

Commissioning protocol

ESTiA R32 v1.0



Building project:

COMMISSIONING PROTOCOL

ESTIA R32

Version 1.0

Publisher:

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This manual doesn't replace the original manuals from Toshiba.

Checklist

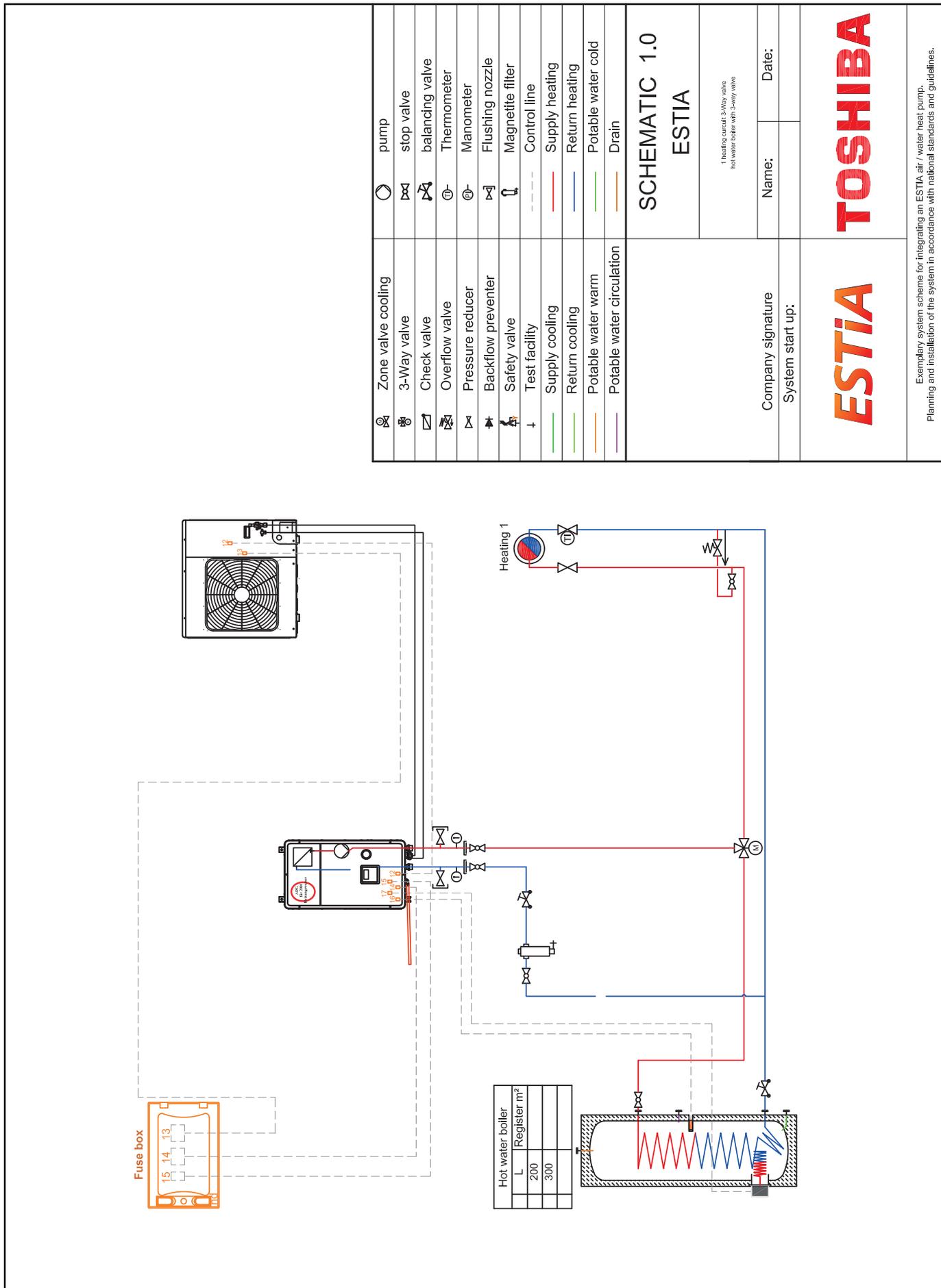
Plant according to scheme:			
Required heating load of the building according to the heating load calculation:			kW
Outdoor unit type:		Serial number:	
Hydrobox type:		Serial number:	
2-way valve type:		Switchover time:	<input type="text"/> sec.
		<input type="checkbox"/>	SPDT
		<input type="checkbox"/>	SPST
		<input type="checkbox"/>	Spring return
Mixing valve type:		Switching time:	<input type="text"/> sec.
		<input type="checkbox"/>	SPDT
		<input type="checkbox"/>	SPST
Cooling stop valve type:			
Second remote control?		YES	NO
2nd zone /2nd pump		<input type="checkbox"/>	<input type="checkbox"/>
Domestic hot water preparation		<input type="checkbox"/>	<input type="checkbox"/>
Bivalent heating system?		<input type="checkbox"/>	<input type="checkbox"/>
If so, which?	<input type="checkbox"/> Oil	<input type="checkbox"/> Solid combustibles	<input type="checkbox"/> Gas
			<input type="checkbox"/> others
Heat transfer?	<input type="checkbox"/> Floor heating	<input type="checkbox"/> Radiatores	<input type="checkbox"/> Fan Coil
			<input type="checkbox"/> others
<input type="checkbox"/> Supply temperature control		<input type="checkbox"/> Room temperature control	
Were the minimum distances between the outdoor unit and the Hydrobox maintained?		YES	NO
Was the outdoor unit installed on a base so that condensate can flow unhindered?		<input type="checkbox"/>	<input type="checkbox"/>
Have the correct piping dimensions and piping lengths been observed (16/10, max. 30 m)?		<input type="checkbox"/>	<input type="checkbox"/>
Are the refrigerant pipes sufficiently insulated?		<input type="checkbox"/>	<input type="checkbox"/>
Was the required piping diameter for the heating circuit used (at least 28 mm)?		<input type="checkbox"/>	<input type="checkbox"/>
Are shut-off and balancing valves installed according to our schemes?		<input type="checkbox"/>	<input type="checkbox"/>
Is a cyclone filter with a magnet fitted?		<input type="checkbox"/>	<input type="checkbox"/>
Has a proper 2-way valve (for hot water preparation) been installed? (Switching time max. 30 sec.)		<input type="checkbox"/>	<input type="checkbox"/>
Was the min. heat exchanger surface of 2,5 m ² kept in the hot water tank?		<input type="checkbox"/>	<input type="checkbox"/>
Has the hot water sensor been placed in the upper third?		<input type="checkbox"/>	<input type="checkbox"/>
Was a proper mixing valve (2nd zone) installed (30, 40, 50 -> max. 240 sec.)?		<input type="checkbox"/>	<input type="checkbox"/>
Is the heating water filled according to EN14868 and EN1717?		<input type="checkbox"/>	<input type="checkbox"/>
Has the power supply been carried out and controlled according to TOSHIBA requirements?		<input type="checkbox"/>	<input type="checkbox"/>
Have the required fuses been used?		<input type="checkbox"/>	<input type="checkbox"/>
Have the correct cable dimensions been installed?		<input type="checkbox"/>	<input type="checkbox"/>
Is the backup heater supplied with power in the Hydrobox and the hot water tank?		<input type="checkbox"/>	<input type="checkbox"/>

_____ m

_____ Ø

_____ m²

Plant according to scheme 1.0



	Zone valve cooling		pump
	3-Way valve		stop valve
	Check valve		balancing valve
	Overflow valve		Thermometer
	Pressure reducer		Manometer
	Backflow preventer		Flushing nozzle
	Safety valve		Magnetite filter
	Test facility		Control line
	Supply cooling		Supply heating
	Return cooling		Return heating
	Potable water warm		Potable water cold
	Potable water circulation		Drain

