Innovation for a Better Business

Therma V R32: Generation 3.
Installation Instructions.

R32 Monobloc Heating with Combi Boiler – Jan 2021

LG | Business Solutions

Therma V R32 Installation Instructions.

Outdoor Installation.

Unpack the equipment carefully and check all components are complete.
Layout all components so each may be identified.

Please retain this installation instruction document for future reference.

Therma V R32 Installation Instructions.

## Outdoor Installation – Bill of Materials.

The LG controller comes packed within the Heat Pump.

Item	Image	Quantity
Installation Manual		1
Outdoor Unit UN4 Chassis (Product heating capacity : 5kW, 7kW, 9kW)		1
Outdoor Unit UN3 Chassis (Product heating capacity : 12kW, 14kW, 16kW)		1
Remote Controller		1
Remote Controller Cable		1
Drain Cap		2
Drain Nipple		1

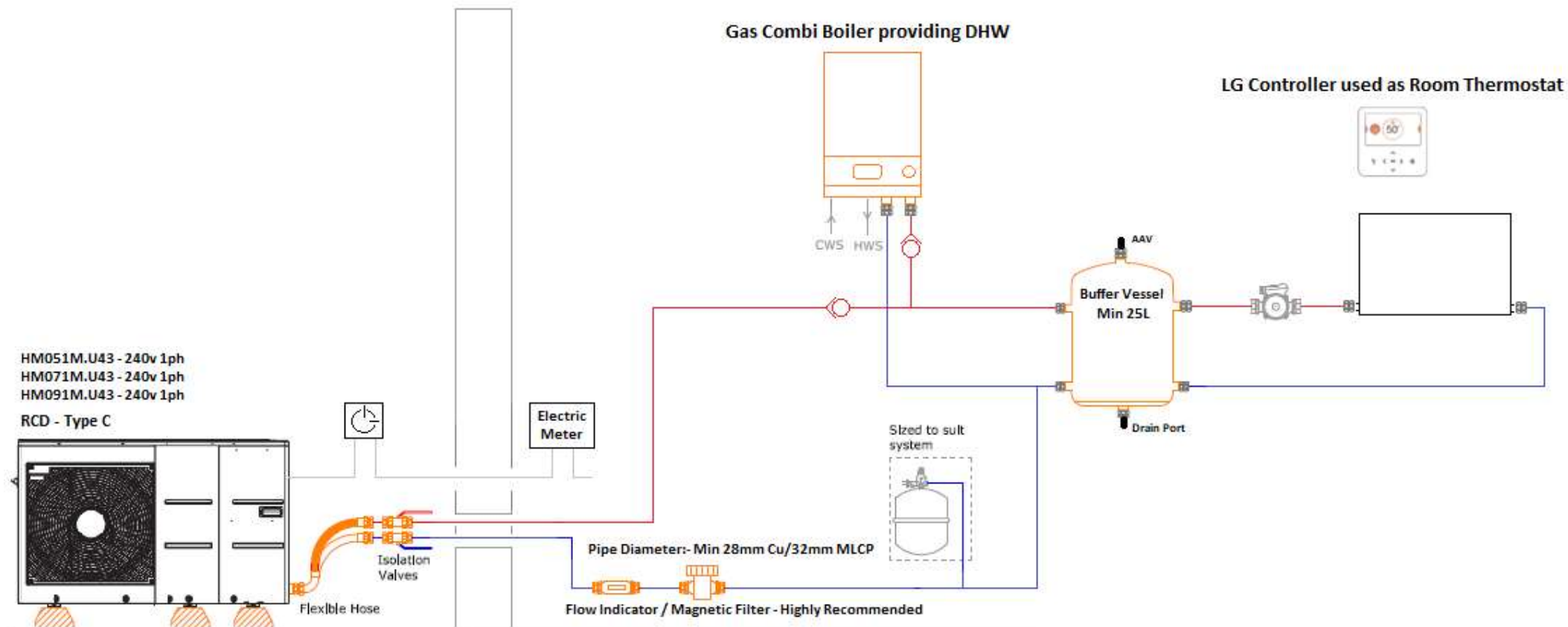**Therma V R32 Installation Inst**

Outdoor Installation.
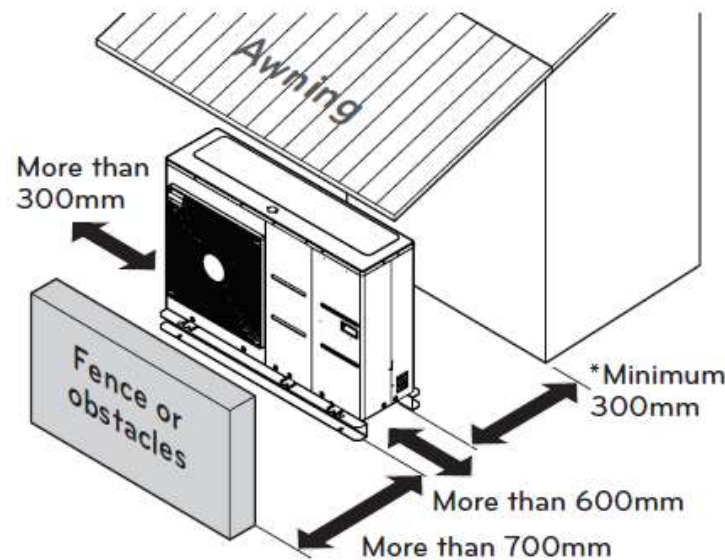
* : Please secure the space to install the shut-off valve and strainer.

