ATW SELECTION REPORT

The project name	Testing Ukraine	Designer	StratiyYuriy
Project location	Showroom	Designer contact	stratiy@hisense.com.ua
Project location	Kramskogo	Designer company	HisenseUkraine
Post code	03148	Installer	IVIK
Build time	24/10/2024	Customer name	ShowroomShowroom
		Customer phone	0676589312

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Installation conditions

User demand	Space heating+Space cooling+DHW
Product series	Hi-Therma Split
System type	Monovalent (Heat pump only)

DHW Tank mounting type	External tank
Power supply	220V，Single phase
Space heating zones1	Radiators
Space heating zones2	None
Space cooling zones1	Fan coils
Space cooling zones2	None

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Design parameters

Heating design parameters

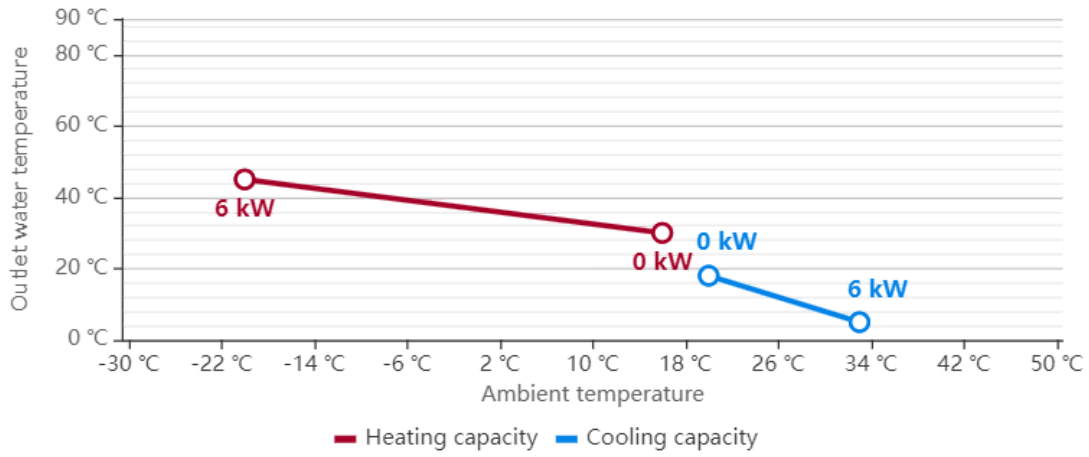
Heating capacity	6kW
Design temperature	-20℃
Stop operating temperature	16℃
Maximum water temperature	45℃
Minimum water temperature	30℃

Cooling design parameters

Cooling need	6kW
Design temperature	32.5℃
No load temperature	20℃
Maximum water temperature	18℃

Minimum water temperature	5℃

Ambient temperature and water temperature



DHW design parameters (According toEN16147)

Numbers of people using DHW	1 Person
Daily domestic hot water consumption	41.96 L
Daily hot water consumption	2.15 kW·h

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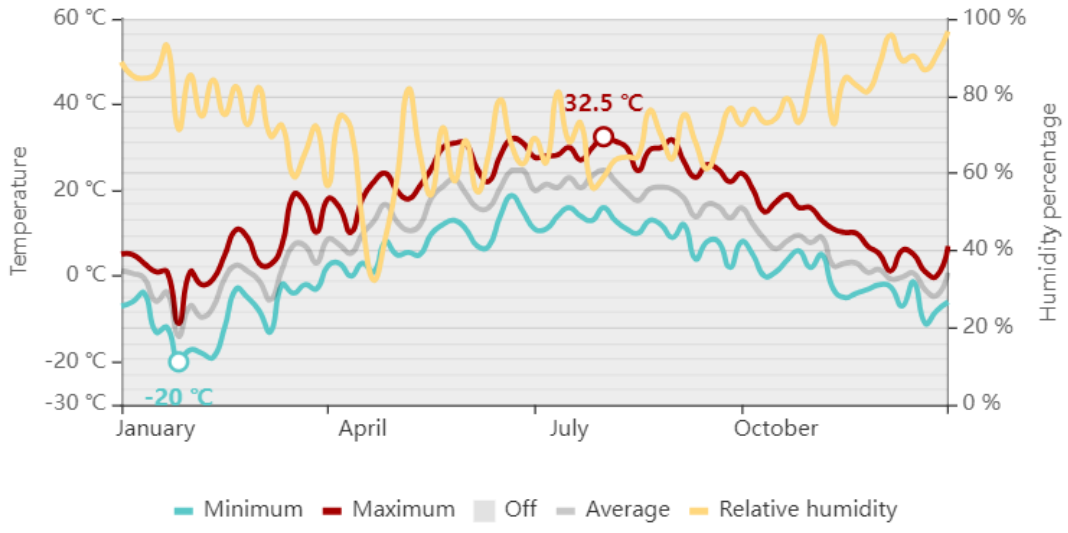
Operation schedule

