

AIR TO WATER

**Comfort series**

## DESIGN & TECHNICAL MANUAL

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*Split type*

HYDRAULIC  
INDOOR



WSYA050ML3  
WSYA080ML3  
WSYA100ML3

OUTDOOR



WOYA060KLT



WOYA080KLT



WOYA100KLT

FUJITSU GENERAL LIMITED

**Notices:**

- Product specifications and design are subject to change without notice for future improvement.
- For further details, please check with our authorized dealer.

## **CONTENTS**

### **1. OUTDOOR UNIT**

### **2. HYDRAULIC INDOOR UNITS**

### **3. CONTROL SYSTEM**



## 1. OUTDOOR UNIT

# CONTENTS

## 1. OUTDOOR UNIT

|  |              |
|--|--------------|
| <b>1. Combination .....</b>                                | <b>01-1</b>  |
| <b>2. Specifications .....</b>                             | <b>01-2</b>  |
| 2-1. Nominal capacity and nominal input .....              | 01-2         |
| 2-2. Technical specifications .....                        | 01-3         |
| 2-3. Product fiche .....                                   | 01-4         |
| 2-4. Product information .....                             | 01-5         |
| 2-5. Electrical specifications .....                       | 01-6         |
| <b>3. Dimensions .....</b>                                 | <b>01-7</b>  |
| 3-1. Model: WOYA060KLT .....                               | 01-7         |
| 3-2. Model: WOYA080KLT .....                               | 01-8         |
| 3-3. Model: WOYA100KLT .....                               | 01-9         |
| <b>4. Installation space .....</b>                         | <b>01-10</b> |
| 4-1. Models: WOYA060KLT and WOYA080KLT .....               | 01-10        |
| 4-2. Model: WOYA100KLT .....                               | 01-13        |
| <b>5. Piping diagrams .....</b>                            | <b>01-16</b> |
| 5-1. Models: WOYA060KLT and WOYA080KLT .....               | 01-16        |
| 5-2. Model: WOYA100KLT .....                               | 01-17        |
| <b>6. Wiring diagrams .....</b>                            | <b>01-18</b> |
| 6-1. Models: WOYA060KLT and WOYA080KLT .....               | 01-18        |
| 6-2. Model: WOYA100KLT .....                               | 01-18        |
| <b>7. External input and output (For WOYA100KLT) .....</b> | <b>01-19</b> |
| 7-1. External input .....                                  | 01-19        |
| 7-2. External output .....                                 | 01-21        |
| <b>8. Function settings (For WOYA100KLT) .....</b>         | <b>01-23</b> |
| 8-1. Control PCB and switch buttons location .....         | 01-23        |
| 8-2. Local setting procedure .....                         | 01-25        |
| <b>9. Heating capacity table .....</b>                     | <b>01-27</b> |
| 9-1. Model: WOYA060KLT (5 kW) .....                        | 01-27        |
| 9-2. Model: WOYA060KLT (6 kW) .....                        | 01-27        |
| 9-3. Model: WOYA080KLT .....                               | 01-28        |
| 9-4. Model: WOYA100KLT .....                               | 01-28        |
| <b>10. Cooling capacity table .....</b>                    | <b>01-29</b> |
| 10-1. Model: WOYA060KLT (5 kW) .....                       | 01-29        |
| 10-2. Model: WOYA060KLT (6 kW) .....                       | 01-29        |
| 10-3. Model: WOYA080KLT .....                              | 01-29        |
| 10-4. Model: WOYA100KLT .....                              | 01-29        |
| <b>11. Operation noise (sound pressure) .....</b>          | <b>01-30</b> |
| 11-1. Noise level curve .....                              | 01-30        |
| 11-2. Sound level check point .....                        | 01-32        |

## CONTENTS (continued)

|  |              |
|--|--------------|
| <b>12. Operation range .....</b>                         | <b>01-33</b> |
| 12-1.Models: WOYA060KLT, WOYA080KLT, and WOYA100KLT..... | 01-33        |
| <b>13. Safety devices .....</b>                          | <b>01-34</b> |
| <b>14. Accessories .....</b>                             | <b>01-35</b> |





# 1. Combination

| Class   | Outdoor unit | Hydraulic indoor unit |
|---------|--------------|-----------------------|
| 5.0 kW  | WOYA060KLT   | WSYA050ML3            |
| 6.0 kW  | WOYA060KLT   | WSYA080ML3            |
| 8.0 kW  | WOYA080KLT   | WSYA080ML3            |
| 10.0 kW | WOYA100KLT   | WSYA100ML3            |

## 2. Specifications

### 2-1. Nominal capacity and nominal input

| Model name   |                   | Hydraulic indoor unit |         | WSYA050ML3        | WSYA080ML3 |            | WSYA100ML3 |
|--|-------------------|-----------------------|---------|-------------------|------------|------------|------------|
|  |                   | Outdoor unit          |         | WOYA060KLT        | WOYA060KLT | WOYA080KLT | WOYA100KLT |
| Power supply   |                   |                       |         | 1 Ø 230 V ~ 50 Hz |            |            |            |
| -15°C/+45°C  | Heating capacity  | Nominal               | kW      | 3.50              | 4.00       | 5.00       | 7.50       |
|  | Input power       | Nominal               | kW      | 1.81              | 2.05       | 2.62       | 3.75       |
|  | COP               | Nominal               |         | 1.93              | 1.95       | 1.91       | 2.00       |
| -10°C/+55°C  | Heating capacity  | Nominal               | kW      | 3.75              | 4.00       | 5.00       | 7.10       |
|  | Input power       | Nominal               | kW      | 2.19              | 2.31       | 2.96       | 4.06       |
|  | COP               | Nominal               |         | 1.71              | 1.73       | 1.69       | 1.75       |
| -10°C/+35°C  | Heating capacity  | Nominal               | kW      | 4.00              | 4.50       | 5.60       | 8.20       |
|  | Input power       | Nominal               | kW      | 1.49              | 1.69       | 2.38       | 3.35       |
|  | COP               | Nominal               |         | 2.68              | 2.67       | 2.35       | 2.45       |
| -7°C/+35°C   | Heating capacity  | Nominal               | kW      | 4.40              | 5.00       | 5.70       | 8.90       |
|  | Input power       | Nominal               | kW      | 1.59              | 1.90       | 2.13       | 3.36       |
|  | COP               | Nominal               |         | 2.76              | 2.63       | 2.68       | 2.65       |
| -7°C/+55°C   | Heating capacity  | Nominal               | kW      | 3.90              | 4.25       | 5.30       | 8.00       |
|  | Input power       | Nominal               | kW      | 2.11              | 2.25       | 2.79       | 4.10       |
|  | COP               | Nominal               |         | 1.85              | 1.89       | 1.90       | 1.95       |
| +2°C/+35°C   | COP priority      | Heating capacity      | Nominal | kW                | 2.50       | 3.40       | 4.50       |
|  |                   | Input power           | Nominal | kW                | 0.651      | 0.863      | 1.14       |
|  |                   | COP                   | Nominal |                   | 3.84       | 3.94       | 3.95       |
|  | Capacity priority | Heating capacity      | Nominal | kW                | 4.50       | 5.30       | 9.30       |
|  |                   | Input power           | Nominal | kW                | 1.33       | 1.65       | 3.08       |
|  |                   | COP                   | Nominal |                   | 3.39       | 3.22       | 3.02       |
| +7°C/+35°C   | Heating capacity  | Minimum               | kW      | 1.93              |            | 1.97       | 3.56       |
|  |                   | Nominal               |         | 4.50              | 5.50       | 7.50       | 9.50       |
|  |                   | Maximum               |         | 7.75              | 9.37       | 9.85       | 15.29      |
|  | Input power       | Nominal               | kW      | 0.949             | 1.18       | 1.69       | 2.11       |
|  | COP               | Nominal               |         | 4.74              | 4.65       | 4.43       | 4.50       |
|  |                   |                       |         |                   |            |            |            |
| +7°C/+45°C   | Heating capacity  | Nominal               | kW      | 4.50              | 5.50       | 7.50       | 9.00       |
|  | Input power       | Nominal               | kW      | 1.26              | 1.54       | 2.20       | 2.475      |
|  | COP               | Nominal               |         | 3.57              | 3.56       | 3.41       | 3.45       |
| +7°C/+55°C   | Heating capacity  | Nominal               | kW      | 4.50              | 5.50       | 7.00       | 9.00       |
|  | Input power       | Nominal               | kW      | 1.70              | 2.06       | 2.63       | 3.33       |
|  | COP               | Nominal               |         | 2.64              | 2.67       | 2.66       | 2.70       |
| <b>NOTE:</b> Test conditions are complied with EN14511-2 |                   |                       |         |                   |            |            |            |

## 2-2. Technical specifications

| Outdoor unit model name   |                               |                                 |  | WOYA060KLT   | WOYA080KLT                      | WOYA100KLT          |  |
|---------------------------|-------------------------------|---------------------------------|--|--|---------------------------------|---------------------|--|
| Enclosure                 |                               | Material                        |  | Steel sheet  |                                 |                     |  |
|                           |                               | Color                           |  | Beige<br>Approximate color of Munsell 10YR 7.5/1.0NN |                                 |                     |  |
| Dimensions<br>(H × W × D) | Net                           |                                 | mm   | 632 × 799 × 290                                      | 716 × 820 × 315                 | 998 × 940 × 320     |  |
|                           | Gross                         |                                 |  | 692 × 940 × 375                                      | 776 × 961 × 450                 | 1,176 × 1,027 × 445 |  |
| Weight                    | Net                           |                                 | kg   | 39   | 42                              | 65                  |  |
|                           | Gross                         |                                 |  | 43   | 46                              | 71                  |  |
| Heat exchanger            |                               | Dimensions<br>(H × W × D)       | mm   | 588 × 881 × 36.38                                    | 672 × 881 × 36.38               | 966 × 905 × 36.38   |  |
|                           |                               | Fin pitch                       |  | 1.3  |                                 | 1.45                |  |
|                           |                               | Rows × Stages                   |  | 2 × 28   | 2 × 32                          | 2 × 46              |  |
|                           |                               | Pipe type                       |  | Copper   |                                 |                     |  |
|                           |                               | Fin type                        | Type (Material)<br>Surface treatment           | Corrugate (Aluminum)<br>Corrosion resistance         |                                 |                     |  |
| Fan                       | Airflow rate                  | Heating                         | m³/h   | 2,100  | 3,120                           | 4,130               |  |
|                           | Type × Q'ty                   | Propeller fan × 1               |  |  |                                 |                     |  |
|                           | Discharge direction           |                                 |  | Horizontal   |                                 |                     |  |
|                           | Motor quantity                |                                 |  | 1  |                                 |                     |  |
|                           | Motor output                  |                                 | W  | 49   |                                 | 120                 |  |
| Compressor                | Type                          |                                 |  | DC 2 rotary × 1                                      |                                 |                     |  |
|                           | Motor output                  |                                 | W  | 1,200  |                                 | 2,180               |  |
| Operation range           | Heating                       | Minimum                         | °CDB   | -20  |                                 |                     |  |
|                           |                               | Maximum                         | °CWB   | 35   |                                 |                     |  |
|                           | Sanitary water                | Minimum                         | °CDB   | -20  |                                 |                     |  |
|                           |                               | Maximum                         | °CWB   | 35   |                                 |                     |  |
| Refrigerant               |                               | Type (Global Warming Potential) |  |  | R32 (675)                       |                     |  |
|                           |                               | Charge                          | g  | 970  | 1,020                           | 1,630               |  |
|                           |                               | Control                         |  |  | Expansion valve (electric type) |                     |  |
|                           |                               | Number of circuits              |  |  | 1                               |                     |  |
| Refrigerant oil           |                               | Type                            |  |  | RmM68AF                         |                     |  |
|                           |                               | Charged volume                  | l  | 0.55   |                                 | 0.80                |  |
| Connection pipe           | Connection method             | Liquid                          | mm   | Flare connection                                     |                                 |                     |  |
|                           |                               | Gas                             |  | Flare connection                                     |                                 |                     |  |
|                           | Size (standard)               | Liquid                          | mm   | Ø6.35  |                                 | Ø9.52               |  |
|                           |                               | Gas                             |  | Ø12.70   |                                 | Ø15.88              |  |
|                           | Pre-charge length             |                                 | m  | 15   |                                 | 20                  |  |
|                           | Max. length                   |                                 |  | 30   |                                 |                     |  |
|                           | Min. length                   |                                 |  | 3.0  |                                 |                     |  |
|                           | Additional refrigerant charge |                                 | g/m  | 25   |                                 | 20                  |  |
|                           | Max. height difference        |                                 | m  | 20   |                                 |                     |  |
|                           | Defrost method                |                                 |  | Reverse cycle  |                                 |                     |  |
| Defrost control           |                               |                                 | Outdoor unit heat exchanger temperature sensor |  |                                 |                     |  |
| Capacity control method   |                               |                                 |  | Inverter control                                     |                                 |                     |  |

## 2-3. Product fiche

| Model name  | Hydraulic indoor unit |     | WSYA050ML3                                       |       | WSYA080ML3 |       |            |       | WSYA100ML3 |       |
|---|-----------------------|-----|--|-------|------------|-------|------------|-------|------------|-------|
|   | Outdoor unit          |     | WOYA060KLT                                       |       | WOYA060KLT |       | WOYA080KLT |       | WOYA100KLT |       |
| Temperature application   |                       | °C  | 55   | 35    | 55         | 35    | 55         | 35    | 55         | 35    |
| Declared load profile   |                       |     | —  | —     | —          | —     | —          | —     | —          | —     |
| Seasonal space heating energy efficiency class  |                       |     | A++  | A+++  | A++        | A+++  | A++        | A+++  | A++        | A+++  |
| Water heating energy efficiency class   |                       |     | —  | —     | —          | —     | —          | —     | —          | —     |
| Rated heat output   |                       | kW  | 5  | 5     | 5          | 6     | 6          | 7     | 8          | 9     |
| Supplementary heater  |                       | kW  | 3  | 3     | 3          | 3     | 3          | 3     | 3          | 3     |
| Annual energy consumption   |                       | kWh | 3,035  | 2,322 | 3,411      | 2,594 | 3,903      | 2,982 | 5,083      | 3,875 |
| Annual electricity consumption  |                       | kWh | —  | —     | —          | —     | —          | —     | —          | —     |
| Annual fuel consumption   |                       | GJ  | Not applicable                                   |       |            |       |            |       |            |       |
| Seasonal space heating energy efficiency  |                       | %   | 125  | 175   | 125        | 175   | 128        | 177   | 130        | 178   |
| Water heating energy efficiency   |                       | %   | —  | —     | —          | —     | —          | —     | —          | —     |
| Sound power level   | Hydraulic unit        | dB  | 40   | —     | 40         | —     | 40         | —     | 40         | —     |
| Work only during off-peak hours   |                       |     | Not applicable                                   |       |            |       |            |       |            |       |
| Specific precautions in assembled, installed, or maintained   |                       |     | Refer to the installation and operating manuals. |       |            |       |            |       |            |       |
| Rated heat output   | Colder climate        | kW  | —  | —     | —          | —     | —          | —     | —          | —     |
|   | Warmer climate        | kW  | 5  | 6     | 5          | 6     | 6          | 6     | 8          | 8     |
| Annual energy consumption   | Colder climate        | kWh | —  | —     | —          | —     | —          | —     | —          | —     |
|   | Warmer climate        | kWh | 1,772  | 1,253 | 1,809      | 1,351 | 1,911      | 1,294 | 2,632      | 1,795 |
| Annual electricity consumption  | Colder climate        | kWh | —  | —     | —          | —     | —          | —     | —          | —     |
|   | Warmer climate        | kWh | —  | —     | —          | —     | —          | —     | —          | —     |
| Seasonal space heating energy efficiency  | Colder climate        | %   | —  | —     | —          | —     | —          | —     | —          | —     |
|   | Warmer climate        | %   | 157  | 236   | 156        | 230   | 159        | 228   | 162        | 235   |
| Water heating energy efficiency   | Colder climate        | %   | —  | —     | —          | —     | —          | —     | —          | —     |
|   | Warmer climate        | %   | —  | —     | —          | —     | —          | —     | —          | —     |
| Sound power level   | Outdoor unit          | dB  | 57   | —     | 57         | —     | 60         | —     | 62         | —     |
| <b>NOTES:</b> <ul style="list-style-type: none"> <li>Product fiche according to Commission Delegated Regulation (EU) 811/2013</li> <li>Acoustic noise information: <ul style="list-style-type: none"> <li>The maximum sound pressure level is less than 70 dB (A) for both hydraulic unit and outdoor unit.</li> <li>According to IEC 704-1 and ISO 3744.</li> </ul> </li> <li>If the air to water heat pump is operated under higher temperature conditions than those listed, the built-in protection circuit may operate to prevent internal circuit damage. Also, during cooling modes, if the unit is used under conditions of lower temperatures than those listed above, the heat exchanger may freeze, leading to water leakage and other damage.</li> <li>Do not use this unit for any purposes other than the Heating and Cooling.</li> </ul> |                       |     |  |       |            |       |            |       |            |       |

## 2-4. Product information

| Model name   | Hydraulic indoor unit  |                   | WSYA050ML3       |       | WSYA080ML3 |       |            | WSYA100ML3 |            |       |   |
|--|--|-------------------|------------------|-------|------------|-------|------------|------------|------------|-------|---|
|  | Outdoor unit   |                   | WOYA060KLT       |       | WOYA060KLT |       | WOYA080KLT |            | WOYA100KLT |       |   |
| Air-to-water heat pump   |  |                   | Yes              |       |            |       |            |            |            |       |   |
| Water-to-water heat pump   |  |                   | No               |       |            |       |            |            |            |       |   |
| Brine-to-water heat pump   |  |                   | No               |       |            |       |            |            |            |       |   |
| Low-temperature heat pump  |  |                   | No               |       |            |       |            |            |            |       |   |
| Equipped with a supplementary heater   |  |                   | Yes              |       |            |       |            |            |            |       |   |
| Heat pump combination heater   |  |                   | No* <sup>1</sup> |       |            |       |            |            |            |       |   |
| Temperature application  |  | °C                | 55               | 35    | 55         | 35    | 55         | 35         | 55         | 35    |   |
| Rated heat output* <sup>2</sup>  | P <sub>rated</sub>   | kW                | 5                | 5     | 5          | 6     | 6          | 7          | 8          | 9     |   |
| Seasonal space heating energy efficiency   | η <sub>s</sub>   | %                 | 125              | 175   | 125        | 175   | 128        | 177        | 130        | 178   |   |
| Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>   |  |                   |                  |       |            |       |            |            |            |       |   |
| T <sub>j</sub> = −7°C  | P <sub>dh</sub>  | kW                | 4.2              | 4.4   | 4.7        | 5.0   | 5.5        | 5.8        | 7.3        | 7.5   |   |
| T <sub>j</sub> = +2°C  | P <sub>dh</sub>  | kW                | 2.5              | 2.7   | 2.9        | 3.0   | 3.3        | 3.5        | 4.4        | 4.6   |   |
| T <sub>j</sub> = +7°C  | P <sub>dh</sub>  | kW                | 1.9              | 2.1   | 1.8        | 2.1   | 2.1        | 2.3        | 3.6        | 3.9   |   |
| T <sub>j</sub> = +12°C   | P <sub>dh</sub>  | kW                | 2.3              | 2.4   | 2.3        | 2.4   | 2.4        | 2.5        | 7.3        | 7.5   |   |
| T <sub>j</sub> = bivalent temperature  | P <sub>dh</sub>  | kW                | 4.2              | 4.4   | 4.7        | 5.0   | 5.5        | 5.8        | 7.1        | 7.3   |   |
| T <sub>j</sub> = operation limit temperature   | P <sub>dh</sub>  | kW                | 3.8              | 4.0   | 4.0        | 4.5   | 5.0        | 5.6        | 55         | 35    |   |
| T <sub>j</sub> = −15°C (if TOL < −20°C)  | P <sub>dh</sub>  | kW                | —                | —     | —          | —     | —          | —          | —          | —     |   |
| Bivalent temperature   | T <sub>biv</sub>   | °C                | −7               | −7    | −7         | −7    | −7         | −7         | −7         | −7    |   |
| Cycling interval capacity for heating  | P <sub>cych</sub>  | kW                | Not applicable   |       |            |       |            |            |            |       |   |
| Degradation co-efficient* <sup>3</sup>   | C <sub>dh</sub>  |                   | 0.9              | 0.9   | 0.9        | 0.9   | 0.9        | 0.9        | 0.9        | 0.9   |   |
| Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T <sub>j</sub>   |  |                   |                  |       |            |       |            |            |            |       |   |
| T <sub>j</sub> = −7°C  | COP <sub>d</sub>   |                   | 1.99             | 2.84  | 1.97       | 2.74  | 1.91       | 2.70       | 2.05       | 2.98  |   |
| T <sub>j</sub> = +2°C  | COP <sub>d</sub>   |                   | 3.11             | 4.40  | 3.11       | 4.38  | 3.18       | 4.35       | 3.24       | 4.46  |   |
| T <sub>j</sub> = +7°C  | COP <sub>d</sub>   |                   | 4.25             | 5.85  | 4.29       | 6.04  | 4.52       | 6.32       | 4.47       | 5.89  |   |
| T <sub>j</sub> = +12°C   | COP <sub>d</sub>   |                   | 5.91             | 7.39  | 6.06       | 7.43  | 6.37       | 8.07       | 5.97       | 7.14  |   |
| T <sub>j</sub> = bivalent temperature  | COP <sub>d</sub>   |                   | 1.99             | 2.84  | 1.97       | 2.74  | 1.91       | 2.70       | 2.05       | 2.98  |   |
| T <sub>j</sub> = operation limit temperature   | COP <sub>d</sub>   |                   | 1.71             | 2.68  | 1.73       | 2.67  | 1.69       | 2.35       | 1.72       | 2.71  |   |
| T <sub>j</sub> = −15°C (if TOL < −20°C)  | COP <sub>d</sub>   |                   | —                | —     | —          | —     | —          | —          | —          | —     |   |
| Operation limit temperature  | TOL  | °C                | −10              | −10   | −10        | −10   | −10        | −10        | −10        | −10   |   |
| Cycling interval efficiency  | COP <sub>cyc</sub>   |                   | Not applicable   |       |            |       |            |            |            |       |   |
| Heating water operating limit temperature  | WTOL   | °C                | 55               | 55    | 55         | 55    | 55         | 55         | 55         | 55    |   |
| Power consumption in modes other than active mode  |  |                   |                  |       |            |       |            |            |            |       |   |
| Off mode   | P <sub>OFF</sub>   | kW                | 0.004            | 0.004 | 0.004      | 0.004 | 0.004      | 0.004      | 0.004      | 0.004 |   |
| Thermostat-off mode  | P <sub>TO</sub>  | kW                | 0.013            | 0.012 | 0.013      | 0.012 | 0.014      | 0.014      | 0.021      | 0.020 |   |
| Standby mode   | P <sub>SB</sub>  | kW                | 0.010            | 0.010 | 0.010      | 0.010 | 0.010      | 0.010      | 0.008      | 0.008 |   |
| Crankcase heater mode  | P <sub>CK</sub>  | kW                | 0.000            | 0.000 | 0.000      | 0.000 | 0.000      | 0.000      | 0.000      | 0.000 |   |
| Supplementary heater   |  |                   |                  |       |            |       |            |            |            |       |   |
| Rated heat output* <sup>2</sup>  | P <sub>SUP</sub>   | kW                | 0.9              | 1.0   | 1.3        | 1.1   | 1.2        | 0.9        | 1.1        | 1.2   |   |
| Type of energy input   | Electric   |                   |                  |       |            |       |            |            |            |       |   |
| Other items  |  |                   |                  |       |            |       |            |            |            |       |   |
| Capacity control   |  |                   | Variable         |       |            |       |            |            |            |       |   |
| Sound power level  | Indoor unit  | L <sub>WA</sub>   | dB               | 40    | —          | 40    | —          | 40         | —          | 40    | — |
|  | Outdoor unit   | L <sub>WA</sub>   | dB               | 57    | —          | 57    | —          | 60         | —          | 62    | — |
| Annual energy consumption  | Q <sub>HE</sub>  | kWh               | 3,035            | 2,322 | 3,411      | 2,594 | 3,903      | 2,982      | 5,083      | 3,875 |   |
| Emissions of nitrogen oxides   | NO <sub>x</sub>  | mg/kWh            | Not applicable   |       |            |       |            |            |            |       |   |
| Rated airflow rate   | Outdoor unit   | m <sup>3</sup> /h | 2,100            | 1,640 | 2,100      | 2,100 | 3,120      | 3,120      | 4,130      | 4,130 |   |
| Declared load profile  |  |                   | —                |       |            |       |            |            |            |       |   |
| Daily electricity consumption  | Q <sub>elec</sub>  | kWh               | —                | —     | —          | —     | —          | —          | —          | —     |   |
| Annual energy consumption  | AEC  | kWh               | —                | —     | —          | —     | —          | —          | —          | —     |   |
| Water heating energy efficiency  | η <sub>lwh</sub>   | %                 | —                | —     | —          | —     | —          | —          | —          | —     |   |
| Daily fuel consumption   | Q <sub>fuel</sub>  | kWh               | Not applicable   |       |            |       |            |            |            |       |   |
| Contact details  | FUJITSU GENERAL (EURO) GmbH<br>Fritz-Vormfelde-Straße 26-32, 40547 Düsseldorf, Germany |                   |                  |       |            |       |            |            |            |       |   |
| NOTES:   |  |                   |                  |       |            |       |            |            |            |       |   |
| <ul style="list-style-type: none"><li>• Product information according to Commission Delegated Regulation (EU) 811/2013</li><li>• Product information is based on the average climate condition.</li><li>• *1: When using an optional component, this function is available.</li><li>• *2: For heat pump space heaters and heat pump combination heaters, the rated heat output P<sub>rated</sub> is equal to the design load for heating P<sub>design,ht</sub>, and the rated heat output of a supplementary heater P<sub>sup</sub> is equal to the supplementary capacity for heating sup (T<sub>j</sub>).</li><li>• *3: If C<sub>dh</sub> is not determined by measurement then the default degradation coefficient is C<sub>dh</sub> = 0.9.</li></ul> |  |                   |                  |       |            |       |            |            |            |       |   |

## Energy efficiency value

| Application: 35°C   |                       |  |            |  |            |  |            |  |            |  |      |  |
|---|-----------------------|--|------------|--|------------|--|------------|--|------------|--|------|--|
| Model name  | Hydraulic indoor unit |  | WSYA050ML3 |  | WSYA080ML3 |  |            |  | WSYA100ML3 |  |      |  |
|   | Outdoor unit          |  | WOYA060KLT |  | WOYA060KLT |  | WOYA080KLT |  | WOYA100KLT |  |      |  |
| Seasonal energy efficiency of heat pump for space heating                         |                       |  | %          |  | 175        |  | 175        |  | 177        |  | 178  |  |
| Type of temperature control   |                       |  |            |  |            |  |            |  |            |  |      |  |
| Outdoor sensor (included in the package)  |                       |  |            |  | II         |  | —          |  | II         |  | —    |  |
| Modulating room thermostat (outdoor sensor included in the package)               |                       |  |            |  | —          |  | IV         |  | —          |  | IV   |  |
| Bonus   |                       |  | %          |  | 2          |  | 4          |  | 2          |  | 4    |  |
| Seasonal space heating energy efficiency of package in average climate conditions |                       |  | %          |  | 177        |  | 179        |  | 177        |  | 179  |  |
| Energy class of the packages  |                       |  |            |  | A+++       |  | A+++       |  | A+++       |  | A+++ |  |
| Seasonal space heating energy efficiency of package in warmer climate conditions  |                       |  | %          |  | 238        |  | 240        |  | 232        |  | 234  |  |
| Seasonal space heating energy efficiency of package in colder climate conditions  |                       |  | %          |  | —          |  | —          |  | —          |  | —    |  |

| Application: 55°C   |                       |  |            |  |            |  |            |            |            |  |     |  |
|---|-----------------------|--|------------|--|------------|--|------------|------------|------------|--|-----|--|
| Model name  | Hydraulic indoor unit |  | WSYA050ML3 |  | WSYA080ML3 |  |            | WSYA100ML3 |            |  |     |  |
|   | Outdoor unit          |  | WOYA060KLT |  | WOYA060KLT |  | WOYA080KLT |            | WOYA100KLT |  |     |  |
| Seasonal energy efficiency of heat pump for space heating                         |                       |  | %          |  | 125        |  | 125        |            | 128        |  | 130 |  |
| Type of temperature control   |                       |  |            |  |            |  |            |            |            |  |     |  |
| Outdoor sensor (included in the package)  |                       |  |            |  | II         |  | —          |            | II         |  | —   |  |
| Modulating room thermostat (outdoor sensor included in the package)               |                       |  |            |  | —          |  | IV         |            | —          |  | IV  |  |
| Bonus   |                       |  | %          |  | 2          |  | 4          |            | 2          |  | 4   |  |
| Seasonal space heating energy efficiency of package in average climate conditions |                       |  | %          |  | 127        |  | 129        |            | 127        |  | 129 |  |
| Energy class of the packages  |                       |  |            |  | A++        |  | A++        |            | A++        |  | A++ |  |
| Seasonal space heating energy efficiency of package in warmer climate conditions  |                       |  | %          |  | 159        |  | 161        |            | 158        |  | 160 |  |
| Seasonal space heating energy efficiency of package in colder climate conditions  |                       |  | %          |  | —          |  | —          |            | —          |  | —   |  |

## Class of temperature controller

|   |   |    |    |
|---|---|----|----|
| Controller class  |   | II | VI |
| Contribution to energy efficiency   | % | 2  | 4  |
| <b>NOTE:</b> Controller class VI: UTW-C55XA, UTW-C58XD, UTW-C74TXF, UTW-C74HXF, UTW-C78XD |   |    |    |

## 2-5. Electrical specifications

| Outdoor unit model name       |                                     |                            |                 | WOYA060KLT  |  | WOYA080KLT |  | WOYA100KLT  |  |
|-------------------------------|-------------------------------------|----------------------------|-----------------|-------------|--|------------|--|-------------|--|
| Available voltage range       |                                     |                            |                 | 198—264 V   |  |            |  |             |  |
| Power supply                  |                                     | Voltage                    | V               | 1 Ø 230     |  |            |  |             |  |
|                               |                                     | Frequency                  | Hz              | 50          |  |            |  |             |  |
| Maximum operating current*1   |                                     | Heating                    | A               | 13.0        |  | 18.0       |  | 19.0        |  |
| Wiring spec.*2                | Main fuse (circuit breaker) current |                            | A               | 16          |  |            |  | 32          |  |
|                               | Power cable                         |                            | mm <sup>2</sup> | 2.5 or more |  |            |  | 4.0 or more |  |
|                               | Transmission cable                  | Size                       | mm <sup>2</sup> | 1.5 or more |  |            |  |             |  |
|                               |                                     | Max. length                | m               | 31          |  |            |  |             |  |
| Wiring connections quantity*3 |                                     | For power supply           |                 | 3           |  |            |  |             |  |
|                               |                                     | For connection with indoor |                 | 4           |  |            |  |             |  |

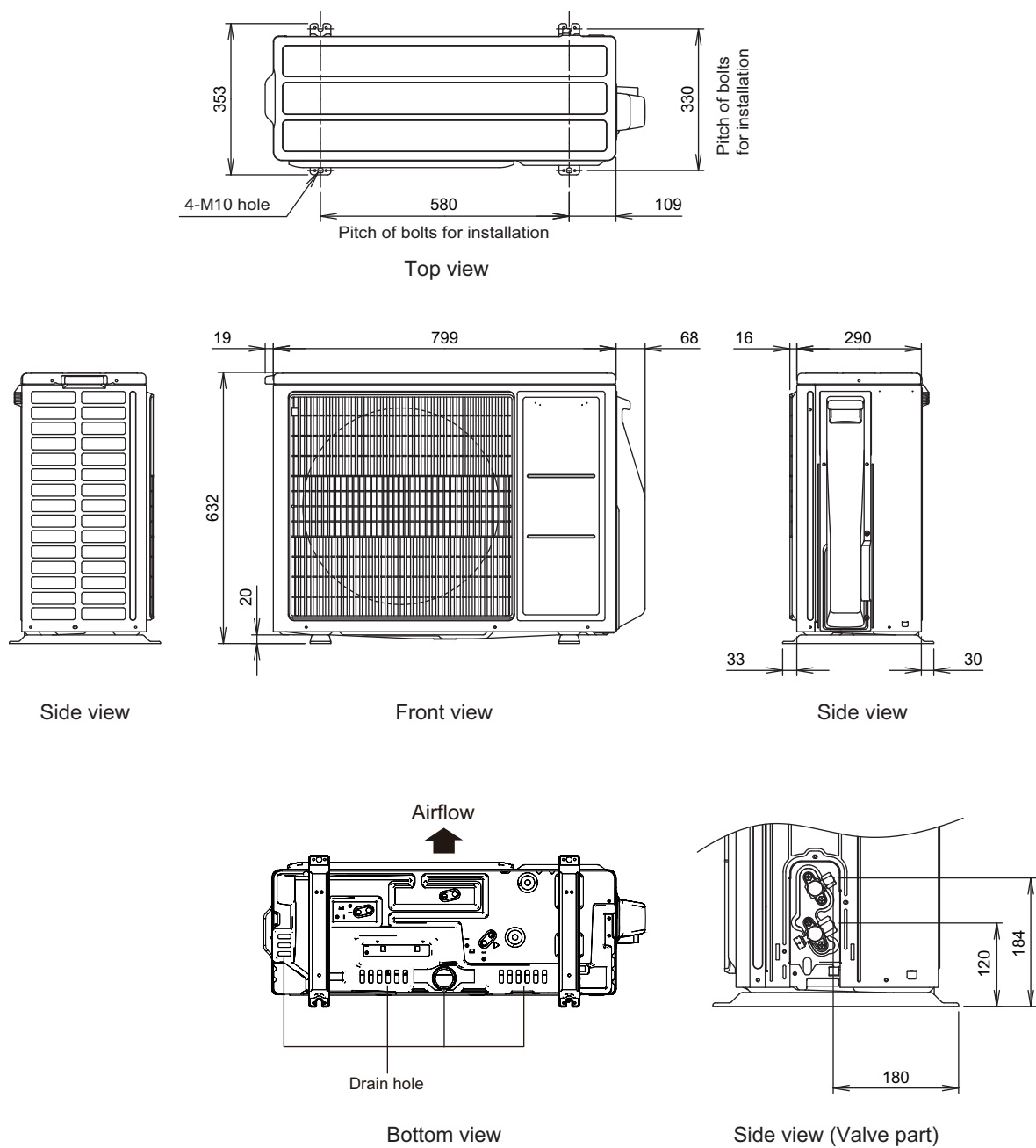
### NOTES:

- \*1: Maximum operating current is the total current of the indoor unit and the outdoor unit.
- \*2: Selected based on Japan Electrotechnical Standard and Codes Committee E0005.
- \*3: Included earth wiring.

## 3. Dimensions

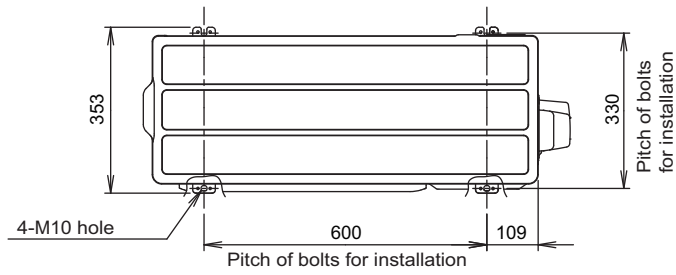
### 3-1. Model: WOYA060KLT

Unit: mm

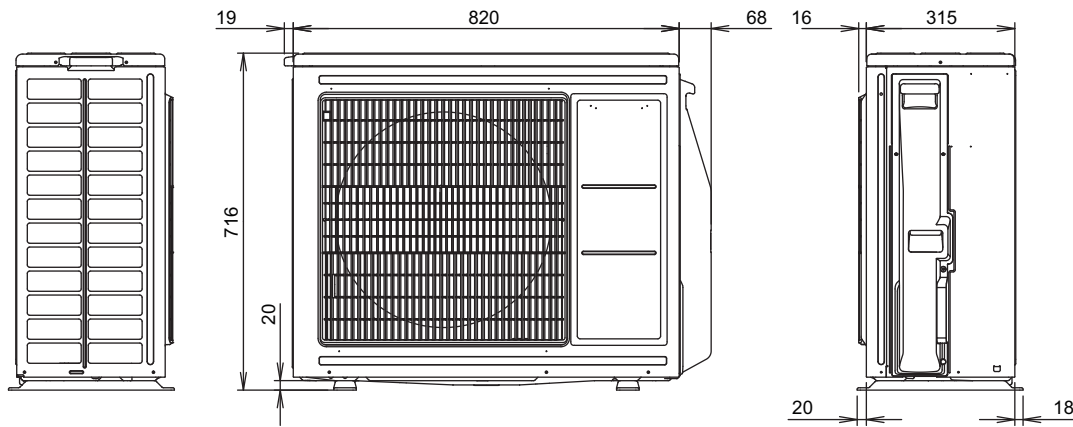


## 3-2. Model: WOYA080KLT

Unit: mm

OUTDOOR  
UNITOUTDOOR  
UNIT

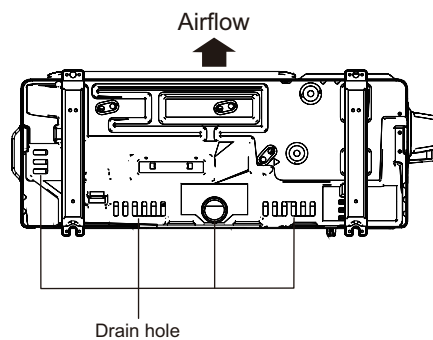
Top view



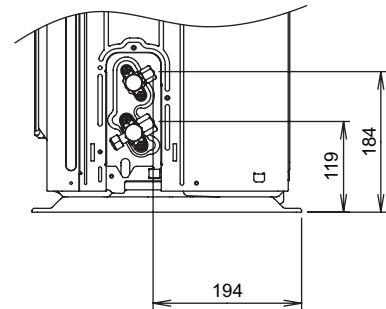
Side view

Front view

Side view



Bottom view

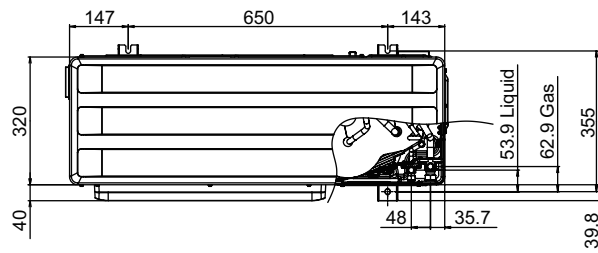


Side view (Valve part)

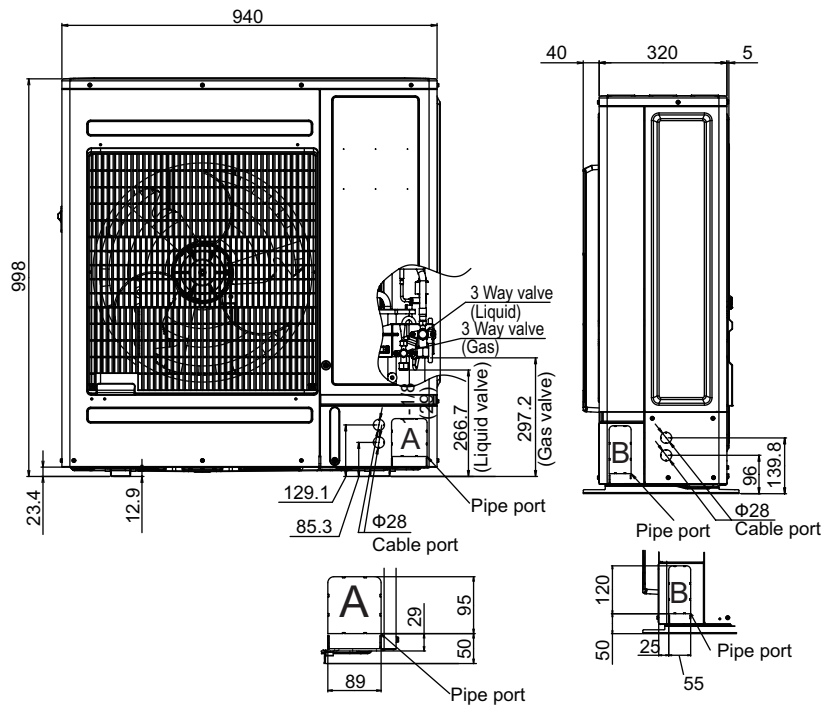


### 3-3. Model: WOYA100KLT

Unit: mm

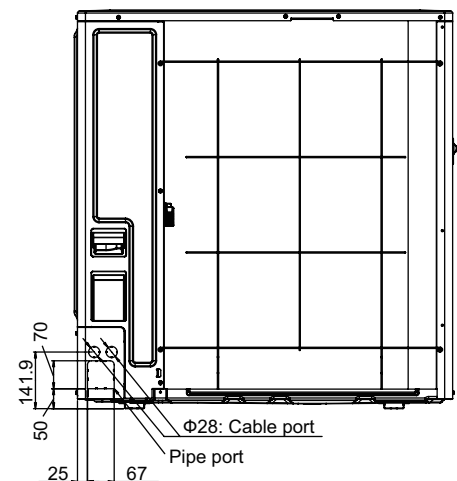


Top view

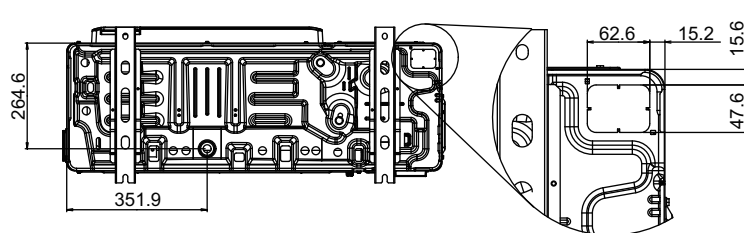


Front view

Side view



Rear view



Bottom view

Pipe &amp; Cable port

## 4. Installation space

### 4-1. Models: WOYA060KLT and WOYA080KLT

#### ■ Space requirement

Provide sufficient installation space for product safety.

