

# REFERENCED APPLICATION #1 SPACE HEATING & COOLING WITH DRY CONTACT

DWG NO.:

REV. 00

10/09/2021

## **GENERAL**

#### SYMBOL & LEGENDS

	Circulation Pump	<b>₽</b>	Motorized 3 Way Valve	Ž	Check Valve	• <u>○</u> •	RS3 Remote Controller
$\Theta$	Expansion Tank	$\mathbb{R}$	Motorized 2 Way Valve	<b>1</b>	Safety Relief Valve with drain		Remote Room Air Sensor
Ê	Air Vent	$^{\wedge}$	Differential Pressure Valve	~	Y-type strainer	<b>●.</b> a	Dry Contact
Q	Pressure Gauge		Thermostatic Mixing Valve	9	Flow Sensor		Wi-Fi Modem
	Flexible Connection	$\bowtie$	Shut Off Valve		Magnetic Contactor	-0	Thermostat
Yy	Drain	$\bowtie$	Pressure Reducing Valve	ų,	Drain Pan		Cover Plate

#### SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories								
Full Name	Description	Part No.						
RS3 wired remote controller	A wired remote controller with built-in temperature sensor.  Monobloc: supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default						
Wi-Fi Modem	A control device that enables wireless communication with internet router.  Including USB cable 0.6m and extension cable 0.5m	PWFMDD200						
Extension Cable for Wi-Fi Modem	Cable Length 10m	PWYREW000						
Dry Contact	A control switch that enables turning THERMA V On/Off after receiving the signal from external control system.	PDRYCB000 PDRYCB320						

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

ACCESSORT EIST		Scope	of supply
Full Name	LG Part No.	LG	3rd party
2 Remo Cable	PZCWRC2	0	
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
Back Up Heater	HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACS5A000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump			0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
0-1 0	-		0
Solar Pump			0
Safety Relief Valve	-		
	-		0
Safety Relief Valve	-		0
Safety Relief Valve Strainer	- - -		
Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000)			0
Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000) Service Valve Thermostat	-	0	0 0
Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000) Service Valve Thermostat Thermostatic Mixing Valve	-	0	0 0 0
Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000) Service Valve Thermostat	- - OSHA-MV	0	0 0

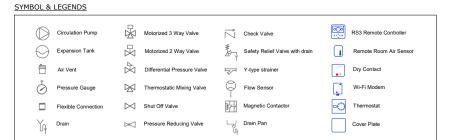


## REFERENCED APPLICATION #1 SPACE HEATING & COOLING WITH DRY CONTACT

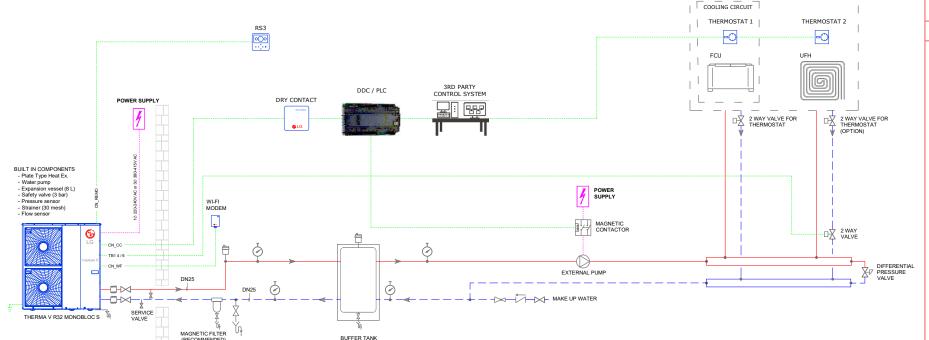
## HYDRONIC DIAGRAM

#### SYSTEM SUMMARY

Application	Space Heating & Cooling with Dry Contact
Product	R32 Monobloc S (New)
Terminal Device	UFH(H) + FCU(H&C)
Main Controller	3rd Party Controller
Control Setting of LG RS3 Controller	Based on Water Temp.
External Pump	Controlled by 3rd Party Controller



SPACE HEATING AREA



#### NOTE

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

#### LG ACCESSORIES

#### RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.

Monobloc: supplied with 10m length cable,

extendable up to max. 50m using extension cable (PZCWRC1)

#### Wi-Fi Modem (PWFMDD200)

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

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

Cable Length 10m

#### Dry Contact (PDRYCB000, PDRYCB320)

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

#### 3RD PARTY ACCESSORIES

#### External Pumn

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

#### Magnetic Filter (Recommended)

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

#### Buffer Tank

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

#### 2 Way Valve

A motorized isolation valve that blocks the water flow into underfloor coil in order to prevent water condensation during cooling mode.

Controlled by THERMA V with 230V power.

Required operating time: less than 90s.

#### DDC (Direct Digital Controller)

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

#### Thermostat

A control device that senses the temperature of a room and performs actions so that the room's temperature is maintained near a desired setpoint Thermost at 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.



## REFERENCED APPLICATION #1 SPACE HEATING & COOLING WITH DRY CONTACT

#### DIP SWITCH SETTINGS WIRING DIAGRAM MAIN PCB (HYDRO) MONOBLOC UNIT 1 2 3 4 5 6 7 8 WATER PUMP (C) BR BL 19 20 L N OOOOOOOO 3RD PARTY DDC DRY CONTACT CONTROL SYSTEM ON OFF 1 2 3 4 5 6 7 8 N 18 BL N -0 H! THERMOSTAT 1 -0 THERMOSTAT 2 WATER PUMP (B) BR BL 15 16 L N W.TANK HEATER B BR BL F 13 14 CN\_TH4 3 WAY VALVE (B BR WH | 10 11 : SOLAR DEW <u>ω</u> AMBIENT 3 WAY VALVE (A BR WH 7 8 L L1 MAIN PCB (CYCLE) ON For 5/7/9 kW models Party WH 27 B 123456 3rd P. Contr. BK EXT BOILER PUMP A2 RD 25 MAGNETIC CONTACTOR 24 BK TB2 & TB3 BL BR 1 21 22 L N POWER SUPPLY 1Ø 220 ~ 240 V AC NOTE RS3 WIFI MODEM 1. The wiring cable size and Circuit breaker selection 3 PHASE HEATER1 HEATER2 must comply with installation manual and POWER applicable local regulations. Power supply of the 1 Phase Model SUPPLY Main T/B 1(L)2(N) 2. Make sure that Earth Leakage Circuit Breaker 1Ø 220 ~ 240 V AC TB\_HEAT\_CONTACT (ELCB) should be installed for power supply line. Power supply of the 3 Phase Model POWER Main T/B R S T N **(** SUPPLY 3Ø 380 ~ 415 V AC



# REFERENCED APPLICATION #2-1 SPACE HEATING & COOLING WITH THERMOSTAT

DWG NO.:

REV. 00

10/09/2021

## **GENERAL**

#### SYMBOL & LEGENDS

	Circulation Pump	显	Motorized 3 Way Valve	Ž	Check Valve	<b>○○○</b> 1.;.1	RS3 Remote Controller
$\bigcirc$	Expansion Tank	丛	Motorized 2 Way Valve	<b>Ž</b> -,	Safety Relief Valve with drain		Remote Room Air Sensor
Ê	Air Vent	$^{\wedge}$	Differential Pressure Valve	~	Y-type strainer	•.0	Dry Contact
Ŏ.	Pressure Gauge	$\bowtie$	Thermostatic Mixing Valve	9	Flow Sensor	į	Wi-Fi Modem
	Flexible Connection	$\bowtie$	Shut Off Valve	17	Magnetic Contactor	-0	Thermostat
Yq	Drain	$\bowtie$	Pressure Reducing Valve	Ų,	Drain Pan		Cover Plate

#### SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories								
Full Name	Description	Part No.						
RS3 wired remote controller	A wired remote controller with built-in temperature sensor.  Monobloc: supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default						

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

Full Name	LG Part No.		of supply
		LG	3rd party
2 Remo Cable	PZCWRC2	0	
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-	_	0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10 HA031M E1 (1Ø, 3kW, Monobloc)	0	
Back Up Heater	HA061M E1 (19, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	- Familian College ADMT (DLINA Circuit)	_	0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACS5A000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump	-	_	0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller Solar Pump	Default, PREMTW101 for 2 Remo control	0	
Safety Relief Valve	-		0
	-		
Strainer Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
	OSHA-MV		
Thermostatic Mixing Valve	OSHA-MV1	0	0
Under Floor Heating Coil	-		0
Wi-Fi Modem	PWFMDD200	0	
Water Temperature Sensor			0



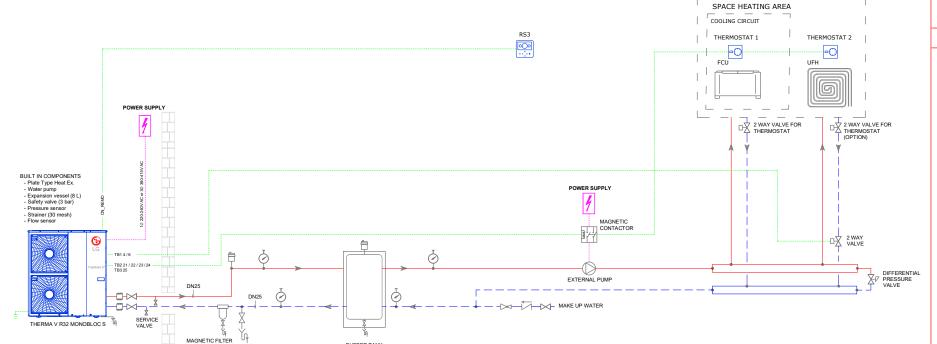
## REFERENCED APPLICATION #2-1 SPACE HEATING & COOLING WITH THERMOSTAT

## HYDRONIC DIAGRAM

#### SYSTEM SUMMARY

Application	Space Heating & Cooling with Thermostat
Product	R32 Monobloc S (New)
Terminal Device	UFH(H) + FCU(H&C)
Main Controller	Thermostat
Control Setting of LG RS3 Controller	Based on Water Temp.
External Pump	Controlled by Thermostat

# SYMBOL & LEGENDS Circulation Pump Expansion Tank Motorized 3 Way Valve Expansion Tank Motorized 2 Way Valve Safety Relief Valve with drain Remote Controller Air Vent Differential Pressure Valve Pressure Gauge Thermostatic Mixing Valve Flow Sensor Flow Sensor Wi-Fi Modem Flexible Connection Shut Off Valve Pressure Reducing Valve Drain Pan Cover Plate



#### LG ACCESSORIES

#### RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.

Monobloc: supplied with 10m length cable,

Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)

#### 3RD PARTY ACCESSORIES

#### External Pump

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

## Magnetic Filter (Recommended) A magnetic filter that collects metallic particle

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.

#### NOT

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



## REFERENCED APPLICATION #2-1 SPACE HEATING & COOLING WITH THERMOSTAT

### WIRING DIAGRAM MONOBLOC UNIT MIX PUMP 1 17 18 L N L N WATER PUMP (B) R BL 1 15 16 L N W.TANK HEATER P BR BL F 13 14 : 3 WAY 3 WAY 1 WALVE (B) 2 WALVE (B) 1 WALV CN\_TH4 SOLAR DEW g AMBIENT WANTENDE COLOR OF THE COLOR OF EXTERNAL 3rd Party Controller RD BK WH 25 26 27 L3 A B EXT BOILER PUMP A2 230 V AC / L3 DHW THERMOSTAT (Default 230 V AC WH BK 23 24 L1 L2 230 V AC / L2 Heating (On/Off) 230 V AC / L1 Cooling BL BR 1 TB2 & 230 V AC MECHANICAL THERMOSTAT (3rd party) RS3 MAGNETIC CONTACTOR COMMON 3 PHASE HEATER1 HEATER2 POWER Power supply of the 1 Phase Model SUPPLY Main T/B 1(L)2(N) 1Ø 220 ~ 240 V AC TB\_HEAT\_CONTACT CN\_WF POWER SUPPLY Power supply of the 3 Phase Model 1Ø 220 ~ 240 V AC POWER Main T/B R S T N **(** SUPPLY 3Ø 380 ~ 415 V AC

#### DIP SWITCH SETTINGS

#### MAIN PCB (HYDRO)

1 2 3 4 5 6 7 8

SW2



						X : 0	OFF	10:	ON
	DIP SW 1	1	2	3	4	5	6	7	8
MODBUS Communication	Master (Link to LG controller)	Х		Г	Г		П	П	П
Type	Slave (Link to 3rd party controller)	0	Т	Г	П	Т	Г	Г	Г
MODBUS	REGINE		х	Г		Г	П	Г	П
Function	Unified Open Protocol	П	0	Г		Г	П	Г	Г
	Antifreeze is not applied	П	Г	Г	П	Г	Г	Г	х
Antifreeze Mode	Antifreeze is applied (Adjustable anti-freeze temp.)	Г	Г	Γ	Г	Г	Г	Г	0
	default setting	х	х	Г	Т	Т	г	Г	х
		Т	_	_		_		_	
	DIP SW 2	1	2	3	4	5	6	7	8
Indoor Unit Type	As Master	х		Г					Г
Setting for Group Control	As Slave	0	П	Г	Г	П	Г	Г	Г
Accessory	Heat pump installation (Heating or cooling circuit only)	П	х	х	Г		Г	Г	Г
Installation	Heat pump + DHW tank are installed		х	0					
Information	Heat pump + DHW tank + Solar thermal system are installed		0	х					
Heat Pump Cycle	Heating only				х				
neat rump Cycle	Heating and cooling			Г	0	Г	П	Г	П
Remote Room Air Sensor	Remote room air sensor is not installed			Г	П	х	Г	Г	Г
(Accessory)	Remote room air sensor is installed			Г		0		Г	Г
	Backup heater is not used	Т	Т	Т		Т	х	×	Т
Selecting Backup Heater Capacity	Half capacity is used			Г		Т	0	х	П
riumur capacity	Full capacity is used			Г			0	0	
Thermostat	Thermostat is not installed			Г					х
Installation	Thermostat is installed			Г			П		0
	default setting	х	х	х	Х	Х	Х	х	Х

#### MAIN PCB (CYCLE)

123456

ON For 5/7/9 kW models

				A.UFF/U.UN
	DIP SW 1	2	3	
Low Noise Mode	Always mode : Maintain low noise mode for target temperature	х		
Low Noise Mode	Partial mode : Escape low noise mode for target temperature	0		
	Max mode		х	
Peak Control	Peak control : To limit maximum current (Power saving)	Г	0	
	default setting	х	х	
		_		

#### <u>NOTE</u>

- 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.



# REFERENCED APPLICATION #2-2 SPACE HEATING & COOLING WITH THERMOSTAT

DWG NO.:

REV. 00

10/09/2021

## **GENERAL**

#### SYMBOL & LEGENDS

	Circulation Pump	$\mathbb{R}$	Motorized 3 Way Valve	$\overrightarrow{\square}$	Check Valve	o⊜ , ∴, ,	RS3 Remote Controller
$\Theta$	Expansion Tank	丛	Motorized 2 Way Valve	1	Safety Relief Valve with drain		Remote Room Air Sensor
Ê	Air Vent	$\bowtie$	Differential Pressure Valve	<u>~</u>	Y-type strainer	•.0	Dry Contact
$\bigcirc$	Pressure Gauge	M	Thermostatic Mixing Valve	9	Flow Sensor	•	Wi-Fi Modem
	Flexible Connection	$\bowtie$	Shut Off Valve	17	Magnetic Contactor	-0	Thermostat
Y	Drain	$\bowtie$	Pressure Reducing Valve		Drain Pan		Cover Plate
,				-1			

#### SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories							
Full Name	Description	Part No.					
RS3 wired remote controller	A wired remote controller with built-in temperature sensor.  Monobloc: supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default					

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

ACCESSORT EIST		Scope	of supply
Full Name	LG Part No.	LG	3rd party
2 Remo Cable	PZCWRC2	0	
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
Back Up Heater	HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACS5A000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump			0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
0-1 0	-		0
Solar Pump			0
Safety Relief Valve	-		
	-		0
Safety Relief Valve	-		0
Safety Relief Valve Strainer	- - -		
Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000)			0
Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000) Service Valve Thermostat	-	0	0 0
Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000) Service Valve Thermostat Thermostatic Mixing Valve	-	0	0 0 0
Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000) Service Valve Thermostat	- - OSHA-MV	0	0 0



## REFERENCED APPLICATION #2-2 SPACE HEATING & COOLING WITH THERMOSTAT

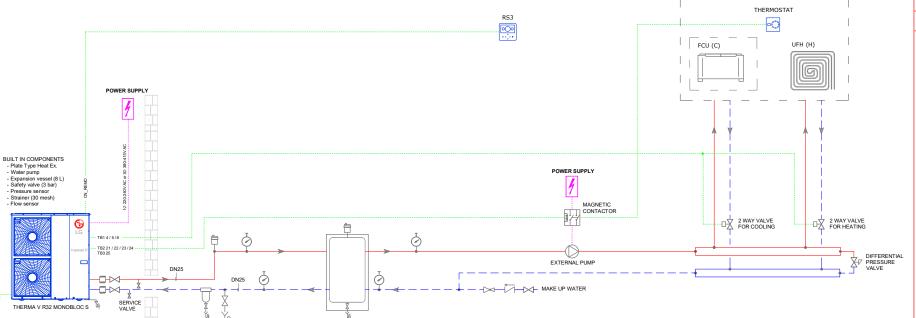
## HYDRONIC DIAGRAM

#### SYSTEM SUMMARY

Application	Space Heating & Cooling with Thermostat
Product	R32 Monobloc S (New)
Terminal Device	UFH(H) + FCU(H&C)
Main Controller	Thermostat
Control Setting of LG RS3 Controller	Based on Water Temp.
External Pump	Controlled by Thermostat

# SYMBOL & LEGENDS Circulation Pump Expansion Tank Motorized 3 Way Valve Safety Relief Valve with drain Remote Controller Safety Relief Valve with drain Remote Room Air Sensor Air Vent Differential Pressure Valve Flow Sensor Pressure Gauge Thermostatic Mixing Valve Flow Sensor Flow Sensor Wi-Fi Modern Wi-Fi Modern Thermostatic Drain Pressure Reducing Valve Pressure Reducing Valve

SPACE HEATING AREA



#### LG ACCESSORIES

#### RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.

Monobloc: supplied with 10m length cable,

Monobloc: supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)

#### 3RD PARTY ACCESSORIES

#### External Pump

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

## Magnetic Filter (Recommended) A magnetic filter that collects metallic particle

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

#### Differential Pressure Valve

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

#### TON

- 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.

