

# HWA/LCA Local Area Network Connection

## 1. Logic description

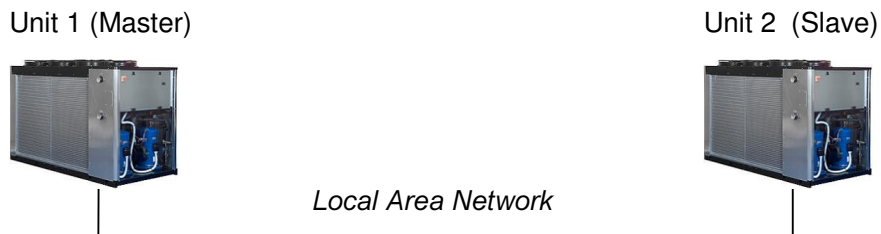
1.1. Number (n) of units that can be connected:  $n = 4$

1.2. Number of compressors for each unit:  $n_{comp}$

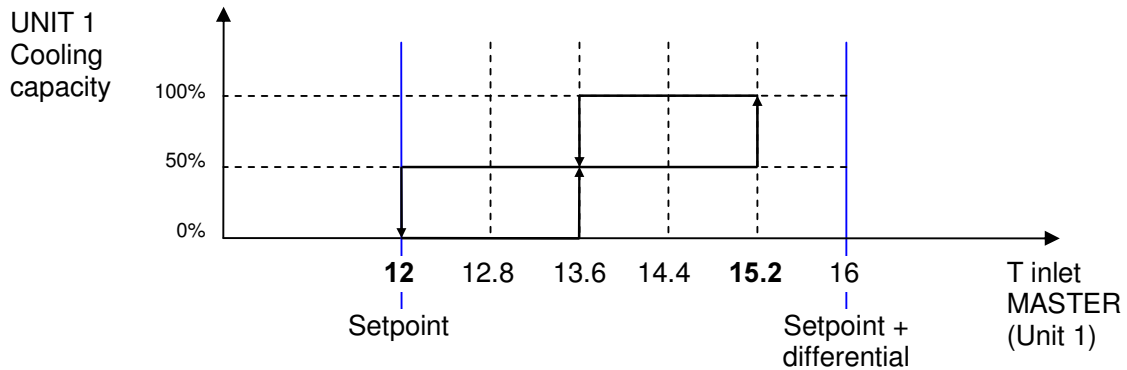
### 1.3. Logic

- unit 1 is the master of the system and the other are slave units
- total cooling steps =  $n \times n_{comp}$ 
  - the master unit sends to the slave units the adjusted setpoint and the differential band in order to obtain the cooling steps (see the following diagrams)
  - the master unit sends to the slave units the inlet evaporator temperature (system return temperature) in order to obtain a centralized cooling system
- LAN alarm : if a LAN problem is detected, each unit will operates independently
- Unit alarm: if a unit have a serious alarm it is disconnected from the LAN
- function to avoid contemporaneous start-up of the compressors of the unit connected.
- rotation of the compressors
- rotation of the units set by parameter