#### ⚠ CAUTION

Keep the space shown in the installation examples.

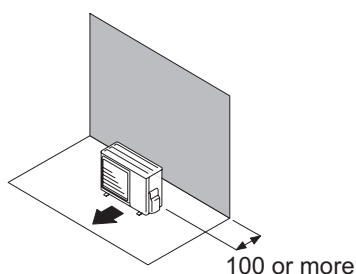
If the installation is not performed accordingly, it could cause a short circuit and result in a lack of operating performance.

#### ● Single outdoor unit installation

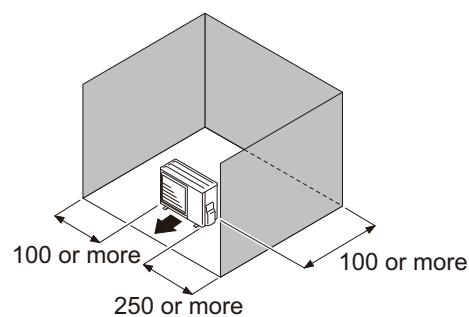
- When the upper space is open:

Unit: mm

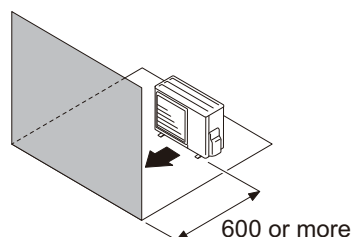
Obstacles at rear only



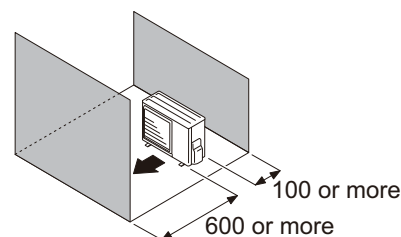
Obstacles at rear and sides



Obstacles at front



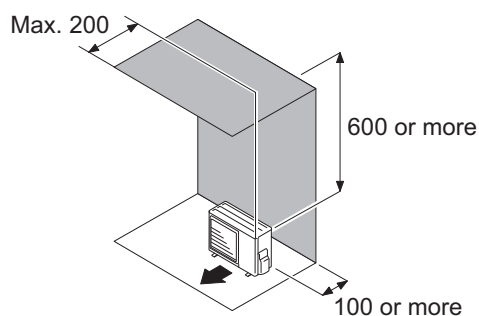
Obstacles at front and rear



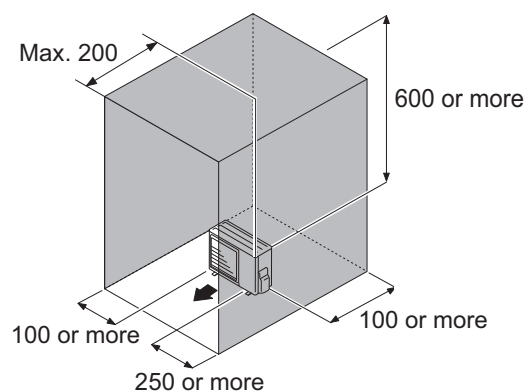
- When an obstruction in the upper space:

Unit: mm

Obstacles at rear and above



Obstacles at rear, sides, and above



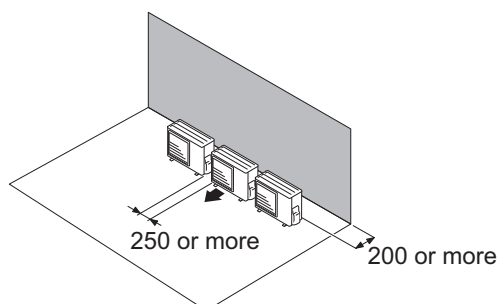
## ● Multiple outdoor unit installation

- Provide at least 250 mm of space between the outdoor units if multiple units are installed.
- When routing the piping from the side of an outdoor unit, provide space for piping.
- No more than 3 units must be installed side by side.  
When 4 units or more are arranged in a line, provide the space as shown in the following example **“When an obstruction in the upper space:”**.

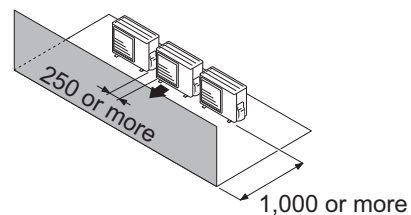
- **When the upper space is open:**

Unit: mm

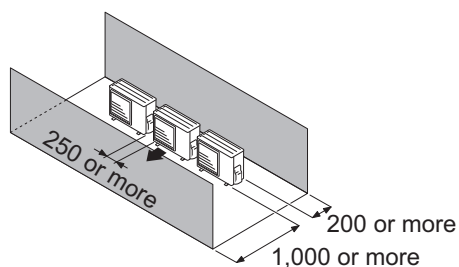
Obstacles at rear only



Obstacles at front only



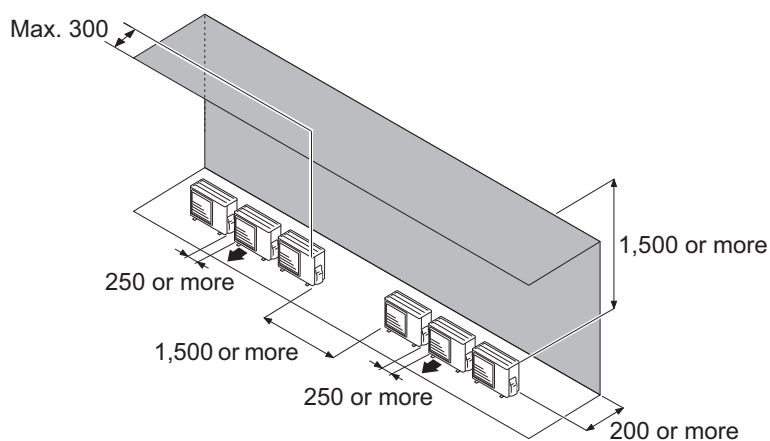
Obstacles at front and rear



- **When an obstruction in the upper space:**

Unit: mm

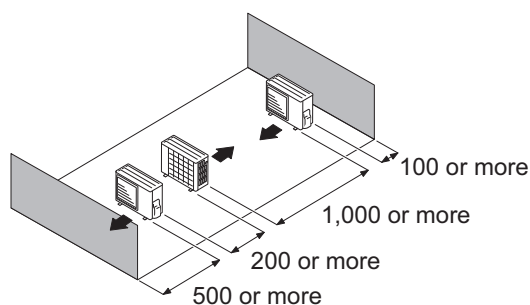
Obstacles at rear and above.



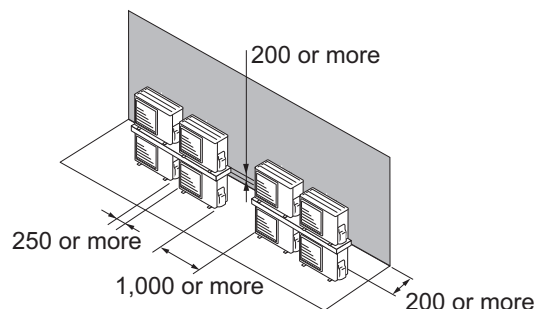
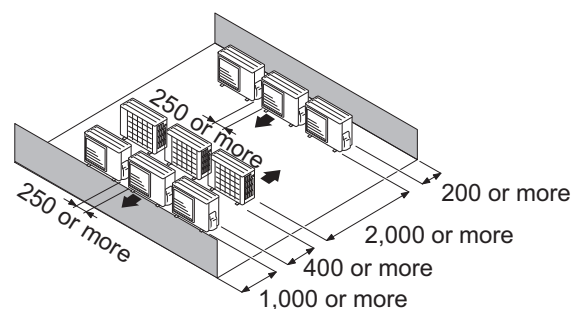
## ● Outdoor units installation in multi-row

Unit: mm

Single parallel unit arrangement



Multiple parallel unit arrangement

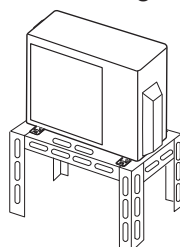


### NOTES:

- If the space is larger than stated above, the condition will be the same as when there is no obstacle.
- Height above the floor level should be 50 mm or more.
- When installing the outdoor unit, be sure to open the front and left side to obtain better operation efficiency.

### ⚠ CAUTION

- Do not install the outdoor unit in two-stage where the drain water could freeze. Otherwise the drainage from the upper unit may form ice and cause a malfunction of the lower unit.
- If the unit is installed in a region that is exposed to high winds, freezing conditions, freezing rain, snow fall or heavy snow accumulation, take appropriate measures to protect it from those elements. To ensure stable operation, the outdoor unit must be installed on a raised stand or rack, at or above the anticipated snow depth for the region. The installation of snow hoods and drift prevention fencing is recommended when blowing and drifting snow is common to the region.



## 4-2. Model: WOYA100KLT

### ■ Space requirement

Provide sufficient installation space for product safety.

#### ⚠ CAUTION

Keep the space shown in the installation examples.

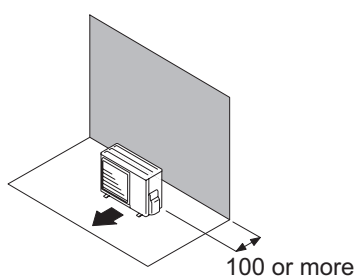
If the installation is not performed accordingly, it could cause a short circuit and result in a lack of operating performance.

### ● Single outdoor unit installation

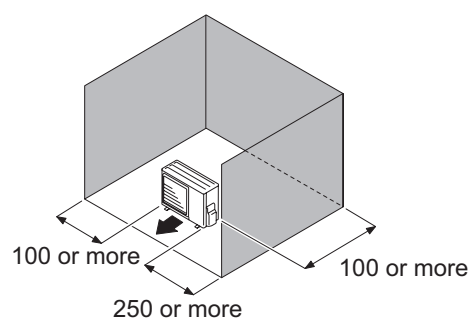
- When the upper space is open:

Unit: mm

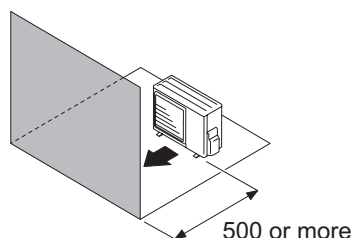
When there are obstacles at the rear only.



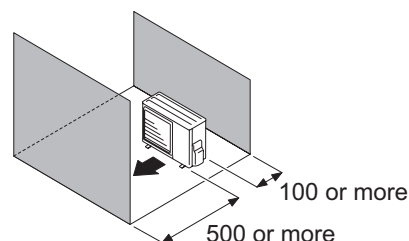
When there are obstacles at the rear and sides.



When there are obstacles at the front only.



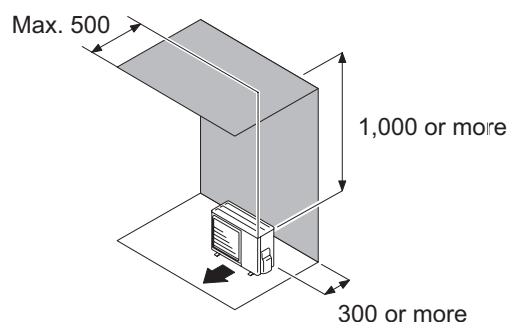
When there are obstacles at the front and rear.



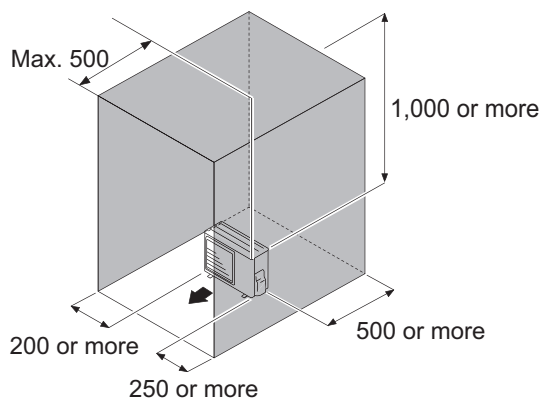
- When an obstruction in the upper space:

Unit: mm

When there are obstacles at the rear and above.



When there are obstacles at the rear, sides, and above.



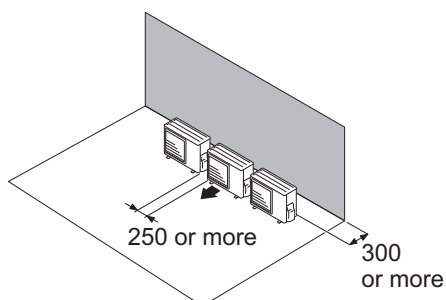
## ● Multiple outdoor unit installation

- Provide at least 250 mm of space between the outdoor units if multiple units are installed.
- When routing the piping from the side of an outdoor unit, provide space for piping.
- No more than 3 units must be installed side by side.  
When 4 units or more are arranged in a line, provide the space as shown in the following example **“When an obstruction in the upper space:”**.

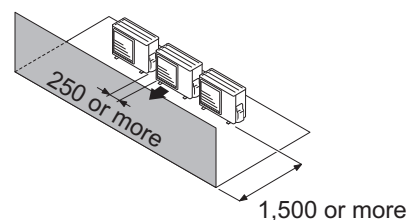
- **When the upper space is open:**

Unit: mm

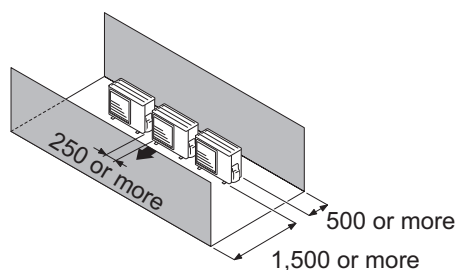
When there are obstacles at the rear only.



When there are obstacles at the front only.



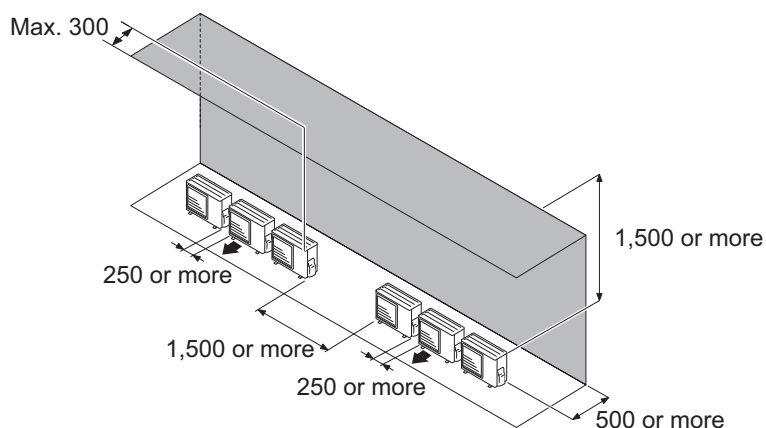
When there are obstacles at the front and rear.



- **When an obstruction in the upper space:**

Unit: mm

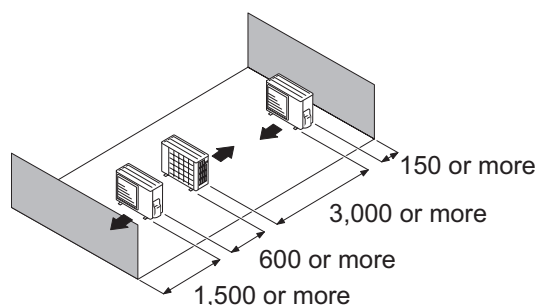
When there are obstacles at the rear and above.



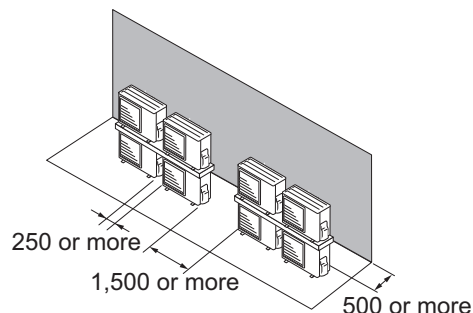
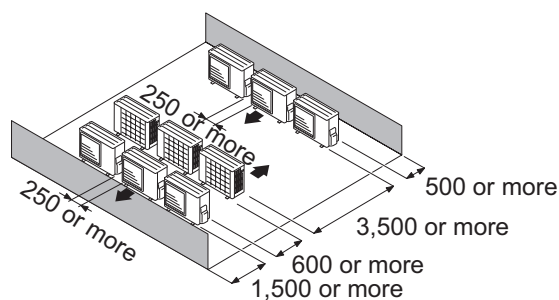
## ● Outdoor unit installation in multi-row

Unit: mm

Single parallel unit arrangement



Multiple parallel unit arrangement

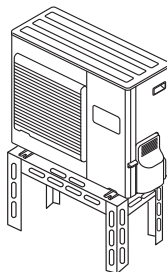


### NOTES:

- If the space is larger than stated above, the condition will be the same as when there is no obstacle.
- Height above the floor level should be 50 mm or more.
- When installing the outdoor unit, be sure to open the front and left side to obtain better operation efficiency.

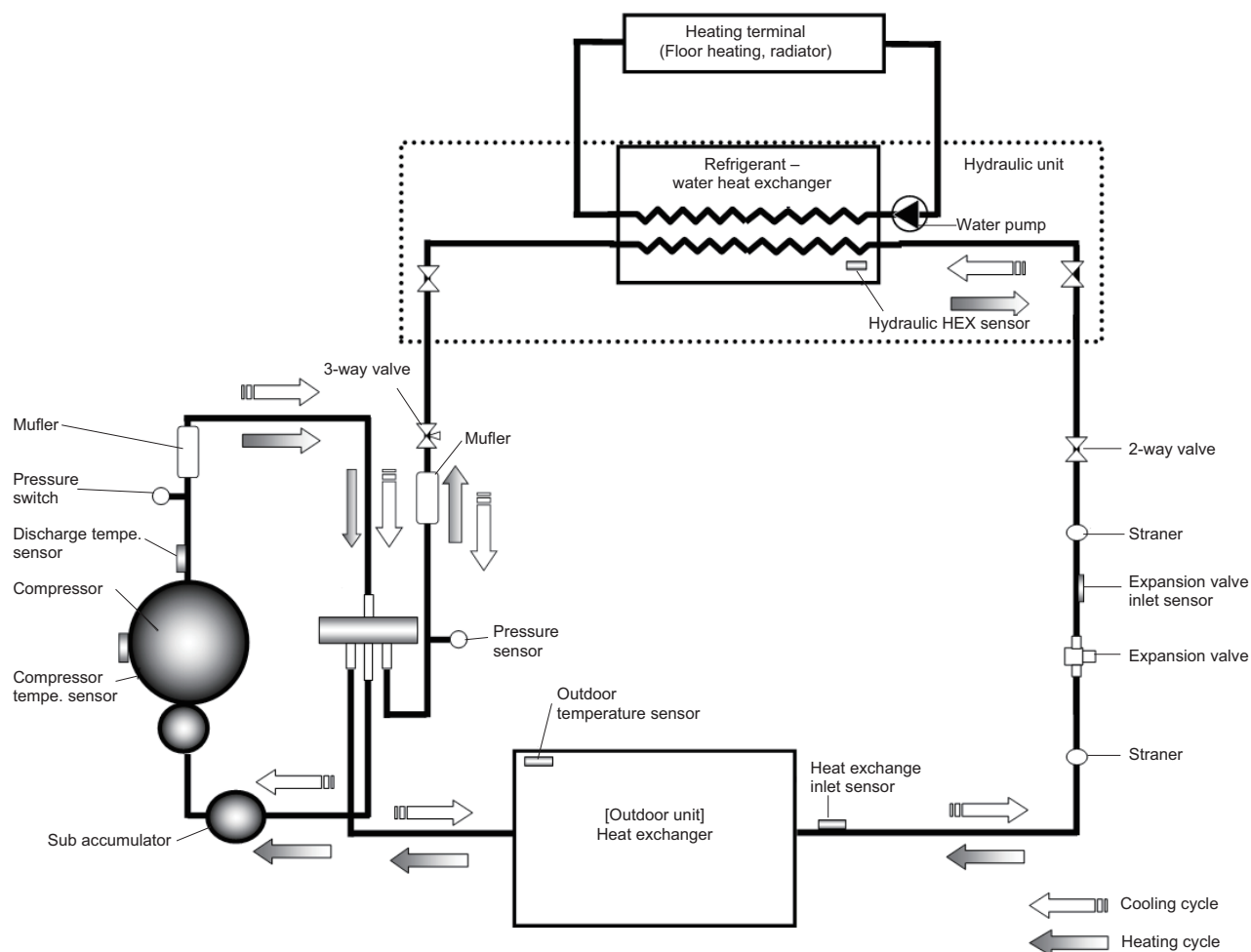
### ⚠ CAUTION

- Do not install the outdoor unit in two-stage where the drain water could freeze. Otherwise the drainage from the upper unit may form ice and cause a malfunction of the lower unit.
- When the outdoor temperature is 0 °C or less, do not use the accessory drain pipe and drain cap. If the drain pipe and drain cap are used, the drain water in the pipe may freeze in extremely cold climate. (For reverse cycle model only.)
- In area with heavy snowfall, if the inlet and outlet of the outdoor unit is blocked with snow, it might become difficult to get warm, and it is likely to cause product malfunction. Construct a canopy and a pedestal, or place the unit on a high stand that is locally installed.



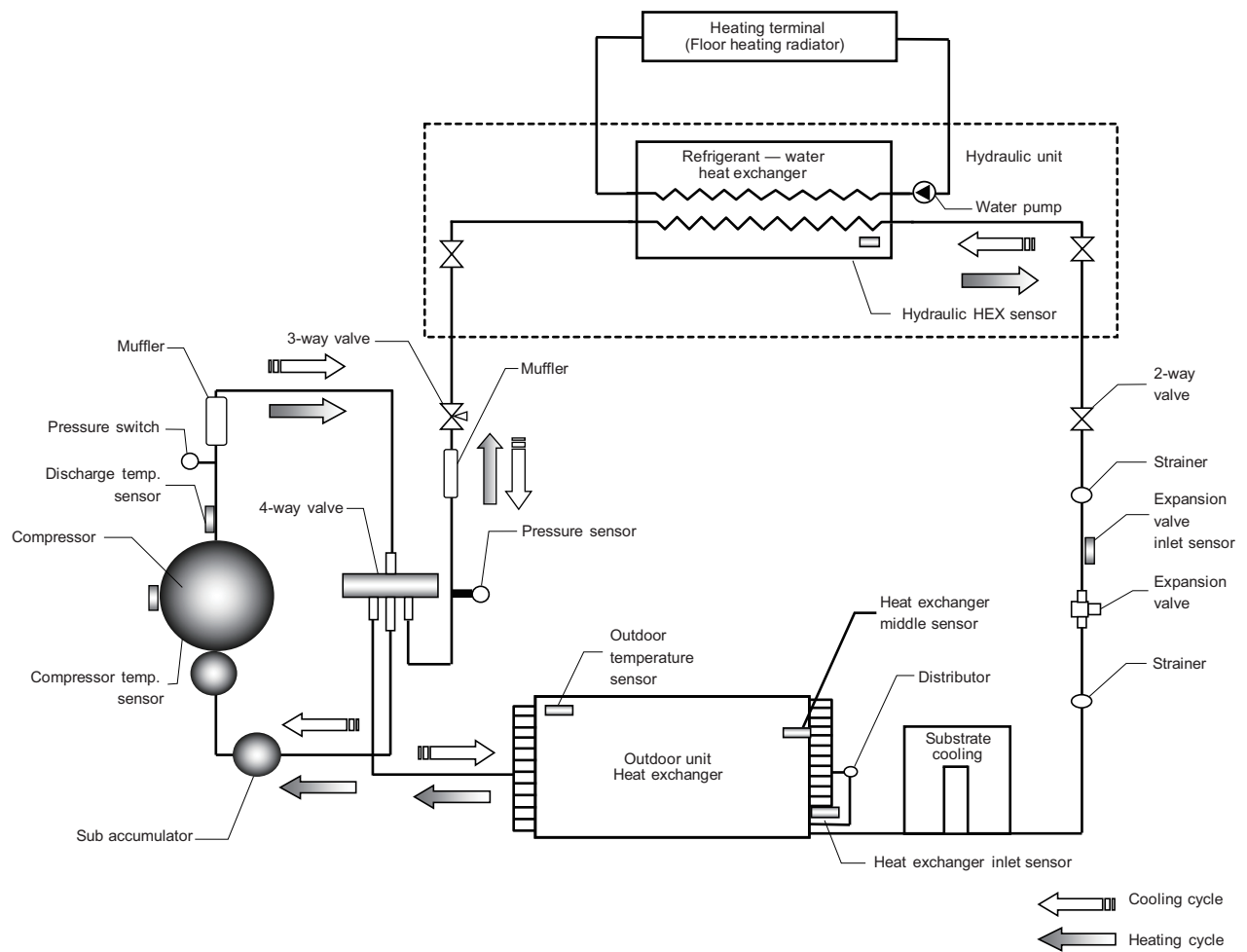
## 5. Piping diagrams

### 5-1. Models: WOYA060KLT and WOYA080KLT





## 5-2. Model: WOYA100KLT





## 7. External input and output (For WOYA100KLT)

With using external input and output functions, this product can be operated inter-connectedly with an external device.

| Connector | Input          | Output              | Remarks   |
|-----------|----------------|---------------------|---|
| P580      | Low noise mode | —                   | See external input/output settings for details. |
| PA580     | Peak cut mode  | —                   |   |
| P590      | —              | Base heater control |   |
| PA590     | —              | Compressor status   |   |

### 7-1. External input

With using external input function, on/off status of “Low noise mode” and “Peak cut mode” can be specified by the external signal.

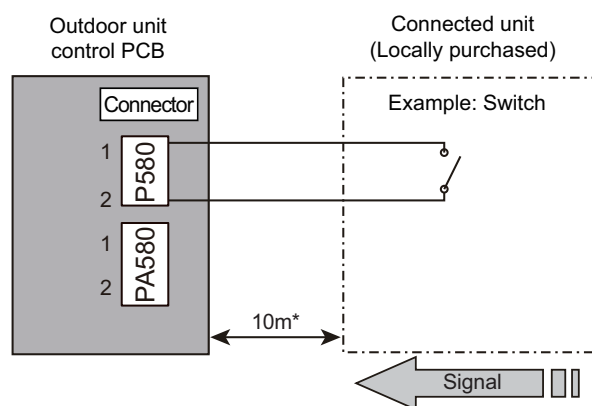
#### ■ Low noise mode

In following condition, the operating noise of the outdoor unit reduces comparing from the one in normal operating condition:

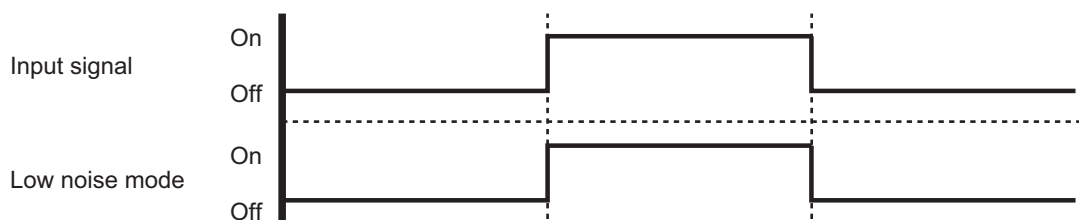
The air conditioner is set to the “Low noise mode” when closing the contact input of a commercial timer or on/off switch to a connector on the control PCB of the outdoor unit.

**NOTE:** Product performance may drop depending on some conditions such as the outdoor temperature.

#### • Circuit diagram example



- Contact capacity: DC 24 V or more, 10 mA or more.
- \*: Make the distance from the PCB to the connected unit within 10 m.
- Construct a circuit as shown in this figure with using optional parts mentioned below.
- Input signal: On in “Low noise mode”
- Input signal: Off in normal operation
- To set the level of “Low noise mode”, refer to ["Low noise mode"](#) on page 01-25.



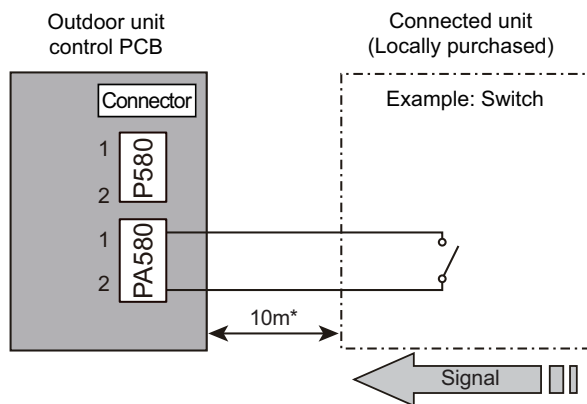
#### • Optional part

| Part name            | Model name | Exterior                |
|----------------------|------------|-------------------------|
| External connect kit | UTY-XWZXZ3 | External input wire<br> |

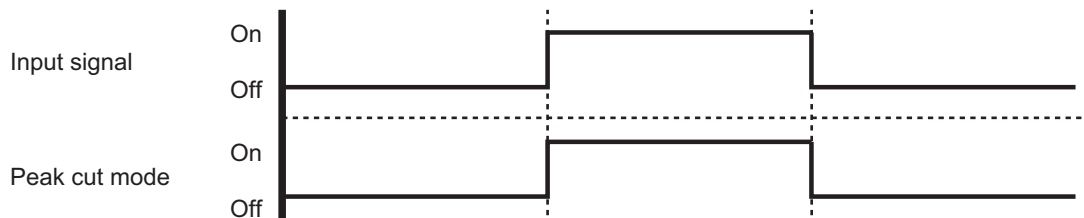
## ■ Peak cut mode

By performing following on-site work, operation that suppresses the current value can be enabled: The air conditioner is set to the “Peak cut mode” when closing the contact input of a commercial timer or on/off switch to a connector on the control PCB of the outdoor unit.

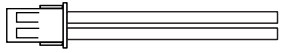
### • Circuit diagram example



- Contact capacity: DC 24 V or more, 10 mA or more.
- \*: Make the distance from the PCB to the connected unit within 10 m.
- Construct a circuit as shown in this figure with using optional parts mentioned below.
- Input signal: On in “Peak cut mode”
- Input signal: Off in normal operation
- To set the level of “Peak cut mode”, refer to **"Peak cut mode"** on page 01-26.



### • Optional part

| Part name            | Model name | Exterior   |
|----------------------|------------|--|
| External connect kit | UTY-XWZXZ3 | External input wire<br> |

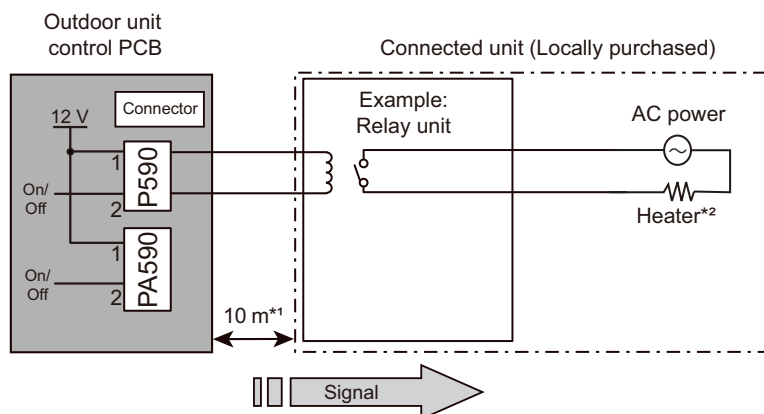
## 7-2. External output

With using external output function, some status signals are transmitted to the control PCB, and the related LED lamp indicates the status of this product.

### ■ Base heater control output

Signal on air conditioner error status is generated when a malfunction occurs.

#### • Circuit diagram example



- Output voltage (Vcc): DC 12 V 50 mA or less
- \*1: Make the distance from the PCB to the connected unit within 10 m.
- \*2: The allowable current is 1 A or less

This is the output signal for the base heater. The output signal is on, when the outdoor temperature drops below 2°C, and signal is off when it rises to 5°C.



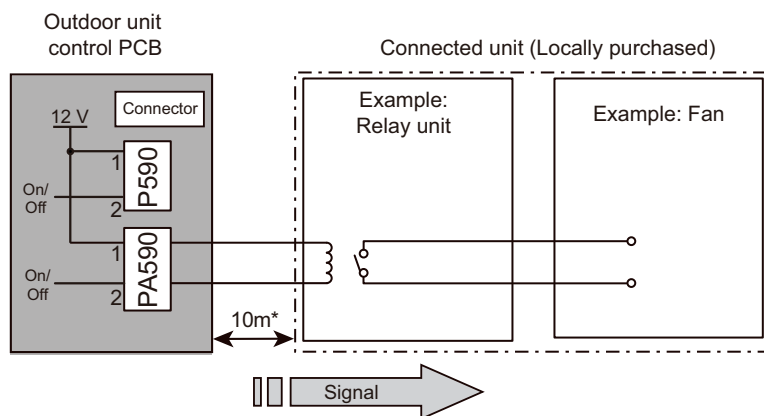
#### • Optional part

| Part name            | Model name | Exterior                 |
|----------------------|------------|--------------------------|
| External connect kit | UTY-XWZXZ3 | External output wire<br> |

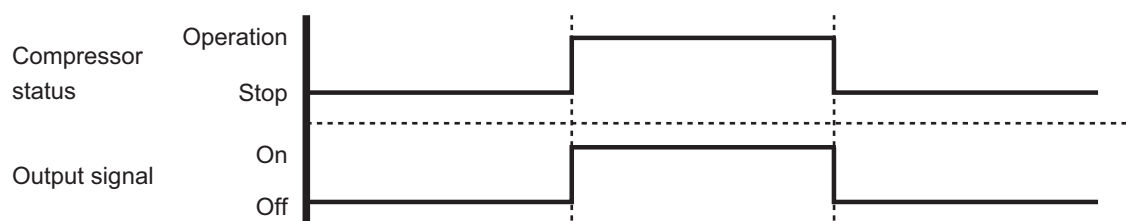
## ■ Compressor status output

Signal on compressor operation status is generated when the compressor is running.

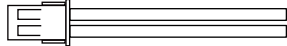
### • Circuit diagram example



- Output voltage (Vcc): DC 12 V 50 mA or less
- \*: Make the distance from the PCB to the connected unit within 10 m.



### • Optional part

| Part name            | Model name | Exterior  |
|----------------------|------------|---|
| External connect kit | UTY-XWZXZ3 | External output wire<br> |

## 8. Function settings (For WOYA100KLT)

Perform appropriate function setting locally according to the installation environment.

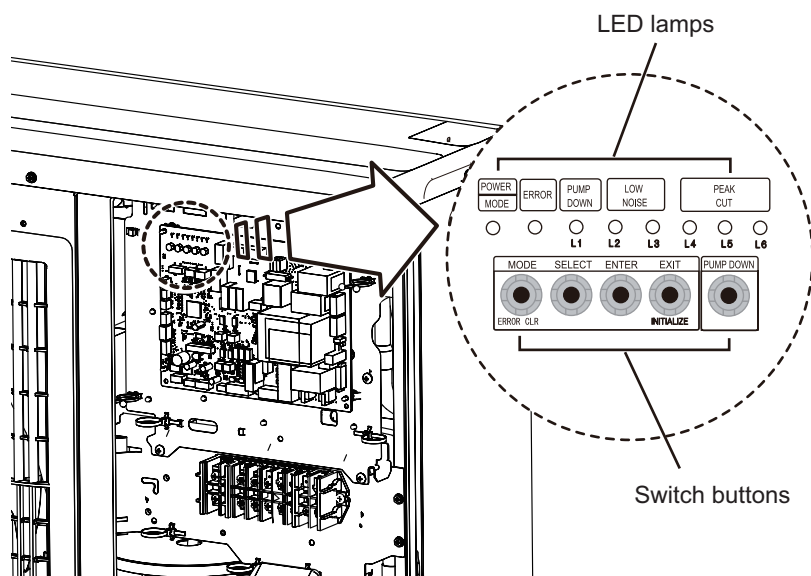
**NOTE:** Incorrect settings can cause a product malfunction.

### ⚠ CAUTION

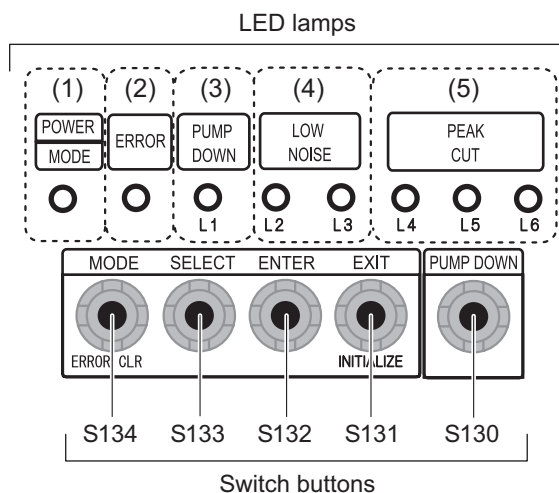
- Before setting up the switch buttons, discharge the static electricity from your body.
- Never touch the terminals or the patterns on the parts that are mounted on the PCB.

### 8-1. Control PCB and switch buttons location

Control PCB of the outdoor unit is located as shown in the following figure.



## ■ Switch buttons and the functions



| LED lamp |                                |        | Function or operation method  |
|----------|--------------------------------|--------|---|
| (1)      | POWER/MODE                     | Green  | Lights on while power on.<br>Local setting in outdoor unit or error code is displayed with blink.                                   |
| (2)      | ERROR                          | Red    | Blinks during error operation.  |
| (3)      | PUMP DOWN (L1)                 | Orange | Lights on during pump down operation.   |
| (4)      | LOW NOISE MODE (L2 and L3)     | Orange | Lights on during "Low noise mode" when local setting is activated.<br>(Lighting pattern of L2 and L3 indicates low noise level.)    |
| (5)      | PEAK CUT MODE (L4, L5, and L6) | Orange | Lights on during "Peak cut mode" when local setting is activated.<br>(Lighting pattern of L4, L5, and L6 indicates peak cut level.) |

| Switch button |           | Function or operation method  |
|---------------|-----------|---|
| S134          | MODE      | Switches between "Local setting" and "Error code display".                      |
| S133          | SELECT    | Switches between the individual "Local settings" and the "Error code displays". |
| S132          | ENTER     | Switches between the individual "Local settings" and the "Error code displays". |
| S131          | EXIT      | Returns to "Operation status display".  |
| S130          | PUMP DOWN | Starts the pump down operation.   |



## 8-2. Local setting procedure

**NOTE:** Before performing the function setting, be sure to stop the operation of the air conditioner.

### Low noise mode

1. Press the MODE switch button (S134) for 3 seconds or more to switch to "Local setting mode".
2. After confirming the LED lamp of POWER/MODE blinks 9 times, press the ENTER switch button (S132).

| POWER<br>MODE       | ERROR | PUMP<br>DOWN<br>(L1) | LOW NOISE<br>(L2) (L3) |   | PEAK CUT<br>(L4) (L5) (L6) |   |   |
|---------------------|-------|----------------------|------------------------|---|----------------------------|---|---|
| Blinks<br>(9 times) | ○     | ○                    | ○                      | ○ | ○                          | ○ | ○ |

Sign "○": Lights off

3. Press the SELECT switch button (S133), and adjust the LED lamp as shown below. Then the LED lamp indicates the current setting.

| LOW NOISE<br>MODE | LOW NOISE<br>(L2) (L3) |       |
|-------------------|------------------------|-------|
|                   | ○                      | Blink |

4. Press the ENTER switch button (S132).

| LOW NOISE<br>MOD E | LOW NOISE<br>(L2) (L3) |   |
|--------------------|------------------------|---|
|                    | ○                      | ● |

Sign "●": Lights on

5. Press the SELECT switch button (S133), and adjust the LED lamps as shown below.

| MODE 1: Low<br>MODE 2: Lower | PEAK CUT<br>(L4) (L5) (L6) |       |       |
|------------------------------|----------------------------|-------|-------|
|                              | ○                          | ○     | Blink |
|                              | ○                          | Blink | ○     |

6. Press the ENTER switch button (S132) and fix it.

| MODE 1: Low<br>MODE 2: Lower | PEAK CUT<br>(L4) (L5) (L6) |   |   |
|------------------------------|----------------------------|---|---|
|                              | ○                          | ○ | ● |
|                              | ○                          | ● | ○ |

7. To return to "Operating status display (Normal operation)", press the EXIT switch button (S131).

#### In case of missing how many times you pressed the SELECT and ENTER switch buttons:

1. To return to "Operation status display (Normal operation)", press the EXIT switch button once.
2. Restart from the beginning of setting procedure.

**NOTE:** In case of missing how many times you pressed the SELECT and ENTER switch buttons, you must redo the setting procedure. Return to "Operation status display (Normal operation)" by pressing the EXIT switch button once, and restart from the beginning of the setting procedure.

## ■ Peak cut mode

1. Press the MODE switch button (S134) for 3 seconds or more to switch to "Local setting mode".
2. After confirming the LED lamp of POWER/MODE blinks 9 times, press the ENTER switch button (S132).

| POWER<br>MODE       | ERROR | PUMP<br>DOWN<br>(L1) | LOW NOISE<br>(L2) (L3) |   | PEAK CUT<br>(L4) (L5) (L6) |   |   |
|---------------------|-------|----------------------|------------------------|---|----------------------------|---|---|
| Blinks<br>(9 times) | ○     | ○                    | ○                      | ○ | ○                          | ○ | ○ |

Sign "○": Lights off

3. Press the SELECT switch button (S133), and adjust the LED lamp as shown below. Then the LED lamp indicates the current setting.

|                  |           |      |
|------------------|-----------|------|
| PEAK CUT<br>MODE | LOW NOISE |      |
|                  | (L2)      | (L3) |
|                  | Blink     | ○    |

4. Press the ENTER switch button (S132).

|                  |           |      |
|------------------|-----------|------|
| PEAK CUT<br>MODE | LOW NOISE |      |
|                  | (L2)      | (L3) |
|                  | ●         | ○    |

Sign "●": Lights on

5. Press the SELECT switch button (S133), and adjust the LED lamps as shown below.

|                            | PEAK CUT |       |       |
|----------------------------|----------|-------|-------|
|                            | (L4)     | (L5)  | (L6)  |
| 0 % of rated input ratio   | ○        | ○     | Blink |
| 50 % of rated input ratio  | ○        | Blink | ○     |
| 75 % of rated input ratio  | ○        | Blink | Blink |
| 100 % of rated input ratio | Blink    | ○     | ○     |

6. Press the ENTER switch button (S132) and fix it.

|                            | PEAK CUT |      |      |
|----------------------------|----------|------|------|
|                            | (L4)     | (L5) | (L6) |
| 0 % of rated input ratio   | ○        | ○    | ●    |
| 50 % of rated input ratio  | ○        | ●    | ○    |
| 75 % of rated input ratio  | ○        | ●    | ●    |
| 100 % of rated input ratio | ●        | ○    | ○    |

7. To return to "Operating status display (Normal operation)", press the EXIT switch button (S131).

**NOTE:** When pressed number is lost during setting, you must redo the setting procedure. Return to "Operation status display (Normal operation)" by pressing the EXIT switch button once, and restart from the beginning of the setting procedure.