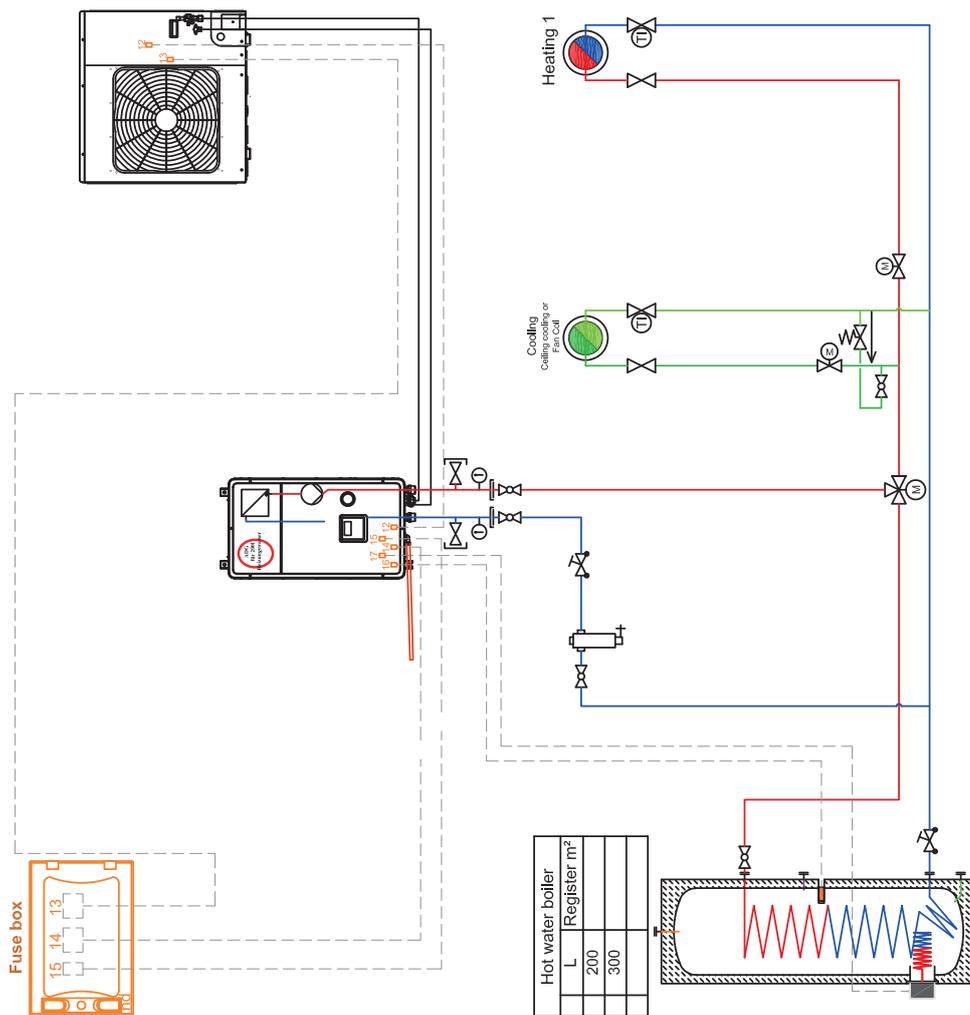
SCHEMATIC 1.0	
ESTIA	
<small>1 heating circuit 2-Way valve hot water boiler with 3-Way valve</small>	
Company signature	Name:
System start up:	Date:

ESTIA	TOSHIBA
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Exemplary system scheme for integrating an ESTIA air / water heat pump.
Planning and installation of the system in accordance with national standards and guidelines.



Plant according to scheme 1.1



	Zone valve cooling		pump
	3-Way valve		stop valve
	Check valve		balancing valve
	Overflow valve		Thermometer
	Pressure reducer		Manometer
	Backflow preventer		Flushing nozzle
	Safety valve		Magnetite filter
	Test facility		Control line
	Supply cooling		Supply heating
	Return cooling		Return heating
	Potable water warm		Potable water cold
	Potable water circulation		Drain

SCHEMATIC 1.1

ESTIA

1 heating circuit 3-Way valve
hot water boiler with 3-way valve
1 cooling circuit with overflow and cooling stop valve

Company signature: _____ Name: _____ Date: _____

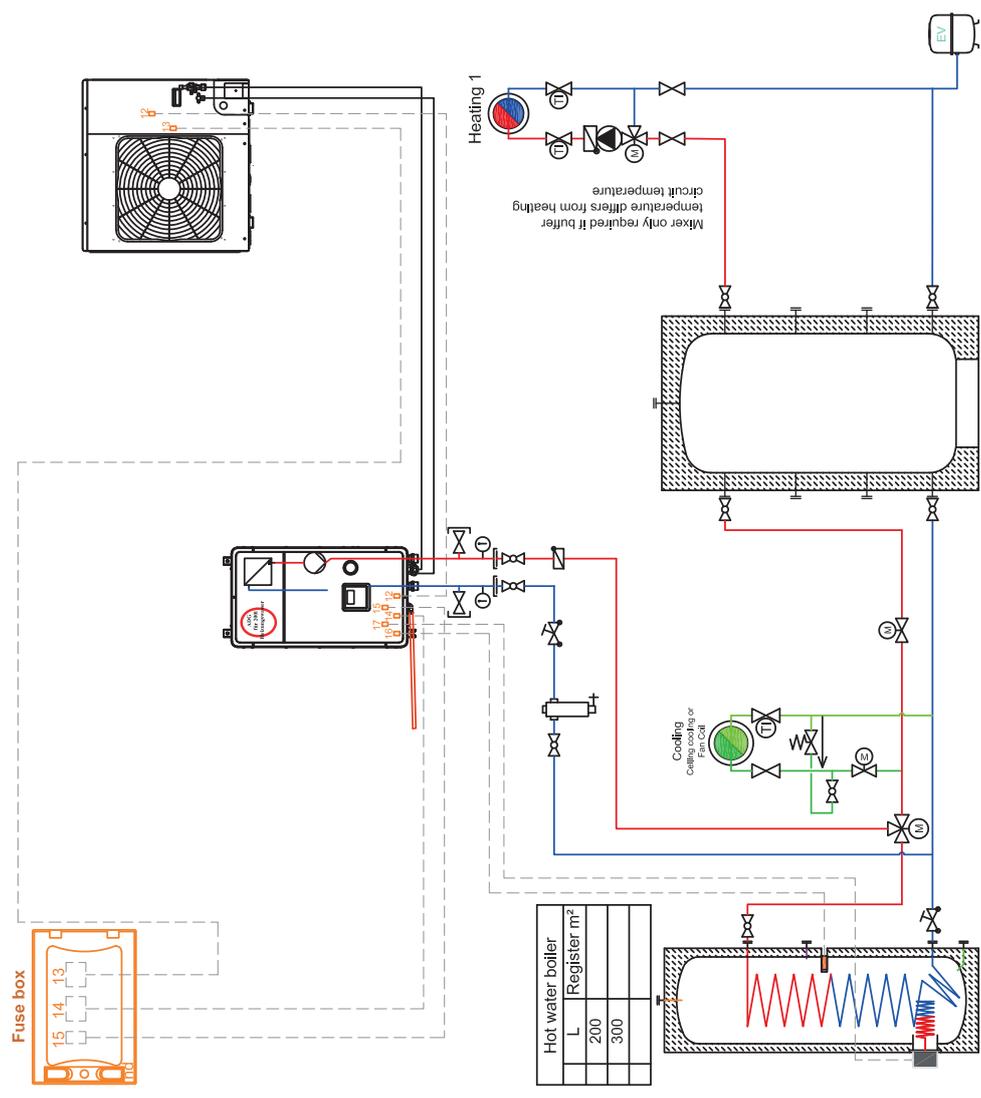
System start up: _____



Exemplary system scheme for integrating an ESTIA air / water heat pump.
Planning and installation of the system in accordance with national standards and guidelines.



