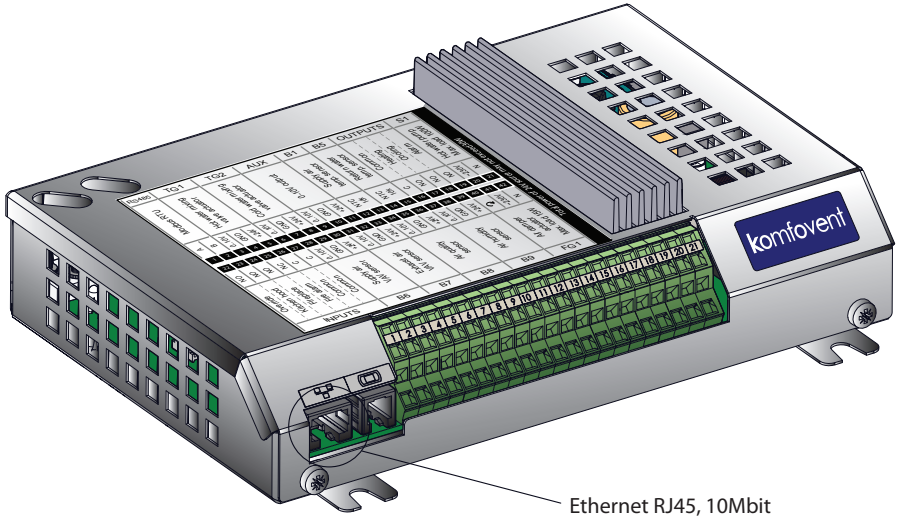


# BACnet connection C6

### BACNET CONNECTION AND SETTINGS

BACnet is a standard communication protocol for Building Automation and Control (BAC) networks that can be used to monitor and control Komfovent air handling units with C6 controller. The supported Data Link Layer is BACnet / IP.

BACnet protocol works via Ethernet interface, connection is provided to RJ-45 socket (Pic.1) on the C6 controller (CAT5 cable is recommended):



Picture 1. C6 controller board

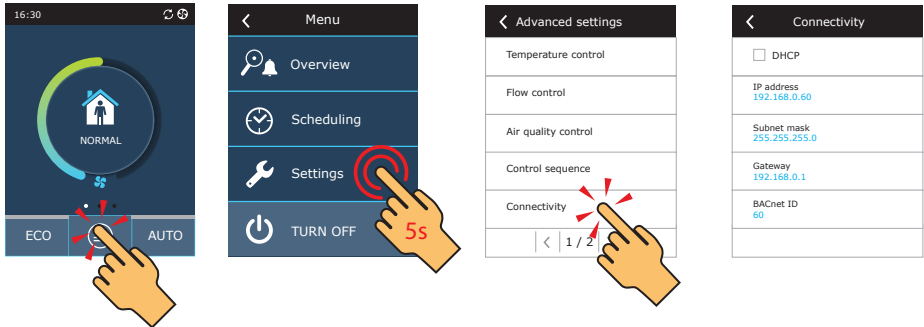
Below is default network settings of the C6 controller. These can be changed according to the building network software requirements. To do so, it is needed to connect a laptop to the integrated webserver of C6 controller:

CONNECTIVITY

|             |   |                             |     |    |
|-------------|---|-----------------------------|-----|----|
| DHCP        | <input checked="" type="checkbox"/> Off | <input type="checkbox"/> On |     |    |
| IP address  | 192                                     | 168                         | 0   | 60 |
| Subnet mask | 255                                     | 255                         | 255 | 0  |
| Gateway     | 192                                     | 168                         | 0   | 1  |
| BACnet ID   | 60                                      |                             |     |    |
| Modbus ID   | 254                                     |                             |     |    |
| RS-485      | 19200 baud                              | ▼                           | 8E1 | ▼  |

Picture 2. Connectivity settings

C6 controller IP can also be viewed and changed on the control panel – from *Main menu* go to *Advanced settings*→*Connectivity*:



**Picture 3. Connectivity settings on C6.1 control panel display**

### BACnet Interoperability Building Blocks Supported

|                   |          |                              |
|-------------------|----------|------------------------------|
| Data sharing      | DS-RP-B  | Read Property                |
|                   | DS-RPM-B | Read Property Multiple       |
|                   | DS-WP-B  | Write Property               |
| Device management | DM-DCC-B | Device Communication Control |
|                   | DM-DDB-B | Dynamic Device Binding       |
|                   | DM-DOB-B | Dynamic Object Binding       |
|                   | DM-TS-B  | Time Synchronization         |

