

Alfea Extensa ^{ai} R32

Split air-to-water heat pump for improved performances
Average temperature solution for all projects



Remote piloting



+ BENEFITS

- Robust hydraulic conception due to patented coaxial heat exchanger
- Better performance, optimised acoustic pressure and increased energy efficiency
- Possibility of remote piloting via Cozytouch application due to NAVISTEM 400S control system
- Low acoustic level

DESCRIPTION

- Average temperature solution for all projects
- 4 models :5 to 10 kW
- Single-phase models
- Heating only
- Patented coaxial heat exchanger
- Inverter regulation
- Integrated 16 L buffer tank

AVAILABLE OPTIONS

- 2 zones kit (plug-and-play kit)
- Cooling kit
- Separate hot water tank
- Boiler connection kit
- Room controller

Practical trainings

that will help you save time and be more efficient.



On-site trainings

- PAC6-03-1: Install a new product - 1 day
- PAC6-05-1: Commissioning, maintenance and service - 1 day



Online trainings

- PAC 6-13-5: Installation & commissioning - ½ day
- PAC 6-15-5: Services test & breakdowns - ½ day



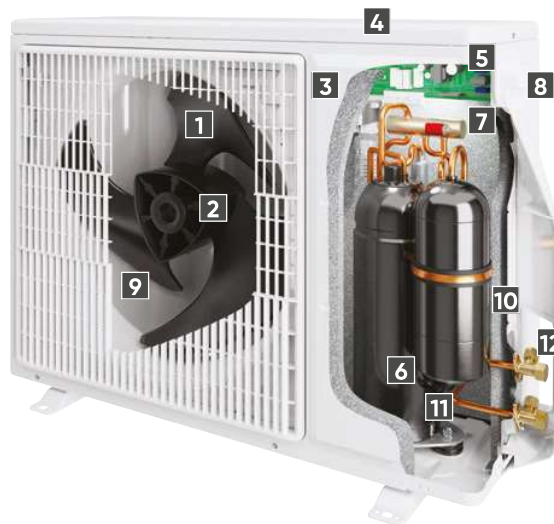
INDOOR HYDRAULIC MODULE



- 1 Electric board
- 2 User interface/regulator
- 3 Manometer
- 4 Low-consumption circulation pump
- 5 Heating flow
- 6 Heating return
- 7 Refrigerant connections
- 8 Expansion vessel
- 9 Safety valve
- 10 Coaxial heat exchanger

OUTDOOR INVERTER UNIT

- 1 Low-noise, high-output ventilator
- 2 Electric variable speed motor
- 3 "Inverter" control module
- 4 Control lights and buttons
- 5 Connection terminals (power supply and interconnection)
- 6 Refrigerant accumulator bottle
- 7 Cycle reversing valve
- 8 Anti-corrosion treated metal cover
- 9 High-performance exchange surface evaporator; anti-corrosion treated hydrophilic aluminium fins and grooved copper tubes
- 10 Electronic expansion valve
- 11 Noise and temperature insulated "Inverter" compressor
- 12 Refrigerating connection valves (flared connectors) with protective cover

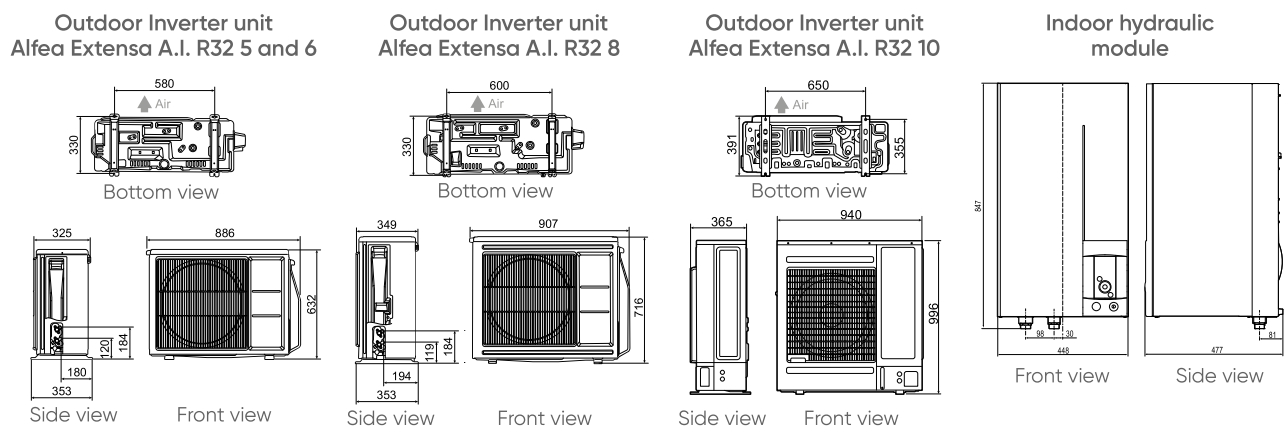


TECHNICAL CHARACTERISTICS AND PERFORMANCES

	UNIT	ALFEA EXTENSA A.I. 5 R32	ALFEA EXTENSA A.I. 6 R32	ALFEA EXTENSA A.I. 8 R32	ALFEA EXTENSA A.I. 10 R32
REFRIGERANT		R32	R32	R32	R32
ENERGY EFFICIENCY & ACOUSTIC CHARACTERISTICS					
Energy class - Heating (35°C/55°C)	-	A+++ / A++	A+++ / A++	A+++ / A++	A+++ / A++
Rated heat power (35°C/55°C)	kW	5/5	6/5	6/6	9/8
Annual energy consumption - Heating (35°C/55°C)	kWh	2322 / 3035	2594 / 3411	2982 / 3903	3 875 / 5 083
Seasonal energy efficiency - Heating (35°C/55°C)	%	175 / 125	175 / 125	177 / 128	178 / 130
Seasonal energy efficiency - Heating (35°C/55°C) with outdoor sensor	%	177 / 127	177 / 127	179 / 130	180 / 132
Sound power level (indoor/outdoor) ⁽¹⁾	dB(A)	40 / 57	40 / 57	40 / 60	40 / 62
MAIN CHARACTERISTICS					
SCOP 35 °C / 55 °C	-	4,45 / 3,20	4,46 / 3,21	4,5 / 3,28	4,53 / 3,33
Heating capacity +7°C/+35°C - Underfloor Heating	kW	4.50	5.50	7.50	9.50
COP +7°C/+35°C - Underfloor Heating		4.74	4.65	4.43	4.50
Heating capacity -7°C/+35°C - Underfloor Heating	kW	4.40	5.00	5.70	8.90
COP -7°C/+35°C - Underfloor Heating		2.76	2.63	2.68	3.36
Heating capacity +7°C/+45°C - Low T°radiators	kW	4.50	5.50	7.25	2.65
COP +7°C/+45°C - Low T°radiators		3.39	3.39	3.35	9.25
Heating capacity -7°C/+45°C - Low T°radiators	kW	4.28	4.82	5.58	8.61
COP -7°C/+45°C - Low T°radiator		2.26	2.21	2.17	2,27
Heating capacity +7°C/+55°C - Radiators	kW	4.50	5.50	7.00	9.00
COP +7°C/+55°C - Radiators		2.64	2.67	2.66	2,70
Heating capacity -7°C/+55°C - Radiators	kW	3.90	4.25	5.30	8.00
COP -7°C/+55°C - Radiators		1.85	1.89	1.90	1.95
Additional electric back-up heater	kW	3 / 6	3 / 6	3 / 6	3 / 6
INDOOR HYDRAULIC MODULE					
Noise level ⁽²⁾	dB(A)	32	32	32	32
Net weight/filled weight ⁽³⁾	kg	42 / ask for this information	42 / ask for this information	42 / ask for this information	42 / ask for this information
Power supply	V / Hz	230 / 50	230 / 50	230 / 50	230 / 50
OUTDOOR UNIT					
Noise level ⁽⁴⁾	dB(A)	35	35	38	40
Operating weight	kg	43	43	46	62
REFRIGERANT CHARACTERISTICS					
Min./max. length	m	3 / 30	3 / 30	3 / 30	3 / 30
Max. difference in height	m	20	20	20	20
R32 factory load	g	970	970	1 020	1 630
Quantity of refrigerant in tons of CO ₂ equivalent	t	0,65	0,65	0,69	1.10

(1) Sound power level is a laboratory measurement of the sound power emitted by the product, but it does not correspond to the sound perceived. Used by acoustics specialists, it allows to measure the sound pressure level of the product in its working environment. - (2) Acoustic pressure at 1m from HP, 1,5 m height, open field, directivity 2. (3) Models with electric back-up. - (4) Acoustic pressure at 5m from HP, 1,5 m height, open field, directivity 2.

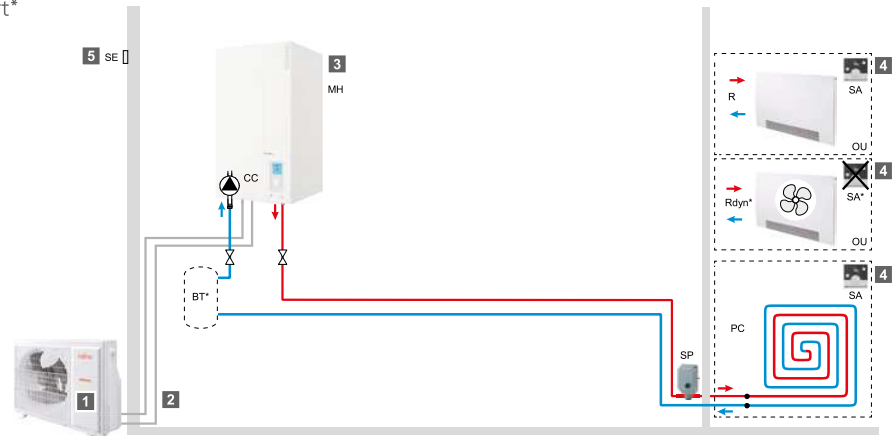
INSTALLATION DIMENSIONS (mm)



INSTALLATION SCHEMATICS

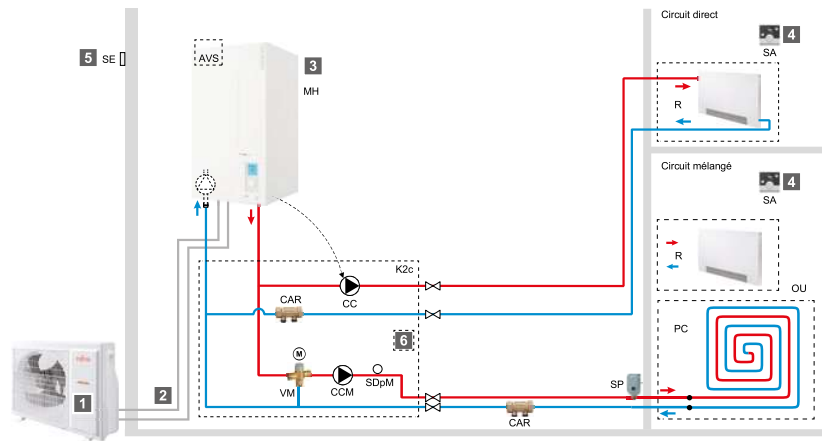
ALFEA EXTENSA A.I. R32: 1 HEATING ZONE

- 1 Outdoor unit and ground support*
- 2 Refrigerant connections*
- 3 Hydraulic module with electric back-up heater
- 4 Room controller*
- 5 Outdoor sensor



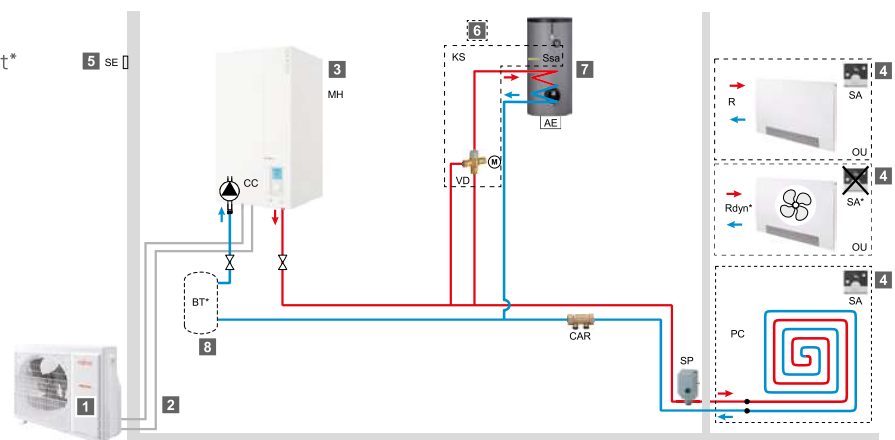
ALFEA EXTENSA A.I. R32: 2 HEATING ZONES

- 1 Outdoor unit and ground support*
- 2 Refrigerant connections*
- 3 Hydraulic module with electric back-up heater
- 4 Room controller*
- 5 Outdoor sensor
- 6 2 zones kit



ALFEA EXTENSA A.I. R32: 1 HEATING ZONE + DHW PRODUCTION

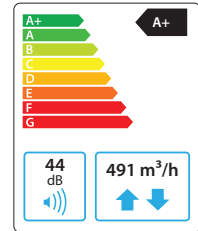
- 1 Outdoor unit and ground support*
- 2 Refrigerant connections*
- 3 Hydraulic module with electric back-up heater
- 4 Room controller*
- 5 Outdoor sensor
- 6 DHW kit
- 7 Water tank
- 8 Buffer tank**



*Optional - **Depending on type of heating devices and volume of water in heating zone

Domekt R 450 V C6M

Maximal air flow, m ³ /h	491
Maximal air flow, l/s	136
Unit weight, kg	60
Supply voltage, V	1~230
Maximal operating current, A	HE7,5
Thermal efficiency of heat recovery, %	86
Reference flow rate, m ³ /s	0,095
Reference pressure difference, Pa	50
SPI, W/(m ³ /h)	0,3
Filters dimensions BxHxL, mm	517x278x46
Electric power input of the fan drive at reference flow rate, W	54
Electric power input of the fan drive at maximum flow rate, W	146
Electric air heater capacity, kW / Δt, °C	1 / 8,6
Maintenance space, mm	700
Control system	C6M



Acoustic data

A-weighted sound power level L_{WA} , dB(A)
at reference flow rate

Supply inlet	57
Supply outlet	66
Exhaust inlet	57
Exhaust outlet	66
Casing	44

A-weighted sound pressure level L_{pA} , dB(A)

10 m² normally isolated room, distance from casing – 3 m.

