

























## 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		Drain Pan		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. Monobloc : supplied with 10m length cable, 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	PWFMD200
Extension Cable for Wi-Fi Modem	Cable Length 10m	PWYREW000
Dry Contact	A control switch that enables turning THERMA V On/Off after receiving the signal from external control system.	PDRYCB000 PDRYCB320

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. Controlled by THERMA V with 230V power.	
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.	
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.	
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	0	0
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
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)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump	-		0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
Solar Pump	-		0
Safety Relief Valve	-		0
Strainer	-		0
Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0
Under Floor Heating Coil	-		0
Wi-Fi Modem	PWFMD200	0	
Water Temperature Sensor	-		0

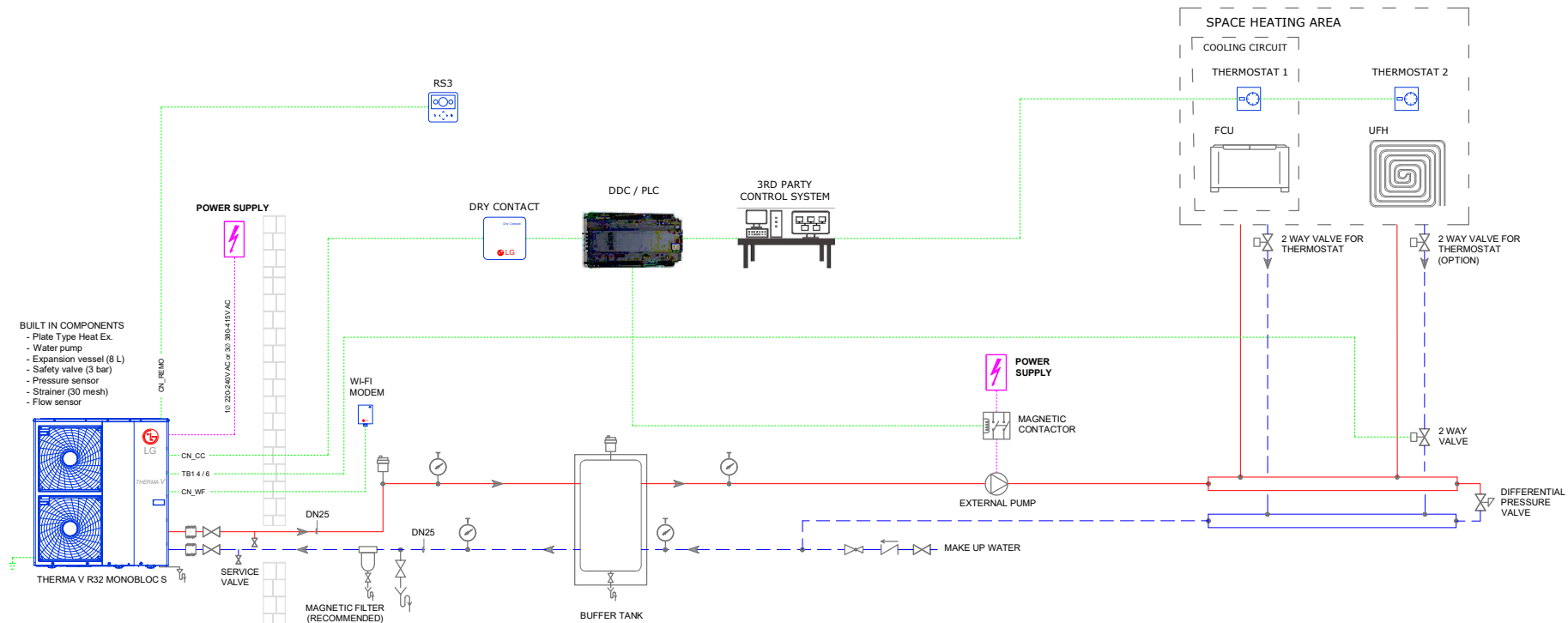
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating & Cooling with Dry Contact
Product	R32 Monobloc S (New)
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		Drain Pan		Cover Plate



- BUILT IN COMPONENTS**
- Plate Type Heat Ex.
  - Water pump
  - Expansion vessel (8 L)
  - Safety valve (3 bar)
  - Pressure sensor
  - Strainer (30 mesh)
  - Flow sensor

**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. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
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.  
Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)
- Wi-Fi Modem (PWFMD200)**  
A control device that enables wireless communication with internet router. Including USB cable 0.6m and extension cable 0.5m
- Extension Cable for Wi-Fi Modem (PWYREW00)**  
Cable Length 10m
- Dry Contact (PDRYCB000, PDRYCB320)**  
A control switch that enables turning THERMA V On/Off after receiving the signal from external control system.

### 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.
- Buffer Tank**  
A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.
- 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 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.



## 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		Drain Pan		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. Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default

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.
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.
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	0	
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
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)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump	-		0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
Solar Pump	-		0
Safety Relief Valve	-		0
Strainer	-		0
Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0
Under Floor Heating Coil	-		0
Wi-Fi Modem	PWFMD200	0	
Water Temperature Sensor	-		0

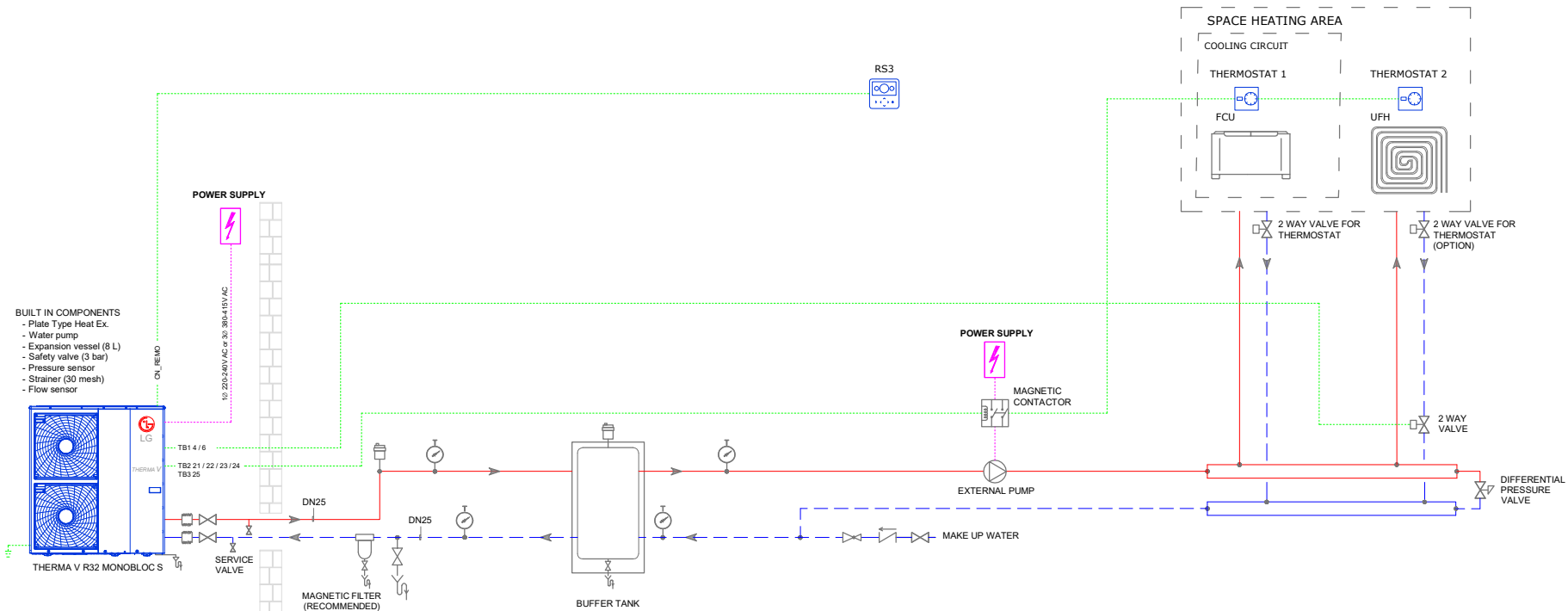
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating & Cooling with Thermostat
Product	R32 Monobloc S (New)
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		Drain Pan		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. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
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.  
Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)

### 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.

**Buffer Tank**  
A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

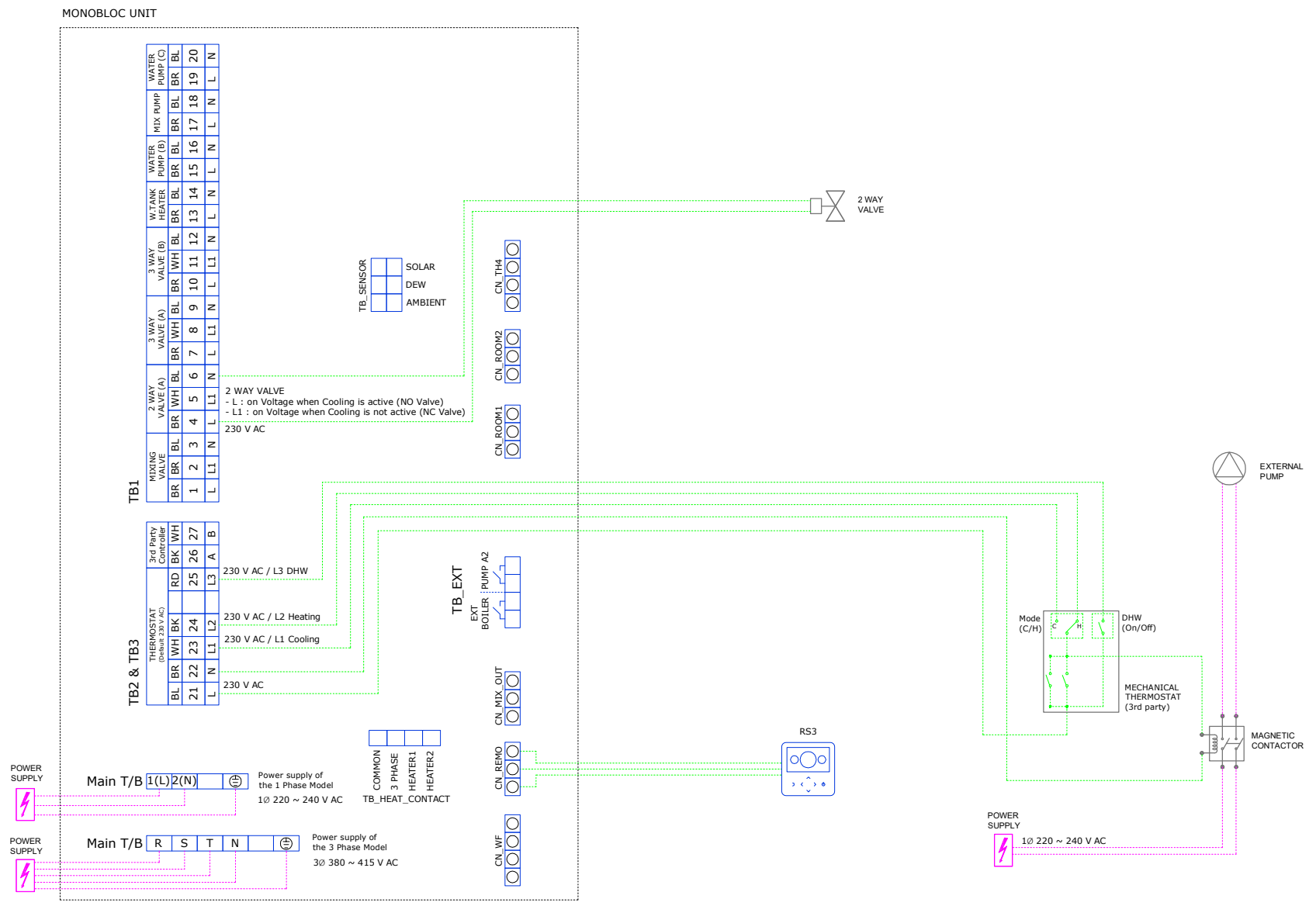
**2 Way Valve**  
A motorized isolation valve that blocks the water flow into underfloor coil in order to prevent water condensation during cooling mode. Controlled by THERMA V with 230V power. Required operating time : less than 90s.

**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 each 2 Way Valve and FCU where applicable.

**2 Way Valve for Thermostat**  
A self pressure regulating valve that allows 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

#### MAIN PCB (HYDRO)

##### SW1



##### SW2

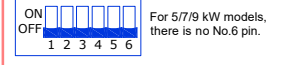


	DIP SW1	1	2	3	4	5	6	7	8
MODBUS Communication Type	Master (Link to LC controller)	X							
	Slave (Link to 3rd party controller)		O						
MODBUS Function	REGINE		X						
	Unified Open Protocol		O						
Antifreeze Mode	Antifreeze is not applied								X
	Antifreeze is applied (Adjustable anti-freeze temp.)								O
	default setting	X	X						X

	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	Heat pump installation (Heating or cooling circuit only)		X	X					
	Heat pump + DHW tank are installed		X	O					
Heat Pump Cycle	Heating only			X					
	Heating and cooling			O					
Remote Room Air Sensor (Accessory)	Remote room air sensor is not installed			X					
	Remote room air sensor is installed			O					
Selecting Backup Heater Capacity	Backup heater is not used			X	X				
	Half capacity is used			O	X				
Thermostat Installation	Thermostat is not installed								X
	Thermostat is installed		X	X	X	X	X	X	X
	default setting	X	X	X	X	X	X	X	X

#### MAIN PCB (CYCLE)

##### SW1



	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	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		Drain Pan		Cover Plate

### SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories		
Full Name	Description	Part No.
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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.
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.
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 Therma V, Valve, Pump, and FCU where applicable.
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	0	
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
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)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACPSA000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump	-		0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
Solar Pump	-		0
Safety Relief Valve	-		0
Strainer	-		0
Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0
Under Floor Heating Coil	-		0
Wi-Fi Modem	PWFMD200	0	
Water Temperature Sensor	-		0

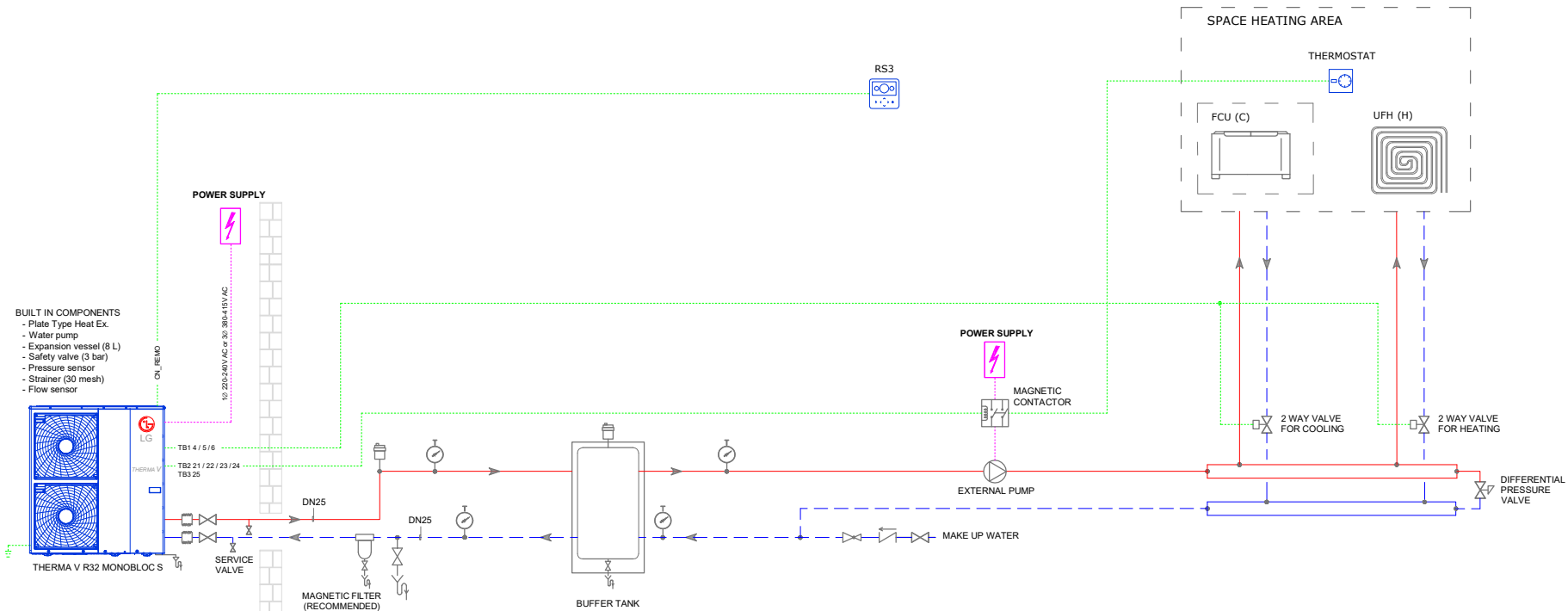
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### SYMBOL & LEGENDS

	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		Drain Pan		Cover Plate



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A wired remote controller with built-in temperature sensor.  
Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)

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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.