## 9. Heating capacity table

- FT: Flow temperature
- OT: Outdoor temperature
- HC: Heating capacity (kW)
- IP: Input power (kW)
- COP: Coefficient Of Performance
- Usage environment, such as operation of the heating equipment, room temperature, and control adjustments may cause disparities between practically determined and measured values.
- Values mentioned in the table are calculated based on the maximum capacity without defrost.

### 9-1. Model: WOYA060KLT (5 kW)

| FT    | 30°C  |      |      | 35°C  |      |      | 40°C |      |      | 45°C |      |      | 50°C |      |      | 55°C |      |      |
|-------|-------|------|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| OT    | HC    | IP   | COP  | HC    | IP   | COP  | HC   | IP   | COP  | HC   | IP   | COP  | HC   | IP   | COP  | HC   | IP   | COP  |
| -20°C | 3.23  | 1.41 | 2.29 | 3.20  | 1.55 | 2.06 | 3.08 | 1.65 | 1.87 | —    | —    | —    | —    | —    | —    | —    | —    | —    |
| -15°C | 3.94  | 1.49 | 2.64 | 3.84  | 1.60 | 2.40 | 3.69 | 1.72 | 2.15 | 3.51 | 1.83 | 1.92 | —    | —    | —    | —    | —    | —    |
| -10°C | 4.60  | 1.52 | 3.03 | 4.48  | 1.64 | 2.73 | 4.34 | 1.77 | 2.45 | 4.19 | 1.90 | 2.21 | 4.02 | 2.05 | 1.96 | 3.83 | 2.20 | 1.74 |
| -7°C  | 5.09  | 1.54 | 3.31 | 4.97  | 1.67 | 2.98 | 4.82 | 1.80 | 2.68 | 4.65 | 1.94 | 2.40 | 4.46 | 2.10 | 2.12 | 4.24 | 2.25 | 1.88 |
| -5°C  | 5.42  | 1.56 | 3.47 | 5.30  | 1.69 | 3.14 | 5.14 | 1.82 | 2.82 | 4.95 | 1.97 | 2.51 | 4.75 | 2.13 | 2.23 | 4.51 | 2.29 | 1.97 |
| 0°C   | 6.25  | 1.59 | 3.93 | 6.11  | 1.73 | 3.53 | 5.93 | 1.87 | 3.17 | 5.72 | 2.03 | 2.82 | 5.47 | 2.20 | 2.49 | 5.19 | 2.38 | 2.18 |
| 5°C   | 7.21  | 1.61 | 4.48 | 7.16  | 1.79 | 4.00 | 6.99 | 1.95 | 3.58 | 6.68 | 2.09 | 3.20 | 6.25 | 2.21 | 2.83 | 5.69 | 2.32 | 2.45 |
| 7°C   | 7.68  | 1.61 | 4.77 | 7.64  | 1.80 | 4.24 | 7.46 | 1.97 | 3.79 | 7.13 | 2.11 | 3.38 | 6.65 | 2.23 | 2.98 | 6.04 | 2.34 | 2.58 |
| 10°C  | 8.40  | 1.62 | 5.19 | 8.36  | 1.82 | 4.59 | 8.16 | 1.99 | 4.10 | 7.79 | 2.14 | 3.64 | 7.26 | 2.27 | 3.20 | 6.57 | 2.37 | 2.77 |
| 15°C  | 8.68  | 1.58 | 5.49 | 8.42  | 1.80 | 4.68 | 8.15 | 1.96 | 4.16 | 7.88 | 2.04 | 3.86 | 6.92 | 2.02 | 3.43 | 5.91 | 2.00 | 2.96 |
| 20°C  | 9.25  | 1.51 | 6.13 | 8.42  | 1.54 | 5.47 | 7.53 | 1.55 | 4.86 | 6.70 | 1.57 | 4.27 | 5.94 | 1.57 | 3.78 | 5.24 | 1.58 | 3.32 |
| 25°C  | 10.02 | 1.52 | 6.59 | 9.11  | 1.55 | 5.88 | 8.13 | 1.57 | 5.18 | 7.17 | 1.58 | 4.54 | 6.22 | 1.58 | 3.94 | 5.30 | 1.57 | 3.38 |
| 30°C  | 10.79 | 1.52 | 7.10 | 9.80  | 1.56 | 6.28 | 8.74 | 1.58 | 5.53 | 7.64 | 1.59 | 4.81 | 6.51 | 1.58 | 4.12 | 5.36 | 1.57 | 3.41 |
| 35°C  | 11.56 | 1.53 | 7.56 | 10.49 | 1.57 | 6.68 | 9.34 | 1.60 | 5.84 | 8.11 | 1.61 | 5.04 | 6.79 | 1.59 | 4.27 | 5.41 | 1.57 | 3.45 |

**NOTE:** The values mentioned in the table are calculated based on the maximum capacity:

- FT < 55°C: The flow rate obtained with fixed delta T of 5°C with for units with a variable flow rate.
- FT ≥ 55°C: The flow rate obtained with fixed delta T of 8°C with for units with a variable flow rate.

### 9-2. Model: WOYA060KLT (6 kW)

| FT    | 30°C  |      |      | 35°C  |      |      | 40°C |      |      | 45°C |      |      | 50°C |      |      | 55°C |      |      |
|-------|-------|------|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| OT    | HC    | IP   | COP  | HC    | IP   | COP  | HC   | IP   | COP  | HC   | IP   | COP  | HC   | IP   | COP  | HC   | IP   | COP  |
| -20°C | 3.23  | 1.41 | 2.29 | 3.77  | 1.83 | 2.06 | 3.67 | 1.94 | 1.89 | —    | —    | —    | —    | —    | —    | —    | —    | —    |
| -15°C | 4.78  | 1.88 | 2.54 | 4.67  | 2.00 | 2.34 | 4.55 | 2.14 | 2.13 | 4.43 | 2.27 | 1.95 | —    | —    | —    | —    | —    | —    |
| -10°C | 5.61  | 1.93 | 2.91 | 5.55  | 2.07 | 2.68 | 5.40 | 2.21 | 2.44 | 5.16 | 2.37 | 2.18 | 4.84 | 2.53 | 1.91 | 4.44 | 2.70 | 1.64 |
| -7°C  | 6.17  | 1.96 | 3.15 | 6.13  | 2.12 | 2.89 | 5.98 | 2.28 | 2.62 | 5.71 | 2.42 | 2.36 | 5.34 | 2.56 | 2.09 | 4.86 | 2.69 | 1.81 |
| -5°C  | 6.55  | 1.98 | 3.31 | 6.52  | 2.16 | 3.02 | 6.36 | 2.32 | 2.74 | 6.08 | 2.46 | 2.47 | 5.67 | 2.59 | 2.19 | 5.14 | 2.69 | 1.91 |
| 0°C   | 7.48  | 2.04 | 3.67 | 7.48  | 2.25 | 3.32 | 7.32 | 2.43 | 3.01 | 6.99 | 2.56 | 2.73 | 6.50 | 2.64 | 2.46 | 5.84 | 2.69 | 2.17 |
| 5°C   | 8.62  | 2.08 | 4.14 | 8.37  | 2.22 | 3.77 | 7.96 | 2.31 | 3.45 | 7.37 | 2.36 | 3.12 | 6.61 | 2.36 | 2.80 | 5.69 | 2.32 | 2.45 |
| 7°C   | 9.23  | 2.11 | 4.37 | 8.93  | 2.24 | 3.99 | 8.46 | 2.33 | 3.63 | 7.82 | 2.38 | 3.29 | 7.01 | 2.38 | 2.95 | 6.04 | 2.34 | 2.58 |
| 10°C  | 10.15 | 2.15 | 4.72 | 9.77  | 2.27 | 4.30 | 9.22 | 2.35 | 3.92 | 8.50 | 2.40 | 3.54 | 7.62 | 2.40 | 3.18 | 6.57 | 2.37 | 2.77 |
| 15°C  | 10.44 | 2.12 | 4.92 | 9.64  | 2.09 | 4.61 | 8.79 | 2.07 | 4.25 | 7.88 | 2.04 | 3.86 | 6.92 | 2.02 | 3.43 | 5.91 | 2.00 | 2.96 |
| 20°C  | 9.39  | 1.57 | 5.98 | 8.42  | 1.57 | 5.36 | 7.53 | 1.57 | 4.80 | 6.70 | 1.57 | 4.27 | 5.94 | 1.57 | 3.78 | 5.24 | 1.58 | 3.32 |
| 25°C  | 10.19 | 1.59 | 6.41 | 9.15  | 1.58 | 5.79 | 8.15 | 1.58 | 5.16 | 7.17 | 1.58 | 4.54 | 6.22 | 1.58 | 3.94 | 5.30 | 1.57 | 3.38 |
| 30°C  | 10.99 | 1.60 | 6.87 | 9.89  | 1.60 | 6.18 | 8.77 | 1.60 | 5.48 | 7.64 | 1.59 | 4.81 | 6.51 | 1.58 | 4.12 | 5.36 | 1.57 | 3.41 |
| 35°C  | 11.80 | 1.61 | 7.33 | 10.62 | 1.61 | 6.60 | 9.39 | 1.61 | 5.83 | 8.11 | 1.61 | 5.04 | 6.79 | 1.59 | 4.27 | 5.41 | 1.57 | 3.45 |

**NOTE:** The values mentioned in the table are calculated based on the maximum capacity:

- FT < 55°C: The flow rate obtained with fixed delta T of 5°C with for units with a variable flow rate.
- FT ≥ 55°C: The flow rate obtained with fixed delta T of 8°C with for units with a variable flow rate.

## 9-3. Model: WOYA080KLT

| FT    | 30°C  |      |      | 35°C  |      |      | 40°C  |      |      | 45°C  |      |      | 50°C |      |      | 55°C |      |      |
|-------|-------|------|------|-------|------|------|-------|------|------|-------|------|------|------|------|------|------|------|------|
| OT    | HC    | IP   | COP  | HC    | IP   | COP  | HC    | IP   | COP  | HC    | IP   | COP  | HC   | IP   | COP  | HC   | IP   | COP  |
| -20°C | 3.26  | 1.41 | 2.31 | 3.97  | 1.95 | 2.04 | 4.08  | 2.22 | 1.84 | —     | —    | —    | —    | —    | —    | —    | —    | —    |
| -15°C | 5.58  | 2.25 | 2.48 | 6.01  | 2.71 | 2.22 | 5.84  | 2.93 | 1.99 | 5.68  | 3.14 | 1.81 | —    | —    | —    | —    | —    | —    |
| -10°C | 6.57  | 2.33 | 2.82 | 7.11  | 2.84 | 2.50 | 6.91  | 3.07 | 2.25 | 6.71  | 3.30 | 2.03 | 5.63 | 2.93 | 1.92 | 5.33 | 3.18 | 1.68 |
| -7°C  | 7.15  | 2.38 | 3.00 | 7.05  | 2.55 | 2.76 | 6.89  | 2.74 | 2.51 | 6.67  | 2.96 | 2.25 | 6.18 | 3.00 | 2.06 | 5.85 | 3.26 | 1.79 |
| -5°C  | 7.55  | 2.42 | 3.12 | 7.45  | 2.59 | 2.88 | 7.28  | 2.79 | 2.61 | 7.04  | 3.02 | 2.33 | 6.54 | 3.05 | 2.14 | 6.19 | 3.31 | 1.87 |
| 0°C   | 8.34  | 2.35 | 3.55 | 8.23  | 2.52 | 3.27 | 8.04  | 2.71 | 2.97 | 7.78  | 2.93 | 2.66 | 7.45 | 3.17 | 2.35 | 7.05 | 3.44 | 2.05 |
| 5°C   | 9.14  | 2.24 | 4.08 | 9.03  | 2.42 | 3.73 | 8.84  | 2.61 | 3.39 | 8.56  | 2.83 | 3.02 | 8.20 | 3.06 | 2.68 | 7.77 | 3.31 | 2.35 |
| 7°C   | 9.75  | 2.27 | 4.30 | 9.64  | 2.46 | 3.92 | 9.43  | 2.66 | 3.55 | 9.12  | 2.87 | 3.18 | 8.72 | 3.09 | 2.82 | 8.22 | 3.32 | 2.48 |
| 10°C  | 10.66 | 2.32 | 4.59 | 10.55 | 2.53 | 4.17 | 10.32 | 2.74 | 3.77 | 9.97  | 2.94 | 3.39 | 9.50 | 3.14 | 3.03 | 8.91 | 3.33 | 2.68 |
| 15°C  | 11.36 | 2.36 | 4.81 | 11.30 | 2.68 | 4.22 | 11.24 | 2.90 | 3.88 | 10.68 | 3.01 | 3.55 | 9.80 | 3.01 | 3.26 | 8.58 | 2.91 | 2.95 |
| 20°C  | 11.77 | 2.29 | 5.14 | 11.38 | 2.36 | 4.82 | 10.73 | 2.41 | 4.45 | 9.82  | 2.42 | 4.06 | 8.66 | 2.41 | 3.59 | 7.24 | 2.36 | 3.07 |
| 25°C  | 11.41 | 2.00 | 5.71 | 10.13 | 1.99 | 5.09 | 8.98  | 1.97 | 4.56 | 7.96  | 1.96 | 4.06 | 7.06 | 1.94 | 3.64 | 6.30 | 1.91 | 3.30 |
| 30°C  | 12.15 | 2.00 | 6.08 | 10.82 | 1.99 | 5.44 | 9.62  | 1.98 | 4.86 | 8.55  | 1.96 | 4.36 | 7.61 | 1.94 | 3.92 | 6.81 | 1.90 | 3.58 |
| 35°C  | 12.90 | 1.99 | 6.48 | 11.51 | 1.99 | 5.78 | 10.26 | 1.98 | 5.18 | 9.14  | 1.96 | 4.66 | 8.16 | 1.93 | 4.23 | 7.32 | 1.89 | 3.87 |

**NOTE:** The values mentioned in the table are calculated based on the maximum capacity:

- FT < 55°C: The flow rate obtained with fixed delta T of 5°C with for units with a variable flow rate.
- FT ≥ 55°C: The flow rate obtained with fixed delta T of 8°C with for units with a variable flow rate.

## 9-4. Model: WOYA100KLT

| FT    | 30°C  |      |      | 35°C  |      |      | 40°C  |      |      | 45°C  |      |      | 50°C  |      |      | 55°C  |      |      |
|-------|-------|------|------|-------|------|------|-------|------|------|-------|------|------|-------|------|------|-------|------|------|
| OT    | HC    | IP   | COP  | HC    | IP   | COP  | HC    | IP   | COP  | HC    | IP   | COP  | HC    | IP   | COP  | HC    | IP   | COP  |
| -20°C | 5.45  | 2.32 | 2.35 | 6.34  | 2.89 | 2.19 | 6.22  | 3.07 | 2.03 | —     | —    | —    | —     | —    | —    | —     | —    | —    |
| -15°C | 7.56  | 2.81 | 2.69 | 8.29  | 3.42 | 2.42 | 7.90  | 3.58 | 2.21 | 7.50  | 3.75 | 2.00 | —     | —    | —    | —     | —    | —    |
| -10°C | 8.85  | 2.89 | 3.06 | 9.45  | 3.51 | 2.69 | 9.34  | 3.75 | 2.49 | 9.19  | 4.08 | 2.25 | 8.58  | 4.20 | 2.04 | 7.10  | 4.06 | 1.75 |
| -7°C  | 9.63  | 2.93 | 3.29 | 10.40 | 3.62 | 2.87 | 10.21 | 3.85 | 2.65 | 10.09 | 4.20 | 2.40 | 9.13  | 4.18 | 2.18 | 8.00  | 4.10 | 1.95 |
| -5°C  | 10.14 | 2.97 | 3.41 | 11.01 | 3.67 | 3.00 | 10.79 | 3.91 | 2.76 | 10.55 | 4.22 | 2.50 | 9.49  | 4.17 | 2.28 | 8.43  | 4.12 | 2.05 |
| 0°C   | 11.43 | 3.05 | 3.75 | 12.52 | 3.79 | 3.30 | 12.23 | 4.08 | 3.00 | 11.74 | 4.24 | 2.77 | 10.45 | 4.15 | 2.52 | 9.52  | 4.18 | 2.28 |
| 5°C   | 14.59 | 3.59 | 4.06 | 14.39 | 3.91 | 3.68 | 13.26 | 3.89 | 3.41 | 12.09 | 3.87 | 3.12 | 10.92 | 3.86 | 2.83 | 9.76  | 3.85 | 2.54 |
| 7°C   | 15.42 | 3.63 | 4.25 | 15.29 | 3.89 | 3.93 | 13.89 | 3.90 | 3.56 | 12.70 | 3.89 | 3.26 | 11.47 | 3.88 | 2.96 | 10.22 | 3.85 | 2.65 |
| 10°C  | 16.66 | 3.68 | 4.53 | 16.01 | 3.89 | 4.12 | 14.85 | 3.92 | 3.79 | 13.61 | 3.93 | 3.46 | 12.30 | 3.90 | 3.15 | 10.91 | 3.85 | 2.83 |
| 15°C  | 14.40 | 2.72 | 5.29 | 13.05 | 2.71 | 4.82 | 11.78 | 2.71 | 4.35 | 10.68 | 2.73 | 3.91 | 9.80  | 2.79 | 3.51 | 8.58  | 2.73 | 3.14 |
| 20°C  | 14.38 | 2.42 | 5.94 | 12.77 | 2.40 | 5.32 | 11.32 | 2.39 | 4.74 | 10.03 | 2.38 | 4.21 | 8.89  | 2.37 | 3.75 | 7.92  | 2.37 | 3.34 |
| 25°C  | 14.75 | 2.39 | 6.17 | 13.04 | 2.38 | 5.48 | 11.52 | 2.38 | 4.84 | 10.21 | 2.37 | 4.31 | 9.10  | 2.36 | 3.86 | 8.18  | 2.36 | 3.47 |
| 30°C  | 15.13 | 2.37 | 6.38 | 13.31 | 2.37 | 5.62 | 11.74 | 2.37 | 4.95 | 10.40 | 2.36 | 4.41 | 9.30  | 2.35 | 3.96 | 8.44  | 2.34 | 3.61 |
| 35°C  | 15.51 | 2.35 | 6.60 | 13.59 | 2.35 | 5.78 | 11.95 | 2.35 | 5.09 | 10.58 | 2.34 | 4.52 | 9.50  | 2.34 | 4.06 | 8.70  | 2.33 | 3.73 |

**NOTE:** The values mentioned in the table are calculated based on the maximum capacity:

- FT < 55°C: The flow rate obtained with fixed delta T of 5°C with for units with a variable flow rate.
- FT ≥ 55°C: The flow rate obtained with fixed delta T of 8°C with for units with a variable flow rate.

## 10. Cooling capacity table

- For cooling operation optional parts of Cooling kit is necessary.
- FT: Flow temperature
- OT: Outdoor temperature
- CC: Cooling capacity (kW)
- IP: Input power (kW)
- EER: Energy Efficiency Ratio
- Usage environment, such as operation of the heating equipment, room temperature, and control adjustments may cause disparities between practically determined and measured values.

### 10-1. Model: WOYA060KLT (5 kW)

| FT   | 7°C  |      |      | 10°C |      |      | 13°C |      |      | 15°C |      |      | 18°C |      |      | 22°C |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| OT   | CC   | IP   | EER  | CC   | IP   | EER  | CC   | IP   | EER  | CC   | IP   | EER  | CC   | IP   | EER  | CC   | IP   | EER  |
| 20°C | 5.30 | 1.50 | 3.53 | 5.93 | 1.55 | 3.83 | 6.58 | 1.60 | 4.11 | 7.02 | 1.63 | 4.31 | 7.71 | 1.67 | 4.62 | 8.65 | 1.73 | 5.00 |
| 25°C | 5.06 | 1.63 | 3.10 | 5.65 | 1.66 | 3.40 | 6.25 | 1.70 | 3.68 | 6.66 | 1.72 | 3.87 | 7.30 | 1.75 | 4.17 | 8.17 | 1.79 | 4.56 |
| 30°C | 4.82 | 1.76 | 2.74 | 5.37 | 1.77 | 3.03 | 5.92 | 1.80 | 3.29 | 6.30 | 1.81 | 3.48 | 6.89 | 1.83 | 3.77 | 7.69 | 1.85 | 4.16 |
| 35°C | 4.59 | 1.89 | 2.43 | 5.08 | 1.89 | 2.69 | 5.59 | 1.90 | 2.94 | 5.94 | 1.90 | 3.13 | 6.47 | 1.91 | 3.39 | 7.21 | 1.92 | 3.76 |
| 40°C | 3.08 | 1.31 | 2.35 | 3.45 | 1.32 | 2.61 | 3.84 | 1.34 | 2.87 | 4.11 | 1.34 | 3.07 | 4.53 | 1.35 | 3.36 | 5.13 | 1.37 | 3.74 |
| 46°C | 2.38 | 1.30 | 1.83 | 2.68 | 1.29 | 2.08 | 3.01 | 1.30 | 2.32 | 3.25 | 1.30 | 2.50 | 3.62 | 1.31 | 2.76 | 4.17 | 1.34 | 3.11 |

**NOTE:** The values mentioned in the table are calculated based on the maximum capacity:

- The flow rate obtained with fixed delta T of 5°C with for units with a variable flow rate

### 10-2. Model: WOYA060KLT (6 kW)

| FT   | 7°C  |      |      | 10°C |      |      | 13°C |      |      | 15°C |      |      | 18°C |      |      | 22°C |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| OT   | CC   | IP   | EER  | CC   | IP   | EER  | CC   | IP   | EER  | CC   | IP   | EER  | CC   | IP   | EER  | CC   | IP   | EER  |
| 20°C | 6.35 | 1.92 | 3.31 | 6.98 | 1.94 | 3.60 | 7.61 | 1.96 | 3.88 | 8.03 | 1.97 | 4.08 | 8.67 | 1.98 | 4.38 | 9.52 | 1.99 | 4.78 |
| 25°C | 5.76 | 1.91 | 3.02 | 6.35 | 1.92 | 3.31 | 6.94 | 1.94 | 3.58 | 7.33 | 1.95 | 3.76 | 7.94 | 1.96 | 4.05 | 8.75 | 1.97 | 4.44 |
| 30°C | 5.17 | 1.90 | 2.72 | 5.72 | 1.90 | 3.01 | 6.27 | 1.92 | 3.27 | 6.63 | 1.93 | 3.44 | 7.21 | 1.94 | 3.72 | 7.98 | 1.95 | 4.09 |
| 35°C | 4.59 | 1.89 | 2.43 | 5.08 | 1.89 | 2.69 | 5.59 | 1.90 | 2.94 | 5.94 | 1.90 | 3.13 | 6.47 | 1.91 | 3.39 | 7.21 | 1.92 | 3.76 |
| 40°C | 3.08 | 1.31 | 2.35 | 3.45 | 1.32 | 2.61 | 3.84 | 1.34 | 2.87 | 4.11 | 1.34 | 3.07 | 4.53 | 1.35 | 3.36 | 5.13 | 1.37 | 3.74 |
| 46°C | 2.38 | 1.30 | 1.83 | 2.68 | 1.29 | 2.08 | 3.01 | 1.30 | 2.32 | 3.25 | 1.30 | 2.50 | 3.62 | 1.31 | 2.76 | 4.17 | 1.34 | 3.11 |

**NOTE:** The values mentioned in the table are calculated based on the maximum capacity:

- The flow rate obtained with fixed delta T of 5°C with for units with a variable flow rate

### 10-3. Model: WOYA080KLT

| FT   | 7°C  |      |      | 10°C |      |      | 13°C |      |      | 15°C |      |      | 18°C |      |      | 22°C  |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|------|------|
| OT   | CC   | IP   | EER  | CC   | IP   | EER  | CC   | IP   | EER  | CC   | IP   | EER  | CC   | IP   | EER  | CC    | IP   | EER  |
| 20°C | 6.43 | 1.88 | 3.42 | 7.34 | 2.07 | 3.55 | 8.24 | 2.24 | 3.68 | 8.83 | 2.34 | 3.77 | 9.70 | 2.46 | 3.94 | 10.83 | 2.58 | 4.20 |
| 25°C | 6.19 | 2.13 | 2.91 | 7.01 | 2.27 | 3.09 | 7.81 | 2.39 | 3.27 | 8.35 | 2.46 | 3.39 | 9.14 | 2.54 | 3.60 | 10.18 | 2.63 | 3.87 |
| 30°C | 5.96 | 2.38 | 2.50 | 6.68 | 2.47 | 2.70 | 7.38 | 2.54 | 2.91 | 7.87 | 2.58 | 3.05 | 8.58 | 2.62 | 3.27 | 9.53  | 2.68 | 3.56 |
| 35°C | 5.73 | 2.64 | 2.17 | 6.34 | 2.66 | 2.38 | 6.96 | 2.68 | 2.60 | 7.38 | 2.69 | 2.74 | 8.02 | 2.71 | 2.96 | 8.89  | 2.73 | 3.26 |
| 40°C | 4.50 | 2.11 | 2.13 | 4.97 | 2.10 | 2.37 | 5.47 | 2.11 | 2.59 | 5.82 | 2.12 | 2.75 | 6.38 | 2.15 | 2.97 | 7.17  | 2.20 | 3.26 |
| 46°C | 3.63 | 2.10 | 1.73 | 4.05 | 2.10 | 1.93 | 4.48 | 2.10 | 2.13 | 4.78 | 2.11 | 2.27 | 5.25 | 2.12 | 2.48 | 5.90  | 2.14 | 2.76 |

**NOTE:** The values mentioned in the table are calculated based on the maximum capacity:

- The flow rate obtained with fixed delta T of 5°C with for units with a variable flow rate

### 10-4. Model: WOYA100KLT

| FT   | 7°C  |      |      | 10°C |      |      | 13°C  |      |      | 15°C  |      |      | 18°C  |      |      | 22°C  |      |      |
|------|------|------|------|------|------|------|-------|------|------|-------|------|------|-------|------|------|-------|------|------|
| OT   | CC   | IP   | EER  | CC   | IP   | EER  | CC    | IP   | EER  | CC    | IP   | EER  | CC    | IP   | EER  | CC    | IP   | EER  |
| 20°C | 6.67 | 1.81 | 3.69 | 8.95 | 2.45 | 3.65 | 11.25 | 3.48 | 3.23 | 11.99 | 3.57 | 3.36 | 13.03 | 3.67 | 3.55 | 14.31 | 3.76 | 3.81 |
| 25°C | 6.53 | 2.07 | 3.15 | 8.48 | 2.69 | 3.15 | 10.37 | 3.45 | 3.01 | 10.90 | 3.43 | 3.18 | 11.72 | 3.42 | 3.43 | 12.88 | 3.45 | 3.73 |
| 30°C | 6.11 | 2.32 | 2.63 | 8.02 | 2.94 | 2.73 | 9.37  | 3.40 | 2.76 | 9.88  | 3.40 | 2.91 | 10.66 | 3.44 | 3.10 | 11.82 | 3.43 | 3.45 |
| 35°C | 5.70 | 2.57 | 2.22 | 7.59 | 3.37 | 2.25 | 8.37  | 3.36 | 2.49 | 8.87  | 3.38 | 2.62 | 9.60  | 3.45 | 2.78 | 10.77 | 3.41 | 3.16 |
| 40°C | 4.35 | 2.33 | 1.87 | 5.10 | 2.35 | 2.17 | 5.82  | 2.37 | 2.46 | 6.28  | 2.37 | 2.65 | 6.95  | 2.37 | 2.93 | 7.79  | 2.36 | 3.30 |
| 46°C | 3.26 | 2.32 | 1.41 | 3.87 | 2.32 | 1.67 | 4.47  | 2.32 | 1.93 | 4.88  | 2.32 | 2.10 | 5.49  | 2.32 | 2.37 | 6.31  | 2.33 | 2.71 |

**NOTE:** The values mentioned in the table are calculated based on the maximum capacity:

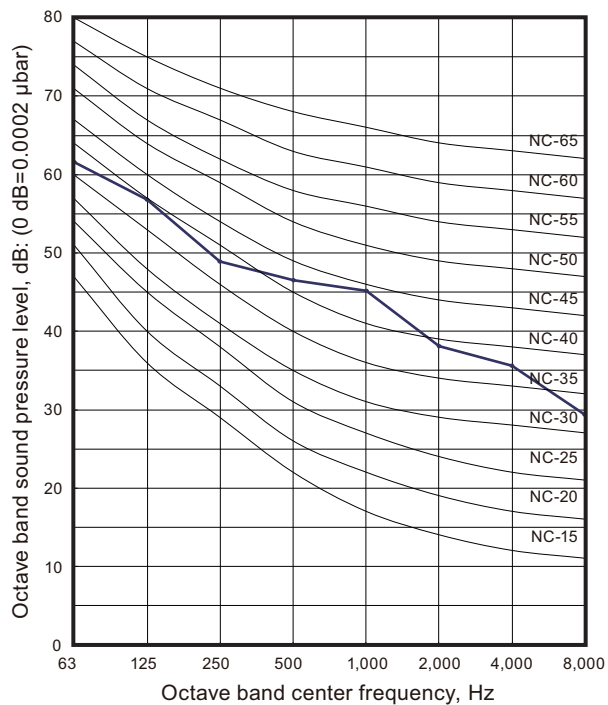
- The flow rate obtained with fixed delta T of 5°C with for units with a variable flow rate

# 11. Operation noise (sound pressure)

## 11-1. Noise level curve

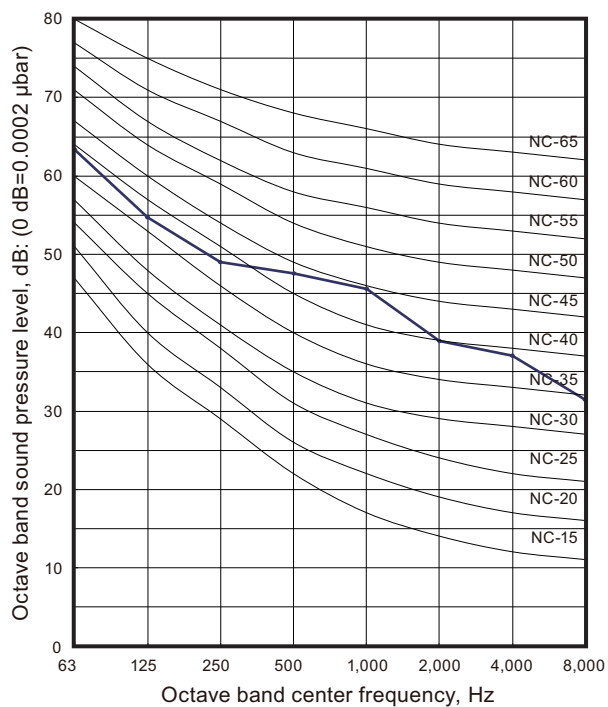
### ■ Model: WOYA060KLT (5 kW)

#### ● Heating



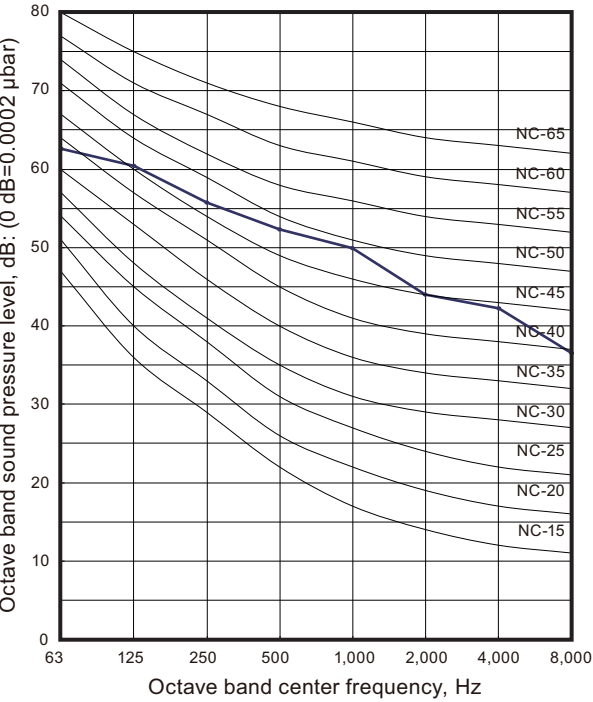
### ■ Model: WOYA060KLT (6 kW)

#### ● Heating



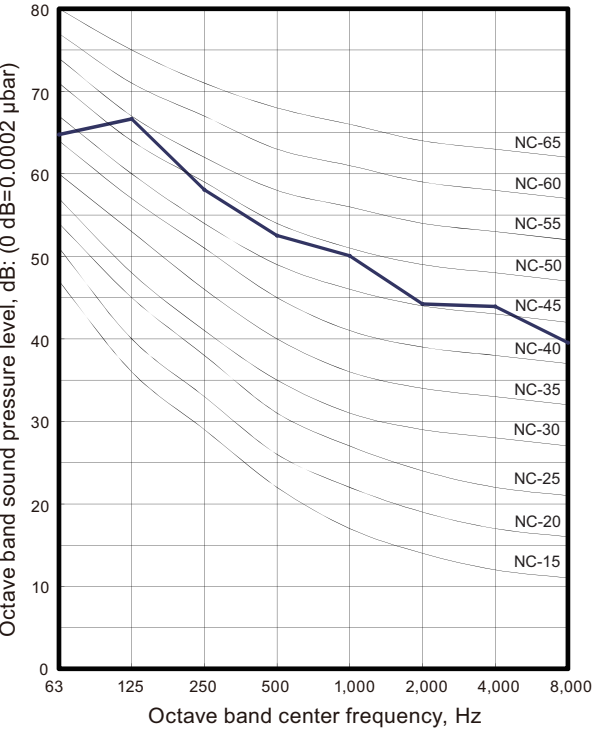
■ Model: WOYA080KLT

● Heating

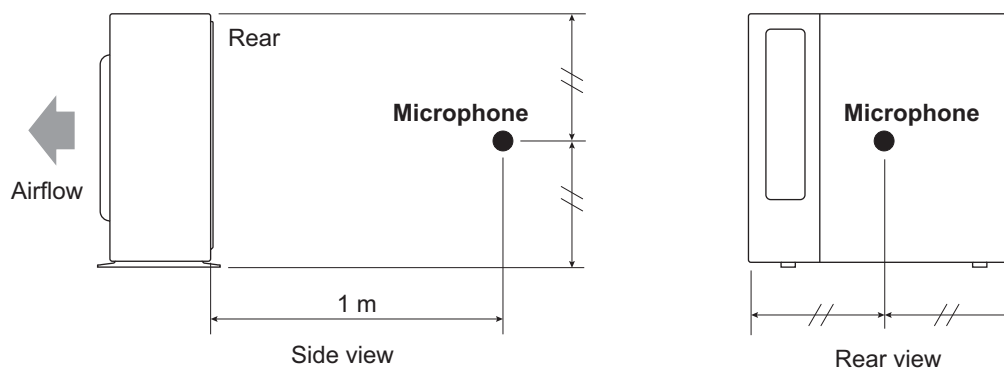


■ Model: WOYA100KLT

● Heating



## 11-2. Sound level check point

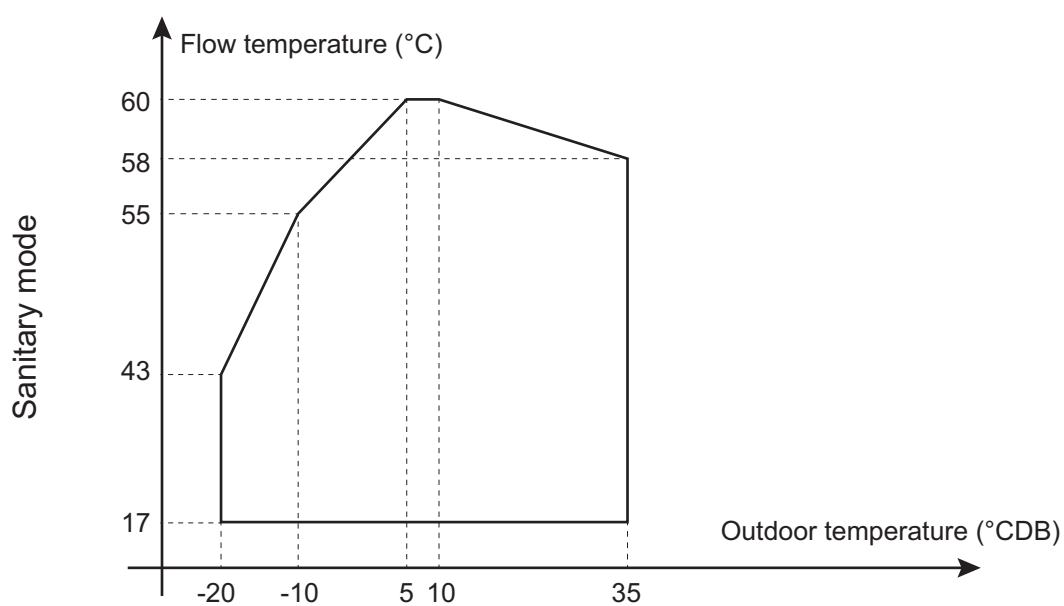
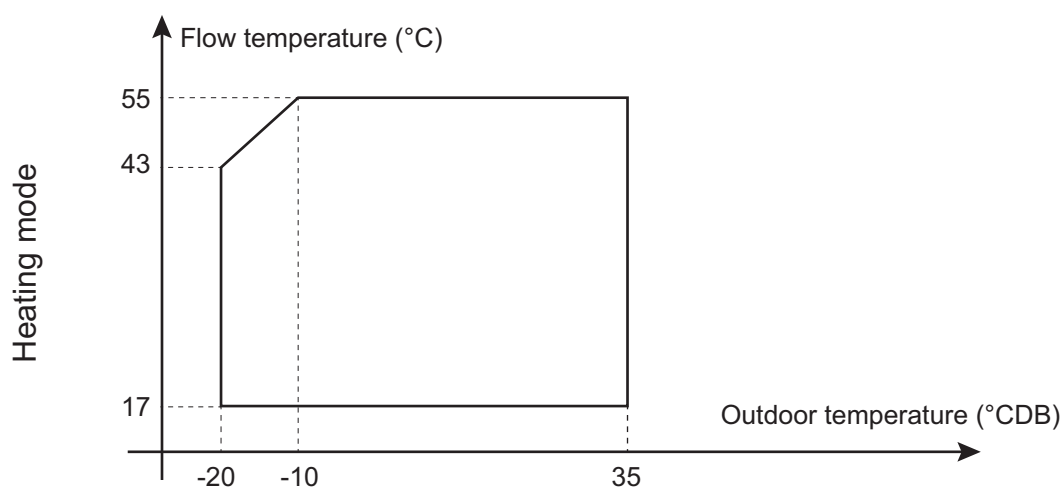
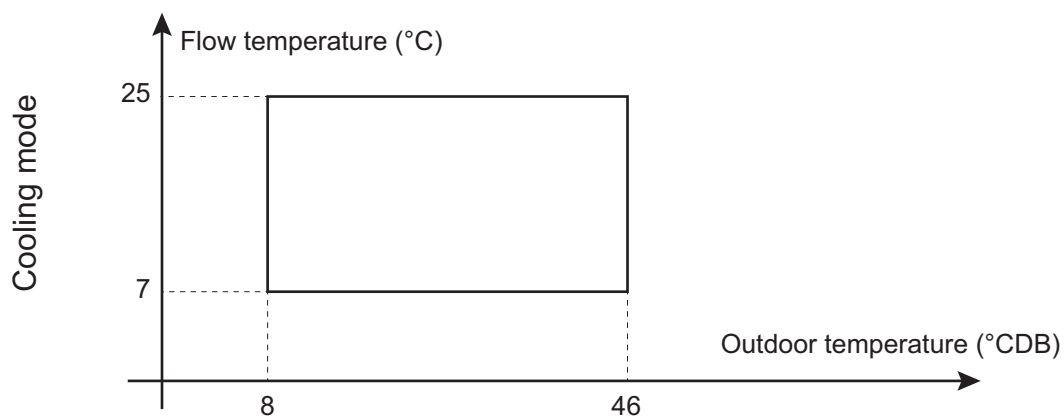


