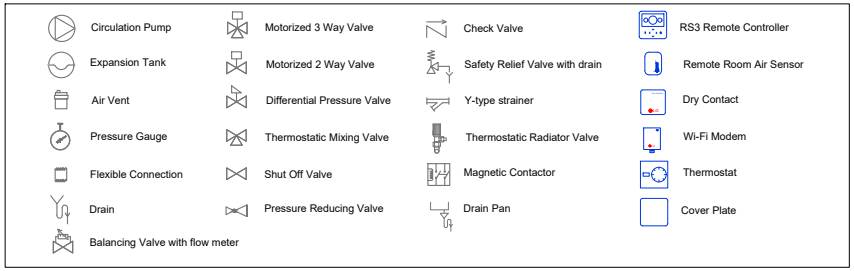
REFERENCED APPLICATION #1 SPACE HEATING & COOLING WITH THERMOSTAT

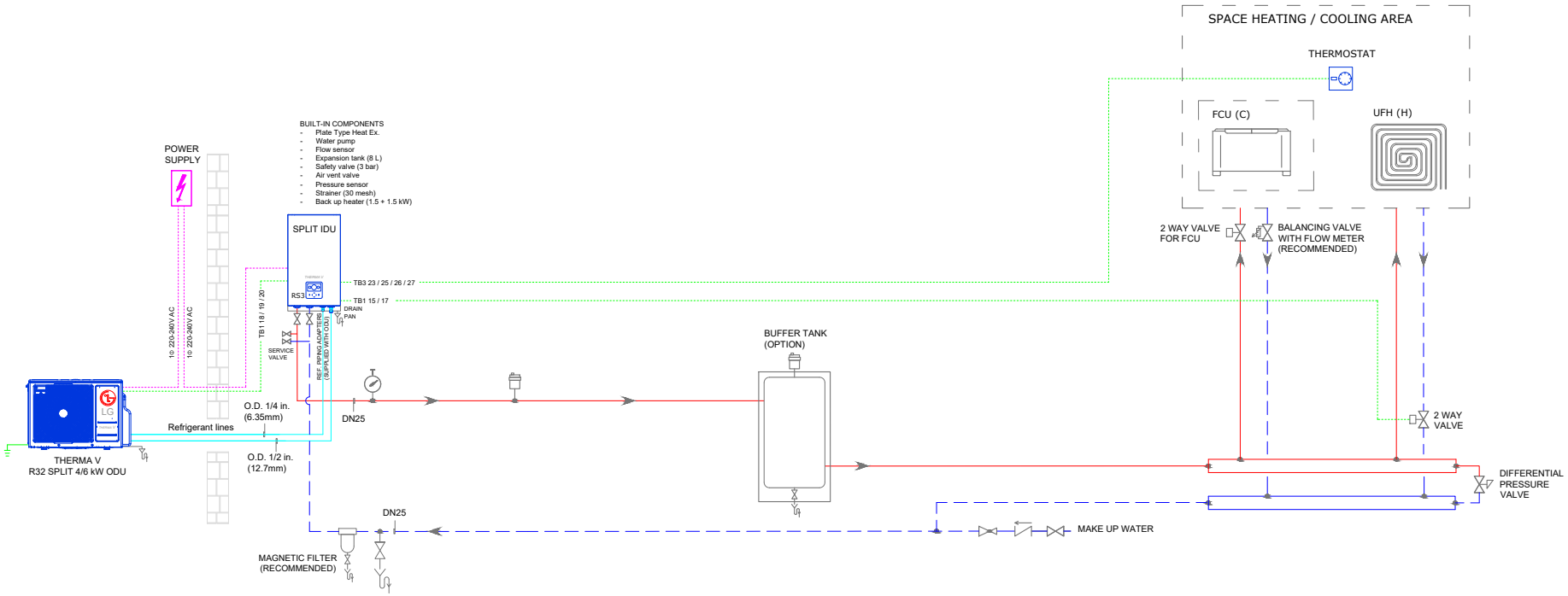
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating & Cooling with Thermostat
Product	New R32 Split 4/6kW Hydro Box (HN0613M NK5)
Terminal Device	UFH(H) + FCU(C)
Main Controller	Thermostat
Control Setting of LG RS3 Controller	Based on Water Temp.
External Pump	No installed

SYMBOL & LEGENDS





NOTE

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2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.
5. There is the case where the internal water pump in the unit operates while all zone valves are closed, so one of the hydronic separator, buffer tank, bypass valve, and towel radiator must be installed.
6. If hydronic separator or 4 ports buffer tank is installed, external water pump in the secondary circuit must be installed. In this case, self-controlled water pump must be used to prevent operation when all zone valves are closed.

LG ACCESSORIES

RS3 Controller (Default)
A wired remote controller with built-in temperature sensor.
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)

Drain Pan (PHDPC)
A device to collect condensation during cooling operation. Including several insulators.

3RD PARTY ACCESSORIES

Buffer Tank (Option)
The 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. Also it can prevents frequent On/Off operation of heat pump, especially when multi-zone control is used and all valves for each zone are closed.

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. In particular, in the case of a replacement, it is mandatory to install.

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.

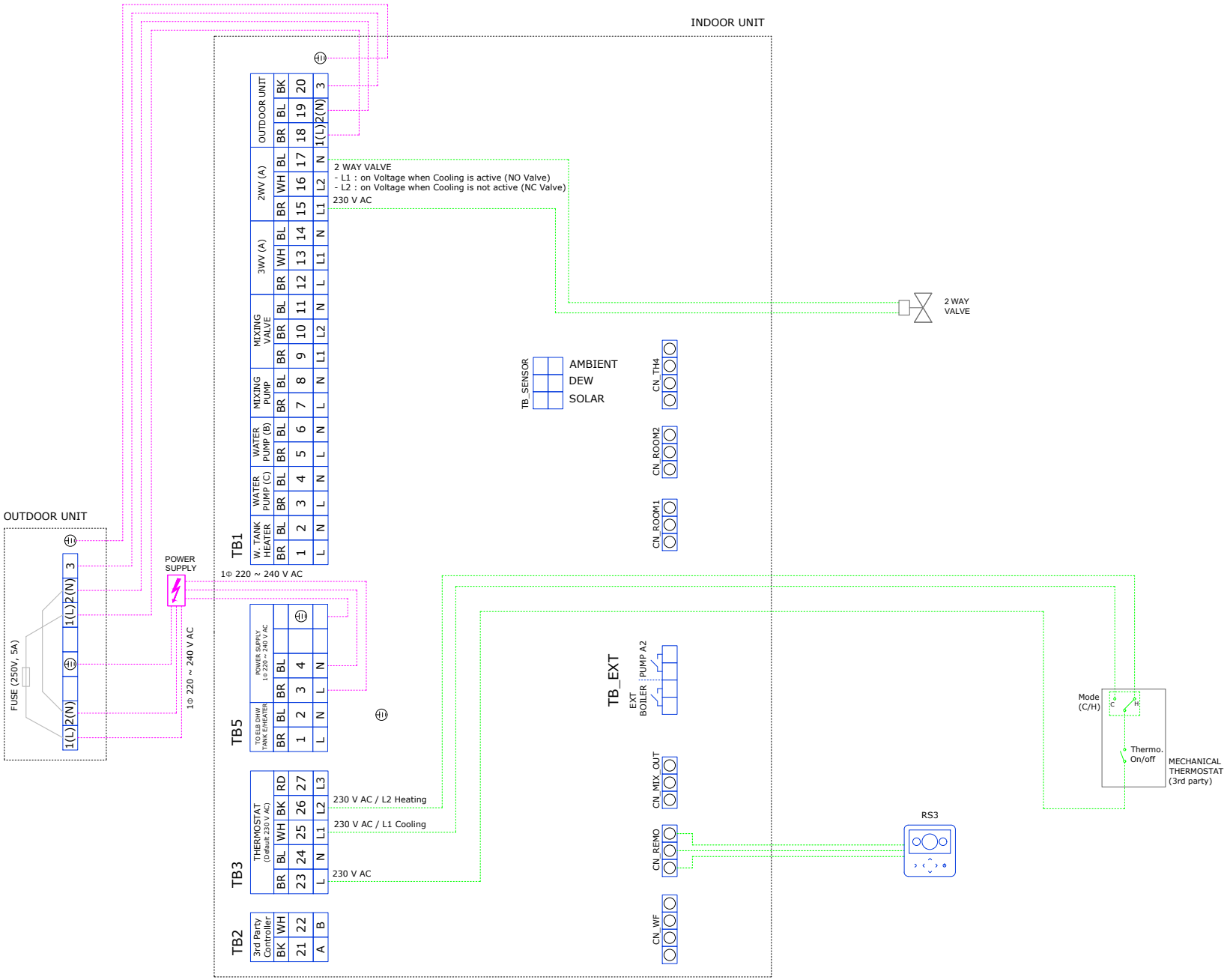
2 Way Valve for FCU
A isolation valve paired with FCU to allow whether water flows into the water circuit.

Balancing Valve with flow meter (Recommended)
The balancing valve is a hydraulic device that accurately regulates the flow rate of heating medium supplied to FCU's. A correct balancing of hydraulic systems is essential to guarantee the system operation according to its design specifications, high thermal comfort and low energy consumption. The valves are equipped with a flow meter for a direct reading of the regulated flow rate.

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

REFERENCED APPLICATION #1 SPACE HEATING & COOLING WITH THERMOSTAT

WIRING DIAGRAM

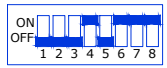


DIP SWITCH SETTINGS

INDOOR UNIT MAIN PCB

SW1

SW2



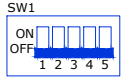
X : OFF / O : ON

DIP SW 1		1	2	3	4	5	6	7	8
MODBUS Communication Type	Master (Link to LG controller)	X							
	Slave (Link to 3rd party controller)	O							
MODBUS Function	REGIN		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 SW 2		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 + DHW tank + Solar thermak 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	O	O	X

OUTDOOR UNIT MAIN PCB

SW1



X : OFF / O : ON

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

INSTALLER SETTINGS ON RS3

Detailed Installer Setting	Value
Configuration > Select Temperature Sensor > Control Standard	Water
Configuration > Select Temperature Sensor > Sensor Location	-
Configuration > Use Heating Tank Heater	-
Configuration > Mixing Circuit	Not Use
Configuration > Use External Pump	Not Use
Configuration > RMC master/slave	Master
Domestic Hot Water > Recirculation time > DHW recirculation	-
Connectivity > Central control address > Access Code (Hex)	-
Connectivity > Modbus address > Access Code (Hex)	-
Connectivity > 3rd Party Boiler	Not Use
Connectivity > Meter Interface > Modbus Address	Not Use
Connectivity > Energy state > ESS use type	Not Use
Connectivity > Thermostat control type	Heat&Cool

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.
3. In addition to the installer settings above, you may need to change additional detailed installer settings. Please refer to the installation manual for details.

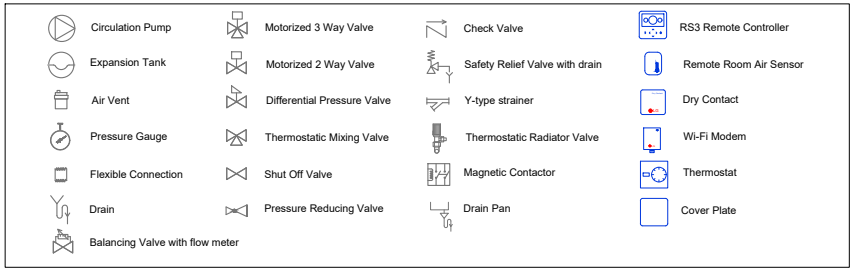
REFERENCED APPLICATION #2 SPACE HEATING WITH PARALLEL BUFFER TANK

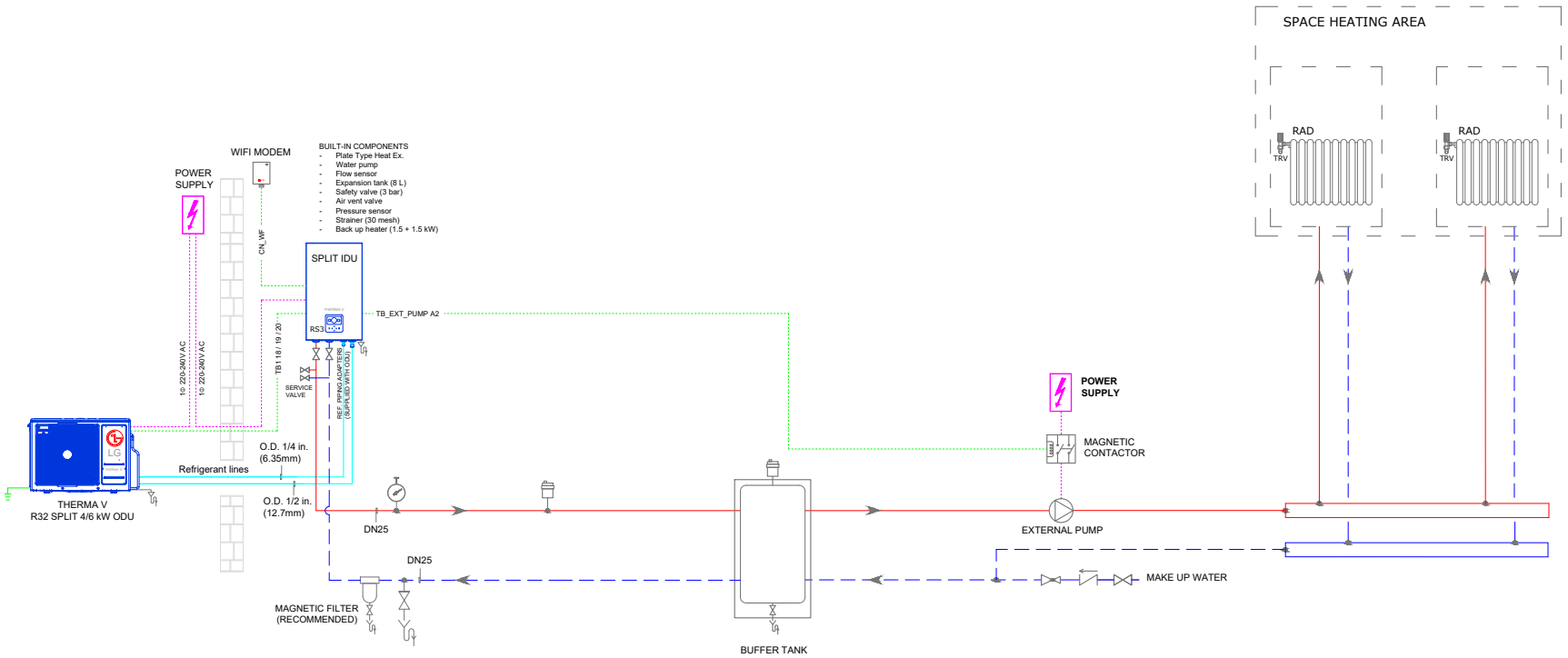
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating with Parallel Buffer Tank
Product	New R32 Split 4/6kW Hydro Box (HN0613M NK5)
Terminal Device	RAD(H)
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Water Temp.
External Pump	Controlled by THERMA V

SYMBOL & LEGENDS





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2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.
5. There is the case where the internal water pump in the unit operates while all zone valves are closed, so one of the hydronic separator, buffer tank, bypass valve, and towel radiator must be installed.
6. If hydronic separator or 4 ports buffer tank is installed, external water pump in the secondary circuit must be installed. In this case, self-controlled water pump must be used to prevent operation when all zone valves are closed.

LG ACCESSORIES

RS3 Controller (Default)
A wired remote controller with built-in temperature sensor.
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)

Wi-Fi Modem (PWFMDD200)
A control device that enables wireless communication with internet router.
Including USB cable 0.6m and extension cable 0.5m

3RD PARTY ACCESSORIES

Buffer Tank
The 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. Also it can prevents frequent On/Off operation of heat pump, especially when multi-zone control is used and all valves for each zone are closed.