Plant according to scheme 2.1



	Zone valve cooling		pump
	3-Way valve		stop valve
	Check valve		balancing valve
	Overflow valve		Thermometer
	Pressure reducer		Manometer
	Backflow preventer		Flushing nozzle
	Safety valve		Magneite filter
	Test facility		Control line
	Supply cooling		Supply heating
	Return cooling		Return heating
	Potable water warm		Potable water cold
	Potable water circulation		Drain

SCHEMATIC 2.1
ESTIA

1 heating circuit 3-way valve
hot water boiler with 3-way valve
1 cooling circuit with overflow and cooling stop valve

Company signature _____ Name: _____ Date: _____

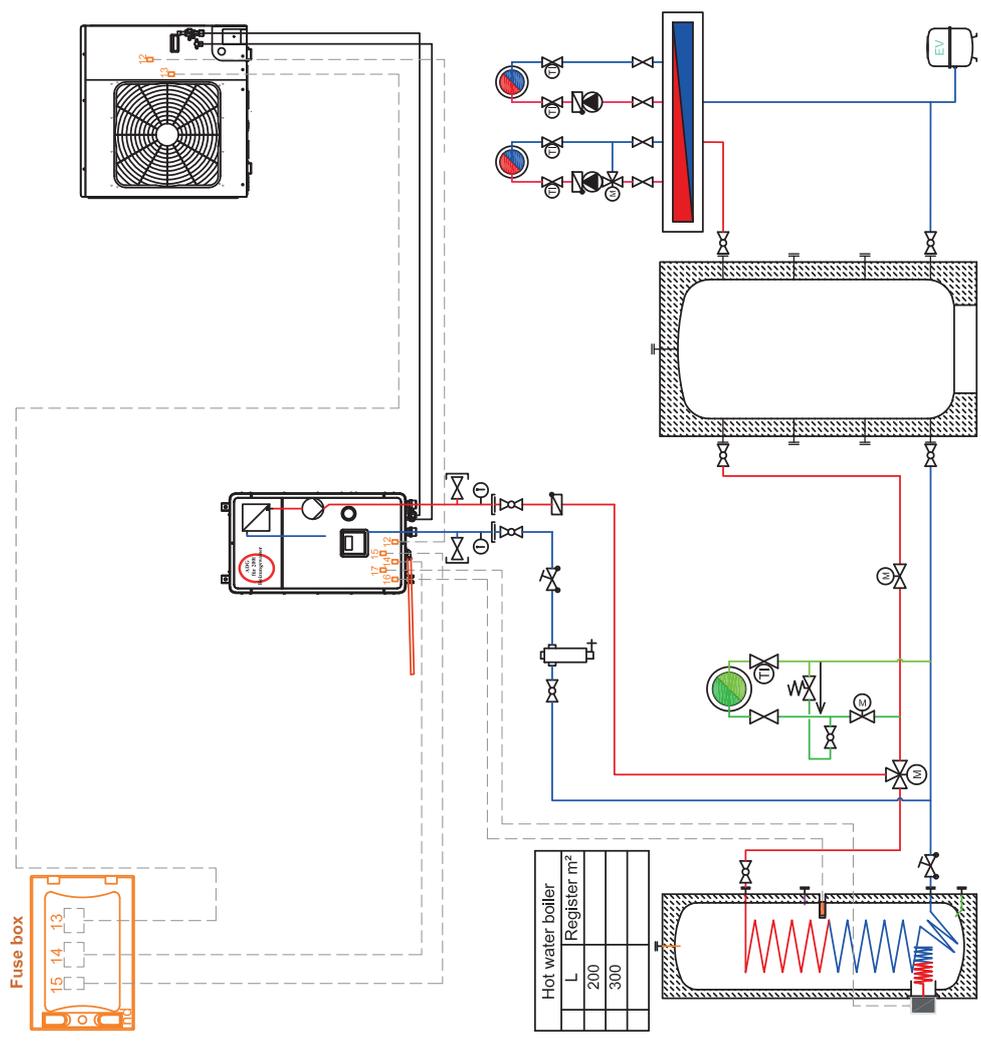
System start up: _____



Exemplary system scheme for integrating an ESTIA air / water heat pump.
Planning and installation of the system in accordance with national standards and guidelines.



Plant according to scheme 3.1



	Zone valve cooling		pump
	3-Way valve		stop valve
	Check valve		balancing valve
	Overflow valve		Thermometer
	Pressure reducer		Manometer
	Backflow preventer		Flushing nozzle
	Safety valve		Magnetite filter
	Test facility		Control line
	Supply cooling		Supply heating
	Return cooling		Return heating
	Potable water warm		Potable water cold
	Potable water circulation		Drain

SCHEMATIC 3.1

ESTIA

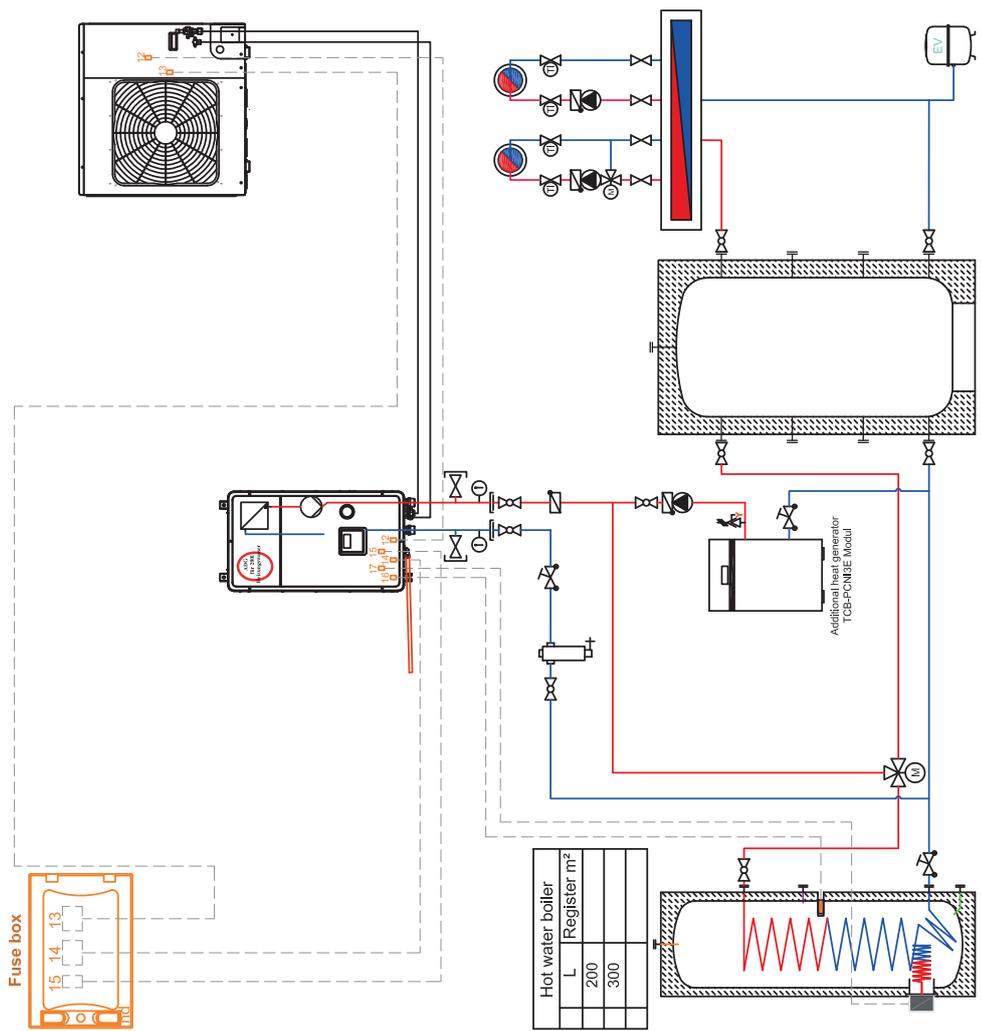
1 heating circuit 3-Way valve
 1 heating circuit uncontrolled
 buffer tank
 hot water boiler with 3-way valve
 1 cooling circuit with over/under and cooling stop valve

Company signature: _____ Date: _____
 System start up: _____



Exemplary system scheme for integrating an ESTIA air / water heat pump.
 Planning and installation of the system in accordance with national standards and guidelines.

