



THERMA V™

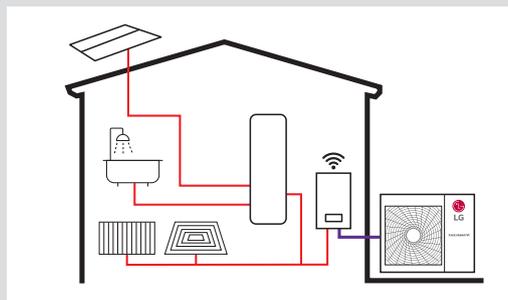


Products in this brochure contain fluorinated greenhouse gases.



LG'S THERMA V SPLIT AT A GLANCE

The LG THERMA V Split is a hydro box type comprising a separate indoor and outdoor unit, which are connected by refrigerant piping. Hydronic components such as plate heat exchanger, expansion tank and water pump are located within the indoor unit, making the unit capable of withstanding freezing outside ambient temperatures.



LG'S THERMA V R32 Split / R410A Split

Enhanced installation flexibility

- Refrigerant pipes connects IDU & ODU
- Hydronic components built into IDU : plate heat exchanger, water pump, back up heater, expansion tank, air vent, etc
- User-friendly installation settings interface

High efficiency & operational range

- SCOP up to 4.65 (average climate / low temp. application) : A+++
- 100% Heating capacity at -7°C outdoor temperature (except for 16kW R410A Split)
- Leaving water temperature up to 65°C (R32) / 57°C (R410A)
- Expanded operative range of solar thermal system

Innovative design & technology

- Built-in water flow & pressure sensors to monitor real-time water circuit
- Advanced water pump control (optimal flow rate, fixed capacity, fixed flow rate, fixed ΔT)
- Enhanced 2nd circuit control logic



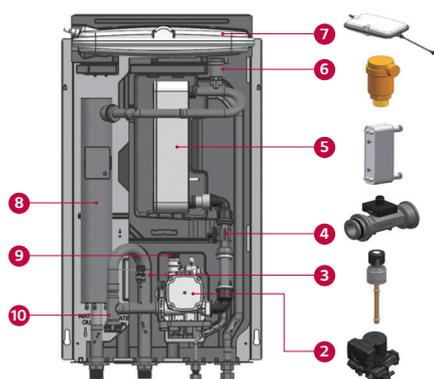
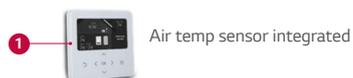
	Indoor Unit	Outdoor Unit
1Ø	HN091MR NK5	HU051MR U44 HU071MR U44 HU091MR U44



	Indoor Unit	Outdoor Unit
1Ø	HN1616M NK5	HU121MA U33 HU141MA U33 HU161MA U33
3Ø	HN1636M NK5	HU123MA U33 HU143MA U33 HU163MA U33

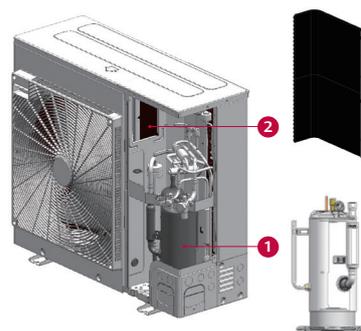
Capacity Range [kW]	Phase		5	7	9	12	14	16
R32 Split	1Ø	Heating	● (5.5)	● (7.0)	● (7.0)			
R410A Split	1Ø / 3Ø	Heating				● (12.0)	● (14.0)	● (16.0)

KEY COMPONENTS



- 1 RS3 (Standard III) (attached on the front panel)
- 2 Water pump (GRUNDFOS)
- 3 Water pressure sensor (SENSATA)
- 4 Flow sensor (SIKA)
- 5 Plate type heat exchanger (ref/water)
- 6 Air vent valve
- 7 Expansion vessel (8l)
- 8 Back up electric heater (6kW)
- 9 Safety valve
- 10 Strainer

- 1 R1 compressor
- 2 Black Fin heat exchanger (ref/air)



* Illustrated based on R32 Split outdoor unit.
* For R410A Split, Gold Fin heat exchanger is applied.