MAGNETIC FILTER

- 3. Must fit the insulations on the entire water piping including valves and connections. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
- 4. In a cold climate region, water drainage from outdoor unit must be frost-proof.



POWER

SUPPLY

POWER

SUPPLY

Main T/B 1(L)2(N)

Main T/B R S T N

Power supply of the 1 Phase Model

**(** 

1Ø 220 ~ 240 V AC

Power supply of the 3 Phase Model

3Ø 380 ~ 415 V AC

TB\_HEAT\_CONTACT

CN\_WF

## REFERENCED APPLICATION #2-2 SPACE HEATING & COOLING WITH THERMOSTAT

## WIRING DIAGRAM MONOBLOC UNIT WATER PUMP (C) BR BL 19 20 L N WATER PUMP (B) R BL 1 15 16 L N 2 WAY VALVE FOR HEATING (NC Valve) 2 WAY VALVE - L : on Voltage when Cooling is active W.TANK HEATER P BR BL F 13 14 : - L1 : on Voltage when Cooling is not active FOR COOLING MACALVE CALVE (A) 3WAY 3WAY 3WAY BR BR BR BR BR WH BL BR WH BR WH BL BR WH BR WH BL BR WH BR WH BR WH BR BR WH BR CN\_TH4 SOLAR DEW g AMBIENT CN\_ROOM2 CN\_ROOM1 EXTERNAL 3rd Party Controller RD BK WH 25 26 27 L3 A B EXT BOILER PUMP A2 230 V AC / L3 DHW THERMOSTAT (Debult 230 v AC WH BK 23 24 L1 L2 230 V AC / L2 Heating (On/Off) 230 V AC / L1 Cooling **FB2 & TB3** BL BR 1 CN MIX OUT 230 V AC MECHANICAL THERMOSTAT (3rd party) RS3 MAGNETIC CONTACTOR 3 PHASE HEATER1 HEATER2

POWER SUPPLY

1Ø 220 ~ 240 V AC

#### DIP SWITCH SETTINGS

#### MAIN PCB (HYDRO)

1 2 3 4 5 6 7 8

SW2



						X:0	)FF	10:	ON
	DIP SW 1	1	2	3	4	5	6	7	8
MODBUS Communication	Master (Link to LG controller)	х		Г			Г	Г	Г
Type	Slave (Link to 3rd party controller)	0	П	Г	Г	П	Г	Г	Г
MODBUS	REGINE		х						
Function	Unified Open Protocol		0	П				П	П
	Antifreeze is not applied			Г	П	Г	г	Г	х
Antifreeze Mode	Antifreeze is applied (Adjustable anti-freeze temp.)		П	Г	Г	Г	Г	Г	0
	default setting	х	х	Г	П	Г	г	Г	х
						_		_	
	DIP SW 2	1	2	3	4	5	6	7	8
Indoor Unit Type Setting for Group	As Master	х		Г			Г	Г	Г
Control	As Slave	0		Г	Г	П	Г	Г	Г
Accessory	Heat pump installation (Heating or cooling circuit only)		х	х	Г		Г	Г	Г
Installation	Heat pump + DHW tank are installed		х	0					П
Information	Heat pump + DHW tank + Solar thermal system are installed		0	х			Г		Г
Heat Pump Cycle	Heating only				х				Г
near rump Cycle	Heating and cooling			Г	0	Г		Г	Г
Remote Room Air Sensor	Remote room air sensor is not installed			Г	П	х	Г	Г	Г
(Accessory)	Remote room air sensor is installed			Г		0	Г	Г	Г
	Backup heater is not used	П		Т		Т	х	×	Г
Selecting Backup Heater Capacity	Half capacity is used	П		Г	П	Т	0	×	Г
riumin capacity	Full capacity is used						0	0	Г
Thermostat	Thermostat is not installed			Г		Т		Г	х
Installation	Thermostat is installed			Г				Г	0
	default setting	Х	х	х	Х	х	х	х	х

#### MAIN PCB (CYCLE)

123456

ON For 5/7/9 kW models

				X:OFF/O:ON
	DIP SW 1	2	3	
Low Noise Mode	Always mode : Maintain low noise mode for target temperature	х		
Low Noise Mode	Partial mode : Escape low noise mode for target temperature	0		
	Max mode		х	1
Peak Control	Peak control : To limit maximum current (Power saving)		0	
	default setting	х	х	

#### <u>NOTE</u>

- 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.



# REFERENCED APPLICATION #2-3 SPACE HEATING & COOLING WITH THERMOSTAT

DWG NO.:

REV. 00

10/09/2021

## **GENERAL**

#### SYMBOL & LEGENDS

	Circulation Pump	$\mathbb{Z}$	Motorized 3 Way Valve	$\overrightarrow{\square}$	Check Valve	• <b>○</b> •	RS3 Remote Controller
$\Theta$	Expansion Tank	$\bowtie$	Motorized 2 Way Valve	T-	Safety Relief Valve with drain		Remote Room Air Sensor
Ê	Air Vent	$\mathbb{A}$	Differential Pressure Valve	<b>W</b>	Y-type strainer	Fe file	Dry Contact
Q	Pressure Gauge		Thermostatic Mixing Valve	9	Flow Sensor	į	Wi-Fi Modem
	Flexible Connection	$\bowtie$	Shut Off Valve	14	Magnetic Contactor	-0	Thermostat
Yq	Drain	$\bowtie$	Pressure Reducing Valve		Drain Pan		Cover Plate
'				~1			

#### SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessor	LG supplied accessories							
Full Name	Description	Part No.						
RS3 wired remote controller	A wired remote controller with built-in temperature sensor.  Monobloc: supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default						

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

	Scope	of supply
LG Part No.		3rd party
PZCWRC2		v py
-		0
OSHA-3V	0	0
-		0
For IWT, OSHB-40KT	0	0
For 3rd party Back-up Heater,		
PRSTAT5K10	0	
HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	0	0
-	0	0
-		0
PDC-HK10	0	
Integrated with DHW Tank	0	0
PDRYCB000 PDRYCB320	0	
-		0
-		0
PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
	0	
	0	_
-		0
-		0
- DWW/DEW000		0
		0
PZCWRC1	- 0	0
For IMT OSHE 12KT (DHM Circuit)	_	
FOI IWI, OSHE-12KI (BHW Circuit)	U	0
-		0
-		0
-		0
OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
-		0
PACEZA000 (AC Ez Touch) PACS5A000 (AC Smart 5) PACP5A000 (ACP 5)	0	
-	0	0
-		0
PENKTH000	0	
-		0
PRSTAT5K10	0	
-	_	0
PMNFP14A1	0	
-		0
-		0
-		0
- DODETAG		0
	0	
2 Remo control		
2 Remo control		0
2 Remo control		0
-		0
- - -		0 0
- - - -		0 0 0
-		0 0 0 0
- - - -	0	0 0 0 0 0
- - - - - - OSHA-MV	0	0 0 0 0
	PZCWRC2	PZCWRC2



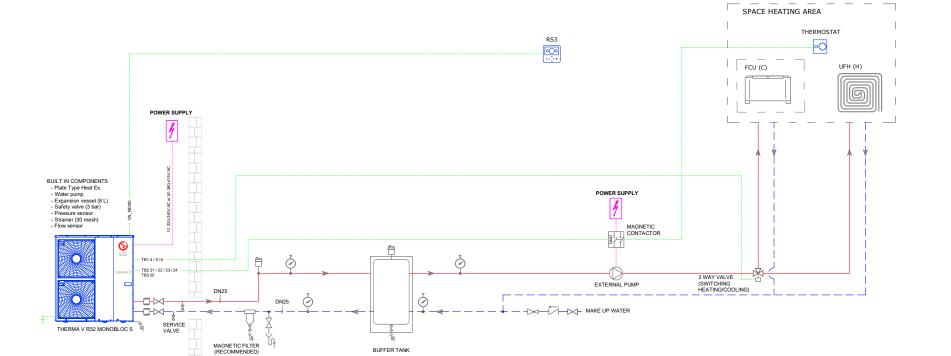
## REFERENCED APPLICATION #2-3 SPACE HEATING & COOLING WITH THERMOSTAT

## HYDRONIC DIAGRAM

#### SYSTEM SUMMARY

Application	Space Heating & Cooling with Thermostat
Product	R32 Monobloc S (New)
Terminal Device	UFH(H) + FCU(H&C)
Main Controller	Thermostat
Control Setting of LG RS3 Controller	Based on Water Temp.
External Pump	Controlled by Thermostat

# SYMBOL & LEGENDS Circulation Pump Circulation Pump Expansion Tank Motorized 3 Way Valve Safety Relief Valve with drain Remote Controller Safety Relief Valve with drain Pressure Gauge Thermostatic Mixing Valve Flow Sensor Flow Sensor Wi-Fi Modern Thermostatic Magnetic Contactor Thermostatic Drain Pressure Reducing Valve Pressure Reducing Valve



#### NOTE

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2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.

3. Must fit the insulations on the entire water piping including valves and connections. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.

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

#### LG ACCESSORIES

#### RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.

Monobloc: supplied with 10m length cable,

Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)

#### 3RD PARTY ACCESSORIES

#### External Pump

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

## Magnetic Filter (Recommended) A magnetic filter that collects metallic particle

caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.

#### Buffer Tank

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

#### 3 Way Valve

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

#### Thermostat

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

## Differential Pressure Valve A self pressure regulating valve that provides

constant differential pressure between supply and return headers.



## REFERENCED APPLICATION #2-3 SPACE HEATING & COOLING WITH THERMOSTAT

#### WIRING DIAGRAM MONOBLOC UNIT WATER PUMP (C) BR BL 19 20 L N 8L I N I I I WATER PUMP (B) R BL 1 15 16 L N 3 WAY VALVE (SWITCHING HEATING/COOLING) 3 WAY VALVES FOR SWITCHING HEATING / COOLING W.TANK HEATER F BR BL E 13 14 : L N - L : on Voltage when Cooling is active - L1 : on Voltage when Heating is active 3 WAY VALVE (B) BR WH BL E 10 11 12 : L L1 N CN\_TH4 SOLAR DEW MIZING | VALVE g AMBIENT CN\_ROOM2 CN\_ROOM1 EXTERNAL 3rd Party Controller RD BK WH 25 26 27 L3 A B EXT BOILER PUMP A2 230 V AC / L3 DHW THERMOSTAT (Debult 230 v AC WH BK 23 24 L1 L2 230 V AC / L2 Heating (On/Off) 230 V AC / L1 Cooling **FB2 & TB3** BL BR 1 CN MIX OUT 230 V AC MECHANICAL THERMOSTAT (3rd party) RS3 MAGNETIC CONTACTOR 3 PHASE HEATER1 HEATER2 POWER Power supply of the 1 Phase Model SUPPLY Main T/B 1(L)2(N) 1Ø 220 ~ 240 V AC TB\_HEAT\_CONTACT CN\_WF POWER SUPPLY Power supply of the 3 Phase Model POWER Main T/B R S T N **(** 1Ø 220 ~ 240 V AC SUPPLY 3Ø 380 ~ 415 V AC

#### DIP SWITCH SETTINGS

#### MAIN PCB (HYDRO)

1 2 3 4 5 6 7 8

SW2



						X:0	)FF	10:	ON
	DIP SW 1	1	2	3	4	5	6	7	8
MODBUS Communication	Master (Link to LG controller)	х		Г			Г	Г	Г
Type	Slave (Link to 3rd party controller)	0	П	Г	Г	П	Г	Г	Г
MODBUS	REGINE		х						
Function	Unified Open Protocol		0	П				П	П
	Antifreeze is not applied			Г	П	Г	г	Г	х
Antifreeze Mode	Antifreeze is applied (Adjustable anti-freeze temp.)		П	Г	Г	Г	Г	Г	0
	default setting	х	х	Г	П	Г	г	Г	х
						_		_	
	DIP SW 2	1	2	3	4	5	6	7	8
Indoor Unit Type	As Master	х		Г			Г	Г	Г
Setting for Group Control	As Slave	0		Г	Г	П	Г	Г	Г
Accessory	Heat pump installation (Heating or cooling circuit only)		х	х	Г		Г	Г	Г
Installation	Heat pump + DHW tank are installed		х	0					П
Information	Heat pump + DHW tank + Solar thermal system are installed		0	х			Г		Г
Heat Pump Cycle	Heating only				х				Г
near rump Cycle	Heating and cooling			Г	0	Г		Г	Г
Remote Room Air Sensor	Remote room air sensor is not installed			Г	П	х	Г	Г	Г
(Accessory)	Remote room air sensor is installed			Г		0	Г	Г	Г
	Backup heater is not used	П		Т		Т	х	×	Г
Selecting Backup Heater Capacity	Half capacity is used	П		Г	П	П	0	×	Г
riumin capacity	Full capacity is used						0	0	Г
Thermostat	Thermostat is not installed			Г		Т		Г	х
Installation	Thermostat is installed			Г				Г	0
	default setting	Х	х	х	Х	х	х	х	х

#### MAIN PCB (CYCLE)

123456

ON For 5/7/9 kW models

		X:OFF/O:ON		
	DIP SW 1	2	3	
Low Noise Mode	Always mode : Maintain low noise mode for target temperature	х		
Low Noise Mode	Partial mode : Escape low noise mode for target temperature	0		
	Max mode		х	l
Peak Control	Peak control : To limit maximum current (Power saving)		0	
	default setting	Х	х	

#### <u>NOTE</u>

- 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.



## REFERENCED APPLICATION #3 SPACE HEATING WITH ANTI-FREEZE

DWG NO.:

REV. 00

10/09/2021

## **GENERAL**

### SYMBOL & LEGENDS

1								
		Circulation Pump	$\blacksquare$	Motorized 3 Way Valve	$\overrightarrow{\square}$	Check Valve	), (j. s	RS3 Remote Controller
	$\odot$	Expansion Tank	丛	Motorized 2 Way Valve	<b>*</b>	Safety Relief Valve with drain		Remote Room Air Sensor
		Air Vent	$\mathbb{A}$	Differential Pressure Valve	₩.	Y-type strainer	•.0	Dry Contact
	$\odot$	Pressure Gauge		Thermostatic Mixing Valve	9	Flow Sensor	·	Wi-Fi Modem
		Flexible Connection	$\bowtie$	Shut Off Valve		Magnetic Contactor	-0	Thermostat
	Yq	Drain	$\bowtie$	Pressure Reducing Valve		Drain Pan		Cover Plate
ı								

#### SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories						
Full Name	Description	Part No.				
RS3 wired remote controller	A wired remote controller with built-in temperature sensor.  Monobloc: supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default				
Wi-Fi Modem	A control device that enables wireless communication with internet router. Including USB cable 0.6m and extension cable 0.5m	PWFMDD200				
Extension Cable for Wi-Fi Modem	Cable Length 10m	PWYREW000				

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

Full Name	LG Part No.		of supply
		LG	3rd party
2 Remo Cable	PZCWRC2	0	
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10 HA031M E1 (1Ø, 3kW, Monobloc)	0	
Back Up Heater	HA051M E1 (10, 5kW, Monobloc) HA063M E1 (30, 6kW, Monobloc) HA061C E1 (10, 6kW, Hydrosplit) HA063C E1 (30, 6kW, Hydrosplit)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACS5A000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor		0	0
Magnetic Filter	_		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	FWINEF 14A1		0
Plate Heat Exchanger			0
Radiator	-		0
Recirculation Pump			0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for	0	
Solar Pump	2 Remo control		0
Safety Relief Valve	_		0
Strainer	_		0
Solar Temperature Sensor (PT-1000)			0
Service Valve	-		0
Thermostat	-		0
	OSHA-MV		
Thermostatic Mixing Valve Under Floor Heating Coil	OSHA-MV1	0	0
	- PWEMDD200	_	0
Wi-Fi Modem Water Temperature Sensor	PWFMDD200	0	-
	-	1	0



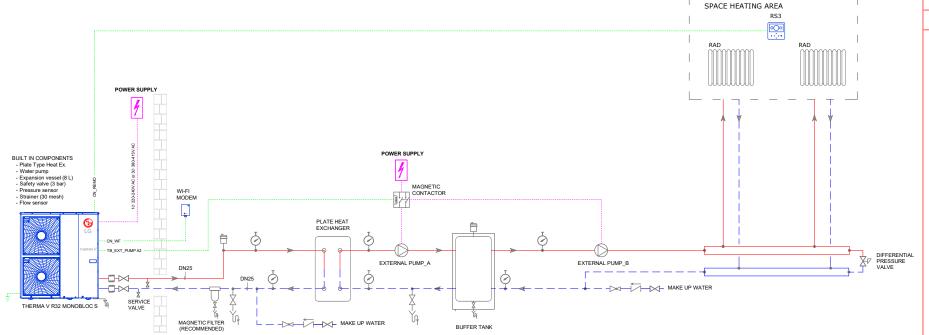
## REFERENCED APPLICATION #3 SPACE HEATING WITH ANTI-FREEZE

## HYDRONIC DIAGRAM

#### SYSTEM SUMMARY

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

#### SYMBOL & LEGENDS RS3 Remote Controller Circulation Pump Motorized 3 Way Valve Check Valve Safety Relief Valve with drain Remote Room Air Sensor Differential Pressure Valve $\overline{}$ Y-type strainer Thermostatic Mixing Valve Wi-Fi Modem Shut Off Valve Magnetic Contactor Pressure Reducing Valve Cover Plate



#### LG ACCESSORIES

#### RS3 Controller (Default)

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

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

### Extension Cable for Wi-Fi Modem

Cable Length 10m

#### 3RD PARTY ACCESSORIES

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

## Magnetic Filter (Recommended) A magnetic filter that collects metallic particle

caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.

