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Sales Order Number: (PO / 00): The serial number of the stree: For example AP 06; Crrus AA Designation of HVAC equipment according to specifications (by the execution): <i>For example AP 06; Crrus AA</i> Designation of HVAC equipment according to specifications (by the execution): <i>For example AP 06; Crrus AA</i> Designation of HVAC equipment according to specifications (by the execution): <i>For example AP 06; Crrus AA</i> Designation of HVAC equipment according to specifications (by the execution): <i>For example AP 06; Crrus AA</i> Designation of HVAC equipment according to specifications (by the execution): <i>For example AP 06; Crrus AA</i> Designation of HVAC equipment according to specifications (by the execution): <i>For example AP 06; Crrus AA</i> Designation of HVAC equipment according to specifications (by the execution): <i>For example AP 06; Crrus AA</i> Designation of HVAC equipment according to specifications (by the execution): <i>For example AP 06; Crrus AA</i> Connection of main electrical supply, phasing, control of main switch Cable: <i>For example AP 06; Crrus AA</i> Cable: <i>For example AP 06; Crrus AA</i> Connection of main electrical supply, phasing, control of main switch Cable: <i>For example AP 06; Crrus AA</i> Cable: <i>For example AP 06; Crrus AA</i> <i>Connection of the HMI control module to the controller</i> <i>Connection of the the time of execution of works:</i> <i>Connection of the time of execution of works:</i> <i>Connection of circulation pump in SUMX</i> <i>Connection of circulation pump in SUMX</i> <i>Connection of time of execution of works:</i> <i>Connection of circulation pump in SUMX</i> <i>Connection of time of execution of the MI for air duct connection</i> <i>Yes / No</i> <i>Yes / No</i>	Air handling unit "Aeromast	ter"				_	
The serial number of the control for constant according to specifications (by the execution): Image: Control of the the control the control of the control the control the control the control the co	Sales Order Number: (PO / OD):		Type and size:			Position:	
Internation number of the control of the control of HVAC equipment according to specifications (by the execution): Image: Control of the control of the execution of the execution of the execution of the execution of the execution of the execution of th	The corial			For example X	9 06; Cirrus 84		
If Remote outrol (VCI) is not suck, fill in "without VCS control Name of contract: Air handling unit with fan power control for constant airflow Commissioning Operating service Deck the bax to indicate the type of work to be performed 1. Connection of main electrical supply, phasing, control of main switch Cable: Fusing: Check the power switch function 2. Checking the connection of the HMI control module to the controller 3. Checking input circuit functions, temperature measurement, Modbus communication Temperature measurment Without defects Digital inputs Without defects Outdoor temperature at the time of execution of works: 4. Connection at SUMX Valve actuator connection at SUMX S. Inspection of flexible cuffs for air duct connection Power: Norking A Electric heater Power: Norking A Electric heater Power: A Electric heater Power: A Electric heater Power: Valve actuator of flexible cuffs for air duct connection Done Yes / No	number of the control unit:			Designation specificatio	of HVAC equipment ns (by the execution	t according to):	
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Check the power switch function Without defects 2. Checking the connection of the HMI control module to the controller Without defects 3. Checking input circuit functions, temperature measurement, Modbus communication Without defects Temperature measurement Without defects With the HMI-SG press the button ✓, scroll through *** *** buttons, press to end ✓ Without defects Digital inputs Without defects Modbus communication Without defects A. Connect the air handling unit heater Without defects Outdoor temperature at the time of execution of works: *C 4.1. Hot water heater Yes / No Pleating water parameters: (actual when commissioning) *C Yes / No Yes / No Valve actuator connection at SUMX Bleeding the heater Power: kW Power: kW Fusing: A Electric heater Power: kW Fusing: A Electric heater control mode: Yorking A Suitching the PWM ON / OFF Stingection of flexible cuffs for air duct connection Yes / No Done Yes / No Done Stingection of flexible service panels and doors of the unit chambers							Yes / No