- Prepare a strong and level base.
- Place on 3 anti vibration feet, & anchor to base.
- Ensure the unit is 300mm from the wall.
- The flow & return connections are 1" male.
- Fit flexi hoses, full bore isolation valves, on the back of the unit.
- Recommend:- Additional 400 micron "Y" strainer, external(with isolation vales on either side)
- Use a through wall insulation kit, this allows for thermal insulation within the wall.
- All pipework to be 28mm copper or 32mm multi layer composite pipe.
- Allow for condensate to feed into a soakaway, tray or soil stack.
- Recommend:- Magnetic Cleaner & Flow Setter.
- Water volume:- 25L for single fan unit, 50L for double fan unit(Buffer Tank - 4 Port)

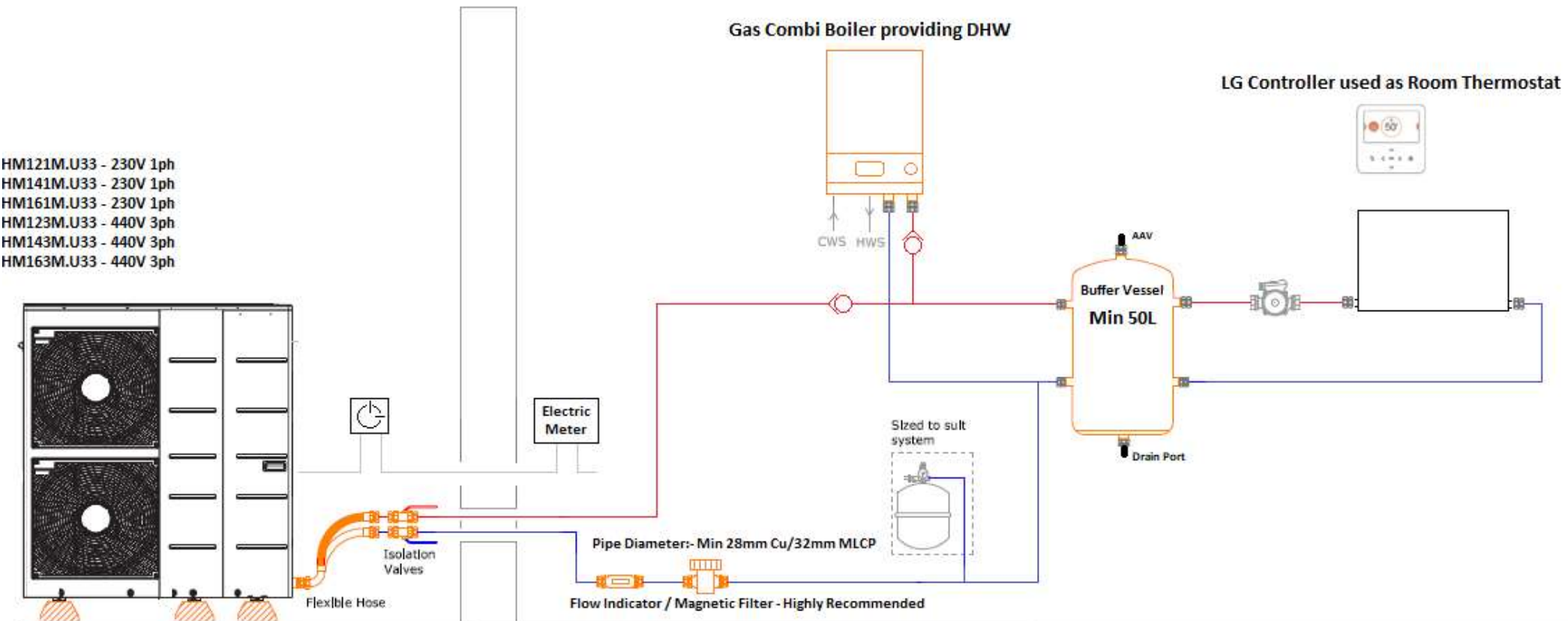# Therma V R32 Installation Instructions.

Installation Schematic.

Heating with Combi Boiler(Boiler providing DHW) 5, 7 & 9kW.

Gas Combi Boiler providing DHW

LG Controller used as Room Thermostat

CWS   HWS

AAV

Buffer Vessel
Min 25L

HM051M.U43 - 240v 1ph
HM071M.U43 - 240v 1ph
HM091M.U43 - 240v 1ph

RCD - Type C

Electric
Meter

Sized to suit
system

Drain Port

Isolation
Valves

Pipe Diameter:- Min 28mm Cu/32mm MLCP

Flexible Hose

Flow Indicator / Magnetic Filter - Highly Recommended

Therma V R32 Installation Instructions.