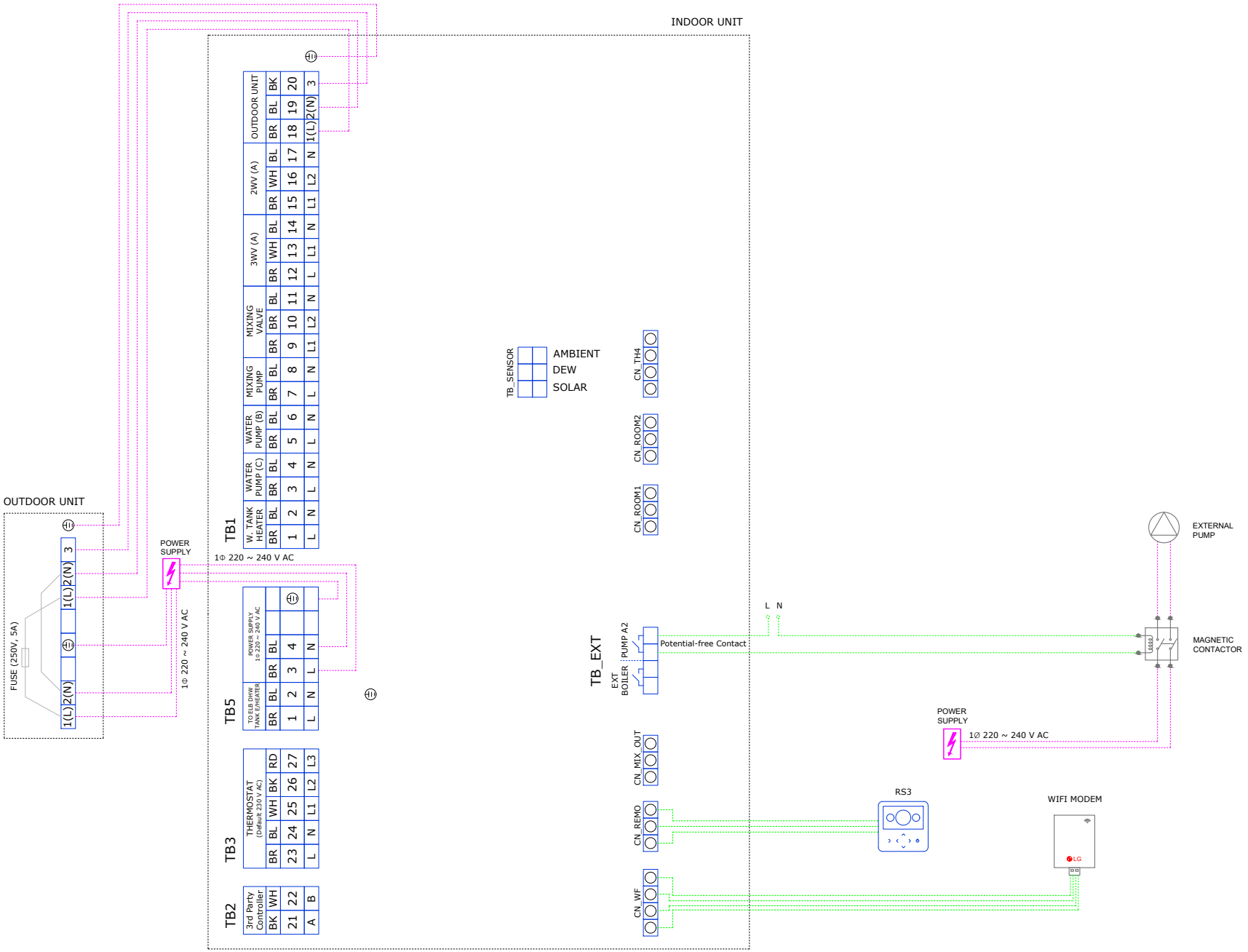
External Pump
An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.

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. In particular, in the case of a replacement, it is mandatory to install.

TRV (Thermostatic Radiator Valve)
A self-regulating valve fitted to radiator, to control the temperature of a room by changing the flow of hot water to the radiator.

REFERENCED APPLICATION #2 SPACE HEATING WITH PARALLEL BUFFER TANK

WIRING DIAGRAM



DIP SWITCH SETTINGS

INDOOR UNIT MAIN PCB

SW1

SW2

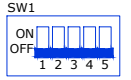
X : OFF / O : ON

DIP SW 1		1	2	3	4	5	6	7	8
MODBUS Communication Type	Master (Link to LG controller)	X							
	Slave (Link to 3rd party controller)	O							
MODBUS Function	REGIN		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 SW 2		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 + DHW tank + Solar thermak 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	O	O	X

OUTDOOR UNIT MAIN PCB

SW1



X : OFF / O : ON

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

INSTALLER SETTINGS ON RS3

Detailed Installer Setting	Value
Configuration > Select Temperature Sensor > Control Standard	Water
Configuration > Select Temperature Sensor > Sensor Location	-
Configuration > Use Heating Tank Heater	-
Configuration > Mixing Circuit	Not Use
Configuration > Use External Pump	Heat&Cool
Configuration > RMC master/slave	Master
Domestic Hot Water > Recirculation time > DHW recirculation	-
Connectivity > Central control address > Access Code (Hex)	-
Connectivity > Modbus address > Access Code (Hex)	-
Connectivity > 3rd Party Boiler	Not Use
Connectivity > Meter Interface > Modbus Address	Not Use
Connectivity > Energy state > ESS use type	Not Use
Connectivity > Thermostat control type	-

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.
3. In addition to the installer settings above, you may need to change additional detailed installer settings. Please refer to the installation manual for details.

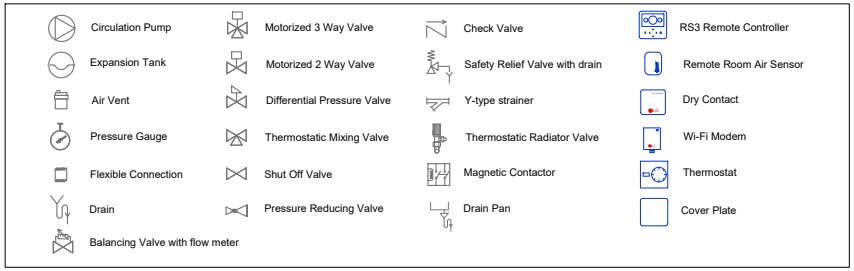
REFERENCED APPLICATION #3 SPACE HEATING WITH MULTI ZONE CONTROL

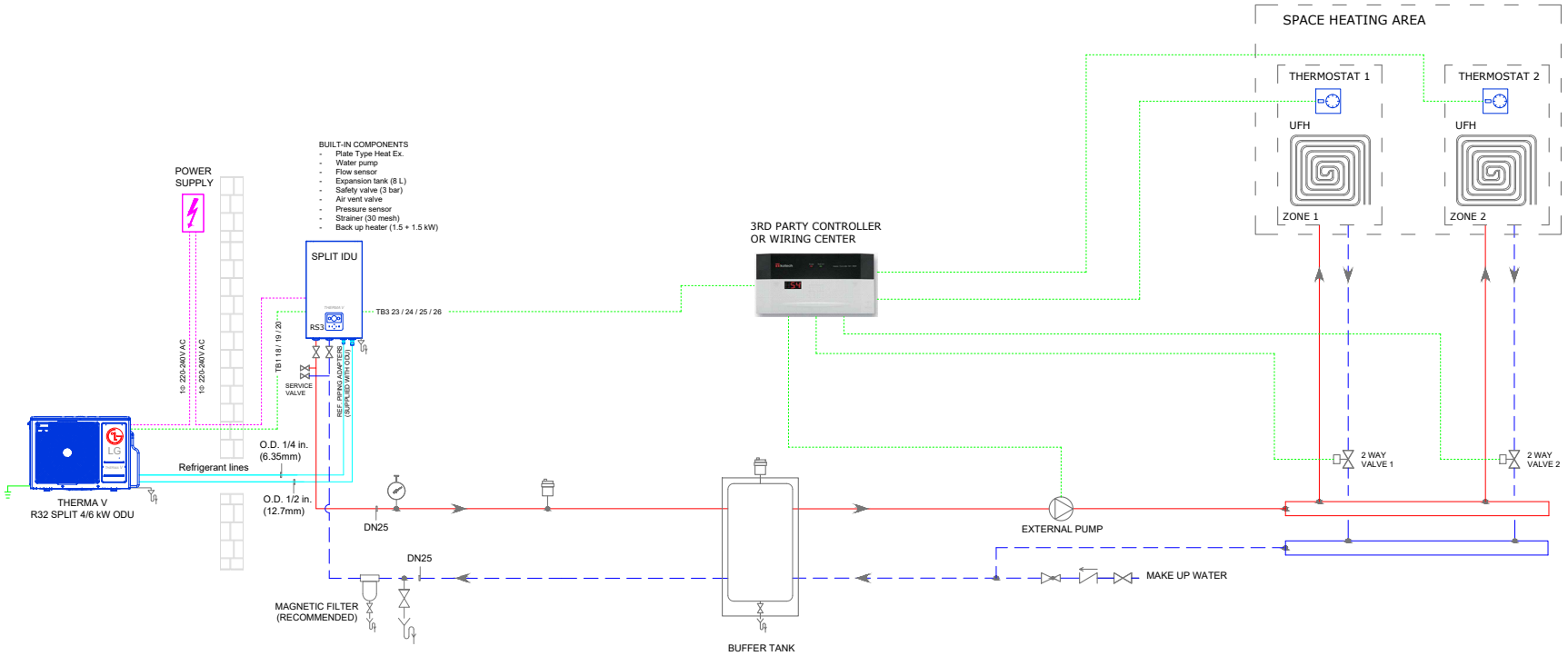
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating with Multi Zone Control
Product	New R32 Split 4/6kW Hydro Box (HN0613M NK5)
Terminal Device	UFH(H)
Main Controller	3rd Party Controller
Control Setting of LG RS3 Controller	Based on Water Temp.
External Pump	Controlled by 3rd Party Controller

SYMBOL & LEGENDS





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2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.
5. There is the case where the internal water pump in the unit operates while all zone valves are closed, so one of the hydronic separator, buffer tank, bypass valve, and towel radiator must be installed.
6. If hydronic separator or 4 ports buffer tank is installed, external water pump in the secondary circuit must be installed. In this case, self-controlled water pump must be used to prevent operation when all zone valves are closed.

LG ACCESSORIES

RS3 Controller (Default)
A wired remote controller with built-in temperature sensor.
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)

3RD PARTY ACCESSORIES

Buffer Tank
The 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. Also it can prevents frequent On/Off operation of heat pump, especially when multi-zone control is used and all valves for each zone are closed.

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. In particular, in the case of a replacement, it is mandatory to install.

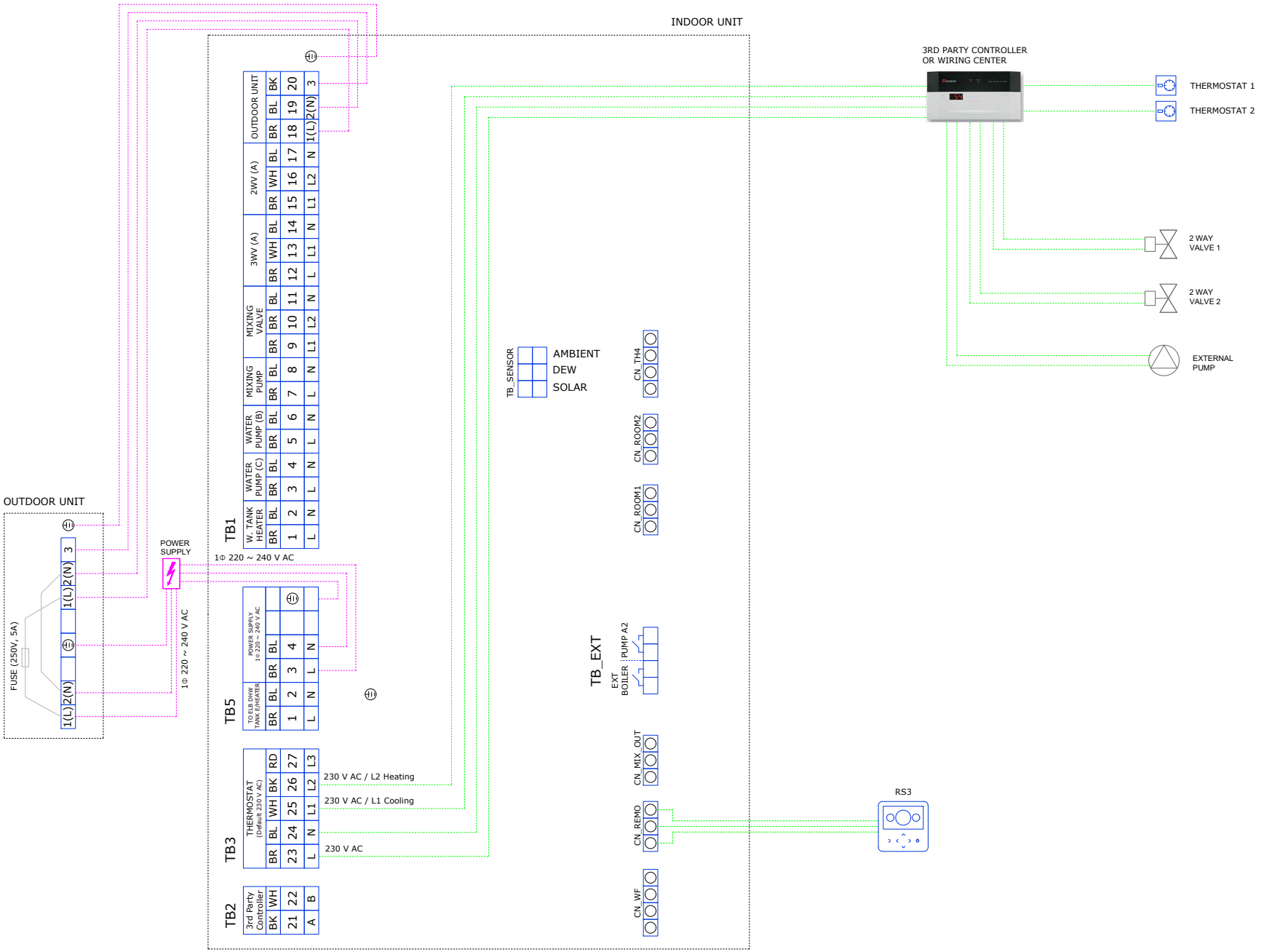
2 Way Valves (Thermo-electric valves)
A motorized isolation valve that blocks the water flow into terminal unit.
Controlled by 3rd party controller.

3rd Party Controller or Wiring Center
A control device that uses the analogue or digital signals from various devices and then process and control the system based on the program written inside the controllers and has the capability to sends the information to another controller.

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

REFERENCED APPLICATION #3 SPACE HEATING WITH MULTI ZONE CONTROL

WIRING DIAGRAM



DIP SWITCH SETTINGS

INDOOR UNIT MAIN PCB

SW1

SW2

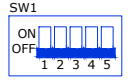
X : OFF / O : ON

DIP SW 1		1	2	3	4	5	6	7	8
MODBUS Communication Type	Master (Link to LG controller)	X							
	Slave (Link to 3rd party controller)	O							
MODBUS Function	REGIN		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 SW 2		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 + DHW tank + Solar thermak 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	O	O	X

OUTDOOR UNIT MAIN PCB

SW1



X : OFF / O : ON

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

INSTALLER SETTINGS ON RS3

Detailed Installer Setting	Value
Configuration > Select Temperature Sensor > Control Standard	Water
Configuration > Select Temperature Sensor > Sensor Location	-
Configuration > Use Heating Tank Heater	-
Configuration > Mixing Circuit	Not Use
Configuration > Use External Pump	Not Use
Configuration > RMC master/slave	Master
Domestic Hot Water > Recirculation time > DHW recirculation	-
Connectivity > Central control address > Access Code (Hex)	-
Connectivity > Modbus address > Access Code (Hex)	-
Connectivity > 3rd Party Boiler	Not Use
Connectivity > Meter Interface > Modbus Address	Not Use
Connectivity > Energy state > ESS use type	Not Use
Connectivity > Thermostat control type	Heat&Cool

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.
3. In addition to the installer settings above, you may need to change additional detailed installer settings. Please refer to the installation manual for details.

REFERENCED APPLICATION #4 SPACE HEATING WITH 2ND CIRCUIT

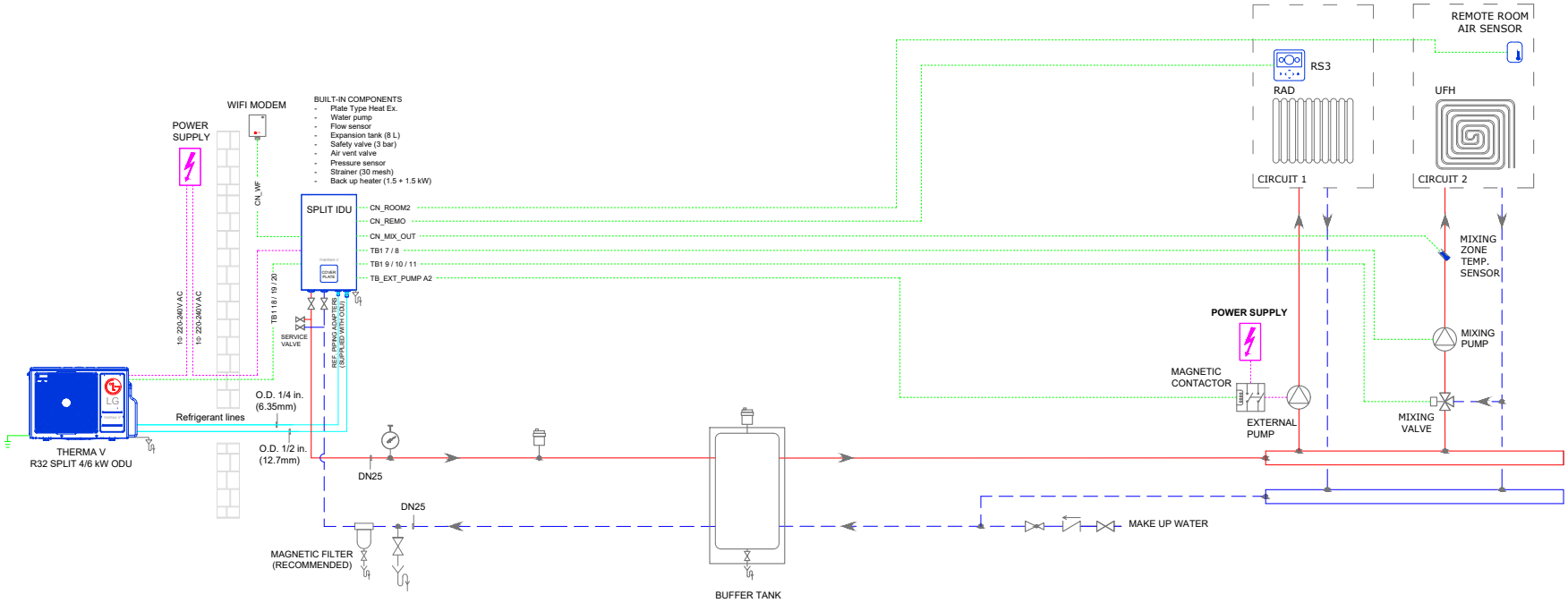
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating with 2nd Circuit
Product	New R32 Split 4/6kW Hydro Box (HN0613M NK5)
Terminal Device	UFH(H) + RAD(H)
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Water Temp. or Air Temp.
External Pump	Controlled by THERMA V

SYMBOL & LEGENDS

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



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2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.
5. There is the case where the internal water pump in the unit operates while all zone valves are closed, so one of the hydronic separator, buffer tank, bypass valve, and towel radiator must be installed.
6. If hydronic separator or 4 ports buffer tank is installed, external water pump in the secondary circuit must be installed. In this case, self-controlled water pump must be used to prevent operation when all zone valves are closed.

