

























GENERAL

SYMBOL & LEGENDS

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

SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories		
Full Name	Description	Part No.
RS3 wired remote controller	A wired remote controller with built-in temperature sensor. Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default

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

ACCESSORY LIST

Full Name	LG Part No.	Scope of supply	
		LG	3rd party
2 Remo Cable	PZCWRC2	O	
2way Valve	-		O
3way Valve	OSHA-3V	O	O
Air Vent Valve	-		O
Buffer Tank	For IWT, OSHB-40KT	O	O
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	O	
Back Up Heater	HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	O	O
Circuit Breaker	-	O	O
Check Valve	-		O
DHW Booster Heater	Integrated with DHW Tank	O	O
Dry Contact	PDRYCB000 PDRYCB320	O	
Direct Digital Controller	-		O
Differential Pressure Valve	-		O
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	O	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	O	
Drain Valve	-		O
External Boiler	-		O
Energy Meter	-		O
External Pump	-		O
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	O	O
Flexible Connection	-		O
Fan Coil Unit	-		O
Flow Sensor	-		O
Heat Meter	-		O
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	O	O
Isolation Valve	-		O
Magnetic Contactor	-	O	O
Magnetic Filter	-		O
Meter Interface	PENKTH000	O	
Mixing Pump	-		O
Mixing Zone Temperature Sensor	PRSTAT5K10	O	
Mixing Valve	-		O
Pressure Gauge	-		O
Plate Heat Exchanger	-		O
Radiator	-		O
Remote Room Air Temperature Sensor	PQRSTA0	O	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	O	
Solar Pump	-		O
Safety Relief Valve	-		O
Strainer	-		O
Solar Temperature Sensor (PT-1000)	-		O
Service Valve	-		O
Thermostat	-		O
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	O	O
Under Floor Heating Coil	-		O
Wi-Fi Modem	PWFMDD200	O	
Water Temperature Sensor	-		O
Extension Wire for RS3 Controller	PZCWRC1	O	
Cover Plate	PDC-HK10	O	
Drain Pan	PHDPC	O	
LG Central Controller	PACEZA000 (AC Ez Touch) PACSSA000 (AC Smart 5) PACPSA000 (ACP 5)	O	
PI485 Gateway	PMNFP14A1	O	

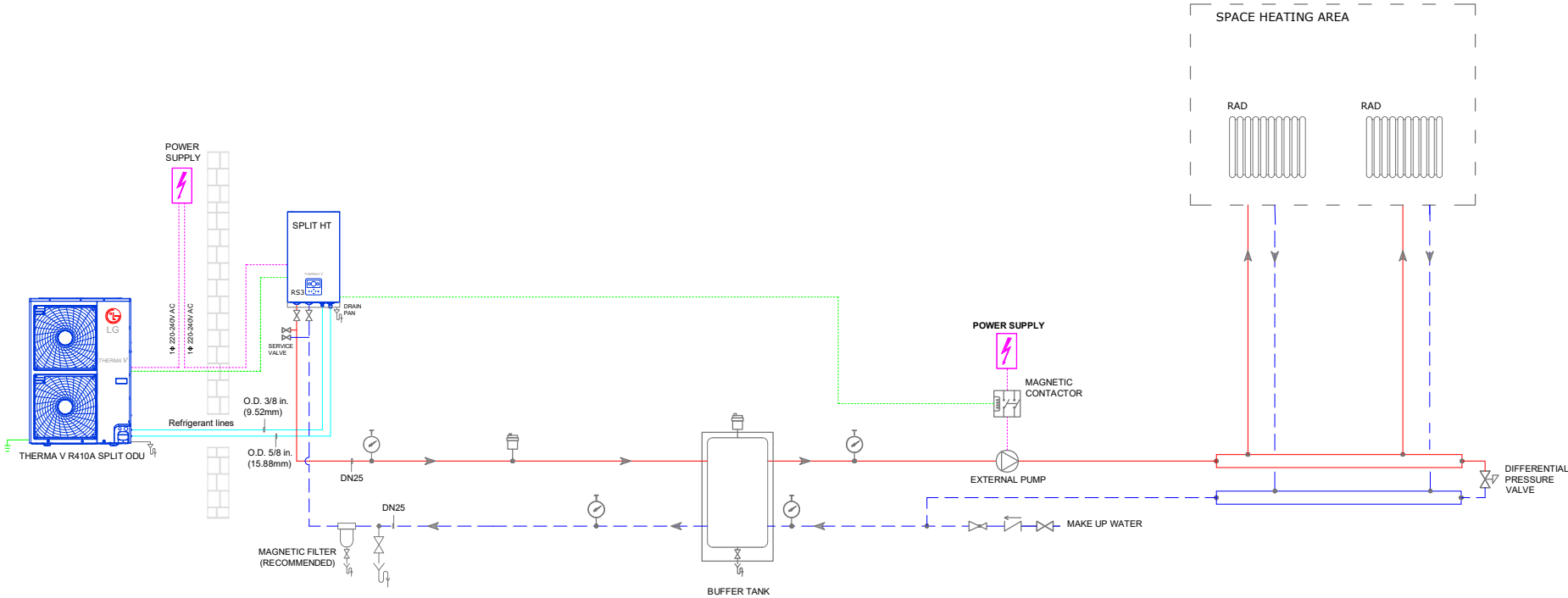
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	Space Heating
Product	HU161HA U33 + HN1610H NK3
Terminal Device	RAD+RAD
Main Controller	RS3
Control Setting of LG RS3 Controller	Based on Water Temp.
External Pump	Controlled by THERMA V