Installation Schematic.

Heating with Combi Boiler(Boiler providing DHW) 12, 14 & 16kW.

Gas Combi Boiler providing DHW

LG Controller used as Room Thermostat

HM121M.U33 - 230V 1ph
HM141M.U33 - 230V 1ph
HM161M.U33 - 230V 1ph
HM123M.U33 - 440V 3ph
HM143M.U33 - 440V 3ph
HM163M.U33 - 440V 3ph

CWS HWS

AAV

Buffer Vessel
Min 50L

Electric
Meter

Drain Port

Sized to suit
system

Isolation
Valves

Pipe Diameter:- Min 28mm Cu/32mm MLCP

Flexible Hose
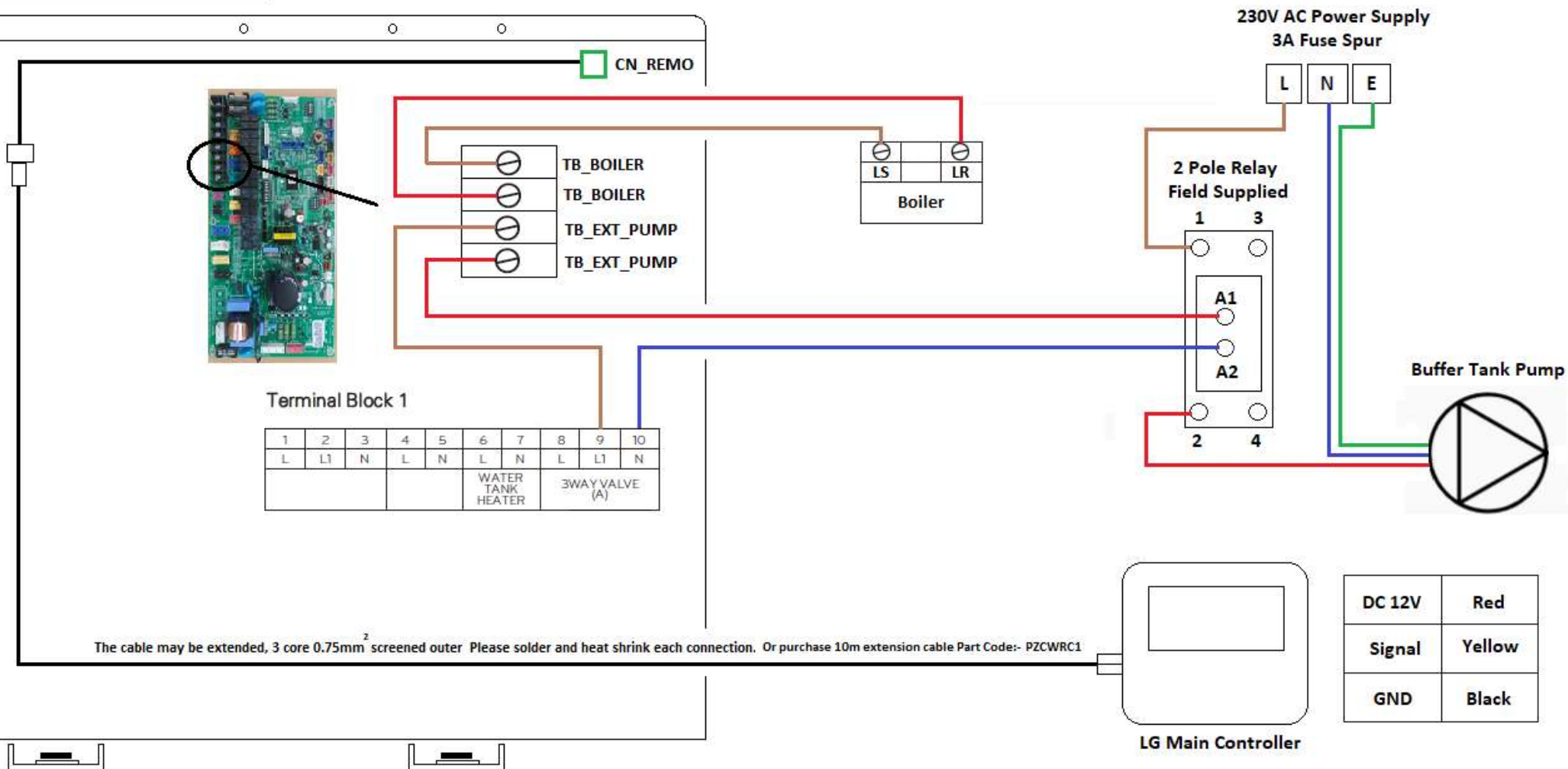
Flow Indicator / Magnetic Filter - Highly Recommended

Therma V R32 Installation Instructions.

Wiring Schematic.

Heating with Combi Boiler(Boiler providing DHW) 5, 7, 9, 12, 14 & 16kW.

