

**Technical Report No.: 64.181.22.01889.01 Rev.00**

**Date: 2022-07-11**

Client: Report holder's name: ThermoFLUX d.o.o

Report holder's Address: Bage 3, 70101 Jajce, Bosnia and Herzegovina

Contact person of applicant: Amel Kopic

Manufacturer's name: ThermoFLUX d.o.o

Manufacturer's address: Bage 3, 70101 Jajce, Bosnia and Herzegovina

Test object: Product: EVI DC Inverter Split Air Source Heat Pumps  
Model: Outdoor unit: TF19DC SPLIT; Indoor unit: TF19DC SPLIT

Trade name: 

Test specification:  EN 14825:2018  
 (EU) No 813/2013

Purpose of examination: Test according to the test specification  
 EU 2016/2282:2016-11-30

Test result: The test results show that the presented product is in compliance with the above listed test specifications.

Any use for advertising purposes must be granted in writing. This technical report may only be quoted in full. This report is the result of a single examination of the object in question. It does not imply a general statement regarding the quality of products from regular production. For further details please see testing and certification regulation, chapter A-3.4.

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## 1 Description of the test object

### 1.1 Function

Manufacturer's specification for intended use:  
The appliance is air to water heat pump.  
Manufacturer's specification for predictive use:  
According to user manual

### 1.2 Consideration of the foreseeable use

- Not applicable
- Covered through the applied standard
- Covered by the following comment
- Covered by attached risk analysis

### 1.3 Technical Data

Model :	Outdoor unit: TF19DC SPLIT; Indoor unit: TF19DC SPLIT
Rated Voltage (V) :	380-415, 3N~
Rated Frequency (Hz) :	50
Rated Power (W) :	6200
Rated Current (A) :	13.17
Protection Class :	Class I
Protection Against Moisture :	Indoor unit: IPX0; outdoor unit: IPX4
Construction :	Stationary
Supply connection :	<input type="checkbox"/> Non detachable cord <input checked="" type="checkbox"/> Permanent connection to fixed wiring
Operation mode:	<input checked="" type="checkbox"/> Continuous operation; <input type="checkbox"/> Intermittent operation; <input type="checkbox"/> Short time operation;
Refrigerant/charge (g) :	R410A /3800g
Declared parameters :	<input checked="" type="checkbox"/> Average <input type="checkbox"/> Warmer <input type="checkbox"/> Colder
Sound power level dB(A) :	N/A
Series No :	KRZJ03A20600600267

## 2 Order

### 2.1 Date of Purchase Order, Customer's Reference

2021-02-01, 2022-07-06 ThermoFLUX d.o.o

### 2.2 Test Sample(s)

• Reception date(s): 2021-03-01

• Location(s) of reception:

For Energy test:

GZ-Lans Experimental Technology Co., Ltd. Laboratory

Address: No.16, Juncheng Road, Huangpu district, Guangzhou, China

• Condition of test sample(s): completed and can be normal operation

### 2.3 Date(s) of Testing

2021-03-08 to 2021-03-15

### 2.4 Location(s) of Testing

Same as 2.2

### 2.5 Points of Non-compliance or Exceptions of the Test Procedure

N/A

## 3 Test Results

### 3.1 Positive Test Results

See Appendix I

## 4 Remark

N/A

- 4.1** The user manual has been examined according to the minimum requirements described in the product standard. The manufacturer is responsible for the accuracy of further particulars as well as of the composition and layout.
- 4.2** When the product is placed on the market, it must be accompanied with safety Instructions written in official language of the country. The instructions shall give information re-garding safe operation, installation and maintenance.

## 5 Documentation

- Appendix I Test results
- Appendix II Marking plate
- Appendix III photo documentation
- Appendix IV Construction data form
- Appendix V Test equipment list

## 6 Summary

- 1) The appliance is Intelligent Inverter Heat Pump, including a whole compression type refrigerant circuit to heat water in another circuit. The appliance was for cooling and heating water function, this report only for heating capacity test.
- 2) The main power is supplied by a 5-pole supply cord connecting to fixed wiring.
- 3) Water enthalpy method was adopted in this report.
- 4) Standby mode power, off mode power and thermostat-off mode power were tested according to clause 12 of standard EN 14825:2018.
- 5)
  - a) Changing report holder name, address of report holder, manufacture name, address of manufacture, trade name, model name and exterior.
  - b) After evaluating, no additional test was needed.

### TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch TÜV SÜD Group

Tested by: William Liang, Project Handler  
*printed name, function & signature*



Approved by: Plum Li, Designated Reviewer  
*printed name, function & signature*



**Appendix I Test results**

<b>Table 1.</b>	<b>Heating mode(Low temperature application):</b>						<b>P</b>	
<b>Model</b>	Outdoor unit: TF19DC SPLIT; Indoor unit: TF19DC SPLIT							
<b>Product type</b>	Air to Water	<b>Heating season</b>	<input checked="" type="checkbox"/>	Average	<input type="checkbox"/>	Warmer	<input type="checkbox"/>	Colder
<b>1. Test conditions:</b>								
<b>Condition</b>	<b>Part Load Ratio</b> in %				<b>Outdoor heat exchanger</b>	<b>Indoor heat exchanger</b>		
	Formula	A	W		Inlet dry (wet) bulb temperature °C	Inlet/outlet water temperatures (°C)		
A	$(-7-16)/(T_{designh}-16)$	88	N/A	N/A	-7(-8)	a / 34		
B	$(+2-16)/(T_{designh}-16)$	54	N/A	N/A	2(1)	a / 30		
C	$(+7-16)/(T_{designh}-16)$	35	N/A	N/A	7(6)	a / 27		
D	$(+12-16)/(T_{designh}-16)$	15	N/A	N/A	12(11)	a / 24		
E	$(TOL-16)/(T_{designh}-16)$				TOL	a / 35.3		
F	$(T_{bivalent}-16)/(T_{designh}-16)$				Tbiv	a / 34		
G	$(-15-16)/(T_{designh}-16)$	N/A	N/A	N/A	-15	N/A		
Remark: a) With the water flow rate as determined at the standard rating conditions given in EN14511-2 at 30/35 conditions.								
<b>2. Tested data/correction data(Average):</b>								
General test conditions/ Part-Load	Unit	A(-7)/W34 (88%)	A2/W30 (54%)	A7/W27 (35%)	A12/W24 (15%)	A(-10)/W35.3 (100%)	A(-7)/W34 (88%)	
	--	A	B	C	D	E	F	
Data collection period	hh: min:sec	4:00:00	2:00:00	2:00:00	2:00:00	4:00:00	4:00:00	
The heat pump defrosts	--	Yes	No	No	No	Yes	Yes	
Complete Cycles	--	1	0	0	0	1	1	
Barometric pressure	kPa	101.02	101.01	101.01	101.02	101.01	101.02	
Voltage	V	405.6	400.8	410.1	407.5	400.5	405.6	
Current input of the unit	A	9.62	3.57	3.34	2.91	9.72	9.62	
Power input of the unit	kW	4.306	1.553	1.261	1.059	4.314	4.306	
<b>Test conditions indoor unit</b>								
<b>Inlet Water temperature, DB</b>	°C	28.01	27.06	23.61	20.18	29.62	28.01	
<b>Outlet Water temperature, DB</b>	°C	32.98	30.01	27.01	24.11	33.99	32.98	

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**Appendix I Test results**

Test conditions outdoor unit							
Air inlet temperature, DB	°C	-6.90	2.25	7.02	12.01	-9.95	-6.90
Air inlet temperature, WB	°C	-8.82	1.00	6.01	11.00	-11.39	-8.82
Summary of the results							
Total heating capacity	kW	11.607	7.070	7.873	9.037	10.187	11.607
Effective power input	kW	4.287	1.534	1.242	1.040	4.295	4.287
Coefficient of performance (COP)	--	2.71	4.61	6.34	8.69	2.37	2.71
Compressor frequency	Hz	78	30	30	30	78	78
Water flow	m³/h	2.00	2.00	2.00	2.00	2.00	2.00
Remark: * In part condition, outlet temperature data is recorded by a full average complete cycle's data.							
3.Calculation/conclusion for SCOP(Average):							
Tdesignh(°C)	-10	Tbiv(°C)		-7			
Pdesignh(kW)	13.121	TOL(°C)		-10			
Test result A, B, C, D, E, F conditions:							
Condition	Part load	Measured capacity	COP at measured capacity	Cdh	CR	COP at part load	
E	13.121	10.187	2.37	0.00	1.00	2.37	
F	11.607	11.607	2.71	0.00	1.00	2.71	
A	11.607	11.607	2.71	0.00	1.00	2.71	
B	7.065	7.070	4.61	0.00	1.00	4.61	
C	4.542	7.873	6.34	0.99	0.58	6.29	
D	2.019	9.037	8.69	0.99	0.22	8.40	
CR: part load divided by capacity;							