EXCELLENT PERFORMANCE & EFFICIENCY



R1 compressor



Flash gas injection*
* R32 Split only



Wide operation range



Black Fin heat exchanger*
* R32 Split only



Solar thermal



Energy state



Modbus communication



LG heating configurator*
* will be supported from 3Q 2021



Clip connection



Flexible piping design

EASY INSTALLATION

USER CONVENIENCE



Intuitive interface



LG ThinQ



Mixing circuit



Various control options



Flow sensor



Pressure sensor



3rd party boiler



Energy monitoring



Seasonal auto mode



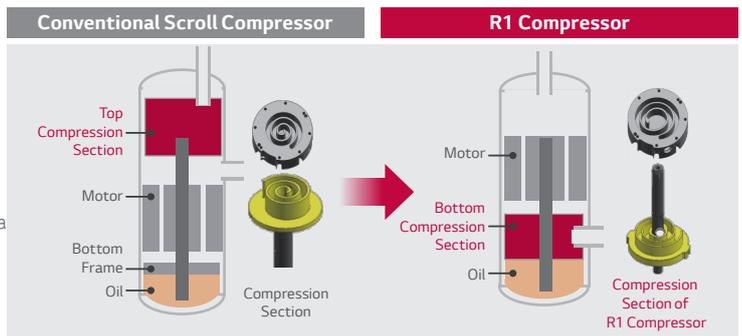
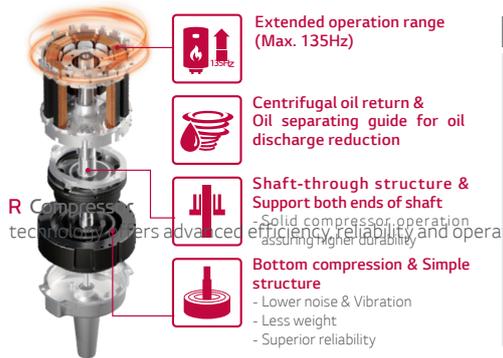
Low noise mode



Advanced pump control

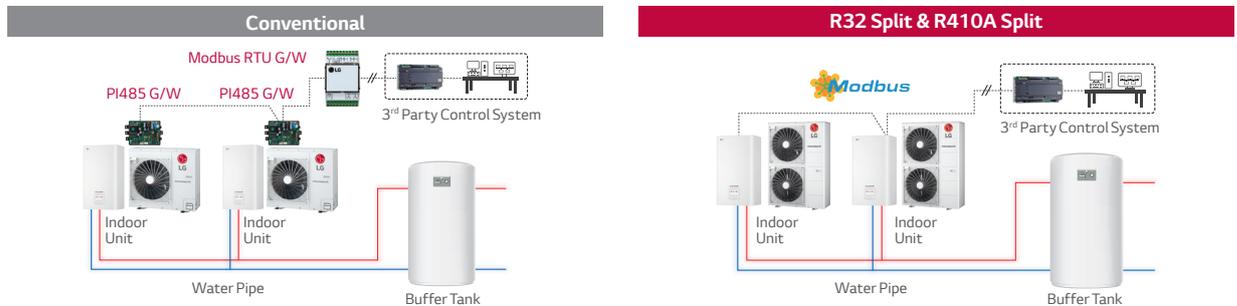


R1 Compressor[™] LG'S REVOLUTIONARY TECHNOLOGY



MODBUS COMMUNICATION

Considering the units in parallel installation, it is required to think how to control them. The R32 Split & R410A Split can be connected to 3rd party control system using Modbus protocol directly, without Modbus RTU gateway and PI485 gateway. Moreover, The R32 Split & R410A Split is able to support much more functions than conventional one using new Modbus memory map.



ENERGY STATES INTERLOCK

The R32 Split & R410A Split provide provides energy state interlock function that enables customers to use as much as possible of their own renewable energy. It can shift set points depending on input signal from Energy Storage System (ESS) or any other third-party device using Modbus or Digital 230V inputs.