2. Checking the connection of the HMI control module to the controller Without defects 3. Checking input circuit functions, temperature measurement, Modbus communication Temperature measurement Without defects Digital inputs Without defects Digital inputs Without defects Modbus communication KPa Connect the air handling unit heater Outdoor temperature at the time of execution of works: Connection at SUMX Ves / No Yes / No Valve actuator connection at SUMX Letertic heater Power: New Fusing: A Electric heater Power: Working Connection of flexible cuffs for air duct connection KW Fusing: A Electric heater Ves / No Done Yes / No Yes / No Yes / No Done Yes / No Yes / No Yes / No Yes / No Done Yes / No Done Yes / No Done Yes / No Yes /	Check the power switch fund	ction				Without defects	
3. Checking input circuit functions, temperature measurement, Modbus communication Without defects Temperature measurment Without defects With the HMI-SG press the button ✓, scroll through "*" "" buttons, press to end ① Without defects Digital inputs Without defects Modbus communication Without defects 4. Connect the air handling unit heater Without defects Outdoor temperature at the time of execution of works: °C 4.1. Hot water heater °C Heating water parameters: (actual *C Operating pressure of heating system: KPa Valve actuator connection at SUMX Bleeding the heater Done Connection of circulation pump in SUMX Bleeding the heater	2. Checking the connection of	the HMI contr	ol module	to the contro	oller	Without defects	
Temperature measurment Without defects With the HMI-SG press the button ✓, scroll through "+" "-" buttons, press to end ✓ Digital inputs Without defects Modbus communication Without defects A. Connect the air handling unit heater Without defects Outdoor temperature at the time of execution of works: °C 4. Hot water heater °C Heating water parameters: (actual *C _ Operating pressure of wheating system: kPa Valve actuator connection at SUMX Bleeding the heater _ Done Connection of circulation pump in SUMX Bleeding the heater _ Done Yes / No Yes / No Valve actuator connection at SUMX Bleeding the heater _ Done Connection of circulation pump in SUMX Bleeding the heater _ Done Working current: A St. Inspection of flexible cuffs for air duct connection Yes / No St. Check the seal of the service panels and doors of the unit chambers Done	3. Checking input circuit funct	ions, temperat	ture measu	rement, Mo	dbus communicatio	n	
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Digital inputs Without defects Modbus communication Without defects A. Connect the air handling unit heater °C Outdoor temperature at the time of execution of works: °C 4.1. Hot water heater °C Heating water parameters: (actual when commissioning) °C Yes / No Yes / No Valve actuator connection at SUMX Bleeding the heater Connection of circulation pump in SUMX Bleeding the heater Power: kW kW Fusing: Working current: A Switching the section PWM ON / OFF Yes / No 5. Inspection of flexible cuffs for air duct connection 6. Check the seal of the service panels and doors of the unit chambers	With the HMI-SG press the butto	n 🗸 , scroll thi	rough "+" "-"	buttons, press	to end 🏠		
Modbus communication Without defects 4. Connect the air handling unit heater °C Outdoor temperature at the time of execution of works: °C 4.1. Hot water heater °C Heating water parameters: (actual when commissioning) °C Yes / No Yes / No Valve actuator connection at SUMX Bleeding the heater Connection of circulation pump in SUMX Bleeding the heater Power: kW Fusing: A Electric heater PWM Vorking A current: Switching the A Electric heater Yes / No Yes / No 5. Inspection of flexible cuffs for air duct connection Done 6. Check the seal of the service panels and doors of the unit chambers Done	Digital inputs					Without defects	
A Connect the air handling unit heater Outdoor temperature at the time of execution of works: A1. Hot water heater Heating water parameters: (actual when commissioning) Yes / No Valve actuator connection at SUMX Selecting the heater Power: No KW Fusing: A Electric heater Power: KW Fusing: A Electric heater control mode: Yes / No S. Inspection of flexible cuffs for air duct connection C. Check the seal of the service panels and doors of the unit chambers	Modbus communication					Without defects	