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**Appendix I Test results**

<b>Electric power consumptions</b>	<b>Unit</b>	<b>Value</b>
Thermostat-off mode [ $P_{TO}$ ]	kW	0.016
Standby mode [ $P_{SB}$ ]	kW	0.016
Crankcase heater [ $P_{CK}$ ]	kW	0.047
Off mode [ $P_{OFF}$ ]	kW	0.016

<b>Conclusions:</b>	<b>Unit</b>	<b>Value</b>
SCOP <sub>on</sub> :	kWh/kWh	4.68
SCOP:	kWh/kWh	4.67
$Q_H$ :	kWh/year	27107
$Q_{HE}$ :	kWh/year	5803
$\eta_{s,h}$	%	183.8
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)	--	A+++

Appendix I Test results

<b>Table 2.</b>	<b>Heating mode(Medium temperature application):</b>						<b>P</b>
<b>Model</b>	Outdoor unit: TF19DC SPLIT; Indoor unit: TF19DC SPLIT						
<b>Product type</b>	Air to Water	<b>Heating season</b>	<input checked="" type="checkbox"/> Average	<input type="checkbox"/> Warmer	<input type="checkbox"/> Colder		
<b>1. Test conditions:</b>							
<b>Condition</b>	<b>Part Load Ratio in %</b>				<b>Outdoor heat exchanger</b>	<b>Indoor heat exchanger</b>	
	Formula	A	W	C	Inlet dry (wet) bulb temperature °C	Inlet/outlet water temperatures (°C)	
A	$(-7-16)/(T_{designh-16})$	88	N/A	N/A	-7(-8)	a / 52	
B	$(+2-16)/(T_{designh-16})$	54	N/A	N/A	2(1)	a / 42	
C	$(+7-16)/(T_{designh-16})$	35	N/A	N/A	7(6)	a / 36	
D	$(+12-16)/(T_{designh-16})$	15	N/A	N/A	12(11)	a / 30	
E	$(TOL-16)/(T_{designh-16})$				TOL	a / 55.3	
F	$(T_{bivalent-16})/(T_{designh-16})$				Tbiv	a / 52	
G	$(-15-16)/(T_{designh-16})$	N/A	N/A	N/A	-15	N/A	
Remark: a) With the water flow rate as determined at the standard rating conditions given in EN14511-2 at 47/55 conditions.							
<b>2. Tested data/correction data(Average):</b>							
General test conditions/ Part-Load	Unit	A(-7)/W52 (88%)	A2/W42 (54%)	A7/W36 (35%)	A12/W30 (15%)	A(-10)/W55.3 (100%)	A(-7)/W52 (88%)
	--	A	B	C	D	E	F
Data collection period	hh: min:sec	4:00:00	2:00:00	2:00:00	2:00:00	4:00:00	4:00:00
The heat pump defrosts	--	Yes	No	No	No	Yes	Yes
Complete Cycles	--	1	0	0	0	1	1
Barometric pressure	kPa	99.85	99.85	99.85	99.80	99.75	99.85
Voltage	V	403.8	402.4	406.8	401.7	400.6	403.8
Current input of the unit	A	12.26	4.71	3.74	3.30	13.14	12.26
Power input of the unit	kW	5.760	2.070	1.571	1.291	5.995	5.760
<b>Test conditions indoor unit</b>							
Inlet Water temperature, DB	°C	45.73	38.82	32.52	26.24	49.38	45.73
Outlet Water temperature, DB	°C	50.85	41.99	35.79	30.06	54.00	50.85