**NOTE:** Detailed shape of the actual outdoor unit might be slightly different from the one illustrated above.



## 12. Operation range


### 12-1. Models: WOYA060KLT, WOYA080KLT, and WOYA100KLT



## 13. Safety devices

| Type of protection                          | Protection form                               |          | Model  |            |  |
|---|---|----------|--|------------|--|
|   |   |          | WOYA060KLT   | WOYA080KLT | WOYA100KLT   |
| Circuit protection                          | Current fuse (PCB)                            |          | AC 250 V, 25 A<br>AC 250 V, 5 A                            |            | AC 250 V, 30 A<br>AC 250 V, 10 A<br>AC 250 V, 3.15 A |
| Fan motor protection                        | Thermal protector                             | Activate | 125±10 °C<br>Fan motor stop                                |            | 150±15 °C<br>Fan motor stop                          |
|   |   | Reset    | 120±10 °C<br>Fan motor restart                             |            | 120±15 °C<br>Fan motor restart                       |
| Compressor protector                        | Thermal protection program (Compressor temp.) | Activate | 108 °C<br>Compressor stop                                  |            |  |
|   |   | Reset    | After 3 minutes and 80°C or less<br>Compressor restart     |            |  |
|   | Thermal protection program (Discharge temp.)  | Activate | 110 °C<br>Compressor stop                                  |            |  |
|   |   | Reset    | After 7 minutes<br>Compressor restart                      |            |  |
| High pressure protection                    | Pressure switch                               | Activate | 4.2 <sup>+0</sup> <sub>-0.15</sub> MPa<br>Compressor stop  |            |  |
|   |   | Reset    | After 3 minutes and 3.2±0.15 MPa<br>Compressor restart     |            |  |
|   | Pressure sensor                               | Activate | 4.1 MPa<br>Compressor stop                                 |            |  |
|   |   | Reset    | After 3 minutes and 3.0 MPa<br>Compressor restart          |            |  |
| Low pressure protection (Cooling mode only) | Pressure sensor                               | Activate | 0.12 MPa<br>Compressor stop                                |            |  |
|   |   | Reset    | After 7 minutes and 0.15 MPa or more<br>Compressor restart |            |  |

## 14. Accessories

| Name and shape   | Q'ty | Application |
|--|------|-------------|
| <br>Installation manual | 1    |             |



## 2. HYDRAULIC INDOOR UNITS

# CONTENTS

## 2. HYDRAULIC INDOOR UNITS

|   |             |
|---|-------------|
| <b>1. Specifications .....</b>                            | <b>02-1</b> |
| 1-1. Technical specifications .....                       | 02-1        |
| 1-2. Electrical specifications .....                      | 02-1        |
| <b>2. Dimensions .....</b>                                | <b>02-2</b> |
| 2-1. Models: WSYA050ML3, WSYA080ML3, and WSYA100ML3 ..... | 02-2        |
| <b>3. Installation space .....</b>                        | <b>02-3</b> |
| 3-1. Models: WSYA050ML3, WSYA080ML3, and WSYA100ML3 ..... | 02-3        |
| 3-2. Installation precautions .....                       | 02-3        |
| <b>4. Piping diagrams .....</b>                           | <b>02-4</b> |
| 4-1. Models: WSYA050ML3, WSYA080ML3, and WSYA100ML3 ..... | 02-4        |
| <b>5. Wiring diagrams .....</b>                           | <b>02-5</b> |
| 5-1. Models: WSYA050ML3, WSYA080ML3, and WSYA100ML3 ..... | 02-5        |
| <b>6. External connection diagrams .....</b>              | <b>02-6</b> |
| 6-1. Models: WSYA050ML3, WSYA080ML3, and WSYA100ML3 ..... | 02-6        |
| <b>7. Hydraulic performance .....</b>                     | <b>02-7</b> |
| 7-1. Models: WSYA050ML3 and WSYA080ML3 .....              | 02-7        |
| 7-2. Model: WSYA100ML3 .....                              | 02-7        |
| <b>8. Safety devices .....</b>                            | <b>02-8</b> |
| <b>9. Accessories .....</b>                               | <b>02-9</b> |

# 1. Specifications

## 1-1. Technical specifications

| Model name  |                                | Hydraulic indoor unit |                            | WSYA050ML3       | WSYA080ML3   |           | WSYA080ML3 |       | WSYA100ML3 |       |  |
|---|--------------------------------|-----------------------|----------------------------|------------------|--------------|-----------|------------|-------|------------|-------|--|
|   |                                | Outdoor unit          |                            | WOYA060KLT       |              |           | WOYA080KLT |       | WOYA100KLT |       |  |
| Input power   | Heating                        | Rated                 | kW                         | 0.08             |              |           |            |       |            |       |  |
|   |                                | Maximum*1             |                            | 3 (Option:6)     |              |           |            |       |            |       |  |
| Enclosure   |                                | Material              | 8/10 mm DC01 + EZ (5μ)     |                  |              |           |            |       |            |       |  |
|   |                                | Color                 | White                      |                  |              |           |            |       |            |       |  |
| Dimensions<br>(H × W × D)   | Net                            | mm                    |                            | 847 × 450 × 493  |              |           |            |       |            |       |  |
|   | Gross                          |                       |                            | 955 × 545 × 550  |              |           |            |       |            |       |  |
| Weight  | Net                            | kg                    |                            | 47               |              |           |            |       |            |       |  |
|   | Gross                          |                       |                            | 49               |              |           |            |       |            |       |  |
| Main components   | Pump                           | Type                  | Water cooled               |                  |              |           |            |       |            |       |  |
|   |                                | Speed setting         | Variable speed             |                  |              |           |            |       |            |       |  |
|   | Input power*3                  |                       | W                          | 43               |              |           |            |       |            |       |  |
|   | Water side heat ex-<br>changer | Type                  | Double tube                |                  |              |           |            |       |            |       |  |
|   |                                | Q'ty                  | 1                          |                  |              |           |            |       |            |       |  |
|   |                                | Water volume          | l                          | 16               |              |           |            |       |            |       |  |
|   |                                | Min. water flow rate  | L/h                        | 454              |              | 512       |            | 598   |            | 791   |  |
|   |                                | Max. water flow rate  |                            | 1,320            |              |           | 1,616      |       | 1,800      |       |  |
|   | Nominal water flow<br>rate     | Heating               | L/h                        | 780              |              | 953       |            | 1,300 |            | 1,646 |  |
|   |                                | Cooling               |                            | 863              |              | 1,035     |            | 1,328 |            | 1,655 |  |
|   | Expansion vessel               | Insulation material   |                            |                  | Polyurethane |           |            |       |            |       |  |
|   |                                | Volume                | l                          | 8                |              |           |            |       |            |       |  |
|   |                                | Max. water pressure   | bar                        | 3.0              |              |           |            |       |            |       |  |
|   |                                | Pre-pressure          |                            | 1 (±20%)         |              |           |            |       |            |       |  |
|   |                                | Water circuit         | Piping connection diameter |                  | mm (in)      | Ø25.4 (1) |            |       |            |       |  |
|   | Piping                         |                       | Ø25.4 (1)                  |                  |              |           |            |       |            |       |  |
| Safety valve  |                                |                       | bar                        | 3                |              |           |            |       |            |       |  |
| Manometer   |                                |                       |                            | Yes              |              |           |            |       |            |       |  |
| Drain valve/Fill valve  |                                |                       |                            | Yes              |              |           |            |       |            |       |  |
| Air purge valve   |                                |                       |                            | Yes              |              |           |            |       |            |       |  |
| Connection pipe (Re-<br>frigerant circuit)  | Connection method              | Liquid                | mm                         | Flare connection |              |           |            |       |            |       |  |
|   |                                | Gas                   |                            | Flare connection |              |           |            |       |            |       |  |
|   | Size                           | Liquid                | mm                         | Ø9.52 (3/8)      |              |           |            |       |            |       |  |
|   |                                | Gas                   |                            | Ø15.88 (5/8)     |              |           |            |       |            |       |  |
| Operation range   | Water side                     | Heating               | °C                         | 17 to 55         |              |           |            |       |            |       |  |
| Pump rank   |                                |                       |                            | A                |              |           |            |       |            |       |  |
| <b>NOTES:</b> <ul style="list-style-type: none"><li>• *1: With electric backup heater</li><li>• *2: The value is at full speed and full flow.</li></ul> |                                |                       |                            |                  |              |           |            |       |            |       |  |

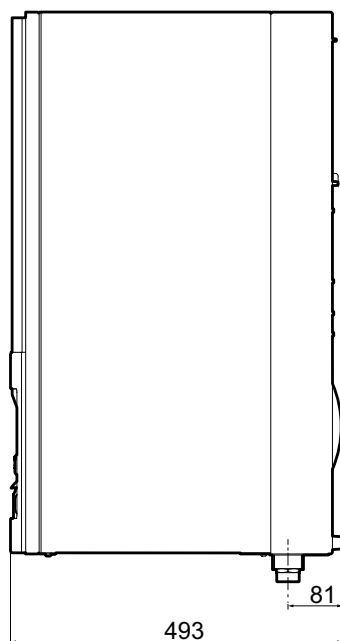
## 1-2. Electrical specifications

| Model name        |   | Hydraulic indoor unit                          |                 | WSYA050ML3                   | WSYA080ML3 | WSYA080ML3 | WSYA100ML3 |
|-------------------|---|--|-----------------|------------------------------|------------|------------|------------|
|                   |   | Outdoor unit                                   |                 | WOYA060KLT                   |            | WOYA080KLT | WOYA100KLT |
| Electrical heater | Type  |  |                 | Copper 9.0 W/cm <sup>2</sup> |            |            |            |
|                   | Power supply  | Phase  |                 | 1                            |            |            |            |
|                   |   | Frequency                                      |                 | 50                           |            |            |            |
|                   |   | Voltage  |                 | 230                          |            |            |            |
|                   | Current   | Running current                                | A               | 13.0                         |            |            |            |
|                   |   | Max. operating current (Hydraulic indoor unit) |                 | 14.1 (+5%)                   |            |            |            |
|                   | Current with 6 kW backup relay kit                    | Running current                                | A               | 26.1                         |            |            |            |
|                   |   | Max. operating current (Hydraulic indoor unit) |                 | 28.2 (+5%)                   |            |            |            |
| Wiring spec.      | Backup heater power supply                            | Main fuse (circuit breaker) current            | A               | 16                           |            |            |            |
|                   |   | Connection cable                               | mm <sup>2</sup> | 1.5 × 3                      |            |            |            |
|                   | Backup heater power supply with 6 kW backup relay kit | Main fuse (circuit breaker) current            | A               | 32                           |            |            |            |
|                   |   | Connection cable                               | mm <sup>2</sup> | 6.0 × 3                      |            |            |            |
|                   | Hydraulic indoor unit to outdoor unit                 | Connection cable                               | mm <sup>2</sup> | 1.5 × 4                      |            |            |            |
|                   |   | Limited wiring length                          | m               | Not available                |            |            |            |

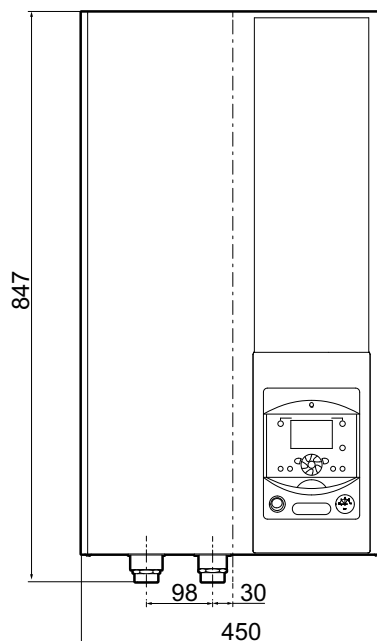
## 2. Dimensions

### 2-1. Models: WSYA050ML3, WSYA080ML3, and WSYA100ML3

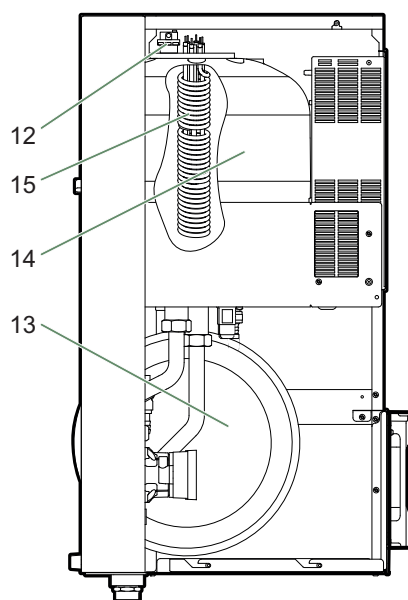
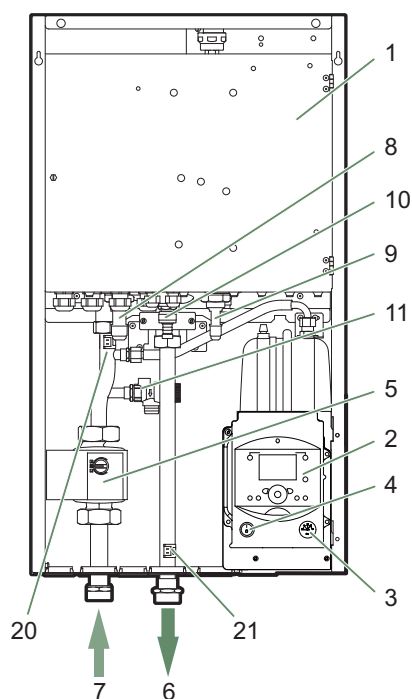
Unit: mm



Side view



Front view



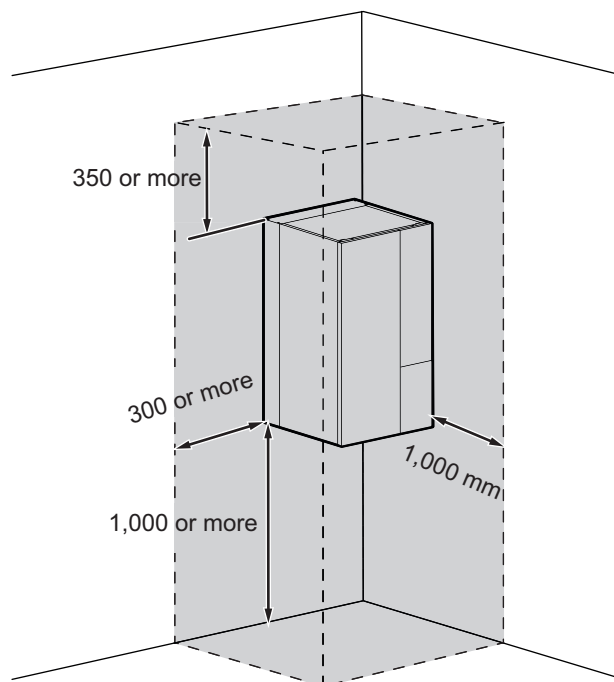
1. Electric control box
2. Controller/User interface
3. Start/stop switch
4. Pressure gauge
5. Hydraulic unit circulation pump
6. Heating flow
7. Heating return
8. Gas refrigeration connection
9. Liquid refrigeration connection
10. Drain valve
11. Safety valve
12. Automatic bleeder valve
13. Expansion vessel
14. Condenser
15. HP electrical backup
20. HP return sensor
21. HP flow sensor



### 3. Installation space

#### 3-1. Models: WSYA050ML3, WSYA080ML3, and WSYA100ML3

Unit: mm

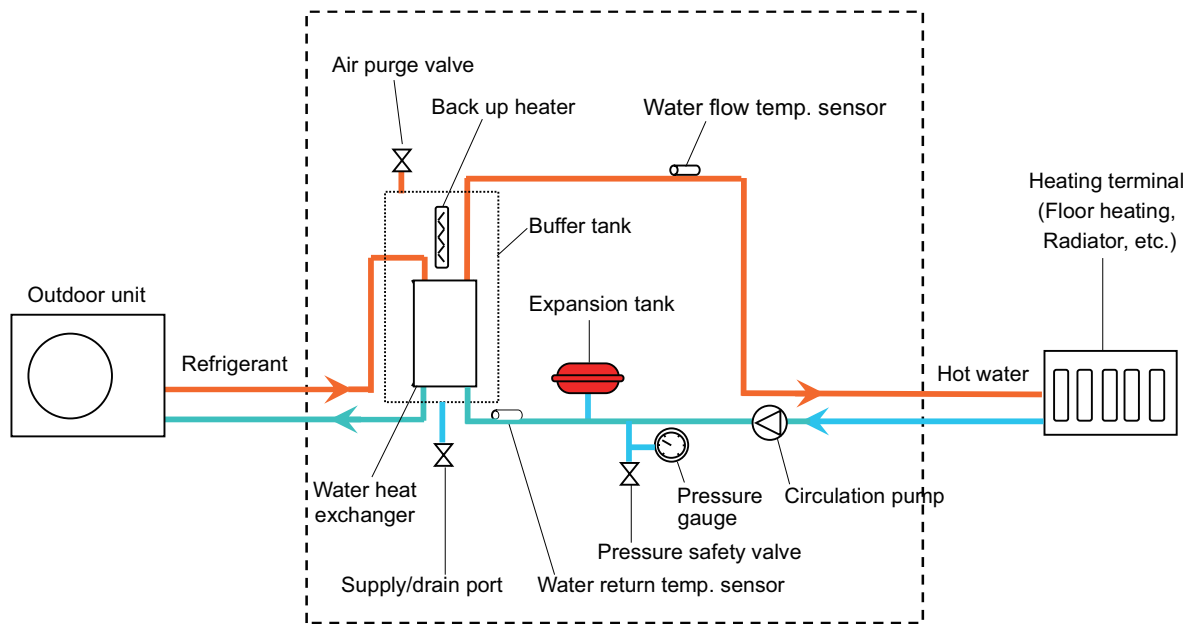


#### 3-2. Installation precautions

- Choose the location of the appliance after discussion with the client.
- The installation space should comply with the current regulations.
- To facilitate maintenance and allow access to the various parts, we recommend that you provide sufficient space all the way around the hydraulic unit.
- Fix the hydraulic module to the ground.
- Be careful not to bring flammable gas near the heat pump during installation, in particular when brazing is required. The appliances are not fireproof and should not therefore be installed in an explosive environment.
- To prevent risks of humidity in the exchanger, it is pressurized with nitrogen.
- To avoid condensation inside the condenser, remove the refrigerant circuit caps only when making the refrigeration connections.
- If the refrigerant connection is only performed at the end of the installation, make sure that the refrigeration circuit caps (hydraulic unit side and outdoor unit side) remain in place and tight throughout the installation.
- After each maintenance operation on the refrigeration circuit and before the final connection, take care to put the caps back in position to avoid any pollution of the refrigeration circuit. (Sealing with adhesive is prohibited.)

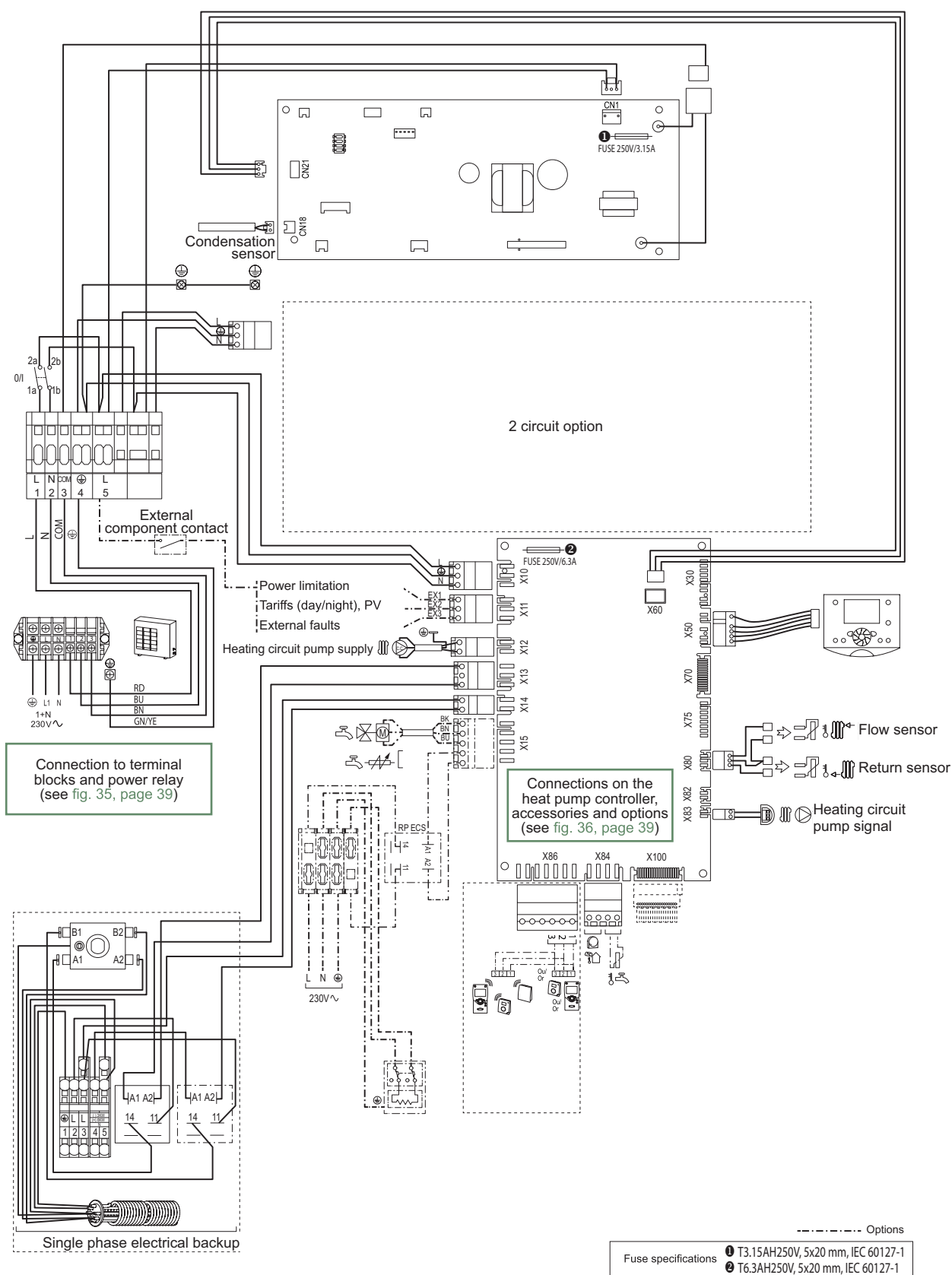
## 4. Piping diagrams

### 4-1. Models: WSYA050ML3, WSYA080ML3, and WSYA100ML3



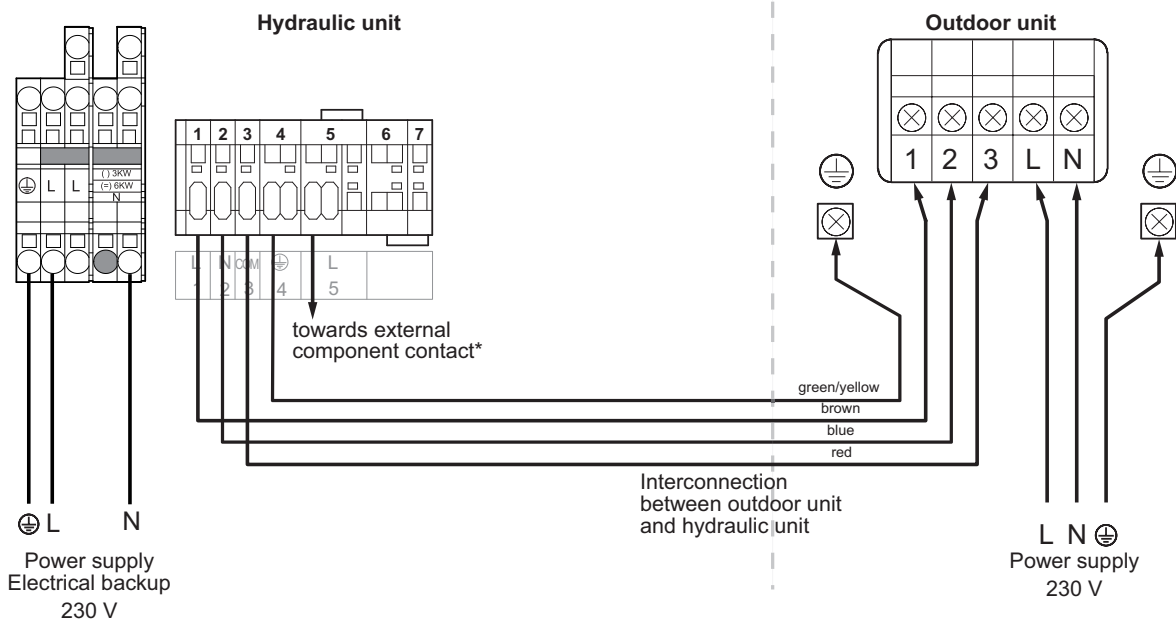
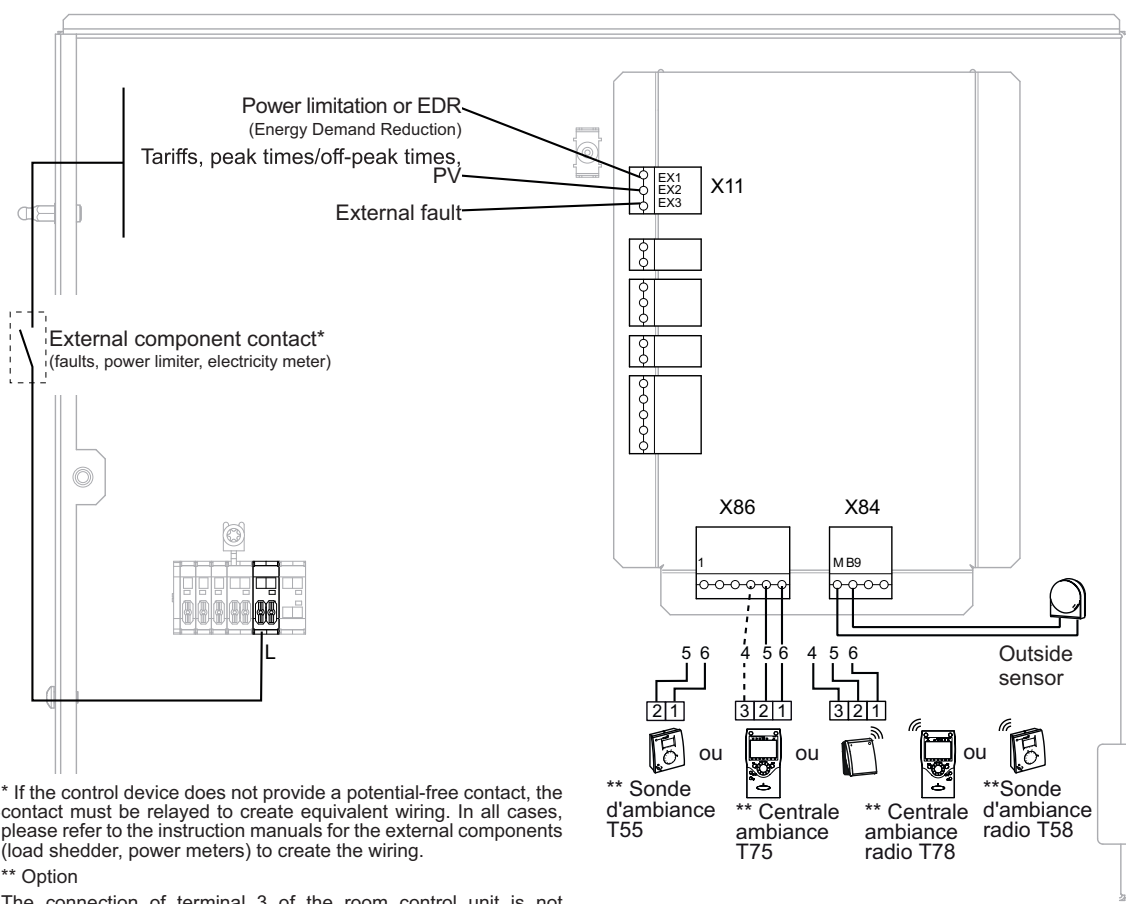
## 5. Wiring diagrams

### 5-1. Models: WSYA050ML3, WSYA080ML3, and WSYA100ML3



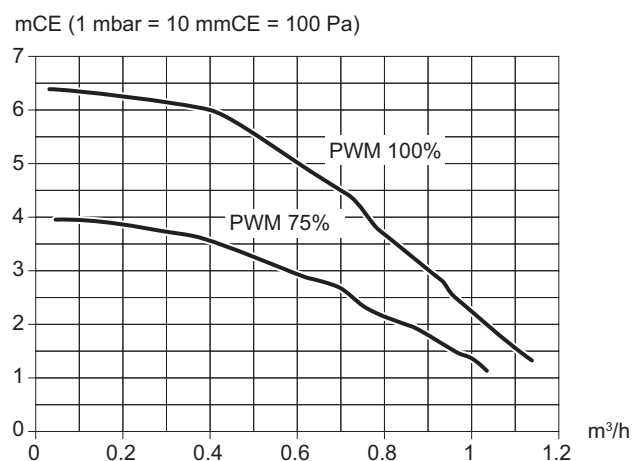
## 6. External connection diagrams

### 6-1. Models: WSYA050ML3, WSYA080ML3, and WSYA100ML3

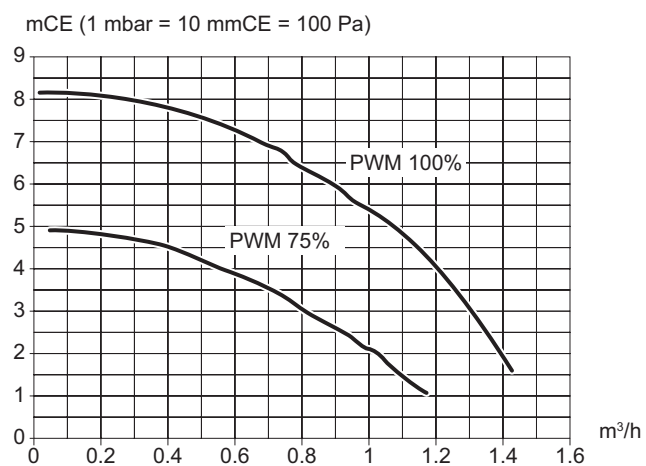


## 7. Hydraulic performance

### 7-1. Models: WSYA050ML3 and WSYA080ML3



### 7-2. Model: WSYA100ML3



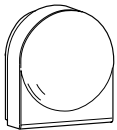
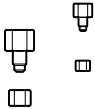
8. Safety devices

| Type of protection       | Protection form         |          | Model                              |            |            |
|--------------------------|-------------------------|----------|------------------------------------|------------|------------|
|                          |                         |          | WSYA050ML3                         | WSYA080ML3 | WSYA100ML3 |
| Circuit protection       | Current fuse (Main PCB) |          | 20 A                               |            |            |
| High pressure protection | Safety valve            | Activate | 3 bar or more<br>Safety valve open |            |            |
|                          |                         | Reset    | —                                  |            |            |

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## 9. Accessories

| Name and shape  | Q'ty | Application   |
|---|------|---|
|  <p>Outdoor sensor</p>                                   | 1    | To monitor the outdoor temperature  |
|  <p>Adapter and Nut<br/>(Only for 050 and 080 model)</p> | 1    | <ul style="list-style-type: none"> <li>Adapter<br/>12.70 mm (1/2 in) to 15.88 mm (5/8 in)<br/>6.35 mm (1/4 in) to 9.52 mm (3/8 in)</li> <li>Nut<br/>12.70 mm (1/2 in)<br/>6.35 mm (1/4 in)</li> </ul> |





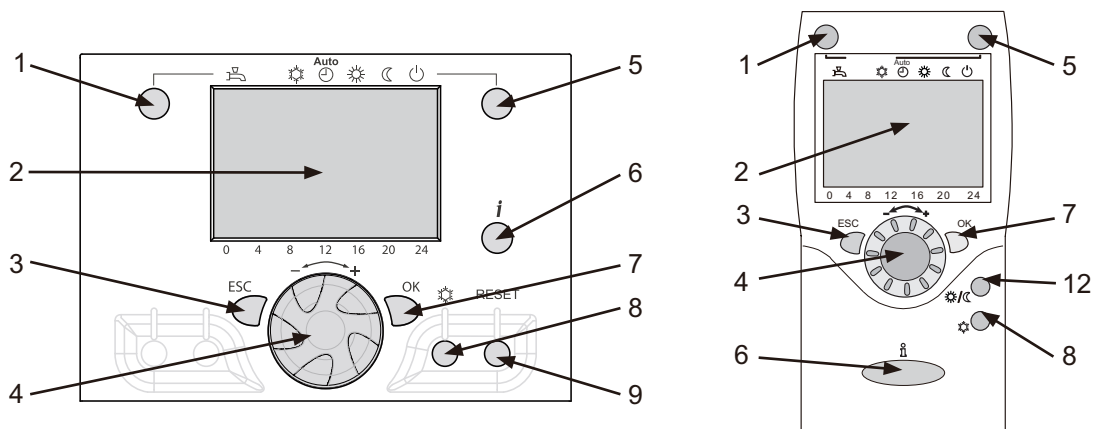
### 3. CONTROL SYSTEM

# CONTENTS

## 3. CONTROL SYSTEM

|   |              |
|---|--------------|
| <b>1. User interface and remote controller (Optional parts)</b>       | <b>03-1</b>  |
| <b>2. Control setting</b>   | <b>03-6</b>  |
| 2-1. General  | 03-6         |
| 2-2. Setting parameters   | 03-6         |
| <b>3. Function table</b>  | <b>03-7</b>  |
| 3-1. Time of day and date   | 03-7         |
| 3-2. Operator section   | 03-8         |
| 3-3. Time program functions   | 03-9         |
| 3-4. Heating circuit 1 and 2 functions                                | 03-12        |
| 3-5. Cooling circuit 1 functions                                      | 03-23        |
| 3-6. Domestic hot water functions                                     | 03-31        |
| 3-7. Swimming pool functions  | 03-35        |
| 3-8. Primary controller/system pump                                   | 03-36        |
| 3-9. Heat pump functions  | 03-37        |
| 3-10. Energy meter  | 03-39        |
| 3-11. Additional generator (Boiler connection)                        | 03-41        |
| 3-12. DHW storage tank functions                                      | 03-43        |
| 3-13. Installation configuration functions                            | 03-45        |
| 3-14. LPB system  | 03-50        |
| 3-15. Error functions   | 03-50        |
| 3-16. Service/Special operation functions                             | 03-53        |
| 3-17. Input/Output test functions                                     | 03-55        |
| 3-18. State functions   | 03-58        |
| 3-19. Diagnostics heat generation functions                           | 03-62        |
| 3-20. Diagnostics consumers functions                                 | 03-64        |
| <b>4. Electrical connections</b>                                      | <b>03-67</b> |
| 4-1. Overview of all the electrical connections                       | 03-67        |
| 4-2. Electrical connections on the hydraulic indoor unit              | 03-68        |
| 4-3. Connections to the heat pump regulator (Accessories and Options) | 03-71        |
| <b>5. Outdoor sensor</b>  | <b>03-78</b> |
| 5-1. Model: QAC34   | 03-78        |

# 1. User interface and remote controller (Optional parts)



| Ref. | Function   | Definition  |
|------|--|---|
| 1    | Selecting DHW operating mode (Domestic hot water)<br>: On<br>: Off | If the installation is fitted with a DHW tank <ul style="list-style-type: none"> <li>On: Production of DHW according to the time program</li> <li>Off: Preparing the domestic hot water for stopping with the anti-frost function active</li> <li>Manual start button: Hold down the DHW key for 3 seconds. Switch from "reduced" to "comfort" until the next time the DHW timer switches over.</li> </ul>  |
| 2    | Digital display  | <ul style="list-style-type: none"> <li>Operating control</li> <li>Readout of the current temperature, the heating mode and any faults.</li> <li>View the settings (Info section)</li> </ul>   |
| 3    | Exit "ESC"   | Quit the menu.  |
| 4    | Navigation and setting   | <ul style="list-style-type: none"> <li>Selecting the menu</li> <li>Setting parameters</li> <li>Adjusting the ambient temperature point</li> </ul>   |
| 5    | Selecting heating mode   | <ul style="list-style-type: none"> <li>: Heating operation according to the heating program (Summer/Winter mode switchover is automatic.)</li> <li>: Constant comfort temperature</li> <li>: Constant reduced temperature</li> <li>: Standby mode with anti-frost protection (Provided that the heat pump's electrical power supply is not interrupted.)</li> </ul>   |
| 6    | Info key   | <ul style="list-style-type: none"> <li>Various data<br/>For details, refer to "<a href="#">Various data of information display</a>" on page 03-2.<br/> <b>NOTE:</b> Ensure that the general electrical power supply has been cut off before starting any repair work. When the HP is not under tension, protection frost-free is not assured.</li> <li> Reading error codes<br/>For details, refer to "<a href="#">Error codes</a>" on page 03-3.</li> <li> Information concerning maintenance, special mode</li> </ul> |
| 7    | Confirm "OK"   | <ul style="list-style-type: none"> <li>Input into the selected menu.</li> <li>Confirmation of the parameter settings</li> <li>Confirmation of the adjustment to the comfort temperature setting</li> </ul>  |
| 8    | Selecting cooling mode   | If the installation is fitted with the cooling kit: <ul style="list-style-type: none"> <li>: Cooling operation according to the heating program (Summer/Winter mode switchover is automatic.)</li> </ul>  |
| 9    | RESET button<br>Hold down the "RESET" key for less than 3 seconds. | Reinitializing the parameters and canceling error messages.<br><b>Do not use during normal operation.</b>   |
| 12   | Presence key   | Comfort/Reduced switchover  |

## ■ Various data of information display

| Designation                                     | Line |
|---|------|
| Floor drying current setpoint                   | —    |
| Current drying day                              | —    |
| Terminated drying days                          | —    |
| State heat pump                                 | 8006 |
| State supplementary source                      | 8022 |
| State DHW                                       | 8003 |
| State swimming pool                             | 8011 |
| State heating circuit 1                         | 8000 |
| State heating circuit 2                         | 8001 |
| State cooling circuit 1                         | 8004 |
| Outside temperature                             | 8700 |
| Room temperature 1                              | 8740 |
| Room setpoint 1                                 |      |
| Flow temperature 1                              | 8743 |
| Flow temperature setpoint 1                     |      |
| Room temperature 2                              | 8770 |
| Room setpoint 2                                 |      |
| Flow temperature 2                              | 8773 |
| Flow temperature setpoint 2                     |      |
| DHW (domestic hot water) temperature            | 8830 |
| DHW (domestic hot water) temperature setpoint   |      |
| Return temperature HP                           | 8410 |
| Setpoint (return) HP                            |      |
| Flow temperature HP                             | 8412 |
| Setpoint (flow) HP                              |      |
| Swimming pool temperature                       | 8900 |
| Swimming pool temperature setpoint              |      |
| Minimum remaining stop time for compressor 1    | —    |
| Minimum remaining running time for compressor 1 | —    |

## ■ Error codes

- **Hydraulic indoor unit:** Fault visible on the digital display

| Error number | Error contents                            | Error location                                    | Reset  |      | Heat pump operation |
|--------------|---|---|--------|------|---------------------|
|              |   |   | Manual | Auto |                     |
| 10           | Outdoor sensor                            | X84   | No     | No   | Yes                 |
| 30           | Flow sensor mixing circuit                | X153  | No     | No   | Yes                 |
| 33           | Flow sensor HP                            | X70   | No     | No   | Yes                 |
| 44           | Return sensor HP                          | X70   | No     | No   | Yes                 |
| 50           | DHW sensor 1                              | X84   | No     | No   | Yes                 |
| 60           | Room sensor 1                             | X86   | No     | No   | Yes                 |
| 65           | Room sensor 2                             | X150  | No     | No   | Yes                 |
| 83           | BSB, Short circuit                        |   | No     | No   | Yes                 |
| 105          | Maintenance message                       |   | No     | No   | Yes                 |
| 121          | Flow temperature mixing circuit (too low) |   | No     | No   | Yes                 |
| 122          | Flow temperature direct circuit (too low) |   | No     | No   | Yes                 |
| 127          | Legionella temperature                    |   | No     | No   | Yes                 |
| 212          | Internal communication failure            |   | No     | No   | Yes                 |
| 369          | External fault (Safety component)         | X11 (EX3)   | No     | No   | No                  |
| 370          | Thermodynamic source*                     |   | No     | No   | No                  |
| 441          | BX31 no function                          |   | No     | No   | No                  |
| 442          | BX24 no function                          |   | No     | No   | No                  |
| 443          | BX33 no function                          |   | No     | No   | No                  |
| 444          | BX34 no function                          |   | No     | No   | No                  |
| 516          | Heat pump missing                         |   | No     | No   | No                  |
| —            | No connection                             | The polarity of the room sensor is not respected. | —      | —    | No                  |

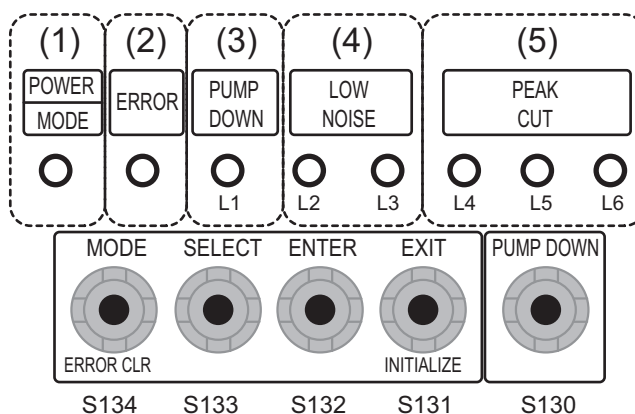
\*: A fault in the outdoor unit is indicated by LED located on the hydraulic unit interface board.