Plant according to scheme 4.0



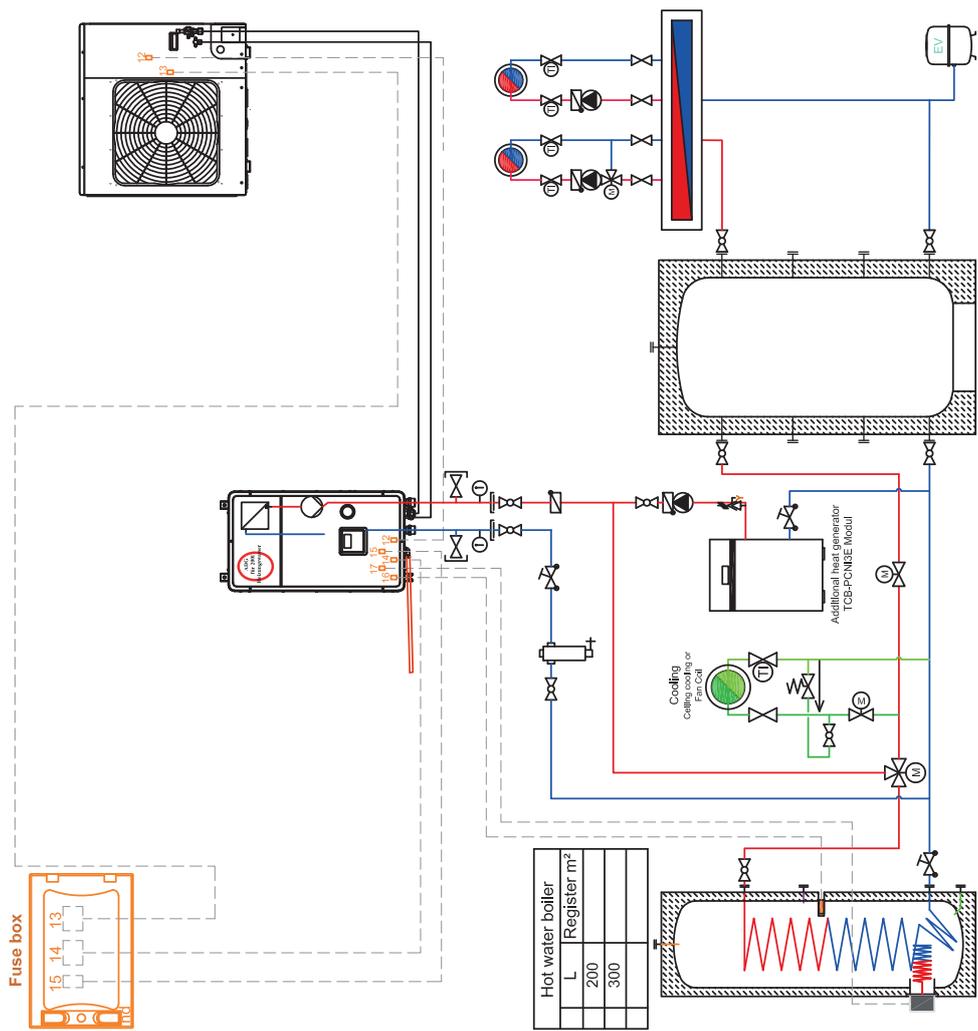
	Zone valve cooling		Zone valve cooling
	3-Way valve		stop valve
	Check valve		balancing valve
	Overflow valve		Thermometer
	Pressure reducer		Manometer
	Backflow preventer		Flushing nozzle
	Safety valve		Magnetite filter
	Test facility		Control line
	Supply cooling		Supply heating
	Return cooling		Return heating
	Potable water warm		Potable water cold
	Potable water circulation		Drain

SCHEMATIC 4.0	
ESTIA	
<small>1 heating circuit 3-Way valve 1 heating circuit uncontrolled buffer tank and optional heat generator hot water boiler with 3-Way valve</small>	
Company signature	Name:
System start up:	Date:
ESTIA TOSHIBA	

Exemplary system scheme for integrating an ESTIA air / water heat pump.
 Planning and installation of the system in accordance with national standards and guidelines.



Plant according to scheme 4.1



	Zone valve cooling		pump
	3-Way valve		stop valve
	Check valve		balancing valve
	Overflow valve		Thermometer
	Pressure reducer		Manometer
	Backflow preventer		Flushing nozzle
	Safety valve		Magnetite filter
	Test facility		Control line
	Supply cooling		Supply heating
	Return cooling		Return heating
	Potable water warm		Potable water cold
	Potable water circulation		Drain

SCHEMATIC 4.1 ESTIA

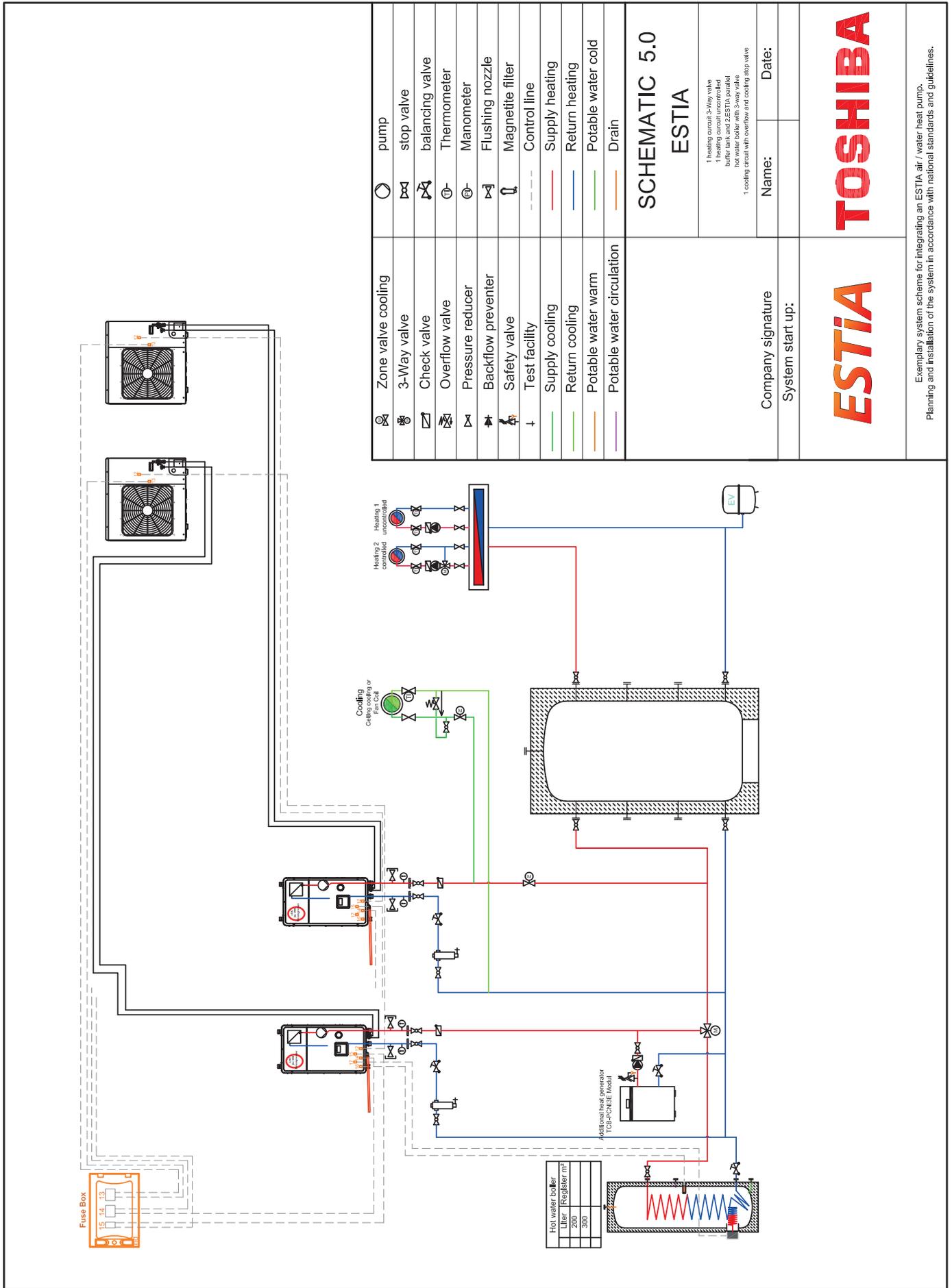
1 heating circuit 3-Way valve
 1 heating circuit uncontrolled
 buffer tank and brevent heat generator
 hot water boiler with 3-way valve
 1 cooling circuit with overflow and ceiling sup. valve

Company signature: _____ Date: _____
 System start up: _____



Exemplary system scheme for integrating an ESTIA air / water heat pump.
 Planning and installation of the system in accordance with national standards and guidelines.