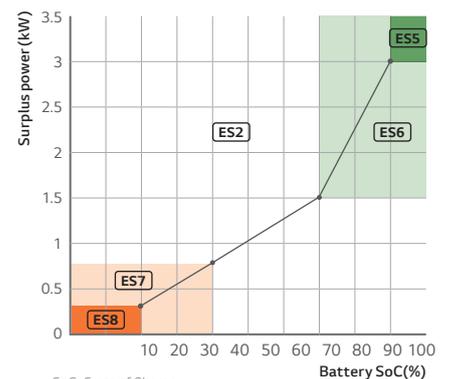
Energy States	Description				Operation
	Smart Grid (Contact)		ESS (Modbus)		
	Operation Mode	Power Supply Status	Operation Mode	Battery Charged Status	
ES1	Operation Off				Forced off to avoid peak load
ES2	Normal		Normal		Normal operation
ES3*	On Recommend				Changed target temperature higher (Heating: +2°C / DHW: +5°C)
ES4*	On Command				Changed target temperature higher (DHW: 80°C)
ES5**			On Command (Step2)		Changed target temperature higher (Heating: +5°C, DHW: +30°C)
ES6**			On Recommend (Step1)		Changed target temperature higher (Heating: +2°C, DHW: +10°C)
ES7**			Energy Saving		Changed target temperature lower (Heating: -2°C)
ES8**			Super Energy Saving		Changed target temperature lower (Heating: -5°C)

* Contact signal designated ES3 and ES4 can be changed to ESS - ES8.

** Offset values of heating and DHW are changeable.

*** Therma V can connect not only ESS but also 3rd party controller through Modbus, in that case, ES1 to ES8 are used.

[Area of Energy State for ESS]



• SoC: State of Charge

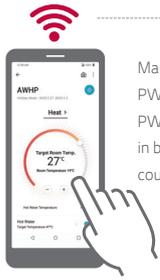
• Surplus Power (SP) = PV Power - Load Power

• Area of Energy State for ESS can be adjusted by ESS.



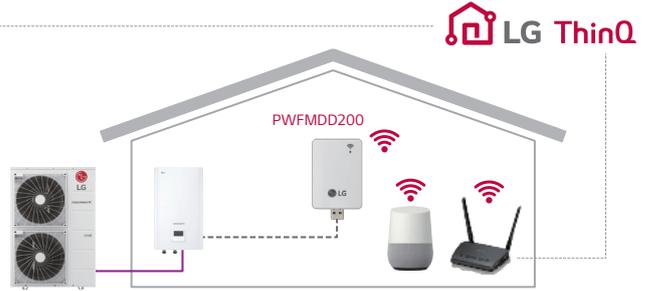
LG ThinQ SEAMLESS CONNECTIVITY

LG ThinQ allows users to monitor and control compatible LG products remotely, so they can set the temperature and regulate the use of their THERMA V anytime, anywhere. LG ThinQ technology also works with voice activation with Google Home.



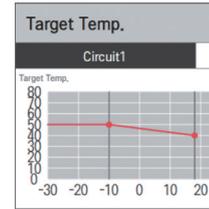
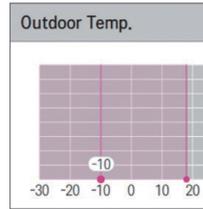
Mandatory accessory:
 PWFMD200 (LG Wi-Fi Modem)
 PWYREW000 (10m extension connect cable
 in between THERMA V indoor and LG Wi-Fi Modem)
 could be required depends on installation condition.

* Search "LG ThinQ" on Google market or App store, then download the app.
 * Google home voice is supported in United Kingdom, France, Germany, Spain, Italy, Austria, Ireland, Portugal.



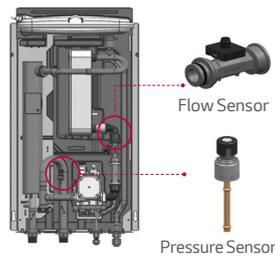
SEASONAL AUTO MODE

In this mode, the target temperature will vary according to the outdoor temperature automatically. This function can be conveniently set using visualised graphics.



WATER CIRCUIT MONITORING

It is possible to monitor via remote controller not only temperature of water circuit but also flow rate and pressure. This information is not only useful to the installer during installation, but also helps to periodically clean the strainer.