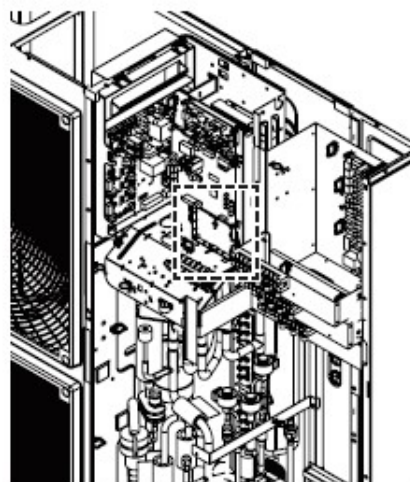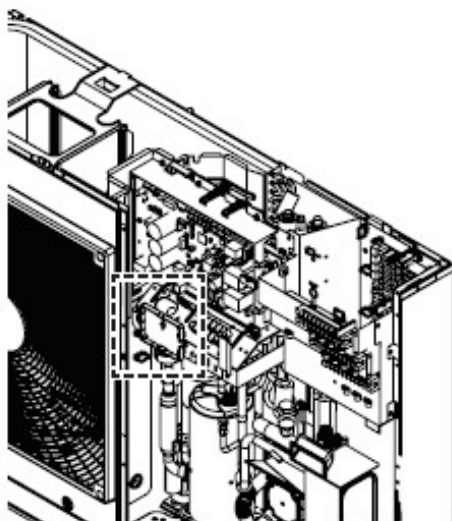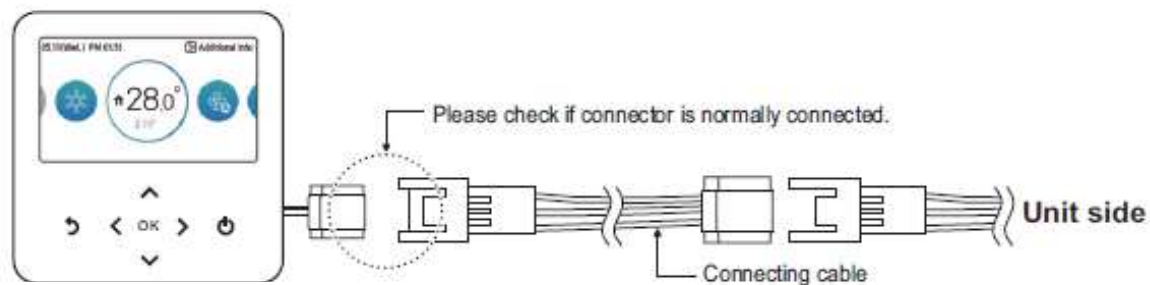**LG R32 Monobloc - Outdoor Unit**

CN_REMO

TB_BOILER
TB_BOILER
TB_EXT_PUMP
TB_EXT_PUMP

LS | LR
Boiler

**230V AC Power Supply
3A Fuse Spur**

L | N | E

**2 Pole Relay
Field Supplied**

1 | 3

A1

A2

2 | 4

Buffer Tank Pump

Terminal Block 1

1	2	3	4	5	6	7	8	9	10
L	L1	N	L	N	L	N	L	L1	N
					WATER TANK HEATER		3WAY VALVE (A)		

The cable may be extended, 3 core 0.75mm² screened outer Please solder and heat shrink each connection. Or purchase 10m extension cable Part Code:- PZCWRC1

DC 12V	Red
Signal	Yellow
GND	Black

LG Main Controller

Therma V R32 Installation Instructions.

Central Controller.

DC 12 V	Red
Signal	Yellow
GND	Black

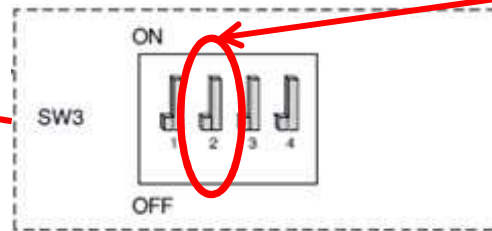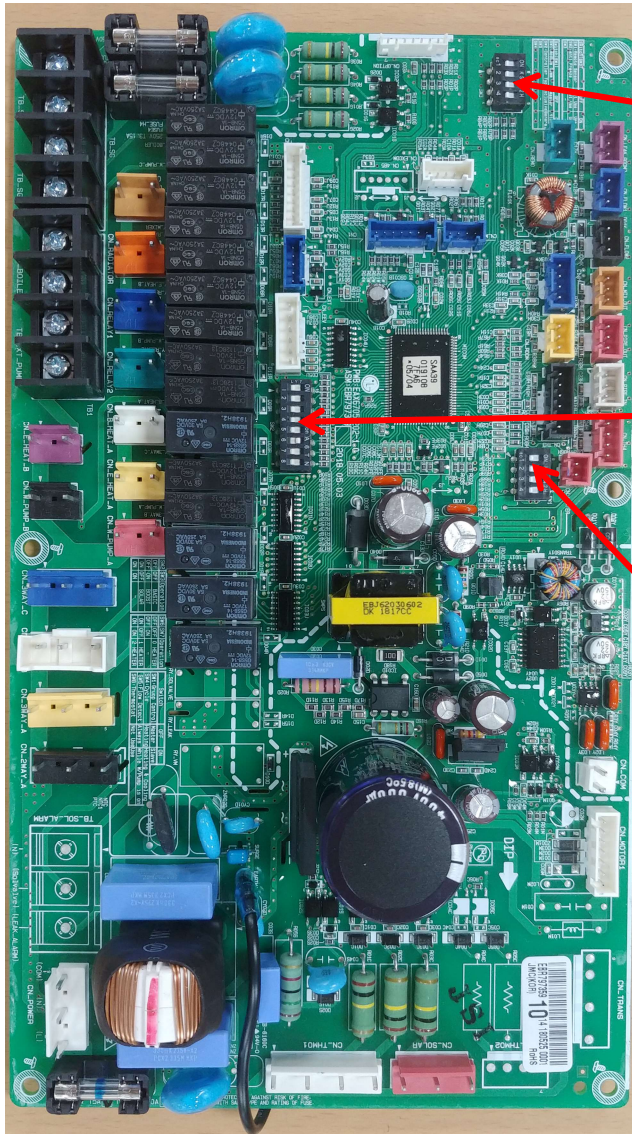Please check if connector is normally connected.