#### **Buffer Tank**

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

#### Plate Heat Exchanger

A heat exchanger made by stacking several thin metal plates that transfers heat between two fluids

#### Differential Pressure Valve

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

1. This diagram should be used only for reference purpose. It does not contain all the required equipment and safety components in accordance with actual site conditions. Furthermore, please make sure to take into account the applicable standards and laws for each country. LG Electronics disclaims any direct or indirect responsibility for any consequences arising out of any inaccuracies or consequential changes to this general scheme.

2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.

3. Must fit the insulations on the entire water piping including valves and connections. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.

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



## REFERENCED APPLICATION #3 SPACE HEATING WITH ANTI-FREEZE

#### WIRING DIAGRAM MAIN PCB (HYDRO) MONOBLOC UNIT 1 2 3 4 5 6 7 WATER PUMP (C) BR BL 19 20 L N SW2 BL N 1 2 3 4 5 6 7 8 WATER PUMP (B) BR BL 15 16 L N SHORT PIN SHOULD BE 3 WAY VALVE (B) BR WH BL E 10 11 12 : L L1 N CN\_TH4 SOLAR DEW g AMBIENT PUMP A PUMP\_B MIXING VALVE BR BR BL E 1 2 3 L L1 N MAIN PCB (CYCLE) ON For 5/7/9 kW models 3rd Party Controller BK WH 26 27 A B 123456 BOILER PUMP A2 MAGNETIC RD 25 THERMOSTAT (Default 230 V AC WH BK 23 24 L1 L2 TB2 & TB3 POWER SUPPLY BL BR 1 21 22 L N 1Ø 220 ~ 240 V AC <u>NOTE</u> WIFI MODEM 1. The wiring cable size and Circuit breaker selection COMMON 3 PHASE HEATER1 HEATER2 must comply with installation manual and POWER applicable local regulations. Power supply of the 1 Phase Model SUPPLY Main T/B 1(L)2(N) 2. Make sure that Earth Leakage Circuit Breaker 1Ø 220 ~ 240 V AC TB\_HEAT\_CONTACT (ELCB) should be installed for power supply line. Power supply of the 3 Phase Model POWER Main T/B R S T N **(** SUPPLY 3Ø 380 ~ 415 V AC

DIP SWITCH SETTINGS



# REFERENCED APPLICATION #4 SPACE HEATING WITH 2ND CIRCUIT

DWG NO.:

REV. 00

10/09/2021

## **GENERAL**

#### SYMBOL & LEGENDS

	Circulation Pump	品	Motorized 3 Way Valve	$\overrightarrow{\square}$	Check Valve	©© 1	RS3 Remote Controller
$\odot$	Expansion Tank	$\mathbb{R}$	Motorized 2 Way Valve	<b>1</b>	Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent	$^{\wedge}$	Differential Pressure Valve	~	Y-type strainer	•L0	Dry Contact
$\odot$	Pressure Gauge		Thermostatic Mixing Valve	9	Flow Sensor	•	Wi-Fi Modem
	Flexible Connection	$\bowtie$	Shut Off Valve	17	Magnetic Contactor	-0	Thermostat
Yy	Drain	$\bowtie$	Pressure Reducing Valve		Drain Pan		Cover Plate

#### SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

Full Name	Description	Part No.
RS3 wired remote controller	A wired remote controller with built-in temperature sensor.  Monobloc: supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a defaul
Wi-Fi Modem	A control device that enables wireless communication with internet router. Including USB cable 0.6m and extension cable 0.5m	PWFMDD200
Extension Cable for Wi-Fi Modem	Cable Length 10m	PWYREW000
Remote Room Air Femperature Sensor	Temperature sensor for the room. Cable length 15m.	PQRSTA0
Mixing Zone Femperature Sensor	A temperature sensor for the mixed circuit. Cable length 10m.	PRSTAT5K10

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

ACCESSORT EIST		Scope	of supply
Full Name	LG Part No.	LG	3rd party
2 Remo Cable	PZCWRC2	0	
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
Back Up Heater	HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACS5A000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump			0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
0-1 0	-		0
Solar Pump			0
Safety Relief Valve	-		
	-		0
Safety Relief Valve	-		0
Safety Relief Valve Strainer	- - -		
Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000)			0
Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000) Service Valve Thermostat	-	0	0 0
Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000) Service Valve Thermostat Thermostatic Mixing Valve	-	0	0 0 0
Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000) Service Valve Thermostat	- - OSHA-MV	0	0 0

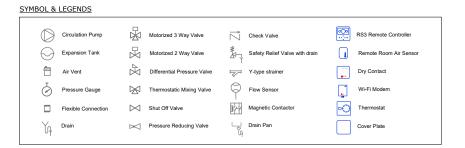


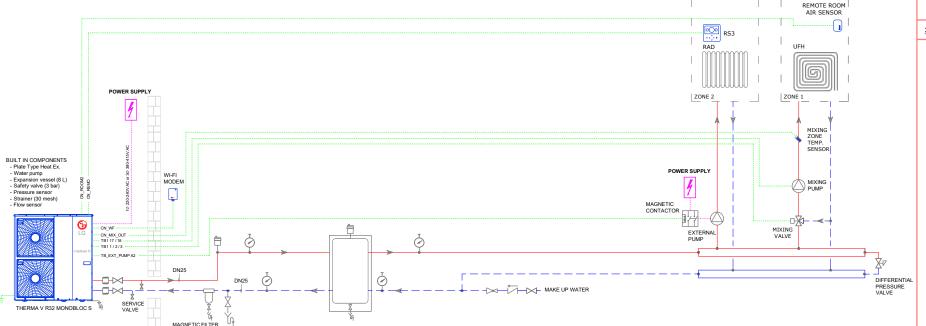
## REFERENCED APPLICATION #4 SPACE HEATING WITH 2ND CIRCUIT

## HYDRONIC DIAGRAM

#### SYSTEM SUMMARY

Application	Space Heating with 2nd Circuit
Product	R32 Monobloc S (New)
Terminal Device	UFH + RAD
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Air Temp. or Water Temp.
External Pump	Controlled by THERMA V





#### LG ACCESSORIES

#### RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.

Monobloc: supplied with 10m length cable,

extendable up to max. 50m using extension cable (PZCWRC1)

#### Wi-Fi Modem (PWFMDD200)

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

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

Cable Length 10m

### Remote Room Air Temperature Sensor

Temperature sensor for the room. Cable length 15m.

## Mixing Zone Temperature Sensor (PRSTAT5K10)

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

#### 3RD PARTY ACCESSORIES

#### External Pump

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

#### Magnetic Filter (Recommended)

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

#### Buffer Tank

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

#### xing Pump

An external water pump that circulates the water inside mixted circuit (zone 1).

Controlled by THERMA V with 230V power.

#### Mixing Valve

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

#### Differential Pressure Valve

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

#### NO

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2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.

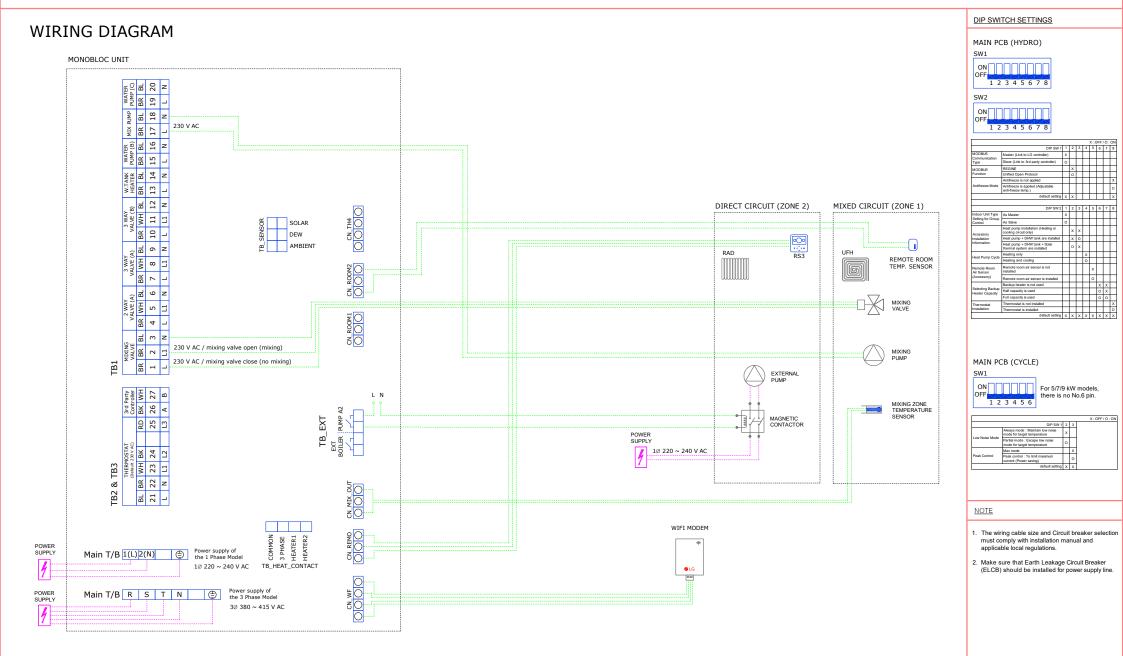
3. Must fit the insulations on the entire water piping including valves and connections. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.

BUFFER TANK

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



## REFERENCED APPLICATION #4 SPACE HEATING WITH 2ND CIRCUIT





# REFERENCED APPLICATION #5 SPACE HEATING AND COOLING WITH 2 REMOTE CONTROLLERS

DWG NO.:

REV. 00

10/09/2021

## **GENERAL**

#### SYMBOL & LEGENDS

	Circulation Pump	$\mathbb{R}$	Motorized 3 Way Valve	Ž	Check Valve	  -  -  -	RS3 Remote Controller
$\Theta$	Expansion Tank	$\mathbb{Z}$	Motorized 2 Way Valve	<b>1</b>	Safety Relief Valve with drain		Remote Room Air Sensor
Ê	Air Vent	$\bowtie$	Differential Pressure Valve	₩.	Y-type strainer	•LG	Dry Contact
Q	Pressure Gauge		Thermostatic Mixing Valve	9	Flow Sensor		Wi-Fi Modem
	Flexible Connection	$\bowtie$	Shut Off Valve	177	Magnetic Contactor	-0	Thermostat
Yq	Drain	$\bowtie$	Pressure Reducing Valve	Ų,	Drain Pan		Cover Plate

#### SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories							
Full Name	Description	Part No.					
RS3 wired remote controller (MASTER)	A wired remote controller with built-in temperature sensor.  Monobloc: supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default					
Wi-Fi Modem	A control device that enables wireless communication with internet router. Including USB cable 0.6m and extension cable 0.5m	PWFMDD200					
Extension Cable for Wi-Fi Modem	Cable Length 10m	PWYREW000					
RS3 wired remote controller (SLAVE)	An additional wired remote controller with built-in temperature sensor that enables controlling THERMA V using two remote controller.  Including extension wire(PZCWRC1) and 2 remo cable(PZCWRC2)	PREMTW101					
Extension Wire for RS3 Controller	Cable length 10m	PZCWRC1, Included in PREMTW101.					
2 Remo Cable	A cable that enables connecting two remote controller on the one indoor unit.	PZCWRC2, Included in PREMTW101.					

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

Full Name	LG Part No.	LG	of supply 3rd party
2 Remo Cable	PZCWRC2	0	ord party
2 Kemo Cable 2way Valve	PZCWRCZ		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
	For 3rd party Back-up Heater,		
Back-up Heater Temperature Sensor  Back Up Heater	PRSTAT5K10 HA031M E1 (1/0, 3kW, Monobloc) HA061M E1 (1/0, 6kW, Monobloc) HA063M E1 (3/0, 6kW, Monobloc) HA063C E1 (1/0, 6kW, Hydrosplit) HA063C E1 (3/0, 6kW, Hydrosplit)	0	0
Circuit Breaker	HAUGSC ET (30, 6kW, Hydrospiil)	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	0
Direct Digital Controller	1 BIX1 6B320		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	0
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACS5A000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump	-		0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
Solar Pump	-		0
Safety Relief Valve	-		0
Strainer	-		0
Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0
Under Floor Heating Coil	-		0
Wi-Fi Modem	PWFMDD200	0	
Water Temperature Sensor	-		0



## REFERENCED APPLICATION #5 SPACE HEATING AND COOLING WITH 2 REMOTE CONTROLLERS

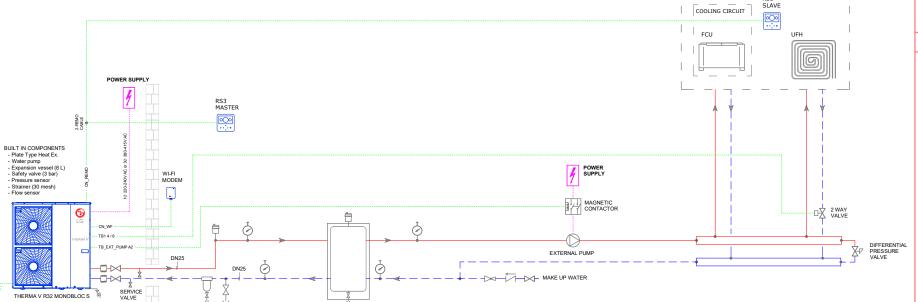
## HYDRONIC DIAGRAM

#### SYSTEM SUMMARY

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

#### SYMBOL & LEGENDS RS3 Remote Controller Circulation Pump Motorized 3 Way Valve Check Valve Expansion Tank Safety Relief Valve with drain Remote Room Air Sensor Differential Pressure Valve $\overline{}$ Y-type strainer Thermostatic Mixing Valve Wi-Fi Modem Shut Off Valve Magnetic Contactor Thermostat Pressure Reducing Valve Drain Pan Cover Plate

SPACE HEATING AREA



#### NOTE

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- 2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.

MAGNETIC FILTER

3. Must fit the insulations on the entire water piping including valves and connections. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.

BUFFER TANK

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

#### LG ACCESSORIES

#### RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.

Monobloc: supplied with 10m length cable,

extendable up to max. 50m using extension cable (PZCWRC1)

#### Wi-Fi Modem (PWFMDD200)

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

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

Cable Length 10m

#### RS3 SLAVE Controller (PREMTW101)

An additional wired remote controller with built-in temperature sensor that enables controlling THERMA V using two remote controller. Including extension wire(PZCWRC1) and 2 remo cable(PZCWRC2)

Extension Wire for RS3 Controller (PZCWRC1)
Cable length 10m. Included in PREMTW101.

#### 2 Remo Cable (PZCWRC2)

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

Included in PREMTW101.