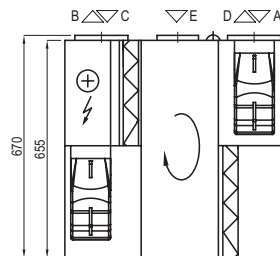
Surroundings	34
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Temperature efficiency

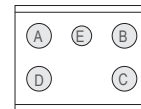
Outside temperature, °C	Winter					Summer		
	-23	-15	-10	-5	0	25	30	35
After heat exchanger, °C	15,7	16,8	17,5	18,2	18,9	22,4	23,1	23,8

indoor +22°C, 20 % RH

Shown as left (L1)



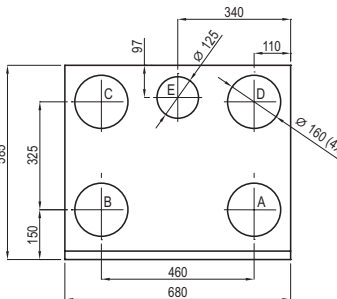
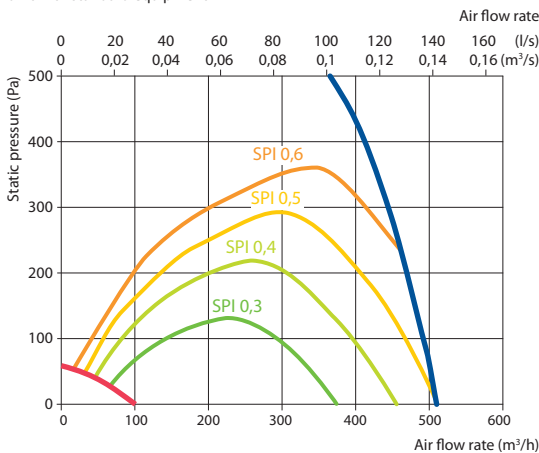
Shown as right (R1)



- A outdoor intake
- B supply air
- C extract indoor
- D exhaust air
- E additional extraction connection (by-pass – extraction without heat recovery)

Performance

Unit with standard equipment



Accessories

Closing damper	AGUJ-M-160+LF230/CM230
Silencer	A/D AGS-160-50-600-M B/C AGS-160-50-900-M
Water heater	DH-160
PPU	PPU-HW-3R-15-0,4-W2
2-way valve (heater)	VVP47.10-0,4

Water cooler	DCW-0,5-3
2-way valve (cooler)	VVP47.10-1,6
Outdoor grill	LD-160
Water heater-cooler	DHCW-160
DX cooler	DCF-0,5-3
Cooling unit	MOU-12HFN8+KA8243

C6.1



C6.2

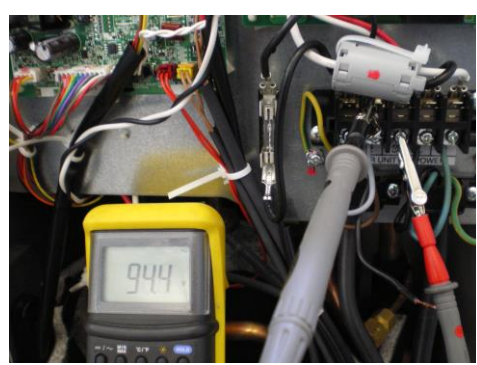


Practice Notebook

ALFEA Extensa AI R32




**FLUIDE
R32**



Installation & Commissioning Summary

1 About the heat pump

Hydraulic unit

Outdoor Unit

2 Installation – commissioning

Hydraulic installation

Calculate the minimum surface & Volume

Check equipment and installation

Check the specificities

Calculate the circulating pump setting

and Expansion vessel

Calculate the charge of refrigerant

Commissioning

Fill in the commissioning table

Setting Easystart

3 Controller settings

User settings

Installer settings

Heating and cooling setting

Auxiliary function

Room controller and Cozytouch

Relay test

HEAT PUMP PROJECT

You must install a R32 refrigerant Heat Pump
Choice is Alfea extensa 8 kW R32
Distance between outdoor and Hydraulic : 17m

It's a residential building from 2012
140 m² x ceiling 2,5m
2 circuits :
distance from the heat pump: 2m
Under floor heating 30°C
S= 80m², pipe 6,7m/m² (Max loop 110m)
Fan coils 40°C
S= 60m², 6 rooms

Domestic hot water integrated 50°C
Cooling 2 circuits
Installation Room 10m²
Room temperature controller
and connectivity



Calculate the Heat loss & check the capacity of Heat pump
(manally or with Projipac)

Floor heating (Slope) : _____

Fan coil (Slope) : _____

Max temp FH: _____ FC : _____

FLUIDE
R32



Optional equipment

- Dual circuit kit** (code 570629 (074011 + 075311)) for connecting 2 heating circuits.
- 6 kW backup relay kit** (code 075327) for switching to HP electrical backup of 3 to 6 kW.
- Boiler connection kit** (code 073990) for connecting a boiler to the heat pump.
- Wireless room sensor A59** (code 074208) for correcting the ambient temperature.
- Wireless room sensor A75** (code 074213),
- Wireless room sensor A78** (code 074214) for correcting the ambient temperature and programming the heat pump.
- Cozytouch**
- Cooling kit** (code 075328).
- Anti-vibration blocks** (code 523574).
- White PVC floor support** (ref. 809532) or
- Black rubber floor support** (ref. 809536).

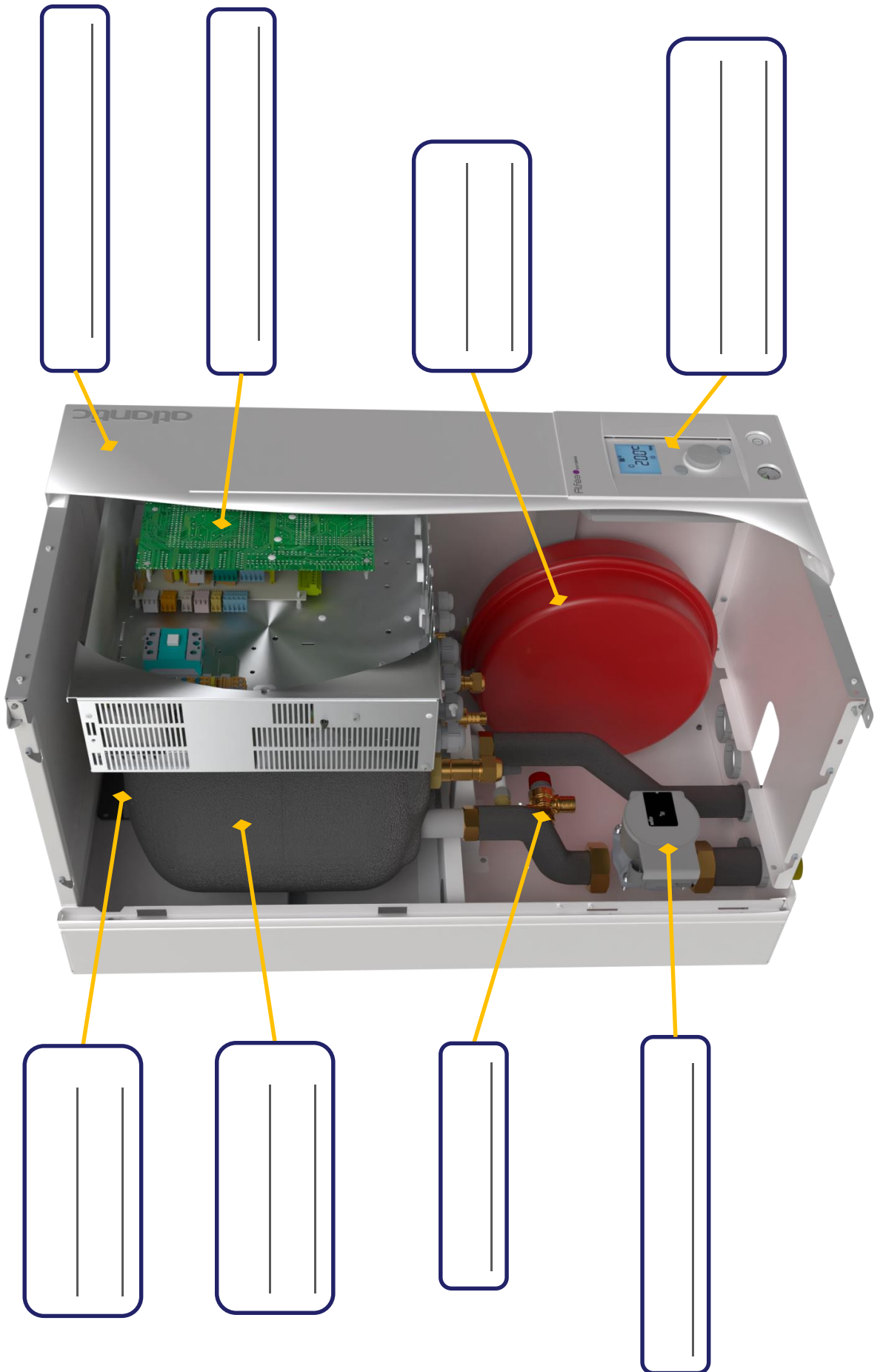
Options:

Hydraulic unit :

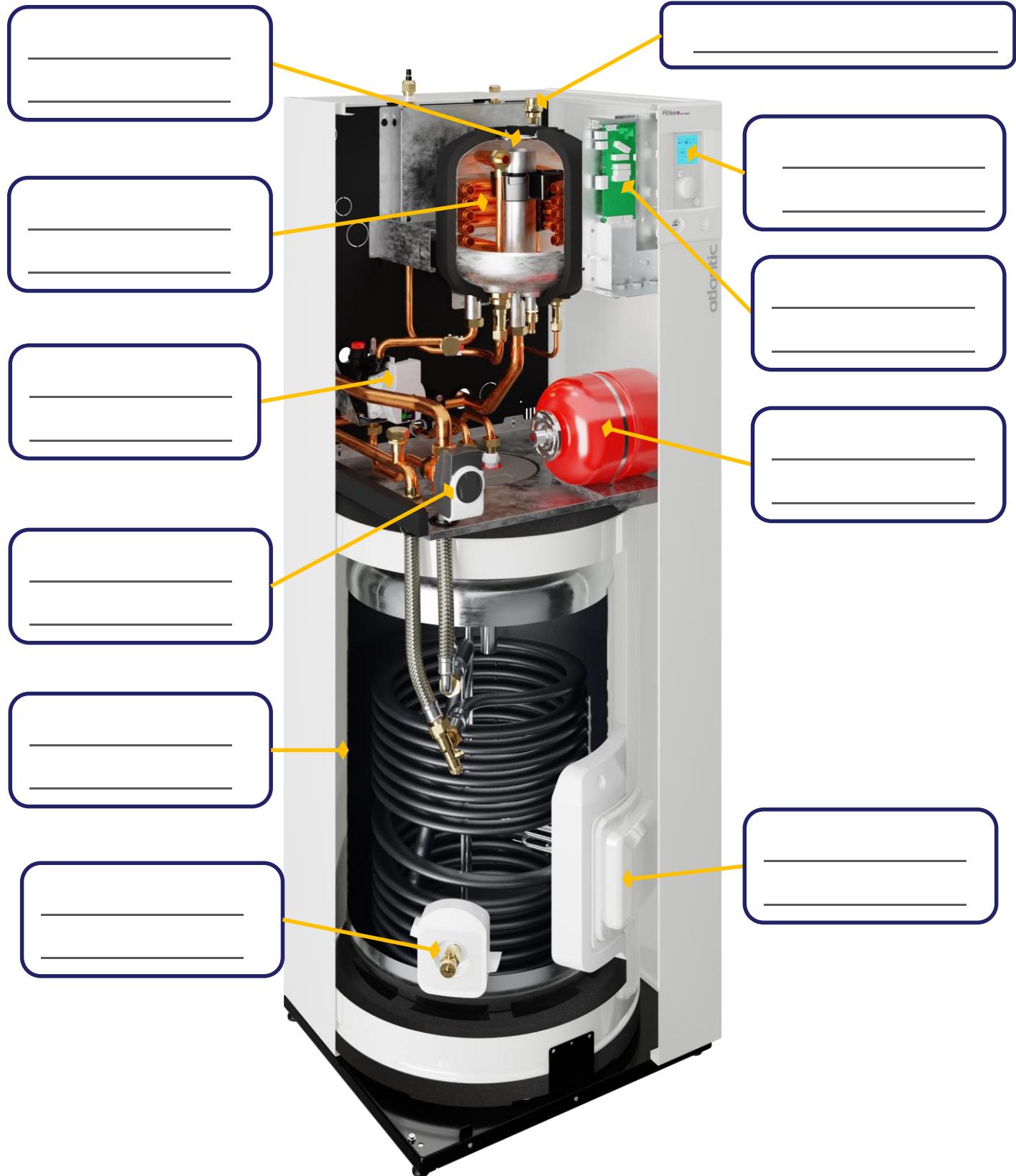
Controller:

Outdoor unit

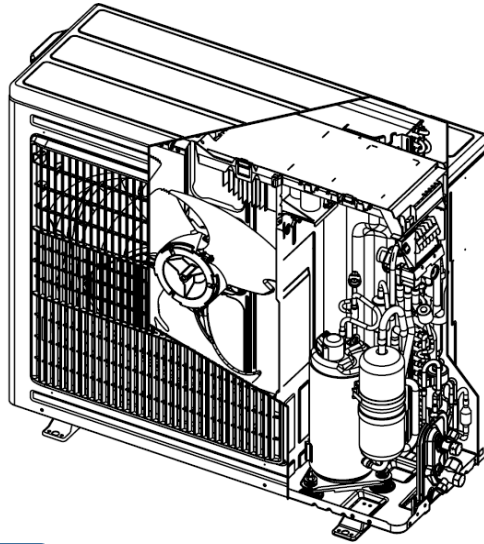
HYDRAULIC UNIT



HYDRAULIC UNIT



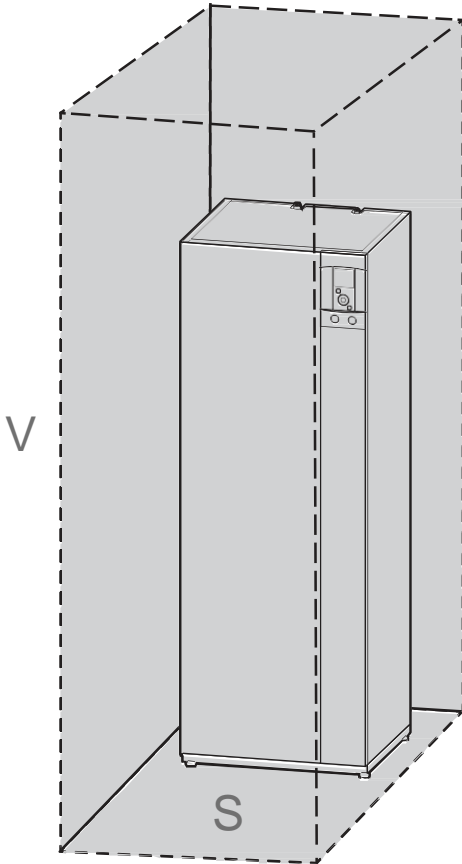
OUTDOOR UNIT



Refrigerant <1.84kg with heat source or ≥1.84kg with or without heat source

If the total charge (HP + refrigerant connections) of refrigerant (factory + additional charge) <1.84kg with heat source or ≥1.84kg :

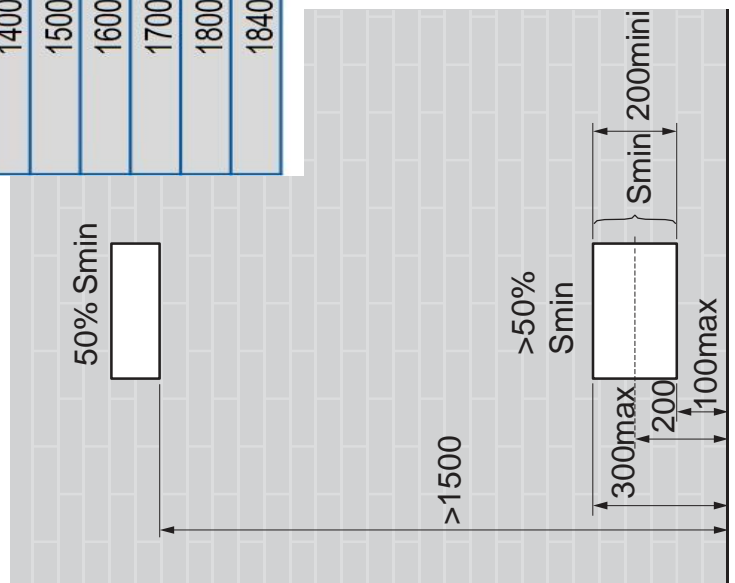
- Respect the minimum installation surface



Refrigerant connection Length			Model (kW)		
			5,6	8	10
15 m	Charge gas R32	g	970	1020	1520
	Volume mini	m ³	3.3	3.4	5.1
	Surface mini	m ²	2.38	2.63	5.85
16 m	Charge gas R32	g	995	1045	1560
	Volume mini	m ³	3.3	3.5	5.2
	Surface mini	m ²	2.51	2.77	6.16
17 m	Charge gas R32	g	1020	1070	1600
	Volume mini	m ³	3.4	3.6	5.3
	Surface mini	m ²	2.63	2.90	6.48
20 m	Charge gas R32	g	1095	1145	1720
	Volume mini	m ³	3.7	3.8	5.7
	Surface mini	m ²	3.04	3.32	7.49
23 m	Charge gas R32	g	1170	1220	1840
	Volume mini	m ³	3.9	4.1	6.1
	Surface mini	m ²	3.47	3.77	8.57
25 m	Charge Gas R32	g	1220	1270	-
	Volume mini	m ³	4.1	4.2	-
	Surface mini	m ²	3.77	4.08	-
30 m	Charge gas R32	g	1345	1395	-
	Volume mini	m ³	4.5	4.7	-
	Surface mini	m ²	4.58	4.93	-

POSITION OF OPENINGS FOR VENTILATION

Room Surface A (m ²)	0.8	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
Charge of Gas R32 (g)														
Section minimal (Smin) of opening (cm ²)														
970	81	61	28	-	-	-	-	-	-	-	-	-	-	-
1000	89	69	35	7	-	-	-	-	-	-	-	-	-	-
1100	116	95	60	30	4	-	-	-	-	-	-	-	-	-
1170	137	115	78	48	20	-	-	-	-	-	-	-	-	-
1300	177	154	115	83	54	28	4	-	-	-	-	-	-	-
1400	209	185	145	112	82	55	30	7	-	-	-	-	-	-
1500	243	219	177	142	112	84	58	35	12	-	-	-	-	-
1600	279	254	211	175	143	114	88	63	40	19	-	-	-	-
1700	316	290	246	209	176	147	119	94	70	48	26	-	-	-
1800	355	328	283	244	211	180	152	126	102	79	57	36	15	-
1840	371	343	298	259	225	194	166	139	115	91	69	48	27	8



MINIMAL AREA & VOLUME

Minimum Volume & Surface	
Volume mini	<input type="text"/> m ³
Surface mini	<input type="text"/> m ²
Room Volume (A)	<input type="text"/> m ³
Room surface (A)	<input type="text"/> m ²
Room Volume (A) > Volume mini ?	
Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Room Surface (A) > Surface mini ?	
Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

No recommendation

Yes & Yes

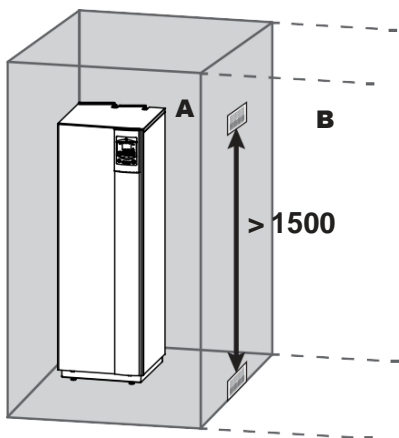
Creation of openings for natural ventilation to outside

Hydraulic module installed in an uninhabited room

Yes No

Oui

Non



Adjacent room surface and volume	
Adjacent room volume (B)	<input type="text"/> m ³
adjacent room surface(B)	<input type="text"/> m ²
Total Volume (A+B)	<input type="text"/> m ³
Total Surface (A+B)	<input type="text"/> m ²
Room Volume (A+B) > Volume mini ?	
Yes	<input type="checkbox"/>
No	<input type="checkbox"/>
Room Surface (A+B) > Surface mini ?	
Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

Opening creation (Smin) for natural ventilation between rooms A and B

Oui & Oui

Non

Adding a detector and of mechanical ventilation

Expansion vessel

Volume Expansion vessel	
Maximum installation volume	
Expansion vessel Pressure	
Maximum height	
Installation pressure	
Expansion vessel calculation P	

Circulating pump

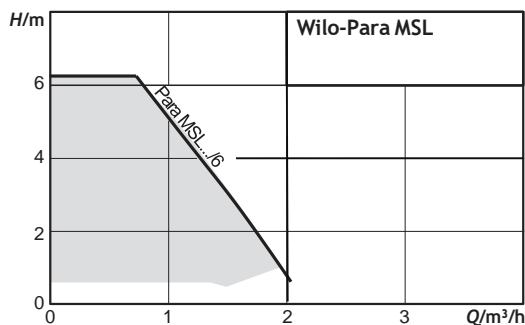
According to the outdoor unit model data, and hydraulic unit
Calculate the calorific flow for ΔT 5

Calorific flow QV (l/h) = Calorific power (Kcal/h) / flow ΔT
Cal Power (Kcal/h) = Cal Power (W) / 1,16

Pressure loss => 1m = 10mmH₂O
Hydraulic pipe Length x 10 + 10%

Floor heating volume = 7l/m²
Fan coil = 1,5l

Calorific Flow (l/h) & (m³/h)	
Pressure loss	
Installation volume	
Buffer tank volume	



REFRIGERANT COMMISSIONING CALCULATION

HP Model	5 & 6		8	
	gas	liquid	gas	liquid
Outside unit connections	1/2"	1/4"	1/2"	1/4"
Refrigeration connections	Diameter:	(D1) 1/2"	(D2) 1/4"	(D1) 1/2"
	Minimum length (L)	3		3
	Maximum length** (L)	30		30
	Maximum Height Difference **(D)	20		20
Male-female adapter(reduction)	(R1) 1/2" - 5/8"	(R2) 1/4" - 3/8"	(R1) 1/2" - 5/8"	(R2) 1/4" - 3/8"
Hydraulic unit connections	5/8"	3/8"	5/8"	3/8"

** : Including any additional filling

Models 5, 6 et 8 (Outdoor unit WOYA060KLT, WOYA080KLT)

15m < Length of the connections ≤ 30m

(Length of the connections - 15m) x 25 g/m= g

Model /Factory fill	Length of the connections in m	16	17	X	29	30
Model 5, 6 / 970 g	Fill amount in g	995	1020	$970 + (X - 15) \times 25 = g$	1320	1345
Model 8 / 1020 g		1045	1070	$1020 + (X - 15) \times 25 = g$	1370	1395

Lenght	
Adding volume	
Total charge	
Vacuum pressure at 5°C	

COMMISSIONING CHECK LIST *Quick-start procedure*

Before switching on the hydraulic unit:

- Check the electric wiring.
- Check the refrigeration circuit and make sure the it has been gassed.
- Check the hydraulic circuit's pressure (1 to 2 bar), check that the heat pump has been bled, along with the rest of the installation.
- Make sure that ALL DIP SW on the interface board are OFF before starting up

Before starting-up

	OK	Not compliant
<i>Sight checks Outdoor unit</i>		
Location and fittings, condensate evacuation.		
Comply with distances from obstacles.		
<i>Hydraulic checks Hydraulic unit</i>		
Connection of pipes, valves and pumps (heating circuit, DHW).		
Installation water volume (expansion vessel of adequate capacity?).		
No leaks.		
Main system pressure and degassing.		
<i>Refrigeration connections and checks</i>		
Check the refrigeration circuits (sealing, no dust or humidity).		
Connections between units (pipe length, flare tightening torque...).		
Installation of HP pressure gauges on the gas line (large tube).		
Pump down mandatory.		
Nitrogen leak test (~ 10 bar).		
Opening of refrigeration valves to outdoor unit.		
Filling hydraulic unit and pipes with refrigerant.		
<i>Electrical checks Outdoor unit</i>		
Main power supply (230 V or 400 V).		
Protection by rated circuit breaker.		
Cable dimensions.		
Earth connection.		
<i>Hydraulic unit</i>		
Connection to outdoor unit (L, N, Earth or 3 L, N, Earth).		
Sensors connection (positioning and connections).		
Distribution valve connections (boiler and DHW) and circulation pump.		
Power supply and protection of electric backup (option).		