Work mode

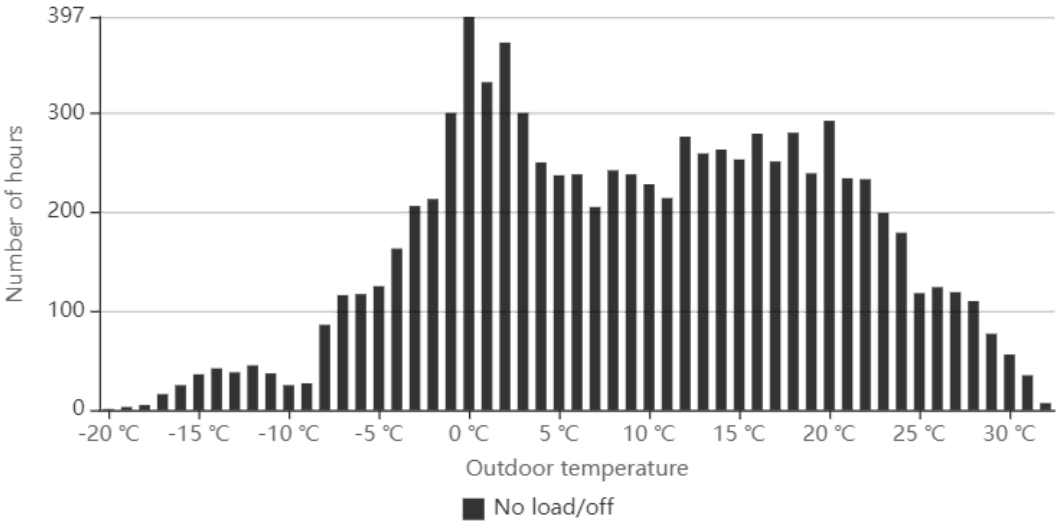
No.	Start date (Month/Day)	Ending date (Month/Day)	Work mode
1	1/1	12/31	Off

Climate conditions

Country	City	Temperature
Ukraine	Showroom	-20℃~32℃



Annual temperature distribution



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Heat pump selection

Outdoor unit	AHW-080HCDS1	
Indoor unit	AHM-080HCDSAA	
Nominal Heating Operation*1	OAT(DB/WB)：7/6℃ IWT/OWT：30/35℃	2.10/ 8.00 / 11.0 kW
	COP(Nom./Max)	4.9
Nominal Cooling Operation*1	OAT(DB/WB)：35/--℃ IWT/OWT：12/7℃	6 kW
	EER	3.6

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Basic parameters

Outdoor unit [AHW-080HCDS1]

HP	3				
Power Supply	220-240V ~50Hz				
Nominal Heating Operation*1	OAT(DB/WB)	IWT/OWT -		Unit	Heating Operation
	7/6℃	30/35℃	Capacity(Min./Nom./Max.)	kW	2.10/ 8.00 / 11.0
			COP(Nom.)	-	4.9
		47/55℃	Capacity(Nom./Max.)	kW	8.00 / 9.00
			COP(Nom.)	-	2.8
	2/1℃	30/35℃	Capacity	kW	8.5
			COP	-	3.38
		47/55℃	Capacity	kW	7.2
			COP	-	2.15
	-7/-8 ℃	30/35℃	Capacity(Nom./Max.)	kW	5.80 / 7.30
			COP(Nom.)	-	3.14
		47/55℃	Capacity(Nom./Max.)	kW	5.00 / 6.40
			COP(Nom.)	-	1.94
Nominal Cooling Operation*1	35/--℃	12/7℃	Nominal Capacity	kW	6
			EER	-	3.6
		23/18℃	Nominal Capacity	kW	7
			EER	-	5.1
Seasonal Performance*2	Water Outlet 35°c	SCOP		-	4.92
		Seasonal Heating Efficiency (ηs)		%	194
		Energy Rating		-	A+++
	Water Outlet 55°c	SCOP		-	3.42
		Seasonal Heating Efficiency (ηs)		%	134
		Energy Rating		-	A++
	Water Outlet 18°c	SEER		-	8.54
		Seasonal cooling efficiency (ηs)		%	339
	Water Outlet 7°c	SEER		-	5.73
		Seasonal cooling efficiency (ηs)		%	226
Sound Pressure*3	Normal Mode (Space heating/Cooling)			dB(A)	50/47
	Low Noise Mode (Space heating/Cooling)			dB(A	43/43
	night shift Mode (Space heating/Cooling)			dB(A	39/39
Sound Power	Normal Mode (Space heating/Cooling)			dB(A)	64/61
Fan	Condenser Fan Quantity			——	1
	Air Flow Rate			m3/h	2700
Max. Running Current				A	16.8
Recommended Fuse				A	20
Outer Dimensions	Height			mm	750
	Width			mm	900
	Depth			mm	340