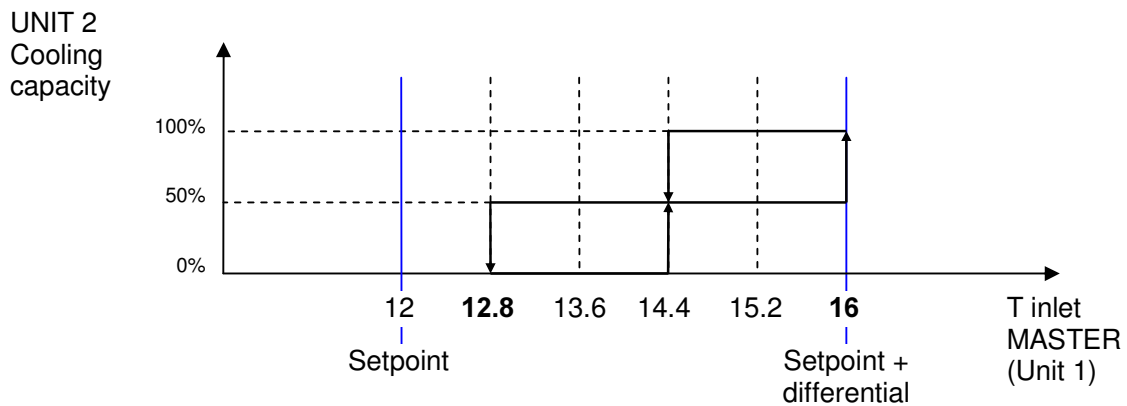
1.4. Example: - 2 units connected  
- 2 compressor for each unit  
- total cooling steps = 4  
- Setpoint MASTER (unit 1) = 12°C  
- Differential band MASTER (unit 1) = 4°C



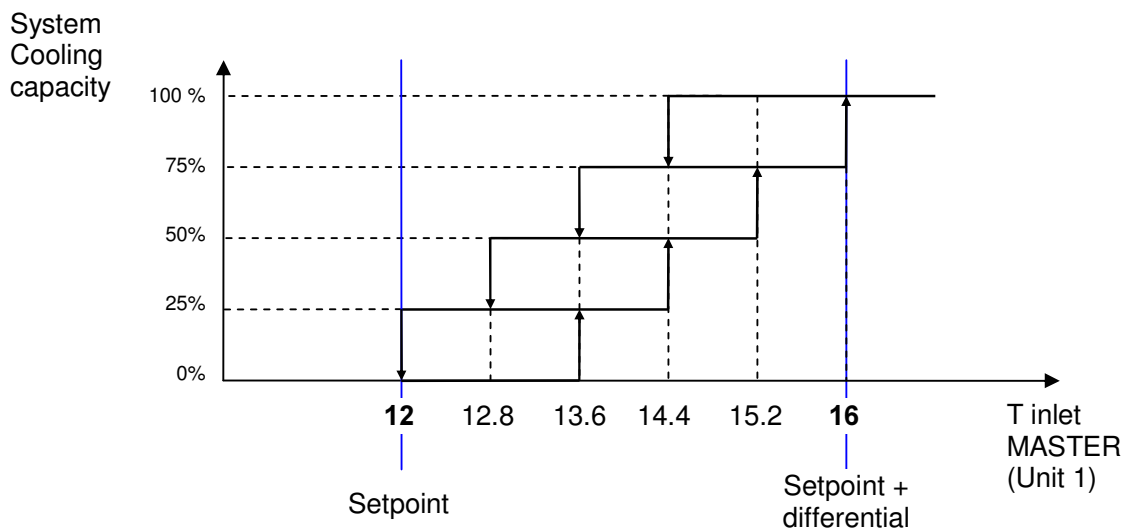
**UNIT 1 (MASTER)**



**UNIT 2 (SLAVE)**



**TOTAL SYSTEM**



## 2. Electrical connection

2.1. **Connection type:** serial line

2.2. **Connection cable:** two wires + shield AWG22-24

2.3. **Connection connector:** J11 ( Rx-/Tx- , Rx+/Tx+, GND)

## 3. Hardware/Software configuration

### 3.1. Microprocessor pCO1 address configuration






For the configuration of the address of the pCO1 follow these steps:

- connected the pCO1 with a display with the address configure to 0 (all dip-switches set to OFF)
- switch ON the power supply pressing simultaneously the ALARM and the UP keys.
- press UP or DOWN key to set the address.
- press ENTER key to save and exit from this procedure.

### 3.2. Display address configuration

Open the cover in the backside of the display and configure the dip-switches inside following the addresses table 3.3.