SYMBOL & LEGENDS

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



NOTE

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

LG ACCESSORIES

RS3 Controller (Default)

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

3RD PARTY ACCESSORIES

External Pump

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

Magnetic Filter (Recommended)

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

Buffer Tank

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

2 Way Valve

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

Thermostat

A control device that senses the temperature of a room and performs actions so that the room's temperature is maintained near a desired setpoint. Thermostat must be connected with each 2 Way Valve and FCU where applicable.

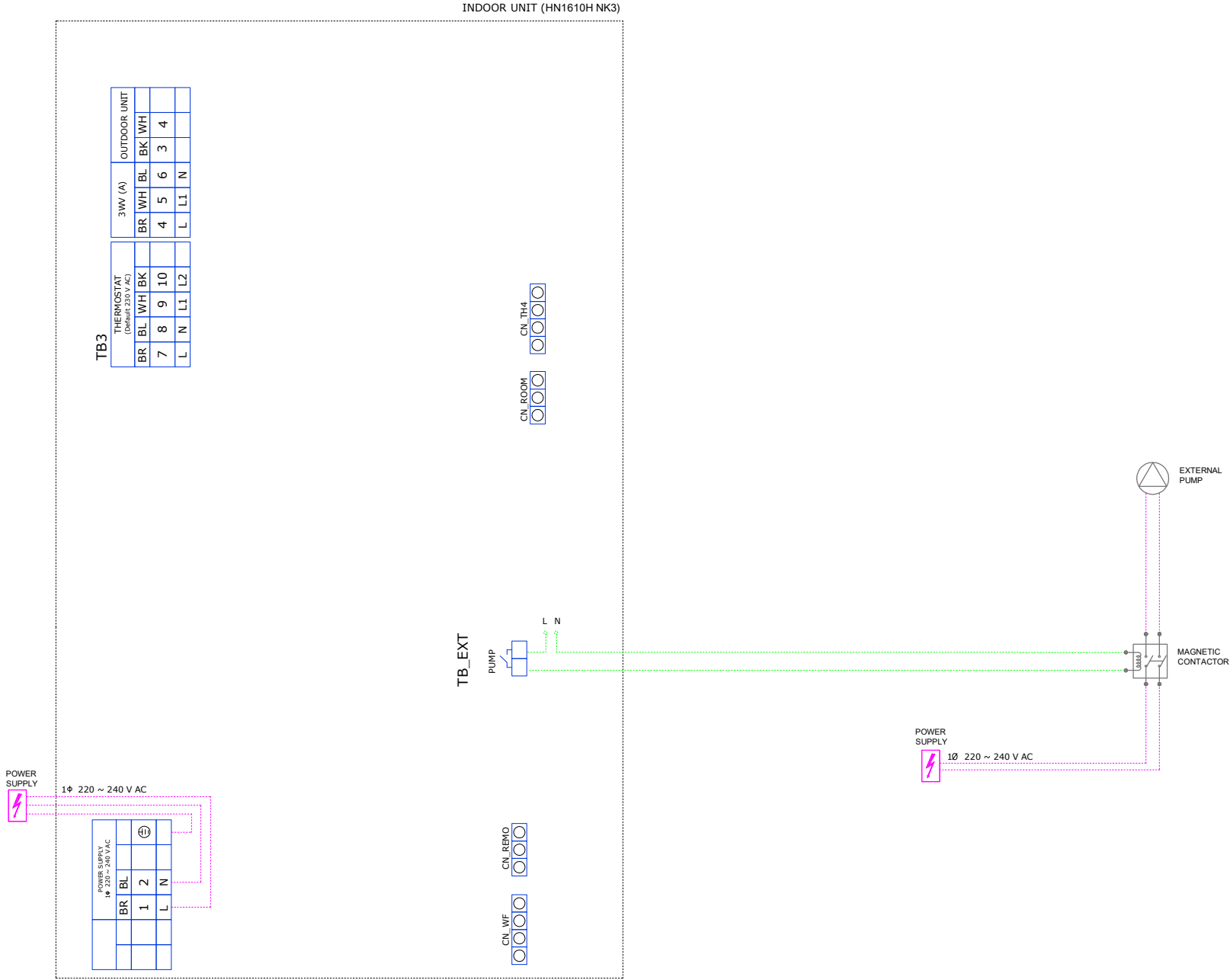
2 Way Valve for Thermostat

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

Differential Pressure Valve

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

WIRING DIAGRAM (1Φ)