### Standard Object Types Supported:

| Object type            | Properties   |
|------------------------|--|
| Device                 | Object_Identifier, Object_Name, Object_Type, System_Status, Vendor_Name, Vendor_Identifier, Model_Name, Firmware_Revision, Application_Software_Version, Protocol_Version, Protocol_Revision, Protocol_Services_Supported, Protocol_Object_Types_Supported, Object_List, Max_APDU_Length_Accepted, Segmentation_Supported, APDU_Timeout, Number_Of_APDU_Retries, Device_Address_Binding, Database_Revision, Property_List; Description, Local_Date, Local_Time |
| Analog value           | Object_Identifier, Object_Name, Object_Type, Present_Value, Status_Flags, Event_State, Out_Of_Service, Units, Property_List; Reliability   |
| Binary value           | Object_Identifier, Object_Name, Object_Type, Present_Value, Status_Flags, Event_State, Out_Of_Service, Property_List; Inactive_Text, Active_Text   |
| Date value             | Object_Identifier, Object_Name, Object_Type, Present_Value, Status_Flags, Property_List  |
| Multi-state value      | Object_Identifier, Object_Name, Object_Type, Present_Value, Status_Flags, Event_State, Out_Of_Service, Number_Of_States, Property_List; State_Text   |
| Positive integer value | Object_Identifier, Object_Name, Object_Type, Present_Value, Status_Flags, Units, Property_List; Reliability  |
| Time value             | Object_Identifier, Object_Name, Object_Type, Present_Value, Status_Flags, Property_List  |

### Objects:

| Analog value        |                 |                    |        |
|---------------------|-----------------|--------------------|--------|
| Object name         | Object instance | Present value      |        |
|                     |                 | Range/values/units | Access |
| AWAY: setpoint      | 0               | 5.0 – 40.0 [°C]    | W      |
| NORMAL: setpoint    | 1               | 5.0 – 40.0 [°C]    | W      |
| INTENSIVE: setpoint | 2               | 5.0 – 40.0 [°C]    | W      |
| BOOST: setpoint     | 3               | 5.0 – 40.0 [°C]    | W      |
| KITCHEN: setpoint   | 4               | 5.0 – 40.0 [°C]    | W      |

| Analog value                        |                 |                         |        |
|-------------------------------------|-----------------|-------------------------|--------|
| Object name                         | Object instance | Present value           |        |
|                                     |                 | Range/values/units      | Access |
| FIREPLACE: setpoint                 | 5               | 5.0 – 40.0 [°C]         | W      |
| OVERRIDE: setpoint                  | 6               | 5.0 – 40.0 [°C]         | W      |
| HOLIDAYS: setpoint                  | 7               | 5.0 – 40.0 [°C]         | W      |
| ECO: minimum supply air temperature | 8               | 5.0 – 40.0 [°C]         | W      |
| ECO: maximum supply air temperature | 9               | 5.0 – 40.0 [°C]         | W      |
| AIR QUALITY: temperature setpoint   | 10              | 5.0 – 40.0 [°C]         | W      |
| INFO: supply temperature            | 11              | [°C]                    | R      |
| INFO: extract temperature           | 12              | [°C]                    | R      |
| INFO: outdoor temperature           | 13              | [°C]                    | R      |
| INFO: water temperature             | 14              | [°C]                    | R      |
| INFO: panel 1 temperature           | 15              | [°C]                    | R      |
| INFO: panel 2 temperature           | 16              | [°C]                    | R      |
| INFO: current supply fan intensity  | 17              | [°C]                    | R      |
| INFO: current extract fan intensity | 18              | [°C]                    | R      |
| INFO: heat exchanger                | 19              | [°C]                    | R      |
| INFO: electric heater               | 20              | [°C]                    | R      |
| INFO: water heater                  | 21              | [°C]                    | R      |
| INFO: water cooler                  | 22              | [°C]                    | R      |
| INFO: DX unit                       | 23              | [°C]                    | R      |
| EFFICIENCY/STATUS: SPI              | 24              | [W/(m <sup>3</sup> /h)] | R      |
| EFFICIENCY/STATUS: SPI (day)        | 25              | [W/(m <sup>3</sup> /h)] | R      |