Outdoor temperature at the time of execution of works: 4.1. Hot water heater Heating water parameters: (actual when commissioning) Yes / No Yes / No Valve actuator connection at SUMX Connection of circulation pump in SUMX Bleeding the heater Power: kW Fusing: A Electric heater Working current: A Electric heater Yes / No Switching the PWM ON / OFF Yes / No Solution of flexible cuffs for air duct connection 6. Check the seal of the service panels and doors of the unit chambers	4. Connect the air handling ur	nit heater					
4.1. Hot water heater Heating water parameters: (actual when commissioning) Yes / No Yes / No Yes / No Valve actuator connection at SUMX Connection of circulation pump in SUMX Bleeding the heater Done Bleeding the heater Bleeding the heater Bleeding the heater Done Connection of circulation pump in SUMX Bleeding the heater Power: kW Fusing: A Electric heater control mode: Working current: A Switching the PWM ON / OFF Yes / No Solution of flexible cuffs for air duct connection G. Check the seal of the service panels and doors of the unit chambers	Outdoor temperature at the	time of execut	ion of work	s:		°C	
Heating water parameters: (actual when commissioning) °C Operating pressure of heating system: kPa Yes / No Yes / No Yes / No Valve actuator connection at SUMX Bleeding the heater Done Connection of circulation pump in SUMX Bleeding the heater Done 4.2. Electric heater Power: KW Fusing: A Power: KW Fusing: A Electric heater control mode: Working current: A Switching the pWM ON / OFF 5. Inspection of flexible cuffs for air duct connection Yes / No 6. Check the seal of the service panels and doors of the unit chambers Done	4.1. Hot water heater					J	
Yes / No Yes / No Valve actuator connection at SUMX Bleeding the heater Connection of circulation pump in SUMX Bleeding the heater A2. Electric heater Done Power: KW Power: KW Vorking A current: PWM ON / OFF Switching the PWM Switching the PWM ON / OFF Section State Yes / No	Heating water parameters: (act when commissioning)	ual		°C Oper heati	ating pressure of ng system:		kPa
Valve actuator connection at SUMX Bleeding the heater Done Connection of circulation pump in SUMX Bleeding the heater Done 4.2. Electric heater Power: kW Fusing: A Vorking current: A Electric heater control mode: Switching the service panels and doors of the unit chambers Done			Yes / No	-			Yes / No
Connection of circulation pump in SUMX A.2. Electric heater Power: Working current: A Electric heater control mode: Switching the section PWM ON / OFF Yes / No 6. Check the seal of the service panels and doors of the unit chambers	Valve actuator connection at SL	JMX			Bleeding the heater	Done	
4.2. Electric heater Power: kW Fusing: Working current: A Electric heater control mode: Switching the section PWM ON / OFF Section PWM ON / OFF Section PWM ON / OFF Yes / No Check the seal of the service panels and doors of the unit chambers	Connection of circulation pump	in SUMX			Bleeding the circulating pump	Done	
Power: kW Fusing: A Working current: A Switching the section PWM A A Switching the section PWM S. Inspection of flexible cuffs for air duct connection Done Yes / No 6. Check the seal of the service panels and doors of the unit chambers Done	4.2. Electric heater						
Working current: A Switching the section PWM ON / OFF Section Yes / No Done Yes / No Check the seal of the service panels and doors of the unit chambers	Power:	kW F	using:		Electric heater	control mode:	
5. Inspection of flexible cuffs for air duct connection 6. Check the seal of the service panels and doors of the unit chambers	Working current:	A			Switching the section	PWM	ON / OFF
5. Inspection of flexible cuffs for air duct connection 6. Check the seal of the service panels and doors of the unit chambers Done Done							Yes / No
6. Check the seal of the service panels and doors of the unit chambers Done	5. Inspection of flexible cuffs	for air duct con	nection			Done	
6. Check the seal of the service panels and doors of the unit chambers Done							Yes / No
	6. Check the seal of the servic	e panels and d	oors of the	unit chamb	ers	Done	