DIP SWITCH SETTINGS

INDOOR UNIT MAIN PCB

SW1



SW2



		DIP SW 1								X : OFF / O : ON	
MODBUS Communication Type		Master (Link to LG controller)	X								
MODBUS Function		Slave (Link to 3rd party controller)	O								
MODBUS REGINE		REGINE		X							
MODBUS Function		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								X : OFF / O : ON	
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 + DRW tank are installed		X	O						
		Heat pump + DRW tank + Solar thermal system are installed		O	X						
Heat Pump Cycle		Heating only			X						
		Heating and cooling			O						
Remote Room Air Sensor (Accessory)		Remote room air sensor is not installed			X						
		Remote room air sensor is installed			O						
Selecting Backup Heater Capacity		Backup heater is not used			X	X					
		Half capacity is used			O	X					
Thermostat Installation		Thermostat is not installed								X	
		Thermostat is installed								O	
		default setting	X	X	X	X	X	X	X	O	X

OUTDOOR UNIT MAIN PCB

SW1



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

NOTE

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



LG
Life's Good

REFERENCED APPLICATION #2 SPACE HEATING AND DHW

DWG NO. :

REV. 00

13/08/2021

GENERAL

SYMBOL & LEGENDS

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

SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories		
Full Name	Description	Part No.
RS3 wired remote controller	A wired remote controller with built-in temperature sensor. Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
Extension Wire for RS3 Controller	Cable length 10m	PZCWRC1
Cover Plate	A device to fill the blank space of the Indoor Unit front panel when the remote controller is relocated indoors.	PDC-HK10
Wi-Fi Modem	A control device that enables wireless communication with internet router. Including USB cable 0.6m and extension cable 0.5m	PWFMDD200
3 Way Valve (A)	A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank. Controlled by THERMA V with 230V power. Operating time 3s.	OSHA-3V
Domestic Hot Water Tank	A insulated stainless steel hot water tank with 2.4kW electric heating (230V). Single Coil : OSHW-200F(200L) / 300F(300L) / 500F(500L) Double coil : OSHW-300FD(300L)	Single coil : OSHW-200F/300F/500F
DHW Tank Sensor	A temperature sensor for DHW tank. Cable length 12m.	PHRSTA0
Thermostatic Mixing Valve	A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.	OSHA-MV (3/4") OSHA-MV1 (1")

3rd party accessories	
Full Name	Description
External Pump	An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.
Magnetic Filter	A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.
Differential Pressure Valve	A self pressure regulating valve that provides constant differential pressure between supply and return headers.