**Buffer Tank**  
A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

**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.

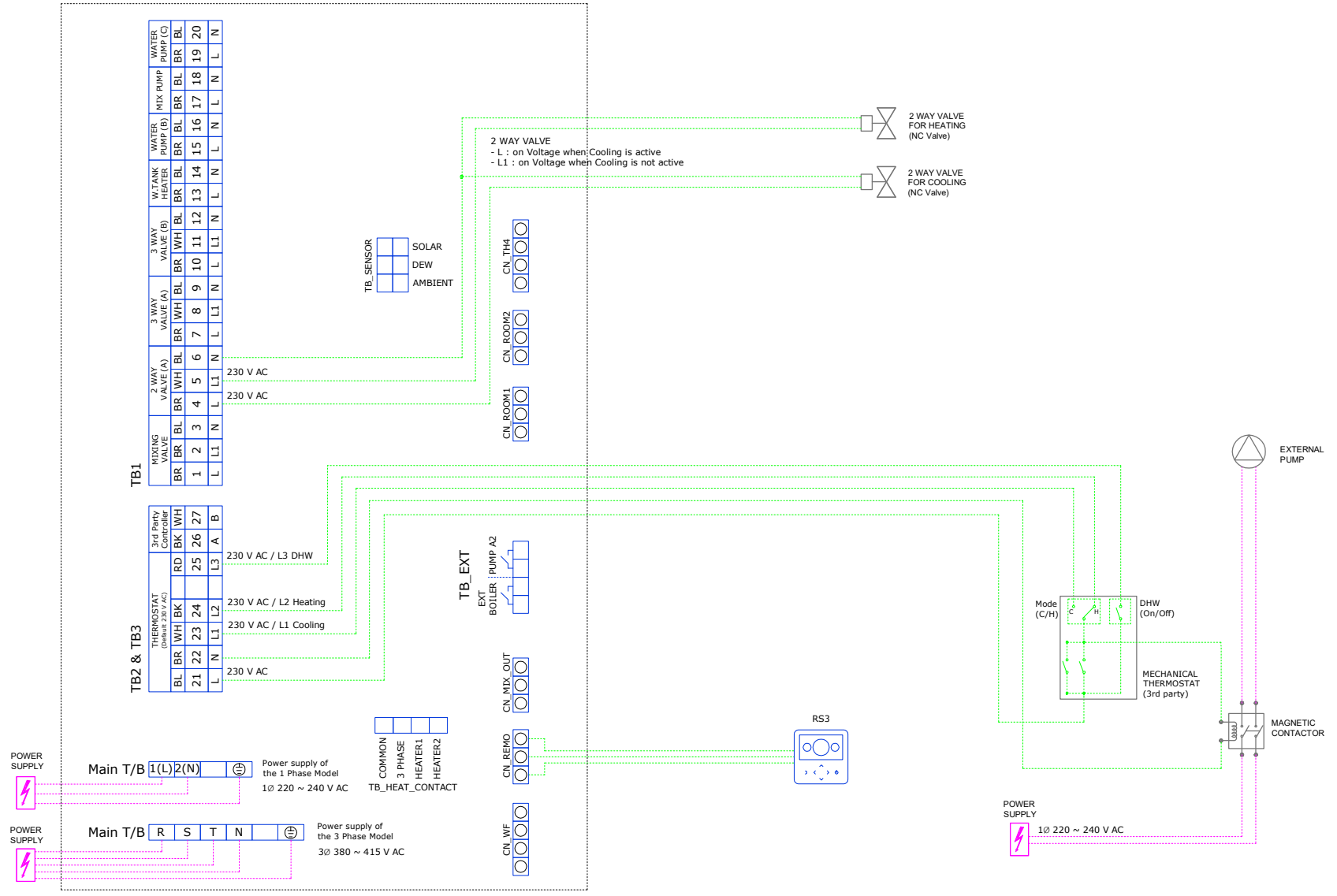
**Thermostat**  
A control device that senses the temperature of a room and performs actions so that the room's temperature is maintained near a desired setpoint. In this application, Thermostat must be connected with Thermo V and interlocking operation with FCU is required.

**Differential Pressure Valve**  
A self pressure regulating valve that provides constant differential pressure between supply and return headers.



## WIRING DIAGRAM

MONOBLOC UNIT



### DIP SWITCH SETTINGS

#### MAIN PCB (HYDRO)

##### SW1



##### SW2



MIDRIS Communication Type	MIDRIS Function	Antifreeze Mode	DIP SW1															
			1	2	3	4	5	6	7	8								
Master (Link to LC controller)	Slave (Link to 3rd party controller)	Antifreeze is not applied	X															
Unified Open Protocol	Antifreeze is applied (Adjustable anti-freeze temp.)			X														
default setting			X	X														

Indoor Unit Type Setting for Group Control	Accessory Installation Information	Heat Pump Cycle	Remote Room Air Sensor (Accessory)	Selecting Backup Heater Capacity	Thermostat Installation	DIP SW2												
						1	2	3	4	5	6	7	8					
As Master	Heat pump installation (Heating or cooling circuit only)	Heating and cooling	Remote room air sensor is not installed	Full capacity is used	Thermostat is not installed	X												
As Slave	Heat pump + DHW tank are installed	Heating only	Remote room air sensor is installed	Half capacity is used	Thermostat is installed		X											
default setting						X	X	X	X	X	X	X	X	X	X	X	X	X

#### MAIN PCB (CYCLE)

##### SW1



Low Noise Mode	Peak Control	DIP SW1		
		1	2	3
Always mode: Maintain low noise mode for target temperature	Max mode	X		
Partial mode: Escape low noise mode for target temperature	Peak control: To limit maximum current (Power saving)		X	
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		Drain Pan		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. Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default

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.
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.
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 Therma V, Valve, Pump, and FCU where applicable.
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	0	
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
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)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACPSA000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump	-		0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
Solar Pump	-		0
Safety Relief Valve	-		0
Strainer	-		0
Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0
Under Floor Heating Coil	-		0
Wi-Fi Modem	PWFMD200	0	
Water Temperature Sensor	-		0

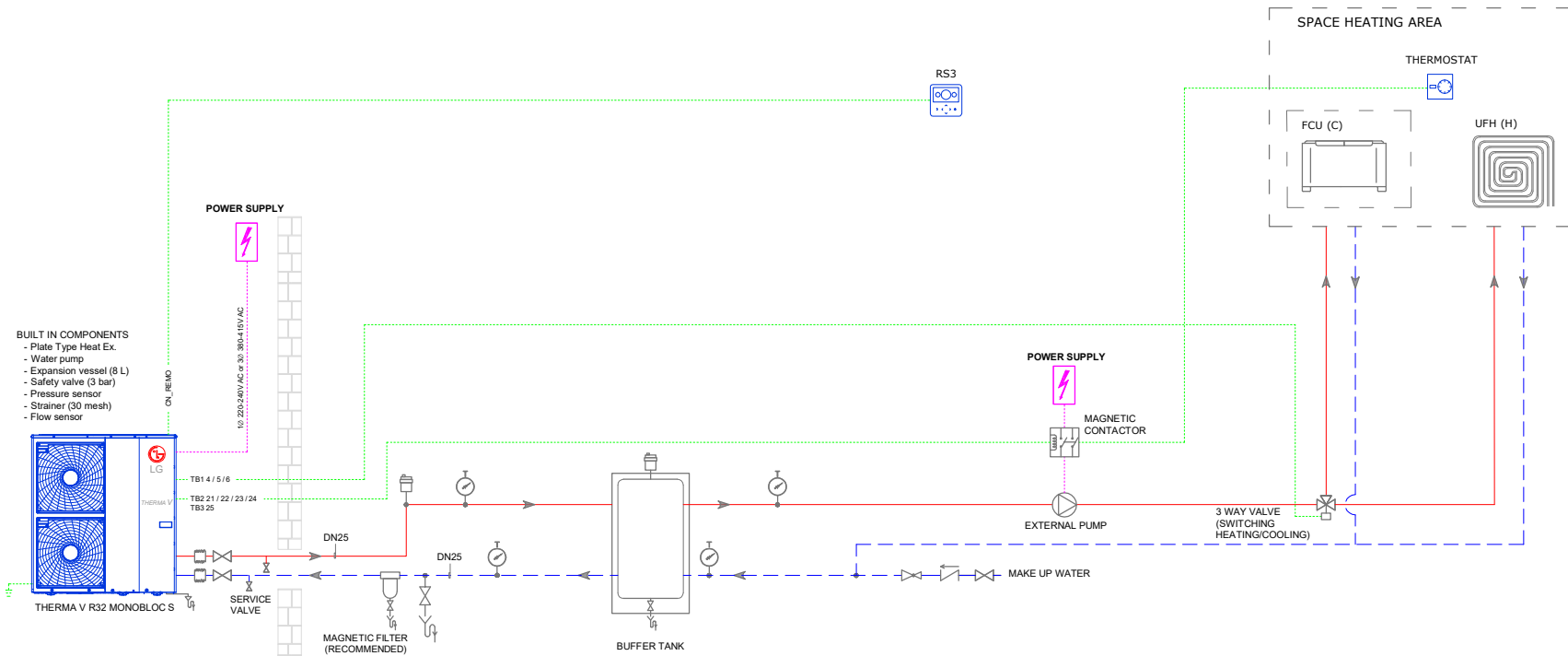
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating & Cooling with Thermostat
Product	R32 Monobloc S (New)
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		Drain Pan		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. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
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.  
Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)

### 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.

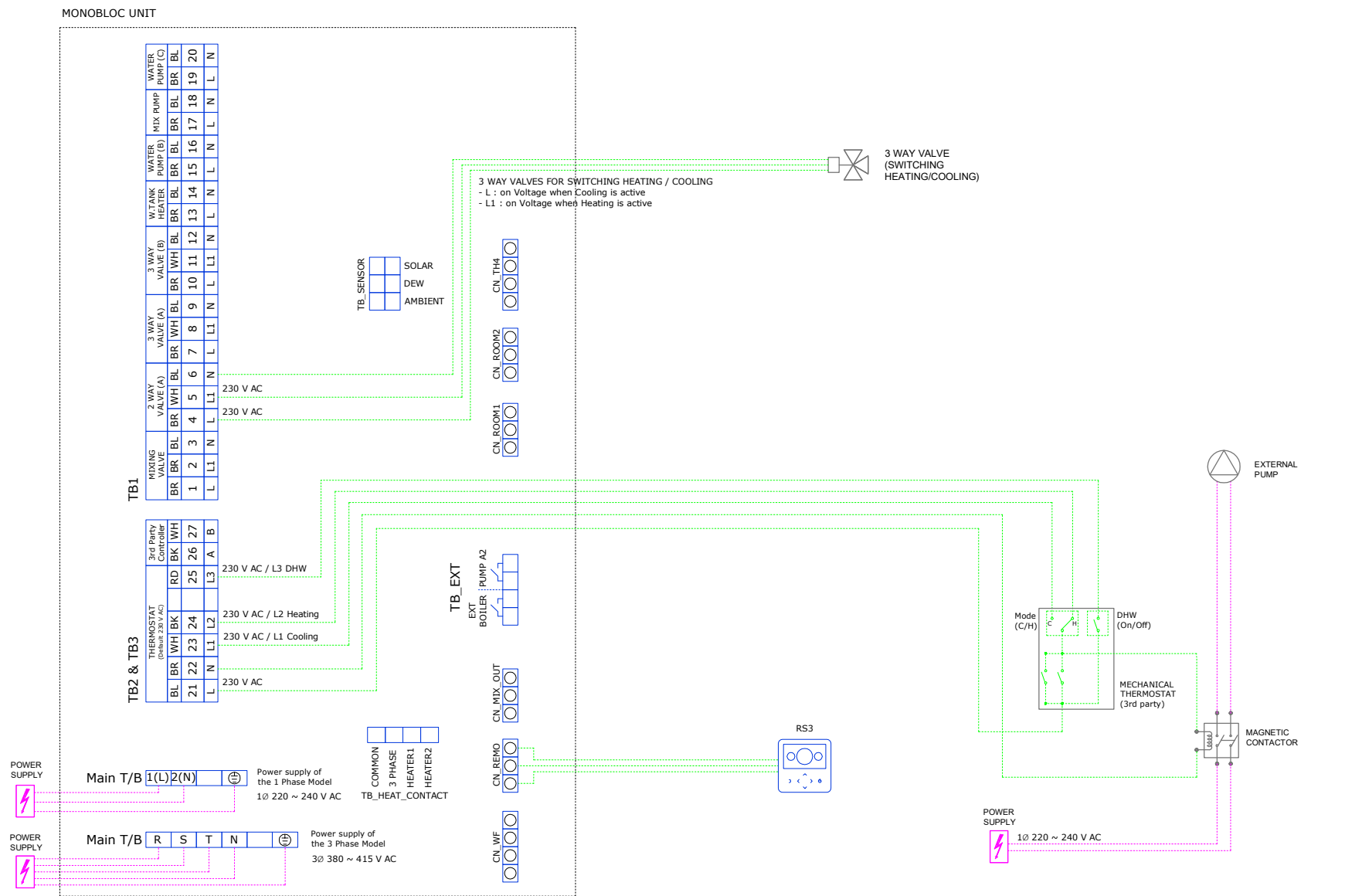
**Buffer Tank**  
A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

**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. In this application, Thermostat must be connected with Therma V and interlocking operation with FCU is required.

**Differential Pressure Valve**  
A self pressure regulating valve that provides constant differential pressure between supply and return headers.

