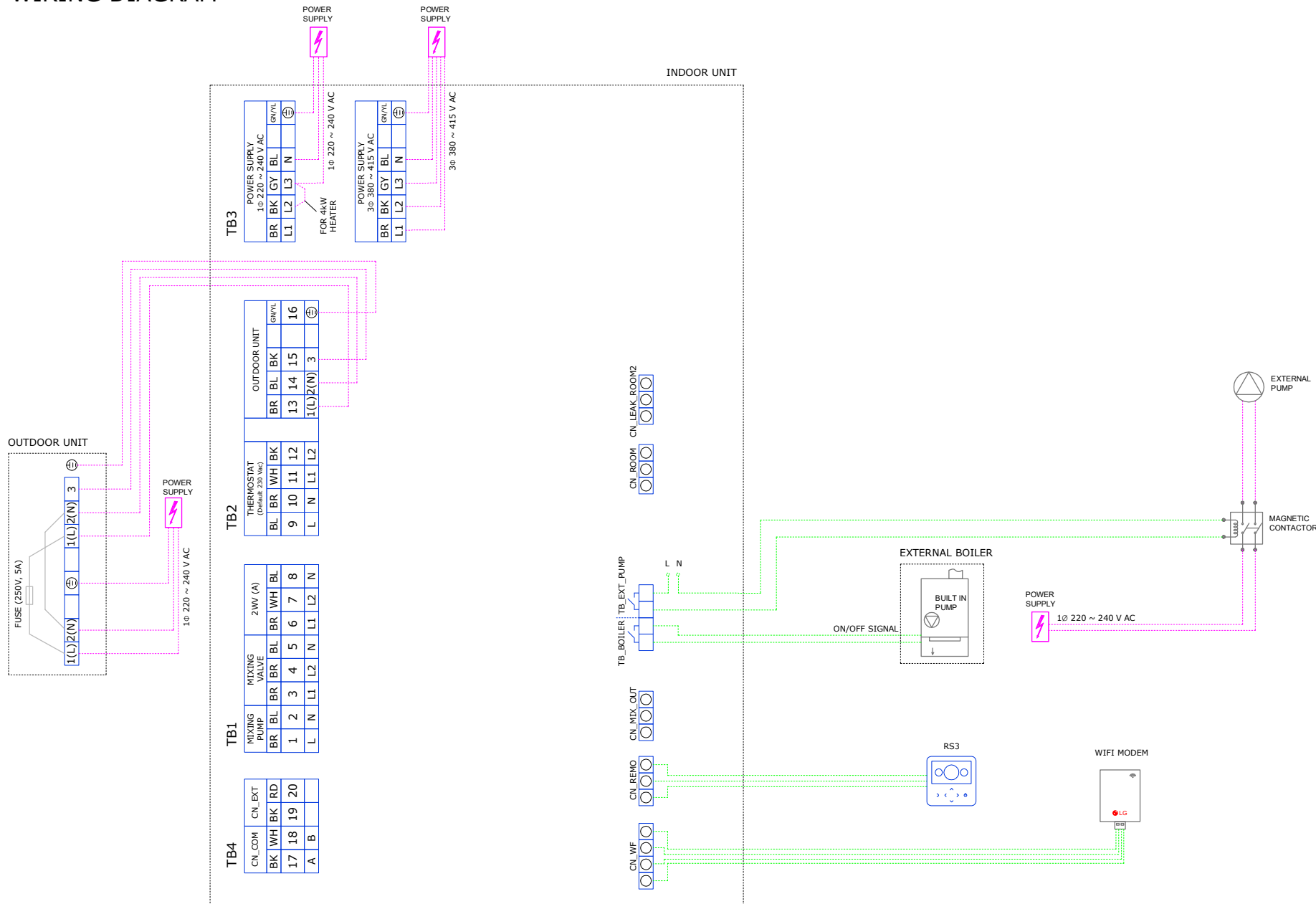
External Boiler

An external boiler supplied by a 3rd party that operates alternatively interlocking with THERMA V. The external boiler should have a integrated or dedicated circulation pump.  
Controlled by THERMA V with voltage free contact switch.

Differential Pressure Valve

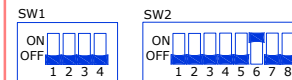
A self pressure regulating valve that provides constant differential pressure between supply and return headers.

## WIRING DIAGRAM



### DIP SWITCH SETTINGS

#### INDOOR UNIT MAIN PCB



		DIP SW 2								X: OFF / O: ON	
Indoor Unit Type Setting for Group Control		1	2	3	4	5	6	7	8		
Accessories Installation Information	As Master	X									
	As Slave	O									
DHW Tank Integrated Indoor Unit + Outdoor Unit are installed			X	X							
			O	X							
Heat pump cycle	Heating only				X						
	Heating and cooling			O							
Selecting electric heater capacity	Electric heater is not used				X	X					
	Electric heater is used				O	X					
Thermostat installation	Thermostat is not installed							X			
	Thermostat is installed							O	X		
default setting		X	X	X	X	X	O	X	X		
MOCBUS communication type		DIP SW 1									
	Master (Link to LG controller)	X									
	Slave (Link to 3rd party controller)	O									
		default setting									
		DIP SW 3									
Remote room air sensor (Accessories)	Remote room air sensor is not installed	X									
	Remote room air sensor is installed	O									
Antifreeze mode	Antifreeze is not applied	X									
	Antifreeze is applied (Adjustable anti-freeze temp.)	O									
		default setting									

#### OUTDOOR UNIT MAIN PCB



		DIP SW 1			X: OFF / O: ON	
Low Noise Mode		1	2	3		
	Always mode: Maintain low noise mode for target temperature	X				
	Partial mode: Escape low noise mode for target temperature	O				
Peak Control	Max mode		X			
	Peak control: To limit maximum current (Power saving)		O			
		default setting				

### NOTE

- The wiring cable size and Circuit breaker selection must comply with installation manual and applicable local regulations.
- Make sure that Earth Leakage Circuit Breaker (ELCB) should be installed for power supply line.