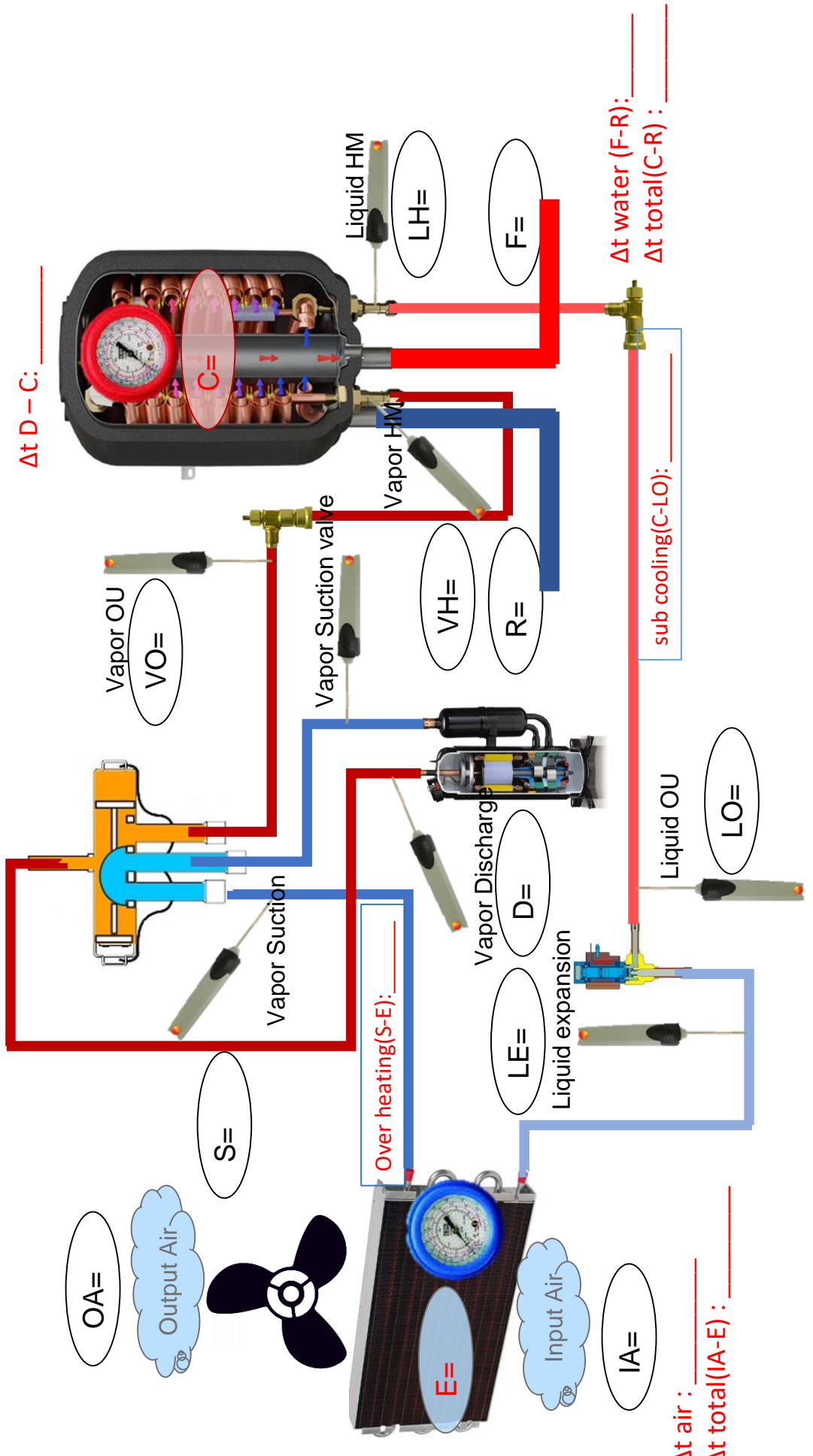
Starting-up

	OK	Not compliant
Quick Start Procedure		
Close the installation's main circuit breaker (outdoor unit power supply) <u>2 hours before testing</u> => Preheating of the compressor.		
Press the On/Off Switch => Initialisation takes several seconds.		
Operation of the heating circulation pump.		
Venting of the pump PAC (heating).		
Bleeding the installation.		
Outdoor unit starts after 4 mins.		
Configure Time, Date and Heating circuit, DHW period programs if different from the default values.		
Configure the hydraulic circuit.		
Adjust the heating gradient.		
Adjust the max flow setpoint.		
Outdoor unit checks		
Operation of fan(s), compressor.		
Current measurement.		
After several minutes measure the difference in air temperature.		
Check condensation and evaporation pressure/temperature.		
Hydraulic unit checks		
After 15 mins of operation.		
Primary water temp. difference.		
DHW priority (switching of distribution valve).		
Operation of heating, boiler backup, etc.		
Controller		
Settings, maintenance, checks.		
Program the heating periods.		
Adjust the setpoints for the heating circuits if different from the default values.		
Setpoint display.		

COMMISSIONING CHECK LIST *Commissioning technical datasheet*

Site				Installer								
Outdoor unit	Serial N°.				Hydraulic unit	Serial N°.						
	Model					Model						
Refrigerant type				Refrigerant load				kg				
Checks				Operating voltage & current on outdoor unit								
Compliance with positioning distances					L/N	V						
Condensate evacuation correct												
Electric connections / connections tightness												
No GAS leaks (unit ID N°.:)					L/T	V						
Installation refrigeration connection correct (length m)												
Taken in operation when HOT					N/E	V						
Compressor discharge temperature				° C	Icomp	A						
Liquid line temp.				° C	Under-cooling							
Condensation temperature	HP = bar	° C		° C								
Tank water output temperature				° C					Δt Condensation Temp.			
Tank water input temperature				° C	Δt Secondary Temp.							
Evaporation temperature	LP = bar	° C		Overheating								
Suction Temp.								° C	° C			
Battery air input temperature								° C	Δt Evaporation Temp.			
Battery air output temperature				° C	Δt Battery Temp.							
Hydraulic network on hydraulic unit												
Secondary system	Underfloor heating system			}	Circulation pump brand	Type						
	LT Radiators											
	Fan coils											
Domestic hot water; tank type												
Estimated water volume of secondary system				L								
Options & accessories												
Power supply for electric backup					Room sensor A59							
Correct location of room sensor					Wireless room sensor A75							
2 circuit kit					Wireless room sensor A78							
Boiler connection kit					Details							
Cooling kit												
Control settings												
Configuration type												
Essential settings												

COMMISSIONING CHECK LIST *Commissioning Diagram*



Switch on the heat pump
Set the language
Set time & date

Check the Outdoor and set the right one
Check electrical back-up XkW and set the right one

Language:

Time:

Date:

Appliance's power:

Electrical backup power:

2° circuit kit:

Emitter Zone 1:

Emitter zone 2:

Cooling:

Validate and quit

Activate user level

Disactivate heating circuit and DHW in active function

You must set a program.

The customer wishes a room temperature at 21°

Check Temperature setting:

Zone 1 Comfort:

Reduce:

Cooling Comfort:

Cooling Eco:

Zone 2 Comfort:

Reduce:

Cooling Comfort:

Cooling Eco:

Time program:

- Monday to Friday 6:00 to 9:00 and 5:00 PM to 10:30 PM.

- Saturday-Sunday 8:00 to 12:00 and 18:30 to 23:30PM.

Check the consumption

Today..... :

Last Month..... :

Change the name of the zones:

Zone 1 :Zone 2 :

Software version :

Check heating Temperature

Zone 1 comfort:

Eco:

Absence:

Zone 2 comfort:

Eco:

Absence:

DHW

Comfort:

Eco:

Anti-legionella:

Tariff configuration

EX 1:

EX 2:

Electrical backup

Authorization Temperature:

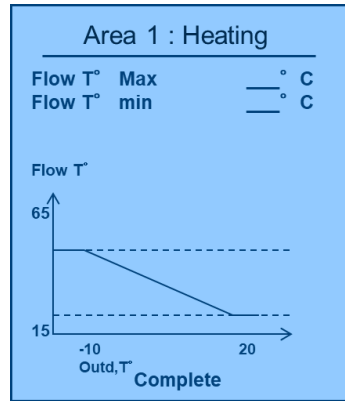
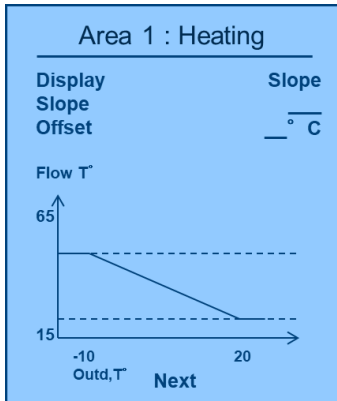
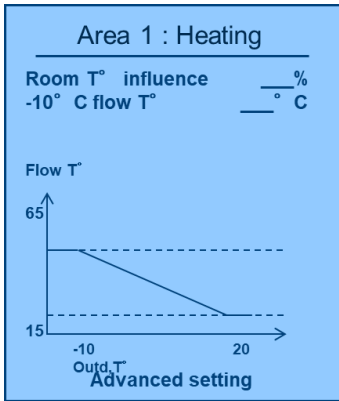
Heat pump

Maximum temperature:

Summer/winter switchover:

Controller setting *Installer setting*

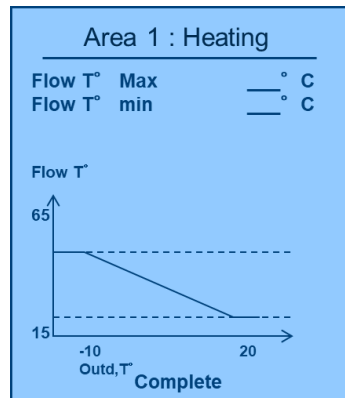
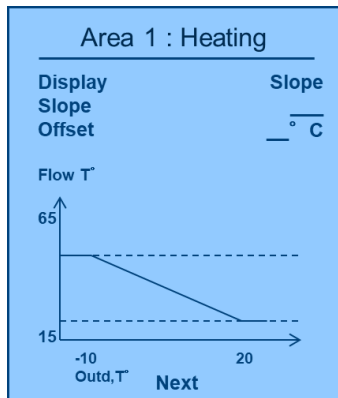
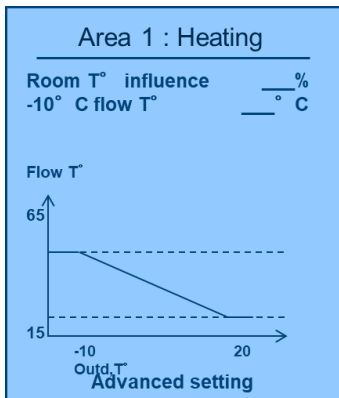
- Check the Heating curve and change if necessary.



Check:

Zone 1 : Flow t°C.....Slope.....Max.....min.....
 Zone 2 : Flow t°C.....Slope.....Max.....min.....

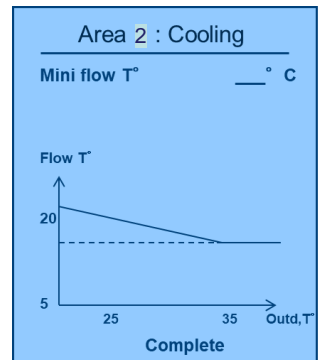
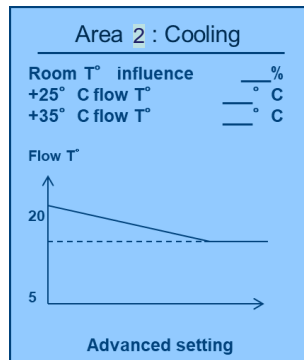
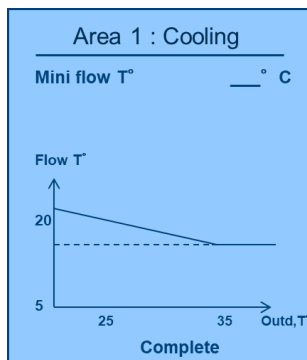
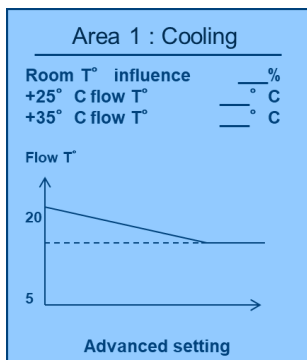
According to your country New Settings:



Set:

Zone 1 : Flow t°C.....Slope.....Max.....min.....
 Zone 2 : Flow t°C.....Slope.....Max.....min.....

Cooling setting



Set floor drying function
Manual setting 35° C maximum

Test the emergency mode.

Stop everything

Specific settings

Limitation reduce setpoint below 0° C

Menu : _____
Name of sub menu : _____
Setting 1 : _____
Setting 2 : _____

Activation out T° C:

Stop out T° C:

Low noise setting during the night 10 PM to 6 AM

No low noise if outdoor Temp < 0

HP configurations
Silent mode
Silent mode on _____
Silent mode off _____
Power max _____
Outside temp stop _____

Connect a room sensor on Floor heating

Explain the menu setting:

.....
.....
.....

Connect a second room sensor on radiators

Explain the menu setting:

.....
.....
.....