- **Hydraulic indoor unit:** A fault in the outdoor unit is indicated by LED located on the hydraulic unit interface board.

| LED           |             | Error number | Error contents  |   |
|---------------|-------------|--------------|---|---|
| LED 2 (Green) | LED 1 (Red) |              | WSYA050ML3<br>WSYA080ML3                                    | WSYA100ML3  |
| 1 Flash       | 1 Flash     | 11           | Serial communication error                                  |   |
| 2 Flashes     | 3 Flashes   | 23           | Combination error   |   |
| 3 Flashes     | 2 Flashes   | 32           | UART communications error                                   |   |
| 4 Flashes     | 2 Flashes   | 42           | Hydraulic unit heat exchanger thermistor error              |   |
| 6 Flashes     | 2 Flashes   | 62           | Outdoor unit main PCB error                                 |   |
| 6 Flashes     | 3 Flashes   | 63           | —   | Inverter error                                      |
| 6 Flashes     | 5 Flashes   | 65           | Outdoor unit IPM error                                      |   |
| 7 Flashes     | 1 Flash     | 71           | Discharge thermistor error                                  |   |
| 7 Flashes     | 2 Flashes   | 72           | Compressor thermistor error                                 |   |
| 7 Flashes     | 3 Flashes   | 73           | —   | Heat exchanger thermistor (center) error            |
|               |             |              | Heat exchanger thermistor (outlet) error                    | Heat exchanger thermistor (outlet) error            |
| 7 Flashes     | 4 Flashes   | 74           | Outdoor thermistor error                                    |   |
| 7 Flashes     | 7 Flashes   | 77           | —   | Heat sink thermistor error (PFC)                    |
| 7 Flashes     | 8 Flashes   | 78           | Expansion valve thermistor error                            |   |
| 8 Flashes     | 4 Flashes   | 84           | Current sensor error  |   |
| 8 Flashes     | 6 Flashes   | 86           | Pressure sensor error/Pressure switch error                 |   |
| 9 Flashes     | 4 Flashes   | 94           | Current trip (Permanent stoppage)                           |   |
| 9 Flashes     | 5 Flashes   | 95           | Detection of compressor position error (Permanent stoppage) | Compressor motor control error (Permanent stoppage) |
| 9 Flashes     | 7 Flashes   | 97           | Outdoor unit fan motor error                                |   |
| 10 Flashes    | 1 Flash     | A1           | Discharge temperature protection (Permanent stoppage)       |   |
| 10 Flashes    | 3 Flashes   | A3           | Compressor temperature protection (Permanent stoppage)      |   |
| 10 Flashes    | 5 Flashes   | A5           | Low pressure abnormal                                       | Pressure error                                      |
| 10 Flashes    | 12 Flashes  | AC           | —   | Outdoor unit radiator temperature error             |

• **Outdoor unit (WOYA100KLT):**

When an error occurs:



- Check that the LED of ERROR blinks, and then press shortly the switch of ENTER.
- The LED of ERROR will blink several time. For details, refer to the table below.

| Error | Outdoor unit board |    |    |    |    |    | Error contents  |
|-------|--------------------|----|----|----|----|----|---|
|       | L1                 | L2 | L3 | L4 | L5 | L6 |   |
| 11    | 1                  | 1  | ○  | ○  | ●  | ●  | Serial communication error after operation              |
|       | 1                  | 1  | ○  | ●  | ○  | ○  | Serial communication error during operation             |
| 23    | 2                  | 3  | ○  | ○  | ○  | ●  | Different combinations used by indoor and outdoor units |
| 62    | 6                  | 2  | ○  | ○  | ○  | ●  | Outdoor unit main PCB error                             |
| 63    | 6                  | 3  | ○  | ○  | ○  | ●  | Inverter error  |
| 65    | 6                  | 5  | ○  | ○  | ●  | ●  | Outdoor unit IPM error                                  |
|       | 6                  | 5  | ○  | ○  | ○  | ●  | IPM board temperature error                             |
| 71    | 7                  | 1  | ○  | ○  | ○  | ●  | Discharge thermistor error                              |
| 72    | 7                  | 2  | ○  | ○  | ○  | ●  | Compressor thermistor error                             |
| 73    | 7                  | 3  | ○  | ○  | ●  | ○  | Heat exchanger thermistor (intermediate) error          |
|       | 7                  | 3  | ○  | ○  | ●  | ●  | Heat exchanger thermistor (outlet) error                |
| 74    | 7                  | 4  | ○  | ○  | ○  | ●  | Outdoor thermistor error                                |
| 77    | 7                  | 7  | ○  | ○  | ○  | ●  | Outdoor unit heat sink temperature thermistor error     |
| 78    | 7                  | 8  | ○  | ○  | ○  | ●  | Expansion valve thermistor error                        |
| 84    | 8                  | 4  | ○  | ○  | ○  | ●  | Current sensor error                                    |
| 86    | 8                  | 6  | ○  | ●  | ○  | ○  | Pressure sensor error                                   |
|       | 8                  | 6  | ○  | ●  | ●  | ○  | Pressure switch error                                   |
| 94    | 9                  | 4  | ○  | ○  | ○  | ●  | Trigger detection                                       |
| 95    | 9                  | 5  | ○  | ○  | ○  | ●  | Detection of compressor position error                  |
|       | 9                  | 5  | ○  | ○  | ○  | ●  | Compressor start up error                               |
| 97    | 9                  | 7  | ○  | ○  | ●  | ●  | Outdoor unit fan1 motor error                           |
| A1    | 10                 | 1  | ○  | ○  | ○  | ●  | Discharge temperature protection                        |
| A3    | 10                 | 3  | ○  | ○  | ○  | ●  | Compressor temperature protection                       |
| A5    | 10                 | 5  | ○  | ○  | ○  | ●  | Low pressure abnormal                                   |
| AC    | 10                 | 12 | ○  | ○  | ●  | ●  | Outdoor unit radiator temperature error                 |

○: LED off, ●: LED on

## 2. Control setting

### 2-1. General

The settings described below are those which can be modified by user. We wish to remind you that changing the settings below may cause the heat pump to behave in an undesirable way. A testing period should be conducted before the permanent settings of the heat pump are confirmed. This may require a number of changes to be made by the installer.

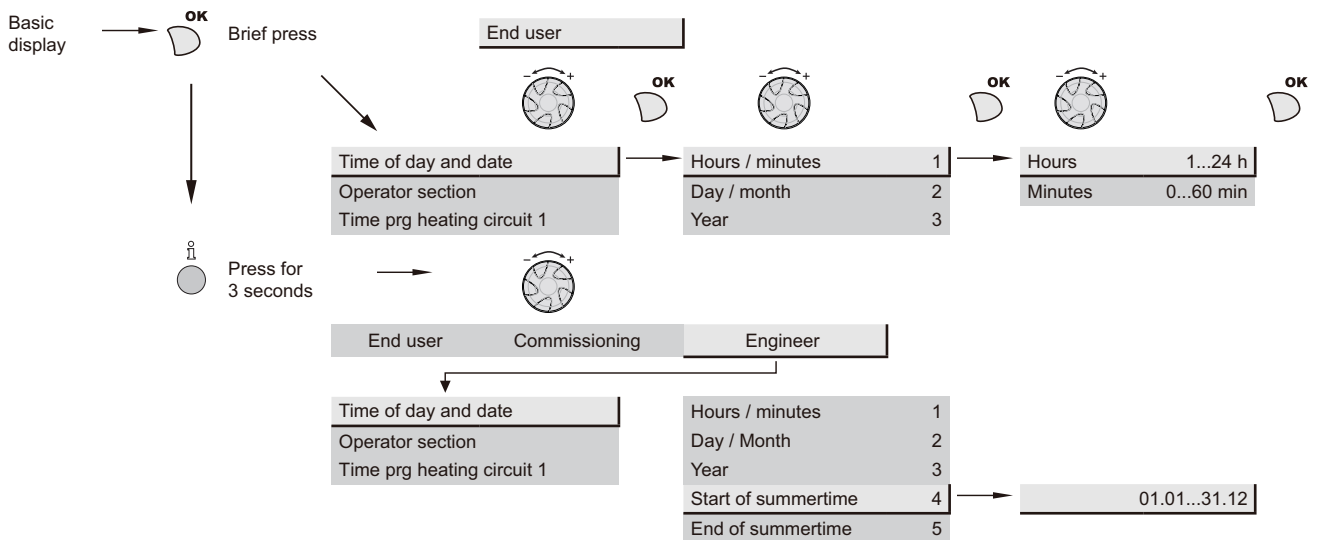
There are 4 access levels:

- U: End user level
- I: Commissioning level (installer start-up)
- S: Engineer level (specialist)
- C: OEM level (manufacturer) (not available)

### 2-2. Setting parameters

- Choose the desired level.
- Scroll the menu list.
- Choose the desired menu.
- Scroll the function line.
- Choose the desired line.
- Adjust the parameter.
- Check the setting by pressing OK.
- To return the menu, press ESC.

**NOTE:** If no setting is made for 8 minutes, the screen returns automatically to the basic display.





### 3. Function table

Description of abbreviations:

- HC: Heating circuit
- OT: Outdoor temperature
- HP: Heat pump
- DHW: Domestic hot water
- BXx, EXx, QXx, DOx, UXx, Hx: Terminal number

#### 3-1. Time of day and date

The controller has an annual clock which contains the time, the day of the week and date. In order for the function to operate, the time and date must be set properly on the clock.

| Line | Access | Function                          | Setting range or display | Setting increment | Factory setting |
|------|--------|-----------------------------------|--------------------------|-------------------|-----------------|
| 1    | U      | Hours/minutes                     | 00:00...23:59            | 1                 |                 |
| 2    | U      | Day/month                         | 01.01...31.12            | 1                 |                 |
| 3    | U      | Year                              | 1900...2099              | 1                 |                 |
| 5    | S      | Start of summer time (Day/ Month) | 01.01...31.12            | 1                 | 25.03           |
| 6    | S      | End of summer time (Day/ Month)   | 01.01...31.12            | 1                 | 25.10           |

The change of hour will appear at 3:00 first Sunday after the regulated date.

**NOTE:** Summer time/winter time change dates have been set for changing to summer time or to winter time. The time changes automatically from 2 am (winter time) to 3 am (summer time) or from 3 am (summer time) to 2 am (winter time) on the first Sunday following the respective date.

## 3-2. Operator section

| Line | Access | Function                            | Setting range or display                   | Factory setting   |
|------|--------|-------------------------------------|--|-------------------|
| 20   | U      | Language                            | English, Français, Italiano, Nederlands... | English           |
| 22   | S      | Info                                | Temporary, Permanent                       | Temporary         |
| 26   | S      | Operation lock                      | On, Off                                    | Off               |
| 27   | S      | Programming lock                    | On, Off                                    | Off               |
| 28   | I      | Direct adjustment                   | Automatic storage, With confirmation       | With confirmation |
| 29   | I      | Temperature units<br>Pressure units | °C, °F<br>bar, psi                         | °C<br>bar         |
| 44   | I      | Operation HC2                       | Jointly with HC1 Independently             | Jointly with HC1  |
| 46   | I      | Operation HC3/P                     | Jointly with HC1 Independently             | Jointly with HC1  |
| 70   | S      | Display software version            |  |                   |

- **Info (line: 22)**

- Temporary

After pressing the Info key, the information display returns “predefined” basic display after 8 minutes or when pressing the operating mode key.

- Permanently

After pressing the Info key, the information display returns “new” basic display after a maximum of 8 minutes. The last selected information value is shown in the new basic display.

- **Operation lock (line: 26)**

If the operating lock is activated, the following control elements can no longer be adjusted: Heating circuit mode, DHW mode, room temperature comfort setpoint (knob), occupancy key.

- **Programming lock (line: 27)**

If the programming lock is activated, the setting values are displayed, but may no longer be changed.

- **Temporary suspension of programming:**

The programming lock can be temporarily deactivated at programing level. To do this, simultaneously press OK and ESC buttons for at least 3 seconds. The temporary suspension of the programming lock remains in effect until you exit the programming.

- **Permanent suspension of programming:**

First perform a temporary suspension, then cancel “Programming lock” on line 27.

- **Direct adjustment (line: 28)**

- **Storage with confirmation**

Correction of the setpoint with the knob will be adopted only after pressing OK button.

- **Automatic storage**

Correction of the setpoint with the knob is adopted without a particular confirmation (timeout) or by pressing OK button.

- **Display software version (line: 70)**

The display shows the current version of the user interface.

### 3-3. Time program functions

- Time program heating/cooling, circuit 1

| Line | Access   | Function                         | Setting range or display                        | Setting increment | Factory setting |
|------|--|----------------------------------|---|-------------------|-----------------|
| 500  | U  | Pre-selection (Day/Week)         | Mon-Sun, Mon-Fri, Sat-Sun, Monday, Tuesday, ... |                   | Mon-Sun         |
| 501  | U  | 1 <sup>st</sup> phase on (start) | 00:00...--:--                                   | 10 minutes        | 06:00           |
| 502  | U  | 1 <sup>st</sup> phase off (end)  | 00:00...--:--                                   | 10 minutes        | 22:00           |
| 503  | U  | 2 <sup>nd</sup> phase on (start) | 00:00...--:--                                   | 10 minutes        | --:--           |
| 504  | U  | 2 <sup>nd</sup> phase off (end)  | 00:00...--:--                                   | 10 minutes        | --:--           |
| 505  | U  | 3 <sup>rd</sup> phase on (start) | 00:00...--:--                                   | 10 minutes        | --:--           |
| 506  | U  | 3 <sup>rd</sup> phase on (end)   | 00:00...--:--                                   | 10 minutes        | --:--           |
| 516  | U  | Default values, circuit 1        | No, Yes   |                   | No              |
|      | Yes + OK: The default values memorized in the regular replace and cancel the customized heating programs. Your customized settings are therefore lost. |                                  |   |                   |                 |

- Time program heating/cooling, circuit 2

(Only with the 2<sup>nd</sup> circuit kit option)

| Line | Access   | Function                         | Setting range or display                        | Setting increment | Factory setting |
|------|--|----------------------------------|---|-------------------|-----------------|
| 520  | U  | Pre-selection (Day/Week)         | Mon-Sun, Mon-Fri, Sat-Sun, Monday, Tuesday, ... |                   | Mon-Sun         |
| 521  | U  | 1 <sup>st</sup> phase on (start) | 00:00...--:--                                   | 10 minutes        | 06:00           |
| 522  | U  | 1 <sup>st</sup> phase off (end)  | 00:00...--:--                                   | 10 minutes        | 22:00           |
| 523  | U  | 2 <sup>nd</sup> phase on (start) | 00:00...--:--                                   | 10 minutes        | --:--           |
| 524  | U  | 2 <sup>nd</sup> phase off (end)  | 00:00...--:--                                   | 10 minutes        | --:--           |
| 525  | U  | 3 <sup>rd</sup> phase on (start) | 00:00...--:--                                   | 10 minutes        | --:--           |
| 526  | U  | 3 <sup>rd</sup> phase off (end)  | 00:00...--:--                                   | 10 minutes        | --:--           |
| 536  | U  | Default values, circuit 2        | No, Yes   |                   | No              |
|      | Yes + OK: The default values memorized in the regular replace and cancel the customized heating programs. Your customized settings are therefore lost. |                                  |   |                   |                 |

- Time program 4/DHW

| Line | Access   | Function                         | Setting range or display                        | Setting increment | Factory setting |
|------|--|----------------------------------|---|-------------------|-----------------|
| 560  | U  | Pre-selection (Day/Week)         | Mon-Sun, Mon-Fri, Sat-Sun, Monday, Tuesday, ... |                   | Mon-Sun         |
| 561  | U  | 1 <sup>st</sup> phase on (start) | 00:00...--:--                                   | 10 minutes        | 00:00           |
| 562  | U  | 1 <sup>st</sup> phase off (end)  | 00:00...--:--                                   | 10 minutes        | 05:00           |
| 563  | U  | 2 <sup>nd</sup> phase on (start) | 00:00...--:--                                   | 10 minutes        | 14:30           |
| 564  | U  | 2 <sup>nd</sup> phase off (end)  | 00:00...--:--                                   | 10 minutes        | 17:00           |
| 565  | U  | 3 <sup>rd</sup> phase on (start) | 00:00...--:--                                   | 10 minutes        | --:--           |
| 566  | U  | 3 <sup>rd</sup> phase off (end)  | 00:00...--:--                                   | 10 minutes        | --:--           |
| 576  | U  | Default values, circuit 2        | No, Yes   |                   | No              |
|      | Yes + OK: The default values memorized in the regular replace and cancel the customized heating programs. Your customized settings are therefore lost. |                                  |   |                   |                 |

- **Holidays heating circuit 1**

For the holiday program is active, the heating mode should be on AUTO.

| Line | Access | Function                | Setting range or display  | Setting increment | Factory setting  |
|------|--------|-------------------------|---------------------------|-------------------|------------------|
| 641  | U      | Pre-selection           | Period 1...8              |                   | Period 1         |
| 642  | U      | Period start (Day/Week) | 01.01...31.12             | 1                 |                  |
| 643  | U      | Period end (Day/Week)   | 01.01...31.12             | 1                 |                  |
| 648  | U      | Operating level         | Frost protection, Reduced |                   | Frost protection |

- **Holidays heating circuit 2**

For the holiday program is active, the heating mode should be on AUTO.

If the installation consists of 2 heating circuits (Only with the 2<sup>nd</sup> circuit kit option)

| Line | Access | Function                | Setting range or display  | Setting increment | Factory setting  |
|------|--------|-------------------------|---------------------------|-------------------|------------------|
| 651  | U      | Pre-selection           | Period 1...8              |                   | Period 1         |
| 652  | U      | Period start (Day/Week) | 01.01...31.12             | 1                 |                  |
| 653  | U      | Period end (Day/Week)   | 01.01...31.12             | 1                 |                  |
| 658  | U      | Operating level         | Frost protection, Reduced |                   | Frost protection |

**Adjustment function details:**

Several control programs are available for the heating circuits and the production of DHW. They are initiated in "Automatic" mode and control the change in temperature levels (and therefore the associated setpoints, reduced and comfort) via the adjusted changeover times.

- **Changeover points**

| Line |     |       |     | Function                                  |
|------|-----|-------|-----|---|
| HC1  | HC2 | 4/DHW | 5   |   |
| 500  | 520 | 560   | 600 | Pre-selection (Mo-Su/Mo-Fr/Sa-Su/Mo...Su) |
| 501  | 521 | 561   | 601 | 1 <sup>st</sup> phase on                  |
| 502  | 522 | 562   | 602 | 1 <sup>st</sup> phase off                 |
| 503  | 523 | 563   | 603 | 2 <sup>nd</sup> phase on                  |
| 504  | 524 | 564   | 604 | 2 <sup>nd</sup> phase off                 |
| 505  | 525 | 565   | 605 | 3 <sup>rd</sup> phase on                  |
| 506  | 526 | 566   | 606 | 3 <sup>rd</sup> phase off                 |

- **Standard program**

All time programs can be reset to factory settings. Each time program has its own programming line for this reset action. In this case, individual settings will be lost.

| Line |     |       |     | Function                 |
|------|-----|-------|-----|--------------------------|
| HC1  | HC2 | 4/DHW | 5   |                          |
| 516  | 536 | 576   | 616 | Default values (No, Yes) |

- **Holidays**

The holiday program enables changing the heating circuits over to a selected operating level according to the date (calendar).

| Line |     | Function                 |
|------|-----|--------------------------|
| HC1  | HC2 |                          |
| 641  | 651 | Pre-selection            |
| 642  | 652 | Period start (Day/Month) |
| 643  | 653 | Period end (Day/Month)   |
| 648  | 658 | Operation level          |

**! Important**

The holiday program can be used only in the automatic mode.

## 3-4. Heating circuit 1 and 2 functions

### • Heating circuit 1

| Line | Access  | Function   | Setting range or display   | Setting increment | Factory setting |
|------|---|--|--|-------------------|-----------------|
| 710  | U   | Comfort setpoint   | Reduced setpoint...Comfort setpoint maximum                          | 0.5°C             | 20°C            |
| 712  | U   | Reduced setpoint   | Frost protection setpoint...Comfort setpoint                         | 0.5°C             | 19°C            |
| 714  | U   | Frost protection setpoint  | 4 °C...Reduced setpoint  | 0.5°C             | 8°C             |
| 716  | S   | Comfort setpoint maximum   | 20...35°C  | 1°C               | 28°C            |
| 720  | I   | Heating curve slope  | 0.1... 4   | 0.02              | 0.5             |
| 721  | I   | Offset of the heating curve  | -4.5...4.5°C   | 0.5°C             | 0°C             |
| 730  | I   | Summer/winter heating limitations  | 8...30°C   | 0.5°C             | 18°C            |
|      | When the average of the outdoor temperatures over the past 24 hours reaches 18°C, the regulator switches off the heating (as an economy measure). During summer mode, the display shows "Eco". This function is only active in automatic mode.                          |  |  |                   |                 |
| 740  | I   | Flow temperature setpoint minimum  | 8°C...Flow temp setpoint maximum                                     | 1°C               | 17°C            |
|      | (With dynamic radiator, adjust from 30 to 35°C)   |  |  |                   |                 |
| 741  | I   | Flow temperature setpoint maximum  | Flow temp setpoint minimum...70°C                                    | 1°C               | 60°C            |
|      | Floor heating system = 50°C/Radiator = 65°C<br><b>! Important</b><br>Maximum temperature limitation is not a safety function as required by ground heating.   |  |  |                   |                 |
| 750  | S   | Room influence   | 1...100%   | 1%                | 50%             |
| 760  | S   | Room temperature limitation  | 0.5...4°C  | 0.5°C             | 0.5°C           |
|      | As soon as the room temperature = [Setpoint line 710 (ex. 20°C) + Room temperature limitation setpoint line 760 (ex. 0.5°C)] > 20.5°C → The heat pump is stopped.<br>It restarts when the room temperature falls below the setpoint.<br>(ex. room temperature < 20.0°C) |  |  |                   |                 |
| 780  | S   | Quick setback  | Off<br>Down to reduced setpoint<br>Down to frost protection setpoint |                   | Off             |
| 790  | S   | Optimum start control maximum<br>(Early start to switch to the comfort setting)                        | 0...360 minutes  | 10 minutes        | 180 minutes     |
| 791  | S   | Optimum stop control maximum<br>(Early stop to switch from the comfort setting to the reduced setting) | 0...360 minutes  | 10 minutes        | 30 minutes      |
| 800  | S   | Reduced setpoint increase start  | -30...10°C   | 1°C               | ---°C           |
| 801  | S   | Reduced setpoint increase end  | -30...10°C   | 1°C               | -5°C            |
| 830  | S   | Mixer valve boost  | 0...50°C   | 1°C               | 0°C             |
| 834  | S   | Actuator running time  | 30...873 seconds   | 1 second          | 240 seconds     |

| Line | Access | Function   | Setting range or display                           | Setting increment | Factory setting |
|------|--------|--|--|-------------------|-----------------|
| 850  | I      | Floor curing function  |  |                   | Off             |
|      |        | <ul style="list-style-type: none"> <li>• Off: Early interruption of the current program, program inactive</li> <li>• Operational heating</li> <li>• Heating ready for occupation</li> <li>• Operational heating + ready heating</li> <li>• Ready heating + Operational heating</li> <li>• Manual: Manual mode enables you to program your own concrete slab drying time. The function ends automatically after 25 days.</li> </ul> |  |                   |                 |
| 851  | I      | Floor curing setpoint manually   | 0...95°C   | 1°C               | 25°C            |
|      |        | This function enables you to set the custom concrete slab drying temperature. This temperature remains fixed. The concrete slab drying program stops automatically after running for 25 days.  |  |                   |                 |
| 856  | I      | Floor curing day current   | 0...32   |                   |                 |
| 857  | I      | Floor curing days completed  | 0...32   |                   |                 |
| 900  | S      | Operating mode changeover  | None, Protection mode, Reduced, Comfort, Automatic | 1                 | Reduced         |
|      |        | Operating mode at the end of concrete slab drying period.  |  |                   |                 |

• Heating circuit 2

| Line | Access  | Function                          | Setting range or display   | Setting increment | Factory setting |
|------|---|-----------------------------------|--|-------------------|-----------------|
| 1010 | U   | Comfort setpoint                  | Reduced setpoint...Comfort setpoint maximum                          | 0.5°C             | 20°C            |
| 1012 | U   | Reduced setpoint                  | Frost protection setpoint...Comfort setpoint                         | 0.5°C             | 19°C            |
| 1014 | U   | Frost protection setpoint         | 4°C...Reduced setpoint   | 0.5°C             | 8°C             |
| 1016 | S   | Comfort setpoint maximum          | Comfort temperature...35 °C  | 1°C               | 28°C            |
| 1020 | I   | Heating curve slope               | 0.1...4  | 0.02              | 0.5             |
| 1021 | I   | Offset of the heating curve       | -4.5...4.5°C   | 0.5°C             | 0°C             |
| 1030 | I   | Summer/winter heating limits      | 8...30 °C  | 0.5°C             | 18°C            |
|      | When the average of the outdoor temperatures over the past 24 hours reaches 18°C, the regular switches off the heating (as an economy measure). During summer mode, the display shows "Eco". This function is only active in automatic mode.  |                                   |  |                   |                 |
| 1040 | I   | Flow temperature setpoint minimum | 8...70°C   | 1°C               | 17°C            |
|      | (With dynamic radiator, adjust from 30 to 35°C)   |                                   |  |                   |                 |
| 1041 | I   | Flow temperature setpoint maximum | 8...70°C   | 1°C               | 60°C            |
|      | Floor heating system = 50°C/Radiators = 65°C<br><b>! Important</b><br>Maximum temperature limitation is not a safety function as required by ground heating.  |                                   |  |                   |                 |
| 1050 | S   | Room influence                    | 1...100%   | 1%                | 50%             |
|      | If the installation is fitted with a room thermostat:<br>This function enables you to choose the ambient temperature's influence on the setting.<br>If no value is entered, the setting is made based on the temperature control.<br>If the parameter is set at 100%, the setting is only based on the ambient temperature.   |                                   |  |                   |                 |
| 1060 | S   | Room temperature limitation       | 0.5...4°C  | 0.5°C             | 0.5°C           |
|      | As soon as the room temperature = [Setpoint line 1010 (ex. 20°C) + Room temperature limitation setpoint line 1060 (ex. 0.5 °C)] > 20.5 °C => The heat pump is stopped. It restarts when the room temperature falls below the setpoint (in the example, Room temperature < 20.0 °C).   |                                   |  |                   |                 |
| 1080 | S   | Quick setback                     | Off<br>Down to reduced setpoint<br>Down to frost protection setpoint |                   | Off             |
| 1090 | S   | Optimum start control maximum     | 0...360 min  | 10 minutes        | 180 minutes     |
| 1091 | S   | Optimum stop control maximum      | 0...360 min  | 10 minutes        | 30 minutes      |
| 1100 | S   | Reduced setpoint increase start   | ---, -30...10°C  | 1°C               | ---°C           |
| 1101 | S   | Reduced setpoint increase end     | ---, -30...10°C  | 1°C               | -5°C            |
| 1130 | S   | Mixer valve boost                 | 0...50°C   | 1°C               | 0°C             |
| 1134 | S   | Actuator running time             | 30...873 sec   | 1 second          | 240 seconds     |
| 1150 | I   | Floor curing function             |  |                   | Off             |
|      | <ul style="list-style-type: none"> <li>Off: Early interruption of the current program, program inactive</li> <li>Operational heating</li> <li>Heating ready for occupation</li> <li>Operational heating + ready heating</li> <li>Ready heating + operational heating</li> <li>Manual: Manual mode enables you to program your own concrete slab drying time</li> <li>The function ends automatically after 25 days</li> </ul> |                                   |  |                   |                 |



| Line | Access | Function  | Setting range or display                           | Setting increment | Factory setting |
|------|--------|---|--|-------------------|-----------------|
| 1151 | I      | Floor curing setpoint manually<br>(if line 1150 = manual)   | 0...95°C   | 1°C               | 25°C            |
|      |        | This function enables you to set the custom concrete slab drying temperature. This temperature remains fixed. The concrete slab-drying program stops automatically after running for 25 days. |  |                   |                 |
| 1156 | I      | Floor curing day current  | 0...32   |                   |                 |
| 1157 | I      | Floor curing day completed  | 0...32   |                   | 0               |
| 1200 | S      | Operating mode changeover   | None, Protection mode, Reduced, Comfort, Automatic |                   | Reduced         |
|      |        | Operation mode at the end of concrete slab drying period  |  |                   |                 |

### Adjustment function details:

#### • Operating mode

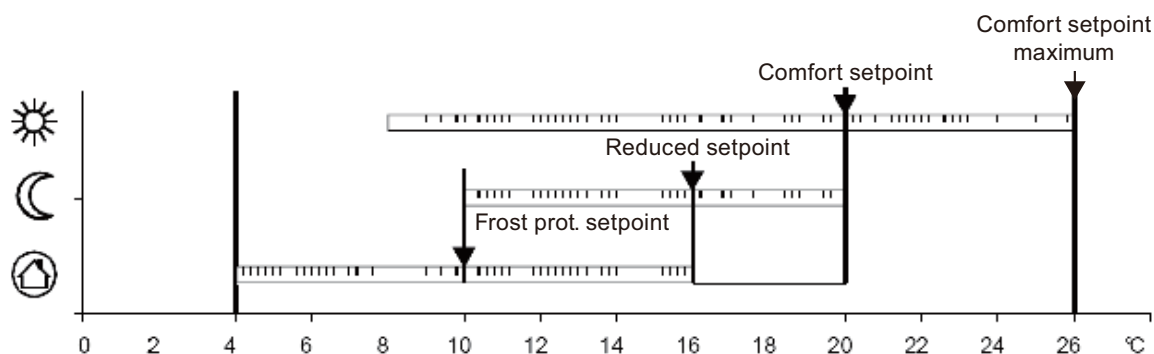
For heating circuits, there are several functions available which can be individually adjusted for each heating circuit. The programming lines for the 2<sup>nd</sup> heating circuit are displayed only if the extension module has been connected to the controller. Operation of heating circuits 1 and 2 is directly controlled via a operating mode key.

#### • Setpoint values

| Line |      | Function                  |
|------|------|---------------------------|
| HC1  | HC2  |                           |
| 710  | 1010 | Comfort setpoint          |
| 712  | 1012 | Reduced setpoint          |
| 714  | 1014 | Frost protection setpoint |
| 716  | 1016 | Maximum comfort setpoint  |

#### – Room temperature:

Room temperature can be set according to different setpoint values. Depending on the selected mode, these setpoints are activated and provide different temperature levels in the rooms. The ranges of configurable setpoints are defined by their interdependencies, as shown in the graph below.



#### – Frost protection:

The protection mode automatically prevents an excessively sharp drop in room temperature. In this case, the control adopts the frost protection room setpoint.

## • Heating curve

All time programs can be reset to factory settings. Each time program has its own programming line for this reset action. In this case, individual settings will be lost.

| Line |      | Function                   |
|------|------|----------------------------|
| HC1  | HC2  |                            |
| 720  | 1020 | Heating curve slope        |
| 721  | 1021 | Heating curve displacement |

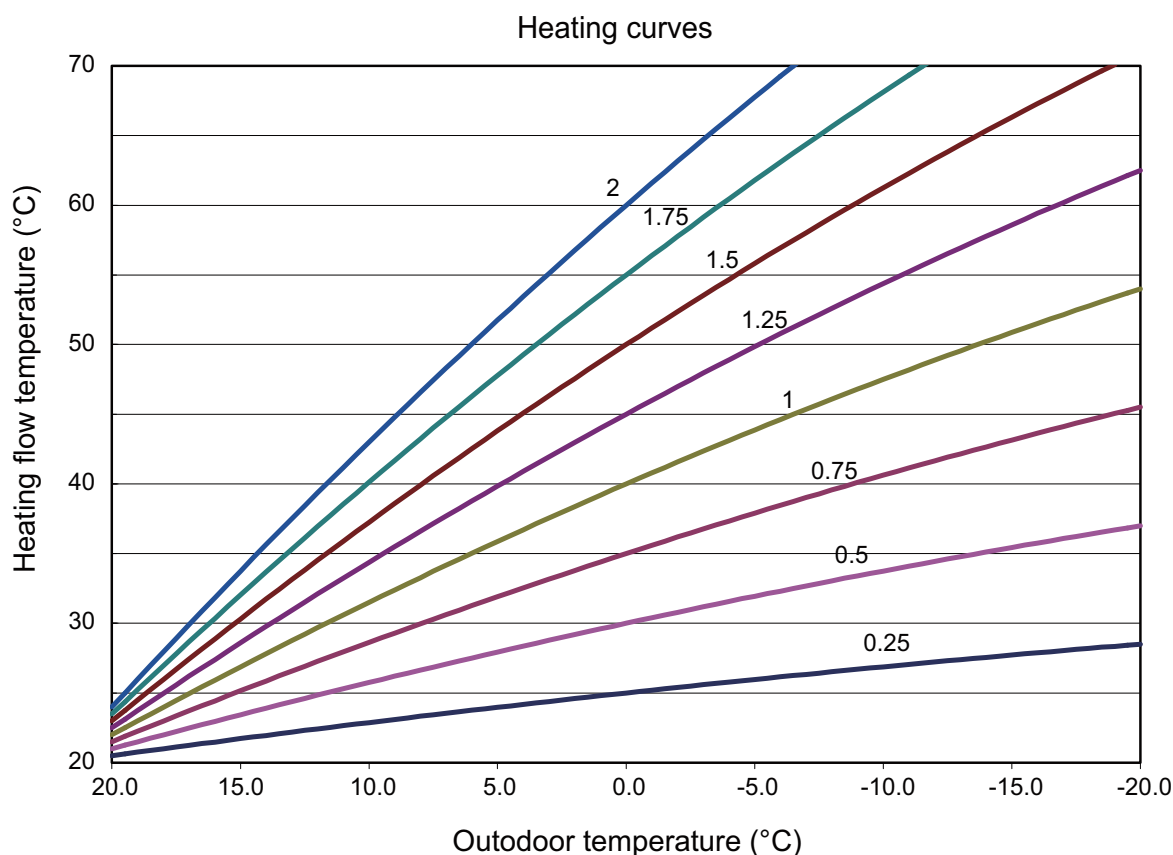
### – Heating curve slope

Based on the heating characteristic, the controller computes the flow temperature setpoint which will be used for controlling the flow temperature in consideration of atmospheric conditions. Different setting can be used to adapt the heating characteristic so that the heating capacity, and therefore the room temperature, will match the individual needs. The colder outdoor temperature, the greater extent to which the slope will modify the flow temperature. In other words, the slope should be corrected if the room temperature shows a difference when the outdoor temperature is low, but not when it is high.

- Increase the setting:  
The flow temperature is increased mainly when the outdoor temperatures are low.
- Decrease the setting:  
The flow temperature is lowered mainly when the outdoor temperatures are low.

### **⚠ WARNING**

The heating curve is adjusted in relation to a room temperature setpoint of 20°C. If the room temperature setpoint is modified, the flow temperature setpoint is automatically recomputed. This will not modify the setting and amounts to automatically adapting the curve.



### – Heating curve displacement

The curve displacement (offset) modifies the flow temperature in general and even manner over the full range of outdoor temperature. In other words, the displacement should be corrected when the room temperature is generally too high or too low.

## • Eco functions

| Line |      | Function                    |
|------|------|-----------------------------|
| HC1  | HC2  |                             |
| 730  | 1030 | Summer/Winter heating limit |

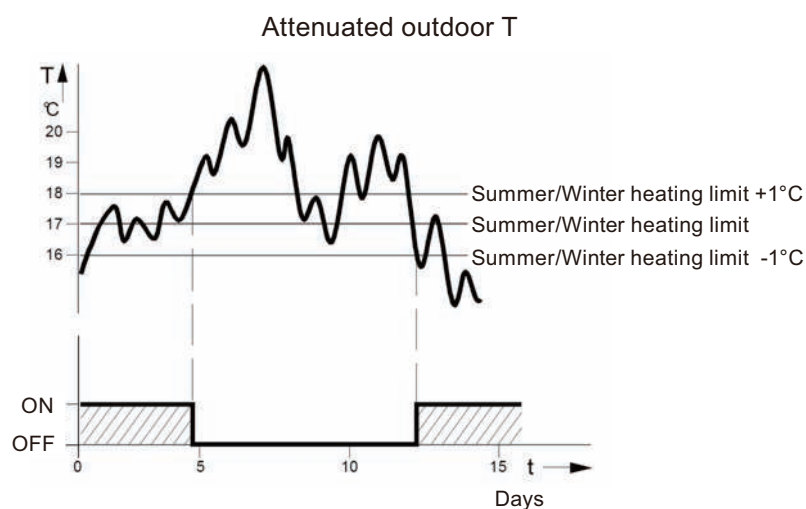
### – Summer/Winter heating limit

The summer/winter heating limit switches the heating on or off through the year according to the temperature ratio. Changeover is performed automatically when in automatic mode and thus avoids the user having to turn the heating on or off. Changing the input value makes the respective annual periods (summer/winter) shorter or longer.

- If the value is increased:  
Changing to winter operating mode is advanced, changing to summer mode is delayed.
- If the value is decreased:  
Changing to winter mode is delayed, changing to summer mode is advanced.

### ! Important

This function does not work in “Continuous comfort temperature” mode (Sunlight). The controller displays “ECO”. The outdoor temperature is attenuated to take the building’s dynamics into account.



## • Flow temperature setpoint

| Line |      | Function   |
|------|------|--|
| HC1  | HC2  |  |
| 740  | 1040 | Flow temperature setpoint minimum (For fan converters) |
| 741  | 1041 | Flow temperature setpoint maximum                      |

This limitation allows to define a range for the flow temperature setpoint. When flow temperature setpoint demanded by heating circuit reaches the threshold, the setpoint remains permanently at the maximum or minimum, even if the heat demand continues to increase or decrease.

### Example (Line 741 and 1041):

- Flow heating system = 50°C
- Higher temperature radiator = 65°C

- **Room influence**

| Line |      | Function       |
|------|------|----------------|
| HC1  | HC2  |                |
| 750  | 1050 | Room influence |

– **Control types:**

When using a room temperature sensor there are 3 different types of control to choose from.

| Setting | Control type   |
|---------|--|
| ---%    | Simple control according to outdoor conditions*              |
| 1...99% | Control according to outdoor conditions with room influence* |
| 100%    | Control according to room temperature only                   |

\*: Requires the connection of an outdoor sensor

- **---%: Simple control according to outdoor conditions**

The flow temperature is computed via the heating curve according to the composite outdoor temperature. This type of control requires proper adjustment of heating curve, as the control does not take the room temperature into account for this adjustment.

- **1...99%: Control according to outdoor conditions with room influence**

The difference between the room temperature and the setpoint value is measured and taken into account for temperature control. This enables taking into account possible heat inputs and ensures a more accurate room temperature control. The influence of the difference is defined as a percentage. The better the installation in the reference room (accurate room temperature, correct installation location, etc.) the higher will be the value that can be set.

**Example:**

- Approximate 60%: The reference room is appropriate.
- Approximate 20%: The reference room is inappropriate.

**NOTE:** Activation of the function requires taking into account the following requirements:

- A room sensor must be connected.
- The “room influence” parameter must be set between 1 and 99.
- The reference room (where the room sensor is installed) must not contain adjusted thermostatic valves. If present in the room, these valves must be fully open.

- **100%: Control according to room temperature only**

The flow temperature is adjusted according to the room temperature setpoint, the current room temperature and its evolution. A slight increase in room temperature, for example, causes an immediate drop in the flow temperature.

**NOTE:** Activation of the function requires taking into account the following requirements:

- A room sensor must be connected.
- The “room influence” parameter must be set 100.
- The reference room (where the room sensor is installed) must not contain adjusted thermostatic valves. If present in the room, these valves must be fully open.

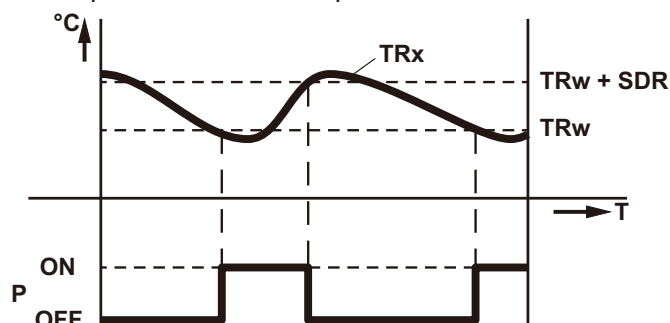
- **Quick setback**

| Line |      | Function                    |
|------|------|-----------------------------|
| HC1  | HC2  |                             |
| 760  | 1060 | Room temperature limitation |
| 780  | 1080 | Quick setback               |

- **Room temperature limitation:**

The room temperature limitation function enables the heating circuit pump to be deactivated should the room temperature exceed the current room temperature setpoint by more than the adjusted differential.

The heating circuit pump is activated again as soon as the room temperature falls to a level below the current room temperature setpoint. During the time, the room temperature limitation function is active, no heat request is sent to the producer.



TRx: Actual value of room temperature

TRw: Room temperature setpoint

SDR: Room switching differential

P: Pump

T: Time

- **Quick setback:**

During quick setback, the heating circuit pump is deactivated and, in the case of mixing circuits, the mixing valve is fully closed.

When using a room sensor, the function keeps the heating off until the room temperature drops to the level of the “Reduced” or “Frost protection” setpoint. If the room temperature falls to the reduced or frost level, the heating circuit pump is activated and the mixing valve is released. Quick setback switches the heating off for a certain period of time, depending on the outside temperature and the building time constant.

Duration of quick setback when “Comfort” setpoint minus “Reduced” setpoint = 2 K (e.g. “Comfort” setpoint = 20 °C and “Reduced” setpoint = 18 °C)

| Composite outside temperature | Building time constant: 5 h   |
|-------------------------------|-------------------------------|
|                               | Duration of quick setback (h) |
| 15°C                          | 7.7                           |
| 10°C                          | 3.3                           |
| 5°C                           | 2.1                           |
| 0°C                           | 1.6                           |
| -5°C                          | 1.3                           |
| -10°C                         | 1.0                           |
| -15°C                         | 0.9                           |
| -20°C                         | 0.8                           |

## • Optimization at switch-on and switch-off

| Line |      | Function                      |
|------|------|-------------------------------|
| HC1  | HC2  |                               |
| 790  | 1090 | Optimum start control maximum |
| 791  | 1091 | Optimum stop control maximum  |

### – Optimum start control maximum:

The change in temperature levels is optimized in such a way as to reach the comfort setpoint during changeover times.

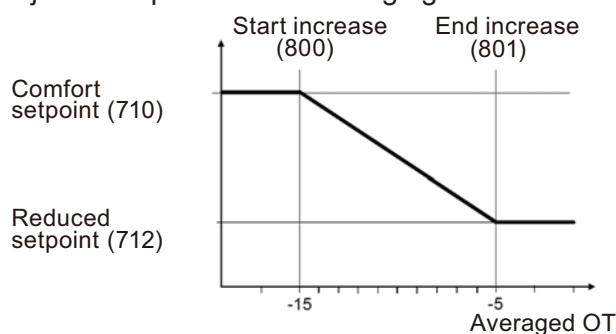
### – Optimum stop control maximum:

The change in temperature levels is optimized in such a way as to reach the comfort setpoint -1/4 °C during changeover times.