| Binary value                         |                 |                          |        |
|--------------------------------------|-----------------|--------------------------|--------|
| Object name                          | Object instance | Present value            |        |
|                                      |                 | Range/values/units       | Access |
| CONTROL: ON/OFF status               | 0               | 0 – off 1 – on           | W      |
| CONTROL: ECO mode                    | 1               | 0 – off 1 – on           | W      |
| CONTROL: AUTO mode                   | 2               | 0 – off 1 – on           | W      |
| AWAY: heating                        | 3               | 0 – off 1 – on           | W      |
| NORMAL: heating                      | 4               | 0 – off 1 – on           | W      |
| INTENSIVE: heating                   | 5               | 0 – off 1 – on           | W      |
| BOOST: heating                       | 6               | 0 – off 1 – on           | W      |
| KITCHEN: heating                     | 7               | 0 – off 1 – on           | W      |
| FIREPLACE: heating                   | 8               | 0 – off 1 – on           | W      |
| OVERRIDE: heating                    | 9               | 0 – off 1 – on           | W      |
| HOLIDAYS: heating                    | 10              | 0 – off 1 – on           | W      |
| ECO: free heating/cooling            | 11              | 0 – off 1 – on           | W      |
| ECO: heating enable denied           | 12              | 0 – off 1 – on           | W      |
| ECO: cooling enable denied           | 13              | 0 – off 1 – on           | W      |
| AIR QUALITY: enabled                 | 14              | 0 – disabled 1 – enabled | W      |
| AIR QUALITY: heating                 | 15              | 0 – off 1 – on           | W      |
| ALARMS: low supply air flow          | 16              | 0 – no 1 – yes           | R      |
| ALARMS: low extract air flow         | 17              | 0 – no 1 – yes           | R      |
| ALARMS: return water temperature low | 18              | 0 – no 1 – yes           | R      |
| ALARMS: low supply air temperature   | 19              | 0 – no 1 – yes           | R      |
| ALARMS: high supply air temperature  | 20              | 0 – no 1 – yes           | R      |
| ALARMS: electric heater overheat     | 21              | 0 – no 1 – yes           | R      |

| Binary value                          |                 |                    |         |        |
|---------------------------------------|-----------------|--------------------|---------|--------|
| Object name                           | Object instance | Present value      |         |        |
|                                       |                 | Range/values/units |         | Access |
| ALARMS: heat exchanger failure        | 22              | 0 – no             | 1 – yes | R      |
| ALARMS: heat exchanger icing          | 23              | 0 – no             | 1 – yes | R      |
| ALARMS: internal fire alarm           | 24              | 0 – no             | 1 – yes | R      |
| ALARMS: external fire alarm           | 25              | 0 – no             | 1 – yes | R      |
| ALARMS: temperature sensor failure    | 26              | 0 – no             | 1 – yes | R      |
| ALARMS: controller failure            | 27              | 0 – no             | 1 – yes | R      |
| ALARMS: service mode                  | 28              | 0 – no             | 1 – yes | R      |
| ALARMS: clogged air filters           | 29              | 0 – no             | 1 – yes | R      |
| ALARMS: heat exchanger low efficiency | 30              | 0 – no             | 1 – yes | R      |
| ALARMS: air flow sensor failure       | 31              | 0 – no             | 1 – yes | R      |
| ECO: constant heat recovery           | 32              | 0 – off            | 1 – on  | W      |
| INFO: alarm                           | 33              | 0 – off            | 1 – on  | R      |
| INFO: heating                         | 34              | 0 – off            | 1 – on  | R      |
| INFO: cooling                         | 35              | 0 – off            | 1 – on  | R      |

| Date value     |                 |                         |  |        |
|----------------|-----------------|-------------------------|--|--------|
| Object name    | Object instance | Present value           |  |        |
|                |                 | Range/values/units      |  | Access |
| HOLIDAYS: from | 0               | 2017-01-01 – 2035-12-31 |  | W      |
| HOLIDAYS: till | 1               | 2017-01-01 – 2035-12-31 |  | W      |