#### 3RD PARTY ACCESSORIES

#### External Pump

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

#### Magnetic Filter (Recommended)

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

#### **Buffer Tank**

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

#### 2 Way Valve

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

#### Differential Pressure Valve

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



## REFERENCED APPLICATION #5 SPACE HEATING AND COOLING WITH 2 REMOTE CONTROLLERS

## WIRING DIAGRAM MONOBLOC UNIT N L N 3 WAY VALVE (B) BR WH BL E 10 11 12 : L L1 N RS3 CN\_TH4 RS3 SOLAR SLAVE DEW <u>ω</u> AMBIENT 3 WAY VALVE (A BR WH 7 8 1 L EXTERNAL 3rd Party Controller BK WH 26 27 A B MAGNETIC RD 25 THERMOSTAT (Default 230 V AC WH BK 23 24 L1 L2 TB2 & TB3 POWER SUPPLY BL BR 1 21 22 L N 1Ø 220 ~ 240 V AC WIFI MODEM COMMON 3 PHASE HEATER1 HEATER2 POWER Power supply of the 1 Phase Model SUPPLY Main T/B 1(L)2(N) 1Ø 220 ~ 240 V AC TB\_HEAT\_CONTACT Power supply of the 3 Phase Model POWER Main T/B R S T N **(** SUPPLY 3Ø 380 ~ 415 V AC

#### DIP SWITCH SETTINGS

#### MAIN PCB (HYDRO)





		_	_		_		)FF	_	-
	DIP SW 1	1	2	3	4	5	6	7	8
MODBUS Communication	Master (Link to LG controller)	х							
Type	Slave (Link to 3rd party controller)	0	П	Г	Г	П	Г	Г	Г
MODBUS	REGINE		х						
Function	Unified Open Protocol		0	П				П	Г
	Antifreeze is not applied			Г	П	Г	г	Г	х
Antifreeze Mode	Antifreeze is applied (Adjustable anti-freeze temp.)		П	Г	Г		Г	Г	0
	default setting	х	х	Г	П	Г	г	Г	x
						_		_	_
	DIP SW 2	1	2	3	4	5	6	7	8
Indoor Unit Type	As Master	х		Г			Г		
Setting for Group Control	As Slave	0	П	Г	П	Т	Г	Г	Г
Accessory Installation	Heat pump installation (Heating or cooling circuit only)		х	х	Г		Г	Г	Г
	Heat pump + DHW tank are installed		х	0					Г
Information	Heat pump + DHW tank + Solar thermal system are installed		0	х			Г		Г
Heat Pump Cycle	Heating only				х				Г
neat rump Cycle	Heating and cooling			Г	0	Г		Г	Г
Remote Room Air Sensor	Remote room air sensor is not installed					х	Г		Г
(Accessory)	Remote room air sensor is installed			Г	Г	0	Г	Г	Г
	Backup heater is not used	П		Т		Т	х	×	Г
Selecting Backup Heater Capacity	Half capacity is used	П	П	Г	П	П	0	×	Г
Heater Capacity	Full capacity is used						0	0	Г
Thermostat	Thermostat is not installed			Г		Т		Г	х
Installation	Thermostat is installed						Г	Г	0
	default setting	х	х	х	х	х	х	х	x

#### MAIN PCB (CYCLE)



	DIP SW 1	2	3
Low Noise Mode	Always mode : Maintain low noise mode for target temperature	х	
	Partial mode : Escape low noise mode for target temperature	0	
	Max mode		х
Peak Control	Peak control : To limit maximum current (Power saving)		0
	default setting	х	х

#### <u>NOTE</u>

- 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.



# REFERENCED APPLICATION #6 SPACE HEATING WITH 3RD PARTY CONTROLLER (MODBUS)

DWG NO.:

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10/09/2021

## **GENERAL**

#### SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve	$\overrightarrow{\square}$	Check Valve	000	RS3 Remote Controller
$\Theta$	Expansion Tank	呂	Motorized 2 Way Valve	<b>1</b>	Safety Relief Valve with drain		Remote Room Air Sensor
Ê	Air Vent	$\bowtie$	Differential Pressure Valve	₩.	Y-type strainer	•.0	Dry Contact
Q	Pressure Gauge		Thermostatic Mixing Valve	9	Flow Sensor	•	Wi-Fi Modem
	Flexible Connection	$\bowtie$	Shut Off Valve	1/7	Magnetic Contactor	-0	Thermostat
Yy	Drain	$\bowtie$	Pressure Reducing Valve	ų,	Drain Pan		Cover Plate

#### SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories							
Full Name	Description	Part No.					
RS3 wired remote controller	A wired remote controller with built-in temperature sensor.  Monobloc: supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default					

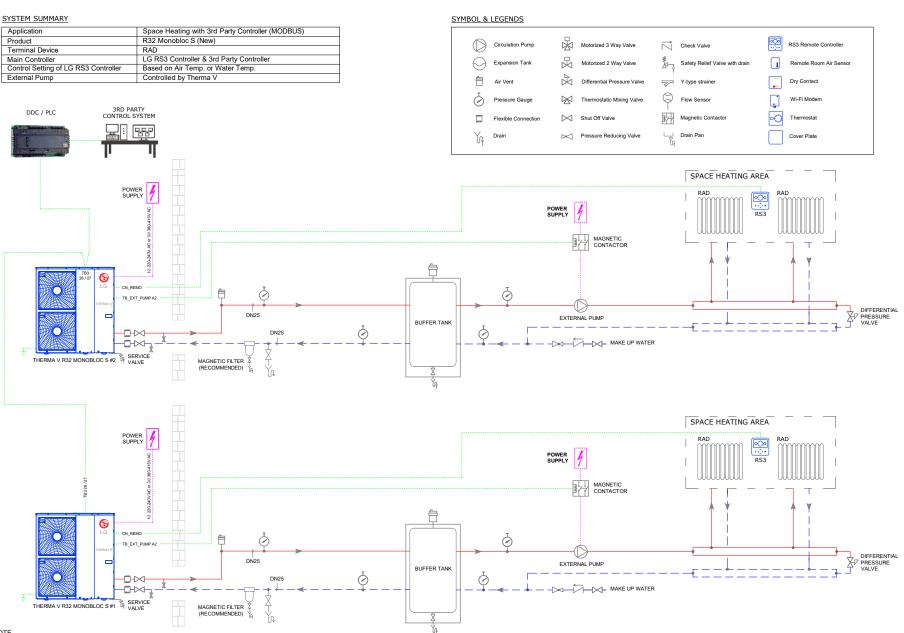
3rd party accessories	
Full Name	Description
External Pump	An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.
Magnetic Filter	A magnetic filter that collects metallic particle caused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

	Scope	of supply
LG Part No.		3rd party
PZCWRC2		v py
-		0
OSHA-3V	0	0
-		0
For IWT, OSHB-40KT	0	0
For 3rd party Back-up Heater,		
PRSTAT5K10	0	
HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	0	0
-	0	0
-		0
PDC-HK10	0	
Integrated with DHW Tank	0	0
PDRYCB000 PDRYCB320	0	
-		0
-		0
PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
	0	
	0	_
-		0
-		0
- DWW/DEW000		0
		0
PZCWRC1	- 0	0
For IMT OSHE 12KT (DHM Circuit)	_	
FOI IWI, OSHE-12KI (BHW Circuit)	U	0
-		0
-		0
-		0
OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
-		0
PACEZA000 (AC Ez Touch) PACS5A000 (AC Smart 5) PACP5A000 (ACP 5)	0	
-	0	0
-		0
PENKTH000	0	
-		0
PRSTAT5K10	0	
-	_	0
PMNFP14A1	0	
-		0
-		0
-		0
- DODETAG		0
	0	
2 Remo control		
2 Remo control		0
2 Remo control		0
-		0
- - -		0 0
- - - -		0 0 0
-		0 0 0 0
- - - -	0	0 0 0 0 0
- - - - - - OSHA-MV	0	0 0 0 0
	PZCWRC2	PZCWRC2



## REFERENCED APPLICATION #6 SPACE HEATING WITH 3RD PARTY CONTROLLER (MODBUS)

## HYDRONIC DIAGRAM



#### NOTE

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- 2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
- 3. Must fit the insulations on the entire water piping including valves and connections. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
- 4. In a cold climate region, water drainage from outdoor unit must be frost-proof.

#### ACCESSORIES LG

#### RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.

Manables : supplied with 10m length cable.

Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)

#### 3RD PARTY ACCESSORIES

#### External Pump

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

## Magnetic Filter (Recommended) A magnetic filter that collects metallic particle

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

#### Buffer Tank

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

#### DDC (Direct Digital Controller)

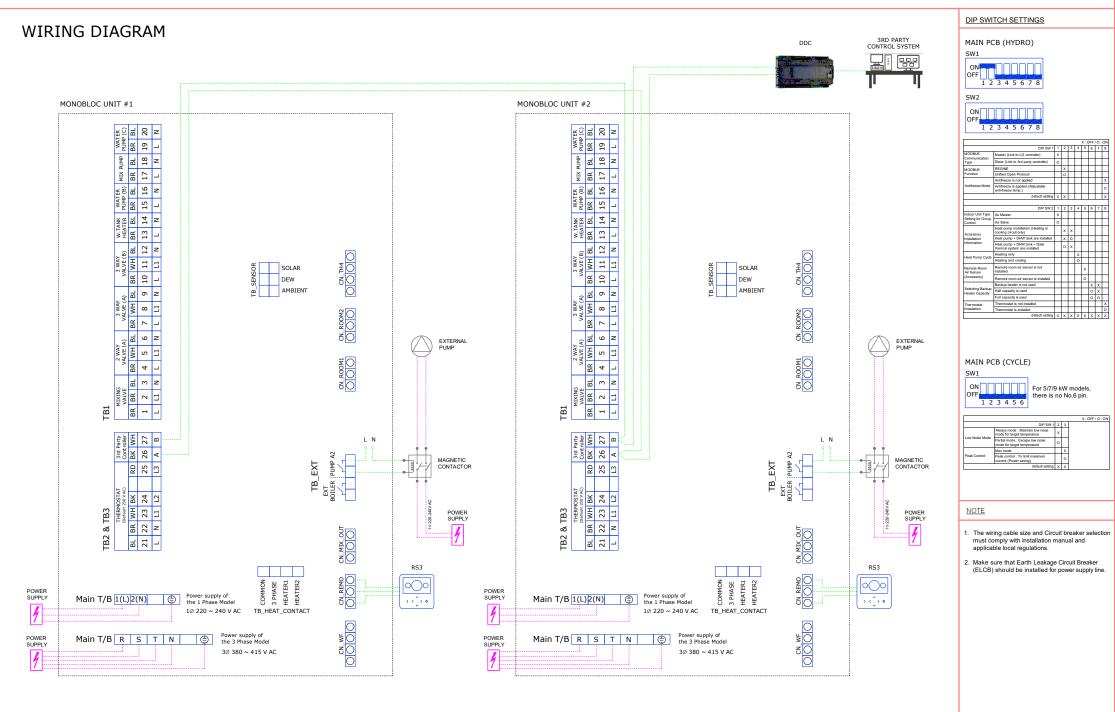
A control device that uses the analogue or digital signals from various devices and then process and control the system based on the program written inside the controllers and has the capability to sends the information to another controller.

#### Differential Pressure Valve

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



# REFERENCED APPLICATION #6 SPACE HEATING WITH 3RD PARTY CONTROLLER (MODBUS)





# REFERENCED APPLICATION #7 SPACE HEATING WITH PARALLEL INSTALLATION (LG BECON)

DWG NO.:

REV. 00

10/09/2021

## **GENERAL**

#### SYMBOL & LEGENDS

	Circulation Pump	<b>₽</b>	Motorized 3 Way Valve	Ž	Check Valve	• <u>○</u> •	RS3 Remote Controller
$\Theta$	Expansion Tank	$\mathbb{R}$	Motorized 2 Way Valve	<b>1</b>	Safety Relief Valve with drain		Remote Room Air Sensor
Ê	Air Vent	$^{\wedge}$	Differential Pressure Valve	~	Y-type strainer	<b>●.</b> a	Dry Contact
Q	Pressure Gauge		Thermostatic Mixing Valve	9	Flow Sensor		Wi-Fi Modem
	Flexible Connection	$\bowtie$	Shut Off Valve		Magnetic Contactor	-0	Thermostat
Yy	Drain	$\bowtie$	Pressure Reducing Valve	ų,	Drain Pan		Cover Plate

#### SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessorie	s	
Full Name	Description	Part No.
RS3 wired remote controller	A wired remote controller with built-in temperature sensor.  Monobloc: supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
AC EZ TOUCH	A central controller that controls THERMA V using LG AP protocol.  Max 64 units, PC access supported	PACEZA000
PI485 Gateway	A gateway device that communicates and controls through the central controller. (converting LG protocol to RS485 protocol) It should be installed onto the outdoor unit.	PMNFP14A1

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

	Scope	of supply
LG Part No.		3rd party
PZCWRC2		v py
-		0
OSHA-3V	0	0
-		0
For IWT, OSHB-40KT	0	0
For 3rd party Back-up Heater,		
PRSTAT5K10	0	
HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	0	0
-	0	0
-		0
PDC-HK10	0	
Integrated with DHW Tank	0	0
PDRYCB000 PDRYCB320	0	
-		0
-		0
PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
	0	
	0	_
-		0
-		0
- DWW/DEW000		0
		0
PZCWRC1	- 0	0
For IMT OSHE 12KT (DHM Circuit)	_	
FOI IWI, OSHE-12KI (BHW Circuit)	U	0
-		0
-		0
-		0
OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
-		0
PACEZA000 (AC Ez Touch) PACS5A000 (AC Smart 5) PACP5A000 (ACP 5)	0	
-	0	0
-		0
PENKTH000	0	
-		0
PRSTAT5K10	0	
-	_	0
PMNFP14A1	0	
-		0
-		0
-		0
- DODETAG		0
	0	
2 Remo control		
2 Remo control		0
2 Remo control		0
-		0
- - -		0 0
- - - -		0 0 0
-		0 0 0 0
- - - -	0	0 0 0 0 0
- - - - - - OSHA-MV	0	0 0 0 0
	PZCWRC2	PZCWRC2

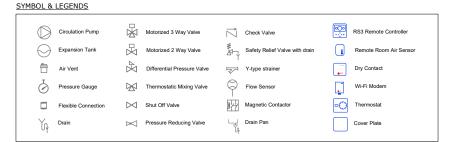


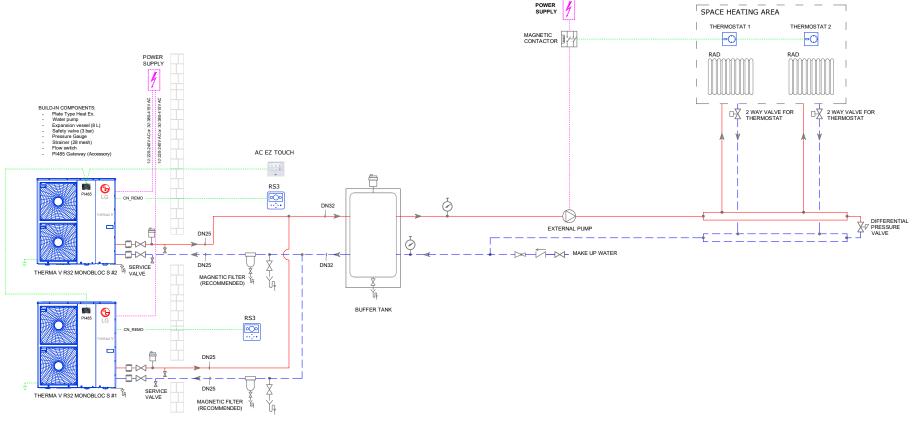
## REFERENCED APPLICATION #7 SPACE HEATING WITH PARALLEL INSTALLATION (LG BECON)

## HYDRONIC DIAGRAM

#### SYSTEM SUMMARY

Application	Space Heating with Parallel Installation
Product	R32 Monobloc S (New)
Terminal Device	RAD
Main Controller	LG Central Controller & Thermostat
Control Setting of LG RS3 Controller	Based on Water Temp.
External Pump	Controlled by Thermostat





#### NOTE

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- 2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
- 3. Must fit the insulations on the entire water piping including valves and connections. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
- 4. In a cold climate region, water drainage from outdoor unit must be frost-proof.