## • Reduced setpoint increase

| Line |      | Function                        |
|------|------|---------------------------------|
| HC1  | HC2  |                                 |
| 800  | 1100 | Reduced setpoint increase start |
| 801  | 1101 | Reduced setpoint increase end   |

This function is used mainly in heating installations that do not have high supplies of power (e.g. low power use homes). When outdoor temperatures are low, adjusting the temperature would take too long. Increasing the reduced setpoint prevents excessive cooling of the rooms in order to shorten the temperature adjustment period when changing over to the comfort setpoint.



## • Mixing valve control

| Line |      | Function              |
|------|------|-----------------------|
| HC1  | HC2  |                       |
| 830  | 1130 | Mixer valve boost     |
| 834  | 1134 | Actuator running time |

### – Mixer valve boost:

The controller adds the increase set here to the current flow setpoint and uses the result as the temperature setpoint for the heater generator.

### – Actuator running time:

For the 3-position servomotor, the travel time can be adjusted. With a 2-position servomotor, the adjusted travel time is inoperative.

## • Controlled floor drying function

| Line |      | Function                       |
|------|------|--------------------------------|
| HC1  | HC2  |                                |
| 850  | 1150 | Floor curing function          |
| 851  | 1151 | Floor curing setpoint manually |
| 856  | 1156 | Floor curing day current       |
| 857  | 1157 | Floor curing day completed     |

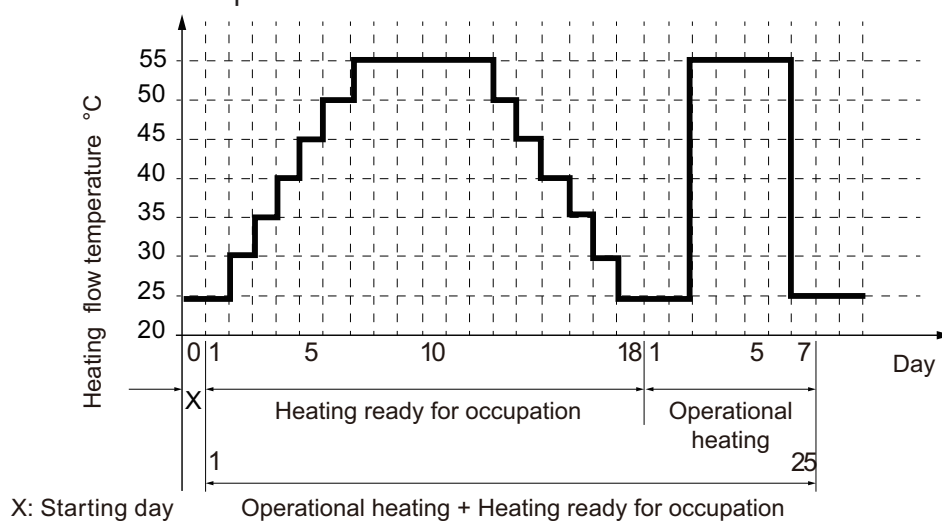
This function is used in the controlled drying of floors. It adjusts the flow temperature to a temperature profile. Drying is performed by floor heating via the heating circuit with a mixing valve or with a pump.

### – Floor curing function:

- **Off:** The function is deactivated.
- **Heating operational (Fh):** The first part of the temperature profile is automatically completed.
- **Heating “ready for occupation” (Bh):** The second part of the temperature profile is handled automatically.
- **Heating “ready for occupation”/Heating operational:** The full temperature profile (1<sup>st</sup> and 2<sup>nd</sup> part) is performed automatically.
- **Manual:** No temperature profile is performed, but the control is performed according to the “manual controlled drying setpoint”. The function is automatically terminated after 25 days.

### ! Important

- The standards and directions of the building contractor must be followed.
- This function will not work properly unless the installation has been adequately made (hydraulic, electricity, settings). Otherwise, floor to be dried may be damaged.
- The function may be prematurely interrupted by setting it to Off.
- The maximum flow temperature limitation remains active.



Comply with the standards and instructions of the manufacturer of the building.

A good performance of this function is only possible with an installation correctly implemented (hydraulic, electricity and adjustments).

This function can be stopped by anticipation when setting the adjustment on “Off”.

### – Floor curing setpoint manually:

The flow temperature setpoint for the “Manual” controlled floor drying function can be adjusted respectively for each heating circuit.

### – Floor curing day current:

Displays the current flow temperature setpoint for the controlled floor drying function.

– **Floor curing day completed:**

Displays the current day of the controlled floor drying function.

**! Important**

After a power outage, the installation resumes the controlled drying function as it was when the outage occurred.

• **Operating mode changeover**

| Line |      | Function                  |
|------|------|---------------------------|
| HC1  | HC2  |                           |
| 900  | 1200 | Operating mode changeover |

In case of an external changeover via input H2 (on the extension module only) the operating mode to which the changeover will be performed must be previously defined.

• **Heating circuit frost protection**

The heating circuit frost protection is continuously activated (protection mode ☺) and is not adjustable.

- **Heating circuit frost protection in heating mode:** If the flow temperature is below 5°C, the controller initiates the production of heat and starts the heating pump, regardless of the current heating mode. If the flow temperature rises again above 7°C, the controller waits another 5 minutes, and then stops the production of heat and the heating pumps.

- **Heating circuit frost protection in cooling mode:** Refer to cooling mode.



## 3-5. Cooling circuit 1 functions

| Line  | Access  | Function                                  | Setting range or display                | Setting increment | Factory setting |
|---|---|---|---|-------------------|-----------------|
| 901   | U   | Operating mode                            | Protection, Automatic, Reduced, Comfort |                   | Protection      |
| 902   | U   | Comfort cooling setpoint                  | 17...40°C                               | 0.5°C             | 24°C            |
| 903   | U   | Reduced setpoint                          | 5...40°C                                |                   | 26°C            |
| 908   | I   | Flow temperature setpoint at OT 25°C      | 6...35°C                                | 0.5°C             | 20°C            |
| 909   | I   | Flow temperature setpoint at OT 35°C      | 6...35°C                                | 0.5°C             | 16°C            |
| 912   | I   | Cooling limitation at OT                  | 8...35°C                                | 0.5°C             | 24°C            |
| 913   | S   | Lock time at end of heating/cooling       | 8...100 h                               | 1 h               | 24 h            |
| 918   | S   | Summer compensation start at OT           | 20...50°C                               | 1°C               | 26°C            |
| 919   | S   | Summer compensation end at OT             | 20...50°C                               | 1°C               | 40°C            |
| 920   | S   | Summer compensation setpoint increase     | 1...10°C                                | 1°C               | 4°C             |
| 923   | S   | Flow temperature setpoint minimum OT 25°C | 6...35°C                                | 0.5°C             | 18°C            |
| 924   | S   | Flow temperature setpoint minimum OT 35°C | 6...35°C                                | 0.5°C             | 18°C            |
| 928   | S   | Room influence                            | 1...100%                                | 1%                | 80%             |
|   | If the installation is fitted with a room thermostat:<br>This function enables you to choose the ambient temperature's influence on the setting.<br>If no value is entered, the setting is made based on the temperature control.<br>If the parameter is set at 100%, the setting is only based on the ambient temperature. |   |   |                   |                 |
| 932   | S   | Room temperature limitation               | 0.5...4°C                               | 0.5°C             | 0.5°C           |
| 938   | S   | Mixing valve decrease                     | 0...20°C                                | 1°C               | 0°C             |
| 941   | S   | Actuator running time                     | 30...873 s                              | 1 second          | 240 seconds     |
| 963   | S   | With primary controller/system pump       | No, Yes                                 |                   | No*             |
| *: Basic setting: 1 circuit = No; 2 circuit = Yes |   |   |   |                   |                 |

The cooling sequence is automatically started when the room temperature is higher than the comfort setpoint in cooling mode (line 902). The cooling function must be activated (line 901 = Auto) and is triggered by programming clock (line 907). The cooling sequence is interrupted as soon as heating circuit 1 indicates a need for heat or in the presence of a heat demand signal from a DHW circuit or other heating circuit (only if cooling is active).

The controller measures the current room temperature and compares it with the room temperature setpoint to compute the flow temperature setpoint. If the temperature is not low enough the heat pump is started to provide cooling (reversed control of the mixing valve).

The following settings apply to the hydraulic circuit in zone 1 (HC1). If there is a second zone, this zone can be cooled with the setting (line 963) which will connect the pump directly to zone 2. This will require setting the "Mixing valve sub-cooling" parameter (line 938) to a suitable value in order for both zones to be adequately cooled according to the available emitters.

### **⚠ WARNING**

Cooling mode is prohibited on all radiators, heating only floors, or any emitters not intended for this purpose.

## • Operating mode

| Line | Function                       |
|------|--------------------------------|
| 901  | Operating mode (Off/Automatic) |

The cooling key on the user interface enables switching between operating modes.

- **Off:** The cooling function is deactivated.
- **Automatic:** The cooling function is automatically activated by the time program (line 907), the holiday program, the occupancy key, or according to the need.

## • Comfort cooling setpoint

| Line | Function                 |
|------|--------------------------|
| 902  | Comfort cooling setpoint |

In cooling mode the room temperature control follows the comfort setpoint adjusted under this setting. The cooling comfort setpoint can be displayed with a knob on the room unit. In summer the comfort setpoint is gradually increased in relation to the outdoor temperature. (For details of the setting, refer to lines 918 to 920.)

## • Release

| Line | Function  |
|------|---|
| 907  | Release <ul style="list-style-type: none"> <li>• 24 h/day</li> <li>• Heating circuit program</li> <li>• Time program 5</li> </ul> |

The “Release” setting determines the time program according to which cooling is released.

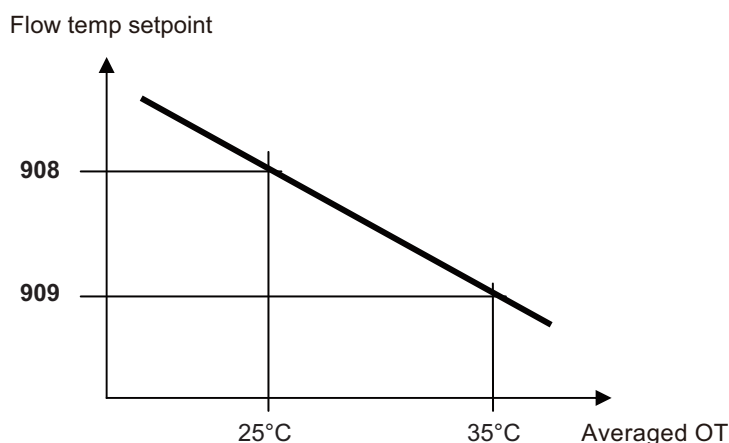
- **24 h/day:** Cooling is continuously activated (24 h/day).
- **Time program HC:** Cooling is activated according to the heat circuit time program.
- **Time program 5:** Cooling is released according to time program 5.

## • Cooling characteristic

| Line | Function                             |
|------|--------------------------------------|
| 908  | Flow temperature setpoint at OT 25°C |
| 909  | Flow temperature setpoint at OT 35°C |

The controller computes the flow temperature required for a given composite outdoor temperature based on the cooling characteristic. This is defined by two reference points (flow temperature setpoints at 25°C and 35°C).

- **Flow temperature setpoint 25°C:** This is the cooling flow temperature required when the composite outdoor temperature is 25°C, without summer compensation.
- **Flow temperature setpoint 35°C:** This is the cooling flow temperature required when the composite outdoor temperature is 35°C, without summer compensation.



The cooling characteristic is adjusted for a 25°C room temperature setpoint. If the room temperature setpoint is changed the curve will automatically adapt.

## • Eco

| Line | Function                        |
|------|---------------------------------|
| 912  | Cooling limitation at OT        |
| 913  | Lock time at the end of heating |

- **Cooling limitation at OT:** If the composite outdoor temperature is higher than the cooling limitation, cooling is released. If the composite outdoor temperature falls at least 0.5°C below the cooling limitation, cooling is locked.
- **Lock time at the end of heating:** To avoid a quick start of cooling after termination of heating, the cooling function is locked for a time period which can be adjusted with this setting. The lock time starts when there is no valid heating demand from heating circuit 1. Heating demands from heating circuit 2 or P are ignored.

**NOTE:** Switching off and switching on again the mode selection key causes the lock time to be interrupted.

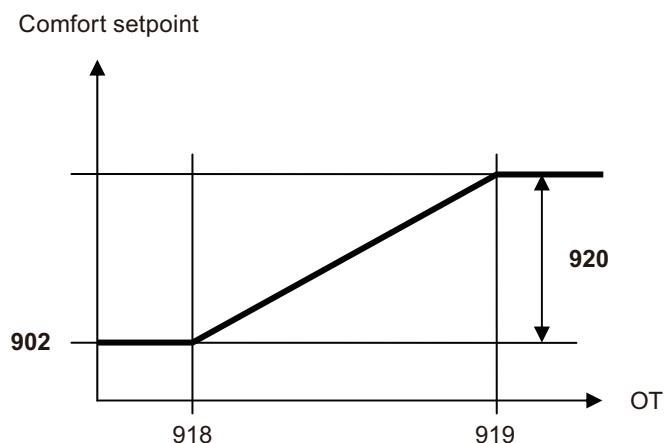
## • Summer compensation

| Line | Function                              |
|------|---------------------------------------|
| 918  | Summer compensation start at OT       |
| 919  | Summer compensation end at OT         |
| 920  | Summer compensation setpoint increase |

In summer the “cooling comfort setpoint” (line 902) is gradually increased according to the outdoor temperature. This saves on cooling power and prevents the differences between the ambient temperature of the room and the outdoor temperature being too high.

The resulting “room temperature setpoint” can be viewed in the Info section

- **Summer compensation start at OT:** Summer compensation starts to be active from the outdoor temperature defined here. If the outdoor temperature continues to rise, the comfort setpoint will be gradually increased.
- **Summer compensation end at OT:** At this outdoor temperature the summer compensation reaches its peak efficiency (line 920). If the outdoor temperature continues to rise, it will no longer influence the comfort setpoint.
- **Summer compensation setpoint increase:** This setting defines the highest value to which the comfort setpoint can be increased.



- **Flow setpoint limitation**

| Line | Function                                     |
|------|--|
| 923  | Flow temperature setpoint minimum at OT 25°C |
| 924  | Flow temperature setpoint minimum at OT 35°C |

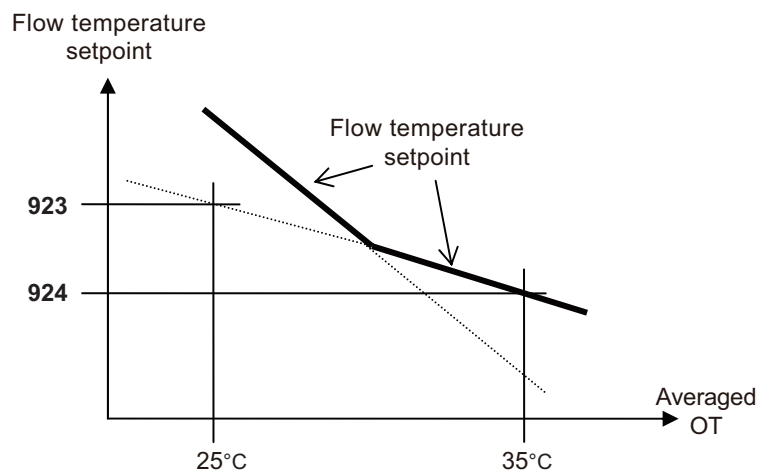
It is possible to assign a lower limitation to the cooling flow temperature.

The limitation line will be defined by two reference points. In addition, the resulting flow setpoint will have a lower limitation and may not be less than 5°C.

- **Flow temperature setpoint minimum at OT 25°C:** Determines the lowest flow temperature for a composite outdoor temperature of 25°C.
- **Flow temperature setpoint minimum at OT 35°C:** Determines the lowest flow temperature for a composite outdoor temperature of 35°C.

**⚠ WARNING**

If no outdoor temperature is available, the controller will use the “Minimum flow setpoint at OT = 35°C” parameter.



- **Room influence**

| Line | Function       |
|------|----------------|
| 928  | Room influence |

– **Control types:**

When using a room temperature sensor there are 3 different types of control to choose from.

| Setting | Control type   |
|---------|--|
| ---%    | Simple control according to outdoor conditions*              |
| 1...99% | Control according to outdoor conditions with room influence* |
| 100%    | Control according to room temperature only                   |

\*: Requires the connection of an outdoor sensor

- **---%: Simple control according to outdoor conditions**

The flow temperature is obtained from the composite outdoor temperature on the basis of the cooling characteristic. This type of control requires the cooling curve to be properly adjusted, as the control does not take the room temperature into account for this adjustment.

- **1...99%: Control according to outdoor conditions with room influence**

The difference between the room temperature and the setpoint value is measured and taken into account for temperature control. This enables taking into account possible heat inputs and ensures a more accurate room temperature control. Thus the differences with the room temperature are taken into account and the room temperature becomes more stable. The influence of the difference is defined as a percentage. The better the installation in the reference room (accurate room temperature, correct installation location, etc.) the higher will be the value that can be set.

**Example:**

- Approximate 60%: The reference room is appropriate.
- Approximate 20%: The reference room is inappropriate.

**NOTE:** Activation of the function requires taking into account the following requirements:

- A room sensor must be connected.
- The “room influence” parameter must be set between 1 and 99.
- The reference room (where the room sensor is installed) must not contain adjusted thermostatic valves. If present in the room, these valves must be fully open.

- **100%: Control according to room temperature only**

The flow temperature is adjusted according to the room temperature setpoint, the current room temperature and its evolution. A slight increase in room temperature, for example, causes an immediate drop in the flow temperature.

**NOTE:** Activation of the function requires taking into account the following requirements:

- A room sensor must be connected.
- The “room influence” parameter must be set 100%.
- The reference room (where the room sensor is installed) must not contain adjusted thermostatic valves. If present in the room, these valves must be fully open.

## • Room temperature limitation setback

| Line | Function                    |
|------|-----------------------------|
| 932  | Room temperature limitation |

The room temperature limitation function enables shutting off the cooling circuit pump if the room temperature falls below the adjusted room temperature setpoint (with summer compensation: line 920) by more than the adjusted differential.

The cooling circuit pump is reinitialized as soon as the room temperature rises again above the current room temperature setpoint. If the room temperature limitation function is active, no cooling demand will be transmitted to production.

The function is deactivated if:

- No room temperature sensor is available.
- Room influence limitation is set to “---”.
- Room influence (line 928) is set to “---% (Simple control according to outdoor conditions)”.

## • Mixing valve control

| Line | Function                     |
|------|------------------------------|
| 938  | Mixing valve decrease        |
| 941  | Actuator running time        |
| 945  | Mixing valve in heating mode |

### – Mixing valve decrease:

The cooling demand issued by cooling circuit 1 to production is reduced by the adjusted value. If there is a second zone, this reduction should enable the second zone to be cooled. To achieve this result, the sub-cooling must be determined in accordance with the type of emitter and “with primary controller/system pump” (line 963) must be set to “yes” to switch on the pump for the second zone.

|  | Configuration   | How the configuration affects control   |
|--|---|---|
| Zone 1: Heating/Cooling floor<br>Zone 2: Fan coils | Line 938 = 10°C, with line 924 = 18°C<br>Line 963 = yes | With a 35°C outdoor temperature, the flow setpoint will be 18°C - 10°C (i.e. 8°C).<br>While in the first zone (HCF) it will be 18°C through action of the mixing valve. |
| Zone 1: Heating/Cooling floor<br>Zone 2: HCF       | Line 938 = 0°C, with line 924 = 18°C<br>Line 963 = yes  | With a 35°C outdoor temperature, the flow setpoint will be 18°C in the both zones.  |

### WARNING

In these settings are not chosen properly, the heat pump may stop automatically due to the flow temperature being too low. A safety mechanism is triggered at 6°C to protect the exchanger from freezing.

### – Actuator running time:

For the 3-position servomotor used, it is possible to adjust the travel time. With a 2-position servomotor, the adjusted travel time is inoperative.

### – Mixing valve heating mode:

Determines the position of mixing valve 1 (Y1/Y2) during heating operation is activated. This parameter is inoperative in installations where heating and cooling circuits are hydraulically separate.

- **Control:** The valve controls in heating and cooling mode.
- **Open:** The valve controls in cooling, and is open in heating mode.

- **With primary controller/system pump**

| Line | Function                            |
|------|-------------------------------------|
| 963  | With primary controller/system pump |

This setting specifies whether the cooling circuit is supplied from the primary controller or from the primary pump (depending on the installation). It can also be used to provide cooling to the second zone.

**⚠ WARNING**

In the case of a radiator or any other emitter which does not support the cooling mode in zone 2, this setting must remain on “No”.



## 3-6. Domestic hot water functions

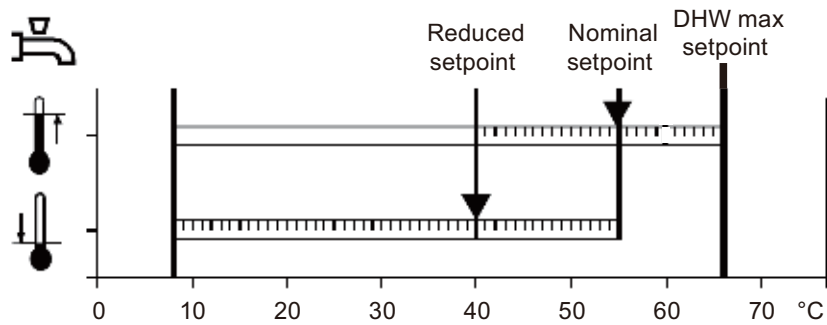
| Line | Access | Function  | Setting range or display   | Setting increment | Factory setting |
|------|--------|---|--|-------------------|-----------------|
| 1600 | U      | Operating mode  | Off, On, Eco   |                   | On              |
| 1610 | U      | Nominal setpoint  | Reduced setpoint (line 1612)...65 °C   | 1°C               | 55°C            |
|      |        | The backup electrical system is required to reach this level.   |  |                   |                 |
| 1612 | U      | Reduced setting   | 8 °C...Nominal setting (line 1610)   | 1°C               | 40°C            |
| 1620 | I      | Release of DHW load   | 24h/day<br>Heating circuit time program<br>Program 4/DHW<br>Off-peak tariff (Off-peak)<br>Program 4/DHW and Off-peak |                   | Program 4/DHW   |
|      |        | 24h/day: The temperature of the DHW is constantly maintained at the DHW comfort setting.  |  |                   |                 |
|      |        | Heating circuit time program: The DHW is produced according to the programming for the ambient temperature (with 1 hour in advance when switched on).   |  |                   |                 |
|      |        | Program 4/DHW: The DHW program is separate form the heating circuit program.  |  |                   |                 |
|      |        | Off-peak tariff*: The electrical backup heating is only authorized to operate during the off-peak period.   |  |                   |                 |
|      |        | Time program 4/DHW or low-tariff *: The electrical backup heating is authorized to operate during the comfort period or off peak.   |  |                   |                 |
|      |        | *: Connect the "Power Provider" contact to input EX2. In the case of a day/night contract, the electric backups for the DHW tank are subject to the power supplier's tariffs. Switching on the electric backup for the DHW tank is only authorized during off-peak hours. |  |                   |                 |
| 1640 | I      | Legionella function   | Off, Periodically (depending line setting 1641), Fixed weekday (depending line setting 1642)                         |                   | Off             |
| 1641 | I      | Legionella function periodically  | 1 to 7 day   | 1 day             | 7 day           |
| 1642 | S      | Legionella function weekday   | Monday, Tuesday,...  |                   | Saturday        |
| 1644 | S      | Legionella function time  |  |                   |                 |
| 1645 | S      | Legionella function setpoint  |  |                   |                 |
| 1646 | S      | Legionella function duration  |  |                   |                 |
| 1647 | S      | Legionella function circuit pump  | Off, On  |                   | Off             |
| 1660 | S      | Legionella function weekday   | Time program 3/HCP, DHW release, Time program 4/DHW, Time program 5  |                   | DHW release     |

The control sets the DHW temperature, according to the time program or continuously, to the desired setpoint. The priority of DHW charging over room heating is adjustable in this case. The controller has a legionella function designed for protection against legionella in the storage tank and the pipes. The circulation pump is controlled according to the current time program and operating time.

- **Setpoint value**

| Line | Function         |
|------|------------------|
| 1610 | Nominal setpoint |
| 1612 | Reduced setpoint |

The DHW is heated to various setpoint values. These setpoints are active according to the selected operating mode and allow the desired temperatures to be reached in the DHW storage tank.



**! Important**

For optimal operation we recommend reducing the setpoints to the lowest value. Setpoints which are too high may interfere with heating and cause some discomfort. In this case DHW/Heating changeover cycles may successively occur. If DHW charge boosting is not desired during the day, we recommend adjusting the reduced temperature setpoint to 15°C. Full charging will occur during the night at the nominal temperature.

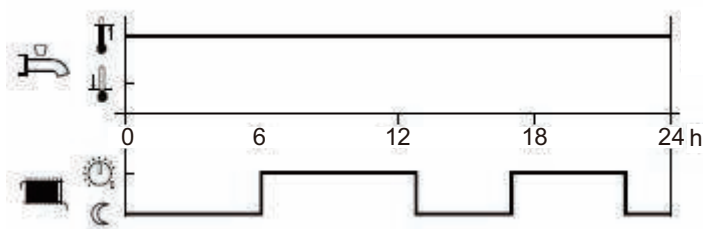
- **Release**

| Line | Function   |
|------|--|
| 1620 | Release of DHW load <ul style="list-style-type: none"> <li>• 24h/day</li> <li>• Heating circuit time programs</li> <li>• Time program 4/DHW</li> <li>• Low-tariff</li> <li>• Time program 4/DHW or Low-tariff</li> </ul> |

The “Release” setting determines the time program according to which cooling is released.

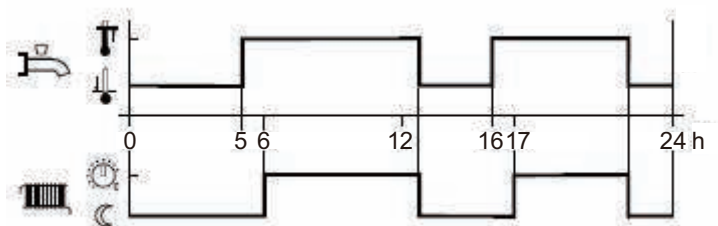
- **24 h/day (Not recommended):** Regardless of the time programs, the temperature of the domestic hot water is continuously maintained at the DHW nominal setpoint temperature.

Example:



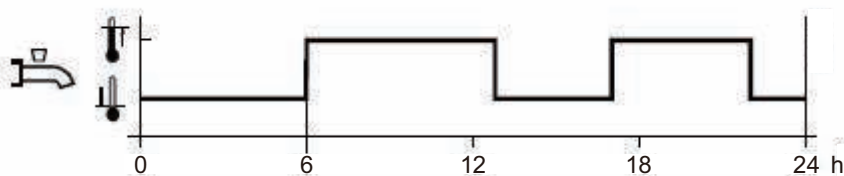
- **Heating circuit time programs (Not recommended):** Depending on the heating circuit time programs, the DHW setpoint is changed between the DHW temperature nominal setpoint and the DHW temperature reduced setpoint. The first switch-on point of each phase is advanced by one hour each time.

Example:



- **Time program 4/DHW (Recommended):** Time program 4 of the local controller is taken into account for the DHW mode. The changeover between DHW nominal setpoint and DHW reduced setpoint occurs on the changeover times of this program. Thus, domestic hot water charging takes place independently from the heating circuits.

Example:



- **Low-tariff:** Released when the low-tariff input is active. (Input EX2)
- **Time program 4/DHW or Low-tariff:** Released when DHW program is set to “Nominal” or if the low-tariff input.

| DHW mode | Holiday status | Release (Line 1620)   | Time program status (Program 4) | Low-tariff status (EX2) | DHW mode level   |
|----------|----------------|-----------------------|---------------------------------|-------------------------|------------------|
| Off      | x              | x                     | x                               | x                       | Frost protection |
| On       | Yes            | x                     | x                               | x                       | Frost protection |
| On       | No             | ...                   | ...                             | x                       | ...              |
| On       | No             | Low-tariff (OPK)      | x                               | Inactive                | Reduced          |
| On       | No             | Low-tariff (OPK)      | x                               | Active                  | Nominal          |
| On       | No             | Time program 4 or OPK | Nominal                         | Inactive                | Nominal          |
| On       | No             | Time program 4 or OPK | Reduced                         | Inactive                | Reduced          |
| On       | No             | Time program 4 or OPK | Nominal                         | Active                  | Nominal          |
| On       | No             | Time program 4 or OPK | Reduced                         | Active                  | Nominal          |

x: N/A

**NOTE:** Release by low-tariff input always triggers forced DHW charging. If the low-tariff input EX2 has not been configured and release via OPK has nevertheless been set, the DHW level will either continuously remain on reduced or will follow time program 4.

#### • Legionella function

| Line | Function                         |
|------|----------------------------------|
| 1640 | Legionella function              |
| 1641 | Legionella function periodically |
| 1642 | Legionella function weekday      |

#### – Legionella function:

- Periodically  
The legionella function occurs repeatedly according to the adjusted periodicity (line 1641).
- Fixed weekday  
The legionella function can be activated on a fixed day of the week (line 1642). With this setting, heating up to the legionella setpoint occurs on the scheduled day of the week, regardless of the storage tank temperatures during the previous period.

## 3-7. Swimming pool functions

| Line | Access | Function                         | Setting range or display           | Factory setting |
|------|--------|----------------------------------|------------------------------------|-----------------|
| 2055 | U      | Setpoint solar heating           | 8...80°C                           | 26°C            |
| 2056 | U      | Setpoint source heating          | 8...35°C                           | 22°C            |
| 2057 | S      | Switch difference source heating | 0.5...3°C                          | 0.5°C           |
| 2065 | S      | Charging priority solar          | Priority 1, Priority 2, Priority 3 | Priority 1      |
| 2080 | S      | Setpoint source heating          | No, Yes                            | Yes             |

- **Setpoint source heating**

| Line | Function                |
|------|-------------------------|
| 2056 | Setpoint source heating |

The controller enables a swimming pool to be heated by the heat pump. An individual setpoint can be set by means of line 2056, which appears when the swimming pool function is activated by parameter line 6046 being set to "Release swimming pool". Use of input H33 (X152) requires an extension module to be connected to the control.

## 3-8. Primary controller/system pump

| Line | Access | Function                               | Setting range or display | Setting increment | Factory setting |
|------|--------|--|--------------------------|-------------------|-----------------|
| 2127 | I      | Pump speed maximum system pump cooling | 0...100%                 | 1%                | 100%            |
| 2154 | I      | Pump speed maximum system pump         | 0...100%                 | 1%                | 100%            |

## 3-9. Heat pump functions

| Line | Access | Function   | Setting range or display                 | Setting increment | Factory setting |
|------|--------|--|--|-------------------|-----------------|
| 2779 | I      | Pump speed maximum condenser pump cooling mode   | 0...100%                                 | 1%                | 100%            |
| 2793 | I      | Pump speed maximum condenser pump  | 0...100%                                 | 1%                | 100%            |
| 2803 | S      | Overrun time condenser pump  | 8...240 seconds                          | 1 second          | 240 seconds     |
| 2843 | S      | Compressor off time minimum  | 0...120 minutes                          | 1 minute          | 8 minutes       |
| 2844 | S      | Switch-off temperature maximum   | 8...100°C                                | 1°C               | 75°C            |
| 2862 | S      | Locking time stage 2/mod   | 0...40 min                               | 1 minute          | 5 minutes       |
| 2873 | S      | Compressor mod run time  | 10...600 s                               | 1 second          | 240 seconds     |
| 2882 | S      | Release integral electric flow   | 0...500°Cmin                             | 1°Cmin            | 100°Cmin        |
| 2884 | S      | Flow electricity release at OT<br>Electrical release - start-up with outside temperature                           | -30...30°C                               |                   | 2°C             |
| 2899 | I      | Minimum flow switch consumers  | 1...1,200 l/h                            | 1 l/h             | 600 l/h         |
| 2916 | S      | Maximum setpoint HP DHW charge   | 8...80°C                                 |                   | 60°C            |
| 2920 | S      | With electrical utility lock (EX1)   | Locked (Blocked on standby),<br>Released |                   | Released        |
|      |        | Released: HP = ON _ Back-up DHW = off _ 1st back-up HP = off _ 2nd back-up HP = off _ Boiler = ON                  |  |                   |                 |
|      |        | Locked (Blocked on standby): HP = off _ Backup DHW = off _ 1st backup HP = off _ 2nd backup HP = off _ Boiler = ON |  |                   |                 |
| 3026 | S      | Silent mode on   | 00:00...--:--                            | 10 minutes        | 22:00           |
| 3027 | S      | Silent mode off  | 00:00...--:--                            | 10 minutes        | 07:00           |
| 3028 | S      | Silent mode speed increase start   | -50...50°C                               | 1°C               | 8°C             |
| 3029 | S      | Silent mode speed increase end   | -50...50°C                               | 1°C               | 7°C             |

- **Overrun time condenser pump**

When the compressor is switched off, the condenser pump continues to run for the set overrun time.

- **Compressor off time minimum**

For the same reason, the compressor remains switched off for the minimum period of time set here. Switch-off temperature maximum if the flow or the return temperature exceeds the maximum switch-off temperature, the compressor will be switched off. The heat pump is switched on again when the temperature at both sensors has dropped by the "Switching difference return temperature" below the maximum switch-off temperature and the minimum off time has elapsed.

- **Switch-off temperature maximum**

If the flow or the return temperature exceeds the maximum switch off temperature, the compressor will be switched off.

Example (line 2844): Floor heating system = 55°C (Higher temperature radiator = 65°C)

- **Locking time stage 2**

When compressor is restarted, the time which keeps minimum capacity can be adjusted. Efficiency become better, however the time of rising capacity becomes long.

- **Compressor mod run time**

Compressor mod run time means the time of compressor frequency indication changed from minimum to maximum. If this setting value changes to small, compressor frequency changes more quickly.

**⚠ WARNING**

If this setting value is too small, the efficiency is decreased due to the compressor frequency changed frequently.

- **Release integral electric flow**

After the release of the 1<sup>st</sup> stage (heater 1: on, heater 2: off), the controller compares the temperature measured with the point of engagement and forms as integral and includes a possible deficit of heat. Once the value of the integral reaches the maximum value (line 2882), the 2<sup>nd</sup> stage is engaged (heater 1: off, heater 2: control). The controller continuously compares the temperature measured at the point of engagement and new features to deficit of heat in the full release. When the full release reaches the value set (line 2882), the 3<sup>rd</sup> stage of the heater is triggered (heater 1: on, heater 2: control).

- **Flow electricity release at OT**

The heater will be activated only if the attenuated outdoor temperature is below the temperature set here.

**⚠ WARNING**

If this setting value is too low, there may be a feeling of discomfort due to the fact that the heat pump is unable to meet the heating requirements alone at low outdoor temperatures, and heaters are switched on.

- **Maximum setpoint HP DHW charge**

The heat pump setpoint is limited to the parameterized value during warm water charging. The function can be switched off. If the flow temperature is higher than the parameterized value, the DHW charging with heat pump will be stopped and finished with electrical immersion heater or auxiliary heat generator.

- **With electrical utility lock**

This setting relates to input EX1 (load-shedding or peak day clearing) and allows the electric heaters to be locked as follows:

- **Locked**

The heat pump and all electric heaters are locked, both heat pump stages and the DHW tank electric heater. Only the boiler backup, if installed, continues to operate.

- **Released**

The heat pump operates and all electric heaters are locked, both heat pump stages and the DHW tank electric heater. The boiler backup, if installed, continues to operate.



## 3-10. Energy meter

| Line | Access   | Function                          | Setting range or display | Setting increment | Factory setting |
|------|--|-----------------------------------|--------------------------|-------------------|-----------------|
| 3095 | Not used   |                                   |                          |                   |                 |
| ...  |  |                                   |                          |                   |                 |
| 3110 |  |                                   |                          |                   |                 |
| 3113 | U  | Energy brought in                 |                          | Kwh               | --              |
|      | Calculation of total consumed electrical energy<br>Electrical energy consumed = Electrical energy absorbed by outdoor unit + electric energy absorbed by the heating electrical backup and/or DHW electrical backup (if installed) |                                   |                          |                   |                 |
| 3121 | Not used   |                                   |                          |                   |                 |
| ...  |  |                                   |                          |                   |                 |
| 3123 |  |                                   |                          |                   |                 |
| 3124 | U  | Energy brought in heating 1 (N-1) |                          | Kwh               | --              |
| 3125 | U  | Energy brought in DHW 1           |                          | Kwh               | --              |
| 3126 | U  | Energy brought in cooling 1       |                          | Kwh               | --              |
| 3128 | Not used   |                                   |                          |                   |                 |
| ...  |  |                                   |                          |                   |                 |
| 3130 |  |                                   |                          |                   |                 |
| 3131 | U  | Energy brought in heating 2 (N-2) |                          | Kwh               | --              |
| 3132 | U  | Energy brought in DHW 2           |                          | Kwh               | --              |
| 3133 | U  | Energy brought in cooling 2       |                          | Kwh               | --              |
| 3135 | Not used   |                                   |                          |                   |                 |
| ...  |  |                                   |                          |                   |                 |
| 3137 |  |                                   |                          |                   |                 |
| 3138 | U  | Energy brought in heating 3 (N-3) |                          | Kwh               | --              |
| 3139 | U  | Energy brought in DHW 3           |                          | Kwh               | --              |
| 3140 | U  | Energy brought in cooling 3       |                          | Kwh               | --              |
| 3142 | Not used   |                                   |                          |                   |                 |
| ...  |  |                                   |                          |                   |                 |
| 3144 |  |                                   |                          |                   |                 |
| 3145 | U  | Energy brought in heating 4 (N-4) |                          | Kwh               | --              |
| 3146 | U  | Energy brought in DHW 4           |                          | Kwh               | --              |
| 3147 | U  | Energy brought in cooling 4       |                          | Kwh               | --              |
| 3149 | Not used   |                                   |                          |                   |                 |
| ...  |  |                                   |                          |                   |                 |
| 3151 |  |                                   |                          |                   |                 |
| 3152 | U  | Energy brought in heating 5 (N-5) |                          | Kwh               | --              |
| 3153 | U  | Energy brought in DHW 5           |                          | Kwh               | --              |
| 3154 | U  | Energy brought in cooling 5       |                          | Kwh               | --              |
| 3156 | Not used   |                                   |                          |                   |                 |
| ...  |  |                                   |                          |                   |                 |
| 3158 |  |                                   |                          |                   |                 |
| 3159 | U  | Energy brought in heating 6 (N-6) |                          | Kwh               | --              |
| 3160 | U  | Energy brought in DHW 6           |                          | Kwh               | --              |
| 3161 | U  | Energy brought in cooling 6       |                          | Kwh               | --              |
| 3163 | Not used   |                                   |                          |                   |                 |
| ...  |  |                                   |                          |                   |                 |
| 3165 |  |                                   |                          |                   |                 |
| 3166 | U  | Energy brought in heating 7 (N-7) |                          | Kwh               | --              |
| 3167 | U  | Energy brought in DHW 7           |                          | Kwh               | --              |
| 3168 | U  | Energy brought in cooling 7       |                          | Kwh               | --              |
| 3170 | Not used   |                                   |                          |                   |                 |
| ...  |  |                                   |                          |                   |                 |
| 3172 |  |                                   |                          |                   |                 |
| 3173 | U  | Energy brought in heating 8 (N-8) |                          | Kwh               | --              |

| Line | Access  | Function                            | Setting range or display | Setting increment | Factory setting           |
|------|---|-------------------------------------|--------------------------|-------------------|---------------------------|
| 3174 | U   | Energy brought in DHW 8             |                          | Kwh               | --                        |
| 3175 | U   | Energy brought in cooling 8         |                          | Kwh               | --                        |
| 3177 | Not used  |                                     |                          |                   |                           |
| ...  |   |                                     |                          |                   |                           |
| 3179 |   |                                     |                          |                   |                           |
| 3180 | U   | Energy brought in heating 9 (N-9)   |                          | Kwh               | --                        |
| 3181 | U   | Energy brought in DHW 9             |                          | Kwh               | --                        |
| 3182 | U   | Energy brought in cooling 9         |                          | Kwh               | --                        |
| 3184 | Not used  |                                     |                          |                   |                           |
| ...  |   |                                     |                          |                   |                           |
| 3186 |   |                                     |                          |                   |                           |
| 3187 | U   | Energy brought in heating 10 (N-10) |                          | Kwh               | --                        |
| 3188 | U   | Energy brought in DHW 10            |                          | Kwh               | --                        |
| 3189 | U   | Energy brought in cooling 10        |                          | Kwh               | --                        |
| 3190 | S   | Reset fixed day storage             | No, Yes                  |                   | No                        |
|      | Reset the historical counters (1 to 10). The general counter (parameter 3113) is not reset. |                                     |                          |                   |                           |
| 3197 | S   | Compressor electrical power         | 0.1...60                 | 0.1               | Refer to the table below. |
| 3264 | Not used  |                                     |                          |                   |                           |
| ...  |   |                                     |                          |                   |                           |
| 3267 |   |                                     |                          |                   |                           |

Factory setting for line 3197

| Class   | Model name | Factory setting (3197) |
|---------|------------|------------------------|
| 5.0 kW  | WOYA060KLT | 1.47                   |
| 6.0 kW  | WOYA060KLT | 1.74                   |
| 8.0 kW  | WOYA080KLT | 2.23                   |
| 10.0 kW | WOYA100KLT | 2.97                   |

## 3-11. Additional generator (Boiler connection)

| Line | Access | Function   | Setting range or display                        | Setting increment | Factory setting |
|------|--------|--|---|-------------------|-----------------|
| 3692 | S      | With DHW charging  | Locked<br>Substitute<br>Complement<br>Instantly |                   | Substitute      |
|      |        | <ul style="list-style-type: none"> <li>DHW instantly: When DHW request, the HP and the boiler are put into operation. The HP will stop when the primary return temperature is over 55°C.</li> <li>DHW substitute: If the outdoor temperature is above 2°C, the operation of the HP when DHW request last 5 minutes at least. The HP operating time can be extended depending on the outdoor temperature. The boiler will active then.</li> </ul> |   |                   |                 |
| 3700 | S      | Release below outside temperature  | -50...50°C                                      | 1°C               | 2°C             |
| 3701 | S      | Release above outside temperature  | -50...50°C                                      | 1°C               | ---             |
| 3705 | S      | Overrun time   | 0...120 minutes                                 | 1 minute          | 20 minutes      |
| 3720 | S      | Switching integral (for boiler relief)   | 0...500°Cmin                                    | 1°Cmin            | 100°Cmin        |
| 3723 | S      | Locking time   | 1...120 minutes                                 | 1 minute          | 30 minutes      |

A supplementary producer can be operated in addition to the main producer (heat pump). Release of the supplementary producer depends on a number of parameters a detailed description of which is given on the followings.