LG ACCESSORIES

RS3 Controller (Default)
A wired remote controller with built-in temperature sensor.
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)

Extension Wire for RS3 Controller (PZCWRC1)
Cable length 10m

Cover Plate (PDC-HK10)
A device to fill the blank space of the Indoor Unit front panel when the remote controller is relocated indoors.

Wi-Fi Modem (PWFMDD200)
A control device that enables wireless communication with internet router.
Including USB cable 0.6m and extension cable 0.5m

Remote Room Air Temperature Sensor (PQRSTA0)
Temperature sensor for the room. Cable length 15m. Required when controlling the 2nd circuit based on the room air temperature.

Mixing Zone Temperature Sensor (PRSTAT5K10)
A temperature sensor for the mixed circuit. Cable length 10m.

3RD PARTY ACCESSORIES

Buffer Tank
The 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. Also it can prevents frequent On/Off operation of heat pump, especially when multi-zone control is used and all valves for each zone are closed.

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.

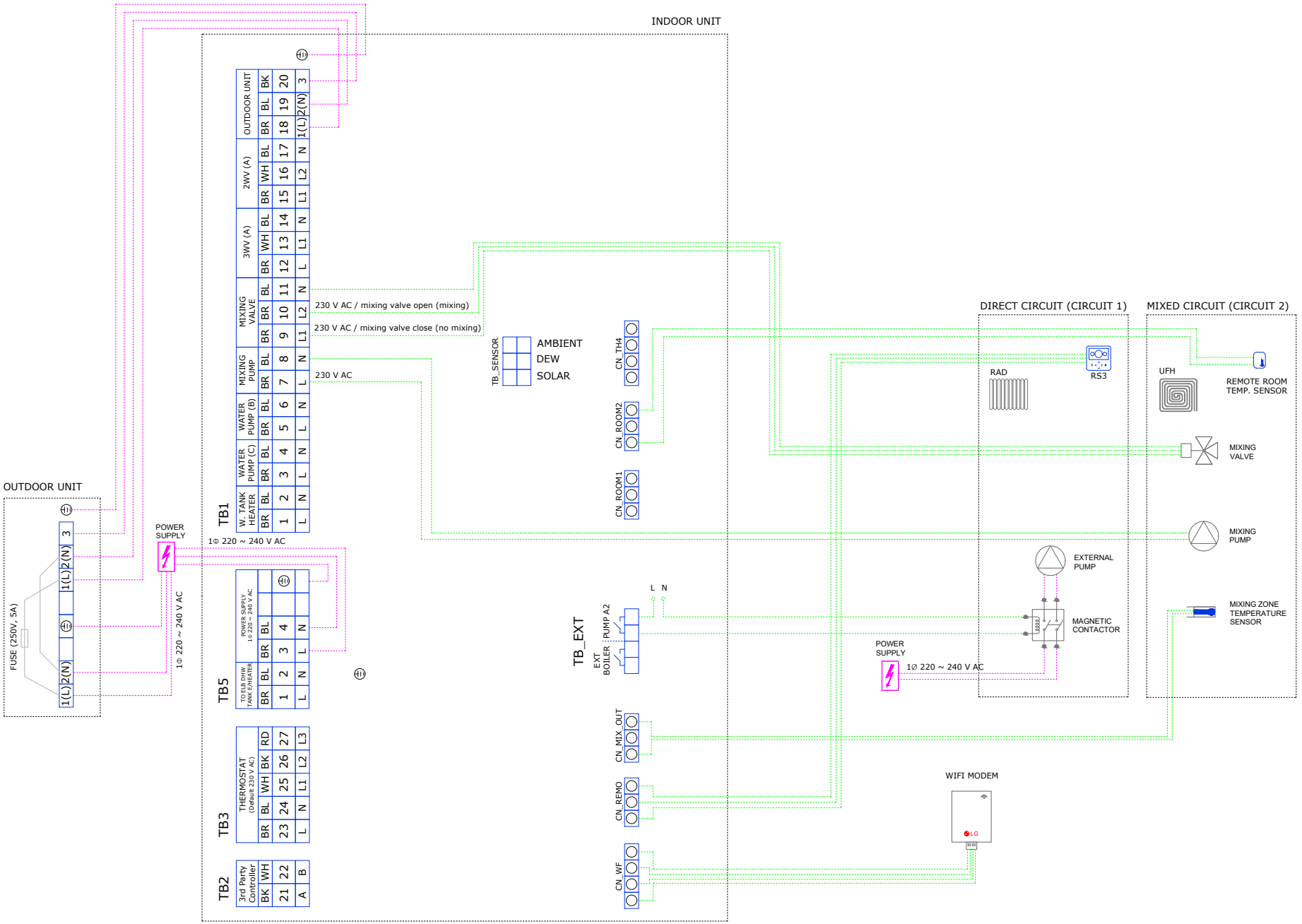
Magnetic Filter (Recommended)
A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system. In particular, in the case of a replacement, it is mandatory to install.

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.

REFERENCED APPLICATION #4 SPACE HEATING WITH 2ND CIRCUIT

WIRING DIAGRAM



DIP SWITCH SETTINGS

INDOOR UNIT MAIN PCB

SW1

SW2

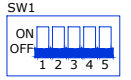
X : OFF / O : ON

DIP SW 1		1	2	3	4	5	6	7	8
MODBUS Communication Type	Master (Link to LG controller)	X							
	Slave (Link to 3rd party controller)	O							
MODBUS Function	REGIN		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 SW 2		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 + DHW tank + Solar thermak 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	O	O	X

OUTDOOR UNIT MAIN PCB

SW1



X : OFF / O : ON

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

INSTALLER SETTINGS ON RS3

Detailed Installer Setting	Value
Configuration > Select Temperature Sensor > Control Standard	Air + Water *
Configuration > Select Temperature Sensor > Sensor Location	Remote Control *
Configuration > Use Heating Tank Heater	-
Configuration > Mixing Circuit	Heat
Configuration > Use External Pump	Circuit1
Configuration > RMC master/slave	Master
Domestic Hot Water > Recirculation time > DHW recirculation	-
Connectivity > Central control address > Access Code (Hex)	-
Connectivity > Modbus address > Access Code (Hex)	-
Connectivity > 3rd Party Boiler	Not Use
Connectivity > Meter Interface > Modbus Address	Not Use
Connectivity > Energy state > ESS use type	Not Use
Connectivity > Thermostat control type	-

* It may change depending on the control method.

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.
3. In addition to the installer settings above, you may need to change additional detailed installer settings. Please refer to the installation manual for details.

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

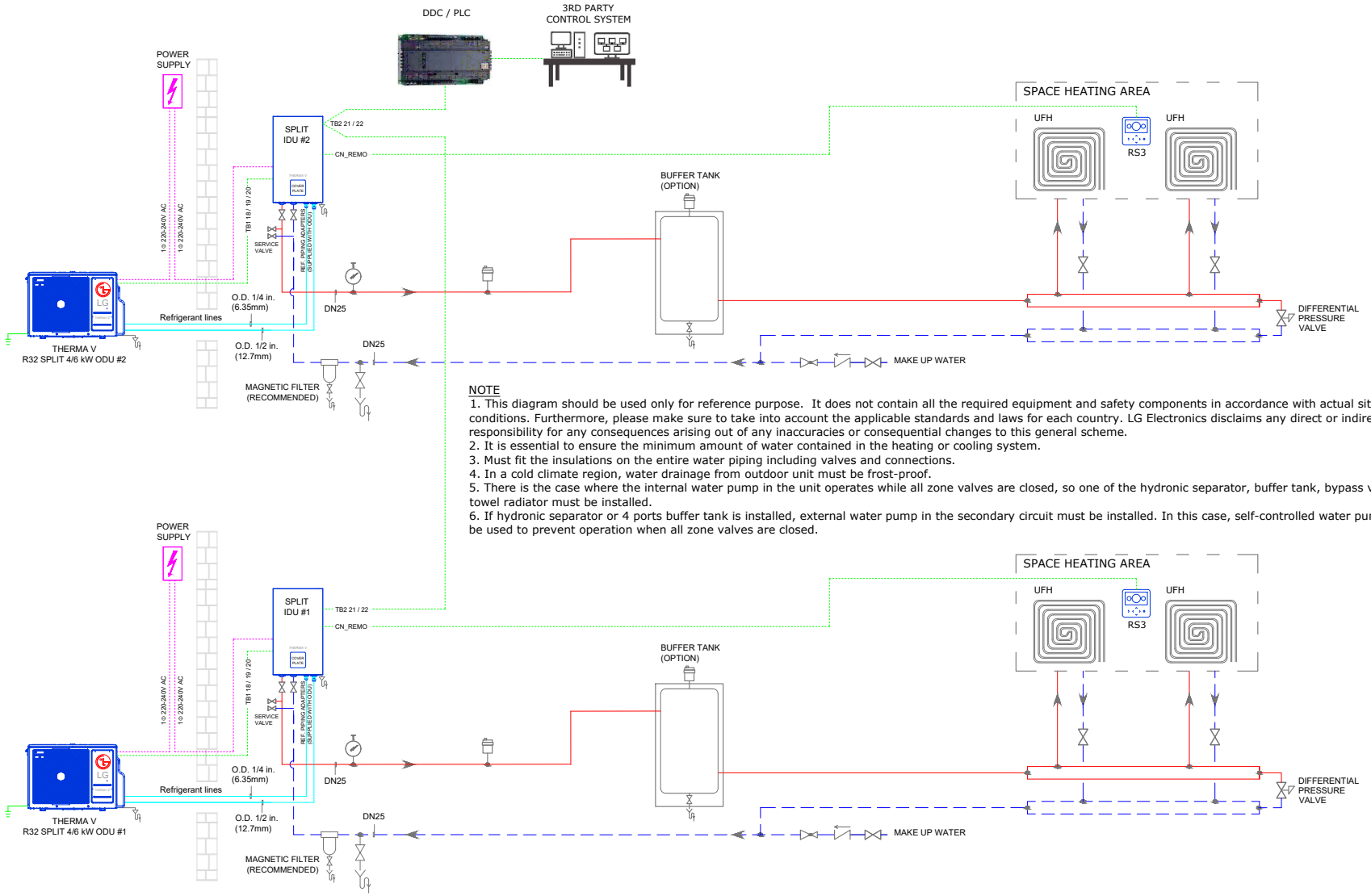
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating with 3rd Party Controller (MODBUS)
Product	New R32 Split 4/6kW Hydro Box (HN0613M NK5)
Terminal Device	UFH(H)
Main Controller	LG RS3 Controller & 3rd Party Controller
Control Setting of LG RS3 Controller	Based on Water Temp. or Air Temp.
External Pump	No Installed

SYMBOL & LEGENDS

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



NOTE

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2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.
5. There is the case where the internal water pump in the unit operates while all zone valves are closed, so one of the hydronic separator, buffer tank, bypass valve, and towel radiator must be installed.
6. If hydronic separator or 4 ports buffer tank is installed, external water pump in the secondary circuit must be installed. In this case, self-controlled water pump must be used to prevent operation when all zone valves are closed.

ACCESSORIES LG

RS3 Controller (Default)
A wired remote controller with built-in temperature sensor.
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)

Extension Wire for RS3 Controller (PZCWRC1)
Cable length 10m

Cover Plate (PDC-HK10)
A device to fill the blank space of the Indoor Unit front panel when the remote controller is relocated indoors.

3RD PARTY ACCESSORIES

Buffer Tank (Option)
The 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.
Also it can prevents frequent On/Off operation of heat pump, especially when multi-zone control is used and all valves for each zone are closed.

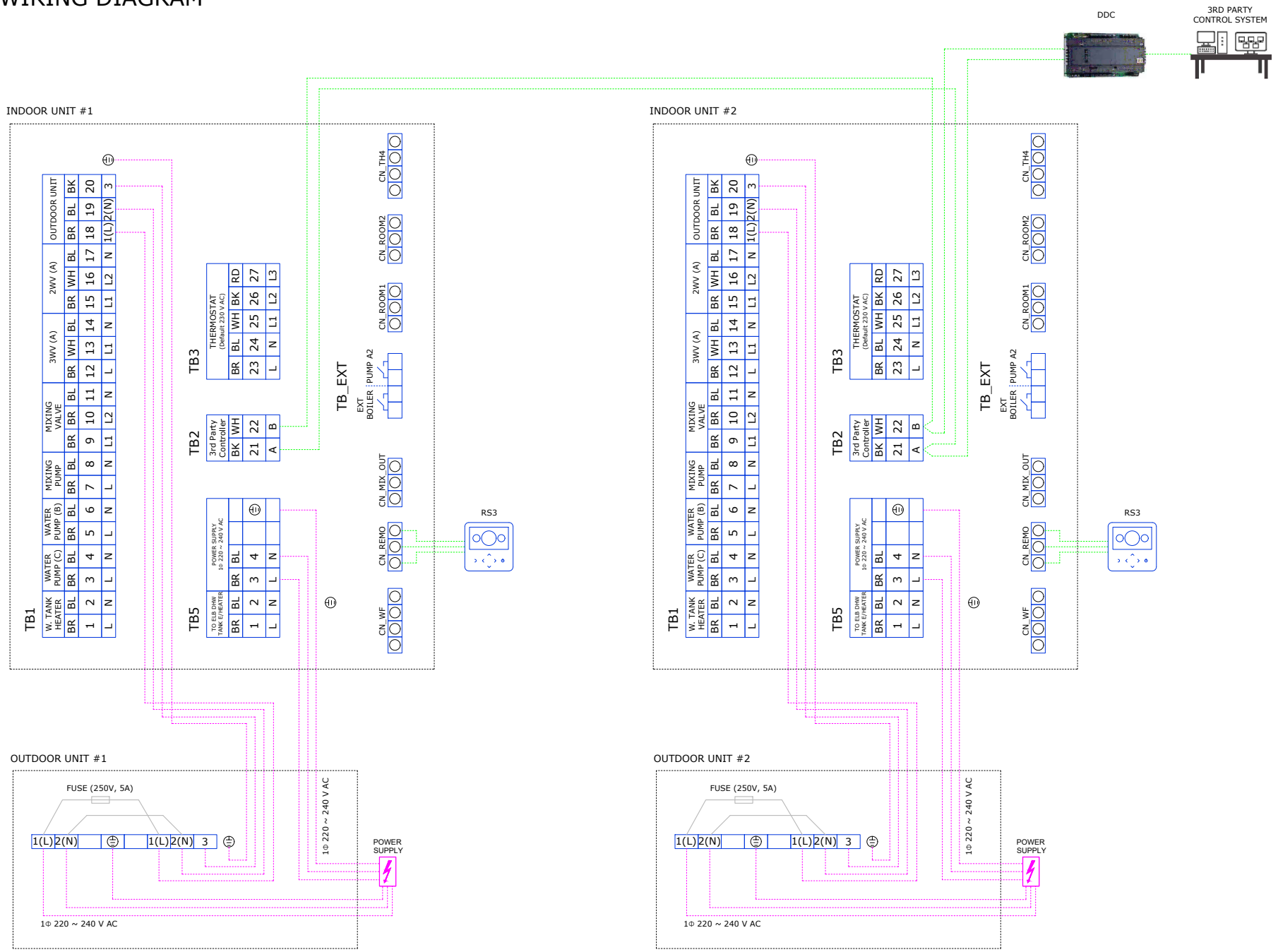
Magnetic Filter (Recommended)
A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system. In particular, in the case of a replacement, it is mandatory to install.

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.