Install Cozytouch and add the heat pump

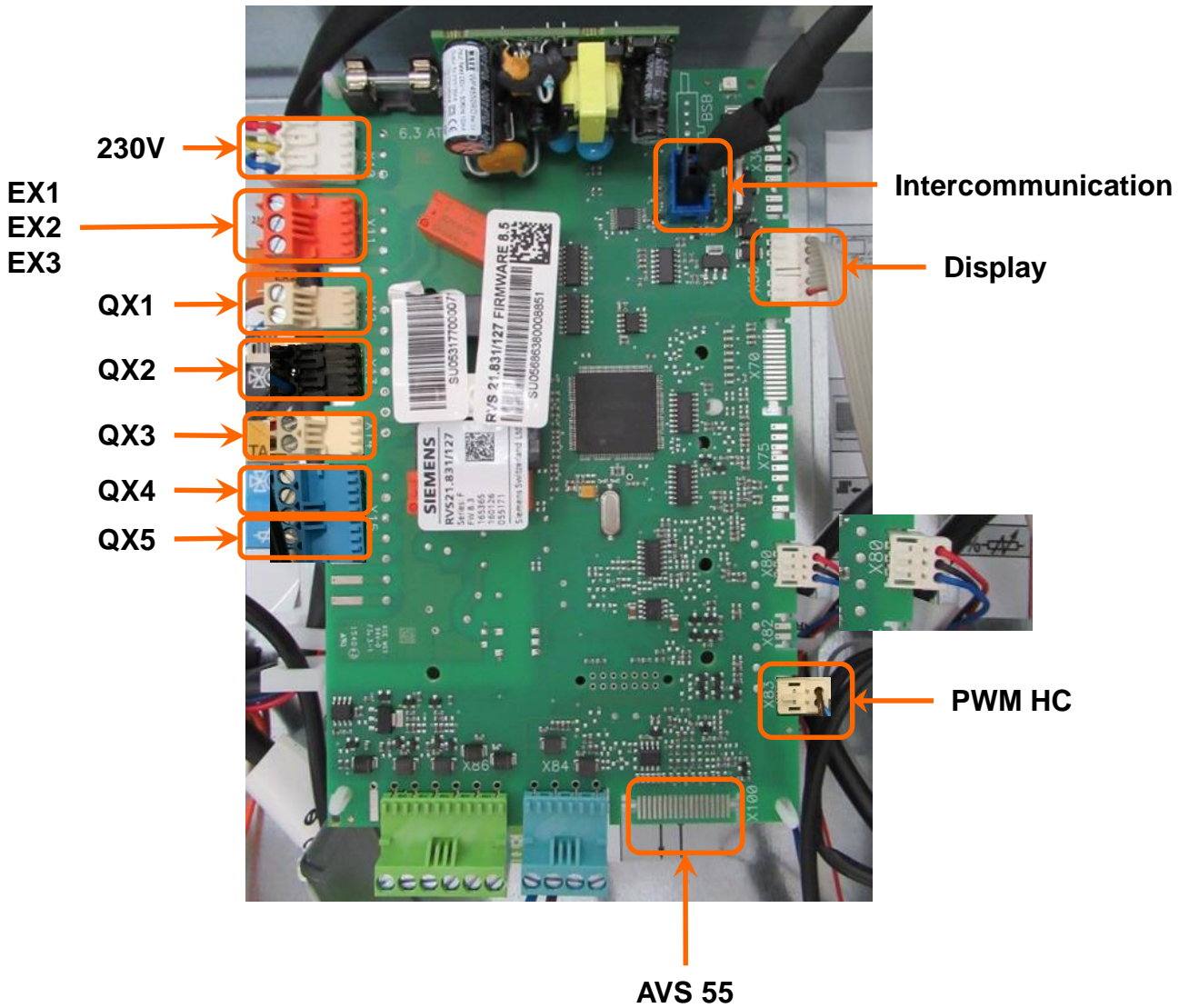
Set a new program and check:

Change the name of the zones:

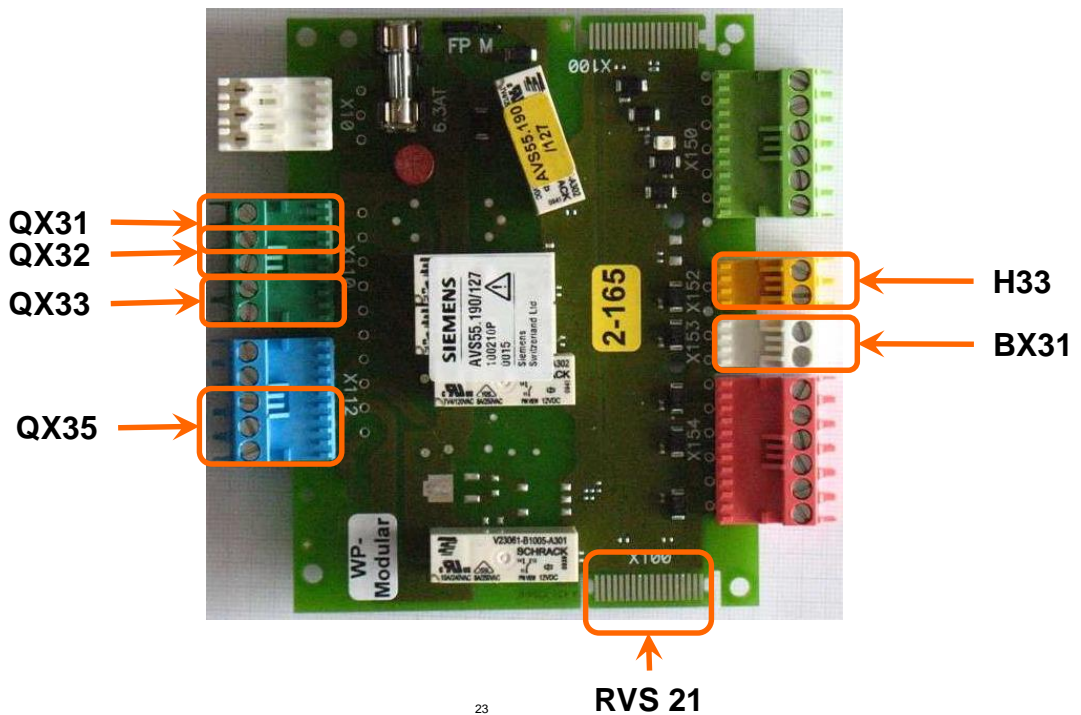
- Check Temperature settings:

- Check Consumption:

INPUTS - OUTPUTS TEST "RVS21" PCB



TEST : inputs and outputs « RVS 21 »



Controller setting *Relay test*

Connector name	Device name	Output / Input	Analogic / Binary	RVS QX name	Voltage	
				QX1		
				QX2		
				QX3		
				QX4		
				QX5		
				QX6		
				QX31		
				QX32		
				QX33		
				EX1		
				EX2		
				EX3		

Test & Maintenance Summary

1 Tests

Communication

Functional chart

Communication measurement

Data flow monitor communication checking

Inverter functional chart

Outdoor unit PCB

Inverter measurements

Data flow monitor inverter checking

Components tests

Hydraulic unit Sensor tests

Outdoor unit sensor tests

2 Outdoor unit Maintenance

Maintenance check list

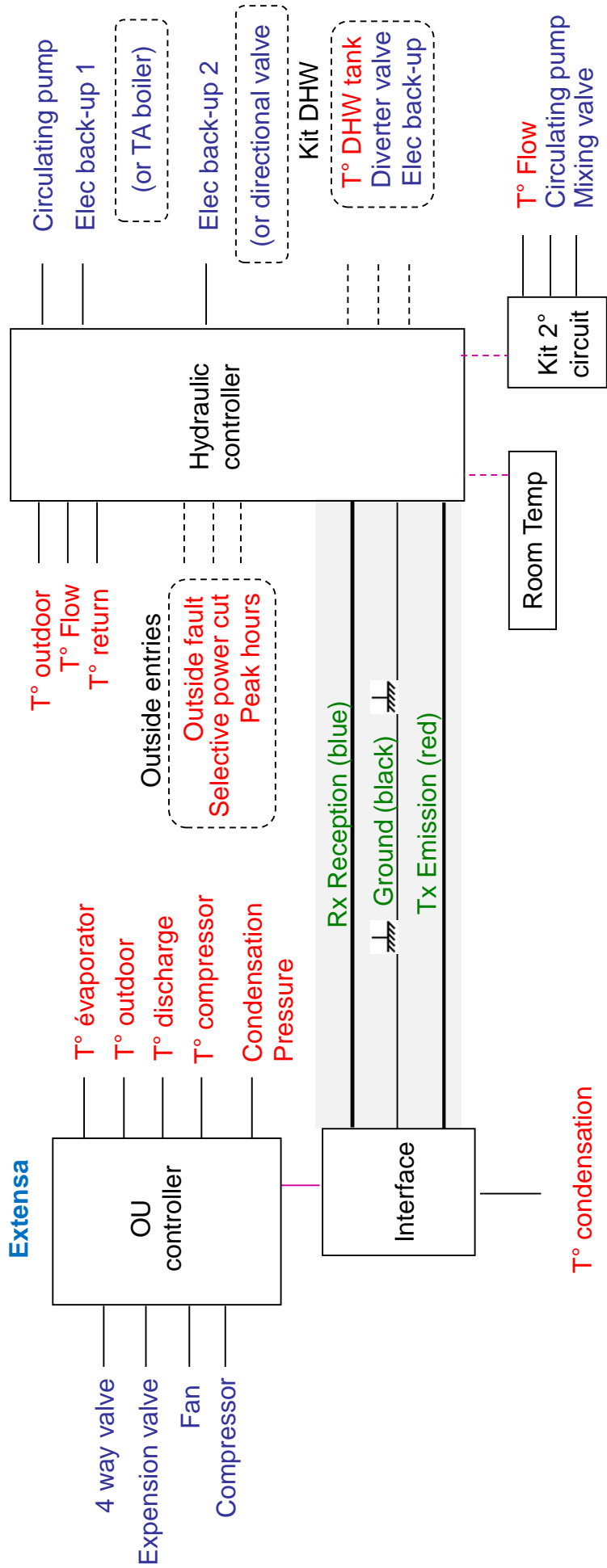
Move the jacket

Replace the controller

Replace the fan rotor

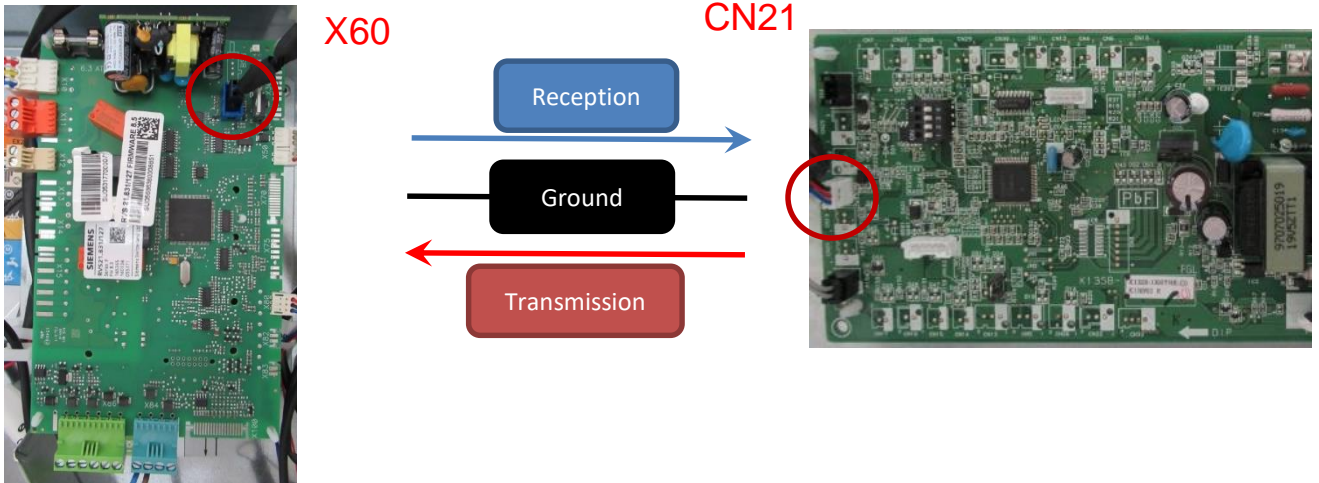
FUNCTIONAL CHART

Put arrows on the right directions



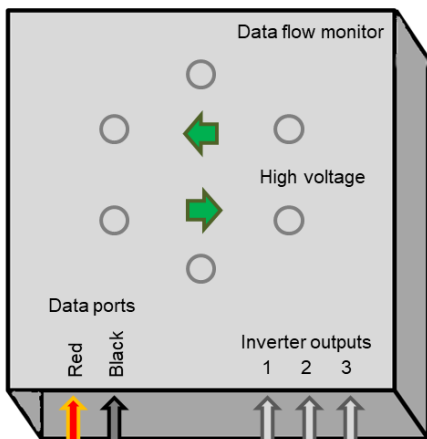
HYDRAUCIC UART COMMUNICATION

Objective: To be able of validating the communication ingoing and outgoing between Interface board / controller on heat pump

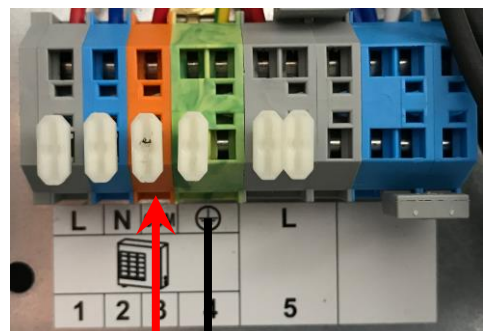


CN 21	Function	Measure voltage
Red / Black	Powerline	V DC
Red / Black	Signal	V AC
Blue / Black	Powerline	V DC
Blue / Black	Signal	V AC

Disconnect com wire on the power supply block
Indicate the code error shown and its meaning