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**Appendix I Test results**

Test conditions outdoor unit							
Air inlet temperature, DB	°C	-6.95	2.02	7.00	12.02	-9.86	-6.95
Air inlet temperature, WB	°C	-8.65	0.91	5.99	11.01	-10.85	-8.65
Summary of the results							
Total heating capacity	kW	11.914	7.379	7.571	8.811	10.750	11.914
Effective power input	kW	5.730	2.039	1.540	1.261	5.965	5.730
Coefficient of performance (COP)	--	2.08	3.62	4.92	6.99	1.80	2.08
Compressor frequency	Hz	78	30	30	30	78	78
Water flow	m³/h	2.03	2.03	2.03	2.03	2.03	2.03
Remark: * In part condition, outlet temperature data is recorded by a full average complete cycle's data.							
3.Calculation/conclusion for SCOP(Average):							
Tdesignh(°C)	-10	Tbiv(°C)		-7			
Pdesignh(kW)	13.468	TOL(°C)		-10			
Test result A, B, C, D, E, F conditions:							
Condition	Part load	Measured capacity	COP at measured capacity	Cdh	CR	COP at part load	
E	13.468	10.750	1.80	0.00	1.00	1.80	
F	11.914	11.914	2.08	0.00	1.00	2.08	
A	11.914	11.914	2.08	0.00	1.00	2.08	
B	7.252	7.379	3.62	0.00	0.98	3.62	
C	4.662	7.571	4.92	0.99	0.62	4.88	
D	2.072	8.811	6.99	0.99	0.24	6.77	
CR: part load divided by capacity;							

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**Appendix I Test results**

<b>Electric power consumptions</b>	<b>Unit</b>	<b>Value</b>
Thermostat-off mode [P <sub>TO</sub> ]	kW	0.016
Standby mode [P <sub>SB</sub> ]	kW	0.016
Crankcase heater [P <sub>CK</sub> ]	kW	0.047
Off mode [P <sub>OFF</sub> ]	kW	0.016

<b>Conclusions:</b>	<b>Unit</b>	<b>Value</b>
SCOP <sub>on</sub> :	kWh/kWh	3.67
SCOP:	kWh/kWh	3.66
Q <sub>H</sub> :	kWh/year	27824
Q <sub>HE</sub> :	kWh/year	7598
η <sub>s,h</sub>	%	143.5
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 1)	--	A++



Appendix II Marking plate




Nameplate	
<b>Model: <u>Outdoor unit: TF19DC SPLIT</u></b>	
  	
EVI DC Inverter Split Air Source Heat Pumps	
<b>Outdoor Unit</b>	
<b>Model</b>	<b>TF19DC SPLIT</b>
<b>Power Supply</b>	<b>380V-415V/3N~,50Hz</b>
<b>WaterProof Level</b>	<b>IPX4</b>
<b>Electric Shock Proof Grade</b>	<b>I</b>
<b>Heating Capacity Min./Max.</b>	<b>8.65/18.8kW</b>
<b>Heating Input Power Min./Max.</b>	<b>1.58/4.28kW</b>
<b>Cooling Capacity Min./Max.</b>	<b>5.69/12.37kW</b>
<b>Cooling Input Power Min./Max.</b>	<b>1.65/5.31kW</b>
<b>Water Flow</b>	<b>3.2m<sup>3</sup>/h</b>
<b>Operation pressure(low side)</b>	<b>1.5Mpa</b>
<b>Operation pressure(high side)</b>	<b>4.4Mpa</b>
<b>Maximum allowable pressure</b>	<b>4.4Mpa</b>
<b>Rated Input Power</b>	<b>6.2kW</b>
<b>Rated Input Current</b>	<b>13.17A</b>
<b>Refrigerant/Weight</b>	<b>R410A/3800g</b>
<b>Net Weight</b>	<b>109kg</b>
<b>Date: /NO.</b>	<b>See bar code</b>
<b>ThermoFLUX d.o.o</b> <b>Bage 3, 70101 Jajce, Bosnia and Herzegovina</b> <b>www.thermoflux.ba</b>	