Protocol number:

Control for constant air flow

Checking the fan chambers					
Frekquency inverters	EC m	otors			Yes / No
Check mechanical asseml	bly of the fan supp	ly air, silentbloc	ks check	Without defects	
Check mechanical asseml	oly of the fan exha	ust air, silentblo	ocks check	Without defects	
Air supply fan	Powe	erW, 50Hz,	VoltageV, Speed	/min, Curr	entA
	Fill in t	he data read from t	he motor nameplate	· ·	
	Impe Fill in t	ller diameter he data read from t	mm; "K" factor he fan nameplate	; Measuring range	Ра
Fill in the following data o	only when controll	ing the fans wit	h frequency inverters:		Yes / No
Check the Modbus signal	control settings		Parameter 8-01=2	Set	
			Parameter 8-02=1	Set	
			Parameter 8-30=2	Set	
Working Frequency:		Hz	Communication address:		Yes / No
			Parameter 8-31=1	Set	
			Communication add second fan (for Cirru	ress of the ss units):	Yes / No
			Parameter 8-31=2	Set	
Minimum Frequency:		20 Hz	Ramp run up time	Parameter 3-41: .	sec
Maximum Frequency:		Hz	Ramp run down time:	Parameter 3-42: .	sec
<u>Air exhaust fan</u>	Powe	erW, 50Hz,	VoltageV, Speed	/min, Curr	entA
	Fill in t	he data read from t	he motor nameplate		
	Timpe Fill in t	he data read from t	mm; "K" factor he fan nameplate	; Measuring range	Ра
Fill in the following data o	only when controll	ing the fans wit	h frequency inverters:		Yes / No
Check the Modbus signal	control settings		Parameter 8-01=2	Set	
			Parameter 8-02=1	Set	
			Parameter 8-30=2	Set	
Working Frequency:		Hz	Communication address:		Yes / No
			Parameter 8-31=5	Set	
			Communication add second fan (for Cirru	ress of the ss units):	Yes / No
			Parameter 8-31=6	Set	
Minimum Frequency:		20 Hz	Ramp run up time	Parameter 3-41: .	sec
Maximum Frequency		H7	Ramp run down time:	Parameter 3-42	Sec
Maximum Frequency.		nz	down time.	Parameter 5-42	sec

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-			

8. Setting parameters for constant air flow control

8.1. Unicon flow controllers



After entering the mode, measuring range and "K" factor, the flow controller calculates the air flow parameter.

8.2. Setting the air flow control parameters in the controller

8.2.1. Setting parrametres using HMI-TM, DM module:

After logging in "MENU": Settings / Fans / Flow Control (Pressure) to set the desired value.

RegulFans-Flow(Press)	2/5			Supply Air Flow Sensor Range:
SypplyFlowRangeSnsr		8810 m ³ / hr		Set the Unicon sensor value
ReturnFlowRangeSnsr		8810 m ³ / hr		
NmbrOfSplyFans		1 1		Exhaust Air Flow Sensor Range: Set
NmbrOfRtrnFans		1 1		
Enable - k Factor		No N	lo	

8.2.2. Setting parrametres using HMI-SG module:

The following data points apply to the HMI-SG settings:

Control - Air Flow				
Setting the flow sensor range - supply		m³/Hr	222	
Setting the flow sensor range - exhaust		m³/Hr	224	
"K" factor supply			232	
"K" factor exhaust			234	
Number of supply fans			236	
Number of exhaust fans			238	
Enable"k" factor (0=No; 1=Yes)			240	

8.3. Setting the power stages of the fans

The 70% / 85% / 100% of the unit's rated airflow rate is usually suitable for setting the individual power stages. The "Supply / Exhaust" setting ratio must be adjusted according to the air conditioning so that a slight vacuum is provided in the ventilated space. The "Inlet / Draw" setting ratio must be adjusted according to the air conditioning so that a slight vacuum is provided in the ventilated space.

We set the adjustment from level 5 to grade 1.

8.3.1. Setting parrametres using HMI-TM, DM module:

In the "MENU": Settings / fan / supply-exhaust fan, we configure the desired values.