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Packing Dimensions	Height		mm	807
	Width		mm	1022
	Depth		mm	445
Net Weight			kg	49
Gross Weight			kg	53.5
Refrigerating Installation	Compressor	Type	——	Rotary
		Quantity	——	1
	Refrigeration Charge	Type	——	R32
		Before Shipment	kg	1.05
	Gas Pipe(Piping diameter)		mm	15.88
			in.	5/8
	Liquid Pipe(Piping diameter)		mm	6.35
			in.	1/4
Minimum piping length			m	4
Maximum chargeless piping length			m	8
Maximum piping length(**)			m	45
Height difference between OU and IU(higher ODU/lower ODU)(**)			m	30 / 20
Operation Range (Space heating)	Outdoor ambient temperature		ºC (DB)	-25~35
	Outlet water temperature		ºC	15~60
Operation Range (Cooling)	Outdoor ambient temperature		ºC (DB)	5~46
	Outlet water temperature		ºC	5~22
Operation Range (DHW)	Outdoor ambient temperature		ºC (DB)	-25~40
	Tank water temperature*4		ºC	30~75

Note:

***1:** Heating/Cooling nominal performances at full load conditions according to EN 14511. Pipe length 7.5 m; height difference ODU/IDU 0 m; heating performance are integrated (included defrost cycles).

***2:** According to EN14825. Climate Zone AVERAGE. Energy efficiency scale from A +++ to D.

***3:** The above noise values are measured in the anechoic chamber without reflected echo, therefore the impact of the reflected echo must be taken into consideration at the scene.

***4:** When there is an DHW electric heater mounted in the DHW tank ,the setting temperature can reach 75°C.

OAT: Outdoor ambient temperature; IWT: Inlet water temperature; OWT: Outlet water temperature

Heating parameters (AVERAGE Climate)

Water temperature			35℃	55℃
Product description	Air to water heat pump	-	Yes	
	Heat pump combination heater	-	No	
	Low temperature heat pump	-	No	
	Complementary heater	-	Yes	
	ODU heat exchanger	-	Air to Water	
	Indoor side heat exchanger chiller	-	Water	
	Type	-	Compressor driven vapour compression	
	Driver of compressor	-	Electric motor	
	Capacity Control	-	Variable	
	Water control	-	Variable	
Rated heating capacity (P rated,h)		kW	6.50	5.90
Seasonal space heating energy efficiency (ηs,h)		%	194.00	134.00
Seasonal energy efficiency ratio heating mode(SCOP)		-	4.92	3.42
Type of energy used		-	Electricity	
Declared capacity (Pdh) and coefficient of performance (COP) at partial load under the following outdoor temperatures				
Outdoor temperature (Tj) = -7℃	Pdh	kW	2.32	2.15
	COPd	-	5.98	4.50
Outdoor temperature (Tj) = +2℃	Pdh	kW	3.52	3.16
	COPd	-	4.84	3.40
Outdoor temperature (Tj) = +7℃	Pdh	kW	2.32	2.15
	COPd	-	5.98	4.50
Outdoor temperature (Tj) = +12℃	Pdh	kW	1.98	2.14
	COPd	-	9.67	7.71
Outdoor temperature (Tj) = Bivalent temperature (Tbiv)	Pdh	kW	5.76	5.17
	COPd	-	3.14	1.85
Outdoor temperature (Tj) = Limit operation temperature (TOL)	Pdh	kW	6.16	5.67
	COPd	-	2.66	1.54
Bivalent temperature (Tbiv)		ºC	-7	-7
Limit operation temperature (TOL)		ºC	-10	-10
Water limit operation temperature		ºC	55	55
Degradation coefficient (Cdh)		-	0.9	0.9
Supplementary capacity (PSUP)		kW	0.34	0.18
Annual energy consumption (QHE)		kW·h	2732.38	3535.98