Unit side

Connecting cable

- For detailed installation instructions, refer to the manual included in the accessories.
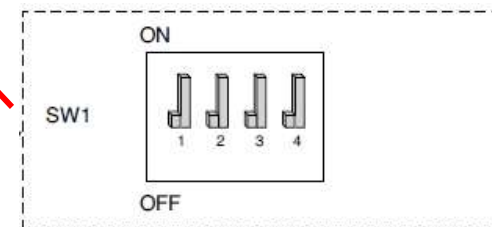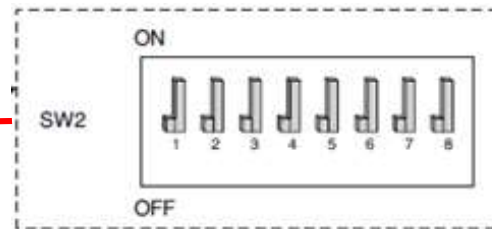
Configuration - Dip Switches

Antifreeze Logic –
Dip switch 2 On(To the right)
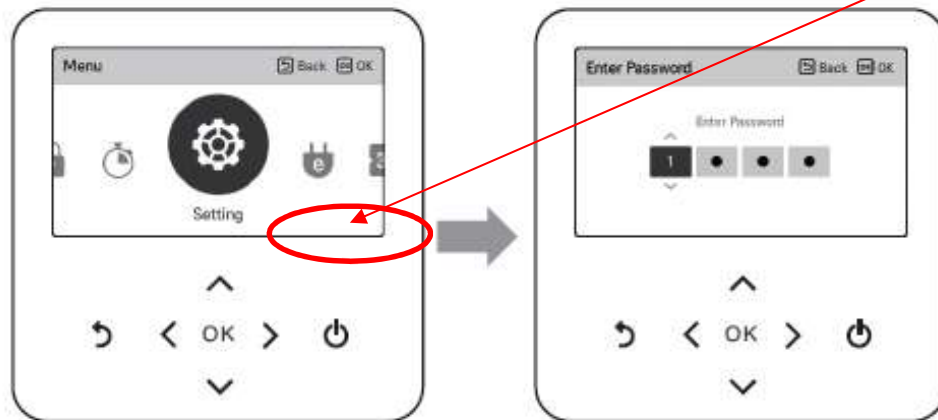
SW3

SW2

SW1

OFF is selected   ON is selected
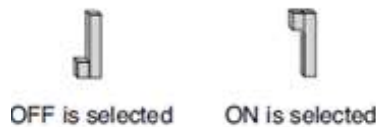
Note: - Please ensure the heat pump is turned off,
before changing dip switches.

Therma V R32 Installation Instructions.

Configuration – Installer Settings.
Enter Installer Settings:-

Software Version

Press the Right arrow to select:- Menu.
Press Ok, "Settings" is shown.
Press and Hold the UP arrow button for 3 seconds.
4 square boxed are shown
Insert the Password – Shown in the bottom right corner (Software Version)
            - Example:- 3 0 3 1 or 3 0 5 1

Therma V R32 Installation Instructions.

Configuration – Installer Settings.
Anti-freezing Temperature.

- If Antifreeze is added to the hydraulic system water then the antifreeze solution temp can be adjusted in the installer settings. (The setting is not visible normally, method is described later)

- Possible settings are displayed as below.
  - Temperature : -5 / -10 / -15 / -20 / -25℃(Default : -5℃)

- The values shown are not actual temperature setting but an offset that can be applied to the default value of 0℃, as shown in the previous slide. When the function is activated the default value is -5℃.
- Example if setting **<-10>** is used;
  - entering water temp for judgment is reduced from 15℃to 5℃for protection starting
  - entering water for condition release is reduced from 18℃(15℃+ 3℃) to 8℃(5℃+ 3℃)

Therma V R32 Installation Instructions.

