

## Refrigeration: Commissioning – ZEAS

Installer		Performed by	
Company name		Company	
Contact person		Technician	
		Certificate	
End customer		Date	
Name			
Street – N°			
Zip code – City			
Country			

Installation			
Model name		Refrigerant type	
Construction year		Standard weight	kg
Reference installation		Additional weight	kg
Software version		Total weight	kg

	Master	Slave 1
Model name		
Serial number		

Number of refrigeration appliances		Number of air handling units	
Presence of booster units	<input type="checkbox"/> Yes <input type="checkbox"/> No	Number of booster units	

Safety / last minute risk analysis						
Safe access to the installation	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No		
Enclosed workplace	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	Other safety hazards	
Working at heights	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	Yes
Electrical hazards	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
					<input type="checkbox"/>	OK
					<input type="checkbox"/>	Not OK
					<input type="checkbox"/>	OK
					<input type="checkbox"/>	Not OK

Precommissioning						
N2 Test data available	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No		
N2 start pressure		bar			Vacuum test data available	
N2 test time		hours			<input type="checkbox"/>	Yes
N2 end pressure		bar			<input type="checkbox"/>	No
Power ON 6 hours before commissioning	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No		

Visual inspection						
Outdoor installation connection rate						
Indoor installation connection rate						
System index						
General state	<input type="checkbox"/>	OK	<input type="checkbox"/>	Not OK	Suction line filter present (45°)	
Corrosion/oxidation	<input type="checkbox"/>	OK	<input type="checkbox"/>	Not OK	<input type="checkbox"/>	Yes
Vibrations/frictions	<input type="checkbox"/>	OK	<input type="checkbox"/>	Not OK	<input type="checkbox"/>	No
Noise	<input type="checkbox"/>	OK	<input type="checkbox"/>	Not OK	<input type="checkbox"/>	OK
Unit correctly supported	<input type="checkbox"/>	OK	<input type="checkbox"/>	Not OK	<input type="checkbox"/>	Not OK
					<input type="checkbox"/>	OK
Piping length within limits	<input type="checkbox"/>	OK	<input type="checkbox"/>	Not OK	<input type="checkbox"/>	Not OK
Piping insulation liquid	<input type="checkbox"/>	OK	<input type="checkbox"/>	Not OK	<input type="checkbox"/>	OK
Piping insulation suction	<input type="checkbox"/>	OK	<input type="checkbox"/>	Not OK	<input type="checkbox"/>	Not OK
Refnets position/angle correct	<input type="checkbox"/>	OK	<input type="checkbox"/>	Not OK	<input type="checkbox"/>	Yes
Presence of oil traps	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	No
Oil traps installed correctly	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes
Liquid line filter present	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	No
					<input type="checkbox"/>	Not OK
					<input type="checkbox"/>	OK
					<input type="checkbox"/>	Not OK
					<input type="checkbox"/>	Yes
					<input type="checkbox"/>	No
					<input type="checkbox"/>	Yes
					<input type="checkbox"/>	No
					<input type="checkbox"/>	Clean
					<input type="checkbox"/>	Dirty
					<input type="checkbox"/>	Yes
					<input type="checkbox"/>	No

Settings							
Setting	Description	Default value	New value	Setting	Description	Default value	New value
Lpm	Target evaporation temperature equivalent pressure						
Tst	Target evaporation temperature						
Tsd	Evaporation temperature (DIP switch)						
206	Airnet address						
216	Virtual indoor address						
304	Activation caution output						

Electrical system						
<b>Master</b>	<b>L1</b>	<b>L2</b>	<b>L3</b>	<b>Master</b>	<b>230 V AC</b>	<b>560 V DC</b>
Main voltage 400 V AC	V	V	V	Control voltage	V	V
<b>Slave</b>	<b>L1</b>	<b>L2</b>	<b>L3</b>	<b>Slave</b>	<b>230 V AC</b>	<b>560 V DC</b>
Main voltage 400 V AC	V	V	V	Control voltage	V	V
Isolating switch				Fuse outdoor unit		
Master	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	Master	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	
Slave 1	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	Slave 1	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	
Isolating switch				Fuse outdoor unit		
Master	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	Master	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	
Slave 1	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	Slave 1	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	

Operation check									
Evaporating P target		bar							
Installation capacity		%							
<b>Master</b>	OnOff/Inv	Freq.	L1 (A)	L2 (A)	L3 (A)	Td °t(*)	Td SH(*)	Abnormal noise	
Inverter 1						°C	K	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Standard 1						°C	K	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Standard 2						°C	K	<input type="checkbox"/> No	<input type="checkbox"/> Yes
<b>Slave 1</b>	OnOff/Inv	Freq.	L1 (A)	L2 (A)	L3 (A)	Td °t(*)	Td SH(*)	Abnormal noise	
Inverter 1						°C	K	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Standard 1						°C	K	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Standard 2						°C	K	<input type="checkbox"/> No	<input type="checkbox"/> Yes

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

		Master	Slave 1	
Running mode				Operation refrigeration output magnetic valves
Opening electronic expansion valve subcooler (EV2)	pulse			<input type="checkbox"/> OK <input type="checkbox"/> Not OK
Suction pressure (LP)	bar			
Evaporating temperature	°C			P1/P2 pump down test
Suction temperature (Ti)	°C			<input type="checkbox"/> OK <input type="checkbox"/> Not OK
Suction superheat (SH)	K			
Discharge pressure (HP)	bar			
Condensation temperature	°C			
Liquid temperature (Tce)	°C			
Subcooling temperature (SC)	K			
Subcooler outlet temperature (Tg1)	°C			
Subcooler inlet temperature (TL)	°C			
Pressure drop suction filter	bar			
Pressure drop liquid filter	bar			

Outdoor unit				
<b>Master</b>				
Inlet air temperature (Ta)	°C		Fan 1	<input type="checkbox"/> OK <input type="checkbox"/> Not OK
Outlet air temperature	°C		Fan 2	<input type="checkbox"/> OK <input type="checkbox"/> Not OK
Approach temperature	K			

**Slave 1**

Inlet air temperature (Ta)

°C

Fan 1

OK

Not OK

Outlet air temperature

°C

Fan 2

OK

Not OK

Approach temperature

K

Electrical checks

Electrical connections  OK  Not OK  
 Alarm contacts (C/C1/W1)  OK  Not OK

**Master**

Inverter 1  
 Standard 1  
 Standard 2

Electrical insulation  
 OK  Not OK  
 OK  Not OK  
 OK  Not OK

Winding resistance  
 OK  Not OK  
 OK  Not OK  
 OK  Not OK

**Slave 1**

Inverter 1  
 Standard 1  
 Standard 2

Electrical insulation  
 OK  Not OK  
 OK  Not OK  
 OK  Not OK

Winding resistance  
 OK  Not OK  
 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

General remarks:

Shortcomings that were not fixed during the commissioning:

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

Signature certified technician