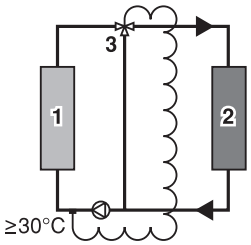
ADDENDUM INSTALLATION AND OPERATION MANUAL

Option Heat recovery

INSTALLATION

Installation of the heat recovery circuit

As to avoid too low condensing pressure of the unit resulting in too low evaporating pressure, the entering water to the heat recovery condenser must not be below 30°C. For this reason a return water mixing valve as shown in the figure below must be installed.



1 Heat recovery condenser
2 Water tank
3 Return water mixing valve

INTRODUCTION

To achieve a stable high pressure management, the units with option heat recovery installed are equipped with inverter fans.

- When the unit is running in heat recovery mode:
  - The fans of the air cooled condenser will be controlled as to achieve a high pressure between 19.0 bar and 22.0 bar.
    The high pressure setpoint depends on the difference between the evaporator water temperature and its set-point of the active thermostat function (inlet or outlet thermostat).
    - If there is a big difference (= high cooling load), the high pressure will be reduced as to achieve a maximum cooling capacity.
    - If there is a small difference (= low cooling load), the high pressure will be increased as to maximize the heat recovery capacity.

    Further details and settings can be found in the service manual.
  - It is possible to use a heat recovery pump. Connect the heat recovery pump to a voltage free contact. (For more details refer to the installation manual and the wiring diagram.)
- When the unit is running in cooling mode, the fans of the air cooled condenser will be controlled as to achieve a high pressure of 13.0 bar.

SELECTING INSTALLATION SITE

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

ADVANCED FEATURES OF THE DIGITAL CONTROLLER

This chapter gives an overview and a brief functional description of the screens provided by the different menus. Please add this information to the information mentioned in the operation manual.

Readout menu

```
_↓INLSETP1 E: 12.0°C
 INL WATER E: 12.0°C
OUTL WATER E: 07.0°C
HR SP:45.0 C: 50.0°C
```

To consult information about the actual heat recovery sensor inlet set point and temperature (only available if the heat recovery thermostat function of the controller is selected, refer to the chapter "Defining the heat recovery mode" on page 2).

```
_÷       UNIT STATUS
C1:OFF-CAN STARTUP
C2:OFF-CAN STARTUP
UNIT:000% LOWNOISE:N
```

To consult information about the status of the unit and the running mode (heat recovery mode = "HEAT REC" or cooling mode) of the circuit .

```
_÷ ACT. PRESSURES C1
HP1: 19.0b = 50.8°C
LP1:  4.4b =  5.2°C
HP SETPOINT C1:13.0b
```

To consult information about the pressures and the high pressure setting of circuit 1.

```
_÷ ACT. PRESSURES C2
HP2: 19.0b = 50.8°C
LP2:  4.4b =  5.2°C
HP SETPOINT C2:13.0b
```

To consult information about the pressures and the high pressure setting of circuit 2.
(only for EUWA(*)160~200MZ)

Usersettings menu

```
_÷     HEAT RECOVERY
HR INLSETP C: 45.0°C
HR INLDIFF  :  3.0°C
HR COND PUMPLAG:005s
```

To define the heat recovery thermostat settings (only available if heat recovery thermostat function of the controller is selected, refer to the chapter "Defining the heat recovery mode" on page 2) and to define the heat recovery condenser pumplag setting.

Info menu

```
_÷  UNIT INFORMATION
UNITTYPE:AW-HR-200
CIR:2 EVAP:2 FAN:INV
REFRIGERANT :R407C
```

To consult additional information about the unit such as the unit type and the refrigerant used.

Input/output menu

```
_÷    DIGITAL INPUTS
C1 DISCH.TH.PR.:OK
C1 COMPR.TH.PR.:OK
C1 FAN INV.    :OK
```

To check whether or not the discharge thermal protector or the compressor thermal protector are activated and to check the status of the fan inverter for circuit 1.

```
_÷    DIGITAL INPUTS
C2 DISCH.TH.PR.:OK
C2 COMPR.TH.PR.:OK
C2 FAN INV.    :OK
```

To check whether or not the discharge thermal protector or the compressor thermal protector are activated and to check the status of the fan inverter for circuit 2.
(only for EUWA(*)160~200MZ)

```
_÷CHANG. DIG. INPUTS
DI1 HEAT REC.:REQ
DI2 NONE
DI3 NONE
```

To check the status of the changeable digital inputs and the heat recovery mode switch (only available if the heat recovery mode switch is selected, refer to the chapter "Defining the heat recovery mode" on page 2).