## WIRING DIAGRAM



### DIP SWITCH SETTINGS

#### MAIN PCB (HYDRO)

##### SW1



##### SW2



	DIP SW1	1	2	3	4	5	6	7	8
MDBRIS Communication Type	Master (Link to LC controller)	X							
MDBRIS Function	Slave (Link to 3rd party controller)		X						
MDBRIS Function	REGINE		X						
MDBRIS Function	Unified Open Protocol		O						
MDBRIS Function	Antifreeze is not applied								X
Antifreeze Mode	Antifreeze is applied (Adjustable anti-freeze temp.)								O
	default setting	X	X						X

	DIP SW2	1	2	3	4	5	6	7	8
Indoor Unit Type Setting for Group Control	As Master	X							
Indoor Unit Type Setting for Group Control	As Slave		O						
Indoor Unit Type Setting for Group Control	As Slave								
Accessory Installation Information	Heat pump installation (Heating or cooling circuit only)		X	X					
Accessory Installation Information	Heat pump + DHW tank are installed	X	O						
Accessory Installation Information	Heat pump + DHW tank + Solar thermal system are installed		O	X					
Heat Pump Cycle	Heating only			X					
Heat Pump Cycle	Heating and cooling		O						
Remote Room Air Sensor (Accessory)	Remote room air sensor is not installed			X					
Remote Room Air Sensor (Accessory)	Remote room air sensor is installed			O					
Selecting Backup Heater Capacity	Backup heater is not used			X	X				
Selecting Backup Heater Capacity	Half capacity is used			O	X				
Selecting Backup Heater Capacity	Full capacity is used				O	O			
Thermostat Installation	Thermostat is not installed								X
Thermostat Installation	Thermostat is installed		X	X	X	X	X	X	X
	default setting	X	X	X	X	X	X	X	X

#### MAIN PCB (CYCLE)

##### SW1



























	DIP SW1	1	2	3
Low Noise Mode	Always mode: Maintain low noise mode for target temperature	X		
Low Noise Mode	Partial mode: Escape low noise mode for target temperature		O	
Peak Control	Max mode		X	
Peak Control	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		Drain Pan		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. Monobloc : supplied with 10m length cable, 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	PWFMD200
Extension Cable for Wi-Fi Modem	Cable Length 10m	PWYREW000

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.
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.
Plate Heat Exchanger	A heat exchanger made by stacking several thin metal plates that transfers heat between two fluids.
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	0	
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
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)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACPSA000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump	-		0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
Solar Pump	-		0
Safety Relief Valve	-		0
Strainer	-		0
Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0
Under Floor Heating Coil	-		0
Wi-Fi Modem	PWFMD200	0	
Water Temperature Sensor	-		0

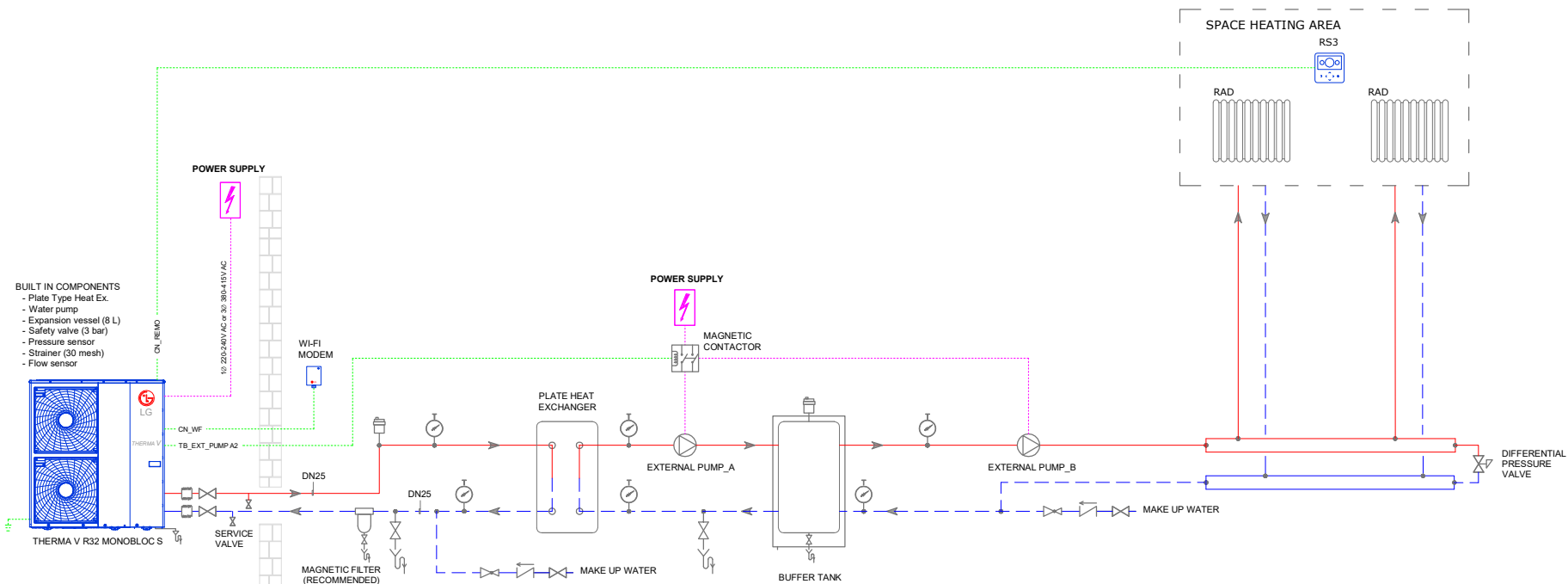
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating with Anti-freeze
Product	R32 Monobloc S (New)
Terminal Device	RAD
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Air Temp.
External Pump	Controlled by THERMA V
Remark	Antifreeze is applied on primary circuit only (Therma V to PHE)

### 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		Drain Pan		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. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
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.  
Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)

**Wi-Fi Modem (PWFMD200)**  
A control device that enables wireless communication with internet router. Including USB cable 0.6m and extension cable 0.5m

**Extension Cable for Wi-Fi Modem (PWYREW000)**  
Cable Length 10m

### 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.

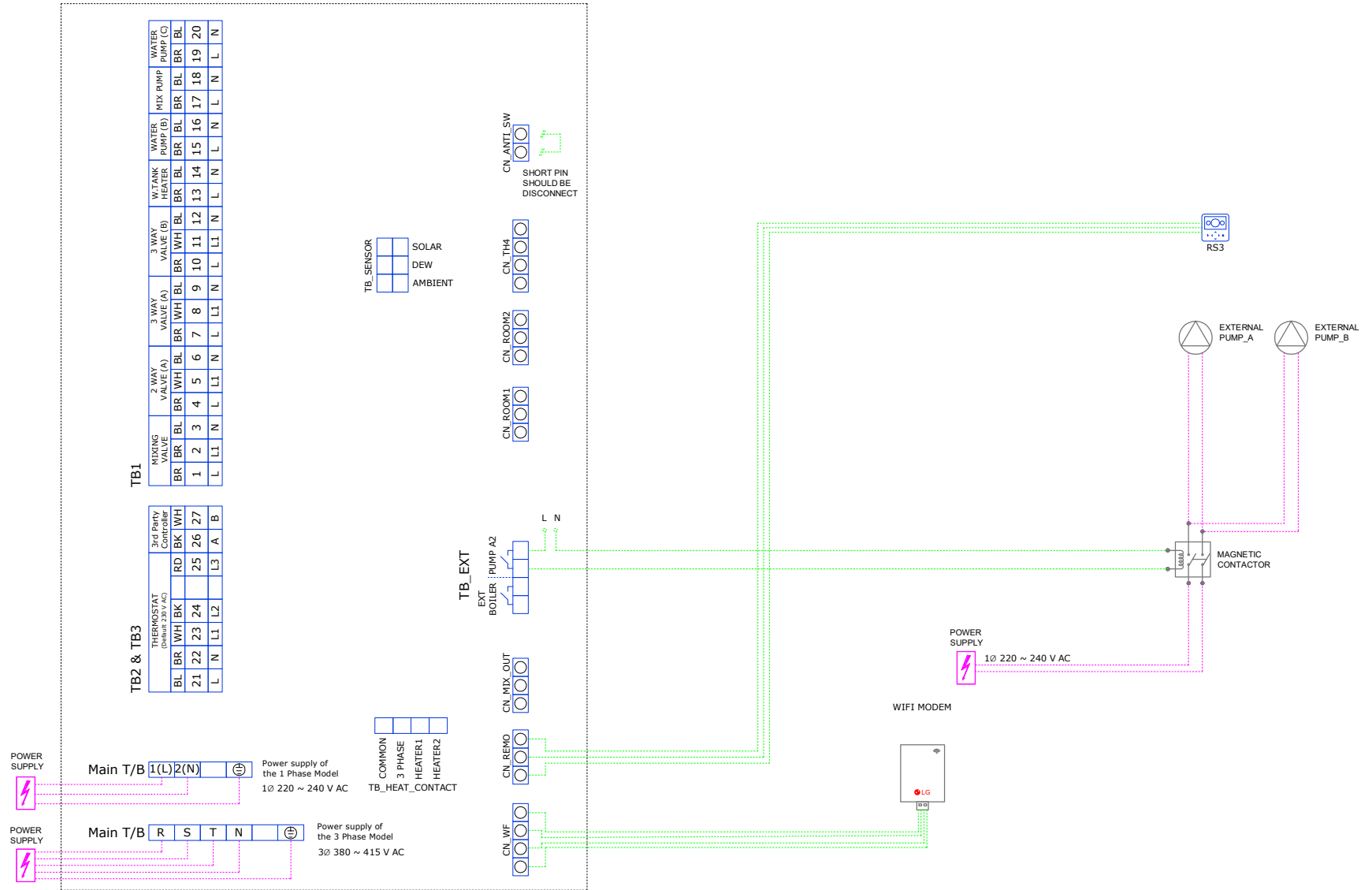
**Buffer Tank**  
A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

**Plate Heat Exchanger**  
A heat exchanger made by stacking several thin metal plates that transfers heat between two fluids.

**Differential Pressure Valve**  
A self pressure regulating valve that provides constant differential pressure between supply and return headers.

## WIRING DIAGRAM

MONOBLOC UNIT



### DIP SWITCH SETTINGS

#### MAIN PCB (HYDRO)

##### SW1



##### SW2



	DIP SW1	X: OFF / O: ON								
		1	2	3	4	5	6	7	8	
MDBRS Communication Type	Master (Link to LC controller)	X								
	Slave (Link to 3rd party controller)	O								
MDBRS Function	REGINE	X								
	Unified Open Protocol	O								
Antifreeze Mode	Antifreeze is not applied								X	
	Antifreeze is applied (Adjustable anti-freeze temp.)								O	
	default setting	X	X						X	

	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 Information	Heat pump installation (Heating or cooling circuit only)		X	X						
	Heat pump + DRW tank are installed		X	O						
Heat Pump Cycle	Heating only			X						
	Heating and cooling		O							
Remote Room Air Sensor (Accessory)	Remote room air sensor is not installed				X					
	Remote room air sensor is installed				O					
Selecting Backup Heater Capacity	Full capacity is used					O	X			
	Half capacity is used						O	X		
Thermostat Installation	Thermostat is not installed								X	
	Thermostat is installed		X	X	X	X	X	X	X	X
	default setting	X	X	X	X	X	X	X	X	X

#### MAIN PCB (CYCLE)

##### SW1



	DIP SW1	X: OFF / O: ON		
		1	2	3
Low Noise Mode	Always mode: Maintain low noise mode for target temperature	X		
	Partial mode: Escalate 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

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.

## 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		Drain Pan		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. Monobloc : supplied with 10m length cable, 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	PWFMD200
Extension Cable for Wi-Fi Modem	Cable Length 10m	PWYREW000
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

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.
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.
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	0	
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
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)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump	-		0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
Solar Pump	-		0
Safety Relief Valve	-		0
Strainer	-		0
Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0
Under Floor Heating Coil	-		0
Wi-Fi Modem	PWFMD200	0	
Water Temperature Sensor	-		0



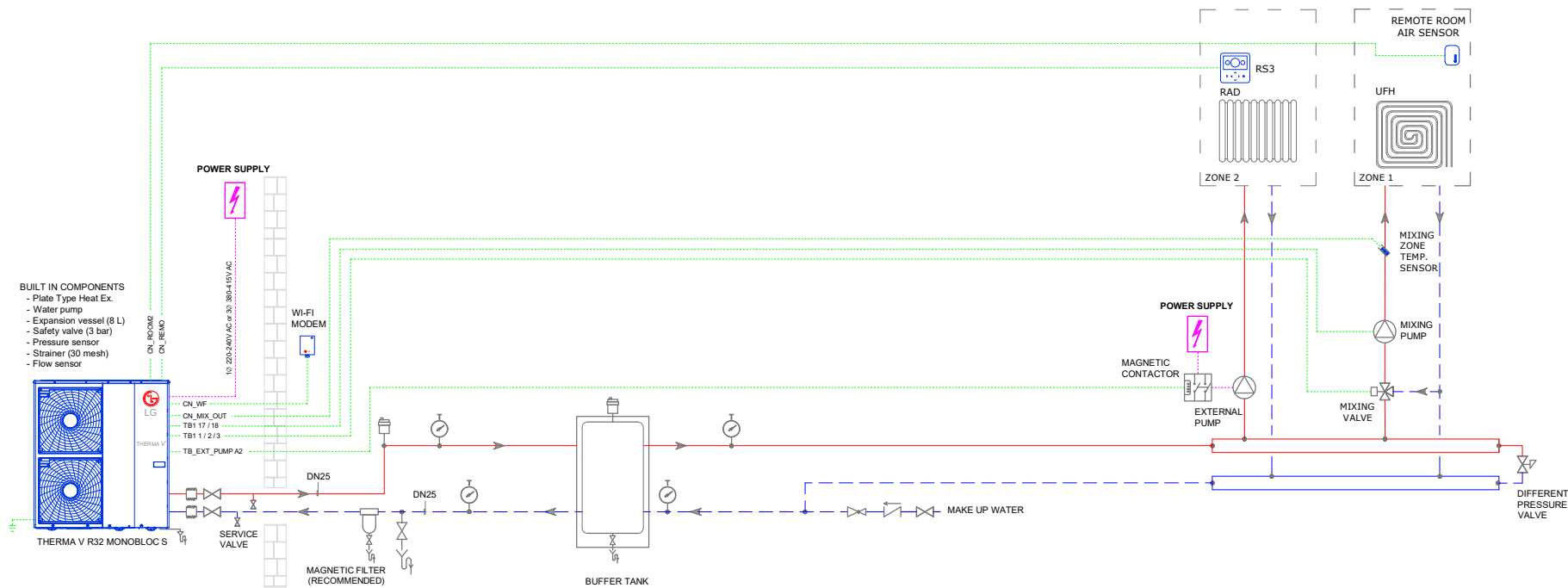
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating with 2nd Circuit
Product	R32 Monobloc S (New)
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

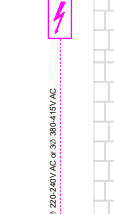
### SYMBOL & LEGENDS

	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		Drain Pan		Cover Plate



- BUILT IN COMPONENTS**
- Plate Type Heat Ex.
  - Water pump
  - Expansion vessel (8 L)
  - Safety valve (3 bar)
  - Pressure sensor
  - Strainer (30 mesh)
  - Flow sensor

### POWER SUPPLY



### LG ACCESSORIES

- RS3 Controller (Default)**  
A wired remote controller with built-in temperature sensor.  
Monobloc : supplied with 10m length cable, 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
- Extension Cable for Wi-Fi Modem (PQRSTAO)**  
Cable Length 10m
- Remote Room Air Temperature Sensor (PQRSTAO)**  
Temperature sensor for the room. Cable length 15m.
- Mixing Zone Temperature Sensor (PRSTATSK10)**  
A temperature sensor for the mixed circuit. Cable length 10m.

### 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.
- Buffer Tank**  
A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.
- 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.

**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. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.



## 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		Drain Pan		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. Monobloc : supplied with 10m length cable, 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	PWFMD200
Extension Cable for Wi-Fi Modem	Cable Length 10m	PWYREW000
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.