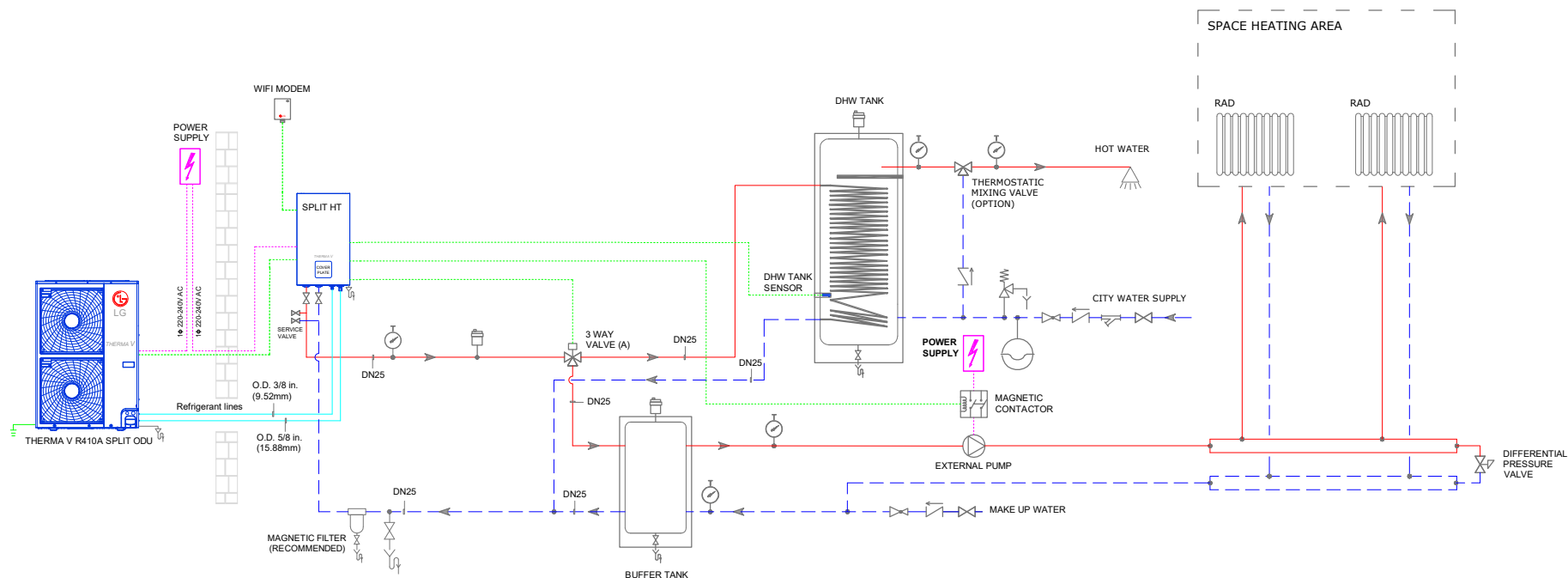
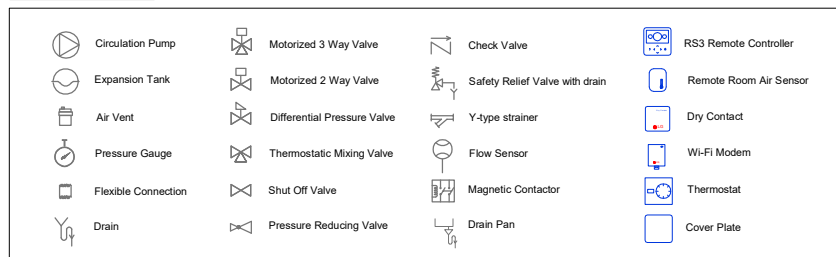
ACCESSORY LIST

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

SYSTEM SUMMARY

Application	Space Heating & DHW
Product	HN1616M NK5 / HN1636M NK5)
Terminal Device	RAD + RAD
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	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.

ACCESSORIES LG

RS3 Controller (Default)

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)

Cover Plate (PDS41K16)
A device to fill the blank space of the Indoor Unit front panel when the remote controller is relocated indoors.

Wi-Fi Modem (PWFMDD200)

WiFi Model (FW-MB200)
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)

3 Way Valve (A) (USHA-SV)
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

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)

DHW Tank Sensor (F-HKSTAG)
A temperature sensor for DHW tank. Cable length 12m

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

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

3RD PARTY ACCESSORIES

External Pump

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)