Configuration – Installer Settings.
Anti-freezing Temperature.

- **It is the responsibility of the installer to ensure the correct amount of antifreeze additive is applied to the water system to protect the product against water temperatures below 0°C. The correct volume of water contained in the system should be calculated, with six additional liters added for the AWHP product, as per the installation instructions.**

Guidance from this instruction is provided below :-

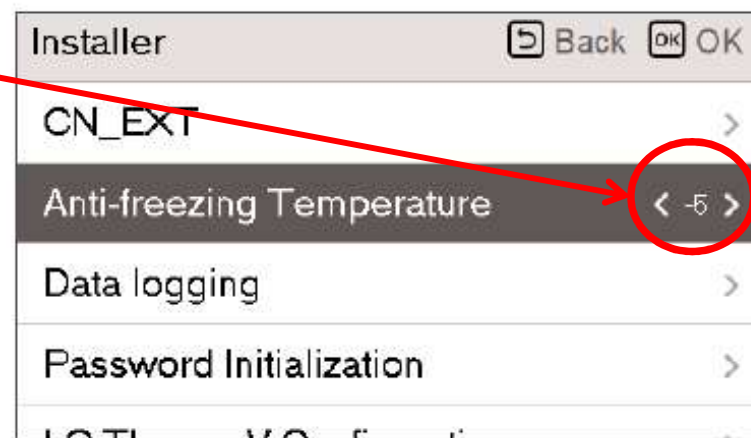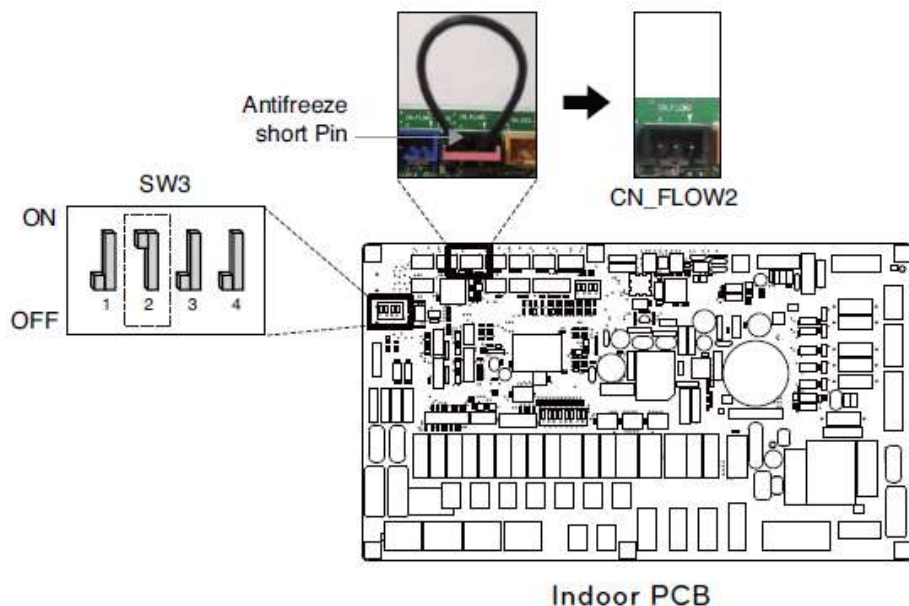| Antifreeze type	Antifreeze mixing ratio					
	0 °C	-5 °C	-10 °C	-15 °C	-20 °C	-25 °C
Ethylene glycol	0 %	12 %	20 %	30 %	-	-
Propylene glycol	0 %	17 %	25 %	33 %	-	-
Methanol	0 %	6 %	12 %	16 %	24 %	30 %

Therma V R32 Installation Instructions.

Configuration – Installer Settings.
Anti-freezing Temperature.

- Anti-freezing temperature setting is available in installer mode. Change the value from -5 to -10.

NOTE

To use this function, the antifreeze short pin(CN_FLOW2, Black) of indoor PCB must be remove and switch No.2 in option SW 3 must be on.

Installer	🔙 Back OK OK
CN_EXT	>
Anti-freezing Temperature	< -5 >
Data logging	>
Password Initialization	>

Antifreeze short Pin

CN_FLOW2

SW3

ON

OFF

1 2 3 4

Indoor PCB

Therma V R32 Installation Instructions.

Configuration – Installer Settings.
Use External Pump:-

Installer	⟲ Back	OK OK
Add Zone		>
Use External Pump		**< Not use >**
3rd Party Boiler		>
Meter Interface		>
Pump Prerun (Overrun		

Change the value to:- Use.

Value	
Not use	Use

Therma V R32 Installation Instructions.

Configuration – Installer Settings.
Use 3rd Party Boiler:-

Change the value to:- Use.

Therma V R32 Installation Instructions.

Configuration – Installer Settings.
Use 3rd Party Boiler:-

If the status of this function is "Use", you can choose control mode of boiler, Auto or Manual.