| Multi-state value            |                 |  |   |            |
|------------------------------|-----------------|--|---|------------|
| Object name                  | Object instance | Present value  |   |            |
|                              |                 | Range/values/units   |   | Access     |
| CONTROL: auto mode control   | 0               | 1 – scheduling   | 2 – air quality   | R          |
| CONTROL: current mode        | 1               | 1 – standby<br>2 – away<br>3 – normal<br>4 – intensive<br>5 – boost<br>6 – kitchen | 7 – fireplace<br>8 – override<br>9 – holiday<br>10 – auto<br>11 – off | W<br>[2-5] |
| SCHEDULER: operation program | 2               | 1 – stay at home<br>2 – working week   | 3 – office<br>4 – custom  | W          |
| SCHEDULER: next mode         | 3               | 1 – standby<br>2 – away<br>3 – normal  | 4 – intensive<br>5 – boost  | R          |
| SCHEDULER: next mode weekday | 4               | 1 – today<br>2 – mo<br>3 – tu<br>4 – we  | 5 – th<br>6 – fr<br>7 – sa<br>8 – su                                  | R          |
| CONTROL: temperature control | 5               | 1 – supply<br>2 – extract  | 3 – room<br>4 – balance   | W          |
| CONTROL: flow control        | 6               | 1 – CAV<br>2 – VAV   | 3 – DCV   | W          |
| CONTROL SEQUEUCE: stage 1    | 7               | 1 – none<br>2 – external coil  | 3 – electric heater<br>4 – external DX unit                           | W          |
| CONTROL SEQUEUCE: stage 2    | 8               |  |   | W          |
| CONTROL SEQUEUCE: stage 3    | 9               |  |   | W          |
| SETTINGS: coil type          | 10              | 1 – hot water  | 2 – cold water  | W          |

| Multi-state value           |                 |  |   |        |
|-----------------------------|-----------------|--|---|--------|
| Object name                 | Object instance | Present value  |   |        |
|                             |                 | Range/values/units   |   | Access |
| SETTINGS: language          | 11              | 1 – en<br>2 – lt<br>3 – ru<br>4 – pl<br>5 – sk<br>6 – de<br>7 – fr<br>8 – hu<br>9 – it     | 10 – ee<br>11 – nl<br>12 – lv<br>13 – pt<br>14 – se<br>15 – fi<br>16 – hr                           | W      |
| SETTINGS: flow units        | 12              | 1 – m <sup>3</sup> /h  | 2 – l/s   | W      |
| OVERRIDE: mode              | 13              | 1 – all time<br>2 – if on  | 3 – if off  | W      |
| HOLIDAYS: microventilation  | 14              | 1 – 1 t. per day<br>2 – 2 t. per day   | 3 – 3 t. per day<br>4 – 4 t. per day  | W      |
| AIR QUALITY: sensor type B8 | 15              | 1 – none   | 3 – VOC   | W      |
| AIR QUALITY: sensor type B9 | 16              | 2 – CO2  | 4 – RH  | W      |
| RESET SETTINGS              | 17              | 1 – none<br>2 – "away"<br>3 – "normal"<br>4 – "intensive"<br>5 – "boost"<br>6 – "holidays" | 7 – "override"<br>8 – "kitchen"<br>9 – "fireplace"<br>10 – air quality<br>11 – eco<br>12 – advanced | W      |

