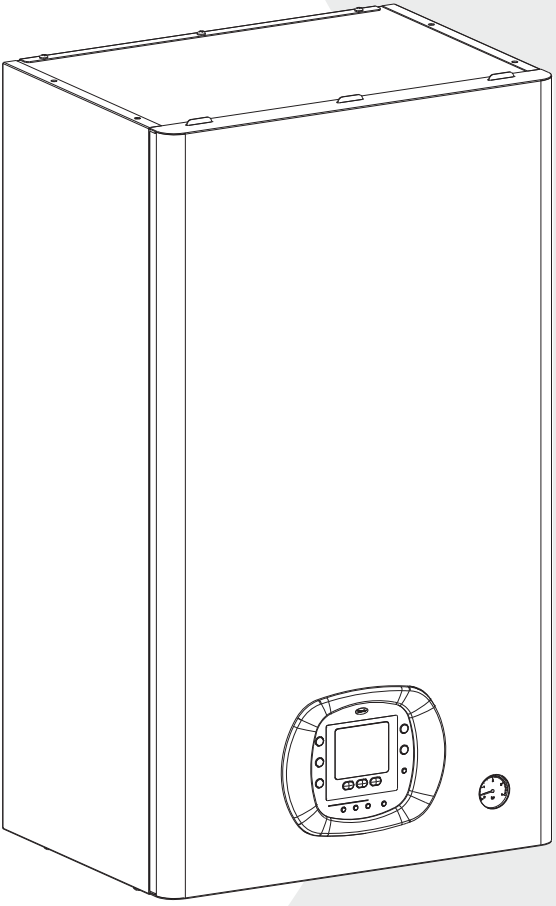
Control Module

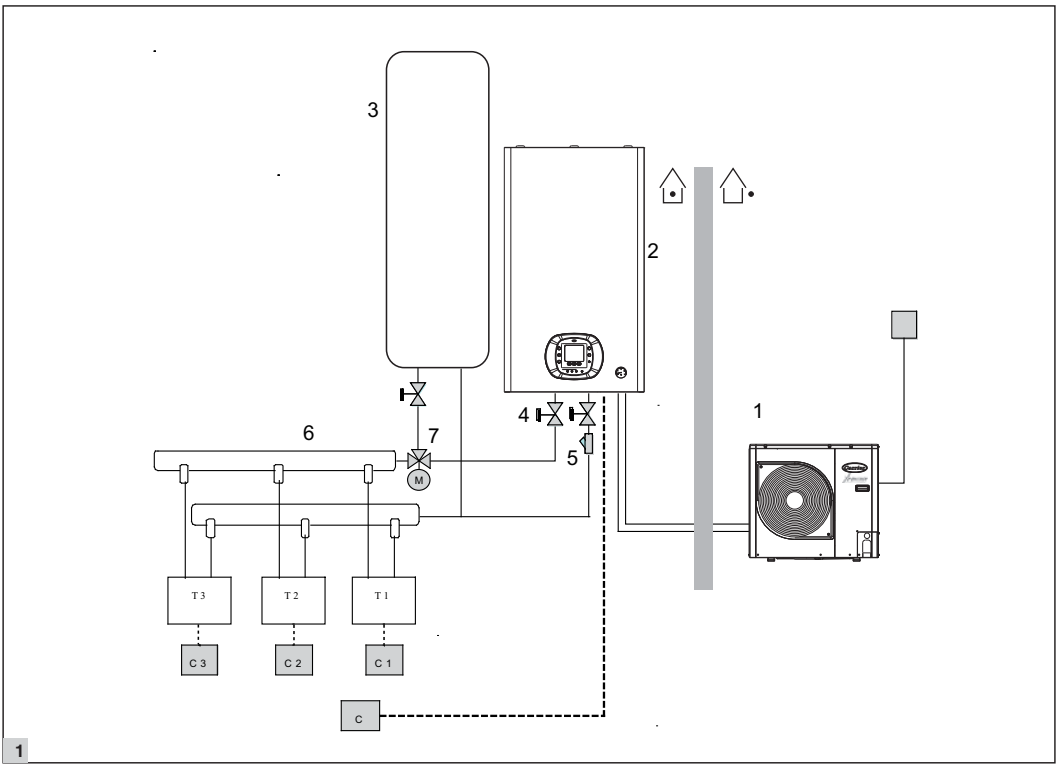
Carrier

United Technologies

80AWX
80AWH



Installation Manual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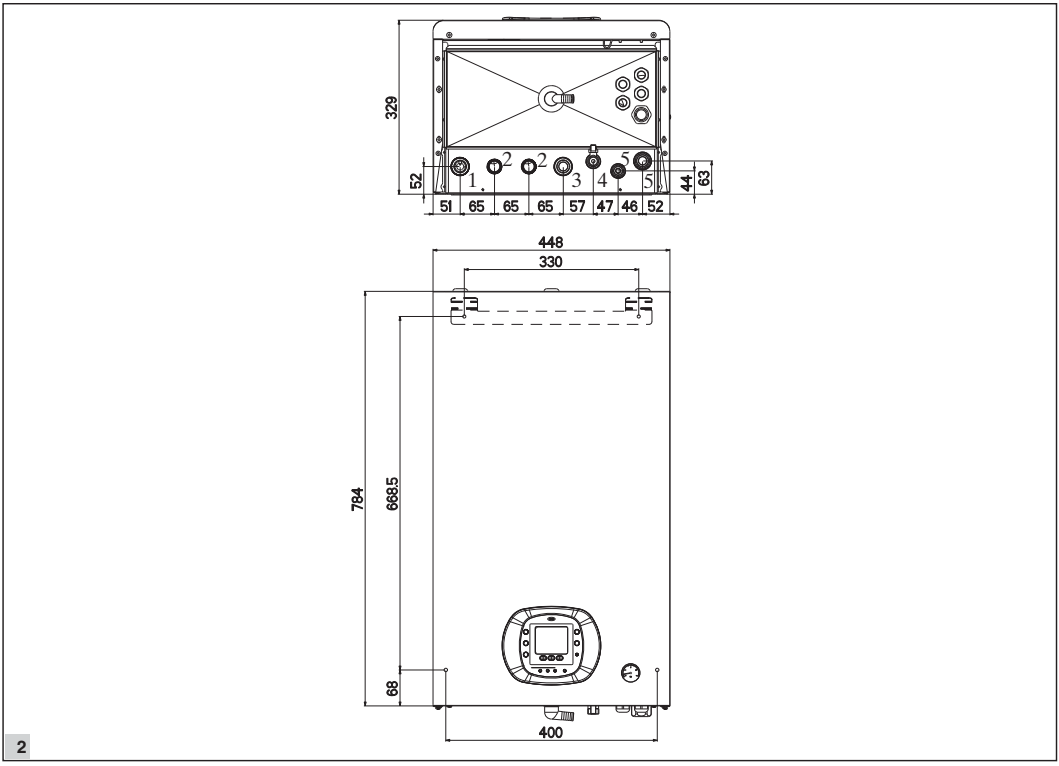
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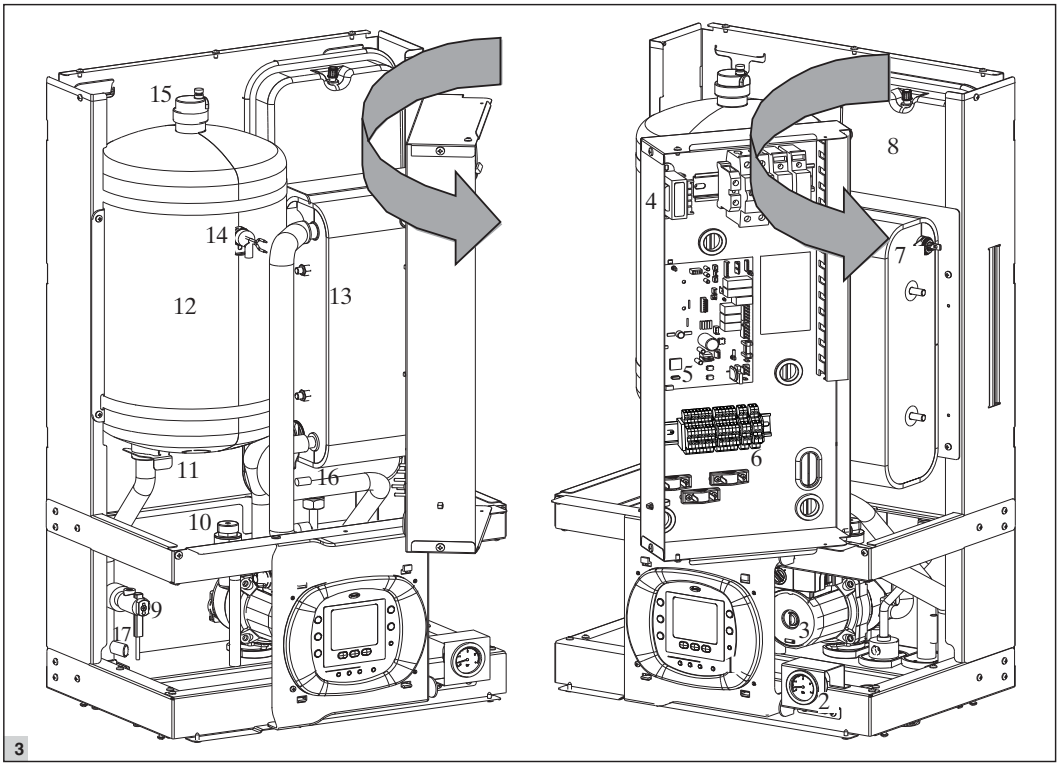

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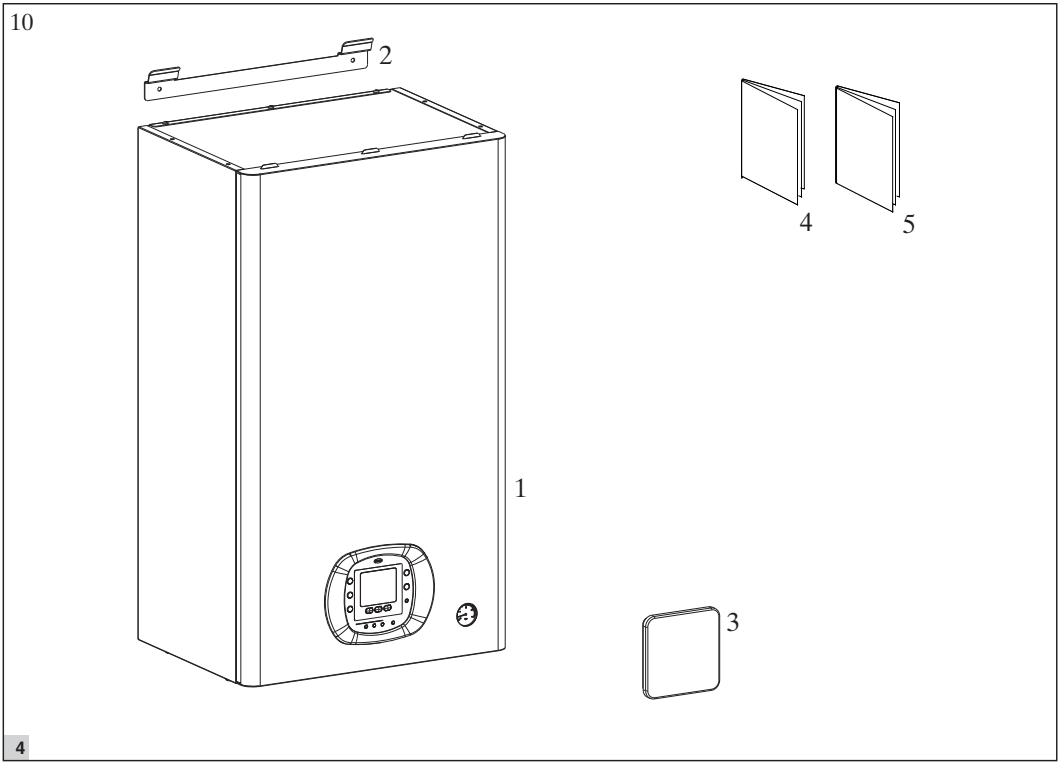