3rd Party Boiler			Back	OK
	Mode	Temp. Hysteresis		
Use	Auto	-7	4	

3rd Party Boiler			Back	OK
	Mode	Temp. Hysteresis		
Use	Manual	-7	4	

Therma V R32 Installation Instructions.

Configuration – Installer Settings.
Use 3rd Party Boiler:-

If the mode of this function is set to "Manual", you can set temperature of the boiler and hysteresis, respectively.

3rd Party Boiler		🔙 Back	🆗 OK
	Mode	Temp.	Hysteresis
Use	Auto	-5	4

External boiler ON condition :

- If outdoor temperature ≤ external boiler operation temperature value (installer setting), turn off the indoor unit and operate the external boiler.

External boiler OFF condition :

- If External air temperature ≥ external boiler operation temperature value (installer setting) + Hysteresis (installer setting), turn off external boiler operation and operate indoor unit

Therma V R32 Installation Instructions.

Error Codes.

CH14

First two weeks: Blocked filters and/or air pockets

Flow rate alarms are likely to occur during the first two weeks after commissioning; this is due to the formation of air-pockets which may occur and temporarily affect the flow-rate. In most cases, the air will migrate to the auto-air vents (AAV) and release without any requirement for intervention.

Equally, if any sediments are in the hydronic pipework, they will be caught by the internal strainer. Blockages in the strainer can cause CH14 alarms. In this case, the strainers will need to be cleaned

Recommendation: once the unit has been installed, advise the customers that it is quite likely and normal for a CH14 alarm to occur in the first two weeks. This will give the customer reassurance if and when the fault does arise!

If the cause was air, then a simple power reset could allow the system to continue working as normal, once the pocket of air has made its way to the AAV

Testing each mode separately can help you to deduce where the fault lies:

| Fault arises during: | TANK MODE ONLY | HEAT MODE ONLY | HEAT & TANK MODE |

HEAT MODE ONLY
1. Restriction in Heating Circuit
2. Excessive pressure drop

TANK MODE ONLY
1. Restriction in coil

HEAT & TANK MODE
1. Low system water pressure
2. Strainers and Filters blocked
3. Water-pump fault
4. Flow Switch Abnormality
5. PCB Fault

Therma V R32 Installation Instructions.

Configuration – Installer Setting

Function	Description
3 Minutes Delay	Factory use only
Select Temperature Sensor	Selection for setting temperature as air temperature or leaving water temperature or air+leaving water temperature
Dry Contact Mode setting	Dry contact function is the function that can be used only when the dry contact devices is separately purchased and installed.
Central Control address	When connecting the central control, set the central control address of the unit.
Pump Test run	Water pump test run
Air cooling set temp. setting	Adjusting range of 'Setting Air Temperature' in cooling mode
Water cooling set temp. setting	Adjusting range of 'Setting Leaving Water Temperature' in cooling mode
Air heating set temp. setting	Adjusting range of 'Setting Air Temperature' in heating mode
Water heating set temp. setting	Adjusting range of 'Setting Heating Flow Temperature' in heating mode
DHW Set Temp.setting	Setting DHW set temperature
Screed drying setting	Setting for using Step 1 or 2 capacity of electric
Heater on temperature	Setting outdoor air temperature where half capacity of electric heater starts operation.
Water supply off temp. during cooling setting	Determine leaving water temperature when the unit is turned off. This function is used for preventing condensation on the floor in cooling mode
Tank disinfection setting 1	Setting start/maintain time for pasteurisation
Tank disinfection setting 2	Setting pasteurisation temperature
Tank setting 1	Setting start temperature for operation
Tank setting 2	Setting maintain temperature for operation
Heater priority	Determine electric heater and water heater on and off
DHW time setting	Determine follow time duration : operation time of domestic hot water tank heating, stop time of domestic hot water tank heating, and delay time of DHW tank heater operating
TH on/off Variable, heating air setting	Heating air temperature TH On / Off Type setting
TH on/off Variable, heating Water setting	Heating Water Outlet Temperature TH On / Off Type

Function	Description
TH on/off Variable, cooling air setting	Cooling air temperature TH On / Off Type setting
TH on/off Variable, cooling Water setting	Cooling Water Outlet Temperature TH On / Off Type
Heating temp. setting	At the leaving water control in heating mode, the control reference water temperature position setting
Cooling temp. setting	At the leaving water control in cooling mode, the control reference water temperature position setting
Pump setting in heating	Set water pump on / off delay option in heating mode
Pump setting in cooling	Set water pump on / off delay option in cooling mode
Forced operation	Water pump off After 20 consecutive hours, disable / enable the logic that drives the water pump by itself
CN_CC setting	It is the function to set whether to install (use) Dry Contact. (It is not a function for Dry Contact installation, but it is a function to set the usage of the unit's CN_CC port.)
Pump Capacity	Function to change Water Pump Capacity
Smart Grid(SG) setting	Select whether to use or not use the SG Mode function of the product, set the operation option value in SG1 step.
Seasonal auto temp setting	Set the operating temperature in Seasonal Auto mode
Modbus Address	It is function to set the address of the Modbus device that is externally linked to the product. Modbus address setting function is available from indoor unit.
CN_EXT	Function to set external input and output control according to DI / DO set by customer using dry contact port of indoor unit. Determine the use of the contact port (CN_EXT) mounted on the indoor unit PCB
Anti-freezing Temperature	This function prevents the product from freezing.
Add Zone	Install additional valve in product to control additional operation area
Use External Pump	Set up to control an external water pump
3rd Party Boiler	Configuration to control 3rd party boiler
Meter Interface	When installing the meter interface to measure energy / calorie in the product, set unit spec for each port
Pump Prerun/Overrun	Set to reach the optimum flow rate by circulating the heating water with the water pump before heat exchange. After the operation stop, additional water pump is activated to circulate the heating water.
Data logging setting	Display error history of connected unit
Password Initialization setting	It is the function to initialize (0000) the password when you forgot the password set in the remote controller.