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.
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.
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	0	0
2way Valve	-	0	0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-	0	0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	0
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)	0	0
Circuit Breaker	-	0	0
Check Valve	-	0	0
Cover Plate	PDC-HK10	0	0
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	0
Direct Digital Controller	-	0	0
Differential Pressure Valve	-	0	0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	0
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	0
Drain Pan	PHDPC	0	0
Drain Valve	-	0	0
External Boiler	-	0	0
Energy Meter	-	0	0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	0
External Pump	-	0	0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-	0	0
Fan Coil Unit	-	0	0
Flow Sensor	-	0	0
Heat Meter	-	0	0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-	0	0
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	0	0
Magnetic Contactor	-	0	0
Magnetic Filter	-	0	0
Meter Interface	PENKTH000	0	0
Mixing Pump	-	0	0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	0
Mixing Valve	-	0	0
PI485 Gateway	PMNFP14A1	0	0
Pressure Gauge	-	0	0
Plate Heat Exchanger	-	0	0
Radiator	-	0	0
Recirculation Pump	-	0	0
Remote Room Air Temperature Sensor	PQRSTA0	0	0
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	0
Solar Pump	-	0	0
Safety Relief Valve	-	0	0
Strainer	-	0	0
Solar Temperature Sensor (PT-1000)	-	0	0
Service Valve	-	0	0
Thermostat	-	0	0
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0
Under Floor Heating Coil	-	0	0
Wi-Fi Modem	PWFMD200	0	0
Water Temperature Sensor	-	0	0

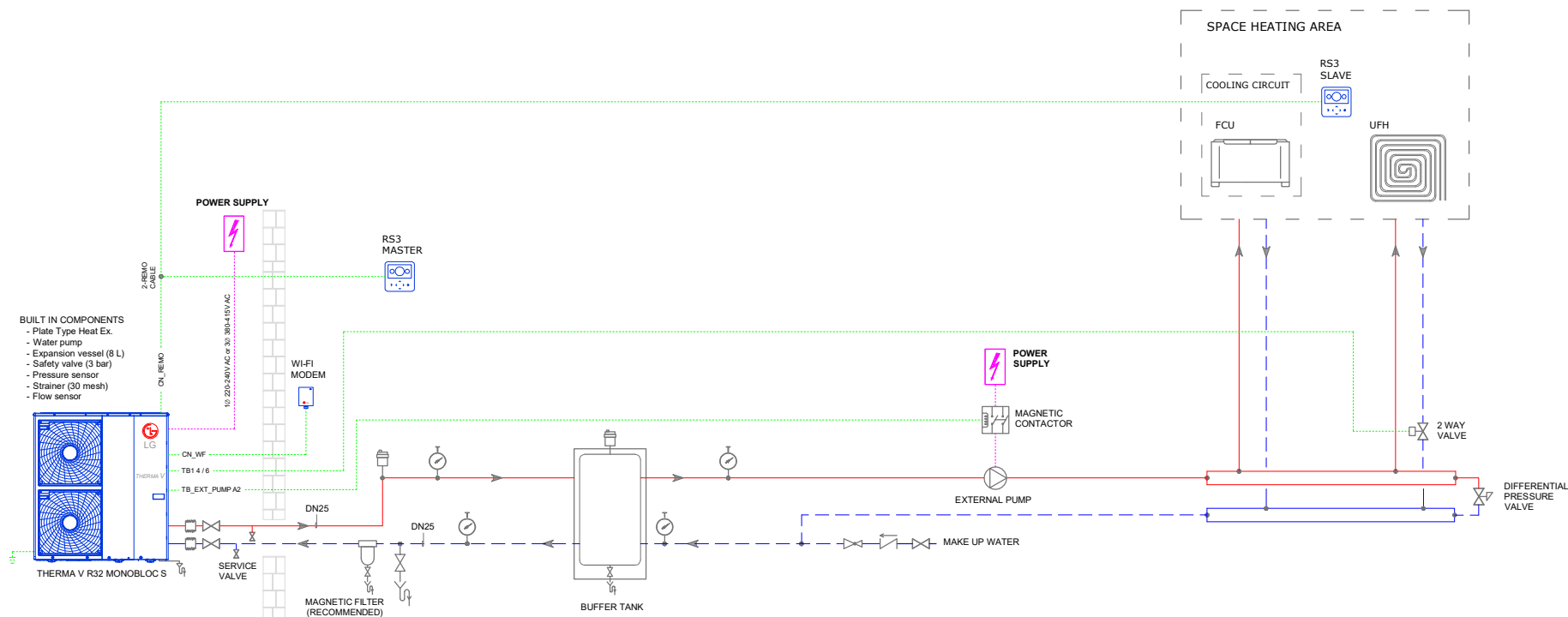
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating & Cooling with 2 Remote Controllers
Product	R32 Monobloc S (New)
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		Drain Pan		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. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
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.  
Monobloc : supplied with 10m length cable, 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

#### Extension Cable for Wi-Fi Modem (PWYREW00)

Cable Length 10m

#### 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.

### 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.

#### Buffer Tank

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

#### 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.



## 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		Drain Pan		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. Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default

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.
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.
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	0	
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
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)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACPSA000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump	-		0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
Solar Pump	-		0
Safety Relief Valve	-		0
Strainer	-		0
Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0
Under Floor Heating Coil	-		0
Wi-Fi Modem	PWFMD200	0	
Water Temperature Sensor	-		0

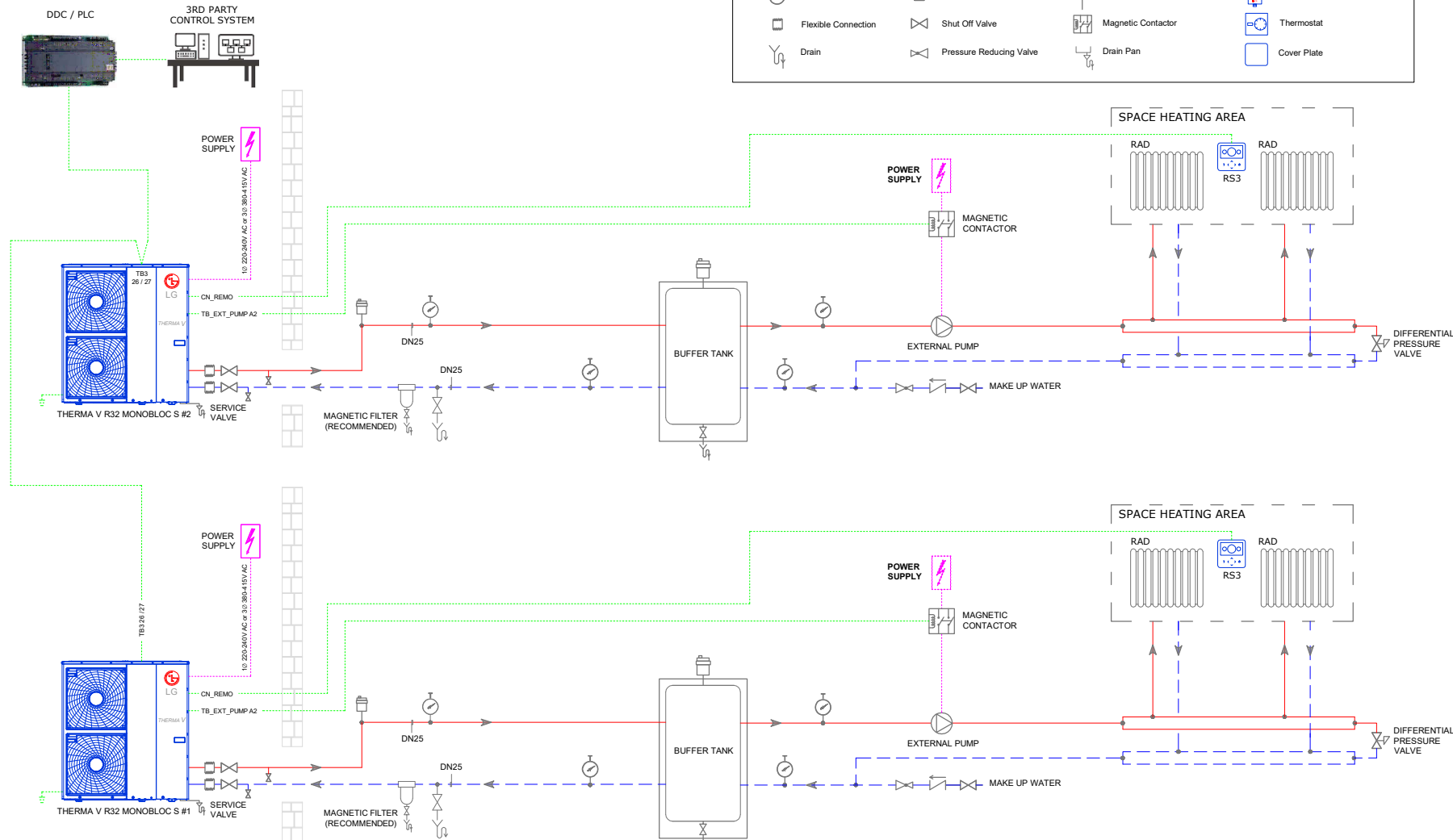
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating with 3rd Party Controller (MODBUS)
Product	R32 Monobloc S (New)
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 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		Drain Pan		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. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
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.  
Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWR1)

### 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.

#### Buffer Tank

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

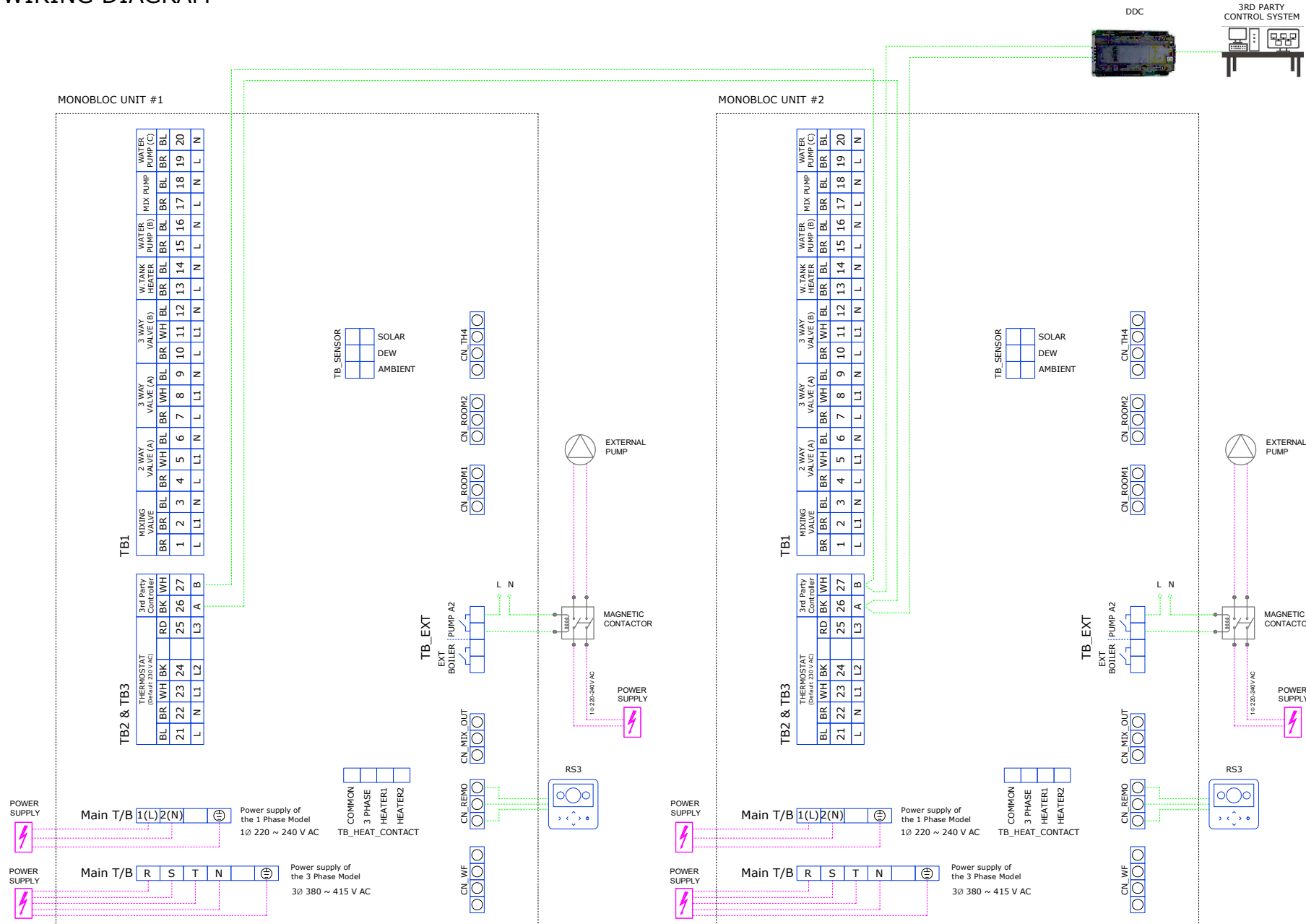
#### DDC (Direct Digital Controller)

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

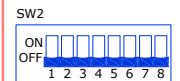
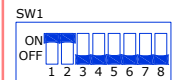
A self pressure regulating valve that provides constant differential pressure between supply and return headers.

## WIRING DIAGRAM



### DIP SWITCH SETTINGS

#### MAIN PCB (HYDRO)

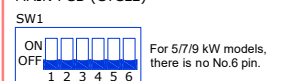


	DIP SW1								X: OFF / O: ON
	1	2	3	4	5	6	7	8	
MODBUS Communication Type	Master (Link to LC controller)	X							
	Slave (Link to 3rd party controller)		O						
MODBUS Function	REGINE		X						
	Unified Open Protocol			O					
Antifreeze Mode	Antifreeze is not applied								X
	Antifreeze is applied (Adjustable anti-freeze temp.)								O
	default setting	X	X	X	X	X	X	X	X

	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						
Auxiliary Information	Heat pump installation (Heating or cooling circuit only)		X	X					
	Heat pump + DRW tank are installed								
	Heat pump + DRW tank + Solar thermal system are installed		O	X					
Heat Pump Cycle	Heating only			X					
	Heating and cooling			O					
Remote Room Air Sensor (Accessory)	Remote room air sensor is not installed			X					
	Remote room air sensor is installed			O					
Selecting Backup Heater Capacity	Backup heater is not used			X	X				
	Half capacity is used				O	X			
	Full capacity is used					O	O		
Thermostat Installation	Thermostat is not installed								X
	Thermostat is installed								O
	default setting	X	X	X	X	X	X	X	X

#### MAIN PCB (CYCLE)



	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	X	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		Drain Pan		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. Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
AC EZ TOUCH	A central controller that controls THERMA V using LG AP protocol. Max 64 units, PC access supported	PACEZA000
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

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.
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.
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.

### ACCESSORY LIST

Full Name	LG Part No.	Scope of supply	
		LG	3rd party
2 Remo Cable	PZCWRC2	0	0
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSBH-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
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)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump	-		0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
Solar Pump	-		0
Safety Relief Valve	-		0
Strainer	-		0
Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0
Under Floor Heating Coil	-		0
Wi-Fi Modem	PWFMD200	0	
Water Temperature Sensor	-		0

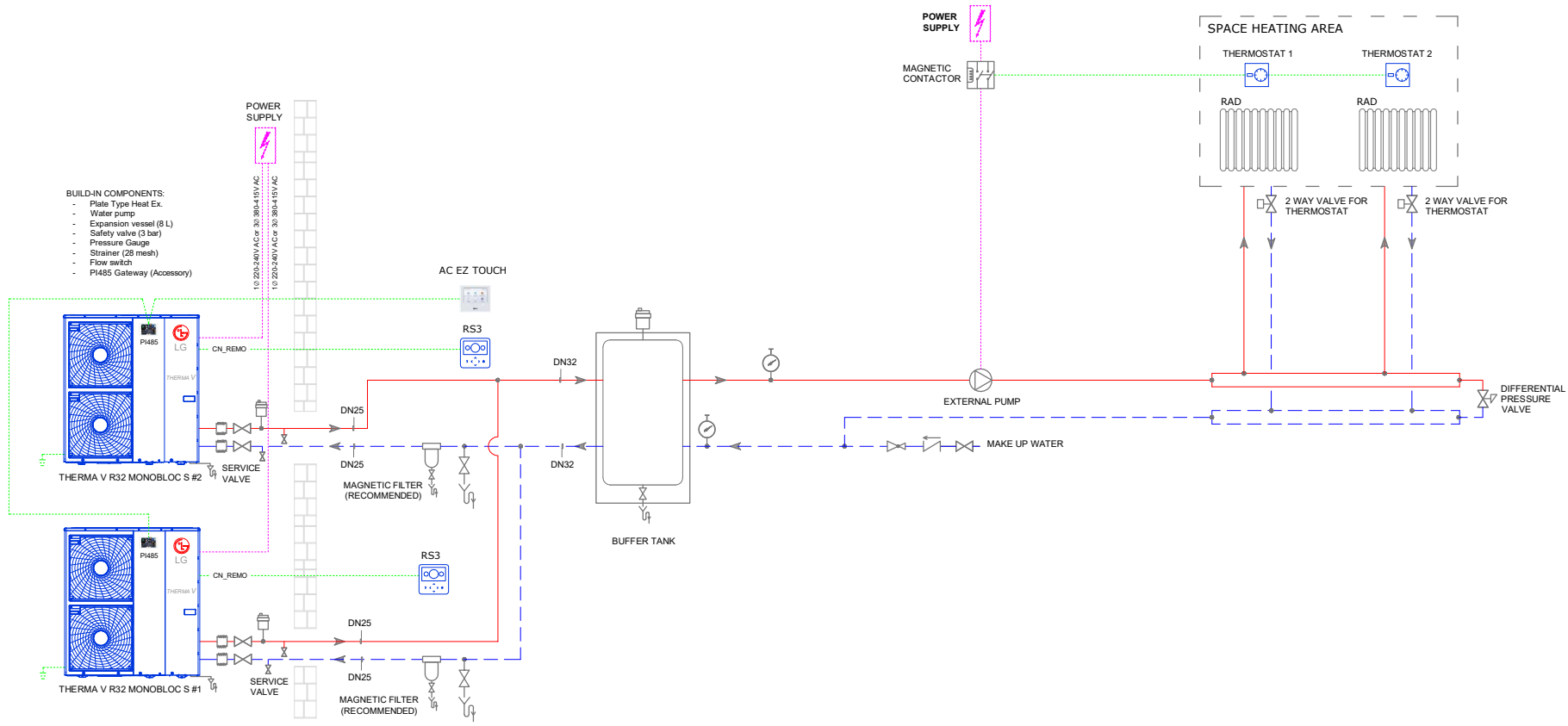
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating with Parallel Installation
Product	R32 Monobloc S (New)
Terminal Device	RAD
Main Controller	LG Central 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		Drain Pan		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. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
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.  
Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWR1)