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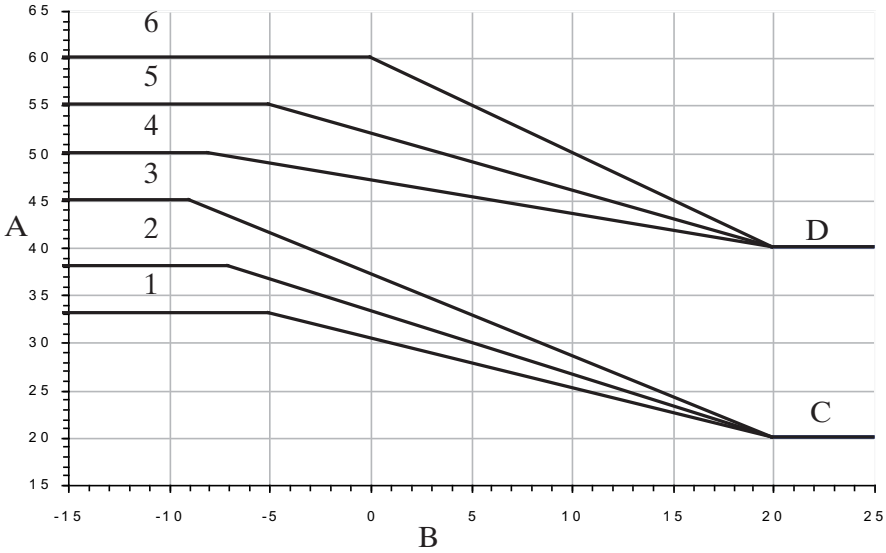
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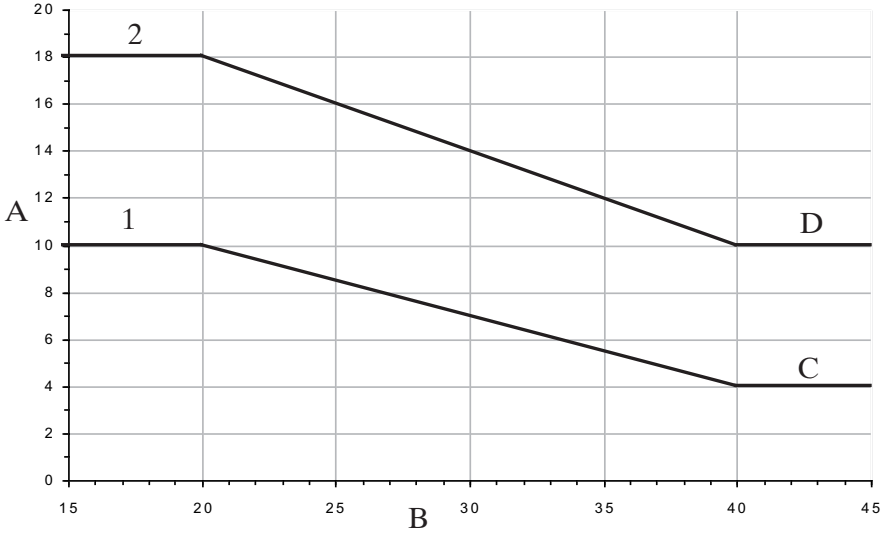
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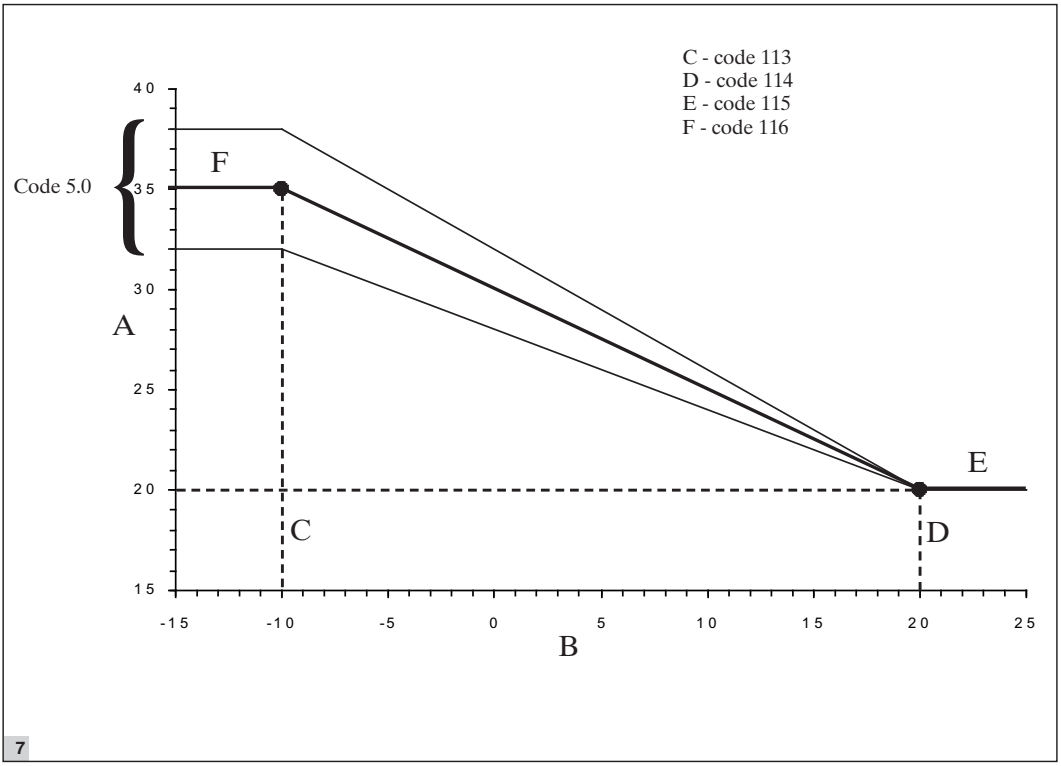
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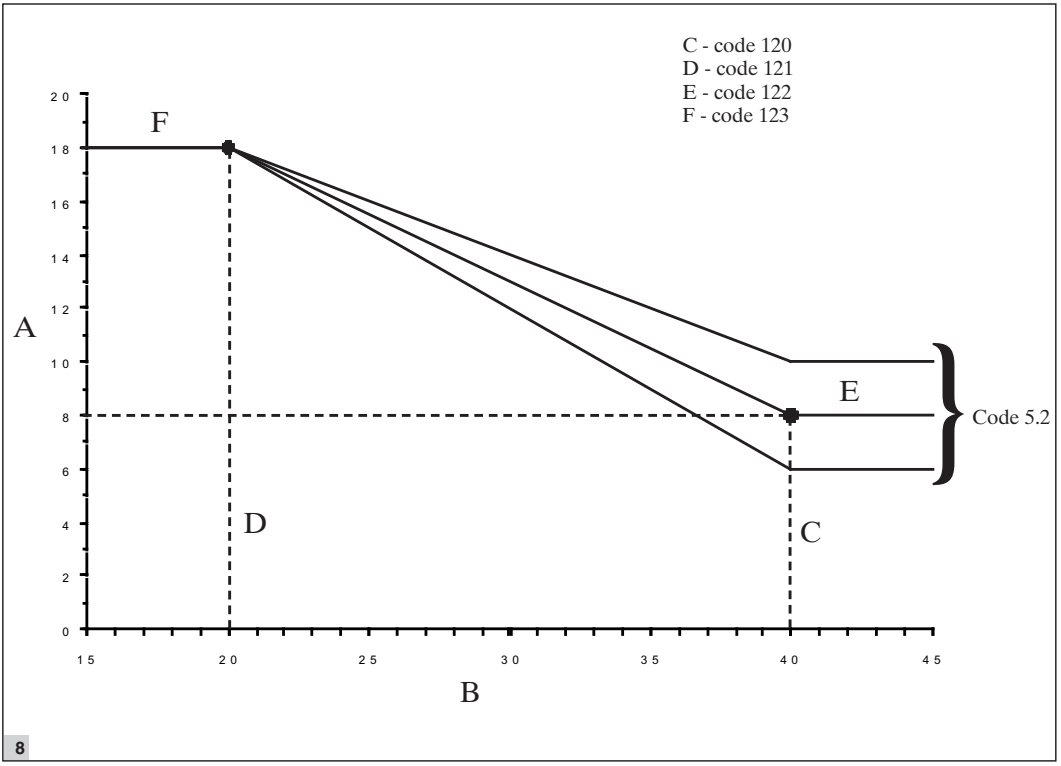
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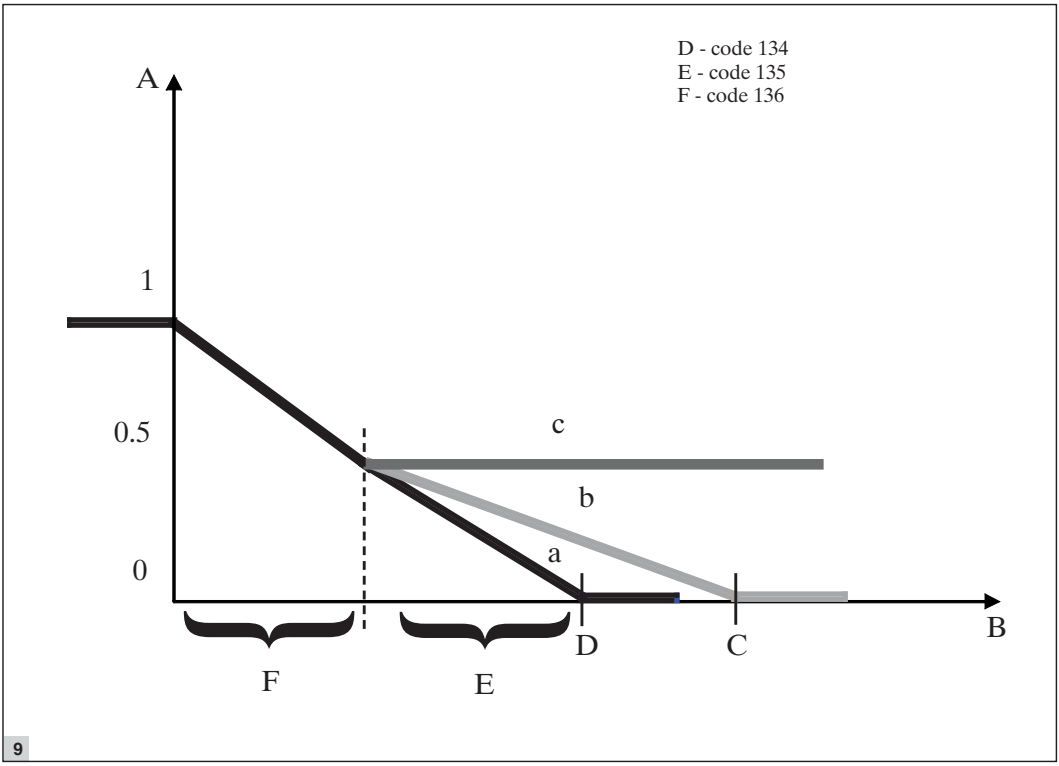
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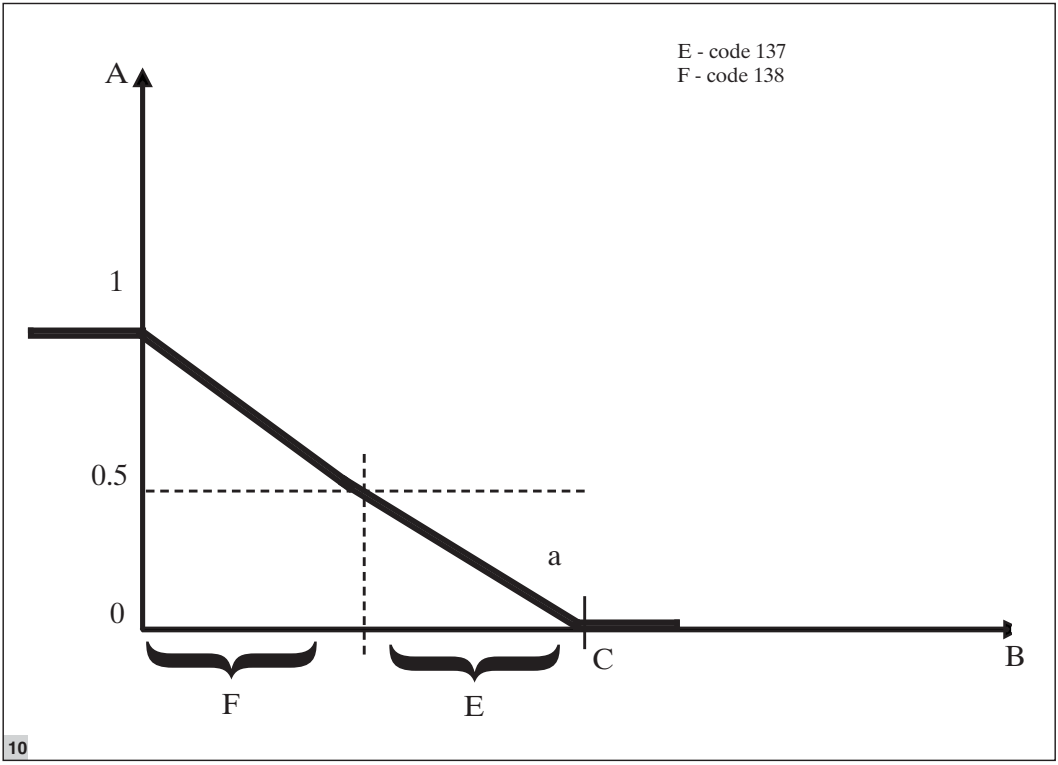
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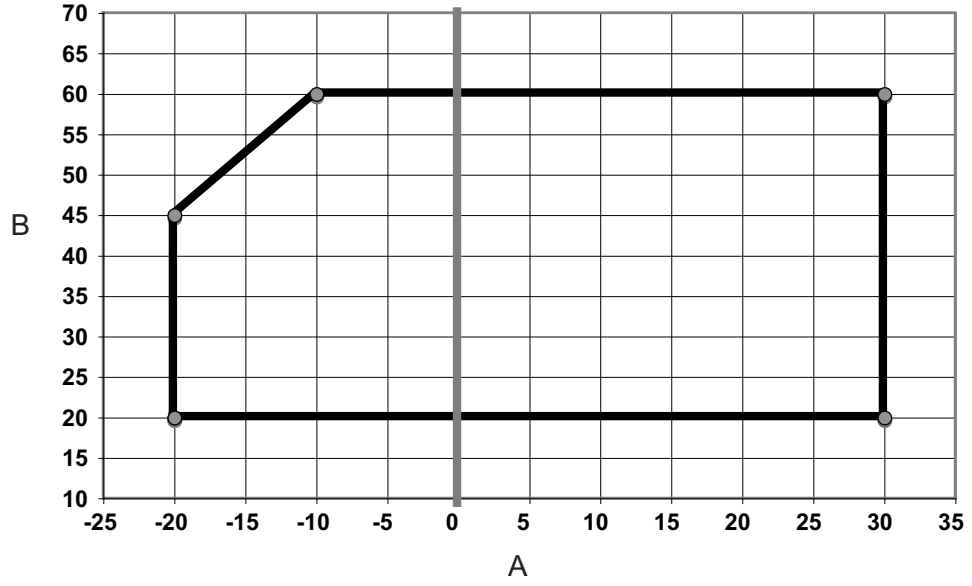
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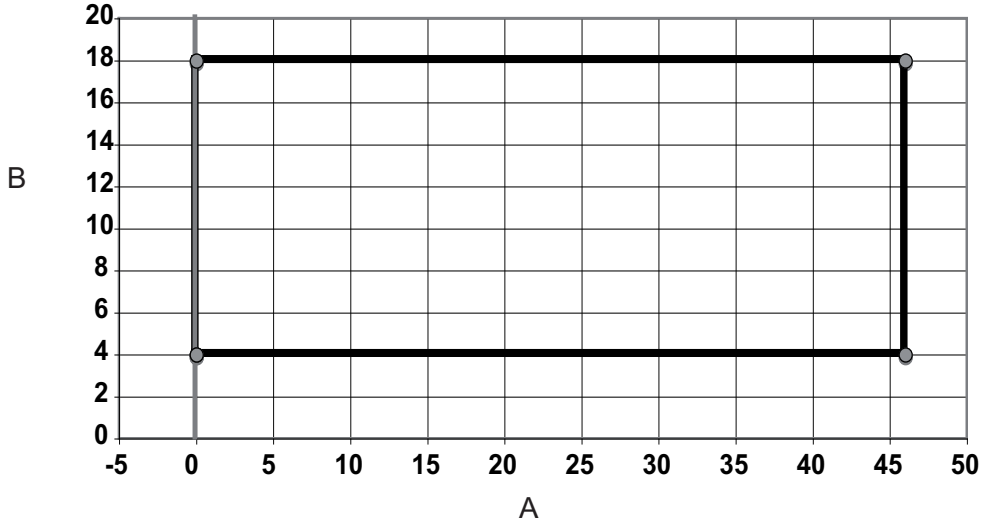
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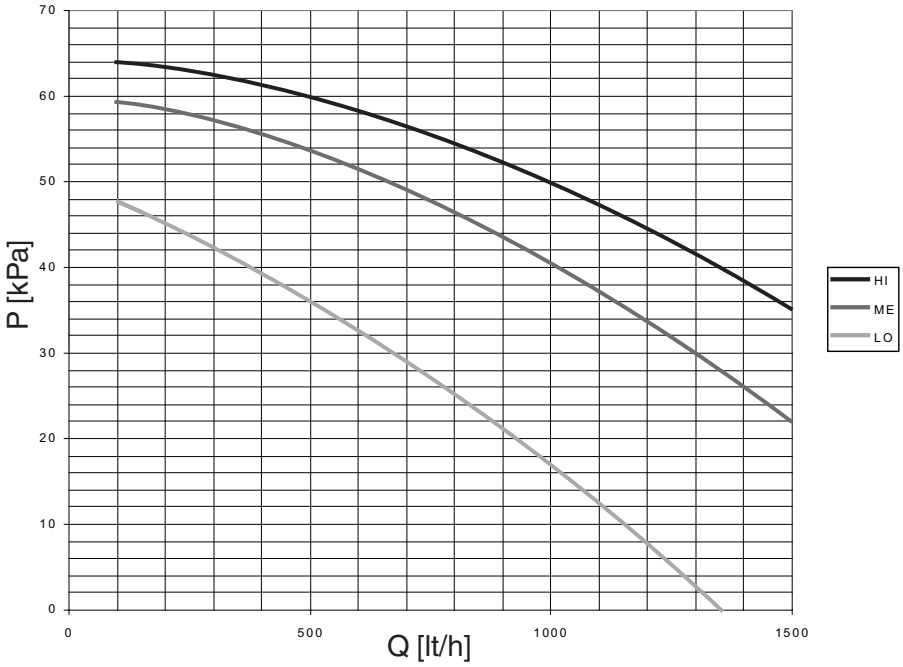
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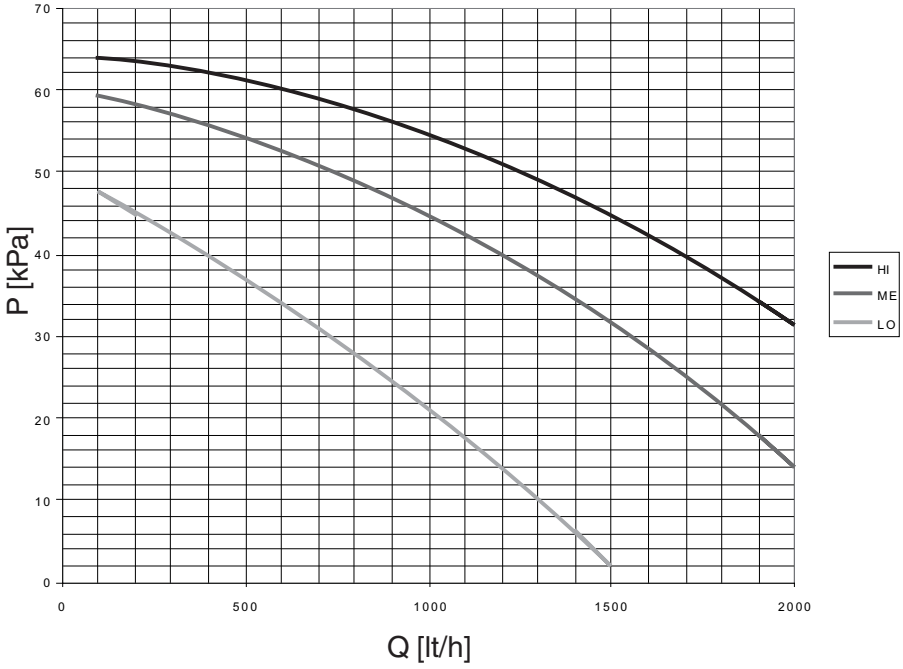
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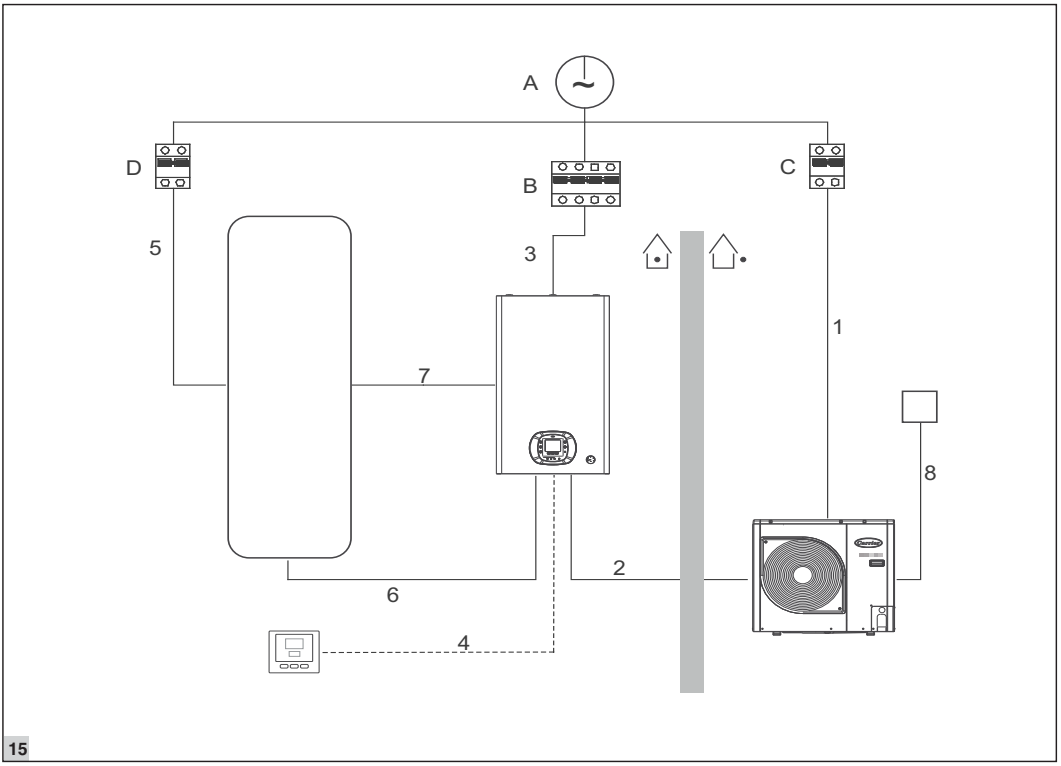