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

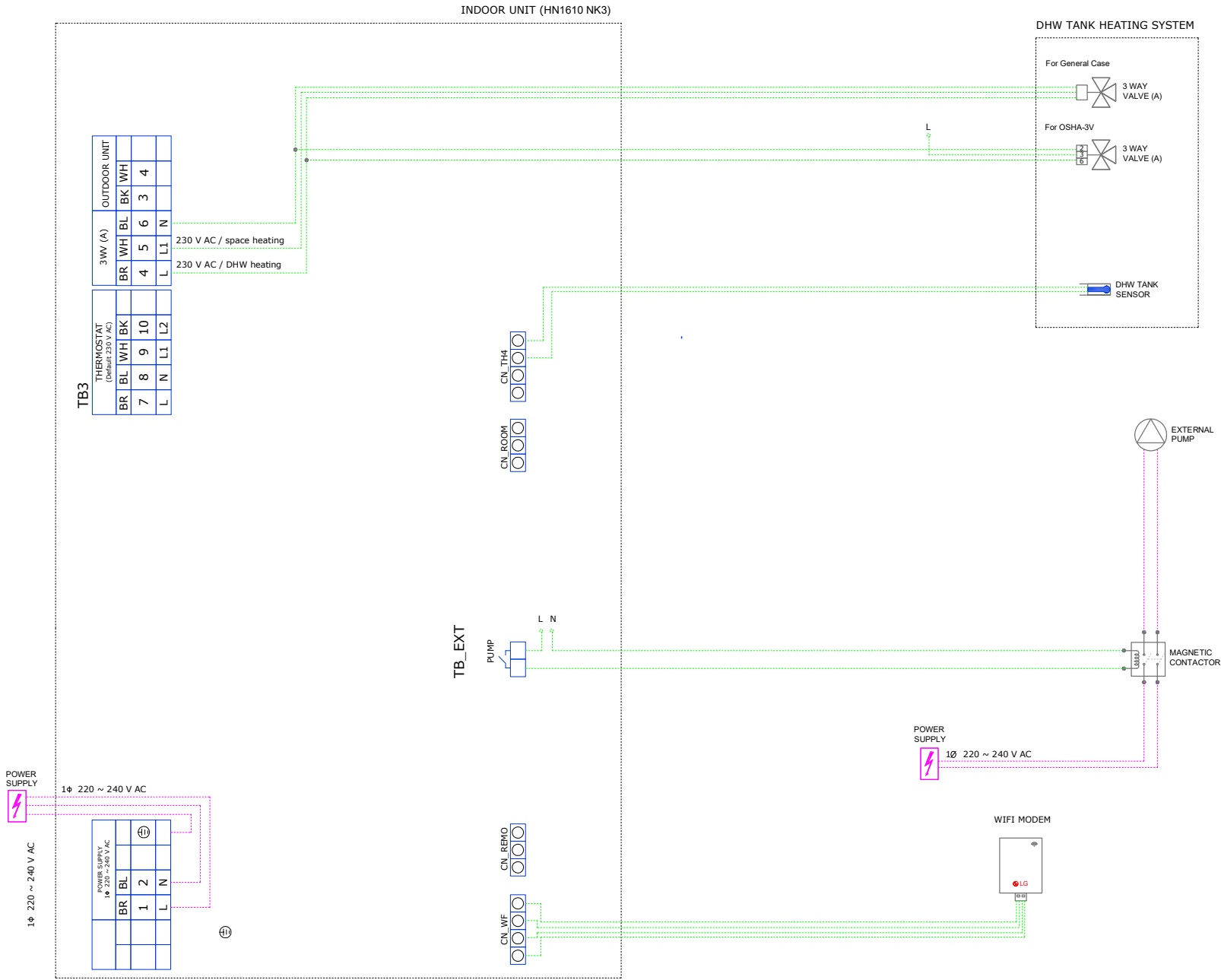
Buffer Tank

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

Differential Pressure Valve

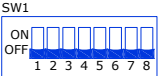
Differential Pressure Valve
A self pressure regulating valve that provides constant differential pressure between supply and return headers.

WIRING DIAGRAM (1ϕ)



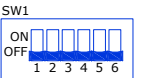
DIP SWITCH SETTINGS

INDOOR UNIT MAIN PCB



		DIP SW 1	1	2	3	4	5	6	7	8	X: OFF / O: ON
MODBUS Communication Type	Master (Link to LG controller)	X									
MODBUS Communication Type	Slave (Link to 3rd party controller)		X								
MODBUS Function	REGINE (Unified Open Protocol)		O								
Antifreeze Mode	Antifreeze is applied (Adjustable anti-freeze temp.)										X
	Antifreeze is not applied										O
	default setting	X	X								X
		DIP SW 2	1	2	3	4	5	6	7	8	X: OFF / O: ON
Indoor Unit Type	As Master	X									
Indoor Unit Type	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 thermal system are installed		O	X							
Heat Pump Cycle	Heating only			X							
	Heating and cooling			O							
Remote Room Air Sensor (Accessory)	Remote room air sensor is not installed				X						
	Remote room air sensor is installed				O						
Selecting Backup Heater Capacity	Backup heater is not used					X	X				
	Half capacity is used					O	X				
	Full capacity is used						O	O			
Thermostat Installation	Thermostat is not installed									X	
	Thermostat is installed									O	
	default setting	X	X	X	X	X	X	O	O	X	

OUTDOOR UNIT MAIN PCB



























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

NOTE

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

GENERAL

SYMBOL & LEGENDS

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

SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories		
Full Name	Description	Part No.
RS3 wired remote controller	A wired remote controller with built-in temperature sensor. Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
AC EZ TOUCH	A central controller that controls THERMA V using LG AP protocol. Max 64 units, PC access supported	PACEZA000
PI485 Gateway	A gateway device that communicates and controls through the central controller. (converting LG protocol to RS485 protocol) It should be installed onto the outdoor unit.	PMNFP14A1

3rd party accessories	
Full Name	Description
External Pump	An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.
Magnetic Filter	A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.
Thermostat	A control device that senses the temperature of a room and performs actions so that the room's temperature is maintained near a desired setpoint. Thermostat must be connected with Therma V, Valve, Pump, and FCU where applicable.
2 Way Valve for Thermostat	A isolation valve paired with thermostat to allow whether water flows into the water circuit.
Differential Pressure Valve	A self pressure regulating valve that provides constant differential pressure between supply and return headers.