_÷ RELAY OUTPUTS C1 FANON/OFF:OPEN C1 FANINV SP:00HZ	To check the status of the fan on/off and the setpoint requested to the fan inverter of circuit 1.
_÷ RELAY OUTPUTS C2 FANON/OFF:OPEN C2 FANINV SP:00HZ	To check the status of the fan on/off and the setpoint requested to the fan inverter of circuit 2. (only for EUWA(*)160~200MZ)
_÷ RELAY OUTPUTS GEN. ALARM:CLOSED PUMP/GEN OPER:CLOSED AI1:HR INL C: 50.0°C	To check the status of the alarm, the pump, and the value of additional heat recovery sensor (only available if the heat recovery thermostat function of the controller is selected, refer to the chapter "Defining the heat recovery mode" on page 2).
_^CHANG. INP/OUTPUTS DI4 NONE DO1 EVAP.HEATERT. :C DO2 HR COND PUMP :O	To check the status of the evaporator heater tape and of the heat recovery pump.

SOFTWARE STRUCTURES

The software structures mentioned in the operation manual, must be replaced by the software structures shown in this manual:

- For the EUWA(*)40~120MZ, see page 4
- For the EUWA(*)160~200MZ, see page 5

DEFINING THE HEAT RECOVERY MODE

The decision whether the unit works in heat recovery mode or not can be done in 2 ways:

1. Through a heat recovery mode switch (S6S field installed).
   - When the heat recovery mode switch is closed, heat recovery is asked.
   - When open, cooling mode is asked.

NOTE

It is clear that the cooling capacity and the cooling efficiency will be higher when the unit is running in cooling mode. For this reason, we advise to use a external thermostat for S6S that switches the unit automatically to the cooling mode when the target temperature of the hot water is reached.

The changeable digital input 1 is by default defined as "HEAT RECOVERY".

2. Through the heat recovery thermostat function of the controller.
   The heat recovery mode is controlled by the hot water temperature measured by an additionally installed sensor R8T (EKCLWS) in the hot water.
   To achieve this setting a changeable analog input must be defined as "HR INLET WATER C" (refer to "Customization in the service menu", chapter "setting of the changeable inputs and outputs" in the operation manual delivered with the unit).

NOTE

- If the heat recovery thermostat function of the controller will be used and the heat recovery mode switch will not be installed, then the changeable digital input 1, default defined as "HEAT RECOVERY", must be changed to "NONE". (refer to "Customization in the service menu", chapter "setting of the changeable inputs and outputs" in the operation manual delivered with the unit).
- If the heat recovery thermostat function of the controller will be used and the heat recovery mode switch will be installed, then the unit will only run in heat recovery when the heat recovery thermostat function requests heat recovery and when the heat recovery mode switch is closed (AND function). Else the unit will run in cooling mode.

An additional sensor R8T (EKCLWS) must be connected directly to the PCB of the unit.

NOTE

The units with heat recovery installed can also be used in a DICN setup.

- If the system is controlled on inlet water temperature, the 2 ways to define the heat recovery mode are available on the master unit.
- If the system is controlled on outlet water temperature, the heat recovery mode can only be controlled by the heat recovery mode switch on the master unit.
- On the slave units, the 2 ways to define the heat recovery mode are available.

Consulting the heat recovery mode

The "UNIT STATUS" of the readout menu provides information concerning the status of the different circuits:

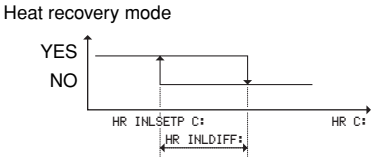
- C1 actual status of circuit 1
- C2 actual status of circuit 2

When the circuit is "ON", the following status information may appear:

- C1: ON - 40% DELTA, the circuit is running on compressor capacity of 40% in cooling mode.
- C1: ON - 40% HEAT REC, the circuit is running on compressor capacity of 40% in heat recovery mode.

Defining the Heat recovery thermostat settings

The "HEAT RECOVERY" screen of the user settings allows the user to define the heat recovery thermostat settings:



		Default	Minimum	Maximum
HR C:	Condenser inlet water temperature	—	—	—
HR INLSETP C:	Condenser inlet setpoint	45.0°C	30.0°C	70.0°C
HR INLDIFF:	Difference	3.0°C	2.0°C	5.0°C

The heat recovery thermostat setting mentioned above are only available if the heat recovery thermostat function of the controller is selected, refer to the chapter "Defining the heat recovery mode" on page 2.

Defining Heat recovery pump settings

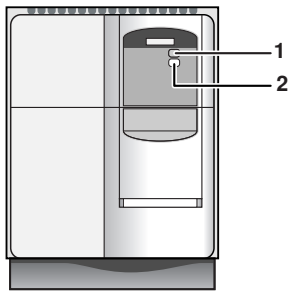
The "HEAT RECOVERY" screen of the user settings allows the user to define the heat recovery pump-lag time.