#### ACCESSORIES LG

#### RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.

Monobloc: supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)

#### AC Ez Touch (PACEZA000)

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

#### PI485 Gateway (PMNFP14A1)

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

#### 3RD PARTY ACCESSORIES

#### xternal 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

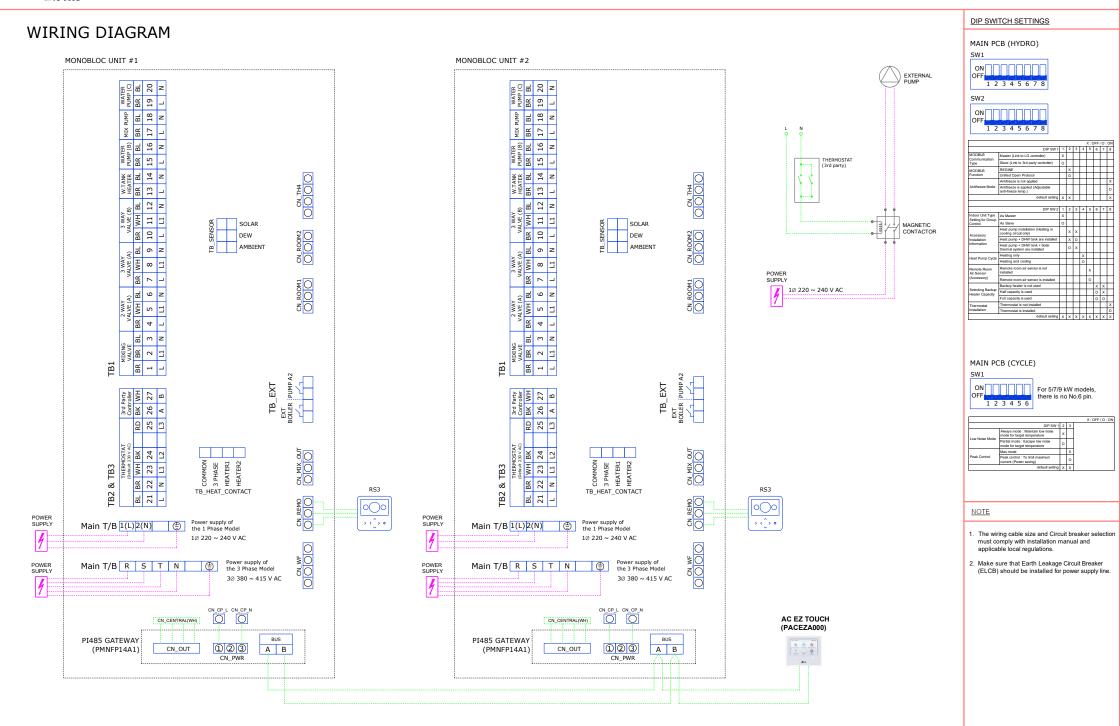
A isolation valve paired with thermostat to allow whether water flows into the water circuit.

#### Differential Pressure Valve

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



# REFERENCED APPLICATION #7 SPACE HEATING WITH PARALLEL INSTALLATION (LG BECON)





# REFERENCED APPLICATION #8 SPACE HEATING AND DHW WITH RECIRCULATION PUMP

DWG NO.:

REV. 00

10/09/2021

## **GENERAL**

#### SYMBOL & LEGENDS

	Circulation Pump	显	Motorized 3 Way Valve	.→:		), (j. s	RS3 Remote Controller
	Circulation Pump		Motorized 3 way valve	N	Check Valve	101	K33 Kelliote Colitiollel
$\Theta$	Expansion Tank	丛	Motorized 2 Way Valve	1	Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent	$\bowtie$	Differential Pressure Valve		Y-type strainer	<b>●</b> L0	Dry Contact
(S)	Pressure Gauge	M	Thermostatic Mixing Valve	9	Flow Sensor	Ŀ	Wi-Fi Modem
	Flexible Connection	$\bowtie$	Shut Off Valve	14	Magnetic Contactor	-0	Thermostat
M	Drain	$\bowtie$	Pressure Reducing Valve	Ę,	Drain Pan		Cover Plate

#### SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessorie	s	
Full Name	Description	Part No.
RS3 wired remote controller	A wired remote controller with built-in temperature sensor.  Monobloc: supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
Wi-Fi Modem	A control device that enables wireless communication with internet router.  Including USB cable 0.6m and extension cable 0.5m	PWFMDD200
Extension Cable for Wi-Fi Modem	Cable Length 10m	PWYREW000
3 Way Valve (A)	A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank.  Controlled by THERMA V with 230V power. Operating time 3s.	OSHA-3V
Domestic Hot Water Tank	A insulated stainless steel hot water tank with 2.4kW electric heating (230V). Single Coil: OSHW-200F(200L) / 300F(300L, w/ recir. port) / 500F(500L, w/ recir. port) Double coil: OSHW-300FD(300L, w/ recir. port)	Single coil w/ recir. port OSHW-300F/500F
DHW Tank Sensor	A temperature sensor for DHW tank. Cable length 12m.	PHRSTA0
Thermostatic Mixing Valve	A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.	OSHA-MV (3/4") OSHA-MV1 (1")

3rd party accessories	
Full Name	Description
External Pump	An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.
Recirculation Pump	An external water pump that circulates the water inside DHW circuit. Controlled by THERMA V with 230V power.
Magnetic Filter	A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.
Differential Pressure Valve	A self pressure regulating valve that provides constant differential pressure between supply and return headers.

ACCESSORY LIST		Scope	of supply
Full Name	LG Part No.	LG	3rd party
2 Remo Cable	PZCWRC2	0	
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
Back Up Heater	HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter  Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACS5A000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump	-		0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
Solar Pump	-		0
Safety Relief Valve	-		Ü
Strainer	-		0
Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0
Under Floor Heating Coil	-		0
Wi-Fi Modem	PWFMDD200	0	
Water Temperature Sensor	-		0



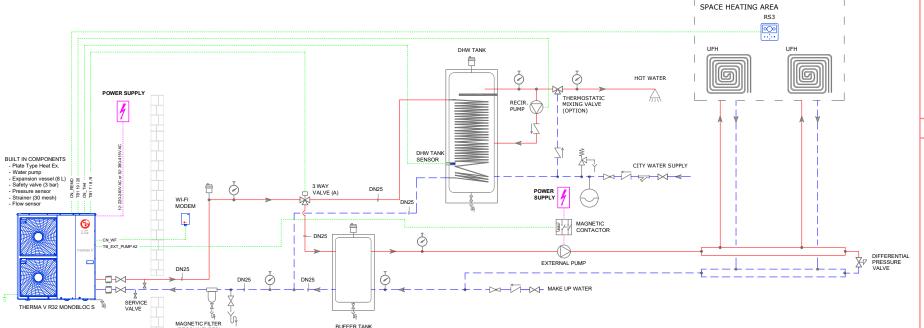
## REFERENCED APPLICATION #8 SPACE HEATING AND DHW WITH RECIRCULATION PUMP

### HYDRONIC DIAGRAM

#### SYSTEM SUMMARY

Application	Space Heating & DHW
Product	R32 Monobloc S (New)
Terminal Device	UFH
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Air Temp. or Water Temp.
External Pump	Controlled by THERMA V

# SYMBOL & LEGENDS Circulation Pump Expansion Tank Motorized 3 Way Valve Expansion Tank Motorized 2 Way Valve Safety Relief Valve with drain Remote Room Air Sensor Air Vent Differential Pressure Valve Flow Sensor Flow Sensor Flow Sensor Wi-Fi Modern Thermostatic Thermo



#### NOTE

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- 2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
- 3. Must fit the insulations on the entire water piping including valves and connections. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
- 4. In a cold climate region, water drainage from outdoor unit must be frost-proof.

#### ACCESSORIES LG

#### RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.

Monobloc : supplied with 10m length cable,

extendable up to max. 50m using extension cable (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

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

Cable Length 10m

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

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

#### Domestic Hot Water Tank (OSHW-300F/500F) A insulated stainless steel hot water tank with

2.4kW electric heating (230V) and recirculation port.
Single Coil: OSHW-300F(300L) / 500F(500L)

#### DHW Tank Sensor (PHRSTA0)

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

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

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

#### 3RD PARTY ACCESSORIES

#### External Pump

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

#### Recirculation Pump

An external water pump that circulates the water inside DHW circuit.

Controlled by THERMA V with 230V power.

#### Magnetic Filter (Recommended)

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

#### Buffer Tank

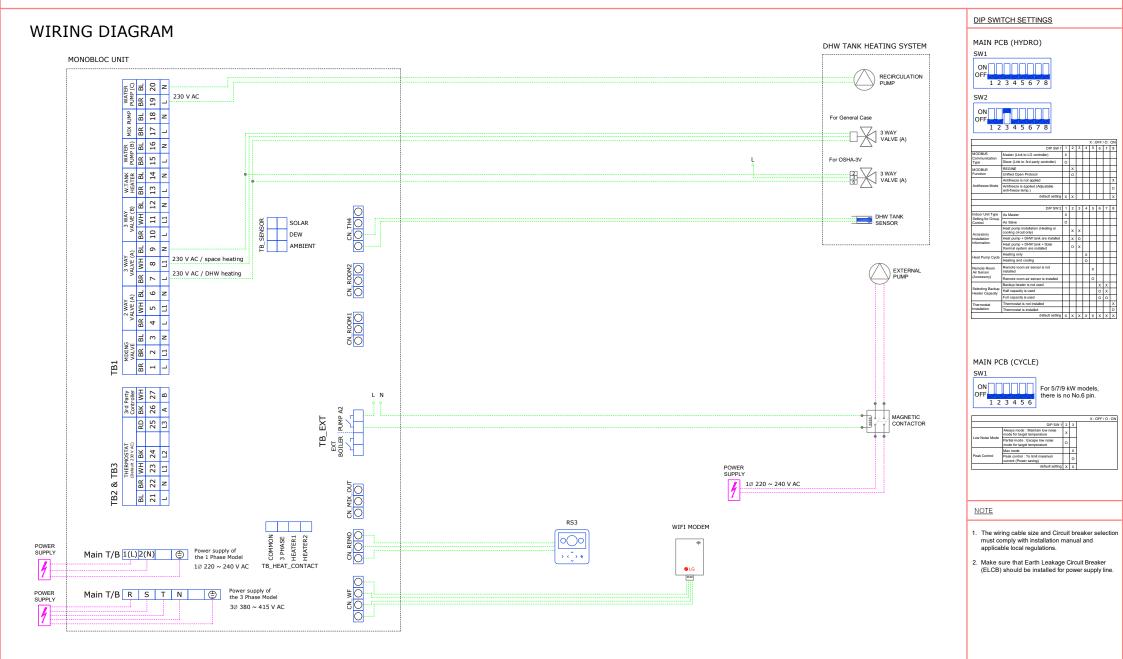
A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

#### Differential Pressure Valve

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



## REFERENCED APPLICATION #8 SPACE HEATING AND DHW WITH RECIRCULATION PUMP





# REFERENCED APPLICATION #9 SPACE HEATING AND DHW WITH BOOSTER HEATER

DWG NO.:

REV. 00

10/09/2021

## **GENERAL**

#### SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve	Ž	Check Valve	000	RS3 Remote Controller
$\odot$	Expansion Tank	尽	Motorized 2 Way Valve	<b>≸</b> ¬	Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent	$\bowtie$	Differential Pressure Valve	₩.	Y-type strainer	•.0	Dry Contact
$\odot$	Pressure Gauge		Thermostatic Mixing Valve	9	Flow Sensor	•	Wi-Fi Modem
	Flexible Connection	$\bowtie$	Shut Off Valve	17	Magnetic Contactor	-0	Thermostat
Yy	Drain	$\bowtie$	Pressure Reducing Valve		Drain Pan		Cover Plate

#### SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories	s	
Full Name	Description	Part No.
RS3 wired remote controller	A wired remote controller with built-in temperature sensor.  Monobloc: supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
Wi-Fi Modem	A control device that enables wireless communication with internet router. Including USB cable 0.6m and extension cable 0.5m	PWFMDD200
Extension Cable for Wi-Fi Modem	Cable Length 10m	PWYREW000
3 Way Valve (A)	A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank.  Controlled by THERMA V with 230V power. Operating time 3s.	OSHA-3V
Domestic Hot Water Tank	A insulated stainless steel hot water tank with 2.4kW electric heating (230V). Single Coil : OSHW-200F(200L) / 300F(300L) / 500F(500L) Double coil : OSHW-300FD(300L)	Single coil : OSHW-200F/300F/500F
DHW Booster Heater	An electric heater for DHW heating integrated with DHW tank (2.4kW, 230V) Controlled by THERMA V with 230V power.	Integrated with DHW Tank
DHW Tank Kit	A set of electrical devices for controlling of electric booster heater up to 32A Including Circuit Breaker, Magnetic Contactor and DHW Temp. sensor (PHRSTA0)	PHLTB (Monobloc)
DHW Tank Temperature Sensor	A temperature sensor for DHW tank. Cable length 12m.	PHRSTA0, Included in DHW Tank Kit (PHLTB)
Thermostatic Mixing Valve	A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.	OSHA-MV (3/4") OSHA-MV1 (1")

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

Full Name	LG Part No.	Scope c	
	-	LG	3rd party
2 Remo Cable	PZCWRC2	0	
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTATS/10 HA031M E1 (10, 3kW, Monobloc) HA061M E1 (10, 6kW, Monobloc) HA063M E1 (30, 6kW, Monobloc) HA061C E1 (10, 6kW, Hydrosplit)	0	0
Oliver it December	HA063C E1 (3Ø, 6kW, Hydrosplit)		
Circuit Breaker	-	0	0
Check Valve	PDC-HK10		0
Cover Plate		0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve  DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	0
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	_		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACS5A000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump	-		0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
Solar Pump	-		0
Safety Relief Valve	-		0
Strainer	-		0
Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
	OSHA-MV		
Thermostatic Mixing Valve Under Floor Heating Coil	OSHA-MV1	0	0
	PWFMDD200	0	
Wi-Fi Modem			



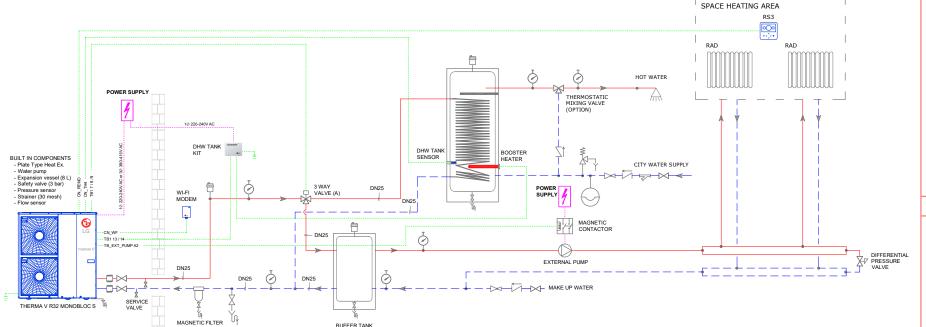
## REFERENCED APPLICATION #9 SPACE HEATING AND DHW WITH BOOSTER HEATER

## HYDRONIC DIAGRAM

#### SYSTEM SUMMARY

Application	Space Heating & DHW
Product	R32 Monobloc S (New)
Terminal Device	UFH
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Air Temp. or Water Temp.
External Pump	Controlled by THERMA V

#### SYMBOL & LEGENDS RS3 Remote Controller Circulation Pump Motorized 3 Way Valve Check Valve Safety Relief Valve with drain Remote Room Air Sensor Differential Pressure Valve Y-type strainer Thermostatic Mixing Valve Wi-Fi Modem Shut Off Valve Magnetic Contactor Pressure Reducing Valve Cover Plate



#### NOTE

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- 2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
- 3. Must fit the insulations on the entire water piping including valves and connections. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
- 4. In a cold climate region, water drainage from outdoor unit must be frost-proof.