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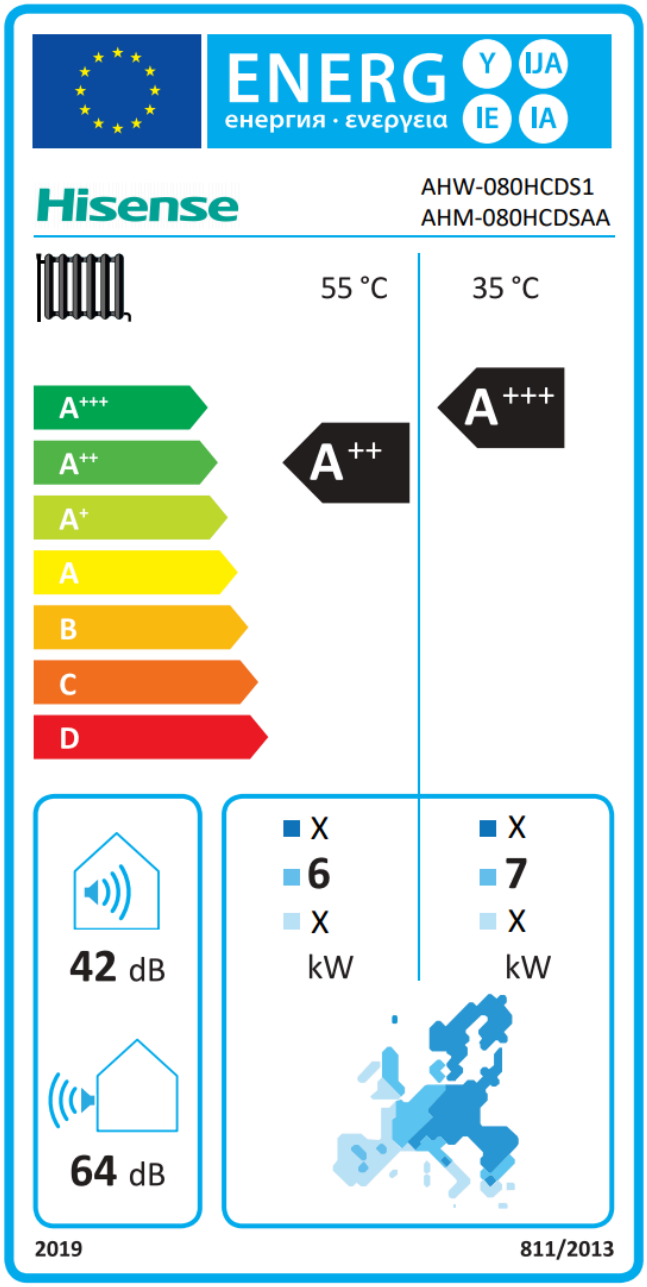
ERP data



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ErP data - cooling

Water temperature			7℃	18℃
Product description	ODU heat exchanger		Air to Water	
	Indoor side heat exchanger chiller		Water	
	Type		Compressor driven vapour compression	
	Driver of compressor		Electric motor	
	Capacity Control		Variable	
	Water control		Variable	Fixed
Rated Cooling Capacity (P rated,C)		kW	6.00	7.00
Seasonal space cooling energy efficiency (ηS,C)		%	226.00	339.00
Seasonal energy efficiency ratio cooling mode (SEER)		-	5.73	8.54
Declared cooling capacity and efficiency ratio for part load at given outdoor temperatures Tj				
Outdoor temperature (Tj) = 35℃	Pdc	kW	6.00	7.00

	EERd	-	3.60	5.10
Outdoor temperature (Tj) = 30℃	Pdc	kW	4.45	5.06
	EERd	-	5.10	6.81
Outdoor temperature (Tj) = 25℃	Pdc	kW	2.84	3.19
	EERd	-	6.56	8.87
Outdoor temperature (Tj) = 20℃	Pdc	kW	2.62	1.58
	EERd	-	7.93	9.93
Degradation coefficient (Cdc)		-	0.9	0.9

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Indoor unit [AHM-080HCDSAA]