Plant according to scheme 5.0

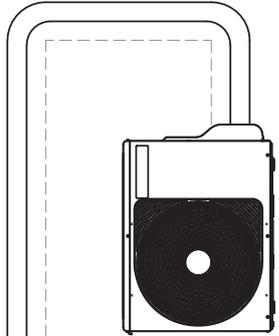


	Zone valve cooling		pump
	3-Way valve		stop valve
	Check valve		balancing valve
	Overflow valve		Thermometer
	Pressure reducer		Manometer
	Backflow preventer		Flushing nozzle
	Safety valve		Magnetite filter
	Test facility		Control line
	Supply heating		Return heating
	Potable water warm		Potable water cold
	Potable water circulation		Drain
SCHEMATIC 5.0			
ESTIA			
1 heating circuit 3-Way valve 1 heating circuit uncontrolled buffer tank and 2 ESTIA parallel hot water boiler with 3-way valve 1 cooling circuit with overflow and cooling stop valve		Name:	Date:
Company signature			
System start up:			
ESTIA		TOSHIBA	
Exemplary system scheme for integrating an ESTIA air / water heat pump. Planning and installation of the system in accordance with national standards and guidelines.			



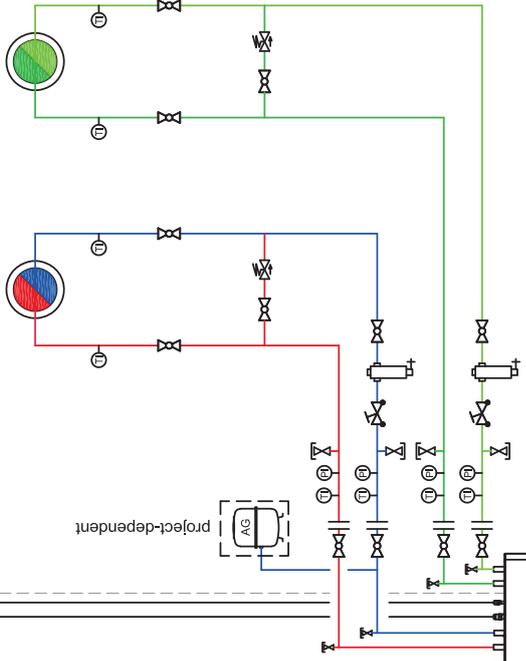
Plant according to scheme 6.0

refrigerant pipes
 HWT-60: 12/6mm
 HWT-110: 16/6mm



TB01: 4x1,5"

Heating- or cooling circuit 1 Heating- or cooling circuit 2
 uncontrolled 3-Way valve



project-dependent
 (AG)

Connection potable water piping:
 compression fitting min. Ø22

Connection supply/return piping:
 compression fitting min. Ø22
 drain connection

	Zone valve cooling		pump
	3-Way valve		stop valve
	Check valve		balancing valve
	Overflow valve		Thermometer
	Pressure reducer		Manometer
	Backflow preventer		Flushing nozzle
	Safety valve		Magnetite filter
	Test facility		Control line
	Supply cooling		Supply heating
	Return cooling		Return heating
	Potable water warm		Potable water cold
	Potable water circulation		Drain

SCHEMATIC 6.0
ESTIA ALL-IN-ONE

1 heating or cooling circuit uncontrolled
 1 heating or cooling circuit 3-Way valve

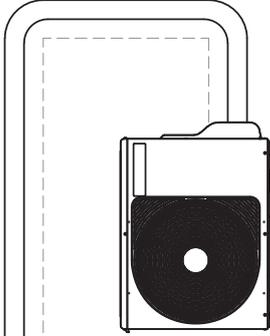
Company signature _____ Name: _____ Date: _____
 System start up: _____



Exemplary system scheme for integrating an ESTIA air / water heat pump.
 Planning and installation of the system in accordance with national standards and guidelines.

Plant according to scheme 7.0

refrigerant pipes
 HWT-60: 12/6mm
 HWT-110: 16/6mm



TB01: AK1,5'

heating circuit 1
 uncontrolled

project-dependent

Connection potable water piping:
 compression fitting min. Ø22

Connection supply/return piping:
 compression fitting min. Ø22

drain connection

	Zone valve cooling		pump
	3-Way valve		stop valve
	Check valve		balancing valve
	Overflow valve		Thermometer
	Pressure reducer		Manometer
	Backflow preventer		Flushing nozzle
	Safety valve		Magnetite filter
	Test facility		Control line
	Supply cooling		Supply heating
	Return cooling		Return heating
	Potable water warm		Potable water cold
	Potable water circulation		Drain

SCHEMATIC 7.0
ESTIA ALL-IN-ONE

1 heating circuit uncontrolled

Company signature

Name:

Date:

System start up:

ESTIA

TOSHIBA

Exemplary system scheme for integrating an ESTIA air / water heat pump.
 Planning and installation of the system in accordance with national standards and guidelines.

Start and configuration

Select "DN for hydro unit" in the "Submenu settings" to change the DN codes of the hydro unit.
Define the following initial settings and the other set points:

Setting the DN codes of the hydro unit

		Storage location Function code no.						*HB= Hydrobox EEPROM *RC= Remote Control
		HB*	RC*	Range	Preset	After comm.	Additional info	
System setup (DPSW replacement)	Used to activate the external heating output 0 = External heating output deactivated 1 = External heating output activated	6B0	-	0~1	0		Only with a bivalent heating system	
	Integration of an external heating system 0 = Integrated downstream of 3-way valve 1 = Integrated upstream of 3-way valve	6B1	-	0~1	0		Only for a bivalent heating system (oil, gas, etc.) Explained in the diagrams on the next page	
	If an external hot water thermostat is connected 0 = No external hot water thermostat connected 1 = External hot water thermostat connected	6B2	-	0~1	0		Use of an external hot water thermostat (TTW sensor not required)	
	If an external room thermostat is used 0 = No external room thermostat 1 = External room thermostat connected	6B3	-	0~1	0		Only when using an external room thermostat	
	Used to define the 3-way control valve used in the system 0 = 2-wire/spring return or 3-wire/SPST valve; 1 = 3-wire/SPDT valve	6B4	-	0~1	0		SPDT valve preferred	
	Synchronization from pump P2 0 = Continuous operation of pump 2 1 = Pump 2 runs in parallel with pump 1	6B5	-	0~1	0		OFF: With a bivalent heating system, when 5B is set to 3, P2 and mixing valve control remain active ON: P2 switches off during hot water generation	
	Used if a domestic hot water tank is connected to the system 0 = Domestic hot water tank connected 1 = No domestic hot water tank connected	6B8	-	0~1	0			
	For activating zone 1 operation 0 = Zone 1 activated 1 = Zone 1 deactivated	6B9	-	0~1	0		Must be set to ON if the heat pump is only used for domestic hot water generation.	
	For activating zone 2 operation 0 = Zone 2 deactivated 1 = Zone 2 activated	6BA	-	0~1	0		e.g., when using radiators and underfloor heating	
	P1 pump operation for heating 0 = P1 runs continuously 1 = At an outdoor temperature of over 20°C, P1 switches off	6D0	-	0~1	0		ON = From an outdoor temperature of over 20°C, the pump switches itself off. The temperature can be changed using DN code 9E.	
	Pump P1 at normal output when thermo off for long periods. 0 = No operation 1 = Normal output	6D1	-	0~1	0			
	Used to activate the backup heater of the hydro unit 0 = Backup heater activated 1 = Backup heater deactivated	6D2	-	0~1	0		Backup heater in the Hydrobox: TB03 connection 3, 6, or 9 kW output	
	For activating e-heating in the domestic hot water tank 0 = E-heating elements in the domestic hot water tank activated 1 = E-heating elements in the domestic hot water tank deactivated	6D3	-	0~1	0		TB02 connection Should always be set to OFF	
	For activating booster heating 0 = External booster heating output activated 1 = External booster heating output deactivated	6D4	-	0~1	0		When the outdoor temperature drops below -20°C, the contact at connection CN23 / 5+6 (230 V/1 A) is activated.	
	Used to activate the automatic restart following a power blackout 0 = Automatic restart deactivated 1 = Automatic restart activated	28	-	0~1	1			
P1 pump operation for hot water 0 = P1 only runs during hot water preparation 1 = P1 runs continuously	5A	-	0~1	0		Synchronizes pump 1 with outdoor unit during hot water preparation		