| Positive integer value            |                 |  |  |        |
|-----------------------------------|-----------------|--|--|--------|
| Object name                       | Object instance | Present value                              |  |        |
|                                   |                 | Range/values/units                         |  | Access |
| CONTROL: maximum supply flow      | 0               | [m <sup>3</sup> /h, l/s]                   |  | R      |
| CONTROL: maximum extract flow     | 1               | [m <sup>3</sup> /h, l/s]                   |  | R      |
| CONTROL: maximum supply pressure  | 2               | 0 – 1000 [Pa]                              |  | W      |
| CONTROL: maximum extract pressure | 3               | 0 – 1000 [Pa]                              |  | W      |
| CONNECTIVITY: IP address          | 4               | 0 – 4294967295                             |  | W      |
| CONNECTIVITY: mask                | 5               | 0 – 4294967295                             |  | W      |
| AWAY: supply flow                 | 6               | 0.2 max – max [m <sup>3</sup> /h, l/s, Pa] |  | W      |
| AWAY: extract flow                | 7               | 0.2 max – max [m <sup>3</sup> /h, l/s, Pa] |  | W      |
| NORMAL: supply flow               | 8               | 0.2 max – max [m <sup>3</sup> /h, l/s, Pa] |  | W      |
| NORMAL: extract flow              | 9               | 0.2 max – max [m <sup>3</sup> /h, l/s, Pa] |  | W      |
| INTENSIVE: supply flow            | 10              | 0.2 max – max [m <sup>3</sup> /h, l/s, Pa] |  | W      |
| INTENSIVE: extract flow           | 11              | 0.2 max – max [m <sup>3</sup> /h, l/s, Pa] |  | W      |
| BOOST: supply flow                | 12              | 0.2 max – max [m <sup>3</sup> /h, l/s, Pa] |  | W      |
| BOOST: extract flow               | 13              | 0.2 max – max [m <sup>3</sup> /h, l/s, Pa] |  | W      |
| KITCHEN: supply flow              | 14              | 0.2 max – max [m <sup>3</sup> /h, l/s]     |  | W      |
| KITCHEN: extract flow             | 15              | 0.2 max – max [m <sup>3</sup> /h, l/s]     |  | W      |
| FIREPLACE: supply flow            | 16              | 0.2 max – max [m <sup>3</sup> /h, l/s]     |  | W      |
| FIREPLACE: extract flow           | 17              | 0.2 max – max [m <sup>3</sup> /h, l/s]     |  | W      |
| OVERRIDE: supply flow             | 18              | 0.2 max – max [m <sup>3</sup> /h, l/s]     |  | W      |
| OVERRIDE: extract flow            | 19              | 0.2 max – max [m <sup>3</sup> /h, l/s]     |  | W      |
| KITCHEN: timer                    | 20              | 0 – 300 [min]                              |  | W      |
| FIREPLACE: timer                  | 21              | 0 – 300 [min]                              |  | W      |
| OVERRIDE: timer                   | 22              | 0 – 300 [min]                              |  | W      |
| AIR QUALITY: air quality setpoint | 23              | 0 – 2000 [ppm]<br>0 – 100 [%]              |  | W      |

| Positive integer value                       |                 |                    |                                  |
|--|-----------------|--------------------|----------------------------------|
| Object name                                  | Object instance | Present value      |                                  |
|  |                 | Range/values/units | Access                           |
| AIR QUALITY: humidity setpoint               | 24              | 0 – 100 [%]        | W                                |
| AIR QUALITY: minimum intensivity             | 25              | 0, 20 – 100 [%]    | W                                |
| AIR QUALITY: maximum intensivity             | 26              | 0, 20 – 100 [%]    | W                                |
| AIR QUALITY: check period                    | 27              | 1 – 24 [h]         | W                                |
| ALARMS: active alarms count                  | 28              | 0 – 10             | W<br>[39366<br>resets<br>alarms] |
| ALARMS: alarm history count                  | 29              | 0 – 50             | R                                |
| INFO: current supply flow                    | 30              | [m³/h, l/s]        | R                                |
| INFO: current extract flow                   | 31              | [m³/h, l/s]        | R                                |
| INFO: filters impurity                       | 32              | [%]                | R                                |
| INFO: air dampers                            | 33              | [%]                | R                                |
| INFO: supply pressure                        | 34              | [Pa]               | R                                |
| INFO: extract pressure                       | 35              | [Pa]               | R                                |
| INFO: air quality/humidity sensor 1          | 36              | [ppm, %]           | R                                |
| INFO: air quality/humidity sensor 2          | 37              | [ppm, %]           | R                                |
| INFO: panel 1 humidity                       | 38              | [%]                | R                                |
| INFO: panel 2 humidity                       | 39              | [%]                | R                                |
| INFO: panel 1 air quality                    | 40              | [ppm]              | R                                |
| INFO: panel 2 air quality                    | 41              | [ppm]              | R                                |
| EFFICIENCY/STATUS: power consumption         | 42              | [W]                | R                                |
| EFFICIENCY/STATUS: heater power              | 43              | [W]                | R                                |
| EFFICIENCY/STATUS: heat exchanger recovery   | 44              | [W]                | R                                |
| EFFICIENCY/STATUS: heat exchanger efficiency | 45              | [%]                | R                                |
| EFFICIENCY/STATUS: energy saving             | 46              | [%]                | R                                |
| EFFICIENCY/STATUS: recovered energy (day)    | 47              | [Wh]               | R                                |
| EFFICIENCY/STATUS: recovered energy (month)  | 48              | [Wh]               | R                                |
| EFFICIENCY/STATUS: recovered energy (total)  | 49              | [Wh]               | R                                |
| CONSUMPTION: AHU (day)                       | 50              | [Wh]               | R                                |
| CONSUMPTION: AHU (month)                     | 51              | [Wh]               | R                                |
| CONSUMPTION: AHU (total)                     | 52              | [Wh]               | R                                |
| CONSUMPTION: add. air heater (day)           | 53              | [Wh]               | R                                |
| CONSUMPTION: add. air heater (month)         | 54              | [Wh]               | R                                |
| CONSUMPTION: add. air heater (total)         | 55              | [Wh]               | R                                |