- Release is effected via release relay Qx2
- 2-position control is effected via control relay Qx3
- Ux can be used to transmit the supplementary source a DC 0...10 V signal for the required temperature/output setpoint.

| Line | Function          |
|------|-------------------|
| 3692 | With DHW charging |

Defines the release of the supplementary source for DHW charging:

- Locked**  
The supplementary source will not be released.
- Substitute**  
The supplementary source is released only if the main source cannot be put into operation (e.g. in the event of fault).
- Complement**  
The supplementary producer is released if the output of the main producer is not sufficient.
- Instantly**  
The supplementary source will always be released.

| Line | Function                          |
|------|-----------------------------------|
| 3700 | Release below outside temperature |
| 3701 | Release above outside temperature |

Operation of supplementary source is released only when the composite outside temperature lies above or below the set temperature limitation. This enables the supplementary source to lock in a selected outside temperature range to ensure bivalent operation of supplementary source and heat pump. To ensure continuous release of the supplementary source, setting “---” must be selected on the respective operating lines. If both release values are enabled, the outside temperature must satisfy both criteria, thus ensuring release of the supplementary source.

## • Over-temperature protection

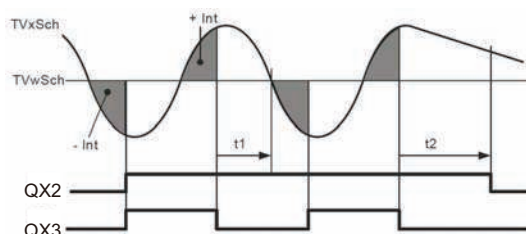
| Line | Function     |
|------|--------------|
| 3705 | Overrun time |

Overrun time of release for the external source: If the integral indicates another heat deficit before the overrun time has elapsed, the release remains activated. If the set overrun time elapses before the common flow temperature drops below the common flow temperature setpoint, the release is deactivated also.

## • Flow control

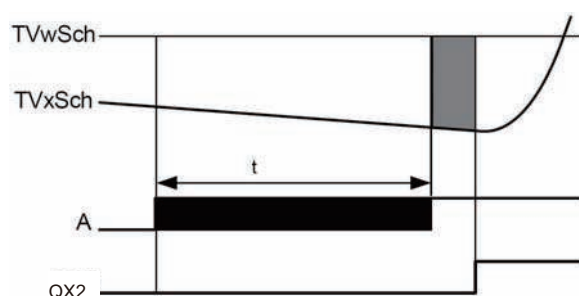
| Line | Function           |
|------|--------------------|
| 3720 | Switching integral |
| 3723 | Locking time       |

- **Switching integral:** The temperature-time integral is a continuous summation of the temperature differential over time. In this case, the decisive criterion is the difference by which the temperature lies above or below the common flow temperature setpoint. The temperature-time integral gives consideration not only to the period of time, but also to extent of over-/undershoot. This means that when the crossing is significant, the supplementary source is released earlier, or locked earlier, than with minor crossings.



|       |                                  |
|-------|----------------------------------|
| TVx   | Actual value of flow temperature |
| TVw   | Flow temperature setpoint        |
| + Int | Surplus integral                 |
| - Int | Deficit integral                 |
| t1    | Overrun time (not completed)     |
| t2    | Overrun time (fully completed)   |
| QX2   | Release output QX2               |
| QX3   | Control QX3                      |

- **Locking time:** The locking time enables the heat pump to reach a stable operating state before the supplementary source is allowed to switch on. The supplementary source is released only when the locking time has elapsed. The locking time starts as soon as a valid flow temperature setpoint is available. Calculation of the release integral starts only when the locking time has elapsed.



|        |   |
|--------|---|
| TVxSch | Actual value of common flow temperature |
| TVwSch | Setpoint of common flow temperature     |
| A      | Request                                 |
| QX2    | Release output QX2                      |
| T      | Locking time                            |

No consideration is given to the locking time, if the heat pump malfunctions or is locked, or if the supplementary source must end DHW charging. Setting "----" can be used to deactivate the function.

## 3-12. DHW storage tank functions

| Line | Access | Function                                   | Setting range or display                   | Setting increment | Factory setting |
|------|--------|--|--|-------------------|-----------------|
| 5024 | S      | Switching differential                     | 0...20°C                                   | 1°C               | 7°C             |
| 5030 | S      | Charging time limitation                   | 10...600 minutes                           | 10 minutes        | 90 minutes      |
|      |        | (with dynamic radiator, adjust 40 minutes) |  |                   |                 |
| 5055 | S      | Re-cooling temperature                     | 10...95°C                                  | 1°C               | 65°C            |
| 5057 | S      | Re-cooling collector                       | Off Summer Always                          |                   | Summer          |
| 5061 | S      | Electric immersion heater release          | 24h/day<br>Release of DHW<br>Program 4/DHW |                   | Release of DHW  |
| 5093 | S      | With solar integration                     | No, Yes                                    |                   | Yes             |

DHW charging at the nominal setpoint temperature (line 1610) always takes place in two stages. In the first stage, only the heat pump heats the DHW tank. The power supplied during this time is at its peak. Then, when the heat pump is no longer able to supply enough heat to reach the setpoint value, it switches on the DHW tank heater if authorized. The heater will be cut off when charging is complete. While the DHW tank charging process via the electric heater is finishing, the heat pump resume heating.

### • Charging control

| Line | Function                 |
|------|--------------------------|
| 5024 | Switching differential   |
| 5030 | Charging time limitation |

- **Switching differential:** If the DHW temperature is lower than the current setpoint minus the differential set here, the DHW charging process is launched. It ends when the temperature reaches the current setpoint.

**NOTE:** Forced charging is triggered on the first DHW release of the day. Charging is also launched when the DHW temperature is within the differential, and as long as it is not less than 1K above the setpoint.

- **Charging time limitation:** During charging, the room heating may be stopped or insufficient. Therefore it is often advisable to limit the charging process timewise to enable heating. If “---” has been selected the charging time limitation will be deactivated. The DHW will be heated to the nominal setpoint, even if the room heating has not received enough power in the meantime. If a value between 10 and 600 is selected, charging will be suspended after the time period set in minutes, and will remain suspended over that time before resuming. The generator power remains available in the meantime to heat the room. This cycle is repeated until the DHW nominal setpoint has been reached.

**NOTE:** When the room heating is stopped (summer mode, economy function, etc.), DHW charging remains active, regardless of the setting.

### • Re-cooling

| Line | Function               |
|------|------------------------|
| 5055 | Re-cooling temperature |
| 5057 | Re-cooling collector   |

- **Re-cooling temperature:** An activated re-cooling function remains in operation until the set re-cooling temperature in the DHW storage tank is reached.
- **Re-cooling collector:** When the collector is cold, surplus energy can be emitted to the environment via the collector's surface.

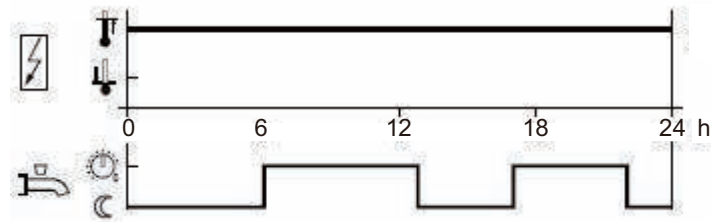
- **Heater**

| Line | Function                          |
|------|-----------------------------------|
| 5061 | Electric immersion heater release |

- **Electric immersion heater release:**

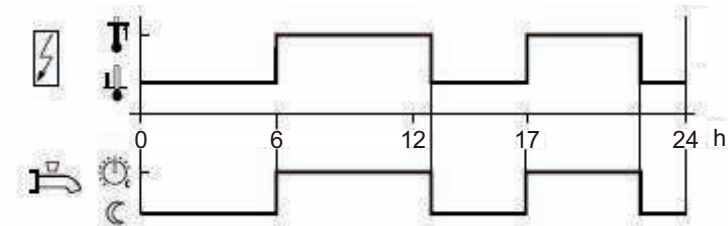
- 24 h/day

The heater is continuously active regardless of time programs.



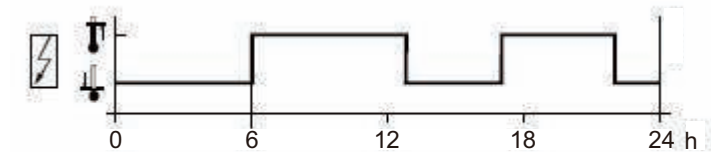
- DHW release

The heater is controlled according to DHW release.



- Time program 4/DHW

Time program 4/DHW of the local controller is taken into account for the heater.



**NOTE:** Switch-on will actually be in effect only if the heater is able to operate according to the heater operating mode setting.

## 3-13. Installation configuration functions

| Line   | Access  | Function  | Setting range or display   | Setting increment | Factory setting           |
|--|---|---|--|-------------------|---------------------------|
| 5700   | I   | Pre-setting                                       | 1,2,3,... 9  | 1                 | 1                         |
|  | This control enables you to choose one of the 4 pre-selected installation configurations. The hydraulic layouts for the various configurations are detailed in the section: "Installation Configurations". <ul style="list-style-type: none"><li>Pre-setting 1: 1 heating circuit with or without electrical back-up, with DHW tank</li><li>Pre-setting 2: 2 heating circuits with or without electrical back-up, with DHW tank</li><li>Pre-setting 3: Boiler connection and 1 heating circuit and DHW tank</li><li>Pre-setting 4: Boiler connection and 2 heating circuits and DHW tank</li><li>Pre-setting 5 and more: Not used</li></ul> |   |  |                   |                           |
| 5710   | S   | Heating circuit 1                                 | Off, On  |                   | On                        |
| 5711   | S   | Cooling circuit 1                                 | Off  |                   | Off                       |
|  |   |   | 4-pipe system<br>2-pipe system   |                   |                           |
| Set the parameter to "2-pipe system cooling" with the cooling kit.   |   |   |  |                   |                           |
| 5715   | S   | Heating circuit 2                                 | Off, On  |                   | On                        |
| 5716   | S   | Cooling circuit 2                                 | Off  |                   | Off                       |
|  |   |   | 4-pipe system cooling<br>2-pipe system cooling                                     |                   |                           |
| Set the parameter to "2-pipe system cooling" with the cooling kit. If the installation consists of 2 heating circuits. |   |   |  |                   |                           |
| 5731   | S   | DHW controlling element Q3                        | No charging request  <br>Charging pump  <br>Diverting valve                        |                   | Diverting valve           |
| 5740   | S   | Output electrical immersion heater K6             | 0.1...99 kW  |                   | 2                         |
| 5806   | I   | Type electrical immersion heater flow             | 1: 3-stage<br>2: 2-stage excluding<br>3: 2-stage complementary<br>4: Modulating UX |                   | 3: 2-stage complement ary |
| 5811   | S   | Output electrical immersion heater K25            | 0.1...99   |                   | 3                         |
|  |   |   |  |                   |                           |
| 5813   | S   | Output electrical immersion heater K26            | 0.1...99   |                   | 3                         |
|  |   |   |  |                   |                           |
| 5950   | S   | Function input H1 (Connector X86, terminals B2&M) |  |                   | ---                       |
|  |   |   |  |                   |                           |
| 5953   | S   | Input value 1 H1                                  |  |                   | 0                         |
| 5954   | S   | Function value 1 H1                               |  |                   | 0                         |
| 5955   | S   | Input value 2 H1                                  |  |                   | 10                        |
| 5956   | S   | Function value 2 H1                               |  |                   | 100                       |



| Line | Access | Function   | Setting range or display                                     | Setting increment | Factory setting |
|------|--------|--|--|-------------------|-----------------|
| 5960 | S      | Function input H3  |  |                   | None            |
|      |        | 0: None, 1: Op'mode change zones + DHW, 2: Optg mode changeover DHW, 3: Op'mode changeover zones, 4: Op'mode changeover zone 1, 5: Op'mode changeover zone 2, 6: Op'mode changeover zone 3, 8: Error/alarm message, 9: Consumer request VK1, 10: Consumer request VK2, 11: Release swi pool source heat, 13: Release swi pool solar, 14: Operating level DHW, 15: Operating level HC1, 16: Operating level HC2, 17: Operating level HC3, 18: Room thermostat HC1, 19: Room thermostat HC2, 20: Room thermostat HC3, 21: DHW flow switch, 24: Pulse count, 26: Dewpoint monitor, 27: Flow temp setp incr hygro, 30: Swi-on command HP stage 1, 35: Status info suppl source, 36: Chrg prio DHW sol fuel boil, 43: Ventilation switch 1, 44: Ventilation switch 2, 45: Ventilation switch 3, 50: Flow measurement Hz, 51: Consumer request VK1 10 V, 52: Consumer request VK2 10 V, 54: Pressure measurement 10 V, 55: Humidity measurement 10 V, 56: Room temp 10 V, 59: Flow measurement 10 V, 60: Temp measurement 10 V, 61: Air quality measurement 10 V |  |                   |                 |
| 5963 | S      | Input value 1 H3   |  |                   | 0               |
| 5964 | S      | Function value 1 H3  |  |                   | 0               |
| 5965 | S      | Input value 2 H3   |  |                   | 10              |
| 5966 | S      | Function value 2 H3  |  |                   | 100             |
| 5980 | S      | Function input EX1   |  |                   | 1               |
|      |        | 0: None, 1: Electrical utility lock E6, 2: Low-tariff E5, 4: Overload source E14, 5: Pressure switch source E26, 6: Flow switch source E15, 7: Flow switch consumers E24, 8: Manual defrost E17, 9: Common fault HP E20, 10: Fault soft starter E25, 12: Low-pressure switch E9, 13: High-pressure switch E10, 14: Overload compressor 1 E11, 15: Error/alarm message, 16: Mains supervision E21, 18: Pressure diff defrost E28, 19: Pres sw source int circ E29, 20: Flow sw source int circ E30, 21: Smart grid E61, 22: Smart grid E62, 25: Optg mode change HCs, 26: DHW push  |  |                   |                 |
| 5981 | S      | Contact type input EX1   | NC (Normally-closed contact)<br>NO (Normally-opened contact) |                   | NO              |
| 5982 | S      | Function input EX2   |  |                   | Low-tariff E5   |
|      |        | 0: None, 1: Electrical utility lock E6, 2: Low-tariff E5, 4: Overload source E14, 5: Pressure switch source E26, 6: Flow switch source E15, 7: Flow switch consumers E24, 8: Manual defrost E17, 9: Common fault HP E20, 10: Fault soft starter E25, 12: Low-pressure switch E9, 13: High-pressure switch E10, 14: Overload compressor 1 E11, 15: Error/alarm message, 16: Mains supervision E21, 18: Pressure diff defrost E28, 19: Pres sw source int circ E29, 20: Flow sw source int circ E30, 21: Smart grid E61, 22: Smart grid E62, 25: Optg mode change HCs, 26: DHW push  |  |                   |                 |
| 5983 | S      | Contact type input EX2   | NC (Normally-closed contact)<br>NO (Normally-opened contact) |                   | NC              |
| 5985 | S      | Contact type input EX3   | NC (Normally-closed contact)<br>NO (Normally-opened contact) |                   | NO              |
| 6098 | S      | Readjustment collector sensor  | -20...20°C   |                   | 0°C             |
| 6100 | S      | Readjustment outside sensor  | -3...3°C   | 0.1°C             | 0°C             |
| 6117 | S      | Central setpoint compensation  | 1...100°C  |                   | 5°C             |
| 6120 | S      | Frost protection plant   | On, Off  |                   | On              |
| 6201 | S      | Reset sensors  | No, Yes  |                   | No              |
| 6205 | S      | Reset to default parameters  | No, Yes  |                   | No              |
| 6220 | S      | Software version (RVS)   | 0...99   |                   | ---             |
| 6300 | S      | Info 1 OEM   | 0...65535  |                   | ---             |
| 6301 | S      | Info 2 OEM   | 0...65535  |                   | ---             |

When an installation is started up, the hydraulic indoor unit diagram pre-setting for that installation must be entered.



- **Pre-settings**

| Line | Function    |
|------|-------------|
| 5700 | Pre-setting |

Only pre-setting 1 to 4 are used among 9 availables.

- **Heating circuit/Cooling circuit**

| Line | Function  |
|------|---|
| 5710 | Heating circuit 1   |
| 5711 | Cooling circuit 1 <ul style="list-style-type: none"> <li>• Off</li> <li>• 4-pipe system</li> <li>• 2-pipe system</li> </ul> |
| 5715 | Heating circuit 2   |

- **Heating circuit 1:** Using this setting, heating circuit 1 can be switched on and off.
- **Cooling circuit 1:**
  - **Off**  
The cooling circuit is deactivated.
  - **4-pipe system**  
Not compatible with this system. This setting relates to passive cooling.
  - **2-pipe system**  
Activates the heat pump cooling mode. However, the cooling kit must have been previously connected.

**⚠ WARNING**

If the cooling kit has not been connected and the cooling mode is activated the heat pump will behave abnormally and might cause some unwanted discomfort.

**NOTE:** Switching on the cooling mode causes the menu “Cooling circuit 1” to appear.

- **Heating circuit 2:** Using this setting, heating circuit 2 can be switched on and off.

- **DHW**

| Line | Function                   |
|------|----------------------------|
| 5731 | DHW controlling element Q3 |

- **No charging request:**  
No DHW charging via Q3
- **Charging pump:**  
DHW charging is effected with a pump connected to terminal Q3.
- **Diverting valve:**  
DHW charging is effected with a diverting valve connected to terminal Q3.

- **Electric immersion heater**

| Line | Function                            |
|------|-------------------------------------|
| 5806 | Type electric immersion heater flow |

Within the type of electric backup, 4 settings are possible:

- **3-stage:**  
Not used
- **2-stage excluding:**  
Not used
- **2-stage complementary:**  
The backup 1 starts alone, then the backup 2 starts alone, then the two backups starts simultaneously. Example for a 3 kW backup and a 6 kW backup, 1<sup>st</sup> stage: 3 kW, 2<sup>nd</sup> stage: 6 kW, 3<sup>rd</sup> stage: 3 + 6 = 9 kW.
- **Modulating Ux:**  
The backup 1 is regulated as required.

- **Basic unit EX/E**

| Line | Function               |
|------|------------------------|
| 5981 | Contact type input EX1 |
| 5983 | Contact type input EX2 |
| 5985 | Contact type input EX3 |

The type of contact can be selected as follows:

- **NC:**  
The input's function is active when voltage is not present.
- **NO:**  
The input's function is active when voltage is present. The descriptions relating to the functions of the EX contact apply when an NO contact is selected.

- **Sensor corrections**

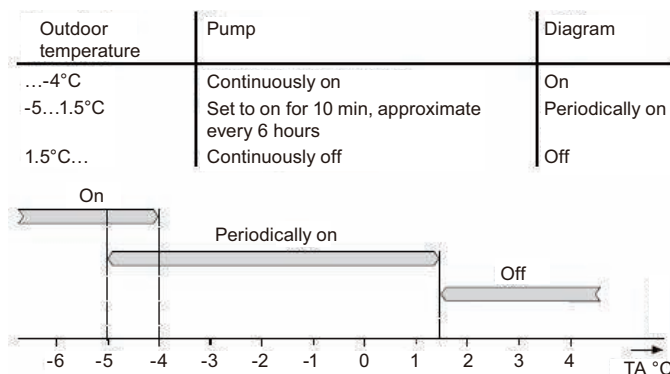
| Line | Function                    |
|------|-----------------------------|
| 6098 | Not used                    |
| 6100 | Readjustment outside sensor |

The outdoor temperature measuring value can be corrected within a range of  $\pm 3$  K.

- **Installation frost protection**

| Line | Function                       |
|------|--------------------------------|
| 6120 | Frost protection for the plant |

According to the outdoor temperature, the heating circuit pump and the condenser pump are switched on although there is no demand for heat.



- **Miscellaneous**

| Line | Function                    |
|------|-----------------------------|
| 6205 | Reset to default parameters |
| 6220 | Software version            |

- **Reset to default parameters:**

All parameters can be reset to factory settings, except followings: Time and date, User interface, and all time programs, as well as the operating hours and the various counters.

- **Software version:**


The software version represents the controller software status at the time when the unit is being produced. It is printed on the back of the unit. The first two digits represent the software version, and the third is the revision number (e.g. 01.0).

## 3-14. LPB system

| Line | Access | Function       | Setting range or display | Factory setting |
|------|--------|----------------|--------------------------|-----------------|
| 6600 | S      | Device address | 0...16                   | 1               |

## 3-15. Error functions

| Line | Access | Function             | Setting range or display | Factory setting |
|------|--------|----------------------|--------------------------|-----------------|
| 6710 | U      | Reset default relays | No, Yes                  | No              |
| 6711 | U      | Reset HP             | No, Yes                  | No              |
| 6800 | S      | History 1            | Time, Date, Error code   |                 |
| 6802 | S      | History 2            | Time, Date, Error code   |                 |
| 6804 | S      | History 3            | Time, Date, Error code   |                 |
| 6806 | S      | History 4            | Time, Date, Error code   |                 |
| 6808 | S      | History 5            | Time, Date, Error code   |                 |
| 6810 | S      | History 6            | Time, Date, Error code   |                 |
| 6812 | S      | History 7            | Time, Date, Error code   |                 |
| 6814 | S      | History 8            | Time, Date, Error code   |                 |
| 6816 | S      | History 9            | Time, Date, Error code   |                 |
| 6818 | S      | History 10           | Time, Date, Error code   |                 |

When a fault occurs, the symbol  appears and it is possible to display an error message in the Info section by pressing the Info key. The display shows what caused the fault.

- **Reset (unlock) heat pump**

| Line | Function |
|------|----------|
| 6711 | Reset HP |

This line is used to clear the heat pump error messages. The predetermined switch-on delay in case of a failure is therefore ignored, which avoids waiting periods during servicing/troubleshooting. This option should not be used in normal operating conditions.

## • Error history

| Line         | Function                                 |
|--------------|--|
| 6800 to 6818 | Time stamp and history of faults 1 to 10 |

The controller saves the last 10 faults which have occurred to a non volatile memory. Any new entry will delete the oldest entry from the memory. A fault code and a time are saved for each fault.

### Error code list:

- Designation of error:  
The error designations in the table below are displayed in plain text on the user interface.
- Location:  
The sensor or contact associated to the error message.
- Reset:  
Reset is either automatic or manual, depending on the type of error. (For error message, refer to the table below.)
  - Manual reset:  
Errors which are displayed in the Info section and accompanied by the Reset question can be manually reset. Press the OK key once, “yes” flashes on the display. Press the OK key again to confirm the “yes” and the error will be reset.
  - Automatic reset:  
Automatic cleaning occurs after a previously set time (OEM setting) has elapsed. After this time out (6 hours by default) has elapsed, the controller will attempt to reset the error. If “Number” appears in the table, it is possible to define the how many times the fault can be reset before the heat pump is declared out of order.
- Heat pump operation:  
Shows whether or not the heat pump can continue to operate when the error occurs.
  - Yes:  
The heat pump continues to operate despite the error message.
  - No:  
The error interrupts operation of the heat pump.
  - No with glycol water:  
The error stops glycol water heat pumps, but does not prevent operation of water or air heat pumps.
  - No with water:  
The error stops water heat pumps, but does not prevent operation of glycol water heat pumps.
  - No with air:  
The error stops air heat pumps, but does not prevent operation of water heat pumps or glycol water heat pumps.
  - Per diagrams:  
The heat pump will be stopped according to the current installation diagram.
  - Alarm messages  
Errors are ranked by priority. From priority 5 onward (i.e. priority levels 5 to 9) the alarm messages used in remote controller are sent. In addition, the alarm relay is switched on.

Table of error messages which can be displayed:

| No: Designation of error                          | Location    | Reset  |           | HP operation |
|---|-------------|--------|-----------|--------------|
|   |             | Manual | Automatic |              |
| 0: No fault                                       |             |        |           |              |
| 10: Outdoor sensor                                | BX4 (X84)   | No     | No        | Yes          |
| 30: Flow sensor 1                                 | BX1 (X80)   | No     | No        | Yes          |
| 31: Cooling flow sensor 1                         | BX1 (X80)   | No     | No        | Yes          |
| 32: Flow sensor 2                                 | BX31 (X153) | No     | No        | Yes          |
| 33: Heat pump flow temperature sensor error       | BX1 (X80)   | No     | No        | Yes          |
| 44: Heat pump return temperature sensor error     | BX2 (X80)   | No     | No        | Per diagram  |
| 50: DHW temperature sensor 1                      | BX3 (X84)   | No     | No        | Yes          |
| 60: Room sensor 1                                 |             | No     | No        | Yes          |
| 65: Room sensor 2                                 |             | No     | No        | Yes          |
| 76: Special sensor 1                              | BX          | No     | No        | Yes          |
| 83: BSB wire short-circuit                        |             | No     | No        | Yes          |
| 84: BSB, address collision                        |             | No     | No        | Yes          |
| 85: Radio communication error                     |             | No     | No        | Yes          |
| 98: Extension module 1                            |             | No     | No        | Yes          |
| 99: Extension module 2                            |             | No     | No        | Yes          |
| 100: 2 master clocks on bus                       |             | No     | No        | Yes          |
| 102: Clock without running supply                 |             | No     | No        | Yes          |
| 105: Maintenance message                          |             | No     | No        | Yes          |
| 121: HC1 flow temperature too low                 |             | No     | No        | Yes          |
| 122: HC2 flow temperature too low                 |             | No     | No        | Yes          |
| 126: DHW charge monitoring                        |             | No     | No        | Yes          |
| 127: Anti-legionella temperature                  |             | No     | No        | Yes          |
| 134: Heat pump alarm summary                      | E20         | Yes    | Number*   | No           |
| 138: No heat pump control sensor                  |             | No     | Yes       | No           |
| 146: Sensor/Control device configuration          |             | No     | No        | Yes          |
| 171: Alarm contact 1 activated                    | H1/H31      | No     | No        | Yes          |
| 172: Alarm contact 2 activated                    | H21/H22/H32 | No     | No        | Yes          |
| 174: Alarm contact 4 active H3                    |             | No     | No        | Yes          |
| 178: HC1 safety thermostat                        |             | No     | No        | Yes          |
| 179: HC2 safety thermostat                        |             | No     | No        | Yes          |
| 201: Frost alarm                                  | BX1 (X80)   | Yes    | No        | No           |
| 243: Swimming pool sensor                         | BX34 (X154) | No     | No        | Yes          |
| 325: BX/Ext unit: same sensors                    |             | No     | No        | Yes          |
| 327: Ext modules: same functions                  |             | No     | No        | Yes          |
| 329: Ext modules/Mixing group: same functions     |             | No     | No        | Yes          |
| 330: BX1 no function                              |             | No     | No        | Yes          |
| 331: BX2 no function                              |             | No     | No        | Yes          |
| 332: BX3 no function                              |             | No     | No        | Yes          |
| 333: BX4 no function                              |             | No     | No        | Yes          |
| 334: BX5 no function                              |             | No     | No        | Yes          |
| 335: BX21 no function                             |             | No     | No        | Yes          |
| 336: BX22 no function                             |             | No     | No        | Yes          |
| 357: Cooling circuit flow temperature not reached |             | No     | No        | Yes          |
| 359: No cooling valve Y21                         |             | No     | No        | Yes          |
| 360: No process reversing valve Y22               |             | No     | No        | Yes          |
| 364: Heat pump cooling system error               |             | No     | No        | Yes          |
| 369: External fault                               |             |        |           | No           |
| 370: Outdoor unit fault                           |             |        |           | No           |

\*: If such statuses or events occur for the first time, they will not directly generate a fault message, but only a status message. Only if the anomaly occurs repeatedly over a predefined time period and at a given frequency (number), an error message will be generated.

## 3-16. Service/Special operation functions

| Line | Access | Function  | Setting range or display | Setting increment | Factory setting |
|------|--------|---|--------------------------|-------------------|-----------------|
| 7070 | S      | HP interval   | ---, 1...240 months      | 1 month           | ---             |
| 7071 | S      | HP time since maintenance Reset? (no, yes)  | 0...240 months           | 1 month           | 0               |
| 7073 | S      | Cur starts compressor 1/hrs run Reset? (no, yes)  | 0...12                   |                   | 0               |
| 7141 | U      | Emergency operation   | Off, On                  |                   | Off             |
|      |        | Off: Heat pump functions normally (with boosters if necessary)<br>On: Heat pump uses the electric boost system or the boiler connection<br>Use the "On" position only in assist mode or test mode: may result in high power bills                                       |                          |                   |                 |
| 7142 | S      | Emergency operating function type   | Manual, Automatic        |                   | Manual          |
|      |        | Manual: Emergency mode is not active when a fault occurs (Emergency mode = OFF)<br>Automatic: Emergency mode is active when a fault occurs (Emergency mode = ON)<br>In "Automatic" position, the energy cost can be onerous if the error is not detected and eliminated |                          |                   |                 |
| 7150 | I      | Simulation outside temperature  | -50...50 °C              |                   | ---             |
| 7202 | S      | Commissioning heat pump   | Off, On                  |                   | Off             |
| 7207 | S      | Output selection heat pump modulating   | 0...100%                 | 1%                | 0%              |
| 7208 | S      | Output selection speed Q9   | 0...100%                 | 1%                | ---             |

### • Maintenance

Maintenance functions can be used as a preventive step for periodically monitoring the installation. All maintenance functions can be individually activated or deactivated. The controller automatically generates maintenance messages if the settings defined are either exceeded or fail to be reached.

| Line | Function                        |
|------|---------------------------------|
| 7070 | HP interval                     |
| 7071 | HP time since maintenance       |
| 7073 | Cur starts compressor 1/hrs run |

- **HP interval:** Defines the maintenance frequency (in months) for the heat pump.
- **HP time since maintenance:** Displays the time (in months) elapsed since the last maintenance. If the value exceeds the "Heat pump interval" (line 7070), the symbol ⚡ will be displayed and a maintenance message will appear in the Info section:

*17: Heat pump maintenance Interval (Priority 6)*

This setting can be reset with the associated rights of access.

- **Cur starts compressor 1/hrs run:** The average number of compressor startups per hour of operation, obtained over a period of 6 weeks. If the value exceeds the "Compressor 1 maximum startups/hr op" adjusted setting, the symbol ⚡ will be displayed and a maintenance message will appear in the Info section:

*8: Too many compressor 1 startups (Priority 9)*

This setting can be reset with the associated rights of access.

## • Emergency mode

If the heat pump is not operating properly, an emergency operation can be maintained. The emergency operation enables the installation to be run with the available heaters (flow, DHW tank). In this case, the compressor will remain off.

| Line | Function                          |
|------|-----------------------------------|
| 7141 | Emergency operation               |
| 7142 | Emergency operation function type |

– **Emergency operation:** Emergency operation can be activated and deactivated manually.

- Off  
Emergency operation is deactivated.
- On  
Emergency operation is activated.

– **Emergency operation function type:**

- Manually  
Emergency operation can be activated/deactivated only through the emergency operation setting on line 7141.
- Automatic  
As soon as a fault occurs on the heat pump, emergency operation is automatically switched on. It stops when the fault is removed, and if necessary, cleared (reset). Emergency operation may however be activated/deactivated manually via the emergency operation setting on line 7141.

## • Simulation

| Line | Function                       |
|------|--------------------------------|
| 7150 | Simulation outside temperature |

– **Simulation outside temperature:** To make the starting-up and troubleshooting processes easier, it is possible to simulate an outdoor temperature in the range of -50...+50 °C. During simulation, the current, composite, and attenuated outdoor temperatures are ignored and substituted with the adjusted simulation temperature. Computation of the 3 outdoor temperatures based on the actual outdoor temperature continues to be performed during the simulation, and these temperatures are available again when the simulation is over.

This function can be deactivated by selecting -.- on this line or automatically, after a 5 hours waiting period.



## 3-17. Input/Output test functions

| Line | Access | Function  | Setting range or display  | Setting increment | Factory setting |
|------|--------|---|---|-------------------|-----------------|
| 7700 | I      | Relay test  |   |                   | No test         |
|      |        | <p>This consists of instructing the regulator's relays one by one and checking their outputs. This enables you to check that the relays are working and that the cabling is correct. Check that each appliance in the installation is operating correctly.</p> <p>0: No test, 1: Everything is on STOP, 2: Relay output QX1 : heat pump CC1 (if 1 circuit ) or heat pump CC2 (if 2 circuits), 3: Relay output QX2 : Electrical back-up (1st stage) or Boiler connection distribution valve, 4: Relay output QX3 : Electrical back-up (2nd stage) or Boiler connection contact, 5: Relay output QX4 : DHW distribution valve, 6: Relay output QX5 : DHW Electrical back-up, 7: Relay output QX6 , 8: Relay output QX31 : Heat circ mix valve open Y1 (or control pilot-wire), 9: Relay output QX32 : Heat circ mix valve close Y2, 10: Relay output QX33 : heat pump CC1 if 2 circuits (mixed circuit, the less hot), 11: Relay output QX34, 12: Relay output QX35 : Swimming pool distribution valve, 13: Relay output QX21 module 1, 14: Relay output QX22 module 1, 15: Relay output QX23 module 1, 16: Relay output QX21 module 2, 17: Relay output QX22 module 2, 18: Relay output QX23 module 2, 19: Not used, 20: Not used, 21: Not used</p> <p>The display shows the "Key" symbol. Pressing the Info button displays "Error 368".</p> <p><b>⚠ WARNING</b></p> <p>The component being tested is receiving electrical power throughout the test.</p> |   |                   |                 |
|      | I      | Output UX1 test   | 0...100%  | 1                 | ---             |
|      | I      | Output UX2 test   | 0...100%  | 1                 | ---             |
|      | I      | Digital output DO2  | Off, On   |                   | Off             |
|      | I      | Heat pump D3  | Off, On   |                   | Off             |
|      | I      | Outputs test UX3 ("Inverter" command)   | 0...100%  |                   | ---             |
|      | I      | Voltage value (UX3)   | 0...10 V  |                   | ---             |
|      | I      | Sensor temperature BX1 (HP flow temperature)  | -28...350°C   |                   | ---             |
|      | I      | Sensor temperature BX2 (HP return temperature)  | -28...350°C   |                   | ---             |
| 7804 | I      | Sensor temperature BX3 (DHW temperature)  | -28...350°C   |                   | ---             |
| 7805 | I      | Sensor temperature BX4 (Outside temperature)  | -28...350°C   |                   | ---             |
| 7806 | I      | Sensor temperature BX21 module 1  | -28...350°C   |                   | ---             |
| 7807 | I      | Sensor temperature BX22 module 1  | -28...350°C   |                   | ---             |
| 7830 | I      | Sensor temperature BX21 module 1  | -28...350°C   |                   | ---             |
| 7831 | I      | Sensor temperature BX22 module 1  | -28...350°C   |                   | ---             |
| 7832 | I      | Sensor temperature BX21 module 1  | -28...350°C   |                   | ---             |
| 7833 | I      | Sensor temperature BX22 module 2  | -28...350°C   |                   | ---             |
| 7858 | I      | Input signal H3   | None,<br>Closed (ooo)<br>Open (---)<br>Pulse<br>Frequency Hz<br>Voltage V |                   | None            |
| 7911 | I      | Input EX1 (Power shedding, EJP)   | 0, 230 V  |                   | ---             |
| 7912 | I      | Input EX2 (Tariffs day/night)   | 0, 230 V  |                   | ---             |
| 7913 | I      | Input EX3 (External fault)  | 0, 230 V  |                   | ---             |

Input/Output testing is used to ensure that the connected components are in working order.

### • Relay output testing

Selection of a setting from relay testing closes the corresponding relay and therefore switches on the connected component. This makes it possible to check that the relays are in working order and that the wiring has been performed correctly.

| Line | Function   |
|------|------------|
| 7700 | Relay test |

This consists of instructing the regulator's relays one by one and checking their outputs. This enables you to check that the relays are working and that the cabling is correct. Check that each appliance in the installation is operating correctly.

|   |   |
|---|---|
| 0: No test  | 11: Relay output QX34                                   |
| 1: Everything is on STOP  | 12: Relay output QX35: Swimming pool distribution valve |
| 2: Relay output QX1:<br>Heat pump CC1 (Main regulation board)   | 13: Relay output QX21 module 1                          |
| 3: Relay output QX2:<br>Electrical backup (1 <sup>st</sup> stage) or Boiler connection distribution valve | 14: Relay output QX22 module 1                          |
| 4: Relay output QX3:<br>Electrical backup (2 <sup>nd</sup> stage) or Boiler connection contact            | 15: Relay output QX23 module 1                          |
| 5: Relay output QX4: DHW distribution valve   | 16: Relay output QX21 module 2                          |
| 6: Relay output QX5: DHW electrical backup  | 17: Relay output QX22 module 2                          |
| 7: Relay output QX6   | 18: Relay output QX23 module 2                          |
| 8: Relay output QX31: Heating circuit mix valve open Y1   | 19: Not used  |
| 9: Relay output QX32: Heating circuit mix valve close Y2  | 20: Not used  |
| 10: Relay output QX33: Heat pump CC2  | 21: Not used  |

The display shows the "Key" symbol. Pressing the Info key displays "Error 368".

### ⚠ WARNING

- The component being tested is receiving electr.
- During testing of an output, the heat pump is stopped, all outputs are "off" and only the controlled output is on.

### • Analog input/output testing

| Line | Function          |
|------|-------------------|
| 7710 | Output test UX1   |
| 7712 | PWM signal UX1    |
| 7722 | Cooling mode DO2  |
| 7723 | Heat pump D3      |
| 7724 | Output test UX3   |
| 7725 | Voltage value UX3 |

- **Cooling mode DO2:** Shows the output status.
- **Output test UX3:** Enables testing the outdoor unit control.

- **Sensor input testing**

Displays the temperature of each sensor.

| Line | Function               |
|------|------------------------|
| 7820 | Sensor temperature BX1 |
| 7821 | Sensor temperature BX2 |
| 7822 | Sensor temperature BX3 |
| 7823 | Sensor temperature BX4 |

- **Input test EX1—3**

| Line | Function  |
|------|-----------|
| 7911 | Input EX1 |
| 7912 | Input EX2 |
| 7913 | Input EX3 |

By selecting a setting from input test EX1 to 3, the relevant input will be displayed, enabling it to be checked. Display of 0 V means that there is no voltage and the respective input is currently inactive. Display of 230 V means that voltage is present at respective input so that it is activated.

- **Input/Output test I/O module**

| Line | Function                 |
|------|--------------------------|
| 7973 | Setting temperature BX31 |
| 7976 | Setting temperature BX34 |
| 7996 | Contact state H33        |

The sensor test operate the same as for BX1 to 4 on the basic unit.

## 3-18. State functions

| Line | Access | Function                   | Setting range or display | Factory setting |
|------|--------|----------------------------|--------------------------|-----------------|
| 8000 | I      | State heating circuit 1    |                          | ---             |
| 8001 | I      | State heating circuit 2    |                          | ---             |
| 8003 | I      | State DHW                  |                          | ---             |
| 8004 | I      | State cooling circuit 1    |                          | ---             |
| 8006 | I      | State heat pump            |                          | ---             |
| 8007 | I      | Not used                   |                          | ---             |
| 8010 | I      | Not used                   |                          | ---             |
| 8011 | I      | State swimming pool        |                          | ---             |
| 8022 | I      | State supplementary source |                          | ---             |
| 8025 | I      | State cooling circuit 2    |                          | ---             |

The current operating status of the installation can be reviewed by means of status displays.