**Storage location
Function code
no.**

*HB= Hydrobox EEPROM
*RC= Remote Control

	FC description	Storage location Function code no.		Range	Preset	After comm.	Additional info
		HB*	RC*				
System setup (DPSW replacement)	User-defined options for I/P7 /8 (SN21): 0: I/P 7 = Forced stop input; I/P 8 = None 1: I/P 7 = TEMPO 1 input; I/P 8 = None 2: I/P 7 = TEMPO 2 input; I/P 8 = None 3: I/P 7 = Forcefully switch off reserve heating I/P 8 = Switch off hot water externally 4: I/P 7 = SMART Grid network input 1 I/P 8 = SMART Grid network input 2	B6	-	0~4	0		
Hydrobox type setting	Hydrobox type setting: 70 = Wall-mounted Hydrobox 71 = ALL-IN-ONE Hydrobox	10	-	70 or 71	Depending on Hydrobox		
Hydrobox capacity setting	Capacity of the water-to-air heat exchanger: 0010 = 401 / 601 0015 = 801 / 1101	11	-	0010 or 0015	Depending on Hydrobox		
Outdoor unit type setting	Outdoor unit type setting 0 = 401 / 601 1 = 801 / 1101 2, 3 = None	6BD	-	0~3	Depending on type		
Addressing	Refrigeration cycle address	12	-	1~128	None		
	Indoor unit address	13	-	1~128	None		
	Group address 0= Individual (no group control) 1= Master unit 2= Slave unit	14	-	0~2	None		
	Central address	03	-	1~128	None		Used if ESTIA is controlled via a central controller.
SG Ready	The temperature increase in "Forced ON" mode (SG Ready control)	AC	-	0~10	0		
	SG Ready forced operation heating control 0 = Heating capacity permitted 1 = Heating capacity not permitted	6CE	-	0~1	0		
Energy consumption	Current consumption function used 0 = OFF 1 = ON	-	1B	0~1	1		

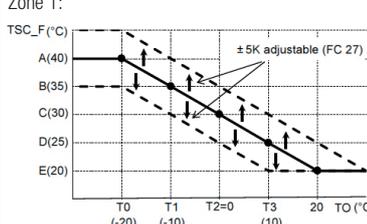
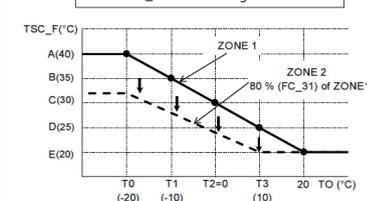
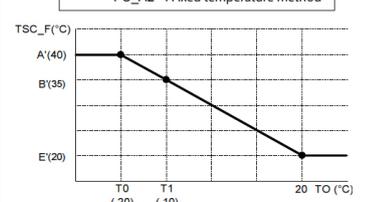
Function codes

	FC description	Storage location Function code no.		Range	Preset	After comm.	Additional info
		HB*	RC*				
Setting the temperature range	Upper limit temperature for zone 1 heating	1A	-	37~55°C	55		Is also the stop temperature for room temperature control
	Lower limit temperature for zone 1 heating	1B	-	20~37°C	20		
	Upper limit temperature for zone 2 heating	1C	-	37~55°C	55		
	Lower limit temperature for zone 2 heating	1D	-	20~37°C	20		Min. and max. setting range on the remote control
	Upper limit temperature for cooling	18	-	20~30°C	25		
	Lower limit temperature for cooling	19	-	7~20°C	10		Limit to +17°C when using concrete core cooling
	Upper limit temperature for domestic hot water	1E	-	60~75°C	75		
	Lower limit temperature for domestic hot water	1F	-	40~60°C	40		
Domestic hot water preparation	Start temperature for domestic hot water generation	20	-	20~45°C	38		The temperature, measured at the TTW sensor, from which domestic hot water generation is requested. Should be set to +42°C!
	Stop temperature Domestic hot water generation	21	-	40~65°C	45		The temperature, measured at the TTW sensor, from which domestic hot water generation is stopped. Should be set to +60°C!
	Group control - connection of the TTW sensor: 0 = TTW sensor for connection to each Hydrobox 1 = TTW value transferred from the master unit	AB	-	0~1	0		
	0 = 30 minutes 1 = 60 minutes 2 = 90 minutes 3 = 120 minutes	73	-	0~3	0		Defines the time that must elapse after the heat pump is switched on before the e-heating element in the domestic hot water tank is activated
	Domestic hot water cycle emergency heating	6AC	-	0 = Invalid 1-50h	24h		If the hot water function is not working, the hot water is heated within the set time period
Maximum operating time for domestic hot water generation	Maximum operating time of the heat pump for domestic hot water generation (min.)	07	-	1~120	30		The max. time that the HP may use for domestic hot water generation Attention: The backup heater in the domestic hot water tank always switches on after 30 min., only up to series 3
Hot water temperature compensation	Changeover temperature priority for heating/ domestic hot water generation, lower priority	22	-	-20~20°C	0		Outdoor temperature from which domestic hot water should be generated exclusively by the backup heater in the hot water tank
	Start temperature for domestic hot water temp. increase	24	-	-20~10°C	0		If the outdoor temperature drops below the set value, the domestic hot water temperature is increased by the correction factor
	Correction factor for domestic hot water temperature increase	25	-	0~15°C	3		Should be set to 0
Hot water booster	Operating time (x 10 min.)	08	-	3~18	6		The length of time for which the unit remains in this mode after the boost button is pressed on the remote control (e-heating element in the domestic hot water tank active).
	Domestic hot water target value	09	-	40~75°C	75		Max. temperature reached in boost mode
Anti-bacteria function	Temperature	0A	-	65~80°C	75		Temperature reached in anti-bacteria mode
	Start cycle (day)	-	0D	1~10	7		Cycle after which anti-bacteria mode should be repeated (in days)
	Start time	-	0C	0~23	22		Time at which the mode is started
	Cycle duration (min.)	0B	-	0~60	30		
Priority mode	Switchover for external heating system	23	-	-20~20°C	-10		Bivalent switchover point to oil, gas, etc.
	Priority selection: 0 = Cooling takes priority, domestic hot water is generated by additional electric heater 1 = Domestic hot water takes priority, domestic hot water is generated by heat pump	0F	-	0~1	0		Method by which hot water should be generated in cooling mode

*HB= Hydrobox EEPROM
*RC= Remote Control

Storage location
Function code
no.