Fans	
RegulFans-Flow(Press)	
Fan supply output	
Fan exhaust output	
BlckHighSpeedFan	-60°C
DelayStartFan	45s
FlowActDelayStrtErr	5s
TherContActDelayErr	2s
DelayInverterErr	2s

Power Supply Fan		
1. Stage	2720	m ³ / Hr
2. Stage	3740	m ³ / Hr
3. Stage	4760	m ³ / Hr
4. Stage	5780	m ³ / Hr
5. Stage	6800	m ³ / Hr

Power Exhaust Fan	
1. Stage	2 584 m ³ / Hr
2. Stage	3 230 m ³ / Hr
3. Stage	4 522 m ³ / Hr
4. Stage	5 491 m ³ / Hr
5. Stage	6 460 m ³ / Hr

Set

8.2.2. Setting parrametres using HMI-SG module:

The following data points apply to the HMI-SG settings:

Power supply fan		Data point Power exhaust fan		fan	Data point	
1st stage		m³/hr	141		m³/hr	151
2nd stage		m³/hr	143		m³/hr	153
3rd stage		m³/hr	145		m³/hr	155
4th stage		m³/hr	147		m³/hr	157
5th stage		m³/hr	149		m³/hr	159

9. The Direction of Rotation of Fans

Should be taken of the increase of caution.

Attention to the open fan of the chamber!!! Fan leave only divaricate, not get off the ground at full power!!!

Use the local HMI to perform a short start of the unit:

HMI-TM,DM: Main Menu / Settings / Manual Mode / Comfort St.1.; HMI-SG: Briefly press button T1

Yes / No

Supply fan		Exhaust fan					

Check the correct direction of rotation of the impeller by confirming "Correct" in the appropriate box

After the check, switch off the unit:

HMI-TM, DM: Main menu / settings / manual mode / STOP; HMI-SG: Briefly press button T1 🔱

10. Checking the rotary heat exchanger, setting the parameters for controlling the heat exchanger motor.

This check is performed when the rotary heat exchanger is integrated into the air handling unit assembly.

		Yes / No
Checking the mechanical assembly and connection to the relevant chambers	Without defects	
Checking the tilt indicator	Without defects	
Checking the mechanical bearing and rotation of the heat exchanger exchanger	Without defects	
Checking the heat exchanger drive belt	Without defects	

Check the setting frequency inverter and the drive function of the heat exchanger

Transmission drive	PowerW, 50Hz	z, VoltageV, Speed	/min, Curr	entA
	Fill in the data read from	the motor nameplate		
				Yes / No
Check the Modbus signal control set	tings	Parameter 8-01=2	Set	
		Parameter 8-02=1	Set	
		Parameter 8-30=2	Set	
Working Frequency:	Hz	Communication	Set	
Depending on the gearbox used, 50Hz or 85Hz	Z	address: Parameter 8-31=11		
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				Yes / No
			Set	
		Ramp run up		
Minimum Frequency:	18 Hz	time	Parameter 3-41:	30 sec
				Yes / No
			Set	
		Ramp run up		
Maximum Frequency:	Hz	time	Parameter 3-42:	30 sec
Depending on the gearbox used, 50Hz or 851	Hz			
11. Checking and adjusting the unit:				
11.1- Off Unit turn Off from HMI:			Data point HMI-S	G: 125=1

				120 1
Achieved	statues		Unit Off	Check
0	Air supply damper	Closed	0%	
0	Air exhaust damper	Closed	0%	
0	Air mixing damper	Open	100%	
0	The damper of By-Passing the recuperator	Open	100%	
	common shaft (the opposite direction)	Closed	0%	
0	Heater circulation pump	Current state:	* 1)	
0	Electric heater	Off	0%	
0	Control valve heating	Current state:	* 1)	
0	Integrated cooling	Off	0%	
	Heat pump			
0	Fans	Off	0%	

* 1) Circulation heater pump and SUMX control valve position automatically controlled by active frost protection

11.2 The direction of rotation of compressors

ation of compressors

Set value:

Yes / No

In the control unit, activate the cooling circuit / heat pump.