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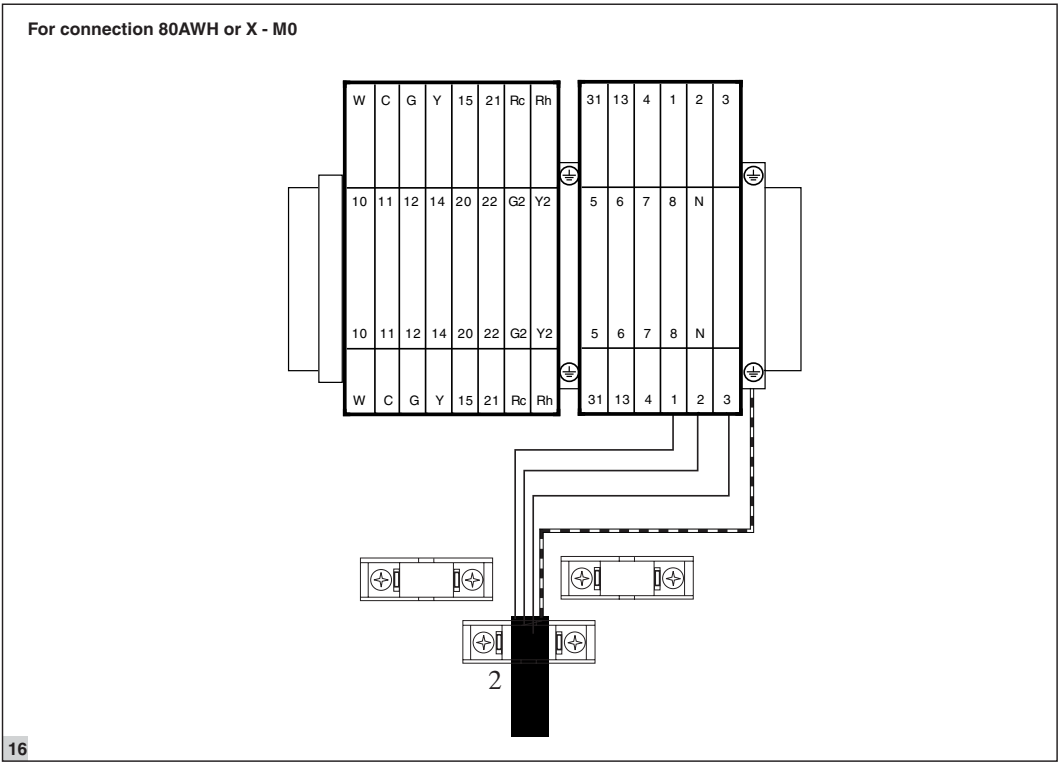
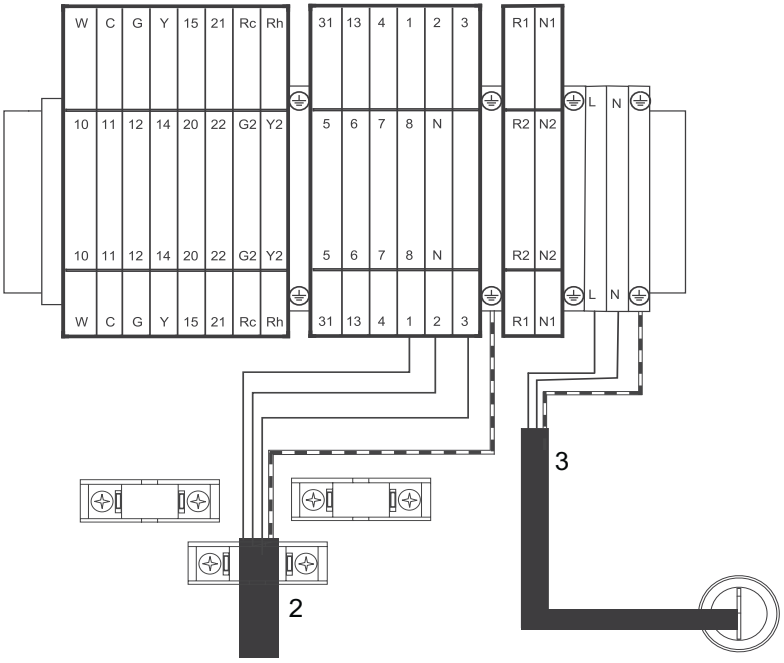