### 3.3. Addresses table

	List of addresses	
	Address of Microproc. pCO1	Address of Display
	<i>Configured by display</i>	<i>Configured by dip-switch</i>
<b>Unit 1</b>	1	5  ON OFF
<b>Unit 2</b>	2	6  ON OFF
<b>Unit 3</b>	3	7  ON OFF
<b>Unit 4</b>	4	8  ON OFF
<b>Shared display</b>	-	32  ON OFF

### 3.4. Microprocessor/Display configuration

- Press UP + ENTER + DOWN keys contemporaneously for 5 seconds, and the following screen appears:

```

+-----+
|Display address |
|setting.....:05|
|               |
|I/O Board address:01| ← Select the address of the microprocessor that you want to configure
+-----+

```

- Press ENTER key and the following screen appears

```

+-----+
| Terminal config |
|   Press ENTER   |
|   to continue   |
+-----+

```

- Press ENTER key and the following screen appears

In this screen it is necessary to configure the addresses and the functional mode of the display (terminal) connected to the microprocessor. Note that to one microprocessor can be connected a maximum of 3 displays (terminals Tmr1-2-3). Press ENTER key to move the cursor into the fields and UP or DOWN keys to modify the value.

```

Microprocessor address
↓
+-----+
|P:01|Adr|Priv/Shared|
|Tmr1| 05| Pr         | ← Functional mode of the display: Pr = Private, Sh = Shared
|Tmr2| 32| Sh         |
|Tmr3| None|-- Ok?No | ← Change "No" to "Yes" to confirm the modification
+-----+
↑ Display addresses

```

- Private display: if a display is private, it can be managed by only one microprocessor.
- Shared display: if a display is shared, it can be managed by more than one microprocessors; in this case it is possible to switch the managed microprocessor pressing contemporaneously ESC + DOWN keys.
- To confirm the modification, change to Yes the parameters near Ok?.
- Display configuration examples:

#### Example 1

Description: 2 unit with 2 private displays

```

pCO of unit 1
+-----+
|P:01|Adr|Priv/Shared|
|Tmr1| 05| Pr         |
|Tmr2| None|--        |
|Tmr3| None|-- Ok?No |
+-----+

```

```

pCO of unit 2
+-----+
|P:02|Adr|Priv/Shared|
|Tmr1| 06| Pr         |
|Tmr2| None|--        |
|Tmr3| None|-- Ok?No |
+-----+

```

#### Example 2

Description: 2 unit with 1 private display and 1 shared displays

```

pCO of unit 1
+-----+
|P:01|Adr|Priv/Shared|
|Tmr1| 05| Pr         |
|Tmr2| 32| Sh         |
|Tmr3| None|-- Ok?No |
+-----+

```

```

pCO of unit 2
+-----+
|P:02|Adr|Priv/Shared|
|Tmr1| 06| Pr         |
|Tmr2| 32| Sh         |
|Tmr3| None|-- Ok?No |
+-----+

```

### 3.5. Application configuration

- Enabling the Lan function: set to Y the parameter in the following screen of the User Menu (Password = 100) in all units.

```
M_Lan_01
+-----+
|LAN enable:      Y |
|                |
|                |
|                |
+-----+
```

- Configure the Lan function: in the master unit (unit with address = 1) set
  - The number of units connected
  - The rotation time
  - The lan alarm delay
  - The master control function: to use the master inlet temperature for the regulation of the compressor of all units.

```
M_Lan_01
+-----+
|LAN enable:      N |
|Units number:    2 |
|Rotaz.time:      |
|                024 hrs|
+-----+
```

```
M_Lan_02
+-----+
|LAN alarm delay: |
|                060 s|
|Master control:  N |
|                |
+-----+
```

### 3.6. Lan status

- Lan status: in the main screen from the following screen is possible to see LAN status.

```
M_Main80
+-----+
|Unit:01         MASTER|
|LAN status:ON   |
|MASTER Inlet water |
|                12.0°C|
+-----+
```