ACCESSORY LIST

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

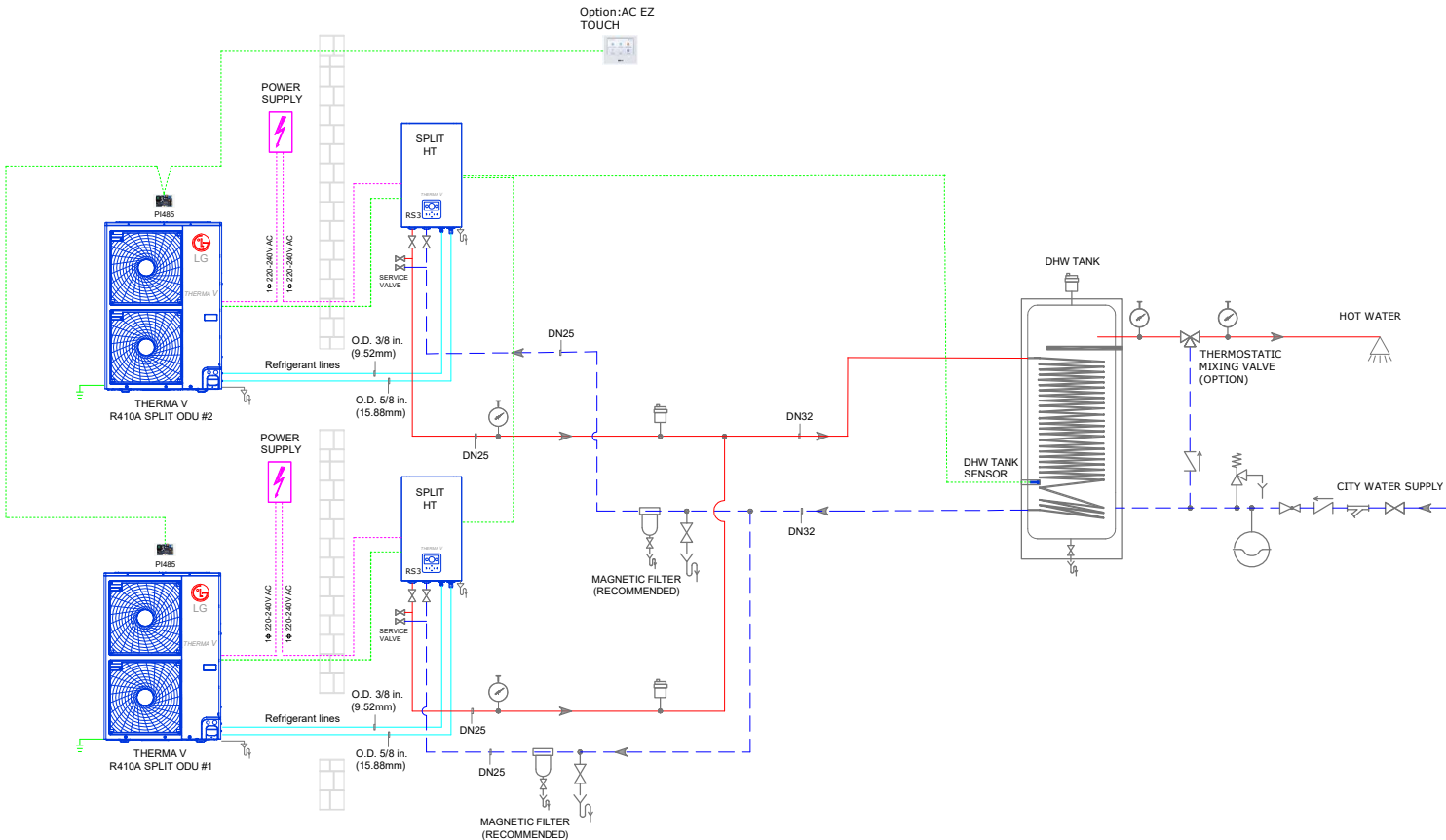
HYDRONIC DIAGRAM

SYSTEM SUMMARY

Application	DHW with Parallel Installation (LG BECON)
Product	HU161HA U33 + HN1610H NK3
Terminal Device	DHW
Main Controller	LG Central Controller & LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Water Temp.
External Pump	

SYMBOL & LEGENDS

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



NOTE

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

ACCESSORIES LG

RS3 Controller (Default)

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

AC Ez Touch (PACEA000)

A central controller that controls THERMA V using LG AP protocol.
Max 64 units, PC access supported

PI485 Gateway (PMNFP14A1)

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

3RD PARTY ACCESSORIES

External Pump

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

Magnetic Filter (Recommended)