#### ACCESSORIES LG

#### RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.

Monobloc: supplied with 10m length cable,

extendable up to max. 50m using extension cable (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

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

Cable Length 10m

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

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

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

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

## DHW Booster Heater (Integrated with DHW Tank)

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

#### DHW Tank Kit (PHLTB)

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

#### DHW Tank Sensor (PHRSTA0)

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

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

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

#### 3RD PARTY ACCESSORIES

#### External Pump

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

#### Magnetic Filter (Recommended)

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

#### **Buffer Tank**

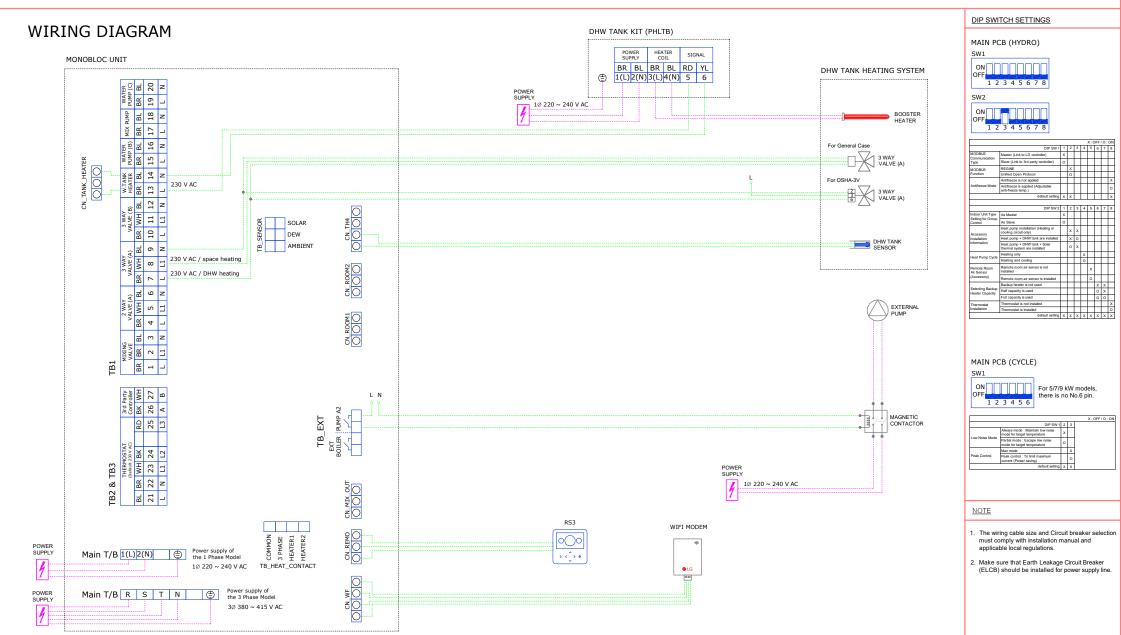
A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

#### Differential Pressure Valve

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



## REFERENCED APPLICATION #9 SPACE HEATING AND DHW WITH BOOSTER HEATER





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

DWG NO.:

REV. 00

10/09/2021

## **GENERAL**

#### SYMBOL & LEGENDS

	Circulation Pump	$\blacksquare$	Motorized 3 Way Valve	$\overrightarrow{\square}$	Check Valve	000	RS3 Remote Controller
$\Theta$	Expansion Tank	呂	Motorized 2 Way Valve	<b>1</b>	Safety Relief Valve with drain		Remote Room Air Sensor
Ê	Air Vent	$\bowtie$	Differential Pressure Valve	₩.	Y-type strainer	•.0	Dry Contact
Q	Pressure Gauge		Thermostatic Mixing Valve	9	Flow Sensor	•	Wi-Fi Modem
	Flexible Connection	$\bowtie$	Shut Off Valve	1/7	Magnetic Contactor	-0	Thermostat
Yy	Drain	$\bowtie$	Pressure Reducing Valve	ų,	Drain Pan		Cover Plate

#### SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories	3		
Full Name	Description	Part No.	
RS3 wired remote controller	A wired remote controller with built-in temperature sensor.  Monobloc: supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default	
3 Way Valve (A)	A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank.  Controlled by THERMA V with 230V power. Operating time 3s.	OSHA-3V	
Domestic Hot Water Tank	A insulated stainless steel hot water tank with 2.4kW electric heating (230V). Single Coil : OSHW-200F(200L) / 300F(300L) / 500F(500L) Double coil : OSHW-300FD(300L)	Single coil : OSHW-200F/300F/500F	
DHW Tank Temperature Sensor A temperature sensor for DHW tank. Cable length 12m.		PHRSTA0	
Thermostatic Mixing Valve	A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.	OSHA-MV (3/4") OSHA-MV1 (1")	

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

		Scone	of supply
Full Name	LG Part No.	LG	3rd party
2 Remo Cable	PZCWRC2	0	. ,
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
Back Up Heater	HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACS5A000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump			0
	- 1		
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
	PRSTAT5K10	0	0
Mixing Zone Temperature Sensor	PRSTAT5K10 - - PMNFP14A1	0	0
Mixing Zone Temperature Sensor Mixing Valve	-	-	0
Mixing Zone Temperature Sensor Mixing Valve PI485 Gateway	-	-	
Mixing Zone Temperature Sensor Mixing Valve Pl485 Gateway Pressure Gauge	- PMNFP14A1 -	-	0
Mixing Zone Temperature Sensor Mixing Valve Pl485 Gateway Pressure Gauge Plate Heat Exchanger	- PMNFP14A1 - -	-	0
Mixing Zone Temperature Sensor Mixing Valve PI485 Gateway Pressure Gauge Plate Heat Exchanger Radiator	PMNFP14A1 - - -	-	0 0
Mixing Zone Temperature Sensor Mixing Valve Pl485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump	PMNFP14A1	0	0 0
Mixing Zone Temperature Sensor Mixing Valve Pl485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump Remote Room Air Temperature Sensor	- PMNFP14A1	0	0 0
Mixing Zone Temperature Sensor Mixing Valve Pl485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump Remote Room Air Temperature Sensor Standard III Remote Controller	PMNFP14A1	0	0 0 0 0
Mixing Zone Temperature Sensor Mixing Valve PI485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump Remote Room Air Temperature Sensor Standard III Remote Controller Solar Pump Safety Relief Valve	PMNFP14A1	0	0 0 0
Mixing Zone Temperature Sensor Mixing Valve Pl485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump Remote Room Air Temperature Sensor Standard III Remote Controller Solar Pump Safety Relief Valve Strainer	PMNFP14A1	0	0 0 0 0
Mixing Zone Temperature Sensor Mixing Valve Pl485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump Remote Room Air Temperature Sensor Standard III Remote Controller Solar Pump Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000)	PMNFP14A1	0	0 0 0 0
Mixing Zone Temperature Sensor Mixing Valve PI485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump Remote Room Air Temperature Sensor Standard III Remote Controller Solar Pump Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000) Service Valve	PMNFP14A1	0	0 0 0 0 0
Mixing Zone Temperature Sensor Mixing Valve PI485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump Remote Room Air Temperature Sensor Standard III Remote Controller Solar Pump Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000) Service Valve Thermostat	PMNFP14A1  PMNFP14A1  PORSTA0  PORSTA0  Default, PREMTW101 for 2 Remo control	0 0	0 0 0 0 0
Mixing Zone Temperature Sensor Mixing Valve PI485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump Remote Room Air Temperature Sensor Standard III Remote Controller Solar Pump Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000) Service Valve Thermostat Thermostatic Mixing Valve	- PMNFP14A1	0	0 0 0 0 0 0 0 0 0
Mixing Zone Temperature Sensor Mixing Valve PI485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump Remote Room Air Temperature Sensor Standard III Remote Controller Solar Pump Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000) Service Valve Thermostat	- PMNFP14A1	0 0	0 0 0 0 0



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

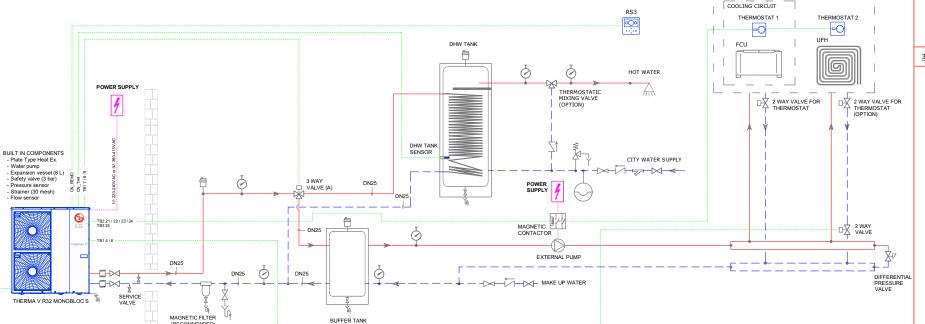
## HYDRONIC DIAGRAM

#### SYSTEM SUMMARY

Application	Space Heating, Cooling, and DHW with Thermostat
Product	R32 Monobloc S (New)
Terminal Device	UFH(H) + FCU(H&C)
Main Controller	Thermostat
Control Setting of LG RS3 Controller	Based on Water Temp.
External Pump	Controlled by Thermostat

# SYMBOL & LEGENDS Circulation Pump Expansion Tank Motorized 3 Way Valve Expansion Tank Differential Pressure Valve V-1-ype strainer Drain Pressure Gauge Pressure Gauge Pressure Reducing Valve Pressure Reducing Valve

SPACE HEATING AREA



#### NOTE

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- 2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
- 3. Must fit the insulations on the entire water piping including valves and connections. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
- 4. In a cold climate region, water drainage from outdoor unit must be frost-proof.

#### ACCESSORIES LG

#### RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.

Monobloc : supplied with 10m length cable, extendable up to max. 50m using extension cable (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

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

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

#### 3RD PARTY ACCESSORIES

#### External Pump

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

#### Magnetic Filter (Recommended)

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

#### **Buffer Tank**

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

#### 2 Way Valve

A motorized isolation valve that blocks the water flow into underfloor coil in order to prevent water condensation during cooling mode.

Controlled by THERMA V with 230V power.

Required operating time: less than 90s.

#### Thermostat

return headers

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

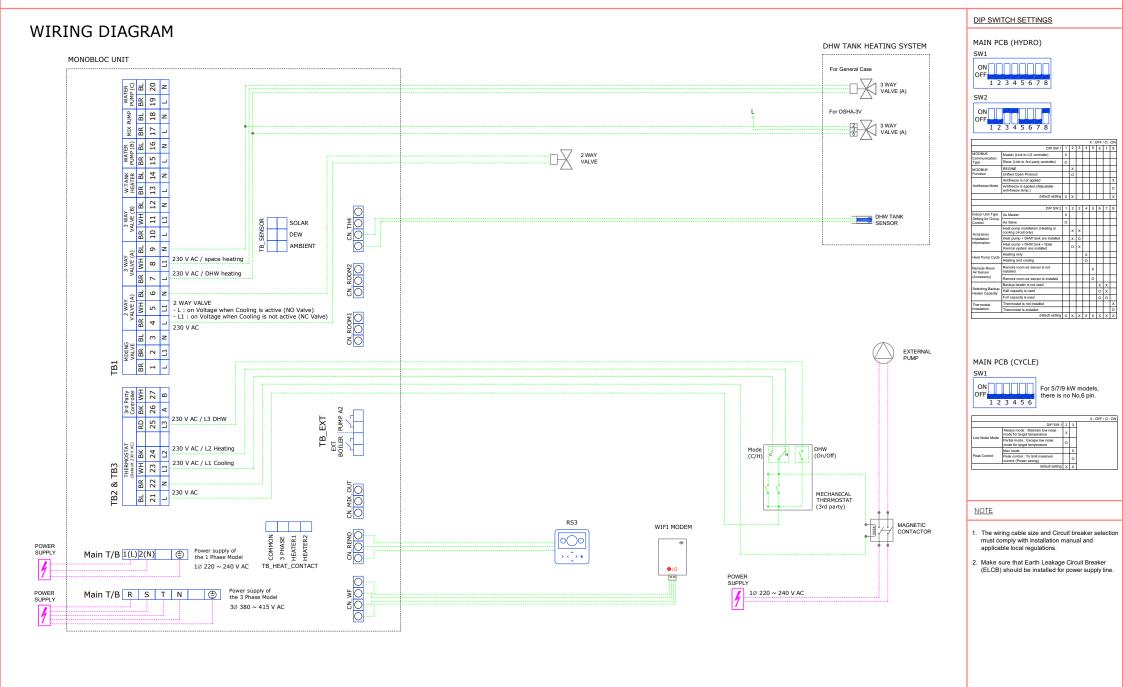
A isolation valve paired with thermostat to allow whether water flows into the water circuit.

#### Differential Pressure Valve

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



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





# REFERENCED APPLICATION #11 SPACE HEATING AND DHW WITH EXTERNAL BOILER

DWG NO.:

REV. 00

10/09/2021

# **GENERAL**

## SYMBOL & LEGENDS

	Circulation Pump		Motorized 3 Way Valve	Ž	Check Valve	000	RS3 Remote Controller
$\Theta$	Expansion Tank	$\mathbb{Z}$	Motorized 2 Way Valve	\$-	Safety Relief Valve with drain		Remote Room Air Sensor
Ê	Air Vent	$\nearrow$	Differential Pressure Valve	~	Y-type strainer	•••	Dry Contact
Q	Pressure Gauge		Thermostatic Mixing Valve	9	Flow Sensor	•	Wi-Fi Modem
	Flexible Connection	$\bowtie$	Shut Off Valve	17	Magnetic Contactor	-0	Thermostat
Yq	Drain	$\bowtie$	Pressure Reducing Valve	Ę,	Drain Pan		Cover Plate

## SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

Full Name	Description	Part No.
RS3 wired remote controller	A wired remote controller with built-in temperature sensor.  Monobloc: supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
Wi-Fi Modem	PWFMDD200	
Extension Cable for Wi-Fi Modem Cable Length 10m		PWYREW000
3 Way Valve (A)	A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank.  Controlled by THERMA V with 230V power. Operating time 3s.	OSHA-3V
Domestic Hot Water Tank	A insulated stainless steel hot water tank with 2.4kW electric heating (230V). Single Coil : OSHW-200F(200L) / 300F(300L) / 500F(500L) Double coil : OSHW-300FD(300L)	Single coil : OSHW-200F/300F/500I
HW Tank Temperature Sensor	A temperature sensor for DHW tank. Cable length 12m.	PHRSTA0
Thermostatic Mixing Valve	A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.	OSHA-MV (3/4") OSHA-MV1 (1")

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

Full Name	LG Part No.	LG	of supply 3rd party
2 Remo Cable	PZCWRC2	0	ord party
2 Kemo Cable 2way Valve	PZCWRCZ		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
	For 3rd party Back-up Heater,		
Back-up Heater Temperature Sensor  Back Up Heater	PRSTAT5K10 HA031M E1 (1/0, 3kW, Monobloc) HA061M E1 (1/0, 6kW, Monobloc) HA063M E1 (3/0, 6kW, Monobloc) HA063C E1 (1/0, 6kW, Hydrosplit) HA063C E1 (3/0, 6kW, Hydrosplit)	0	0
Circuit Breaker	HAUGSC ET (30, 6kW, Hydrospiil)	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	0
Direct Digital Controller	1 BIX1 6B320		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	0
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACS5A000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway	PMNFP14A1	0	
Pressure Gauge	-		0
Plate Heat Exchanger	-		0
Radiator	-		0
Recirculation Pump	-		0
Remote Room Air Temperature Sensor	PQRSTA0	0	
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0	
Solar Pump	-		0
Safety Relief Valve	-		0
Strainer	-		0
Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0
Under Floor Heating Coil	-		0
Wi-Fi Modem	PWFMDD200	0	
Water Temperature Sensor	-		0



# REFERENCED APPLICATION #11 SPACE HEATING AND DHW WITH EXTERNAL BOILER

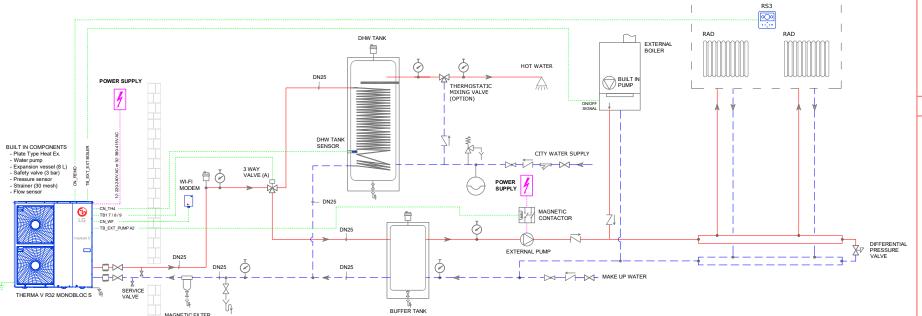
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating & DHW with External Boiler
Product	R32 Monobloc S (New)
Terminal Device	RAD
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Air Temp.
External Pump	Controlled by THERMA V

### SYMBOL & LEGENDS RS3 Remote Controller Circulation Pump Motorized 3 Way Valve Check Valve Safety Relief Valve with drain Remote Room Air Sensor Differential Pressure Valve Y-type strainer Thermostatic Mixing Valve Wi-Fi Modem Shut Off Valve Magnetic Contactor Pressure Reducing Valve Cover Plate

SPACE HEATING AREA



### NOT

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- 2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
- 3. Must fit the insulations on the entire water piping including valves and connections. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
- 4. In a cold climate region, water drainage from outdoor unit must be frost-proof.

### ACCESSORIES LG

### RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.

Monobloc: supplied with 10m length cable,

extendable up to max. 50m using extension cable (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

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

Cable Length 10m

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

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

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

À 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

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

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

### 3RD PARTY ACCESSORIES

### External Pump

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

### Magnetic Filter (Recommended)

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

### Buffer Tank

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

### External Boiler

An external boiler supplied by a 3rd party that operates alternatively interlocking with THERMA V The external boiler should have a intergrated or dedicated circulation pump.

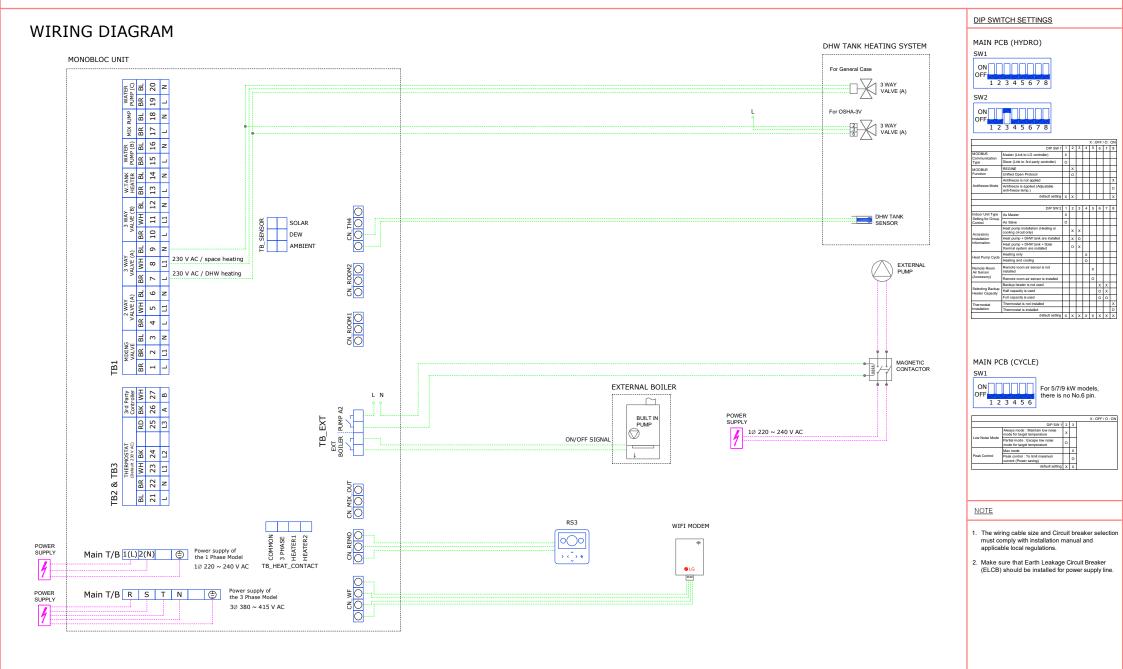
Controlled by THERMA V with voltage free contact switch.