**AC Ez Touch (PACEZA000)**  
A central controller that controls THERMA V using LG AP protocol.  
Max 64 units, PC access supported

**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.

### 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.

**Buffer Tank**  
A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

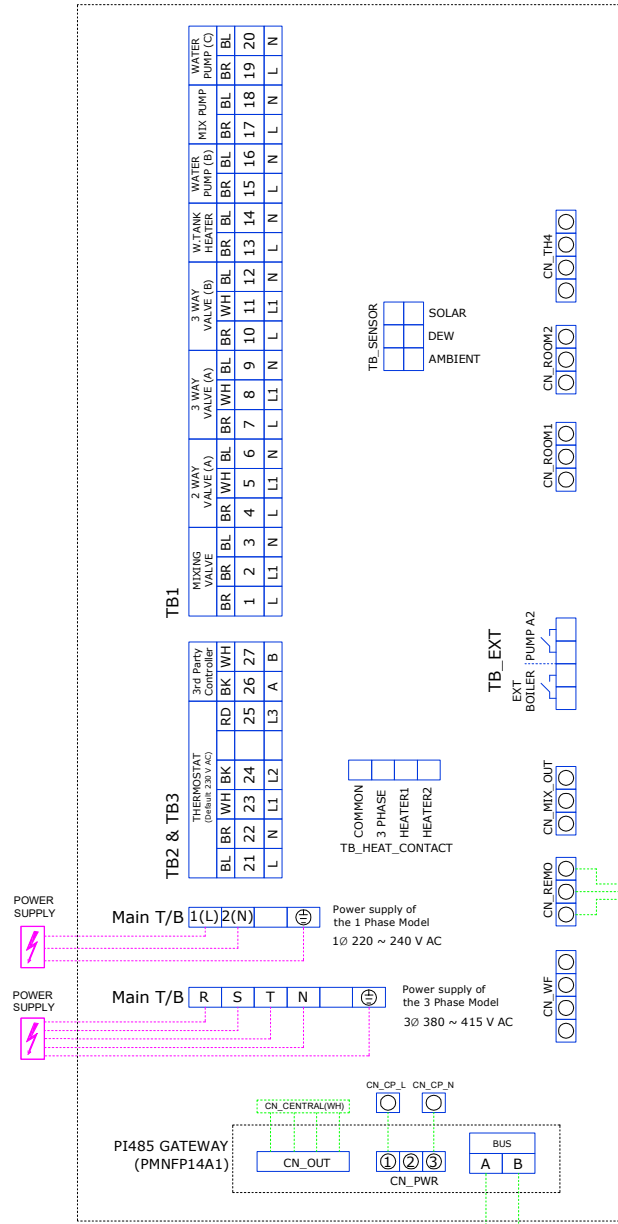
**Thermostat**  
A control device that senses the temperature of a room and performs actions so that the room's temperature is maintained near a desired setpoint. Thermostat must be connected with Therma V, Valve, Pump, and FCU where applicable.

**2 Way Valve for Thermostat**  
An isolation valve paired with thermostat to allow whether water flows into the water circuit.

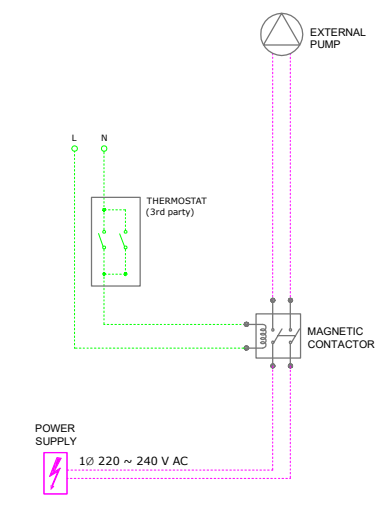
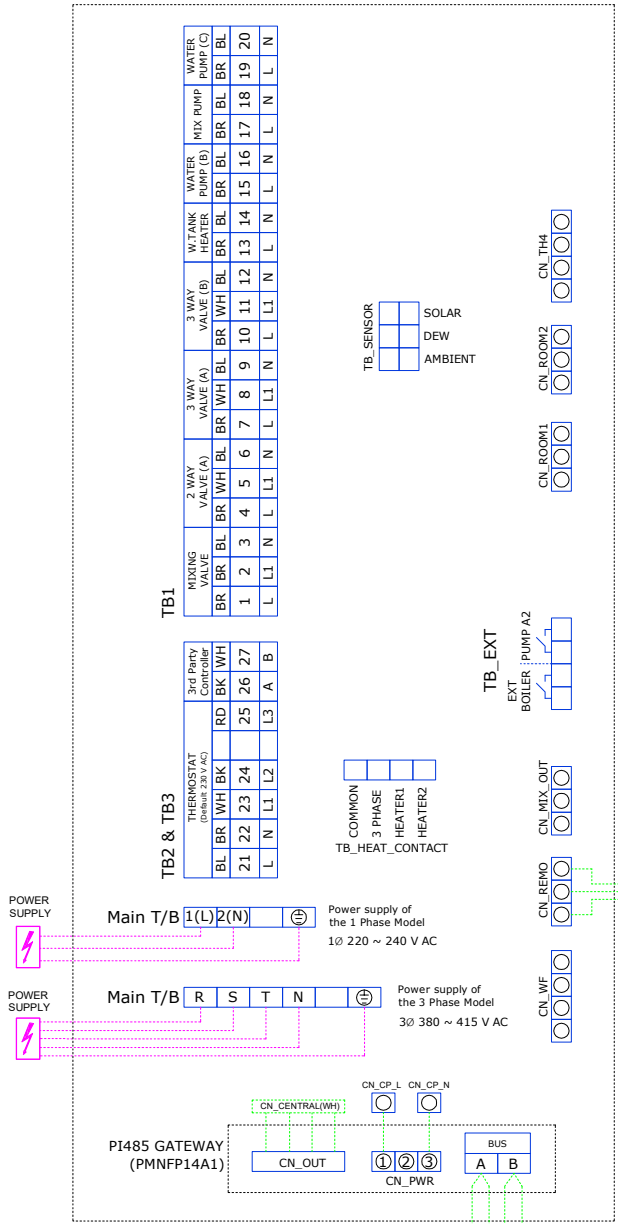
**Differential Pressure Valve**  
A self pressure regulating valve that provides constant differential pressure between supply and return headers.

## WIRING DIAGRAM

MONOBLOC UNIT #1



MONOBLOC UNIT #2



### DIP SWITCH SETTINGS

#### MAIN PCB (HYDRO)

##### SW1



##### SW2



MODELS	DIP SW1								DIP SW2								
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	
MODELS Communication Type	Master (Link to LC contactor)	X							As Master	X							
MODELS Function	Slave (Link to 3rd party controller)		X					As Slave		X							
MODELS Function	Unified Open Protocol			X				Heat pump installation (Heating or cooling circuit only)		X	X						
Antifreeze Mode	Antifreeze is not applied							Heat pump + DHW tank are installed			X	X					
	Antifreeze is applied (Adjustable anti-freeze temp.)							Heat pump + DHW tank + Solar thermal system are installed			X	X					
	default setting	X	X					Heating only				X					
								Heating and cooling				X					
Indoor Unit Type Setting for Group Control								Remote room air sensor is not installed					X				
								Remote room air sensor is installed					X				
Heat Pump Cycle								Backup heater is not used					X	X			
Remote Room Air Sensor (Accessory)								Half capacity is used						X	X		
Heat Pump Cycle								Full capacity is used							X	X	
Heat Pump Cycle								Thermostat is not installed								X	
Heat Pump Cycle								Thermostat is installed								X	
								default setting	X	X	X	X	X	X	X	X	

#### MAIN PCB (CYCLE)

##### SW1



MODELS	DIP SW1			DIP SW2		
	1	2	3	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		X			
Peak Control	Max mode		X			
	Peak control: To limit maximum current (Power saving)			X		
	default setting	X	X	X	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.

#### AC EZ TOUCH (PACEZA000)



## 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		Drain Pan		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. Monobloc : supplied with 10m length cable, 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	PWFMD200
Extension Cable for Wi-Fi Modem	Cable Length 10m	PWYREW000
3 Way Valve (A)	A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank. Controlled by THERMA V with 230V power. Operating time 3s.	OSHA-3V
Domestic Hot Water Tank	A insulated stainless steel hot water tank with 2.4kW electric heating (230V). Single Coil : OSHW-200F(200L) / 300F(300L, w/ recir. port) / 500F(500L, w/ recir. port) Double coil : OSHW-300FD(300L, w/ recir. port)	Single coil w/ recir. port : OSHW-300F/500F
DHW Tank Sensor	A temperature sensor for DHW tank. Cable length 12m.	PHRSTA0
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.
Recirculation Pump	An external water pump that circulates the water inside DHW circuit. Controlled by THERMA V with 230V power.
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.
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.
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	0	0
2way Valve	-	0	0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-	0	0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	0
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)	0	0
Circuit Breaker	-	0	0
Check Valve	-	0	0
Cover Plate	PDC-HK10	0	0
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	0
Direct Digital Controller	-	0	0
Differential Pressure Valve	-	0	0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	0
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	0
Drain Pan	PHDPC	0	0
Drain Valve	-	0	0
External Boiler	-	0	0
Energy Meter	-	0	0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	0
External Pump	-	0	0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-	0	0
Fan Coil Unit	-	0	0
Flow Sensor	-	0	0
Heat Meter	-	0	0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-	0	0
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	0	0
Magnetic Contactor	-	0	0
Magnetic Filter	-	0	0
Meter Interface	PENKTH000	0	0
Mixing Pump	-	0	0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	0
Mixing Valve	-	0	0
PI485 Gateway	PMNFP14A1	0	0
Pressure Gauge	-	0	0
Plate Heat Exchanger	-	0	0
Radiator	-	0	0
Recirculation Pump	-	0	0
Remote Room Air Temperature Sensor	PQRSTA0	0	0
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	0
Solar Pump	-	0	0
Safety Relief Valve	-	0	0
Strainer	-	0	0
Solar Temperature Sensor (PT-1000)	-	0	0
Service Valve	-	0	0
Thermostat	-	0	0
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0
Under Floor Heating Coil	-	0	0
Wi-Fi Modem	PWFMD200	0	0
Water Temperature Sensor	-	0	0

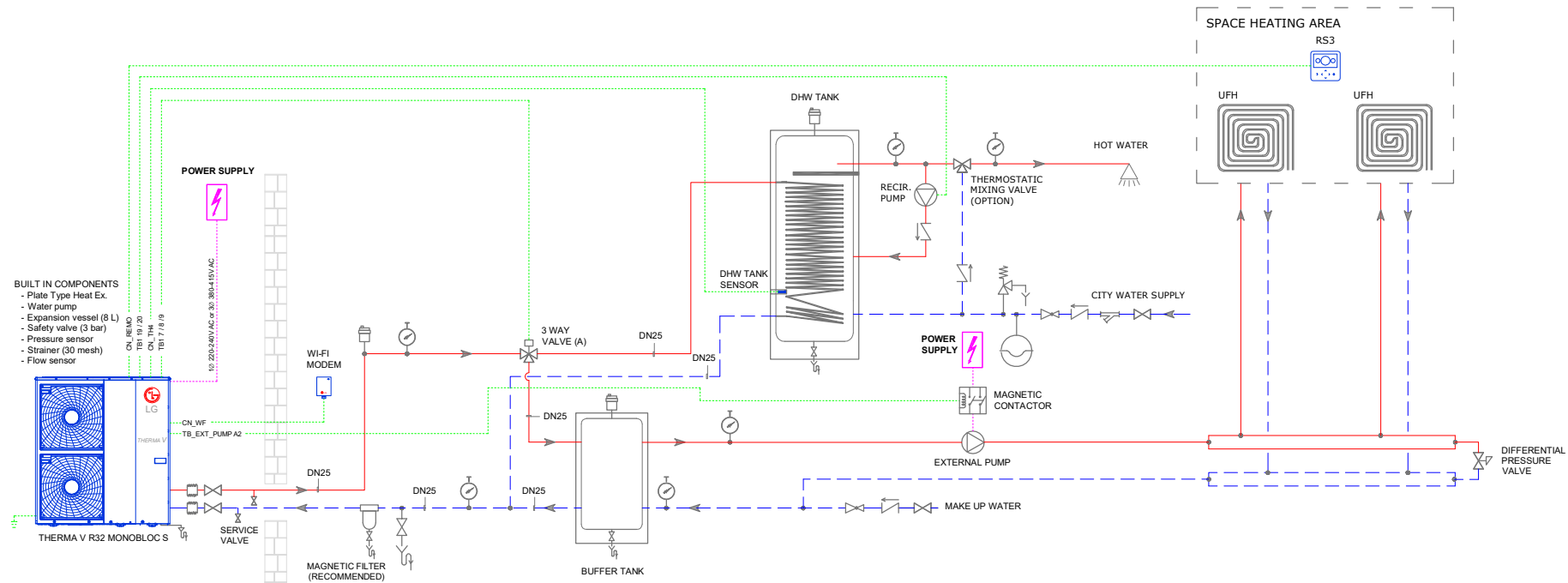
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating & DHW
Product	R32 Monobloc S (New)
Terminal Device	UFH
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		Drain Pan		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. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
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.  
Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWR01)

#### Wi-Fi Modem (PWFMD0200)

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

#### Extension Cable for Wi-Fi Modem (PWYREW000)

Cable Length 10m

#### 3 Way Valve (A) (OSHA-3V)

A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank.  
Controlled by THERMA V with 230V power.  
Operating time 3s.

#### Domestic Hot Water Tank (OSHW-300F/500F)

A insulated stainless steel hot water tank with 2.4kW electric heating (230V) and recirculation port.  
Single Coil : OSHW-300F(300L) / 500F(500L)

#### DHW Tank Sensor (PHRSTA0)

A temperature sensor for DHW tank. Cable length 12m.

#### 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.

#### Recirculation Pump

An external water pump that circulates the water inside DHW circuit.  
Controlled by THERMA V with 230V power.