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

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

WIRING DIAGRAM



DIP SWITCH SETTINGS

INDOOR UNIT MAIN PCB

SW1

SW2

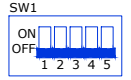
X : OFF / O : ON

DIP SW 1		1	2	3	4	5	6	7	8
MODBUS Communication Type	Master (Link to LG controller)	X							
	Slave (Link to 3rd party controller)	O							
MODBUS Function	REGIN		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 SW 2		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 + DHW tank + Solar thermak 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	O	O	X

OUTDOOR UNIT MAIN PCB

SW1



X : OFF / O : ON

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

INSTALLER SETTINGS ON RS3

Detailed Installer Setting	Value
Configuration > Select Temperature Sensor > Control Standard	Air + Water *
Configuration > Select Temperature Sensor > Sensor Location	Remote Control *
Configuration > Use Heating Tank Heater	-
Configuration > Mixing Circuit	Not Use
Configuration > Use External Pump	Not Use
Configuration > RMC master/slave	Master
Domestic Hot Water > Recirculation time > DHW recirculation	-
Connectivity > Central control address > Access Code (Hex)	-
Connectivity > Modbus address > Access Code (Hex) **	XX **
Connectivity > 3rd Party Boiler	Not Use
Connectivity > Meter Interface > Modbus Address	Not Use
Connectivity > Energy state > ESS use type	Not Use
Connectivity > Thermostat control type	-

* It may change depending on the control method.
** Please do not confuse the path with other similar paths. And Modbus address of each unit should be matched with values set by 3rd party controller system

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.
3. In addition to the installer settings above, you may need to change additional detailed installer settings. Please refer to the installation manual for details.

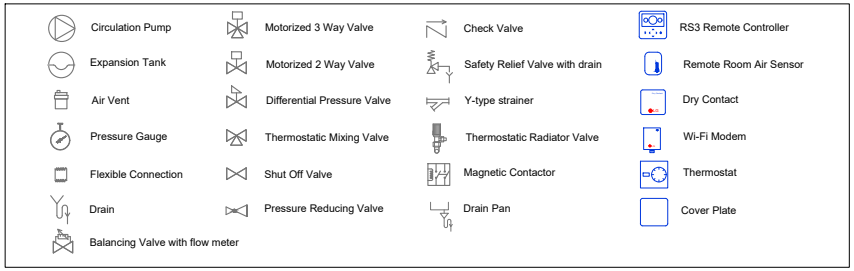
REFERENCED APPLICATION #6 SPACE HEATING AND DHW WITH RECIRCULATION PUMP

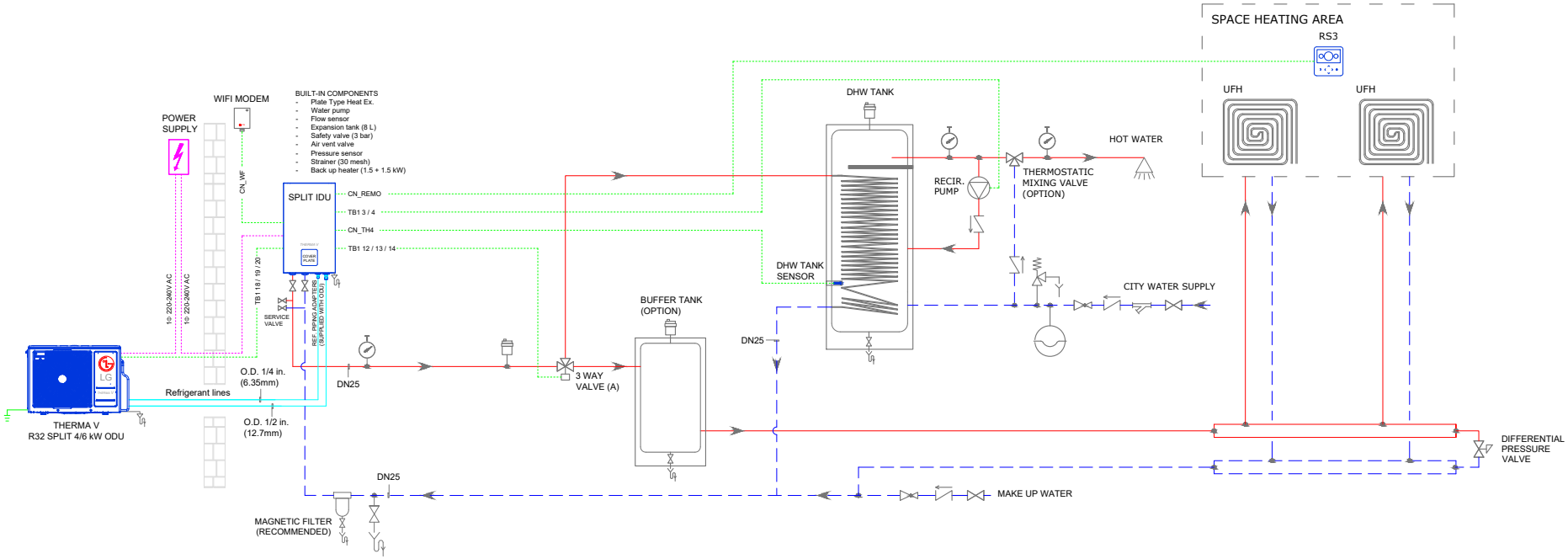
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating & DHW with Recirculation Pump
Product	New R32 Split 4/6kW Hydro Box (HN0613M NK5)
Terminal Device	UFH(H)
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Air Temp. or Water Temp.
External Pump	No Installed

SYMBOL & LEGENDS





NOTE

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2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.
5. There is the case where the internal water pump in the unit operates while all zone valves are closed, so one of the hydronic separator, buffer tank, bypass valve, and towel radiator must be installed.
6. If hydronic separator or 4 ports buffer tank is installed, external water pump in the secondary circuit must be installed. In this case, self-controlled water pump must be used to prevent operation when all zone valves are closed.

ACCESSORIES LG

RS3 Controller (Default)
A wired remote controller with built-in temperature sensor.
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)

Extension Wire for RS3 Controller (PZCWRC1)
Cable length 10m

Cover Plate (PDC-HK10)
A device to fill the blank space of the Indoor Unit front panel when the remote controller is relocated indoors.

Wi-Fi Modem (PWFMDD200)
A control device that enables wireless communication with internet router.
Including USB cable 0.6m and extension cable 0.5m

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

Buffer Tank (Option)
The 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. Also it can prevents frequent On/Off operation of heat pump, especially when multi-zone control is used and all valves for each zone are closed.

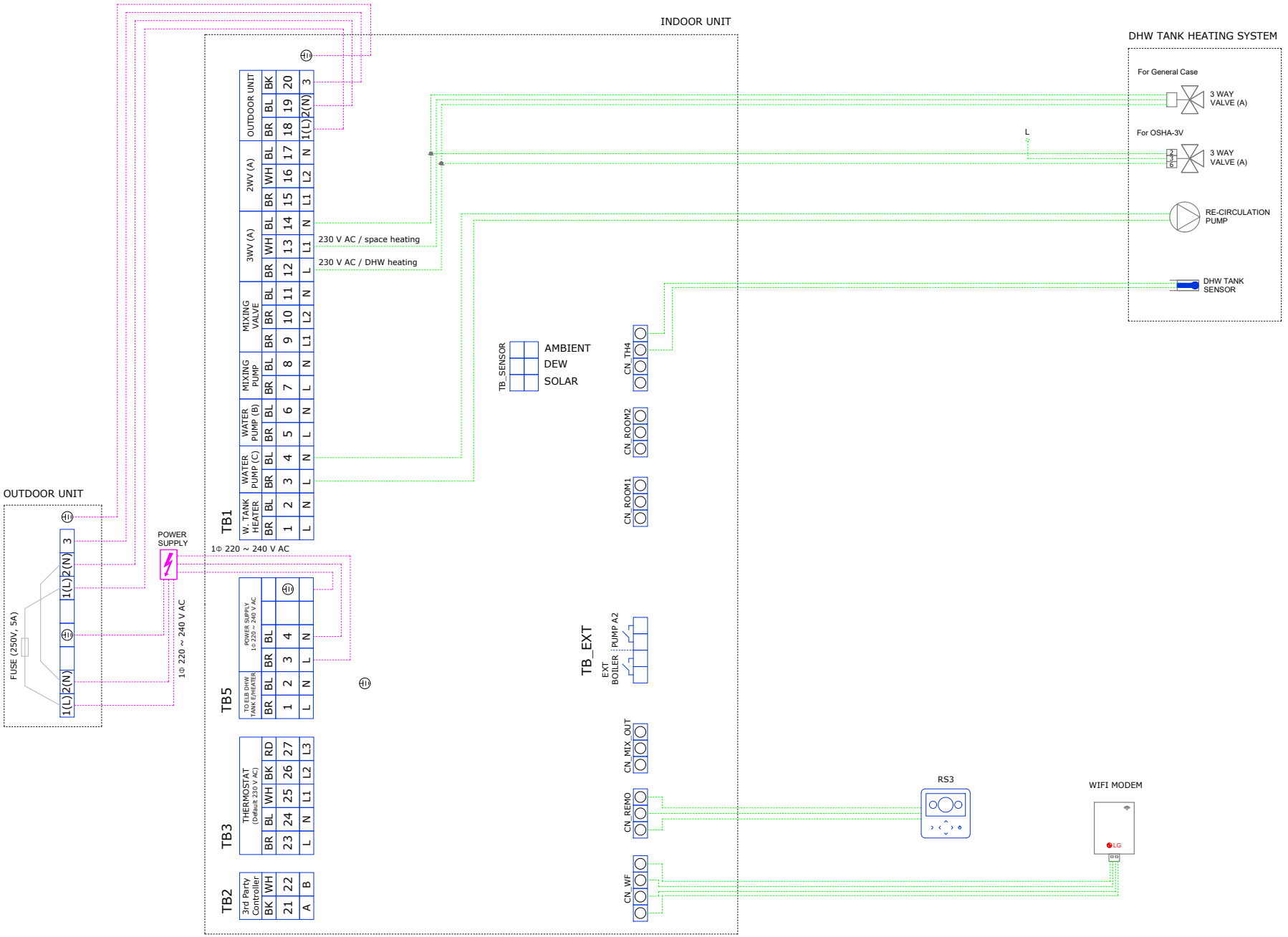
Recirculation Pump
An water pump that re-circulates the water inside DHW supply piping to ensure that hot water is always available as close to the consumption point as possible, in order to reduce water waste and to increase comfort. It's strongly recommended to use the available schedule timer for re-circulation.

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. In particular, in the case of a replacement, it is mandatory to install.

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

REFERENCED APPLICATION #6 SPACE HEATING AND DHW WITH RECIRCULATION PUMP

WIRING DIAGRAM



DIP SWITCH SETTINGS

INDOOR UNIT MAIN PCB

SW1

SW2

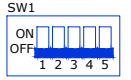
X : OFF / O : ON

DIP SW 1		1	2	3	4	5	6	7	8
MODBUS Communication Type	Master (Link to LG controller)	X							
	Slave (Link to 3rd party controller)	O							
MODBUS Function	REGIN		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 SW 2		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 + DHW tank + Solar thermak 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	O	O	X

OUTDOOR UNIT MAIN PCB

SW1



X : OFF / O : ON

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

INSTALLER SETTINGS ON RS3

Detailed Installer Setting	Value
Configuration > Select Temperature Sensor > Control Standard	Air + Water *
Configuration > Select Temperature Sensor > Sensor Location	Remote Control *
Configuration > Use Heating Tank Heater	Not Use
Configuration > Mixing Circuit	Not Use
Configuration > Use External Pump	Not Use
Configuration > RMC master/slave	Master
Domestic Hot Water > Recirculation time > DHW recirculation	Use **
Connectivity > Central control address > Access Code (Hex)	-
Connectivity > Modbus address > Access Code (Hex)	-
Connectivity > 3rd Party Boiler	Not Use
Connectivity > Meter Interface > Modbus Address	Not Use
Connectivity > Energy state > ESS use type	Not Use
Connectivity > Thermostat control type	-

* It may change depending on the control method.
** In addition, a schedule setting for DHW Recirculation is also required.

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.
3. In addition to the installer settings above, you may need to change additional detailed installer settings. Please refer to the installation manual for details.

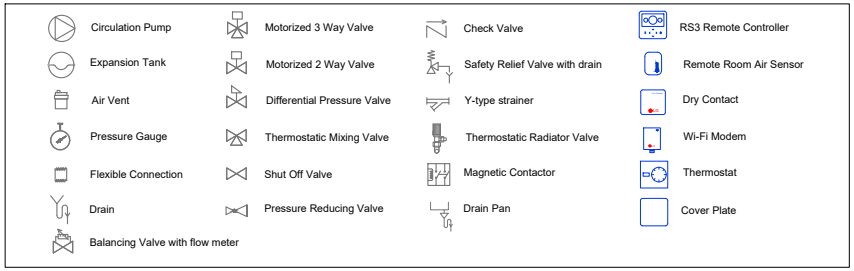
REFERENCED APPLICATION #7 SPACE HEATING AND DHW WITH BOOSTER HEATER

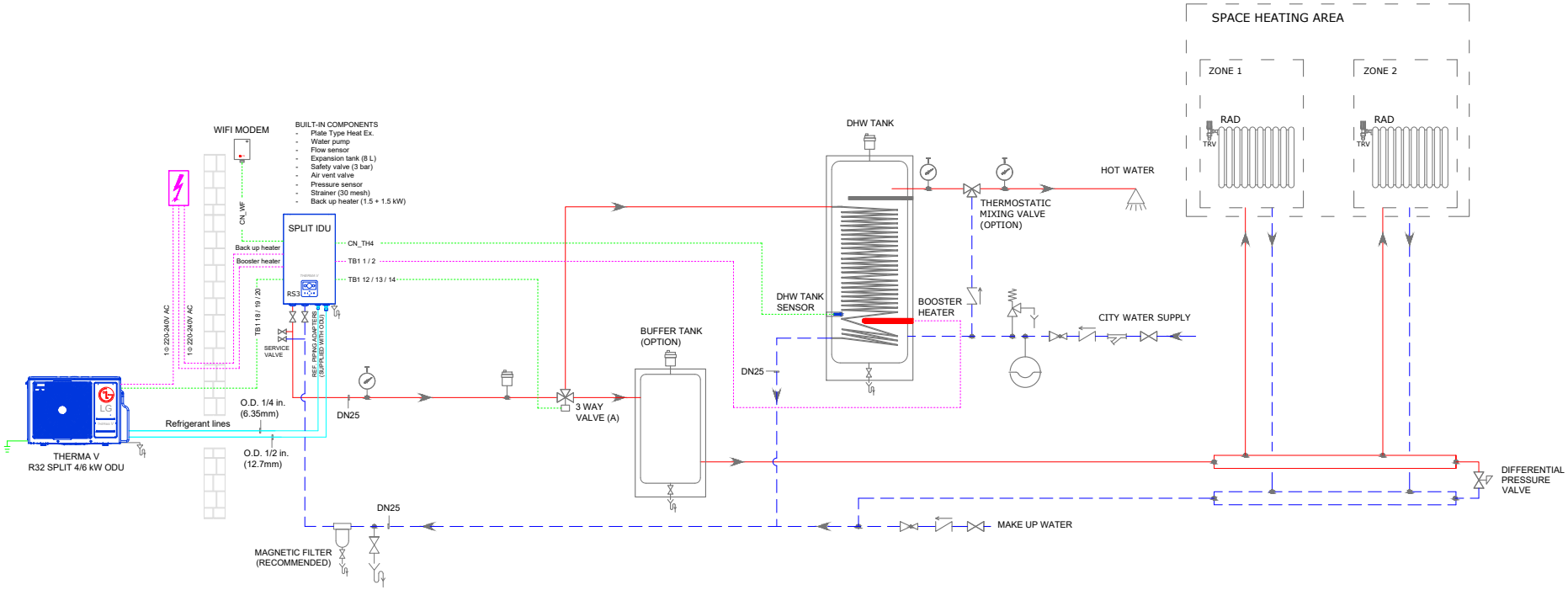
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating & DHW with Booster Heater
Product	New R32 Split 4/6kW Hydro Box (HN0613M NK5)
Terminal Device	RAD(H)
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Water Temp.
External Pump	No Installed

SYMBOL & LEGENDS





NOTE

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2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.
5. There is the case where the internal water pump in the unit operates while all zone valves are closed, so one of the hydronic separator, buffer tank, bypass valve, and towel radiator must be installed.
6. If hydronic separator or 4 ports buffer tank is installed, external water pump in the secondary circuit must be installed. In this case, self-controlled water pump must be used to prevent operation when all zone valves are closed.

ACCESSORIES LG

RS3 Controller (Default)
A wired remote controller with built-in temperature sensor.
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)

Wi-Fi Modem (PWFMDD200)
A control device that enables wireless communication with internet router.
Including USB cable 0.6m and extension cable 0.5m

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 (PHLTA)
A set of electrical devices for controlling of electric booster heater up to 32A
Including Circuit Breaker, Magnetic Contactor and DHW Temp. sensor (PHRSTA0)

DHW Tank Sensor (PHRSTA0)
A temperature sensor for DHW tank. Cable length 12m. Included in DHW Tank Kit (PHLTA)

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

Buffer Tank (Option)
The 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. Also it can prevents frequent On/Off operation of heat pump, especially when multi-zone control is used and all valves for each zone are closed.