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Appendix II Marking plate

**Nameplate**

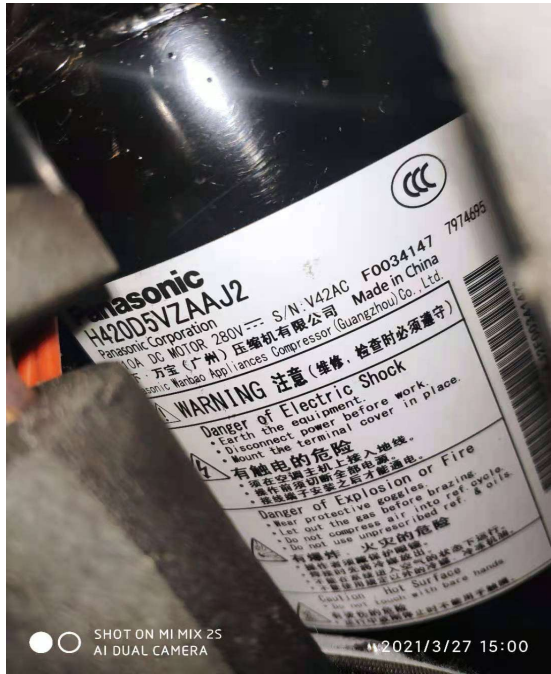
**Model: Indoor unit: TF19DC SPLIT**

  	
EVI DC Inverter Split Air Source Heat Pumps	
<b>Indoor Unit</b>	
<b>Model</b>	<b>TF19DC SPLIT</b>
<b>Power Supply</b>	<b>380V-415V/3N~,50Hz</b>
<b>Electric Shock Proof Grade</b>	<b>I</b>
<b>Electric Heater</b>	<b>3kW</b>
<b>Electric Rated Input Power</b>	<b>3kW</b>
<b>Electric Rated Input Current</b>	<b>6.3A</b>
<b>Water Flow</b>	<b>3.2m<sup>3</sup>/h</b>
<b>Water Pressure Drop</b>	<b>25kPa</b>
<b>Water Pump Head</b>	<b>8.5m</b>
<b>Max. Water Outlet Temperature</b>	<b>55°C</b>
<b>Water Pipe Connection</b>	<b>1 inch</b>
<b>Max Water Pressure</b>	<b>1.0MPa</b>
<b>Net Weight Indoor</b>	<b>42 kg</b>
<b>Date: /NO.</b>	<b>See bar code</b>
<p><b>ThermoFLUX d.o.o</b>  <b>Bage 3, 70101 Jajce, Bosnia and Herzegovina</b>  <b>www.thermoflux.ba</b></p>	

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Appendix III photo documentaiton

Details of:	Overall view of Outdoor unit
<p><b>View:</b></p> <p><input type="checkbox"/> General</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right</p> <p><input type="checkbox"/> Left</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p>	


Details of:	Compressor of Outdoor unit
<p><b>View:</b></p> <p><input type="checkbox"/> General</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right</p> <p><input type="checkbox"/> Left</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p>	

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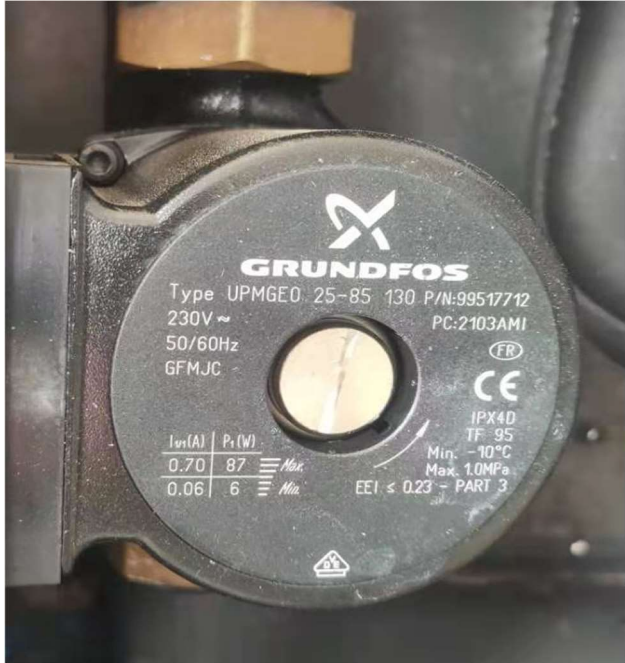
Appendix III photo documentaiton