#### 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.

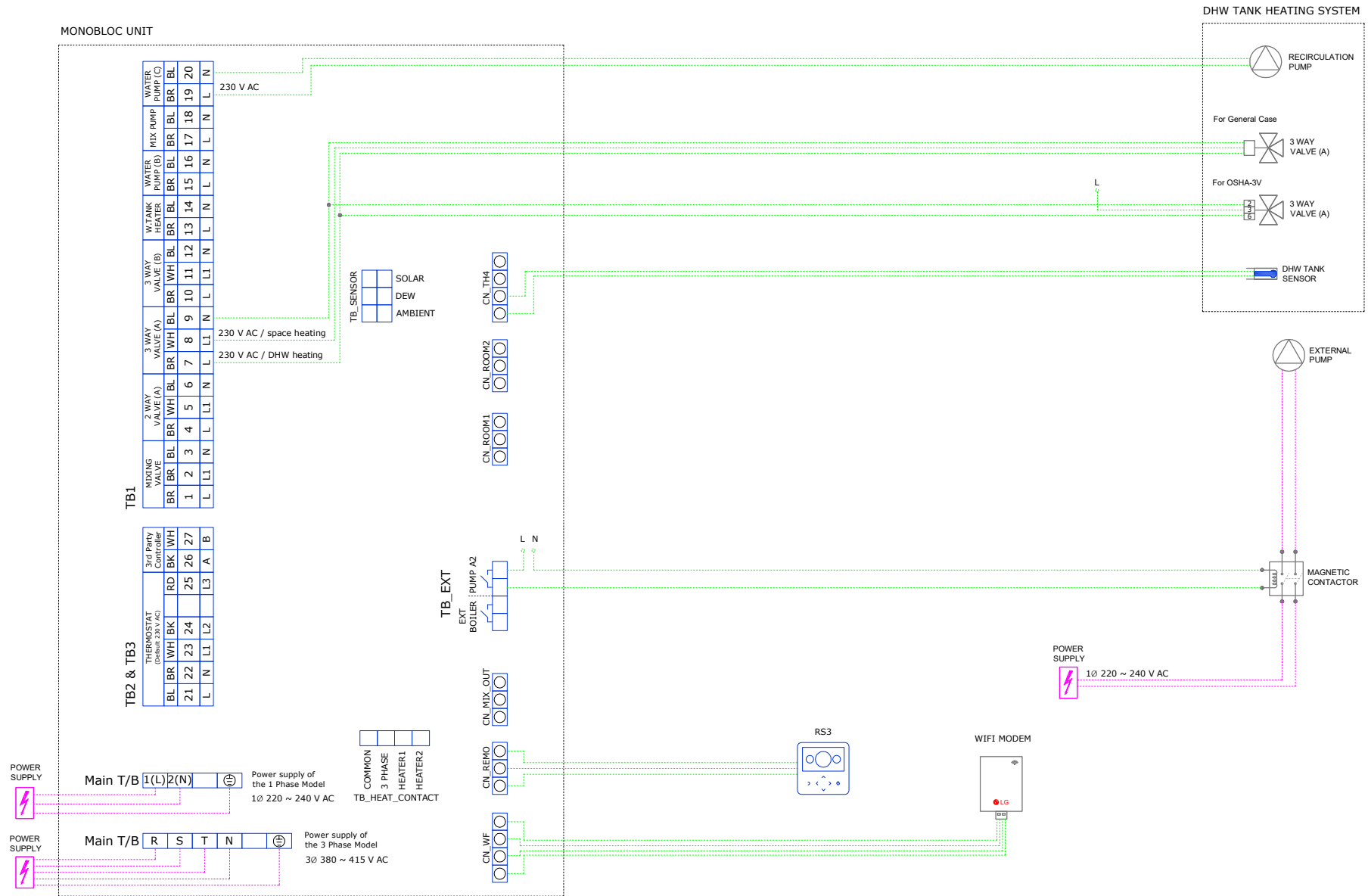
#### Buffer Tank

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

#### Differential Pressure Valve

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

## WIRING DIAGRAM



### DIP SWITCH SETTINGS

#### MAIN PCB (HYDRO)

##### SW1



##### SW2



MODEM Communication Type	MODEM Function	Antifreeze Mode	DIP SW 1												
			1	2	3	4	5	6	7	8					
Master (Link to LC controller)	Unified Open Protocol	Antifreeze is not applied	X												
Slave (Link to 3rd party controller)	Unified Open Protocol	Antifreeze is applied (Adjustable anti-freeze temp.)		X											
default setting			X	X											

Indoor Unit Type Setting for Group Control	Accessory Information	Heat Pump Cycle	Remote Room Air Sensor (Accessory)	Selecting Backup Heater Capacity	Thermostat Installation	DIP SW 2									
						1	2	3	4	5	6	7	8		
As Master	Heat pump installation (Heating or cooling circuit only)	Heating only	Remote room air sensor is not installed	Full capacity is used	Thermostat is not installed	X									
As Slave	Heat pump + DHW tank are installed	Heating and cooling	Remote room air sensor is installed	Half capacity is used	Thermostat is installed		X								
default setting						X	X								

#### MAIN PCB (CYCLE)

##### SW1



For 5/7/9 kW models, there is no No.6 pin.

Low Noise Mode	Peak Control	DIP SW 1		
		1	2	3
Always mode: Maintain low noise mode for target temperature	Max mode	X		
Partial mode: Escape low noise mode for target temperature	Peak control: To limit maximum current (Power saving)		X	
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		Drain Pan		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. Monobloc : supplied with 10m length cable, 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
Extension Cable for Wi-Fi Modem	Cable Length 10m	PWYREW000
3 Way Valve (A)	A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank. Controlled by THERMA V with 230V power. Operating time 3s.	OSHA-3V
Domestic Hot Water Tank	A insulated stainless steel hot water tank with 2.4kW electric heating (230V). Single Coil : OSHW-200F(200L) / 300F(300L) / 500F(500L) Double coil : OSHW-300FD(300L)	Single coil : OSHW-200F/300F/500F
DHW Booster Heater	An electric heater for DHW heating integrated with DHW tank (2.4kW, 230V) Controlled by THERMA V with 230V power.	Integrated with DHW Tank
DHW Tank Kit	A set of electrical devices for controlling of electric booster heater up to 32A Including Circuit Breaker, Magnetic Contactor and DHW Temp. sensor (PHRSTA0)	PHLTB (Monobloc)
DHW Tank Temperature Sensor	A temperature sensor for DHW tank. Cable length 12m.	PHRSTA0, Included in DHW Tank Kit (PHLTB)
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.	
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.	
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	0	
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHE-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
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)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump	-		0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
Solar Pump	-		0
Safety Relief Valve	-		0
Strainer	-		0
Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0
Under Floor Heating Coil	-		0
Wi-Fi Modem	PWFMDD200	0	
Water Temperature Sensor	-		0

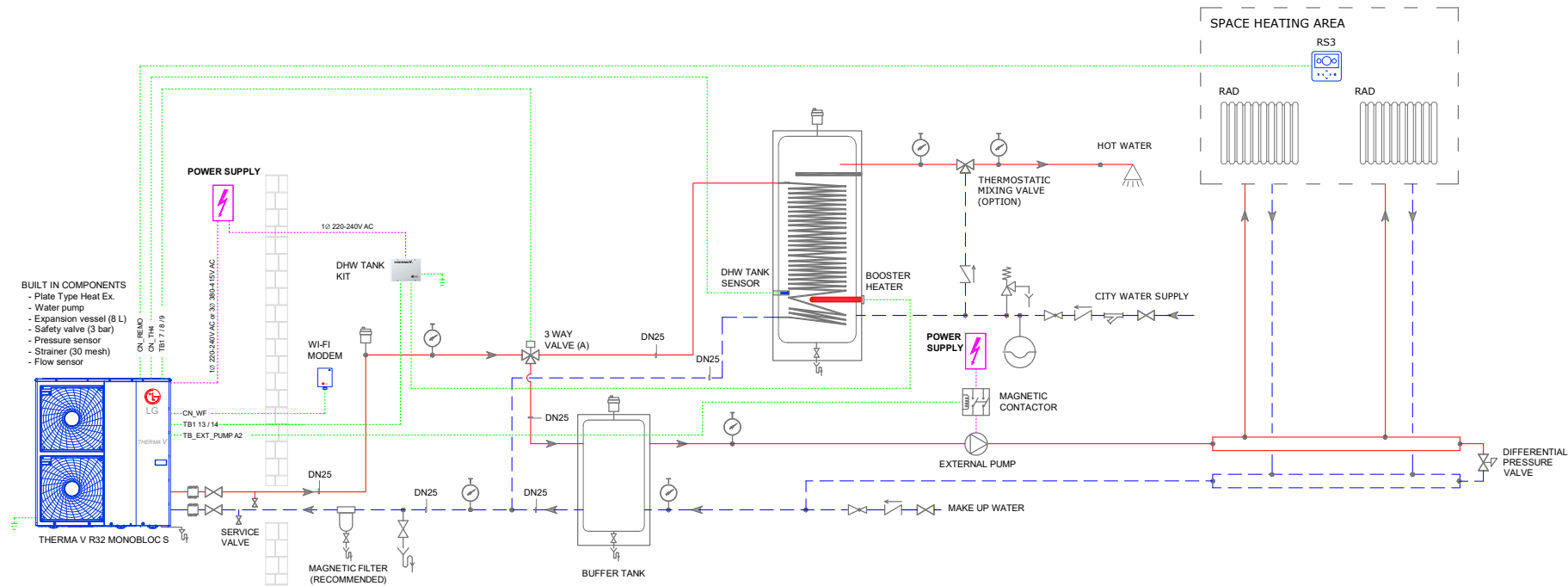
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating & DHW
Product	R32 Monobloc S (New)
Terminal Device	UFH
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		Drain Pan		Cover Plate



- BUILT IN COMPONENTS**
- Plate Type Heat Ex.
  - Water pump
  - Expansion vessel (8 L)
  - Safety valve (3 bar)
  - Pressure sensor
  - Strainer (30 mesh)
  - Flow sensor

### ACCESSORIES LG

#### RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.  
Monobloc : supplied with 10m length cable, 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

#### Extension Cable for Wi-Fi Modem (PWYREW00)

Cable Length 10m

#### 3 Way Valve (A) (OSHA-3V)

A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank. Controlled by THERMA V with 230V power. Operating time 3s.

#### Domestic Hot Water Tank (OSHW-200F/300F/500F)

A insulated stainless steel hot water tank with 2.4kW electric heating (230V).  
Single Coil : OSHW-200F(200L) / 300F(300L) / 500F(500L)

#### DHW Booster Heater (Integrated with DHW Tank)

An electric heater for DHW heating integrated with DHW tank (2.4kW, 230V)  
Controlled by THERMA V with 230V power.

#### DHW Tank Kit (PHLTB)

A set of electrical devices for controlling of electric booster heater up to 32A  
Including Circuit Breaker, Magnetic Contactor and DHW Temp. sensor (PHRSTAD)

#### DHW Tank Sensor (PHRSTAD)

A temperature sensor for DHW tank. Cable length 12m. Included in DHW Tank Kit (PHLTB)

#### 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.

#### Buffer Tank

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

#### Differential Pressure Valve

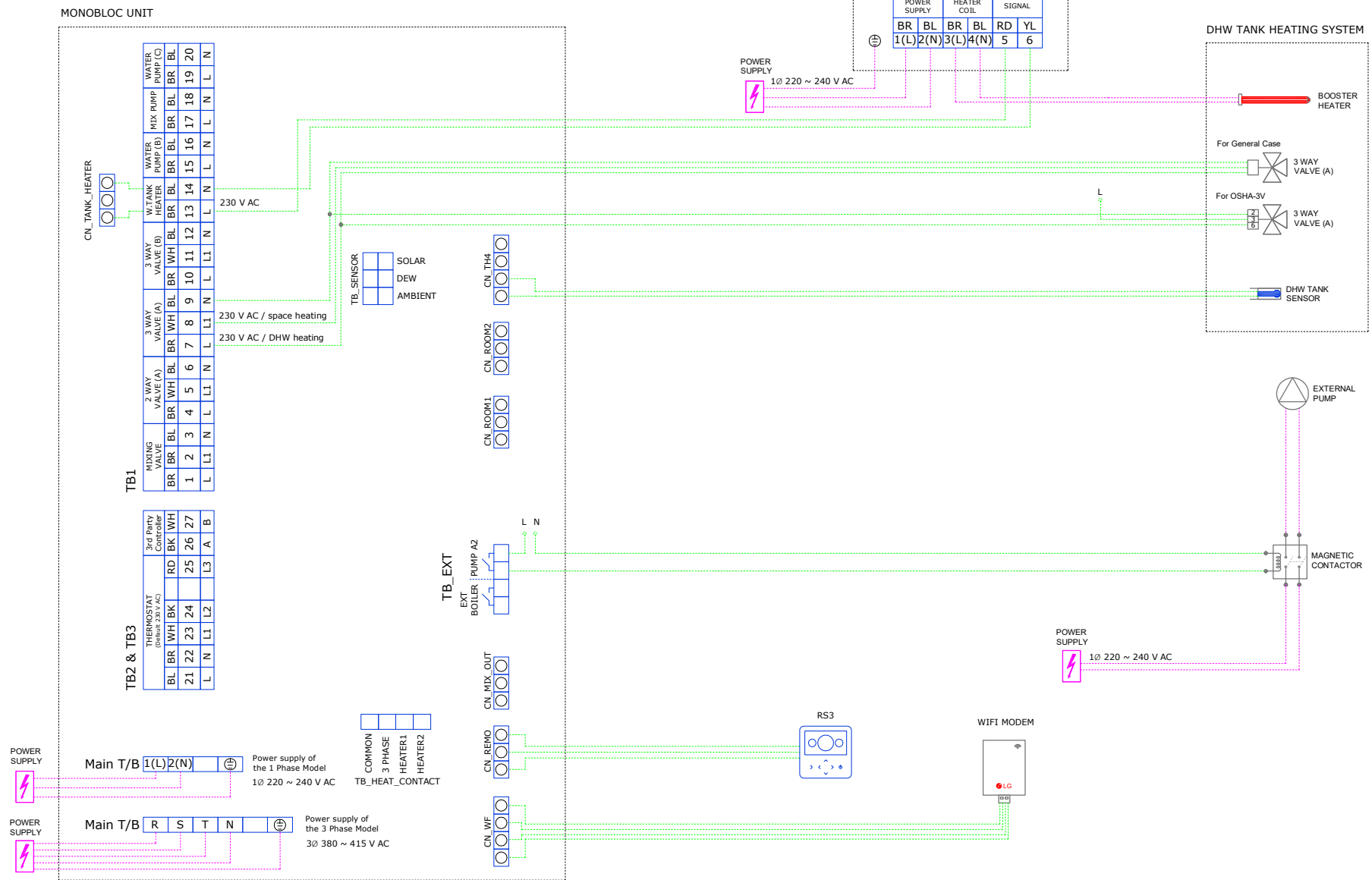
A self pressure regulating valve that provides constant differential pressure between supply and return headers.

### 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. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.



## WIRING DIAGRAM



### DIP SWITCH SETTINGS

#### MAIN PCB (HYDRO)

##### SW1



##### SW2



	DIP SW1	X: OFF / O: ON								
		1	2	3	4	5	6	7	8	
MDBRIS Communication Type	Master (Link to LC controller)	X								
	Slave (Link to 3rd party controller)		O							
MDBRIS Function	REGINE		X							
	Unified Open Protocol		O							
Antifreeze Mode	Antifreeze is not applied									X
	Antifreeze is applied (Adjustable anti-freeze temp.)									O
	default setting	X	X							X
	DIP SW2	1	2	3	4	5	6	7	8	
Indoor Unit Type Setting for Group Control	As Master	X								
	As Slave		O							
Accessory Information	Heat pump installation (Heating or cooling circuit only)		X	X						
	Heat pump + DHW tank are installed		X	O						
	Heat pump + DHW tank + Solar thermal system are installed		O	X						
Heat Pump Cycle	Heating only			X						
	Heating and cooling			O						
Remote Room Air Sensor (Accessory)	Remote room air sensor is not installed					X				
	Remote room air sensor is installed					O				
Selecting Backup Heater Capacity	Full capacity is used						X	X		
	Half capacity is used						O	X		
Thermostat Installation	Thermostat is not installed									X
	Thermostat is installed									O
	default setting	X	X	X	X	X	X	X	X	X

#### MAIN PCB (CYCLE)

##### SW1



For 5/7/9 kW models, there is no No.6 pin.