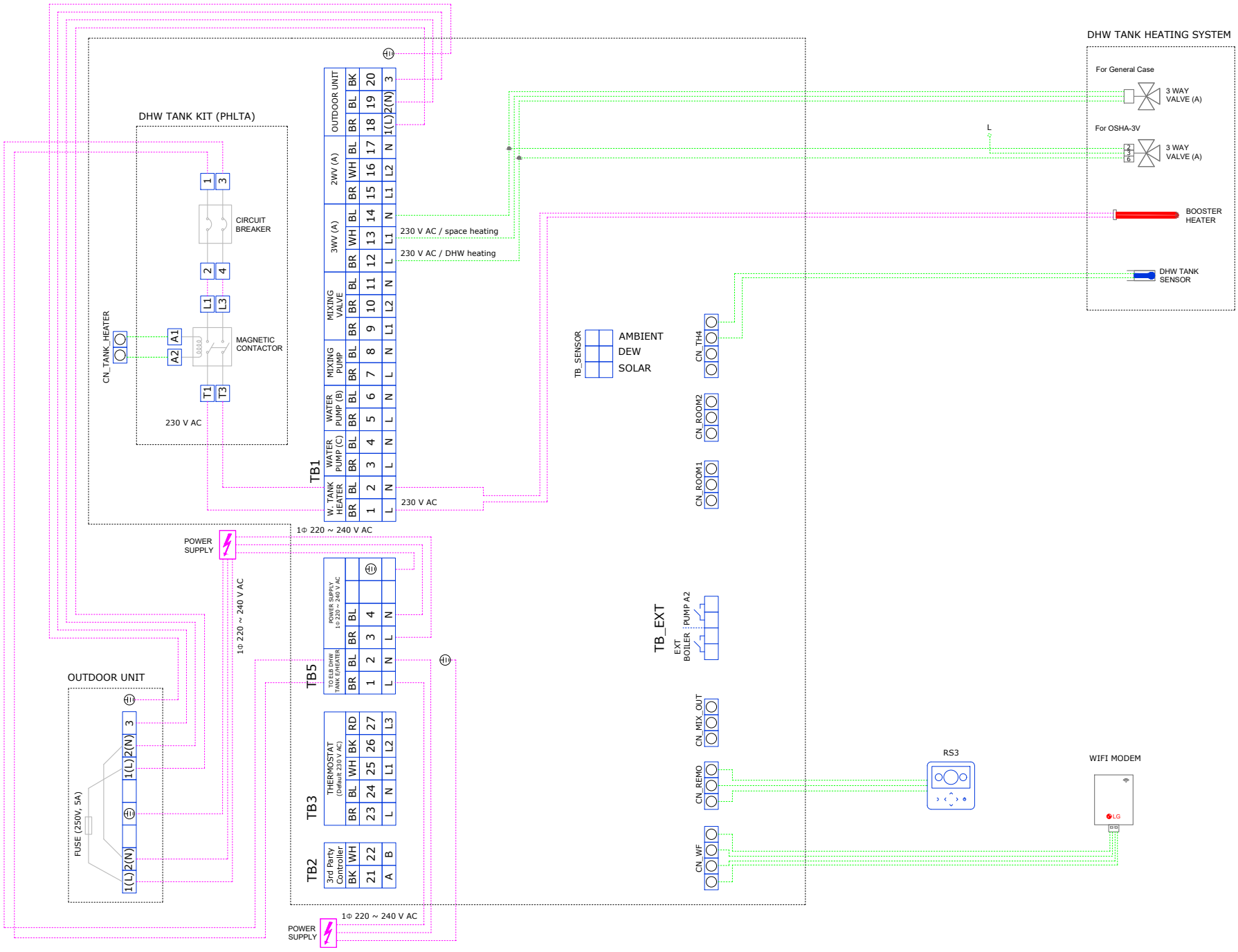
Magnetic Filter (Recommended)
A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system. In particular, in the case of a replacement, it is mandatory to install.

TRV (Thermostatic Radiator Valve)
A self-regulating valve fitted to radiator, to control the temperature of a room by changing the flow of hot water to the radiator.

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

REFERENCED APPLICATION #7 SPACE HEATING AND DHW WITH BOOSTER HEATER

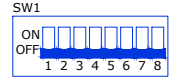
WIRING DIAGRAM



DIP SWITCH SETTINGS

INDOOR UNIT MAIN PCB

SW1



SW2

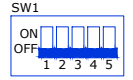
X : OFF / O : ON

DIP SW 1		1	2	3	4	5	6	7	8
MODBUS Communication Type	Master (Link to LG controller)	X							
	Slave (Link to 3rd party controller)	O							
MODBUS Function	REGIN		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 SW 2		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 + DHW tank + Solar thermak 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	O	O	X

OUTDOOR UNIT MAIN PCB

SW1



X : OFF / O : ON

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

INSTALLER SETTINGS ON RS3

Detailed Installer Setting	Value
Configuration > Select Temperature Sensor > Control Standard	Water
Configuration > Select Temperature Sensor > Sensor Location	-
Configuration > Use Heating Tank Heater	Use *
Configuration > Mixing Circuit	Not Use
Configuration > Use External Pump	Not Use
Configuration > RMC master/slave	Master
Domestic Hot Water > Recirculation time > DHW recirculation	Not Use
Connectivity > Central control address > Access Code (Hex)	-
Connectivity > Modbus address > Access Code (Hex)	-
Connectivity > 3rd Party Boiler	Not Use
Connectivity > Meter Interface > Modbus Address	Not Use
Connectivity > Energy state > ESS use type	Not Use
Connectivity > Thermostat control type	-

* It may change depending on the purpose of using booster heater.

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.
3. In addition to the installer settings above, you may need to change additional detailed installer settings. Please refer to the installation manual for details.

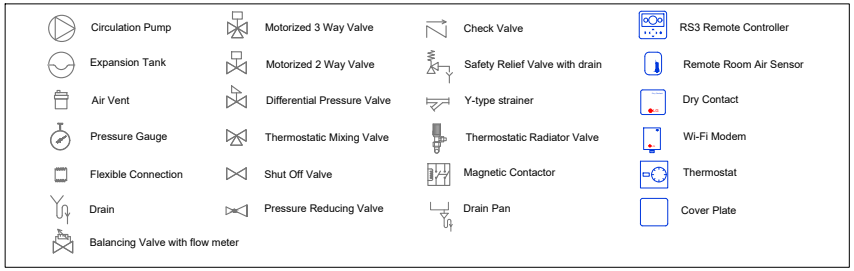
REFERENCED APPLICATION #8 SPACE HEATING AND DHW WITH LG BECON CLOUD

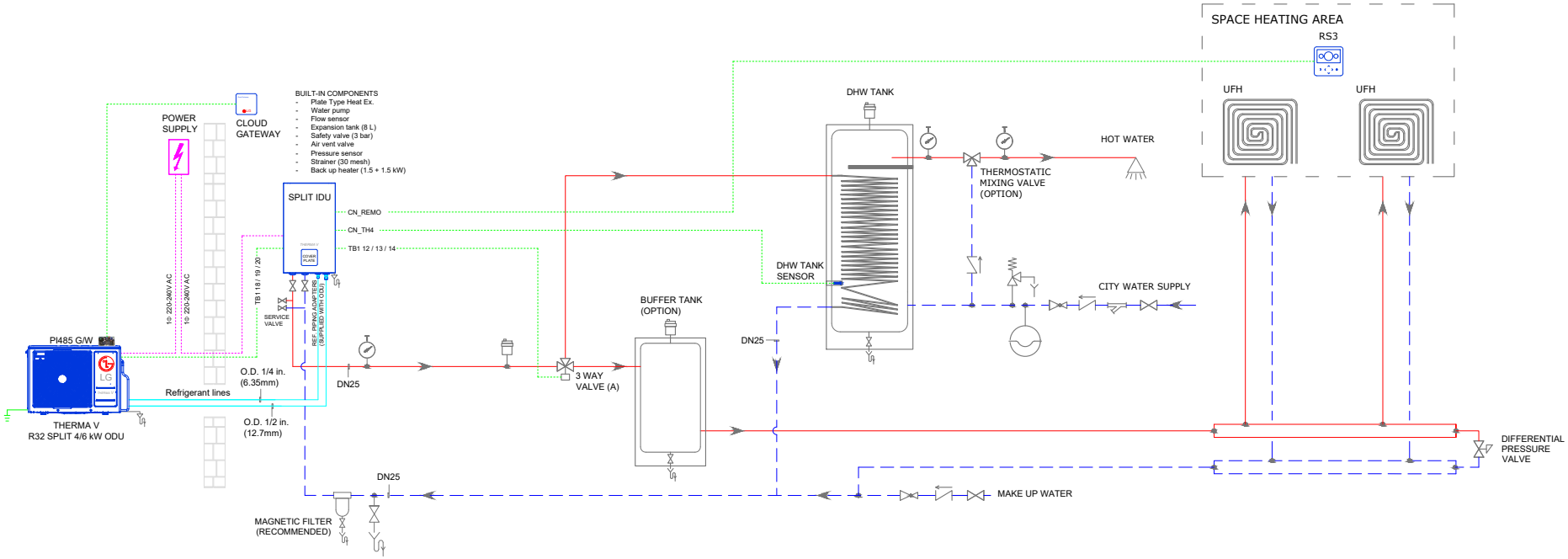
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating & DHW with LG BECON cloud
Product	New R32 Split 4/6kW Hydro Box (HN0613M NK5)
Terminal Device	UFH(H)
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Air Temp. or Water Temp.
External Pump	No Installed

SYMBOL & LEGENDS





NOTE

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2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.
5. There is the case where the internal water pump in the unit operates while all zone valves are closed, so one of the hydronic separator, buffer tank, bypass valve, and towel radiator must be installed.
6. If hydronic separator or 4 ports buffer tank is installed, external water pump in the secondary circuit must be installed. In this case, self-controlled water pump must be used to prevent operation when all zone valves are closed.

ACCESSORIES LG

RS3 Controller (Default)
A wired remote controller with built-in temperature sensor.
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)

Extension Wire for RS3 Controller (PZCWRC1)
Cable length 10m

Cover Plate (PDC-HK10)
A device to fill the blank space of the Indoor Unit front panel when the remote controller is relocated indoors.

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.

PI485 Gateway (PP485A00T)
A gateway device that communicates and controls for connection to the central controller. (converting LG protocol to RS485 protocol)
It should be installed onto the outdoor unit.

Cloud Gateway (PWFMDB200)
A gateway for LG BECON Cloud service.
External power supply DC 12V.

3RD PARTY ACCESSORIES

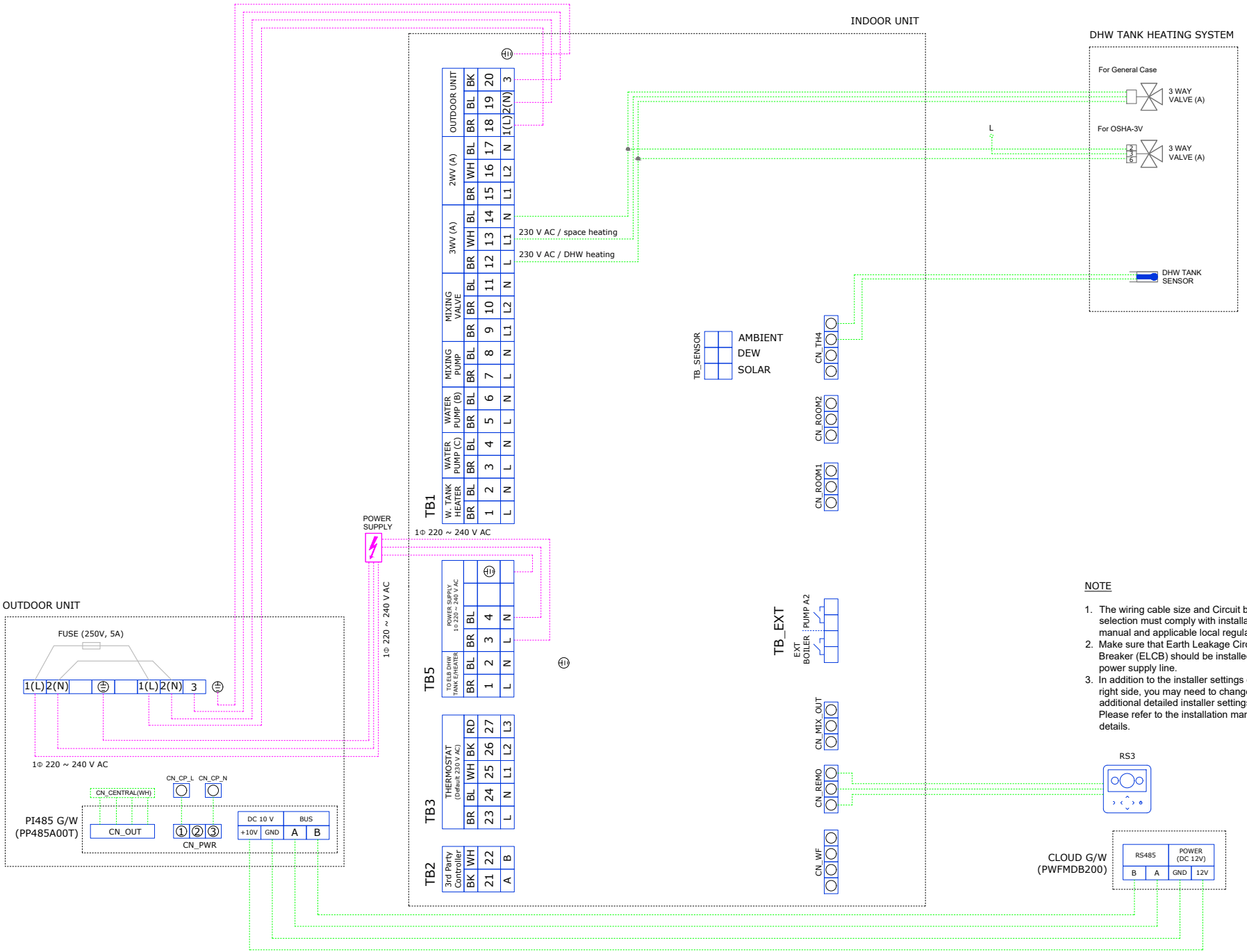
Buffer Tank (Option)
The water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load. Also it can prevents frequent On/Off operation of heat pump, especially when multi-zone control is used and all valves for each zone are closed.

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. In particular, in the case of a replacement, it is mandatory to install.

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

REFERENCED APPLICATION #8 SPACE HEATING AND DHW WITH LG BECON CLOUD

WIRING DIAGRAM



NOTE

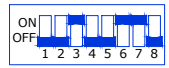
1. The wiring cable size and Circuit breaker selection must comply with installation manual and applicable local regulations.
2. Make sure that Earth Leakage Circuit Breaker (ELCB) should be installed for power supply line.
3. In addition to the installer settings on the right side, you may need to change additional detailed installer settings. Please refer to the installation manual for details.

DIP SWITCH SETTINGS

INDOOR UNIT MAIN PCB

SW1

SW2



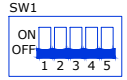
X : OFF / O : ON

DIP SW 1		1	2	3	4	5	6	7	8
MODBUS Communication Type	Master (Link to LG controller)	X							
	Slave (Link to 3rd party controller)	O							
MODBUS Function	REGIN		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 SW 2		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 + DHW tank + Solar thermak 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	O	O	X

OUTDOOR UNIT MAIN PCB

SW1

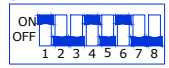


X : OFF / O : ON

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

PI485 GATEWAY

SW1



Default
* 1, 4 : AWHP Default
* 6 : Cycle Data Monitoring (For LG BECON Cloud)

INSTALLER SETTINGS ON RS3

Detailed Installer Setting	Value
Configuration > Select Temperature Sensor > Control Standard	Air + Water *
Configuration > Select Temperature Sensor > Sensor Location	Remote Control *
Configuration > Use Heating Tank Heater	Not Use
Configuration > Mixing Circuit	Not Use
Configuration > Use External Pump	Not Use
Configuration > RMC master/slave	Master
Domestic Hot Water > Recirculation time > DHW recirculation	Not Use
Connectivity > Central control address > Access Code (Hex) **	00
Connectivity > Modbus address > Access Code (Hex)	-
Connectivity > 3rd Party Boiler	Not Use
Connectivity > Meter Interface > Modbus Address	Not Use
Connectivity > Energy state > ESS use type	Not Use
Connectivity > Thermostat control type	-

* It may change depending on the control method.
** Please do not confuse the path with other similar paths.