| Time value                      |                 |                    |        |
|---------------------------------|-----------------|--------------------|--------|
| Object name                     | Object instance | Present value      |        |
|                                 |                 | Range/values/units | Access |
| SCHEDULER: next mode start time | 0               | 00:00 – 24:00      | R      |

## UAB KOMFOVENT

### TECHNINĖS PRIEŽIŪROS SKYRIUS / SERVICE AND SUPPORT

Tel. +370 5 200 8000  
service@komfovent.com

#### ООО «КОМФОВЕНТ»

Россия, Москва  
ул. Выборгская д. 16,  
стр. 1, 2 этаж, 206 офис  
Тел. +7 499 673 22 73  
info.oka@komfovent.com  
www.komfovent.ru

#### ООО «КОМФОВЕНТ»

390017 г. Рязань  
Ряжское шоссе, 20 литера Е, пом Н6  
Тел.: +7 491 255 95 71  
info.oka@komfovent.com  
www.komfovent.ru

#### ИООО «Комфовент»

Республика Беларусь, 220125 г. Минск,  
ул. Уручская 21 – 423  
Тел. +375 17 266 5297, 266 6327  
info.by@komfovent.com  
www.komfovent.by

#### Komfovent AB

Ögärdesvägen 12B  
433 30 Partille, Sverige  
Тел. +46 31 487 752  
info\_se@komfovent.com  
www.komfovent.se

#### Komfovent Oy

Muuntotie 1 C1  
FI-01 510 VANTAA  
Тел. +358 0 408 263 500  
info\_fi@komfovent.com  
www.komfovent.com

#### Komfovent GmbH

Konrad-Zuse-Str. 2a, 42551 Velbert,  
Deutschland  
Тел. +49 0 2051 6051180  
info@komfovent.de  
www.komfovent.de

#### SIA Komfovent

Bukaišu iela 1,  
LV-1004 Rīga  
Тел. +371 24 664433  
info@komfovent.lv  
www.komfovent.lv

www.komfovent.com

## PARTNERS

|         |                                  |                          |
|---------|----------------------------------|--------------------------|
| AT      | J. PICHLER Gesellschaft m. b. H. | www.pichlerluft.at       |
| BE      | Ventilair group                  | www.ventilairgroup.com   |
|         | ACB Airconditioning              | www.acbairco.be          |
| CZ      | REKUVENT s.r.o.                  | www.rekuvent.cz          |
| CH      | WESCO AG                         | www.wesco.ch             |
|         | SUDCLIMATAIR SA                  | www.sudclimatair.ch      |
|         | CLIMAIR GmbH                     | www.climair.ch           |
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|         | Gevent Magyarország Kft.         | www.gevent.hu            |
|         | Merkapt                          | www.merkapt.hu           |
| IR      | Fantech Ventilation Ltd          | www.fantech.ie           |
| IS      | Blikk & Tæknipjónustan ehf       | www.bogt.is              |
|         | Hitataekni ehf                   | www.hitataekni.is        |
| IT      | Icaria srl                       | www.icariavmc.it         |
| NL      | Ventilair group                  | www.ventilairgroup.com   |
|         | DECIPOL-Vortvent                 | www.vortvent.nl          |
|         | CLIMA DIRECT BV                  | www.climadirect.com      |
| NO      | Ventistål AS                     | www.ventistal.no         |
|         | Thermo Control AS                | www.thermocontrol.no     |
| PL      | Ventia Sp. z o.o.                | www.ventia.pl            |
| SE      | Nordisk Ventilator AB            | www.nordiskventilator.se |
| SI      | Agregat d.o.o                    | www.agregat.si           |
| SK      | TZB produkt, s.r.o.              | www.tzbprodukt.sk        |