HP	3		
Power Supply	220-240V ~ 50Hz		
Max. Running Current		A	16(31*1)
Recommended Fuse		A	20(40*1)
Outer Dimensions(with connections))	Height	mm	890
	Width	mm	520
	Depth	mm	320
Packing Dimensions	Height	mm	1160
	Width	mm	650
	Depth	mm	420
Net Weight		kg	44.5
Gross Weight		kg	49.5
Refrigerating Installation	Connection type	-	Flare nut connection
	Liquid pipe (Piping diameter)	mm (in.)	Ø9.53 (3/8")
	Gas Pipe (Piping diameter)	mm (in.)	Ø15.88 (5/8")
Noise level (sound pressure)		dB(A)	28
Noise level (sound power)		dB(A)	42
Water Flow Rate	IWT: 30℃ / OWT: 35℃ ΔT: 5℃	m3/h	1.9
	IWT: 47℃ / OWT: 55℃ ΔT: 8℃	m3/h	0.97
Min. Water Flow Rate		m3/h	0.6
DC Water Pump	Net Lift Pressure	m	3.2

	Max. Lift Pressure	m	7.6
	Max. Water Flow Rate	m3/h	3.5
	Energy Efficiency Class		
	Speed	-	Inverter
	Max. Power Input	W	50
Water Heat Exchanger	Type	-	Brazed Plate
	Material	-	Stainless Steel
	Insulation Material	-	EPS
Water Electric Heater (3 Steps)			1/2/3
Water Pressure Sensor	Material	-	AISI 304L(Stainless steel)
	Pressure Range	bar	0~9
Expansion vessel	Material	-	Steel (with stainless/galvanized steel connections)
	Volume	litri	8
	Working Pressure	bar	3
	Pre-loading Pressure (Air Side)	bar	1.0±0.3
Shut-off valve with filter	Material	-	Brass
	Diameter	in.	1”
	Mesh filter	-	30
	Type filter	-	Self-cleaning (with back flush)
Safety Valve		bar	3
Shut-off Valve		-	2 pcs Supplied

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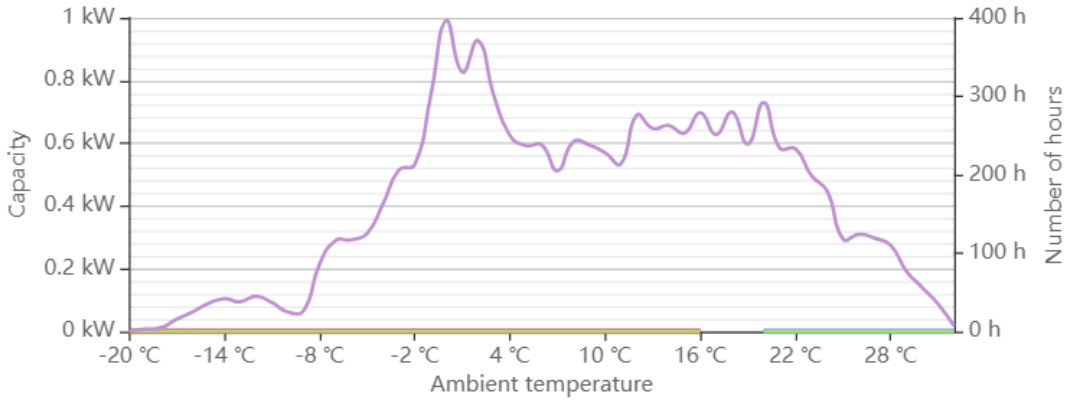
Simulation results

Partial load



Space heating: Load Heating operation
Space cooling: Load Cooling operation
System: HP Maxi. capacity HP actual capacity
Climate: Number of hours

Maximum capacity under design conditions（Space heating）：5.25kW（Accounting for heating demand88%）
Maximum capacity under design conditions（Space cooling）：7kW（Accounting for cooling demand117%）

Heating simulation results data

Total

Item	Remarks	Unit	Value
Annual total capacity	CAP	kW·h	0
Total input	IPT	kW·h	0
Annual COP	Annual COP	-	0.00
Annual working hours	Thours	Hours	8760

Detail

Item	Remarks	Unit	Value
Heating capacity	Pdesign	kW	6
Design temperature	Tdesign	℃	-20
Stop operating temperature	No load	℃	16
Maximum capacity for design conditions	HP/PDesign	kW	5.25(88%)
Partial load regulation area (Heat pump cover load capacity)	Thermal capacity	kW·h	0
	Thours	Hours	8760
Heating operation area	Thermal capacity	kW·h	0
	Thours	Hours	0

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DHW -simulation results data

Total

Item	Remarks	Unit	Value
Annual total capacity	CAP	kW·h	0
Total input	IPT	kW·h	0
Annual COP	COP(DHW)	-	0.00
Working days per year	DHdays	days	0