For connection 80AWH or X -- M3/M6



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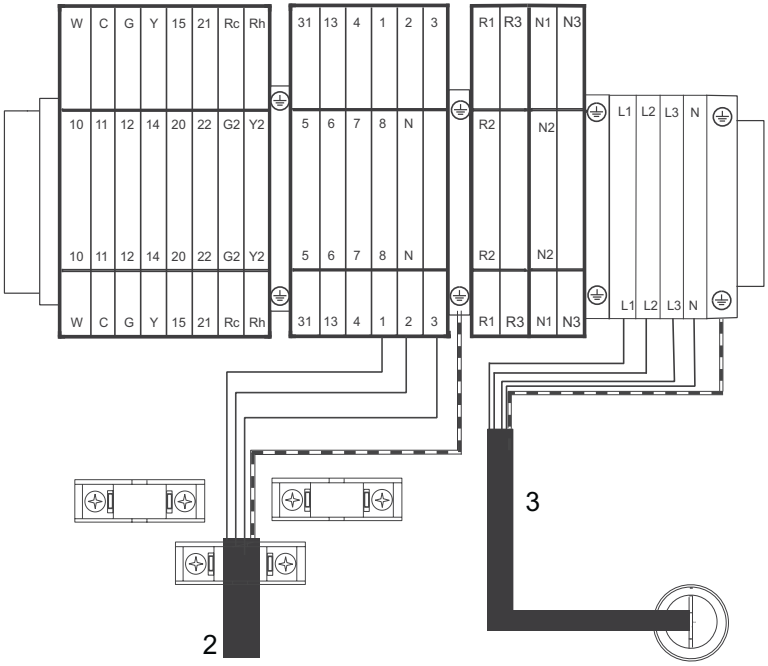
For connection 80AWH or X -- T6/T9



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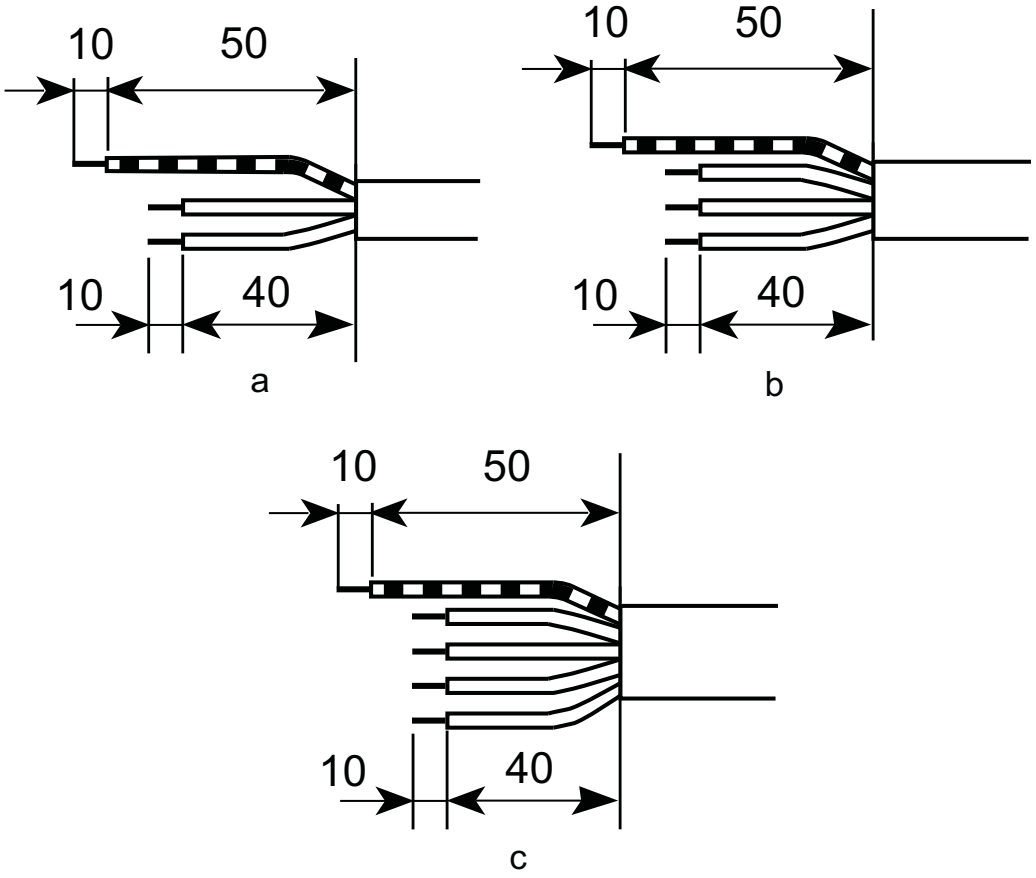

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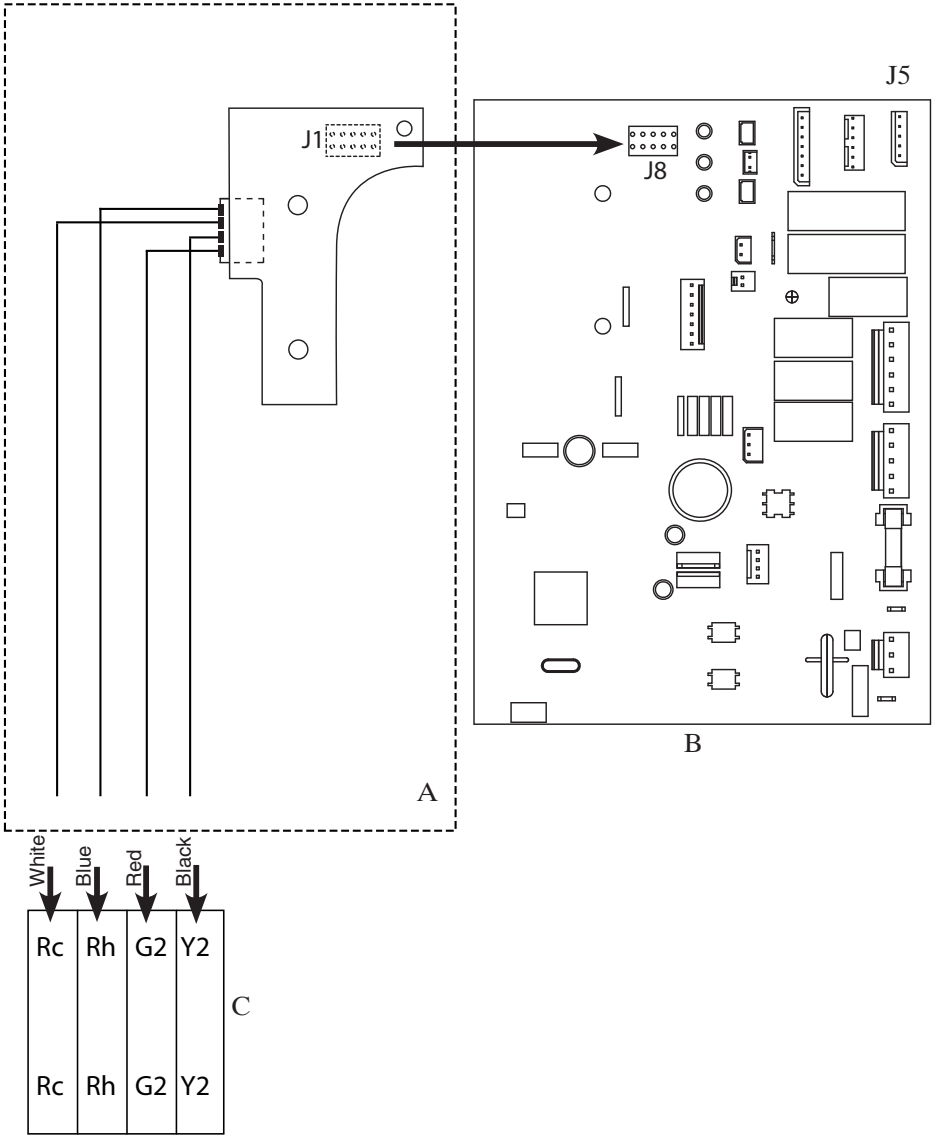
J5
J1
J8
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Black
Rc
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G2
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C
Rc
Rh
G2
Y2

Contents

Page

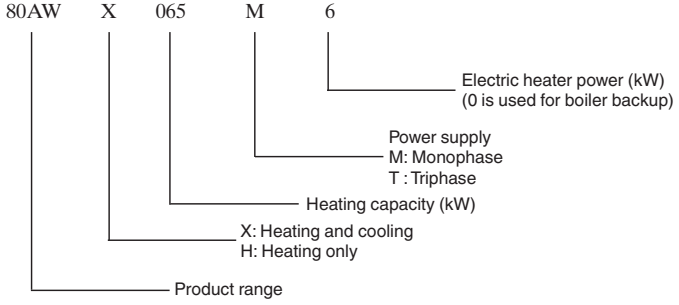
Introduction

General Information

The hydronic module is the indoor unit of the 38AW heat pump range.
It is used in combination with floor circuit, fan coil units, radiators, domestic hot water tank (with or without solar integration).

The hydronic module controls the CDU and the other heat/cool sources, to achieve the desired temperature in the heating/cooling zones and in the domestic hot water tank.

Model Identification



Introduction

Codes and Combinations

Outdoor unit	Indoor unit
38AW050H7 38AW065H7	80AWX065M0
	80AWX065M3
	80AWX065M6
	80AWX065T6
	80AWH065M0
	80AWH065M3
	80AWH065M6
	80AWH065T6
38AW090H7 38AW115H7	80AWX115M0
	80AWX115M3
	80AWX115M6
	80AWX115T6
	80AWX115T9
	80AWH115M0
	80AWH115M3
	80AWH115M6
	80AWH115T6
	80AWH115T9

Outdoor unit	Indoor unit
38AW120H9 38AW150H9	80AWX150M0
	80AWX150T6
	80AWX150T9
	80AWH150M0
	80AWH150T6
	80AWH150T9

Accessories

Accessory	Code
Domestic hot water tank, 1 spiral - 200 lt	60STS020E03
Domestic hot water tank, 2 spirals - 200 lt	60STD020E03
Domestic hot water tank, 1 spiral - 300 lt	60STS030E03
Domestic hot water tank, 2 spirals - 300 lt	60STD030E03
Remote outdoor air temperature sensor	33AW-RAS02
Domestic hot water 3-way valve and actuator	80AW9023
Floor heating thermal cut-off (EN1264-4, paragraph 4.2.4.1)	80AW9024
Additional user interface*	33AW-CS2
Communication kit	33AW-CB01
2-zone kit	80AW9025

*Communication kit (33AW-CB01) is required to complete the installation.

Application Scheme

See fig. 1

1. Outdoor unit
2. Hydronic module
3. Domestic hot water tank (optional)
4. Ball valves (field supplied)
5. Water filter (field supplied)
6. Collectors (field supplied)
7. 3-way valve (optional)

T1, T2, T3: Terminals
C1, C2, C3: Thermostats connected to terminals
C: User interface (additional or shifted from the unit) or thermostat connected to the hydronic module

Terminals

Terminals can be of the following types:
- Floor circuit
- Fan coils
- Radiators
- Low temperature radiators.

Different terminals have different water temperature requirements.
To ensure comfort, do NOT use terminals with different water temperature requirements at the same time.
Example: It is possible to use floor circuit for heating, and fan coil for cooling, but using both at the same time (in heating or cooling) will cause discomfort.
Floor circuit is the recommended terminal, as it ensures the best energy efficiency.

Room temperature control

Different terminals (T1, T2,…Tn) can be placed in a single room or in multiple rooms.
Each of them can have a thermostat, to stop the terminal when a certain temperature is reached.

It is possible to control one room with a user interface or a thermostat connected to the unit. This room should be the one with the highest heating/cooling requirements.
In this room it is not required to place a thermostat on the terminal/s.