REFERENCED APPLICATION #9 SPACE HEATING AND DHW WITH LG ENERGY STORAGE SYSTEM

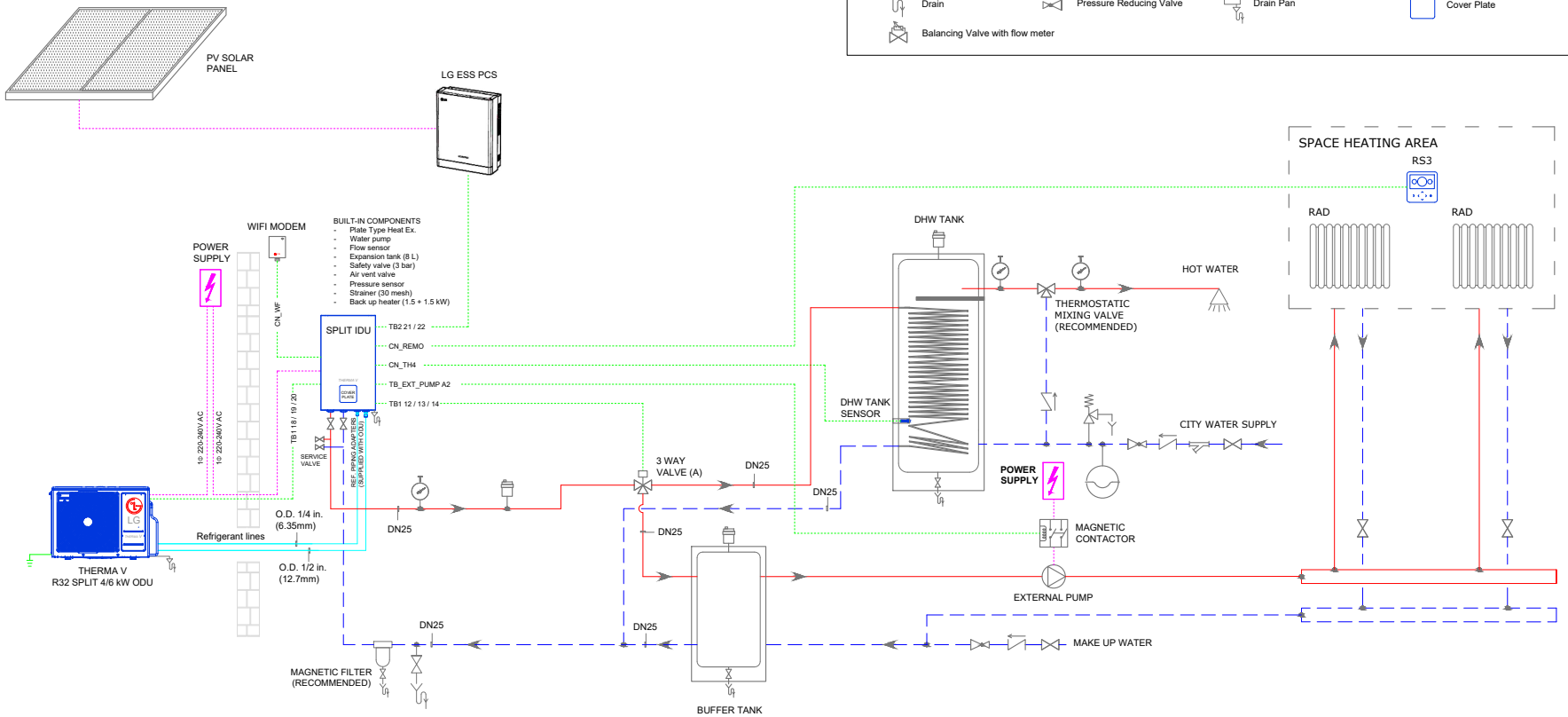
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating and DHW with LG Energy Storage System
Product	New R32 Split 4/6kW Hydro Box (HN0613M NK5)
Terminal Device	RAD(H)
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Water Temp. or Air Temp.
External Pump	Controlled by THERMA V

SYMBOL & LEGENDS

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



NOTE

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2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.
5. There is the case where the internal water pump in the unit operates while all zone valves are closed, so one of the hydronic separator, buffer tank, bypass valve, and towel radiator must be installed.
6. If hydronic separator or 4 ports buffer tank is installed, external water pump in the secondary circuit must be installed. In this case, self-controlled water pump must be used to prevent operation when all zone valves are closed.

ACCESSORIES LG

RS3 Controller (Default)
A wired remote controller with built-in temperature sensor.
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)

Extension Wire for RS3 Controller (PZCWRC1)
Cable length 10m

Cover Plate (PDC-HK10)
A device to fill the blank space of the Indoor Unit front panel when the remote controller is relocated indoors.

Wi-Fi Modem (PWFMDD200)
A control device that enables wireless communication with internet router.
Including USB cable 0.6m and extension cable 0.5m

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.

LG Energy Storage System (ESS)
A device/system that stores electricity from power systems(solar panels) in a battery and discharges it when needed

3RD PARTY ACCESSORIES

Buffer Tank (Option)
The 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. Also it can prevents frequent On/Off operation of heat pump, especially when multi-zone control is used and all valves for each zone are closed.

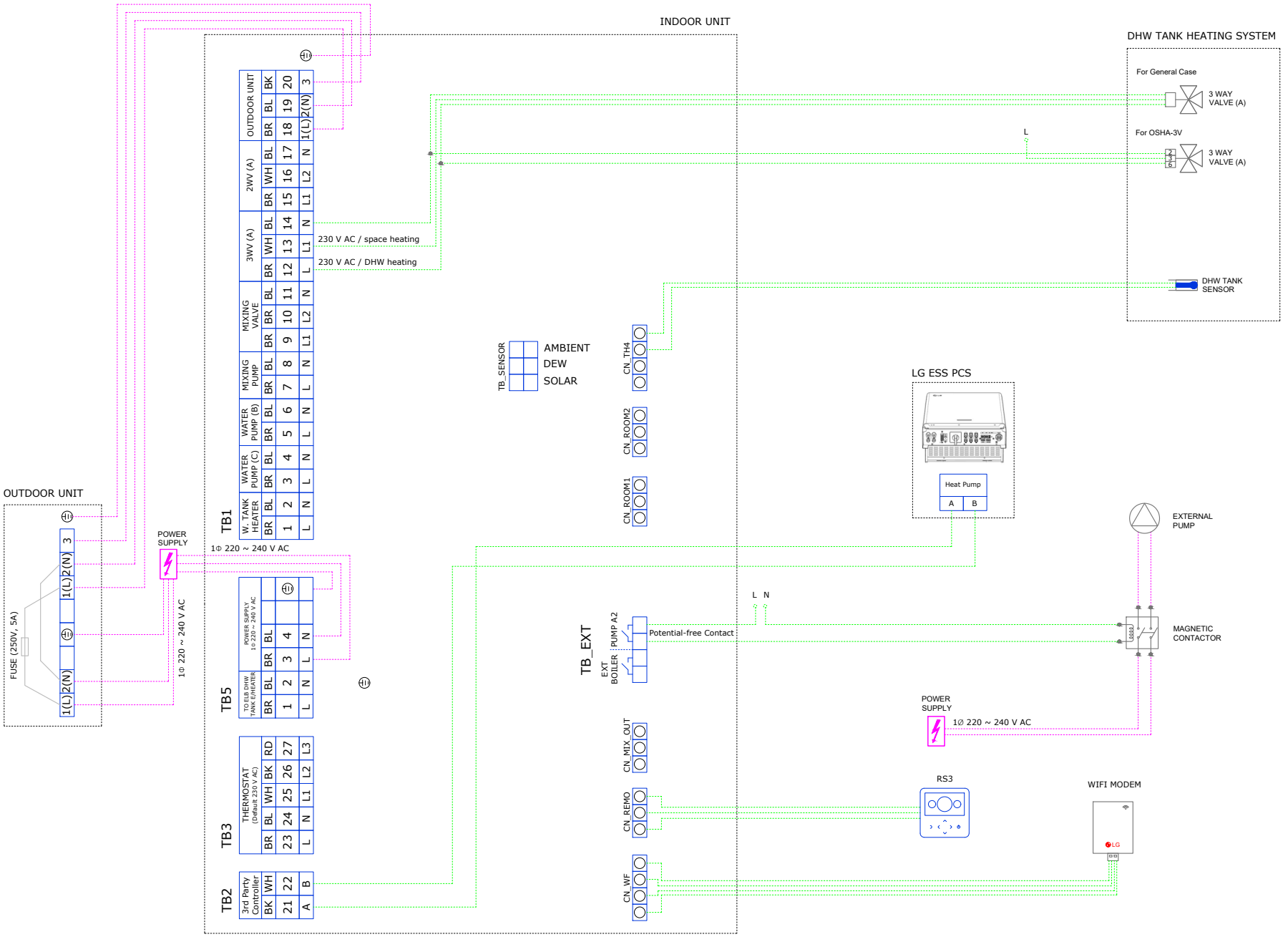
External Pump
An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.

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. In particular, in the case of a replacement, it is mandatory to install.

PV Solar Panel
Solar Panel is an assembly of photovoltaic cells mounted in a framework for generating energy. Solar panels use sunlight as a source of energy to generate direct current electricity.

REFERENCED APPLICATION #9 SPACE HEATING AND DHW WITH LG ENERGY STORAGE SYSTEM

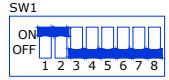
WIRING DIAGRAM



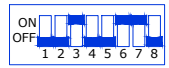
DIP SWITCH SETTINGS

INDOOR UNIT MAIN PCB

SW1



SW2



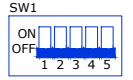
X : OFF / O : ON

DIP SW 1		1	2	3	4	5	6	7	8
MODBUS Communication Type	Master (Link to LG controller)	X							
	Slave (Link to 3rd party controller)	O							
MODBUS Function	REGIN		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 SW 2		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 + DHW tank + Solar thermak 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	O	O	X

OUTDOOR UNIT MAIN PCB

SW1



X : OFF / O : ON

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

INSTALLER SETTINGS ON RS3

Detailed Installer Setting	Value
Configuration > Select Temperature Sensor > Control Standard	Air + Water *
Configuration > Select Temperature Sensor > Sensor Location	Remote Control *
Configuration > Use Heating Tank Heater	Not Use
Configuration > Mixing Circuit	Not Use
Configuration > Use External Pump	Heat&Cool
Configuration > RMC master/slave	Master
Domestic Hot Water > Recirculation time > DHW recirculation	Not Use
Connectivity > Central control address > Access Code (Hex)	-
Connectivity > Modbus address > Access Code (Hex) **	21
Connectivity > 3rd Party Boiler	Not Use
Connectivity > Meter Interface > Modbus Address	Not Use
Connectivity > Energy state > ESS use type	Use Modbus
Connectivity > Thermostat control type	-

* It may change depending on the control method.
** Please do not confuse the path with other similar paths.

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.
3. In addition to the installer settings above, you may need to change additional detailed installer settings. Please refer to the installation manual for details.

REFERENCED APPLICATION #10 SPACE HEATING, COOLING, AND DHW WITH THERMOSTAT

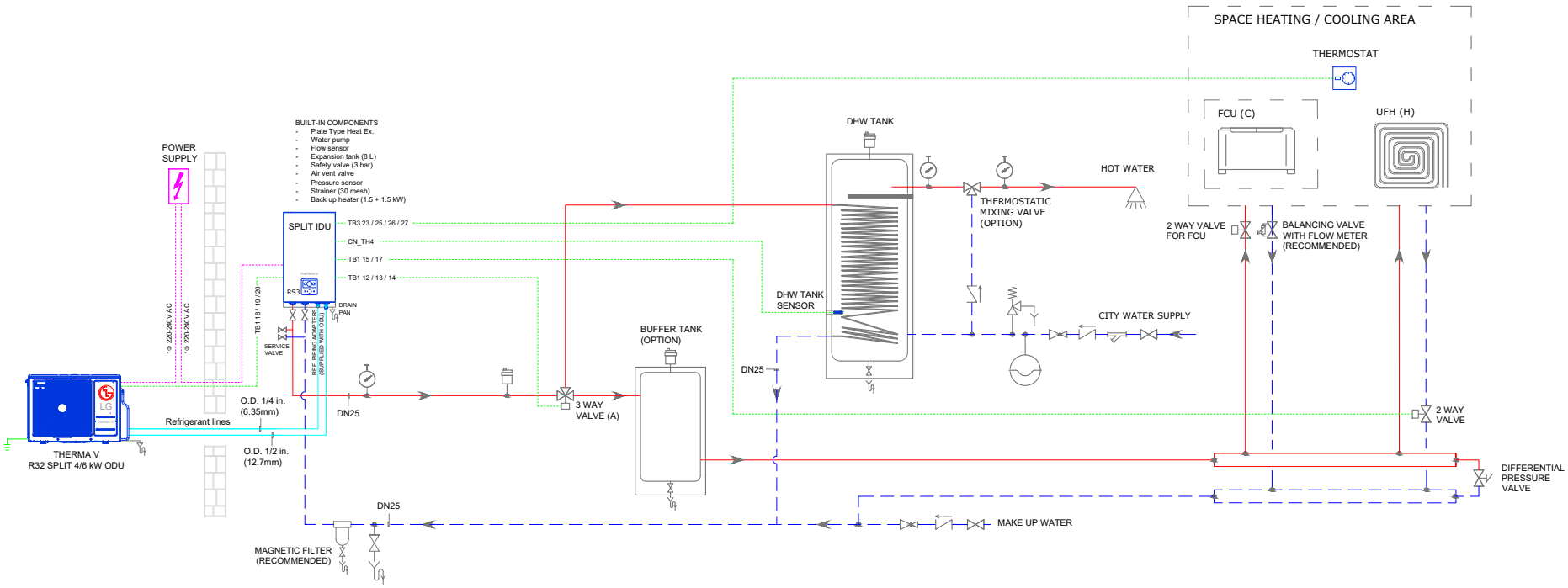
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating, Cooling, and DHW with Thermostat
Product	New R32 Split 4/6kW Hydro Box (HN0613M NK5)
Terminal Device	UFH(H) + FCU(C)
Main Controller	Thermostat
Control Setting of LG RS3 Controller	Based on Water Temp.
External Pump	No Installed

SYMBOL & LEGENDS

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



NOTE

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2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.
5. There is the case where the internal water pump in the unit operates while all zone valves are closed, so one of the hydronic separator, buffer tank, bypass valve, and towel radiator must be installed.
6. If hydronic separator or 4 ports buffer tank is installed, external water pump in the secondary circuit must be installed. In this case, self-controlled water pump must be used to prevent operation when all zone valves are closed.

ACCESSORIES LG

RS3 Controller (Default)
A wired remote controller with built-in temperature sensor.
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)

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.

Drain Pan (PHDPC)
A device to collect condensation during cooling operation. Including several insulators.

3RD PARTY ACCESSORIES

Buffer Tank (Option)
The 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. Also it can prevents frequent On/Off operation of heat pump, especially when multi-zone control is used and all valves for each zone are closed.

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. In particular, in the case of a replacement, it is mandatory to install.

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.

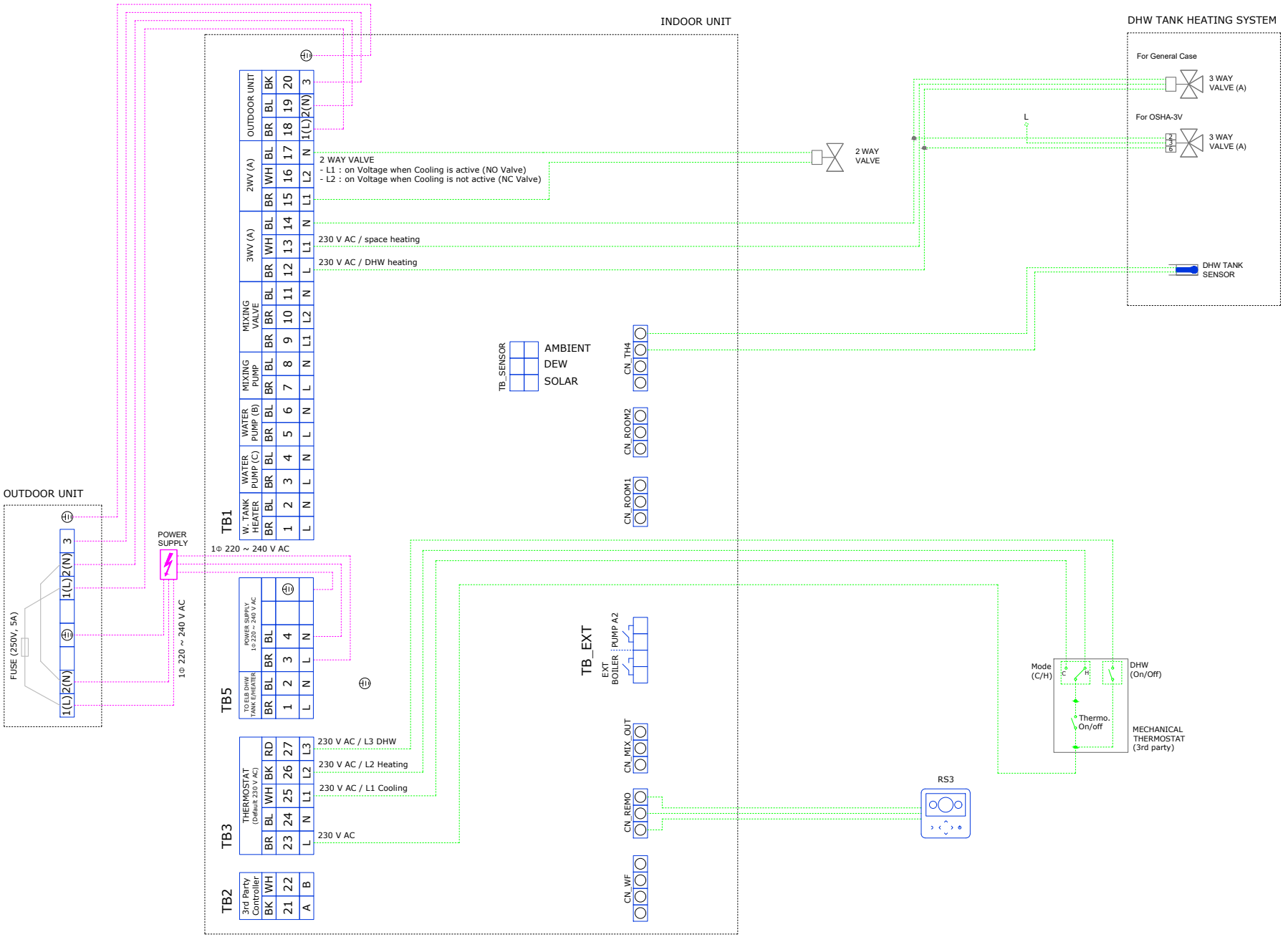
2 Way Valve for FCU
A isolation valve paired with FCU to allow whether water flows into the water circuit.