Details of:	Fan Motor of Outdoor unit
View:	
<input type="checkbox"/> General	
<input type="checkbox"/> Front	
<input type="checkbox"/> Rear	
<input type="checkbox"/> Right	
<input type="checkbox"/> Left	
<input type="checkbox"/> Bottom	

Details of:	Main Control Board of Outdoor unit
View:	
<input type="checkbox"/> General	
<input type="checkbox"/> Front	
<input type="checkbox"/> Rear	
<input type="checkbox"/> Right	
<input type="checkbox"/> Left	
<input type="checkbox"/> Bottom	

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Appendix III photo documentaiton

Details of:	Water Pump of Outdoor unit
View:	
<input type="checkbox"/> General	
<input type="checkbox"/> Front	
<input type="checkbox"/> Rear	
<input type="checkbox"/> Right	
<input type="checkbox"/> Left	
<input type="checkbox"/> Top	
<input type="checkbox"/> Bottom	

Details of:	Overall view of Indoor unit
View:	
<input type="checkbox"/> General	
<input type="checkbox"/> Front	
<input type="checkbox"/> Rear	
<input type="checkbox"/> Right	
<input type="checkbox"/> Left	
<input type="checkbox"/> Top	
<input type="checkbox"/> Bottom	

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**Appendix IV Construction data form**

Model: <u>Outdoor unit: TF19DC SPLIT; Indoor unit: TF19DC SPLIT</u>		
Part		Technical data
1. Compressor		
	Manufacture:	Panasonic Wanbao Appliances Compressor (Guangzhou) Co., Ltd.
	Type:	H420D5VZAAJ2
	Rated capacity:	4490W; R410A
	Serial-number:	N/A
2. Condenser		
	Manufacture:	East -Alliance Thermal Equipment
	Type:	EATB61-D-40-2M-2L
	Heat exchanger:	Plate heat exchanger
	Dimension(mm):	539(L)mmX125(H)mmX103(D)mm
3. Evaporator		
	Manufacture:	Guangzhou Aotai Refrigeration Equipment Co., Ltd.
	Type:	05KA-CP-01
	Heat exchanger:	Finned-coil heat exchanger
	Dimension(mm):	660(L)mmX1300(H)mmX345(D)mm
4. Fan motor		
	Manufacture:	Wolong Electric Group Co., Ltd
	Type:	ZWB278D04A
	Fan type:	3 blade
5. Main control board		
	Manufacture:	CAREL
	Type:	UP3CON0S00
	Specification:	380-420V; 50Hz
6. Water pump		
	Manufacture:	GRUNDFOS
	Type:	UPMGE0 25-85 130
	Specification:	230V~; 50/60Hz

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**Appendix V Equipment List**

No.	Type	Manufacture	Model	Equipment ID	Calibration Due Date
1	R&A performance measuring system	GEI	20kW	-	2021-08-02
2	Temperature and humidity meter	VAISALA	HMD42	H5110021	2021-08-02
3	Platinum resistance	YINUO	Pt100	7430F	2021-05-21
4	Platinum resistance	YINUO	Pt100	7434F	2021-05-21
5	Flowmeter	YOKOGAWA	AXF015G	S5M201965	2021-05-21
6	Flowmeter	YOKOGAWA	AXF040G	S5M805005	2021-05-21
7	Pressure transmitter	MICRO	MPM489	240502	2021-08-03
8	Pressure transmitter	MICRO	MPM489	240503	2021-08-03
9	Water pressure difference transmitter	MICRO	MDM3051	291459	2021-08-03
10	AC source Supply	YANGHONG	YF-3600	-	2022-01-01
11	Water pressure difference transmitter	MICRO	MDM3051	291459	2021-08-03
12	AC source Supply	YANGHONG	YF-3600	-	2022-01-01
13	Temperature and humidity meter	H5110021	HMD42	VAISALA	2021-08-03

-- End of Report --