It is suggested to place a thermostat on terminals placed in rooms with significantly different thermal requirements.

It is recommended to control the room temperature with the user interface; this way the control adjusts water temperature to meet the setpoint, and comfort and energy efficiency are optimised.

If no user interface is used:
- If thermostats are used, set climatic curves slightly higher in heat mode and slightly lower in cool mode.
- If no thermostats are used (temperature requirements should be similar for all rooms), climatic curves must be set exactly right for both heating and cooling operation.

Unit Description

See fig. 2
1. Outlet water pipe
2. Boiler pipes (only models 80AW----M0)
3. Inlet water pipe
4. Filling valve
5. Refrigerant pipes

See fig. 3
1. User interface (mounted on unit)
2. Manometer
3. Water pump
4. Control box
5. Main board
6. Terminal block
7. Water temperature sensor - LWT
8. Expansion vessel
9. Flow switch
10. Pressure relief valve
11. Electric heater (not for models 80AW----M0)
12. Buffer tank (10 lt)
13. Brazed plate heat exchanger
14. Water temperature sensor - TWB
15. Air purge valve
16. Refrigerant sensor - TC
17. Drain valve

Box Content

See fig. 4
1. Hydronic module
2. Wall bracket
3. Replacement cap for shifted user interface
4. Hydronic module manual
5. User interface manual

Operation Controls

System operation can be set and monitored through the control settings.

The user interface allows to navigate through the settings and modify them.

Code Nr.	Level	Variable Name	DESCRIPTION	VALUE RANGE Min	VALUE RANGE Max	DEFAULT
			USER PARAMETERS			
1	User	USER CONTROL	Use Days button to select below mentioned functions: 0. Home Antifreeze option 0: Disable 1: Enable 1. Silent Mode 0: Not Active 1: Active 2. Power Off all the Electric Heater 0: Operating as normal 1: Electric heater disable 3. Specifies if domestic hot water is produced despite sensor diagnostics or disinfection cycle failure The code is automatically reset to 0 when the above problem is solved 0: No 1: Yes 4. Specifies if the system is allowed to run only with backup/booster heaters when the outdoor unit is in diagnostics 0. No 1. Yes 5. Domestic hot water BOOSTER: Allows to heat up domestic hot water electric heater regardless the heater schedule The code is automatically reset to 0 once the domestic hot water setpoint is reached 0. Domestic hot water heater is turned on, if needed, according to the schedule 1. Domestic hot water heater is turned on, if needed, regardless the schedule 6. Water Pump Management zone 1 0. Water pump of zone 1 does not stop when room 1 set point is reached 1. Water pump of zone 1 stops when room 1 setpoint is reached 7. Water Pump Management zone 2 0. Water pump of zone 2 does not stop when room 2 setpoint is reached 1. Water pump of zone 2 stops when room 2 setpoint is reached	0	1	1 0 0 0 0 0 0 0
2	User	HOME ANTIFREEZE T°	Home Antifreeze threshold T° value	6 °C	12 °C	6 °C
3	User	FREQ REDUCT	Value of the Outdoor unit frequency reduction in %	50%	100%	100%
4	User	Room Hystersis	Hysteresis on Room Temperature (see thermostat function)	0.1	2	0.5
5	User	ADJUST T°ZONES	Modifies maximum temperature of heating climatic curve and minimum temperature of cooling climatic curve. Use Days button to select below mentioned functions: 0. Water set point adjustment in Heat mode for zone 1 1. Water set point adjustment in Heat mode for Zone 2 2. Water set point adjustment in Cool mode for zone 1 3. Water set point adjustment in Cool mode for zone 2	-5 °C	+5 °C	0 °C
			USER PARAMETERS			
6	User	DAY PERIOD	User can select how many periods per day is avaialble for the scheduling. Use Days button to select the below mentioned functions: Day 0 - Zone 1 & 2 Schedule 0. No schedule; Schedule icon will not be displayed 1. 2 periods 2. 4 periods 3. 6 periods Day 1 - Domestic hot water Schedule 1. 2 periods 2. 4 periods	1	3	3 2

Operation Controls

Code Nr.	Level	Variable Name	DESCRIPTION	VALUE RANGE Min	VALUE RANGE Max	DEFAULT
7	User	TROOM SENSOR ADJ ZONES	Use Days button to select below mentioned functions: 0. Room temperature sensor adjustment for zone1 1. Room temperature sensor adjustment for zone2	-5 °C	+5 °C	0 °C
8	User	TEMP LIST	Depending on the selection, the following temperatures will be displayed on the user interface: 1. Temperature of the zone: Zone 1: Room temperature Zone 2: Room temperature Zone 3: Domestic hot water temperature 2. LWT 3. Domestic hot water temperature 4. TWB 5. TW1 (Water temperature in Zone 1) 6. TW2 (Water temperature in Zone 2) 7. Not used 8. Not used	1	8	1
9	User	FAULT CODES	Hydronic module, zone kit, user interface and outdoor unit fault codes and alarms are scrolled for one second.	-	-	-
10	User	FAULT HISTORY	Stores the recent 4 fault codes and alarms.	-	-	-

INSTALLER PARAMETERS

			System setup			
100	Inst.	SYSTEM TYPE	This parameter is used by the Installer to determine the System type: Select 1 if there is no zone kit connected, otherwise select 2.	1	2	1
101	Inst.	NOT USED				
102	Inst.	NOT USED				
103	Inst.	GMC ADDRESS	This parameter is used to identify if the board is acting as hydronic module board (master) or zone kit board (slave). To modify this parameter, connect the user interface to the specific board through J5 connector; the user interface wiring must be as per the connection to W-C-G-Y terminal blocks (see user interface manual). 1. Master 2. Slave	1	2	1
104	Inst.	NUI ADDRESS	Specifies the user interface connection. If this parameter is not set properly, the user interface does not work. 242. User interface connected on W-C-G-Y, see user interface manual 243. User interface connected on Rc-Rh-G2-Y2 (see user interface manual) and placed in zone 1 244. User interface connected on Rc-Rh-G2-Y2 (see user interface manual) and placed in zone 2	242	244	242
105	Inst.	ZONES CTRL	This parameter defines the controls in zones. Use Days button to select: 0. Zone 1 CTRL 0. No control 1. User interface (additional user interface, connected on Rc-Rh-G2-Y2) 2. Sensor 3. Thermostat 4. Unit user interface removed from the unit and installed in the zone; connection on W-C-G-Y 1. Zone 2 CTRL 0. No control 1. User interface (additional user interface, connected on Rc-Rh-G2-Y2) 2. Sensor 3. Thermostat 4. Unit user interface removed from unit and installed in the zone; connection on W-C-G-Y	0	4	0

Operation Controls

Code Nr.	Level	Variable Name	DESCRIPTION	VALUE RANGE Min	VALUE RANGE Max	DEFAULT
106	Inst.	INTERFACE CONFIG	Use Days button to select below mentioned functions: 0. Domestic hot water input - configuration 0: Contact close: Input is active/contact open: Input is not active 1: Contact close: Input is not active/contact open: Input is active 1. Space heat/cool ON/OFF input - configuration (no impact on Domestic Hot Water production) 0: Contact close: Unit produces space htg/clg/contact open: Unit does not produce space htg/lg 1: Contact close: Unit does not produce space htg/clg/contact open: Unit produces space htg/clg 2. Heat/Cool selection input-configuration 0: Contact close: Unit performs space heating/contact open: Unit performs space cooling 1: Contact close: Unit performs space cooling/contact open: Unit performs space heating 3. High energy rate input - configuration 0: Contact close: High energy rate/Contact open: Normal energy rate 1: Contact close: Normal energy rate/Contact open: High energy rate 4. External HTG/CLG 0: Mode (Heat/Cool) is determined by dry contact 1: Mode (Heat/Cool/OFF/Domestic Hot Water) is determined by user interface (106.2 is ignored) 5. Cool Z1 0: Cool in Zone 1 forbidden 1: Cool in Zone 1 permitted 6. Cool Z2 0: Cool in Zone 2 forbidden 1: Cool in Zone 2 permitted 7. System ON/OFF input - configuration 0: Contact close: System OFF/Contact open: System running 1: Contact close: System running/Contact open: System OFF	0	1	0 1 1 0 1 0 0 0
107	Inst.	FLOW SWITCH CONFIGURATION	Use Days button to select below mentioned functions: 0. (used for service purposes only) 0: Open - flowing/Short: Not flowing 1: Short - flowing/Open: Not flowing 1. 0: Do not allow water flow when the unit pump is OFF (no external pump used) 1: Allow water flow when the unit pump is OFF (external pump used)	0	1	1 0
108	Inst.	MASTER OUTPUT CONFIGURATION	Use UP/Down buttons to select between 1 to 10: 1. Fan Coil - Fan coils do not work when Domestic hot water valve is activated 2. Fan Coil - Fan coils are always working 3. Fan coils do not work when Domestic hot water valve is activated, unless the mode is Cool 4. Dehumidifier 5. All alarms 6. Alarms stop the outdoor unit 7. Alarms stop the entire system 9. Defrost 10. All alarms + Defrost 11. Alarms stop the outdoor unit + Defrost 12. Alarms stop the entire system + Defrost 13. Not used 14. Not used 15. Not used 16. Not used	1	16	4

Operation Controls

Code Nr.	Level	Variable Name	DESCRIPTION	VALUE RANGE Min	VALUE RANGE Max	DEFAULT
109	Inst.	SLAVE OUTPUT CONFIGURATION	Use Days button to select below mentioned functions: **0** 0. 3-way valve 1. Others **1** 0. Zone 1: Fan coils do not work when Domestic hot water valve is activated 1. Zone 1: Fan coils are always working 2. Zone 1: Fan coils do not work when Domestic hot water valve is activated, unless the mode is Cool 3. Zone 1: Dehumidifier **2** 0. Zone 2: Fan coils do not work when Domestic hot water valve is activated 1. Zone 2: Fan coils are always working 2. Zone 2: Fan coils do not work when Domestic hot water valve is activated, unless the mode is Cool 3. Zone 2: Dehumidifier	0	3	1 3 3
110	Inst.	HUMIDITY LIMIT	This code defines the Humidity threshold limit to enable the output for the external de-humidifier.	20	100	100
111	Inst.	ANTIFROST T°	This code defines the Temperature below which the water frost protection will be activated.	4 °C	10	4 °C
			Climatic Curve			
112	Inst.	HEAT CLIMATIC NUMBER	Use Days button to select Heat climatic curve: 0. - zone 1 0. No predefined climatic curve (Installer has to set the climatic curve) 1 - 6. See manual for climatic curve details 1. - zone 2 0. No predefined climatic curve (Installer has to set the climatic curve) 1 - 6. See manual for climatic curve details	0	6	0
113	Inst.	REGION T° O	Minimum outdoor T° depending on the country where the system is installed (Heat Climatic Curve Zone 1 and 2)	-20 °C	10 °C	-7 °C
114	Inst.	STOP H T° O	If outdoor T° is equal to or greater than the value of this code, minimum water tempreature is considered (Heat Climatic Curve Zone 1 and 2)	15 °C	50 °C	20 °C
115	Inst.	NO HEAT T W1	In Heat mode, minimum water T° going to terminal zone 1 (Heat Climatic Curve Zone 1)	20 °C	60 °C	20 °C
116	Inst.	MAX W T° W1	In Heat mode, maximum water T° in terminal zone 1 (Heat Climatic Curve Zone 1)	20 °C	80 °C	35 °C
117	Inst.	NO HEAT T W2	In Heat mode, minimum water T° going to terminal zone 2 (Heat Climatic Curve Zone 2)	20 °C	60 °C	40 °C
118	Inst.	MAX W T° W2	In Heat mode, maximum water T° in terminal zone 2 (Heat Climatic Curve Zone 2)	20 °C	80 °C	55 °C
119	Inst.	COOL CLIMATIC NUMBER	Use Days button to select Cool climatic curve: 0. - zone 1 0. No predefined climatic curve (Installer has to draw climatic curve) 1 - 2. See manual for climatic curve details 1. - zone 2 0. No predefined climatic curve (Installer has to draw climatic curve) 1 - 2. See manual for climatic curve details	0	2	0
120	Inst.	MAX REGION T°	Maximum outdoor T° depending on the Country where the system is installed (Cool climatic curve zone 1 and 2)	30 °C	50 °C	40 °C
121	Inst.	COOL STOP T°	If outdoor T° is equal to or less than the value of this code, maximum water tempreature is considered (Cool climatic curve zone 1 and 2)	0 °C	25 °C	22 °C
122	Inst.	MIN COOL W T°	In Cool mode, minimum water T° going to terminal zone 1 (Cool climatic curve zone 1)	4 °C	20 °C	12 °C
123	Inst.	MAX COOL W T°	In Cool mode, maximum water T° going to terminal zone 1 (Cool climatic curve zone 1)	4 °C	20 °C	18 °C
124	Inst.	MIN COOL W T°	In Cool mode, minimum water T° going to terminal zone 2 (Cool climatic curve zone 2)	4 °C	20 °C	6 °C
125	Inst.	MAX COOL W T°	In Cool mode, maximum water T° going to terminal zone 2 (Cool climatic curve zone 2)	4 °C	20 °C	12 °C