Compressor 1		Compressor 2		
Check the correct energies of the compressor confirm record "correctly" in the appropriate her				

Check the correct operation of the compressor confirm record "correctly" in the appropriate box

12. PLC Parameterization for a given application.

12.1. Damper adjustment with activated air mixing function

Main menu/Settings/Control Parameters/Sequence/Mixing

Mixing	1/8
MinFreshAir	55%
MixDampTempFullOp	15,0°C
MixDampTmFullOp	60s
ValueOfMixing	60%

Minimum fresh air: Opening temperature setting: The activation time opening:

	Yes / No
Set	
	Data point
%	484
°C	486
sec	488

Done

ValueOfMixing	60%		Yes / No
12.2. Setting limit for supply air	temperature:	Set	
			Data point
Minimum supply air temperatu	re	°C	194
Maximum exhaust air tempera	ture	°C	195
Maximum deviation between n	oom and inlet air temperature	°C	121
Minimum deviation between ro	oom and inlet air temperature	°C	123
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12.3. Enable air cooling circuit, heat pump operation Blocking from the outside temperature:

Temperature for heating mode:

Temperature for cooling mode:

12.4 Set the time schedules

Set the schedules according to user requirements

12.5 Set the requi



Set

Yes / No

Ра

r	ed temperature:				Yes / No
				Set	
	Operation mode		Temperature	HMI-SG data point	
	Full operatin "Comfort"	Heating	°C	103	
	Full operation "Comfort"	Cooling	°C	101	
	Mufled operation "Economic"	Heating	°C	107	
	Mufled operation "Economic"	Cooling	°C	105	

12.6 Set the required humidity:

ed humidity:				Yes / No
			Set	
Operation mode	Humidity		HMI-SG data point	
Full operatin "Comfort"		%	531	
Mufled operation "Economic"		%	535	
				Yes / No
			Set	

13. Set the filter clogging sensors:

Air supply (1st stage of

Ра

Air supply (2nd stage of filtration)

Ра Exhaust air

14. Other settings made:

15. Checking the protection circu	uits of the unit			Yes / No
Frost protection of the water h	eater / protection of the electri	ic heater	Without defects	
Low pressure circuit protection	of the heat pump / cooling		Without defects	
High pressure circuit protection of the heat pump / cooling			Without defects	
Circuit protection winding motor supply fan		Without defects		
Circuit protection winding motor exhaust fan			Without defects	
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			Yes / No
16. Test operation	of the unit in "Comfort" and "Economy" modes	Done	
Prior to the star	t of these work, it is necessary to check clearing the cha	mbers, to close all the se	vice panels!
To check the ope	eration of the unit, switch the "Comfort" / "Economy" mc	ode and set the fan power	
in stages 1, 2, 3,	4, 5.		Yes / No
17. Testing the op	eration of the unit in the "Auto" mode	Done	
Air supply fan			
	Parameters read in the control unit	low m³/hod	% of power signal in VCS
	Stage:		
	Parameters read in the frequency inverter		
	Frequency / Hz Power / W Curr	rent / A	
<u>Air exhaust fan</u>			
	Fan speed Air f	low m³/hod	% of power signal in VCS
	Stage:		
	Parameters read in the frequency inverter	cont / A	
Achieved parame	in the room (in the exhaust duct) Air humidit	ty in the room (in the exha	ust duct)
		%	
			Yes / No
Check of the sv	witching unit operation according to schedule	Without de	fects
		Without de	fects
Compliance wi	th the limit set air temperature	Without de	
Verify the corre	ect function of the additional function for VCS	Without de	fects
Switch off the	unit by "Fire" signal	Without de	fects
Switch off the	unit by remote control	Without de	fects
		Without de	fects
18. Check the in	tegrated cooling circuit, the heat pump circuit	Without de	
Aggregat:	Type of complet	te aggregate:	
Serial number:			
Heat pump / coo	oling circuit operation		
I	Low refrigerant pressure Bar	High refrigerant pre	ssure Bar
_			
Compressor 1			
indicate the type of compressor installed	Working current compressor	A	
Compressor 2			
Indicate the type of	Working current compressor	A	
		d rofrigorent	
ine amount of r	errigeration kg Used		
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Functional

Checking functions injection valve Refrigerants:

Additional information on cooling circuits, condensing units, etc.:

19. Check the condensate drain function from the unit

		Yes / No	Note / Comment:
	Without		
Installation of siphons	deffects		
	Without		
Filling siphons with water	deffects		
	Without		
Proper function of siphons	deffects		
0. Notes technician			
1. Next steps / planned repairs			
2 Client's statement / somments			
2. Client's statement / comments			
Work performed	Date		The deliveries and work took over:

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