### Differential Pressure Valve

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



# REFERENCED APPLICATION #11 SPACE HEATING AND DHW WITH EXTERNAL BOILER





# REFERENCED APPLICATION #12 SPACE HEATING AND DHW WITH BACK-UP HEATER

DWG NO.:

REV. 00

10/09/2021

# **GENERAL**

## SYMBOL & LEGENDS

	Circulation Pump	<b>₩</b>	Motorized 3 Way Valve	ightharpoonup	Check Valve	000	RS3 Remote Controller
$\Theta$	Expansion Tank	$\mathbb{R}$	Motorized 2 Way Valve	\$-	Safety Relief Valve with drain		Remote Room Air Sensor
Ê	Air Vent	$^{\wedge}$	Differential Pressure Valve		Y-type strainer	•.0	Dry Contact
Q	Pressure Gauge		Thermostatic Mixing Valve	9	Flow Sensor	•	Wi-Fi Modem
	Flexible Connection	$\bowtie$	Shut Off Valve	17	Magnetic Contactor	-0	Thermostat
Yq.	Drain	$\bowtie$	Pressure Reducing Valve	Ų.	Drain Pan		Cover Plate

## SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

Full Name	Description	Part No.			
RS3 wired remote controller	Monobloc: supplied with 10m length cable, extendable up to max, 50m using				
Wi-Fi Modem	Wi-Fi Modem A control device that enables wireless communication with internet router.  Including USB cable 0.6m and extension cable 0.5m				
Extension Cable for Wi-Fi Modem	PWYREW000				
A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank.  Controlled by THERMA V with 230V power. Operating time 3s.		OSHA-3V			
Domestic Hot Water Tank  A insulated stainless steel hot water tank with 2.4kW electric heating (230V). Single Coil: OSHW-200F(200L) / 300F(300L) / 500F(500L) Double coil: OSHW-300FD(300L)		Single coil : OSHW-200F/300F/500F			
DHW Tank Temperature Sensor	A temperature sensor for DHW tank. Cable length 12m.	PHRSTA0			
Thermostatic Mixing Valve	A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.	OSHA-MV (3/4") OSHA-MV1 (1")			
Backup Heater	An electric heater for supplementing insufficient capacity in case of extremely low ambient temperature or emergency operation.  Controlled by THERMA V with 230V power.	Optional for Monobloc HA031M.E1 (3kW, 1Ø) HA061M.E1 (6kW, 1Ø) HA063M.E1 (6kW, 3Ø)			

3rd party accessories						
Full Name	Description					
External Pump	An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss. Controlled by THERMA V with 230V power.					
Magnetic Filter	A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.					
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.					
Differential Pressure Valve	A self pressure regulating valve that provides constant differential pressure between supply and return headers.					

ACCESSORT EIST			
Full Name	LG Part No.		of supply
		LG	3rd party
2 Remo Cable	PZCWRC2	0	
2way Valve 3way Valve	- OSHA-3V	0	0
Air Vent Valve	USHA-3V	0	0
Buffer Tank	For IWT, OSHB-40KT	0	0
	For 3rd party Back-up Heater,		+ 0
Back-up Heater Temperature Sensor	PRSTAT5K10	0	
Back Up Heater	HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	+
Drain Pan	PHDPC	0	-
Drain Valve	-		0
External Boiler	-		0
Energy Meter Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	FZCWRC1	- 0	0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection		- 0	0
Fan Coil Unit	-		0
Flow Sensor	_		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACS5A000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump	-		0
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
Mixing Valve	-		0
PI485 Gateway Pressure Gauge	PMNFP14A1	0	+
	-		0
Plate Heat Exchanger Radiator	-		0
Radiator Recirculation Pump	-		0
Remote Room Air Temperature Sensor	PQRSTA0	0	0
· · · · · · · · · · · · · · · · · · ·	Default, PREMTW101 for		+
Standard III Remote Controller Solar Pump	2 Remo control	0	0
Safety Relief Valve	-		0
Strainer	-		0
Solar Temperature Sensor (PT-1000)	-		0
Service Valve	-		0
Thermostat	-		0
Thermostatic Mixing Valve	OSHA-MV	0	0
Under Floor Heating Coil	OSHA-MV1		0
Wi-Fi Modem	PWFMDD200	0	



# REFERENCED APPLICATION #12 SPACE HEATING AND DHW WITH BACK-UP HEATER

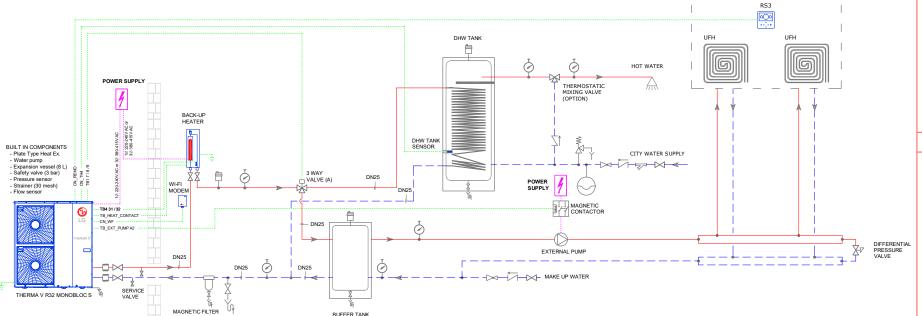
## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating & DHW with Back-up Heater
Product	R32 Monobloc S (New)
Terminal Device	UFH
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Air Temp. or Water Temp.
External Pump	Controlled by THERMA V

#### SYMBOL & LEGENDS RS3 Remote Controller Circulation Pump Motorized 3 Way Valve Check Valve Safety Relief Valve with drain Remote Room Air Sensor Differential Pressure Valve Y-type strainer Thermostatic Mixing Valve Wi-Fi Modem Shut Off Valve Magnetic Contactor Pressure Reducing Valve Cover Plate

SPACE HEATING AREA



### NOTE

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- 2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
- 3. Must fit the insulations on the entire water piping including valves and connections. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
- 4. In a cold climate region, water drainage from outdoor unit must be frost-proof.

### ACCESSORIES LG

### RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.

Monobloc: supplied with 10m length cable,

extendable up to max. 50m using extension cable (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

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

Cable Length 10m

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

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

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

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

#### DHW Tank Sensor (PHRSTA0)

A temperature sensor for DHW tank. Cable length

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

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

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

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

### 3RD PARTY ACCESSORIES

### External Pump

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

### Magnetic Filter (Recommended)

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

### **Buffer Tank**

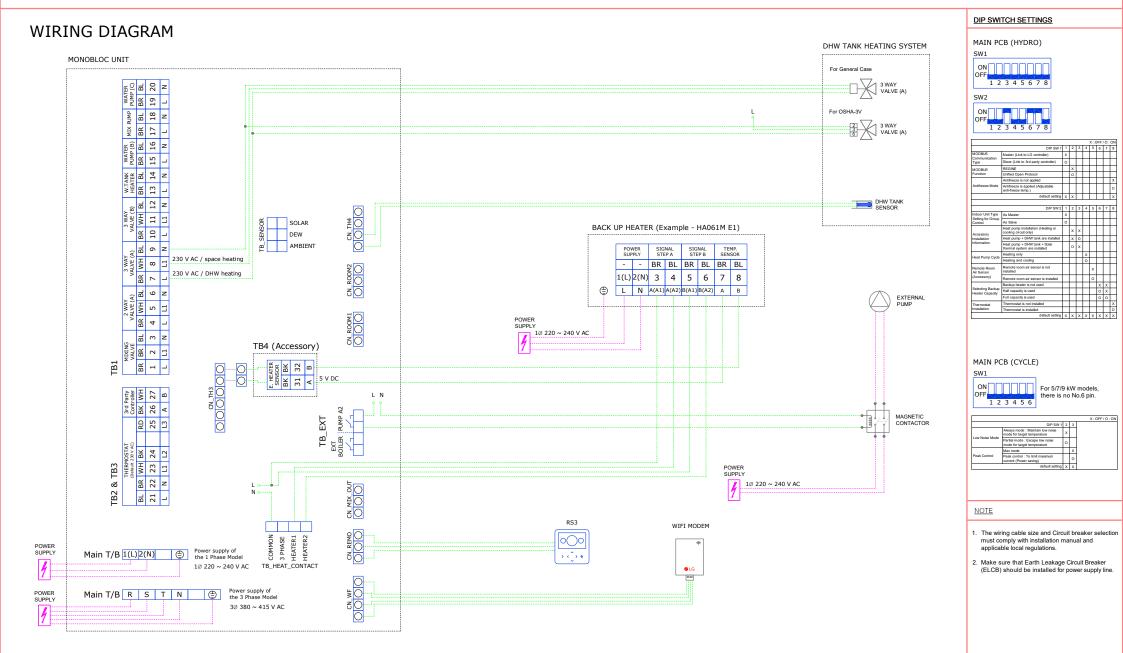
A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.

### Differential Pressure Valve

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



# REFERENCED APPLICATION #12 SPACE HEATING AND DHW WITH BACK-UP HEATER





# REFERENCED APPLICATION #13 SPACE HEATING, COOLING, AND DHW WITH SOLAR PANEL AND THERMOSTAT

DWG NO.:

REV. 00

10/09/2021

# **GENERAL**

## SYMBOL & LEGENDS

	Circulation Pump	$\overline{\mathbb{A}}$	Motorized 3 Way Valve	$\overrightarrow{\square}$	Check Valve	• <u></u> 00	RS3 Remote Controller
$\Theta$	Expansion Tank	$\mathbb{R}$	Motorized 2 Way Valve	\$-	Safety Relief Valve with drain		Remote Room Air Sensor
	Air Vent	$\bowtie$	Differential Pressure Valve	<b>\tau</b>	Y-type strainer	•.0	Dry Contact
⊙ -	Pressure Gauge	$\bowtie$	Thermostatic Mixing Valve	9	Flow Sensor		Wi-Fi Modem
	Flexible Connection	$\bowtie$	Shut Off Valve	1/7	Magnetic Contactor	-0	Thermostat
M	Drain	$\bowtie$	Pressure Reducing Valve	Ų.	Drain Pan		Cover Plate

## SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

LG supplied accessories	S	
Full Name	Description	Part No.
RS3 wired remote controller	A wired remote controller with built-in temperature sensor.  Monobloc: supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default
3 Way Valve (A)	A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank.  Controlled by THERMA V with 230V power. Operating time 3s.	OSHA-3V
Domestic Hot Water Tank	A insulated stainless steel hot water tank with 2.4kW electric heating (230V). Single Coil : OSHW-200F(200L) / 300F(300L) / 500F(500L) Double coil : OSHW-300FD(300L)	Double coil : OSHW-300FD
OHW Tank Temperature Sensor	A temperature sensor for DHW tank. Cable length 12m.	PHRSTA0
Thermostatic Mixing Valve	A mixing valve that blends hot water with cold water to ensure constant, safe shower and bath outlet temperatures, preventing scalding.	OSHA-MV (3/4") OSHA-MV1 (1")

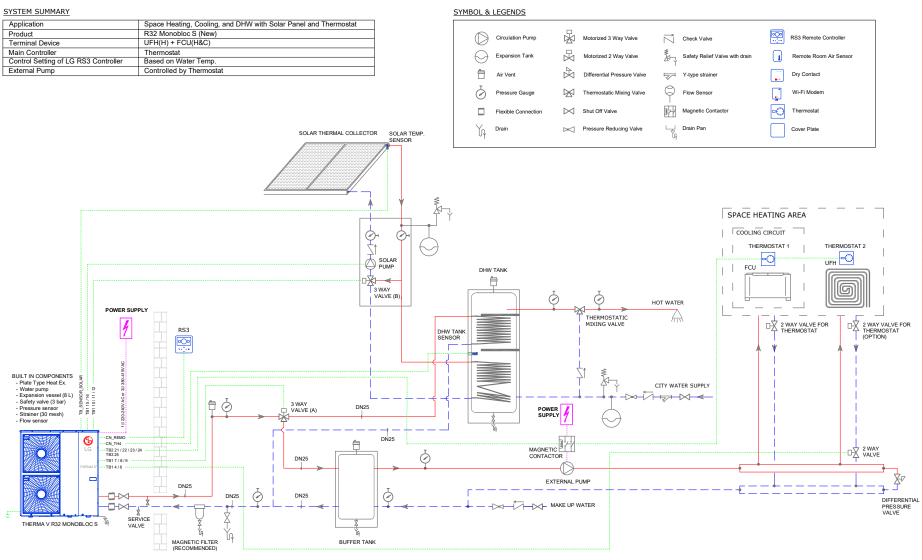
Full Name	Description	
External Pump	An external water pump that circulates the water inside piping when water circuit is segregated or pump discharge head is insufficient to overcome total system friction loss.  Controlled by THERMA V with 230V power.	
Magnetic Filter	A magnetic filter that collects metallic particle caused by corrosion or erosion. It is strongly recommended to install the magnetic filter to protect heat pump system.	
Buffer Tank	A water tank containing certain amount of water that secures the required minimum water volume for the system or stores heat energy which is needed for defrosting and reducing start up load.	
2 Way Valve	A motorized isolation valve that blocks the water flow into underfloor coil in order to prevent water condensatio during cooling mode.  Controlled by THERMA V with 230V power. Required operating time: less than 90s.	
Solar Pump	An external water pump that circulates the water inside solar thermal system.  Controlled by THERMA V with 230V power.	
Solar Temperature Sensor	A temperature sensor (PT-1000) for solar thermal system.	
3 Way Valve (B)	A motorized 3-way diverting valve determining flow direction to either DHW tank or bypass (recirculation).  Controlled by THERMA V with 230V power.  Required operating time: less than 90s.	
A control device that senses the temperature of a room and performs actions so that the room's tempera maintained near a desired setpoint.  Thermostat  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.	