### • State heating circuit

| End use (Info level)     | Commissioning, Engineer   |
|--------------------------|---|
| Thermostat response      | Thermostat response   |
| Manual action active     | Manual action active  |
| Controlled drying active | Controlled drying active  |
| Heating mode restriction | Overeating protection active<br>Restriction, boiler protection<br>Restriction, DHW priority<br>Restriction, storage tank    |
| Forced draft             | Forced draft, storage tank<br>Forced draft, DHW<br>Forced draft generator<br>Forced draft<br>Switch-off delay active        |
| Comfort heating mode     | Optimization at switch-on + accelerated heating<br>Optimization at switch-on<br>Accelerated heating<br>Comfort heating mode |
| Reduced heating mode     | Optimization at switch-off<br>Reduced heating mode  |
| Frost protection active  | Room frost protection<br>Flow frost protection active<br>Installation frost protection active                               |
| Summer mode              | Summer mode   |
| Off                      | Eco day active<br>Reduced decrease<br>Frost protection decrease<br>Room temperature limitation<br>Off                       |

- **State DHW (8003)**

| End use (Info level)        | Commissioning, Engineer  |
|-----------------------------|--|
| Thermostat response         | Thermostat response  |
| Manual action active        | Manual action active   |
| Draw-off mode               | Draw-off mode  |
| Adiabatic cooling active    | Adiabatic cooling by collector<br>Adiabatic cooling via gen/HC   |
| Charging lock active        | Discharge protection active<br>Charging duration limitation active<br>Charging locked  |
| Forced charging active      | Forcing, DHW tank maximum temperature<br>Forcing, maximum charging temperature<br>Forcing, anti-legionella setpoint<br>Forcing, comfort setpoint   |
| Charging by heater          | Charging by heater, anti-legionella setpoint<br>Charging by heater, comfort setpoint<br>Charging by heater, reduced setpoint<br>Charging by heater, frost protection setpoint<br>Heater released |
| Accelerated charging active | Flow active<br>Anti-legionella accelerated charging  |
| Charging active             | Charging, anti-legionella setpoint<br>Charging, comfort setpoint<br>Charging, reduced setpoint   |
| Frost protection active     | Frost protection active  |
| Switch-off delay active     | Switch-off delay active  |
| Charging on standby         | Charging on standby  |
| Charged                     | Charged, maximum tank temperature<br>Charged, maximum charging temperature<br>Charged, anti-legionella temperature<br>Charged, nominal temperature<br>Charged, reduced temperature               |
| Off                         | Off  |
| Ready                       | Ready  |

• **State cooling circuit 1 (8004)**

| End use (Info level)            | Commissioning, Engineer  |
|---------------------------------|--|
| Dew point sensor activated      | Dew point sensor activated   |
| Manual action active            | Manual action active   |
| Fault                           | Fault  |
| Frost protection active         | Flow frost protection active   |
| Cooling mode locked             | Locked, heating mode<br>Lock time after heating<br>Locked, generator<br>Locked, storage tank                                 |
| Cooling mode restricted         | Flow temp setpoint increase by hygrostat<br>Dew point flow minimum limitation<br>Outdoor temperature flow minimum limitation |
| Comfort cooling mode            | Comfort cooling mode<br>Switch-off delay active  |
| Cooling protection mode         | Cooling protection mode  |
| Frost protection active         | Frost protection active  |
| OT cooling limitation activated | OT cooling limitation activated  |
| Off                             | Off<br>Room temperature limitation<br>Flow limitation reached  |
| Cooling mode off                | Cooling mode deactivated   |

• **State heat pump (8006)**

| End use (Info level)    | Commissioning, Engineer   |
|-------------------------|---|
| Emergency mode          | Emergency mode  |
| Fault                   | Fault   |
| Locked                  | Locked, outdoor temperature<br>Locked, external<br>Locked, economy mode   |
| Limitation time active  | Consumer flow rate controller<br>Minimum outdoor temperature use limitation<br>Maximum outdoor temperature use limitation<br>Maximum switch off temperature limitation<br>Maximum OT limitation cooling<br>Minimum switch off temperature limitation<br>Compressor minimum switch off time active<br>Excess heat compensation |
| Frost protection active | Heat pump frost protection  |
| Defrosting activated    | Defrosting activated  |
| Cooling mode active     | Compressor minimum on time active<br>Compressor 1 on  |
| Heating                 | Compressor minimum on time active<br>Heat deficiency compensation<br>Maximum condenser difference limitation<br>Minimum condenser difference limitation<br>Compressor 1 and heater on<br>Compressor 1 on<br>Heater on   |
| Frost protection active | Installation frost protection active  |
| Off                     | Flow active<br>Switch-off delay active<br>No demand   |
| Switch-off delay active | No demand   |

- **State swimming pool (8011)**

| End use (Info level)         | Commissioning, Engineer                              |
|------------------------------|--|
| Manual action active         | Manual action active                                 |
| Fault                        | Fault  |
| Heating mode restriction     | Heating mode restriction                             |
| Forced draft                 | Forced draft   |
| Heating                      | Generator heating mode                               |
| Heated, max pool temperature | Heated, max pool temperature                         |
| Heated                       | Heated, generator setpoint                           |
| Heating off                  | Solar heating mode off<br>Generator heating mode off |
| Cooling                      | Cooling  |

- **State supplementary source (8022)**

| End use (Info level)             | Commissioning, Engineer  |
|----------------------------------|--|
| Locked                           | Locked, solid fuel boiler<br>Locked, outside temperature<br>Locked, economy mode |
| In operation for HC, DHW         | In operation for HC, DHW   |
| Released for HC, DHW             | Released for HC, DHW   |
| In operation for DHW             | In operation for DHW   |
| Released for DHW                 | Released for DHW   |
| In operation for heating circuit | In operation for heating circuit   |
| In operation for HC, DHW         | In operation for HC, DHW   |
| Released for HC, DHW             | Released for HC, DHW   |
| In operation for DHW             | In operation for DHW   |
| Released for DHW                 | Released for DHW   |
| In operation for heating circuit | In operation for heating circuit   |
| Released for HC                  | Released for HC  |
| Overrun active                   | Overrun active   |
| Off                              | Off  |

## 3-19. Diagnostics heat generation functions

| Line | Access | Function  | Setting range or display                               | Factory setting |
|------|--------|---|--|-----------------|
| 8400 | I      | Compressor 1                                    | Off, On  | Off             |
| 8402 | I      | Electrical resistance flow 1                    | Off, On  | Off             |
| 8403 | I      | Electrical resistance flow 2                    | Off, On  | Off             |
| 8406 | I      | Condenser pump                                  | Off, On  | Off             |
| 8407 | S      | Speed condenser pump                            | 0...100%   | ---             |
| 8410 | U      | Return temperature HP                           | 0...140°C  | ---             |
|      |        | Setpoint (flow) HP                              | 0...140°C  | ---             |
| 8412 | U      | Flow temperature HP                             | 0...140°C  | ---             |
|      |        | Setpoint (flow) HP                              | 0...140°C  | ---             |
| 8413 | U      | Compressor modulation                           | 0...100%   | ---             |
| 8414 | I      | Modulation electric flow                        | 0...100%   | ---             |
| 8425 | S      | Temperature differential condenser              | -50...140°C  | ---             |
| 8450 | S      | Hours run compressor 1                          | 00:00  | ---             |
| 8454 | S      | Locking time Heat Pump<br>Reset? (no, yes)      | 0...2730 h   | ---             |
| 8455 | S      | Counter number of locks HP<br>Reset? (no, yes)  | 0...65535  | ---             |
| 8456 | S      | Hours run electric flow<br>Reset? (no, yes)     | 0...2730 h   | ---             |
| 8457 | S      | Start counter electric flow<br>Reset? (no, yes) | 0...65535  | ---             |
| 8458 | I      | State smart grid                                | Draw disabled<br>Draw free<br>Draw wish<br>Draw forced | Draw free       |
| 8460 | I      | Heat pump throughput                            | 0...65535 l/min  | ---             |

Various setpoints and actual values, relay switch status data can be displayed for purpose of diagnosis.

### • Heat pump

| Line | Function                         |
|------|----------------------------------|
| 8402 | Electric immersion heater 1 flow |
| 8403 | Electric immersion heater 2 flow |
| 8406 | Condenser pump                   |

These lines are used to check the operating mode of the components controlled by heat pump relays. The display "0" means that the associated components are currently disconnected. The display "1" means that the associated components are currently switched on.

**NOTE:** This information applies to relays defined as normally open contacts. For normally closed contacts, the action is reversed.

### • Setpoints and measured values

| Line | Function                         |
|------|----------------------------------|
| 8410 | Return temperature HP            |
| 8412 | Flow temperature HP              |
| 8413 | Compressor modulation            |
| 8414 | Modulation electric flow         |
| 8425 | Temperature difference condenser |

These lines allow the various setpoints and measured values for the heat pump to be viewed.



- **Hour/Start-up counter**

| Line | Function                    |
|------|-----------------------------|
| 8450 | Hours run compressor 1      |
| 8454 | Locking time HP             |
| 8455 | Counter number of locks HP  |
| 8456 | Hours run electric flow     |
| 8457 | Start counter electric flow |

- **Hours run compressor 1:** This operating line shows the total number of hours run of compressor 1 since it was first commissioned.
- **Locking time HP:** Displays the cumulative locking time since start-up by the electrical services (via external locking signal).
- **Counter number of locks HP:** Displays the cumulative locks since start-up by the electrical services (via external locking signal).
- **Hours run electric flow and Start counter electric flow:** These lines are used to view the hours of operation and the number of start-up of electric heater.

## 3-20. Diagnostics consumers functions

| Line | Access   | Function   | Setting range or display | Factory setting |
|------|--|--|--------------------------|-----------------|
| 8700 | U  | Outside temperature                                | -50...50°C               | ---             |
| 8701 | U  | Outside temperature minimum<br>Reset? (no, yes)    | -50...50°C               | 50°C            |
| 8702 | U  | Outside temperature maximum<br>Reset? (no, yes)    | -50...50°C               | -50°C           |
| 8703 | I  | Outside temperature attenuated<br>Reset? (no, yes) | -50...50°C               | ---             |
|      | This is the average of the outside temperature over a 24-hour period. This value is used for automatic Summer/Winter switchover (line 730).  |  |                          |                 |
| 8704 | I  | Outside temperature composite                      | -50...50°C               | ---             |
|      | The mixed outside temperature is a combination of the current outside temperature and the average outside temperature calculated by the regulator. This value is used for calculating the initial temperature. |  |                          |                 |
| 8730 | I  | Heating circuit pump, circuit 1                    | Off, On                  | Off             |
| 8731 | I  | Mixer valve HC1 open                               | Off, On                  | Off             |
| 8732 | I  | Mixer valve HC1 closed                             | Off, On                  | Off             |
| 8740 | U  | Room temperature 1                                 | 0...50 °C                | ---             |
|      |  | Room setting 1                                     |                          | 20°C            |
| 8743 | U  | Flow temperature 1                                 | 0...140 °C               | ---             |
|      |  | Flow temperature setpoint 1                        |                          | ---             |
| 8749 | I  | Room thermostat 1                                  | No demand, Demand        | No demand       |
| 8756 | U  | Cooling flow temperature 1                         | 0...140 °C               | ---             |
|      |  | Cooling flow temperature setpoint 1                |                          | ---             |
| 8820 | I  | DHW pump   | Off, On                  | Off             |
| 8821 | I  | Electric immersion heater DHW                      | Off, On                  | Off             |
| 8830 | U  | DHW temperature                                    | 0...140 °C               | ---             |
|      |  | DHW temperature setpoint                           |                          | 50°C            |
| 8832 | I  | DHW temperature 2                                  | 0...140 °C               | ---             |
| 8840 | S  | Hours run DHW pump                                 | 0...2730h                | ---             |
| 8841 | S  | Start counter DHW pump                             | 0...199999               | ---             |
| 8842 | S  | Hours run electric DHW                             | 0...2730 h               | ---             |
| 8843 | S  | Start counter electric DHW                         | 0...65535                | ---             |
| 8950 | I  | Common flow temperature                            | 0...140°C                | ---             |
|      |  | Common flow temperature setpoint                   |                          | ---             |
| 8957 | I  | Common flow setpoint refrigerant                   | 0...140°C                | ---             |
| 9005 | I  | Water pressure 1                                   | -100...500 bar           | ---             |
| 9006 | I  | Water pressure 2                                   | -100...500 bar           | ---             |
| 9009 | I  | Water pressure 3                                   | -100...500 bar           | ---             |
| 9010 | I  | Measurement room temperature 1                     | 0...50 °C                | ---             |
| 9011 | I  | Measurement room temperature 2                     | 0...50 °C                | ---             |
| 9031 | I  | Relay output QX1                                   | Off, On                  | On              |
| 9032 | I  | Relay output QX2                                   | Off, On                  | On              |
| 9033 | I  | Relay output QX3                                   | Off, On                  | On              |
| 9034 | I  | Relay output QX4                                   | Off, On                  | Off             |
| 9035 | I  | Relay output QX5                                   | Off, On                  | Off             |

Various setpoints and actual values, relay switch status and timing data can be displayed for purpose of diagnosis.

- **Outside temperatures**

| Line | Function                       |
|------|--------------------------------|
| 8700 | Outside temperature            |
| 8701 | Outside temperature minimum    |
| 8702 | Outside temperature maximum    |
| 8703 | Outside temperature attenuated |
| 8704 | Outside temperature composite  |

The current, minimum, maximum, attenuated, and averaged temperatures are displayed.

- **Heating circuits**

| Line          | Function                          |
|---------------|-----------------------------------|
| 8730 and 8760 | Heating circuit pump 1 and 2      |
| 8731 and 8761 | Heating circuit mix valve 1 open  |
| 8732 and 8762 | Heating circuit mix valve 1 close |
| 8740 and 8770 | Room temperature 1 and 2          |
| 8743 and 8773 | Flow temperature 1 and 2          |

The display “Off” means that the associated components are currently disconnected. The display “On” means that the associated components are currently switched on.

- **Cooling circuit**

| Line | Function                            |
|------|-------------------------------------|
| 8756 | Flow temperature cooling 1          |
| 8757 | Flow temperature setpoint cooling 1 |

The actual value of the cooling mode are displayed. The cooling mode room setpoint is displayed on line 8741.

- **Domestic Hot Water (DHW)**

| Line | Function                      |
|------|-------------------------------|
| 8820 | DHW pump                      |
| 8821 | Electric immersion heater DHW |
| 8830 | DHW temperature               |
| 8840 | Hours run DHW pump            |
| 8841 | Start counter DHW pump        |
| 8842 | Hours run electric DHW        |
| 8843 | Start counter electric DHW    |

The measured values, the DHW circulation pump and charging temperature, operating hour, and start-up counters are displayed, as well as temperatures of the primary controllers and DHW heater.

- **Swimming pool**

| Line | Function      |
|------|---------------|
| 8900 | Swimming pool |

The current temperature of the swimming pool is displayed.

- **Line**

| Line | Function                |
|------|-------------------------|
| 8950 | Common flow temperature |

- **Multifunction relay status**

| Line | Function         |
|------|------------------|
| 9031 | Relay output QX1 |
| 9032 | Relay output QX2 |
| 9033 | Relay output QX3 |
| 9034 | Relay output QX4 |
| 9035 | Relay output QX5 |

The switching status of multifunction relays 1 to 5 can be viewed individually on these lines. The display “Off” means that the components assigned to this output are currently disconnected. The display “On” means that the associated components are currently switched on.

- **Status of relays for extension modules 1 and 2**

| Line | Function                   |
|------|----------------------------|
| 9050 | Relay output QX21 module 1 |
| 9051 | Relay output QX22 module 1 |
| 9052 | Relay output QX23 module 1 |
| 9053 | Relay output QX21 module 2 |
| 9054 | Relay output QX22 module 2 |
| 9055 | Relay output QX23 module 2 |

The switching status of the relays connected to extension modules 1 and 2 can be viewed on these lines. The display “Off” means that the components assigned to this output are currently disconnected. The display “On” means that the associated components are currently switched on.

- **I/O module**

| Line | Function          |
|------|-------------------|
| 9071 | Relay output QX31 |
| 9072 | Relay output QX32 |
| 9073 | Relay output QX33 |
| 9074 | Relay output QX34 |
| 9075 | Relay output QX35 |

The switching status of each relay on the I/O module can be queried via these operating lines. The display “Off” means that the components assigned to this output are currently disconnected. The display “On” means that the associated components are currently switched on.

## 4. Electrical connections

### 4-1. Overview of all the electrical connections

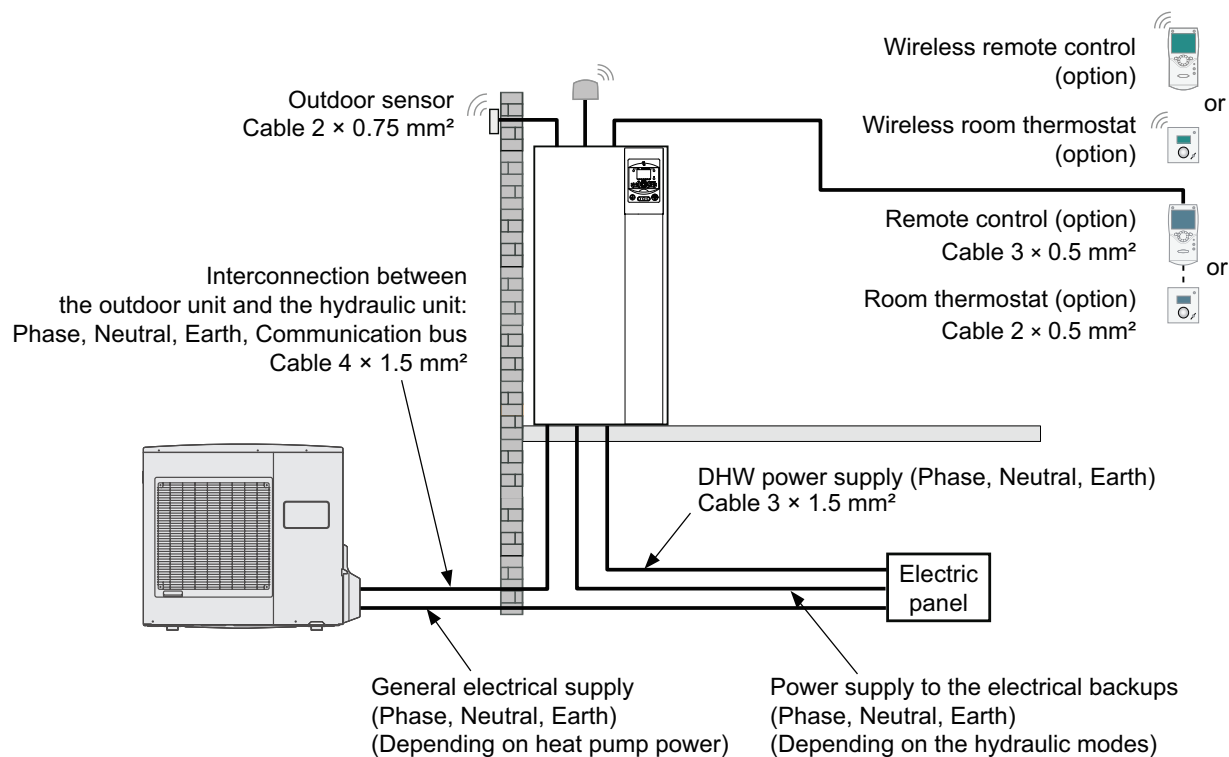
The wiring diagram for the hydraulic indoor unit is shown in detail on electrical wiring diagrams.

#### RELATED LINKS

["1. OUTDOOR UNIT"](#)

["2. HYDRAULIC INDOOR UNITS"](#)

#### ■ Overall layout for a simple installation (1 heating circuit)

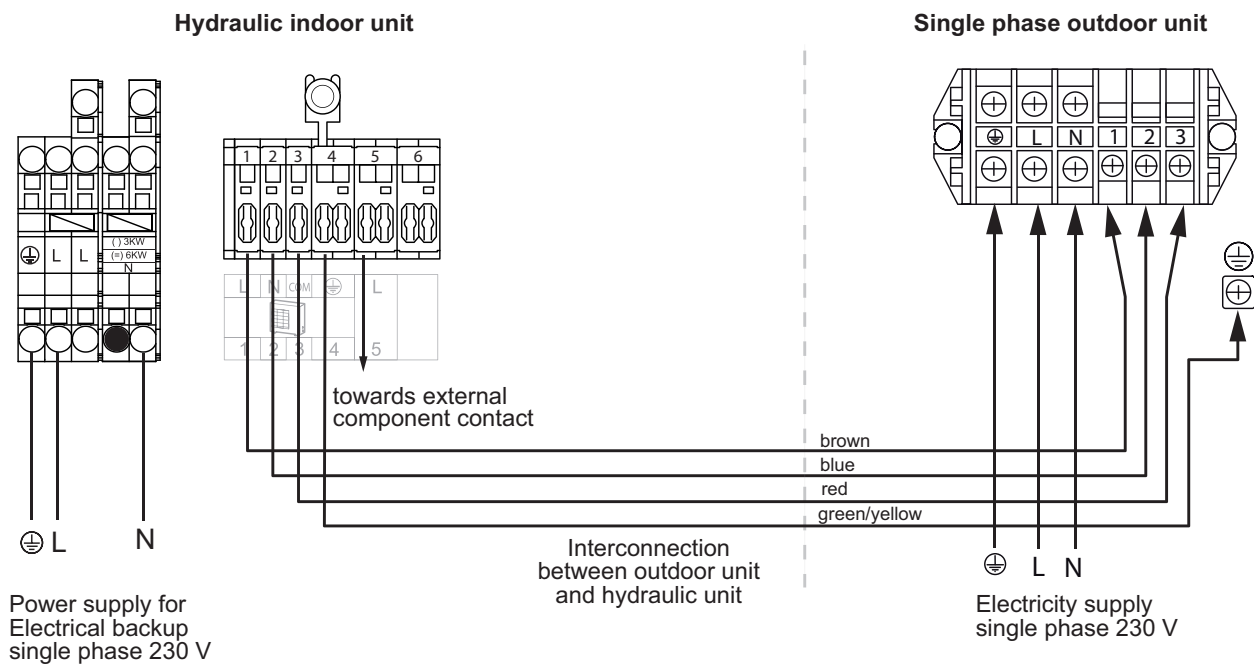


## 4-2. Electrical connections on the hydraulic indoor unit

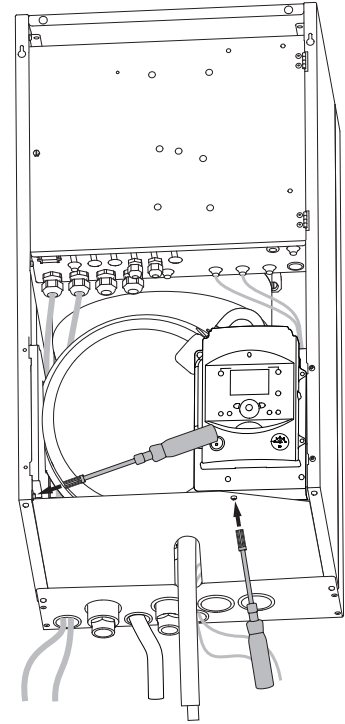
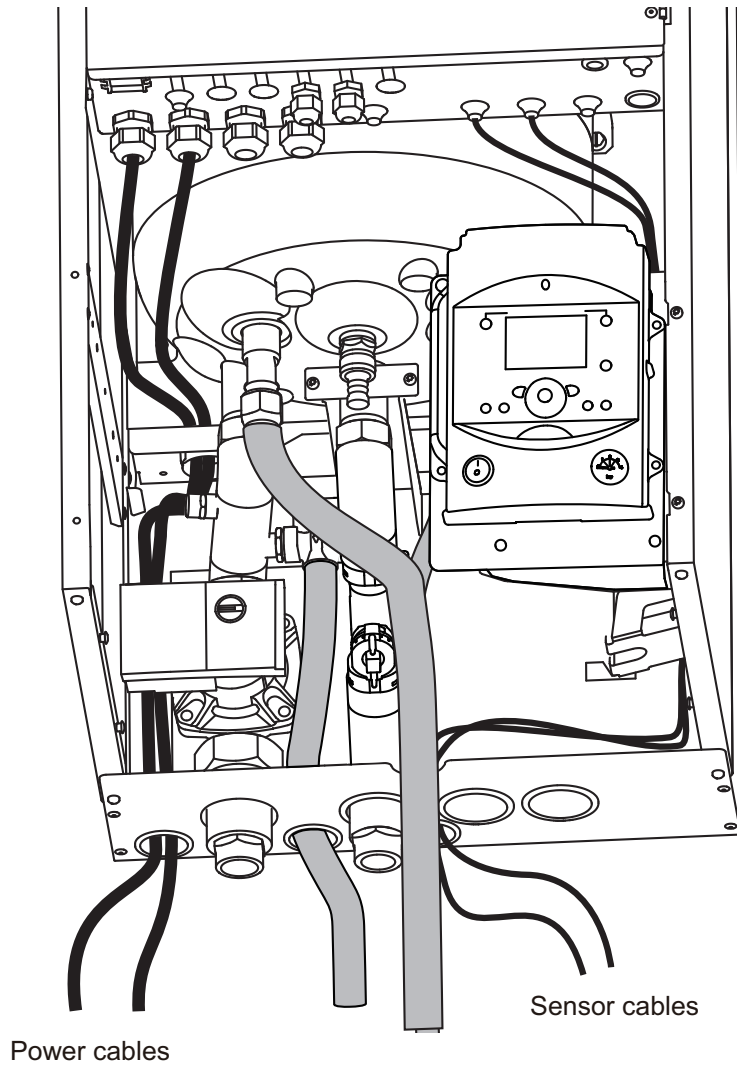
### ⚠ CAUTION

Ensure that the general electrical power supply has been cut off before starting any repair work.  
The rearmament of safety thermostat should be done by a professional.

- Open the front cover.
- Open the power control box.
- Make the connections in accordance with the diagrams.
  - Single phase model



## Cable passages

CONTROL  
SYSTEMCONTROL  
SYSTEM

Do not place the sensor lines and sector supply lines in parallel to avoid causing inadvertent interference due to voltage points in the sector supply.

Ensure that all electrical cables are housed inside the spaces provided for this purpose.

– **Interconnection between the outdoor unit and the hydraulic indoor unit**

Comply with the correspondence between the markings on the hydraulic indoor unit's terminals and those on the outdoor unit when connecting the interconnection cables. A connection error could cause the destruction of one or other of the units.

– **Electric backups**

If the heat pump is not installed with a boiler connection, connect the electrical supply for the backups to the electrical panel.

– **Boiler connection**

Refer to the instructions supplied with the boiler connection kit and the boiler to be connected.

– **Second heating circuit**

Refer to the instructions supplied with the second circuit kit or/and regulation extension kit.

– **DHW tank with electrical backup heating**

Connect the electrical supply for the DHW tank to the electrical panel.

– **Contract with the power provider**

The heat pump's operation can be controlled to suit special contract (e.g. "Low-tariff", "Day/Night"). In particular, DHW at nominal temperature will be produced during the off-peak hours when electricity is cheaper.

- Connect the "Power Provider" contact to input EX2.
- Set the parameter line 1620 to "Low-tariff".
- 230 V on input EX2 = "Peak hours" information activated.

– **Power limitation or EJP (peak day removal)**

Power limitation is intended to reduce electrical consumption when this is too high compared to the contract with the power provider.

- Connect the "Power Provider" contact to input EX2.
- Set the parameter line 1620 to "Low-tariff".
- 230 V on input EX2 = "Peak hours" information activated.

– **External faults the heat pump**

Any component of carry-forward of information (thermostat, pressure switch, etc.) may signal an external problem and stop the heat pump.

- Connect the external component to input EX3.
- 230 V on input EX3 = Stoppage of heat pump (The system displays error 369.)
- In the case of a heated floor, connect the floor heating safety device into the connector of the floor heat pump (X12 or X110).



## 4-3. Connections to the heat pump regulator (Accessories and Options)

### RELATED LINKS

"Wiring diagrams" in Chapter 2. HYDRAULIC INDOOR UNITS on page 02-5

### ■ Connection terminals

#### ● Heat pump regulator RVS21.827

| Low voltage |      |                                      |
|-------------|------|--------------------------------------|
| Terminal    |      | Use                                  |
| X75         | M    | GND (common with interface PCB)      |
|             | DI7  | HP error                             |
|             | DI6  | Defrost                              |
|             | Uref | Compressor modulation                |
|             | UX3  |                                      |
|             | D3   | HP operation on/off                  |
|             | DO2  | HP operation mode (HEAT/COOL)        |
| X80         | BX1  | Flow sensor                          |
|             | M    | Common                               |
|             | BX2  | Return sensor                        |
| X82         | UX1  | Not used                             |
|             | M    |                                      |
| X83         |      | Heating circuit pump signal          |
| X84         | BX3  | DHW sensor                           |
|             | M    |                                      |
|             | BX4  | Outdoor sensor                       |
|             | M    |                                      |
| X86         | 1    | Room thermostat or Remote control    |
|             | 2    |                                      |
|             | 3    |                                      |
|             | B1   | Room thermostat                      |
|             | M    |                                      |
|             | B2   |                                      |
| X30         |      | Not used                             |
| X50         |      | User interface                       |
| X60         |      | RF module                            |
| X70         |      | LPB clip                             |
| X100        |      | Regulation extension kit (UTW-KREXD) |

**NOTE:** Colored items are for options.

| Main voltage |                                       |   |
|--------------|---------------------------------------|---|
| Terminal     |                                       | Use   |
| X10          | L                                     | Power supply  |
|              | Earth                                 |   |
|              | N                                     |   |
| X11          | EX1                                   | Power shedding  |
|              | EX2                                   | Peak time/off-peak times  |
|              | EX3                                   | External fault  |
| X12          | QX1                                   | Circulation pump*   |
|              | N                                     |   |
| X13          | QX2                                   | Backup HTR 1 or Distribution valve for boiler<br>(Single phase model) |
|              | $\overline{\text{QX2}}$<br>(inverted) |   |
|              | N                                     |   |
| X14          | FX3                                   | Backup HTR 2 or Boiler control (On/Off)<br>(Single phase model)       |
|              | QX3                                   |   |
| X15          | QX4                                   | Distribution valve for DHW  |
|              | $\overline{\text{QX4}}$<br>(inverted) |   |
|              | N                                     |   |
|              | QX5                                   | Backup HTR for DHW  |
|              | N                                     |   |

\*: If the 2<sup>nd</sup> circuit kit are installed in the system, this circulation pump is assigned for higher temperature circuit.

## ● Regulation extension kit (UTW-KREXD)

| Low voltage |      |   |
|-------------|------|---|
| Terminal    |      | Use   |
| X150        | 1    | Room thermostat or remote control for lower temperature circuit |
|             | 2    |   |
|             | 3    |   |
|             | B1   |   |
|             | M    |   |
|             | B2   |   |
| X152        | H33  | External input*   |
|             | M    |   |
| X153        | BX31 | Flow sensor for lower temperature circuit                       |
|             | M    |   |
| X154        | BX32 | Not used  |
|             | M    |   |
|             | BX33 |   |
|             | M    |   |
|             | BX34 | Swimming pool temperature sensor                                |
|             | M    |   |
| X100        |      | Heat pump regulator   |

\*: Input H33 can be applied to one of several functions. (For details, refer to “Input H33 function”.)

| Main voltage |  |  |
|--------------|--|--|
| Terminal     |  | Use  |
| X10          | L                                      | Power supply   |
|              | Earth                                  |  |
|              | N                                      |  |
| X110         | QX31                                   | Mixing valve for 2 <sup>nd</sup> circuit or Pilot wire |
|              | QX32                                   |  |
|              | N                                      |  |
|              | QX33                                   | Circulation pump for lower temperature circuit         |
|              | N                                      |  |
| X112         | QX34                                   | Not used   |
|              | N                                      |  |
|              | QX35                                   | Distribution valve for swimming pool                   |
|              | $\overline{\text{QX35}}$<br>(inverted) |  |
|              | N                                      |  |

## ■ Outdoor sensor

The outdoor sensor is required for the heat pump to operate correctly.

Consult the fitting instructions on the sensor's packaging. Place the sensor on the coldest part, generally the northern or north-eastern side.

In any case, it must not be exposed to morning sun. It must be installed so as to be easily accessible but at least 2.5 m from the floor. It is essential that it avoid any sources of heat such as flues, the upper parts of doors and windows, proximity to extraction vents, the underneath of balconies and under eave areas which would isolate the sensor from variations in the outdoor air temperature.

Connect the outdoor sensor to the M and BX4 (B9) terminals on the heat pump control board.

## ■ Room thermostat and/or remote control

The room thermostat (remote control) is optional.

Consult the fitting instructions on the sensor's packaging. The sensor must be installed in the living room area on a very uncluttered wall, 1.5 m above the floor.

Avoid direct sources of heat (chimney/flue, television, cooling hobs), draughty areas (ventilation, door, etc.). Air leaks in the seals in the constructions are often translated into cold air blowing through the electrical conduits. Lag the electrical conduits if there is a cold draught on the back of the IR sensor.

### • Installing a room thermostat

#### – Room thermostat

Connect the room thermostat to the X86 connector of the heat pump's regulator board using the connector provided (terminal 1, 2).

#### – Room thermostat radio

Connect the wireless room thermostat radio to the connector X60.

### • Installing a remote control

#### – Remote control unit

Connect the remote control unit to X86 connector of the heat pump's regulator board using the connector provided (terminal 1, 2, and 3).





#### – Remote control unit radio

Connect the wireless remote control unit radio to the connector X60.

## ■ Start-up

- Make sure that all DIP switches on the interface card are off before starting up.  
DIP switches should be set off for normal operation. Power supply to the hydraulic indoor unit must be turned off while touching DIP switches.
- Close the installation's main circuit breaker.  
On the first commissioning (or in winter), to allow the compressor to pre-heat, engage the installation's main circuit breaker (power supply to the outdoor unit) some hours before starting up the tests.
- Engage the start/stop switch.  
To ensure that inputs EX1, EX2, and EX3 operate correctly, check that the live-neutral polarity of the electrical supply is correct.  
When the power is switched on and every time that the ON/OFF button is switched off and then switched on again, the outdoor unit will take approximately 4 minutes to start up, even if the setting is requesting heating.  
The display can show error 370 when the appliance (re)starts. Do not be concerned, the communication between the outdoor unit and the hydraulic indoor unit will reestablish itself in a few months.

During the regulator initialization phase, the display shows all the symbols and then "Data update" and then "State heat pump".

- Make all the specific adjustments to the setting (configuring the installation).
- Press the key .
- Hold down the key  for 3 seconds and select the access level used with the aid of the knob .
- Confirm with the key .

Parameter the heat pump's setting (Refer to "Function table" on page 03-7).

On commissioning (or the case of error 10), the electrical backup heaters may start up even if the outdoor temperature at the time is above the heaters' trigger temperature.

The regulating system uses an average initial outdoor temperature of 0°C and requires some time to update this temperature.

**NOTE:** To avoid this situation, the sensor must be connected correctly.

Reinitialize line 8703 (commissioning level, consumer diagnosis menu)

## ■ Configuring the room thermostat


Configure the room thermostat and connect it to the appropriate heating zone:

- Hold down the presence key for more than 3 seconds.  
The room thermostat displays RU and a number flashes.
- Turn the wheel to choose the zone (1, 2).  
If the installation is fitted with 2 rooms thermostats:
  - The first connect one room thermostat and configure it in zone 2.
  - Then connect the other room thermostat and configure it as default in zone 1.
- Hold down the presence key; the room thermostat displays P1 and a flashing number.
  - Flashing number: 1  
Automatic recording: a correction of the setting with the button is adopted without any particular confirmation (timeout) or by pressing the mode key.
  - Flashing number: 2  
Recording with confirmation: a correction of the setting with the button is not adopted until the mode key is pressed.
- Press the presence key again; the room thermostat displays P2 and a flashing number.
  - Flashing number: 0  
Off: all the operating elements are engaged.
  - Flashing number: 1  
On: the following operating elements are locked.
    - Switching over the heating circuit's operating mode
    - Adjusting the comfort setpoint
    - Changing the operating level

The room thermostat displays off for 3 seconds when a locked button is pressed.

## ■ Configuring the remote control (Radio)

During commissioning, after an installation period of approximate 3 minutes, the user's language must be set:

- Press the key  .
- Choose menu "Operator section".
- Choose "Language".
- Select the language menu (**English**, Français, Nederlands, Español, etc.)

In the case of 2 heat circuits;

- Choose the allocation of the remote control unit (room appliance 1 or 2...) line 40.
- According to the allocation selected check and, if necessary, modify the settings for lines 42, 44, 48.

| Line | Access | Function  | Setting range or display  | Factory setting   |
|------|--------|---|---|-------------------|
| 40   | I      | Use as...   | Room appliance 1, 2, P<br>User interface 1, 2, P<br>Service appliance                               | Room appliance 1  |
|      |        | This line regulates the use of the room control unit. Depending on how it is used, other settings will be necessary (Lines 42, 44, 48). |   |                   |
| 42   | I      | Appliance allocation 1  | Heating circuit 1<br>Heating circuit 1 and 2<br>Heating circuit 1 and P<br>All the heating circuits | Heating circuit 1 |
| 44   | I      | Operation HC2 (command HC2)   | Commonly with HC1<br>Independent  | Commonly with HC1 |
|      |        | This function enables you to choose whether you wish the room thermostat (as an option) to act both zones or just a single zone.        |   |                   |
| 48   | I      | Occupancy control switch function   | Without<br>Heating circuit 1<br>Heating circuit 2<br>Common   |                   |

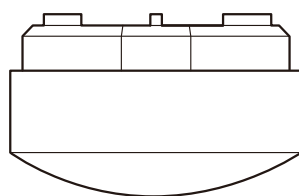
**NOTE:** These parameter lines are accessible from the remote control unit.

## 5. Outdoor sensor

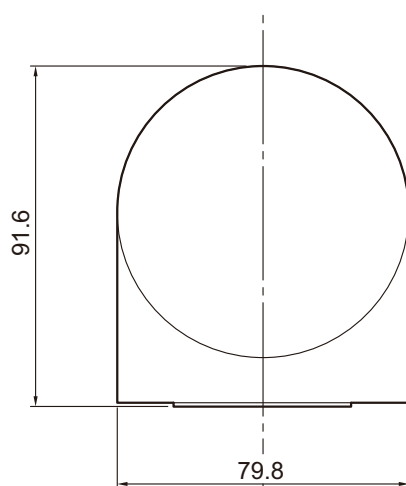
### 5-1. Model: QAC34

#### ■ Dimension

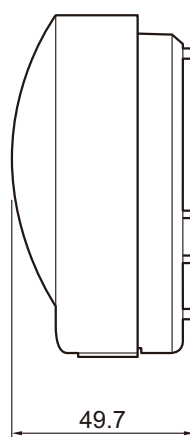
Unit: mm



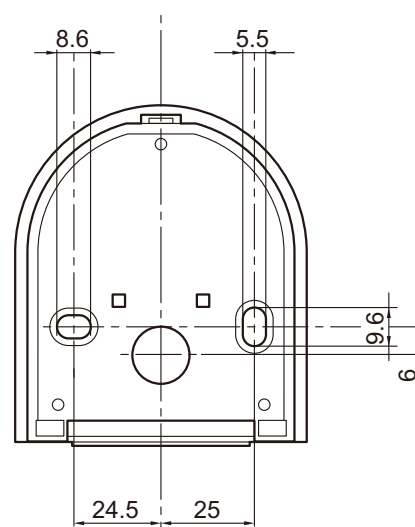
Top view



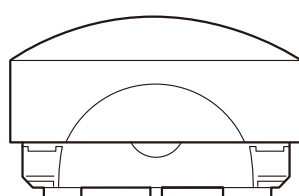
Front view



Side view



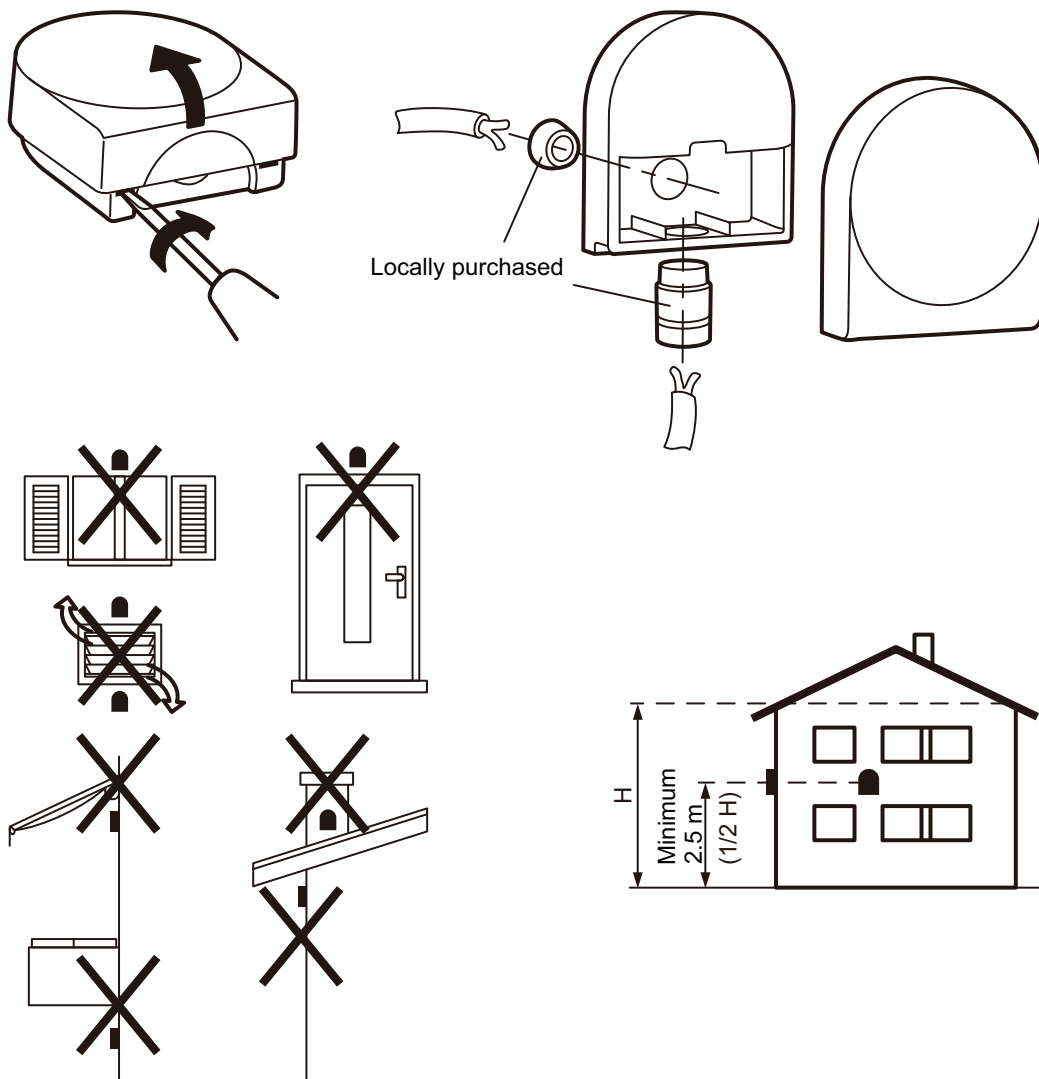
Rear view



Bottom view



## ■ Installation



## ■ Wiring specifications

| Use                  | Size                 | Wire type  | Remarks  |
|----------------------|----------------------|--|--|
| Outdoor sensor cable | 0.75 mm <sup>2</sup> | 2 wires connection<br>Maximum cable length: 60 m | Use shielded (Locally purchased) in accordance with the regional cable standard. |

## ■ Specifications

|                  |    |                    |
|------------------|----|--------------------|
| Size (W × H × D) | mm | 91.6 × 79.8 × 49.7 |
| Weight           | g  | 73                 |
| Cable length     | m  | 60                 |