Therma V R32 Installation Instructions.

R32 Monobloc Therma V Commissioning Sheet - Heating system set up

Rads – 50degC
UFH – 40degC

PARAMETER	FIELD SETTING 1		FIELD SETTING 2		FIELD SETTING 3	
Select Temperature Sensor	Air/Water/Air+Water	Water				
Dry Contact Mode Auto/Manual	Auto/Manual	N/A				
Central Controller Address	(value)	N/A				
Air Cooling Set Temp	Min (value)	N/A	Max (value)	N/A		
Water Cooling Set Temp	Min (value)	N/A	Max (value)	N/A		
Air Heating Set Temp	Min (value)	N/A	Max (value)	N/A		
Water Heating Set Temp	Min (value)	30	Max (value)	50		
DHW Set Temp	Min (value)	40	Max (value)	50		
Outdoor Temp for Auto Mode [1]	Min (value)	5	Max (value)	19		
Indoor Temp for Auto Mode [1]	Min (value)	N/A	Max (value)	N/A		
LWT for Auto Mode [1]	Min (value)	34	Max (value)	50		
[1] Only If SW2 dip switch 4 = OFF						
Heater On Temp	(value)	N/A	(value)	N/A		
Water Supply Off Temp During Cooling	Use/Not use	N/A	Stop Temp (value)	N/A		
Tank Disinfection Setting 1	Use/Not use	USE	Start date (date)	FRI	Start time (date)	14:00
Tank Disinfection Setting 2	Max Temp (value)	60	Duration Time (time)	30	Forced End Time (time)	1
Tank Setting 1	Min Temp (value)	5	Max Water Temp (value)	55		
Tank Setting 2	Hysteresis (value)	3	Priority	DHW		
Heater Priority	Main+Boost heater ON/ Boost heater only ON	Main+Boost Heater On				
DHW Time Setting	Active time (value)	60	Stop Time (value)	0	Boost Heater Delay Time (value)	60
Use Heating Tank Heater	Use*/Use Disenfect/Not Use	Use	*Cycle or Heater+Cycle	Cycle	*Delay Time	60
Th on/off Variable, Heating Air	(value)	Type 0				
Th on/off Variable, Heating Water	(value)	Type 0				
Th on/off Variable, Cooling Air	(value)	Type 0				
Th on/off Variable, Cooling Water	(value)	Type 0				
Heating and Cooling Temp Setting	outlet/inlet	Outlet				
Pump Setting in Heating	Time Setting*/Operation continue		*On (value)	N/A	*Off (value)	N/A
Pump Setting in Cooling	Time Setting*/Operation continue		*On (value)	N/A	*Off (value)	N/A

20

Therma V R32 Installation Instructions.

R32 Monobloc Therma V Commissioning Sheet - Heating system set up

Pump Capacity		(value)	100%						
Smart Grid		Not use/Use*	N/A	*Mode	N/A				
Seasonal Auto Temp[2] (2) Only If SW2 dip switch - ON		Outdoor 1, Heat (value)	N/A	Outdoor 2, Heat (value)	N/A		Outdoor 3, Cool (value)	N/A	
		Air 1, Heat (value)	N/A	Air 2, Heat (value)	N/A		Air 3, Cool (value)	N/A	
		Water 1, Heat (value)	N/A	Water 2, Heat (value)	N/A		Water 3, Cool (value)	N/A	
Modbus Address		(value)	N/A						
CN_EXT		Not use/ Simple Operation/ Simple dry contact/ Single emergency stop	N/A						
Add zone		Use Added Zone*/Not use	N/A	*Valve Closing Time (value)	N/A		*Hysteresis (value)	N/A	
Use External Pump		Not use/Use	N/A						
3rd Party Boiler		Mode	N/A	Temp (value)	N/A		Hysteresis (value)	N/A	
Meter Interface	Modbus Address	Not use/(value)	N/A						
	Unit	Port 1 Pulse/kwh (value)	N/A	Port 2 Pulse/kwh (value)	N/A		Port 3 Pulse/kwh (value)	N/A	
Pump Prerun/overrun		Prerun (value)	N/A	Overrun (value)	N/A				