		Scone	of supply
Full Name	LG Part No.	LG	3rd party
2 Remo Cable	PZCWRC2	0	. ,
2way Valve	-		0
3way Valve	OSHA-3V	0	0
Air Vent Valve	-		0
Buffer Tank	For IWT, OSHB-40KT	0	0
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10	0	
Back Up Heater	HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc) HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	0	0
Circuit Breaker	-	0	0
Check Valve	-		0
Cover Plate	PDC-HK10	0	
DHW Booster Heater	Integrated with DHW Tank	0	0
Dry Contact	PDRYCB000 PDRYCB320	0	
Direct Digital Controller	-		0
Differential Pressure Valve	-		0
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0	
Drain Pan	PHDPC	0	
Drain Valve	-		0
External Boiler	-		0
Energy Meter	-		0
Extension Cable for Wi-Fi Modem	PWYREW000	0	0
Extension Wire for RS3 Controller	PZCWRC1	0	
External Pump	-		0
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0
Flexible Connection	-		0
Fan Coil Unit	-		0
Flow Sensor	-		0
Heat Meter	-		0
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0
Isolation Valve	-		0
LG Central Controller	PACEZA000 (AC Ez Touch) PACS5A000 (AC Smart 5) PACP5A000 (ACP 5)	0	
Magnetic Contactor	-	0	0
Magnetic Filter	-		0
Meter Interface	PENKTH000	0	
Mixing Pump			0
	- 1		
Mixing Zone Temperature Sensor	PRSTAT5K10	0	
	PRSTAT5K10	0	0
Mixing Zone Temperature Sensor	PRSTAT5K10 - - PMNFP14A1	0	0
Mixing Zone Temperature Sensor Mixing Valve	-	-	0
Mixing Zone Temperature Sensor Mixing Valve PI485 Gateway	-	-	
Mixing Zone Temperature Sensor Mixing Valve Pl485 Gateway Pressure Gauge	- PMNFP14A1 -	-	0
Mixing Zone Temperature Sensor Mixing Valve Pl485 Gateway Pressure Gauge Plate Heat Exchanger	- PMNFP14A1 - -	-	0
Mixing Zone Temperature Sensor Mixing Valve PI485 Gateway Pressure Gauge Plate Heat Exchanger Radiator	PMNFP14A1 - - -	-	0 0
Mixing Zone Temperature Sensor Mixing Valve Pl485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump	PMNFP14A1	0	0 0
Mixing Zone Temperature Sensor Mixing Valve Pl485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump Remote Room Air Temperature Sensor	- PMNFP14A1	0	0 0
Mixing Zone Temperature Sensor Mixing Valve Pl485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump Remote Room Air Temperature Sensor Standard III Remote Controller	PMNFP14A1	0	0 0 0 0
Mixing Zone Temperature Sensor Mixing Valve PI485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump Remote Room Air Temperature Sensor Standard III Remote Controller Solar Pump Safety Relief Valve	PMNFP14A1	0	0 0 0
Mixing Zone Temperature Sensor Mixing Valve Pl485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump Remote Room Air Temperature Sensor Standard III Remote Controller Solar Pump Safety Relief Valve Strainer	PMNFP14A1	0	0 0 0 0
Mixing Zone Temperature Sensor Mixing Valve Pl485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump Remote Room Air Temperature Sensor Standard III Remote Controller Solar Pump Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000)	PMNFP14A1	0	0 0 0 0
Mixing Zone Temperature Sensor Mixing Valve PI485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump Remote Room Air Temperature Sensor Standard III Remote Controller Solar Pump Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000) Service Valve	PMNFP14A1	0	0 0 0 0 0
Mixing Zone Temperature Sensor Mixing Valve PI485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump Remote Room Air Temperature Sensor Standard III Remote Controller Solar Pump Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000) Service Valve Thermostat	PMNFP14A1  PMNFP14A1  PORSTA0  PORSTA0  Default, PREMTW101 for 2 Remo control	0 0	0 0 0 0 0
Mixing Zone Temperature Sensor Mixing Valve PI485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump Remote Room Air Temperature Sensor Standard III Remote Controller Solar Pump Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000) Service Valve Thermostat Thermostatic Mixing Valve	- PMNFP14A1	0	0 0 0 0 0 0 0 0 0
Mixing Zone Temperature Sensor Mixing Valve PI485 Gateway Pressure Gauge Plate Heat Exchanger Radiator Recirculation Pump Remote Room Air Temperature Sensor Standard III Remote Controller Solar Pump Safety Relief Valve Strainer Solar Temperature Sensor (PT-1000) Service Valve Thermostat	- PMNFP14A1	0 0	0 0 0 0 0



# REFERENCED APPLICATION #13 SPACE HEATING, COOLING, AND DHW WITH SOLAR PANEL AND THERMOSTAT

## HYDRONIC DIAGRAM



### NOTE

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- 2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.
- 3. Must fit the insulations on the entire water piping including valves and connections. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
- 4. In a cold climate region, water drainage from outdoor unit must be frost-proof.

### ACCESSORIES LG

### RS3 Controller (Default)

A wired remote controller with built-in temperature sensor.

Monobloc : supplied with 10m length cable,

Monobloc: supplied with 10m length cable, 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-300FD)

A insulated stainless steel hot water tank with 2.4kW electric heating (230V). Double coil: OSHW-300FD(300L)

### DHW Tank Sensor (PHRSTA0)

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

## Thermostatic Mixing Valve (OSHA-MV,

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 Pumn

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

### Magnetic Filter (Recommended)

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

### Buffer Tank

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

### 2 Way Valve

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

### Solar Pumr

An external water pump that circulates the water inside solar thermal system.

Controlled by THERMA V with 230V power.

### Solar Temperature Sensor (PT-1000)

A temperature sensor for solar thermal system

### 3 Way Valve (B)

A motorized 3-way diverting valve determining flow direction to either DHW tank or bypass (recirculation). Controlled by THERMA V with 230V

Required operating time : less than 90s.

### Thermostat

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

### 2 Way Valve for Thermostat

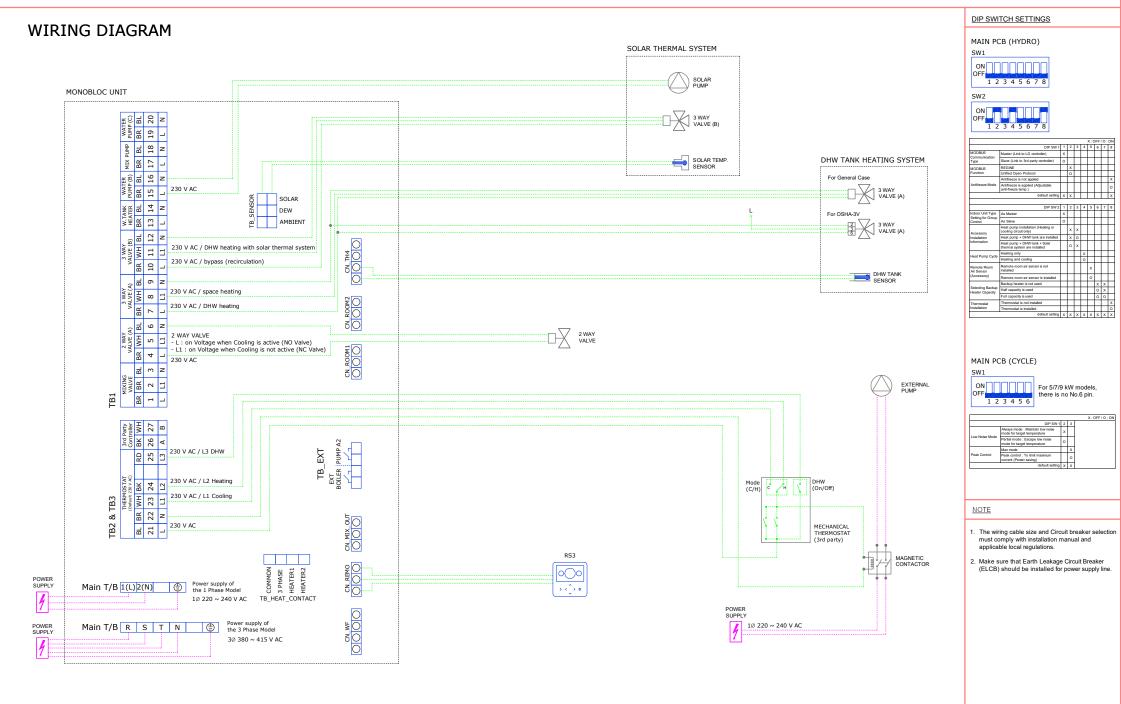
A isolation valve paired with thermostat to allow whether water flows into the water circuit.

### Differential Pressure Valve

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



# REFERENCED APPLICATION #13 SPACE HEATING, COOLING, AND DHW WITH SOLAR PANEL AND THERMOSTAT





# REFERENCED APPLICATION #11 SPACE HEATING WITH EXTERNAL BOILER

DWG NO.:

REV. 00

10/09/2021

# **GENERAL**

## SYMBOL & LEGENDS

	Circulation Pump	<b>&amp;</b>	Motorized 3 Way Valve	Ž	Check Valve	000	RS3 Remote Controller
$\Theta$	Expansion Tank	丛	Motorized 2 Way Valve	<b>₽</b>	Safety Relief Valve with drain		Remote Room Air Sensor
Ê	Air Vent	$^{\swarrow}$	Differential Pressure Valve	~	Y-type strainer	•44	Dry Contact
Q	Pressure Gauge		Thermostatic Mixing Valve	9	Flow Sensor		Wi-Fi Modem
	Flexible Connection	$\bowtie$	Shut Off Valve		Magnetic Contactor	-0	Thermostat
Yy	Drain	$\bowtie$	Pressure Reducing Valve	Ų.	Drain Pan		Cover Plate

## SCOPE OF SUPPLY FOR REQUIRED ACCESSORIES IN APPLICATION

Full Name	Description	Part No.	
RS3 wired remote controller	A wired remote controller with built-in temperature sensor.  Monobloc: supplied with 10m length cable, extendable up to max. 50m using extension cable (PZCWRC1)	Supplied as a default	
Wi-Fi Modem	A control device that enables wireless communication with internet router. Including USB cable 0.6m and extension cable 0.5m	PWFMDD200	
Extension Cable for Wi-Fi Modem	Cable Length 10m	PWYREW000	
3 Way Valve (A)	A motorized 3-way diverting valve determining flow direction to either space heating or DHW tank.  Controlled by THERMA V with 230V power. Operating time 3s.	OSHA-3V	
Domestic Hot Water Tank	A insulated stainless steel hot water tank with 2.4kW electric heating (230V). Single Coil : OSHW-200F(200L) / 300F(300L) / 500F(500L) Double coil : OSHW-300FD(300L)	Single coil : OSHW-200F/300F/500F	
OHW Tank 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 showe 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	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 or stores heat energy which is needed for defrosting and reducing start up load.		
An external boiler supplied by a 3rd party that operates alternatively interlocking with THERMA V. The boiler should have a intergrated or dedicated circulation pump.  Controlled by THERMA V with voltage free contact switch.		
Differential Pressure Valve	A self pressure regulating valve that provides constant differential pressure between supply and return headers.	

Full Name	LG Part No.	Scope of supply		
ruii Name	-	LG	3rd party	
2 Remo Cable	PZCWRC2	0		
2way Valve	-		0	
3way Valve	OSHA-3V	0	0	
Air Vent Valve	-		0	
Buffer Tank	For IWT, OSHB-40KT	0	0	
Back-up Heater Temperature Sensor	For 3rd party Back-up Heater, PRSTAT5K10 HA031M E1 (1Ø, 3kW, Monobloc) HA061M E1 (1Ø, 6kW, Monobloc) HA063M E1 (3Ø, 6kW, Monobloc)	0	0	
Circuit Breaker	HA061C E1 (1Ø, 6kW, Hydrosplit) HA063C E1 (3Ø, 6kW, Hydrosplit)	0	0	
Check Valve	-		0	
Cover Plate	PDC-HK10	0		
DHW Booster Heater	Integrated with DHW Tank	0	0	
Dry Contact	PDRYCB000 PDRYCB320	0	0	
Direct Digital Controller	1 DICTODS20		0	
Differential Pressure Valve	-		0	
DHW Tank Kit	PHLTA (Hydrosplit, 1Ø Split) PHLTC (3Ø, Split) PHLTB (Monobloc)	0	0	
DHW Tank Temperature Sensor	PHRSTA0, included in DHW Tank Kit	0		
Drain Pan	PHDPC	0		
Drain Valve	-		0	
External Boiler	-		0	
Energy Meter	-		0	
Extension Cable for Wi-Fi Modem	PWYREW000	0	0	
Extension Wire for RS3 Controller	PZCWRC1	0		
External Pump	-		0	
Expansion Tank	For IWT, OSHE-12KT (DHW Circuit)	0	0	
Flexible Connection	-		0	
Fan Coil Unit	-		0	
Flow Sensor	-		0	
Heat Meter	-		0	
Domestic Hot Water Tank	OSHW-200F (Single Coil, 200L) OSHW-300F (Single Coil, 300L) OSHW-500F (Single Coil, 500L) OSHW-300FD (Double Coil, 300L)	0	0	
Isolation Valve	-		0	
LG Central Controller	PACEZA000 (AC Ez Touch) PACS5A000 (AC Smart 5) PACP5A000 (ACP 5)	0		
Magnetic Contactor	-	0	0	
Magnetic Filter	-		0	
Meter Interface	PENKTH000	0		
Mixing Pump	-		0	
Mixing Zone Temperature Sensor	PRSTAT5K10	0		
Mixing Valve	-		0	
PI485 Gateway	PMNFP14A1	0		
Pressure Gauge	-		0	
Plate Heat Exchanger	-		0	
Radiator	-		0	
Recirculation Pump	-		0	
Remote Room Air Temperature Sensor	PQRSTA0	0		
Standard III Remote Controller	Default, PREMTW101 for 2 Remo control	0		
Solar Pump	-		0	
Safety Relief Valve	-		0	
Strainer	-		0	
Solar Temperature Sensor (PT-1000)	-		0	
Service Valve	-		0	
Thermostat	-		0	
Thermostatic Mixing Valve	OSHA-MV OSHA-MV1	0	0	
Under Floor Heating Coil	-		0	
Wi-Fi Modem	PWFMDD200	0		
Water Temperature Sensor	-		0	



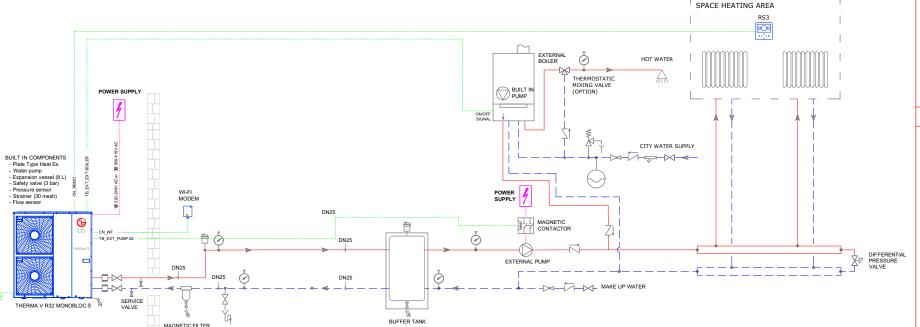
# REFERENCED APPLICATION #11 SPACE HEATING WITH EXTERNAL BOILER

## HYDRONIC DIAGRAM

### SYSTEM SUMMARY

Application	Space Heating with External Boiler
Product	R32 Monobloc S (New)
Terminal Device	RAD
Main Controller	LG RS3 Controller
Control Setting of LG RS3 Controller	Based on Air Temp.
External Pump	Controlled by THERMA V

#### SYMBOL & LEGENDS RS3 Remote Controller Circulation Pump Motorized 3 Way Valve Check Valve Safety Relief Valve with drain Remote Room Air Sensor Differential Pressure Valve =Dry Contact Thermostatic Mixing Valve Wi-Fi Modem Shut Off Valve Magnetic Contacto Thermosta Pressure Reducing Valve Cover Plate



### NOT

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- 2. It is essential to ensure the minimum amount of water contained in the heating or cooling system.

  3. Must fit the insulations on the entire water piping including valves and connections. If necessary, electrical heat tracing system can be installed or the heating system can also be filled with antifreeze (glycol) to prevent any frost damage.
- 4. In a cold climate region, water drainage from outdoor unit must be frost-proof.
- 5. For heating with an external boiler above, the external boiler should have own thermostat.
- 6. 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.
- 7. Beware that when the gas boiler is active it's only controlled by the outdoor temperature.

### ACCESSORIES LG

#### RS3 Controller (Defa

A wired remote controller with built-in temperature sensor.

Monobloc: supplied with 10m length cable,

extendable up to max. 50m using extension cable (PZCWRC1)

### Wi-Fi Modem (PWFMDD200)

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

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

Cable Length 10m

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

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

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

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

#### DHW Tank Sensor (PHRSTA0)

A temperature sensor for DHW tank. Cable length

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

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

### 3RD PARTY ACCESSORIES

### **External Pump**

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

### Magnetic Filter (Recommended)

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

### Buffer Tar

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

### **External Boiler**

An external boiler supplied by a 3rd party that operates alternatively interlocking with THERMA V The external boiler should have a intergrated or dedicated circulation pump.

Controlled by THERMA V with voltage free contact switch.

### Differential Pressure Valve

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



# REFERENCED APPLICATION #11 SPACE HEATING WITH EXTERNAL BOILER

### **DIP SWITCH SETTINGS** WIRING DIAGRAM MAIN PCB (HYDRO) MONOBLOC UNIT 1 2 3 4 5 6 7 8 WATER PUMP (C) BR BL 19 20 L N PUMP 18 BL N 1 2 3 4 5 6 7 8 WATER 1 PUMP (B) 1 BR BL 15 16 W.TANK HEATER BR BL 13 14 (B) CN\_TH4 3 WAY VALVE (B BR WH 1 SOLAR DEW 3 WaY VALVE (A) BR WH BL B 7 8 9 1 L L1 N AMBIENT CN\_ROOM2 2 WAY VALVE (A BR WH 1 CN\_ROOM1 al ∞ z AIXING VALVE BR MAIN PCB (CYCLE) 1 BR MAGNETIC EXTERNAL BOILER ON For 5/7/9 kW models, Party roller WH 27 B L N there is no No.6 pin. 1 2 3 4 5 6 3rd P. Contr. 26 POWER BUILT IN PUMP RD 25 SUPPLY 1Ø 220 ~ 240 V AC ON/OFF SIGNAL 10STAT 230 v AC) BK BK 24 TB2 & TB3 BL BR 1 21 22 L N CN\_MIX\_OUT NOTE RS3 WIFI MODEM The wiring cable size and Circuit breaker selection must comply with installation manual and POWER applicable local regulations. Power supply of SUPPLY Main T/B 1(L) 2(N) 2. Make sure that Earth Leakage Circuit Breaker 1Ø 220 ~ 240 V AC TB\_HEAT\_CONTACT (ELCB) should be installed for power supply line CN WF Power supply of POWER Main T/B R S T N the 3 Phase Model SUPPLY 3Ø 380 ~ 415 V AC