1 Commissioning

WARNING

Only qualified persons should conduct commissioning.

CAUTION

Preliminary electrical system checks such as earth continuity, polarity, resistance to earth and short circuit must be carried out by using a suitable test meter by a competent person.

NOTICE

Installation manual / Installer reference guide. This general commissioning checklist can be used as a guideline and reporting template during the commissioning and hand-over to the user.

For more detailed commissioning instructions, see the installation manual or the installer reference guide.

Installer	
Company	
Contact person	
Telephone N°	
Email address	
Date	

Performed by	
Company	
Name	
Telephone N°	
Email address	
Date	
Certificate	

End customer	
Name	
Street – N°	
Zip code – City	
Country	
Telephone N°	
Email address	

Maintenance by	
Company	
Name	
Telephone N°	
Email address	
Date	

Installation

Model name		Refrigerant type		Standard weight	kg
Manufacturing date				Additional weight	kg
Reference installation					
Software version				Total weight	kg
Serial number					

Number of indoor A/C units		
Number of refrigeration appliances		
Capacity up unit installed	☐ Yes	☐ No
Communication box installed	☐ Yes	☐ No
CO_2 detector installed (if outdoor unit is installed indoors)	☐ Yes	☐ No
CO_2 detector installed (at locations with indoor units)	☐ Yes	☐ No

Safety / last minute risk analysis

Note: Before continuing, make sure all required safety measures are taken. If not, do NOT start commissioning. Perform a last minute risk analysis on the following items. For more details, see the installer reference guide of the unit.

Safe access to the installation	☐ Yes	☐ No	Emergency exits	☐ Yes	☐ No
Enclosed workplace	☐ No	☐ Yes	Necessary personal protection equipment	☐ OK	☐ Not OK
Working at heights	☐ No	☐ Yes	CO_2 detection system and evacuation system: tested and commissioned	☐ OK	☐ Not OK
Electrical hazards	☐ No	☐ Yes	Other safety hazards	☐ OK	☐ Not OK

Precommissioning

Note: Full installation has to be done in line with the installer reference guide. If NOT, do NOT commission and solve all open issues first.

N2 Test data available	☐ Yes	☐ No	Vacuum test data available	☐ Yes	☐ No
N2 start pressure	bar		Vacuum test start pressure	mbar	
N2 test time	hours		Vacuum test time	hours	
N2 end pressure	bar		Vacuum test end pressure	mbar	

Power ON 6 hours before commissioning ☐ Yes ☐ No

Visual inspection

Refrigeration: Outdoor installation connection capacity	kW	Airconditioning: Outdoor installation connection rate	
Refrigeration: Indoor installation connection capacity	kW	Airconditioning: capacity class of indoor units	
Refrigeration: System index	%	Airconditioning: System index	%

General state	☐	OK	☐ Not OK	Air side indoor units correct	☐	OK	☐ Not OK
Corrosion/oxidation	☐	OK	☐ Not OK	Unit height (≥15 cm)	☐	OK	☐ Not OK
Vibrations/frictions	☐	OK	☐ Not OK	Communication bus (F1/F2)	☐	OK	☐ Not OK
Noise	☐	OK	☐ Not OK	Expansion valve rain caps present	☐	OK	☐ Not OK
Unit correctly supported	☐	OK	☐ Not OK	Release contact (P1/P2) connected	☐	OK	☐ Not OK
Piping length within limits	☐	OK	☐ Not OK	Alarm contacts (C/C1/W1) connected	☐	OK	☐ Not OK
Piping insulation liquid	☐	OK	☐ Not OK	Sales selection data available?	☐	Yes	☐ No
Piping insulation suction	☐	OK	☐ Not OK	Logbook available and complete?	☐	Yes	☐ No
Presence of oil traps	☐	Yes	☐ No	Outdoor unit heat exchanger state	☐	Clean	☐ Dirty
Oil traps installed correctly	☐	Yes	☐ No	Presence of installation mistakes	☐	Yes	☐ No
Liquid line filter present	☐	Yes	☐ No	Airco energy audit requested?	☐	Yes	☐ No
Suction line filter present (45°)	☐	Yes	☐ No				
Air side outdoor unit correct	☐	OK	☐ Not OK				