*HB= Hydrobox EEPROM
*RC= Remote Control

	FC description	HB*	RC*	Range	Preset	After comm.	Additional info
Settings: automatic curve for heating	Outdoor temperature T0 (°C)	A1	-	-20 (-30)~ -15 (-20)°C	-20		<p>Zone 1:</p>  <p>Zone 1+2:</p> <p>FC_A2=0 Percentage method</p>  <p>Auto curve in ZONE 2 controls 80% (FC31) of Zone 1. The water temperature setting does not drop below 20°C.</p> <p>Zone 2:</p> <p>FC_A2=1 Fixed temperature method</p>  <p>Set temperature in ZONE2 for A' °C at an outdoor temperature of T0°C, B' °C at T1°C, E' °C at 20°C</p>
	Outdoor temperature T1 (°C)	29	-	-15~0°C	-10		
	Outdoor temperature T3 (°C)	2B	-	0~15°C	10		
	Setting of temperature A to T0 (°C) - ZONE 1	2C	-	20~55°C (65°C)	40		
	Setting of temperature B to T1 (°C) - ZONE 1	2D	-	20~55°C (65°C)	35		
	Setting of temperature C to T2 (°C) - ZONE 1	2E	-	20~55°C (65°C)	30		
	Setting of temperature D to T3 (°C) - ZONE 1	2F	-	20~55°C (65°C)	25		
	Setting of temperature E to 20°C (°C) - ZONE 1	30	-	20~55°C (65°C)	20		
	Ratio of Zone 2 to Zone 1 auto mode (%)	31	-	0~100%	80		
	ZONE 2 Temperature setting 0 = Percentage (DN 31) 1 = Set value (DN A3~A5)	A2	-	0~1	0		
	Setting of temperature A' to T0 (°C) - ZONE 2	A3	-	20~55°C (65°C)	40		
Setting of temperature B' to T1 (°C) - ZONE 2	A4	-	20~55°C (65°C)	35			
Setting of temperature E' to 20°C (°C) - ZONE 2	A5	-	20~55°C (65°C)	20			
Automatic curve - temperature change (°C)	27	-	-5~5°C	0			
Frost protection	Frost protection 0 = Invalid 1 = Valid	3A	-	0-1	1		Frost protection ON/OFF
	Frost protection target value (°C)	3B	-	10-20°C	15		Supply water temp. target value in frost protection mode should be set to +20°C
	Holiday function: Days	-	12	0-20	0		Number of days the mode remains in operation
	Holiday function: Start time	-	13	0-23	0		Time of day at which the mode is ended
Backup heater control	Electric heating coil downward control Heat pump 0 = 5 min.; 1 = 10 min.; 2 = 15 min.; 3 = 20 min.	33	-	0-3	1		Upward and downward control of the backup heater stages based on the difference between the set temperature defined on the remote control and the supply water temperature downstream of the backup heater (THO sensor)
	Electric heating coil upward control Heat pump 0 = 10 min.; 1 = 20 min. 2 = 30 min.; 3 = 40 min.	34	-	0-3	0		Set to 3 when using a buffer tank
	0= No restriction 1= 20°C 3= 10°C 5= 0°C 2= 15°C 4= 5°C 6= -5°C	B8	-	0-6	0		Outdoor temperature from which the backup heater is no longer switched on (measured at the T0 sensor)
	0= 0K 2= 20K 4= 40K 1= 10K 3= 30K	B9	-	0-4	0		Temperature difference between TSC-F (target heating value, e.g., Zone 1 +40°C) - THO (Sensor downstream of backup heater, e.g., +10°C) = 30 K (if, e.g., B9 = 3 is set, the backup heater would switch on at 3 kW at +10°C THO temperature.)
	Capacity of the backup heater 0 = 3 kW 1 = 6 kW 2 = 9 kW	6BC	-	0~2	Dependent on type		
Night setback (do not use with FBH)	Night setback temperature	26	-	3-20°C	5		Kelvin by which the temperature is reduced
	Zone selection 0= Zone 1&2; 1= Zone 1	58	-	C0~1	0		Zones in which the temperature is reduced
	Start time	-	OE	0~23	22		Time at which the night setback begins
	End time	-	OF	0~23	6		Time at which the night setback ends

Storage location
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	FC description	HB*	RC*	Range	Preset	After comm.	Additional info
Room temperature control with second remote control or external room thermostat	Room temperature control with second remote control: 0 = Invalid; 1 = Valid	40	-	0~1	0		Second remote control, target temperature setting 0 = Water temperature 1 = Room temperature (sensor on remote control)
	Cooling room temperature, upper limit	92	-	15~30	29		Settings on the remote control
	Cooling room temperature, lower limit	93	-	15~30	18		
	Heating room temperature, upper limit	94	-	15~30	29		
	Heating room temperature, lower limit	95	-	15~30	18		
	Start temperature in cooling mode, either with room temperature sensor on the remote control or external room temperature sensor	96	-	10~25	20		Supply water temperature at which the heat pump starts; =20°C if the set temperature set on the external room thermostat or on the second remote control is not reached, the supply water temp. is lowered by 1°C every 1/2 h until the limit temperature (FC 19) or set temperature is reached
	Start temperature in heating mode, either with room temperature sensor on the remote control or external room temperature sensor	9D	-	20~55 401/ 601 65 801/1101	40		Supply water temperature at which the heat pump starts; =40°C if the set temperature set on the external room thermostat or on the second remote control is not reached (room sensor), the supply water temp. is increased by 1°C every 1/2 h until the limit temperature (FC 1A) or set temperature is reached
	HiPower restarts water temperature in Zone A. (Only valid with room temperature control by means of 2nd remote control)	B2	-	20~37	25		A Zone = Thermo off; but if TWi < 25°C heat pump restarts to prevent underfloor heating from cooling
	Start temperature in heating mode, control setting by means of room temperature remote control or room temperature thermostat	B5	-	0~1	0		0 = Fixed value as per FC 9D 1 = Calculated value based on auto curve
	Room temperature compensation: Heating: Room temperature compensation value (sensor temperature control temperature, K)	-	02	-10~10	-1		Adjusts the measured difference between the room temperature sensor on the remote control and the actual room temperature
Room temperature compensation: Cooling: Room temperature compensation value (sensor temperature control temperature, K)	-	03	-10~10	-1		Adjusts the measured difference between the room temperature sensor on the remote control and the actual room temperature	
2-way valve operation output (cooling mode)	Reversal of the switching logic for the 2-way cooling stop valve	3C	-	0~1			0 = Output assigned 230 V for cooling 1 = Output voltage-free during cooling
Control of the hydraulic 3-way control valve	Reversal of the switching logic for the 3-way changeover valve / domestic hot water	54	-	0~1	0		0 = Voltage during hot water preparation 1 = Voltage-free during hot water preparation
Mixing valve run-times, 2 zones	3-way mixing valve runtime (x 10 sec.)	0C	-	3~24	6		Runtime of the valve motor between fully open and closed, different depending on make. Must be set prior to commissioning! Only use valves with 10-second increments e.g., 90 sec., 100 sec., etc. (range 30 - 240 sec.)
	Actuation of 3-way mixing valve (min.)	59	-	1~30	2		Interval at which the valve readjusts (Recommendation: 1 min.)
	Temperature difference for changing the opening value of the mixing valve	6F1	-	1~3	2		
	Maximum stages of the mixing valve	6F2	-	12~60	24		
Boiler/heat pump synchronization	External heating/heat pump synchronization 0 = Synchronized 1 = Not synchronized	3E	-	0~1	0		
	0 = HP + hot water generation 1 = Hot water generation only 2 = E-heating element function only up to 60 min. 3 = HP + circulation pump STOP	5B	-	0~3	3		
	Activate / deactivate error code A02 (high water return control): 0 = A02 activated 1 = A02 deactivated	62	-	0~1	0		
Cooling mode	0 = Cooling & heating 1 = Heating operation only	02	-	0~1	0		For activating cooling mode
Remote control display	24 h or 12 h time display 0 = 24 h; 1 = 12 h	-	05	0~1	0		Defines whether 24-hour or 12-hour format should be displayed on the remote control
Low-noise night mode	Low-noise night mode 0 = Invalid; 1 = Valid	-	09	0~1	0		Restricts the maximum output of the HP to 75%, thereby achieving a noise reduction
	Start time	-	0A	0~23	22		
	End time	-	0B	0~23	6		