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

Buffer Tank

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

Thermostat

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

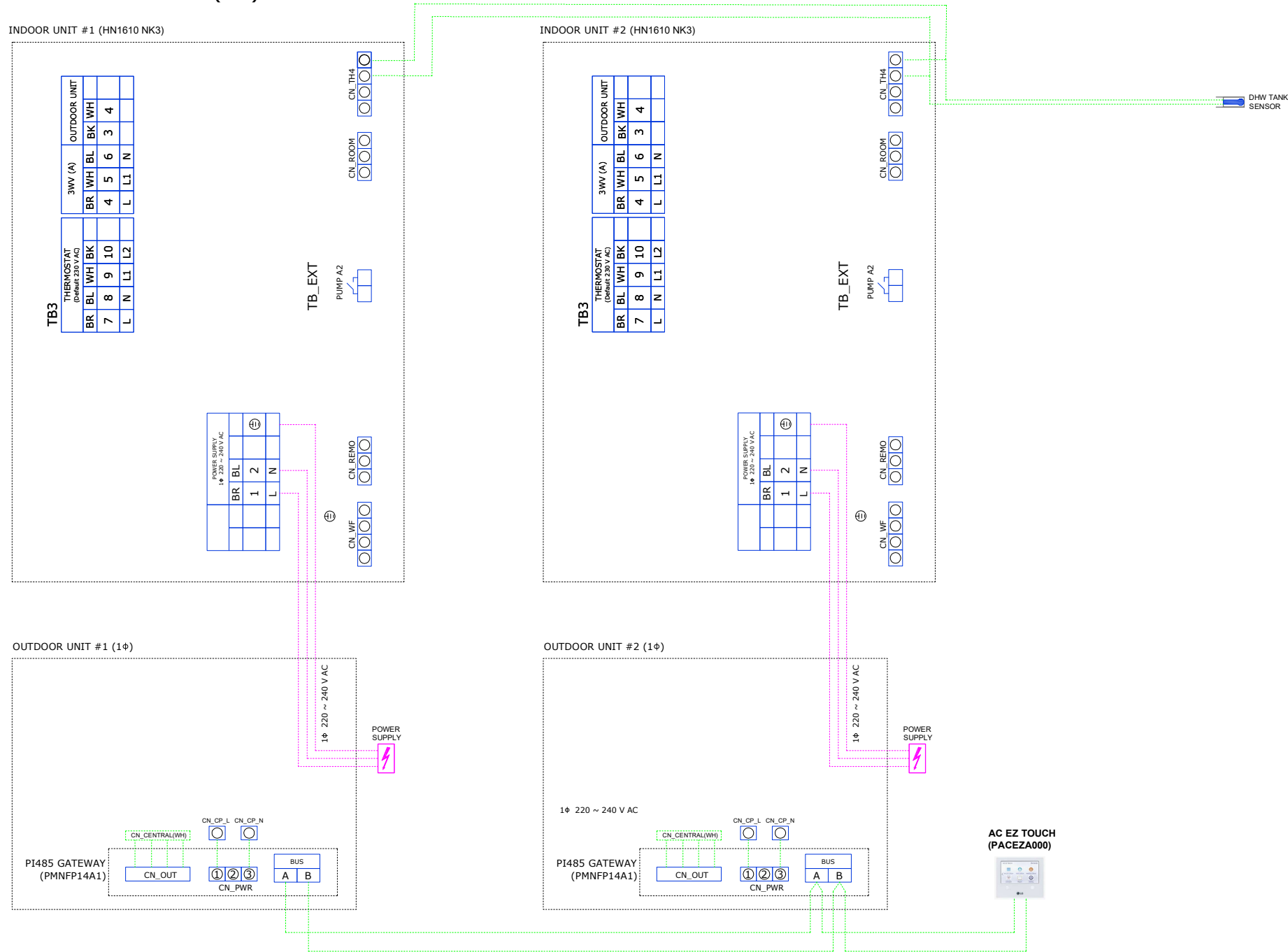
2 Way Valve for Thermostat

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

Differential Pressure Valve

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

WIRING DIAGRAM (1 ϕ)



DIP SWITCH SETTINGS

INDOOR UNIT MAIN PCB

SW1



SW2



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

OUTDOOR UNIT MAIN PCB

SW1



























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

NOTE

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

GENERAL

SYMBOL & LEGENDS

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

SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories		
Full Name	Description	Part No.
RS3 wired remote controller	A wired remote controller with built-in temperature sensor. Hydro Box & IWT : attached with indoor unit as a default, detachable and extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
AC EZ TOUCH	A central controller that controls THERMA V using LG AP protocol. Max 64 units, PC access supported	PACEZA000
PI485 Gateway	A gateway device that communicates and controls through the central controller. (converting LG protocol to RS485 protocol) It should be installed onto the outdoor unit.	PMNFP14A1

3rd party accessories	
Full Name	Description
External Pump	An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.
Magnetic Filter	A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.
Thermostat	A control device that senses the temperature of a room and performs actions so that the room's temperature is maintained near a desired setpoint. Thermostat must be connected with Therma V, Valve, Pump, and FCU where applicable.
2 Way Valve for Thermostat	A isolation valve paired with thermostat to allow whether water flows into the water circuit.
Differential Pressure Valve	A self pressure regulating valve that provides constant differential pressure between supply and return headers.