Operation Controls

Code Nr.	Level	Variable Name	DESCRIPTION	VALUE RANGE Min	VALUE RANGE Max	DEFAULT
			Backup heaters			
126	Inst.	AUX NUMBER	Number of backup heaters 0. No backup heaters 1. 1 backup heater output (to be selected in case of boiler backup) 2. 2 backup heaters output (2nd backup heater output activated after the 1st backup heater output)	0	2	0
127	Inst.	BACKUP ELECBOIL	Defines the backup energy source: 1: Electrical heater 2: Gas boiler	1	2	80AW--M0: 2 Others: 1
128	Inst.	EH PRIORITY	This code defines the electric heater output priority between back-up heaters (space heating) and booster heater (domestic hot water). It is only active if code 127 = 1 0. All the electric heaters output can be activated at the same time, if required 1. Maximum 2 electric heaters output can be activated; booster heater has the lowest priority 2. Maximum 1 electric heater output can be activated; back-up heater output 1 has the highest priority (backup heater output 2 is never ON) 3. Maximum 2 electric heaters output can be activated; booster heater has the lowest priority (backup heater output 2 is never ON) 4. Maximum 1 electric heater output can be activated; booster heater has the highest priority (backup heater output 2 is never ON)	0	4	0
129	Inst.	AUX T° O	The outdoor T° must be below this value to allow the backup heaters to be ON (unless there is a failure to stop the outdoor unit and code 1.4 = 1)	-30 °C	+40 °C	+4 °C
130	Inst.	AUX HYST	If the difference between water setpoint and water temperature is higher than this value, backup heaters are allowed to turn on	0 °C	10 °C	3 °C
131	Inst.	AUX DELAY	Time delay (minutes) before switching the backup heaters ON	0	60	10
132	Inst.	OAT BOILER	If in Heat mode, the outdoor temperature is less than the value of this code, the outdoor unit is turned OFF and the Boiler is used as heat source. Set to minimum value if this function is not required.	-30 °C	+40 °C	-5 °C
			Domestic Hot Water			
133	Inst.	SHW CARREXT	Defines if Domestic hot water is managed by the system control or by an external control. 1. Managed by system control 2. Managed by system control with Solar 3. Managed by external control If domestic hot water tank is not installed set code to 3 and set code 106.0 = 0	1	3	3
134	Inst.	SHW MAX HP T°	If domestic hot water temperature is equal to or higher than this value, domestic hot water priority is 0	40 °C	80 °C	55 °C
135	Inst.	SHW DELTA MED T°	If domestic hot water temperature is equal to code 134 - this code, domestic hot water priority is 0.5	1 °C	15 °C	5 °C
136	Inst.	SHW DELTA ALARM T°	If domestic hot water temperature is equal or lower to code 134 - code 135 - this code, domestic hot water priority is 1	1 °C	15 °C	5 °C
137	Inst.	ROOM DELTA MED T°	In heat mode: If room temperature is Room Setpoint - this code, roomroom priority is 0.5 In cool mode: If room temperature is Room Setpoint + this code, room priority is 0.5	0.5 °C	5 °C	1 °C
138	Inst.	ROOM DELTA MIN T°	In heat mode: If room temperature is Room Setpoint - code 137 - this code, room priority is 1 In cool mode: If room temperature is Room Setpoint + code 137 + this code, room priority is 1	0.5 °C	5 °C	1 °C
139	Inst.	BOILER WAIT TIME	Time delay after which the boiler will be activated if domestic hot water priority does not decrease due to heat pump operation. If 0 is selected, boiler does not turn on to support the domestic hot water production.	0	180	15

Operation Controls

Code Nr.	Level	Variable Name	DESCRIPTION	VALUE RANGE Min	VALUE RANGE Max	DEFAULT
140	Inst.	LEGIONELLA FREQ	Define how often (days) the disinfection cycle starts. If 0 is selected, Disinfection is not performed.	0	7	0
141	Inst.	LEGIONELLA START TIME	Start time of the Disinfection cycle (hours)	0	24	3
142	Inst.	LEGIONELLA TEMP	T° to be reached in the Disinfection cycle	60	90	75 °C
143	Inst.	LEGIONELLA DURATION	Disinfection dwell time (minutes). T° has to be equal to or higer than code 142 for this time period.	5	180	30
144	Inst.	LEGIONELLA TIME OVER	If Disinfection cycle is not completed within this time (hours), the antilegionalla cycle is considered failed.	2	12	4
Service/Reading						
145	Inst.	OUTPUT TEST	Allows to force board output ON 0. No Test 1. J7 Pin1 2. J7 Pin2 3. J7 Pin3 4. J7 Pin4 5. J4 Pin3 6. J4 Pin5	0	6	0
146	Inst.	FLOW SWITCH STATUS	Displays the Flow Switch status: 1. Water Flowing 0. Water not flowing	-	-	-
147	Inst.	FORCED MODE	Allows to force the system in a specific operating mode: 0. No forced mode selected 4. Booster Heat: Heating at the maximum frequency 5. Booster Cool: Cooling at the maximum frequency 6. Rating Heat: Not to be used by installer 7. Rating Cool: Not to be used by installer 10. Pump down: Activates the outdoor unit in cool mode for 5 minutes to perform pump down of the refrigerant	-	-	0
148	Inst.	SYSTEM MODE	Operating mode requested by the System Control: 0. Off 1. Standby 2. Cooling 3. Heating 4. Booster Heating 5. Booster Cooling 6. Rating Heating 7. Rating Cooling 11. Timeguard 12. Fail	-	-	-
149	Inst.	CDU MODE	Actual CDU operating mode: 1. Off 2. Cool 3. Heat 4. Fail 5. Defrost	-	-	-
150	Inst.	CDU SENSOR VALUES	Use Days button to read below values: 1. Outdoor T° 2. Outdoor unit Coil T° 3. Compressor Suction T° 4. Compressor Discharge T°	-	-	-
151	Inst.	FREQUENCIES	Use Days button to read below values: 0. Maximum Compressor frequency allowed by System Control 1. Compressor frequency requested by System Control 2. Actual compressor frequency	-	-	-
152	Inst.	TEMP DISP	Installer can check temperatures at this code; Use Days button to read below values: 0. Tank Temperature 1. LWT 2. Refrigerant Temperature 3. Temperature of Sanitary Hot Water 4. Water Temp of Zone 1 5. Water Temp of Zone 2 6. Tank2 Temperature 7. Room sensor connected to slave board	-	-	-

Operation Controls

Code Nr.	Level	Variable Name	DESCRIPTION	VALUE RANGE		DEFAULT
				Min	Max	
153	Inst.	CURRENT WSP FOR ZONES	Current water setpoint defined by the system control for the different zones Use Days button for reading the below: 0. Water setpoint for Zone 1 1. Water setpoint for Zone 2 2. Current water setpoint	-	-	-
154	Inst.	RUNTIME	Use Days button to display the below values. Real values are displayed values multiplied by 10. 0. Compressor run time (hours) 1. Water pump Run time (hours) 2. Backup heater 1 run time (hours) 3. Backup heater 2 run time (hours)	-	-	-
155	Inst.	RESET	Use Days button to select the below mentioned functions: 0. Compressor run time Reset 0: No Reset 1: Reset 1. Water pump run time reset 0: No Reset 1: Reset 2. Backup heater 1 run time 0: No Reset 1: Reset 3. Backup heater 2 run time 0: No Reset 1: Reset	0	1	0

Software & Matching

156	Inst.	CDU CAPACITY	Outdoor unit capacity	-	-	-
157	Inst.	NUI SW VERSION AND RELEASE	User interface software version			
158	Inst.	GMC SW VERSION AND RELEASE	System control software version & release			

Note:
- Cycle power after modifying Installer parameters
- Take special care in setting System setup parameters
- Parameters referring to the units with 2-zone kit are shown in gray.

Operation Controls

Heating/Cooling Mode

Select Heating/cooling:
- By pressing the mode (M) button on the user interface
- Through external contacts if code 106.4 is set to 0 (see paragraph *Input Related Functions*).

The water temperature is determined according to the outside air temperature, through a climatic curve that the installer is free to set.
The room temperature setpoint is set by the user (see user interface manual).
In heating/cooling modes, the system will also take care of domestic hot water production (if combined with domestic hot water tank).
Water frost protection is active.

Climatic curves

In heating/cooling modes, the water setpoint is determined through climatic curves.
Code 112 for heating and code 119 for cooling allow selecting between pre-set climatic curves or custom climatic curves.
Pre-set climatic curves are shown in fig. 2 for heating and fig. 3 for cooling.

If custom curves are used, the codes involved are shown in fig. 5 for heating and fig. 6 for cooling.
In fig. 5, 6, 7, 8:
A: Water Temperature
B: Outdoor temperature
If code 105.0 is set to 1 or 4 (see paragraph *Zone Control Settings*), the water setpoint calculated through the climatic curves is adjusted so that the room temperature matches the room setpoint.

Backup Heaters (heating mode only)

If the outdoor temperature is lower than code 129 and if the difference between the water setpoint and the water temperature is higher than code 130 for more than code 131 minutes, backup heater 1 is turned on.
If electric heater activation conditions are still valid after code 131 minutes since backup heater 1 activation, backup heater 2 and 3 (if available) and backup heater 1 are turned off. If electric heater activation conditions are still valid after code 131 minutes since backup heater 2 and 3 activation, backup heater 1 is turned on.
If the outdoor unit is not running because of failure, it is possible to perform the heating operation through backup heaters. See code 1.4 in the variable table.

Domestic Hot Water Mode

Select the Domestic Hot Water mode on the user interface by pressing the mode (M) button.
When this mode is selected, space heating/cooling is not operating; the system is taking care of meeting only the domestic hot water operation.

Water frost protection is active.
Home antifreeze protection is active if enabled (code 1.0).

OFF Mode

When OFF mode is selected, space heating/cooling and domestic hot water heating are not performed.
Water frost protection is active.

Home antifreeze protection is active if enabled (code 1.0).

Domestic Hot Water Function

Domestic hot water can be managed by the system control or by an external contact (code 133).
Domestic hot water is managed by the system control when the unit is combined with a domestic hot water tank listed in paragraph *Accessories*.
In this case the system control manages domestic hot water production on the base of domestic hot water temperature to optimise overall comfort (see priority logic below), activates booster heater if needed and performs disinfection function.

Domestic hot water is managed by an external contact when it is controlled by an ON/OFF contact (connected to the domestic water input of the system control).
In this case overall comfort is not optimised, booster heater is not activated and disinfection function is not performed.

In all cases, domestic hot water valve is managed by the system control.
If no domestic tank is connected, set code 133 to 3 and code 106.0 to 0.

Domestic hot water production with outdoor unit or backup boiler is based on priorities (fig. 9 and 10).

Fig. 9
A: Domestic hot water priority
B: Domestic hot water temperature
C: Domestic water setpoint
a: Normal domestic hot water priority line
b: Domestic hot water priority line in case of boiler backup
c: Domestic hot water priority line during disinfection cycle in case of boiler backup

Fig. 10
A: Room priority
B: Room temperature
C: Room setpoint
a: Room priority line

Note: Fig.10 refers to heat mode operation; in cool mode E and F are added to C.

Operation Controls

The system will switch from space heating/cooling to domestic hot water production if:
- Domestic water priority is higher than room priority for 15 minutes
- Room priority is 0 and there is a domestic water demand.

The system will switch from domestic hot water production to space heating/cooling if:
- Room priority is higher than domestic water priority for 15 minutes
- Domestic water priority is 0 and there is a demand for space heating/cooling
- Room priority is 1 for 2 minutes.

In Domestic Hot Water mode, room priority is set to 0.
If no room sensor is used, room priority is set to:
- 0.5, when there is no domestic hot water demand
- 0, when there is domestic hot water demand.

In case of boiler backup, priority lines are adjusted to optimise energy efficiency.

Domestic water input

Domestic water input has an effect on domestic hot water priority.
Domestic hot water input can be connected to solar control (set code 133 = 2), to stop domestic hot water production from the system when solar source is available.

Domestic water input not active
When domestic water input is not active, domestic hot water priority is set to 0 (see code 106.0).

Domestic water input is active
When domestic water input is active, if domestic hot water is managed by system control (code 133=1 or 2), priority is calculated normally; if it is managed by an external contact (code 133=3), priority is set to 1.
If using a tank listed in the paragraph *Accessories* and nothing is connected to this input, set code 106.0 = 1

Booster heater

Booster heater (electric heater inside the domestic hot water tank) is activated if domestic hot water temperature is below the setpoint and the schedule allows electric heater activation.
This function is only available if domestic hot water is managed by system control (code 133 = 1 or 2).
It is possible to force the activation of booster heater by setting code 1.5 = 1.
The code is automatically reset when the desired setpoint is reached.
If domestic hot water temperature sensor is in diagnostics, booster heater is never activated.