Circuit 1	Circuit 2	More Info.
↑ 24° ↓ 65°	↑ 20° ↓ 40°	87° 12°
DHW: 60°		
Inlet / Outlet: 55° / 65°		

There is no monitoring information

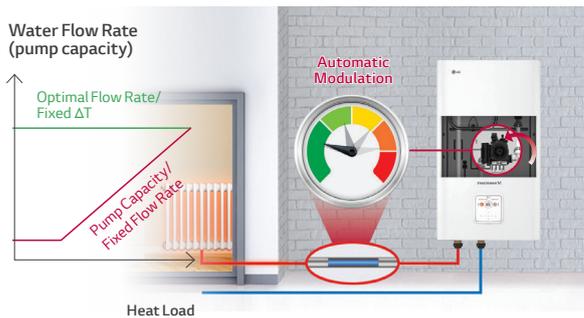
More Info.

Flow Rate | 40 LPM (L/min)
 Water Pressure | 1.6 bar



ADVANCED PUMP CONTROL OPTIONS

Various pump control options are possible for the user's convenience. With the the R32 Split & R410A Split, the water flow rate can be changed as per heat load condition, therefore it makes more energy efficient operation during low load condition.



Options	Description	Water Flow Change as per load condition
Pump Capacity	It operates with the capacity set for the water pump. (range 10 ~ 100%)	No
Fixed Flow Rate	Automatically controlled to maintain the set flow rate. (R32 Split range : 8 ~ 26 LPM / R410A Split range : 17 ~ 46 LPM)	No
Fixed ΔT*	Automatically controlled to maintain the set ΔT. (range 5 ~ 13)	Yes
Optimal Flow Rate (default)	ΔT is changed as per Target Temp.	Yes

SEASONAL ENERGY EFFICIENCY

Description	Indoor Unit		HN091 MR NK5			
	Outdoor Unit	HU051 MR U44	HU071 MR U44	HU091 MR U44	HU091 MR U44	
Space Heating (According to EN14825)	Average Climate Water Outlet 35°C	SCOP	-	4.65	4.65	4.65
		Seasonal Space Heating Efficiency (ηs)	%	183	183	183
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A+++	A+++	A+++
	Average Climate Water Outlet 55°C	SCOP	-	3.23	3.23	3.23
		Seasonal Space Heating Efficiency (ηs)	%	126	126	126
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A++	A++	A++



* 5kW 10 model. * A+++ to D scale.

* EHPA label under development.

PRODUCT SPECIFICATION

R410A Split

INDOOR UNIT

Technical Specification		Indoor Unit		HN1616M NK5	HN1636M NK5
Operation Range (Leaving water temp.)	Heating	Min. - Max.	°C DB	15 - 57	
	Domestic Hot Water	Min. - Max.	°C DB	15 - 80 ²⁾	
Flow Sensor	Measuring Range	Min. - Max.	ℓ/min	5 - 80	
	Flow (Trigger point)	Min.	ℓ/min	15	
Water Pressure Sensor	Measuring Range	Min. - Max.	bar (G)	0 - 20	
Expansion Vessel	Volume	Max.	ℓ	8	
Safety Valve	Pressure Limit	Upper Limit	bar	3	
Piping Connections	Water Circuit	Inlet	mm (Inch)	Male PT 25.4(1)	
		Outlet	mm (Inch)	Male PT 25.4(1)	
	Refrigerant Circuit	Gas	mm (Inch)	Ø 15.88 (5/8)	
		Liquid	mm (Inch)	Ø 9.52 (3/8)	
Sound Power Level	Heating	Rated	dB(A)	44	
Dimensions	Unit	W x H x D	mm	490 x 850 x 315	
Weight	Unit		kg	40	41
Wiring Connections	Power and Communication Cable (Included Earth, H07RN-F)		mm ² x cores	0.75 x 4C	0.75 x 4C
	Type			Sheath	Sheath
Back-up Heater	Number of Heating Coil		EA	2	2
	Capacity Combination		kW	3.0 + 3.0	2.0 + 2.0 + 2.0
	Heating Steps		Step	2	2
	Power Supply		V, Ø, Hz	220-240, 1, 50	380-415, 3, 50
	Rated Current		A	25.0	8.7
	Power Supply Cable (included earth, H07RN-F)		mm ² x cores	4.0 x 3C	2.5 x 4C

1) When fan coil unit not used. 2) DHW 50 - 80°C operating is available only when the booster heater is operating.