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	FC description	HB*	RC*	Range	Preset	After comm.	Additional info
Alarm sounds	Sound 0 = Off; 1 = ON	-	11	0~1	1		Defines whether an acoustic signal sounds in the event of a fault
Control Pump 1 + 2	0 = Pump 1 stops when heat pump has switched off in domestic hot water mode and E-element in the tank has switched on and there is no request for heating 1 = Pump 1 runs continuously	5A	-	0~1	0		Pump control during domestic hot water generation
	Pump P2 operation in cooling mode: 0 = P2 continuous operation 1 = P2 stops in cooling mode	64	-	0~1	0		
	Synchronizes pump P1 with room thermostat: 0 = P1 continuous operation 1 = P1 synchronizes with room temperature sensor. If a room temperature sensor or external room thermostat is used, P1 is stopped when HP is in Thermo OFF mode	65	-	0~1	0		If a room thermostat is present; control based on room temperature (only to be used for radiators, not for underfloor heating)
	Pump P1 operation: Upper outdoor temperature limit in heating mode P1 stops > target value for switch-off point	9E	-	10~30	20		Outdoor temperature from which the heat pump switches off, if DN code 6D0 = 1
	T0 diff. temperature when P1 stops	6E	-	1~5	2		In conjunction with 9E, hysteresis when pump 1 switches back on
	0 = 100% 3 = 70% 1 = 90% 4 = 60% 2 = 80% 5 = 50%	A0	-	0~5	0		Pump 1 can be controlled in 6 different speed stages
	Pump P1 speed control method: 0 = Fixed speed control (with DN A0) 1 = Variable speed control	6A6	-	0~1	1		
	Speed correction pump P1 for pump control with variable speed: 0 = 100% flow max. 1 = 90% flow max. 2 = 75% flow max. 3 = 50% flow max.	6A7	-	0~3	0		
	Speed control pump P2 (fixed speed): 0 = 100% 1 = 80% 2 = 70% flow max. 3 = 60%	6A1	-	0~3	0		
	P1 interval function, heating 0= Continuous operation 1= 20°C 3= 10°C 5= 0°C 2= 15°C 4= 5°C 6= -5°C	BA	-	0-6	0		Outdoor temperature from which ESTIA switches P1 to interval mode with the Thermo off status
	P1 interval function, cooling 0= Continuous operation 2= 30°C 1= 35°C 3= 25°C	BB	-	0-3	0		Outdoor temperature from which ESTIA switches P1 to interval mode with the Thermo off status
	Pump P2 display	42	-	0~1	0		0 = P2 is not shown on the display 1 = P2 is shown on the display
	P1 off interval 0= 5 min. 2= 15 min. 4= 25 min. 1= 10 min. 3= 20 min. 5= 30 min.	BC	-	0-5	0		Defines the interval time for P1 when ESTIA has the Thermo off status (pump downtime)
External On/Off	Input signal setting when using I/P7 / 8 (ON21) as forced system STOP (and DN B6 = 0) 0 = Contacts closed > high system stop. System restart with remote control 1 = Contacts open > low system stop. System restart with remote control	52	-	0~1	0		External On/Off via contacts I/P7/8 Function via pulse contact (button function)
	Input signal setting when using I/P5 / 6 (CN21): 0 = Contacts open > low system stop. Contacts closed > high system restart 1 = Contacts closed > high system stop. Contacts closed > high (2nd time - pulse input) system restart	61	-	0~1	0		DN=B6="0"

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	FC description	HB*	RC*	Range	Preset	After comm.	Additional info
Hydrobox digital outputs	Output 1 options: 0 = Alarm output 1 = Compressor operating output 2 = Defrost operating output 3 = Boiler control output 4 = Safety or protection control running 5 = Backup heater ON 6 = Hot water tank heating ON 7 = Heating mode ON 8 = Cooling mode ON 9 = Hot water preparation mode ON	6CA	-	0~9	0		
	Output 2 options: 0 = Alarm output 1 = Compressor operating output 2 = Defrost operating output 3 = Boiler control output 4 = Safety or protection control running 5 = Backup heater ON 6 = Hot water tank heating ON 7 = Heating mode ON 8 = Cooling mode ON 9 = Hot water preparation mode ON	6CC	-	0~9	2		
	Output 3 options: 0 = Alarm output 1 = Compressor operating output 2 = Defrost operating output 3 = Boiler control output 4 = Safety or protection control running 5 = Backup heater ON 6 = Hot water tank heating ON 7 = Heating mode ON 8 = Cooling mode ON 9 = Hot water preparation mode ON	6CD	-	0~9	3		
	Output 4 options: 0 = Alarm output 1 = Compressor operating output 2 = Defrost operating output 3 = Boiler control output 4 = Safety or protection control running 5 = Backup heater ON 6 = Hot water tank heating ON 7 = Heating mode ON 8 = Cooling mode ON 9 = Hot water preparation mode ON	6CB	-	0~9	1		
0-10 V interface (optional)	ESTIA control type: 0 = Normal control 1 = Target temperature control (DN 681~DN 684) 2 = Direct capacity control - HTG/CLG mode (AI1) 3 = Direct capacity control - hot water (AI 2) 4 = Direct capacity control - HTG/CLG (AI 1) & hot water (AI 2)	680	-	0~4	0		
	Hot water set temperature - selection of analog input (AI) 0 = Analog input not used 1 = AI 1 2 = AI 2 3 = AI 3	681	-	0~3	0		
	Zone 1 set temperature (HTG) - selection of analog input 0 = Analog input not used 1 = AI 1 2 = AI 2 3 = AI 3	682	-	0~3	0		
	Zone 2 set temperature (HTG) - selection of analog input 0 = Analog input not used 1 = AI 1 2 = AI 2 3 = AI 3	683	-	0~3	0		
	Zone 1 set temperature (CLG) - selection of analog input 0 = Analog input not used 1 = AI 1 2 = AI 2 3 = AI 3	684	-	0~3	0		
	Upper limit of hot water set temperature	685	-	40~80	65		
	Accuracy of hot water set temperature	689	-	1~5	5		
	Upper limit of Zone 1 set temperature (HTG)	686	-	20~55 (65)	55		
	Accuracy of Zone 1 set temperature (HTG)	68A	-	1~5	3		
	Upper limit of Zone 2 set temperature (HTG)	687	-	20~55 (65)	55		
	Accuracy of Zone 2 set temperature (HTG)	68B	-	1~5	3		
	Upper limit of Zone 1 set temperature (CLG)	688	-	7~29	20		
Accuracy of Zone 1 set temperature (CLG)	68C	-	1~5	1			

	FC description	Storage location Function code no.		Range	Preset	After comm.	Additional info
		HB*	RC*				
Screed drying program	Screed drying setting 0 = OFF 1 = ON	-	1D	0~1	0		
	Start and end temperature setting (°C)	-	14	20~55	0		
	Maximum temperature setting (°C)	-	15	20~55	0		
	Continuous days for each step up to maximum temperature (days)	-	16	1~7	0		
	Temperature difference for each step up to maximum temperature (K)	-	17	1~10	0		
	Continuous days for each step down to end temperature (days)	-	18	1~7	0		
	Temperature difference for each step down to end temperature (K)	-	19	1~10	0		
	Continuous days at maximum temperature (days)	-	1A	1~30	0		

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Monitoring values from remote control

Code No.

04 (TC):	°C
06 (TWI):	°C
07 (TWO):	°C
08 (THO):	°C
09 (TFI):	°C
0A (TTW):	°C
60 (TE):	°C
61 (TO):	°C
62 (TD):	°C
63 (TS):	°C
6A (comp.):	A
6D (TL):	°C
70 (comp. frequ.)	Hz
72 (valve 1)	rpm
73 (valve 2)	rpm
74 (PMV)	pls

Power supply outdoor unit

L + N (1-phase unit)	V
L1 + L2 (3-phase unit)	V
L1 + L3 (3-phase unit)	V
L2 + L3 (3-phase unit)	V
Power consumption outdoor unit	A

Suction pressure _____ bar

High pressure _____ bar

Date, Signature (Technician)

Notes on the system

Transfer of the facility

on:	
in:	
to:	
Executing company including address:	
Commissioning carried out by:	
Date:	
Plant location:	

Signature (technician)

Signature (customer)

Warranty extension 4 or 5 years

Request for warranty extension:	4 years
	5 years

Please note the following regulations regarding the ESTIA warranty:

- The 5-year warranty on the compressor is a free special service provided by AIR-COND.
- We grant this exclusively to our partners and it is therefore not transferable to third parties.
- The ESTIA guarantee services require a system installation by the partner as well as the performance of an annual maintenance by him.
- The extension of the ESTIA warranty to 4 or 5 years for all other components of the indoor and outdoor unit, with the exception of the compressor, is subject to a charge. with the exception of the compressor, is subject to a charge.
- A warranty extension can be requested a maximum of two months after commissioning or a maximum of one year after invoicing.
- An application for a warranty extension can only be processed if it is completed in full.
- A warranty extension can only be requested for one ESTIA system per order number.
- The installation of the ESTIA system must be carried out in accordance with the specifications in the version of APPENDIX valid at the time. This applies equally to refrigeration, electrical and hydraulic specifications.
- AIR-COND reserves the right to change the above-mentioned specifications if it becomes aware of any deviations at a later date, to refuse delivery services for an acquired warranty extension.



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