Balancing Valve with flow meter (Recommended)
The balancing valve is a hydraulic device that accurately regulates the flow rate of heating medium supplied to FCU's. A correct balancing of hydraulic systems is essential to guarantee the system operation according to its design specifications, high thermal comfort and low energy consumption. The valves are equipped with a flow meter for a direct reading of the regulated flow rate.

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

REFERENCED APPLICATION #10 SPACE HEATING, COOLING, AND DHW WITH THERMOSTAT

WIRING DIAGRAM

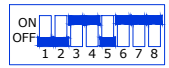


DIP SWITCH SETTINGS

INDOOR UNIT MAIN PCB

SW1

SW2



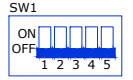
X : OFF / O : ON

DIP SW 1		1	2	3	4	5	6	7	8
MODBUS Communication Type	Master (Link to LG controller)	X							
	Slave (Link to 3rd party controller)	O							
MODBUS Function	REGIN		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 SW 2		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 + DHW tank + Solar thermak 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	O	O	X

OUTDOOR UNIT MAIN PCB

SW1



X : OFF / O : ON

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

INSTALLER SETTINGS ON RS3

Detailed Installer Setting	Value
Configuration > Select Temperature Sensor > Control Standard	Water
Configuration > Select Temperature Sensor > Sensor Location	-
Configuration > Use Heating Tank Heater	Not Use
Configuration > Mixing Circuit	Not Use
Configuration > Use External Pump	Not Use
Configuration > RMC master/slave	Master
Domestic Hot Water > Recirculation time > DHW recirculation	Not Use
Connectivity > Central control address > Access Code (Hex)	-
Connectivity > Modbus address > Access Code (Hex)	-
Connectivity > 3rd Party Boiler	Not Use
Connectivity > Meter Interface > Modbus Address	Not Use
Connectivity > Energy state > ESS use type	Not Use
Connectivity > Thermostat control type	Heat&Cool (DHW *

* It may change depending on the type of thermostat.

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.
3. In addition to the installer settings above, you may need to change additional detailed installer settings. Please refer to the installation manual for details.

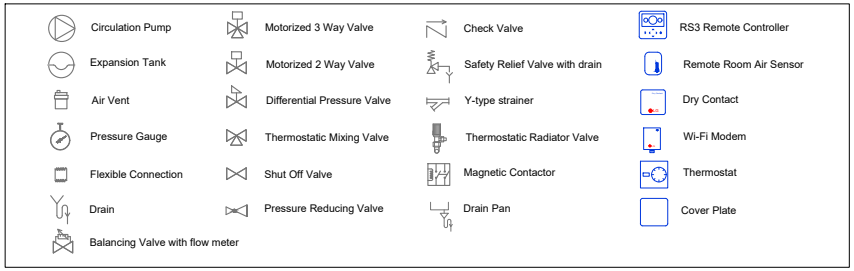
REFERENCED APPLICATION #11 SPACE HEATING AND DHW WITH EXTERNAL BOILER

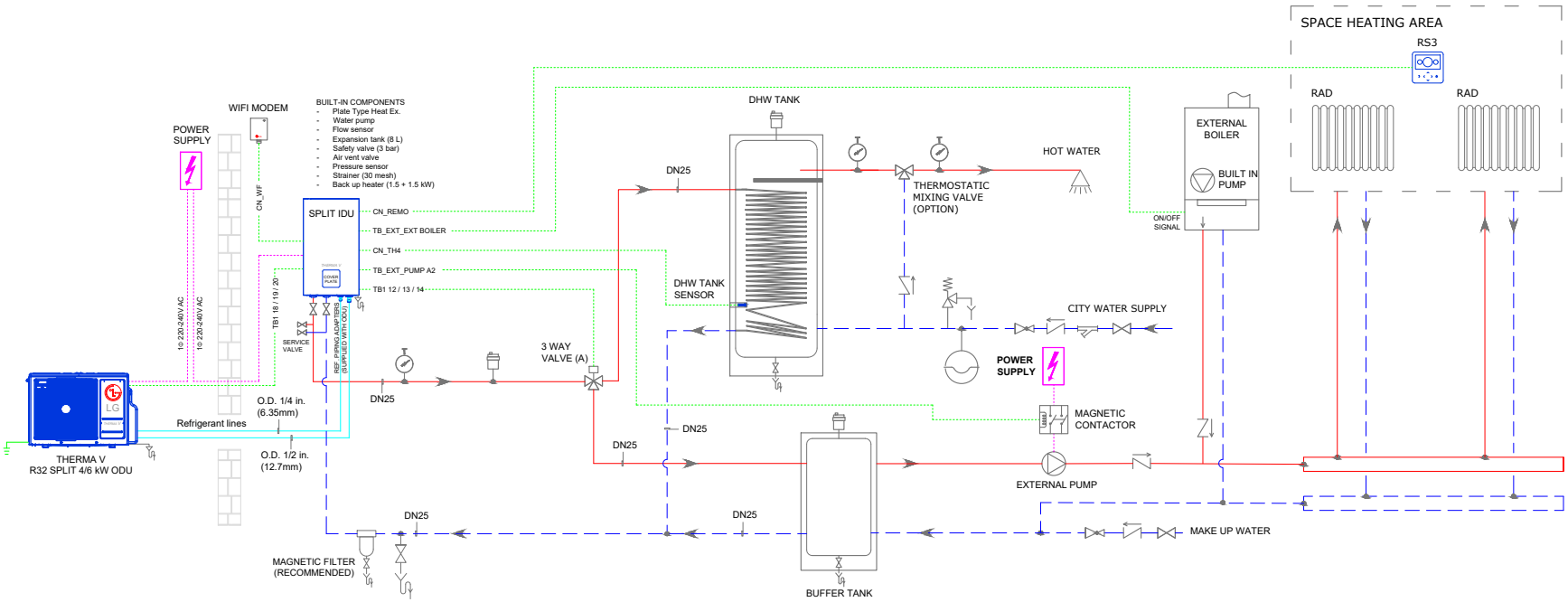
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating & DHW with External Boiler
Product	New R32 Split 4/6kW Hydro Box (HN0613M NK5)
Terminal Device	RAD(H)
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Water Temp. or Air Temp.
External Pump	Controlled by THERMA V

SYMBOL & LEGENDS





NOTE

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2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.
5. There is the case where the internal water pump in the unit operates while all zone valves are closed, so one of the hydronic separator, buffer tank, bypass valve, and towel radiator must be installed.
6. If hydronic separator or 4 ports buffer tank is installed, external water pump in the secondary circuit must be installed. In this case, self-controlled water pump must be used to prevent operation when all zone valves are closed.

ACCESSORIES LG

RS3 Controller (Default)
A wired remote controller with built-in temperature sensor.
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)

Extension Wire for RS3 Controller (PZCWRC1)
Cable length 10m

Cover Plate (PDC-HK10)
A device to fill the blank space of the Indoor Unit front panel when the remote controller is relocated indoors.

Wi-Fi Modem (PWFMDD200)
A control device that enables wireless communication with internet router.
Including USB cable 0.6m and extension cable 0.5m

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

Buffer Tank
The 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. Also it can prevents frequent On/Off operation of heat pump, especially when multi-zone control is used and all valves for each zone are closed.

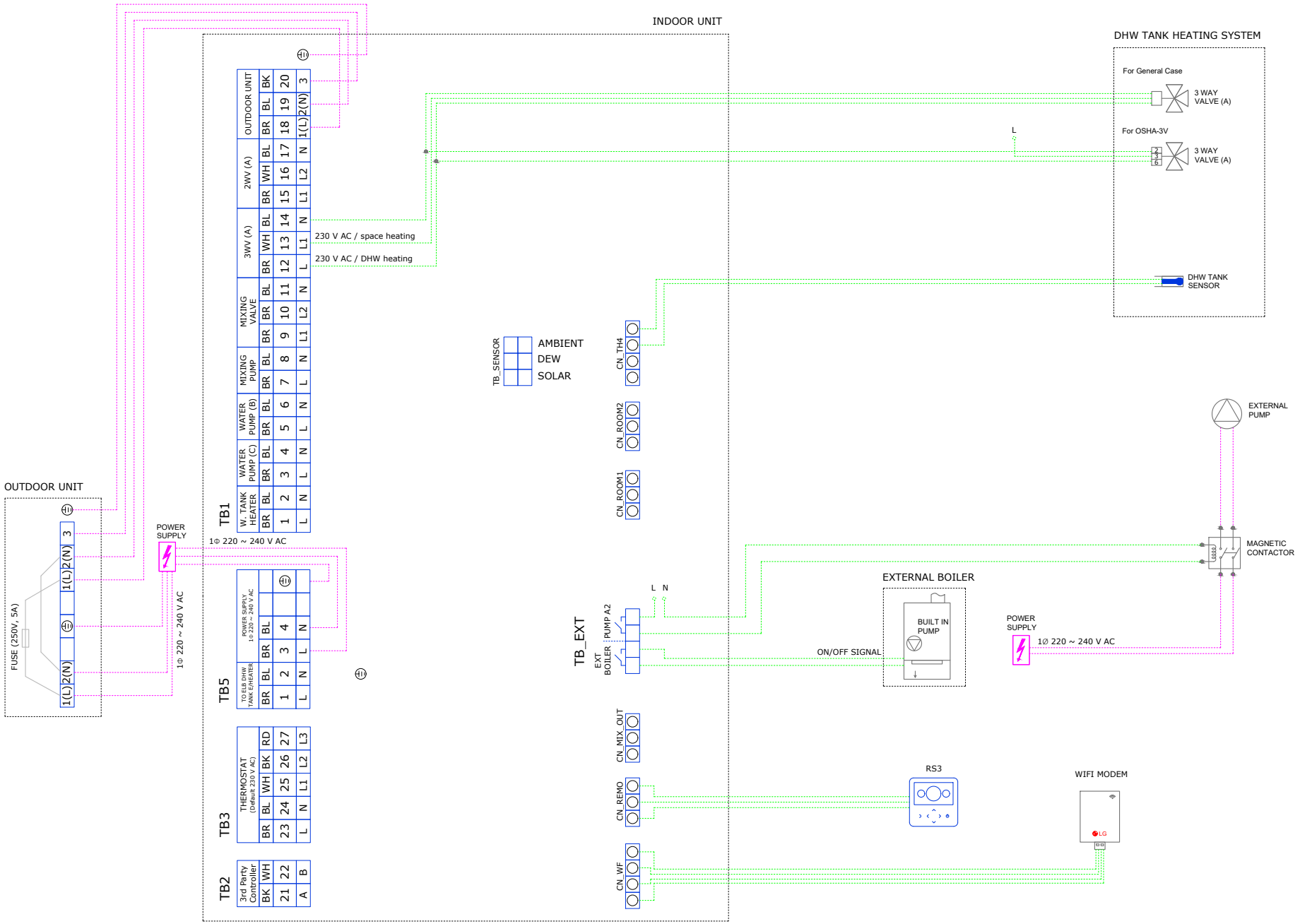
External Pump
An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.

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. In particular, in the case of a replacement, it is mandatory to install.

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.

REFERENCED APPLICATION #11 SPACE HEATING AND DHW WITH EXTERNAL BOILER

WIRING DIAGRAM

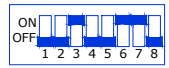


DIP SWITCH SETTINGS

INDOOR UNIT MAIN PCB

SW1

SW2



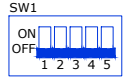
X : OFF / O : ON

DIP SW 1		1	2	3	4	5	6	7	8
MODBUS Communication Type	Master (Link to LG controller)	X							
	Slave (Link to 3rd party controller)	O							
MODBUS Function	REGIN		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 SW 2		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 + DHW tank + Solar thermak 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	O	O	X

OUTDOOR UNIT MAIN PCB

SW1



X : OFF / O : ON

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

INSTALLER SETTINGS ON RS3

Detailed Installer Setting	Value
Configuration > Select Temperature Sensor > Control Standard	Air + Water *
Configuration > Select Temperature Sensor > Sensor Location	Remote Control *
Configuration > Use Heating Tank Heater	Not Use
Configuration > Mixing Circuit	Not Use
Configuration > Use External Pump	Heat&Cool
Configuration > RMC master/slave	Master
Domestic Hot Water > Recirculation time > DHW recirculation	Not Use
Connectivity > Central control address > Access Code (Hex)	-
Connectivity > Modbus address > Access Code (Hex)	-
Connectivity > 3rd Party Boiler	Use
Connectivity > Meter Interface > Modbus Address	Not Use
Connectivity > Energy state > ESS use type	Not Use
Connectivity > Thermostat control type	-

* It may change depending on the control method.

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.
3. In addition to the installer settings above, you may need to change additional detailed installer settings. Please refer to the installation manual for details.

REFERENCED APPLICATION #12 SPACE HEATING AND DHW WITH SOLAR THERMAL SYSTEM

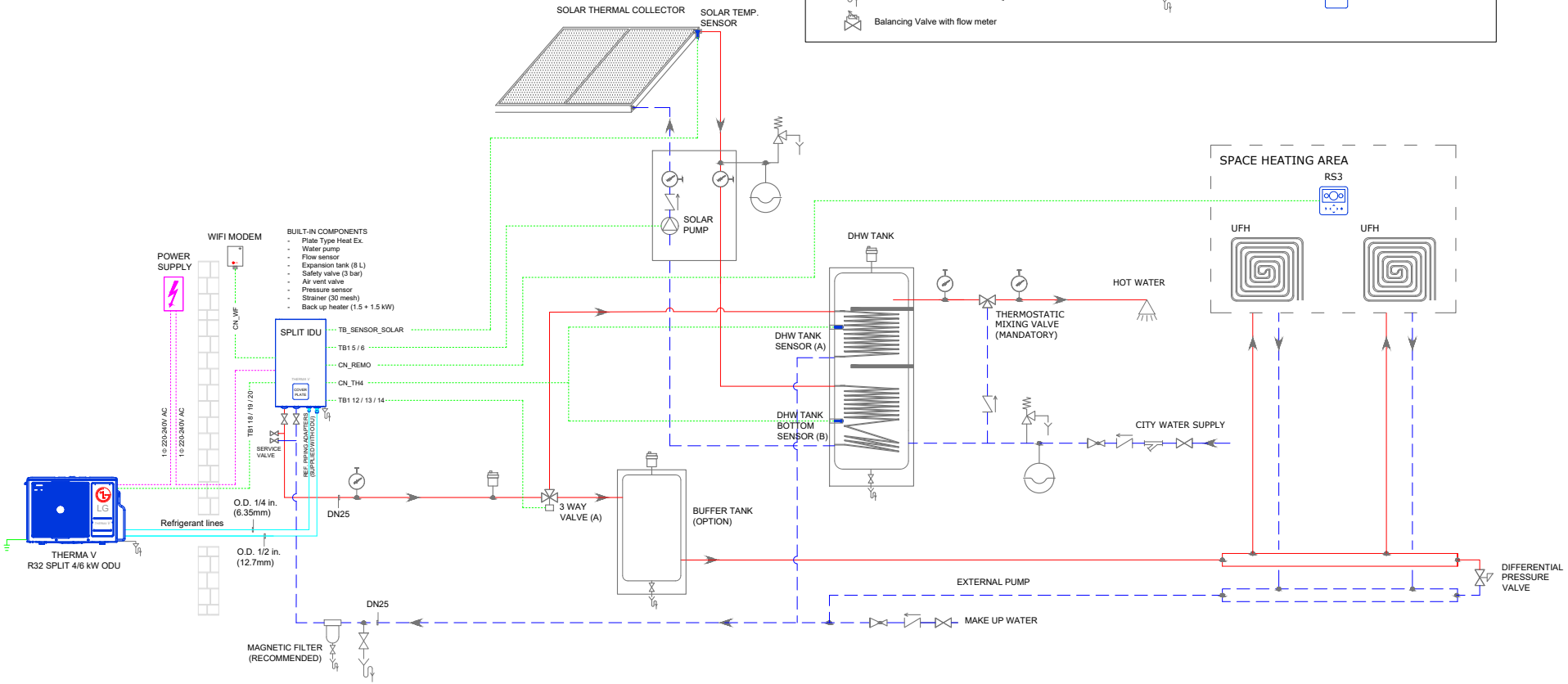
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating and DHW with Solar Thermal System
Product	New R32 Split 4/6kW Hydro Box (HN0613M NK5)
Terminal Device	UFH(H)
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Water Temp. or Air Temp.
External Pump	No Installed

SYMBOL & LEGENDS

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



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2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.
5. There is the case where the internal water pump in the unit operates while all zone valves are closed, so one of the hydronic separator, buffer tank, bypass valve, and towel radiator must be installed.
6. If hydronic separator or 4 ports buffer tank is installed, external water pump in the secondary circuit must be installed. In this case, self-controlled water pump must be used to prevent operation when all zone valves are closed.