OUTDOOR UNIT

Technical Specification		OAT	LWT	Indoor Unit		HN1616M NK5 (1Ø) HN1636M NK5 (3Ø)		
				Outdoor Unit	HU121MA U33 (1Ø) HU123MA U33 (3Ø)	HU141MA U33 (1Ø) HU143MA U33 (3Ø)	HU161MA U33 (1Ø) HU163MA U33 (3Ø)	
Nominal Capacity	Heating	7Ø	35Ø	kW	12.00	14.00	16.00	
		7Ø	55Ø	kW	11.00	11.50	12.00	
		2Ø	35Ø	kW	11.00	12.00	13.80	
Nominal Power Input	Heating	7Ø	35Ø	kW	2.64	3.17	3.76	
		7Ø	55Ø	kW	4.31	4.51	4.71	
		2Ø	35Ø	kW	3.04	3.32	3.83	
COP	Heating	7Ø	35Ø	W/W	4.55	4.41	4.26	
		7Ø	55Ø	W/W	2.55	2.55	2.55	
		2Ø	35Ø	W/W	3.62	3.61	3.60	
Operation Range (Outdoor temp.)	Heating	Min. - Max.	°C DB	-25 - 35				
Compressor	Type			Hermetic Sealed Scroll				
Refrigerant	Type			R410A				
	GWP (Global Warming Potential)			2088				
	Precharged Amount		g	2,500				
	t-CO2 eq			5,219				
Piping Connections	Outer Diameter	Gas	mm (Inch)	Ø 15.88 (5/8)				
		Liquid	mm (Inch)	Ø 9.52 (3/8)				
	Length	Standard / Max.	m	7.5 / 50				
	Level Difference	Max.	m	30				
	Chargeless-Pipe Length		m	7.5				
	Additional Charging Volume		g/m	40				
Rated Water Flow Rate (at LWT 35°C)			ℓ/min	34.50	40.25	46.00		
Sound Power Level	Heating	Rated	dB(A)	63	64	65		
Sound Pressure Level (at 1m)	Heating	Rated	dB(A)	55	56	57		
Dimensions	Unit	W x H x D	mm	950 x 1,380 x 330				
Weight	Unit		kg	1Ø : 84.8, 3Ø : 85.4				
	Voltage, Phase, Frequency		V, Ø, Hz	220-240, 1, 50 / 380-415, 3, 50				
Power Supply	Rated Running Current	Heating	A	1Ø : 11.5, 3Ø : 6.6	1Ø : 13.8, 3Ø : 8.0	1Ø : 16.3, 3Ø : 9.4		
	Recommended Circuit Breaker		A	1Ø : 40, 3Ø : 20	1Ø : 40, 3Ø : 20	1Ø : 40, 3Ø : 20		
Wiring Connections	Power Supply Cable (included earth, H07RN-F)		mm ² x cores	1Ø : 6.0 x 3C, 3Ø : 2.5 x 5C				

1. Due to our policy of innovation some specifications may be changed without notification.

2. Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.

3. Sound power level is measured on the rated condition in accordance with ISO 9614 standard. Therefore, these values can be increased owing to ambient conditions during operation.

4. Performances are based on the following conditions (It is according to EN14511):

- Interconnected pipe length is standard length and difference of elevation (outdoor - indoor unit) is 0m.
- 5. This product contains fluorinated greenhouse gases.

Performance Table for Heating Operation

R410A Split

Maximum Heating Capacity (Including Defrost Effect)

HU121MA U33 + HN1616M NK5 / HU123MA U33 + HN1636M NK5

Outdoor Temperature	LWT 30°C	LWT 35°C	LWT 40°C	LWT 45°C	LWT 50°C	LWT 55°C
	TC	TC	TC	TC	TC	TC
-25°C DB	11.25	10.95	10.22	9.85	-	-
-20°C DB	12.00	11.32	10.90	10.32	-	-
-15°C DB	12.00	11.66	11.45	11.16	11.13	-
-7°C DB	12.00	12.00	12.00	12.00	12.00	11.24
-4°C DB	12.00	12.00	12.00	12.00	12.00	11.98
2°C DB	12.00	12.00	12.00	12.00	12.00	12.00
7°C DB	12.00	12.00	12.00	12.00	12.00	12.00
10°C DB	12.00	12.00	12.00	12.00	12.00	12.00
15°C DB	12.00	12.00	12.00	12.00	12.00	12.00
18°C DB	12.00	12.00	12.00	12.00	12.00	12.00
20°C DB	12.00	12.00	12.00	12.00	12.00	12.00
35°C DB	12.00	12.00	12.00	12.00	12.00	12.00