Detail

Item	Remarks	Unit	Value
Numbers of people using DHW	-	-	1 Person
Design water temperature	Tdesign	℃	53
Daily hot water consumption	DHEn	L	41.96

Cooling simulation results data

Total

Item	Remarks	Unit	Value
Annual total capacity	CAP	kW·h	0
Total input	IPT	kW·h	0
Annual EER	Annual EER	-	0.00
Annual working hours	Thours	Hours	8760

Detail

Item	Remarks	Unit	Value
Cooling need	Pdesign	kW	6
Design temperature	Tdesign	℃	32.5
No load temperature	No load	℃	20
Maximum capacity for design conditions	HP/PDesign	kW	7(117%)
Operation area	Thermal capacity	kW·h	0
	Thours	Hours	8760
Thermo ON/OFF operation area	Thermal capacity	kWh	0
	Thours	Hours	0

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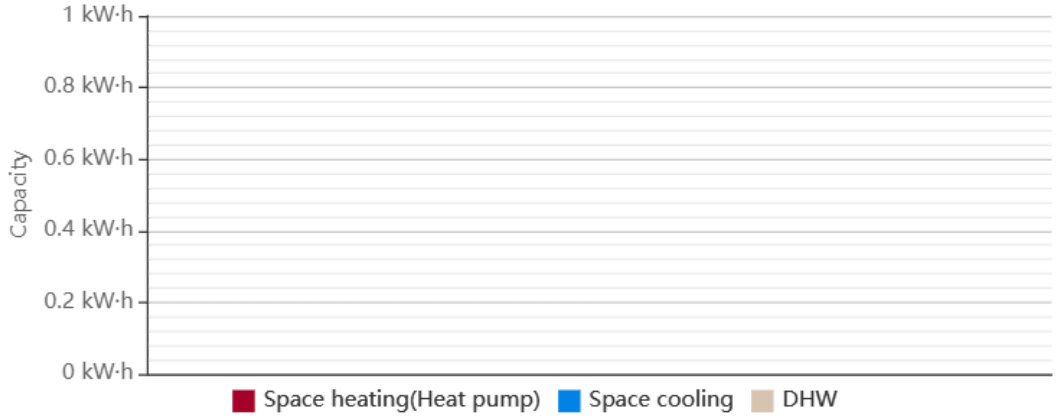
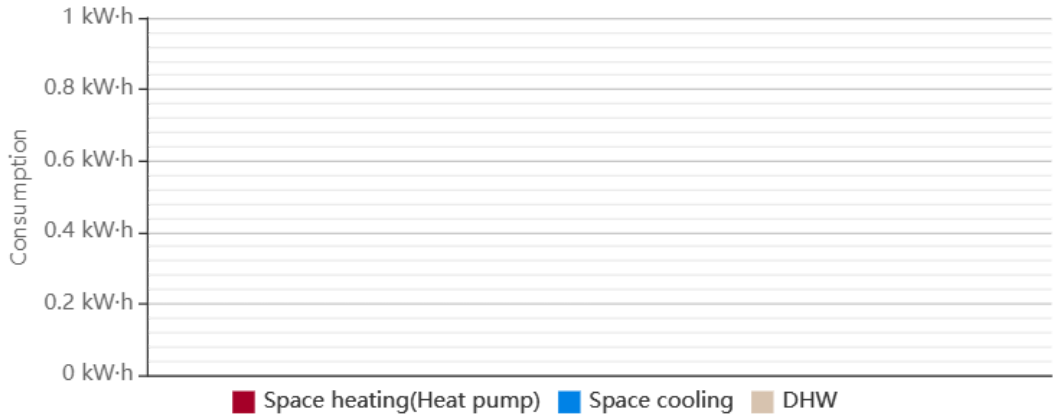
Energy consumption, costs and emissions