ACCESSORIES LG

RS3 Controller (Default)
A wired remote controller with built-in temperature sensor.
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)

Wi-Fi Modem (PWFMDD200)
A control device that enables wireless communication with internet router.
Including USB cable 0.6m and extension cable 0.5m

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)

SOLAR Thermal Kit (PHLLA)
Dual temperature sensors for DHW tank(One for upper and the other for bottom). 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

Buffer Tank (Option)
The 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. Also it can prevents frequent On/Off operation of heat pump, especially when multi-zone control is used and all valves for each zone are closed.

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. In particular, in the case of a replacement, it is mandatory to install.

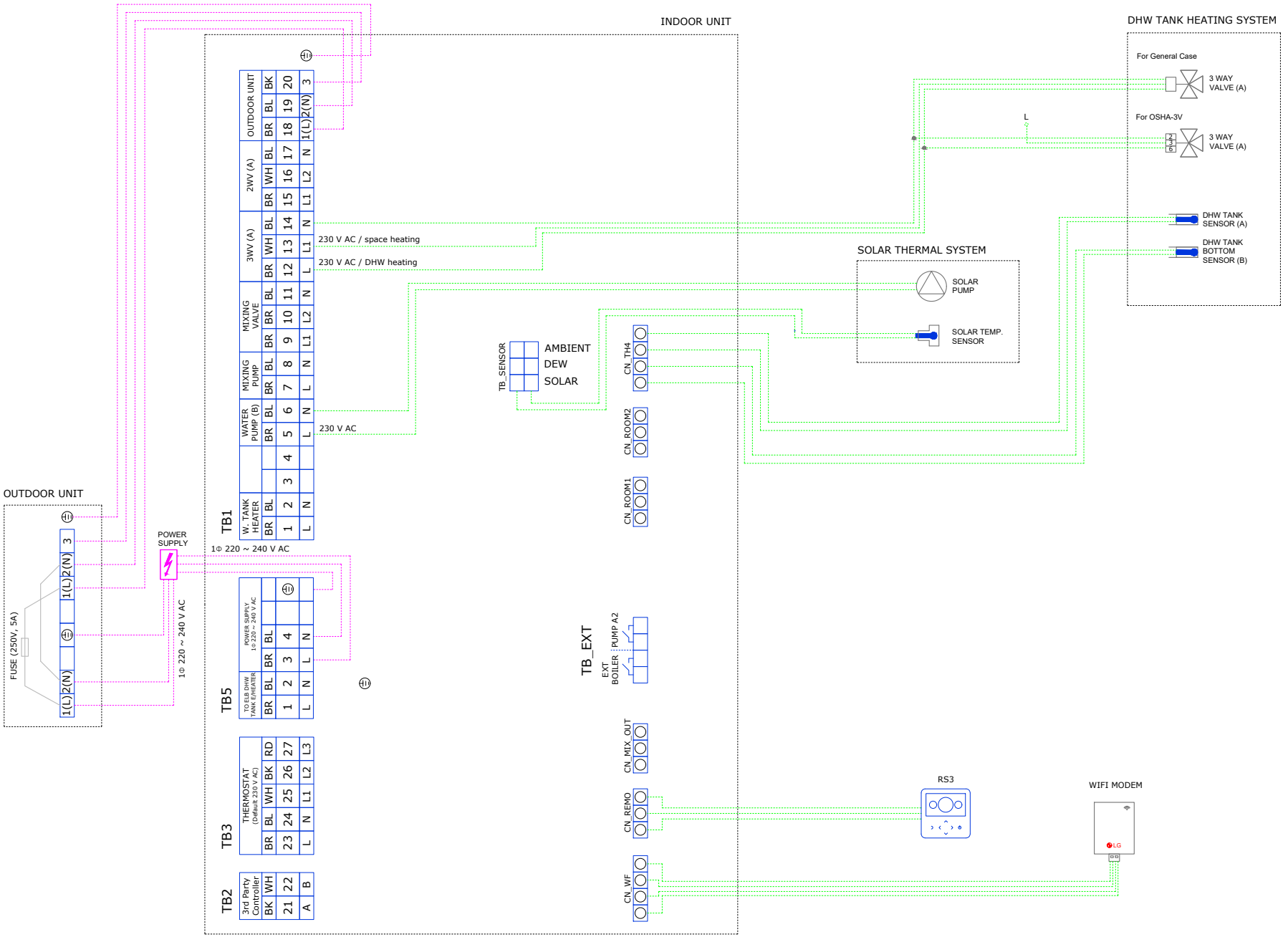
Solar Pump
An external water pump that circulates the water inside solar thermal system.
Controlled by THERMA V with 230V power.

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

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

REFERENCED APPLICATION #12 SPACE HEATING AND DHW WITH SOLAR THERMAL SYSTEM

WIRING DIAGRAM



DIP SWITCH SETTINGS

INDOOR UNIT MAIN PCB

SW1

SW2

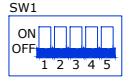
X : OFF / O : ON

DIP SW 1		1	2	3	4	5	6	7	8
MODBUS Communication Type	Master (Link to LG controller)	X							
	Slave (Link to 3rd party controller)	O							
MODBUS Function	REGIN		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 SW 2		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 + DHW tank + Solar thermak 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	O	O	X

OUTDOOR UNIT MAIN PCB

SW1



X : OFF / O : ON

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

INSTALLER SETTINGS ON RS3

Detailed Installer Setting	Value
Configuration > Select Temperature Sensor > Control Standard	Air + Water *
Configuration > Select Temperature Sensor > Sensor Location	Remote Control *
Configuration > Use Heating Tank Heater	Not Use
Configuration > Mixing Circuit	Not Use
Configuration > Use External Pump	Not Use
Configuration > RMC master/slave	Master
Domestic Hot Water > Recirculation time > DHW recirculation	Not Use
Connectivity > Central control address > Access Code (Hex)	-
Connectivity > Modbus address > Access Code (Hex)	-
Connectivity > 3rd Party Boiler	Not Use
Connectivity > Meter Interface > Modbus Address	Not Use
Connectivity > Energy state > ESS use type	Not Use
Connectivity > Thermostat control type	-

* It may change depending on the control method.

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.
3. In addition to the installer settings above, you may need to change additional detailed installer settings. Please refer to the installation manual for details.

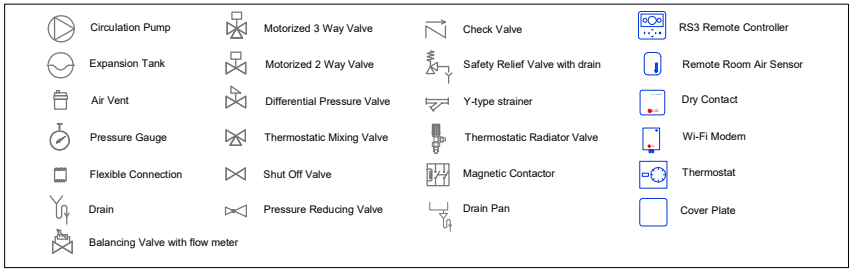
REFERENCED APPLICATION #11 SPACE HEATING WITH EXTERNAL BOILER

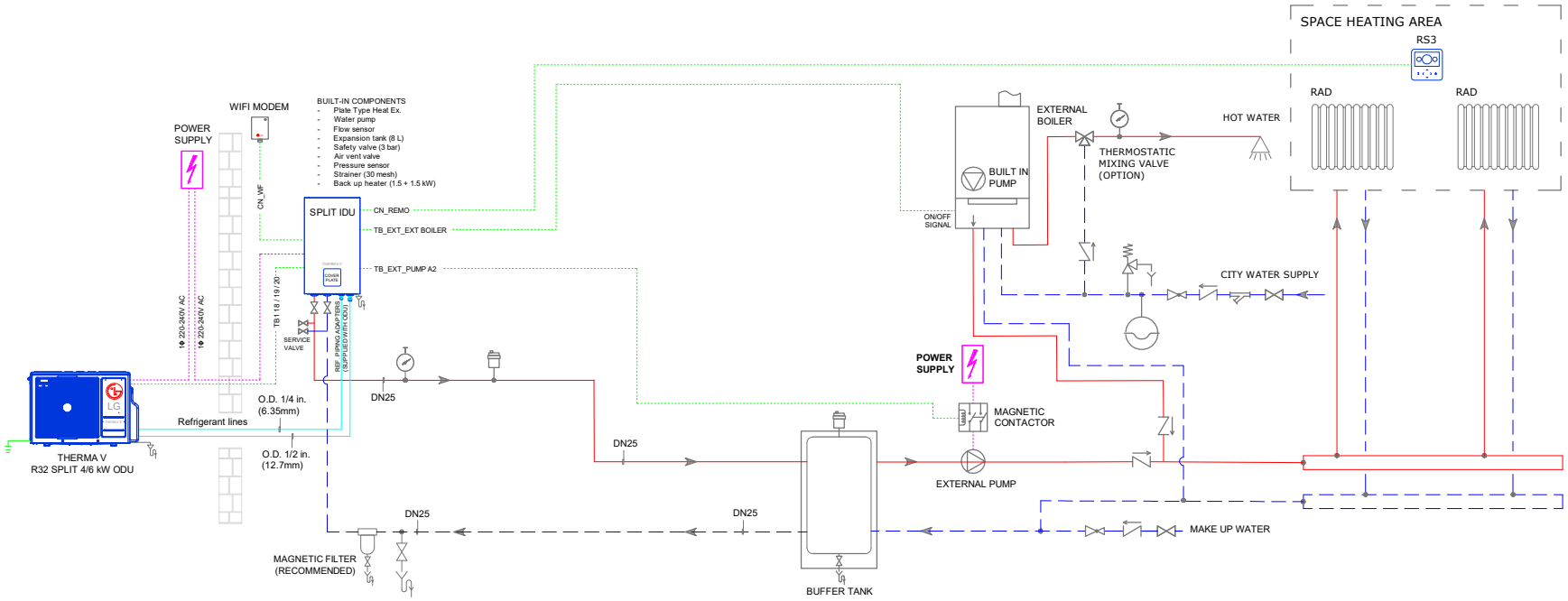
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating with External Boiler
Product	New R32 Split 4/6kW Hydro Box (HN0613M NK5)
Terminal Device	RAD(H)
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Water Temp. or Air Temp.
External Pump	Controlled by THERMA V

SYMBOL & LEGENDS





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2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
3. Must fit the insulations on the entire water piping including valves and connections.
4. In a cold climate region, water drainage from outdoor unit must be frost-proof.
5. There is the case where the internal water pump in the unit operates while all zone valves are closed, so one of the hydronic separator, buffer tank, bypass valve, and towel radiator must be installed.
6. If hydronic separator or 4 ports buffer tank is installed, external water pump in the secondary circuit must be installed. In this case, self-controlled water pump must be used to prevent operation when all zone valves are closed.
7. Please be aware of that an installer need to set the water outlet temperature from a gas boiler as required water temperature for own hydraulic system and also change the capacity of the gas boiler for own hydraulic system accordingly.
8. Beware that when the gas boiler is active it's only controlled by the outdoor temperature.

ACCESSORIES LG

RS3 Controller (Default)
A wired remote controller with built-in temperature sensor.
Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)

Extension Wire for RS3 Controller (PZCWRC1)
Cable length 10m

Cover Plate (PDC-HK10)
A device to fill the blank space of the Indoor Unit front panel when the remote controller is relocated indoors.

Wi-Fi Modem (PWFMDD200)
A control device that enables wireless communication with internet router.
Including USB cable 0.6m and extension cable 0.5m

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

Buffer Tank
The 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. Also it can prevents frequent On/Off operation of heat pump, especially when multi-zone control is used and all valves for each zone are closed.

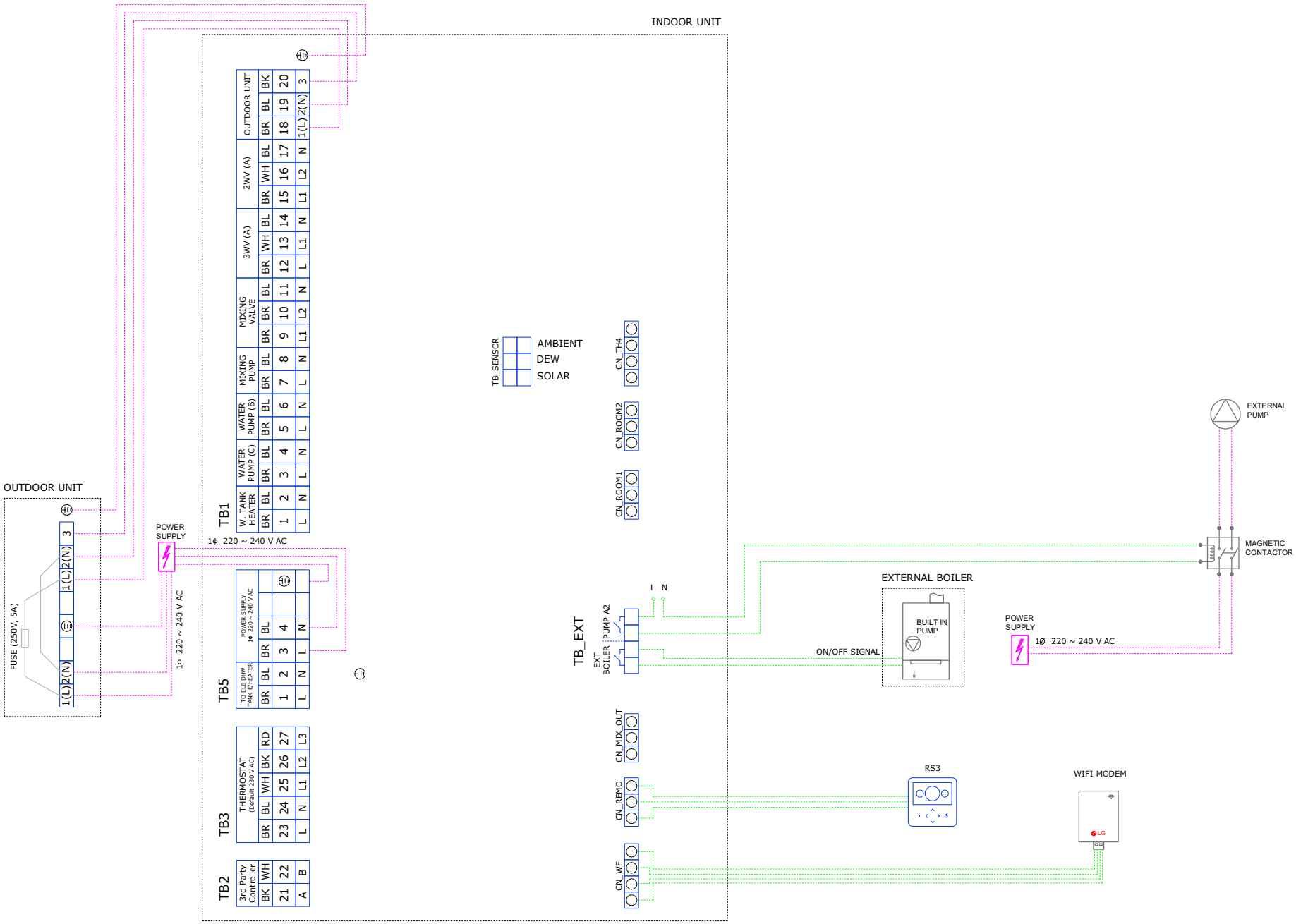
External Pump
An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.

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. In particular, in the case of a replacement, it is mandatory to install.

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.

REFERENCED APPLICATION #11 SPACE HEATING WITH EXTERNAL BOILER

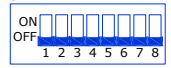
WIRING DIAGRAM



DIP SWITCH SETTINGS

INDOOR UNIT MAIN PCB

SW1



SW2

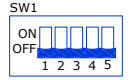
X : OFF / O : ON

DIP SW 1		1	2	3	4	5	6	7	8
MODBUS Communication Type	Master (Link to LG controller)	X							
	Slave (Link to 3rd party controller)	O							
MODBUS Function	REGIN		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 SW 2		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 + DHW tank + Solar thermak 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	O	O	X

OUTDOOR UNIT MAIN PCB

SW1



X : OFF / O : ON

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

INSTALLER SETTINGS ON RS3

Detailed Installer Setting	Value
Configuration > Select Temperature Sensor > Control Standard	Air + Water *
Configuration > Select Temperature Sensor > Sensor Location	Remote Control *
Configuration > Use Heating Tank Heater	Not Use
Configuration > Mixing Circuit	Not Use
Configuration > Use External Pump	Heat&Cool
Configuration > RMC master/slave	Master
Domestic Hot Water > Recirculation time > DHW recirculation	Not Use
Connectivity > Central control address > Access Code (Hex)	-
Connectivity > Modbus address > Access Code (Hex)	-
Connectivity > 3rd Party Boiler	Use
Connectivity > Meter Interface > Modbus Address	Not Use
Connectivity > Energy state > ESS use type	Not Use
Connectivity > Thermostat control type	-

* It may change depending on the control method.

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.
3. In addition to the installer settings above, you may need to change additional detailed installer settings. Please refer to the installation manual for details.