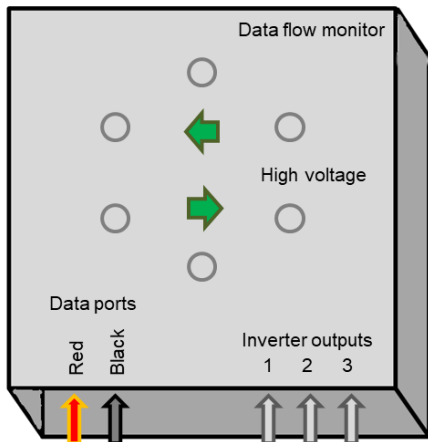


Hydraulic unit
 Power supply connections

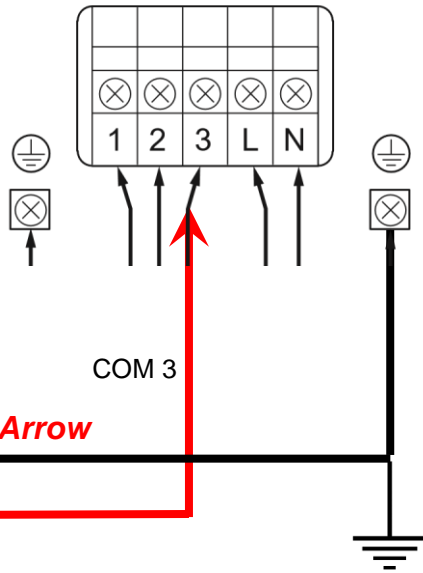


Checking the data flow and **select the Arrow**

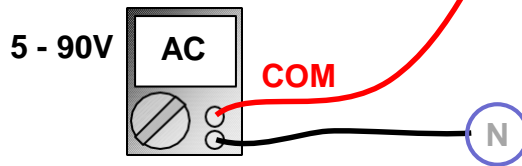
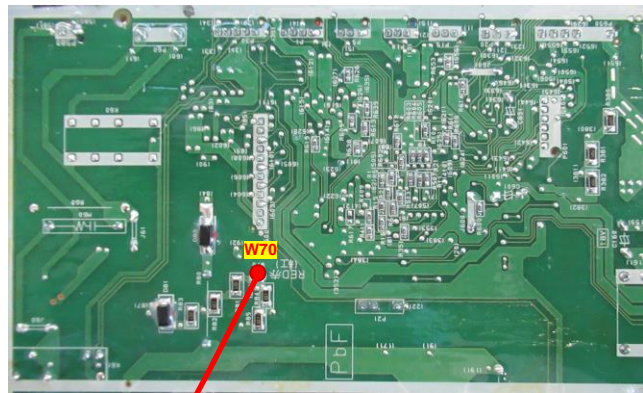
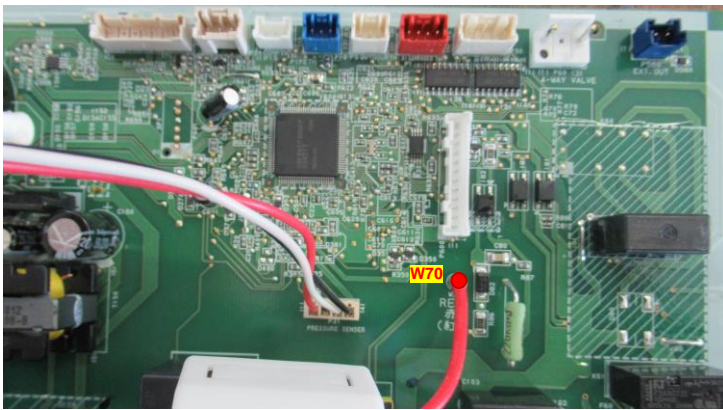
OUTDOOR UNIT UART COMMUNICATION



Outdoor unit Power supply connections



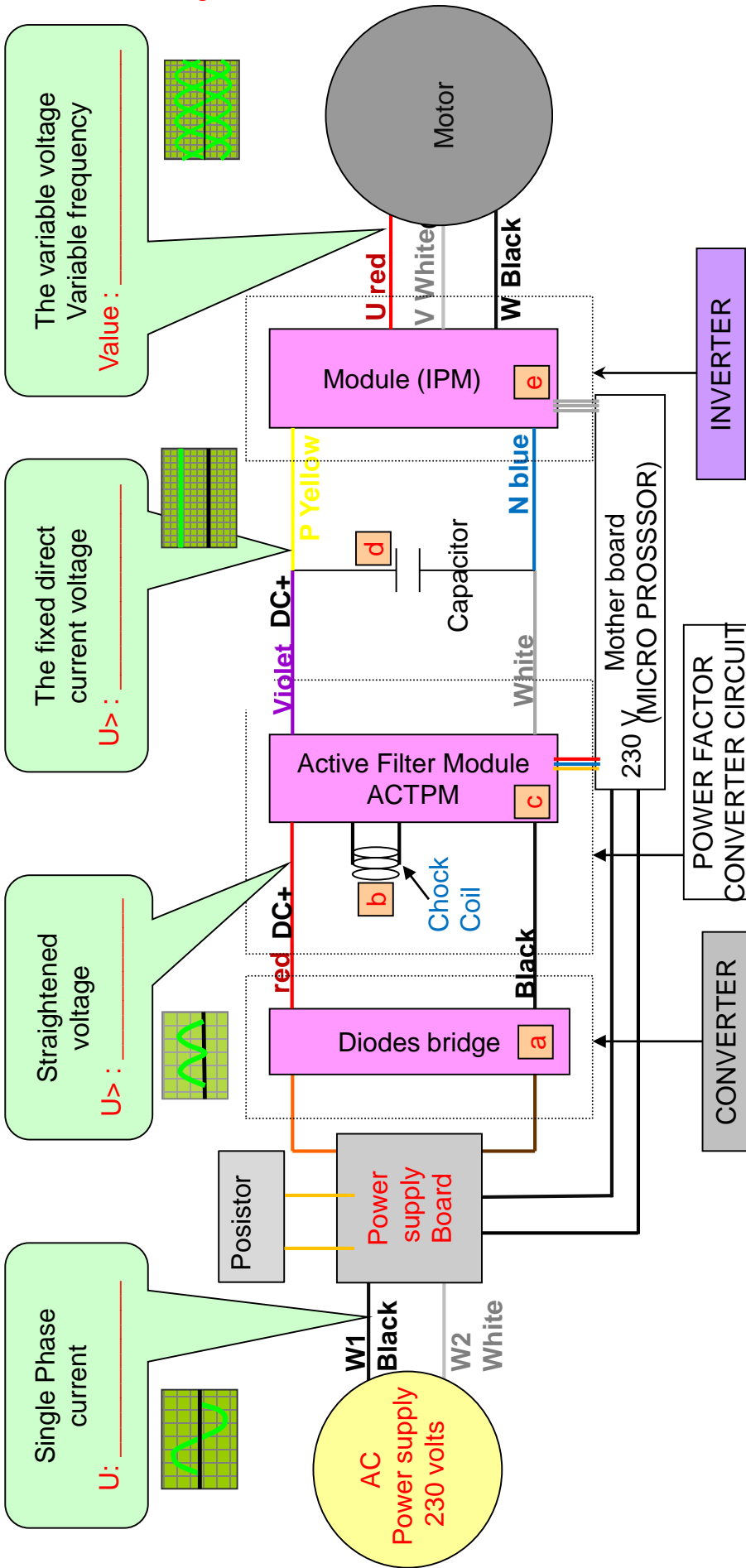
Checking the data flow and **select the Arrow**



W70	Measure voltage
Com 3 connected	V DC
	V AC
Com 3 disconnected	V DC
	V AC

"INVERTER" PRINCIPLE

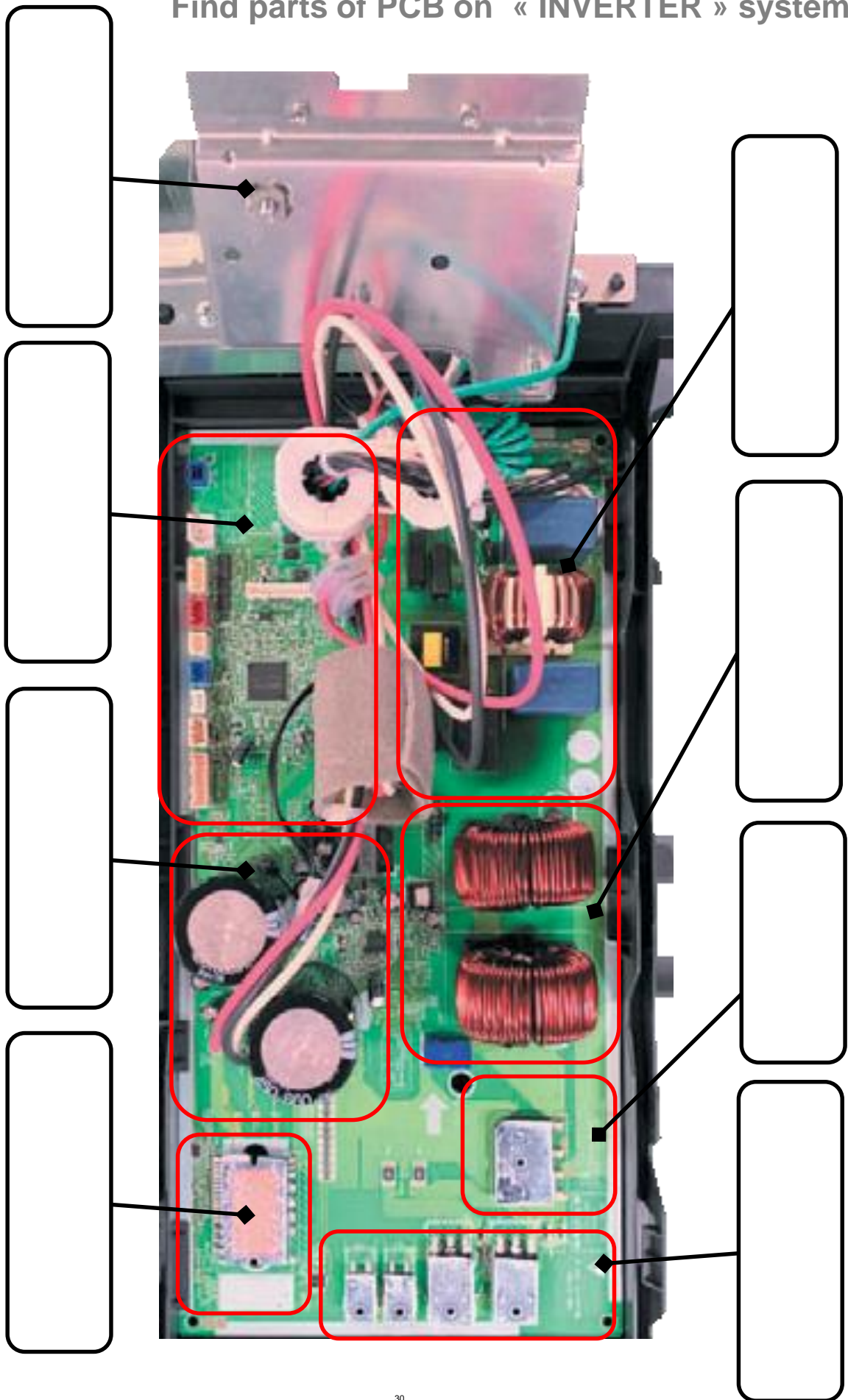
Fill in the voltage values



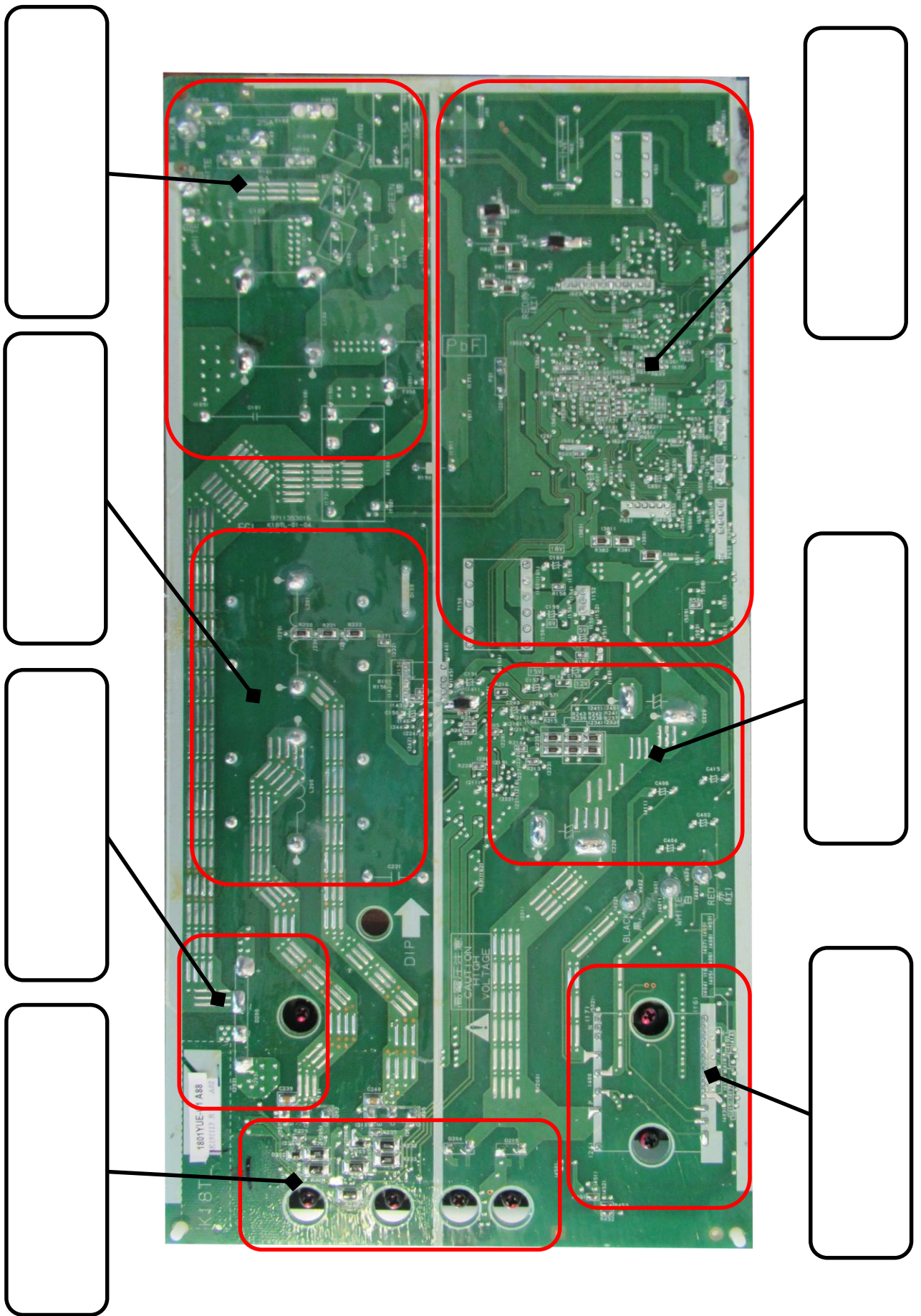
- The diodes bridge changes Alternative current. The negative voltage signal is changed in positive voltage.
- The coil straightens the voltage by reducing the Pulsation from the rectification cycle.
- The active filter module improves the power factor, and controls the power supply harmonic wave current.
- The capacitor smooths the voltage and fixes it in stable current voltage.
- Thanks to 6 transistors, the IPM transforms the current voltage to cater for the motor.