Month-by-month capability



Month-by-month energy consumption



Energy fees with different tariff

Item	Low tariff (0)	Medium tariff (0)	High tariff (0)
Electricity	0 0	0 0	0 0

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Cost

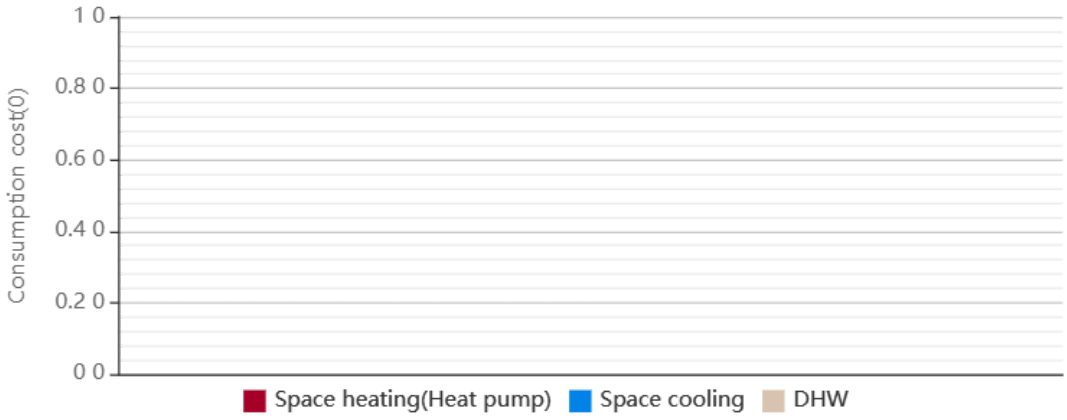
Total

Item	Cost(0)
Space heating	0.000
Backup heater	0.000
Cooling	0.000
DHW	0.000

Detail

Item	Heating (0)	Space cooling (0)	DHW (0)	Total (0)
Cost in low tariff period	0.000	0.000	0.000	0.000
Cost in middle tariff period	0.000	0.000	0.000	0.000
Cost in high tariff period	0.000	0.000	0.000	0.000
Total annual expense	0.000	0.000	0.000	0.000

Monthly fees



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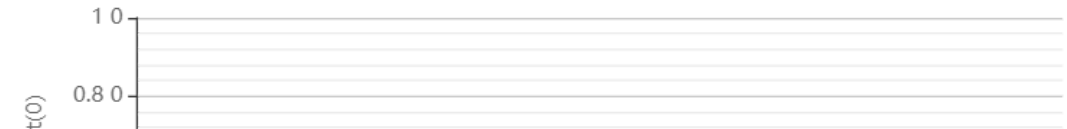
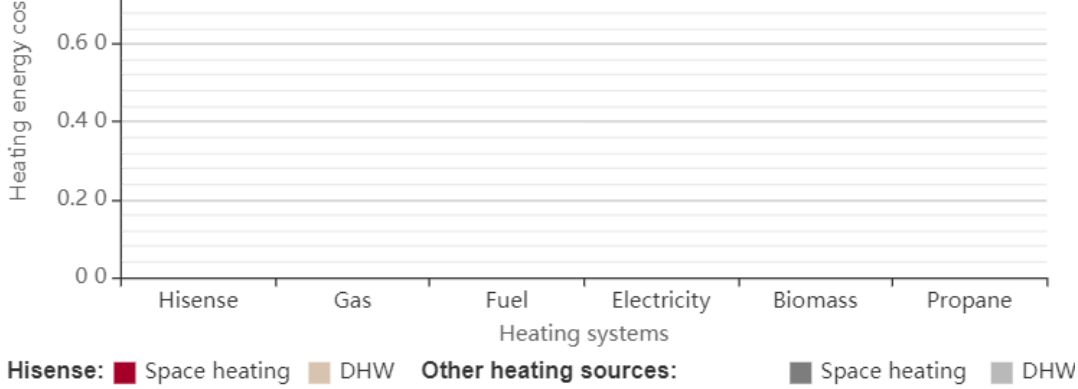
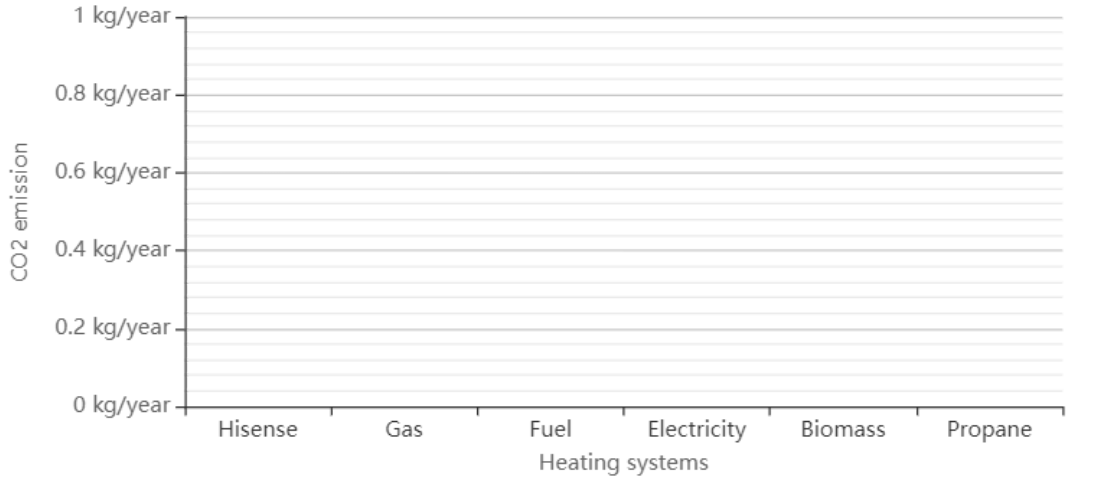
Heating and DHW energy cost comparison