Disinfection (antilegionella)

This function is only available if domestic hot water is managed by system control.
The disinfection function disinfects the domestic hot water tank by periodically heating water to a specific temperature for a defined time period.
The disinfection function settings must be configured according to national and local regulations.
During disinfection function, booster heater is activated if needed, regardless the schedule.
In case of boiler backup, priority lines are adjusted to optimise energy efficiency.

Note:
If domestic water sensor is in diagnostics or disinfection function has not been completed within the defined timeframe, domestic hot water production is stopped, unless code 1.3 is set to 1.
The system will try to perform the disinfection cycle on the next scheduled day.
Code 1.3 is self reset to 0 when domestic water sensor is working and disinfection function is completed.

Frost Protection

This function is active in all the operative modes, including OFF.
It prevents water freezing in the circuit and in the domestic water tank.
The activation temperature is determined by code 111.

Home Antifreeze Protection

Activate this function through code 1.0.
Once it is enabled, this function is active in OFF mode and in Domestic Hot Water mode.

It prevents the zone temperature to go below a specific value, defined by code 2.
It works only if room temperature is measured by the system (code 105.0=1 or 4).

Operation Controls

Water Pump Management

This function works only if room temperature is measured by the system (code 105.0 = 1 or 4).
If code 1.6 = 0, water pump is always running during space heating/cooling operations.

If code 1.6 = 1, water pump is turned OFF if room temperature overshoots the setpoint value by code 4 (°C), and turned ON if room temperature is below (in heating, above in cooling) room setpoint by code 4 (°C).

Pump Unblocking Procedure

This function is active in all operative modes, including OFF.
If the water pump is OFF for 24 hrs, it is activated for some time to avoid locking.

Output Configuration

Multi-purpose output (see paragraph *Terminal Block Description*) can be configured to perform different functions (code 108).

Fan coil
The output can be used to turn ON/OFF fan coil units. The available options are shown in the variable table.

Dehumidifier
The output is used to turn ON/OFF a dehumidifier.

Dehumidifier is turned on in Cool mode, when humidity is higher than the value of code 110.
It works only if room control is done by user interface (code 105.0 = 1 or 4).

Alarms/Defrosting
The output is activated to signal some specific conditions. See variable table for details.

Pump Down

Setting code 147 = 10, it is possible to force the outdoor unit in Cool mode (also in case of Heating only systems) for 5 minutes, to allow the pump down of the refrigerant. After 5 minutes of operation, the code is automatically reset to 0.
After Pump Down, the unit will remain OFF until the electrical power is reset.

Silent Mode

It is possible to reduce the maximum compressor frequency in defined time periods.
See user interface manual.
Frequency reduction is expressed as % of maximum frequency and is set by code 3.

When Silent mode is activated, the outdoor unit will be less noisy, but also less powerful, therefore backup and booster heaters can be used more often.

Zone Control Settings

Code 105.0 defines the type of room control which is implemented.
0. No control: Room temperature is not controlled; comfort is only depending on climatic curve settings.
1. User interface: An additional user interface (see paragraph *Accessories*) is connected to the unit and is placed in the room.
2. Sensor: Used only in combination with 2-zone kit.
3. Thermostat: A thermostat is connected to the Heat/ Cool thermostat input.
4. Unit user interface shifted: Unit user interface is removed from the unit and installed in the room.

If the user interface is shifted, fill the gap on the unit with the cap provided (see fig. 4, item 3).

Operation Controls

Input Related Functions

See paragraph *Wiring Connection Diagram*.
All the inputs are dry contacts.
Input can be independently configured (code 106) to be considered active when open or when close.

Domestic hot water input
See Domestic hot water function.

Heat/Cool thermostat input
This input can be used to start/stop space heating/cooling operations.
If a room thermostat is used, connect it to this input.

Heat/Cool selection input
This input is used to put the system in Heat mode or in Cool mode.
It is used only if code 106.4 is set to 0.

High energy rate input
If this input is active and a boiler backup is present, the outdoor unit turns off and boiler backup is used to meet the heating and domestic hot water operation.
It has no effect in Cool mode, unless when domestic hot water is produced.

System ON/OFF input
This input is used to put the system in OFF mode.

Miscellaneous

Whenever the compressor turns off, it stays off for at least 3 minutes.
Additionally the compressor is prevented to start if previous start happened less than 10 minutes before.
This time period is referred to as “timeguard”.

Do NOT disconnect the electrical power, even if the system is not used for a long time.
To switch off the system, put it in OFF mode; this will activate system protections to improve the life of the unit.

Installation

Unit Dimensions and Weights

See paragraph *Features* for details.

Installation

Installation Recommendations

Refer to *Safety Information Manual*.

- Install this device only in sheltered buildings, if possible insulated.
  The unit should NOT be installed in very humid rooms (for example laundry rooms) or where it may be subjected to water projections or spray.
- Fix the module to the wall and ensure that the support is sufficiently strong.
- Fix the module using screws/wall plug fixings suitable to the wall structure and the module weight.
- When possible, allow a space of minimum 70 cm below and 30 cm on each side of the module for piping connections and ease of maintenance.
- See paragraphs *Water Connections* and *Refrigerant Connections*.
- In case of installation with fan coils, a minimum water quantity of 3 liters/kW is required; install a buffer tank if required.
- Install a water filter (see fig.1). Water pump and heat exchanger warranties are void if no filter is installed.

Features

Hydronic module				80AW-065				80AW-115					80AW-150		
				M0	M3	M6	T6	M0	M3	M6	T6	T9	M0	T6	T9
Outdoor units				38AW050H7 / 38AW065H7				38AW090H7 / 38AW115H7					38AW120H9 / 38AW150H9		
Dimensions	Unit		mm	see fig. 2				see fig. 2					see fig. 2		
	Packing	H (mm)	mm	880				880					880		
		W (mm)	mm	530				530					530		
		D (mm)	mm	400				400					400		
Weight	Unit		kg	42				44					44		
	Gross		kg	50				52					52		
Hydraulic data	Hydraulic connections		inch	1" M				1" M					1" M		
	Hydraulic connections - boiler backup		inch	3/4" M				3/4" M					3/4" M		
	Operating water pressure		kPa / bar	100 / 1				100 / 1					100 / 1		
	Maximum pressure		kPa / bar	300 / 3				300 / 3					300 / 3		
Hydraulic components	Pump	Type		water cooled				water cooled					water cooled		
		Nr of speed		3				3					variable		
		Static pressure	kPa	70				70					70		
	Heat exchanger	Type		brazed plates				brazed plates					brazed plates		
		Nr. plates		48				72					94		
		Water volume	lt	0.644				0.98					1.27		
	Expansion vessel	Volume	lt	8				8					8		
		Pre charge pressure	kPa / bar	100 / 1				100 / 1					100 / 1		
	Bleed valve - gas separator			√				√					√		
	Manometer			√				√					√		
	Draining valve			√				√					√		
	Safety valve		kPa / bar	300 / 3.0				300 / 3.0					300 / 3.0		
Refrigerant circuit	Connection, liquid side		inch	3/8"				3/8"					3/8"		
	Connection, gas side		inch	5/8"				5/8"					5/8"		
Operating Range	Outdoor temperature	Heating	°C	fig. 11				fig. 11					fig. 11		
		Cooling	°C	fig. 12				fig. 12					fig. 12		
	Water temperature (with outdoor unit)	Heating	°C	fig. 11				fig. 11					fig. 11		
		Cooling	°C	fig. 12				fig. 12					fig. 12		
	Max water temperature (with backup heater)	Heating	°C	80 °C				80 °C					80 °C		
	Indoor temperature	Min	°C	5				5					5		
		Max	°C	30				30					30		
Electrical data	Power supply	Voltage	V	230			400	230			400		230	400	
		Frequency	Hz	50				50					50		
		Phases		1			3	1			3		1	3	
	Operating voltage limits		V	207-253			376 - 424	207-253			376 - 424		207-253	376 - 424	
	Power consumption		kW	-	3	6	6	-	3	6	6	9	-	6	9

Note: In fig. 11 and 12

A: Outdoor air temperature
B: Leaving water temperature

Installation

Water Connections

Refer to the *Safety Information Manual*.

- No need to use a counter spanner when tightening hydronic connections to the module.
- Use only water mixed with any water treatment product to avoid bacteria and dirt proliferation in the circuit.
- Place valves (not included) at the inlet and outlet of the hydronic module.
- Use pipe of 1" or bigger for connections between the hydronic module and terminal.
- Wrap the connections with the anti-condensate insulation and tighten with tape, without exerting excessive pressure on the insulation.
- Start the water filling when all the installation connections are complete.

Maximum distance between 3-way valve and hydronic module: 3 m
Maximum distance between domestic hot water tank and hydronic module: 10 m

Refrigerant Connections

Refer to the *Safety Information Manual*.
For piping lengths, refer to the Outdoor unit manual.

Pump Speed Selection

The pump provided with the module has 3 speeds.
The installer selects the speed of the module pump to guarantee the target flow rate (± 20 %) in the space heating/cooling loop, knowing the available pressure of the system at different pump speed (see fig. 13 and fig. 14) and the pressure drop of the installation.

Make sure that the pressure drop in the domestic hot water loop is not too low. If needed, install a valve to modulate the pressure drop; in this loop, inlet/outlet temperature difference should be 8-10 °C.

For the models 80AW150 refer to the attached sheet.

Hydronic Module	**80AW - 065**		**80AW - 115**		**80AW - 150**	
CDU	**38AW 050**	**38AW 065**	**38AW 090**	**38AW 115**	**38AW 120**	**38AW 150**
Nominal Capacity [kW]	5.0	6.5	9.0	11.5	12.0	15.0
Nominal DT [°C]	5	5	5	5	5	5
Nominal Flow Rate [lt/h]	860	1118	1548	1978	2064	2580

Installation

Power Wiring Diagram

Refer to the *Safety Information Manual* and to the electrical scheme supplied with the unit.
Electrical installation must be according to fig. 15.

	Description	80AW-065				80AW-115					80AW-150		
		M0	M3	M6	T6	M0	M3	M6	T6	T9	M0	T6	T9
A	Power supply	-	1pH - 230V		3ph - 400V	-	1pH - 230V		3ph - 400V		-	3pH - 400V	
B	Electrical heater breaker (field supplied)	-	2 poles 20 A	2 poles 32 A	4 poles 16 A	-	2 poles 20 A	2 poles 32 A	4 poles 16 A	4 poles 20 A	-	4 poles 16 A	4 poles 20 A
C	Outdoor unit breaker (field supplied)	2 poles, 16 A				2 poles, 25 A					4 poles, 25 A		
D	Booster heater breaker (field supplied)*	2 poles, 16 A				2 poles, 16 A					2 poles, 16 A		

	Description	Cable Type	80AW-065				80AW-115					80AW-150		
			M0	M3	M6	T6	M0	M3	M6	T6	T9	M0	T6	T9
1	Outdoor unit power supply cable	H07 RN-F	3G x 2.5 mm^2				3G x 4 mm^2					5G x 2.5 mm^2		
2	Indoor unit power supply and communication cable	H07 RN-F	3G x 1 mm^2				3G x 1 mm^2					3G x 1 mm^2		
3	Backup heater power supply cable	H07 RN-F	-	3G x 4 mm^2	3G x 6 mm^2	5 x 4 mm^2 (L1, L2, L3, N, Y/G)	-	3G x 4 mm^2	3G x 6 mm^2	5 x 4 mm^2 (L1, L2, L3, N, Y/G)	5 x 6 mm^2 (L1, L2, L3, N, Y/G)		5 x 4 mm^2 (L1, L2, L3, N, Y/G)	5 x 6 mm^2 (L1, L2, L3, N, Y/G)
4	User interface cable	FROH2R	4 x 0.75 mm^2				4 x 0.75 mm^2					4 x 0.75 mm^2		
5	Booster heater power supply cable*	H05VV-F	3G x 2.5 mm^2				3G x 2.5 mm^2					3G x 2.5 mm^2		
6	Booster heater activation cable*	FROH2R	2 x 1 mm^2				2 x 1 mm^2					2 x 1 mm^2		
7	Sanitary hot water sensor cable	FROH2R	2 x 0.5 mm^2				2 x 0.5 mm^2					2 x 0.5 mm^2		
8	Remote outdoor sensor cable	FROH2R	2 x 0.5 mm^2				2 x 0.5 mm^2					2 x 0.5 mm^2		

*Valid for domestic hot water tanks listed in paragraph Accessories.

If the user interface is installed in zone, install it in a place which represents ambient room temperature. Avoid direct contact or proximity with heat or cool sources.
Appropriate installation height is 1.5 m from the ground.

See electrical scheme for more information.

Installation

Wiring Connection Diagram

- Units without backup heater, see fig. 16.
- Units with backup heater, single phase power supply, see fig. 17 and fig. 19a.
- Units with backup heater, tri-phase power supply, see fig. 18 and fig. 19c.
- Connection between Indoor and Outdoor units: see fig. 19b.