HU141MA U33 + HN1616M NK5 / HU143MA U33 + HN1636M NK5

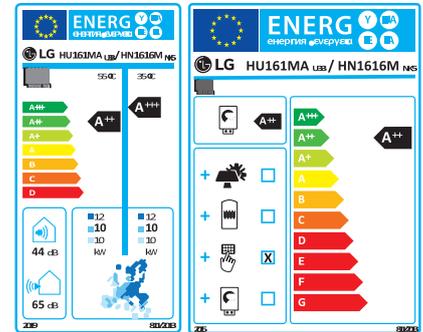
Outdoor Temperature	LWT 30°C	LWT 35°C	LWT 40°C	LWT 45°C	LWT 50°C	LWT 55°C
	TC	TC	TC	TC	TC	TC
-25°C DB	11.25	11.17	10.79	10.32	-	-
-20°C DB	12.11	11.98	11.54	10.90	-	-
-15°C DB	13.06	12.99	12.77	12.27	12.42	-
-7°C DB	14.00	14.00	14.00	13.64	13.09	11.67
-4°C DB	14.00	14.00	14.00	14.00	14.00	12.67
2°C DB	14.00	14.00	14.00	14.00	14.00	13.98
7°C DB	14.00	14.00	14.00	14.00	14.00	14.00
10°C DB	14.00	14.00	14.00	14.00	14.00	14.00
15°C DB	14.00	14.00	14.00	14.00	14.00	14.00
18°C DB	14.00	14.00	14.00	14.00	14.00	14.00
20°C DB	14.00	14.00	14.00	14.00	14.00	14.00
35°C DB	14.00	14.00	14.00	14.00	14.00	14.00

Note

1. DB : Dry Bulb Temperature (°C), LWT : Leaving Water Temperature (°C), LPM : Liters Per Minute (l/min), TC : Total Capacity (kW)
2. Direct interpolation is permissible. Do not extrapolate.
3. Measuring procedure follows EN-14511.
 - Rated values are based on standard conditions and it can be found on specifications.
 - Above table values may not be matched according to installation condition. Except for rated value, the performance is not guaranteed.
 - In accordance with the test standard (or nations), the rating will vary slightly.
4. The shaded areas are not guaranteed continuous operation.

SEASONAL ENERGY EFFICIENCY

Description	Indoor Unit	Outdoor Unit	HN1616M NK5 (1Ø) HN1636M NK5 (3Ø)			
			HU121MA U33 (1Ø) HU123MA U33 (3Ø)	HU141MA U33 (1Ø) HU143MA U33 (3Ø)	HU161MA U33 (1Ø) HU163MA U33 (3Ø)	
Space Heating (According to EN14825)	Average Climate	SCOP	-	4.65	4.61	4.56
	Water Outlet 35°C	Seasonal Space Heating Efficiency (ηs)	%	183	182	179
	Water Outlet 55°C	Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A+++	A+++	A+++
	Average Climate	SCOP	-	3.36	3.37	3.32
	Water Outlet 35°C	Seasonal Space Heating Efficiency (ηs)	%	131	132	130
	Water Outlet 55°C	Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A++	A++	A++



* 16kW 1Ø model. * A+++ to D scale.



* EHPA and MCS label under development.



Renewable
technology



Comfortable
home



Lower
bills



Reduce
carbon emissions



LG Electronics Air Conditioning and Energy Solutions

Web: www.lg.com/uk/heating

For continual product development, LG reserves the right to change specifications without any notice.

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LG Electronics UK Limited have been working closely with their suppliers to reduce their environmental impact on the world.

Products in this brochure contain fluorinated greenhouse gases (R410A / R134a / R32)

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