"INVERTER" PCB

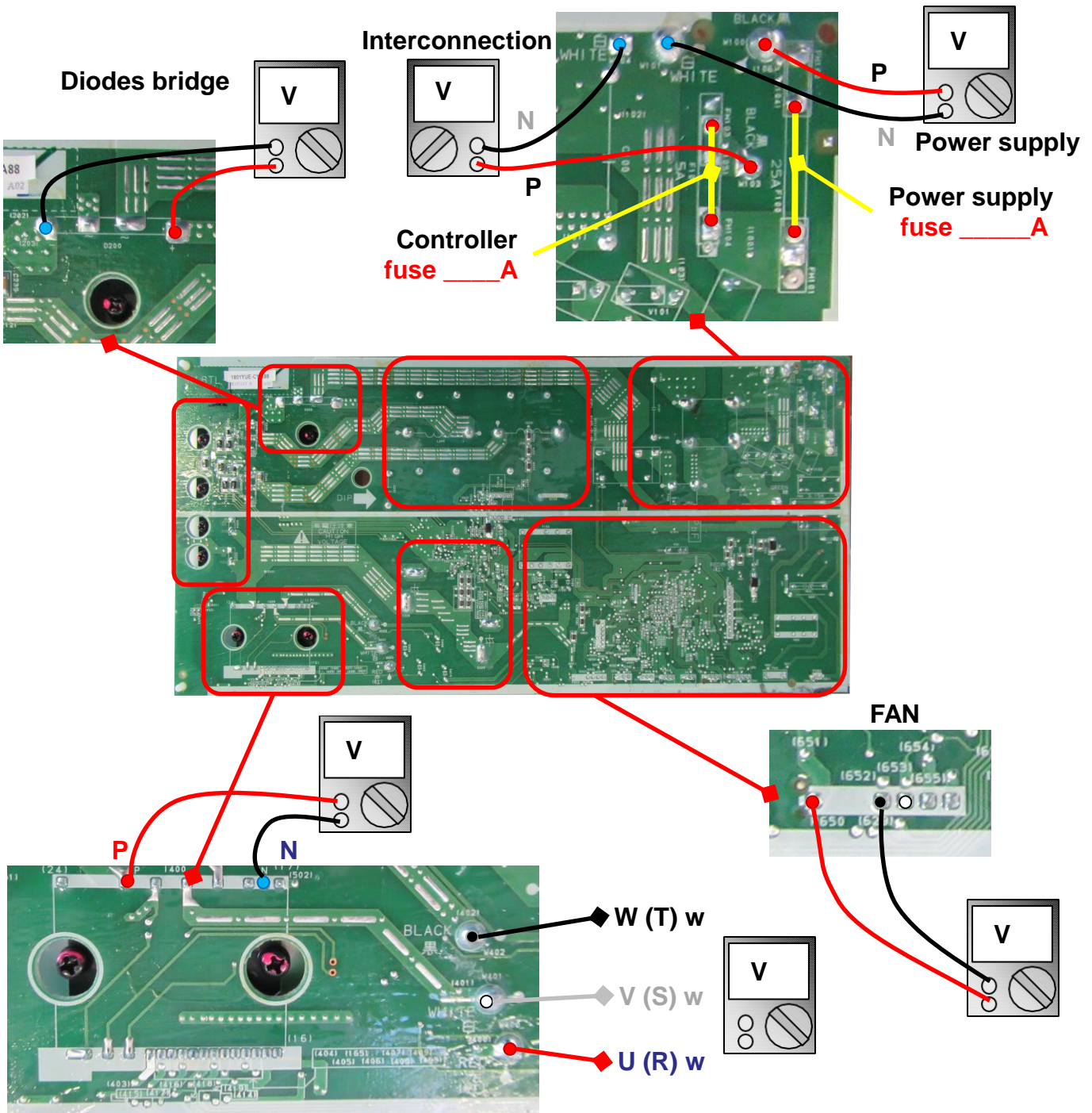
Find parts of PCB on « INVERTER » system



"INVERTER" PCB



"INVERTER" PCB

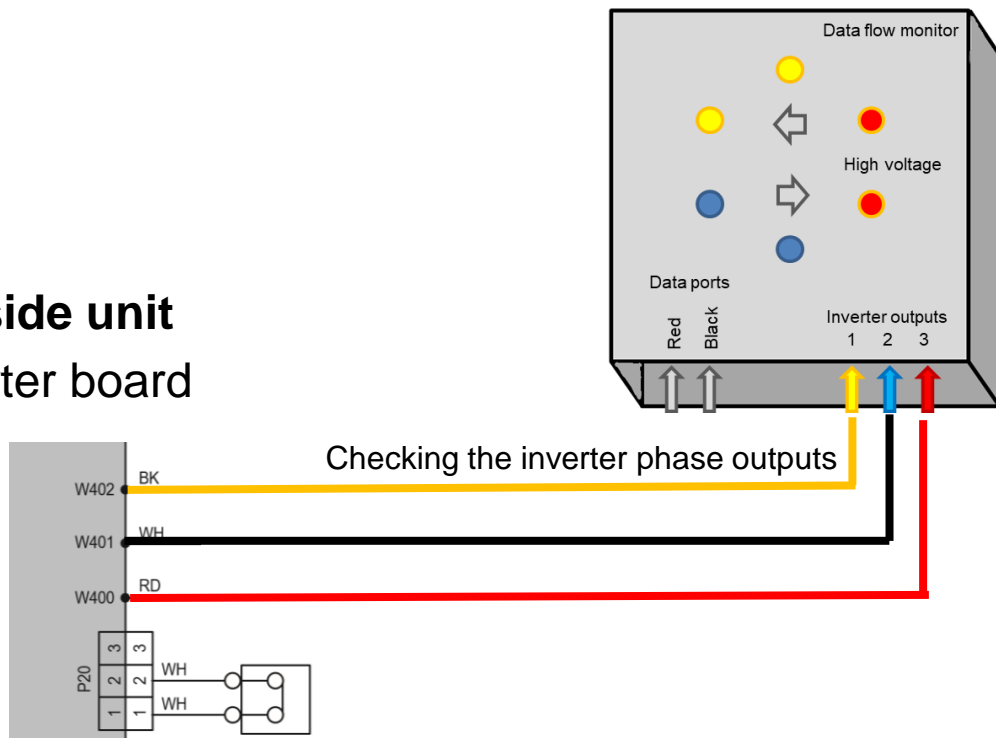


Part	Pin names	AC/DC	Value
Power supply			
Interconnection			
Diodes bridge			
Filter			
Capacitors			
IPM in			
IPM out			
Fan			

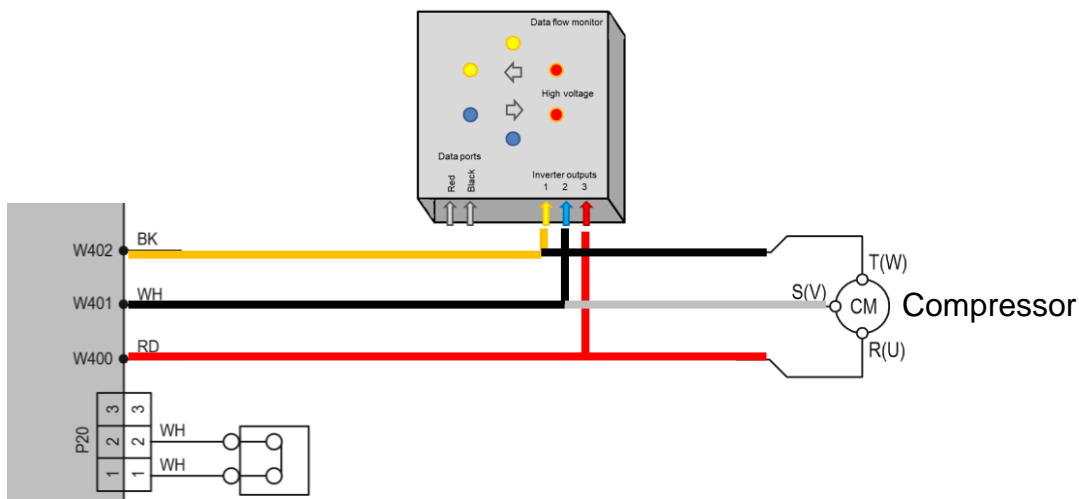
"INVERTER" DATA FLOW MONITOR

The test is carried out using the 3 connection terminals labelled 1, 2, and 3 on the Inverter Checker

Outside unit
Inverter board

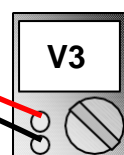
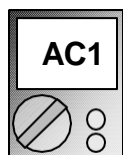


Test	Data flow monitor observation
IPM alone	
IPM & compressor	

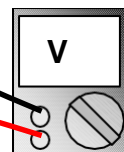
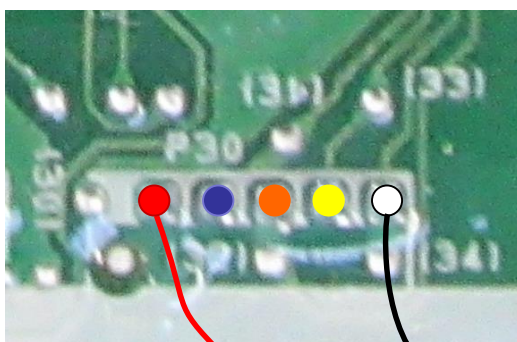


OUTDOOR UNIT *Components measurements*

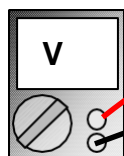
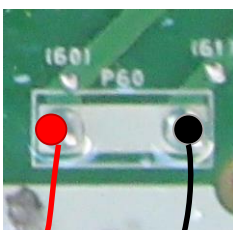
Fan



Expansion valve

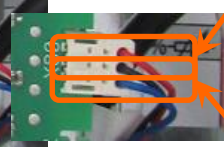


4-way valve



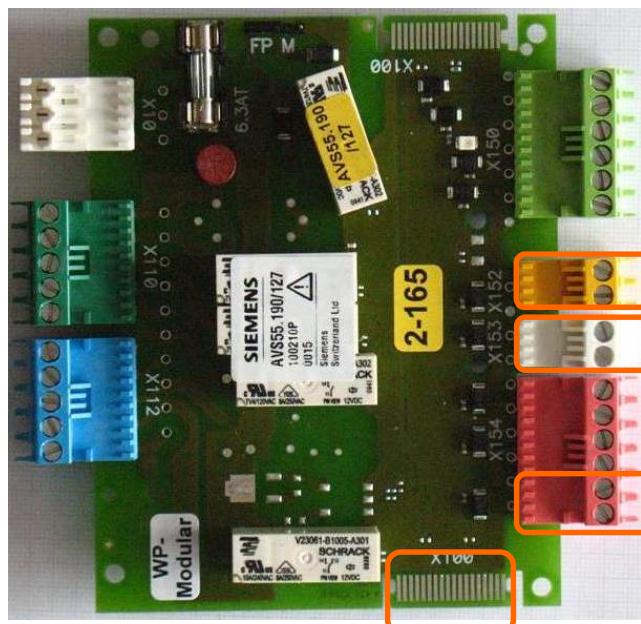
Part	Pin names	AC/DC	Value
Fan 1			
Fan 2			
Fan 3			
Expansion valve			
4-way valve			

SENSOR TEST "RVS21" PCB



H3M H1M A59 BX3 AVS 55

TEST : Sensors « RVS 55 »