	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	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		Drain Pan		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. Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
3 Way Valve (A)	A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank. Controlled by THERMA V with 230V power. Operating time 3s.	OSHA-3V
Domestic Hot Water Tank	A insulated stainless steel hot water tank with 2.4kW electric heating (230V). Single Coil : OSHW-200F(200L) / 300F(300L) / 500F(500L) Double coil : OSHW-300FD(300L)	Single coil : OSHW-200F/300F/500F
DHW Tank Temperature Sensor	A temperature sensor for DHW tank. Cable length 12m.	PHRSTA0
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	Part No.
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. Controlled by THERMA V with 230V power.	
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.	
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.	
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 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.	

### ACCESSORY LIST

Full Name	LG Part No.	Scope of supply	
		LG	3rd party
2 Remo Cable	PZCWRC2	0	
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHE-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
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)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump	-		0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
Solar Pump	-		0
Safety Relief Valve	-		0
Strainer	-		0
Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0
Under Floor Heating Coil	-		0
Wi-Fi Modem	PWFMD200	0	
Water Temperature Sensor	-		0

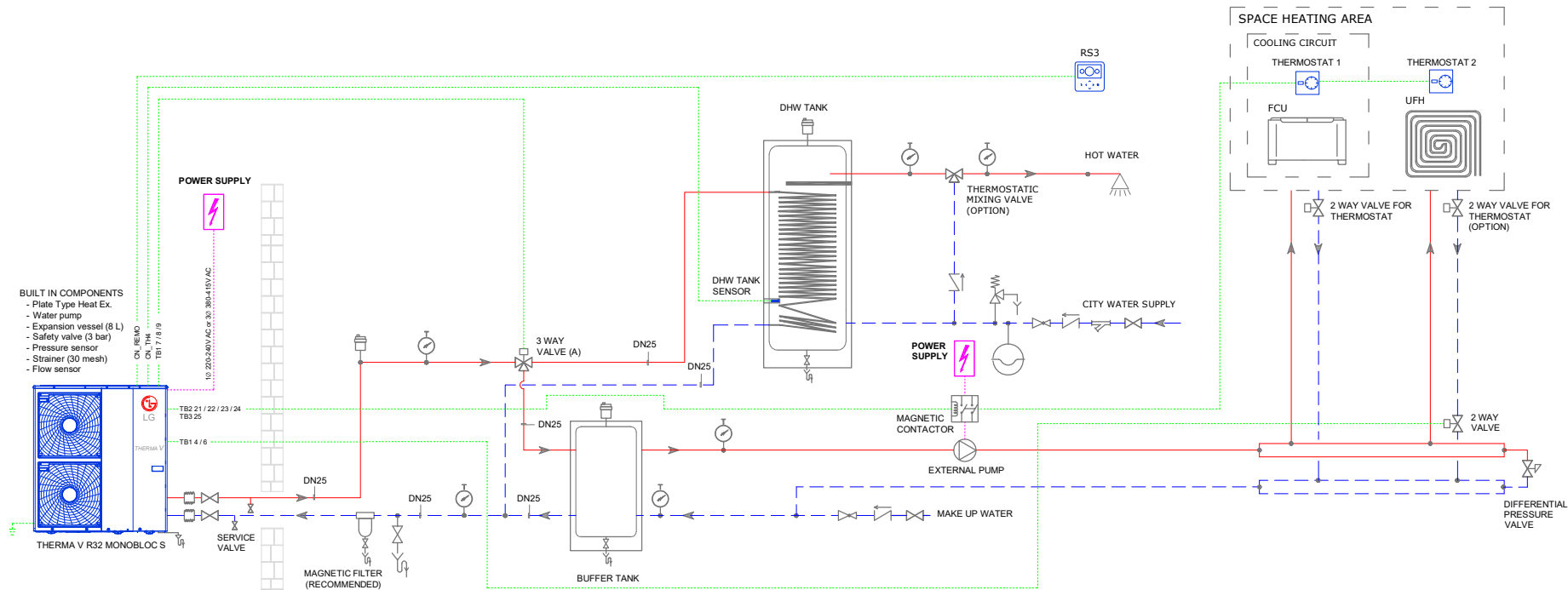
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating, Cooling, and DHW with Thermostat
Product	R32 Monobloc S (New)
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		Drain Pan		Cover Plate



### ACCESSORIES LG

**RS3 Controller (Default)**  
A wired remote controller with built-in temperature sensor.  
Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (P2CWRC1)

**3 Way Valve (A) (OSHA-3V)**  
A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank. Controlled by THERMA V with 230V power. Operating time 3s.

**Domestic Hot Water Tank (OSHW-200F/300F/500F)**  
A insulated stainless steel hot water tank with 2.4kW electric heating (230V).  
Single Coil : OSHW-200F(200L) / 300F(300L) / 500F(500L)

**DHW Tank Sensor (PHRSTA0)**  
A temperature sensor for DHW tank. Cable length 12m.

**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.

**Buffer Tank**  
A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

**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 Therma 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.

### 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. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.



## 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		Drain Pan		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. Monobloc : supplied with 10m length cable, 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	PWFMD200
Extension Cable for Wi-Fi Modem	Cable Length 10m	PWYREW000
3 Way Valve (A)	A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank. Controlled by THERMA V with 230V power. Operating time 3s.	OSHA-3V
Domestic Hot Water Tank	A insulated stainless steel hot water tank with 2.4kW electric heating (230V). Single Coil : OSHW-200F(200L) / 300F(300L) / 500F(500L) Double coil : OSHW-300FD(300L)	Single coil : OSHW-200F/300F/500F
DHW Tank Temperature Sensor	A temperature sensor for DHW tank. Cable length 12m.	PHRSTA0
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.
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.
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	0	0
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
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)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump	-		0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
Solar Pump	-		0
Safety Relief Valve	-		0
Strainer	-		0
Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0
Under Floor Heating Coil	-		0
Wi-Fi Modem	PWFMD200	0	
Water Temperature Sensor	-		0

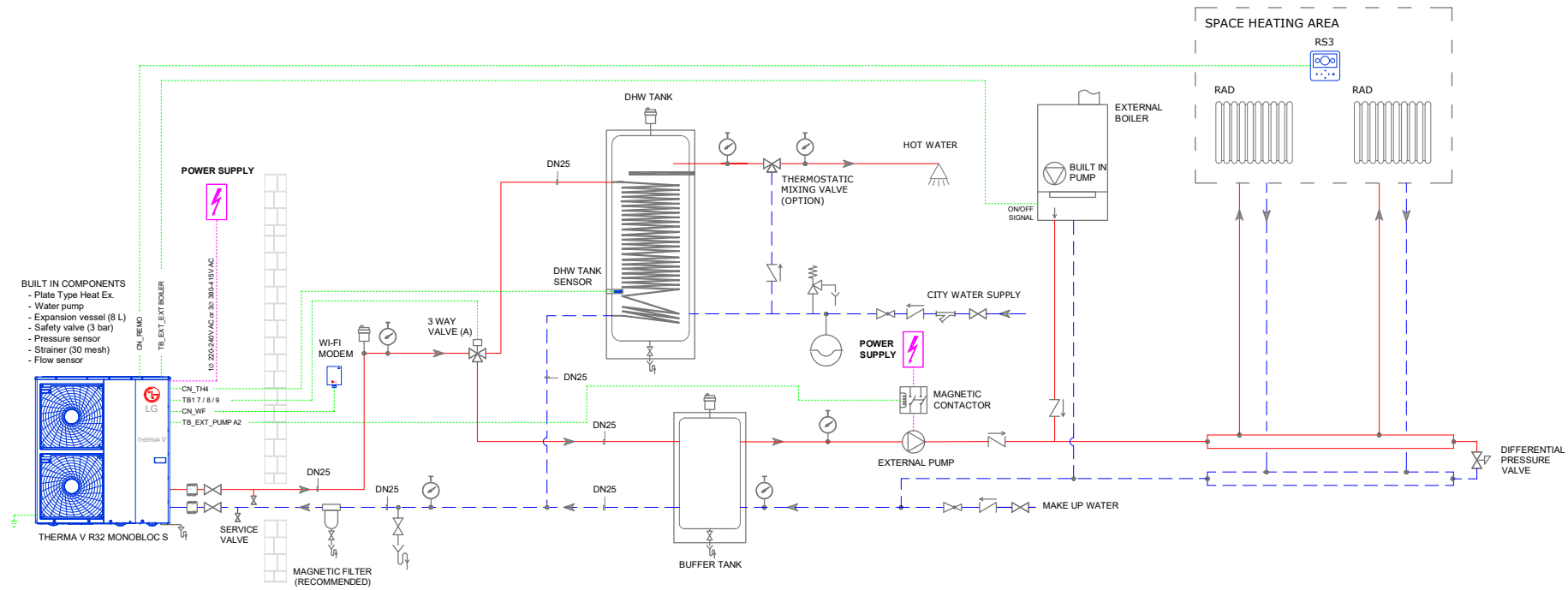
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating & DHW with External Boiler
Product	R32 Monobloc S (New)
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		Drain Pan		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. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
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.  
Monobloc : supplied with 10m length cable, 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

#### Extension Cable for Wi-Fi Modem (PWYREW00)

Cable Length 10m

#### 3 Way Valve (A) (OSHA-3V)

A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank. Controlled by THERMA V with 230V power. Operating time 3s.

#### Domestic Hot Water Tank (OSHW-200F/300F/500F)

A insulated stainless steel hot water tank with 2.4kW electric heating (230V).  
Single Coil : OSHW-200F(200L) / 300F(300L) / 500F(500L)

#### DHW Tank Sensor (PHRSTA0)

A temperature sensor for DHW tank. Cable length 12m.

#### 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.

#### Buffer Tank

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

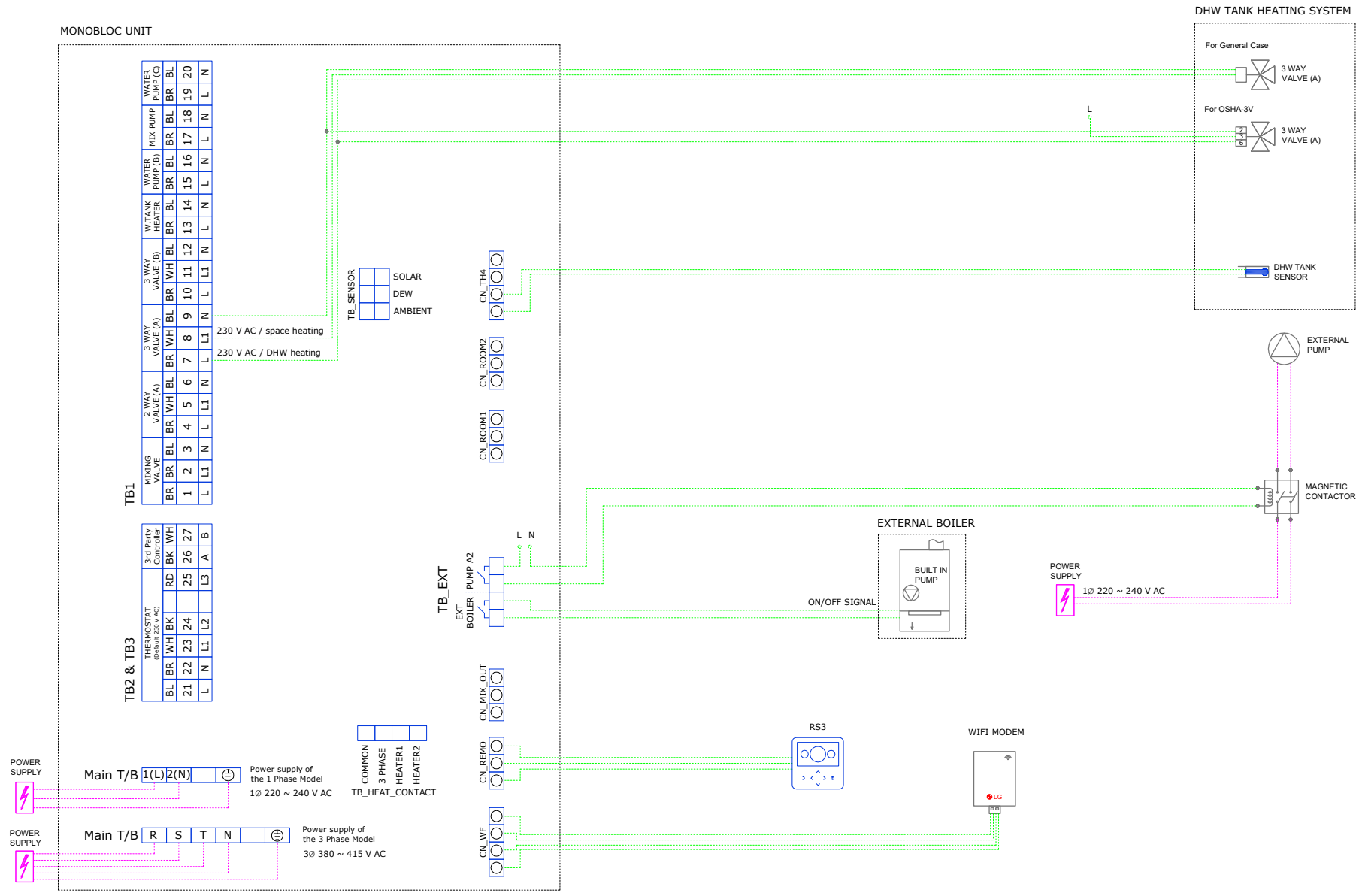
#### External Boiler

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

#### MAIN PCB (HYDRO)

##### SW1



##### SW2



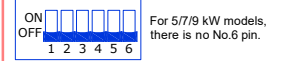
MIDRIS Communication Type	MIDRIS Function	Antifreeze Mode	DIP SW 1															
			1	2	3	4	5	6	7	8								
Master (Link to LC controller)	Slave (Link to 3rd party controller)	Antifreeze is not applied	X															
Unified Open Protocol	Antifreeze is applied (Adjustable anti-freeze temp.)			X														
default setting			X	X														

Indoor Unit Type Setting for Group Control	Accessory Installation Information	Heat Pump Cycle	Remote Room Air Sensor (Accessory)	Selecting Backup Heater Capacity	Thermostat Installation	DIP SW 2												
						1	2	3	4	5	6	7	8					
As Master	Heat pump installation (Heating or cooling circuit only)	Heating and cooling	Remote room air sensor is not installed	Full capacity is used	Thermostat is not installed	X												
As Slave	Heat pump + DHW tank are installed	Heating only	Remote room air sensor is installed	Half capacity is used	Thermostat is installed		X											
Heat pump + DHW tank + Solar thermal system are installed							X											
default setting			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X

#### MAIN PCB (CYCLE)

##### SW1



Low Noise Mode	Peak Control	DIP SW 1		
		1	2	3
Always mode: Maintain low noise mode for target temperature	Max mode	X		
Partial mode: Escape low noise mode for target temperature	Peak control: To limit maximum current (Power saving)		X	
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		Drain Pan		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. Monobloc : supplied with 10m length cable, 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	PWFMD200
Extension Cable for Wi-Fi Modem	Cable Length 10m	PWYREW000
3 Way Valve (A)	A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank. Controlled by THERMA V with 230V power. Operating time 3s.	OSHA-3V
Domestic Hot Water Tank	A insulated stainless steel hot water tank with 2.4kW electric heating (230V). Single Coil : OSHW-200F(200L) / 300F(300L) / 500F(500L) Double coil : OSHW-300FD(300L)	Single coil : OSHW-200F/300F/500F
DHW Tank Temperature Sensor	A temperature sensor for DHW tank. Cable length 12m.	PHRSTA0
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")
Backup Heater	An electric heater for supplementing insufficient capacity in case of extremely low ambient temperature or emergency operation. Controlled by THERMA V with 230V power.	Optional for Monobloc HA031M.E1 (3kW, 1Ø) HA061M.E1 (6kW, 1Ø) HA063M.E1 (6kW, 3Ø)

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. Controlled by THERMA V with 230V power.	
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.	
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.	
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	0	
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
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)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump	-		0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
Solar Pump	-		0
Safety Relief Valve	-		0
Strainer	-		0
Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0
Under Floor Heating Coil	-		0
Wi-Fi Modem	PWFMD200	0	
Water Temperature Sensor	-		0