Hisense: Space heating DHW **Other heating sources:** Space heating DHW

Heating & DHW CO2 emission comparison



Hisense: Space heating DHW **Other heating sources:** Space heating DHW

Item	Hisense	Gas	Fuel	Electricity	Biomass	Propane
Emissions	0kg/kW·h	0kg/kW·h	0kg/kW·h	0kg/kW·h	0kg/kW·h	0kg/kW·h
Space heating (Efficiency)	-	0%	0%	-	0%	0%
DHW (Efficiency)	-	0%	0%	-	0%	0%

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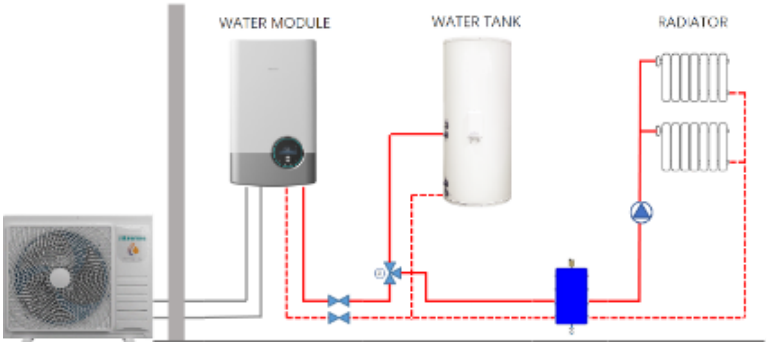
Diagram

Heating and DHW hydraulic diagram



Zone installation type

System type	Monovalent (Heat pump only)
DHWTank mounting type	External tank
Space heating zones1	Radiators
Space heating zones2	None

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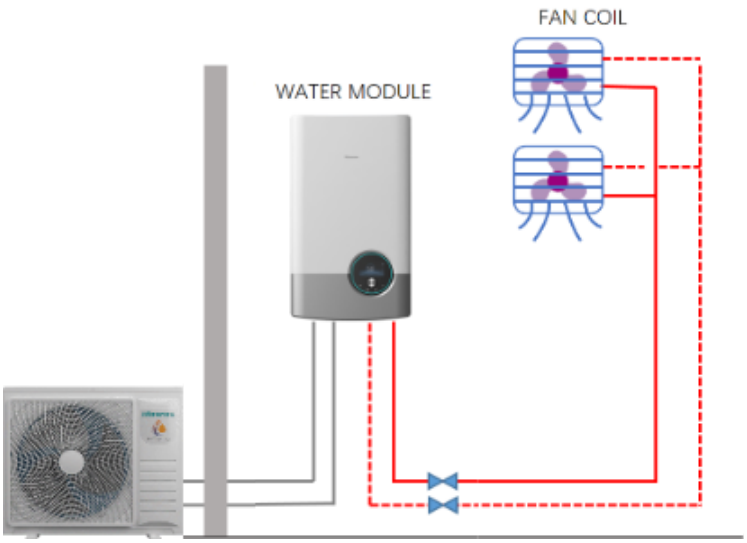
Cooling hydraulic diagram



Zone installation type

Space cooling zones1	Fan coils
Space cooling zones2	None

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Accessories

No.	Model	Quantity	Image	Description
1	HTS-E1000A1	2		Water temperature sensor for pipeline, tank and hydraulic components

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Summary and quotation

Item	Description	Unit price (0)	Quantity	Subtotal (0)
AHW-080HCDS1	Outdoor unit	0.000	1	0.000
AHM-080HCDSAA	Indoor unit	0.000	1	0.000
HTS-E1000A1	Water temperature sensor for pipeline, tank and hydraulic components	0.000	2	0.000
Total			4	0.000

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