Terminal block description

See fig. 16,17,18.
The terminal blocks highlighted are available only in 80AW---M0 models.

Terminal Block	Description	Details
1 - 2 - 3	Indoor unit power supply and communication cable	
4 - 5	Pump cut off contact (EN1264-4)*	
6 - N	Booster heater control* (domestic hot water tank)	Output, 230 V, max 2 A (inductive)
7 - 8 - N	Domestic hot water 3 way valve*	Output, 230 V, max 2 A (inductive)
10 - 11	Domestic hot water tank sensor*	Input, Analog
12 - 15	Hi energy rate input	Input, Dry Contact
13 - N	Multi-purpose output	Output, 230 V, max 2 A (inductive)
14 - 15	System ON/OFF input	Input, Dry Contact
15	Common for dry contact input	Input, Dry Contact
W-C-G-Y	User interface placed on the unit or removed from the unit and mounted in zone	
20 - 15	Heat/Cool thermostat input	Input, Dry Contact
21 - 15	Heat/Cool selection input	Input, Dry Contact
22 - 15	Domestic hot water input	Input, Dry Contact
Rc-Rh-G2-Y2	Additional user interface or 2 zone kit connection	
N	Neutral	
31 - N	Boiler (only for units 80AW---M0)	Output, 230 V, max 2 A (inductive)

* See paragraph Accessories.

Communication kit installation

See fig. 20.
A: Communication kit (33AW-CB01)
B: Unit main board
C: Unit terminal block

Connect the board in the kit on the J8 connector of the main board and to the unit terminal block.

Installation

Commissioning

Preliminary Checks

Make sure that:
- The hydronic system connections are correctly tightened.
- There are no leaks.
- The installation is purged completely; poor purging can cause deterioration of pumps and electric heaters.
- The pumps are empty and purged completely before power is switched on.
- The circuit valves are open and the pumps are set to the speed determined in the study.
- The filling and drain valves are closed.
- The water circuit pressure is 1 bar.
- The filter is installed.
- The electrical connections are correctly tightened; poor tightening can cause running problems and overheating which may result in major damage.
- Earth connections are made for all the installed components.
- No tools or other foreign objects are left inside the unit.
- The unit is stable.

Startup

Do NOT switch on the electric heater circuit breakers until the installation is completely purged; poor purging can cause deterioration of pumps and electric heaters.

- Switch the main isolating switch and the circuit breakers ON.
- Select OFF mode on the user interface.
- Start the outdoor unit by setting code 147 = 4 (booster heat).
- After the outdoor unit has run for ten minutes, set the code147 = 0, and check if the unit has stopped.
- Close the valves, switch the main switch OFF and clean the filter.
- Repeat this operation several times if necessary, until the filter stops retaining impurities.
- Do NOT forget to exit Forced mode (set code 147 = 0) after the test.

Maintenance

Refer to the *Safety Information Manual*.
The equipment should be serviced periodically to maintain performances and reliability.

The product warranty may be invalidated due to wrong or incomplete maintenance.

The user is not authorized to open the unit or remove any of its parts.

Any maintenance activity requiring opening of the unit must be carried out by qualified service personnel.

Carry out the following operations at least once a year:

- Check the expansion vessel.
- Check all the parts for wear.
- Check setpoints and operating points.
- Check safety devices.
- Check electrical connections for tightness.
- Check the earth connections.
- Check for water and refrigerant leaks.
- Check operation and parameters.
- Clean the water filter.
- Check the rotation of pumps.
- Check the system pressure.
- Clean the outdoor unit heat exchanger.
- Clean the condensate tray.

Filter Cleaning

- This operation must be performed only by an authorized service personnel.
- Clean the filter frequently if low water flow is detected.
- Select OFF mode on the user interface.
- Switch the main switch OFF.
- Close the valves at the bottom of the hydronic module.
- Open the filter and clean it.
- Close the filter tight, to avoid water leakage.
- Open the valves at the bottom of the hydronic module.
- Add some water if needed.
- Switch the main switch ON.
- Select the desired mode on the user interface.

Maintenance

Adding Water to Circuit

This operation can be performed by the user.
For safety reason, do NOT open the indoor or outdoor unit.
The corrected operating pressure is 1 bar; if the pressure is lower than 1 bar, it is necessary to add water in the circuit.

See fig. 2 and 3
- Open the filling valve.
- Close the filling valve when the water pressure reaches 1 bar (check the manometer).

Diagnostics

In case of system failure, the alarm icon (⚠) will light up on the user interface.
Failures are identified by a fault code.
Active fault codes will be displayed in sequence, with a change rate of 1 second.

Error code	Item	Failure when	Consequences	Diagnostics and solutions
Hydronic module fault codes				
2	Temperature/humidity sensor of user interface in zone 1	Value out of range + Code 105.0 = 1 or 4	Room temperature/humidity is not available. Related functions are not available.	Check user interface wiring and electrical connections.
3	TWB	Value out of range	Backup heaters are OFF	Check sensor, wiring and electrical connections.
4	TC	Value out of range	Outdoor unit stops Domestic water valve OFF if code 127=1	Check sensor, wiring and electrical connections.
5	Domestic hot water temperature sensor	Value out of range + Code 133 = 1 or 2	Booster heater OFF Disinfection function not performed	Check sensor, wiring and electrical connections.
6	Communication with user interface (conneted to W-C-G-Y terminal blocks)	Communication lost	No communication between unit and interface. Room temperature and humidity are not available if code 105.0 = 1 or 4 or 105.1 = 1 or 4. Unit runs with values stored in memory.	Check wiring and connections.
7	Communication with additional user interface (connected to Rc-Rh-G2-Y2 terminal blocks) in zone 1	Communication lost + Code 105.0 = 1	No communication between unit and interface. Room temperature and humidity are not available in zone 1. Unit runs with values stored in memory.	Check wiring and connections.
8	Flowswitch	Water pump is OFF. Flowswitch detects flow	Outdoor unit, backup heaters, domestic water valve, water pump: OFF	Check setting of code 107.1 Check flowswitch.
9	Flowswitch	Water pump is ON. Flowswitch detects no flow.	Outdoor unit, backup heaters, domestic water valve, water pump: OFF	Check setting of code 107.0. Check flowswitch, wiring and electrical connections. Check floor heating thermal cut off if connected. If reset is needed, press the red button and check climatic curve settings (codes 112 to 118).
10	EEProm	EEProm is corrupt	Entire system stops	Check settings of codes 100, 103, 105, 106, 107. If settings are correct, contact service.

Maintenance

Error code	Item	Failure when	Consequences	Diagnostics and solutions
11	Communication Master - Slave	Communication lost + Code 100 = 2	Entire system stops	Check wiring and connections.
12	Communication with additional user interface (connected to Rc-Rh-G2-Y2 terminal blocks) in zone 2	Communication lost + Code 105.1 = 1	No communication between unit and interface. Room temperature and humidity are not available in zone 2. Unit runs with values stored in memory.	Check user interface wiring and electrical connections.
13	System configuration	Code 100 = 1 +1 Communication with slave board is detected .	Entire system stops	2-zone kit is installed. Set code 100 = 2
14	HV Communication with CDU	Communication lost	Outdoor unit stops Domestic water valve OFF if code 127 = 1	
15	LWT	Value out of range	Outdoor unit stops Domestic water valve OFF if code 127 = 1	Check sensor, wiring and electrical connections.
16	Zone control	Code 100 = 1 + Code 105.0 = 2 or Code 100 = 2 + Code 105.0 = 2 + Code 105.1 = 2 or Code 100 = 2 + Code 105.0 = 4 + Code 105.1 = 4	Entire system stops	Change setting of code 105.
32	Reversing Valve Error	Refrigerent liquid and expansion temperature are not consistent with the CDU operating mode	Outdoor unit stops Domestic water valve OFF if code 127 = 1	Check reversing valve operations. Check refrigerant liquid and expansion temperature sensors. Cycle power to clear the error.
34	EH temperature warning	Backup heater is active + TWB does not increase by 1 °C every 30 min	No effect on system operation	Check backup heater operation, wiring and electrical connections.
*	LOW domestic hot water temperature warning	Code 133 = 1 or 2 + Domestic hot water priority = 1 + Booster heater schedule OFF + code 1.5 = 0	Domestic water tank electric heater icon ( ) will flash on the user interface screen	Domestic hot water temperature is cold and schedule prevents booster heater activation. User can activate booster heater by setting code 1.5 = 1 (termporary activation) or by enabling it in the schedule.
35	Disinfection not succesful	Code 133 = 1 or 2 + Disinfection cycle not completed within time defined by code 143 or Disinfection cycle not performed due to error 5.	Domestic hot water is not produced (unless code 1.3 = 1 or the diagnostics is removed cycling power).	Check code 140 to 144. Check booster heater operation. Check booster heater wiring and electrical connections. If code 127 = 2 check backup heater operation. Check domestic hot water temperature sensor, wiring and electrical connections.
36	Configuration Mismatch	Outdoor unit should run in cool mode + Code 106.5 = 0 or Unit is heat only (80AWH)	Entire system stops	Modify setting of code 106.5. Modify requested mode.

Maintenance

Error code	Item	Failure when	Consequences	Diagnostics and solutions
37	Temperature/ humidity sensor of user interface in zone 2	Value out of range + Code 105.1 = 1 or 4	Room temperature/humidity is not available. Related functions are not available.	Check user interface wiring and electrical connections.
Outdoor unit fault codes				
17	Outdoor air sensor	Value out of range	Outdoor temperature not available	
18	G-Tr short circuit protection	Inverter over-current protective circuit operates. Short circuit voltage protection of main circuit operates.	Outdoor unit stops Domestic water valve OFF if code 127 = 1	Check Outdoor unit board for cabling error.
20	Position Detection Circuit Error	Position detection circuit operates when the compressor is operating despite removal of 3P connector.	Outdoor unit stops Domestic water valve OFF if code 127 = 1	Replace Outdoor unit board.
21	Current Sensor Error	Current detection circuit error: • Current value at AC side is high when compressor is OFF • Phase of power supply is missing.	Outdoor unit stops Domestic water valve OFF if code 127 = 1	Check Outdoor unit board. Check 3 phase power voltage and cables.
22	Outdoor Heat Exchange Sensor (TE)/(TS)	Value out of range	Outdoor unit stops Domestic water valve OFF if code 127 = 1	Check sensor, wiring and electrical connections.
23	Discharge Temperature Sensor (TD)	Value out of range	Outdoor unit stops Domestic water valve OFF if code 127 = 1	Check sensor, wiring and electrical connections.
24	Outdoor Fan Error	Defective detection of position Operation of outdoor fan over-current protection circuit Outdoor fan locked	Outdoor unit stops Domestic water valve OFF if code 127 = 1	Check outdoor fan. Check outdoor unit board.
26	Other Outdoor Error		Outdoor unit stops Domestic water valve OFF if code 127 = 1	
27	Compressor Lock	Defective cabling of compressor Compressor fault	Outdoor unit stops Domestic water valve OFF if code 127 = 1	Check 3 phase compressor power cables. Replace compressor
28	Discharge Temperature Error	Error of discharge temperature	Outdoor unit stops Domestic water valve OFF if code 127 = 1	Check for refrigerant gas leaks Check PMV operation Check TD sensor operation
29	Compressor Breakdown	Abnormal compressor operation	Outdoor unit stops Domestic water valve OFF if code 127 = 1	Check power supply: AC 220 V +/-10%. Overload operation of refrigerating cycle. Check current detection circuit at AC side.
30	Other inverter board error		Outdoor unit stops Domestic water valve OFF if code 127 = 1	

Maintenance

Error code	Item	Failure when	Consequences	Diagnostics and solutions
31	High Temperature Release		Outdoor unit stops Domestic water valve OFF if code 127 = 1	Check outdoor temperature sensor TE in the Outdoor unit. Check Outdoor unit board.
User interface fault codes				
70	Configuration	Code 104 not equal to 242 or 243 or 244	Communication is disabled	Change setting of code 104.
71	Communication of user interface (connected to W-C-G-Y terminal blocks)	No communication for 20 seconds + Code 104 = 242	No effect on user interface operation	Check wiring and connections.
72	Communication of user interface (connected to Rc-Rh-G2-Y2 terminal blocks)	No communication for 30 seconds + Code 104 = 243 or Code 104 = 244	No effect on user interface operation	Check wiring and connections.
73	Temperature error message	Value out of range	No effect on user interface operation	Check wiring and connections.
74	Humidity error message	Value out of range	No effect on user interface operation	Check wiring and connections.
75	EEprom error message	Values in eeprom corrupted	Communication is disabled	Cycle power Reset all parameters (see user interface documentation).

*As this is just a warning to the user, the Alarm icon (⚠) is not displayed and no number is associated.

Note:
- In case of diagnostic 35, in addition to the Alarm icon (⚠), Domestic Water warning icon ( ) will light up and Disinfection cycle icon ( ) will flash.
- Diagnostics referring to system with 2-zone kit are written in gray.

Safety Recommendations

Refer to *Safety Information Manual*.

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