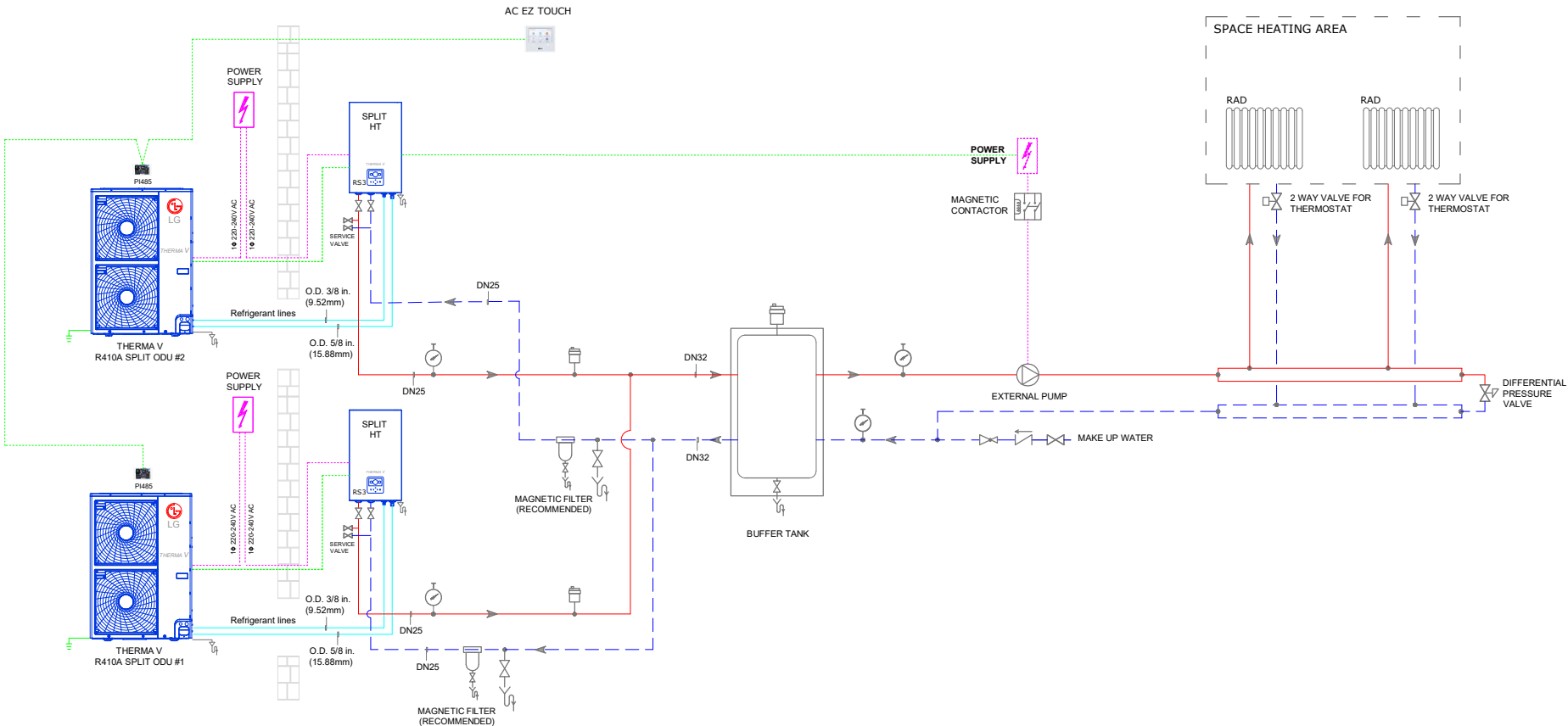
ACCESSORY LIST

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

HYDRONIC DIAGRAM

SYSTEM SUMMARY	
Application	Space Heating with Parallel Installation (LG BECON)
Product	HU161HA U33 + HN1610H NK3
Terminal Device	RAD + RAD
Main Controller	LG Central Controller & RS3 Remote Controller
Control Setting of LG RS3 Controller	Based on Water Temp.
External Pump	Controlled by Therma V

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



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A central controller that controls THERMA V using LG AP protocol.
Max 64 units, PC access supported

PI485 Gateway (PMNFP14A1)
A gateway device that communicates and controls through the central controller. (converting LG protocol to RS485 protocol)
It should be installed onto the outdoor unit.

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

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

WIRING DIAGRAM (1Φ)

INDOOR UNIT #1 (HN1610H NK5)