Settings outdoor unit

Setting	Description	Default value	New value	Setting	Description	Default value	New value
DIP switch	Target evaporating temperature (DS1-1, -2, -3) (**A**)			2-10	Heat pump off		
2-30	Adjusting evaporation temperature (**B**)			2-15	ΔT correction in outdoor difference evaporation prohibit mode		
	Target evaporation temperature (**A**)+(**B**)			2-02	Outdoor fan maximum limit (M1F, M2F)		
2-06	Airnet address			2-03	Outdoor fan maximum limit (M3F)		

Settings indoor unit

Setting	Description	Default value	New value
10-02	Use of remote sensor		

Electrical system

	L1	L2	L3		230 V AC
Main voltage 400 V AC	V	V	V	**Control voltage**	V

Fuse indoor unit	☐	OK	☐ Not OK	Isolating switch	☐	OK	☐ Not OK
Fuse outdoor unit	☐	OK	☐ Not OK	Cable sections	☐	OK	☐ Not OK
Fuse capacity up unit	☐	OK	☐ Not OK				

Operation check

Ambient temperature		°C
Evaporating temperature Te target		°C
Installation capacity		%

	OnOff/Inv	Freq.	L1 (A)	L2 (A)	L3 (A)	Td °t(*)		Td SH(*)		Abnormal noise	
Inverter 1							°C		K	☐ No	☐ Yes
Inverter 2							°C		K	☐ No	☐ Yes
Inverter 3							°C		K	☐ No	☐ Yes

(*) Td °t=discharge temperature / Td SH=discharge super heat

Operation mode	
Error code	

Opening electronic expansion valve:

Y1E	pulse	Y7E	pulse
Y2E	pulse	Y8E	pulse
Y3E	pulse	Y13E	pulse
Y4E	pulse	Y14E	pulse
Y5E	pulse		

Solenoid valves (0: close / 1: open):

Y11S-Y16S	
Y21S-Y26S	
Y31S-Y34S	
Y41S-Y44S	

Suction pressure refrigeration (LP1)		MPa
Suction pressure airconditioning (LP2)		MPa
Evaporating temperature refrigeration (Te1)		°C
Evaporating temperature airconditioning (Te2)		°C
Suction temperature refrigeration (Ts1)		°C
Suction temperature airconditioning (Ts2)		°C
Suction superheat refrigeration (SH1)		K
Suction superheat airconditioning (SH2)		K
Medium pressure (MP)		MPa
Suction temperature INV3 (Ts3)		°C
Suction superheat INV3 (SH3)		K
Liquid receiver pressure (RP)		MPa
High pressure (HP)		MPa
Liquid temperature (TL)		°C
Economizer outlet (Tmo)		°C
Gas cooler outlet (Tde)		°C
Subcooling temperature (outdoor_SC)		K

Operation refrigeration output magnetic valves ☐ OK ☐ Not OK

		First indoor unit	Middle indoor unit	Farthest indoor unit
Operation mode				
Indoor unit setpoint	°C			
Electronic expansion valve opening	Pulse			
Liquid temperature	°C			
Gas temperature	°C			

Outdoor unit

Inlet air temperature (Ta)	°C		Fan 1	☐ OK	☐ Not OK	
Outlet air temperature	°C		Fan 2	☐ OK	☐ Not OK	
Approach temperature	K		Fan 3	☐ OK	☐ Not OK	

Electrical checks

Electrical connections ☐ OK ☐ Not OK

Alarm contacts (C/C1/W1) ☐ OK ☐ Not OK

	Electrical insulation		Winding resistance	
Inverter 1	☐ OK	☐ Not OK	☐ OK	☐ Not OK
Inverter 2	☐ OK	☐ Not OK	☐ OK	☐ Not OK
Inverter 3	☐ OK	☐ Not OK	☐ OK	☐ Not OK

Overall inspection result

The installation is working: ☐ Good ☐ Not good ☐ Safe ☐ Not safe

Follow-up site visit needed? ☐ Yes ☐ No

Shortcomings and measures to be taken

General remarks:

Shortcomings that were not fixed during the commissioning:

Measures to be taken in order to resolve the remaining shortcomings:

Signature certified technician

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