H33 BX31 BX34

RVS 21

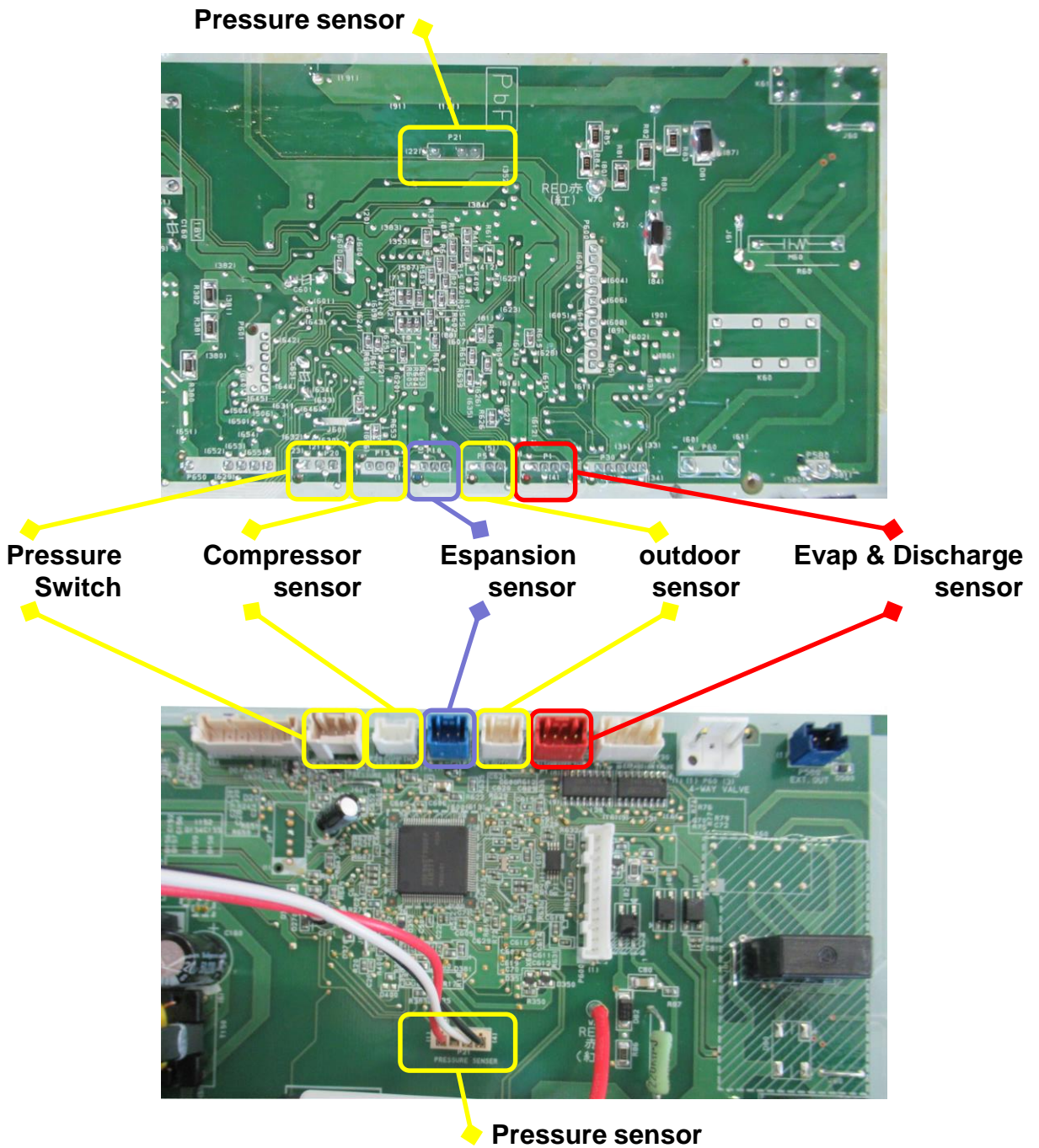
HYDRAULIC UNIT TEMPERATURE SENSORS

RVS	RVS name	Pin names	Voltage	Temperature
Outdoor sensor				
Flow sensor				
Return sensor				
DHW sensor				
Room sensor				
2° circuit				



Interface	Pin names	Voltage	Temperature
Condensing sensor			

"CONTROLLER" PCB Sensor measurement

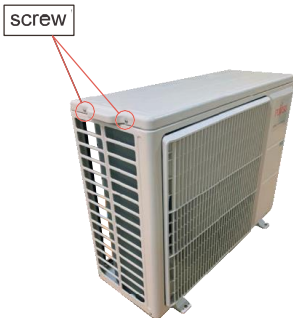


Sensor	Pin names	Voltage	Temperature
Pressure sensor			
Compressor			
Discharge			
Outdoor			
HEX			
Expansion			

DISASSEMBLY PROCESS OF OUTDOOR UNIT

WOYA060KLT & Woya080KLT

TOP PANEL removal



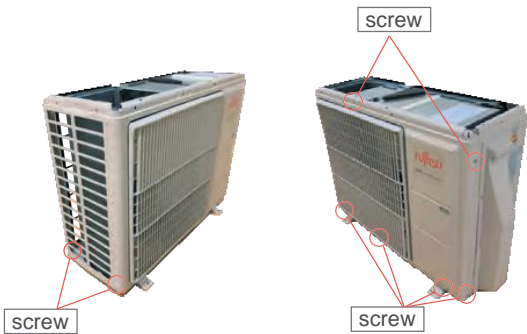
Remove the mounting screws.



Remove the TOP PANEL.



FRONT PANEL removal



Remove the mounting screws (8 in total).



Remove the FRONT PANEL

WOYA060KLT



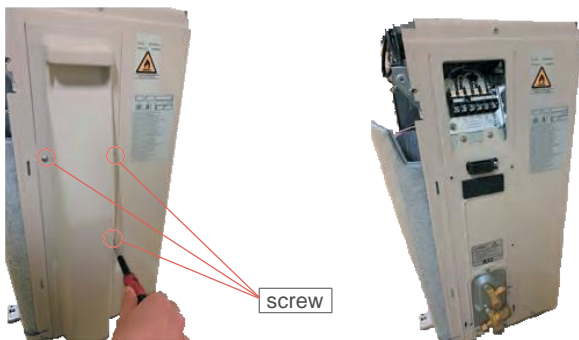
WOYA080KLT



VALVE COVER removal

WOYA060KLT

Remove the VALVE COVER removal



Remove the 3 mounting screws

WOYA080KLT

Remove the VALVE COVER removal

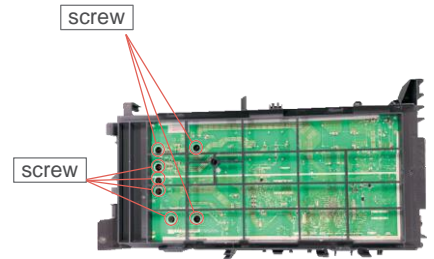


Remove the 3 mounting screws

MAIN PCB removal WOYA060KLT & WOYA080KLT

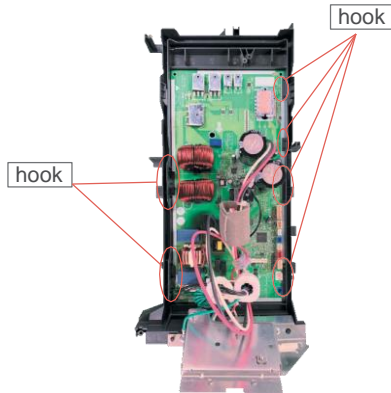
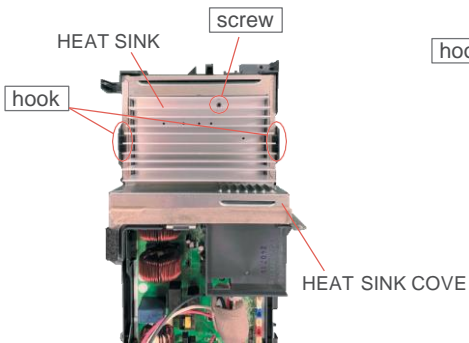


Remove the INVERTER BOX COVER by sliding upward.



Remove the 7 mounting screws.

Remove the connectors and wires.
Remove the 4 mounting screws.
Remove the INVERTER ASSY.



Remove the hook.
Remove the MAIN PCB.



Remove the HEAT SINK COVER by remove the hook. Remove the mounting screw.
Remove the HEAT SINK.

Spread the heat dissipation compound on the other side of IPM when you exchange Main PCB by the repair.

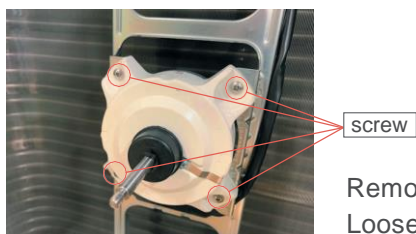
FAN MOTOR removal



Remove the FAN nut.



Remove the PROPELLER FAN.



Remove the 4 screws.
Loose the clamp, remove the lead wires and FAN MOTOR.

International Technical support

PRACTICE BOOK

Mileo/Mileo +

WATER HEATER FITTED WITH BUILT-IN COIL DEDICATED TO HEAT PUMPS



+ PRODUCT

COMFORT

- Two ranges optimised for heat pumps, meeting all requirements (aerothermal and geothermal):
 - Mileo compatible with aerothermal heat pumps only
 - Mileo + compatible with aerothermal and geothermal heat pumps
- Equipped with optimised coil and 3300 W electric heating element
- Chromed thermometer

QUALITY - DURABILITY

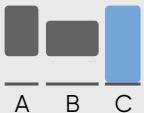
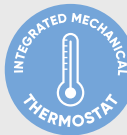
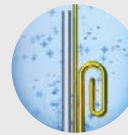
- Magnesium anode for strengthened tank protection
- Pressure relief valve
- Dielectric union
- Specific lip gasket to avoid corrosion around flange

USER-FRIENDLINESS

- IP 25 - full compliance with European standards for electrical safety and user protection

SAVINGS

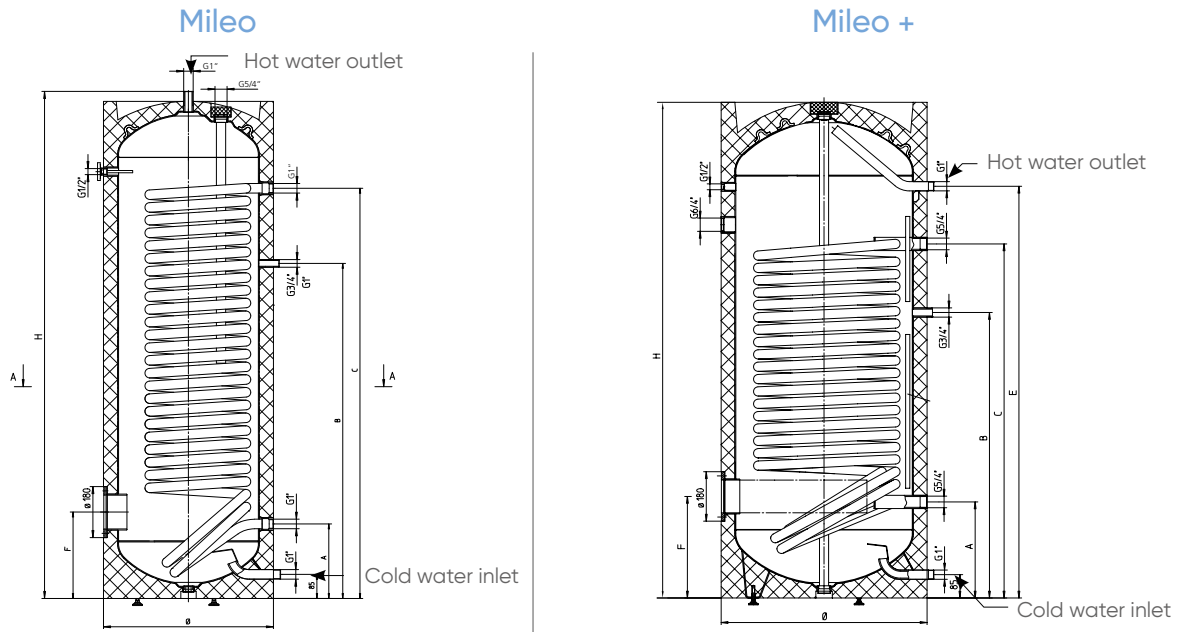
- Accurate mechanical thermostat with integrated security
- High-efficiency water inlet
- CFC-free high-density insulation for more energy savings
- Insulation jacket for more energy savings

INDIRECT & COMBI WATER HEATER		160 TO 500 L (MILEO FLOOR-STANDING)	200 TO 500 L (MILEO + FLOOR-STANDING)
 <p>A B C</p>	<p>DEDICATED TO HEAT PUMPS</p>		<p>MAGNESIUM ANODE</p>
Model available*	Energy savings	Temperature regulation	Tank protection
			 <p>Copper heating element</p>

*Model types: A: Vertical wall-mounted / B: Horizontal wall-mounted / C: Floor-standing

Mileo/Mileo +

INSTALLATION DIMENSIONS



TECHNICAL DATA

CAPACITY (L)	OUTPUT (W)	HEATING ELEMENT TYPE	HEAT LOSS (kWh/24 h)	MAX PRIMARY TEMPERATURE OF USE (°C)	MAX WORKING PRESSURE (BAR)	COIL SURFACE AREA (m ²)
Mileo						
160	3300	Sheated	1.47	80	10	1.4
200	3300	Sheated	1.67	80	10	1.8
300	3300	Sheated	2.19	80	10	2.6
400	3300	Sheated	2.45	80	10	3.8
500	3300	Sheated	2.72	80	10	4
Mileo +						
200	3300	Sheated	1.67	80	10	2.5
300	3300	Sheated	2.08	80	10	3.5
400	3300	Sheated	2.45	80	10	5
500	3300	Sheated	2.72	80	10	6

DIMENSIONS

CAPACITY (L)	DIMENSIONS (mm)						DIAMETER (Ø) mm	NET WEIGHT (Kg)	ERP ENERGY CLASS	PROFILE
	H	A	B	C	E	F				
Mileo										
160	1120	263	668	818	-	305	610	69	C	L
200	1340	263	803	998	-	305	610	83	C	XL
300	1800	263	983	1313	-	305	610	113	C	XXL
400	1835	320	1000	1460	-	345	680	161	C	XXL
500	1840	370	1095	1465	-	370	760	170	C	3XL
Mileo +										
200	1300	305	730	840	1057	305	610	98	C	XL
300	1435	320	840	990	1160	345	680	162	C	XXL
400	1800	320	1000	1260	1525	345	680	204	C	XXL
500	1810	350	1040	1290	1500	370	760	244	C	3XL