The setting "HR COND PUMPLAG" is used to define the time that the heat recovery pump keeps running after the unit has been switched from heat recovery mode to cooling mode.

Troubleshooting of inverter with the Status Display Panel

Only a licensed electrician is allowed to carry out an inspection on the status display panel as this inspection requires the switch box to be opened.

The operating status of the inverter is indicated by the green and yellow LEDs on the Status Display Panel. These LEDs indicate the following warnings and fault states.



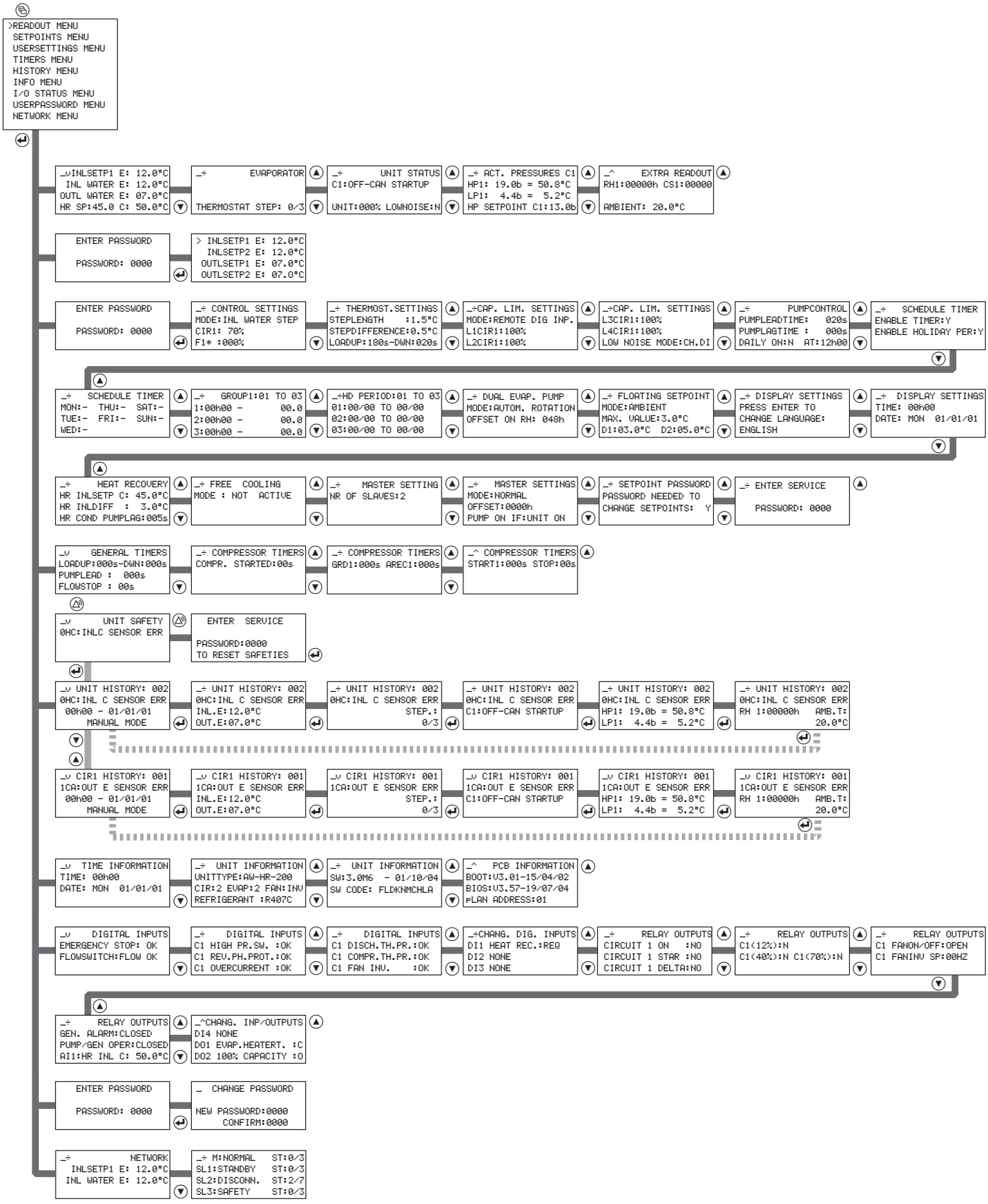
1 Green LED

2 Yellow LED

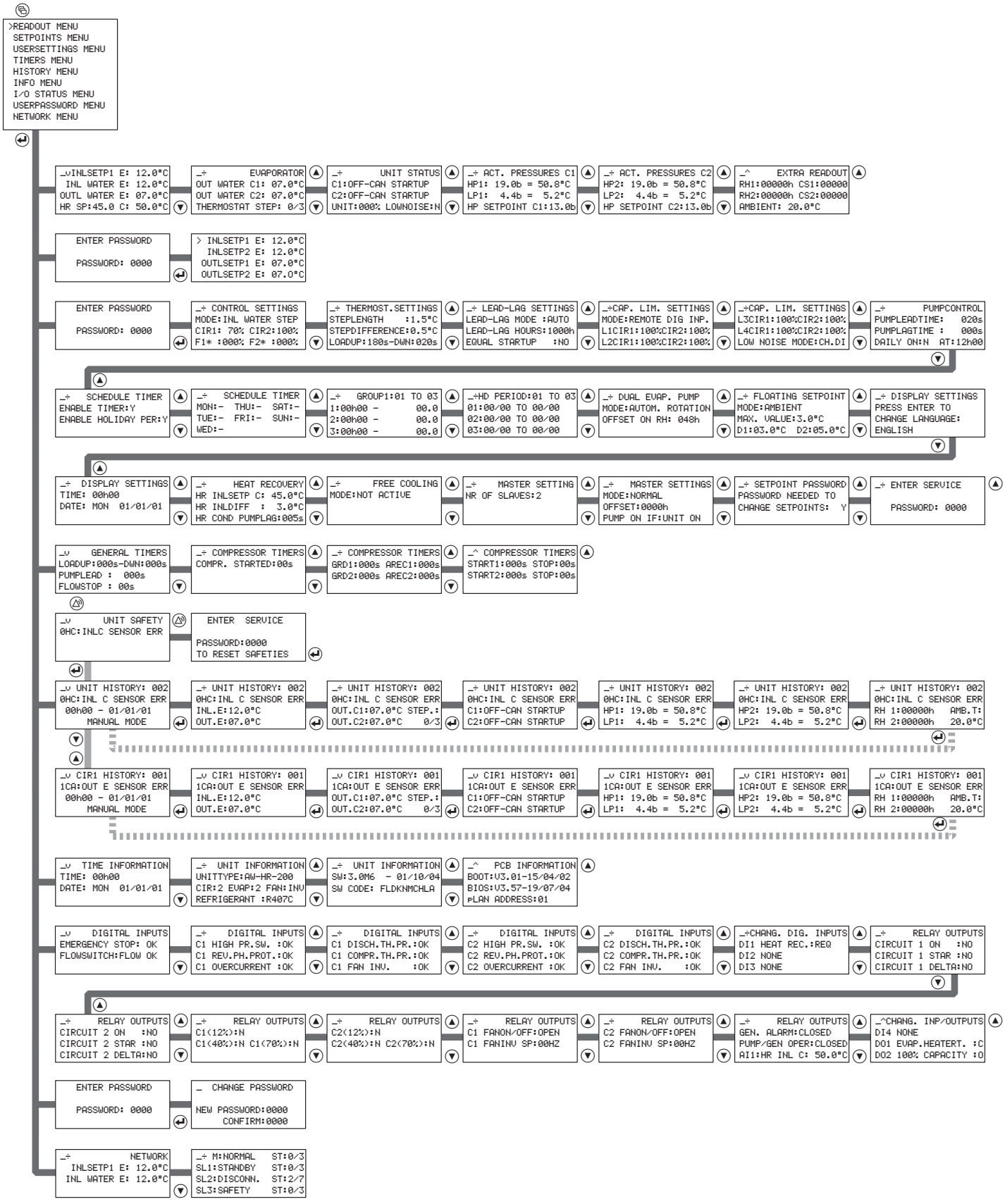
Green LED	Yellow LED	Priority Display	Drive Status Definitions
OFF	OFF	1	Mains not present
OFF	ON	8	Inverter fault - other than the ones listed below
ON	OFF	13	Inverter running
ON	ON	14	Ready to run - standby
OFF	Flashing -R1	4	Fault overcurrent
Flashing -R1	OFF	5	Fault overvoltage
Flashing -R1	ON	7	Fault motor overtemperature
ON	Flashing -R1	8	Fault inverter overtemperature
Flashing -R1	Flashing -R1	9	Warning current limit - Both LEDs are flashing at the same time
Flashing -R1	Flashing -R1	11	Other warnings - Both LEDs are flashing alternately
Flashing -R1	Flashing -R2	6 /10	Undervoltage trip/undervoltage warning
Flashing -R2	Flashing -R1	12	Drive is not ready - Display state >0
Flashing -R2	Flashing -R2	2	ROM failure - Both LEDs are flashing at the same time
Flashing -R2	Flashing -R2	3	RAM failure - Both LEDs are flashing alternately

R1 - On time 900 msec.
R2 - On time 300 msec.

SOFTWARE STRUCTURE only for EUWA(*)40~120MZ



SOFTWARE STRUCTURE only for EUWA(*)160~200MZ



NOTES

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