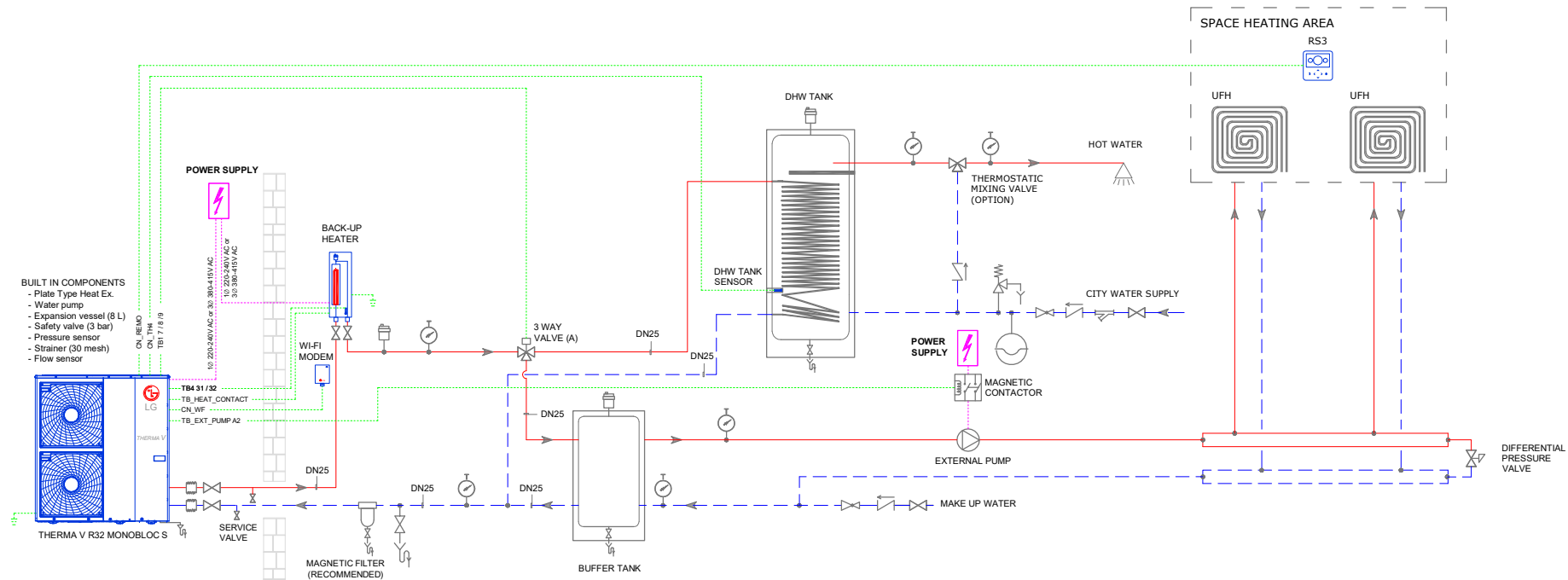
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating & DHW with Back-up Heater
Product	R32 Monobloc S (New)
Terminal Device	UFH
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		Drain Pan		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. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
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.  
Monobloc : supplied with 10m length cable, 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

#### Extension Cable for Wi-Fi Modem (PWYREW000)

Cable Length 10m

#### 3 Way Valve (A) (OSHA-3V)

A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank. Controlled by THERMA V with 230V power. Operating time 3s.

#### Domestic Hot Water Tank (OSHW-200F/300F/500F)

A insulated stainless steel hot water tank with 2.4kW electric heating (230V).  
Single Coil : OSHW-200F(200L) / 300F(300L) / 500F(500L)

#### DHW Tank Sensor (PHRSTA0)

A temperature sensor for DHW tank. Cable length 12m.

#### 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.

#### Back Up Heater (HA031M.E1, HA061M.E1, HA063M.E1)

An electric heater for supplementing insufficient capacity in case of extremely low ambient temperature or emergency operation. Controlled by THERMA V with 230V power.

### 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.

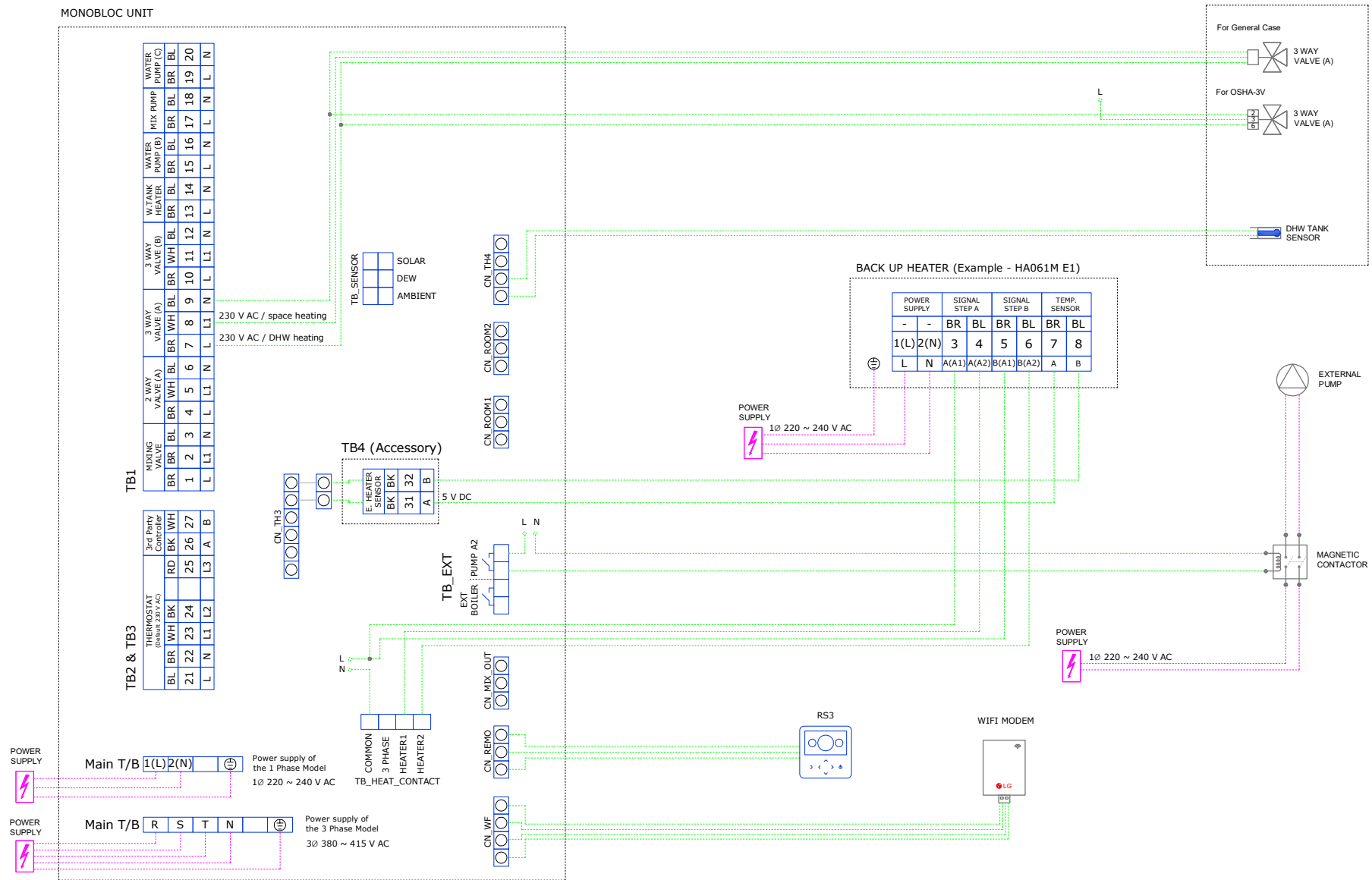
#### Buffer Tank

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

#### Differential Pressure Valve

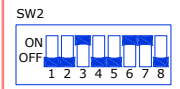
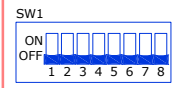
A self pressure regulating valve that provides constant differential pressure between supply and return headers.

## WIRING DIAGRAM



### DIP SWITCH SETTINGS

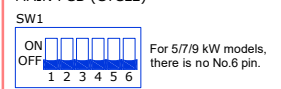
#### MAIN PCB (HYDRO)



MODEM/B Communication Type	MODEM/B Function	Antifreeze Mode	DIP SW 1																
			1	2	3	4	5	6	7	8									
Master (Link to LC controller)	Slave (Link to 3rd party controller)	Antifreeze is not applied	X																
Unified Open Protocol	Antifreeze is applied (Adjustable anti-freeze temp.)			X															
default setting			X	X															

Indoor Unit Type Setting for Group Control	Accessory Information	Heat Pump Cycle	Remote Room Air Sensor (Accessory)	Selecting Backup Heater Capacity	Thermostat Installation	DIP SW 2													
						1	2	3	4	5	6	7	8						
As Master	Heat pump installation (Heating or cooling circuit only)	Heating and cooling	Remote room air sensor is not installed	Full capacity is used	Thermostat is not installed	X													
As Slave	Heat pump + DHW tank are installed	Heating only	Remote room air sensor is installed	Half capacity is used	Thermostat is installed		X												
default setting						X	X	X	X	X	X	X	X	X	X	X	X	X	X

#### MAIN PCB (CYCLE)



Low Noise Mode	Peak Control	DIP SW 1		
		1	2	3
Always mode: Maintain low noise mode for target temperature	Max mode	X		
Partial mode: Escape low noise mode for target temperature	Peak control: To limit maximum current (Power saving)		X	
default setting		X	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		Drain Pan		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. Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
3 Way Valve (A)	A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank. Controlled by THERMA V with 230V power. Operating time 3s.	OSHA-3V
Domestic Hot Water Tank	A insulated stainless steel hot water tank with 2.4kW electric heating (230V). Single Coil : OSHW-200F(200L) / 300F(300L) / 500F(500L) Double coil : OSHW-300FD(300L)	Double coil : OSHW-300FD
DHW Tank Temperature Sensor	A temperature sensor for DHW tank. Cable length 12m.	PHRSTA0
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. Controlled by THERMA V with 230V power.	
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.	
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.	
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.	
Solar Pump	An external water pump that circulates the water inside solar thermal system. Controlled by THERMA V with 230V power.	
Solar Temperature Sensor	A temperature sensor (PT-1000) for solar thermal system.	
3 Way Valve (B)	A motorized 3-way diverting valve determining flow direction to either DHW tank or bypass (recirculation). 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 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.	

### ACCESSORY LIST

Full Name	LG Part No.	Scope of supply	
		LG	3rd party
2 Remo Cable	PZCWRC2	0	0
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHE-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
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)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump	-		0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
Solar Pump	-		0
Safety Relief Valve	-		0
Strainer	-		0
Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0
Under Floor Heating Coil	-		0
Wi-Fi Modem	PWFMD200	0	
Water Temperature Sensor	-		0

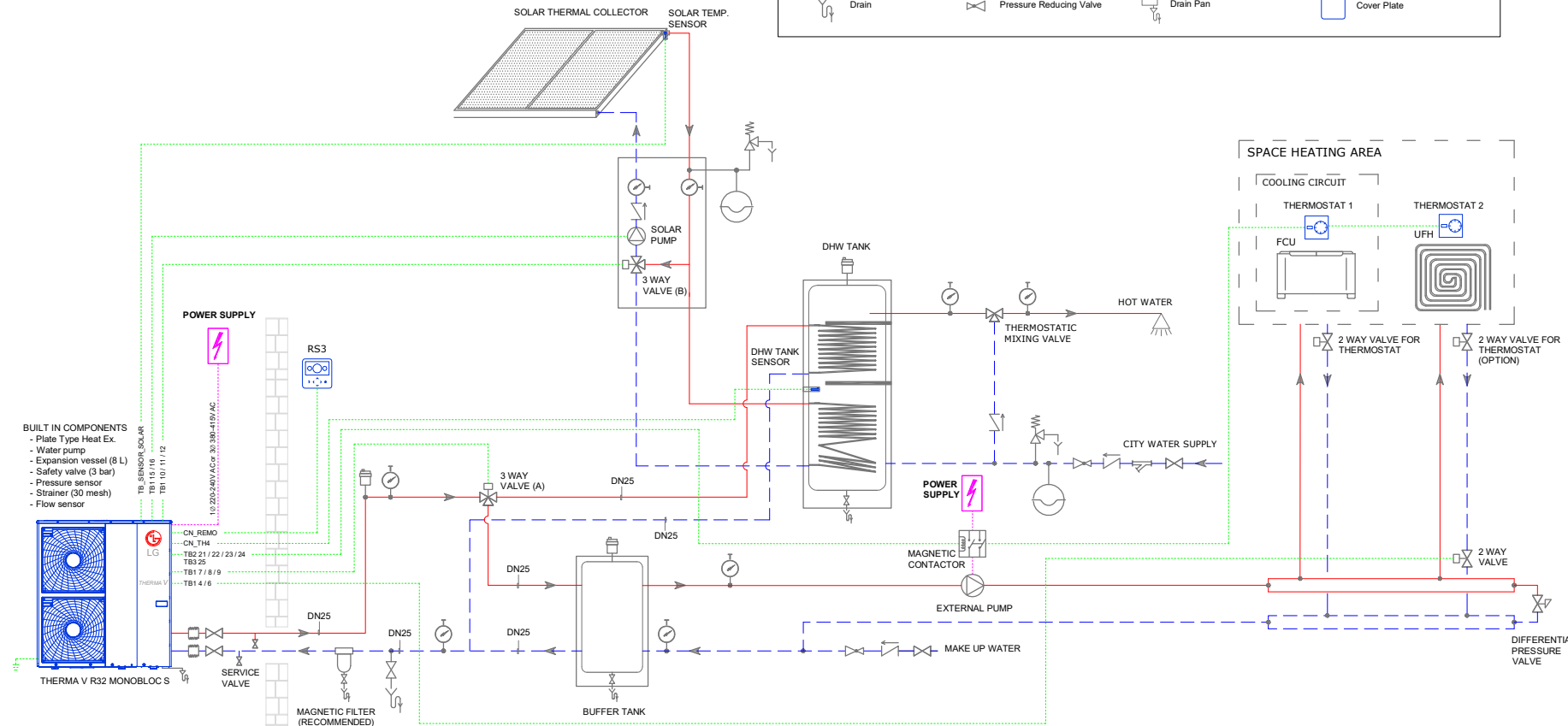
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating, Cooling, and DHW with Solar Panel and Thermostat
Product	R32 Monobloc S (New)
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		Drain Pan		Cover Plate



- BUILT IN COMPONENTS**
- Plate Type Heat Ex.
  - Water pump
  - Expansion vessel (8 L)
  - Safety valve (3 bar)
  - Pressure sensor
  - Strainer (30 mesh)
  - Flow sensor

- THERMA V R32 MONOBLOC S**
- CN\_REMOTE
  - CN\_TH4
  - TB21 / 22 / 23 / 24
  - TB3 25
  - TB17 / 8 / 9
  - TB14 / 6

### ACCESSORIES LG

**RS3 Controller (Default)**  
A wired remote controller with built-in temperature sensor.  
Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (P2CWR1)

**3 Way Valve (A) (OSHA-3V)**  
A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank. Controlled by THERMA V with 230V power. Operating time 3s.

**Domestic Hot Water Tank (OSHW-300FD)**  
A insulated stainless steel hot water tank with 2.4KW electric heating (230V).  
Double coil : OSHW-300FD(300L)

**DHW Tank Sensor (PHRSTA0)**  
A temperature sensor for DHW tank. Cable length 12m.

**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.

**Buffer Tank**  
A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

**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.

**Solar Pump**  
An external water pump that circulates the water inside solar thermal system. Controlled by THERMA V with 230V power.

**Solar Temperature Sensor (PT-1000)**  
A temperature sensor for solar thermal system.

**3 Way Valve (B)**  
A motorized 3-way diverting valve determining flow direction to either DHW tank or bypass (recirculation). 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.

### 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. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.

